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Traffic Safety
Administration**

Identification and Development of Countermeasures for Bicyclist/ Motor-Vehicle Problem Types Volume II—Public Information and Education Messages

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16. Abstract

A detailed re-analysis of previously collected bicycle/motor-vehicle accident data (Cross and Fisher, 1977) was conducted to define potential countermeasures. Countermeasure development was then undertaken in the areas of Public Education (this Volume), Training (see Volume I) and Model Regulations (see Volume III). A set of 10 TV spots in storyboard form, four radio scripts and a camera-ready reproducible of a poster were developed. Recommendations for implementing and field testing the developed messages are included.

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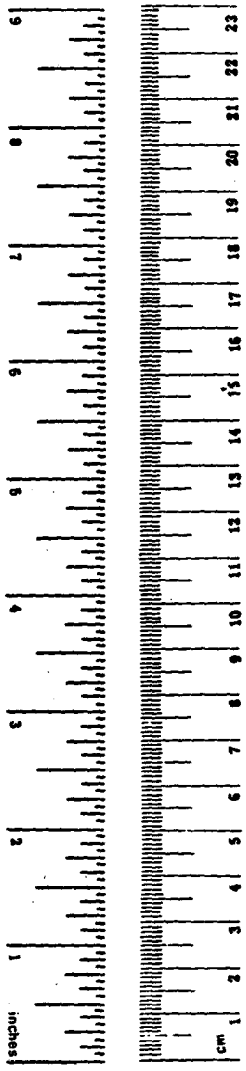
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

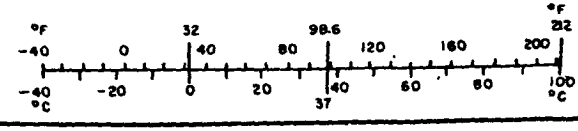
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	*square miles*	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



ADDENDUM

The NHTSA approach toward alleviating the bicyclist/motor-vehicle accident problem was three-fold. First, NHTSA conducted a study to identify the specific accident situations victimizing bicyclists. The Anacapa study (Cross and Fisher, 1977) provided an answer to this question with its identification of 36 distinct accident types. The second step taken was to develop prototype countermeasures in the areas of training, public information, and traffic-safety regulation for specific accident types. The three volumes of the present report by Dunlap and Associates describe 26 such countermeasures. The third step in the approach called for NHTSA selectively to develop and test certain of the prototype countermeasures to see if they did indeed reduce target accidents. Current funding priorities do not permit accomplishing the third step. Consequently, the scripts have not been made into films or tapes, nor have the countermeasures been tested for their accident-reducing abilities. However, even in their prototype form these countermeasure ideas have undergone a process of review and critique by knowledgeable bicycle-safety people, and they do represent our best thinking to date on how to reduce these accident problems. Therefore, those who are concerned with improving the safety of bicyclists in traffic are urged to condider the ideas and advice contained in these volumes while recognizing their necessarily incomplete state. NHTSA would appreciate hearing from those who have put these countermeasures to use especially if measures of effectiveness were employed.

MEDIA PACKAGE SUMMARY

Title:	Motorist Perceptual Awareness
Target Problem:	Motorists who fail to detect bicyclists who are clearly visible.
Remedial Advice:	"Think bicycle" when performing a search. If motorists specifically look for bicyclists, the probability that they will be detected should increase.
Media Forms:	60 second TV Spot 30 second Radio Spot

MEDIA PACKAGE SUMMARY

Title:	Wrong-Way Riding
Target Problem:	Bicyclists who ride the wrong way (facing traffic) thereby placing themselves in an unexpected position and generating unnecessary conflicts.
Remedial Advice:	Always ride with traffic, i.e., "Go with the Flow."
Media Forms:	30 second TV Spot 30 second Radio Spot 4-Color Poster

MEDIA PACKAGE SUMMARY

Title:	Bicyclist Trapped in Signalized Intersection
Target Problem:	Bicyclists who enter signalized intersections when the signal shows yellow and cannot make it through before traffic starts.
Remedial Advice:	Bicyclists should never enter an intersection during a yellow signal phase. Motorists should take a special look for bicyclists before starting from a signal.
Media Forms:	30 second TV Spot 30 second Radio Spot

MEDIA PACKAGE SUMMARY

Title:	Bicyclist Anti-Rideout
Target Problem:	Bicyclists, particularly those under 12 years of age, who suddenly "ride out" of residential driveways or at other locations in residential neighborhoods without stopping or searching for motor-vehicles.
Remedial Advice:	Stop and look left-right-left before entering the street.
Media Form:	60 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Visual Screens
Target Problem:	Bicyclists who suddenly appear from behind objects such as parked cars or hedges which prevent oncoming motorists from detecting the bicyclist.
Remedial Advice:	Stop at the edge of the visual screen and look left-right-left before proceeding into the roadway.
Media Form:	30 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Stop Sign Intersection
Target Problem:	Bicyclists who ride through stop signs at intersections without stopping or searching for traffic.
Remedial Advice:	Stop at all stop signs and look left-right-left before starting again.
Media Form:	60 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Bicyclist/Parked Car
Target Problem:	Bicyclists who collide with the opening doors of parked cars and/or weave in and out of parking spaces.
Remedial Advice:	Follow a straight path alongside parked cars and far enough from them to avoid an opening door.
Media Form:	30 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Bicyclist Awareness/Crossing Motorist
Target Problem:	Bicyclists who are struck, particularly by turning motor-vehicles, because the bicyclist erroneously concluded that he or she had been seen by the motorist and that the motorist would yield.
Remedial Advice:	Never assume you are seen, and look for cues that a car in the act of turning is about to move forward.
Media Form:	60 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Bicyclist Overtaking Cars on Right
Target Problem:	Bicyclists who overtake cars on the right at intersections thereby placing themselves in the motorist's blind spot.
Remedial Advice:	Always ride in the gaps between motor-vehicles, and never overtake them in the motorist's blind spot.
Media Form:	30 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Bicyclist Unexpected Left Turn
Target Problem:	Bicyclists who suddenly and without a rearward search turn left into the path of an overtaking motor-vehicle.
Remedial Advice:	Always look behind before moving left. Do not rely on listening for traffic.
Media Form:	30 second TV Spot

MEDIA PACKAGE SUMMARY

Title:	Motorist Anti-Rideout
Target Problem:	Motorists exiting commercial driveways who do not search effectively for bicyclists, particularly those in unusual locations, i.e., on sidewalks to the motorist's right.
Remedial Advice:	Look left-right-left and be sure to look far enough to see a fast-moving bicycle before exiting a driveway.
Media Form:	30 second Radio Spot

FOREWORD

This report is the second volume of the final report of contract number DOT-HS-7-01726 between the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) and Dunlap and Associates, Inc. The objective of the study was to develop countermeasures for bicycle/motor-vehicle accidents by utilizing the results of previous NHTSA-sponsored research which identified specific problem types and countermeasure approaches. An interim report on this project was previously published.*

This volume is devoted to a discussion of the public information and education messages developed. Volume I addresses methods employed in the study and a description of the developed training countermeasures. Volume III is devoted to the developed regulatory approaches to the prevention of bicycle/motor-vehicle accidents. The full-size copies of the storyboards and the actual mechanical of the poster discussed in this Volume were submitted separately.

*Casey, S.M., Cross, K.D., Leaf, W.A. & Blomberg, R.D. Bicyclists' Inclination and Ability to Search Behind Before Turning Left. Interim Report, February 1980. DOT-HS-805-893. Available NTIS.

ACKNOWLEDGEMENTS

Developmental efforts of this type rely heavily upon numerous agencies and individuals for information, guidance and review. This study was no exception. Throughout its life, it received valuable inputs from many sources to whom the authors are greatly indebted. Dr. Alfred J. Farina, Jr., who served as Contract Technical Manager for the National Highway Traffic Safety Administration (NHTSA), was helpful and supportive throughout the effort and contributed in both a creative and review capacity.

Edward F. Kearney, Executive Director of the National Committee on Uniform Traffic Laws and Ordinances (NCUTLO) and John W. English, formerly NCUTLO's Research Director, drafted the regulatory language and provided unique insights, both as experts in traffic law and as accomplished bicyclists. Messrs. Mitchell Laub, Joseph Saxe and Stanley Miller of Saxe Mitchell, Inc., provided the creative development for the public education messages and inputs on the publicity requirements for the Model Regulations.

Dr. Steven M. Casey of Anacapa Sciences was a major contributor to the study and was the principal author of one of its interim reports.

Many others contributed their talents to this effort in a variety of ways. In particular, the authors wish to thank:

Dr. Pamela T. Anikeef (NHTSA)
Mr. Frank Bennett (California Department of Education)
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Mr. Kurt DiLorenzo (Hastings, Minnesota Police Department)
Mr. Bob Doeden (Richfield, Minnesota Department of Public Safety)
Mr. John Fegan (Federal Highway Administration)
Mr. John Fitzpatrick (Saratoga, N.Y. bicycle store owner)
Ms. Julie Goss (Hastings, Minnesota Police Department)
Mr. Ralph Hirsch (National Legislative Director, League of American Wheelmen)
Mr. Roger Kurrus (NHTSA)
Ms. Katie Moran (Executive Director, Bicycle Federation)
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Mr. Ronald Thompson (Wisconsin Pedestrian/Bicyclist Program Coordinator)
Ms. Sharon K. Wagner (Minnesota Community Bike Program Coordinator)
Mr. William C. Wheeler (NHTSA)
Mr. William C. Wilkinson, III (Bicycle Manufacturers Association)
Mr. John Williams (Editor, Bicycle Forum)
Mr. Curtis B. Yates (North Carolina State Bicycle Coordinator)

To all of the others we may have forgotten, we apologize and extend our sincerest appreciation for their contributions.

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I. INTRODUCTION

This report presents the public information and education (PI&E) messages developed as part of a study entitled "Identification and Development of Countermeasures for Bicyclist/Motor-Vehicle Problem Types." The effort was funded by contract number DOT-HS-7-01726 from the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA) to Dunlap and Associates, Inc.

The method used to generate and select countermeasure ideas for development is covered in detail in Volume I of this report. This volume will therefore be devoted to a description of the approach employed to turn a selected countermeasure concept into a finished message design ready for final production. Each of the message designs developed will also be discussed in detail.

Before turning to the specifics of the study, it is essential to define the term "message" as used herein. For the purpose of this effort and most other NHTSA work in bicycle and pedestrian safety, a message has been defined as an educational countermeasure suitable for distribution through the mass media. Alternatively, a "message" might be thought of as information which is distributed in a manner such that the distributing agency does not have direct control over the specific individuals who receive the material. An informational countermeasure for which distribution is designed to be on the basis of individual target audience members has typically been considered a "training" countermeasure in NHTSA's programs.

This distinction, although somewhat artificial, has been successful in separating accident countermeasures, particularly for children, into conceptually satisfactory and operationally meaningful categories. Moreover, the classification of materials as training or message countermeasures in accordance with their initial design intent has apparently not been a deterrent to their effective use in the other delivery modality. For example, the Willy Whistle pedestrian safety film produced for NHTSA as a "message" under contract number DOT-HS-4-00952 (Blomberg, et al., in process) has been successfully used by the Urban Pedestrian Safety Demonstration Project in Dade County, Florida as part of an in-school training program (contract number DOT-HS-7-01808).

By design, the current effort was limited to delivering message products which were fully developed creatively but had not been executed in their final media form. Specifically, this resulted in storyboards for the cinematic media, scripts for radio and mechanicals (camera-ready copy from which printing plates can be made) for printed media. In fact, 10 storyboards, four radio scripts and a poster were developed and are described herein. Each of these products was the output of a systematic approach which is described in the next chapter. Chapter III discusses elements which are common to the production and testing of all of the messages and Chapter IV presents each item, its rationale and suggestions for its final production.

II. APPROACH

Volume I of this final report detailed the methods used to generate countermeasure concepts which had potential for implementation as messages, training programs or model regulations. This Chapter describes the criteria used for determining that a countermeasure was amenable to a message approach and the steps taken to develop the final message forms.

The approach used to develop the media materials described herein was the same one previously used to produce highly effective pedestrian safety messages (cf., Blomberg and Preusser, 1974; Blomberg et al., in process). It is based upon the following guiding principles:

- Behavioral Orientation - When possible, remedial advice should address specific behaviors rather than simply highlighting a hazard and allowing the target audience to derive its own solutions. This does not preclude, however, focusing on knowledge/awareness changes if data are available indicating that the absence of knowledge is predisposing people to become accident involved.

- Creative/Research Synergism - A combination of media and research skills and access to an in-depth accident data base are inherent to the entire approach. Moreover, the interaction between the media and research professionals throughout the creative process is essential.

- Realistic Expectation - Public education objectives must be realistic. Success depends on establishing behavioral goals which can reasonably be accomplished by television spots, posters, etc., and avoiding goals which require, for instance, a detailed in-depth training program to accomplish the required communication and/or basic life-style changes.

The behavioral orientation and creative/research synergism were facilitated during this study by access to the extensive accident data base collected by Cross and Fisher (1977) at Anacapa Sciences, Inc. These data were available in machine-readable form so they could be analyzed to provide specific input to the development of each message. Also, Dr. Kenneth D. Cross, the principal investigator for the accident study, was a subcontractor on this effort. Thus, a wealth of anecdotal information and interpretive skills with respect to the Cross and Fisher (1977) data were readily available to the current effort.

Creative skills were provided by the staff of Saxe Mitchell, Inc., a full-service advertising agency. Saxe Mitchell professionals had worked previously with Dunlap and Associates, Inc., in the development of successful and well-received pedestrian safety messages. Hence, all parties had realistic expectations for the messages developed herein as a consequence of previous analogous experience. In fact the current effort can truly be viewed as a multi-level refinement of the approach used in the area of pedestrian safety. The Cross and Fisher (1977) accident study was modeled after and expanded upon the ground breaking pedestrian accident research of Snyder and Knoblauch (1971). The present bicycle accident countermeasures effort, in

turn, built upon the approach of previous successful pedestrian accident countermeasure efforts (cf. Blomberg and Preusser, 1974; Blomberg et al., 1982; Blomberg, Hale and Kearney, 1974; Hale, Blomberg and Kearney, 1980) which used the Snyder and Knoblauch (1971) data as input.

It is important to realize that the entire process by which the bicycle/motor-vehicle accident message countermeasures were created was "data driven." Data, primarily the detailed accident study of Cross and Fisher (1977), were the basic input to the developmental effort and the "ground truth" against which interim ideas and products were assessed. In short, the accident data provided the structure, the content and the projected impact for each message. They also formed the basis for recommendations concerning field test plans by indicating sample size and strategy requirements and the ability to discriminate among the effects of any similar countermeasures at the same location.

The use of accident data early and late in the development process was critical. Data defined the problem, and data helped structure message objectives. Data were also instrumental during the creative development process itself. They indicated accident types for which messages had to be developed, and they pointed toward opportunity areas or specific situations for which highly efficient yet simple, behavioral remedies were possible. For instance, the data showed that child rideouts from residential driveways constituted a large percentage of the total accident problem. Therefore, in any overall attempt to reduce bicycle accidents, it seemed essential to deal with this specific problem area. Conversely, any set of messages which did not address this type of problem could not possibly adequately address the child bicycle accident problem.

The special situation or opportunity area, was also detectable from the Cross and Fisher (1977) data. For example, such a special situation existed with respect to a subset of Problem Type 17, "Motorist Overtaking: Bicyclist's Path Obstructed" (Cross and Fisher, 1977, p. 238), in which bicyclists collide with opening car doors. On a percentage basis, this accident type involves only a small (less than 1%) proportion of the total accident problem. However, the situation, predisposing factors and precipitating factors leading to this accident were all very well defined. This led to the derivation of simple remedial advice which was considered amenable to a message approach.

It also proved beneficial to develop messages based on precipitating and predisposing factors as well as accident types. Precipitating factors are essentially behavioral errors committed by a bicyclist or motorist which lead to an accident occurrence. Wrong-way riding, i.e., riding facing traffic, was a frequent precipitating factor in several accident types and, therefore, was the focus of a message. Predisposing factors are environmental or personal, e.g., health, conditions which increase the likelihood of a behavioral error. The presence of a visual screen such as a fence or hedge was a frequently cited predisposing factor that became a message theme.

The foregoing discussion may be considered a macroscopic view of the approach undertaken. On the microscopic or individual message level it was also necessary to apply a set of principles to guide the creative process. These principles, derived from previous efforts (cf. Blomberg and Preusser, 1974; Blomberg et al., in process), can be summarized as follows:

(1) The target audience should receive some new piece of safety information (i.e., not just "be safe") concerning the existence and/or avoidance of a hazard.

(2) The presentation should be straightforward such that it is clear that the message is about safety.

(3) The theme of each message should be homogeneous (i.e., integrated, concise).

(4) The safety information must be "sold" to the audience such that they understand the concepts and are motivated to perform the recommended behaviors or adopt the suggested attitudes.

(5) Developed messages should have appeal or entertainment value sufficient to:

a. gain and hold the attention of the audience
b. insure an opportunity to obtain media time or space

(6) Showing completed unsafe behavior should be avoided.

(7) Showing completed safe or correct behaviors is necessary, particularly for children.

(8) Media selection and presentation strategy should be such as to insure both reaching the widest possible audience and multiple exposure to the same individual. Obtaining at least a single exposure to as many members of the target audience as possible is reasonable if the attitudinal or behavioral change requested is clear, concise and not a burden to adopt.

These principles are based, to a great extent, on the realities of current mass media, public service advertising. Given the competition among sources for the relatively scarce public service (free) media time and space, messages must be developed which can work quickly. They must have the potential to convey their advice in a single viewing as the audience may have little opportunity for repeated viewings. This is particularly true for adult-oriented materials for which the competition for available public service slots is particularly fierce.

In this same context, it is important to consider the potential of a message to misinform the audience, particularly if it is only partially received. Thus, principles such as avoiding the showing of completed unsafe acts are reasonable given the possibility that someone, particularly a child, might be prompted to engage in unsafe behavior after viewing it in the media.

The last, yet often the most important, consideration in message development was the selection of a medium or delivery mechanism for each message. The choice of a medium or set of media for the delivery of each of the developed messages took into consideration numerous critical factors including:

- Message complexity
- Target audience

- Media characteristics
- Immediacy of the medium
- Limitations on media purchasing by Government agencies

Media selection had to consider each of these if transmission, i.e., number of target audience members who received and understood the message, was to be maximized. Further, these factors often operated in opposite directions, thereby creating a need to trade-off among alternative solutions. For example, the more complex messages targeted for young children presented a unique problem. If the message were to be delivered in the detail needed to explain all of its concepts, the target audience would almost surely not attend to it. On the other hand, simple, short presentations consistent with the attention span of children might not be capable of conveying the message content. While there is no absolute solution to this dilemma, it would appear that the visual media offer the greatest potential for the effectiveness of the more complex messages. Thus, as a general rule during this effort, as message complexity increased and in particular, as the characteristics of the desired behavior represented more of radical departure from existing behavior, more reliance was placed on the visual media. Words did not appear as effective in promoting adoption of complex behaviors as did pictures and demonstrations. For all ages, but particularly for the young, it was considered easier to mimic than to interpret. In addition, visual media, especially audio-visuals, tend to be inherently more attention grabbing than pure audio or printed media.

