June 1981
Final Report

DOT HS-805-972

U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

Public Acceptability of Highway Safety Countermeasures

Volume III
Alcohol and Drug Research

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Contract No. DOT HS-6-01466
Contract Amount $195,661

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT-HS-805-972		

4. Title and Subtitle	5. Report Date
Public Acceptability of Highway Safety Countermeasures Volume III: Alcohol and Drug Research	June, 1981
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
Vayda, A., with Crespi, I.	71 - 24
9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Mathematica Policy Research, Inc. P.O. Box 2393 Princeton, New Jersey 08540	11. Contract or Grant No. DOT-HS-6-01466
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address	FINAL REPORT August 1976 to June 1981
U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh Street, S.W. Washington, D.C. 20590	14. Sponsoring Agency Code

15. Supplementary Notes

This report is one of five volumes produced under this contract. (See Abstract)

16. Abstract

This volume, part of a larger study on public attitudes towards proposed highway safety countermeasures for alcohol and drugs, unsafe driving behaviors, and pedestrian safety, discusses reactions to breath testers, drunk-driving deterrence techniques, and roadside surveys. Although not a safety strategy, roadside surveys are necessary to obtain accurate measures of drivers' impairment conditions in order to develop appropriate highway safety programs. Safety strategy acceptability issues in the public survey are presented in relation to demographic characteristics, personal drinking habits, perceived countermeasure effectiveness, and perception of the drinking-driving problem; while likelihood of participation, personal safety, validity of information obtained, and logistical factors in data collection mark the criteria for evaluating roadside surveys. Legal and liability concerns, cost and implementation issues, potential effectiveness, and perceived public opposition exemplify dimensions used by special interest group members to evaluate countermeasure strategies.

Perspectives on reactions to countermeasures in other program areas can be found in Volume II for Safe Driving Conformance Research and in Volume IV for Pedestrian Safety. Volume I of this report describes the research methodology, while Volume V (Summary Report) concisely summarizes the principal results of each of the detailed countermeasure reports and provides guidelines for successful implementation of highway safety countermeasures.

17. Key Words	18. Distribution Statement
Drunk-Driving Deterrence, Alcohol, Drugs, Highway Safety, Countermeasures, Breath-Testers, Roadside Surveys, Attitudes, Opinions	Document is available to U.S. public through the National Technical Information Service, Springfield, Virginia 22161.

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	224	

METRIC CONVERSION FACTORS

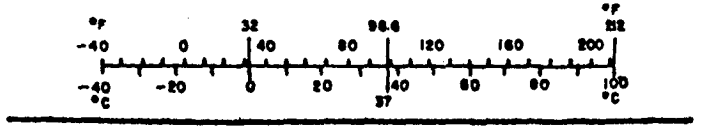
Approximate Conversions to Metric Measures

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

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

Approximate Conversions from Metric Measures

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



ACKNOWLEDGMENTS

The conceptual framework for the study and the overall design of the project were developed by Irving Crespi, who served as Principal Investigator for most of the project's duration. Despite his departure from Mathematica Policy Research prior to project completion, his insights and perspectives are imprinted on the basic orientation of the study and are reflected throughout this report.

The project greatly benefited from the encouragement and assistance provided by Michael Goodman and Maria Vegega, who were the Contract Technical Managers at NHTSA. Valuable input was also received from a number of other individuals at NHTSA, especially Steven Benson and Mark Anderson.

Although many people contributed to the completion of the survey, several individuals deserve special recognition for their roles at various stages of the project. Jan Stiefel and Christine Loy-Kennedy supervised the survey interviewers, using a computer-assisted telephone interviewing system that was fairly new at MPR. Dick Dame performed the programming necessary for the computer-assisted telephone interviewing system; Linda Sperling performed the programming for the numerous cross-tabulations required for the analysis. William Borden was responsible for constructing the many tables needed to present the general-public survey results, and also assisted in the analysis of the special-interest group data. Editing of the final report was performed by Thomas Good, who also coordinated the compilation of the final report product.

Andrea M. Vayda
Project Director

INTRODUCTION TO VOLUME THREE

This study of public acceptability is designed to provide information to the National Highway Traffic Safety Administration (NHTSA) on public attitudes toward proposed highway-safety countermeasures.

The countermeasure approaches included in this study represent three NHTSA research program areas: (1) Alcohol and Drug Research, (2) Safe Driving Conformance Research, and (3) Pedestrian Research. The research design for this study consisted of three complementary research procedures. First, focus-group discussions were conducted to identify the nature of public beliefs, concerns, and attitudes toward these countermeasures; issues that surfaced during these discussions were incorporated into the questionnaire for the general-public survey. Second, a sample survey of the general public was conducted to produce measurements of acceptability that could be projected to the national adult population. Third, interviews were conducted in ten states with representatives of specific groups and organizations that have a special interest in or a perspective about highway-safety countermeasures.

Since successful implementation of certain countermeasures depends on public acceptability, preliminary indications of public response can guide decisions about whether to proceed with or discontinue a particular strategy. The nature of public reactions can also provide a basis for modifying countermeasure designs and for developing implementation programs specifically targeted to address those aspects of the countermeasure that tend to trigger public support or opposition. Special-interest groups often are in a position to facilitate or thwart implementation of highway-safety countermeasures. They are frequently consulted by state legislatures and may serve as "opinion leaders" for the general public. Data from this study will provide an indication of the type of preliminary data, persuasion, or other attention particular groups may warrant in the event a countermeasure program would be implemented.

The report on the Public Acceptability of Highway Safety Countermeasures consists of five volumes. The organization of the report is guided by an interest in bringing together, by countermeasure, the findings from the focus-group discussions, the general-public survey, and the special-interest case studies.

In addition to this volume, which presents results on the countermeasures addressing drunk driver deterrence, Volumes II and IV each present findings on countermeasures in a specific NHTSA program area. Volume I provides a detailed description of the methodologies employed for each of the three studies and also contains copies of the data collection instruments. Volume V is a summary report which presents the highlights of the results for specific countermeasures and includes an overview of factors that influenced the acceptability of highway-safety countermeasures to the general public and to special-interest groups.

Specifically, the five volumes of the report are organized as follows:

VOLUME ONE: BACKGROUND OF STUDY AND METHODOLOGY

- CHAPTER I Introduction
- CHAPTER II Methodology
- CHAPTER III Organization of the Report: Volumes I-V

VOLUME TWO: SAFE DRIVING CONFORMANCE RESEARCH

- CHAPTER I The 55 MPH Speed Limit
- CHAPTER II Speed Detection and Deterrence
- CHAPTER III Dangerous and Negligent Driving Deterrence

VOLUME THREE: ALCOHOL AND DRUG RESEARCH

- CHAPTER I Breath Testers
- CHAPTER II Drunk Driving Deterrence
- CHAPTER III Roadside Surveys
- CHAPTER IV Impairment Resistance

VOLUME FOUR: PEDESTRIAN SAFETY

- CHAPTER I Focus Group Discussions
- CHAPTER II General Public Survey
- CHAPTER III Special-Interest Case Studies

VOLUME FIVE: SUMMARY REPORT

ADDENDUM

Final Report to "Public Acceptability of Highway Safety Countermeasures"

The purpose of this project was to obtain information about public attitudes on highway safety countermeasures in three program areas: alcohol and drugs, unsafe driving actions, and pedestrian safety. To this end, three methodologies were employed: Focus Group Discussions, Special Interest Case Studies, and a General Public Survey. This addendum discusses some critical issues related to interpretation of the project's results.

Focus Group Discussions were employed in the design and pilot stages of this project for the purpose of identifying relevant public acceptance issues worthy of investigation. Members of special interest groups often have access to highway safety policy makers and may be in positions to facilitate or thwart countermeasure implementation. Hence, the Special Interest Case Studies were conducted in an effort to obtain expert opinions about possible differences in perceptions of these highway safety countermeasures. The General Public Survey was conducted to obtain measures of general public views about highway safety issues and proposed countermeasures.

Of the three methodologies employed, only the General Public Survey was based on a statistically predictive sample and yielded quantitative data which are valid and can be interpreted as reflective of overall public opinion on specific issues. Both the Focus Group Discussions and the Special Interest Case Studies resulted in qualitatitive analyses which provide the reader with a broader perspective about the kinds of issues and concerns which may be associated with countermeasure implementation. However, the results from both the Focus and the Special Interest Groups cannot be generalized as representative of acceptability concerns in the general population.

It is important to realize that the Focus Group Discussions and the Special Interest Case Studies were informal, open-ended discussions. No attempt was made to supply respondents with additional information not included in the prepared countermeasure descriptions, or to correct any misunderstandings which respondents may have had. As a result, readers should realize that some of the judgments and reactions may have been based on misunderstandings of the issues. This was particularly the case in discussion of the Automated Speed Enforcement Device (ASED) and the Passive Breath Tester (PBT). Since the countermeasure description of the ASED was

vague with respect to how a photograph would be taken, some respondents incorrectly interpreted a "photograph of the car" to mean "a photograph of the driver." With this interpretation, invasion of privacy issues were raised. If the ASED were to be used in speed-enforcement, a photograph would only be taken of the rear of the vehicle (i.e., the objective would be to identify the license plate; vehicle occupants would not be identifiable). Hence, this particular privacy concern (i.e., photographing vehicle occupants) should not constitute a problem. In the case of the PBT, acceptance issues revolved primarily around legal concerns. As the legal issues associated with the PBT were not addressed in the countermeasure description, some respondents incorrectly interpreted the PBT as a test to quantitatively measure a suspected drunk driver's blood alcohol content (BAC). This interpretation raised issues concerning unreasonable search and seizure. The PBT was intended to collect evidence of alcohol presence in normally expelled breath, providing a foundation for further testing. Since expelled breath is considered "plain view" observation, its use is not considered a search and thus is not governed by Fourth Amendment standards of reasonableness, which do govern the use of the active, deep-lung air sample tests more familiar to respondents. Since the use of the PBT does not intrude on a driver's "reasonable expectation of privacy," search and seizure issues are not applicable. Readers should be aware however, that the technical feasibility of the PBT has not been established, and it is unlikely that further developmental efforts will be undertaken at this time. Finally, users of this report should be aware that these problems of misinterpretation were not evident in the General Public Survey, which provides the most definitive information regarding public acceptance of the countermeasures studied.

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I. BREATH TESTERS

The primary strategy for controlling and deterring drinking and driving is having the police stop and test drivers suspected of "driving under the influence of alcohol." This study includes two types of proposed countermeasures that are based on the use of breath tests to measure blood-alcohol levels and to determine whether the person's driving ability is likely impaired. The first type of countermeasure would give the police officer more testing options than are currently available in many states. One of the breath-tester countermeasures (the passive breath tester) is intended to be an aid to an officer in deciding, when a driver is stopped, whether the driver may be "under the influence of alcohol." The passive breath tester would be used in lieu of, or as a supplement to, the conventional psychomotor evaluation conducted by the officer. Another proposed option is to conduct the breath tests at the roadside, rather than to take the driver to a testing facility. During the focus-group discussions, we specifically explored reactions to an evidential roadside tester. Based on the results of these discussions for the general-public survey, we generalized the issue and asked for reactions to roadside testing per se.

