PEDESTRIAN INJURY CAUSATION STUDY
(PEDESTRIAN ACCIDENT TYPING)

Thomas E. Smist

Calspan Field Services, Inc.
P.O. Box 400
Buffalo, New York 14225

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DISCLAIMER

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16. Abstract

A new computerized pedestrian accident typing procedure was tested on 1,997 cases from the Pedestrian Injury Causation Study (PICS). Two coding procedures were used to determine the effects of quantity and quality of information on accident typing accuracy. The first procedure used information from police accident reports (PARs) only, while the second procedure used additional data available in the completely documented cases.

Overall agreement between the two accident typing procedures at the most general level was good--82.1 percent. However, at the most detailed level, substantial disagreement in accident types was observed (44.5%). This latter rate of disagreement suggests shortcomings in the PAR data, and indicates the benefits of coding the accidents using all pertinent information available in the completed cases. Differences in analyst ability were apparent, but all analysts showed improvement when coding from completed cases.

Implementation of the new pedestrian accident typing procedure into NASS appears consistent with the current level of effort in investigation, but additional information not currently recorded in the NASS file is required. Also, a need to request similar information from multiple sources is apparent due to a general lack of physical evidence.

Use of a modified accident typing coding form for field data collection will allow for a comparison of responses from multiple sources, avoid necessary modifications to current NASS data forms, eliminate the need to transfer data from various forms, and expedite quality control procedures. The accident type may be determined at the PSU or Zone Center level by running the computerized accident typing program just as the CRASH reconstruction program is used. The 3-digit accident type could then be added as a NASS variable.

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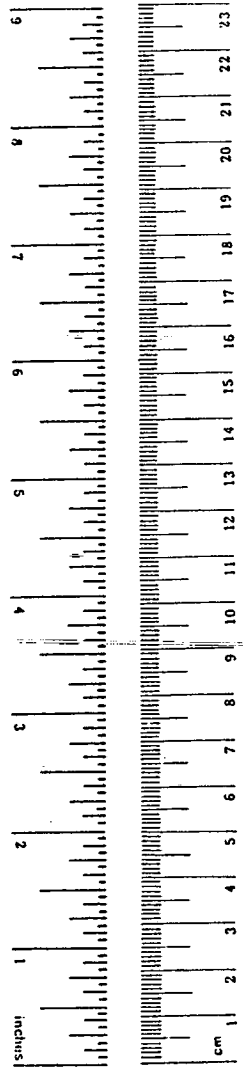
Approximate Conversions to Metric Measures

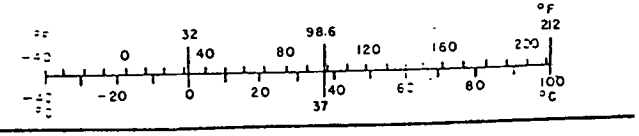
Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2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

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



Approximate Conversions from Metric Measures

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



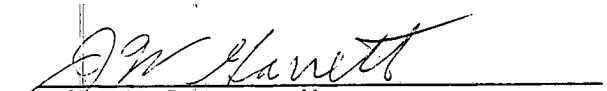
METRIC CONVERSION FACTORS

FOREWORD

This report was prepared for the National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation under Contract No. DTNH22-81-C-07004.

This report describes the new computerized pedestrian accident typing procedure that was tested on 1,997 Pedestrian Injury Causation Study (PICS) cases. Two coding procedures were used to determine the effects of quantity and quality of information on the accident typing program. Substantial disagreement between Phase I accident types, which were based on police accident report (PAR) data, and Phase II accident types, which were based on data available from complete case documentations, was noted. In most cases, the disagreement was on a minor detail, reflecting the superiority of documented case data in providing accident details on a level required by the accident typing logic.

Pedestrian accident typing appears readily adaptable to the level of NASS investigation. Experience gained from this study, including close scrutiny of current NASS forms, suggests that pedestrian accident typing should be a separate task, intact in its current form with minor revisions.



John W. Garrett, Manager
Accident Research Division

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SUMMARY

The objective of the work performed was to assign newly determined accident types to the cases in the Pedestrian Injury Causation Study (PICS). Two separate typing phases involving 1,997 cases were conducted to determine the effects of information quantity and quality on typing accuracy.

An additional objective was to investigate and make recommendations concerning the implementation of the accident typing process into the NASS system. Of primary concern were the possible discrepancies between the nature of the data currently obtained in NASS and its degree of detail versus that which is required for successfully assigning accident types. The most effective manner for collecting and condensing data for the accident typing, as well as the impact of that method on the NASS workload were also assessed.

During Phase I, six experienced case analysts coded pedestrian accidents from five reporting teams, using only the police reports from the cases. Each analyst coded cases from one team only, except for the quality control analyst who coded cases from three teams. Coding was based on an eight-question Computer Accident Typing (CAT) form. A continuous quality control process involving approximately six percent of the cases was conducted to maintain consistency across analysts. Analysis of the coding errors in the quality control cases provided early indications of shortcomings in the completion of the CAT list using only the police report. Coding error rates were investigated in terms of analyst ability and team police report quality. Most notable were problems of locating the point of impact, and reliance upon coding assumptions when sufficient data were not available.

Codes were subjected to a computerized accident typing procedure, which was based on a decision hierarchy seeking specific accident details in a predetermined order.

In Phase II, analysts recoded the cases using all the information available from each case. Analysts were re-assigned to new teams so that no

analyst coded the same case in both phases. A different coding form, known as the Intermediate form, was used. This form requested data similar to that of the CAT form, with a few additional variables and increased detail in some questions. The quality control process was also conducted during this phase.

Accident types were assigned using a new computer program. Accident types from both phases were merged on computer tape for analysis. Overall agreement across the 37 possible accident types was 55.5 percent. The magnitude of disagreement is indicative of the influence of increased information. Using the completed cases allowed the analysts to make more sound judgments and the repetition of information reduced the possibility that information would be missed. A large share of the disagreement in types was due to subtle details, i.e., adjustments in the point of impact, increased detail of pedestrian activities, etc., to which the typing program is quite sensitive. Comparisons by team and by general accident type were also made to gain insight into the typing disagreements.

Additional Phase I coding was undertaken to determine the contributions of analyst ability and police report quality to the coding error rate. Analysts coded a common set of 112 cases. Analysis showed significant differences between analysts but not between police reports. A relatively high error rate in the coding again reflected analyst difficulty with the police report data. However, a substantially lower disagreement rate in assigned accident types indicated that not all of the errors in coding were made in areas crucial to the determination of the accident type.

The improved accuracy of pedestrian accident typing based on increased data availability has shown the police report to be insufficient in meeting the level of detail required by the typing process. It is recommended that the determination of pedestrian accident type be based on data from the entire case.

The effort required to incorporate the procedure into NASS should be minimal. Use of a modified Intermediate coding form for data collection is

recommended. This will avoid the alternative of using extensively modified NASS forms and the requirement that information from several forms be condensed and transferred to the modified Intermediate coding form. Final determination of the accident type may be done at the PSU or Zone Center level by executing the computerized typing program as a separate task, just as the CRASH reconstruction program is currently used.

Recommendations for improvements in coding definitions, primarily concerning identification of the point of impact, were made. Variables relating to point of impact were most responsible for coding errors and typing disagreements.

INTRODUCTION

The application of a newly developed accident typing procedure was undertaken, using 1,997 cases from the Pedestrian Injury Causation Study. The new accident types subsequently were added to the existing accident types in the PICS file.

The new typing procedure bases the assignment of accident types on certain identifiable characteristics of each accident. These include driver, pedestrian, vehicle and environmental variables. To understand the data requirements of the new typing process, the cases were put through two separate typing phases which varied in the amount of information available to case analysts. In the first phase, only the police accident report was used, while in the second phase, the entire PICS case was used. The Computerized Accident Typing (CAT) Statement Lists for Phases I and II are presented in Appendices B and C, respectively. Appendix D shows the Phase II accident typing computer program, indicating the hierarchical logic of the typing process.

The consistency of the typing results between the two phases was the basic concern of the analyses. Determining the reasons for inconsistency and relating observed inconsistency to coding problems was necessary in order to understand the sensitivity of the typing process to specific inputs and to determine whether analysts benefited from the increased amount of information in the second phase.

Recommendations concerning the implementation of the pedestrian accident typing procedure in NASS were developed. These involved suggestions for data collection methods as well as a review of the coding definitions.

ANALYSIS OF PHASE I AND PHASE II DATA

Overview

1. A total of 1,997 cases were coded. Overall agreement between Phase I and Phase II accident types was 55.5 percent.

    - 26.6 percent of cases disagreed on specific accident type but remained in the same general accident category.

    - 17.9 percent of cases were assigned a new accident type in a different general accident category.

2. Additional information available in the entire case substantially improved both coding and typing accuracy by reducing vagueness and the dependence on coding assumptions. Increased accuracy in the identification of point of impact was the most significant improvement in Phase II over Phase I. The almost total elimination of "other-general" and "inadequate information" accident types (Types 910, 920) in Phase II also demonstrates the enhancement of coding from completed cases.

3. Some coding questions and definitions must be made more specific to reduce the need for analyst interpretation. Some suggested improvements were offered in the January progress report and additional concerns have surfaced from the Phase II analysis.

4. Overall accident type agreement rates were fairly consistent across the five teams, suggesting that the improvement in data in Phase II more than offset the effect of analyst ability.

Comparison of Phase I, Phase II Accident Types

Figure 1 shows the redistribution of assigned accident types in going from Phase I to Phase II. A listing of general and specific accident types is presented in Appendix E. Overall exact agreement of accident types, as well as agreement by general accident type, is presented in Table 1. A total of 1,109 cases (55.5%) were assigned the same specific accident type in both phases as shown by the diagonal of Figure 1. Squares drawn along the diagonal identify the nine general accident categories. Cases falling within the boxes but not on the diagonal indicate lack of agreement on specific accident type but agreement by general accident type. These cases account for an additional 26.6 percent. The remaining 17.9 percent represent cases which disagreed on general accident type.

Roughly 85 percent of all accidents were of the intersection and midblock general accident types (700's and 800's). As is evident, these two categories experienced substantial scatter both internally and between other categories. The definition of intersection used in the study included points of impact within 50 feet of the prolongation of the curb lines which formed the intersection. Police reports frequently lacked accurate measurements, forcing analysts to rely on unscaled sketches or checkoff boxes which were often inaccurate and sometimes contradictory.

