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Identification and Feasibility Test of Specialized
Rural Pedestrian Safety Training.

Vol. 1 Program Development and Training

R.L. Dueker

L.W. Chiplock

Applied Science Associates
Box 158
Valencia, PA 16059

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16. Abstract <p>This report describes the development and evaluation of a K-12 pedestrian safety curriculum for suburban and rural schools. The three program curriculum, called PEDSAFE, was developed to combat pedestrian accidents which victimize suburban/rural children. The Elementary and On-Bus Programs were designed to train safe behaviors in four pedestrian situations--midblock crossing, intersection crossing, walking along the roadway, and pedestrian movement near the school bus. The Junior/Senior High School Program teaches pedestrian safety principles.</p> <p>Statistically significant reductions in unsafe pedestrian behavior brought about by the Elementary and On-Bus Programs were found, using a before-after with control design. A similar design was employed to evaluate pedestrian safety knowledge gain for the Junior/Senior High School Program. Statistically significant gains resulted from all five units within this program.</p> <p>The report consists of four volumes. Volume 1 describes PEDSAFE development and the evaluation results. Volumes 2 and 3 provide copies of revised text materials for, respectively, the Elementary and On-Bus Programs and the Junior/Senior High School Program. The final volume, Volume 4, provides audiovisual scripts.</p>			
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SECTION 1

INTRODUCTION

For over a decade, the National Highway Traffic Safety Administration (NHTSA) has been engaged in a systematic large scale program to reduce pedestrian injuries and deaths. The effort began with the publication in 1971 of a comprehensive study¹ which identified and described over 30 distinct types of pedestrian accidents which occur in urban settings. The report also recommended countermeasures specific to each accident type.

This study made it possible for the first time to design pedestrian safety efforts which will directly impact the unique causal elements of individual kinds of pedestrian accidents. NHTSA embarked on a program of research which resulted in the development of a variety of countermeasures for urban accidents. One such countermeasure was a training program² designed to combat a major accident type (the Dart-Out First Half) which heavily victimizes a major pedestrian risk group (the 5-9 year old child).

NHTSA's first emphasis on urban accidents was appropriate, since roughly two-thirds of all pedestrian fatalities and over 80 percent of all non-fatal injury pedestrian accidents³ occur in urban areas. However, when work to develop countermeasures for the major urban types was well underway, NHTSA began an investigation of rural and suburban accidents.⁴

¹ Snyder, M. B. & Knoblauch, R. Pedestrian safety. The identification of precipitating factors and possible countermeasures. Volumes I and II. Springfield, VA: National Technical Information Service, U.S. Department of Commerce, January 1971. (Volume I--DOT HS-800 403; Volume II--DOT HS-800 404)

² Dueker, R. L. Experimental Field Test of Proposed Anti-Dart-Out Training Programs. Volumes I, II, and III. Valencia, PA: Applied Science Associates, Inc., December 1980. Contract No. DOT-HS-4-0955.

³ National Safety Council. Accident Facts. Chicago, IL: Author, 1980.

⁴ Knoblauch, R. L. Causative factors and countermeasures for rural and suburban pedestrian accidents: Accident data collection and analysis. Washington, DC: U. S. Department of Transportation, National Highway Traffic Safety Administration and Federal Highway Administration, March 1977. Contract No. DOT-HS-355-3-718. (DOT HS-802 266)

This study was parallel in many respects to the 1971 study and resulted in the identification of 23 pedestrian accident types, including many types which were identical to the urban types. The study found that, as in urban areas, children were still the major at-risk subpopulation, and that they were victimized by many of the same accident types. However, there were important differences. Suburban/rural children, while still victimized by Dart-Out and Dash type accidents, also were involved in accidents while walking along the roadway and while engaged in pedestrian movement around the school buses.

Given the differences between child-victimizing accidents in the urban and suburban/rural domains, it became apparent that a different training countermeasure addressed specifically to suburban/rural youngsters might be necessary. Also, it was desirable to examine the suburban/rural accidents in general to determine which might be addressed by training countermeasures directed at other than the 5-9 age group (e.g., older children or adults). These concerns motivated the present study.

Project Objectives

The specific objectives of this effort were as follows:

1. To evaluate suburban/rural pedestrian accident types and determine which would be best combatted using training countermeasures as opposed to other countermeasure approaches, particularly public information messages.
2. To develop training programs directed at specific accident types and target populations.
3. To field test these training programs. Data were to be collected to permit both process (i.e., administrative feasibility and user acceptance) and outcome (i.e., knowledge and behavior change) evaluations.

The outcome of the project was to be a set of tested and revised training program materials which might, at NHTSA's option, be subjected to final development and testing prior to general distribution.

Project Overview

This document, Volume 1 of four volumes, describes the training program development and field testing, and presents the results of the testing. Section 2, which follows, discusses the decision process which led to program specification and materials development; Section 3 overviews the programs which were developed; and Section 4 describes the field testing methodology, analyses and results. The final section, Section 5, presents recommendations and conclusions.

The remaining three volumes of this report provide text materials and audiovisual scripts for the various training programs. With a few exceptions (as discussed in Section 5), the materials in these three volumes have been revised, based upon field test findings.

SECTION 2

PROGRAM DEVELOPMENT

This section outlines the approach which was taken to define and develop the suburban/rural pedestrian training programs. This process can best be discussed in terms of three activities, beginning with specification of the general structure and characteristics of the curriculum. These activities are discussed separately in the subsections which follow.

Specification of General Structure and Characteristics

The objective of the project was to develop pedestrian safety training specific to the needs of persons in suburban and rural areas. The most immediate concern when the project was initiated was to specify the general characteristics of such training. The previous research⁵ had identified 23 suburban and rural pedestrian accident types. It was necessary to determine, given limited resources, which accident types should be targeted for training and to whom training should be targeted. Having resolved these issues, decision had to be reached concerning specifications that would guide the development of plans of instruction for the programs and the actual training program materials.

The issues of what content (i.e., which accident types) should be included in training and what audiences should be targeted generally resolved into three basic concerns:

1. Which accident types could be best countered using a training approach. Other potential countermeasures approaches, e.g., public information messages, regulations and enforcement, were to be considered by NHTSA as part of other projects.
2. Which combination of accident types would result in the training program having the greatest potential impact on accident reduction? Assuming that all training-amenable accident types could not be included in a training program of manageable proportions, which types should be included?
3. Should training programs directed at adults be developed?

The three concerns were interrelated and resolving them required two efforts. First, a detailed review was made of each of the suburban/rural pedestrian accident types. They were compared and contrasted on

⁵ Ibid

several variables, including frequency of occurrence, the age group most heavily victimized, the factors/events which predisposed and precipitated the accident, and the driver/pedestrian behavior errors involved.

At the same time, a literature review was conducted to derive a set of criteria which could be used to discriminate the accident types that were most amenable to a training approach. Most pedestrian accident types have a behavioral error component and, thus, are able to be combatted by either a training or public information (PI) countermeasure approach. The criteria were designed to discriminate which of these two approaches would be superior for each accident type. Five criteria were defined:

1. Availability and concentration of a high proportion of the target population. For a training approach to be superior to PI messages, the population most heavily victimized by the accident type must be available in groups. The development of self-administered training programs, at least for adults, was considered and rejected. Such programs would have to be distributed on a massive scale and this would be very expensive. Also, motivation to complete the program is much more reliably maintained using a group presentation.
2. High level of resistance to change in attitude and/or behavior. Messages are appropriate where their content is clearly seen by the target audience as being in their best interest, the psychological cost of adopting the new behavior is low, and the individual is developmentally able to follow directions to modify his/her own behavior. Where behavior change is inconvenient or where, as with children, directions may not result in reliable behavior change, the more personal, more intensive approach offered by training can be more effective.
3. Necessity for multi-step learning. Where the behavior to be learned is complex enough, relative to the developmental capabilities of the learner, that learning must occur in steps, with practice of each step, then the training approach is preferable.
4. Potential for addressing similar accident types. Certain pedestrian accident types victimize the same target group and require similar avoidance behaviors. Addressing these types together is efficient from the standpoint that a greater impact on accident reduction can result. However, the resulting behaviors to be learned may be too complex for effective presentation using the messages approach.
5. Presence of pedestrian errors as a primary causal element. The focus of the project was to be development of pedestrian training. For administrative convenience, accident types which involved driver

errors (or environmental/situational factors) as a primary cause were not classed as being training amenable.

The analyses of the various accident types, plus their evaluation against the above criteria, resulted in an initial determination of which types were best suited to a training approach and which of these were most critical. Judgment of criticality was based on frequency of occurrence, severity distribution, and exposure data.⁶

Review of the initial selection of accident types indicated that, generally, children were the target group most heavily victimized. This not unexpected finding weighted heavily in favor of developing training for children. Children, at least those five years old or older, are assembled at school and are an obvious target for training countermeasures. The determination had to be made, however, if training would be developed for preschoolers and/or for adults.

The decision was made not to develop training for preschoolers since NHTSA was developing countermeasures directed at this group as part of another project.

It was also decided that training for adults would not be developed. Persons age 19 or less accounted for about 60 percent of all suburban/rural pedestrian accidents. The six most frequently occurring accident types, which account for 62 percent of all suburban/rural pedestrian accidents, all victimize principally the under 19 age group. Thus, adults are less of a pedestrian accident problem than children. However, the primary reason for not developing adult training was the relative inaccessibility of adults. As noted above, training adults implies the need to assemble them for group presentations. Most adults do find themselves in a group--at work, church or as a member of some organization--at least occasionally. An individual listing of such groups would, of course, be extremely long. While adult training programs could be developed, identifying the groups, negotiating cooperation, and then conducting the training would require a massive effort. While it was not possible to estimate the exact cost associated with mass distribution of adult training, it is safe to say that the cost per adult exposed to the training would be very high relative to the exposure levels obtained using public information messages. Even though exposure to a single training presentation might change a person's behavior more than several exposures to messages in the mass media, it is not clear that the benefits of training adults would justify the cost.

Two suburban/rural types, Working on Roadway and Emergency/Police Vehicle Related, provide exception to the foregoing statement. Both types victimize narrowly defined subsets of adults (i.e., road construction workers or police/emergency vehicle operators), and these subsets could be assembled for training on-the-job. It was decided that training would not be developed for these accident types. Training to combat the Working on Roadway type was being developed as part of another NHTSA effort. A

⁶ Ibid

training program for emergency/police vehicle operators was rejected for two reasons:

1. The accident type has a very low frequency of occurrence (0.6 percent of the rural pedestrian study⁷). Its occurrence was so infrequent that there were insufficient cases upon which to perform a proper causal factors analysis.
2. What little was known concerning the type indicated that conspicuity (the inability of the driver to see the pedestrian), driver error and driving while intoxicated play major roles as causal factors. Presence of such factors would tend to contraindicate the pedestrian training as the best countermeasure approach.

The end result of the analysis process just described was the decision to focus the project on the development of a Kindergarten through twelfth grade training curriculum, emphasizing 10 accident types which victimize suburban/rural children. The curriculum was named "PEDSAFE."

The selection of the 10 accident types was motivated by the need to develop training for:

1. The major (i.e., most frequently occurring) suburban/rural accident types.
2. Certain minor accident types which were similar enough to the major types to be included with them for training purposes.
3. All child-victimizing suburban/rural accident types.⁸

Table 2-1 lists the 10 accident types together with their overall frequency of occurrence, frequency of target group (i.e., 5-19 years of age) involvement, and percent of the accidents of each type which have the potential to be impacted by PEDSAFE. It can be seen from the table that the PEDSAFE curriculum could potentially impact one-third of suburban/rural accidents. That is, assuming the program was 100 percent effective, it could reduce the number of suburban/rural accidents by one-third.

⁷Ibid, page I-14.

⁸Accident types in which 50 percent or more of the victims are five through nineteen years old.

Table 2-1

Potential Impact of PEDSAFE on Rural Pedestrian Accidents*

	Percent of Total Suburban/ Rural Accidents	Percent of Accident Type Cases Involving School-Age Persons	Percent Potentially Impacted by PEDSAFE
1. Midblock Dash	9.9%	66.8%	6.6%
2. Intersection Dash	9.9%	64.0%	6.3%
3. Dart-Out Second Half	10.3%	58.0%	6.0%
4. Dart-Out First Half	10.8%	54.0%	5.8%
5. Walking Along Roadway	11.6%	28.0%	3.2%
6. School Bus Related	3.0%	93.7%	2.8%
7. Vendor-Ice Cream Truck	1.4%	62.0%	0.9%
8. Multiple Threat	1.7%	50.0%	0.9%
9. Mailbox Related	1.4%	48.0%	0.7%
10. Hitchhiking	1.5%	33.4%	0.5%
			<u>33.7%</u>

* Source: Knoblauch, R. L., et al. Causative factors and countermeasures for rural and suburban pedestrian accidents. Volume I. Washington, DC: National Highway Traffic Safety Administration, March 1976. (Contract No. DOT-HS-355-3-718)

Individual definitions for the 10 accident types are found in Appendix A. However, since several of the accident types are quite similar, PEDSAFE may be considered as being directed at five principal accident types:

1. Dart-Outs and Dashes, a "supertype" combining several types which occur midblock--Midblock Dash, Dart-Out First Half, Dart-Out Second Half, Vendor-Ice Cream Truck, and Mail Box Related.
2. Intersection Dash.
3. Walking Along the Roadway, which includes hitchhiking.
4. School Bus Related.
5. Multiple Threat.

Once the basic instructional focus of the project was established, attention turned to specifying the general characteristics of the to-be-developed curriculum. The major support for this effort came from the recently completed NHTSA project to develop and field test a pedestrian safety training program for urban children (see Footnote 2). This project included a state-of-the-art review of instructional technology which was reviewed and supplemented by the PEDSAFE staff. More importantly, the

earlier effort had provided a wealth of information concerning which training approaches worked best and identified practical problems associated with administering a pedestrian safety program in the schools.

Analysis of the instructional technology literature and the findings of the urban pedestrian training program project led to the establishment of major guidelines which focused the development of PEDSAFE. According to these guidelines, the curriculum should:

1. Integrate the instructional content for the various target accident types into a single curriculum rather than separate type-specific programs. The number of accident types of concern, plus the similarities among the Dart-Out and Dash types, were the factors leading to the selection of this approach.
2. Provide a unified continuing educational experience from year to year, although any given year of the curriculum should be able to stand alone. That is, each year should present and practice all content provided during the previous years of the program. It was recognized, of course, that the skill level obtained by a student in a given year would depend upon his/her exposure to the program in previous years.
3. Provide skills training in the early (i.e., elementary school) years of the program when accident involvement in the major types is highest. The later years of the program (i.e., Junior/Senior High School) should teach general pedestrian safety principles, motivate their use, and maintain the salience of the skills learned in the earlier years.
4. Maximize active involvement of the student in the learning. Passive exposure to content was to be avoided.
5. Minimize the in-class time required to administer the program while maximizing the amount of practice provided. Several approaches were to be employed to reconcile these conflicting requirements:
 - a. Use of "double duty" activities, i.e., presenting safety content and practice as part of other school activities such as reading, writing, art, English, physical education, science and civics.
 - b. Maximizing parent involvement.
 - c. Providing instructional content on school buses.
6. Given limited in-class time, emphasize many short presentations distributed over time rather than a few

longer presentations. The performance of the various accident-avoidance behavior sequences (AABSs) would be established with a few closely spaced presentations initially. Then, follow-on practice would be conducted to maintain the performance, using sessions distributed over the school year.

7. Make maximum use of audiovisuals to reduce the burden (i.e., the preparation time) on the teacher and standardize presentation.
8. Integrate curriculum content with accepted pedestrian safety messages, i.e., "cross with the crossing guard," "cross on the green light."

Following these guidelines, the PEDSAFE curriculum was divided into three programs:

1. The Elementary Program, consisting of separate units by year, Kindergarten-one through sixth. This program was to focus on midblock crossing (i.e., Dart-Outs and Dashes), intersection crossing (i.e., Intersection Dash), and Walking Along the Roadway accident types.
2. On-Bus Program, which was to be implemented in the elementary grades, primarily by the school bus driver, and focus on the School Bus Related accident type.
3. The Junior/Senior High School Program, consisting of five units to be employed within existing subject matter areas (English, mathematics, science, health and driver education). It was to target the teaching of general pedestrian safety principles, as well as reinforce prior years' learning.

Figure 2-1 overviews the PEDSAFE curriculum, showing the content presented during each year of the program, the type of learning (i.e., practice versus exposition only), and the relative emphasis for content area (e.g., accident type) by year.

Define Behaviors to be Trained

Once the general characteristics of PEDSAFE were specified, work began to define the specific content to be included in each program and program unit. This process involved three steps.

As the first step in the process, the target accident types were analyzed to determine the behavioral errors made by the pedestrian. Using

OVERVIEW OF PEDSAFE

ACCIDENT TYPE	ELEMENTARY/ON-BUS PROGRAMS							JUNIOR/SENIOR HIGH PROGRAM						
	K	1	2	3	4	5	6	7	8	9	10	11	12	
Dart-Out and Dash ¹		Content presentation plus practice												
School Bus Related ²		Content presentation plus practice												
Intersection Dash			Content presentation plus practice											
Multiple Threat				Content presentation only			Content presentation only							
Walking Along Roadway ³					Content presentation plus practice									
Generalized Safe Ped Behaviors							Content presentation only		Content presentation only		Content presentation only		Content presentation only	

Legend:

Content presentation plus practice

Content presentation only

Thickness of bar represents training time or relative emphasis.

¹Includes Midblock Dash, Dart-Out First Half, Dart-Out Second Half, Vendor – Ice Cream Truck, and Mailbox Related Accident Types

²Covered in Both the Elementary and On-Bus Programs

³Includes Hitchhiking Accident Types

Figure 2-1. Overview of the PEDSAFE Program

the model developed by Snyder and Knoblauch (see Footnote 1), pedestrian errors can be classified into six categories:

1. Course, including course selection and speed of movement.
2. Search.
3. Detection.
4. Evaluation.
5. Decision.
6. Action.

The specific errors made by the target group children were compiled according to this classification. It was found that across accident types their errors fell primarily into course (e.g., running, crossing too close to an obstruction, walking with their backs to traffic), or involved search or detection failure.

The next step was to define a specific sequence of behaviors, termed an accident-avoidance behavior sequence (AABS), for each accident type. The AABS represented the specific content to be trained, i.e., the behavioral objective for the training. Each AABS was designed to establish correct behavior (e.g., searching when the child normally does not search), or to block a competing unsafe behavior (e.g., stopping at curb instead of running into the street without stopping). They were designed to be simple and direct in consideration of the developmental limitations of the child. They were also designed to be conservative, so that the child's performance could diverge somewhat from total conformance with the AABS after training yet still be adequate from a safety standpoint.

At the same time that the AABSs were defined, the specific knowledge elements necessary to support them were also identified. This supporting knowledge was of two general types. First, the child required certain knowledge as a rationale for why he/she should conform to the AABS. Also, the child needed information concerning the specific circumstances in which he/she should employ the AABS. This latter element was particularly important in support of the Dart-Out and Dash (i.e., midblock crossing) AABS, because each of the five Dart-Out and Dash types is basically a situational variation on the same set of errors (e.g., darting out to go to a mail box versus darting out to go to an ice cream vendor).

The AABSs and supporting knowledge elements resulting from this step are included in Appendix A.

The final step in the process was to determine exactly what AABS and knowledge content were to be trained in each program unit, how much emphasis (e.g., practice) was to be placed on each AABS and what instructional methods were to be employed. Basically, this step involved specifying the

program of instruction (POI) for each unit. The POIs were developed with three primary goals in mind:

1. To begin simply and increase the content complexity of each unit to correspond to the developing capabilities of the children.
2. Where possible, to introduce an AABS prior to the age when the child is most heavily victimized by the accident type. Thus, the midblock crossing and school bus AABSs were introduced first, followed by intersection crossing, then walking along the roadway.
3. To develop a unit which is self-contained (i.e., can be used alone, if necessary), requires minimum teacher preparation, requires no more than 6-7 class hours per school year, and is otherwise in conformance with the specifications listed earlier.

A panel of 15 elementary and high school teachers, a school system superintendent, and a school transportation director critically reviewed each POI. Modifications were made based upon the feedback they provided.

Develop Program Materials

The unit POIs specified both text materials (e.g., guides for principals, teachers and bus drivers; parents pamphlets; and student handouts) and audiovisuals (i.e., movies, slide/tape presentations and an audiotape presentation). The development of these materials evolved through draft production, review, revision and final production.

The initial development of the PEDSAFE materials was a massive undertaking, requiring more than one person-year of effort by instructional materials writers and graphic artists. A large part of this effort was spent in the development of the various Teacher's Guides. Each session of each unit was described in detail. It was considered critical that the teachers understood and practiced the AABSs as they were defined. Also, the practice sessions themselves had to be structured so as to provide realistic practice. Since a large proportion of the street entries which result in Dart-Out and Dash accidents occur as the result of play, practice exercises were usually associated with play. A literature search of children's games was conducted. Age- and situation-appropriate games were selected and modified, as necessary, to meet the needs of the unit. In general, the guides were designed to provide the teacher with all the information he/she required to plan and conduct the unit without the need for training or other outside assistance, except for that provided by the school principal.

The audiovisuals and text materials for each elementary unit were designed around an entertaining character. The Kindergarten through third grade units used the character "Willy Whistle," a large blue policeman's

whistle who instructs children how to cross streets safely. This character was developed by NHTSA and is employed, in animated form, in public information messages which have been distributed nationwide. The fourth and fifth grade units used a new character, "Fred With the Red Tread." "Fred" is a very safety-naive youngster from another planet who sports very red boots. He has to be taught to behave safely as a pedestrian by his new friend "Kitty."

In addition to the unit-specific audiovisuals, a movie was developed to provide administrators and teachers with an introduction and overview of the PEDSAFE curriculum. The movie was intended to provide an informal and entertaining "first look" at the curriculum instead of the dry, statistics-filled, and lecture-oriented approach often used in safety films. It was based on a parody of "MacBeth," and involves a witch who "brews up" the various PEDSAFE Programs and materials and explains each one to "MacBeth." The assumption underlying the movies' theme is that the audience already knows that pedestrian safety is a problem and that they will respond more positively to a presentation that provides information in an entertaining fashion rather than to one that "preaches."

As the drafts of the various text and audiovisual materials were completed, each was reviewed by a three-person panel of educational and developmental psychologists. The major objective of the review was to assure that the content of each educational activity and audiovisual was appropriate to the developmental capabilities of the children to which it was directed. The draft materials were modified in response to suggestions provided by the panel.

Once revisions to the drafts were completed, art and layout of the text materials were finalized. Sufficient copies of all text materials were printed to supply the school systems which were to field test PEDSAFE.

The production of professional quality audiovisuals for use in the field test was not considered to be cost effective, given the likelihood that at least some audiovisuals might have to be redone based on the results of the testing. Instead, "research quality" audiovisuals were produced. The object of research quality production is to prepare presentations on a modest budget which are of sufficient quality to be acceptable to the intended audience. That is, the audience should obtain the intended content and impact of the presentation without being distracted by technical problems which give the presentation an amateurish quality. The movies were produced on videotape rather than film. While being less expensive, videotape production still afforded a choice of special effects. Amateur or semi-professional actors were employed and, instead of an animation of "Willy Whistle," a muppet-type puppet was employed.