An important issue with respect to changing prevailing breath-testing policies is whether the legal requirement to arrest suspected "drinking drivers" before administering a breath-alcohol test need hold in preliminary or roadside testing situations. Although prearrest issues involve complex legal considerations (such as limiting its use only to establish probable cause, and the status of test results as legal evidence), the topic is included in this study to (1) obtain an indication of the public's knowledge of the current regulations and (2) tap public opinion about prearrests in relation to both testing at a remote facility and testing at the roadside.

The second type of proposed countermeasure would make breath-test equipment generally available to the driving public. The self-tester is intended for personal use on a voluntary basis; it would be used by drivers to decide whether they should or should not drive after drinking. A person would breathe into the tester, which would then indicate whether he or she is above or below the legal alcohol limit for driving.

A. FOCUS GROUP DISCUSSIONS

The following descriptions of the breath-tester countermeasures were presented to focus-group discussants:

> The Passive Breath Tester is used by a police officer after a car is stopped because "drinking while driving" is suspected. The Tester is small and is held in front of the driver's face during questioning. The driver's cooperation is not required. This device indicates whether further testing is necessary.
>
> The Evidential Roadside Tester is used by a police officer after a car is stopped for suspicion of drunken driving. The driver is asked to breathe into the Tester. The Tester indicates the driver's blood-alcohol level. Where the alcohol level exceeds the limit the driver is prevented from driving by the officer and is subject to arrest. The Evidential Roadside Tester is accurate enough to meet legal standards of intoxication in court.
>
> The Self-Tester is a portable alcohol breath tester to be used by drivers in deciding whether or not to drive after drinking. A person would breathe into the Tester, which would show if he/she is intoxicated. The Tester is intended for personal use on a voluntary basis. The Tester could be purchased, loaned out, or made available at drinking establishments.

Although the self-tester, passive tester, and evidential roadside tester were presented to discussants as three distinct types of testers, the discussants tended to consider the latter two as one type (for roadside testing) and the self-tester as another. None of the three testers generated heated discussion, which suggests that they may be relatively noncontroversial countermeasures. That does not mean, however, that strong opinions were not held about each tester. On the contrary, most discussants had very definitive reactions to them. Six discussions were held--two with participants under age 30, two with participants age 30 and older, and two with representatives of special-interest groups. Although some of the latter were much better informed about breath testers than the general-public members, similar reactions to each of the three types of testers were expressed by all.

1. Passive and Evidential Roadside Testers

Reactions to passive testers were, with few exceptions, negative. While some discussants saw no reason why a person who had not been drinking should object to the test ("I wouldn't mind at all if I wasn't drinking."), the more common feeling was that their use would generally be unacceptable. In the

latter vein, a middle-age Atlanta discussant said, "I would resent someone waving something under my face. For a person who had not been drinking, this is insulting." Others objected to the use of passive testers because they are "sneaky." Apparently, the concept of passive, noncooperative testing offended the sense of proper conduct held by many of the discussants.

Other objections to the passive tester, which focused on legal and technical issues, were raised primarily, but not exclusively, by representatives from special-interest groups. A middle-age Denver discussant claimed that passive testing "doesn't prove anything." An equally critical, but more legally informed comment, was made by a Seattle expert: "This is designed to give you probable cause. You already have methods to establish probable cause." A concurring opinion was the following: "Good training of police would preclude the need for this." A definitive objection was made by a Cincinnati special-interest group representative, who said that the passive tester, as a form of self-incrimination, was illegal in Ohio.

In contrast to the passive tester, the evidential roadside tester received generally favorable responses, in that it provides incontrovertible and immediate evidence. As a middle-age Denver discussant put it, "It is definite and legal evidence." A similar attitude was voiced by an Atlanta discussant: "If a person needs the test, give him the 'evidential' and get him off the road." Some discussants felt that the demeanor of the police officer who would use the evidential roadside tester could significantly affect public acceptance. Thus, one Denver discussant "preferred the evidential roadside tester if stopped by a police officer," while an Atlanta discussant said that "it depends on how the officer asks--if he's nice, fine."

Reservations that were voiced about the evidential roadside tester were related to whether it had much deterrent effect. An Atlanta discussant felt that "it won't keep drunks off the road. It would only keep the one drunk who is stopped off the road." The same concern was voiced by a Cincinnati special-interest group representative: "Is this a deterrent to others [other] than those who are caught?" Thus, even though many felt that the evidential roadside tester was the best of the three breath testers that were discussed, there was considerable doubt as to whether its use would make any real difference in deterring drinking and driving. One Cincinnati special-interest group representative went so far as to question the effectiveness of any program designed to deter drunk driving: "Is any enforcement activity really making a serious dent in drunk driving? If people are drunk, do they think about getting caught?"

Atlanta discussants mentioned a local "Batmobile" program, in which, as part of a roadside check of licenses and registrations, breath tests are administered. Both general-public discussants and special-interest group representatives in Atlanta felt that this program has had some deterrent effect, and that it has been accepted by the public. It is interesting to note that no criticism was made about the fact that although the program's official purpose has been publicized to be a license check, it has also been used to detect drunk drivers. This contrasts with criticisms made about such other countermeasures as ORBIS III and citizen's band--that is, that they are an unfair and unwarranted use of police power.

Rigorous law enforcement was felt to be essential if progress is to be made in reducing drunk driving. Thus, one Atlanta discussant voiced a preference for "a stringent law that takes a license away permanently." Special-interest group representatives also felt that a hard line had to be taken with respect to drunk drivers, but saw the problem from a different perspective. In Seattle, the opinion was expressed that "we now fundamentally have the laws we need to handle drunk driving," but that there are other impediments relating to arrest procedures and sentencing that must be removed. One problem that was mentioned was "how long it takes to arrest someone." Another view was that "enforcement is not the problem; the court level is the problem. . . . [These experts want] something mandatory, and the sentence is not at the judge's discretion."

These reactions to breath testers, including the acceptable evidential roadside tester, appeared to be based on the assumption that the quality of evidence needed to convict drivers who are stopped on suspicion of drunk driving was not the crucial issue. Rather, deterrence as such was believed to be the real challenge. Testing drivers for whom there is probable cause for being stopped was judged to be an ineffective strategy. Severe penalties are one type of deterrent that received support in some of the groups. Another was the use of systematic screening of drivers, as in the Atlanta Batmobile program.

2. Self-Testers

Some discussants felt that self-testers had value in two types of situations. One was its intended application as a personal barometer. A middle-age Denver discussant felt that they "would be a great service at bars and restaurants." A Seattle special-interest representative made a similar, more personal comment: "I like the self-tester. There is a question sometimes when

you are at a cocktail party, and you wonder, 'Should I or shouldn't I?' If I had that tester, maybe I would get a cup of coffee or ride with a friend."

The second application of self-testers, as suggested by a few discussants, was directly to deter driving when drunk. A middle-age Atlanta discussant said, "They should put this into cars and have people not be able to start cars." Similarly, a Seattle special-interest group representative commented, "A test in the car is better. But this also has many drawbacks--in a panic situation, you couldn't start the car." Because these two groups had previously discussed the drunk driver warning system, it is likely that the latter application of self-testers was not thought of spontaneously. In any event, it is significant that this involuntary deterrent device is directly counter to the concept of self-testers as a voluntary, self-control device--that is, while the technology of the device was accepted, the concept of self-testing was still rejected as a naive deterrent to people who drink and drive.

Most discussants felt that self-testers would be unrealistic, in that they would not be used by those who would benefit most from them. A middle-age Atlanta discussant observed, "As a voluntary measure, it's stupid. Drunks don't care if they're drunk. That's why they get that way." A Seattle special-interest group representative expressed a similar attitude: "Probably those who would give it credence are those who are already responsible; others would probably not pay any attention to it." Another Atlanta discussant offered this additional comment: "No one wants to even admit a guilt or wrong" by acknowledging he or she may be drunk. In a slightly different vein was the comment that people would "use them for fun, just to see how they'd come out." A Cincinnati special-interest group representative noted, "They put charts in bars [that] show by weight how many drinks you can have before you're drunk. People joke about them."

A closely related reason for doubting the practicality of self-testers was the belief that direct observation of behavior is sufficient to identify impairment. As a Cincinnati special-interest group representative put it, "A lot of people have self-testers already--a friend or wife or whatever, who tell them, 'You are too drunk to drive.'" Similarly, an Atlanta discussant commented, "People who would use this already have someone else drive them." That is, the voluntary use of self-testers would be restricted to those who do not need them.

Additional comments provide further evidence of the generally skeptical, unreceptive climate of opinion toward self-testers. An Atlanta discussant felt

that "if you handed this out at a party, you wouldn't have any guests." An equally skeptical observation was made by a Cincinnati special-interest group representative: "This would never work unless it were strongly advertised and publicized, and it would take a great deal of money to make the public aware that it is even available." A middle-age Denver discussant wondered about legal issues: "A bar or bartender may be in legal jeopardy if a person drove anyway and then is stopped or has an accident." Technical considerations were voiced by a Seattle law-enforcement official: "If there is a cut-off point on the tester (for example, .8) you can be below the level and still be affected. It is not necessarily the down-and-out, fall-down drunk who is giving you a high reading on the breathalyzer. That is the problem. It's the guy who may not even reach that point but is very severely affected by what he has to drink. On the self-tester, you would be getting a reading that says you are OK when you are not." These comments provide a variety of social, legal, and technical objections to self-testers. What they have in common is the belief that whatever value self-testers may have in theory, in practice they will not work.

B. GENERAL PUBLIC SURVEY

Section 1 below presents the reactions of the survey respondents to the idea of roadside testing and the passive breath tester; reactions to the self-tester are covered in Section 2.

1. Roadside Testing and the Passive Breath Tester

The following descriptions of roadside testing and the passive breath tester were presented to survey respondents:

- There are a number of different ways of testing drivers suspected of driving while intoxicated. One way is for the police officer to take the suspected driver to a police station or medical facility where they have equipment that can determine the alcohol level in a person's blood or breath.

  (However) some types of breath testing equipment now being developed are small enough to fit into a police car so that tests can be conducted at the roadside instead of taking them to a testing facility. In general, do you favor or oppose police conducting roadside breath tests of suspected drunk drivers?

- It may be possible to develop roadside breath testers that will work just by holding them near the driver's face. The driver does not have to breathe directly into them. These breath testers can therefore be used without a driver's consent. Do you favor, or do you oppose, police using this type of tester?