A total of 138 cases changed between the intersection and midblock categories. A shift between these two categories did not always result in an exactly corresponding accident type. For example, an "intersection dash" accident (Type 730) involved a pedestrian who was running or blocked from the driver's view. If the same accident occurred midblock, four possible accident types could be assigned, but additional details of the accident were necessary. Forty-five cases changed from "intersection dash" (730) to "intersection other" (790). An "intersection other" accident usually involved a pedestrian who simply walked into the path of a vehicle while in plain sight of the driver. If other vehicles or physical attributes were shown in the PAR sketch, they were

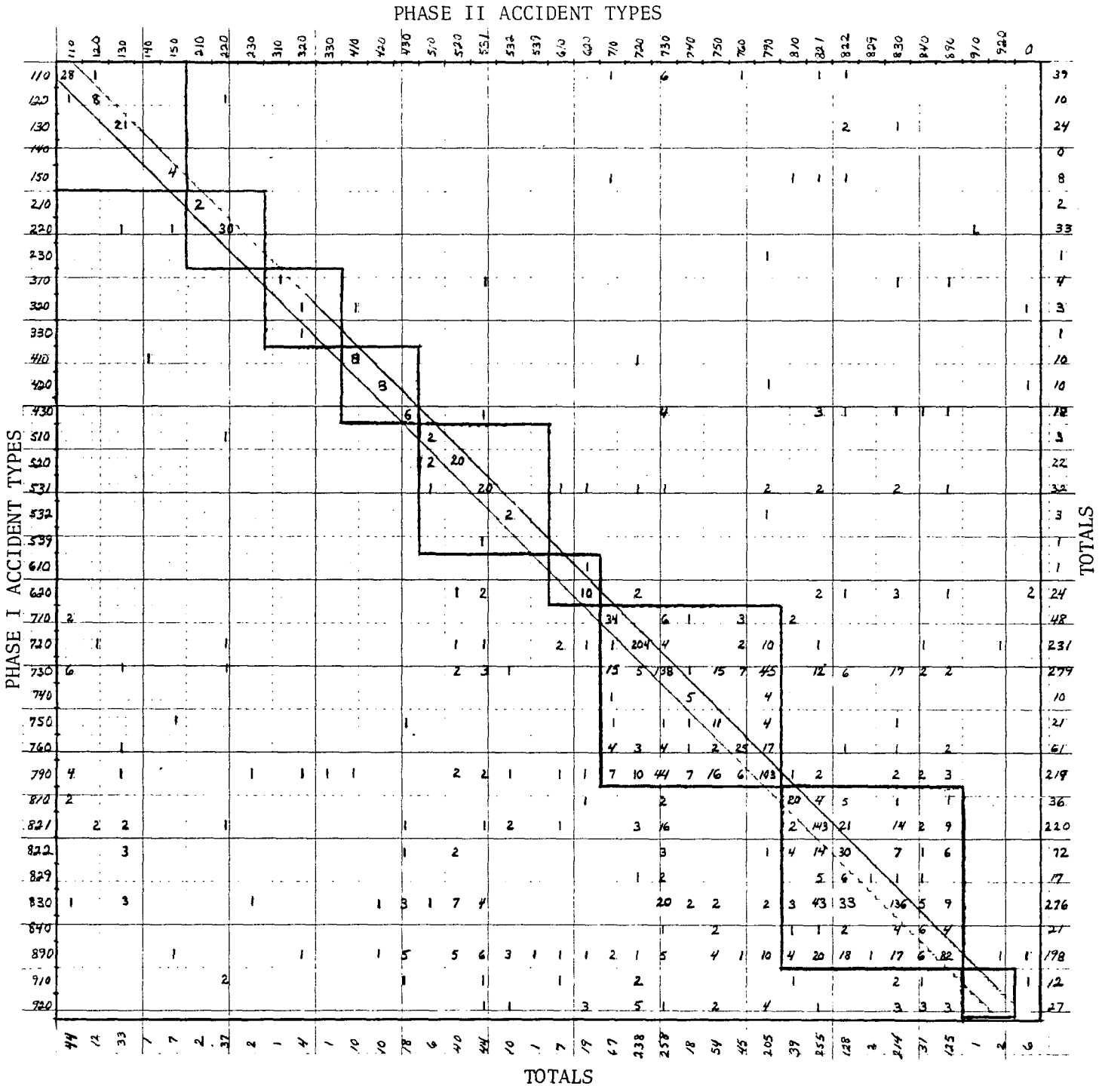

FIGURE 1. COMPARISON OF PHASE I AND PHASE II ACCIDENT TYPES

TABLE 1. - ACCIDENT TYPE AGREEMENT BETWEEN PHASES I AND II

General Type	Overall N	Overall %	CALSPAN N	CALSPAN %	SWRI N	SWRI %	DYSCI N	DYSCI %	TSR N	TSR %	BIOTECH N	BIOTECH %
			TEAM									
100	81	75.3 (77.8)	20	90.0	21	81.0	11	45.5	20	80.0	9	55.6
200	36	88.9 (88.9)	10	90.0	6	100.0	4	75.0	4	75.0	12	91.7
300	8	25.0 (37.5)	1	0.0	6	33.3	0	0.0	1	0.0	0	0.0
400	38	57.9 (57.9)	13	38.5	9	77.8	2	100.0	9	55.6	5	60.0
500	61	72.1 (78.7)	16	68.8	26	73.1	3	33.3	14	78.6	2	100.0
600	25	40.0 (44.0)	8	25.0	9	66.7	2	50.0	4	25.0	2	0.0
700	869	59.8 (88.3)	169	68.6	164	61.6	195	54.9	188	59.0	153	55.6
800	840	49.8 (82.5)	202	37.1	181	57.5	108	52.8	198	58.1	151	44.4
900	39	0.0 (0.0)	11	0.0	10	0.0	6	0.0	7	0.0	5	0.0
TOTAL	1,997	1,109	450	236	432	262	331	176	445	262	339	173
		55.5		52.4		60.6		53.2		58.9		51.0

Total Cases in Disagreement = 888

NOTE: Percentages in parentheses show percent of cases remaining in the same general accident category.

assumed to block the driver's view of the pedestrian. Based on the complete case data, blocking may not have been a factor. Also, it was difficult to distinguish on some PAR's whether blocking vehicles were parked, stopped or standing. These distinctions are sufficient to cause typing disagreement.

Reassignment of an accident type in Phase II which resulted in a change in general accident category from Phase I was due primarily to the introduction or elimination of critical pieces of information. The logic of the accident typing process seeks to identify certain elements or phenomena which separate a particular pedestrian accident from more "general" or "common" pedestrian accidents. Accidents possessing these elements are selected out in the early stages of the typing process and given a lower accident type number. The more general accident types, or those accidents for which few details are known, are assigned higher accident type numbers. The higher concentration of scatter below the diagonal in Figure 1 shows a shift to lower accident types in Phase II. This reflects the increased detail available in the complete case. A shift of accident types in the opposite direction also occurred, but to a lesser extent (232 cases changed to a lower accident type; 119 cases changed to a higher accident type). Assignment of a higher accident type in Phase II often resulted when information on the PAR was proven inaccurate or a coding assumption was proven incorrect. It was also possible that additional information sources in the complete case may have been contradictory, adding to analyst uncertainty as to what took place.

Analyst - Team Effects

Any disagreement between Phase I and Phase II accident types may be attributed to the benefits of increased information and the cost or benefit of a change in analysts.

Assuming overall case quality to be consistent across teams, thereby equal to a constant, c, benefit scores may be determined for the effects of information level on previously assigned analyst and team PAR ratings. Coder ability ratings were assigned by the project director on a scale of 1 to 10, with 10 being the highest possible rating. Ratings were based primarily on the project director's knowledge of each coder's historical performance in coding PICS, NASS and other similar accident data. Team PAR quality ratings were assigned by the quality control manager, who was familiar with the PARs from all five teams. Again, the PARs were rated on a scale of 1 to 10, based on report accuracy and thoroughness. Ratings assigned to the analysts and team PARs, as well as the assignments of analysts to teams in both phases, are presented in Table 2.

TABLE 2. - ANALYST, TEAM PAR RATINGS

Team	Team Rating	Phase I Analysts*	Phase II Analysts
CALSPAN	3	#6, #9	#4, #9
BIOTECH	4	#4	#7
DYSCI	6	#3	#8
TSR	7	#7, #9	#3, #9
SWRI	8	#8, #9	#6, #9

*Ability ratings are used to identify analysts.

Table 3, on the following page, demonstrates the computation of the benefit scores.

TABLE 3. - SCORING OF INFORMATION AND ANALYST FACTORS

Team	INFORMATION BENEFIT (c Minus Original PAR Rating)	ANALYST BENEFIT (Phase II Coder Ability Minus Phase I Coder Ability)	Net Benefit	% Disagreement in Accident Types
DYSCI	c-6	8-3	c-1	46.8%
BIOTECH	c-4	7-4	c-1	48.7%
CALSPAN	c-3	*5.3-6.8	c-4.5	47.6%
SWRI	c-8	*6.7-8.3	c-9.6	39.4%
TSR	c-7	*4.6-7.5	c-9.9	41.1%

*Fractional ratings represent analyst weights for teams coded by two analysts in each phase.

By the technique used in Table 3, it is shown that as the net benefit of going from Phase I to Phase II decreases, so does the percentage of disagreement in accident types between the phases. Because the value of c is unknown, the net benefit values presented represent a ranking rather than scores on an absolute scale. The precise contributions of the information and analyst factors are unknown, but the overall magnitude of disagreement for all five teams suggests that the increase in information dominated any effects of analyst ability.

Specific Problem Areas

In addition to the intersection/nonintersection problem discussed earlier, the following were causes of accident typing disagreement. The order in which they are presented does not imply a ranking of importance.

1. Opportunity for analysts to interpret or "read into" coding questions should be reduced. In particular, the word "near" should be clarified in quantitative terms wherever possible. An example of a clear, effective definition is that of a

pedestrian entering or exiting a parked or stopped vehicle, presented in the Computer Accident Typing Handbook. The definition specifies the location of the pedestrian and the qualifications of a stopped or parked vehicle. A sketch is also provided showing both applicable and nonapplicable situations.

2. Is the parking lane part of the roadway? If prior to being struck, the pedestrian's activity was in the parking lane and for some reason the pedestrian moved in front of traffic, has the pedestrian just entered the roadway or has he always been in the roadway? The parking lane is not considered when determining which half of the roadway the accident occurred in. A clarification should be made as to whether a parking lane is a non-roadway location. Adherence to the NASS definition of roadway is suggested.

3. Evidence that the pedestrian struck the vehicle is difficult to obtain from some police reports. This problem arises from vague wording in the description of the actual contact between the vehicle and the pedestrian. Additional information in the complete cases provides multiple sources for verification of impact orientation.

4. Inconsistency in the coding of driver violations was another result of vague wording in the Computer Accident Typing Handbook. In Phase I, the manual left some uncertainty as to whether an indication of a particular driver behavior as a contributing factor was to be included under the general group of driver violations. In Phase II, the manual was quite explicit and only violations for which the driver was charged were considered.

5. The inclusion of the NASS "First Harmful Event" variable in Phase II caused six cases to be eliminated (Type 000 in Figure 1). Specific reasons for elimination were as follows:

   Case #1): insufficient data - hit-and-run, no witness

   Case #'s 2-5): collision with pedestrian was not the first harmful event. NASS coding would have considered them as pedestrian accidents.

   Case #6): pedestrian on roller skates. This should have been coded as a non-motorist riding a play vehicle and, as such, would have qualified for the study. However, the analyst did not consider roller skates as a play vehicle and the case was rejected.

Most of the problems experienced in the coding resulted from an inability to locate the exact point of impact. The accident typing logic is extremely sensitive to variables relating to point of impact and efforts should be made to increase the accuracy with which the POI is determined. If data of sufficient accuracy cannot be obtained, then the accident typing process must allow greater leeway in analyst interpretation of data or tolerate a resultant level of uncertainty. Further discussion of problem areas in pedestrian accident coding, particularly with limited data, is presented in the results from additional Phase I coding in which the effects of data quality and coder ability were investigated (see Appendix A).

RECOMMENDATIONS FOR INCORPORATING PEDESTRIAN TYPING INTO NASS

As is evident from the comparison of Phase I and Phase II results, the reliance of such a procedure on case detail cannot be overemphasized. The desired level of detail is consistent with that currently sought in NASS. However, some of the specific data items required for accident typing either are not presently obtained or exist in a format which requires interpretation in order to code the Intermediate form.

The general lack of residual vehicle damage and scene evidence severely hampers the investigator's ability to reconstruct the accident from physical evidence independent of interviews from the parties involved or witnesses. The inability to obtain accurate unbiased physical evidence is even more critical when considering the subtle differences between the pedestrian accident types, especially because the location of the point of impact has a more far-reaching effect on successful accident typing than any other single bit of information.

The interviewing process represents the best opportunity to obtain good data for accident typing. It is important that interviews be obtained from the parties involved as well as from witnesses or those with some knowledge of transient factors which may have been present at the time of the incident, i.e., parked vehicles, etc. In order to achieve effective results from interviews, results which will allow for accurate accident typing, information must be obtained in a manner which lends itself directly to the coding procedure, avoiding analyst interpretation as much as possible. This could best be achieved by posing the questions to the interviewee and recording the responses in the same form as they appear in the Intermediate pedestrian coding form. Using such an approach will add structure to the interview and ensure that information critical to the accident typing process is not missed. Additional details concerning the accident may be gained as a result of such direct, specific questioning. Obtaining interviews from various sources will aid the investigator in making a final determination as to the accident sequence.

Thus, all of the pedestrian accident typing variables, except for the roadway function and traffic violations variables, should be essentially investigator-determined.