The decision to concentrate on mass visual media, specifically television, for the message countermeasures was also made in the context of the entire package of countermeasures developed by this study. Training programs (see Volume I) which rely heavily on the printed word and controlled or repeated exposure of the target audience were included. Model regulations (Volume III) detailing permitted and prohibited behaviors were also produced. Hence, it seemed natural to complete the entire countermeasures package with materials suitable for the mass media

III. GENERAL CONSIDERATIONS

All of the developed messages evolved from the same process which was based on the accident data collected by Cross and Fisher (1977). Each message was carefully designed to adhere as closely as possible to the message principles enumerated in the previous Chapter. Therefore, the messages would be expected to display some similarities because of their common heritage. However, the association among the messages, by design, goes well beyond a superficial resemblance. The rationale for developing the messages as a coordinated set or "campaign" will now be addressed followed by a discussion of the character developed to act as the campaign spokesperson and general production and field testing issues.

A. Campaign

The most likely use of messages developed under Federal contract is as public service media announcements. While it is possible that a third party, e.g., a private company, might like the spots and purchase air time for them, such an occurrence is unlikely. Further, the message development undertaken herein did not include any production of finished media materials. The end products, as presented in the next chapters, are only the creative executions of envisioned media materials. Therefore, it is uncertain which, if any, of the messages will ultimately be produced and by whom (Federal, state or local governments or private groups).

This inherent production uncertainty together with the desire to convey succinctly and reliably that the materials were addressed at bicycle safety, argued for the coordination of the messages into a "set" or campaign. By coordinating as many aspects of the individual messages as possible, target audience recognition of the materials on repeated exposures should be greatly enhanced. Moreover, the different messages would cross-fertilize each other, with an exposure to one aiding recognition of another as being related to bicycle safety. Another potential benefit of "campaigning" the messages was reduced production costs if more than a single message were produced.

There are several typical methods of associating separate media messages. A common closing or "tag" line is often employed. This tag, if cleverly written, can be both memorable and convey secondary messages, e.g., that this spot is related to bicycle safety, was developed by NHTSA, is associated with all of the other messages which employ the same tag.

A second method of joining messages is through a common spokesperson or symbol. This spokesperson may be live (as him or herself or in character) voice-over or animated. Through repeated exposures of the target audience to messages about the same topic or product, a strong association between the spokesperson and the messages is formed. Thus, when a new message using the same spokesperson is aired, the audience immediately places it in context. For example, the appearance of Smokey the Bear is instantly recognizable as coincident with a message on fire safety. This creates the correct mind set in the target audience for conveying new fire safety information in a minimum of time. Simply, using the recognized symbol, Smokey, avoided the need for establishing the context of the message through verbal or pictorial descriptions and likely aided recall of the message.

It was decided that the spokesperson approach to creating a campaign would be best for the bicycle safety messages for several reasons. First, the use of a spokesperson, if successful, would create a symbol of bicycle safety which NHTSA could use in future efforts. It was believed that a spokesperson would be more flexible and, hence, less constraining on present and future efforts than a tag line. Second, a spokesperson could be easily designed to provide entertainment value thereby increasing potential public service media time. Also, while tag lines generally are delivered only once in a message, a spokesperson could be used throughout thereby increasing recognition and, presumably, recall. Finally, use of a spokesperson appeared to generate more creative possibilities than the use of a tag line. Moreover, if a good tag line were developed, the spokesperson could deliver it.

B. The Spokesperson--Right Rider

Once a decision to use a spokesperson was made, it was necessary to select or create the appropriate individual. Four basic types of spokespersons were considered:

- Known celebrities
- Live actors who were unknown but created a character, e.g., Batman
- Animated humans
- Other animated characters, e.g., animals or inanimate objects given human or superhuman abilities

Since bicycle safety messages are directed to all ages, not just the very young, it was decided to maintain somewhat of an "adult" approach to the use of a spokesperson. This generally precluded "silly" characters, either live or animated. It also appeared necessary to give the spokesperson the "power" to intervene in crash-generating sequences through the appropriate use of cinematic techniques.

To fit the role of spokesperson, a character named "Right Rider" was created. The name itself is a double entendre implying both "right" or correct riding habits and riding to the "right" with traffic to counter one of the most frequent bicyclist errors, wrong-way riding. Right Rider was envisioned as a "real" bicyclist with the extraordinary power to stop accidents as they are happening. By creating him as a person, he became capable of and believable while demonstrating correct bicycling behavior. His appearance, whether on TV or radio, is to be heralded by a unique trumpet fanfare in the style of the famous movie heroes. This fanfare trademark or signature will have to be carefully developed to convey an immediate association with the character.

The Right Rider character was amenable to execution either by a live actor or through animation. While either approach could have been adopted without marginally changing the creative approach of the messages, practical considerations prompted the selection of the animated approach. An animated character, once developed, is always available for production. It can be drawn by different animators and still remain essentially unchanged. Use of a live actor, on the other hand, presents serious availability problems. Simply, it may not be possible or economically feasible to obtain the services of the

same actor for subsequent message production. Since Right Rider was intended as a long-term symbol of bicycle safety, it was felt that only an animated execution provided the security necessary to insure continued availability of the character.

Thus, Right Rider is envisioned as an animated super-bicyclist who rides a lightweight bicycle. He has supernatural powers with respect to his own entry into and exit from scenes and in his ability to "stop the world" to prevent bicycle/motor-vehicle accidents. Otherwise, he is simply an expert, always correct bicyclist whose implied purpose is to educate people in the right way to use a bicycle. His task and the way he performs it by interacting with various young bicyclists is serious but amenable to creating entertainment value through cinematic effects and the use of interesting characters. His voice is envisioned as typical of a 20 to 30 year old man--neither weak nor overly stentorian. In short, Right Rider might be viewed as an animated sports hero who, it is hoped, will become instantly associated with bicycle safety.

C. Production

All of the proposed TV spots employ the Right Rider character. Some of the spots were designed to run 60 seconds with the possibility of an abridged version or "lift" of a 30 second spot. The remaining spots were specifically designed for the 30 or 60 second length. In order to conform with prevailing broadcast standards and to insure the highest possible quality of the finished product, the following TV production features should be followed:

- All shooting should be in 35mm for quality, ease of editing and integration of the animation.
- Right Rider's action should be roto-scoped over live scenes. This process permits total integration of live and animated sequences so the live and animated characters can interact realistically.
- Release prints should be 16mm color reductions with optical soundtracks.
- One second of silence should be included at the beginning and end of each spot.
- The NHTSA logo (or any other logo) at the end should be "in the clear," i.e., not over any of the action. This will permit changing the logo to accomodate local sponsors other than NHTSA.
- If videotape duplicates are made, two inch masters should be produced as there are major stations, e.g., KNBC in Los Angeles, which will only accept two inch videotapes which are not enlargements.
- Locations should be chosen which are as generic as possible to give the materials maximum universality. Unique vegetation, e.g., palm trees, architectural styles or traffic conditions should be avoided.
- Care should be taken to insure that actors, movements and traffic conditions are as faithful as possible to the modal accident conditions as described by Cross and Fisher (1977).

Any additional comments on production features specific to the individual TV spots are contained in the discussion in Chapter IV.

Radio production presents fewer potential pitfalls than does TV. Obviously, Right Rider's voice should be the same for radio and TV, i.e., the same actor should be used for both TV voice-over and radio recording. Also, it is important to remember that a prime audience for the radio materials is motorists listening to their car radios. This means that the radio spots must be recorded so that they are clearly audible against the high ambient noise level found in an automobile. To achieve this intelligibility, audio levels should be kept as high as possible and actors should clearly enunciate their lines. Pacing of the actors is important to make sure that only one individual is speaking at a time.

D. Field Test Considerations

All of the developed messages are designed for mass media presentation. Hence, all are amenable to being field tested using the same basic design. In this design, outlined below, a site is actually a media market, i.e., the area served by one or more television or radio stations. In most cases, this means that a typical test site would be a city and its metropolitan area served by a single media market.

1. Overall Design

Since it would be relatively difficult within a study site to differentiate between those who had and had not been exposed to the materials, sampling would be best at the jurisdiction or site level. This suggests a pre-interim-post design with comparison in which one site receives one or more messages and another matched site does not. Measures are taken before distribution (pre), during use of the materials (interim) and after their completion (post).

Several messages could be placed in the same experimental site, although this would preclude a sensitive ultimate measures (accident-based) test of their individual effectiveness. The ideal design for individual message testing would, therefore, involve several similar experimental sites. Each site would receive only one message. One, or preferably, two or more matched comparison sites would also be used. This design would permit the separate assessment of each message and any benefit (or detriment) to their concurrent use. It is, however, likely to be too expensive for realistic consideration. Also, such a design cannot show any campaign effect from cross-fertilization among the materials.

Replication of the basic design by population density (urban, suburban and rural), climate, demographics, type of media market or other sampling basis would add information to the test, but would not likely be cost-effective. There is little in the design of the messages which might influence their effectiveness in varying environments if they are carefully produced. Cross and Fisher (1977) suggest that the behavioral errors on which the messages are based are universal. The remedial advice is not dependent on any feature, facility or characteristic of particular environments. Hence, replication to examine effectiveness in multiple types of sites may not be worthwhile..

2. Measures

The effectiveness of the messages should be assessed in terms of the process by which they are delivered and the knowledge, behavior and accident changes they produce. In the process evaluation, the following measures might be included:

- Number of spots/posters distributed
- Number of plays of spots
- Number of posters displayed
- Percent of TV/Radio audience tuned to the spots
- Audience reactions
- Type of use, e.g., Broadcast TV, Cable TV, in-school TV
- Distribution and use problems

The purpose of these measures is to determine the extent to which the messages are used and to identify operational strengths and weaknesses. This helps set an upper limit on their anticipated effectiveness.

Knowledge changes would best be measured through a test or survey taken pre, interim and post. The survey should be designed to address the specific knowledge items contained in the messages being tested. It should also include classification information on the respondent to determine demographics and degree of interest and participation in bicycling.

Children could easily be tested at schools using previously proved approaches (cf., Blomberg et al., in process). Parents and other adults could be solicited by mail or telephone in large numbers or reached in smaller focus groups during school, church or club meetings.

Changes in behavior could be measured through unobtrusive, in situ pre, interim and post observations. The behaviors of interest are those specifically covered in the messages being tested. Therefore, the storyboards and scripts themselves form a master checklist for describing behaviors to be observed. However, the actual process of developing an observation paradigm and selecting appropriate locations at which a sufficient sample of behaviors can be gathered is quite complex. Many of the principles of observation which would be required were documented in an interim report on this contract (Casey, et al., 1980), and the reader is therefore referred to that document for greater detail.

Accident data for each site (experimental and control or comparison) would be collected through cooperating police or traffic records authorities. There should be few sample size problems because the messages can be distributed to a large base of bicycle crashes. The classification of collected accident reports consistent with the Cross and Fisher (1977) typology is recommended, however, as not all accident types are covered by the messages and only a subset of the designed messages is likely to be tested at one time.

Based on available accident data, it is believed that a relatively sensitive accident-based evaluation of any of these messages could be undertaken with a one year experimental period if jurisdictions with populations of approximately 500,000-1,000,000 persons were used as test sites. A three year retrospective collection of accidents is recommended to establish a stable estimator of baseline conditions.

3. Scheduling

It is believed that these materials could be tested in a 28 month study as follows:

- Months 1-9

  Develop overall test plan
  Develop knowledge measures
  Develop behavior measures
  Develop process evaluation format
  Select test sites
  Train observers and collect all baseline behavior and knowledge measures
  Produce and reproduce messages for testing

- Months 10-22

  Distribute messages
  Collect interim measures
  Retrospectively collect and classify baseline accidents
  Collect final measures

- Months 23-28

  Collect and classify program year accidents
  Analyze all data.

4. Sample Size

As discussed above, the accident sample would be determined by site size. Sites with populations of about 500,000 would be expected to have about 250 annual bicycle/motor-vehicle accidents. With a three year baseline and only one experimental and one comparison site, time series and other statistical techniques could reasonably detect reliably a true accident reduction of less than 20 percent. Thus, this design would be able to determine all meaningful and cost-effective accident changes.

Sampling within sites for behavior and knowledge changes would have to be undertaken. If knowledge measures were taken from approximately 100-200 target audience members during each measurement (pre, interim and post) at each site (experimental and comparison), an extremely sensitive test of change would result. Likewise, observations of approximately 200 occurrences of each target behavior at each site in each measurement should yield sufficient sensitivity to uncover meaningful changes.

IV. THE MESSAGES

This Chapter presents descriptions of the developed message countermeasures, their media, target audiences and the problem(s) they were designed to counter. Each of the messages was targeted at one or more of the accident types identified by Cross and Fisher (1977), who assigned them type numbers ranging from one to 36. In the problem discussions which follow, frequent reference will be made to these accident types by the numbers given them by Cross and Fisher (1977). To assist the reader, Appendix A includes a description of each of the Cross and Fisher (1977) types.

The reader is cautioned against adopting a strictly literal interpretation of the storyboards and scripts presented below. These items can only be used to obtain a basic, general feeling for the overall flow of the media materials. Production activities, such as the selection of camera angles, scene lengths and directions to the actors, can greatly alter the final impact of messages of this type. Similarly, pre-production efforts such as casting and selection of shooting locations can have a profound influence on the final product. Hence, the producer and director of the messages will play a major role in determining their final form. While it is suggested that these individuals be required to stay within the basic bounds of the intent of the materials as described below, it is also recommended that they be permitted reasonable latitude for changes. This will help insure adherence to the underlying research findings without hampering the artistic process needed to make the materials entertaining and memorable.

It is also important during any cinematic production to pay strict attention to continuity and technical bicycling issues. Continuity factors such as clothing worn in successive scenes or insuring that all motorists are wearing safety belts, help establish the basic professionalism of the materials. Bicycling technical factors such as fitting the bicycle to the bicyclist and making sure each bicycle is equipped to the standards set by the Consumer Product Safety Commission (CPSC) avoid losing credibility with the bicycling community and inadvertently fostering unsafe practices.

Finally, the issue of whether all bicyclists should be shown wearing helmets was carefully considered. The data of Cross and Fisher (1977) provide compelling evidence that there are many head injuries as a result of bicycle/motor-vehicle accidents. The consensus among bicycling professionals seems to favor the wearing of helmets. Therefore, Right Rider was designed with a helmet as part of his standard costume. The use of helmets by all of the actors in the spots was, however, rejected. It was felt that the portrayal of all of these individuals in helmets might hinder the association of the target audience with the advice. Simply, relatively few bicyclists actually wear helmets, and it was considered important for the viewers of the material to be able to place themselves in the circumstances depicted with a minimum of interpretation. Hence, helmets are generally not worn by the main live characters in the TV spots, although it is suggested that some bicyclists who demonstrate correct behaviors in the background be shown wearing helmets.

A. Motorist Perceptual Awareness

1. The Problem

Many bicycle/motor-vehicle crashes occur when motorists fail to perceive the presence of bicyclists who are clearly visible. In some cases, inadequate or inappropriate search patterns by the motorist are implicated. In many others, however, there is evidence that the motorist searched properly and scanned the bicyclist but simply failed to perceive the significance of the bicyclist's image. The problem is particularly severe for motorists in the process of performing turning or merging maneuvers or other activities which require them to cross active traffic lanes. Types 2, 4, 5, 6, 7, 8, 9, 10, 22, 23, 24 and 25 contain some representation of this type of error.

It has been suggested by Cross and Fisher (1977) and others that the underlying problem is one of motorist recognition as well as the inherent inconspicuity of the bicycle/bicyclist combination due to its small size. Motorists in the critical maneuvers are typically searching for large vehicle threats (cars, buses, trucks) and are not looking for bicycles. They therefore do not perceive them even though the bicycle and bicyclist are clearly visible.

2. Target Groups/Objectives

The messages for this problem are directed at motorists. They are intended to increase the likelihood that a motorist in a critical situation will perceive a clearly visible bicyclist. They are designed to promote specific searches by the motorist for bicyclists.

3. Media Selection

A 60 second TV spot was chosen as the primary medium because of the great entertainment potential of this message and because of its focus on motorist search. However, since the motorist target audience is easily reached by radio and in-car radio messages can be delivered in close proximity to the time at which the behavior is needed, a 30 second radio spot was also prepared.

4. Message Description

Figure 1 presents the storyboard for the 60 second TV spot. The spot involves verbal by-play between a young and somewhat precocious boy, Freddie, and Right Rider. The spot occasionally refers to Freddie as "Foolish Freddie." This is not meant to imply that he is a dunce-like or silly character. Rather, Freddie is envisioned as a bright child of perhaps 10 or 12 years of age who has naively interpreted his task as telling motorists what a bicycle looks like.

This difference between what a bicycle looks like and the need to make a conscious search for bicyclists when driving a motor vehicle forms the creative premise of the spot. Right Rider proceeds to correct Freddie's misconceptions and simultaneously stresses to motorists the need to think about bicycles when performing visual searches. It was hoped that by promoting an awareness of the possibility that bicycles might be present, the probability of their recognition by motorists would be greatly increased.

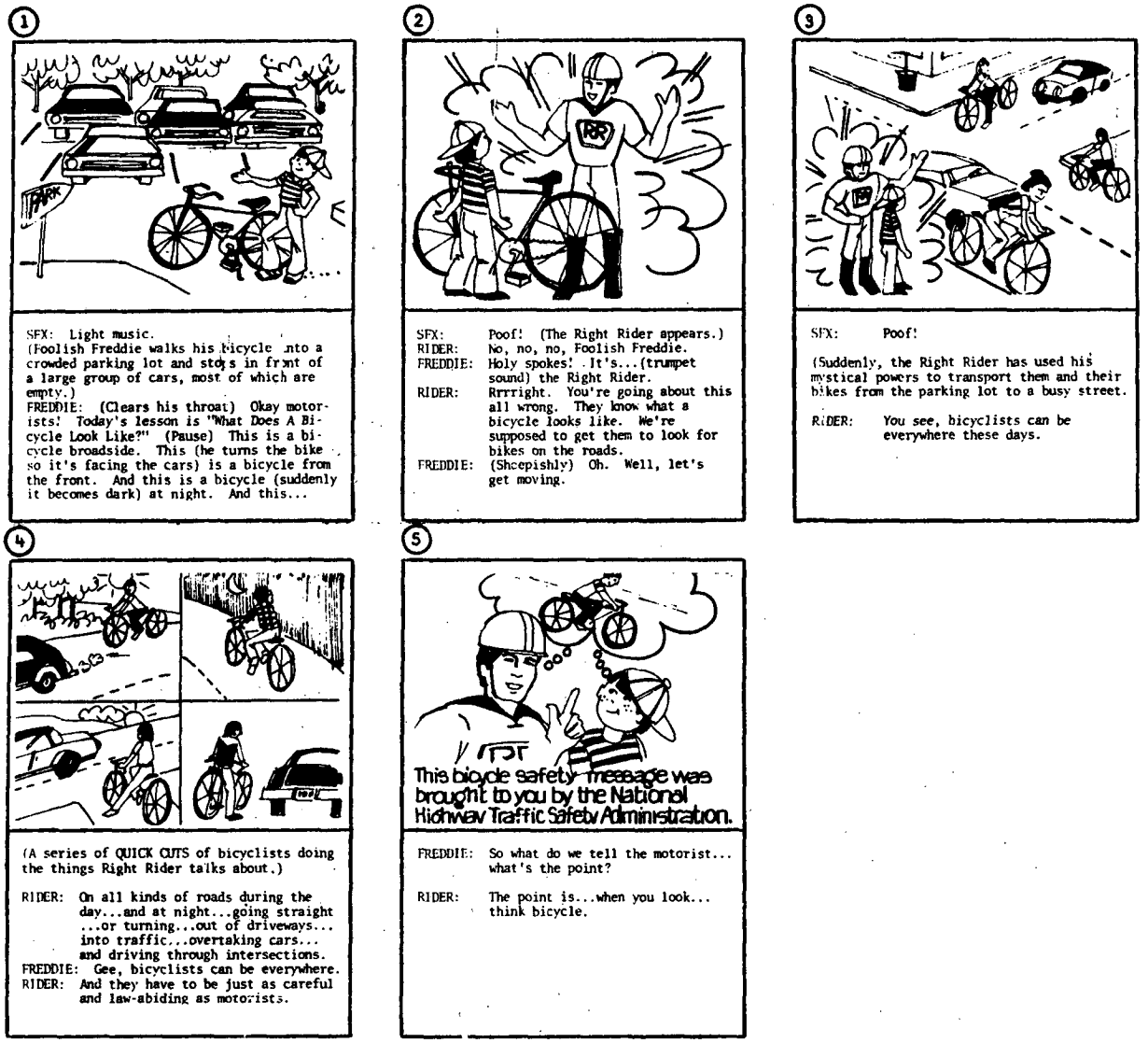

Figure 1. Motorist Perceptual Awareness TV Spot (60 seconds)

The spot opens with Freddie making a "cute" (but not obnoxious) presentation of his misperception of the message which is cut short by Right Rider's appearance. Right Rider then explains the true message and demonstrates it visually through a series of quick cuts or a montage shot (as suggested in frame 4). The spot closes with Freddie showing an understanding of the problem but still confused about what advice to convey to motorists. Right Rider solves this dilemma with the tag line (frame 5):

"The point is...when you look...think bicycle."