Conducting breath tests at the roadside did not pose any problems for focus-group discussants. Given the scope and severity of the drinking and driving problem, however, discussants were more interested in countermeasures that would offer more comprehensive solutions. The evaluation standards used by the groups with respect to roadside breath testing were whether the strategy would act as a deterrent, and whether it would accomplish anything more than simply removing the intoxicated driver from the road. Roadside testing was considered an advantage because it was a more timely, and thus a more thorough, procedure in detecting the presence of alcohol, and because it was a more efficient use of manpower. The passive breath tester, on the other hand, elicited primarily negative reactions. The notion of a device (abruptly) being placed near one's face was considered to be offensive and callous. The fact that the device would be used without advance notice was considered to be unnecessarily deceptive and inappropriate.

Based on the focus-group discussions, two issues were included in the survey. First, in conjunction with roadside testing, drivers were asked

whether, under hypothetical circumstances, they personally would prefer a roadside test or to be taken to a testing facility. Second, the question of invasion of privacy was raised with respect to the passive breath tester.

We first present the survey findings on the acceptability of roadside testing and the passive breath tester. Acceptability is examined in relation to the following:

- Demographic characteristics (geographic region, sex, age, education, and income)
- Attitudes toward drinking and driving (perceived seriousness of driving after 2 to 3 drinks, and drinking and driving habits)
- Preferred testing location (in relation to roadside testing)
- Invasion of privacy (in relation to the passive breath tester)

In a later part of this section, we also present public opinion about the prearrest issue associated with breath testers. Of interest is whether prior arrest was considered an appropriate requirement for testing (1) at the roadside and (2) at a remote facility. These opinions are examined in relation to demographic characteristics and attitudes toward drinking and driving.

a. Acceptability of Roadside Testing and the Passive Breath Tester

Roadside breath testing, as opposed to taking suspected drunk drivers to a testing facility, was favored by a majority of the respondents: positive reactions were expressed by 68.7 percent of the drivers and 79.2 percent of the nondrivers (see Table I.1). Positive reactions to the passive breath tester were expressed much less, especially among drivers: more than half of the drivers (51.1 percent) opposed the passive breath tester. Nondrivers were more likely to support it: 67.3 percent favored its use.

Differences in Acceptability by Demographic Characteristics (see Table I.2). Roadside breath testing was more likely to be supported by female rather than by male drivers. Whereas 72.8 percent of the females favored having breath tests conducted at the roadside, the proportion of men who favored roadside tests was 64.2 percent. This difference is consistent with the finding that men were somewhat more likely to drink and drive (see Chapter II of this volume); also, given that a person has been drinking, men may be more aware of the advantages in delaying the testing.

TABLE I.1

ACCEPTABILITY OF ROADSIDE BREATH TESTING AND PASSIVE BREATH TESTERS

	Roadside Breath Testing (Q. 3-6)	Passive Breath Tester (Q. 3-8)
Drivers		
Favorable	68.7	46.6
Unfavorable	29.9	51.1
Undecided	1.4	2.3
Total	100.0	100.0
	(432)	(432)
Nondrivers		
Favorable	79.2	67.3
Unfavorable	17.0	32.7
Undecided	3.8	--
Total	100.0	100.0
	(53)	(53)

Very sharp differences in the acceptability of roadside testing occurred between drivers under age 30 and those age 30 and older. Support for roadside testing was especially likely for drivers under 30 years of age: 80 percent of the younger drivers were in favor, versus 61.3 percent of the drivers over age 45. One possible explanation is that older drivers may attach more impropriety to taking tests at the roadside. The acceptability of roadside testing did not vary across regions, education, or income level.

In contrast to reactions to roadside testing in general, the acceptability of the passive breath tester did vary by region of the country. In particular, the passive breath tester was rejected by 68.8 percent of the drivers in the Northeast, as compared to proportions of approximately 48 percent in the other three regions.

As with roadside testing in general, female drivers were generally more likely than male drivers to support the passive breath tester. Differences in reactions to the passive breath tester, however, were very pronounced between drivers with high versus low educational levels. The idea of administering a breath test by holding the device near the driver's face, without his or her consent, was increasingly rejected by drivers as their educational level

TABLE I.2

ACCEPTABILITY OF ROADSIDE BREATH TESTING AND PASSIVE BREATH TESTER, BY DEMOGRAPHIC CHARACTERISTICS

Attitude Toward	Region				Sex		Age			Education			Income	
Roadside Breath Tester (Q. 3-6)	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Favorable	64.5	72.4	70.0	65.5	64.2	72.8	80.0	66.0	61.3	77.0	68.8	65.5	69.9	68.2
Unfavorable	32.3	25.5	28.2	34.5	34.3	25.0	19.2	32.6	36.7	21.6	28.8	33.9	26.9	30.8
Undecided	3.2	2.1	1.8	0.0	1.5	2.2	0.8	1.4	2.0	1.4	2.4	0.6	3.2	1.0
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
					$p < .05$			$p < .01$						
Attitude Toward Passive Breath Tester (Q. 3-8)														
Favorable	28.0	54.6	47.3	50.6	39.7	52.2	43.1	44.4	51.3	64.9	50.6	35.5	52.7	44.8
Unfavorable	68.8	40.4	50.9	49.4	58.3	44.3	56.9	53.5	44.0	31.1	47.1	62.8	41.9	54.2
Undecided	3.2	5.0	1.8	0.0	2.0	3.5	0.0	2.1	4.7	4.0	2.3	1.7	5.4	1.0
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
		$p < .01$			$p < .01$						$p < .001$			

increased. This countermeasure was opposed by 31.1 percent of the drivers with less than a high school education; the proportion of drivers opposed to this countermeasure increased to 47.1 percent among high school graduates, and to 62.8 percent among drivers with some college education.

Acceptability and Attitudes Toward Drinking and Driving (see Table I.3). The extent to which driving after 2 to 3 drinks was considered a serious safety problem apparently did not affect the acceptability of roadside testing. There was no association between drivers' opinions about the hazards of moderate drinking and driving and their reactions to roadside testing. However, drivers who felt that driving after moderate drinking was "not too serious" were much

TABLE I.3

ACCEPTABILITY OF ROADSIDE BREATH TESTING AND PASSIVE BREATH TESTER, BY ATTITUDES TOWARD DRINKING AND DRIVING

Acceptability of Roadside Breath Testing (Q. 3-6)	Seriousness of Driving After 2 to 3 Drinks (Q. 3-19)			Use of Alcoholic Beverages (Q. 3-26)		Ever Drink and Drive (Q. 3-26b)	
	Very	Somewhat	Not Too	Use Alcohol	Total Abstainer	Yes	No
Favor	73.6	67.8	64.3	65.7	77.0	64.0	73.9
Oppose	25.6	21.1	33.9	32.7	22.1	34.4	23.9
Undecided	0.8	1.7	1.8	1.6	0.9	1.6	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(121)	(180)	(112)	(312)	(113)	(189)	(92)
				$p < .05$			
Acceptability of Passive Breath Tester (Q. 3-8)							
Favor	53.7	48.3	33.9	41.0	61.9	34.9	56.5
Oppose	42.2	49.5	65.2	58.0	31.9	63.5	43.5
Undecided	4.1	2.2	0.9	1.0	6.2	1.6	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(121)	(180)	(112)	(312)	(113)	(189)	(92)
	$p < .05$			$p < .001$		$p < .001$	

more likely to oppose the passive breath tester. Whereas this tester was opposed by 42.2 percent of the drivers who felt that driving after moderate drinking was a "very serious" safety problem, the proportion of drivers opposed to the passive breath tester increased to 65.2 percent if the safe drinking levels were more loosely defined. Drivers for whom 2 to 3 drinks did not represent a driving hazard were apparently less inclined to support a measure that they felt may be unduly restrictive.

Drivers who use alcohol were less likely to favor both roadside testing and the passive breath tester. Of the drivers who reported that they are total abstainers, 77 percent favored roadside testing; of the drivers who are drinkers, 65.7 percent were in favor. The differences in reactions between drinkers and nondrinkers were much more pronounced with respect to the acceptability of the passive breath tester. Drivers who perceived that there was some chance that they personally would be affected by the breath tester (i.e., drivers who use alcohol) were much more likely to oppose the passive breath tester.

Both roadside testing and the passive breath tester were more likely to have personal implications for drivers who reported that they do drink and drive. Surprisingly, there were only slight differences between "drinkers and drivers" and those who are not in their acceptability of roadside testing. One explanation for this may be the convenience of roadside testing: if one is inappropriately suspected of driving under the influence, their lack of impairment could be confirmed without the time and effort needed to travel to a testing facility. In contrast to reactions to roadside testing, drivers who reported that they do drive after drinking opposed the passive breath tester in much larger proportions (almost 2 to 1) than those who do not drive after drinking. Of the "drinkers and drivers," 63.5 percent opposed the passive tester; among "nondrinkers and drivers," the percent opposed was 43.5.

Preferred Location for Testing. Drivers' personal preferences for roadside testing rather than going to a testing facility is itself a good indicator of acceptability. Drivers were asked the following question:

- If a police officer stopped you on suspicion of driving while intoxicated, which would you prefer--to be given a roadside breath test, or, to be taken to a police station or medical facility for a breath test?

Given that drivers are stopped for possible drunk driving, 59 percent preferred to be given a roadside breath test, 37.6 percent preferred to be taken to a

TABLE I.4

DRIVERS' PREFERENCES FOR TESTING LOCATION, BY DEMOGRAPHIC CHARACTERISTICS

Preferred Testing Location (Q. 3-7)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Roadside Test	54.8	59.6	59.1	56.3	57.1	58.8	71.5	54.2	50.0	60.8	60.4	55.6	52.7	60.9
Police Station/ Medical Facility	42.0	38.3	38.2	35.7	40.4	36.8	27.7	41.0	45.3	36.5	34.9	42.2	41.9	36.8
Undecided	3.2	2.1	2.7	8.0	2.5	4.4	0.8	4.8	4.7	2.7	4.7	2.2	5.4	2.3
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (203)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (169)	100.0 (180)	100.0 (93)	100.0 (307)

$p < .01$

testing facility, and 3.4 percent were undecided. Fewer drivers themselves would prefer a roadside test than had actually favored this approach (68.7 percent were in favor). Given that a driver found it acceptable, the longer elapsed time involved in going to another location may have been a consideration, since it may reduce the chances of positive test results. Another possibility is simply that when the circumstances applied to the driver him- or herself, the roadside setting may have been unappealing.

Table I.4 shows preferred testing location by demographic characteristics. The only characteristic that differentiates between a driver's preference for roadside or station testing was age. Drivers under the age of 30 were much more likely than drivers over age 30 to prefer the roadside test: 71.5 percent of the younger drivers preferred that the roadside breath test be given, and only about half (52 percent) of the older drivers made that choice.

Preference for roadside versus station testing did not vary by geographic region or by the driver's sex, education, or income level.