Use of the Modified Intermediate Coding Form for Data Collection

Pedestrian accident typing is based on the investigator's summary, which is formed from information gathered in his investigation and through interviews. Thus, collapsing information from several sources to create a final concensus description of the accident summary is necessary. Using the modified Intermediate form (see Figure 2), provision is made for recording the responses from various sources on the same form. The investigator can readily make a final judgment based on the distribution of the responses and the validities of the sources. Using the modified Intermediate form for data collection means that the questions would be coded as the information is obtained, not at a later time. Again, this would avoid loss of data and analyst interpretation.

Using the modified Intermediate coding form for data collection will improve the accuracy and reliability of the pedestrian accident typing procedure. This approach will also be the least disruptive in its introduction to NASS because no modifications are required to NASS forms, nor is there any deviation from standard NASS investigation procedures. Actually, the quest for detail necessitated by the modified Intermediate form should enhance the quality of data throughout pedestrian cases.

The following are specific advantages of using the modified Intermediate coding form as opposed to the alternative of using current NASS data forms.

1) While the NASS forms do contain the kind of information required for accident typing, the information is condensed, with a resultant loss of detail necessary for accident typing.

FIGURE 2. MODIFIED INTERMEDIATE CODING FORM

Driver	Pedestrian	Other (PAR, Witness)	ITEM	
			1. Special Circumstances	
—	—	—	(1) Pedestrian was struck by falling cargo or something that came loose from a vehicle	
—	—	—	(2) Pedestrian was entering or exiting the same vehicle that struck him/her	
—	—	—	(3) Pedestrian struck vehicle	
—	—	—	(8) None of the above	
—	—	—	(9) Unknown	———
			2. First Harmful Event	
			Non-Collision	
—	—	—	(01) Overturn	
—	—	—	(02) Fire or Explosion	
—	—	—	(03) Immersion	
—	—	—	(04) Gas Inhalation	
—	—	—	(05) Fell from Vehicle	
—	—	—	(06) Injured in Vehicle	
—	—	—	(07) Other Non-Collision	
			Collision With	
—	—	—	(08) Pedestrian	
—	—	—	(09) Pedalcyclist	
—	—	—	(10) Railway train	
—	—	—	(11) Animal	
—	—	—	(12) Motor vehicle in transport (same roadway)	
—	—	—	(13) Motor vehicle in transport (other roadway)	
—	—	—	(14) Parked motor vehicle	
—	—	—	(15) Other type non-motorist	
—	—	—	(16) Other object (not fixed)	
			Collision With Fixed Object	
—	—	—	(18) Buildings	
—	—	—	(19) Culvert or ditch	
—	—	—	(20) Curb or wall	
—	—	—	(21) Divider	
—	—	—	(22) Embankment	
—	—	—	(23) Fence	
—	—	—	(24) Guard rail	
—	—	—	(25) Light support	
—	—	—	(26) Sign post	
—	—	—	(27) Tree or shrubbery	
—	—	—	(28) Utility pole	
—	—	—	(29) Other poles or support	
—	—	—	(30) Impact attenuator	
—	—	—	(31) Other fixed object	
—	—	—	(32) Bridge or overpass (passing under)	
—	—	—	(33) Bridge or overpass (passing over)	
—	—	—	(99) Unknown	— —

FIGURE 2 (CONTINUED)

Driver	Pedestrian	Other (PAR, Witness)	
			3. Relation to Roadway (location of first harmful event)
—	—	—	(01) On roadway
—	—	—	(02) On shoulder
—	—	—	(03) In median
—	—	—	(04) On roadside
—	—	—	(05) Outside right-of-way
—	—	—	(06) Off roadway--location unknown
—	—	—	(07) In parking lane
—	—	—	(09) Unknown — —
			4. Roadway Function Class
			(1) Principal arterial--interstate
			(2) Principal arterial--other urban freeway or expressway
			(3) Principal arterial--other
			(4) Minor arterial
			(5) Urban collector
			(6) Major rural collector
			(7) Minor rural collector
			(8) Local road or street
			(9) Unknown ———
			5. Distance from Point of Impact to Nearest Intersection Boundary or Junction Controlled by Traffic Signal
—	—	—	(1) Less than or equal to 50 feet
—	—	—	(2) Greater than 50 feet (Not intersection-related)
—	—	—	(9) Unknown ———
			6. Amount of Roadway Crossed by Pedestrian Prior to Impact
—	—	—	(1) Struck before crossing centerline or median
—	—	—	(2) Struck on centerline or after crossing centerline or median
—	—	—	(3) Pedestrian not attempting to cross
—	—	—	(9) Unknown ———
			7. Pedestrian Location (code the <u>first</u> attribute that applies)
—	—	—	(01) Near commercial bus
—	—	—	(02) Near school bus or school bus stop
—	—	—	(03) Near ice cream vendor
—	—	—	(04) Near mail box or newspaper box for rural residence
—	—	—	(05) Near a disabled vehicle (no emergency vehicle present)
—	—	—	(06) Near an active emergency vehicle
—	—	—	(07) On/near roadway, going same direction as traffic
—	—	—	(08) On/near roadway, moving against (facing) traffic
—	—	—	(09) On/near roadway, direction of movement unknown
—	—	—	(98) Other _____
—	—	—	(99) Unknown — —

Driver	Pedestrian	Other (PAR, Witness)	
			8. Pedestrian Action (code the first attribute that applies)
—	—	—	(01) Entering/exiting vehicle from traffic lane
—	—	—	(02) Going to/from (not standing near) disabled vehicle
—	—	—	(03) Hitchhiking
—	—	—	(04) Working in, on, over or under roadway
—	—	—	(05) Riding a play vehicle (not a bicycle, tricycle, or "big wheel" type vehicle)
—	—	—	(06) Playing in the roadway
—	—	—	(07) Crossing against signal
—	—	—	(08) Crossing with signal, it changes during crossing
—	—	—	(09) Standing, attempting to cross or enter roadway
—	—	—	(10) Running
—	—	—	(11) Walking
—	—	—	(98) Other _____
—	—	—	(99) Unknown — —
			9. Pedestrian was struck by:
—	—	—	(1) An active emergency vehicle or a vehicle being pursued by the police
—	—	—	(2) A driverless vehicle or vehicle set into motion by the actions of a child
—	—	—	(3) A backing vehicle
—	—	—	(4) A vehicle in the process of turning or merging
—	—	—	(8) Other _____
—	—	—	(9) Unknown —
			10. Driver's View of Pedestrian
—	—	—	(1) Blocked by commercial bus at stop, going same direction
—	—	—	(2) Blocked by stopped or standing traffic, going same direction
—	—	—	(3) Blocked by parked vehicles
—	—	—	(4) Blocked or impaired by other physical obstructions (e.g., cars, hill, curve, building)
—	—	—	(5) Blocked or impaired by bad weather, sun glare, darkness, poor visibility (if specifically indicated in accident report)
—	—	—	(6) No obstruction indicated or specified
—	—	—	(8) Other _____
—	—	—	(9) Unknown —

FIGURE 2 (CONTINUED)

Traffic Violations Charges Against Driver

No - code 0, Yes - code 1

11. Speeding ____

12. Driving While Intoxicated ____

13. Reckless Driving ____

14. Alcohol involvement ____

15. Failure to yield right-of-way ____

16. Signal or sign violation ____

17. Too fast for conditions ____

2) It is desirable to obtain the same information from all interviewees. The NASS Driver Data form does not contain all the questions necessary for accident typing which are contained on the Pedestrian and Nonmotorist form. Thus, a supplementary form would be required for driver interviews.

3) Extensive modification of NASS forms would be necessary, involving the addition of questions not currently on the forms as well as the addition of response alternatives to existing questions in order to obtain greater detail. It is undesirable to modify general purpose forms to accomodate relatively infrequent occurrences which require other than routine consideration.

4) Response codes on the NASS forms are not compatible with response codes on the Intermediate coding form. The accident typing logic is based on the Intermediate form codes. Use of data from NASS forms would require one of the following modifications:

   (a) Information from NASS forms would have to be recoded onto the Intermediate form by hand, resulting in human error and the need to interpret information in order to select the proper response alternative.

   (b) The response codes currently used on the NASS forms would have to be modified to match those in the accident typing computer program.

   (c) The accident typing program would have to be modified to use current NASS codes.

   All of the modifications could be avoided by using the modified Intermediate form as a data collection device.

Pedestrian Accident Typing Procedure

Based on the development of the pedestrian accident typing procedure to date and on the experience gained during this study, it is apparent that pedestrian accident typing may best be accomplished at the PSU or Zone Center level in a similar manner to the execution of the CRASH program for computing delta V.

Just as with CRASH, the execution of the accident typing computer program would be a separate exercise, with the resultant three-digit accident type code entered into the NASS data file. It is therefore suggested that the modified CAT program remain separate from the NASS data processing system.

The initial step in the pedestrian accident typing process would be the selection of applicable cases. Both NASS-defined pedestrians and other nonmotorists on play vehicles should be included. The following check-off statement should be added to the NASS Pedestrian and Nonmotorist form on page 1 following Variable 8, Pedestrian and Nonmotorist's Type:

- ☐ Case meets either of the following conditions. Pedestrian accident typing form completed.
  1. First Harmful Event = "Pedestrian", or
  2. First Harmful Event = "Other type nonmotorist" riding a play vehicle (e.g., roller skates, skateboard, sled; not a bicycle, tricycle, or "big wheel" type vehicle)

Selection of applicable cases by First Harmful Event adds a measure of control to the data, and conforms with the intent to eliminate cases such as those involving pedestrians struck as a result of a previous vehicle-to-vehicle or vehicle-to-object collision.

The second step involves coding the modified Intermediate form. As discussed earlier, use of this form as a data collection and reduction device directly rather than transferring data to it from other forms will enhance both the accuracy and completeness of the data. The investigator would indicate the responses of each applicable information source to each data item in the appropriate columns in the left margin of the form. The investigator-determined responses, representing the investigator's best determination of what actually occurred, are indicated in the space provided to the right of each data item. Once completed, the modified Intermediate form contains the necessary data in the exact format required by the CAT program.

To determine the accident type, the CAT program user would enter the final codes from the modified Intermediate form at a computer terminal. The terminal may be linked to a central computer which contains the CAT program (as with CRASH) or may be a self-contained system with the program stored in memory. Output from the program would include the three-digit accident type, and possibly a record of the input codes so an error check may be done. The accident type could then be recorded as a new variable on the Pedestrian and Nonmotorist form. The accident type variable would be coded Ø Ø Ø for nonapplicable pedestrian/nonmotorists.

The CAT program would require some modifications to convert it to an interactive format. The user oriented CRASH program format is a prime example.

Quality Control Requirements for Pedestrian Accident Typing Variables

The quality control process will be primarily a verification process, much like current NASS quality control procedures. Some data elements may be verified using objective sources such as the police report, scene slides and diagrams, vehicle slides, etc. Other data elements will require quality control personnel to weight the credibility of information from various sources and to rely upon their experience.

The process will be enhanced by the availability of data from multiple sources on the same form. This will hopefully expedite the quality control process. Agreement between two or more credible sources will likely be sufficient basis for the final response selected. Failure to arrive at a concensus for a particular data item can be handled by (a) making use of physical evidence where possible, and (b) establishing a hierarchy of credibility among the information sources.

Questions 2, 3 and 4 on the modified Intermediate form are directly from the NASS Accident Data form and current NASS quality control procedures will apply. Questions 11 through 17 concerning traffic violations charged against the driver can be verified from the PAR. Questions 5, 6 and 7 are dependent upon the identification of the point of impact. As discussed previously, identification or verification of the point of impact from residual physical evidence (skidmarks, debris, etc.) is seldom possible. Hence, the quality control personnel must frequently rely on the investigator's final judgment. Once the point of impact is identified, scene slides may be used to verify responses to questions 5, 6 and 7. Quality control of questions 1, 8, 9 and 10 will often be restricted to the investigator's judgment. Review of the type and location of the pedestrian's injuries, impact and final rest points of the pedestrian and the vehicle, and contact points on the vehicle are valuable quality control methods for these particular data elements. The design of the modified Intermediate form can provide quality control personnel with insight as to how the investigator arrived at a final decision. For most variables, cross reference can be made to similar information on the NASS forms. This will at least provide a consistency check for the case.