Sufficient copies of the audiovisual materials were produced to support the field testing.

SECTION 3

OVERVIEW OF THE PEDSAFE PROGRAM

As noted previously, the PEDSAFE curriculum consists of three separate but content-integrated programs. This section provides an overview of the basic structure and content of each program as it was field tested.

The PEDSAFE Elementary Program is divided into six units--Kindergarten and First Grade through Sixth Grade. A unit of the elementary program typically involves approximately ten sessions distributed throughout the year, and requires approximately six hours of class time. The sessions are designed to teach street safety and maintain a high level of performance. The curriculum builds on knowledge and skills acquired in earlier grades. As students progress through elementary school, they learn simple basic skills which will gradually be added to in order to provide the students with safe actions for their more varied activities. Visual and audio materials, along with prizes, add to the students' enthusiasm. Indoor and outdoor practices are used to simulate "real life" situations in which the students should perform the correct pedestrian behaviors.

Although the PEDSAFE Curriculum is taught by individual classroom teachers, one individual (i.e., the principal) must be responsible for the overall coordination and supervision of the program. The duties of the PEDSAFE coordinator include:

- . Acquainting teachers with the PEDSAFE Program.
- . Obtaining, storing and distributing program materials.
- . Selecting and laying out practice sites and arranging for barricades to block streets for outdoor practice sessions.
- . Coordinating and scheduling class sessions which require shared materials (e.g., movies) or special settings (e.g., school bus practice).
- . Arranging for teacher aides when students practice on real roads.
- . Answering parents' questions and providing suggestions regarding the program.

Teacher Preparation

Program orientation requires approximately 45 minutes and may be performed as part of a systemwide in-service activity, or may be done by individual school principals/coordinators. This orientation should be scheduled after teachers have received their PEDSAFE materials. Practice site selection and scheduling should be completed prior to orientation so that teachers can be briefed concerning them. The teacher introductory movie is shown during this orientation session.

Summary of Elementary Program Units

Kindergarten and First Grade. The K-1 unit is designed to address two major types of pedestrian accidents, Dart-Outs and School Bus Related. Together, these accidents account for almost 90 percent of the child-caused accidents that victimize K-1 children. The Dart-Out is an accident in which a child has unexpectedly run (or "darted-out") into the street at a midblock location and been hit by an oncoming vehicle. A school bus related accident is any accident (including dart-outs) which occurs when a child is going to or coming from a school bus. The goal of the program is to teach children to recognize cues that tell them that they are entering an unsafe situation and to behave safely.

The PEDSAFE K-1 Unit uses specially developed educational materials for use in class in conjunction with materials designed to obtain parental help in providing additional practice. Content and practice are distributed across the school year to provide continued exposure. "Willy Whistle" is the unifying character in this program, narrating an audiotape designed to teach children left from right. "Willy" also appears in two movies--the first to teach safe midblock crossings and the second to teach safe school bus crossing behavior. He appears on all printed materials such as the reinforcement prizes awarded to children who practice street and school bus crossings with their parents.

The movies, which use age-appropriate actors, are used at the start of the midblock and school bus training sessions to demonstrate the correct behavior sequences. The children are then provided with practice of the stop and search sequences, first in the classroom and then in realistic outdoor settings. The sequences are also practiced in conjunction with structured outdoor play activities.

Recognizing that children's learning environments extend well beyond the school, the program also includes two brochures for parents, which explain the need for the program, what is being taught, and how parents may assist in teaching their children safety concepts and behaviors.

Second Grade. The second grade unit builds upon the K-1 curriculum. In addition to learning and practicing safe midblock crossing procedures and the correct way to cross to and from a school bus, children are taught how to safely cross the street at an intersection. Activities are similar to those found in the first unit: a movie is used to demonstrate safe

crossing behaviors, followed by practice on simulated and real street settings. Again, games which require the children to remember their safe street crossing rules in the midst of play, and practice with parental supervision, are included in the curriculum. A slide/tape presentation which requires students to identify safe and unsafe pedestrian actions is also employed.

Third Grade. The third grade PEDSAFE unit reviews all the street crossing situations taught in previous years and adds another situation: Multiple Threat. Multiple Threat accidents are those in which someone crosses in front of a stopped vehicle and is hit by an overtaking vehicle as shown in Figure 3-1. The stopped vehicle screens the child from the driver's view. The curriculum is similar in design to the previous years. An introductory movie is followed by actual practice, games, parental supervision, practice, and a slide/tape presentation, involving safe and unsafe pedestrian actions.

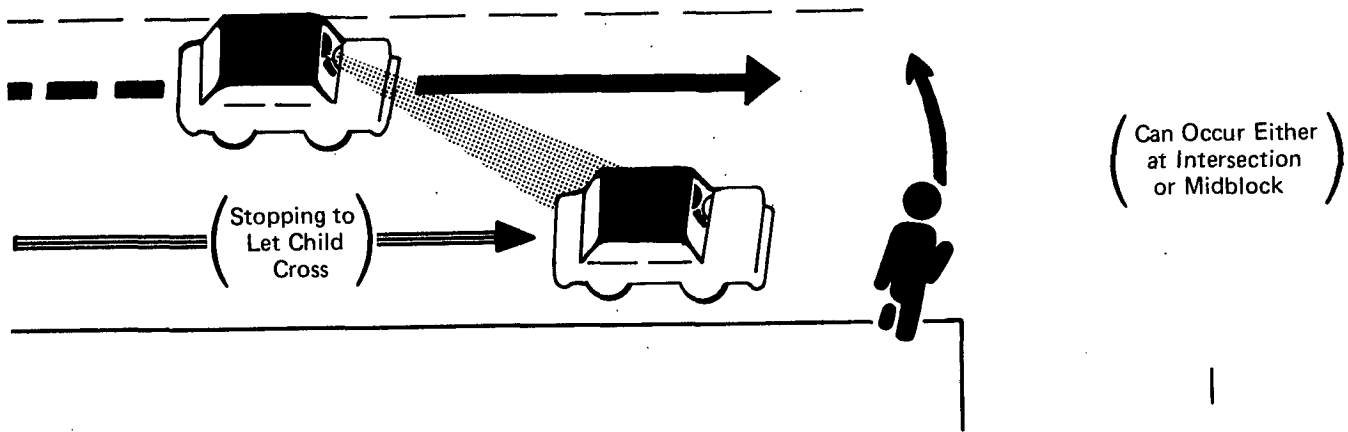


Figure 3-1. Multiple Threat Situation

Grade Four. This year's curriculum teaches students the correct way to walk along the roadway in addition to reviewing the content taught in previous years. A new character, "Fred With the Red Tread," is introduced in this year's movie, which demonstrates correct intersection crossings and safe walking along the roadway behavior. School bus crossing behavior and parent supervised practice are not included in this or subsequent years' curriculum. A slide/tape safety identification quiz is introduced in addition to other in-class activities. Outdoor practice on actual streets is emphasized.

Grade Five. More complicated games and a hazard survey highlight this year's curriculum, which is a review of those skills learned and practiced in grade four.

Grade Six. The PEDSAFE Sixth Grade Unit is a wrap-up of previous years' training and is a bridge from the play-centered, accident-type

specific activities of the Elementary Program to the more general pedestrian safety content in the Junior/Senior High School Program. Because of the age of the children, the play-centered practice activities are not appropriate. Instead, the children are given the role of "teacher" in this year's training program, whenever possible. For instance, they are directly involved in the safety training for earlier grades, i.e., sixth grade students are used as "aides" or "teacher's helpers." A second objective of this unit is to have the children develop a generalized set of "safe pedestrian" rules. The students will be able to apply knowledge and recall from previous years' PEDSAFE sessions to more complicated situations.

The PEDSAFE Program for sixth grade requires approximately two hours of class time across the school year. An optional outdoor practice session, a slide/tape hazard identification exercise and a community safety survey and discussion highlight this year's curriculum.

On-Bus Program

The objective of the On-Bus Program is to prevent school bus related pedestrian accidents among elementary (i.e., K-6 grade) children. Each driver who buses elementary children is involved in the program. The program addresses the following types of school bus related accidents:

1. The child is hit by the bus itself, usually because the child crosses behind the bus or slips under the wheels and the driver can't see the child.
2. The child is hit while walking to or from the bus stop or while waiting for the bus to arrive.
3. The child is hit while boarding or disembarking from the bus. Often this occurs because a motorist fails to stop for the flashing red lights on the bus.

Because the bus driver is most familiar with the safety hazards on his/her route and knows the children who are behaving in a dangerous manner around the bus, he/she is in the best position to carry out the On-Bus portion of PEDSAFE. When used as a part of the school-wide PEDSAFE Program, the On-Bus Program is implemented after children in grades K-3 have seen the school bus movie and had one teacher-conducted practice session using an actual school bus.

By the time the school bus driver becomes involved in the program, the children have had an introduction to the safety rules they must follow in order to avoid school bus related accidents, in addition to preliminary practice of the rules. The bus driver coordinates critical additional practice and guidance.

One individual (i.e., the Transportation Director or principal) must be responsible for the overall coordination and supervision of the program. The duties of the On-Bus Program coordinator include:

- . Providing a bus for the in-class practice sessions at each school.
- . Identifying sites for the various On-Bus Program practice sessions.
- . Developing a schedule for the On-Bus practice sessions.
- . Briefing bus drivers on the curriculum and various activities required of them.

The program involves three demonstration and practice sessions which are performed either as children are delivered to school or as they are picked up after school. Each of these sessions is conducted three times, so that the children get at least nine practice sessions. Each session requires about three to five minutes to conduct beyond the usual loading/unloading time. For best results, all sessions should be conducted over a two-week time period.

Conducted after arriving at school, Session 1 teaches the children always to stay a safe distance from the bus unless actually loading or disembarking. In Session 2, the children learn how to cross safely in front of the bus when they must cross to reach their destination after leaving the bus. Session 3 teaches the children how to cross safely in front of the bus when their bus waiting area is across the road from the actual bus stop.

Bus drivers are urged to provide follow-up guidance and practice to the children throughout the entire school year. This involves reminding children of the safety rules, pointing out special hazards associated with particular bus stops, and repeating practice sessions if the need arises.

The On-Bus Program can be implemented without the other parts of the PEDSAFE curriculum. In school systems where this is being done, the coordinator will have to schedule the in-class activities prior to conducting the On-Bus practice sessions. Two activities presently provided to the Kindergarten through third graders as part of the PEDSAFE Elementary Program should be conducted in class:

1. The movie "Safety on the Sunny Yellow Bus," should be shown to the Kindergartners and first graders. During the first year of the program, it should be shown to all K-3 children.
2. The K-3 school bus practice sessions should be conducted. These sessions are conducted somewhat differently at the various grade levels. The sessions are described in the Teacher's Guides for the K-3 units.

Once these preliminary activities have been performed in class, the On-Bus Program can be conducted as described above.

Junior/Senior High School Units

Five self-contained instructional packages were developed for use by Junior and Senior High School teachers. These units are designed to be incorporated into existing curriculum and offer teacher options to allow for optimum flexibility. The units do not require a central coordinator; any teacher can implement a unit independently. Through a "repeated message" format in various areas of the curriculum, the Junior/Senior High School PEDSAFE Program provides the students with activities designed to provoke recall of behaviors they should already know. The desired outcome is an objective safety knowledge change.

The five units are:

1. Writing a Pedestrian Safety Story for Young Children. Designed for use in an English class, students learn about and apply safety content to the short story. By writing a safety story for younger children, students review safety rules they were taught in earlier grades.
2. Production of a Dramatic Presentation: Pedestrian Safety. Used in a drama or English class, students use safety content as material for the plot in writing a drama for younger children. Students recall their own previous safety lessons as they write for others.
3. Analysis and Decision Making: Problem Solving. Students use tabulation skills in a mathematics or science class to analyze raw accident data in a problem-solving sequence. After learning how, when, and to whom accidents occur, the students are asked to develop methods or countermeasures which can prevent accidents.
4. Health and Safety Module. Implemented in a health or science class, students learn the types of accidents that teenagers have and their frequency of occurrence. They also discover specific actions that they can take to help reduce these accidents.
5. Driver Education Module. Students in driver education classes learn what they, as drivers, can do to help reduce pedestrian accidents. However, the focus remains on the pedestrian rather than the driver.

The first three units (short story, drama, and mathematics) are designed as "learning activity packages." Each package contains three books:

- . Teacher's Guide. A manual containing the Student Activity Package with additional instructions for teachers, the optional activities, and answers to questions.
- . Student Activity Package. A step-by-step guide for the student. Beginning with background reading material, students complete a series of activities (i.e., reading, activity, notes, test) designed to increase their pedestrian safety knowledge.
- . Student Notes and Activities Booklet/Student Log. This workbook is used by the student in conjunction with the activity package. Activities, notes, and tests are written in this booklet.

A teacher could complete one of these units in four or five class periods if no teacher options were selected. The other two units (health and safety and driver education) combine reading material with an audio-visual presentation. After reading pedestrian safety information, students watch a slide/tape presentation which graphically depicts the reading material. The second half of the slide/tape presentation consists of a hazard identification quiz to test the students' knowledge about pedestrian safety. Optional in-class or homework assignments are then assigned to reinforce this safety knowledge. These units could be completed in three class periods.

SECTION 4

FIELD TEST CONDUCT AND RESULTS

The PEDSAFE curriculum was field tested in several suburban/rural school systems located in Western Pennsylvania during the 1979-80 school year. While each of the three PEDSAFE programs was subjected to both process and outcome evaluation, the approaches employed differed to some extent across programs. Figure 4-1 provides an overview and time line for the implementation and evaluation activities associated with each program.

The Elementary and On-Bus Programs were both directed to Kindergarten through sixth grade children and both provided pedestrian skills training. Both programs are intended to be administered together, since the Elementary Program provides an introduction to, and initial practice of, the school bus related pedestrian behaviors.⁹ For this reason, the programs were evaluated together.

The evaluation of the Junior/Senior High School Program may be considered a separate and distinct effort. Not only does the Junior/Senior High School Program target an older age group, its objective is to provide knowledge change rather than behavior change.¹⁰

The organization of this section reflects this combination and division.

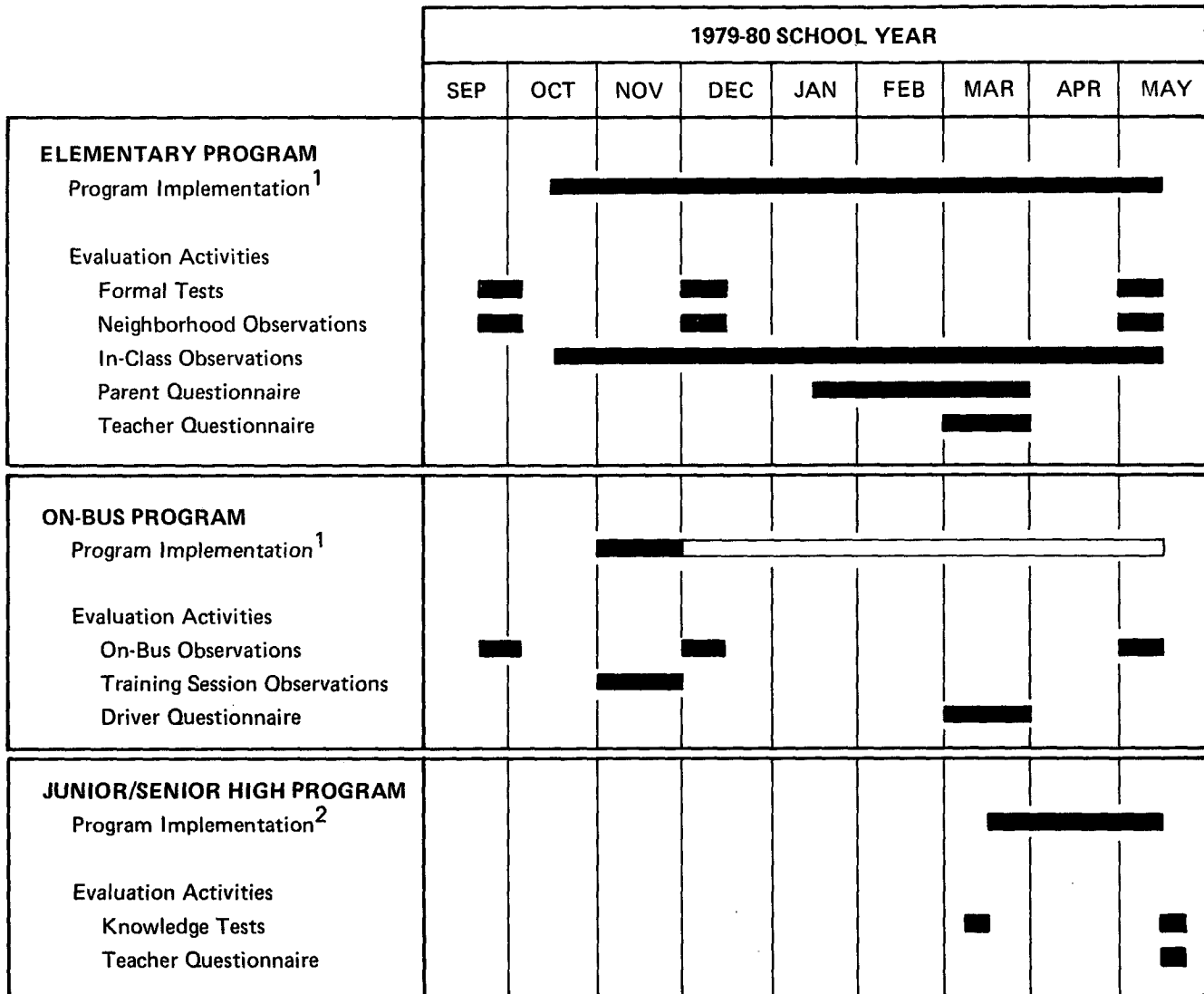
Elementary and On-Bus Programs

Figure 4-1 shows that the Elementary and the On-Bus Programs were administered throughout the 1979-80 school year in three suburban/rural school systems. Observations of target pedestrian behaviors were made at three points in time--prior to program initiation, after the initial heavy concentration of classroom sessions, and again near the end of the school year. Three separate behavioral observation approaches (i.e., test conditions) were employed:

1. Formal Test, in which children were taken out of class and observed while they performed a "safety walk," under

⁹ Although either could be conducted by itself.

¹⁰ The program is also intended to maintain the behaviors established in prior years' exposure to PEDSAFE. Given the single year duration of the field test, this objective could not be evaluated.



¹ Three School Systems

² Five Junior High Schools; Four Senior High Schools

█ = Scheduled Program Activities

▬ = Program sessions or reminders as deemed necessary by the school bus driver.

Figure 4-1. Overview of the Field Testing

controlled conditions. Depending upon the grade level of the child, midblock crossing, intersection crossing, and walking along the roadway behaviors were observed.

2. Neighborhood Observations, which involved observing children on a target-of-opportunity-basis as children walked home from school and while playing or traveling in their neighborhoods on Saturdays.
3. On-Bus Observations, where children were observed waiting for and boarding their buses in the morning and leaving their buses in the afternoon.

In addition, program sessions were observed to determine how they were conducted and reactions to the programs were solicited from teachers, bus drivers, and parents.

Field observers (i.e., personnel used for the behavior observation data collection) were recruited local to the participating school systems, and attended eight-hours of training. The training included familiarization with data collection forms and procedures, as well as a limited amount of practice observations. For the formal test observations, observers worked in teams supervised by an experienced project staff member. Observers worked individually in conducting the neighborhood and on-bus data collection. However, reliability data were collected for observers in all three types of behavioral data collection. Corrective feedback was required in only a few cases and, in general, the observers found the forms and procedures easy to use under field conditions.

The same training was performed for new observers prior to the second and third observation periods, and refresher training (about two-hour duration) was provided to experienced observers. Reliability checks were again performed on both new and experienced observers.

The data collection forms and procedures are included in Appendix B. For each child observed, the observer would record the actions of the child (e.g., stops, direction of searches, whether walking or running, whether walking facing or against traffic flow, presence of traffic and child's reactions to it), and then make a judgment concerning the adequacy of the behavior. The observers could judge the behavior "correct," i.e., in exact conformance with the way PEDSAFE taught that the behavior should be performed, or "adequate," not in exact conformance with PEDSAFE but still safe. Prespecified criteria were used in making these determinations. These criteria are also provided in Appendix B for each of the four critical events--Midblock Crossing, Intersection Crossing, Walking Along Roadway and School Bus Related. If the child's performance did not meet the criteria for "correct" or "adequate," it was judged "unsafe." For each observation, the data on the child's actions, as well as the observers' "subjective" judgment of behavior adequacy, were entered into the computer, and the actions data were used to produce a computer-generated or "objective" judgment of behavior adequacy.

Interobserver reliabilities were then computed, using both the subjective and objective judgments. Table 4-1 summarizes the observer reliability data by critical event, by both types of judgment. It is apparent from the table that observer reliability was high across all critical events and for both approaches to judging behavior adequacy. The lower reliabilities for the midblock crossing judgments occurred in early trials with inexperienced observers. One observer was retrained subsequently and another replaced, so the actual reliability of the midblock crossing judgments are higher than shown.

Initially, it was feared that the observers would have difficulty remembering the criteria for "correct" and "adequate" judgments and that their reliability would suffer as a result. The computer programs to generate the objective judgments were developed to permit the judgment to be derived directly from the basic data elements of the observation and thus not be dependent on the observer's recall of the criteria. It is obvious that the observers were capable of making reliable judgments. The decision was made to use the objective judgments for the formal test and On-Bus behavioral analyses, since there was some indication that this approach might provide better reliability with inexperienced observers. Subjective judgments were employed in the analysis of the neighborhood observations, as explained subsequently.

The subsections to follow provide more detail concerning the conduct and results of the Formal, Neighborhood, and the On-Bus tests. The outcome of the session observations and user reaction data collection are provided in Appendix C.

Formal Test

The Formal Tests were so named because their objective was to determine changes in the critical event-related behaviors of the PEDSAFE children under controlled or formal test conditions. Relative to the other behavior observation approaches employed, the formal test permitted the most rigorous control since:

1. The test conditions and the test environment could be specified in advance and standardized more so than the other observation approaches.
2. It was possible to follow changes in the behaviors of individual children across all three testings.
3. The subject children could be identified by grade level, making possible evaluation of the individual Elementary Program units.