Figure 2 shows the 30 second radio script for this message. This script was designed as a total transcription using the same two voices of Freddie and Right Rider as were used in the TV spot (Figure 1). It should not be used as live copy, i.e., read aloud by an announcer on the air.

The creative device in the spot is a by-play between Freddie and Right Rider. As with the TV spot, Freddie may sound precocious but should not be portrayed as arrogant, silly, fresh or obnoxious. The message content is also similar to the TV spot conveying the notion that bicycles are becoming prolific as people recognize their benefits and suggesting that motorist searches must explicitly include looks for bicycles. The closing line conveys this concept with the words: "When you drive and look...think bicycle."

B. Wrong-Way Riding

1. The Problem

Bicyclists who ride the wrong-way, i.e., facing traffic typically on the left side of two-way roads, are involved in a large proportion of bicycle/motor-vehicle crashes. They appear to be particularly vulnerable at intersections where motorists searching for vehicular threats do not expect any to be approaching facing traffic. The high rate of conflicts generated by wrong-way riding results in its significant representation in accident types 5, 6, 8, 9, 10, 21, 22, 25 and 26. The vehicle and traffic laws in the United States also universally recognize the danger of wrong-way riding by making it illegal.

2. Target Groups/Objectives

The problem of wrong-way riding immediately suggested the need to present a message to bicyclists in an effort to alter their course selection. The objective of this message to bicyclists was therefore established as insuring that bicyclists always ride on the proper side of the road with traffic. On two-way roads, which predominate in the accident data, this means riding on the right side.

Even if the bicyclist message is effective, it is unrealistic to expect a total eradication of wrong-way riding. Therefore, it was decided to target a message to motorists with the objective of increasing their search for bicyclists riding the wrong way. In essence, this objective addresses part of the more global message related to motorist perceptual awareness discussed above.

MEDIA:	Radio spot - 30 seconds.
TITLE:	THE CONTINUING ADVENTURES OF THE RIGHT RIDER
SFX:	Traffic noise. Poof!
RIDER:	(Trumpet sound) Hi motorist. I'm the Rrright Rider, crusader for bicycle safety. I'd like to remind you. . .
FREDDIE:	(Clears throat) Huh-hmmm. Aren't you forgetting me. . .your friend Freddie?
RIDER:	. . .about biyclists appearing more and more on our streets and highways. These riders are as much a part of. . .
FREDDIE:	(Clears throat again) Huh-hmmm. How about the ways we save gasoline and oil?
RIDER:	. . .the traffic patterns in and around your neighborhood as motorists are. Bike riders have every right to be on the roads and. . .
FREDDIE:	They have to obey the same traffic laws too.
RIDER:	That's rright, Freddie. But what I'm really trying to say is that our motorist friends should always be on the lookout for bicyclists.
FREDDIE:	Sure. They can even be in places where cars don't go.
RIDER:	And you've got to look harder to see them. . . because they're smaller and slower than cars.
FREDDIE:	It takes extra effort to spot a bicycle.
RIDER:	That's the message. When you drive and look. . . think bicycle.
ANNCR:	This bicycle safety message was brought to you by the National Highway Traffic Safety Administration.

. . .end/

Figure 2. Motorist Perceptual Awareness Radio Spot

3. Media Selection

The bicyclist message was considered best presented in a 30 second TV spot because of the potential impact possible using visual effects. The motorist message seemed most amenable to a radio presentation because it could conceivably reach motorists at critical times when they were in their automobiles. In designing the radio spot it became clear that a 30 second presentation was also capable of presenting a reinforcement of the basic bicyclist message. Therefore, the radio spot was written to address both the motorist and bicyclist objectives.

The simplicity of the advice to the bicyclist and the large proportion of the target audience of school age (10 to 18 years old) suggested the potential benefit of a poster suitable for display in schools or other places where youths congregate. Hence, the basic bicyclist message was also executed in poster form.

4. Message Description

Figure 3 shows the storyboard for the 30 second TV spot. The message is simple and straightforward involving Right Rider rescuing Silly Sally from an accident and giving her advice about always riding with traffic. As with Foolish Freddie, the name "Silly Sally" is intended to connote forgetfulness, absentmindedness or preoccupation rather than any "goofy" qualities. In fact, in the third frame Right Rider expresses surprise that Sally does not know that it is dangerous and illegal to wrong-way ride.

The TV spot was designed to depend on visual impact to convey the message and create entertainment value. Right Rider rescues Sally by stopping all of the action around them (freeze frame in the second panel) and places her (with the implication of permanence) on the right side so she will ride with traffic. The freeze frame and combination of live action and animation, though somewhat costly to produce, were considered essential to the effectiveness of the spot. The line "Go with the flow" as the ultimate behavioral advice was used both because of its potential appeal and because it could be easily integrated into the radio spot and poster.

Figure 4 presents the radio script for the 30 second recorded announcement. In the spot, Right Rider talks with his bicycling friend, Frankie, about ways motorists can avoid accidents with wrong-way riding bicyclists. In the process, Frankie delivers the "go with the flow" advice directly to the bicyclists. Since this spot is not simply a reinforcement of the bicyclist TV message (Figure 3), the same character (Silly Sally) was not used.

To increase its entertainment value and memorability, this spot utilizes the reverse sound of Right Rider's trumpet introduction to mark Frankie's entry into the material.

The poster version of the message is shown in Figure 5. The actual poster is approximately 17 inches wide and 22 inches high. The word "WITH" in the main heading and all of the text on the right side of the roadway (including the lane arrow) are to be reproduced in green (Pantone color 361C is recommended). The text on the left of the roadway should be red (Pantone

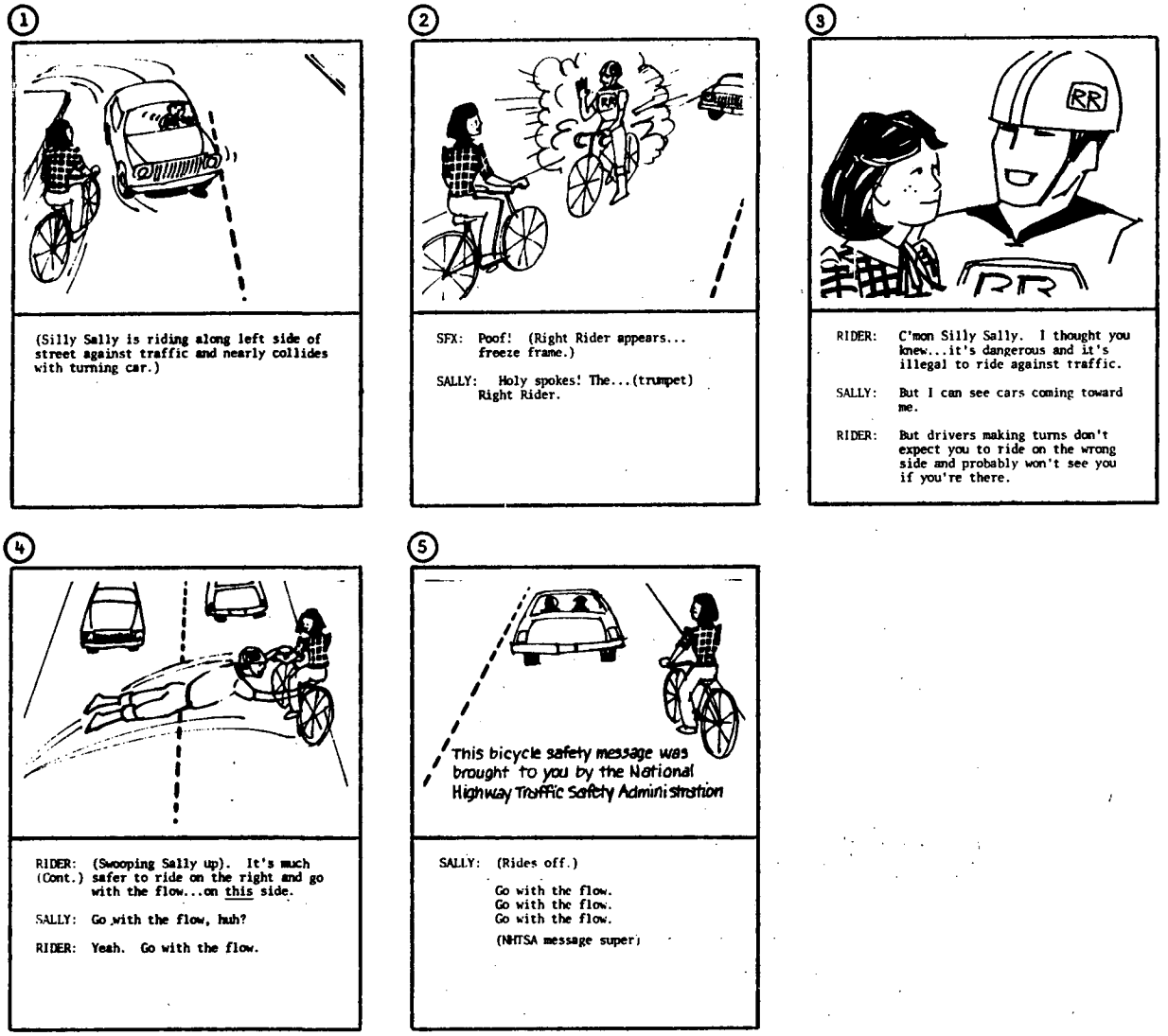

Figure 3. Wrong-Way Riding TV Spot
(30 seconds)

MEDIA:	Radio spot - 30 seconds.
TITLE:	THE CONTINUING ADVENTURES OF THE RIGHT RIDER
SFX:	Street noise. Loud poof!
RIDER:	Hi, friends. This is (trumpet sound) the Rrright Rrrider.
FRANKIE:	And I'm (reverse trumpet sound) Frankie, his bicycling friend.
RIDER:	We'd like to say a few words about bicycle safety to you motorists.
FRANKIE:	Why should they care about bicycle safety?
RIDER:	Because they have to look for bicyclists who ride the wrong way against traffic. They can appear in the most unexpected place.
FRANKIE:	But bicyclists should always ride with traffic. We've gotta go with the flow.
RIDER:	Of course! But there are still foolish bicyclists on the roads who ride the wrong way against traffic.
FRANKIE:	So what should a motorist do?
RIDER:	When driving through an intersection, look left, far to the right, and left again... and while looking, think bicycle.
ANNCR:	This bicycle safety message was brought to you by the National Highway Traffic Safety Administration.

...end/

Figure 4. Wrong-Way Riding Radio Spot

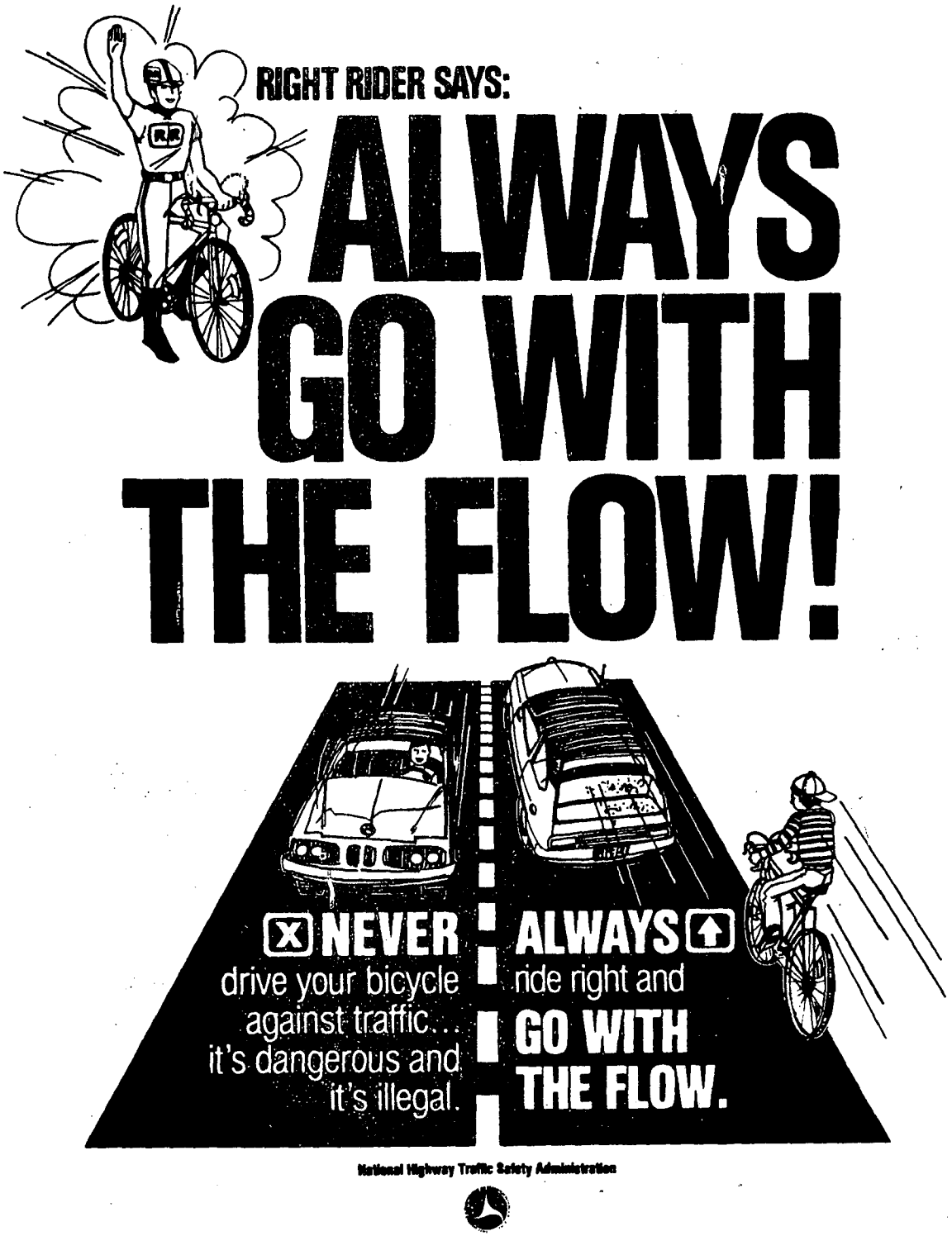

Figure 5. Wrong-Way Riding Poster
(Red, yellow, green and black--
approximate size 17 x 22 inches)

Color 032C is suggested) and the dashed center roadway line should be yellow (Pantone Color 129C). The balance of the text and artwork would be black, and the printing should be on heavy, coated white stock.

The design intent of the poster is to show graphically by the bicyclist's position and the use of the green (permissive) and red (prohibited) colors the recommended position for bicyclists. The text further reinforces the message, and the use of Right Rider coordinates the poster with the other materials.

C. Bicyclist Trapped in Signalized Intersection

1. The Problem

Bicyclists can become involved in accidents because they enter a signalized intersection on a yellow light or at the end of the green signal cycle (a "stale" green). Since signals are typically timed for the speed of motor vehicles, bicyclists often have insufficient time to clear the intersection in these situations before traffic on the perpendicular roadway starts (Type 6). Also, the bicyclist may sometimes be hidden from the striking vehicle by another car which remained stopped to allow the bicyclist to pass (Type 7).

2. Target Groups/Objectives

The primary message target group related to this problem was considered to be bicyclists. Cross and Fisher (1977) identified a lack of bicyclist understanding as a contributing factor in these crashes. Therefore, the overall objective of this message was to convince bicyclists to enter an intersection only when they were absolutely sure there was sufficient time to clear the intersection prior to a signal change. However, when translating this objective into specific advice, no simple way to determine if a green signal was going "stale" could be derived. The conservative approach of stopping at every signalized intersection to wait for a "fresh" green signal, although considered highly effective, was rejected as totally impractical. As a result, the objective of this message was modified to address only the entry into an intersection after the signal had obviously changed to yellow. This facilitated describing the situation and rendered the behavioral advice more palatable.

As with the wrong-way riding and perceptual awareness messages, motorists were also considered a viable target group for this "Trapped" message. It was reasoned that if motorists could be induced to look in the areas where bicyclists might be before starting from a traffic signal, accidents could be avoided.

3. Media Selection

A 30 second TV spot was chosen as the primary medium to reach bicyclists. Radio (a 30 second spot) was selected to influence motorists. In addition, for the same reasons cited above for the wrong-way riding message, the advice to the bicyclist was also included in the radio message.

4. Message Description

The TV spot shown in Figure 6 again employs the tactic of the hero (Right Rider) saving the heroine (Foolish Freda) from an imminent crash through the use of cinematic magic. As before, the idea was to portray Freda as truly foolish but not moronic. She should and does know better on an intellectual level, but the lure of the changing traffic signal prompts her to (foolishly) attempt to make it through the intersection.

The use of visual effects, particularly the "realistic" mixture of live action and animation, is the essential creative feature of this spot. At the outset, Freda must be allowed to get obviously into trouble, but, in accordance with the general principles cited earlier, she must not be permitted to complete her unsafe behavior. Once the anxiety of the audience for her safety is aroused, Right Rider can step in and stop the action to avoid a crash. Thereafter, he explains the correct behavior while other bicyclists appear on cue to demonstrate it.

The radio spot shown in Figure 7 contains both the advice to bicyclists and a suggestion to motorists to improve their search. It is designed to be recorded in a studio using the voice of Right Rider and a male voice with the sound of a teenager (Foolish Felix). As with the wrong-way riding spot, the live TV actor has not been carried over into the radio materials because of the dual nature of the message. The tone of the spot is best characterized as the interaction between a bright but headstrong young man (perhaps like Jimmy Olson in the Superman series) and his super-hero.

D. Bicyclist Anti-Rideout

1. The Problem

Cross and Fisher (1977) identified several prevalent accident types (1, 2, 3, 4, 5 and 25) in which bicyclists suddenly "ride out" into the path of oncoming motor-vehicles. The origin of these "Rideouts" may be from a residential or commercial driveway, over a curb or through a stop sign at an intersection. The bicyclists, who are usually young, fail to search effectively for threats and often are unaware that they are making an entry into the street. The situation is analogous to the pedestrian dart out problem defined by Snyder and Knoblauch (1971).