The actual quality control of the modified Intermediate form should require relatively little time once the point of impact has been verified. Quality control personnel will use the same pedestrian typing coding manual as used by the field investigator.

Due to the importance of detail in the accident typing procedure, it is recommended that a one hundred percent quality control check be done on the modified Intermediate form.

Training Requirements

The training provided the Calspan case analysts involved a somewhat different set of conditions than would be the case for field investigators. Calspan analysts worked from previously documented cases which required that a significant effort be spent on the interpretation of data, a great deal of which was in NASS format. Training therefore included the introduction of coding assumptions, with appropriate practice cases, which guided the analysts in developing more standardized interpretation of information from the NASS forms and the police accident reports.

The field investigators, who will be responsible for coding the modified Intermediate form, will have the advantage of gathering data first hand. They should not have the problems of interpretation or trying to make the accident typing attributes apply as was the case for the Calspan analysts. The focus of the training should be to introduce the investigators to the level of detail required by the accident typing process. The training should enhance the investigator's awareness of the importance of some factors which, although noticed in the past, were not included as part of the recorded data. Current NASS accident training provides adequate instruction to allow investigators to piece together various sources of evidence in order to make proper judgments.

Training in pedestrian accident typing would preferably be incorporated into basic NASS training due to the fact that no truly new investigatory techniques need be introduced.

A sufficiently detailed coding manual should satisfy most of the training requirements. A manual similar to the Computer Accident Typing Handbook used by the Calspan analysts is suggested. Actual contents of the

manual are addressed in another section of this report. The manual will be used as both a training aid and a coding reference. Review of the manual's contents conducted by an experienced coder and the coding of five to ten practice cases is suggested.

Except for a review of the modified Intermediate form and the coding manual, no specific Zone Center training should be necessary.

Coding Definitions

Calspan case analysts experienced relatively few problems interpreting the coding items and attributes in either coding phase. This was due primarily to the use of NASS terminology throughout the coding materials. Some of the coding items are directly from NASS and current NASS definitions and rules of application apply. These items include First Harmful Event, Relation to Roadway, Roadway Function Class and Traffic Violations Charged Against Driver (items 2, 3, 4, 11-17). The remaining coding items were developed specifically for pedestrian accident typing and are also based on NASS terminology. In several instances, clarifying statements and/or illustrative examples have been added to the attributes of these items to further specify their use in accident type coding.

A set of coding definitions has been prepared and is presented in Appendix F. It is not necessary to include definitions for those items noted previously which are directly from NASS. Only the "new" pedestrian accident typing items are considered. Of the new items, it is believed that some are self-explanatory and are therefore omitted from the definitions.

For the most part, the definitions are taken directly from the Pedestrian Accident Typing Handbook used by the Calspan analysts. Some modifications have been made to make definitions more specific in order to increase coding objectivity and consistency.

APPENDIX A

Analysis of Phase I Coding Errors

During the review of the Phase I typing process and of the related quality control data, differences in error rates were observed between case analysts. The question was raised as to whether the inconsistent error rates reflected differences in analyst ability or differences in the quality of the police reports used, or a combination of both. The coding procedure used did not allow for a comparison of analysts on a common set of cases.

As presented in the Phase I analysis report, an effort was made to account for each analyst's error rate by assigning two rating scores to each analyst; (a) an analyst rating based on previously demonstrated ability, and (b) an average PAR rating for each of the five teams. Combining the two ratings into a single analyst-team rating resulted in general agreement with the coding error rates observed. However, a representative mix of analyst ability and PAR quality was not present in the coding procedure design. Consequently, additional Phase I coding was necessary to determine the reason(s) for the error rates.

Five of the six Phase I analysts performed the additional coding task. A total of 112 cases, selected from Phase I quality control cases, were coded by each analyst. In order to establish a standard against which coding errors would be determined, the quality control manager recoded all 112 cases. His codes were then compared against those of the second most highly rated analyst and a concensus was formed. The concensus codes were then used as a standard.

Table A1 shows coding error rates for each analyst for each of the five teams. Error rates were computed as the ratio of cases with one or more coding errors to the total number of cases submitted from a given team. Collapsing across teams, there was a significant difference between analysts ($X^2 = 35.86$, $p < .001$), showing agreement with analyst ratings. Collapsing across analysts, no significant team difference ($X^2 = 1.4$, $p < .9$) was observed. The assigned quality ratings were not in agreement with the

overall error rates. In fact, the error rates appear in somewhat reverse order from what would be expected. The inconsistent trends in error rates within the body of the table suggest a probable analyst by team interaction.

TABLE A1. - CODING ERROR RATES

	Team (Rating) (%)					
Analyst*	CALSPAN (3)	BIOTECH (4)	DYSCI (6)	TSR (7)	SWRI (8)	TOTAL
4	42.4	38.9	50.0	66.7	52.9	49.1
6	33.3	38.9	42.3	66.7	17.6	39.3
7	18.2	38.9	53.8	22.2	52.9	35.7
8	27.3	33.3	30.8	16.7	41.2	29.5
9	12.1	11.1	19.2	27.8	11.8	16.1
TOTAL	26.7	32.2	39.2	40.0	35.3	33.9
	(33)**	(18)	(26)	(18)	(17)	

*Analysts are identified by their ability ratings.

**Numbers in parentheses indicate the number of cases from each team and are the denominators for the error rates.

The extent to which errors in coding were reflected in accident typing disagreements is presented in Table A2. The substantial (54.9%) increase in accident type agreement as opposed to coding agreement indicates that a large number of coding errors were insignificant. A breakdown of coding errors by team for each of the eight CAT statements (see Table A3) shows that the coding of accident location and miscellaneous elements (primarily driver violations) resulted in the highest overall error rates (14.3% and 14.9%, respectively). Reasons for these high error rates have been previously discussed. The error rate in coding accident location was close to the overall disagreement in accident typing (15.3%). Disagreement concerning the coding of driver violations was a substantial contributor to the difference between coding error rate and accident typing error rate.

TABLE A2. - PEDESTRIAN ACCIDENT TYPING DISAGREEMENT

	Team (Rating) (%)					
Analyst	CALSPAN (3)	BIOTECH (4)	DYSCI (6)	TSR (7)	SWRI (8)	TOTAL
4	24.2	33.3	38.5	33.3	23.5	30.3
6	9.1	16.7	23.1	33.3	0.0	16.1
7	6.1	27.8	26.9	0.0	29.4	16.9
8	12.1	11.1	0.0	0.0	11.8	7.1
9	3.0	11.1	11.5	5.6	0.0	6.2
TOTAL	10.9	20.0	20.0	14.4	12.9	15.3
(n)	(33)	(18)	(26)	(18)	(17)	

TABLE A3. - COMPARISON OF CODING ERROR RATES ON EACH OF THE CAT STATEMENTS

	Team (Rating) (%)					
CAT Statement	CALSPAN (3)	BIOTECH (4)	DYSCI (6)	TSR (7)	SWRI (8)	TOTAL
1	0.0	0.0	0.8	0.0	1.2	0.4
2	14.5	13.3	10.8	14.4	20.0	14.3
3	0.0	1.1	0.8	0.0	0.0	0.4
4	0.6	1.1	6.2	0.0	1.3	2.0
5	1.8	5.9	4.6	17.6	5.3	6.1
6	0.6	2.5	3.8	3.5	3.1	2.5
7	3.6	2.5	8.5	7.1	3.6	5.2
8	11.0	13.8	23.1	10.6	14.5	14.9

Also somewhat high in error rate were the questions concerning pedestrian activity (6.1%) and the driver's view of the pedestrian (5.2%). These two problem areas are the result of a lack of detail in the police report. Wording such as "moved", "appeared", etc. is open to interpretation as are sketches which indicate possible blocking of a driver's view.

Summary

Results of the additional Phase I coding task showed the existence of analyst differences, but no significant differences in police report quality. Partitioning the error rates between these two factors is difficult but the importance of such a distinction is lessened by the fact that a substantial portion of the coding errors had no effect on accident type. Improvement in the data is required in order to reduce the errors in coding of questions to which the typing procedure is most sensitive, especially point of impact location.

APPENDIX B

Phase I CAT Statement List Categories

1. SPECIAL CIRCUMSTANCES

*1. The ped was struck by falling cargo or something that came loose from a vehicle.
*2. The ped was entering or exiting the same vehicle that struck him/her.
*3. The ped fell from a vehicle
*4. The officer indicated that no accident actually occurred.
*5. Either the driver or the ped intentionally caused the accident.
*6. The ped was struck as the result of a vehicle-vehicle collision.
9. None of the above.

2. THE ACCIDENT OCCURRED:

1. Near the edge of the roadway (for example, on the shoulder or on the curb).
2. In or on a sidewalk, driveway, alley, private road, garage, parking lot, gas station, yard, field or other non-roadway location.
3. On an expressway or limited access highway.
4. At or near an intersection (within 50 feet of an intersection).
5. Midblock, first half of the roadway.
6. Midblock, second half of the roadway.
7. Midblock, no half given or discernible.
9. None of the above.
0. Unknown, insufficient information to determine.

3. THE PED WAS STRUCK WHILE . . .

GOING TO OR FROM OR STANDING NEAR:
1. A commercial bus.
*2. A school bus or school bus stop.
*3. An ice-cream vendor.
*4. A mailbox or newspaper box for a residence.

GOING TO OR FROM (BUT NOT STANDING NEAR):
*5. A disabled vehicle.
9. None of the above.

4. THE PED WAS STRUCK BY:

*1. An active emergency vehicle (fire truck, ambulance, or police car) or by a vehicle being pursued by the police.
*2. A driverless vehicle, or a vehicle put into motion by the actions of a child (but not one set into motion by an auto-auto crash.

A VEHICLE WITH A DRIVER THAT WAS:

*3. Backing.
4. Turning or merging
5. Moving straight ahead.
9. None of the above.
0. Unknown.

5. AT THE TIME OF THE ACCIDENT THE PED WAS:

*1. Hitchhiking.
*2. Riding a play vehicle (not a bicycle, tricycle or "big wheel" type vehicle).
*3. Playing in roadway prior to vehicle arrival.
4. Running or hurrying.
5. Walking.
6. Standing, waiting to cross.
9. None of the Above.
0. Unknown

6. IMMEDIATELY BEFORE THE ACCIDENT THE PED WAS:

*1. Entering or exiting a parked or stopped vehicle (adjacent to lane in which accident occurred).
*2. Walking or standing near an active emergency vehicle (fire truck, ambulance or police car).
*3. Working on or standing near a disabled vehicle with no emergency vehicle present.
*4. Working on, in, over or under the roadway.
*5. Traveling along roadway, the same direction as traffic.
*6. Traveling along roadway, facing (against) traffic.
*7. Traveling along roadway, direction unknown.
8. Attempting to cross or enter the roadway.
9. None of the above.

7. THE DRIVER'S VIEW OF THE PED WAS:

*1. Blocked by a commercial bus standing (not parked) at a stop and going in the same direction as the striking vehicle.
2. Blocked by stopped or standing traffic (car, truck, bus not at a stop) going in the same direction as the striking vehicle.
3. Blocked by parked vehicles.
4. Blocked or impaired by other physical obstructions (cars, hill, curve, building) or, if indicated as a contributing factor: bad weather, poor visibility, sun glare, or darkness.
5. Not indicated as obstructed or driver saw ped headed toward the roadway before the accident.
9. None of the above.
0. Unknown

8. MISCELLANEOUS:

1. The ped was crossing against a signal.
2. The ped was crossing with the signal when it changed and stopped traffic began moving.
3. Vehicle was struck by the ped (for example, ped walked into the side of a passing vehicle).
4. The driver committed one or more of the following violations: Careless driving, failure to yield right-of-way, signal or sign violation, speeding, too fast for conditions, driving while intoxicated or uder the influence of drugs or alcohol.
9. None of the above.

NOTE: Selection of a response marked with * means that sufficient information for determining the accident type has been provided. Subsequent statements are not coded.