Formal testing was conducted in two elementary schools, representing two of the three participating school systems and in a third school which did not conduct the PEDSAFE Program. The schools were selected to be similar in size and socio-economic status. All the schools were in small towns or suburban neighborhoods. A major criterion for selection was that the school be located in an area where the midblock crossing, intersection

Table 4-1

Summary of Field Observer Reliability

<u>Critical Event</u>	<u>Subjective Judgment</u>				<u>Objective Judgment</u>			
	<u>No. of Trials*</u>	<u>Total Observations</u>	<u>Range of Reliability Scores**</u>	<u>Mean Reliability Scores</u>	<u>No. of Trials*</u>	<u>Total Observations</u>	<u>Range of Reliability Scores**</u>	<u>Mean Reliability Score</u>
Midblock Crossing	5	96	57.1-100.0%	79.5%	5	96	57.1-100.0%	82.3%
Intersection Crossing	4	43	100.0%	100.0%	2	29	91.3-100.0%	95.6%
Walking Along Roadway	4	96	85.7-100.0%	96.1%	3	82	98.4-100.0%	99.5%
School Bus Related	4	98	92.3-100.0%	97.5%	4	98	92.3-100.0%	97.1%

* A trial is a set of observations made simultaneously by a field observer and the project staff member. The same staff person conducted all reliability trials. On three trials, insufficient data were available with which to compute objective judgments. Otherwise, objective and subjective judgments were obtained on the same observations.

** A reliability score is the percent agreement between the field observer and staff person.

crossing, and walking along the roadway behaviors could be observed near the school, under conditions which would be safe for the children. The attempt was made to assure that the schools and areas selected would provide equally difficult test situations, although, as discussed later, problems arose in the walking along roadway test conditions.

Only one elementary school in the three school systems conducting the Elementary Program included the sixth grade and this school neighborhood was not suited to testing. Therefore, the three schools selected offered only Kindergarten through fifth grade instruction. Because of this limitation, it was not possible to conduct behavior change evaluation of the Elementary Program sixth grade unit. This was not considered a major problem, since actual practice of the critical behaviors is not emphasized in this unit (see the discussion of the sixth grade unit in Section 3, page 3-3).

The actual conduct of the formal testing proceeded as follows. Children in a given class were told that they were going on a "safety walk" to see if they knew how to behave safely in and near the street. Each child was taken individually by a member of the test team to the starting point, usually at an exit door or immediately outside of the school. He or she was given a simple instruction, such as "Go over there to the lady in the orange vest," with no indication of the route to take in getting there. The child was similarly directed to other team members with final directions which would cause the child to reenter the school. The setting was designed to provide the opportunity for both correct and incorrect behaviors. In fact, two settings were employed. Kindergarten and first graders covered a route which only required midblock crossing (with and without a parked car present), since the K-1 unit of the program does not teach intersection crossing and walking along the roadway skills. The route for the second through fifth graders permitted observation of all three of these critical events.

Figures 4-2 and 4-3 show typical layouts for the K-1 and 2-5 safety walks, respectively. Figure 4-3 shows the correct path and the alternate path taken by those children who chose to walk along the roadway with their backs to traffic (incorrect walking along the roadway behavior). The location and duties of each test team member are also shown.

Formal test data consisted of the objective (i.e., computer-generated) judgments of behavior adequacy for each child in the sample over all three tests. An overall analysis of variance was performed on these data, allowing determination of main and interaction effects among schools (Experimental 1--Experimental 2--Control) and test (pre-test--first post-test--second post-test). Separate analyses were performed for midblock crossing behaviors (involving grades Kindergarten through five), intersection crossing behaviors (grades two through five), and walking along roadway behaviors (grades four and five).

Almost all of the main and interaction effects on all three main analyses were highly significant ($p < .001$), indicating that the differences obtained among schools and tests could not be due to sampling error. The data were then partitioned to identify the specific relationships which accounted for those overall results. These findings can be most clearly presented by dividing the discussion into three parts relating to midblock crossing, intersection crossing, and walking along the roadway.

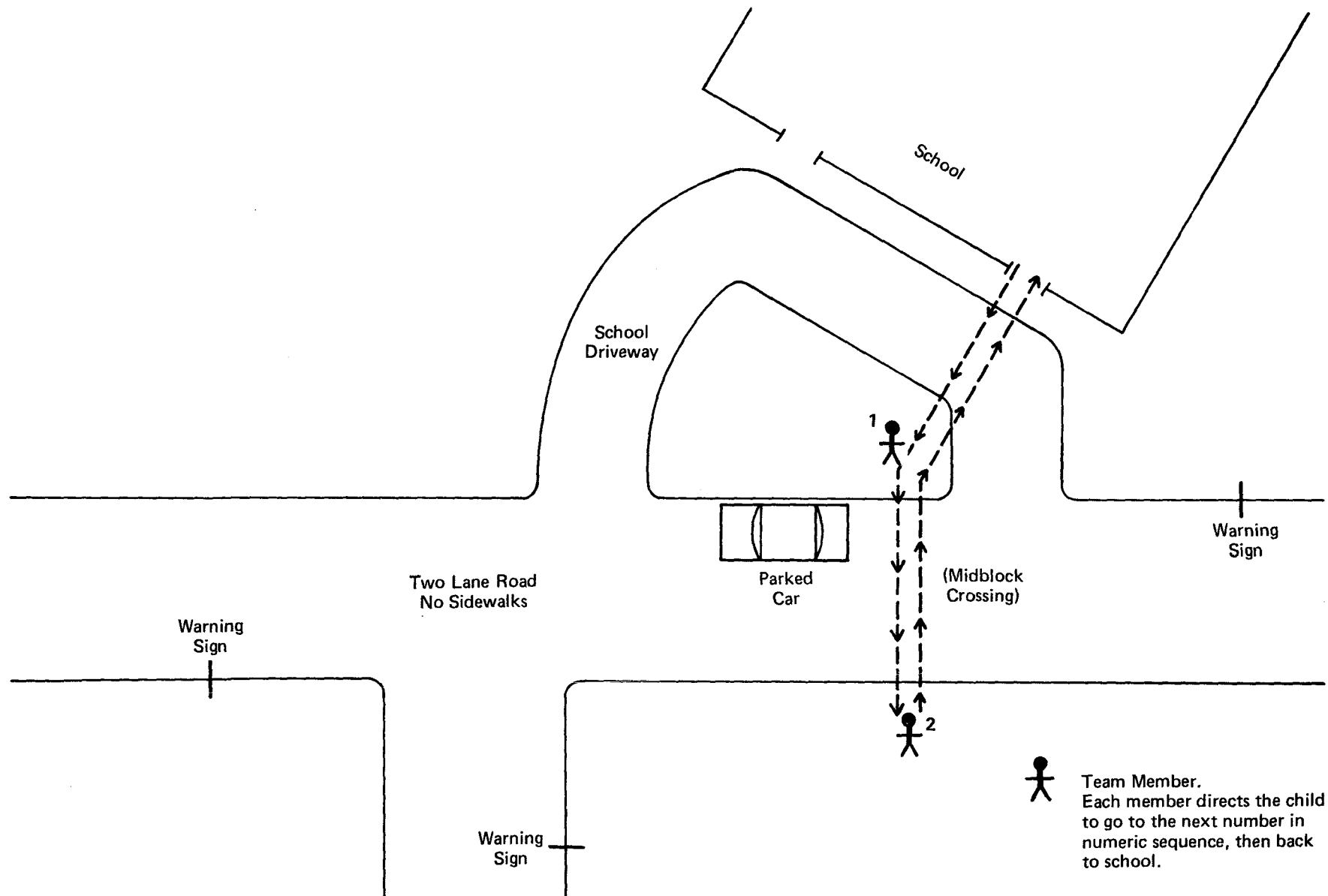



Figure 4-2. Typical Safety Walk for Kindergarten and First Grade Students

 Team Member. Each member directs the child to go to the next number in numeric sequence, then back to school.

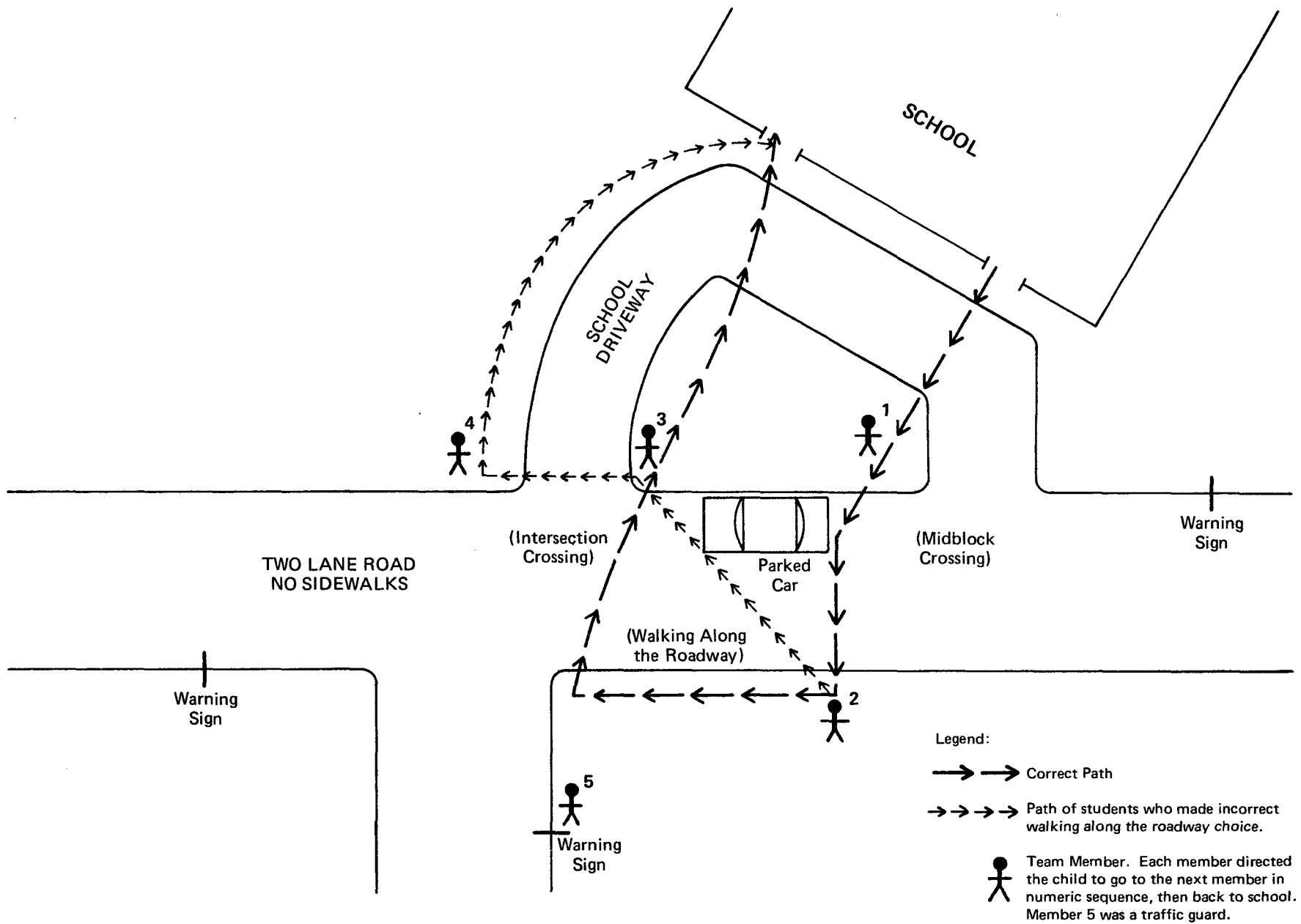


Figure 4-3. Typical Safety Walk for Second Through Fifth Grade Students

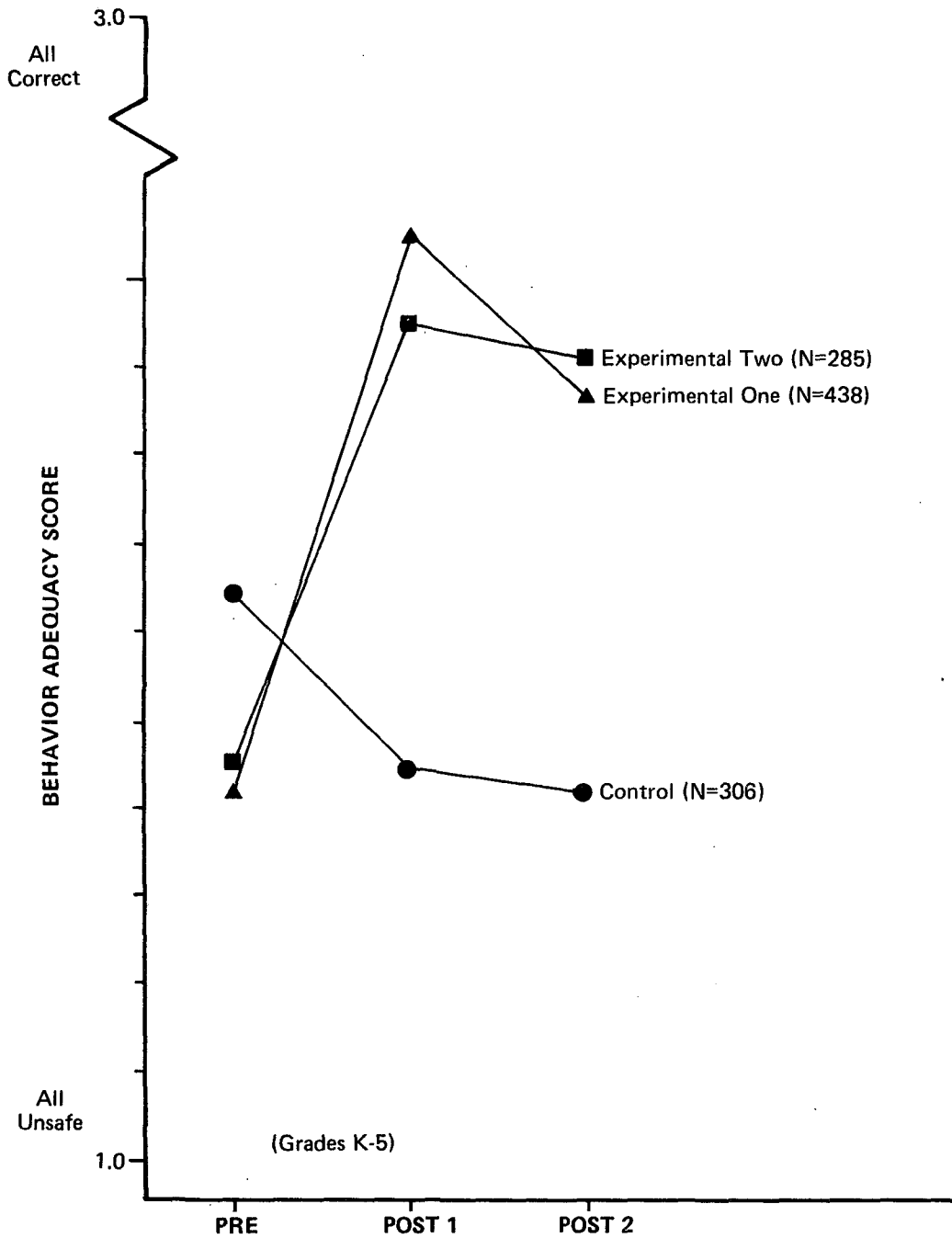
Midblock Crossing Behavior Change. Figure 4-4 illustrates the mid-block crossing behavior change for the two experimental schools and one control school across the three formal tests. The vertical dimension, i.e., the behavior adequacy scores, reflects the weighted average of all children's performance where an unsafe crossing was weighted one, "adequate" was weighted two, and "correct" weighted three. Thus, the scale is sensitive not only to shifts away from the unsafe behaviors but also to the extent of the shift. The findings reflected in the figure can be summarized as follows:

1. The pre-test scores across all schools did not differ significantly. The change in the control group scores across the tests is also not significant.
2. Both experimental schools improved significantly ($p < .01$) relative to this control school. There was no significant difference between the experimental schools.
3. There appears to be a performance decrement between the first and second post-tests--the difference is significant for Experimental School One ($p < .01$) but not for Experimental School Two.

Given that we observed significant shifts in the behavioral adequacy scores toward safer behavior, it is appropriate to ask why the shift occurred. Was it caused by children who performed adequately in the pre-test improving to a "correct" performance or, more importantly, was it caused by "unsafe" children improving to at least "adequate" performance? The table in Figure 4-4 shows the percent of unsafe behavior corresponding to each mean adequacy score. This table shows that:

1. The percentage of unsafe behaviors for both experimental schools combined drops from 66.7 percent in the pre-test to 37.2 percent in the first post-test, representing a 44.2 percent reduction in unsafe behaviors.
2. Although some backsliding to unsafe behavior occurs between the first and second post-tests, by the end of the school year, the children who received PEDSAFE training are still demonstrating a 29.8 percent reduction in unsafe behavior relative to their pre-test performance.

These facts support the contention that a large proportion of initially "unsafe" children did improve to at least "adequate" performance.



MEAN ADEQUACY SCORE (PERCENT UNSAFE BEHAVIOR) BY TEST

CONDITION	PRE-TEST	FIRST POST TEST	SECOND POST TEST
Experimental			
School One	1.418 (68.3%)	2.059 (37.2%)	1.870 (46.1%)
School Two	1.449 (64.2%)	1.947 (37.2%)	1.910 (47.7%)
Combined	1.430 (66.7%)	2.015 (37.2%)	1.886 (46.8%)
Control			
One School	1.640 (55.2%)	1.440 (69.3%)	1.415 (69.3%)

Figure 4-4. Summary of Formal Test Results -- Midblock Crossing

The decrement between the first and second post-tests is probably due to the reduction in program emphasis following the initial program sessions. The intention was to establish the safe behaviors with the initial sessions and to maintain the skills with once-per-month "refresher" activities thereafter through the end of the school year. The fact that the decrement is small reflects the success of this attempt.

It is interesting to note that Experimental School One which showed the greater decrement also conducted far fewer of the training sessions, particularly during the period following the initial sessions. The decrement reflects this lack of program emphasis, but the small size of the decrement provides evidence for permanency of the training, at least over the 4-5 month period between the first and second post-test.

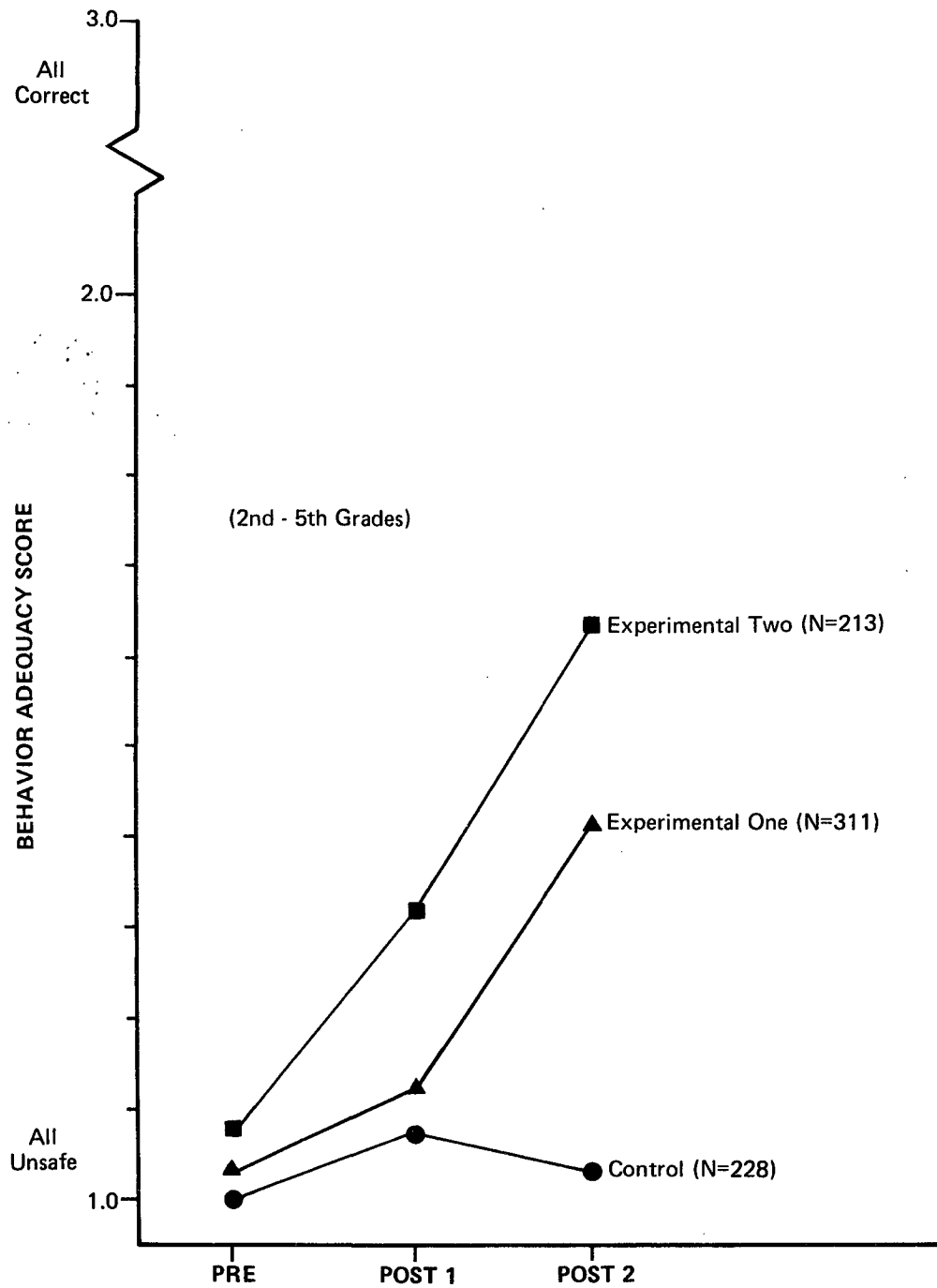
Intersection Crossing Behavior Change. Figure 4-5 summarizes the results of the Elementary Program on the adequacy of intersection crossing behaviors. The figure shows that:

1. The baseline (pre-test) level of behavior adequacy was quite low. Very few of the children in any of the three test schools crossed safely at the intersection.
2. The Experimental School One, which did not conduct all of the training sessions, performed significantly better than the control school ($p < .01$) and improved significantly ($p < .01$) between the first and second post-test.
3. The Experimental School Two which conducted all of the sessions performed significantly better than Experimental One ($p < .01$) and also improved significantly between the first and second post-test ($p < .01$).

In terms of reduction in unsafe crossings, by the second post-test the Experimental Schools showed 26.3 percent reduction.

Two factors are likely to have contributed to the continued improvement between the first and second post-test. In all units, midblock crossing was covered first because the intersection crossing skill builds upon the midblock crossing skill. Thus, the harder intersection crossing skill was probably not totally mastered by the children at the time of the first post-test. Also, data from the session observations indicate that, during the later sessions where both midblock and intersection practice could occur, teachers tended to emphasize intersection practice because the children had apparently mastered the midblock crossing behavior.