Preference for testing location also did not vary by whether the driver drinks or is a total abstainer (see Table I.5). However, the higher the chances of personally being subjected to roadside testing, the higher the likelihood of preferring station testing. Drivers who reported that they do drive after having something alcoholic to drink were more likely to prefer station testing:

TABLE I.5

DRIVERS' PREFERENCES FOR TESTING LOCATION, BY DRINKING AND DRINKING AND DRIVING BEHAVIOR

Preferred Testing Location (Q. 3-7)	Use of Alcoholic Beverages (Q. 3-26)		Ever Drink and Drive (Q. 3-26b)	
	Use Alcohol	Total Abstainer	Yes	No
Roadside Test	59.0	55.8	54.5	65.3
Police Station/ Medical Facility	38.1	38.9	42.9	30.4
Undecided	2.9	5.3	2.6	4.3
Total	100.0 (312)	100.0 (113)	100.0 (189)	100.0 (92)

p = .05

of the drivers who drink and drive, 42.9 percent opted for station testing, as compared to 30.4 percent of the drivers who do not drive after drinking.

Are Passive Breath Testers Considered an Invasion of Privacy? In order to explore the possibility that drivers rejected the passive breath tester because it transgressed drivers' rights, survey respondents were asked whether they considered it to be an invasion of privacy:

- In your opinion, would using this kind of breath tester without a driver's consent be an invasion of privacy, or not?

With respect to the passive breath tester, invasion of privacy was a salient issue for drivers: 60.2 percent responded "Yes," 38.8 percent responded "No," and 1 percent were undecided. Further, the perception that personal rights are being violated was clearly a major issue in the acceptance or rejection of this countermeasure (see Table I.6). Among drivers who considered the passive breath tester to be an invasion of privacy, 77.4 percent were opposed to it. On the other hand, among drivers for whom invasion of privacy was not an issue, only 10.7 percent were opposed. The results indicate that drivers for whom this type of breath tester was a legitimate strategy were, for the most part, also in favor of it.

Table I.7 shows drivers' perceptions of invasion of privacy by demographic characteristics. The likelihood that a driver would or would not

TABLE I.6

ACCEPTABILITY OF THE PASSIVE BREATH TESTER,
BY PERCEPTIONS OF INVASION OF PRIVACY

Acceptability of Passive Breath Tester (Q. 3-8)	Invasion of Privacy (Q. 3-9)	
	Yes	No
Favorable	21.0	86.3
Unfavorable	77.4	10.7
Undecided	1.6	3.0
Total	100.0 (258)	100.0 (168)

$p < .001$

TABLE I.7

DRIVERS' PERCEPTIONS OF THE PASSIVE BREATH TESTER AS AN INVASION OF PRIVACY, BY DEMOGRAPHIC CHARACTERISTICS

Is Use of Passive Breath Tester an Invasion of Privacy? (Q. 3-9)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Yes	76.3	46.8	66.4	54.0	64.2	55.3	65.4	61.8	54.0	40.5	58.8	68.9	53.8	61.4
No	20.5	51.1	32.7	46.0	34.3	43.0	34.6	37.5	42.7	56.8	39.4	30.6	43.0	37.6
Undecided	3.2	2.1	0.9	0.0	1.5	1.7	0.7	0.7	3.3	2.7	1.8	0.5	3.2	1.0
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
		$p < .001$									$p < .001$			

consider the passive breath tester to be an invasion of privacy varied sharply by geographic region. Perceptions that the passive breath tester is "out-of-bounds" were most likely to occur among drivers in the Northeast (76.3 percent held this opinion), and least likely among drivers in the South (46.8 percent indicated that it was an invasion of privacy).

Sharp differences in opinions also occurred by educational level: while 40.5 percent of the drivers with less than high school education felt that the breath tester was an invasion of privacy, this position was taken by a much larger proportion of drivers with at least some college education (68.9 percent). Drinkers and drivers were much more likely to consider the passive breath tester to be an invasion of privacy than drivers who do not drive after drinking, or who are total abstainers (see Table I.8). Thus, infringement of rights was an issue for 72 percent of the "drinkers and drivers," versus 47.8 percent and 38.1 percent of the two other respective groups.

b. Drivers' Opinions about Arrest Prior to Testing

To obtain an indication of (1) the public's perception of what the current rules are about prearrest and (2) public opinion about whether drivers should be arrested prior to being taken to a testing facility or prior to roadside testing, we asked the following questions:[1/]

- To the best of your knowledge, in your community, at this time, must police officers arrest drivers before they can be taken in for testing, or are they allowed to test drivers before arresting them?

- In your opinion, should police officers be required to arrest suspected drivers before taking them in to be tested, or should the police be allowed to take them in for a test without arresting them?

- Should the police officer be required to arrest a driver before a roadside breath test is given, or not?

For most of the drivers surveyed, prior arrest was not, and should not be, a necessary condition for testing drivers who are suspected of being under the influence of alcohol (see Table I.9). A relatively small proportion of drivers (21.4 percent) reported that in their community, drivers must be arrested prior to testing. (The lagest proportion of drivers--40.7 percent--

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[1/] Respondents were asked these questions in a different sequence. (Please refer to Form 3 in Volume I, Appendix B for the sequence used during the interview.)

TABLE I.8

DRIVERS' PERCEPTIONS OF THE PASSIVE BREATH TEST AS AN INVASION OF PRIVACY, BY DRINKING AND DRINKING AND DRIVING BEHAVIOR

Is Use of Passive Breath Tester An Invasion of Privacy? (Q. 3-9)	Use of Alcoholic Beverages (Q. 3-26)		Ever Drink and Drive (Q. 3-26b)	
	Use Alcohol	Total Abstainer	Yes	No
Yes	67.9	38.1	72.0	47.8
No	30.8	60.1	27.0	50.0
Undecided	1.3	1.8	1.1	2.2
Total	100.0 (312)	100.0 (113)	100.0 (189)	100.0 (92)
	$p < .001$		$p < .001$	

TABLE I.9

INFORMATION ON AND OPINIONS ABOUT ARREST PRIOR TO TESTING, FOR DRIVERS AND NONDRIVERS

Timing of Arrest	Opinion About ARREST PRIOR to STATION TESTING (Q. 3-5c)	Opinion About ARREST PRIOR to STATION TESTING (Q. 3-5b)	Opinion About ARREST PRIOR to ROADSIDE TESTING (Q. 3-6b)
Drivers			
Prior Arrest Required/ Desirable	21.4	26.5	19.8
Testing Without Arrest Allowable/Desirable	37.9	68.8	76.7
Undecided	40.7	4.7	3.5
Total	100.0 (425)	100.0 (423)	100.0 (425)
Nondrivers			
Prior Arrest Required/ Desirable	22.6	24.5	28.9
Testing Without Arrest Allowable/Desirable	35.9	75.5	69.2
Undecided	41.5	--	1.9
Total	100.0 (53)	100.0 (53)	100.0 (52)

indicated that they did not know the local regulation.) Only about one-quarter of the drivers (26.5 percent) held the opinion that suspected drivers should be arrested before being taken to a testing facility. Even fewer (19.8 percent) felt that arrest should be required prior to breath testing at the roadside. The opinions of nondrivers closely resembled the general pattern of drivers' opinions.

Table I.10 shows drivers' opinions about whether prior arrest is or should be a requirement for testing, by demographic characteristics.

Drivers' information about whether prior arrest was required in their community was very similar across geographic regions and by sex, education, and income level.

Female drivers were somewhat less likely than male drivers to believe that arrest should be required before being taken to a police station or a medical facility for testing. Opinions about whether prearrest should be necessary did not vary by the other demographic characteristics.

Interest in having drivers arrested before conducting a roadside breath test was somewhat higher among older drivers and among drivers with less than a high school education. Despite these differences, however, the dominant viewpoint that suspected drivers need not be arrested prior to being administered a roadside breath test held for each of the demographic subgroups.

2. The Self-Tester

The self-tester is a portable alcohol breath tester used by drivers to decide whether they should or should not drive after drinking. A person would breathe into the tester, which would indicate whether he or she is above or below the legal alcohol limit for driving.

Focus-group discussants were dubious about the efficacy of a self-tester. At best, it was thought to be innocuous (i.e., that it would be used primarily by people who were responsible about their drinking and driving anyway); at worst, it was thought that it may legally jeopardize local tavern owners if the device were misused or if it malfunctioned. The use of the self-tester assumes that drivers take a more rational approach in deciding whether to drive after drinking than is actually the case. Negative results on a self-tester (although they may be a more definitive indicator of impairment) would have far less impact than restraints suggested or imposed by friends or drinking partners.

The acceptability of the self-tester was measured in terms of a behavioral indicator--the chances that the drivers would personally use it, or

TABLE 1.10

DRIVERS' INFORMATION ON AND OPINIONS ABOUT PRIOR ARREST, BY DEMOGRAPHIC CHARACTERISTICS

Information on Arrest Prior To Station Testing (Q. 3-5c)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Must Arrest First	22.6	20.6	21.8	19.6	22.1	20.6	33.1	22.9	18.7	21.6	23.5	19.4	19.4	21.4
Testing Without Arrest Allowable	36.5	38.3	36.4	40.2	39.7	36.0	23.1	36.1	34.0	44.6	33.0	40.0	38.7	39.0
Undecided	40.9	41.1	41.8	40.2	38.2	43.4	43.8	41.0	47.3	33.8	43.5	40.6	41.9	39.6
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
Opinion About Arrest Prior To Station Testing (Q. 3-5b)														
Must Arrest First	28.0	26.2	20.9	31.0	30.4	22.4	23.8	28.5	26.7	29.7	28.2	22.8	28.0	25.6
Testing Without Arrest Allowable	65.6	68.8	73.6	64.4	63.2	73.2	74.6	65.9	65.3	66.2	66.5	71.6	66.6	69.8
Undecided	6.4	5.0	5.4	4.6	6.4	4.4	1.6	5.6	8.0	4.1	5.3	5.6	5.4	4.6
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
					$p < .05$									
Opinion About Arrest Prior To Roadside Testing (Q. 3-6b)														
Yes, Prior Arrest Should Be Required	12.9	19.9	21.8	25.3	21.6	18.0	12.3	22.2	23.3	29.7	20.0	15.6	20.4	18.5
No, Prior Arrest Should Not Be Required	81.7	76.6	75.5	71.3	74.5	78.1	86.9	75.0	70.0	67.6	77.1	80.0	76.4	77.9
Undecided	5.4	3.5	2.7	4.6	3.9	3.9	0.8	2.8	6.7	2.7	2.9	4.4	3.2	3.6
Total	100.0 (93)	100.0 (141)	100.0 (110)	100.0 (87)	100.0 (204)	100.0 (228)	100.0 (130)	100.0 (144)	100.0 (150)	100.0 (74)	100.0 (170)	100.0 (180)	100.0 (93)	100.0 (308)
							$p < .05$				$p < .05$			

(with respect to nondrivers) the chances that drivers in general would use it. In addition, drivers' expectations about using the tester were measured under two conditions: (1) that there is a cost involved (using the self-tester if a driver has to pay for its service, no matter how nominal the cost, is a more rigorous indicator of acceptability than if its use is free) and (2) that it is provided in a social context in someone's home (it was expected that drivers would feel that the home environment is less conducive to using self-testers). Following are the specific questions used in the interview:

- Another kind of breath tester is called the Self-Tester. When you breathe into the Self-Tester, it shows whether your alcohol level is above the legal limit for driving, near that limit, or well below it.