APPENDIX C

Intermediate Coding Form

ITEM

1. Special Circumstances
   __(1) Ped was struck by falling cargo or something that came loose from a vehicle
   __(2) Ped was entering or exiting the same vehicle that struck him/her
   __(3) Ped struck vehicle
   __(8) None of the above
   __(9) Unknown

2. First Harmful Event

   Non-Collision
   __(01) Overturn
   __(02) Fire or Explosion
   __(03) Immersion
   __(04) Gas Inhalation
   __(05) Fell from Vehicle
   __(06) Injured in Vehicle
   __(07) Other Non-Collision

   Collision With
   __(08) Pedestrian
   __(09) Pedalcyclist
   __(10) Railway train
   __(11) Animal
   __(12) Motor vehicle in transport (same roadway)
   __(13) Motor vehicle in transport (other roadway)
   __(14) Parked motor vehicle
   __(15) Other type non-motorist
   __(16) Other object (not fixed)

   Collision With Fixed Object
   __(18) Buildings
   __(19) Culvert or ditch
   __(20) Curb or wall
   __(21) Divider
   __(22) Embankment
   __(23) Fence
   __(24) Guard rail
   __(25) Light support
   __(26) Sign post
   __(27) Tree or shrubbery
   __(28) Utility pole
   __(29) Other poles or support
   __(30) Impact attenuator
   __(31) Other fixed object
   __(32) Bridge or overpass (passing under)
   __(33) Bridge or overpass (passing over)
   __(99) Unknown

3. Relation to Roadway (location of first harmful event)
__(01) On roadway
__(02) On shoulder
__(03) In median
__(04) On roadside
__(05) Outside right-of-way
__(06) Off roadway--location unknown
__(07) In parking lane
__(09) Unknown

4. Roadway Function Class
__(1) Principal arterial--interstate
__(2) Principal arterial--other urban freeway or expressway
__(3) Principal arterial--other
__(4) Minor arterial
__(5) Urban collector
__(6) Major rural collector
__(7) Minor rural collector
__(8) Local road or street
__(9) Unknown

5. Distance from Point of Impact to Nearest Intersection Boundary or Junction Controlled by Traffic Signal
__(1) Less than or equal to 50 feet
__(2) Greater than 50 feet (Not intersection-related)
__(9) Unknown

6. Amount of Roadway Crossed by Ped Prior to Impact
__(1) Struck before crossing centerline or median
__(2) Struck on centerline or after crossing centerline or median
__(3) Pedestrian not attempting to cross
__(9) Unknown

7. Pedestrian Location (code the first attribute that applies)
__(01) Near commercial bus
__(02) Near school bus or school bus stop
__(03) Near ice cream vendor
__(04) Near mail box or newspaper box for rural residence
__(05) Near a disabled vehicle (no emergency vehicle present)
__(06) Near an active emergency vehicle
__(07) On/near roadway, going same direction as traffic
__(08) On/near roadway, moving against (facing) traffic
__(09) On/near roadway, direction of movement unknown
__(98) Other _____
__(99) Unknown

8. Pedestrian Action (code the first attribute that applies)
__(01) Entering/exiting vehicle from traffic lane
__(02) Going to/from (not standing near) disabled vehicle
__(03) Hitchhiking
__(04) Working in, on, over or under roadway
__(05) Riding a play vehicle (not a bicycle, tricycle, or "big wheel" type vehicle)
__(06) Playing in the roadway
__(07) Crossing against signal
__(08) Crossing with signal, it changes during crossing

8. Pedestrian Action (Continued)
__(09) Standing, attempting to cross or enter roadway
__(10) Running
__(11) Walking
__(98) Other _____
__(99) Unknown

9. Pedestrian was struck by:
__(1) An active emergency vehicle or a vehicle being pursued by the police
__(2) A driverless vehicle or vehicle set into motion by the actions of a child
__(3) A backing vehicle
__(4) A vehicle in the process of turning or merging
__(8) Other _____
__(9) Unknown

10. Driver's View of Pedestrian
__(1) Blocked by commercial bus at stop, going same direction
__(2) Blocked by stopped or standing traffic, going same direction
__(3) Blocked by parked vehicles
__(4) Blocked or impaired by other physical obstructions (cars, hill, curve, building)
__(5) Blocked or impaired by bad weather, sun glare, darkness, poor visibility (if specifically indicated in accident report)
__(6) No obstruction indicated or specified
__(8) Other _____
__(9) Unknown

Traffic Violation Charged Against Driver

__11. Speeding

__12. Driving While Intoxicated

__13. Reckless Driving

__14. Alcohol Involvement

__15. Failure to yield right-of-way

__16. Signal or sign violation

__17. Too fast for conditions

APPENDIX D

Modified CAT Program Used to Generate Phase II Accident Types

```
IEF298I  ACLPCAT  SYSOUT=A.
//ACLPCAT JOB (X,233029,0650,52,ACLP),MSGCLASS=5,CLASS=A,
// NOTIFY=ACLP
// EXEC DISKLIB,DBLKS=1,OUT=A
//SYSIN DD *
IEF236I ALLOC. FOR ACLPCAT  LIB
IEF237I 15A   ALLOCATED TO INDEX
IEF237I 15B   ALLOCATED TO LIST
IEF237I 159   ALLOCATED TO MASTER
IEF237I 15A   ALLOCATED TO OSJOB
IEF237I 15B   ALLOCATED TO SYSPRINT
IEF237I 15A   ALLOCATED TO SYSPUNCH
IEF237I 15B   ALLOCATED TO SYSIN
IEF142I - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS82089.T155805.SV000.ACLPCAT.R0000001      DELETED
IEF285I   VOL SER NOS= WORK04.
IEF285I   SYS82089.T155805.SV000.ACLPCAT.R0000002      DELETED
IEF285I   VOL SER NOS= WORK05.
IEF285I   PROGMDEV                                     KEPT
IEF285I   VOL SER NOS= S21LIB.
IEF285I   SYS82089.T155805.RV000.ACLPCAT.INPUT         PASSED
IEF285I   VOL SER NOS= WORK04.
IEF285I   SYS82089.T155805.SV000.ACLPCAT.R0000003      SYSOUT
IEF285I   VOL SER NOS= WORK05.
IEF285I   SYS82089.T155805.SV000.ACLPCAT.R0000004      DELETED
IEF285I   VOL SER NOS= WORK04.
IEF285I   SYS82089.T155805.RV000.ACLPCAT.S0000005      SYSIN
IEF285I   VOL SER NOS= WORK05.
IEF285I   SYS82089.T155805.RV000.ACLPCAT.S0000005      DELETED
IEF285I   VOL SER NOS= WORK05.
IEF373I STEP /LIB     / START 82089.1558
IEF374I STEP /LIB     / STOP  82089.1558 CPU    0MIN 01.40SEC MAIN  72K LCS    0K
CAL026I I/O COUNT FOR THIS STEP          DEVICE      COUNT        DEVICE      COUNT        DEVICE      COUN
CAL027I                                  15A             0        15B             0        159
CAL027I                                  15A            88        15B             2        15A
CAL027I                                  15B             3
*********************************************************************************************************
// EXEC COBFCLG,CPARM='STATE,SXREF'
// COUT=5,LOUT=5,GOUT=5
//COB.SYSIN DD DSN=&&INPUT(LPCAT2PG),DISP=(OLD,PASS)
IEF236I ALLOC. FOR ACLPCAT  COB
IEF237I 250   ALLOCATED TO SYSLIB
IEF237I 250   ALLOCATED TO
IEF237I 15A   ALLOCATED TO SYSLIN
IEF237I 15A   ALLOCATED TO SYSPRINT
IEF237I 15B   ALLOCATED TO SYSPUNCH
IEF237I 15A   ALLOCATED TO SYSUT1
IEF237I 15B   ALLOCATED TO SYSUT2
IEF237I 15A   ALLOCATED TO SYSUT3
IEF237I 15B   ALLOCATED TO SYSUT4
IEF237I 15A   ALLOCATED TO SYSIN
1PP 5734-CB1 V3 RELEASE 3.2 30APR74        IBM OS AMERICAN NATIONAL STANDARD COBOL

0   1
-00001   000010 IDENTIFICATION DIVISION.
 00002   000020 PROGRAM-ID.    PEDACC.
 00003   000030 ENVIRONMENT DIVISION.
 00004   000040 CONFIGURATION SECTION.
 00005   000050 SOURCE-COMPUTER. IBM-370.
 00006   000060 OBJECT-COMPUTER. IBM-370.
 00007   000070 INPUT-OUTPUT SECTION.
```

```
00008    000080 FILE-CONTROL.
00009    000090     SELECT INPUT-FILE
00010    000100         ASSIGN TO DA-S-CAT.
00011    000110     SELECT OUTPUT-FILE
00012    000120     ASSIGN TO DA-S-RESULT.
00013    000130 DATA DIVISION.
00014    000140 FILE SECTION.
00015    000150 FD  OUTPUT-FILE
00016    000160     BLOCK CONTAINS 25 RECORDS
00017    000170     RECORD CONTAINS 80 CHARACTERS
00018    000180     LABEL RECORD IS STANDARD.
00019    000190 01  OUTPUT-RECORD.
00020    000200     05 ACCIDENT-NUMBER        PIC X(7).
00021    000210     05 A-TYPE                 PIC 999.
00022    000220     05 FILLER                 PIC X(70).
00023    000230 FD  INPUT-FILE
00024    000240     BLOCK CONTAINS 25 RECORDS
00025    000250     RECORD CONTAINS 80 CHARACTERS
00026    000260     LABEL RECORD IS STANDARD.
00027    000270 01  INPUT-RECORD.
00028    000280     05 ACCIDENT-ID-NO         PIC X(7).
00029    000290     05 ITEM-1                 PIC 9.
00030    000300     05 ITEM-2                 PIC 99.
00031    000310     05 ITEM-3                 PIC 99.
00032    000320     05 ITEM-4                 PIC 9.
00033    000330     05 ITEM-5                 PIC 9.
00034    000340     05 ITEM-6                 PIC 9.
00035    000350     05 ITEM-7                 PIC 99.
00036    000360     05 ITEM-8                 PIC 99.
00037    000370     05 ITEM-9                 PIC 9.
00038    000380     05 ITEM-10                PIC 9.
00039    000390     05 ITEM-11                PIC 9.
00040    000400     05 ITEM-12                PIC 9.
00041    000410     05 ITEM-13                PIC 9.
00042    000420     05 ITEM-14                PIC 9.
00043    000430     05 ITEM-15                PIC 9.
00044    000440     05 ITEM-16                PIC 9.
00045    000450     05 ITEM-17                PIC 9.
00046    000460     05 FILLER                 PIC X(52).
00047    000470 WORKING-STORAGE SECTION.
00048    000480 01  PRINT-LINE.
00049    000490     05 ACCIDENT-ID-NO-PR      PIC X(7).
00050    000500     05 FILLER                 PIC X(5).
00051    000510     05 ACCIDENT-TYPE          PIC 999.
00052    000520     05 FILLER                 PIC X(65).
00053    000530 01  PRINT-LINE2.
00054    000540     05 A-HEADING              PIC X(29)
1   2
00055    000550         VALUE 'NUMBER OR RECORDS PROCESSED: '.
00056    000560     05 RECORD-COUNT           PIC 9999 VALUE 0.
00057    000570 PROCEDURE DIVISION.
00058    000580 0000-START.
00059    000590     OPEN INPUT INPUT-FILE.
00060    000600     OPEN OUTPUT OUTPUT-FILE.
00061    000610     MOVE SPACES TO OUTPUT-RECORD.
00062    000620 A001-PROCESS-AND-READ.
00063    000630     READ INPUT-FILE
00064    000640     AT END GO TO END-OF-JOB.
00065    000650     ADD 1 TO RECORD-COUNT.
00066    000760     IF ITEM-2 = 8 OR
00067    000770             ITEM-2 = 15 AND
```