Walking Along the Roadway Behavior Change. Last minute technical difficulties in laying out comparable routes for the safety walks in the formal test schools prevented conducting a meaningful comparison of changes in the walking along the roadway behavior across all three schools. Each safety walk route had to present the child with a decision point at which he/she decided whether to walk facing traffic (the correct choice) or against traffic. The route choices had to be equally direct to prevent the child's natural tendency to choose the shorter path. During the pre-test,



MEAN ADEQUACY SCORE (PERCENT UNSAFE BEHAVIOR) BY TEST

CONDITION	PRE-TEST	FIRST POST TEST	SECOND POST TEST
Experimental			
School One	1.035 (96.8%)	1.125 (92.3%)	1.412 (76.2%)
School Two	1.075 (93.0%)	1.315 (83.1%)	1.643 (61.5%)
Combined	1.051 (95.3%)	1.202 (88.6%)	1.506 (70.2%)
Control			
One School	1.009 (99.1%)	1.070 (96.0%)	1.031 (96.9%)

Figure 4-5. Summary of Formal Test Results -- Intersection Crossing

it was discovered that, for the Experimental One and Control Schools, the most direct route (i.e., the one the child was more likely to naturally select) was also the correct route (i.e., the route which caused the child to walk facing traffic) and, as a result, Experimental One and Control children showed high frequency of correct walking along the roadway performance during the pre-test. For this reason, it was decided to drop the Experimental One School and Control School from the analyses.

The safety walk route defined for the Experimental Two School did permit an unbiased decision and changes in the walking along the roadway performance of the children before and during training could be meaningfully compared. The results of this evaluation are presented in Figure 4-6. The figure illustrates the performance improvement of 99 fourth and fifth grade children¹¹ present for all three tests. The performance improvement at the first post-test, as compared to the pre-test was significant at $p < .001$). The children continued to improve with training and the improvement between the first and second post-test showed significance at $p < .01$. Between the pre-test and second post-test there was 34.6 percent reduction in the number of unsafe walking along the roadway behaviors observed.

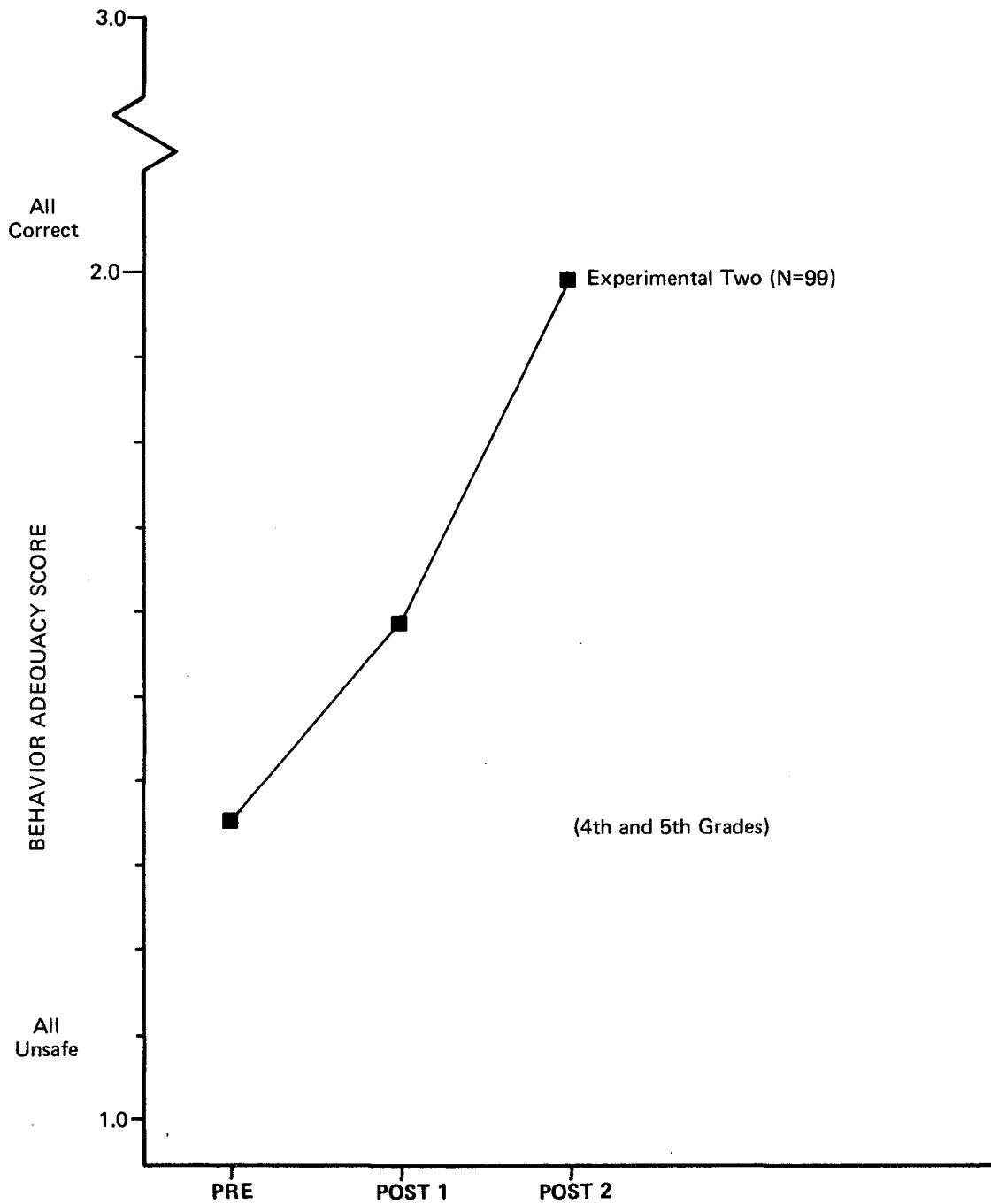
After School and Neighborhood Observations

Children in the three participating and four control school districts were observed as they walked home after school and on Saturdays as they traveled about on foot or played in their neighborhoods. Again, three periods of observation were conducted, each occurring about the same time as a formal test (see Figure 4-1, page 4-2).

After-school observations were conducted at five participating and three control elementary schools selected as having the largest number of children who walked to and from school. On the day of the observation, three or four observers were stationed near the school at sites selected so as to provide the opportunity for the children to exhibit midblock crossing, intersection crossing and walking along the roadway behavior. However, the actual route taken by the children being observed could not be controlled and so, normally, only one or two of the critical events could be observed for a given child.

It was not possible to identify and observe the same children over all three tests. The attempt was made to determine the grade level of each child observed by having the teachers distribute large color-coded posters to the children at dismissal on the day of the observation. However, many of the children carried book bags and usually folded and placed their poster in the bag out of sight of the observer. Because of this problem, grade level data could not be collected on a sufficient number of children observed to permit analysis by grade level.

¹¹The walking along the roadway behavior was taught beginning with the fourth grade.



MEAN ADEQUACY SCORE (PERCENT UNSAFE BEHAVIOR) BY TEST

CONDITION	PRE-TEST	FIRST POST TEST	SECOND POST TEST
Experimental School Two	1.354 (81.8%)	1.596 (69.7%)	1.919 (53.5%)

Figure 4-6. Summary of Formal Test Results -- Walking Along the Roadway

The Saturday observations were conducted by driving a predetermined route through areas served by each of the experimental and control schools. When a child was observed playing near the street, or in the act of walking in or near the road, the observer would stop his/her vehicle so as to unobtrusively watch the child. Depending upon the circumstances, the child might be observed performing one, two or all three target behaviors. Observations were conducted throughout the day on the Saturday preceding or following the after school observation of the school serving each neighborhood.

The neighborhood observations, particularly those collected after school, had a somewhat higher missing data rate than the Formal Test or On-Bus observations. This was due to the fact that occasionally the observer was required to record the behavior of children who appear close together in time, resulting in a task overload. In such instances, the observer would record his/her subjective judgment of behavior adequacy, even if certain data items had to be ignored. While the problem did not occur frequently, objective judgments for such observations could not be generated by the computer even if only one data item was missing. In order to maximize the number of observations that could be included, it was decided to employ subjective judgments in the neighborhood analysis. Given the high agreement between the subjective and objective judgments obtained on those trials for which measures were available, it is unlikely that different results would have been obtained using the objective judgments.

Figure 4-7 illustrates the results of the neighborhood observations for the midblock crossing, intersection crossing and walking along the roadway behaviors. It is apparent from the figure that children in their neighborhood environment generally performed the critical behaviors unsafely, and there were not large changes in their behavior adequacy scores over the three tests. Walking along the roadway behaviors were performed adequately with a somewhat higher frequency than the midblock or intersection crossing behaviors. Analyses of variance were performed to determine the significance of changes in the experimental (i.e., trained) and the control (i.e., untrained) children over the three tests.

Table 4-2 summarizes the results of the two-factor analysis of variance procedures performed on the three critical events. Percent unsafe behaviors are presented in addition to the adequacy scores upon which the analysis was calculated.

For midblock crossing behavior, both the figure and the table show that the performance of the children in the experimental neighborhoods improved relative to the performance of the children in the neighborhoods served by schools which did not conduct training. The differences between conditions is significant at the .02 level. The unsafe behaviors of the experimental children are reduced by 32.7 percent between the pre-test and the second post-test, when the slight decrease exhibited by the control condition is subtracted out.

The figure and table also show significant improvement in walking along the roadway behavior ($p < .025$). A 6.5 percent reduction in unsafe

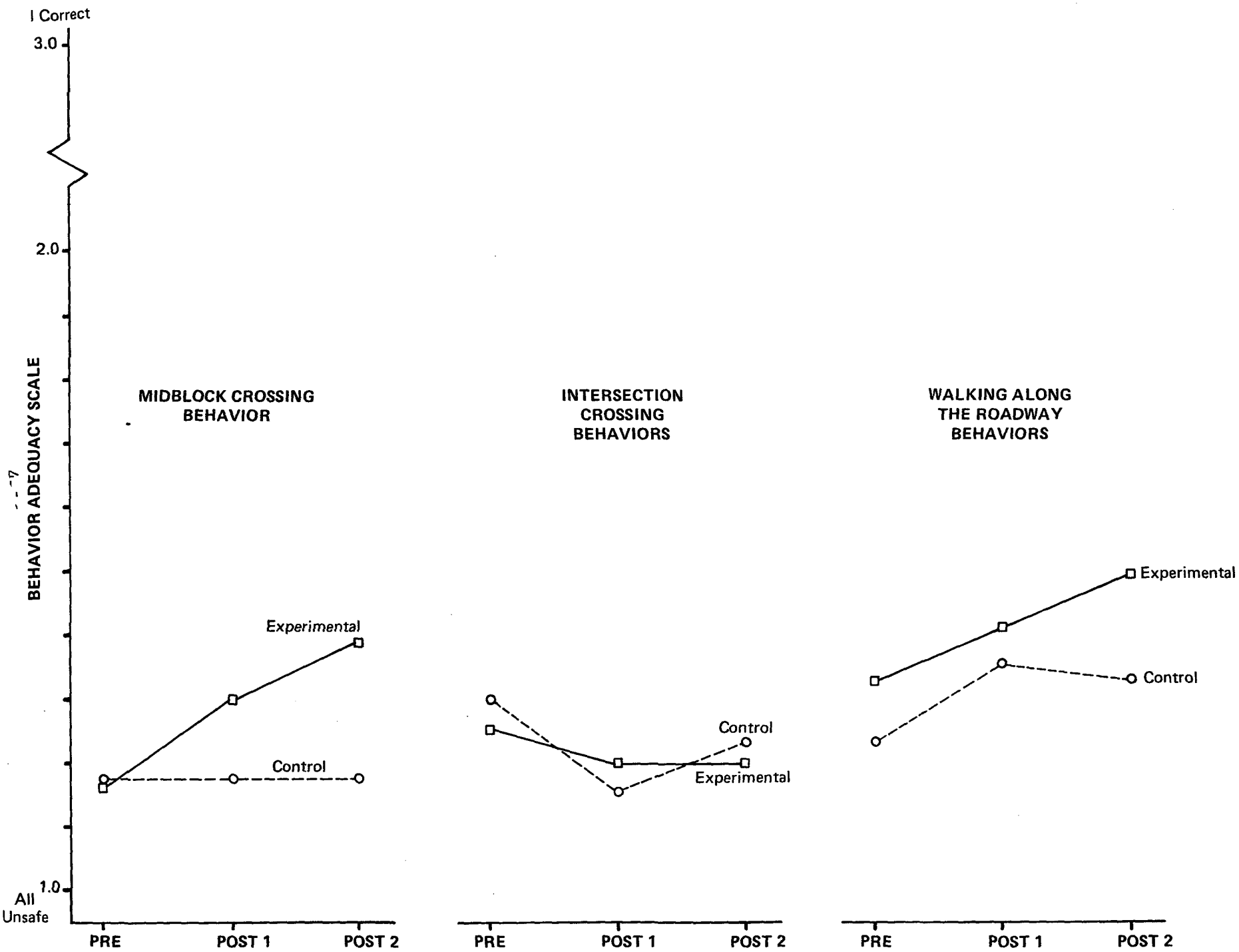


Figure 4-7. Neighborhood Observations of Three Critical Behaviors

Table 4-2

Data and Analysis Summaries
for Neighborhood Observations

MIDBLOCK CROSSING

Mean Adequacy Score (Percent Unsafe Behavior) by Test:

<u>Condition</u>	<u>Pre-test</u>	<u>First Post-Test</u>	<u>Second Post-Test</u>
Experimental	1.161 (83.9%)	1.300 (73.3%)	1.383 (54.5%)
Control	1.169 (84.5%)	1.167 (83.3%)	1.174 (87.5%)

<u>Source*</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p**</u>
Condition	1.284	1	1.284	6.251	<.02
Test	0.946	2	0.473	2.303	N.S.
Interaction	0.744	2	0.372	1.811	N.S.
Within Cell	85.661	417	0.205		

INTERSECTION CROSSING

Mean Adequacy Score (Percent Unsafe Behavior) by Test:

<u>Condition</u>	<u>Pre-test</u>	<u>First Post-Test</u>	<u>Second Post-Test</u>
Experimental	1.254 (74.6%)	1.198 (81.8%)	1.196 (82.6%)
Control	1.300 (73.3%)	1.165 (84.6%)	1.227 (84.0%)

<u>Source*</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p**</u>
Condition	0.000	1	0.000	0.000	N.S.
Test	0.796	2	0.398	1.867	N.S.
Interaction	0.177	2	0.088	0.413	N.S.
Within Cell	131.069	615	0.213		

WALKING ALONG THE ROADWAY

Mean Adequacy Score (Percent Unsafe Behavior) by Test:

<u>Condition</u>	<u>Pre-test</u>	<u>First Post-Test</u>	<u>Second Post-Test</u>
Experimental	1.331 (73.4%)	1.418 (63.4%)	1.494 (65.3%)
Control	1.226 (78.0%)	1.335 (66.9%)	1.318 (74.5%)

<u>Source*</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p**</u>
Condition	2.001	1	2.001	5.391	<.025
Test	1.734	2	0.867	2.336	N.S.
Interaction	0.534	2	0.267	0.719	N.S.
Within Cell	313.285	844	0.371		

* ANOVA calculated on adequacy scores.

** N.S. = not significant at $p=.05$ or better.

behaviors is observed, again subtracting the slight reduction experienced by the control condition. This finding is somewhat surprising considering the fact that only fourth and fifth grade children received the walking along the roadway training and, thus, the majority of the children observed in the neighborhoods would not have been exposed to it. However, an informal analysis of the Walking Along the Roadway performance of the second and third grade children in the participating schools showed improvement over the formal tests, even though these children had not been trained on this behavior. This was evidently due to curiosity aroused by the safety walk and the fact that safe performance of the behavior depends in great part on simple course selection, i.e., choosing to walk facing traffic. Children who did not receive walking along the roadway content could easily learn the correct course, if nothing else, simply by talking to an older child or to a teacher. It is possible, therefore, that the results of the neighborhood observation reflect the fact that children other than those who were specifically receiving the walking along the roadway content, were benefiting from the instruction. This hypothesis could not be evaluated given the design constraints of the present study.

A review of the data and analysis for intersection crossing behaviors indicates that PEDSAFE seemed to have no effect on this critical event. The intersection crossing content is taught beginning in second grade, and it must be assumed that the majority of the children observed in the experimental neighborhoods should have been exposed to it. Two factors may account for the lack of effect. First, the intersection crossing behavior sequence is the most complex of the three, involving searches to each side, in front and behind to check for turning traffic. Although the students appeared to have mastered the behavior sequence, as demonstrated by the formal test results, they may not have learned it sufficiently well to have it generalize to their day-to-day pedestrian behavior. In this regard, it must be remembered that PEDSAFE intersection crossing training is less intensive than midblock crossing training. Kindergarten and first grade children concentrated on midblock and school bus related behaviors. The second and third graders must learn these and, in addition, intersection crossing behaviors with no increase in training time.

A second factor which may explain the lack of effect is the prior experience of the children. It is possible that the older children have more firmly established incorrect street crossing behaviors, and these are resistant to change over the period covered by the field test.

Most probably, the lack of effect of PEDSAFE on intersection crossing is due to a combination of factors--less than complete exposure to the content among the children observed, a relatively complex behavior sequence, and firmly established incorrect behaviors. These problems do not imply a need to modify the curriculum. PEDSAFE is a continuing program, and it is intended that behavior improvement develop over several years' exposure to its content. It was beyond the scope of this project to field test PEDSAFE over more than a single school year in which total program exposure for each elementary school student was about six hours. It is reasonable to assume that, with continued exposure, the effectiveness of the intersection crossing could be demonstrated in the neighborhood environment.

On-Bus Testing

Thus far, the discussion of results has been directed toward only three of the four critical events toward which the PEDSAFE training at the elementary level is directed. The Elementary Program also provides training of safe pedestrian behaviors near the school bus. In addition, the PEDSAFE On-Bus Program is exclusively concerned with this training objective. As discussed previously, the On-Bus Program was conducted together with the Elementary Program in the three participating school systems, and one objective of the evaluation of PEDSAFE was to determine the combined impact of these programs on school-bus related pedestrian behaviors.¹²

To determine the behavioral impact of the programs, on-bus observations were conducted at three points in the school year at the same time as the other behavioral observations. Thus, the school bus-related behaviors were measured prior to training (pre-test), after the heavy initial training emphasis (first post-test), and near the end of the school year after only occasional emphasis (second post-test).

Several (5-10) school bus routes serving only elementary children were selected in the three participating school systems and in two control school systems. Bus routes were selected which:

1. Had the largest number of stops.
2. Had fewest children boarding or leaving per stop (since only one child per stop could be effectively observed).
3. Had the largest proportion of children crossing the road in order to board or disembark the bus.

The third criteria was generally of greatest concern, since most school systems purposely plan their routes to minimize the number of children who must cross the road to board or disembark from the bus.

During each observation period, an observer rode each route, morning and afternoon, for one day. As the bus approached each stop in the morning, the observer noted the waiting behavior of the child (children) and tracked the crossing behaviors of the first child (if any) to cross and board the bus. During the afternoon, the observer noted the behavior of the first child leaving the bus, either how he/she crossed or whether he/she moved well away from the bus before it departed. As with the other behavioral observations, the observer collected data on the specific behaviors of the child (i.e., stops, searches), and made a judgment of behavioral adequacy. A computer-generated "objective" judgment was also

¹²Determining the combined impact is appropriate because both the Elementary and On-Bus Programs should be conducted together. In actual practice, however, each could be conducted independently.

compiled for each observation. The observation procedures, the criteria for "adequate" and "correct" behaviors, and the data collection form are contained in Appendix B.

There were actually four school bus-related skills being trained by the programs:

1. Loading from same side bus stop. This skill consisted primarily of waiting away from the road and waiting for the bus to stop before moving to the bus.
2. Loading from an opposite side bus stop. In addition to waiting skills, the child was taught to wait for the bus to stop with the red lights flashing and to stop and search for traffic before crossing well in front of the bus.
3. Unloading to same side destination. The child was taught to move away from the bus after disembarking.
4. Unloading to opposite side destination. Here the child was taught to cross well in front of the bus, stop at the driver's side edge of the bus, search for traffic, and then cross.

Because the four skills differ sufficiently, it was decided to evaluate behavior change individually for each. The name of each child observed was obtained from the bus driver, so it was possible to track the behavior of the same children over all three tests. However, at a given stop with more than one child present, the same child might not be observed each time. This, combined with normal absences at each test, markedly reduced the size of the samples for the matched group analysis. The problem was most severe for the opposite side observations, since these tended to occur less frequently overall. To avoid presenting a biased picture of the results, the behavior adequacy scores for both matched groups (i.e., the same children observed across all three tests) and total (i.e., all children observed at each testing) samples were compared. It was found that the trends and relationships between the experimental and control conditions were very similar for each of the four on-bus skills.

Figure 4-8 summarizes the behavior adequacy scores for the matched group samples of the individual on-bus skills. It is apparent from the figure that the two "same side" skills had very high base line (i.e., pre-test) behavioral adequacy which did not change over the three observation periods. Waiting for the bus and disembarking from it, where no street crossing was involved, was generally performed properly by the children. In fact, over the various observation periods and test conditions, between 60 and 85 percent of the children performed "correctly," i.e., in exact conformance with the behaviors as taught. The performance of the experimental and control children was not discriminately different.

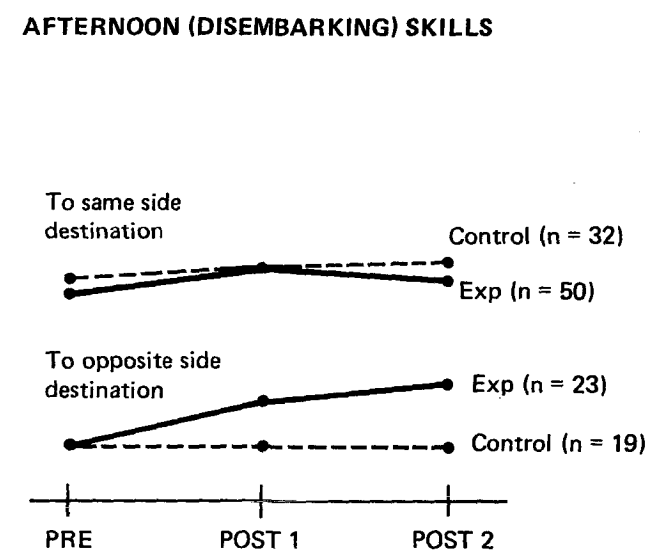
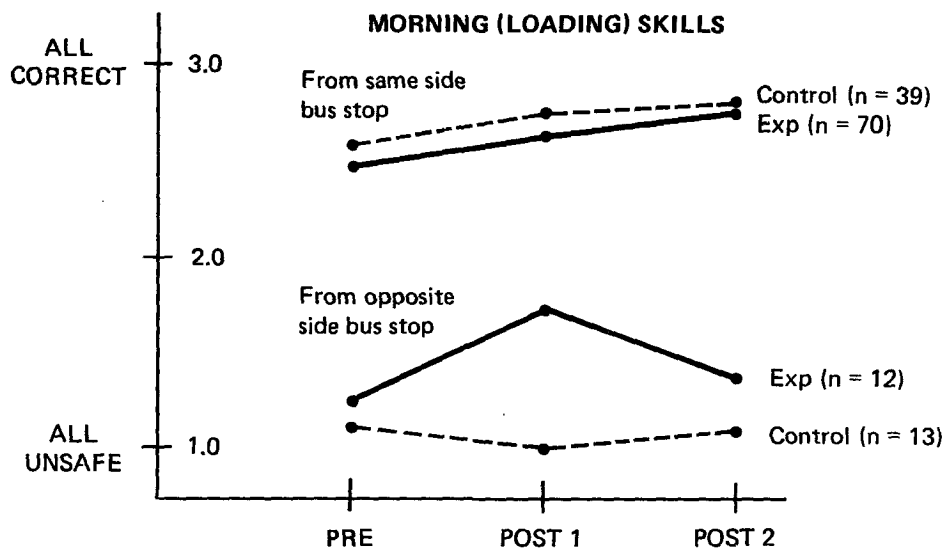


Figure 4-8. Summary of Behavior Adequacy for School Bus Related Skills

The high initial performance level and the fact that training did not affect these simple behaviors may imply that the children were already performing at close to the natural "ceiling" for these behaviors. Changes in the training materials are not likely to improve performance of these skills appreciably, although some improvement might be obtained as the children are exposed to the programs in subsequent years.