  NONDRIVERS

  - Suppose Self-Testers were put in places where drinks are sold. How likely do you think it is that people would use the testers to help them decide whether they should drive--very likely, fairly likely, or not likely?

  DRIVERS

  - Suppose that you have been drinking at a tavern and that a Self-Tester were available at no cost. How likely is it that you would use it to help you decide whether you should drive--very likely, somewhat likely, or not at all likely?

  - Suppose that you have been drinking at a tavern and that a Self-Tester were available at a cost of 25¢. How likely is it that you would use it to help you decide whether you should drive--very likely, somewhat likely, or not likely?

  - And suppose that you had been drinking at a friend's house and that a Self-Tester were available. How likely is it that you would use it to help you decide whether you should drive--very likely, somewhat likely, or not likely?

While drivers tended to be amenable toward using the self-testers, a relatively small proportion would commit themselves to using them (see Table I.11). Only 29.1 percent of the drivers indicated that they would be very likely to use a self-tester if it were available for free at a tavern; 36.3 percent thought that they would be very likely to use it at a friend's home. If the "very likely" and "somewhat likely" categories are combined, approximately 60 percent of the drivers (who drink) were positively disposed toward the self-tester, regardless of whether they were at a tavern or a friend's home.

Contrary to expectations, using the self-tester at a friend's home was more highly acceptable for a larger proportion of drivers than using the self-tester at a drinking establishment. Nondrivers were particularly skeptical about the self-tester: less than half (46.1 percent) thought that there was any chance that drivers would use them.

Cost did not appear to be a very salient consideration in whether drivers expected that they would use the self-tester. Although a larger proportion of drivers would not be likely to use the tester if it entailed paying 25 cents, the difference between paying and not paying was only about 8 percent (excluding drivers who do not drink). No-cost availability apparently was not a particularly motivating factor, and, conversely, a charge was not a very strong deterrent.

The questions about the likelihood of using self-testers were asked of all drivers; drivers who do not drink and for whom this question would then not be applicable had to volunteer this information. A much smaller proportion of drivers volunteered this information than had indicated in a separate question that they did not drink. Since nondrinkers could simply respond "not likely" to these questions, the distributions may overrepresent a negative reaction to self-testers. Thus, Table I.11 also shows the distributions for drivers only who reported that they do use alcohol. A comparison of the two distributions shows that the differences were very slight, and that the same basic pattern of acceptability held.

Table I.12 shows the expected likelihood of using self-testers, by demographic characteristics. Drivers' expectations about their likelihood of using self-testers if they were available for free in a tavern varied with the age of the driver. A larger proportion of older drivers reported that they were "not likely" to use the self-testers. In addition, while 63.1 percent of the drivers under age 30 indicated that they were either "somewhat" or "very" likely to use the self-tester, the proportion dropped to 46.7 percent among drivers age 45 and older.[1/] Differences in responses between male and female drivers are not statistically significant; however, it is noteworthy that male drivers were more

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[1/] This variation in acceptability by age of driver is particularly important because it is specifically younger drivers who are at greater risk of being involved in an accident after drinking. (See Ralph K. Jones and Kent B. Joscelyn. Alcohol and Highway Safety 1978: A Review of the State of Knowledge. The University of Michigan Highway Safety Research Institute. NHTSA Report No. UM-HSRI-78-5, 1978.)

TABLE I.11

LIKELIHOOD THAT THE SELF-TESTER WILL BE USED; ALSO LIKELIHOOD OF USE AT A COST AND AT A FRIEND'S HOUSE

Likelihood	(Nondrivers) Likelihood That Testers Will be Used (Q. 3-10b)	Likelihood That Respondent Would Use Tester: Available at No Cost (Q. 3-10c)	Available at 25¢ (Q. 3-10d)	Available at Friend's House (Q. 3-10e)
Total Sample				
Very likely	21.1	30.8	26.0	36.3
Somewhat likely	25.0	28.3	24.5	26.7
Not likely	48.1	38.2	46.8	35.3
Undecided	5.8	2.7	2.7	1.7
Total	100.0 (52)	100.0 (408)	100.0 (408)	100.0 (408)
Drivers Who Use Alcohol Only				
Very likely		31.2	25.8	36.8
Somewhat likely		30.6	27.0	29.0
Not likely		35.0	45.6	33.6
Undecided		3.2	1.6	0.6
Total		100.0 (311)	100.0 (307)	100.0 (307)

positively disposed than female drivers toward using the self-tester: expectations that using the self-tester would be "very likely" were reported by 34 percent of the men and 24.7 percent of the women.

Drivers' expectations about using the self-tester if it cost 25 cents or if they were drinking at a friend's home did not vary by any of the demographic characteristics.

TABLE 1.12

PERCEIVED LIKELIHOOD OF USING SELF-TESTER UNDER DIFFERENT CONDITIONS, BY DEMOGRAPHIC CHARACTERISTICS

	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Likelihood That Respondent Would Use Self-Tester If Free (Q. 3-10c)														
Very Likely	23.6	26.2	32.7	34.5	34.0	24.7	30.8	27.1	30.0	31.5	29.6	28.3	26.9	30.7
Somewhat Likely	33.3	28.4	25.4	20.7	26.6	27.8	32.3	34.0	16.7	23.3	24.8	31.7	23.7	29.4
Not Likely	37.7	36.2	31.8	40.2	35.0	37.4	33.8	32.6	40.0	32.9	37.9	34.4	37.6	35.0
Never Drink	3.2	7.1	7.3	2.3	4.4	6.6	3.1	4.2	8.6	10.9	3.6	5.6	7.5	3.9
Undecided	2.2	2.1	2.7	2.3	0.0	3.5	0.0	2.1	4.7	1.4	4.1	0.0	4.3	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(93)	(141)	(110)	(87)	(203)	(227)	(130)	(144)	(150)	(73)	(169)	(180)	(93)	(306)
								p = .01						
Likelihood That Respondent Would Use Self-Tester If 25¢ (Q. 3-10d)														
Very Likely	19.4	25.5	26.4	26.4	25.1	26.7	24.6	22.2	26.7	30.3	29.3	21.2	30.2	24.7
Somewhat Likely	25.8	22.7	20.0	25.3	25.6	23.5	27.7	25.0	18.0	24.2	19.5	30.0	22.1	26.0
Not Likely	48.4	42.6	44.5	42.6	47.2	46.5	44.6	46.6	42.0	39.4	48.8	47.6	43.0	47.6
Undecided	6.4	9.2	9.1	5.7	2.1	3.3	3.1	6.2	13.3	6.1	2.4	1.2	4.7	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(93)	(141)	(110)	(87)	(195)	(213)	(130)	(144)	(150)	(66)	(164)	(170)	(86)	(296)
Likelihood That Respondent Would Use Self-Tester at Friend's House (Q. 3-10e)														
Very Likely	34.4	33.3	35.4	34.5	32.8	39.4	39.2	30.6	34.7	33.3	36.6	38.2	37.2	36.2
Somewhat Likely	32.3	26.3	20.9	21.8	28.2	25.3	26.9	31.9	18.0	24.2	25.0	30.0	25.6	28.0
Not Likely	26.9	32.6	35.5	39.1	38.0	32.9	30.8	32.6	35.3	37.9	37.2	31.2	33.7	35.1
Undecided	6.4	7.8	8.2	4.6	4.0	2.4	3.1	4.9	12.0	4.6	1.2	0.6	3.5	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(93)	(141)	(110)	(87)	(195)	(213)	(130)	(144)	(150)	(66)	(164)	(170)	(86)	(296)

C. SPECIAL INTEREST STUDY

Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for a detailed description of the methodology employed for the special-interest study.

The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest perceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.

Only two of the breath-tester countermeasures were included in the interviews with the special-interest respondents: the passive breath tester and the self-tester. The following descriptions were provided to respondents:

> The Passive Breath Tester would be used by a police officer after a car is stopped because "drinking while driving" is suspected. The Tester is small and is held near the driver's face during questioning. The Tester can therefore be used without the driver's consent. This device indicates whether further testing is necessary.
>
> The Self-Tester is a portable alcohol breath-tester that can be used by drivers to decide whether to drive after drinking. A person breathes into the Tester, which shows whether his/her alcohol level is above the legal limit for driving, near that limit, or well below it. The Tester is intended for personal use on a voluntary basis. The Tester could be purchased, loaned out, or made available at drinking establishments.

1. Passive Breath Tester

The passive breath tester raised issues primarily of a legal nature. Implied consent, search and seizure, self-incrimination, constitutional rights, and probable cause, among others, were cited as factors that impinge on the legality of the passive breath tester. There was a general tendency to treat the passive breath tester as a bona fide test and as a step in the detection and testing process that was legally different from either the manual "field sobriety test" or an officer's observation and judgment.

Other reactions to the passive breath tester were arguments either for or against the necessity and utility of such a device. On the positive side, the passive breath tester had some enthusiastic supporters who felt that the device would be a useful aid to police and would be a welcome time-saving device for both the police and the driver. In contrast, some respondents felt that the device was unnecessary because it would do only what the officer already does, and the situation does not require more than an officer's judgment.

Although it is not possible to identify patterns of response that are specific to particular special-interest groups, the passive breath tester did tend to generate much more discussion among respondents with an implementation and enforcement perspective (highway-safety departments, state police, and police chiefs), as well as among respondents with a legal perspective (ACLUs and bar associations), than among respondents representing business or consumer interests.