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00068   000780                ITEM-8 = 5
00069   000790            PERFORM B000-ACCIDENT-LOGIC
00070   000800        ELSE
00071   000810            MOVE '000' TO ACCIDENT-TYPE
00072   000820            PERFORM C000-PRINT-ROUTINE.
00073   000821        GO TO A001-PROCESS-AND-READ.
00074   000822 END-OF-JOB.
00075   000823        DISPLAY PRINT-LINE2.
00076   000824        CLOSE INPUT-FILE.
00077   000825        CLOSE OUTPUT-FILE.
00078   000826        STOP RUN.
00079   000830 B000-ACCIDENT-LOGIC.
00080   000840        IF ITEM-1 = 1 AND
00081   000850                 ITEM-7 IS NOT EQUAL TO 5 OR
00082   000860                 ITEM-1 = 2 AND
00083   000870                 ITEM-7 IS NOT EQUAL TO 5
00084   000880            MOVE '910' TO ACCIDENT-TYPE
00085   000890        ELSE
00086   000900            IF ITEM-1 = 1 AND
00087   000910                    ITEM-7 = 5 OR
00088   000920                    ITEM-1 = 2 AND
00089   000930                    ITEM-7 = 5
00090   000940                MOVE '320' TO ACCIDENT-TYPE
00091   000950        ELSE
00092   000960            IF ITEM-7 = 1 AND
00093   000970                ITEM-10 = 1
00094   000980            MOVE '110' TO ACCIDENT-TYPE
00095   000990        ELSE
00096   001000            IF ITEM-7 = 2
00097   001010                MOVE '120' TO ACCIDENT-TYPE
00098   001020        ELSE
00099   001030            IF ITEM-7 = 3
00100   001040                MOVE '130' TO ACCIDENT-TYPE
00101   001050        ELSE
00102   001060            IF ITEM-7 = 4
00103   001070                MOVE '140' TO ACCIDENT-TYPE
00104   001080        ELSE
00105   001090            IF ITEM-6 = 1
00106   001100                MOVE '150' TO ACCIDENT-TYPE
00107   001110                ELSE IF ITEM-9 = 2 MOVE '210' TO ACCIDENT-TYPE
00108   001120        ELSE IF ITEM-9 = 3 MOVE '220' TO ACCIDENT-TYPE
00109   001130        ELSE IF ITEM-9 = 1 MOVE '230' TO ACCIDENT-TYPE
00110   001140        ELSE IF ITEM-8 = 2 MOVE '310' TO ACCIDENT-TYPE
00111   001150        ELSE IF ITEM-7 = 5 MOVE '320' TO ACCIDENT-TYPE
1   3
-00112  001160        ELSE IF ITEM-7 = 6 MOVE '330' TO ACCIDENT-TYPE
00113   001170        ELSE IF ITEM-8 = 4 MOVE '410' TO ACCIDENT-TYPE
00114   001180        ELSE IF ITEM-8 = 5 MOVE '420' TO ACCIDENT-TYPE
00115   001190        ELSE IF ITEM-8 = 6 MOVE '430' TO ACCIDENT-TYPE
00116   001200        ELSE IF ITEM-8 = 3 MOVE '510' TO ACCIDENT-TYPE
00117   001210        ELSE IF ITEM-4 = 1 AND
00118   001220                 ITEM-6 IS NOT EQUAL TO 3 OR
00119   001230                 ITEM-4 = 2 AND
00120   001240                 ITEM-6 IS NOT EQUAL TO 3
00121   001250            MOVE '520' TO ACCIDENT-TYPE
00122   001260        ELSE IF ITEM-7 = 7 MOVE '531' TO ACCIDENT-TYPE
00123   001270        ELSE IF ITEM-7 = 8 MOVE '532' TO ACCIDENT-TYPE
00124   001280        ELSE IF ITEM-7 = 9 MOVE '539' TO ACCIDENT-TYPE
00125   001290        ELSE IF ITEM-3 = 1 AND ITEM-8 = 9 OR
00126   001300                 ITEM-3 = 2 AND ITEM-8 = 9 OR
00127   001310                 ITEM-3 = 7 AND ITEM-8 = 9
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00128    001320          MOVE '610' TO ACCIDENT-TYPE
00129    001330      ELSE IF ITEM-3 IS NOT EQUAL TO 1 AND
00130    001340              ITEM-3 IS NOT EQUAL TO 7 AND
00131    001350              ITEM-3 IS NOT EQUAL TO 9
00132    001360          MOVE '620' TO ACCIDENT-TYPE
00133    001370      ELSE IF ITEM-5 = 9 MOVE '920' TO ACCIDENT-TYPE
00134    001380      ELSE IF ITEM-5 = 2 PERFORM B001-SUB-ROUTINE-A
00135    001390      ELSE IF ITEM-8 = 8 AND
00136    001400              ITEM-9 IS NOT EQUAL TO 4
00137    001410          MOVE '740' TO ACCIDENT-TYPE
00138    001420      ELSE IF ITEM-10 = 2 MOVE '710' TO ACCIDENT-TYPE
00139    001430      ELSE IF ITEM-9 = 4 MOVE '720' TO ACCIDENT-TYPE
00140    001440      ELSE IF ITEM-8 = 10 OR
00141    001450          ITEM-10 = 3 OR
00142    001460          ITEM-10 = 4 OR
00143    001470          ITEM-10 = 5 MOVE '730' TO ACCIDENT-TYPE
00144    001480      ELSE IF ITEM-1 = 3 MOVE '750' TO ACCIDENT-TYPE
00145    001490      ELSE IF ITEM-11 = 1 OR
00146    001500              ITEM-12 = 1 OR
00147    001510              ITEM-13 = 1 OR
00148    001520              ITEM-14 = 1 OR
00149    001530              ITEM-15 = 1 OR
00150    001540              ITEM-16 = 1 OR
00151    001550              ITEM-17 = 1  MOVE '760' TO ACCIDENT-TYPE
00152    001560      ELSE MOVE '790' TO ACCIDENT-TYPE.
00153    001570      PERFORM C000-PRINT-ROUTINE.
00154    001580
00155    001590 B001-SUB-ROUTINE-A.
00156    001600
00157    001610          IF ITEM-10 = 2 MOVE '810' TO ACCIDENT-TYPE
00158    001620      ELSE IF ITEM-10 = 3 AND ITEM-6 = 1 OR
00159    001630              ITEM-10 = 4 AND ITEM-6 = 1 OR
00160    001640              ITEM-10 = 5 AND ITEM-6 = 1
00161    001650          MOVE '821' TO ACCIDENT-TYPE
00162    001660      ELSE IF ITEM-10 = 3 AND ITEM-6 = 2 OR
00163    001670              ITEM-10 = 4 AND ITEM-6 = 2 OR
00164    001680              ITEM-10 = 5 AND ITEM-6 = 2
00165    001690          MOVE '822' TO ACCIDENT-TYPE
00166    001700      ELSE IF ITEM-10 = 3 AND ITEM-6 = 9 OR
00167    001710              ITEM-10 = 4 AND ITEM-6 = 9 OR
00168    001720              ITEM-10 = 5 AND ITEM-6 = 9
1    4
00169    001730          MOVE '829' TO ACCIDENT-TYPE
00170    001740      ELSE IF ITEM-8 = 10 MOVE '830' TO ACCIDENT-TYPE
00171    001750      ELSE IF ITEM-1 = 3 MOVE '840' TO ACCIDENT-TYPE
00172    001760      ELSE MOVE '890' TO ACCIDENT-TYPE.
00173    001780 C000-PRINT-ROUTINE.
00174    001790      MOVE ACCIDENT-ID-NO TO ACCIDENT-ID-NO-PR.
00175    001800      MOVE ACCIDENT-ID-NO TO ACCIDENT-NUMBER.
00176    001810      MOVE ACCIDENT-TYPE TO A-TYPE.
00177    001820      DISPLAY PRINT-LINE.
00178    001830      MOVE SPACES TO PRINT-LINE.
00179    001840      WRITE OUTPUT-RECORD.
00180    001850      MOVE SPACES TO OUTPUT-RECORD.
1    5