For the skills involving street crossing, the results as summarized in the figure are quite different. The adequacy of crossings to and from the school bus improved for the PEDSAFE trained children, relative to the control children. The data and the supporting analyses are provided in Table 4-3.

It can be noted that the loading-opposite side bus stop skill improved significantly ($p < .02$). This finding is confounded by a significant ($p < .02$) test-by-condition interaction effect. From the plot of the data as shown in Figure 4-8, it is clear that the interaction is due to a relatively large improvement in the experimental school children between the pre- and first post-test, followed by a performance decrement between the first and second post-tests. The children who received PEDSAFE training improved initially, but there was "backsliding" toward unsafe behavior as the school year progressed. Looking at the percent unsafe behavior data, which are more directly interpretable than the adequacy scores, it can be seen that the PEDSAFE-trained children showed a 33.3 percent reduction in unsafe behaviors at the first post-test. Even considering the decrement, by the end of the school year the PEDSAFE-trained children were still showing an 11.1 percent improvement. These figures do not factor in the small changes in the performance of the control children on the assumption that this was random variation.

The disembarking-to-an-opposite side destination skill showed a significant ($p < .03$) improvement as seen in Table 4-3. However, the test-by-condition interaction effect and test-by-main effect were also significant (both at $p < .05$). Again, the plot of the data in Figure 4-8 permits interpretation of all of these findings. The plot shows that all the control school children performed unsafely in the pre-test and continued to perform unsafely in the post-tests. All of the experimental group children performed unsafely in the pre-test, but their performance improved across the post-tests. The significant interaction reflects the divergence of the two performance lines. The significant test affect results because the combined or mean performance of the experimental plus control school children improves across the three tests, even though only the experimental school children contribute to the performance improvement.

The condition main effect, of course, compares the performance of the experimental school children, combined across tests, with the combined performance of the control school children. It is interesting to note that the effect is significant, even though both groups performed identically during the pre-test. Thus, the effect is totally due to performance improvement of the experimental group during the period in which the program was in operation.

Table 4-3

Data and Analysis Summaries
On-Bus Observations

LOADING FROM OPPOSITE SIDE BUS STOP

Mean Adequacy Score (Percent Unsafe Behavior) by Test:

<u>Condition</u>	<u>Pre-test</u>		<u>First Post-Test</u>		<u>Second Post-Test</u>
Experimental	1.250	(75.0%)	1.583	(50.0%)	1.333 (66.7%)
Control	1.154	(84.6%)	1.000	(100.0%)	1.077 (92.3%)
<u>Source*</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p**</u>
Condition	1.821	1	1.822	6.29	<.02
Error	6.658	23	0.289		
Test	0.129	2	0.065	0.79	N.S.
Interaction	0.769	2	0.385	4.67	<.02
Error	3.791	46	2.082		

DISEMBARKING TO OPPOSITE SIDE BUS STOP

Mean Adequacy Score (Percent Unsafe Behavior) by Test:

<u>Condition</u>	<u>Pre-test</u>		<u>First Post-Test</u>		<u>Second Post-Test</u>
Experimental	1.000	(100.0%)	1.174	(91.3%)	1.217 (82.6%)
Control	1.000	(100.0%)	1.000	(100.0%)	1.000 (100.0%)
<u>Source*</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p**</u>
Condition	0.531	1	0.531	5.55	<.03
Error	3.826	40	0.096		
Test	0.275	2	0.138	3.25	<.05
Interaction	0.275	2	0.138	3.25	<.05
Error	3.391	80	0.042		

* ANOVA calculated on adequacy scores, matched groups.

** N.S. = not significant at p=.05 or better.

The findings support the conclusion that the PEDSAFE-trained children performed more safely as the result of training. The plot line shows continued improvement between the first and second post-test. In terms of percent unsafe behavior, the PEDSAFE-trained children demonstrated a 17.4 percent reduction between the pre- and second post-test.

There is an important implication of the On-Bus testing results that should be pointed out. The behavior testing of the Midblock Crossing, Intersection Crossing and Walking Along the Roadway critical events involved formal tests designed to determine behavior change under controlled and somewhat artificial conditions, and the neighborhood observations were designed to see if behavior change occurred in natural pedestrian situations. By contrast, the On-Bus testing was a combination of these approaches. Individual children were observed and identified so that behaviors of individual children could be tracked across tests (as in the formal test), but also behaviors were observed covertly¹³ under the actual conditions. Thus, the On-Bus test results demonstrate both that improvement occurred and that it occurred in the "real life" conditions where school bus-related pedestrian accidents occur.

Junior/Senior High School Program

The third of the three programs in PEDSAFE, the Junior/Senior High School Program, consisted of five units designed to provide pedestrian safety content as part of standard Junior and Senior High School curriculum areas. The units related to short story, drama, mathematics, health and driver education.¹⁴

The objective of each unit was to promote knowledge change, i.e., increase the students' knowledge concerning how to be a safe pedestrian, rather than skill development which was the objective of the other PEDSAFE programs. Therefore, an evaluation design was chosen which involved determining the knowledge change in classes which were exposed to the units as compared to similar classes which were not exposed to the units. It was our goal to have three Junior and three Senior High School teachers administer each unit to their classes. Because teacher cooperation was voluntary, it was necessary to conduct the evaluation using five suburban/rural school systems in order to satisfy the design. The distribution of units over schools and school systems is shown in Table 4-4.

¹³The children are told that the observer was "learning the school bus route" if they asked. Since the observer was present infrequently (three days over the school year), the children's curiosity was not a problem in keeping the children "blind" to the observer's purpose.

¹⁴Only pedestrian safety content was provided, not content related to driving skills.

Table 4-4

Distribution of Junior/Senior High School
Program Units Over Schools/School Systems

<u>School District</u>	<u>PEDSAFE Unit</u>				
	<u>1</u> <u>Short Story</u>	<u>2</u> <u>Drama</u>	<u>3</u> <u>Math</u>	<u>4</u> <u>Health</u>	<u>5*</u> <u>Driver Ed</u>
School A					
Junior High	X		X		
Senior High					
School B					
Junior High				X	
Senior High	X	X	X	X	
School C					
Junior High	X		X	X	
Senior High	X	X	X	X	X
School D					
Junior High	X	XX**	X**		
Senior High				X	X
School E					
Junior High		X		X	
Senior High	X	X	X		X

* Senior High only.

** Teachers who implemented PEDSAFE in accelerated classes. Accelerated control classes were selected from another Junior High School in this school district, i.e., a different teacher taught the control classes.

As the table indicates, our goal was met for all units but driver education. The driver education unit, of course, could only be administered at the Senior High School level.

In all cases but two (see footnote to Table 4-4), teachers implemented PEDSAFE in one class and used another educationally-matched class to use as their control, i.e., both experimental and control classes were taught by the same teacher. Classes were assigned randomly to the experimental or control condition. For the purpose of this study, teachers having grades 6, 7, and 8 were considered junior high. Those teaching grades 9, 10, 11, and 12 were considered senior high.

A 23-question multiple-choice knowledge test was used as pre- and post-test, both in experimental and control classes, to measure the extent of pedestrian safety knowledge change. Two parallel forms of the test (Form A and Form B) were derived from a 75-item test based on the content covered in the Junior/Senior High School units.

The content analysis is shown in Table 4-5. In order to assure equivalent forms of the knowledge test, 112 Senior High School and 106 Junior High School students were given the 75-item test. The students were selected from another school system which had provided control data for the Elementary PEDSAFE Program analyses. The scores of this initial test were analyzed to provide a degree of difficulty factor and discrimination index for each of the 75 items. Items were matched within content areas according to these two factors to arrive at the equivalent test forms. The same content distribution was maintained in both tests.

Table 4-5

Content Analysis

<u>Content Area</u>	<u>Percentage of Items</u>
General Pedestrian Safety Information	24%
Midblock Dart-Out/Dash	22%
Walking Along the Roadway	15%
Multiple-Threat	11%
Intersection Dash	11%
School Bus Related	7%
Vehicle Out of Control	4%
Waiting for a Ride	3%
Disabled Vehicle Related	3%

The 23-question pedestrian safety knowledge test was administered to both experimental and control classes prior to the start of each Junior/Senior High School unit. Teachers were given six weeks to complete their unit. (A unit could be completed within four or five class periods.) A parallel form of the knowledge test was administered to both experimental and control classes following the conduct of PEDSAFE. The forms of the test were alternated for pre- and post-tests so that half of all students received Form A for the pre-test and Form B for the post-test. The other students received Form B for the pre-test and Form A for the post-test.

Of the six classes that implemented the drama unit, three did not complete it and/or administer post-tests (two Junior High School classes and one Senior High School class). One Senior High School class administering the short story unit did not complete it.

An analysis of variance was performed to determine if differences in pre-test scores existed between conditions (experimental and control), grade (Junior High School and Senior High School), and unit. This analysis is summarized in Table 4-6. Only one significant finding was found--a two-way interaction between unit and grade--due primarily to the fact that certain of the Junior High School units were administered to accelerated classes (see Table 4-4). Since the same classes were tested pre- and post-training, the presence of the interaction effect was not a concern for evaluation of post-test results. In general, the analyses of the test scores prior to training indicated that the students did not differ significantly in terms of their pedestrian safety knowledge, regardless of whether they were assigned to the experimental or control conditions. They did differ somewhat, depending on what class they were in, i.e., what unit they were about to receive, but this was controlled for by means of the repeated measures and matched groups aspects of the design. Surprisingly enough, the students did not differ in their pedestrian safety knowledge as a function of grade level--Junior High School students know about as much as Senior High School students.

Table 4-6 also shows the results of a parallel analysis of variance performed on the post-test data. It is apparent from the table that:

1. There is a significant difference between experimental and control conditions ($p < .001$). Table 4-7 summarizes the knowledge increases overall and by unit. It can be seen that the units resulted in a 24.6 percent knowledge increase.
2. The Junior and Senior High School students differed in their improvement. Table 4-7 shows that seniors learned more, 26.5 percent versus 19.6 percent for junior high students.
3. There was a significant condition-by-unit interaction which confounds the interpretation of the conditions' main effect. The interaction results from the fact that the amount of knowledge change observed between

Table 4-6

Summary of Analysis of Variance Results
for the Junior/Senior High School Program

PRE-TEST					
<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Main Effects	1.062	5	0.212	1.139	0.338
Condition (C)*	0.054	1	0.054	0.287	0.592
Unit (U)**	0.801	3	0.267	1.431	0.232
Grade (G)***	0.184	1	0.184	0.985	0.321
Two-Way Interaction	7.425	7	1.061	5.684	0.000****
CU	0.585	3	0.195	1.045	0.372
CG	0.027	1	0.027	0.144	0.705
UG	6.676	3	2.225	11.926	0.000****
Three-Way Interaction	1.351	3	0.450	2.413	0.065
Error	163.276	875	0.187		
POST-TEST					
<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Main Effects	20.428	5	4.086	21.445	>0.001****
Condition (C)*	9.480	1	9.480	49.758	>0.001****
Unit (U)**	1.090	3	0.373	1.906	0.127
Grade (G)***	8.782	1	8.782	46.094	>0.000****
Two-Way Interaction	9.714	7	1.388	7.284	>0.001****
CU	2.009	3	0.670	3.514	0.015****
CG	0.506	1	0.506	2.654	0.104
UG	7.415	3	2.472	12.974	>0.001****
Three-Way Interaction	1.029	3	0.343	1.800	0.146
Error	160.608	843	0.191		

* Condition = Experimental or Control.

** Unit = Short story, drama, math, health, driver education.

*** Grade = Junior or Senior High School.

**** Significant at .05 or less.

experimental and control conditions differed from unit-to-unit. As shown in Table 4-7, all the units resulted in knowledge gain. The interaction implies that certain units were significantly better than others.

4. The greatest knowledge increase occurred in the senior high health unit (46.8 percent). A possible explanation for the large knowledge increase produced by this unit is the context in which the pedestrian safety information was presented. Students in health class expect to learn ways in which to safeguard their health. The pedestrian safety information is more easily integrated into the health curriculum than into any of the other chosen curricula. It is possible that the students, believing that the subject matter was relevant to their course of study, paid more attention to the information.
5. The unit-by-grade interaction seen in the pre-test analysis is still significant in the post-test.

Table 4-7

Junior/Senior High School PEDSAFE Program
Degree of Knowledge Change

	<u>No. of Classes (Experimental)*</u>	<u>No. of Students (Experimental)</u>	<u>Percent of Knowledge Increase</u>
<u>Junior High</u>			
Short Story	3	58	17.7%
Drama	1	23	8.0%
Mathematics	3	62	27.8%
Health	3	71	13.9%
Mean for Jr. High			19.6%
<u>Senior High</u>			
Short Story	2	40	34.2%
Drama	2	45	23.1%
Mathematics	3	73	13.3%
Health	3	78	46.8%
Driver Education	3	71	15.9%
Mean for Sr. High			26.5%
OVERALL			24.6%

* In all cases there was one matched control class for each experimental class.

SECTION 5

RECOMMENDATIONS AND CONCLUSIONS

As discussed previously, the PEDSAFE curriculum involves three major parts--the Elementary Program and On-Bus Program, both for children in Kindergarten through sixth grades, and the Junior/Senior High School Program. The evaluation objectives for Elementary and On-Bus Programs involved determination of behavior change, using several approaches, while evaluation of the Junior/Senior High School Program centered around determination of knowledge change. Because of the differences in the programs themselves and their evaluations, it is desirable to present and discuss the results of the Elementary Programs' evaluation separate from the results of the Junior/Senior High School Program evaluation.

Elementary and On-Bus Programs

Section 4 provided the results of the evaluation of the PEDSAFE Program. These results led to certain recommendations concerning the implementation of the curriculum and modifications to the various curriculum materials. The purpose of this section is to first summarize the evaluation results and document conclusions concerning PEDSAFE effectiveness and, then, summarize the materials modifications. The findings from session observations and parent, teacher and school bus driver questionnaires from which many of the recommendations were derived are found in Appendix C.

PEDSAFE Effectiveness

As described previously, the objective of the Elementary and On-Bus Programs was to cause decrease in unsafe pedestrian behaviors associated with midblock crossings, intersection crossings, and walking along the roadway, as well as unsafe pedestrian behaviors going to and coming from the school bus. Formal tests, involving safety walks near the participating schools, demonstrated statistically significant improvement in behavior adequacy (i.e., reduction in unsafe behavior) for midblock crossing, intersection crossing, and walking along the roadway. Observations of the critical behaviors of children in the neighborhood served by the test schools demonstrated a statistically significant improvement in midblock crossing, the most widely emphasized of the pedestrian skills taught in the Elementary Program, and walking along the roadway. Observations of children about to board, and disembarking from, their school buses demonstrated that the children who received PEDSAFE training generally performed

significantly better than the control children. That is, the children showed reduction in unsafe behavior while waiting for the bus and while crossing to and from the bus.

It is apparent that the PEDSAFE Elementary and On-Bus Programs were effective in reducing the unsafe pedestrian behaviors toward which the programs were targeted. The final test of the programs must be to demonstrate their ability to reduce pedestrian accidents in elementary school-aged children. Such a demonstration was beyond the scope of this project. The areas served by the school systems which field tested the programs experience only about seven pedestrian accidents per year of the types impacted by the programs. This is far too few accidents to permit a meaningful analysis of accident reduction, given that the programs were ongoing in the schools for only a single school year. However, the evaluation did demonstrate that improvement of at least three critical behaviors--midblock crossing, walking along the roadway, and school bus-related--occurred in the actual neighborhood environments where the accidents typically occur. Thus, the pedestrian safety skills learned in class transferred to the real life situations where they are needed.

In contrast to the Elementary and On-Bus Programs which focused on skills development, the PEDSAFE Junior/Senior High School Program was intended to impact knowledge of pedestrian safety. On the assumption that PEDSAFE would be a permanent and continuing curriculum element within a school system, the Junior/Senior High Program serves to reiterate the importance of the skills learned in the earlier grades. The ability of the Junior/Senior High Program to reinforce continuation of the previously learned skills could not be evaluated, given the one year duration of the field test. However, the ability of the Junior/Senior High School Program to improve the students' knowledge of safe pedestrian practices was tested. The program resulted in statistically significant improvement in such knowledge, relative to a matched control condition. Significant knowledge gain was observed both for Junior High School and Senior High School classes, indicating that the units were appropriate for use at both levels.

The results support the conclusion that the PEDSAFE Junior/Senior High School Program was effective in improving pedestrian safety knowledge among Junior and Senior High School students.

Modifications to PEDSAFE

As described in Section 4, teachers, parents, and school bus drivers were asked to critique PEDSAFE activities and materials. Also, each of the Elementary School Program sessions was observed. Even though the PEDSAFE curriculum was found to be effective, these data sources provided information suggesting possible improvements to the various programs.

Improvement ideas derived from suggestions provided by the user groups and from project staff after a review of all data. The ideas ranged from broad to very specific (e.g., changes required to individual slides from a

slide/tape program). Regardless of source or level of specificity, each idea was evaluated against the following criteria:

1. Would the change improve, or at least not reduce, the technical effectiveness of the program?
2. Would the change make the program less expensive to implement?
3. Would the change simplify program administration?
4. Would the change make the materials easier to understand?

Only those ideas judged beneficial on one or more criteria without detriment to the others were accepted as viable program improvements.

Improvements to the various PEDSAFE Programs fell into two categories. The first category involved changes in program structure or the content of text materials. Such changes required rewriting part of materials such as the Teacher's Guides and Parent Brochures. These materials revisions were made, and the revised materials are contained in Volumes 2 and 3 of this report.

The second category of improvement involved changes to the audiovisual materials, i.e., the videotapes and slide/tape programs. The audiovisual materials were originally produced as "research" quality¹⁵ with the intention that the scripts could subsequently be revised for professional production. Volume 4 of this report contains the scripts for all the audiovisuals. Most have been revised in accordance with the improvements suggested from the evaluation. However, as discussed below, it is recommended that two of the videotapes be totally rescripted. In these cases, the original script is provided, together with recommendations for the rewrite.

Section 2 provides an overview of the PEDSAFE curriculum as it was field tested. The remainder of this subsection will outline the major modifications to each of the three PEDSAFE Programs resulting from the field test, as well as certain general recommendations.

¹⁵ Research quality audiovisual productions employ skilled amateur talent and simple production techniques (i.e., no animation or expensive special effects). They are designed to provide acceptable technical quality within a modest budget.

General Recommendations

With regard to recommendations that affect all PEDSAFE Programs, two were generated relating to the audiovisuals:

1. It was recommended that the PEDSAFE Introductory Videotape be rewritten. The videotape as field tested was intended to be light and entertaining by making use of a parody on "MacBeth." Teachers' reactions were mixed. The teachers who disliked it believed that the treatment was inappropriate for the "serious" problem of pedestrian safety. Also, the presentation should be shortened.¹⁶
2. None of the Elementary Schools participating in the field test had videotape playback equipment easily accessible to them. Therefore, the videotapes associated with the Elementary and On-Bus Programs should be produced in final form as 16mm color films rather than as videotapes. The slide/tape presentations employed for the Elementary and Junior/Senior High School Programs did not cause availability of equipment problems, so the slide/tape format is acceptable for these presentations.

Elementary Program Recommendations

The Elementary Program is the most extensive of the PEDSAFE Programs and, not surprisingly, received the majority of the improvements. Most of the Teacher's Guides and audiovisual scripts were modified in minor ways, primarily to provide additional information and eliminate ambiguities. The more important modifications to the Elementary Program were as follows:

1. The simple prizes used as rewards for the children at the completion of parent-supervised practice should be eliminated. Stockpiling and distribution of the prizes would represent an administrative and cost burden to both the government and to the school systems themselves. Many of the teachers were not in favor of providing tangible rewards in the form of prizes and felt that the children would be sufficiently motivated to induce their parents to practice with them without the prizes. Several low or no-cost alternatives to the prizes are suggested in the revised Teacher's Guides.
2. The cardboard desk cover, depicting a car can be eliminated. The desk cover was designed to fit around the teacher's desk during in-class (simulated) street-crossing practice. The majority of the teachers found

¹⁶See Volume 4 for detailed recommendations.

the desk cover bothersome to set up, and either did not employ it at all or discontinued its use. The conduct of the in-class practice was not observed to have suffered as a result of its absence, and eliminating it results in a cost savings.

3. The brochures sent home to parents in the fall (grades K-3) were modified to present information to assist parents in selecting the safest routes for their children to walk going to and from the bus. The new brochures are sent home at the beginning of the school year, rather than after all pedestrian safety sequences have been demonstrated at school, as was done in the field testing.
4. The movie employed with the fourth and fifth grade units is to be rescripted. The character of "Fred" in the original presentation received too many "neutral" or "dislike" reactions from the target audiences. In addition, it is recommended that a different film be produced for each unit.
5. It is recommended that the NHTSA "Willy Whistle" television public service announcements (PSAs) be made available to school systems which implement PEDSAFE. These messages demonstrate correct midblock crossing behavior. Although they are intended for urban children, these PSAs, if shown on television at the time the program is ongoing in schools, could provide reinforcement of the material learned in class.

It is appropriate to provide additional background and clarification concerning this last recommendation. The "Willy Whistle" PSAs were inadvertently introduced by the Department of Transportation early in the school year into the area where the PEDSAFE field test was underway. An evaluation of the impact of the PSAs on the children participating in the field test was made in order to determine whether, and to what extent, information provided in the PSAs confounded the test. Fortunately, it was determined that the exposure levels of the experimental and control children were the same. That is, any effect exerted by the PSAs on the mid-block crossing behavior of the children should be the same across both groups. Thus, a difference between the groups could be interpreted as resulting from the effect of the program only.

The check on the effect of the PSA was performed by showing samples of experimental and control group children (prior to the start of PEDSAFE) a picture of "Willy Whistle" and asking them:

1. If they knew who he was.
2. Where they had seen him.
3. What "Willy Whistle" told them.

The response indicated that across both groups, 70 percent of the children sampled remembered seeing "Willy" on television and 60 percent remembered at least some part of the midblock crossing message the PSA had delivered.