Prior knowledge of issues associated with breath testers appeared to be a key factor in whether respondents did in fact take issue with the passive breath tester.

a. Legal Issues

The Driver's Consent. The phrase "can be used without the driver's consent," which was included in the description of the passive breath tester, prompted very strong reactions. That the testing would be performed in a secretive fashion, unknown to the driver, was highly objectionable. According to respondents, the idea of imposing a test on a driver, perhaps against his/her will and without his/her knowledge, was "morally reprehensible." It is important to stress that respondents raising this issue were quite clear that they were not objecting to the device itself, but rather to its use in this manner. The implication was that, were this aspect corrected and the driver asked or told about the test, the device would be perfectly acceptable. It is important to point out as well that "without the driver's consent" was

frequently interpreted also as not informing the driver of the test. A closer look at the specific responses shows that two different stipulations were being imposed: (1) that consent must be obtained from the driver (the driver must agree to the test) and (2) that the officer duly inform the driver that he/she is about to be tested. As indicated by the following comments, respondents tended to use these two concepts interchangeably:

> "Its covert nature may not be legal. For the sake of due process, the police should just ask you to consent. Otherwise, this is harassment." (Bar association respondent)
>
> "To the extent that it replaces subjective judgment with a more reliable means of decisionmaking, it sounds good. But why not get the driver's consent. What is the advantage of surreptitiously using it?" (Bar association respondent)
>
> "The passive breath tester can be used, but you must get consent in advance. With permission, it's fine. Why would the police not say, 'I have this little tester. I'm going to use it.'? There is a problem with self-incrimination when you don't know that you are being tested." (ACLU respondent)
>
> "We would definitely take a stand against it, since the person's rights are not read to them." (ACLU respondent)
>
> "You get into the area of the driver's consent. It shouldn't be done without their knowledge." (Trucking association respondent)

In states with an "implied consent" law, however, the passive breath tester was not expected to pose consent problems. A state-police respondent made the point that obtaining consent in those states would be an unnecessary formality, since "if they refused to take a prearrest test, this would lead to the other test automatically."

Issue of Probable Cause. Respondents who felt that the use of the passive breath tester constituted a preliminary breath test noted that the need to establish "probable cause" for this test would pose a legal problem. From the standpoint of legal technicality, the officer uses certain observations to determine whether a "breathalyzer" test is called for; if these observations were replaced by the passive breath tester, there would be no basis for determining whether this test was necessary. An insurance respondent was adamant that using the passive breath tester was tantamount to "search without probable cause." Counterarguments--that "probable cause" on the part of the officer would not be required--assumed that the passive breath tester would merely

replace the police officer's "senses," and would have no other legal status. A bar-association respondent expected that the use of the passive breath tester, even simply as a substitution for an officer's observation, would nonetheless generate legal debate and test cases; however, he felt that, if the test results were not permissible as evidence, officers would be allowed to use the device as probable cause when they stop someone for possible drunk driving. Another bar-association respondent thought the passive breath tester was analogous to the "marijuana-sniffing dog. It extends the tests to the senses. The dog is an extension of the senses."

Another issue raised in conjunction with the passive breath tester was the number of tests to which a driver could reasonably be subjected. Several highway-safety respondents pointed out that it was illegal to test people twice for the same offense, and that, if not illegal, multiple tests might qualify as harassment. In one state, pretesting devices have been found to be illegal, and since the police "can only do one test by law in [State], it must be an evidential test."

Invasion of Privacy and Illegal Search. Another question raised by the passive breath tester was whether a person's breath is public or private domain. The proximity at which the passive breath tester may be placed in relation to the driver was not the point; rather, the point was that it would be necessary to determine whether or not breath falls within the boundaries of physical privacy. A bar-association respondent expected that legal decisions on the passive breath tester would have to consider the following question: "Are the molecules that are breath public once they leave your mouth?" Another bar-association respondent objected to the passive breath tester on the grounds that the "taking of breath" constituted physical contact: "Legally, until something has been determined, you cannot be touched. It raises the issue of illegal search."

b. Passive Breath Tester as an Aid to Police Judgment

In most states, a driver suspected of being drunk is subject to further testing, on the basis of an officer's judgment; to help make this judgment, the officer may ask the driver to perform simple physical and verbal tests. Proponents of the passive breath tester felt that this device was an improvement over the current and often unreliable judgmental approach, which was inaccurate. A bar-association respondent thought it was "great" because it would "give the police officer a mechanical nose." Despite the issue of driver consent, an ACLU respondent felt that the passive breath tester was an

improvement over current procedures: "It's more objective than the officer's nose, which is used without consent." A state-police respondent thought it would be "great for the cop to confirm what he feels anyway."

The passive breath tester was expected to be particularly advantageous in identifying drivers that are actually drunk but who are not detectable as such to a police officer; this would include borderline cases, as well as drunk drivers who can assume a convincing nondrunk demeanor. A state-police respondent pointed out, "It's hard for some people to be caught because they can fool the police." Respondents also indicated that in instances where the officer is not confident in his judgment, he/she may be more inclined to charge the driver for a lesser offense. An insurance respondent felt that this type of device would be absolutely necessary if the drunk-driving laws were to be enforced, because, at this time, "officers give out a hell of a lot of reckless-driving tickets for drunken driving."

Another advantage of the passive breath tester, cited by respondents, was that it would allow the officer to use his time much more efficiently. According to a police chief, "DWI takes up a lot of manpower. [The passive breath tester] would be okay, to save time and trouble." Discussants felt the passive breath tester could also save time and trouble for the driver, who, if not at the drunk-driving level, would be spared a trip to a police station. Because it would preclude needless station testing and place a limit on a police officer's arbitrary judgment, both police and insurance respondents expected that the public would support it.

c. Passive Breath Tester as an Unnecessary Device

The passive breath tester elicited a somewhat defensive and protective reaction from a few state-police and police-chief respondents. There was a sense that the passive breath tester impugned the skills and capabilities of the officer:

> "Our men are too well trained to need this." (State police respondent)
>
> "If he's close enough to give the test the police are able to tell." (Police chief respondent)
>
> "Any officer can already tell when a driver is drunk, by observation." (Police chief respondent)

These reactions suggest that determining whether a driver had been drinking and was within the drunk-driver range is not a very difficult decision for the

officer to make. Respondents' opinions about whether the passive breath tester was necessary depended on how they defined the police officer's objective. Respondents who felt that the device was not particularly useful also tended to assume that, when an officer stops a driver and suspects drunk driving, the officer is interested only in making a very general determination that the driver had been drinking and that testing was warranted. A highway-safety respondent made the following point:

> "I don't see it. The intent is to figure out if people are drinking. I think police officers can do that anyway. They don't need this. The real evidence comes after the arrest, when the test is taken."

Finally, some respondents were dubious that the device could be sensitive enough and accurate enough to be reliable: "Is it more effective than the policeman's nose?" There was also concern that the device would not be able to discriminate between legal and illegal substances, or take other circumstantial factors into account:

> "Can it tell the difference between mouthwash and alcohol and medicine?" (Police chief respondent)

> "How much alcohol could be picked up from your coat if someone had spilled a drink on you?" (Bar association respondent)

2. Self-Tester

Most respondents indicated that the self-tester may be a good idea, in principle; as a practical matter they felt it would be ineffective in controlling drinking and driving, and could actualy promote drinking and therefore be counterproductive.

a. Decisions to Drive after Drinking

The basic premise of the self-tester was considered naive. Respondents argued that the device assumed that drivers made logical, rational decisions about whether they should or should not drive. An ACLU respondent made the point that driving is generally taken for granted, and that people do not typically make a connection between having a few drinks and not driving: "It's a big deal to decide not to drive." Furthermore, it was pointed out that the decision to use a self-tester and the decision to abide by the test results would be made after a person had been drinking, and presumably after a person's power of judgment has been affected. According to a police chief, "If a guy

drinks, he's not going to care whether he shouldn't be driving. He'll drive anyway."

Further, the decision about whether to use the self-tester was considered to be similar to the decision about whether one should or should not be driving. A police-chief respondent stressed that "the guy who would use it already knows whether he should be driving or not." An insurance respondent concurred that the device would ostensibly aid people for whom it would be an unnecessary test: "A person who wanted to know isn't the problem, and he wouldn't need it."

That the "wrong people would use it" was a common criticism of the self-tester. It was felt that the driver who would most need the test would be least likely to use it. The self-tester was considered antithetical to drinkers' reasoning patterns:

> "It would be used by the wrong people. Most drunken drivers won't question whether they're drunk. The macho-type drunken driver would still want to prove he's able to drink and drive without getting caught." (Highway-safety department respondent)
>
> "People that are drunk don't worry about the law. We had them in bars, and we had to take them out." (State police respondent)
>
> "The drunk doesn't even think about using something like this." (AAA respondent)

b. The Self-Tester as a Novelty and a Game

According to some respondents, experience with self-testers placed in bars has shown that not only do drinkers not use them constructively, but they tend to treat them as drinking games. Respondents felt that the self-tester could defeat its very purpose by creating a situation whereby people might actually be prompted to drink more. There was also a concern that the presence of a self-tester would implicitly give people permission to drink until they reached the cut-off level. Enforcement respondents, in particular, worried that the device would cause people to drink to a greater extent than they now do, which would only "aggravate the problem with real drinkers." The following comments illustrate respondents' concerns about game-playing and about the psychological impact of having an official and, ostensibly, sanctioned drinking limit:

"There's game-playing on them--who can achieve the highest blood level. These are like coin-machine games. It might encourage people to drink as close to the limit as possible." (Highway-safety department respondent)

"This would be abused, not used. [They] would become games for people to use in bars: How high can you get your BAC?" (Highway-safety department respondent)

"They might also make people drink more. If they'd had two drinks but only test .06 they might almost feel obliged to keep drinking, whereas they would have naturally stopped at two drinks before." (State police respondent)

A few respondents indicated that publicity about self-testers undermined their potential effectiveness. It was pointed out that when the self-tester was first introduced, there was much fanfare, and the device became a sensation and attracted much public attention as a novelty. A highway-safety respondent felt that efforts to encourage its correct use in bars only succeeded in popularizing the game. Taking the self-tester seriously was also difficult in the face of sanctioned misuse; an AAA respondent reported that a local TV show had recently shown a breathalyzer contest in a bar.

c. Liabilities Associated With the Self-Tester

Respondents cautioned that that the availability of the devices in bars may remove a driver's sense of responsibility about whether he/she is or is not in an adequate condition to drive. Reliance on these devices, in lieu of personal judgment, was thought to be too risky. An AAA respondent argued that because a mechanical device is subject to failure or error it could give a driver a false sense of security; further, even if the reading were accurate, it may not keep off the road those drivers who function poorly at only moderate levels of drunkenness. A state-police respondent focused on the legal implications of an inaccurate device:

"A person might think they were okay when they weren't. What if the self-tester were not properly maintained and certified? What if the bar's self-tester were inaccurate? The guy reads .07, has trouble, and we test him at .11. What would the court say?"

From a more practical standpoint, the self-tester was considered only half of a countermeasure because it requires the drunk driver him/herself to find a solution to the problem. According to a bar-association respondent, "knowing that you are drunk doesn't mean you have any options, or any interest

in finding options, to driving home, and therefore an escort service would be needed." A police-chief respondent described the dilemma as follows:

> "Even those finding themselves near or at the limit would still drive home, figuring they would make it, or they'd say, 'Who's going to drive me home? Nobody. So I've got to drive anyway.'"

d. Support for the Self-Tester

A small set of respondents advocated the use of the self-tester. Typical positive reactions included: "It's a good idea." "It might work." "Nothing else has worked; why not try this?"

One respondent (AAA) indicated that, while it would not be useful as a deterrent to drinking and driving, it would be "good for police public relations and a good educational tool." Even if ineffective, the self-tester would "highlight a problem area to which there is no easy solution."