*STATISTICS*     SOURCE RECORDS =    180      DATA DIVISION STATEMENTS =     34      PROCEDURE DIVISION S
*OPTIONS IN EFFECT*     SIZE =  137216  BUF =   47104  LINECNT = 57  SPACE1, FLAGW,    SEQ,    SOURCE
*OPTIONS IN EFFECT*     NODMAP, NOPMAP, NOCLIST, NOSUPMAP, NOXREF,   SXREF,   LOAD, NODECK, APOST, NU
*OPTIONS IN EFFECT*     NOTERM, NUNUM, NOBATCH, NONAME, COMPILE=01,   STATE,    LIB,    VERB,    ZWB, SY
1    6
```

APPENDIX E

Pedestrian Accident Types

GENERAL ACCIDENT TYPE		SPECIFIC ACCIDENT TYPE	
1_ _	MOTORIST STRUCK PED GOING TO/FROM OR CROSSING NEAR: A BUS; ICE CREAM VENDOR; RURAL MAILBOX; OR STOPPED/ PARKED VEHICLE	110	COMMERCIAL BUS RELATED
		120	SCHOOL BUS RELATED
		130	VENDOR/ICE CREAM TRUCK
		140	MAILBOX RELATED
		150	EXITING/ENTERING PARKED VEHICLE
2_ _	VEHICLE WAS: DRIVERLESS; BACKING; IN PURSUIT/BEING PURSUED	210	DRIVERLESS VEHICLE
		220	BACKING VEHICLE
		230	HOT PURSUIT
3_ _	PED WAS STRUCK BY MOTORIST WHILE GOING TO/FROM OR WHILE NEAR/NEXT TO: A DISABLED VEHICLE; AN ACTIVE POLICE/ EMERGENCY VEHICLE	310	WALKING TO OR FROM DISABLED VEHICLE
		320	DISABLED VEHICLE RELATED
		330	EMERGENCY/POLICE VEHICLE RELATED
4_ _	PED WAS STRUCK WHILE WORKING/ PLAYING IN ROADWAY OR ON A PLAY VEHICLE	410	WORKING ON ROADWAY
		420	PLAY VEHICLE RELATED
		430	PLAYING IN ROADWAY
5_ _	PED WAS STRUCK BY MOTORIST WHILE: HITCHHIKING; WALKING OR RUNNING DOWN A ROADWAY WITHOUT SIDEWALKS; CROSSING LIMITED ACCESS EXPRESSWAY	510	HITCHHIKING
		520	EXPRESSWAY CROSSING
		531	WALKING ALONG ROAD--WITH TRAFFIC
		532	WALKING ALONG ROAD--AGAINST TRAFFIC
		539	WALKING ALONG ROAD--CAN'T SPECIFY
6_ _	MOTORIST STRUCK PED IN NON-ROADWAY LOCATION	610	PED WAITING TO CROSS AT/NEAR CURB
		620	PED NOT IN ROADWAY
7_ _	ACCIDENT OCCURRED AT OR WITHIN 50 FEET OF AN INTERSECTION	710	MULTIPLE THREAT--AT INTERSECTION
		720	VEHICLE TURN/MERGE
		730	INTERSECTION DASH
		740	TRAPPED
		750	PED WALKS INTO VEHICLE AT INTERSECTION
		760	INTERSECTION--DRIVER VIOLATION
		790	INTERSECTION--OTHER

GENERAL ACCIDENT TYPE		SPECIFIC ACCIDENT TYPE	
8_ _	ACCIDENT OCCURRED MIDBLOCK (MORE THAN 50 FEET FROM AN INTERSECTION)	810	MULTIPLE THREAT--MIDBLOCK
		821	DART-OUT; STRUCK IN 1ST HALF
		822	DART-OUT; STRUCK IN 2ND HALF
		829	DART-OUT; CAN'T SPECIFY
		830	MIDBLOCK DASH
		840	PED WALKS INTO VEHICLE--MIDBLOCK
		890	MIDBLOCK--OTHER
9_ _	OTHER TYPE OR INADEQUATE INFORMATION	910	OTHER--GENERAL
		920	INADEQUATE INFORMATION
000	NOT A PED ACCIDENT		

APPENDIX F

Coding Definitions

ITEM

1. Special Circumstances

   (1) Ped Was Struck by Falling Cargo or Something that Came Loose From a Vehicle
   - The ped was struck by a piece of falling cargo, or by debris falling off of a vehicle. The object had to come loose from the vehicle (for example, a muffler or hubcap) as opposed to already being in the roadway (for example, a garbage can struck by the vehicle). This statement does not apply if cargo is merely sticking out of a vehicle (such as lumber), or if a part is still attached to the vehicle (loose bumper, for instance).

   (2) Ped Was Entering or Exiting the Same Vehicle That Struck Him/Her
   - Some examples of this type of accident:
     - A ped stepped onto a bus and the door closed on him/her.
     - While getting out of a car, a ped's clothes became entangled in the door.
     - A ped exited from a car and slammed his/her finger in the door.

   (3) Ped Struck Vehicle
   - The ped walks into a vehicle. For example, a ped steps off the curb and walks into the side of a passing vehicle.

   (9) None of the Above
   - Use this code when the report does not specifically indicate that one of the previous codes in this category apply.

   (0) Unknown.
   - Code only if there is not sufficient information on the report to permit you to choose a code in this category.

2. First Harmful Event: a NASS variable

3. Relation to Roadway (location of first harmful event): a NASS variable

4. Roadway Function Class: a NASS variable

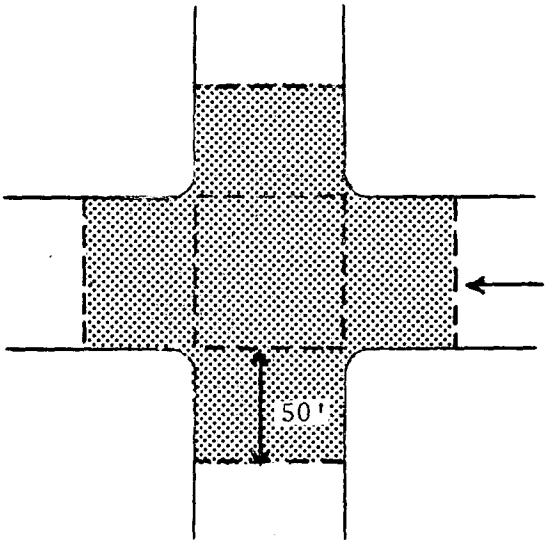
5. Distance from Point of Impact to Nearest Intersection Boundary or Junction Controlled by Traffic Signal

   (1) Less than or Equal to 50 Feet

   (2) Greater than 50 Feet (Not intersection-related)

   (9) Unknown

SHADED AREA = AT/NEAR AN INTERSECTION



MIDBLOCK = more than 50 feet from corner

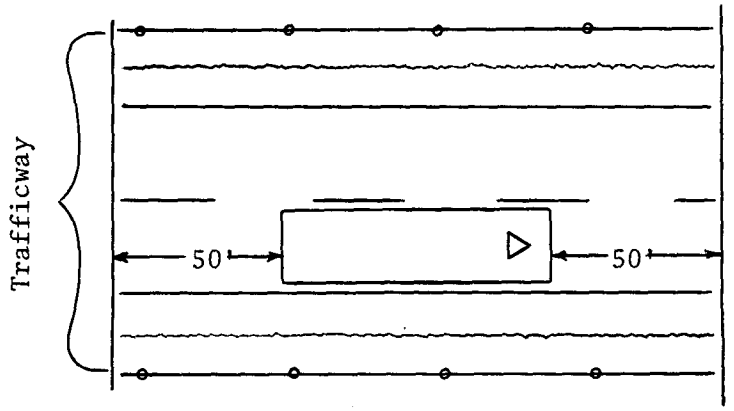
The area between the dashed lines is larger than and does not represent crosswalks.

6. Amount of Roadway Crossed by Ped Prior to Impact: needs no clarification

7. Pedestrian Location (code the first attribute that applies)

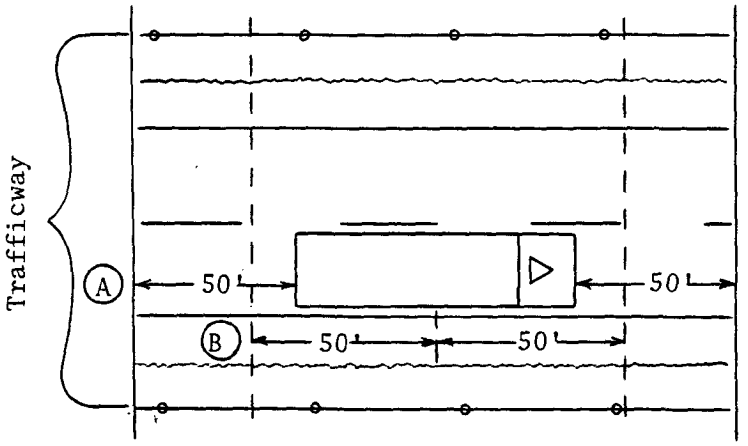
   (1) Near Commercial Bus

   - Pedestrian was struck while crossing in front of a commercial bus standing at a stop.
   - Includes only commercial buses that stop periodically at marked or unmarked bus stops. Does not include church, YMCA, or other buses not stopping at marked stops.
   - Pedestrian must be struck within the rectangle as shown.
   - The bus must be present at the time of the incident.



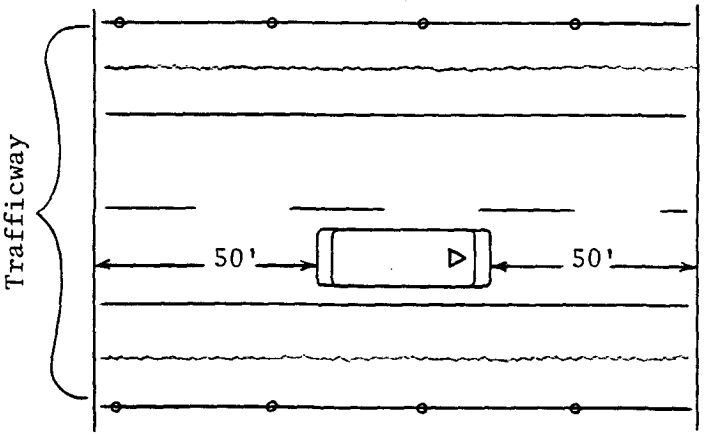
(2) Near School Bus or School Bus Stop

- Pedestrian was struck while going to or from a school bus or school bus stop.
- The bus does not have to be present if the pedestrian was noted to have been crossing to, from, or at a school bus stop.
- Pedestrian must be struck within the rectangle as shown. (Note: when bus is not present, (B) , designated area is reduced in size.)
- This alternative also applies if pedestrian was hit by a school bus.



(3) Near Ice-Cream Vendor

- Pedestrian was struck while crossing to or from or standing near ice-cream vendor. Only motorized vendor vehicles are included.
- Pedestrian must be struck within the rectangle as shown.

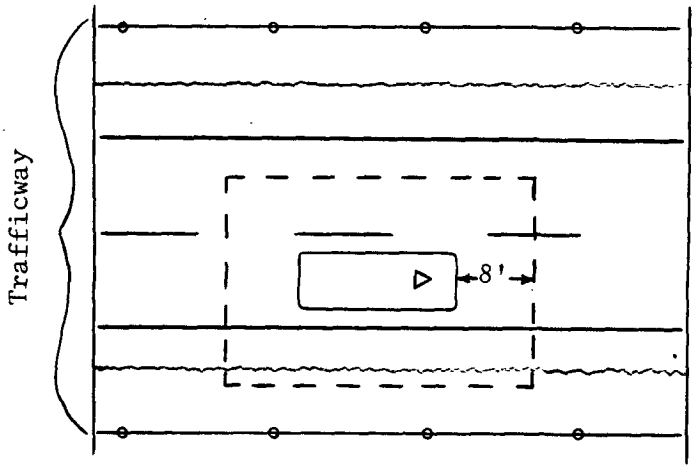


(4) Near Mailbox or Newspaper Box for Rural Residence

- Pedestrian was struck while crossing to or from or while at a rural or residential mailbox or newspaper box.
- This description refers to a private box (i.e., not a U.S. mailbox in which letters are dropped to be mailed).
- Pedestrian's intent must be to deposit, remove, or receive mail or newspapers.

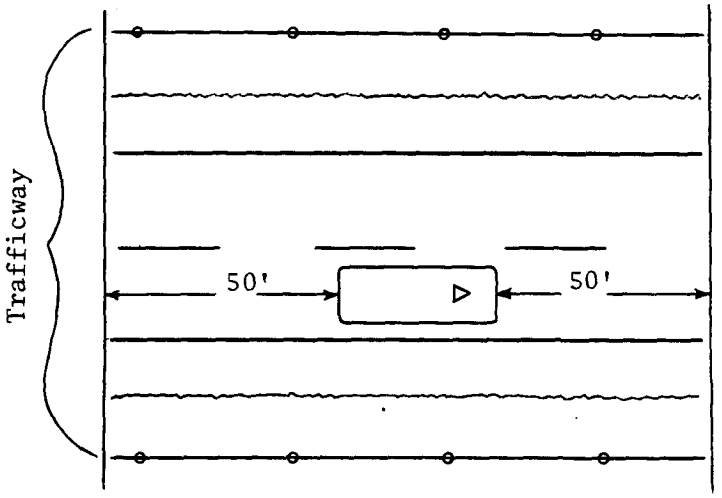
(5) Near a Disabled Vehicle (no emergency vehicle present)

- The pedestrian was standing or walking in the immediate vicinity of the vehicle. Point of impact must be within the 8' boundary as shown in the diagram.
- Any vehicle stopped with a problem preventing normal driving may be considered "disabled." It could have been in an accident, but it doesn't necessarily have to be "broken down".



(6) Near an Active Emergency Vehicle

- Pedestrian was struck while near a police or fire department car, ambulance or aid car, or fire truck that is at an emergency scene such as a fire or accident.
- Pedestrian must be struck within the rectangle as shown.



(7) On/Near Roadway, Going Same Direction as Traffic

· The pedestrian was walking or running on or near the roadway in the same direction as the traffic in the closest lane. This does not apply if the pedestrian was on the sidewalk.

(8) On/Near Roadway, Moving Against (Facing) Traffic

· The pedestrian was walking or running on or near the roadway in the direction opposite to the traffic in the closest lane.