2. Target Groups/Objectives

The primary target group for this message is young bicyclists. As a class, the rideout accidents defined by Cross and Fisher (1977) involved the youngest victims, with median ages ranging from 9.8 years (Type 1) to 13.8 years (Type 2). This is not surprising given the typical locations of the crashes (residential neighborhoods) and the unthinking, impulsive, childlike behavior by which they are characterized.

The large representation of driveway rideouts in the Cross and Fisher (1977) data (almost 9% of the non-fatal crashes originated from driveways) suggested that the specific message objective should be centered on behaviors when leaving a driveway. The absence of adequate search as a contributing factor, the frequently cited presence of visual screens and the

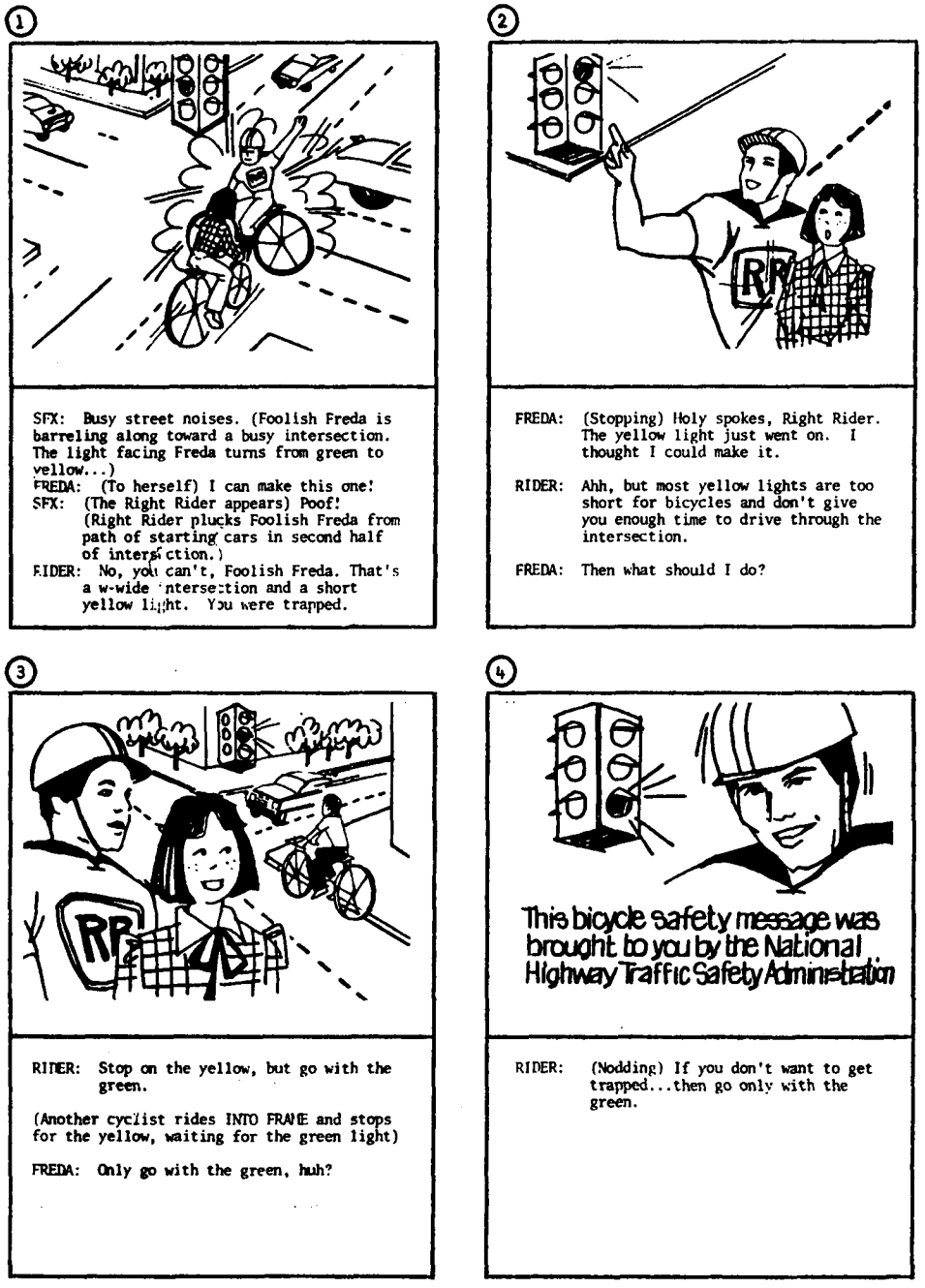

Figure 6. Bicyclist Trapped in Signalized Intersection TV Spot (30 seconds)

MEDIA:	Radio spot - 30 seconds.
TITLE:	THE CONTINUING ADVENTURES OF THE RIGHT RIDER
SFX:	Traffic noises. Poof!
FELIX:	Holy spokes! It's. . . (trumpet sound) the Right Rider.
RIDER:	Rrright, Foolish Felix. If I hadn't come along, you'd have ridden your bicycle right into that intersection after the light turned yellow.
FELIX:	Yeah? So what?
RIDER:	There's not enough time for a bicyclist to get across before the cars start coming. And the cars don't expect to find you trapped in an intersection.
FELIX:	Oh no. How can they avoid hitting me?
RIDER:	When motorists get a green light, they should play it safe and look for bicyclists trapped in the intersection.
FELIX:	Isn't there an easier way to say that?
RIDER:	Of course. Look before you start.
FELIX:	Before who starts?
RIDER:	Tsk, tsk. The motorist, Felix. The motorist.
FELIX:	Motorists should look before they enter intersections, even when the light is green?
RIDER:	That's it!
FELIX:	This message was brought to you by the National Highway Traffic Safety Administration.

. . .end/

Figure 7. Bicyclist Trapped in Signalized Intersection Radio Spot

parallels with the pedestrian dart out suggested that the countermeasures previously developed in the pedestrian context (cf. Blomberg and Preusser, 1974) would likely be effective for these bicycle accidents. Hence, the goal of the adopted message was to engender a stop and left-right-left search sequence prior to a street entry on a bicycle.

3. Media Selection

The age of the target audience, the apparent need to demonstrate the novel left-right-left search sequence and the success of the analogous pedestrian message in gaining TV air time and reducing accidents (Blomberg et al., in process) strongly indicated that television was the medium of choice for this message. The basic version was designed as a 60 second spot. However, this spot is quite amenable to the derivation of a 30 second version by eliminating the repetition in the demonstration of the correct behaviors.

4. Message Description

The basic creative approach of Right Rider saving a "foolish" bicyclist is repeated in this spot as shown in Figure 8. The spot opens with Foolish Freddie beginning an obvious rideout maneuver from a residential driveway. Freddie, who is 10 or 11 years old, is stopped short of the street by Right Rider, who introduces himself and the reasons why Freddie (and all children) might be interested in his advice. Right Rider then presents the stop and search (left-right-left) message which is demonstrated by bicyclists in the background. The spot ends with the acknowledgment that Freddie has learned the correct behavior which he clearly demonstrates.

This spot could be used as the initial introduction of Right Rider. Its construction is ideal for this purpose because time is available for a description of his mission. The closing (frame 6) also reinforces the mysterious nature of Right Rider's appearance as Freddie and his friends engage in dialogue reminiscent of the ending of the Lone Ranger shows.

In producing this spot, special care must be exercised in two areas. First, all demonstrations of the left-right-left search sequence should be shown from behind the bicyclists. This will avoid any confusion generated by the reverse of directions when viewing the demonstrations from the front. Second, Right Rider's appearance and position should always be consistent with safe bicycling practices. Thus, he should not appear in a wrong-way riding posture (as might be implied by frame 1) but, rather should be clearly off the road or riding with traffic. This will avoid any possible counterproductiveness arising from an attempt to emulate Right Rider.

E. Visual Screens

1. The Problem

Motorists are frequently prevented from detecting bicyclists by visual screens. Such things as parked cars, trees, hedges and buildings can easily block the view that motorists and bicyclists have of each other. The problem is particularly severe in the driveway rideout class of accidents (Types 1, 2, 3 and 4), although the presence of a visual screen can be implicated in nearly all of the accident types.

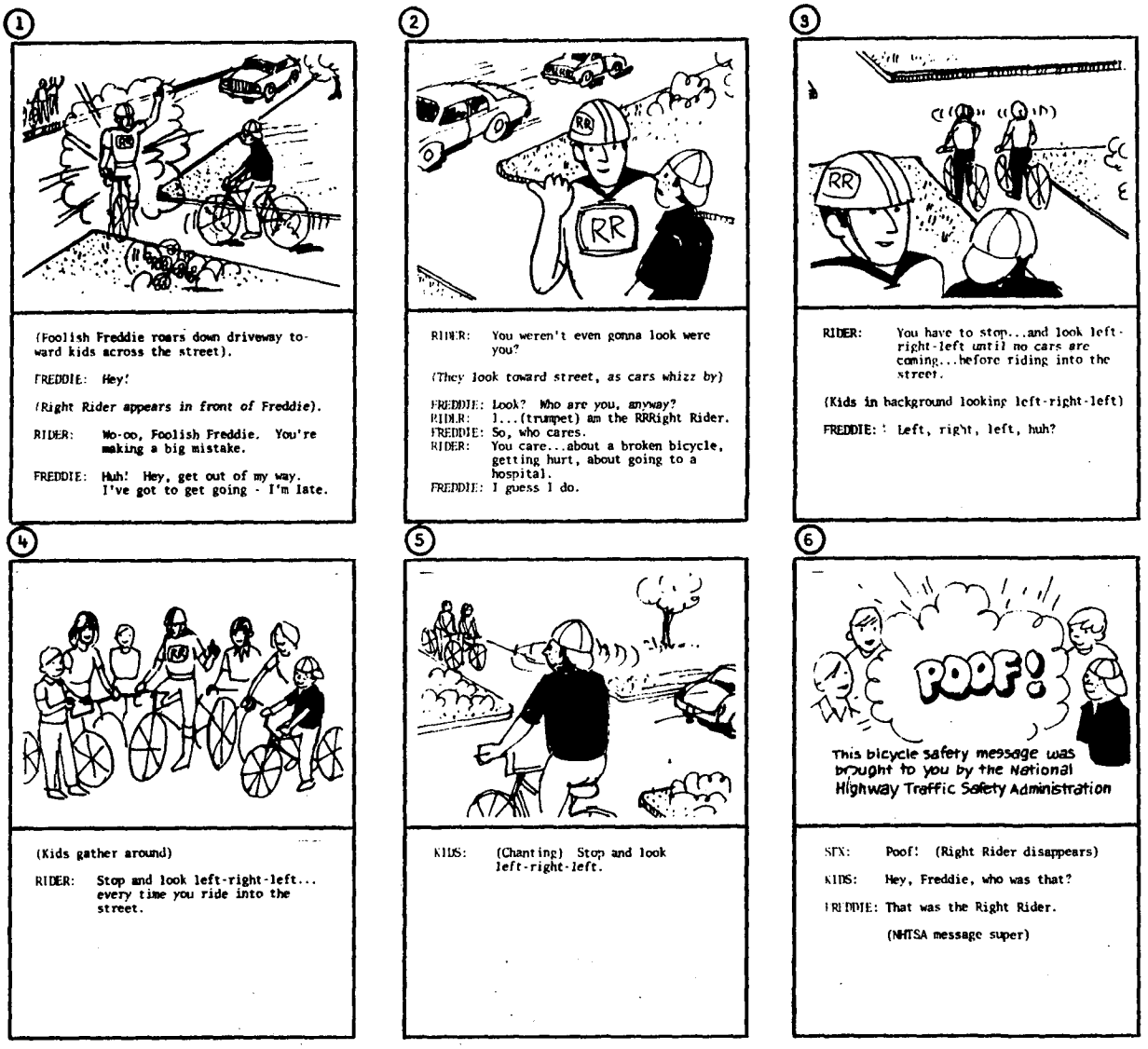

Figure 8. Bicyclist Anti-Rideout TV Spot (60 seconds)

2. Target Groups/Objectives

There is little that motorists can do to counter effectively the detection problem caused by visual screens. They can be alert, cautious and proceed at a minimum acceptable speed and still not avoid accidents when bicyclists ride out from behind visual screens without stopping or searching. Bicyclists, on the other hand, can cope with the problem by employing appropriate course and search behaviors.

Therefore, the message objective developed was to convince bicyclists of all ages (although with an emphasis on those teenaged or younger) to stop at the edge of any visual screen encountered and to look left-right-left before proceeding into the traveled portion of the roadway. A secondary objective was to sensitize bicyclists to the types of visual screens which might be encountered to increase the likelihood that the bicyclist would identify times when the desired behaviors had to be employed. This message is a companion to the Anti-Rideout message discussed above. It covers essentially the same behavioral advice (stop and look L-R-L) in the context of the presence of visual screens and for a slightly older audience of bicyclists.

3. Media Selection

The subject matter of this message clearly indicated the need for a cinematic presentation. The relative simplicity of the advice indicated that a 30 second TV spot would be sufficient to convey the information.

4. Message Description

Figure 9 shows Right Rider interacting with Foolish Felix to present this message. In executing the familiar rescue and education sequence, it will be particularly important to convey the screening nature of the building and parked car (frame 1). Many people do not believe that these objects can effectively block a target as large as a person on a bicycle. Careful selection of shooting locations and camera angles can highlight the threat and thereby imply the need for a remedy without being blatant or unbelievable.

F. Stop Sign Intersection

1. The Problem

Another aspect of the rideout problem involves bicyclists who proceed through stop signs at intersections without stopping or searching (Type 5). As in the cases of driveway rideouts and emergence from behind visual screens, the motorist is not given sufficient preview time to avoid striking the bicyclist.

2. Target Groups/Objectives

Bicyclists involved in the Type 5 accident are almost always juveniles. Their median age of 11.8 years, however, makes them somewhat older than the bicyclists involved in rideouts from residential driveways. The derived message objective was to engender the same stop and search (left-right-left) pattern described above for driveway exits and visual screens with the focus of the behavior set at the stop sign.

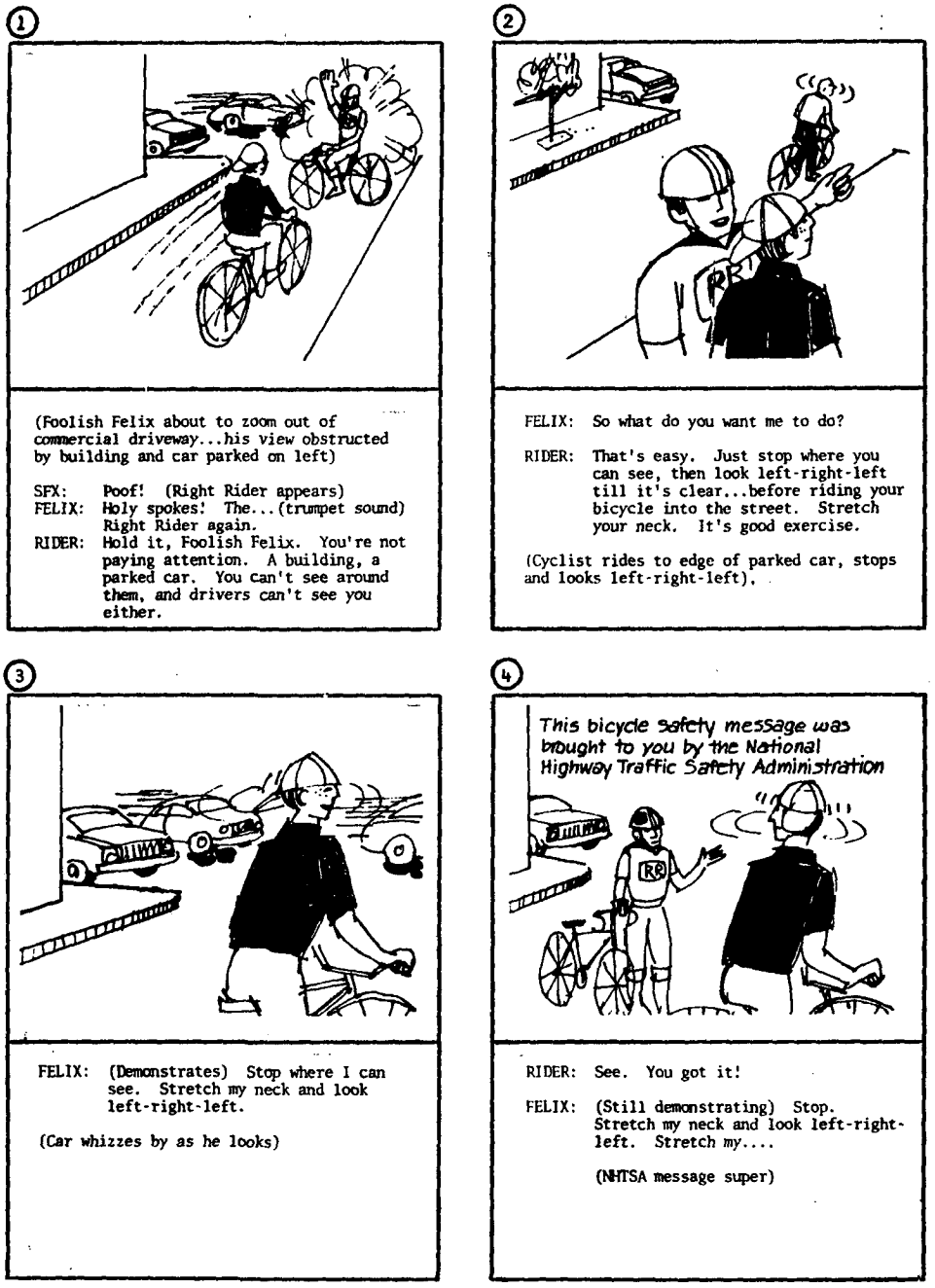

Figure 9. Visual Screens TV Spot
(30 seconds)

3. Media Selection

As with the other two messages which present the left-right-left search pattern, this message appeared best executed in a cinematic format for TV. A 60 second spot containing repetition of the behavioral advice was selected. However, by deleting the reprise of the advice, a 30 second version can easily be derived from the 60 second material.

4. Message Description

The TV spot for this message, as shown in Figure 10, follows the same basic model as the driveway rideout spot shown in Figure 8 above. Right Rider rescues Foolish Freddie before he has an opportunity to complete his intended rideout through the stop sign. Right Rider then teaches Freddie the correct behavioral sequence which is reinforced by a demonstration given by bicyclists in the background (frame 4). Freddie, who is a youth of perhaps 12 years, then shows that he has learned his lesson by demonstrating the advice himself. As in the other spots which address the left-right-left search, all shots are from behind the actors to avoid the problem of apparently reversed directions.

G. Bicyclist/Parked Car

1. The Problem

Bicyclists who ride in the roadway alongside parked cars often collide with or are struck by car doors which open suddenly in their paths (Type 17). In other cases, the bicyclist swerves out to avoid the opening door and is struck by a passing motor-vehicle (Types 18 and 20). The problem is exacerbated when there is scattered free curb space and the bicyclist weaves in and out of the line of parked cars.

2. Target Groups/Objectives

The identified problem is characteristic of teenaged and older bicyclists who ride in areas with many parked cars. Many behavioral remedies were considered including the promotion of bicyclist searches into the side view mirrors of parked cars. It was concluded that only two behavioral objectives were reasonable for delivery by a message.