Finally, a state-police respondent proposed the following implementation strategy:

> "It should be available at bars. No question about it. You would need the cooperation of bartenders. They should make people take the test. Pay the bartender for lost income he suffered from preventing sales to drunks."

3. Summary

Reactions to the passive breath tester focused primarily on legal issues, including the need for obtaining a driver's consent and the need for "probable cause." Although some respondents felt that the passive breath tester would be an aid to police, others argued that police officers are sufficiently trained and capable of making this judgment without using a tester. Respondents also raised questions about the accuracy and reliability of a passive breath-testing device.

Reactions to the self-tester largely emphasized its limited potential for use by drivers. While many respondents indicated it was a good idea in principle, in practice it ran counter to respondents' perceptions of how the decision to drive or not to drive after drinking was made. It was argued that individuals are not often in a position to make rational decisions about driving after drinking. Furthermore, respondents felt that there was a high potential for abuse, with the devices possibly being used as games, thereby potentially exacerbating the drinking and driving problem.

II. DRUNK DRIVER DETERRENCE

Four methods of drunk-driver deterrence were included in the study: the Model Traffic Violations Law (MTVL), the Drunk Driving Warning System (DDWS), the Continuous Monitoring Device (CMD), and Restricted Driving Hours.

The first of these approaches for deterring drunk driving is directed at the general driving public and calls for the imposition of a differential sanction: a moving violation committed when the driver has been drinking would result in a more severe penalty than would normally apply for that violation. The other three approaches are directed at convicted drunk drivers, and would be imposed as conditions of sentencing in lieu of suspending their licenses. The drunk driving warning system (DDWS) and the continuous monitoring device (CMD) are mechanical devices that test for driver impairment, either before he or she operates the car, or while the car is being driven. The fourth approach (restricted driving hours) would forbid a convicted drunk driver to drive during certain high-risk hours. In conjunction with the restricted driving hours countermeasure, focus-group discussants and special-interest respondents were also asked about an Operating Time Recorder (OTR), which would record when the car is driven. This record would be turned in to a probation officer.

. The two mechanical devices (the DDWS and the CMD) sharply deviate from existing policies for handling convicted drunk drivers. These devices represent a change in concept--from a punitive approach (license suspension) to a functional approach (the convicted drunk driver can drive if not impaired). This approach also involves a change in process. The devices serve as a monitoring and enforcement system, whereby convicted drunk drivers' ability to drive is "tested" each time they start or drive their cars. The mechanical devices also have implications for the driving public in general. While license suspension is an arrangement primarily between the convicted drunk driver and the law-enforcement agency, an activated warning system would involve other drivers in the control process. In addition, these devices introduce a mechanical entity which would have to be installed in convicted drunk drivers' cars.

A. FOCUS GROUP DISCUSSIONS

The four drunk-driver deterrence countermeasures were described to the focus-group discussants as follows:

A Model Traffic Violations Law would make special provisions for drivers who committed a dangerous moving violation and who had a significant blood-alcohol level. They would receive punishments greater than for those for a dangerous moving violation without alcohol, even though the blood-alcohol level was below the limit for Driving While Intoxicated Laws.

The Driver Warning System is a device installed in the car which prevents normal operation of the car unless the driver passes a (psychomotor) test. For example, there might be a screen on the steering wheel with a moving pointer. The driver would have to keep the pointer at a certain spot on the screen. If the test shows that the driver's ability is impaired, the car's lights would flash if the car was driven at less than ten miles per hour. Driving above ten miles per hour would cause the lights to flash and the horn to sound.

The Continuous Monitoring Device is a mechanism installed in the car which monitors the performance level of the driver continually as he/she drives the car. For example, excessive movement in the steering wheel could be picked up. If his/her performance were to fall below a certain level, the car's lights would flash and the horn would sound.

The Operating Time Recorder is a device installed in the car which records when that car is driven. It is intended to deter driving on the part of convicted drunk drivers during those hours when alcohol-related accidents are most likely to happen. The device would be installed as a condition of sentencing or probation, and the driver would not be allowed to drive during high-risk hours. The record would be turned in to a probation officer.

The four drunk-driver deterrence countermeasures were discussed in seven focus groups. Two of these groups consisted of participants over 30 years old, three consisted of participants under age 30, and two groups consisted of special-interest representatives.

In all groups, the general belief was that drinking and driving is a serious and persistent highway-safety problem, and that steps should be taken to penalize those who do drive while intoxicated. Nevertheless, there was considerable resistance to particular countermeasures, which was the result of two general attitudes toward drinking and driving.

One source of resistance toward the countermeasures stemmed from a positive attitude among discussants toward "social" drinking, and their perception of "social" drinking as a generally acceptable and widespread activity. Having a drink or two, or even more, and then driving was described

as a fairly commonplace occurrence. Discussion about the effect of social drinking on driving ability varied between those who felt that drinking and driving is always a potential danger, and those who felt that drinking and driving does not always present a hazard. In a cynical vein, some discussants indicated that judgments as to whether someone is too drunk to drive are frequently made after the fact, depending on whether that person makes it home without having an accident or without being stopped by a police officer.

A second source of resistance stemmed from the distance that discussants established between themselves and the problem. Many discussants felt that they would never drive while drunk, and that the likelihood of their being victimized by drunk driving was remote. This mitigated the extent to which they were willing to accept drunk-driving countermeasures that were seen as an inconvenience, as having either direct or indirect cost implications, or as having an alien technological quality.

1. Model Traffic Violations Law

The four drunk-driver deterrence countermeasures were presented simultaneously; discussants made a distinction between mechanical devices as one type of countermeasure, and legal methods as another. In contrast to the mechanical devices, the model traffic violations (MTV) law tended to elicit a positive, although not a very enthusiastic, reaction--that is, while the law was not inherently objectionable, it was also not regarded as a definitive solution. There was no quarrel with legislative change per se, nor with the imposition of stricter penalties for violations incurred after drinking. Further, the law was not considered to be disruptive of any existing routine. The general tenor of reaction, however, was passive acceptance. For example, "I'll go along with that one." "That one is the only one that makes sense." It is significant that during the group discussions, the model traffic violations law was used to debunk the mechanical devices. In fact, to a considerable degree, the general acceptance of the MTV law was expressed in terms of objections to the three mechanical countermeasures.

First, the MTV law was thought to be more practical than the mechanical devices. A characteristic opinion was that changing a law is more straightforward, efficient, and less complicated than developing and implementing devices that have to be installed in cars. Moreover, discussants felt that the mechanical devices have not been tried or tested. In comparison, the legislative process is so familiar that, whether it proves to be effective or not, the public's psychological and financial investment would be minimal.

Second, a desirable property of the MTV law is that it directly affects offenders, since committing a violation has an immediate consequence. In contrast, mechanical devices were seen as misdirected substitutes for punishment. In addition, the MTV law would apply even if the offender did not own a car, so that a convicted drunk driver could still conceivably operate a car that does not have a mechanical device. Third, although in practice both the law and the mechanical devices can be implemented as penalties for drunk driving, the law was perceived as having more of a deterrent effect, while the mechanical devices were seen as purely punitive. Given that deterrence was their foremost objective, discussants felt that the threat of stricter penalties would make people think twice before drinking and driving.

Despite the overall positive attitude toward the MTV law, significant reservations were expressed. First, concerns with equity were voiced about situations in which a person has one drink, is involved in a violation, and is subject to an excessive fine or a jail sentence. The equity here refers to the incongruity of the law with accepted social norms; as one discussant put it, "The penalty focuses on innocent social drinkers." Second, discussants felt that it was possible that a violation could be unrelated to alcohol consumption, even though the driver had a significant blood-alcohol level. Thus, the basic premise of the law was questioned: "If the driver could not be considered legally drunk or impaired, the accident probably did not take place because of alcohol." Third, assuming that the penalty would involve a fine, some discussants felt the law discriminated against the poor: "Those who can afford it can just pay and leave," without experiencing any hardship at all. Two alternatives to fines were suggested--that the penalty be either a jail sentence (which itself would attract attention and have important deterrent value) or mandatory community service.

2. Mechanical Devices

The drunk driving warning system (DDWS), the operating time recorder (OTR), and the continuous monitoring device (CMD) were collectively treated by discussants as "mechanical devices," with each specific countermeasure regarded as a variation on the mechanical theme. In many contexts, technological developments are seen as progressive and beneficial; however, the mechanical countermeasures were not seen as constructive technology. Reaction to these countermeasures was based on their association to other unpopular mechanical-type devices--namely, seat-belt interlocks and air bags. In an age of automated, electronic, and mechanical proliferation, skepticism has replaced

awe, and, hence, the mechanical devices were routinely seen as simply ineffective gimmicks. This skepticism was reinforced, and perhaps generated, by the feeling that yet another regulation was going to be imposed on a powerless public. More detailed reactions to the DDWS, the OTR, and the CMD are largely interrelated. These reactions have been categorized into four areas and are presented prior to discussing the specific responses to the particular countermeasures.

a. Rationale

One set of reactions to the three mechanical countermeasures involved the basic rationale underlying these methods for dealing with drunk driving. The discussants felt that drunk driving was a straightforward problem, and that the implementation of mechanical devices would simply be a cumbersome and circuitous overreaction. These overly complex solutions were characterized as "fantasy technology" and "futuristic tunnelvision." The discussants felt that mechanical devices were inappropriate because the drunk-driving problem was both different and broader in scope. Whether one drinks and drives was seen to depend on the widespread social attitude that "it's acceptable to drive while you drink. . . . Everybody has the feeling 'I can handle it.'" With attitudes defined as the crux of the problem, discussants felt that it was necessary to change those attitudes. Instituting public-relations programs to inform the public of the dangers of drunk driving, training people to take car keys away from someone who has been drinking, and publicizing a telephone number for people to call for a ride home were seen as simpler, cheaper, and more direct approaches for solving the problem.

The devices were also described as band-aid approaches because "they don't do anything to rehabilitate a drunk driver." Strategies ranging from rehabilitating alcoholics to changing drinking habits were considered more reliable, feasible, and preferable solutions. The idea that the devices are designed to protect the driver and others from faulty judgment was noted by a few participants, but they were usually expressing minority opinions. More typically, the decisionmaking aspect of a device was criticized. For example, the driver warning system "allows a person who is not capable of driving to make a decision about driving or not, regardless of lights and noise."

In another vein, the discussants felt that the mechanical devices would usurp a person's decisionmaking freedom as an adult. Thus, one discussant preferred mechanisms "which make the car safer in and of itself. I'm opposed to those which protect me from myself." As expressed in another group, the device

violated the basic tenet that decisions about sobriety should be made by the individual drivers. Discussants felt that accepting these mechanisms in their cars conveyed a mollycoddle image.