This finding demonstrates that the "Willy Whistle" PSAs are remembered by the children. It is not possible to gauge what effect, if any, prior exposure to the PSA had on the learning demonstrated by the children receiving PEDSAFE training. However, it is reasonable, on theoretical grounds at least, to assume that a combination of PEDSAFE and the PSAs could provide benefits beyond that obtained using PEDSAFE alone. Actually, two benefits could result. The PSAs could:

1. Improve transfer of training from the school setting into the home neighborhood setting where child pedestrian accidents usually occur. The PSAs were aired during children's programming hours (i.e., non-school hours) which have a high juvenile audience. The messages reached the children closer to the time when they might be at play in their neighborhood than the training sessions themselves usually did. Assuming that the PSAs served to remind the child of his/her training experiences, it could increase the probability of a correct response, i.e., safe behavior, if he/she went out to play later and entered the street.
2. Provide additional reminders of safe crossing behaviors during that period later in the school year when in-class training experiences are reduced to once per month.

On-Bus Program Recommendations

No major modifications were required to the On-Bus Program. Minor changes were made to the film script which is found in Volume 4.

During the development of the On-Bus Program, intended for use with suburban and rural children, we were struck by the need for such a program in urban schools. Typically, the school bus-related pedestrian accident type the On-Bus Program was designed to combat victimizes suburban/rural children. However, with the increased busing of urban children, the incidence of the school bus-related pedestrian accident may be expected to show an increase in urban areas.

As discussed in Section 2, the objective of the On-Bus Program was to train the children to perform an accident-avoidance behavior sequence (AABS). This AABS was derived from a study of the causal factors and behavioral errors which led to the occurrence of the school bus-related accident type. Although the accident cases analyzed in deriving the AABS occurred primarily in suburban or rural locations, it is possible to analyze the extent to which the various factors which predispose or

precipitate these accidents would be present in urban neighborhoods. The school bus-related accidents include those which occur:

1. Walking to or from the bus stop (the bus may not be present).
2. Crossing to or from the bus.
3. Around the bus.

Of these three subcategories, the analysis indicated that only the first (walking to or from the bus) might be less likely to occur in urban neighborhoods due to the fact that the urban children will usually be walking on sidewalks. However, this subcategory accounted for relatively few (8.7 percent)¹⁷ of the suburban/rural accidents. Thus, over 90 percent of the school bus-related accidents observed in suburban/rural areas could have just as easily occurred in an urban setting.

Based on this information, a review was performed of the content and structure of the On-Bus Program to determine the program's applicability to an urban school system. Two conclusions were reached as a result of the review:

1. The content and structure of the program are suitable for use in urban elementary schools with two possible problems:
 - . The movie used with the program demonstrates the correct behaviors, using exclusively suburban and rural settings. With minor script modifications, the final version of the movie could include some urban settings (i.e., residential streets with sidewalks). These modifications were not made in the version of the script contained in Volume 4.
 - . The practice sessions may be more complicated to arrange for urban schools. The rural/suburban schools usually have a driveway, non-roadway area, or low traffic volume street on which practice can occur. City schools will often have only city streets on which to conduct the practice and some means of traffic control (e.g., blocking the street or use of crossing guards to stop traffic) may be necessary.
2. The On-Bus Program could be administered by itself (i.e., without the need to also perform the Elementary Program). This means that school bus personnel rather

¹⁷Knoblauch, 1977.

than the classroom teachers and school principals could conduct the program. Two types of support would still be required of school personnel:

- . Showing the school bus film.
- . Assisting in arrangements for the practice.

It is recommended that NHTSA consider developing the On-Bus Program as a stand-alone program for use by urban school districts.

Junior/Senior High School Program Recommendations

On the whole, no major material revisions were required for the Junior/Senior High School Program units. Teachers found the Teacher's Guides easy to follow, and students had little difficulty using the Student Activity Packages and Student Workbooks. Because the health and safety and driver education teachers had some questions concerning implementation, a Teacher's Introduction was developed.

The revised Junior/Senior High School Program text materials are contained in Volume 3, and slide/tape program scripts can be found in Volume 4.

The Health and Safety and Driver Education Units were most readily received by teachers. Since the pedestrian safety information was most applicable to these classes, this reception was understandable. In addition, of all five units, these units were the easiest to implement, requiring minimal teacher preparation and class time.

The Mathematics Unit would be ranked third in teacher acceptance, and student response was positive.

Although the Short Story Unit produced a large knowledge increase (34 percent) in Senior High School, teachers found their students reluctant to participate in this activity. This was most pronounced in a class made up of eleventh and twelfth grade students which did not complete the unit. In Junior High School, some teachers found that this unit required much more class time than allotted, since the "short story" is not part of the regularly taught curriculum in some schools.

The Drama Unit caused the greatest implementation problems. It was quite difficult to find teachers willing to implement this unit. Of the six who did agree to try, only three completed the unit. The major problem in implementation was teaching the "drama," which was not a typical curriculum subject in most of our pilot-test schools. This unit is most effective when taught in Senior High School or in an accelerated class.

Of the three programs which make up PEDSAFE, the Junior/Senior High School Units will probably be the least often employed. The three programs are designed to operate together to provide an integrated sequence of pedestrian safety instruction from Kindergarten through the twelfth grade.

School systems should be encouraged to conduct all three programs. However, our experience in negotiating the field test indicates that there may be some reluctance to do this. We had no difficulty negotiating school system cooperation to conduct the On-Bus and Elementary Programs. School administrators, school principals and most teachers seemed to support the need for pedestrian safety education at the elementary level. However, substantial resistance was encountered among Junior and Senior High School principals toward implementing the Junior/Senior High School Program, even though conduct of the program was approved by school system administrators. The typical reason given for unwillingness to conduct the program was "not enough time." Upon further questioning, it became apparent that the principals believed that pedestrian safety education was unimportant relative to competing programs such as those concerning drug and alcohol abuse. The principals believed that they were reflecting the attitudes of their teachers. They further indicated that Junior and Senior High School students would resent pedestrian safety instruction, and that teacher and student acceptance would be most positive for the Health and Safety and Driver Education Units. The results of the Junior/Senior High School field test, as just outlined, generally parallel the opinions expressed by the principals who declined to participate.

These findings led to the following recommendations concerning the Junior/Senior High School Program:

1. While school systems should be encouraged to conduct all three PEDSAFE programs, they should not be required to do so. The large majority of any accident reduction resulting from PEDSAFE is expected to occur as the result of the Elementary and On-Bus Programs. Implementation of these programs is critical to the success of PEDSAFE; implementation of the Junior/Senior High School Program is much less critical.
2. Where only limited support is apparent regarding implementation of the Junior/Senior High School Program, it is recommended that only the Health and Safety and the Driver Education Units be emphasized.
3. It is recommended that NHTSA give consideration to the further development of a pedestrian safety program for Junior/Senior High School students. This further program development should emphasize:
 - . Making principals' and teachers' attitudes more positive toward the importance of pedestrian safety education for young people in this age group.
 - . Development of additional program materials to supplement the present five Junior/Senior High School Program units. Development might include additional units, but major emphasis should be on audiovisuals (e.g., films) which address

the accident types which victimize teenagers and adults and how they can be prevented.

- . Broadening the program to include urban, as well as suburban/rural accident types.
- . Producing the program such that it can be employed by itself.

In Conclusion

At the time this project was undertaken, there were few, if any, safety programs in existence specifically directed toward combatting the pedestrian accidents that victimize suburban and rural youngsters. The PEDSAFE curriculum was designed to fill that void. PEDSAFE has been subjected to an evaluation more stringent than most safety programs ever receive, and it has shown itself to be effective. Certain final production activities must be performed before PEDSAFE is ready for general distribution. We believe that PEDSAFE represents an important, unique and effective countermeasure in NHTSA's growing list of pedestrian accident countermeasures. The final development of PEDSAFE should be completed in the immediate future and made available to school systems nationwide.

APPENDIX A

DESCRIPTION OF THE PEDSAFE ACCIDENT TYPES
AND CONTENT SPECIFICATIONS

Table A-1

Accident Types and Description

<u>Accident Type</u>	<u>Percent (N)</u>	<u>Critical Description</u>
Walking Along the Roadway (Type 25)	11.6% (178)	Pedestrian is struck while walking along the edge of the roadway or on the shoulder; can be either walking with or against traffic.
Dart-Out First Half (Type 01)	10.8% (166)	Not at an intersection, the pedestrian appears suddenly in front of the vehicle and is struck in the first half of the roadway.
Dart-Out Second Half (Type 02)	10.3% (157)	Same as Type 01, except the pedestrian is struck in the second half of the roadway.
Midblock Dash (Type 03)	9.9% (152)	Not at an intersection, the pedestrian runs into the roadway, but does not appear suddenly in the path of the vehicle (i.e., not Type 01).
Intersection Dash (Type 11)	9.9% (152)	At an intersection, the pedestrian <u>either runs or</u> appears suddenly in the path of the vehicle.
School Bus Related (Type 36)	3.0% (46)	The pedestrian is struck while going to or from a school bus or school bus stop.
Multiple Threat (Type 22)	1.7% (26)	A vehicle stops for the crossing pedestrian but the pedestrian is struck by another vehicle traveling in the same direction as the stopped vehicle.
Hitchhiking (Type 26)	1.5% (23)	The pedestrian is struck while attempting to hitchhike or doing a hitchhiking-related activity, i.e., changing rides.

Table A-1 (Continued)

<u>Accident Type</u>	<u>Percent (N)</u>	<u>Critical Description</u>
Vendor-Ice Cream Truck (Type 32)	1.4% (21)	The pedestrian is struck while going to or from a vendor in a vehicle on the street.
Mailbox-Related (Type 37)	1.4% (21)	The pedestrian is struck while going to or coming from a mailbox or newspaper box.

Source: Knoblauch, R. L., et al. Causative factors and countermeasures for rural and suburban pedestrian accidents. Volume I. Washington, DC: National Highway Traffic Safety Administration, March 1976. (Contract No. DOT-HS-355-3-718)

Table A-2

Dart-Out and Dash Content

(Accident types include: Dart-Out First Half, Dart-Out Second Half, Midblock Dash, Vendor-Ice Cream Truck, and Mail Box Related)

<u>Content</u>								
<u>Knowledge</u>	<u>Skills</u>							
<p>1. Sometimes drivers of cars do not see children crossing the road and may hit them.</p> <p>2. Everyday many children are hurt or killed because they are hit by cars.</p> <p>3. Common accident situations (see Skills 2.a-2.i).</p> <p>4. Children must "stop-look-wait-look-go" before they enter the street or road.</p> <p>5. Reasons and rules which apply to each step in the accident-avoidance behavior sequence (AABS).</p> <p>6. Do not cross a street if there is not a clear view of the road in both directions (i.e., hill brows or blind curves).</p>	<p>1. Accident-avoidance behavior sequence (AABS):</p> <p>a. <u>Stop</u> where there is a clear view of the road.</p> <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 10px;">(1) At edge of road</td> <td rowspan="3" style="font-size: 3em; padding: 0 10px;">}</td> <td>No parked car</td> </tr> <tr> <td>(2) At curb</td> <td></td> </tr> <tr> <td>(3) At the edge of parked car close enough to touch it</td> <td>Parked cars</td> </tr> </table> <p>b. <u>Look left-right-left</u>. Search for cars coming.</p> <p>c. If a car is coming, <u>wait</u> until it passes.</p> <p>d. <u>Look left-right-left</u> again.</p> <p>e. Keep waiting and looking until no cars are coming, then <u>go</u>.</p> <p>2. AABS under special conditions.</p> <p>a. Parked cars absent.</p> <p>b. Parked cars present.</p> <p>c. Going to/from vendor.</p> <p>d. Going to/from mailbox.</p> <p>e. Chasing/being chased.</p> <p>f. Being called across street.</p> <p>g. Retrieving toy from road.</p> <p>h. Road conditions.</p> <p>i. Larger (i.e., four lanes) roads.</p> <p>3. Recognition of:</p> <p>a. Dangerous midblock crossing situations.</p> <p>b. Errors in performing midblock crossings.</p>	(1) At edge of road	}	No parked car	(2) At curb		(3) At the edge of parked car close enough to touch it	Parked cars
(1) At edge of road	}	No parked car						
(2) At curb								
(3) At the edge of parked car close enough to touch it		Parked cars						

Table A-3

School Bus-Related Content

Content

<u>Knowledge</u>	<u>Skills</u>
1. Bus drivers cannot see children when they cross too close to the bus, especially if they cross behind the bus.	1. Accident-avoidance behavior sequence (AABS) same-side stop: a. To bus: (1) Wait well off road until bus comes to a stop. (2) Enter bus one at a time. b. From bus: (1) If a child must walk along the road to reach his house, he should wait five steps away from side of bus until bus has gone and stopped cars have gone too. (Otherwise go directly to house.)
2. If the driver cannot see a child, the bus could hit the child and hurt him.	
3. Cars may be coming when children cross to or from the bus. If the cars do not stop for the bus they might hit a child.	
4. The flashing red lights on the school bus tell the car to stop. Sometimes cars do not stop for the lights.	2. AABS opposite-side stop: a. To bus: (1) Wait well off road at assigned waiting area. (2) Wait until bus comes to a stop and red flashing lights are on. (3) Go to edge of road and look L-R-L. Are any cars coming? Have they all stopped? If not, wait and look again. (4) Cross in front of the bus when all cars have stopped. Never cross behind. (5) Stay about five giant steps in front of the bus while crossing.
5. Common accident situations.* a. Child slips under bus. b. Child reaches down to pick up something. c. Bus not present--car hits child. (1) vehicle approaching from left. (2) vehicle approaching from right. d. Bus present (stopped, red light flashing)--car hits child. (1) vehicle approaching from behind bus. (2) vehicle approaching towards bus.	

* Consider both to bus and from bus crossings as variants when appropriate.

Table A-3 (Continued)

<u>Content</u>	
<u>Knowledge</u>	<u>Skills</u>
e. Situation as in d, with red flashing light not in operation.	b. From bus:
f. Child catches clothing in door.	(1) Get off bus and immediately go five giant steps in front of the bus to cross. Do not wait at the bus.
g. Child playing while waiting for bus. Non-intentional street entry.	(2) Cross to the far edge of the bus and stop.
	(3) Look L-R-L. Are cars coming? Have they all stopped? If not, wait and look again.
	(4) Cross to the other side when all cars are stopped.
	(5) If a child has to walk along the road to get home, he should wait well off the road until the bus and any stopped cars are gone before walking home.
	3. AABS under special conditions:
	a. Same side--to bus.
	b. Same side--from bus.
	c. Opposite side--to bus.
	d. Opposite side--from bus.
	e. Icy roads and shoulders.
	f. Darkness.
	4. Recognition of:
	a. Dangerous school bus loading and unloading situations.
	b. Errors in going to and from bus.

Table A-4

Intersection Dash Content

Content

<u>Knowledge</u>	<u>Skills</u>
1. Intersection crossings are more complex because cars can be coming from four directions.	1. Accident-avoidance behavior sequence (AABS):
2. Intersections are more complicated for drivers too, so there is more danger that the driver will not notice the pedestrian.	a. Stop at the curb or edge of road or If parked car blocks the view of any approaching traffic: (1) Look behind for turning traffic. (2) Walk out, searching the direction from which the cars in the first lane will be coming. (3) Stop where there is a clear view of all four directions.
3. Special dangers at intersections:	b. Search for cars coming from all four directions. (1) Look left and right for cars going through the intersection. (2) Look behind and front, for turning traffic.
a. Cars blocking the view of approaching traffic.	c. Take one last look in the directions from which the cars in the first lane could be coming.
b. Turning vehicles.	d. If a car is approaching, wait until it: (1) Passes through the intersection, or stops for the sign or signal. (2) Search all ways again.
c. Cars beating the light or not stopping for a stop sign.	e. Go when no cars are coming or all cars have stopped.
d. Cars jumping the light.	
4. Rules and reasons for each step in the AABS (Skill 1).	2. Special AABS for Multiple Threat:
5. Always cross on the green, or with the crossing guard or policeman (if present), but "always search all ways" anyway.	a. <u>Wait</u> for the car to stop completely. Never assume that a driver will stop for the pedestrian.
6. The hazard in crossing in front of a car that has stopped for the pedestrian, and how Multiple Threat accidents happen.	
7. Reasons and rules for each step in the Multiple Threat AABS (Skill 2).	

Table A-4 (Continued)

<u>Knowledge</u>	<u>Content</u>	<u>Skills</u>
		<ul style="list-style-type: none"> b. <u>Walk</u> to the far side of the car and <u>stop</u> so that there is a clear view of any traffic coming from the same direction as the car that stopped. c. <u>Search</u> all directions, left-right-front-back, and take one last look for cars coming from the same direction as the stopped car. d. If a car is approaching <u>wait</u> until it: <ul style="list-style-type: none"> (1) passes by. (2) stops. e. <u>Go</u> when no cars are coming or all cars have stopped.
	3. AABS practice under special conditions:	<ul style="list-style-type: none"> a. Intersection left. b. Intersection right. c. Parked car present. d. Parked car absent. e. One-way street being crossed--left approaching and right approaching. f. One-way street as other street, front approaching and rear approaching. g. Larger (i.e., four-lane) intersections. h. Multiple Threat--midblock. i. Multiple Threat--intersection.
	4. Recognition:	<ul style="list-style-type: none"> a. Dangerous Intersection Dash and Multiple Threat crossing situations. b. Errors in performing intersection crossings (including Multiple Threat related).

Table A-5

Walking Along Roadway and Hitchhiking Content

Content

<u>Knowledge</u>	<u>Skills</u>
<ol style="list-style-type: none"> 1. Often drivers do not expect to see pedestrians along the side of the road. The driver may not see the pedestrian until it is too late to avoid an accident. 2. Cars can leave the road for many reasons which would cause them to hit pedestrians who are walking or standing along the road: <ol style="list-style-type: none"> a. Narrow road. b. Curves. c. Oncoming traffic. d. Obstructions. e. Breaks in road surface. f. Excessive speed. g. Skids on wet/icy pavement. h. Sun in driver's eyes. i. Distractions. j. Driver drunk. k. Inexperienced driver. l. Vehicle malfunction. m. Vehicle passing another vehicle. 3. At night, headlights sometimes do not show the pedestrian until it is too late for the driver to avoid an accident. 4. Walking along the road in groups is especially dangerous. Always walk single file. 5. Always assume the driver cannot see the pedestrian. 	<ol style="list-style-type: none"> 1. Accident-avoidance behavior sequence (AABS): <ol style="list-style-type: none"> a. Walk well off the roadway. b. Walk facing traffic. c. If in a group, walk single file. d. Watch approaching traffic and look for weaving or movement of car toward the edge of road. e. Watch for conditions under which driver might leave the road (Knowledge 2.a-2.m). f. Watch for places to move to if a vehicle started to leave the road (i.e., an escape route). 2. AABS under special conditions: <ol style="list-style-type: none"> a. No shoulder on proper side. b. Narrow bridge/break in shoulder. c. Darkness. d. Snow on shoulder. e. Fog or rain. f. Blind curve/brow of hill. g. Waiting for ride. h. Walking in groups. 3. Recognition of: <ol style="list-style-type: none"> a. Dangerous walking along the roadway situations. b. Errors in walking along the roadway.

Table A-5 (Continued)

<u>Content</u>	
<u>Knowledge</u>	<u>Skills</u>
6. Be conspicuous:	
a. Wear bright colors in the daytime.	
b. At night:	
(1) Wear light colored clothing.	
(2) Carry a flashlight.	
(3) Wear retroreflective materials.	
7. In those circumstances when it is necessary/advisable to walk along the roadway, walk:	
a. Facing traffic.	
b. As far away from the traffic lanes as possible.	
8. Special concerns when waiting (for a ride) along roadway:	
a. Choose well-lighted place.	
b. Choose place where car can pull entirely off road.	
c. Choose place with adequate sight distance.	
9. Reasons and rules which apply to each step in the accident-avoidance behavior sequence (AABS).	