The first adopted objective was to reduce the instance of weaving in and out of parking spaces. It was reasoned that the bicyclist would be more visible to the overtaking motorist and that the bicyclist would have more time to search for opening car doors if a straight course were adopted. The second objective was to promote adopting a position on the roadway which was far enough from the parked cars to avoid a collision in the event a car door suddenly opened. While the exact safe distance could not be derived empirically, there was a consensus among experts consulted that even this non-specific advice would be effective. The premises were that the car door opening hazard is unknown to many bicyclists and that any outward displacement of the bicyclist's course would be beneficial.

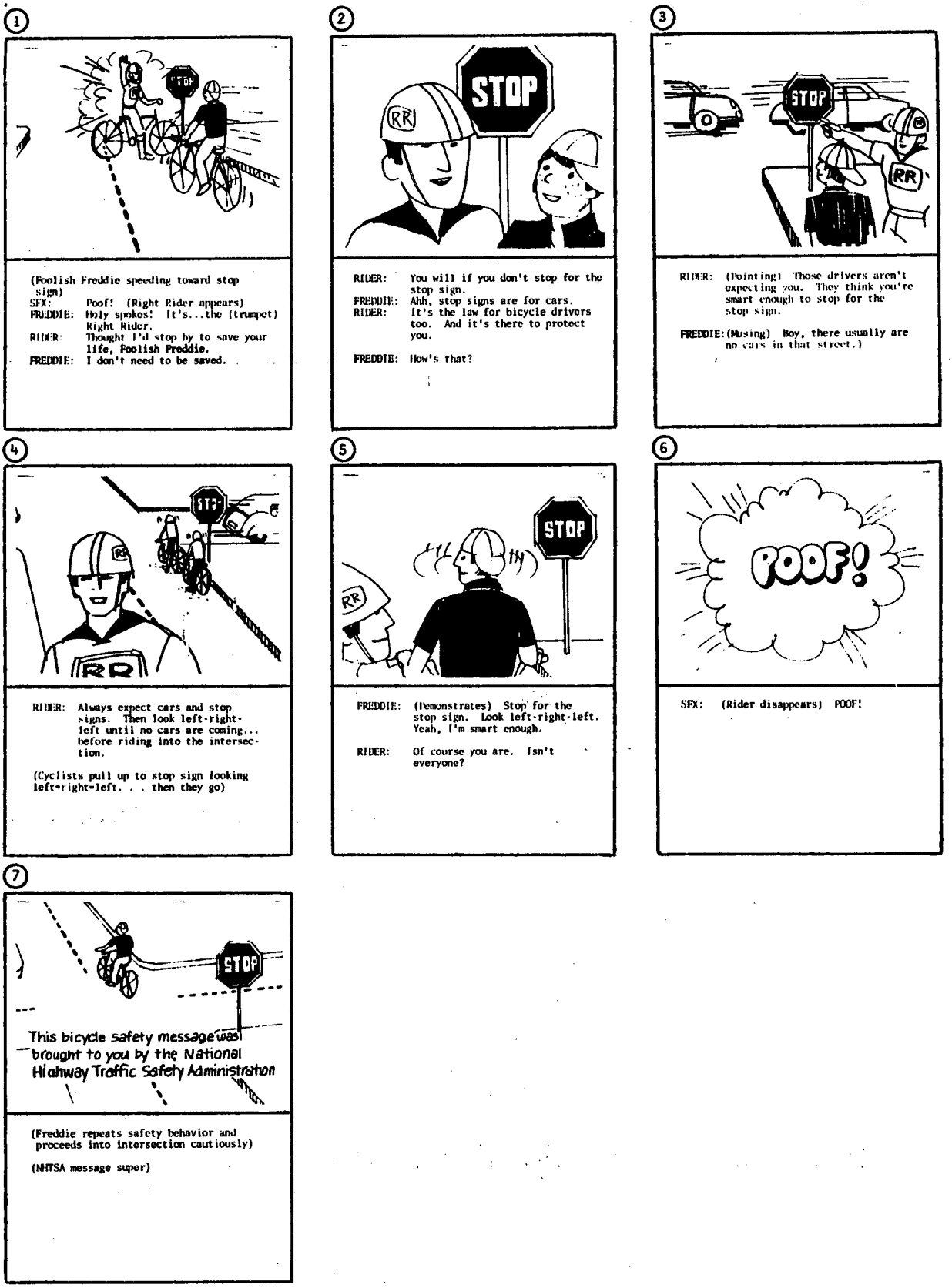

Figure 10. Stop Sign Intersection TV Spot (60 seconds)

3. Media Selection

This message only appeared viable for TV presentation. The covered situation would be extremely complex to describe verbally or in print. Moreover, the nature of the behavioral error being countered seemed ideal to the Right Rider approach.

4. Message Description

The 30 second TV spot shown in Figure 11 follows the same pattern described previously. Foolish Felix, a teenager, is weaving in and out of parking spaces. He is saved from an accident by the magical appearance of Right Rider who then explains the correct behaviors. Part of the charm of this spot would be the close interaction of Right Rider and Felix in several scenes. This combination of animation and live action should be particularly memorable.

In order to accommodate all of the required information in a 30 second spot, little time was spent in introducing Right Rider. When he appears here, as in other spots when time was short, he is immediately recognized by the errant bicyclist. Therefore, it would be best if this spot and the others of similar construction were not the first Right Rider material released.

H. Bicyclist Awareness/Crossing Motorist

1. The Problem

Motorists who are stopped or pausing before turning across, merging into or otherwise crossing traffic often move forward suddenly and strike bicyclists. A variety of situations are involved including: Motorists entering roadways from commercial driveways or alleys (Type 8); motorists entering stop sign controlled intersections (Type 9) or intersections controlled by signals (Type 10), particularly when making a right turn on red; and motorists stopped in traffic to turn into other roadways or driveways (Types 22, 23 and 24). The predominant behavioral errors are the failure of the distracted motorist to detect the bicyclist, who is usually visible, and the faulty assumption by the bicyclist that he or she has been seen.

2. Target Groups/Objectives

The identified problem is virtually universal. All bicyclists who ride in traffic are certain to encounter a turning or merging motorist. Hence, the message was directed to all bicyclists. Its specific objectives were: to acquaint bicyclists with the hazardous situation; to teach bicyclists that stopped motor-vehicles usually provide cues that they may cross the bicyclist's path; and to convey specific cues for the situation in which the motorist is turning across the bicyclist's path at an intersection.

A message targeted at motorists with an objective of improving search behavior was considered but rejected for two reasons. First, the Motorist Perceptual Awareness spot already generically addressed the motorist failure in this situation. Second, the Cross and Fisher (1977) data seemed to indicate that motorists in these situations are overloaded by the large number of searches which they must conduct. Therefore, it was not considered productive to attempt to counter the sensory overload situation with a message when the simpler and potentially more effective approach to the bicyclist was available.

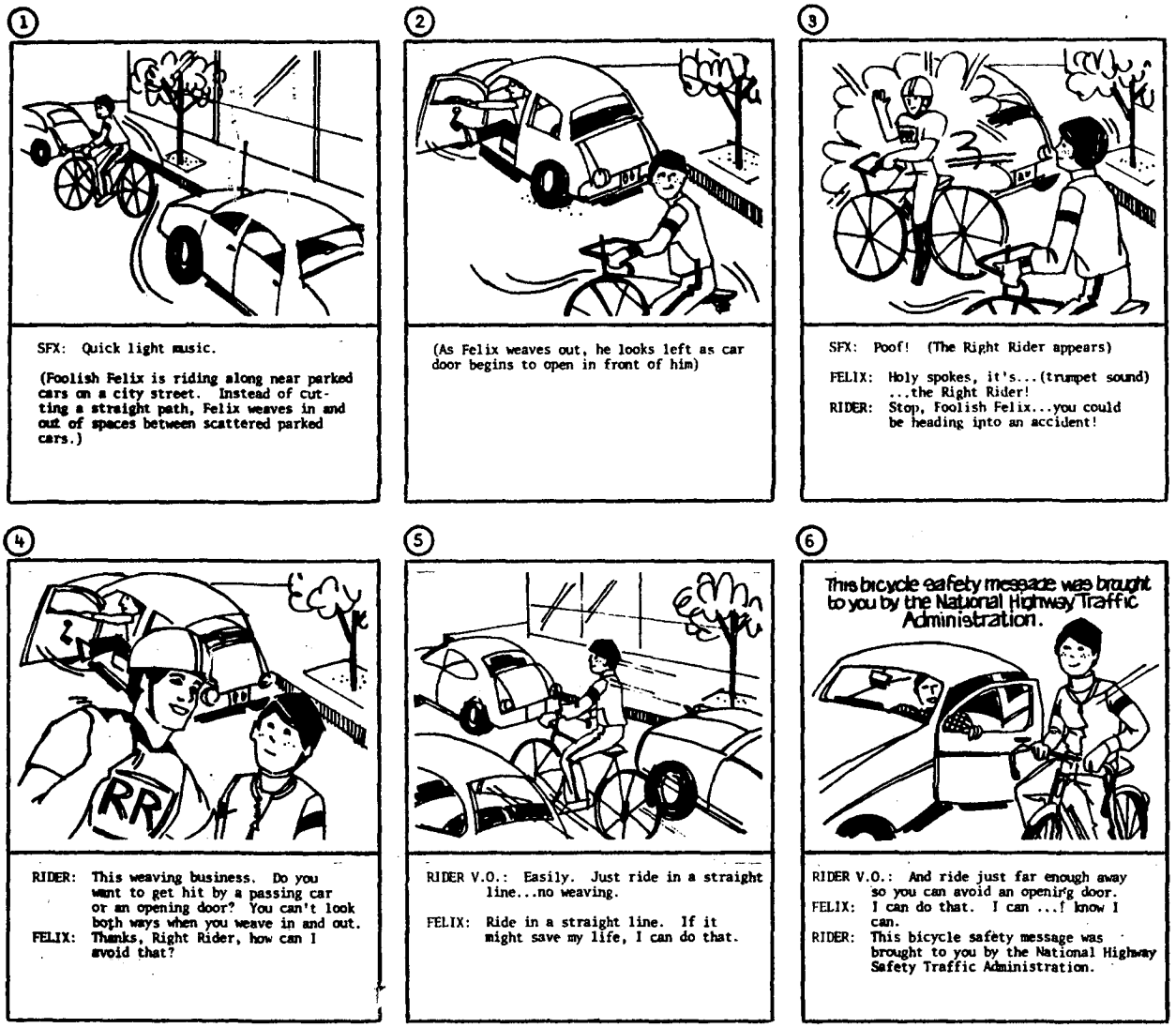

Figure 11. Bicyclist/Parked Car TV Spot (30 seconds)

3. Media Selection

Television was chosen for this message for all of the previously cited reasons. Moreover, the complexity of this message necessitated the development of a 60 second spot. This is one of the few messages for which a 30 second version did not appear feasible.

4. Message Description

The 60 second spot shown on the storyboard in Figure 12 employs Foolish Felix and Right Rider in the previously documented manner. The Felix in this spot may be the same actor used in the Bicyclist/Parked Car spot (Figure 11), although this constraint on casting is not essential as long as Felix is depicted as a relatively mature, responsible teenager. Perhaps more than any of the other developed TV spots, the success of this message will depend on the execution of the script. Depiction of the problem and the cues presented by turning vehicles must be exaggerated in a subtle manner to emphasize the points. This cinematic highlighting must be carefully handled to avoid being blatant and therefore unrealistic. It will also take much care and creativity to stress the existence of the various visual cues without implying that they are more readily apparent than they really are.

I. Bicyclist Overtaking Cars on Right

1. The Problem

Cross and Fisher (1977) identified a unique problem type (No. 24) in which bicyclists riding to the right of motor-vehicles at intersections are struck when the motor-vehicles unexpectedly turn right. Motorists turning right at intersections or driveways cannot see bicyclists riding alongside them on their right, and bicyclists in this position cannot see directional or hand signals given by the motorist.

2. Target Groups/Objectives

This problem tends to involve bicyclists who are teenaged and older. These individuals should be smart enough to avoid this situation but because of inattention or preoccupation they do not. To counter this situation, the developed message objective was to persuade bicyclists to ride in the gaps between traffic and to stay out of the blind spots of motorists.

3. Media Selection

This message was considered suitable for either TV or radio presentation because the concepts of riding alongside a car and being in a blind spot are quite well known. Radio was ultimately rejected in favor of a 30 second TV spot for two primary reasons. First, the target audience included a broad range of bicyclists who would have vastly different radio listening habits. Second, the dynamics of the accident type which was addressed created the possibility of a highly entertaining and novel use of the Right Rider character.

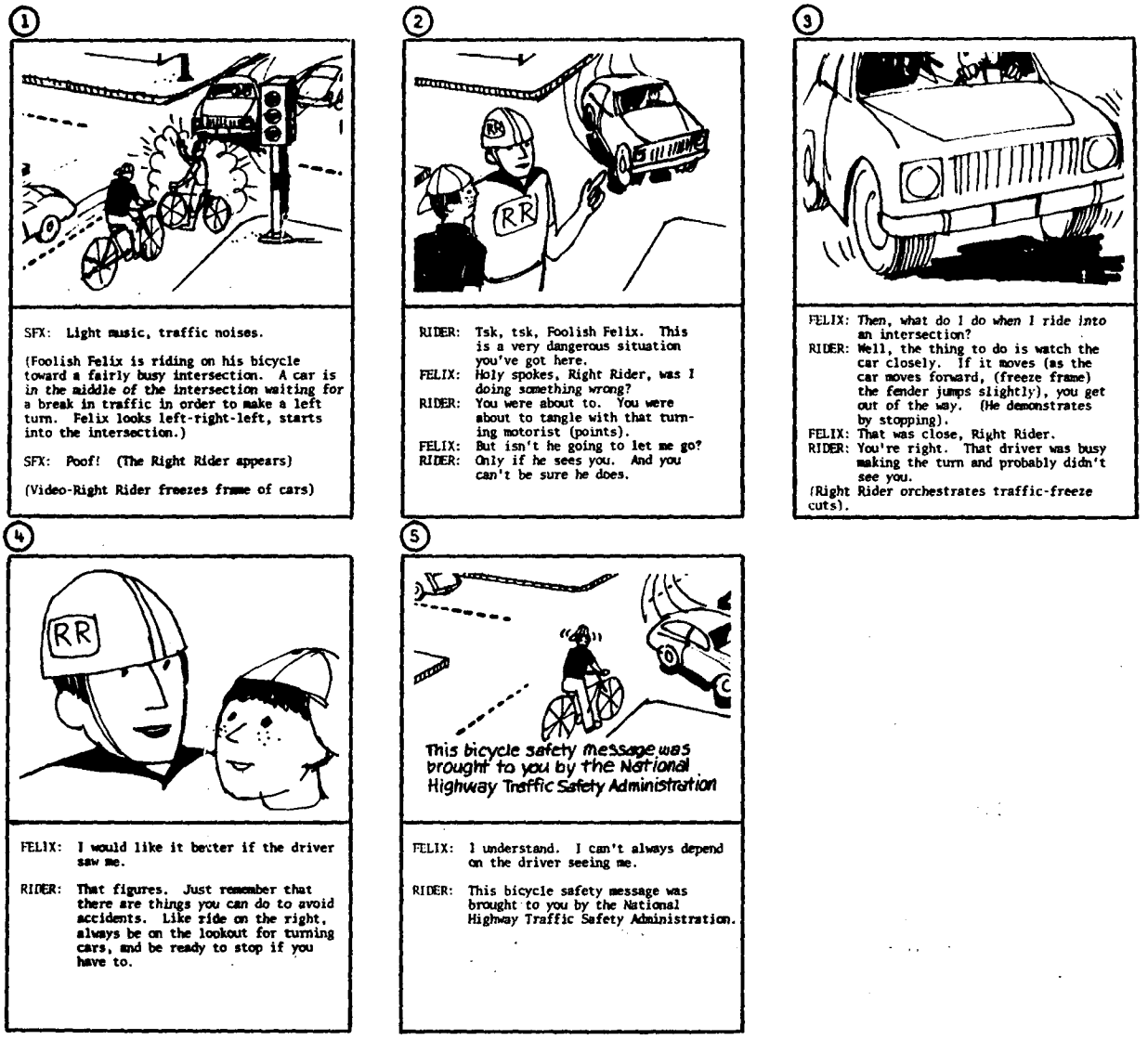

Figure 12. Bicyclist Awareness/Crossing Motorist TV Spot (60 seconds)

4. Message Description

In the 30 second TV spot shown in Figure 13, the typical sequence of Right Rider saving a foolish bicyclist (Foolish Frankie in this case) takes a new twist. This is the only one of the developed spots in which Right Rider does not appear on his bicycle at all during the message. Instead, he materializes on the back of the car turning right and prevents Frankie from bicycling into the motorist's blind spot. The opening line of frame 3 emphasizes the unthinking nature of the bicyclist's intended actions as Right Rider states: "so this is how you became Foolish Frankie."

Because Right Rider is not on his bicycle in this spot, it is not recommended as the initial entry in a media campaign. However, because of the truly unique and entertaining portrayals in this spot and the relatively high incidence of the accident type (5.6% of all non-fatals in Cross and Fisher, 1977), this spot appears particularly worthy of consideration for production.

It is also worthy of mention that Foolish Frankie in this spot is depicted as wearing a bicycle helmet. It was decided to portray him in this fashion to imply that the addressed problem occurs even to concerned or experienced bicyclists, i.e., those who would wear a helmet. The urban, relatively high traffic density locations of these accidents also suggested a greater likelihood that helmet-wearing bicyclists might be involved, although the accident data could not be used to confirm this point.

J. Bicyclist Unexpected Left Turn

1. The Problem

One of the most frequent and serious (8.4% of fatal and non-fatal crashes) problem types identified by cross and Fisher (1977) involves a bicyclist who suddenly turns left into the path of an overtaking motor-vehicle. In virtually all of these accidents, the bicyclists, who may have been relying on auditory cues, failed to search behind for overtaking vehicles before initiating their left turns. The motorist almost always saw the bicyclist in time but had no indication that the bicyclist would turn left.

2. Target Groups/Objectives

As discussed in Volume I of this report, a special study was undertaken to help define the target audiences and objectives for this message (Casey, et al., 1980). From this study, it was clear that bicyclists of all ages often turn left without a prior rearward search. The study also showed that bicyclists could execute an effective search behind without losing balance or lateral stability. Moreover, the ability to conduct a search to the rear while moving forward was not found to be greatly influenced by bicyclist age or riding experience.

The study results led to the derivation of the objective for this message of engendering a rearward search by bicyclists prior to any move to the left. In addition, the goal of cautioning bicyclists not to rely on auditory cues was included. Subsumed in this objective was the clear implication that the desired search was both safe and convenient to perform.