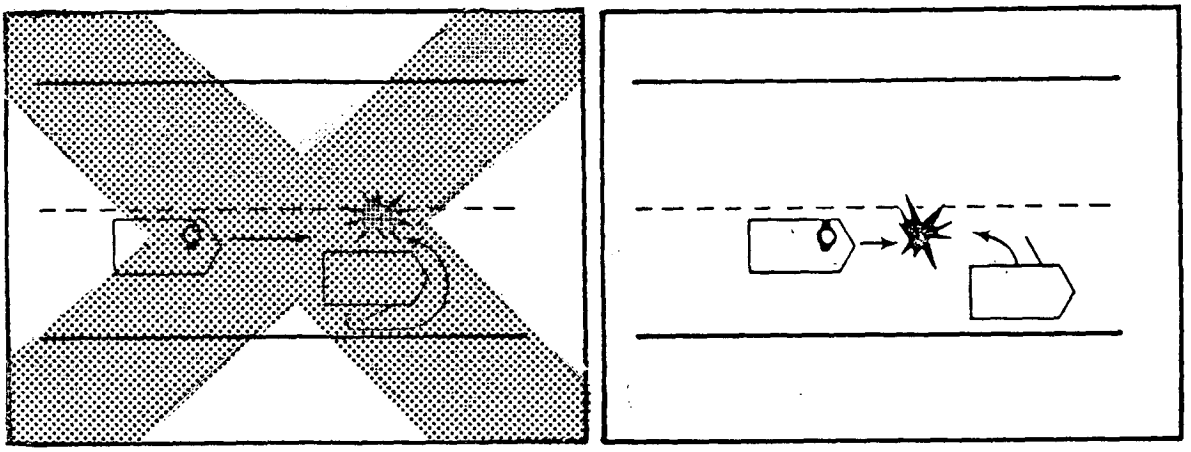
(9) On/Near Roadway, Direction of Movement Unknown

· The pedestrian was walking or running along the roadway in an unknown direction (or the pedestrian was in the middle of the road walking in a known direction).

8. Pedestrian Action (code the first attribute that applies)

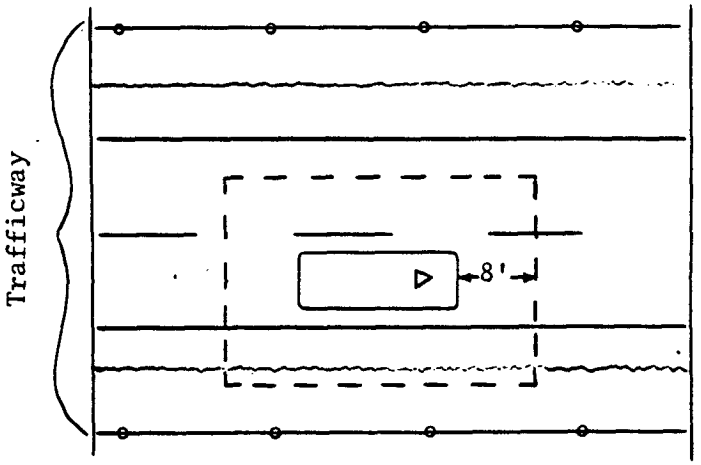
(01) Entering/Exiting Vehicle From Traffic Lane

. The ped was struck while in contact with the parked or stopped vehicle or within 2-3 steps of the door.
. The ped was entering or exiting the parked or stopped vehicle on the side of the vehicle adjacent to traffic.
. A stopped vehicle is one with the engine running and a driver at the controls; not an empty parked vehicle. A parked vehicle is not running and is usually empty.



(02) Going to or from (not standing near) A Disabled Vehicle

- The pedestrian was going to or from a disabled vehicle. If the pedestrian was standing or walking within an eight foot perimeter of the vehicle, as shown, this alternative does not apply.
- Any vehicle stopped with a problem preventing normal driving may be considered "disabled". It should have been in an accident, but does not necessarily have to be "broken down".



(03) Hitchhiking

- The ped was engaged in hitchhiking when the accident occurred.

(04) Working In, On, Over or Under Roadway

- The ped was present in the roadway because of the requirements of his or her job. Includes police or emergency personnel, flagmen, traffic guard, member of a roadway, construction or maintenance crew, garbage man, etc., but not people who are in the street voluntarily, such a civilian directing traffic at the scene of an accident.

(05) Riding a Play Vehicle (not a bicycle, tricycle, or "big wheel" type vehicle)

- The ped was riding a play vehicle when he/she was struck. A play vehicle is something which may be ridden but is not a normal mode of transportation. Sleds, scooters, and skateboards are considered play vehicles. Tricycles, Big Wheel type vehicles, and bicycles are not included as play vehicles for the purposes of pedestrian accident typing.

(06) Playing in the Roadway

. The ped had been playing in the roadway before the vehicle arrived. He/she did not just run into the roadway after a ball, for example. Playing in the roadway includes ball games, fighting, grabbing hold of cars, or playing "chicken" with vehicles.

(07) Crossing Against Signal

. At a signalized intersection, the ped crosses on a red light or DON'T WALK signal.

(08) Crossing with Signal, it Changes During Crossing

. At a signalized intersection, the ped began to cross on a green or yellow light which changed to red (for the ped) before the ped had finished crossing.

(09) Standing, Attempting to Cross or Enter Roadway

. Includes a ped standing or waiting to cross the street. Do not use this code if the ped was waiting for any other purpose.

(10) Running

. The ped was running or moving quickly just prior to the collision.

(11) Walking

. The ped was moving at a walking pace prior to collision, although immediately before the impact the ped may have attempted to jump or run out of the path of the vehicle.

(98) Other

. Use this code if report provides information that seems to fit in this category but no alternative is provided for it.

(99) Unknown

. Code only if there is not sufficient information on the report to permit you to choose a code in this category.

9. Pedestrian was Struck by:

(1) An Active Emergency Vehicle or a Vehicle Being Pursued by the Police

· The ped was struck by a police or fire-department car, ambulance or aid car, or fire truck, that is responding to an emergency, official business, or an accident. Also included is the case of a pedestrian struck by a vehicle being pursued by the police.

(2) A Driverless Vehicle or Vehicle Set into Motion by the Actions of a Child

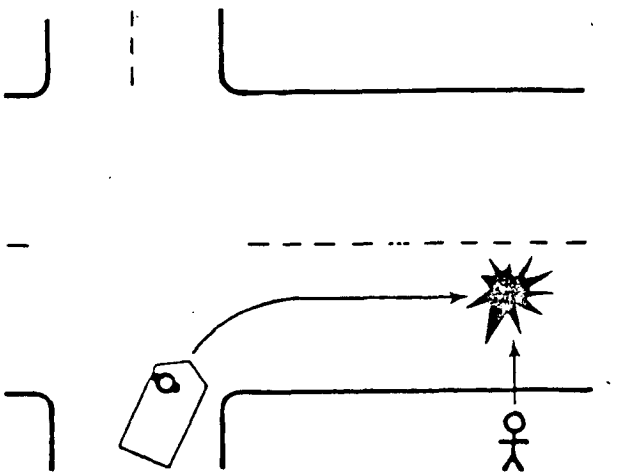
. The ped was struck by a vehicle which was moving without a driver at the controls. The vehicle may have started to roll as a result of brake malfunction, driver forgetting parking brake, or the actions of a child, but not because of a vehicle-vehicle or vehicle-object accident.

(3) A Backing Vehicle

. The ped was struck by a backing vehicle. The report does not indicate that the ped was aware that the vehicle was backing until collision was imminent. Do not use this code, for example, if the ped saw the vehicle backing but thought the driver saw him/her.

(4) A Vehicle in the Process of Turning or Merging

. The ped was struck by a vehicle that was in the process of turning or merging, was preparing to turn or merge, or had just finished turning or merging.



(8) Other

. Use this code if report provides information that seems to fit in this category but no alternative is provided for it.

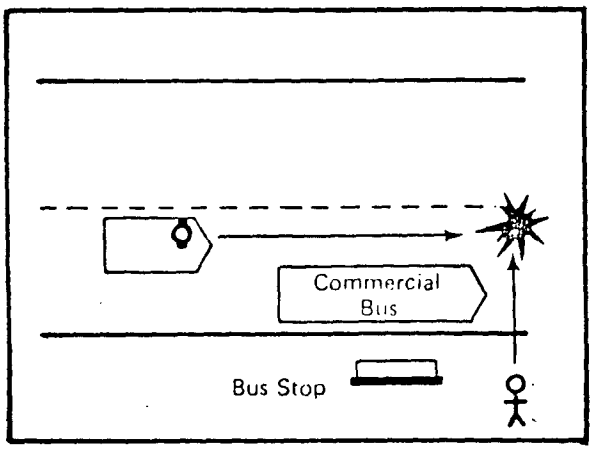
(9) Unknown

. Code only if there is not sufficient information on the report to permit you to choose a code in this category.

10. Driver's View of Pedestrian

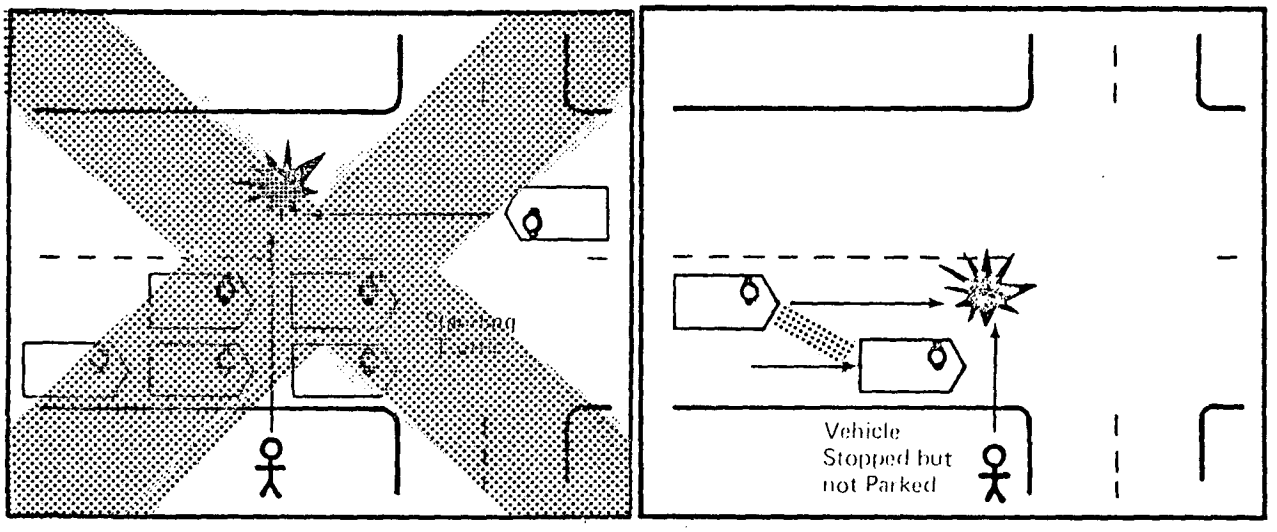
(1) Blocked by Commercial Bus at Stop, Going Same Direction

. The driver's view of the ped was blocked by a commercial bus which the driver was overtaking and passing.



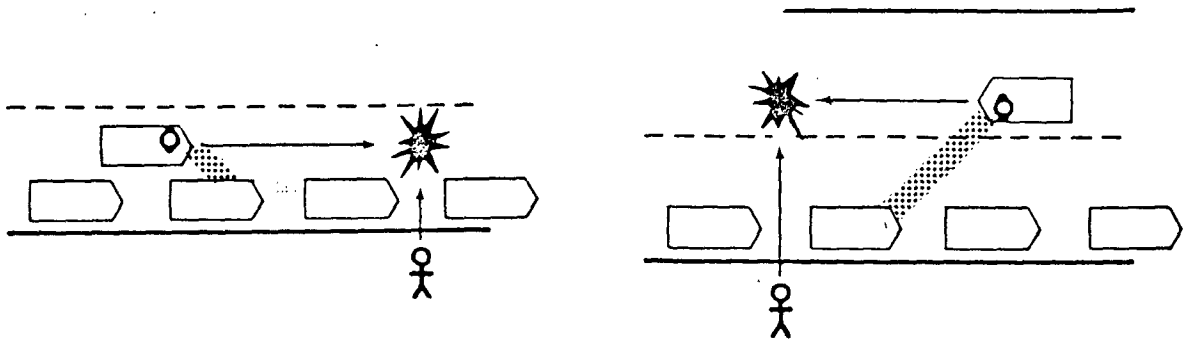
(2) Blocked by Stopped or Standing Traffic, Going Same Direction

. The driver's view of the ped was blocked by a vehicle which had stopped to allow the ped to cross.



(3) Blocked by Parked Vehicles

. The driver's view of the ped was obstructed by a parked vehicle until immediately before the collision.



(4) Blocked or Impaired by Other Physical Obstructions (e.g., cars, hill, curve, building)

. If there is any indication in the report that a physical object, such as a moving vehicle, curve, hill or a building, was present (for example, "she ran out from between two bushes") assume this object was an obstruction. The only exception to this is if the driver specifically mentions that the ped had been visible heading towards the roadway before the accident.

. Indications of obstructions in the diagram qualify as blocking the driver's vision, even if not specifically mentioned in the narrative.

(5) Blocked or Impaired by Bad Weather, Sun Glare, Darkness, Poor Visibility (if specifically indicated in accident report)

. Do not assume that rain, bad weather, or darkness always constitute an obstruction. This alternative would only apply if the driver or officer mentioned that the driver's vision was impaired because of these factors.

(6) No Obstruction Indicated or Specified: needs no clarification

(8) Other

. Use this code if report provides information that seems to fit in this category but no alternative is provided for it.

(9) Unknown

. Code only if there is not sufficient information on the report to permit you to choose a code in this category.

11-17 are self-explanatory and coded directly from the PAR. Once exception is that Item #12, Driving While Intoxicated, should include other alcohol related charges such as Driving Under the Influence of Liquor or Driving With Ability Impaired.