APPENDIX B
OBSERVATION PROCEDURES AND FORMS

FORMAL TEST OBSERVATION FORM

COMPARE WITH _____

Observer _____ School _____ Date _____ Observation No. _____

Child's Name _____ Teacher _____ Sex M ___ F ___ Grade _____

1 2

MIDBLOCK

CAR APPROACHING

<u>Presearch</u>	<u>Stop</u>	<u>Searches</u>	0 ___ No 1 ___ L 2 ___ R	
0 ___ None	0 ___ None	0 ___ None	<u>Detection/</u>	<u>Post</u>
1 ___ L	1 ___ Precurb	1 ___ L	<u>Actions</u>	<u>Searches</u>
2 ___ R	2 ___ Curb	2 ___ R	1 ___ Crosses	0 ___ None
	3 ___ Off Curb	3 ___ LRL	2 ___ Waits	1 ___ L
	4 ___ Boundary	4 ___ L, late	3 ___ Tracks	2 ___ R
	5 ___ None, Running	5 ___ R, late	4 ___ L	3 ___ LRL
			5 ___ R	4 ___ L, late
<u>Judgment</u>				5 ___ R, late
1 ___ Unsafe	2 ___ Adequate	3 ___ Correct		

INTERSECTION

CAR APPROACHING

Intersection - 1 ___ R 2 ___ L		0 ___ No 1 ___ L 2 ___ R 3 ___ F 4 ___ B	
<u>Presearch</u>	<u>Stop</u>	<u>Searches</u>	<u>Detection/</u>
0 ___ None	0 ___ None	0 ___ None	<u>Actions</u>
1 ___ L	1 ___ Precurb	1 ___ L	1 ___ Crosses
2 ___ F	2 ___ Curb	2 ___ F	2 ___ Waits
3 ___ R	3 ___ Off-Curb	3 ___ R	3 ___ Tracks
4 ___ B	4 ___ Boundary	4 ___ B	4 ___ L
	5 ___ None Running	5 ___ L(F)RBL	5 ___ F
		6 ___ L, late	6 ___ R
		7 ___ R, late	7 ___ B
		8 ___ B, late	
<u>Judgment</u>			
1 ___ Unsafe	2 ___ Adequate	3 ___ Correct	

WAR

Site Description

	<u>Sidewalk</u>	<u>Usable</u>	<u>Ped Sight Distance</u>
Ped Side	1 ___ Yes 2 ___ No	<u>Walking Space</u>	___ car lengths
Other Side	1 ___ Yes 2 ___ No	___ feet	
		___ feet	

<u>Course</u>	<u>Position</u>	<u>Group</u>	Yes ___ No ___	<u>Car Threatens</u>	Yes ___ No ___
1 ___ facing	1 ___ on road	2 ___ single file		2 ___ No reaction	
2 ___ with	2 ___ road edge	3 ___ tandem, OK		3 ___ Child tracks (searches)	
	3 ___ 2-4 ft off	4 ___ tandem, risk		4 ___ Child moves off	
	4 ___ 5 ft+ off			5 ___ Car reacts	

Attention

1 ___ OK
 2 ___ distraction
 Cause 3 _____

Judgment

1 ___ Unsafe 2 ___ Adequate 3 ___ Correct

COMMENTS:

FROM SCHOOL OBSERVATION FORM

Observer _____ School _____ Date _____ Observation No. _____

Poster Ivory 1 Lime 2 Sand 3 Yellow 4 Blue 5 Gold 6 Est. grade _____ Sex M _____ F _____
 1 2

MIDBLOCK

<u>Presearch</u>	<u>Stop</u>	<u>Searches</u>	<u>CAR APPROACHING</u> 0 ___ No 1 ___ L 2 ___ R	
0 ___ None	0 ___ None	0 ___ None	<u>Detection/</u>	<u>Pos</u>
1 ___ L	1 ___ Precurb	1 ___ L	<u>Actions</u>	<u>Searches</u>
2 ___ R	2 ___ Curb	2 ___ R	1 ___ Crosses	0 ___ None
	3 ___ Off-Curb	3 ___ LRL	2 ___ Waits	1 ___ L
	4 ___ Boundary	4 ___ L, late	3 ___ Tracks	2 ___ R
	5 ___ None, Running	5 ___ R, late	4 ___ L	3 ___ LRL
			5 ___ R	4 ___ L, late
<u>Judgment</u>				5 ___ R, late
1 ___ Unsafe	2 ___ Adequate	3 ___ Correct		

INTERSECTION

Intersection - 1 ___ R 2 ___ L	<u>CAR APPROACHING</u> 0 ___ No 1 ___ L 2 ___ R 3 ___ F 4 ___ B			
<u>Presearch</u>	<u>Stop</u>	<u>Searches</u>	<u>Detection/</u>	<u>Post</u>
0 ___ None	0 ___ None	0 ___ None	<u>Actions</u>	<u>Searches</u>
1 ___ L	1 ___ Precurb	1 ___ L	1 ___ Crosses	0 ___ None
2 ___ F	2 ___ Curb	2 ___ F	2 ___ Waits	1 ___ L
3 ___ R	3 ___ Off-Curb	3 ___ R	3 ___ Tracks	2 ___ F
4 ___ B	4 ___ Boundary	4 ___ B	4 ___ L	3 ___ R
	5 ___ None, Running	5 ___ L(F)RBL	5 ___ F	4 ___ B
		6 ___ L, late	6 ___ R	5 ___ L(F)RBL
		7 ___ R, late	7 ___ B	6 ___ L, late
		8 ___ B, late		7 ___ R, late
<u>Judgment</u>				8 ___ B, late
1 ___ Unsafe	2 ___ Adequate	3 ___ Correct		

WAR

<u>Site Description</u>	<u>Usable</u>	<u>Ped Sight Distance</u>
<u>Ped Side</u>	<u>Walking Space</u>	<u>car lengths</u>
1 ___ Yes 2 ___ No	___ feet	
<u>Other Side</u>	___ feet	
1 ___ Yes 2 ___ No		
<u>Course</u>	<u>Position</u>	<u>Group</u> Yes 1 ___ No
1 ___ facing	1 ___ on road	2 ___ single file
2 ___ with	2 ___ road edge	3 ___ tandem, OK
	3 ___ 2-4 ft off	4 ___ tandem, risk
	4 ___ 5 ft+ off	
<u>Attention</u>		<u>Car Threatens</u> Yes 1 ___ No
1 ___ OK		2 ___ No reaction
2 ___ distraction		3 ___ Child tracks (searches)
<u>Cause</u> _____		4 ___ Child moves off
		5 ___ Car reacts
	<u>Judgment</u>	
	1 ___ Unsafe	2 ___ Adequate
		3 ___ Correct

COMMENTS:

NEIGHBORHOOD OBSERVATION FORM

Observer _____ Area _____ Date _____ Observation No. _____

Section _____ Map Location _____

Time (end) _____ Mileage _____ Sex M _____ F _____
 Site Description Ped Side: Curb 1 _____ Yes 2 _____ No Parking Lane 1 _____ Yes 2 _____ No 1 _____ 2 _____
 Parked Cars 2 Lengths of Crossing 1 _____ None 2 _____ On road 3 _____ Partly on road 4 _____ Off road

MIDBLOCK

			CAR APPROACHING	
Presearch	Stop	Searches	0 _____ No	1 _____ L 2 _____ R
0 _____ None	0 _____ None	0 _____ None	Detection/ Actions	Post Searches
1 _____ L	1 _____ Precurb	1 _____ L	1 _____ Crosses	0 _____ None
2 _____ R	2 _____ Curb	2 _____ R	2 _____ Waits	1 _____ L
	3 _____ Off-Curb	3 _____ LRL	3 _____ Tracks	2 _____ R
	4 _____ Boundary	4 _____ L, late	4 _____ L	3 _____ LRL
	5 _____ None, Running	5 _____ R, late	5 _____ R	4 _____ L, late
				5 _____ R, late
<u>Judgment</u>				
1 _____ Unsafe	2 _____ Adequate	3 _____ Correct		

INTERSECTION

			CAR APPROACHING			
Presearch	Stop	Searches	0 _____ No	1 _____ L	2 _____ R	3 _____ F 4 _____ B
Intersection - 1 _____ R 2 _____ L			Detection/ Actions	Post Searches		
0 _____ None	0 _____ None	0 _____ None	1 _____ Crosses	0 _____ None		
1 _____ L	1 _____ Precurb	1 _____ L	2 _____ Waits	1 _____ L		
2 _____ F	2 _____ Curb	2 _____ F	3 _____ Tracks	2 _____ F		
3 _____ R	3 _____ Off-Curb	3 _____ R	4 _____ L	3 _____ R		
4 _____ B	4 _____ Boundary	4 _____ B	5 _____ R	4 _____ B		
	5 _____ None, Running	5 _____ L(F)RBL	6 _____ R	5 _____ L(F)RBL		
		6 _____ L, late	7 _____ B	6 _____ L, late		
		7 _____ R, late		7 _____ R, late		
		8 _____ B, late		8 _____ B, late		
<u>Judgment</u>						
1 _____ Unsafe	2 _____ Adequate	3 _____ Correct				

WAR

Site Description	Sidewalk	Usable Walking Space	Ped Sight Distance
Ped Side 1 _____ Yes 2 _____ No	_____ feet	_____ feet	_____ car lengths
Other Side 1 _____ Yes 2 _____ No	_____ feet		
Course	Position	Group	Car Threatens
		Yes 1 _____ No	Yes 1 _____ No
1 _____ facing	1 _____ on road	2 _____ single file	2 _____ No reaction
2 _____ with	2 _____ road edge	3 _____ tandem, OK	3 _____ Child tracks (searches)
	3 _____ 2-4 ft off	4 _____ tandem, risk	4 _____ Child moves off
	4 _____ 5 ft+ off		5 _____ Car reacts
<u>Attention</u>		<u>Judgment</u>	
1 _____ OK		1 _____ Unsafe	2 _____ Adequate 3 _____ Correct
2 _____ distraction			
Cause 3 _____			

COMMENTS:

SPECIFIC INSTRUCTIONS FOR COMPLETING
TYPE ONE OBSERVATION FORMS

Type One Observation Forms are used to collect data on three critical events--Midblock Crossing, Intersection Crossing and Walking Along the Roadway. Different variants of the Type One form are used for From School, Neighborhood, and Formal Test observations, but the differences are in the heading information required. Actual observation of the critical events follows the same rules for all three types of observation situations. The following are definitions and rules to be used in completing each of the major sections of the Type One form.

Midblock Crossing

This section is designed to follow the logical and typical sequence for a midblock crossing--presearch, stop, search, wait (if traffic is present), and re-initiation of search after traffic has passed.

Presearch

These are any searches for traffic made by the child within ten (10) feet of, or 3-4 seconds before, the child reaches the curb. They must involve actual head and eye movements, not just the fact that the child's visual field might include a given direction of traffic as he approaches the curb.

- . Check "None" if no presearches were observed.
- . Check "L" if the child searched left once or more.
- . Check "R" if the child searched right once or more.
- . Check both "L" and "R" if he/she searched both directions at least once.
- . Leave blank only if you could not (e.g., because your view was obstructed) or did not observe the child during the time when presearches could have occurred. Explain circumstances under "Comments."

Stop

The child may stop at or near the curb or the edge of the roadway before crossing. Even a brief pause is recorded as a stop (as long as the child's feet had stopped moving).

- . Check "Precurb" more than one step away from the curb or edge of the roadway.
- . Check "Curb" at or within a step of the curb/edge.
- . Check "Off Curb" if stop occurred in the roadway, within 2-3 steps from the curb/edge of the roadway.
- . Check "Boundary" if stop occurred at the street side of a parked vehicle within two car lengths of the crossing point.
- . Check more than one item if more than one stop occurred.
- . Check "None" if no observable stop or pause occurred.

This block of items should never be left without at least one check.

Searches

This block describes the child's searches between the curb and a point one step into the first active traffic lane. Late searches are those performed after the child entered the first active traffic lane. The active traffic lanes begin at the edge of the road, if no parked cars are present, or at the edge of the parked cars.

- . Check "None," "L," or "R" as for presearches.
- . Check "LRL" only if the child looks left first, then right, then left again (plus any additional searches left or right).
- . Check "L, late," or "R, late" for left or right searches after the child enters the active traffic lane.
- . Check more than one item if more than one search occurred.
- . Note as "Comments" if:
 - "L," "R," or "LRL" searches are performed from a position, e.g., between parked cars, where the child did not have a clear view of the traffic lane.

- Ritualistic searches occur, i.e., rapid tossing of the head back and forth with no attempt to focus on the lanes and look for traffic.

This block of items should never be without at least one check.

Car Approaching

This block and its two subblocks are completed only if there is a vehicle approaching the crossing point at the time of the crossing, and it is within five car lengths of the crossing point. In some cases, e.g., high traffic volume locations or locations with fast moving traffic, you may feel that the child should be searching for traffic that is more than five lengths away. Complete the block and explain as a comment in these cases.

- . Check "No" if no vehicle is coming from either direction and make no further entries.
- . Check "L" or "R" for left or right approaching vehicle (from child's point of view). Complete the subblocks.

Under Detection/Actions:

- . Check "Crosses" if the child walks or runs in front of the vehicle. Note any close calls, i.e., where the child and/or the vehicle must change direction of speed to avoid a collision, under "Comments." Explain what the child or vehicle did.
- . Check "Waits" if the child waits for the car to pass.
Then:
 - Check "Tracks" if the child watches the vehicle as it passes.
 - Check "L" and/or "R" if he/she searches to the left or right while it is passing.
 - Make no checks if the child is just looking straight ahead or at things other than the passing car and does not search.

Under Post Searches:

- . Check "None" if the child crosses without further search after the vehicle has passed.
- . Check "L" and/or "R" if the child searches either/both of these directions before stepping into the active traffic lane.

- . Check "LRL" only if the child looks left first, then right, then left again (plus additional searches) before stepping out.
- . Check "L, late" and/or "R, late" for searches as the child is crossing.

Judgment

You should complete your observation by making a judgment concerning whether the crossing was "correct," "adequate," or "unsafe."

The rules for "Correct Midblock Crossings" are as follows:

1. a. Stop at the edge of the curb, or road, if there are no parked vehicles,

or

 b. If parked vehicles are present, stop at the boundary between the parking lane and traffic-- beyond the parked vehicles, but still close enough to touch them.
2. Turn head and eyes to the left so that the visual field includes all of the left traffic lane, and look for left-approaching traffic.
3. Turn head and eyes to the right so that the visual field includes all of the right traffic lane, and look for right-approaching traffic.
4. Turn head and eyes to the left again, so that the visual field includes all of the left traffic lane, and check to be sure that the street is still clear.
5. a. Enter the street (if no cars are detected),

or

 b. If a car is detected, wait for the car and track it until it has passed. Repeat the left-right-left looks before entering the street. (Perform this step as many times as necessary until the street is clear.)

All five of these steps and only these five steps constitute the "correct" sequence.

The rules for "Adequate Midblock Crossing" are:

1. The child must search adequately in both directions prior to entering zone of moving traffic. Adequate search is one in which the child could detect

approaching traffic if it were present. Presearch is acceptable if the child has a clear view of traffic lanes from his presearch position.

2. The child must appear to be searching for approaching vehicles as opposed to performing ritualized responses.
3. The child should stop precurb or at the curb or boundary to give himself adequate time to search in both directions before entering the danger zone.
4. No specific sequence of left and right looks is required, as long as the child has searched both traffic lanes no longer than two seconds before he enters them, i.e., has minimized the opportunity for traffic to suddenly appear between search and crossing.
5. First attention to heard traffic is acceptable.
6. A crossing should not be judged "adequate" merely because it was acceptable under the peculiar street situation (e.g., positioning of parked cars, length of clear view up and down the street, etc.). The sequence employed must be judged to be acceptable in standard settings in general.

Any crossing that does not meet the criteria for "Correct" or "Adequate" is classified as "Unsafe."

Intersection Crossing

Intersection Crossings are divided into the same five stages as are Midblock Crossings, and the directions and definitions are the same. Additional data are collected concerning the presence of behind searches as follows:

- . Check "Intersection R" or "L" to indicate whether the intersection was to the child's left or right.
- . Check "B" if the child searches behind him or her. Note that in order to look behind, the child's head must turn through and further than a normal left or right search position. Don't automatically credit the child with a left (or right) search merely because his/her eyes had to sweep through that position in order to search behind.
- . Check "F" if the child, while making other searches or head movements, clearly looks in the direction of front

approaching traffic. The normal head and eyes front position of the child should not be taken as indicating a front search. Note in "Comments" crossings where the child was not looking (at least part of the time) in the direction of front approaching traffic as he/she approached the intersection.

- . Check "Behind" and/or "Front" under "Car Approaching" if a vehicle was approaching the intersection from either or both the child's front or behind and was within four car lengths of the intersection. These vehicles need not actually be turning.
- . Check "L(F)RBL" only if the child searches left, then right, then behind, then left again (plus extra searches). A separate front search need not be observed to check this item if the other searches are in the correct order.

Judgment

Make the "Correct," "Adequate," or "Unsafe" judgment after the observation is completed.

The criteria for a "Correct Intersection Crossing" are as follows:

Intersection to the Child's Right

1. Stop at the curb or edge of the road, if there are no parked vehicles within two car lengths to the left,

otherwise

Stop at the boundary.

2. Search left, front, right, behind and left again.
3. Cross if no traffic (through or turning) is detected,

otherwise

Wait until such traffic has passed or has stopped for any stop signs or signals present.

4. Repeat search as in Step 1, above.
5. Continue in this manner until a crossing can be made.

Intersection to the Child's Left

1. Stop at the curb or edge of the road, if there are no parked vehicles within two car lengths to the right,

otherwise

Search behind for turning traffic at curb, then move to the boundary and stop.

2. Do Steps 2 through 5, as above.

The criteria for "Adequate Intersection Crossings" are:

1. The child must search adequately in all directions left, right, and behind prior to entering the first active traffic lane. Presearch is acceptable. No specific front search need be detected if the child is generally facing so as to see front turning traffic as he/she approaches the intersection.
2. The child must appear to be searching for approaching vehicles as opposed to performing ritualized responses.
3. The child should stop precurb or at the curb or boundary to give himself adequate time to search in both directions before entering the danger zone.
4. No specific sequence of left, right and behind looks is required, as long as the child has searched all traffic lanes no longer than two seconds before he enters them, i.e., has minimized the opportunity for traffic to suddenly appear between search and crossing.
5. First attention to heard traffic is acceptable.
6. A crossing should not be judged "adequate" merely because it was acceptable under the peculiar street situation (e.g., positioning of parked cars, length of clear view up and down the street, etc.). The sequence employed must be judged to be acceptable in standard settings in general.

Any crossing that does not meet the criteria for "Correct" or "Adequate" is classified as "Unsafe."

Walking Along the Roadway

Walking along the roadway observations collect data on six aspects of the event--site descriptions, the course selected by the child, his object of attention, his position relative to the roadway, whether he is alone or in a group, and whether traffic was present which could pose a threat to his/her safety.

Site Description

Complete the following items for both the side of the road where the pedestrian is and the opposite side.

- . Check "Sidewalk Yes" or "No" to indicate whether a sidewalk was present. If the road has a curb and an area for walking (even though not paved) consider this a sidewalk.
- . Write in "Usable Walking Space" indicating to the nearest foot your estimate of the space available for walking. Include both the shoulder and any area beyond the shoulder where a child could easily walk. Complete this item only if there is no sidewalk present.
- . Write in "Peds Sight Distance" estimating to the nearest whole number the number of car lengths of clear view the child has in the direction he/she is traveling. Clear view is the distance between the child and the point where approaching traffic would first become visible to him/her. Note that clear view may be limited by a relatively nearby intersection if a vehicle on the cross street could suddenly appear and turn in the child's direction.

Course

The course data items are completed as follows:

- . Check "Facing" if the child is walking with the roadway to his right, i.e., facing any approaching traffic.
- . Check "With" if he/she is walking with the roadway to his/her left, i.e., with the flow of traffic.

Attention

Indicate in this block the object of the child's attention the majority of the time the child is proceeding.

- . Check "OK" if most of the time the child is looking in the general direction of approaching traffic.
- . Check "Distractions" if the child is mostly looking at something other than the road ahead.
- . Write in "Cause" to describe distraction. For example looking down at road, looking at a book, looking at other members of a group. Check this item if you judge that a car could appear and get dangerously close to the child while he/she was distracted.

Position

Complete as follows:

- . Check "On Road" if the child is proceeding (e.g., walking, running) on the roadway. Include parking lanes as on the roadway, if no cars are parked close by and traffic could be proceeding on it.
- . Check "Road Edge" if the child is walking on the edge (i.e., between the shoulder and the roadway) or within two feet of it when he/she is walking on the shoulder.
- . Check "2 ft Off" if the child is 2-4 feet away from the roadway.
- . Check "5 ft +" if the child is five feet or more from the roadway or he stays as far as reasonably possible from the roadway in cases where the shoulder or usable walking area is not five feet or wider.
- . Include as "Comments" obstacles (e.g., parked vehicles, bridge abutments, trees, bushes) which make it necessary for the child to temporarily move into the roadway. Note whether the child promptly returns to the shoulder.

Group

Indicate whether the child was proceeding with one or more other people. Note as "Comments" whether the child was walking with one or more adults.

- . Check "Single File" if the group was walking the majority of the time in a line one behind the other.
- . Check "Tandem, OK" if the group was walking side by side but the person nearest the road edge was at least three feet from it.
- . Check "Tandem, Risk" if one or more members of the group, walking side-by-side, is within three feet of the roadway edge.

Car Threatens

Indicate whether a vehicle passes the child in the lane nearest him/her during the observation. If "Yes":

- . Check "No Reaction" if the child makes no attempt to move away from the road.

- . Check "Child Tracks (Searches)" if:
 - The child walking facing traffic watches (i.e., tracks) the vehicle for most of the time as it approaches.
 - The child walking with traffic turns and looks back at approaching traffic in time to react, if necessary.
- . Check "Child Moves Away" if the child moves away from the edge of the road before the vehicle passes him/her.
- . Check "Car Reacts" if the vehicle moves away from the child.
- . Check more than one item as appropriate.

Judgment

Make the "Correct," "Adequate," or "Unsafe" judgment after completing the observation.

The criteria for the "Correct Walking Along Roadway" observations are:

1. On a road with a sidewalk on at least one side, walk on the sidewalk.
2. On roads with no sidewalks:
 - a. Walk facing traffic.
 - b. Walk well off the roadway, i.e., as far off the roadway as the shoulder width will permit.
 - c. When in groups, walk single file.
 - d. Observe the road ahead and track approaching vehicles until they pass.

Criteria for "Adequate Walking Along Roadway" observations are:

1. The child must be walking facing traffic.
2. The child may be walking on the edge of the roadway, but not more than one step into the roadway, if:
 - a. The child has a clear view of any approaching traffic for at least 150 feet (eight car lengths).
 - b. The child is attending to the road ahead, i.e., is not distracted or looking elsewhere for extended periods.

- c. The child reacts to approaching traffic by moving well off the road until it passes.

AFTER SCHOOL OBSERVATION

Observation Procedures

1. Position yourself at the observation site as directed by your Team Leader.
2. Assemble your materials. Fill out the heading information on a few observation forms (e.g., 8-10) and number the forms in order.
3. Begin observation with the first child entering the observation site after the time given you by your Team Leader.
4. Complete one form for each child observed. If the child is with a group of children, observe the first child in the group, i.e., the one in the lead as the children enter the observation site. Follow the behaviors of this child as he/she proceeds through the site. If you cannot easily determine the lead child, select one at random, but be careful that you do not always choose, for example, a boy, the oldest (tallest) child, or the one on the left. Try to be truly unbiased in your selection of who to observe. Note as "Comments" where the child is walking with an adult.
5. Note the color of the poster the child is carrying.
6. Carefully observe the child as he/she performs any of the critical events--intersection crossings, midblock crossings, or walking along the roadway. Depending on the particular layout of your site and the path taken by the child, he/she may or may not perform all of the critical events as he/she proceeds through the site. One critical event may occur twice--observe only the first occurrence.
7. Complete the proper part of your form for each critical event as it occurs. The events may not occur in the same order they appear on your form. For example, the child may enter the site, make an intersection crossing, walk along the roadway, and then cross midblock. In this case, you would observe the intersection crossing completely, then fill out the Intersection Crossing portion of the form, and then look up to see what the child is doing now. Fill out the section as quickly as possible to avoid missing the child's next actions. Do not wait until the child has passed completely through your observation site before completing the form. However, your written comments can wait until your observation of the child are completed.
8. Once the child has left the site or you have observed him/her performing all three critical events, turn your attention back to the place where children will be entering the site as before.

9. Continue in this manner until the observation period is over.
10. At the end of the observation period, review each of your completed observation forms to be sure that no information is missing. Add to your comments on individual forms any further information you feel is necessary to better, or more completely, explain important aspects of your observations. Give your forms to your Team Leader for review prior to leaving the area.

NEIGHBORHOOD OBSERVATION

Observation Procedures

1. Begin at the Area Start Point as indicated by your Team Leader. Review the Area Map, the Observation Forms and Observation Procedures with him/her.
2. Begin observation at 9:00 a.m. Drive the route in the first section to be observed at a slow to moderate speed. Exactly follow the route indicated on the map.
3. Watch for children who will be targets of observation. Target children are those:
 - . Playing near the street/road.
 - . Walking toward the road (e.g., from a yard).
 - . Walking along the roadway.
 - . Walking on a sidewalk toward an intersection, or the end of the sidewalk.
4. When you see a target child that you judge to be fifth grade (i.e., about 11 years old or younger) stop and begin observation. Choose your stop point to be unobtrusive and provide you with a good view, but don't interfere with the child's path or block traffic.
5. Observe any critical events--midblock crossing, intersection crossing, or walking along the roadway that the child performs. Complete the Neighborhood Observation Form, following the instructions given in the Specific Instructions for Completing Type One Observation Forms document. In general:
 - . Do not observe the same child more than once on a given observation day,.
 - . Do not move your car to get a better view of the child as he/she proceeds (i.e., do not appear to be following him/her).
 - . Do not observe a child walking along the roadway for more than about one city block.
 - . Try to get a face-on view of the child, e.g., stop ahead of him/her and observe him/her in your rear or side view mirror, if necessary.