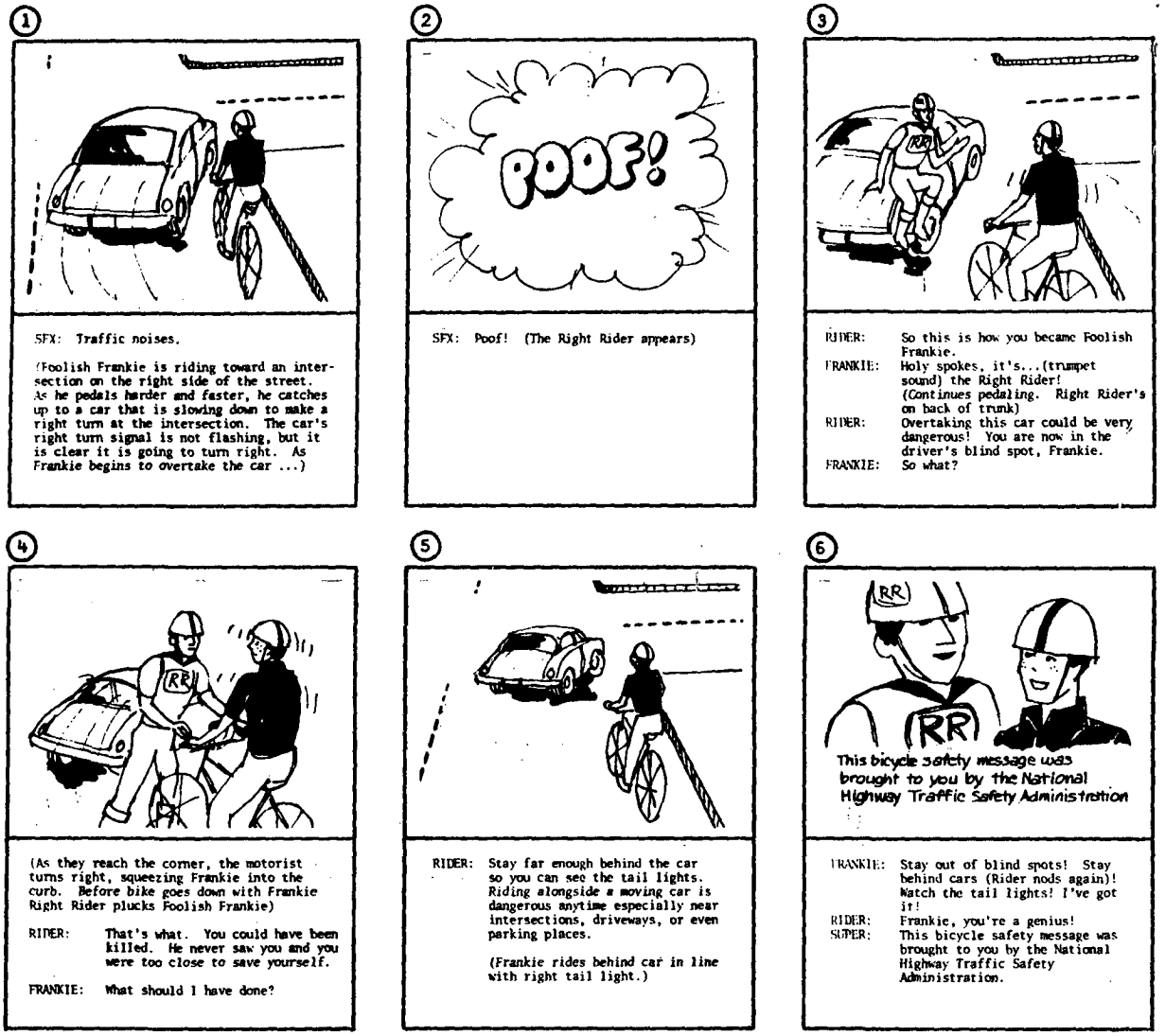

Figure 13. Bicyclist Overtaking Cars on Right TV Spot (30 seconds)

3. Media Selection

A 30 second television spot was again the medium of choice. The message objective suggested that a visual execution of the material would be the surest means of transmission in a public service environment.

4. Message Description

As in the spot addressing bicyclists who overtake cars on the right (see Section I, above), the foolish character, Felix in this case, is saved by the magical appearance of Right Rider. However, in this spot, as shown in Figure 14, Right Rider's bicycle enters the action so that he and Felix can ride off demonstrating the proper rearward search. Because it is generally considered more uncomfortable to search behind when riding a bicycle with dropped handlebars, Felix is to be shown riding a lightweight bicycle. It is hoped that this will reinforce the message that a rearward search is necessary and simple whenever a left turn is made and on any type of bicycle.

K. Motorist Anti-Rideout

1. The Problem

Motorists exiting commercial driveways or alleys often collide with bicyclists (Type 8). In some cases, they may experience the perceptual problems discussed in Section A, above. However, in many accidents of this type, the motorist simply fails to look far enough to the left or right to see a bicyclist. The search problem is particularly acute for bicyclists coming from the driver's right, especially on the sidewalk. Simply, motorists in this position do not expect a relatively fast moving vehicle (bicycle) to be coming along facing traffic (from the motorist's right). Moreover, the motorist's main concern is to find a gap to allow a merge into traffic. Therefore, the motorist typically does not search for bicycle threats.

2. Target Groups/Objectives

All motorists can fall prey to the defined search problem whenever they exit commercial driveways or alleys. The developed objectives to remedy the situation attempt to sensitize the motorist to the need for a special search for bicyclists and to engender a left-right-left search pattern. The attempt to increase specific searches for bicyclists is similar to the objective for the motorist perceptual awareness messages discussed above. The extension of the left-right-left search advice to the motorist has the same logical basis as for pedestrians (cf., Blomberg and Preusser, 1974) and bicyclists. A search in both directions is needed to obtain a total picture of the situation the motorist is about to enter. The final search to the left is for the most imminent threats. The total pattern insures complete coverage and appropriate timing of obtained visual information.

3. Media Selection

It was felt that radio would be a reasonable primary medium for this message for two reasons. First, motorists, the target audience, are "captive" radio listeners while they drive. Second, by definition, motorists are an audience which is old enough to conceptualize the proposed left-right-left

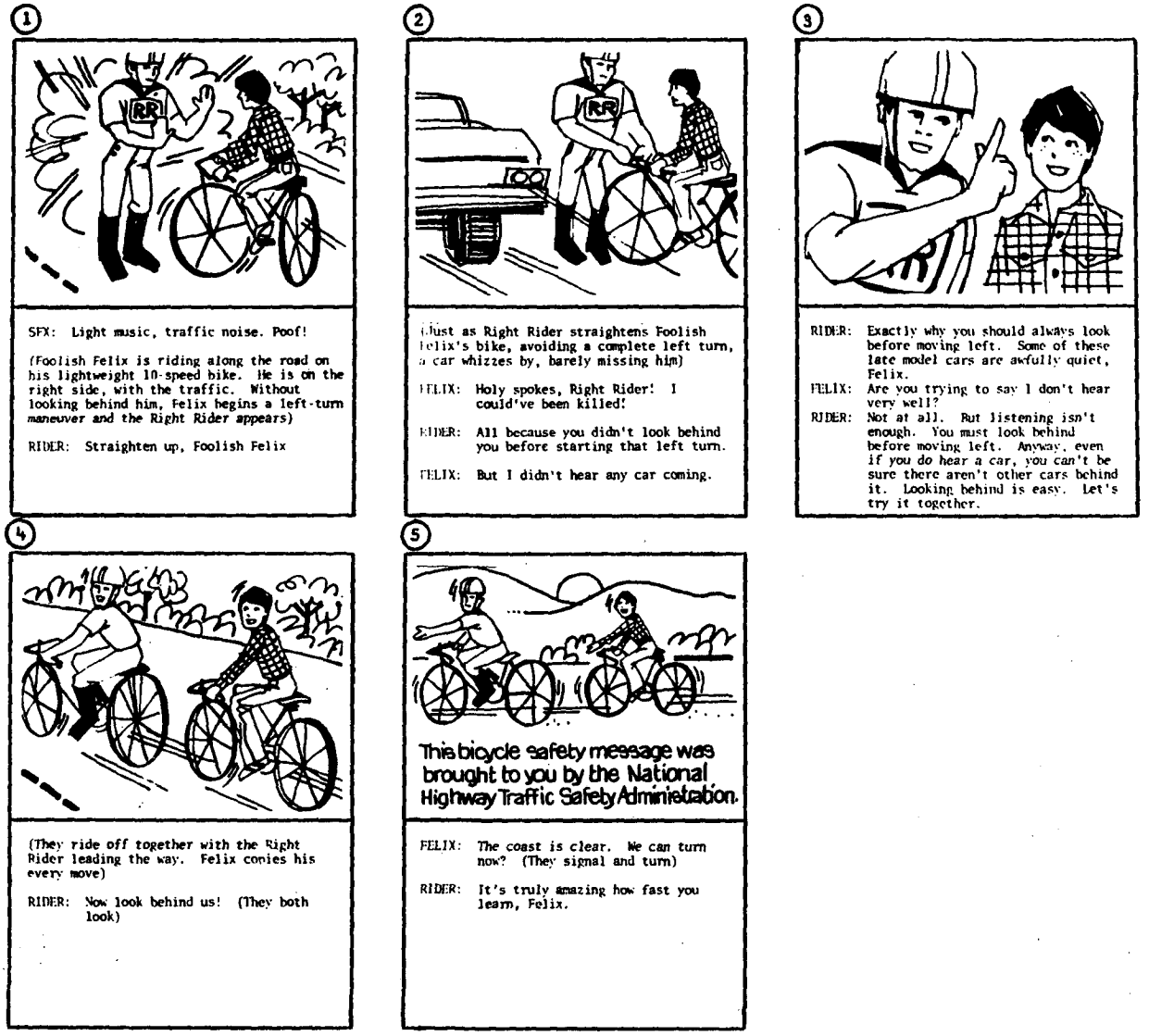

Figure 14. Bicyclist Unexpected Left Turn TV Spot (30 seconds)

search pattern without the need for a demonstration. Hence, a 30 second radio spot was the selected media execution.

4. Message Description

Right Rider and Freda convey this message in a question and answer format. As shown in the script (Figure 15) Freda begins by assuming she has done something wrong because Right Rider suddenly enters the action. Right Rider assures her that his appearance is for the purpose of delivering a message to motorists. They then proceed to deliver the advice which, as they point out, is equally applicable to bicyclists and motorists.

A potential secondary benefit to this spot is the creation of a feeling among motorists that bicycle safety is one of their concerns when on the highway. If this secondary message prompts a change in motorist attitudes, a generally positive effect on the interaction among motor-vehicles and bicycles on the highway could be expected.

MEDIA:	Radio spot - 30 seconds.
TITLE:	THE CONTINUING ADVENTURES OF THE RIGHT RIDER
SFX:	Light traffic noise, and Poof!
FREDA:	Holy spokes! The . . . (trumpet sound) Right Rider. Am I doing something wrong?
RIDER:	(Chuckling) Nnoo, Freda. I'm here to remind motorists to look for bicyclists before pulling out of busy driveways.
FREDA:	Busy driveways? Like at parking lots and stores?
RIDER:	Exactly, Freda. Motorists never know where a bicycle might come from.
FREDA:	What can motorists do about it?
RIDER:	Well, they should look left-rrright-left for bicycles, pedestrians and other cars before they pull out of any driveway.
FREDA:	Shouldn't bicyclists do that too?
RIDER:	Of course! It's important for everyone who drives. . . motorists and bicyclists.
FREDA:	And that's why everybody should look left-right-left before pulling out of driveways?
RIDER:	Rrright! Left-rrright-left.
FREDA:	It sounds like you're marching.
RIDER:	That's rrriding, Freda, rrriding. This bicycle safety message was brought to you by the National Highway Traffic Safety Administration.

. . .end/

Figure 15. Motorist Anti-Driveout Radio Spot

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Blomberg, R.D. and Preusser, D.F. Identification and Test of Pedestrian Safety Messages for Public Education Programs. Final Report to the National Highway Traffic Safety Administration, June 14, 1974, Dunlap and Associates, Inc., Darien, Connecticut, ED 74-3.

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Hale, A., Blomberg, R.D. and Kearney, E.F. Model Regulations and Public Education for Rural-Suburban Pedestrian Safety. Springfield, Virginia: NTIS, Report ED 80-10, August 1980.

Snyder, M.B. and Knoblauch, R. Pedestrian Safety: The Identification of Precipitating Factors and Possible Countermeasures. Volumes I and II. Contract No. DOT-FH-11-7312, January 1971. PB 197-749.

APPENDIX A

Bicycle/Motor-Vehicle Accident Problem Type Summaries*

*The descriptions in this Appendix were adapted from Volume I of the Final Report by Cross and Fisher (1977).

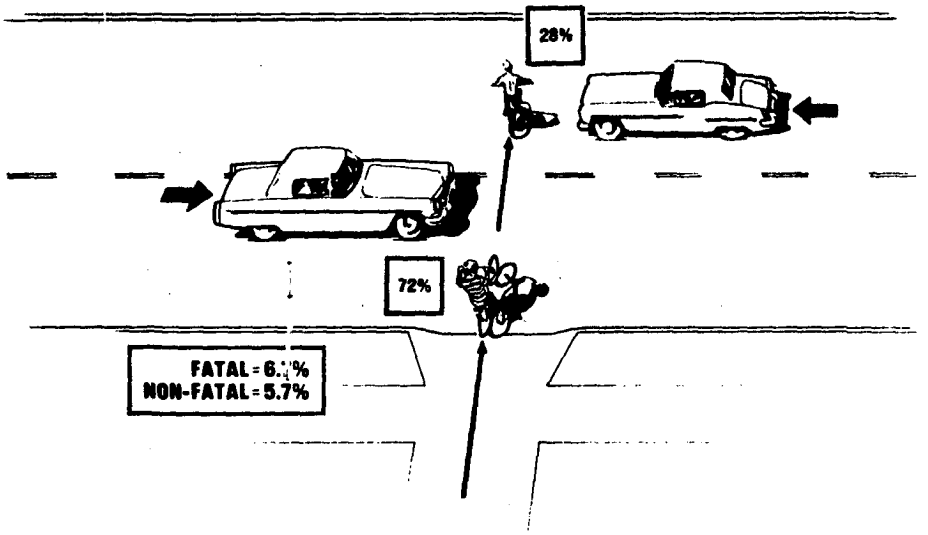

Illustration of Problem Type 1, *Bicycle Rideout: Residential Driveway/Alley, Pre-Crash Path Perpendicular to Roadway.*

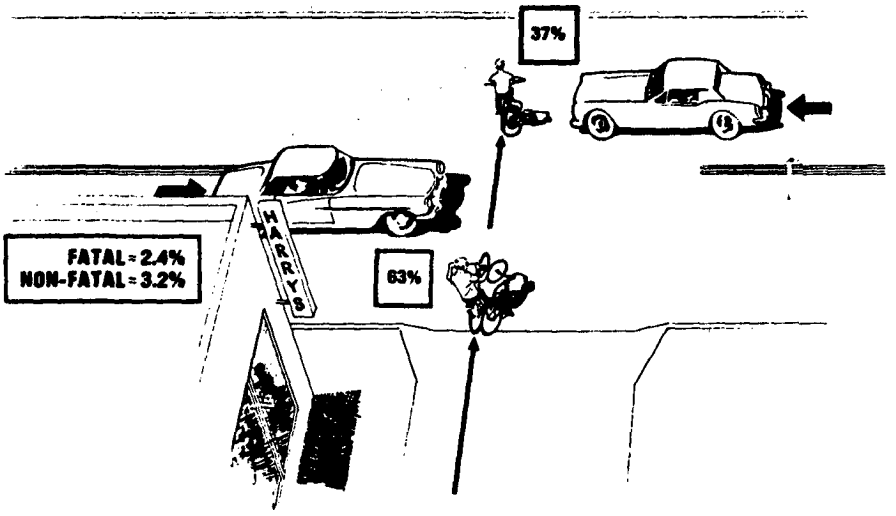

Illustration of Problem Type 2, *Bicycle Rideout: Commercial Driveway/Alley, Pre-Crash Path Perpendicular to Roadway.*

(NOTE: The building was drawn in the above illustration to indicate that this type of accident occurs at the junction of a *commercial* rather than a residential driveway/alley. Although a building sometimes obstructed the operator's view in accidents of this type, buildings were not the most frequent type of obstructing object.)

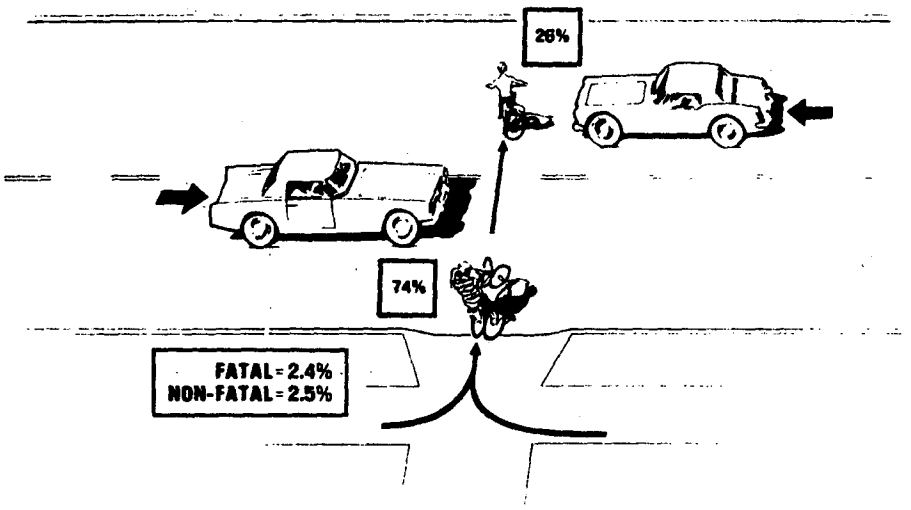

Illustration of Problem Type 3, *Bicycle Rideout: Driveway/Alley, Pre-Crash Path Parallel to Roadway.*

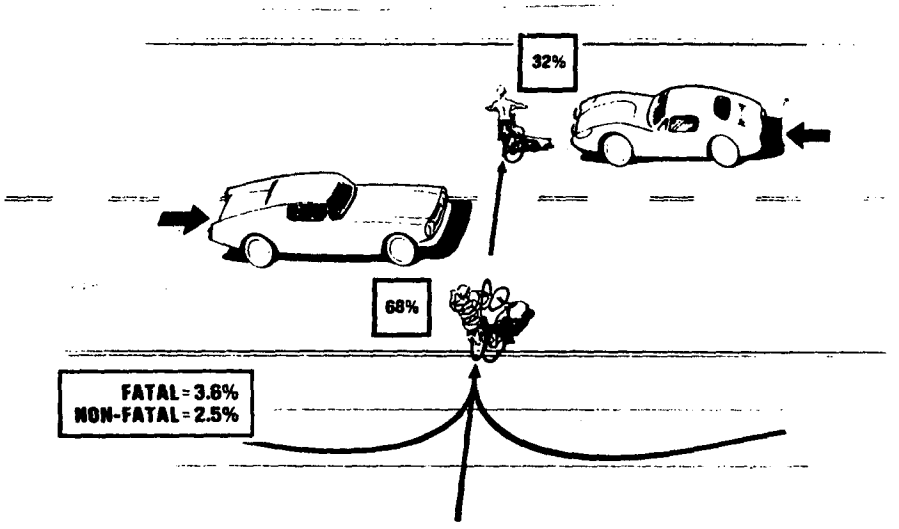

Illustration of Problem Type 4, *Bicycle Rideout: Entry Over Shoulder/Curb.*

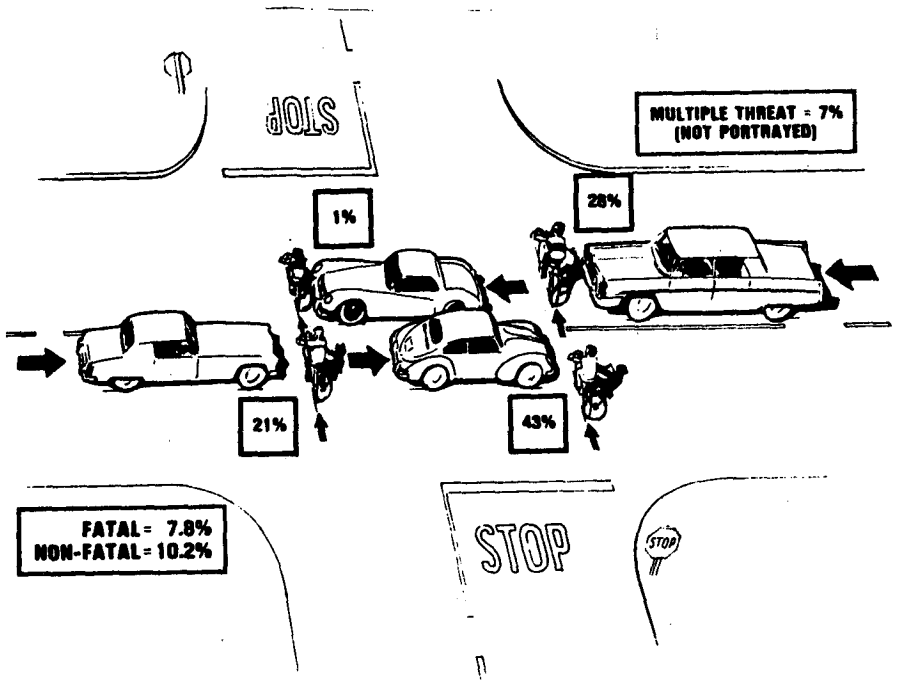

Illustration of Problem Type 5, *Bicycle Rideout: Intersection Controlled by Sign.*

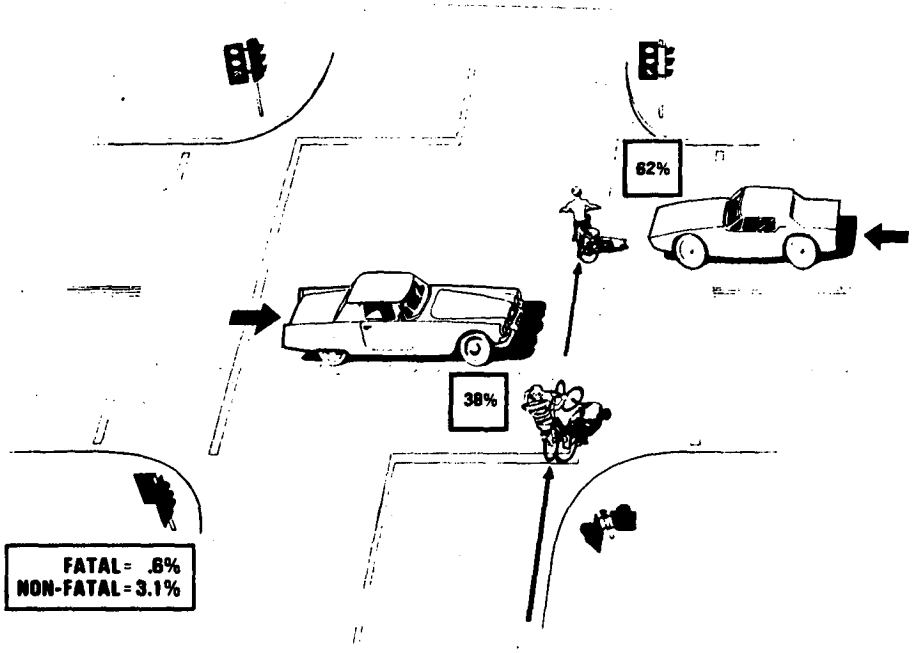

Illustration of Problem Type 6, *Bicycle Rideout: Intersection Controlled by Signal, Signal Phase Change.*

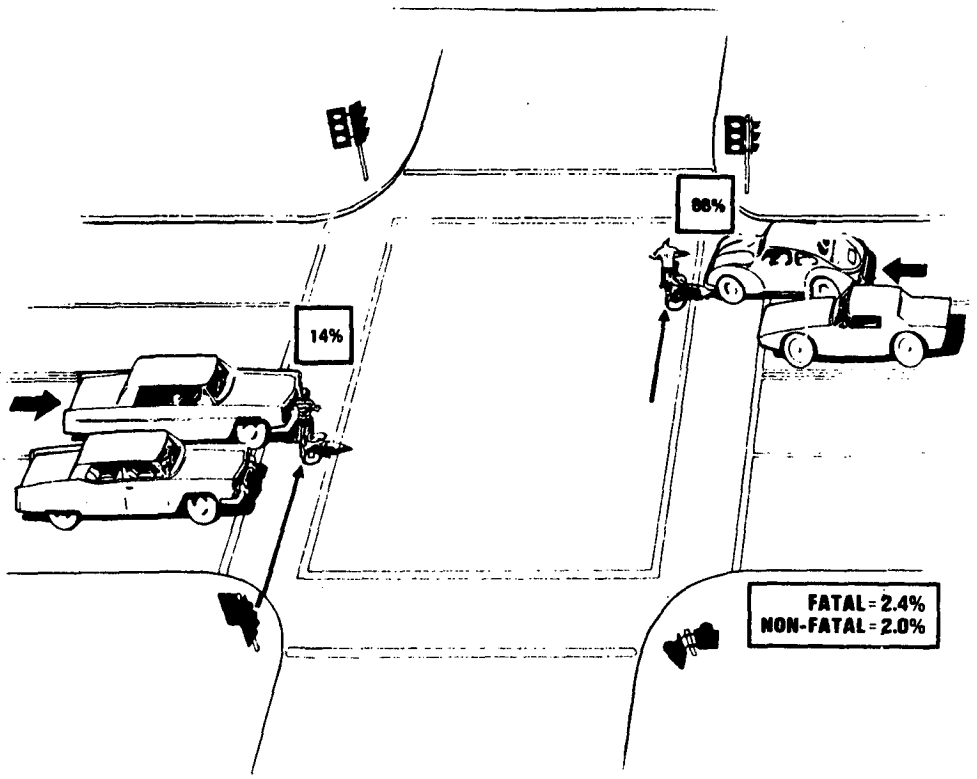

Illustration of Problem Type 7, *Bicycle Rideout: Intersection Controlled by Signal, Multiple Threat.*

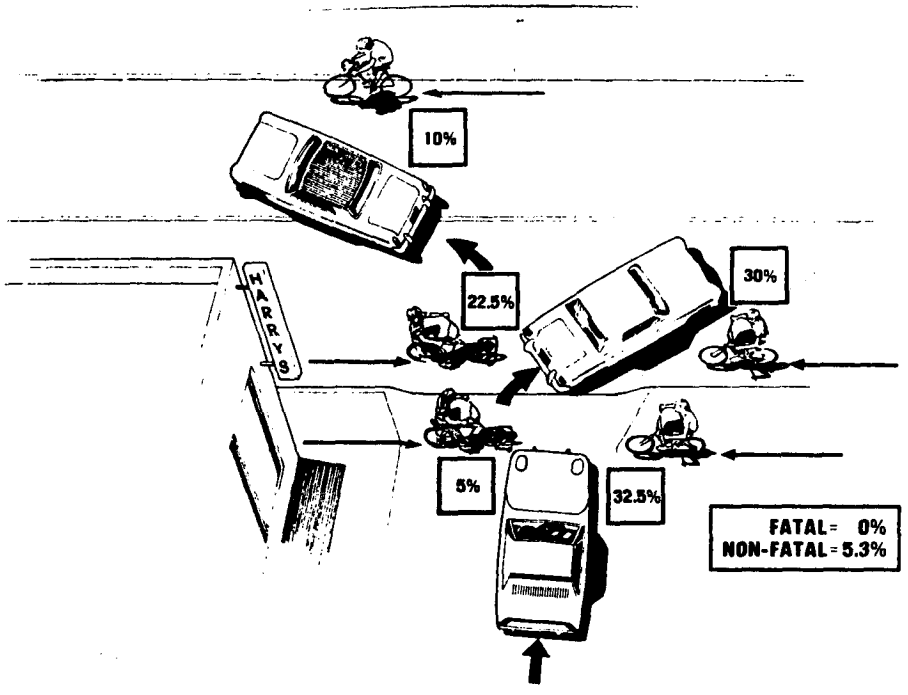

Illustration of Problem Type 8, *Motorist Turn-Merge: Commercial Driveway/Alley.*

(NOTE: The building was drawn in the above illustration to indicate that this type of accident occurs at the junction of a *commercial* rather than a residential driveway/alley. Although a building sometimes obstructed the operator's view in accidents of this type, buildings were not the most frequent type of obstructing object.)

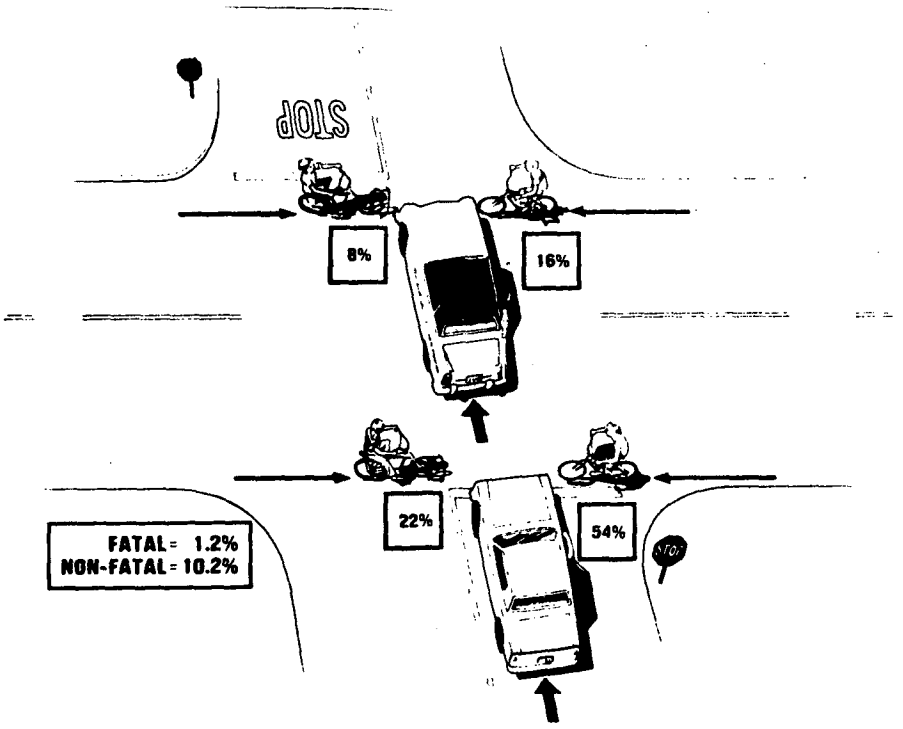

Illustration of Problem Type 9, *Motorist Turn-Merge/Drive Through: Intersection Controlled by Sign.*

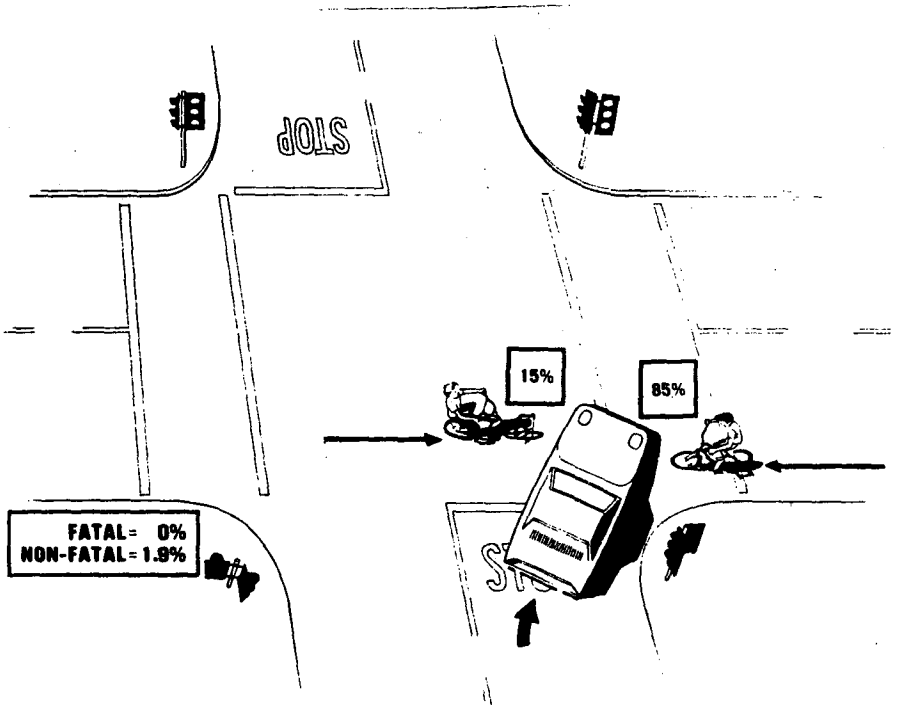

Illustration of Problem Type 10, *Motorist Turn-Merge: Intersection Controlled by Signal.*

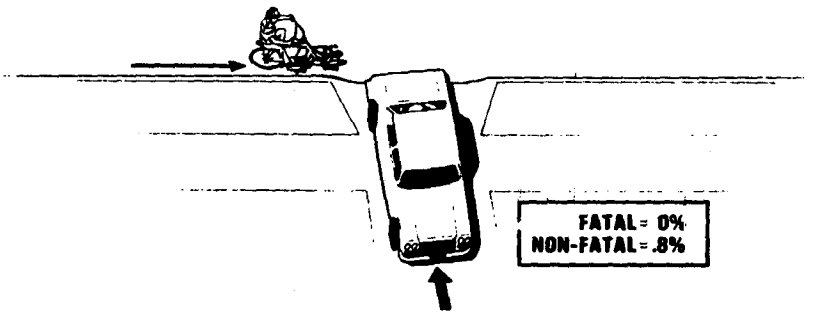

Illustration of Problem Type 11, *Motorist Backing from Residential Driveway.*

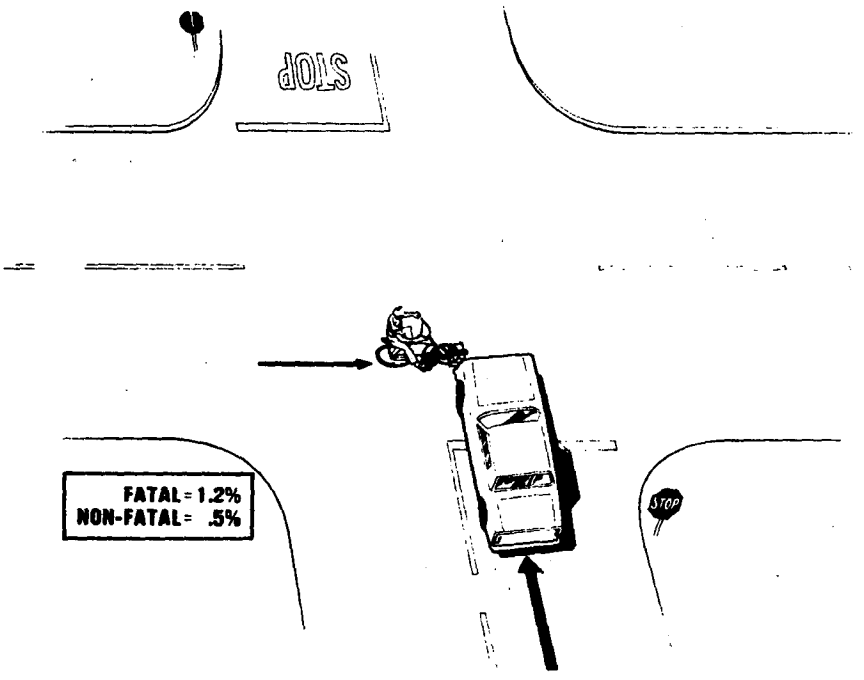

Illustration of Problem Type 12, *Motorist Driveout: Controlled Intersection.*

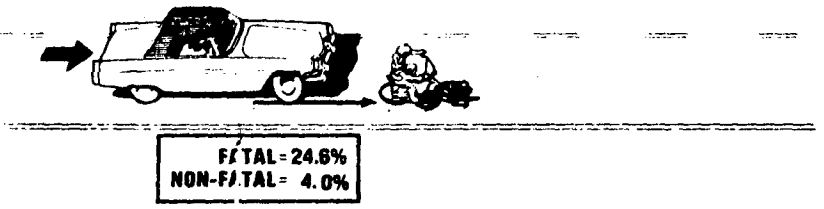

Illustration of Problem Type 13, *Motorist Overtaking: Bicyclist Not Observed.*

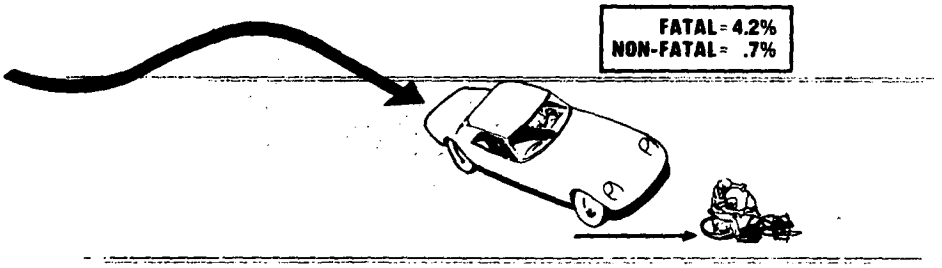

Illustration of Problem Type 14, *Motorist Overtaking: Motor Vehicle Out of Control.*

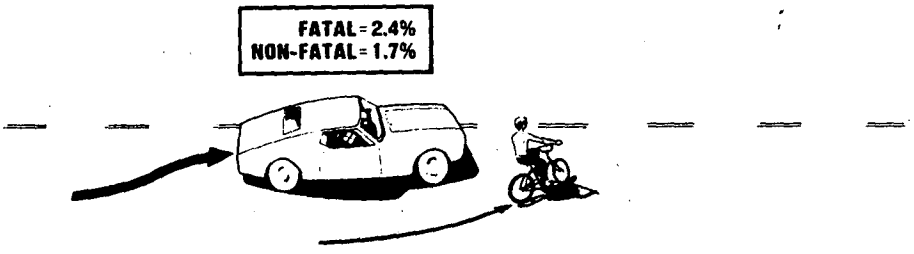

Illustration of Problem Type 15, *Motorist Overtaking: Counteractive Evasive Action.*

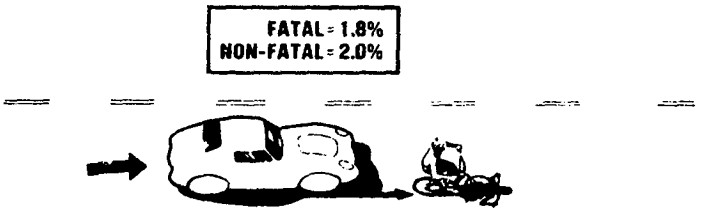

Illustration of Problem Type 16, *Motorist Overtaking: Motorist Misjudged Space Required to Pass.*

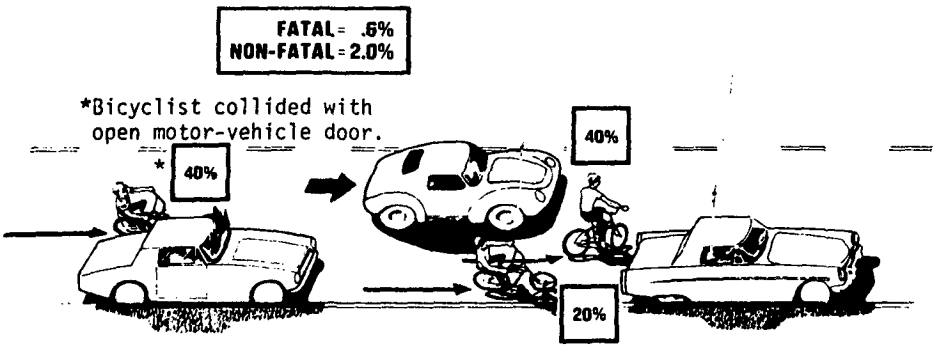

Illustration of Problem Type 17, *Motorist Overtaking: Bicyclist's Path Obstructed.*