- . You may observe the child performing more than one of the critical events, but don't observe him performing a given event more than once.
 - . Complete the heading information on the form last, but make sure your form is complete (including comments) before returning to your patrol.
6. Continue patrolling in this manner until you reach your first observation point on your map. Park your car so as to have a clear view of the site to be observed, but don't upset normal vehicle or pedestrian flow. Observe children passing through the site for 15 minutes, then resume patrol after making the proper entries in the Observation Log.
 7. Continue in this manner until you reach the end of the first section of the area. Make the proper entries in the Observation Log and proceed to the next section start point. Make log entries and patrol as before .
 8. Continue in this manner until you have completed each section of your area. Then return to the area start point.
 9. Repeat the circuits through your area as many times as time permits throughout the day. Plan to complete your last circuit of the day about 5:00 p.m. or at dusk, whichever is earlier, but always complete a circuit before stopping for the day.

ON BUS OBSERVATION FORM

Observer _____ School _____ Route _____ Date _____ Observation No. _____

Child's Name _____ Grade _____ Sex M 1 F 2

MORNING

Waiting Area: Position: 1 Same Side 2 Opposite Side
 Size: 1 OK 2 Small
 Size of Group: _____ Children
 Parked cars within 2 car lengths of crossing point:
0 No 1 On Road 2 Partly on Road 3 Off Road

Waiting	Presearch	Stop	Searches	CAR APPROACHING		Post Searches
				0 No	1 L 2 R	
1 Standing						
2 3 ft +	0 None	0 None	0 None	Detection/		
3 close	1 L	1 Precurb	1 L	Actions		
4 Playing	2 R	2 Curb	2 R			
5 3 ft +		3 Off-Curb	3 LRL	1 Crosses	0 None	
6 No. of road entries		4 Boundary	4 L, late	2 Waits	1 L	
		5 None, Running	5 R, late	3 Tracks	2 R	
				4 L	3 LRL	
				5 R	4 L, late	
					5 R, late	

Early Start Distance From Bus
1 Yes 1 5 ft or less
2 No 2 5-10 ft
3 10 ft +
4 behind bus

Judgment
1 Unsafe 2 Adequate 3 Correct

AFTERNOON

Waiting Area: 1 Same Side 2 Opposite Side

Disembarking/Entry	Presearch	Stop	Searches	CAR APPROACHING		Searches
				0 No	1 L 2 R	
1 Leaves area						
2 Waits, close	0 None	0 None	0 None	Actions		
3 Waits, 3 ft +	1 L	1 Precurb	1 L			
4 Crosses	2 R	2 Curb	2 R			
5 5 ft or less		3 Off-Curb	3 LRL	1 Crosses	0 None	
6 5-10 ft		4 Boundary	4 L, late	2 Waits	1 L	
7 10 ft +		5 None, Running	5 R, late	3 Tracks	2 R	
8 behind bus				4 L	3 LRL	
				5 R	4 L, late	
					5 R, late	

Judgment
1 Unsafe 2 Adequate 3 Correct

COMMENTS:

SPECIFIC INSTRUCTIONS FOR COMPLETING
ON BUS (TYPE TWO) OBSERVATION FORMS

Most of the data blocks on the On-Bus Observation Form are identical to those on the Type One Forms. Only those which are new will be covered here.

Morning (To-School) Observation

Waiting Area

As the bus first comes into view of the bus stop area where the children are waiting for the bus:

- . Check "Position same side" if the stop does not require crossing to board the bus; or "Other Side" if crossing is required. If there are waiting areas on both sides of the road, check both, but observe only the "other side" area.
- . Check "Size OK" if the waiting area is large enough that all the children waiting can stand at least three feet from the edge of the roadway; or "Small" if the area is too small to permit this.
- . Write in "Size of Group" giving the number of children waiting to board the bus.
- . Check "Parked cars within 2 car lengths of the crossing point":
 - "No" meaning no parked cars within two lengths on either side.
 - "On road" if one or more cars are present and parked completely on the road, whether in the normal parking lane or on the traveled way.
 - "Partly on Road" if one or more cars are parked partly on the road and partly on the shoulder.
 - "Off road" if the car(s) is (are) parked completely off the road.

- . Write in the "No. of road entries", i.e., count and enter the number of times the children entered the roadway as the bus was approaching. Count each entry, each child could make just one or some children could make more than one.

Early Start

One or more children may move toward the road and begin crossing before the bus comes to a complete stop with its red flashing lights on.

- . Check "Yes" if such an early start is observed. The first child who makes an early start is your target child for subsequent observation.
- . Check "No" if all children wait until the bus stops before approaching the road.

Waiting

Complete this block for the group as a whole while the bus is approaching the stop.

- . Check "Standing" and "3 ft +" if no member of the group is standing closer than three feet to the edge of the roadway, and the group is behaving in an orderly manner.
- . Check "Standing" and "Close" if the group is orderly but standing closer than three feet to the edge of the road.
- . Check "Playing" and "3 ft +" if the group members are engaged in running, chasing, pushing, throwing or other play activities with high potential for street entry and no group member is closer than three feet from the edge of the roadway.
- . Check "Playing" and "Close" if play, as defined above, is observed and one or more of the children engaged in play are within three feet of the roadway.

Presearch, Stop, Searches and Car Approaching

These blocks are completed as described in Specific Instructions for Completing Type One Observation Forms. Only one child is to be observed. He/she will be the first child moving toward the road to cross.

Distance From Bus

As the child crosses in front of the bus to board, note how far he/she stays in front of the bus.

Judgment

Make the "Correct," "Adequate," or "Unsafe" judgment after the observation is completed.

The criteria for a "Correct School Bus Boarding" are as follows:

Same side boarding

1. The child is waiting three feet or more from the roadway and is not engaging in any play activities, such as running, chasing, pushing or throwing while awaiting the bus.

If the stop is the same side as the bus door, this is the only criteria.

Opposite side boarding.

1. The child waits off the roadway until the bus has stopped and the red flashing warning lights are on.
2. a. The children stop at the edge of the road,
or
b. If parked vehicles are present, stop at the boundary between the parking area and traffic beyond the parked vehicles but still close enough to touch them.
3. The child turns head and eyes to the left so that the visual field includes all of the left traffic lane and looks for left-approaching traffic to stop.
4. The child turns head and eyes to the right so that the visual field includes all of the right traffic lane, and looks for right-approaching traffic to stop completely.
6. The child turns head and eyes to the left again, so that the visual field includes all of the left traffic lane to check to be sure that any traffic has completely stopped.
7. The child enters the street if no traffic is moving,
or
If a car is still moving, waits for it to stop or pass. The child repeats the left-right-left looks before entering the street.

8. The child crosses at least 10 feet from the front of the bus.

All eight of the above steps must be followed to constitute the "Correct" sequence.

The criteria for an "Adequate School Bus Boarding" are:

Same Side Boarding

1. The child must be waiting three feet or more from the roadway and may be engaged in play as long as the activities do not take them into the roadway.

If the stop is on the same side as the bus door, this is the only criteria.

Opposite Side Boarding

1. The child waits off the roadway until the bus has stopped and the red flashing lights are on.
2. The child must search adequately in both directions prior to entering the zone of moving traffic. An adequate search is one which the child could detect if any traffic is still moving. Presearch is acceptable if the child has a clear view of traffic lanes from the presearch position.
3. If all traffic has stopped or there is no traffic when the child enters the street,
or
If traffic is still moving, the child waits for the vehicles to stop or pass.
4. The child crosses five feet or more in front of the bus.

Any crossing that does not meet the criteria for "Correct" or "Adequate is classed as "Unsafe."

The criteria for a "Correct School Bus Exiting" are:

Same Side Stop

1. The child exits the bus and moves away from the side of the bus at least three feet.
2. The child waits for the bus to pull away before walking along the road.

These two rules are all that is required for a safe exit from the school bus for a same side stop.

Opposite Side Stop

1. The child exits the bus and moves to 10 feet in front of the bus.
2. The child stops at the edge of the bus where both lanes of traffic are visible.
3. The child turns head and eyes to the left so that the visual field includes all of the left traffic lane and looks for moving traffic to the left.
4. The child turns head and eyes to the right so that his/her visual field includes all of the right lane of traffic and looks for moving traffic from the right.
5. The child turns and looks left again to check that all traffic is still stopped.
6. If there is not traffic or all traffic is stopped, the child crosses.
7. If any traffic is still moving, the child waits for the vehicle to stop or pass, then reinitiates the left-right-left search.

These seven steps are required for the exiting and crossing to be judged "Correct."

The criteria for "Adequate School Bus Exiting" are:

Same Side Stop

1. The child moves at least three feet away from the bus but starts walking as the bus pulls away.

This is the only action which is required for a same side stop to be judged adequate.

Opposite Side Stop

1. The child must exit the bus and move at least five feet from the front of the bus.
2. The child must stop at the edge of the bus where both lanes of traffic are visible.
3. The child must search for moving vehicles in both directions.
4. If moving vehicles are present, the child must wait until they stop or pass.

Any crossing which does not meet the criteria for "Correct" or "Adequate" is judged "Unsafe." If a child crosses behind the bus, it is always judged unsafe.

ON BUS OBSERVATION

Observation Procedures

1. In the morning prior to leaving on the bus:
 - . Introduce yourself to the driver.
 - . Tell him/her that the purpose of the observation is to study the kinds of errors the children are making around the bus as pedestrians.
 - . Have the driver indicate on your list of passengers the stop number where each passenger boards.
 - . Tell the driver you will be observing the first child that crosses the street and you need him/her to greet the child by name when he/she enters the bus. The driver should also tell you when he passes a usual stop where no children are present.
2. Complete the heading information (at least the top line) in advance. Be sure to number the sheets in order in the space labeled "Observation No." This is also the stop number, since you will observe one child per stop.

NOTE: If the driver misses a stop, note "No Stop Made" under "Comments". Leave body of form blank.
3. Seat yourself in the front row of seats opposite the driver. Be sure that you have a clear view of the road ahead and to the right side of the bus.
4. As the bus approaches the first stop, note what the child is doing while waiting for the bus in the "Waiting" block. If there is a group of children, note the behaviors of the group. Complete the "Early Start" and "Site Description" blocks on the observation form also. If this a same side bus stop, i.e., no street crossing required, the observation is complete at this point, except for entering the name of the first child to enter the bus.

NOTE: If the driver fails to greet the child by name, ask the driver (preferable) or the child (less preferable).
5. If the stop is far side (i.e., requires crossing), note the child that first begins to move to the road in order to cross. Observe this child throughout his/her crossing, and note the child's name as he/she enters the bus. Complete all blocks on the form.

6. If the children ask what you are doing on the bus, tell them you are learning the bus route and who gets on or off at each stop. Talk to the children as little as possible.
7. Continue in this manner through all stops. After the bus discharges its passengers at the school, review your observation forms to assure that they are complete and that the full name of the child is indicated. Confer as necessary with the driver in reviewing the forms.
8. Once back at the garage, fill in the grade level of each child observed from your passenger list. Assemble your completed forms in order and put them in the file folder provided.
9. On the afternoon of the observation day, you will be riding the same route as it delivers the children home. For each afternoon observation, the driver is instructed to say "Goodbye, . ." by name to the first child off the bus at each stop. Observe this child if he/she crosses the street or the whole group if this is a same side bus stop. Otherwise, complete Steps 2 through 8, above.
10. After the observation day, arrange with your team leader to return the data file folder to ASA as soon as possible.

APPENDIX C

SUMMARY OF SESSION OBSERVATIONS AND QUESTIONNAIRE DATA COLLECTION

Conduct and Results of Session Observations and Teacher, Bus Driver, and Parent Questionnaire Data Collection

Session observations were conducted throughout program implementation. Data collection forms were developed for each session in each grade. (There are six separate units, each containing approximately nine sessions.) The forms described each session and enabled the observer to record any deviations from the suggested session format. In all cases, problems or complications which upset the conduct of the session, problems arising from training materials inadequacies, questions asked by the teacher, and the reactions of the children to the session were recorded. Sessions were observed in all eleven participating schools. A minimum of four sessions were observed of each session in each grade by the ASA staff members who developed the curricula.

Summary of Problems in Unit Implementation

One of the most important responsibilities of the PEDSAFE coordinator is making the arrangements for painting a simulated street on the outdoor school playground. This simulated street is used several times by each grade throughout the year. One of the pilot test school districts was able to carry out the line painting in three elementary schools on schedule with no problems. Another school district was resistant to carrying out this task even though they had the necessary equipment. They claimed that their janitorial staff was too busy to complete the line painting on schedule. Therefore, ASA personnel completed the line painting for four elementary schools in this district. The third pilot test district never arranged for line painting. Teachers constructed a street on the asphalt with chalk every time they needed the simulated street to conduct a lesson.

None of the pilot test schools had videotape players or monitors. Since videotapes were used to introduce the program on each grade level and to demonstrate the street crossing behaviors, the absence of equipment was a major problem. ASA rented enough equipment for each school district, and ASA staff personnel transported and operated the necessary equipment. Mechanical failure developed from moving the equipment from school to school. Time schedule delays were caused because of the non-functioning equipment.

In grades K-3, teachers were asked to construct a simulated street with masking tape in their classroom which was to be used throughout the year whenever in-class practice sessions were required. A cardboard desk cover, depicting a car, was provided for the teacher's desk. Most classrooms were not large enough to allow the teacher to construct the street with a minimum of effort. In most cases, teachers had to move several students' desks. The cardboard desk cover took too much time to put together. The desk cover was large and bulky and, therefore, difficult to manage and store. In addition, teachers had to clear their desks in order to use it. Teachers were most successful when they allowed the cover to stand on its own on the simulated street.

Summary of Teacher Attitudes and Comments

Seventy-five percent of the teachers responding to the questionnaire indicated that in years prior to PEDSAFE they provided pedestrian information to their students from time to time throughout the year. However, formal pedestrian safety activities were not included in their lesson plans. The majority of teachers spent between one and three hours each year on these informal activities. Kindergarten teachers were the only exception to this pattern with 40 percent of the teachers conducting specific pedestrian safety learning activities. Fifty percent of Kindergarten teachers spent two hours on safety, while 30 percent spent three hours. The most common forms of learning activities were:

	<u>K</u>	<u>1</u>	<u>2-3</u>	<u>4-6</u>
1. Teacher tells students how to be safe pedestrians	90%	82%	89%	79%
2. Teacher has class discussion	100%	76%	95%	83%
3. Class views film	90%	76%	49%	46%
4. Students receive materials to take home	60%	47%	55%	17%

Ninety percent of Kindergarten teachers indicated that their students received a presentation by a police officer.

The following types of pedestrian safety content were provided by teachers in years prior to PEDSAFE:

	<u>K</u>	<u>1</u>	<u>2-3</u>	<u>4-6</u>
1. Walking Along the Roadway	80%	47%	74%	79%
2. Intersection Crossing	90%	53%	64%	63%
3. School bus	80%	59%	85%	71%
4. Crossing with Crossing Guard	60%	29%	57%	29%
5. Midblock Crossing	30%	18%	23%	29%

Walking Along the Roadway content was provided consistently from Kindergarten through sixth grade, as was Intersection Crossing. It is interesting to note that only a small minority of teachers thought it necessary to teach Midblock Crossing.

Most of the teachers indicated that no pedestrian safety activities were initiated during the 1979-80 school year prior to the initiation of PEDSAFE:

<u>K</u>	<u>1</u>	<u>2-3</u>	<u>4-6</u>
30%	65%	43%	92%

Sixty (60) percent¹ of the teachers in Kindergarten and 35 percent of the teachers in Grades 2-3 taught some sort of pedestrian safety before implementing PEDSAFE.

Summary of Teacher Attitudes and Comments

Teachers in grades K-3 were, on the whole, more positive in attitudes expressed about the program. These teachers judged the suitability of the program content to be about right for the maturity level of their classes (75 percent). In addition, they thought that the program sessions maintained the interest of their students about the same as other school subjects (65 percent). Teachers in grades 4-6 thought the content was somewhat too simple (41 percent) or much too simple (29 percent) for the age of their students. Although 33 percent of the fourth to sixth grade teachers judged PEDSAFE as the same as other school subjects in maintaining class interest, 54 percent of the teachers thought PEDSAFE was worse in maintaining attention.

Comparing teacher preparation time of PEDSAFE to other teaching activities, most teachers (49 percent) rated PEDSAFE as about the same. Fifteen (15) percent thought PEDSAFE took more preparation time, while 14 percent thought it took less.

The teacher's attitudes about the Teacher's Guide clustered in the positive dimensions of various rating scales for content adequacy, level of detail, and clarity of presentation.

The teacher's introductory videotape, which explained PEDSAFE and the teacher's role in the program, was probably the most controversial aspect of the entire program. Using a light, informal, and comical style, it was designed to maintain teachers' interest during serious and possibly tiresome activities. Teacher attitudes ranged from very positive to very negative. Three (3) percent of teachers reported that their interest was maintained throughout the presentation; 32 percent most of the time; 19 percent

¹Because some teachers did not complete questionnaires, percentages sometimes do not add to 100 percent.

half of the time; nine percent less than half of the time; and 11 percent very little. When judging the appropriateness of the presentation, 26 percent of the teachers liked it, 26 percent were neutral, 14 percent disliked it, and eight percent disliked it very much.

According to the teachers, the program introduction videotapes (used at the start of each program unit) served the intended purpose. When asked how many of their students appeared to understand the pedestrian safety rules presented in the videotape, the following was found:

	<u>K</u>	<u>1</u>	<u>2-3</u>	<u>4-6</u>
All	0%	18%	45%	25%
Most	80%	71%	47%	54%
Some	20%	6%	2%	0%
Few	0%	0%	2%	4%
None	0%	0%	0%	0%

When compared with other films the children had seen, the reaction to the PEDSAFE videotapes was positive. Seventy percent of Kindergarten classes were enthusiastic, with ten percent neutral and twenty percent somewhat bored or restless. Six percent of the first grade classes were very enthusiastic, while 41 percent were enthusiastic and 47 percent were neutral. In second and third grades, four percent of the classes were very enthusiastic, 47 percent enthusiastic, 36 percent neutral, and 11 percent somewhat bored or restless. In grades 4-6, a more negative pattern was evident: 13 percent of classes were enthusiastic with 50 percent neutral and 17 percent somewhat bored or restless. In grade four, a new central character is introduced. "Willy Whistle" was the character used in grades K-3. Willy Whistle was shown to be a more popular character than "Fred with the Red Tread" (Grades 4-6). When asked how much their classes liked the central character, the following was found:

	<u>K</u>	<u>1</u>	<u>2-3</u>	<u>4-6</u>
Liked Very Much	30%	29%	19%	4%
Liked	60%	47%	43%	29%
Neutral	10%	18%	36%	13%
Disliked	0%	0%	0%	13%
Disliked Very Much	0%	0%	0%	0%

The school bus introductory videotape was used in Grades K-3. Eighty percent of Kindergarten teachers, 76 percent of first grade teachers, and 51 percent of second and third grade teachers, thought that most of their students understood the pedestrian safety rules presented in the videotape. Forty percent of the second and third grade teachers thought that all their

students understood the rules. The reaction of the children compared to other films seen previously was as follows:

	<u>K</u>	<u>1</u>	<u>2-3</u>
Very Enthusiastic	0%	6%	0%
Enthusiastic	60%	35%	45%
Neutral	30%	47%	51%
Somewhat Bored or Restless	10%	6%	4%
Very Bored/Restless	0%	0%	0%

Teachers in grades K-3 were provided with a cardboard desk cover depicting a car to provide realism to the children's in-class street crossing practice. The desk cover was bulky and took a small amount of time to set up. Comments from teachers were not substantially different from grade to grade. Sixty percent of Kindergarten teachers indicated that they did not use the desk cover. Fifty-three percent of teachers in grades 1-3 indicated that they didn't use the cover either. Those who did use the desk cover tended to be unsure of its usefulness or considered it not very useful.

Slide/tape presentations were a part of the PEDSAFE curriculum in grades 2-6. Teachers indicated that the majority of classes seemed to understand the information presented in the slide/tape. The children's reaction to the presentations was fairly consistent from grade to grade:

	<u>2</u>	<u>3</u>	<u>4-6</u>
Very Enthusiastic	4%	0%	0%
Enthusiastic	48%	45%	13%
Neutral	8%	27%	38%
Somewhat Bored/Restless	20%	9%	0%
Very Bored/Restless	4%	5%	0%

Parental practice was a part of the PEDSAFE curriculum in grades K-3. The children tended to be somewhat excited to very enthusiastic about earning a prize after practicing street crossing with their parents:

	<u>K</u>	<u>1</u>	<u>2-3</u>
Very Enthusiastic	10%	12%	6%
Enthusiastic	20%	24%	30%
Somewhat Excited	40%	24%	21%
Only Slightly Excited	0%	6%	6%
No Reaction	30%	12%	0%

The following percentages of children returning completed practice records were found:

	<u>K</u>	<u>1</u>	<u>2</u>	<u>3</u>
Experimental One	3%	0%	16%	7%
Experimental Two	37%	49%	22%	14%
Experimental Three	0%	26%	45%	0%

It is interesting to note that Experimental School Two had a more consistent parent participation rate than the other two school districts implementing the program. Experimental School Two was judged by the ASA staff to have the most enthusiastic support of the administrators and teachers. In addition, this school district was more "suburban" (as opposed to "rural") than the other school districts, and represented a higher socioeconomic base (i.e., high real estate taxes, more white collar workers, etc.).

Most parents did not comment to teachers about their practice with the children, but when they did, the comments tended to be equally balanced between positive and negative.

Summary of Bus Driver
Attitudes and Comments

Of those bus drivers responding to the questionnaire, only six percent reported problems in conducting the On-Bus sessions. In all cases, these problems resulted when traffic patterns were not reversed when they should have been for effective practice. Many bus drivers felt that the On-Bus sessions were being conducted daily by concerned bus drivers at each bus stop as children entered and exited the bus. Thirty-one (31) percent of respondents felt that too few practices were required; only nine (9) percent thought that too many practices were required. Conducting the sessions caused a moderate delay in schedule for 66 percent of the drivers.

One-fourth of the drivers found it necessary to repeat certain practice sessions throughout the year. For the most part, these were the drivers who reminded children daily of safe practices at each bus stop. Although 41 percent of the drivers could detect no difference in the pedestrian behaviors of their passengers, 47 percent reported "somewhat improved" performance, with 13 percent indicating "much improved" performance.

The bus driver's reaction to the program was varied, but tended to be positive. Fifty (50) percent of the drivers rated the program as "somewhat" or "very" beneficial, with only 16 percent indicating the program was somewhat ineffective. Nineteen (19) percent of the drivers felt that the program was a waste of time.

Summary of Parent
Attitudes and Comments

Ninety-four (94) percent of the parents responding to the questionnaire received the brochures explaining the parental part of PEDSAFE. Of those receiving the brochure, 37 percent practiced street and school bus crossing with their children the required number of times. Over 80 percent of respondents felt the program was beneficial in improving their children's street crossing behaviors and 77 percent reported that their children liked the program.

Negative responses centered around the program funding. Three (3) percent of the parents felt that the program was a waste of the taxpayer's money. Four (4) percent stated that the teaching of street safety is the parent's responsibility.