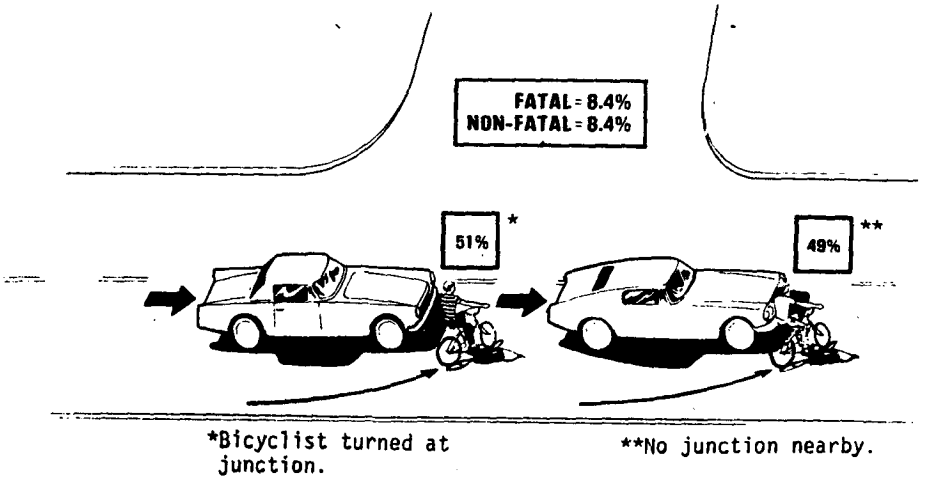

Illustration of Problem Type 18, *Bicyclist Unexpected Left Turn: Parallel Paths, Same Direction*

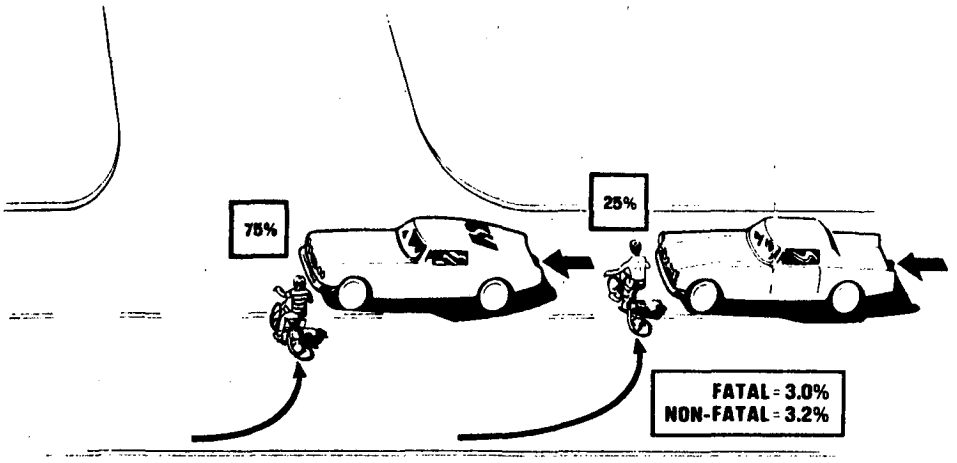

Illustration of Problem Type 19, *Bicyclist Unexpected Left Turn: Parallel Paths, Facing Approach.*

(NOTE: Most, but not all, bicyclists initiated their left-hand turn at a point close to the right-hand edge of the roadway.)

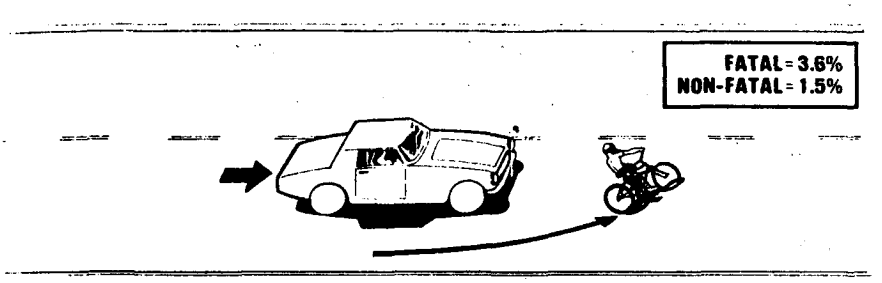

Illustration of Problem Type 20, *Bicyclist Unexpected Swerve Left: Parallel Paths, Same Direction (Unobstructed Path).*

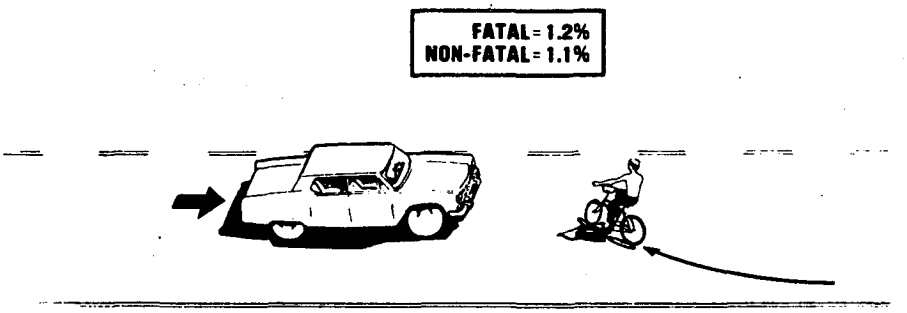

Illustration of Problem Type 21, *Wrong-Way Bicyclist Turns Right: Parallel Paths.*

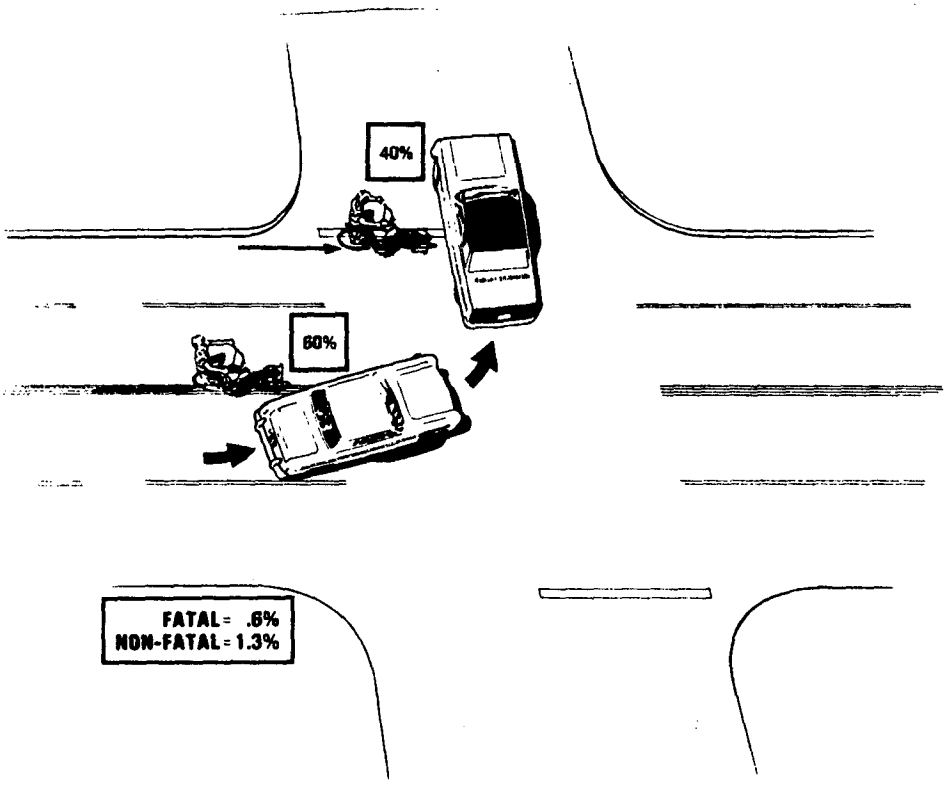

Illustration of Problem Type 22, *Motorist Unexpected Left Turn: Parallel Paths, Same Direction.*

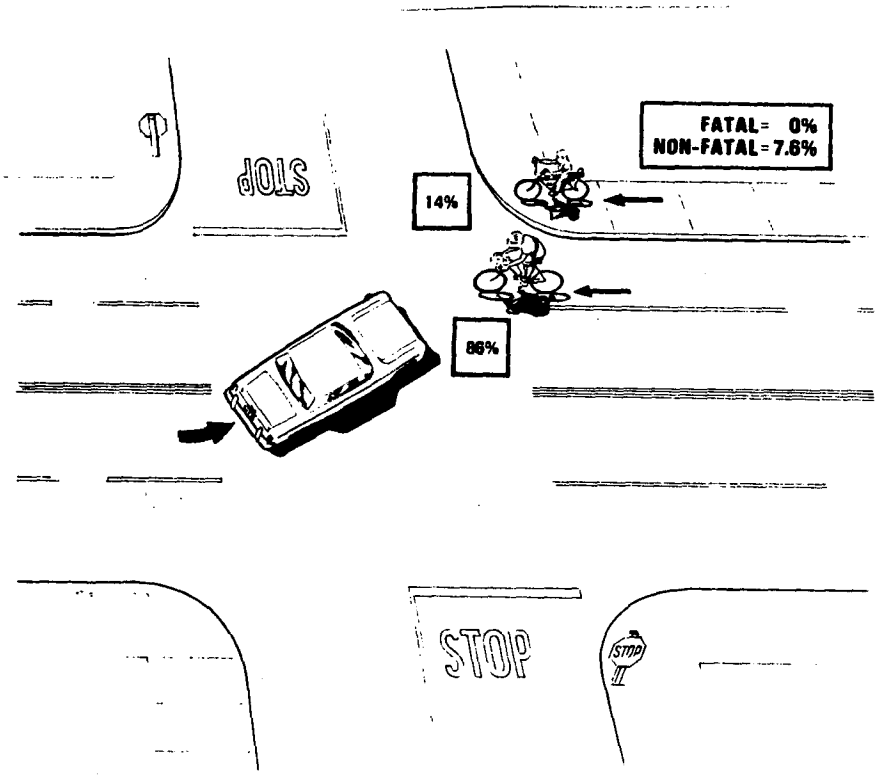

Illustration of Problem Type 23, *Motorist Unexpected Left Turn: Parallel Paths, Facing Approach.*

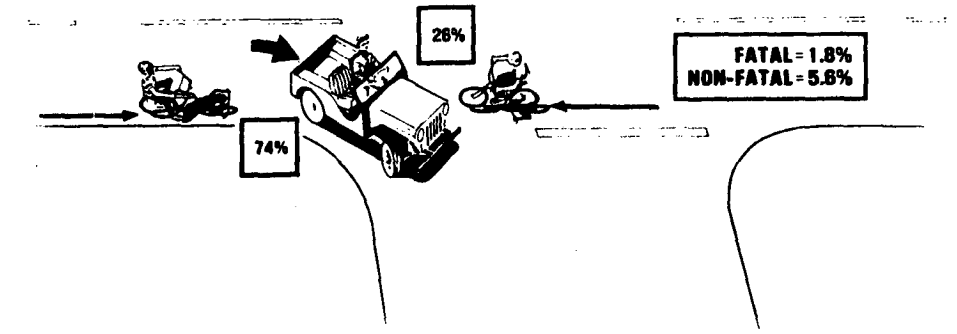

Illustration of Problem Type 24, *Motorist Unexpected Right Turn: Parallel Paths.*

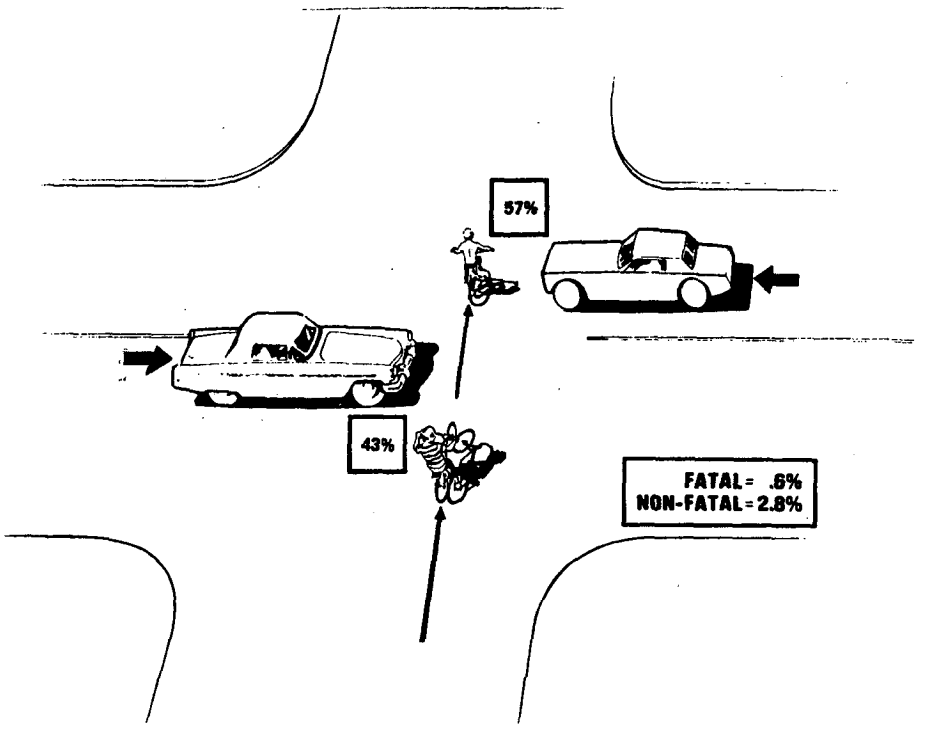

Illustration of Problem Type 25, *Vehicles Collide at Uncontrolled Intersection: Orthogonal Paths.*

Problem Type 26 (2.4% Fatal; 3.6% Non-Fatal)

The accident cases classified into Problem Type 26 are highly similar to those classified into Class D (Motorist Overtaking/Overtaking Threat). The main difference is that all Type 26 accidents involved a wrong-way-riding bicyclist and, therefore, a head-on collision. Ninety-six percent of all Type 26 accidents occurred on a relatively narrow two-lane roadway; 55% of the accidents occurred in an urban area and 41% occurred in a rural area. Seventy-eight percent of the accidents occurred during the daytime.

Problem Type 26 contains five distinctly different subtypes; these subtypes are described briefly below. It should be noted that several of the subtypes of Problem Type 26 correspond closely to problem types within Class D.

- Bicyclist Detected by Motorist--The bicyclist was riding facing traffic and was located in or near the center of the traffic lane. The motorist observed the bicyclist approaching and slowed or stopped his vehicle. Because the bicyclist was scanning elsewhere, he rode into the front of the slow-moving or stopped motor vehicle. This subtype accounted for 18% of the Type 26 accidents.
- Bicyclist Not Detected by Motorist--The bicyclist was riding facing traffic but was located close to the edge of the roadway. The motorist failed to observe the bicyclist because of a search failure (three cases), degraded visibility conditions at night (five cases), or because an object obstructed his view (six cases). The motorist's view was obstructed by a parked or moving motor vehicle in three cases; an embankment along a curve obstructed the motorist's view in the remaining three cases. Fifty-two percent of the Type 26 accidents were classified into this subtype.
- Counteractive Evasive Action--When on a head-on approach, both operators evaded in the same direction. This subtype accounted for 11% of the Type 26 accidents.
- Motor Vehicle Control Failure--The operator permitted the motor vehicle to drift too far to the right on a curve (4% of Type 26).
- Bicycle Control Failure--The bicycle drifted/swerved too far to the right (15% of Type 26).

Most of the bicyclists involved in Type 26 accidents were juveniles. The median age of the bicyclists was 12.9 years; about 70% of the bicyclists were between six and 15 years of age.

Problem Type 27 (.6% Fatal; .9% Non-Fatal)

Problem Type 27 includes cases in which the bicyclist collided with the rear of a stopped or slow-moving motor vehicle. About 43% of the accidents were the result of a search failure by the bicyclist, and an equal number were due to the bicyclist's failure to anticipate a sudden reduction in the motor vehicle's speed. In 14% of the cases, the bicyclist was unable to stop because of a skill deficiency in manipulating the caliper brakes.

Problem Type 28 (1.8% Fatal; .8% Non-Fatal)

All Type 28 collisions were head-on and involved a motor vehicle that was traveling on the wrong side of the roadway. Two cases involved a motor vehicle that was out of control. The other cases occurred as follows:

- A truck offloading cement inched forward as a bicyclist approaching from straight ahead was preparing to swerve around the front of the truck.
- The motorist was leaving an unpaved area adjacent to the roadway and drove a short distance on the wrong side of the roadway.
- The motorist veered into the left lane when preparing to make a sharp right-hand turn.

Problem Type 29 (.6% Fatal; .8% Non-Fatal)

All Type 29 accidents occurred in a parking lot or another large open area (83% occurred in a commercial parking lot); the vehicles were traveling orthogonal paths in every case. Visual obstructions were a factor in about one-third of the cases. Otherwise, the accidents resulted from a search failure by one or both operators.

Problem Type 30 (.1% Non-Fatal; No Fatal)

Problem Type 30 includes accidents in which the vehicles collided head-on because both operators evaded in the same direction. Type 30 includes only the accidents that occurred on a roadway so narrow that neither vehicle can be said to have been traveling on the wrong side of the roadway.

Problem Type 31 (.6% Fatal; No Non-Fatal)

Problem Type 31 accidents (one case) occurred when a bicyclist cut a corner when turning left and collided with a motor vehicle approaching on an orthogonal leg of the intersection.

Problem Type 32 (.3% Non-Fatal; No Fatal)

Problem Type 32 includes cases in which the bicyclist swung too far to the left when making a high-speed right-hand turn. The bicyclist collided with a parked motor vehicle, a standing motor vehicle, or a moving motor vehicle located on the roadway onto which the bicyclist turned.

Problem Type 33 (.4% Non-Fatal; No Fatal)

Problem Type 33 is similar to Problem Type 31 except that Type 33 accidents resulted from the *motorist* (rather than the bicyclist) cutting a corner when making a left-hand turn.

Problem Type 34 (.1% Non-Fatal; No Fatal)

Problem Type 34 includes accidents in which the motorist swung wide when making a right-hand turn and collided with a bicyclist approaching the intersection on the roadway onto which the motorist turned. Problem Type 34 is the counterpart of Problem Type 32.

Problem Type 35 (.3% Non-Fatal; No Fatal)

Problem Type 35 includes accidents that occurred when a motorist drove into the path of an approaching bicyclist when exiting an on-street parking space (one case parallel-parking space and one case diagonal-parking space).

Problem Type 36 (1.1% Non-Fatal; No Fatal)

Problem Type 36 includes a variety of accidents termed "weird" because of the unusual circumstances that led to their occurrence. Examples include:

- Bicyclist fell while being towed by a motorcycle.
- Bicycle struck by object that fell from a truck.
- Bicyclist was pushed into motor vehicle's path by pedestrian.
- Motorist deliberately collided with bicyclist (hostile act).
- Motor vehicle was struck in the rear by another motor vehicle and pushed into the bicyclist's path.
- Bicyclist stopped in the center of a traffic lane to retrieve dropped object and was struck by a motor vehicle.