Another type of reaction relating to self-determination dealt with government intervention. The devices were seen as extending undue control over an individual's private domain and dangerously expanding the power and authority of the government over personal lives. The following viewpoint is illustrative: "[I am] totally against government control of my freedom, and I would find this threatening to my individual will. First, they want to start with something like this; then they want you to make a trip ticket for everywhere you go."

b. Effectiveness

A number of discussants compared the merits of the mechanical devices to the merits of suspending a convicted drunk driver's license. Discussants agreed that many individuals would nonetheless drive with suspended licenses. However, discussants also indicated that suspending licenses was still the preferred way of handling convicted drunk drivers: "Suspending a person's license is the most effective. Get him off the road answers the question." "[I] would prefer . . . [that] if you have any alcohol, you have your license revoked for one year." It was apparent from the discussion that the primary appeal of license revocation or suspension is that convicted drunk drivers would not be allowed to drive.

The position that "drunks should not drive" was buttressed by the belief that the proposed alternatives (i.e., the mechanical devices) would be ineffective. Discussants who took this position stated that a device which required a psychomotor test was not a sufficient penalty to be an effective deterrent. They also questioned whether such a test can accurately measure the degree of intoxication. As one discussant wondered, "What if by some fluke a drunk can pass the test?" Still another felt that they "could be activated by something other than drunk driving." Discussants also felt that flashing lights and a sounding horn would not stop many drunk drivers ("A drunk ain't gonna stop until you stop him."), and that drunk drivers may be quite dangerous even at low speeds. On the other hand, when given a choice between having a license suspended or implementing a DDWS, critics of the DDWS still found it preferable because it would allow DWIs to drive legally. In addition, many were quite sure that they could find a way to disconnect it and suffer no consequences at all.

Discussants in all groups felt that the credibility of mechanical devices has been seriously undermined by the ease with which interlocking seat-belts and warning buzzers can be disconnected. A pervasive concern--and a major source of rejection--was the feeling that people could successfully tamper with mechanical devices. Individual discussants were quite confident that no mechanism exists that cannot be "decoded": "People will do something to counteract the devices. They'll sit down and figure it out." A cynical reaction was that the devices would initially be circumvented by a few individuals--probably those for whom the devices would be most inhibiting or inconvenient--but that, eventually, tampering would be generally accepted and easily accomplished. This suggests that the devices, especially the DDWS and the CMD, may be more acceptable as an optional safety feature than as a penalty imposed on convicted drunk drivers.

Perhaps the most novel and key aspects of the DDWS and CMD are the warning features--the flashing lights and sounding horn. While a few participants thought that their intended purpose (to alert other cars and the police) was a useful highway-safety strategy, the dominant reaction was negative. The participants criticized the flashing lights and blaring horn as hazards in themselves. They were concerned that the warning features may startle and disorient the drunk driver, thereby creating a dangerous driving situation. The discussants also mentioned that the drunk may be oblivious to the warnings and thus totally undeterred. Moreover, they feared that the lights and horn system would quickly be incorporated into the latest series of prankser activities among teenagers.

c. Practical Considerations

Present-day concerns about inflation were clearly and heatedly communicated, and cost factors were highlighted as a major deterrent to the acceptability of the devices. "How much will it cost?" was a persistent question, and concerns about costs elicited highly emotional opinions. Several types of cost implications were discussed, all of which pointed to the citizen/consumer/taxpayer ultimately footing the bill. Even if consumers installed the devices themselves, the cost might be between $50 and $80, which was felt to be an expensive and thus unacceptable burden. Discussants also noted that if devices were installed as original equipment, the cost of a new car, already felt to be excessively high, would be even higher. Furthermore, adding this device would allow automobile companies to have an additional mark-up and thus increase their revenues. The feasibility of the government

paying for the devices did not alleviate cost concerns at all because government spending is closely tied to taxes paid by the individual. Government funding to develop or implement mechanical devices was strongly opposed on the grounds that it would be a continued waste of tax money.

The devices were generally characterized as a great nuisance. Taking a test each time was viewed as an untenable annoyance and "insanity." One discussant felt that the devices would be a potential source of embarrassment: "I don't think most people would enjoy the thought of driving down the highway and obviously being pointed out to others as impaired." Noting that current automobile advertising emphasizes such features as quick pick-up, ease of handling, and smooth ride, the drunk-driver devices were rejected on the grounds that they contradicted the trend toward simpler and trouble-free driving. In a society where the pursuit of comfort and convenience is a dominant concern, the extent to which a countermeasure is bothersome or otherwise intrusive is a crucial factor in its acceptability.

The element of "sporting risk"--the chance that one can "get away with it"--appears to be one reason for preferring current police-detection methods for dealing with drunk drivers. Mechanical devices were seen as a physical nuisance that must be reckoned with <u>whenever</u> an individual drives the car. The day-to-day presence of the devices, and precisely the fact that they <u>may</u> be effective, may lead to reservations about how necessary it is to employ countermeasures that perform a rigorous job of keeping off the road persons who had been drinking.

d. <u>Implementation Issues</u>

Discussion of the mechanical devices raised several questions about how these countermeasures would be implemented. In a number of discussions the implementation issues were of paramount concern. Communicating a clear conception of "how it would work" may therefore prove to be crucial in dispelling public resistance toward these countermeasures.

An important theme in the discussions, and a major basis for rejecting the devices, was the belief that it would be impossible to link a convicted drunk driver exclusively to a particular automobile. More than one person may drive the car with the device. The convicted drunk driver may drive someone else's car. Discussants felt that, in principle, the rules governing the implementation of these devices should be equitable and consistent: "What if you drive someone else's car?" "What if my wife wanted to drive the car?"

In addition to questions raised about using these devices when sentencing convicted drunk drivers, questions were raised as to which individuals constituted the appropriate target groups. One view was that limiting these devices to known violators would be ineffective, in that significant danger would still exist with persons who had not been previously arrested, or who were drinking and driving for the first time. A contrasting view was that making a device mandatory after a first offense would be an overly severe penalty. Some discussants felt that license suspension was effective for most offenders, and that the devices should be used only after the violation is repeated: "It's not right to get stuck with any of these after the first time." Thus, acceptability may depend on the criteria applied in implementing these devices.

Drunk Driving Warning System. The fact that the DDWS differs from the other two devices (in that the driver takes a test before driving the car) sparked intensive discussion in all groups. One positive reaction to the DDWS was that it acts as a safety check for the driver, in that it keeps the driver honest. Assuming that the DDWS is accurate, it would provide an objective barometer of "when one has had that 'one too many' to drive." The idea that the DDWS would deter people from driving, despite their intention to drive, also engendered positive reactions from some discussants. As noted by one person, "It would force someone who had been drinking to have someone else drive." Another discussant felt that it would have a deterrent effect on drinking itself, if one expected to drive afterward: "It would keep you more conscious of how much you've been drinking if you knew you had to take a test."

While some cited the highway-safety benefits that would result from the DDWS, objections to it were far more prevalent. From a generalized resistance ("I don't want a pointer on my steering wheel.") to a reaction against the perpetual demands of the device ("Taking a test each time is insanity."), opposition tended to focus on the test itself. Some discussants were concerned that the DDWS (particularly the test) may actually create an unwarranted problem in some situations: "What happens if you have to drive in an emergency and were upset, how would you be able to hold a needle in one spot?"

Another set of reactions illustrated skepticism and confusion about the validity of the testing approach. Given individual variability in tolerance to alcohol, as well as different levels of coordination, a person "might be able to pass the test but not drive safely." In addition to the possibility of disconnecting any mechanical device (discussed earlier), another way to

circumvent the system is to master the test, whereby it becomes an instinctive response and not a "true" test. Thus, from continuous practice or experience with the test, "people can develop a test-taking aptitude" that would invalidate the intended purpose of the test.

Continuous Monitoring Device. The CMD differs from the DDWS in two respects: (1) the testing, or monitoring, is an ongoing process, and (2) the driver does not take a test distinct from driving--the device is triggered only by certain types of poor driving actions committed while operating the car. These two distinct characteristics of the CMD were noted by discussants as positive features and, in particular, were seen as improvements over the DDWS. The continuous monitoring aspect of the device was considered especially effective because of the possible delayed effect of alcohol on driving ability, so that "if you took several drinks and shortly later started your car, it may not have hit you yet." Furthermore, the continuous monitoring can pick up a wider range of impairment, such as falling asleep at the wheel or just careless driving. The CMD is also less objectionable than the DDWS in that there is no routine interference in the getting-in-the-car-and-driving-away habit. In this respect, with proper driving, the CMD would be an innocuous safety feature.

Objections to the CMD centered largely on the possibilities of measurement errors as a result of an indiscriminant detection of seemingly aberrant movements by the driver. Some reactions were highly skeptical: "[It] sounds a bit absurd. [I] just can't imagine if you just jerk the wheel a little the horn will go off and the lights will start flashing." A number of other reactions raised certain specific concerns: "What if you had a misalignment in your wheels?" "What about potholes?" "Wouldn't this be useless in stop-and-go traffic?" From another vantagepoint, some discussants felt that the CMD runs counter to, and even discourages, defensive-driving techniques. As one discussant pointed out, in some instances odd movements are the correct response: "After all, the prime cause of accidents is failure to react to unexpected situations."

Operating Time Recorder. In comparison with the other countermeasure devices, the OTR generated relatively few comments that addressed its unique characteristics. In general, reactions to the OTR were similar to those to the other mechanical devices. However, the OTR did not generate as extensive discussion as the DDWS and the CMD. There were three types of reactions. First, a distinction was made between high-risk times of day (which are determined by accident rates) and drunk drivers (who are always a risk). As

stated by one discussant, "People can be drunk at any time of day. For a drunk, any hour is high-risk." A second area of concern was enforcement. Several discussants felt that the burden on probation officers would be too great to justify using the OTR. Practical concerns were a third type of reaction. In this instance, discussants felt that the use of the OTR assumes that the convicted drunk driver is the only driver of that car. Because many cars are driven by several family members, questions such as "What if my wife wanted to drive the car?" were voiced by discussants. The OTR was also seen as an unfair device if the restricted hours coincided with the person's work schedule. Having the device interfere with a job was regarded as a punishment beyond the scope of drunk-driver laws.

B. GENERAL PUBLIC SURVEY

The following descriptions of the four drunk-driver deterrence countermeasures were used during the general-public survey:

> The next question is about drivers who commit a moving traffic violation after they have been drinking, but who are not legally drunk. It has been proposed that even though they are not legally drunk such drivers be punished more severely than if they had not been drinking.
>
> One condition might be to allow convicted drunk drivers to drive only if the car is equipped with a Drunk Driving Warning System. This device would not prevent the car from being driven, but would test whether someone has had too much to drink to drive safely. If a driver's coordination and alertness are below a certain level, and the driver drove anyway, the device would make the car's emergency lights flash on and off. If the car went faster than 10 miles an hour the horn would honk as well.
>
> Another idea is to allow convicted drunk drivers to drive, but only during those hours when accidents involving drunk drivers are least likely to happen.

Opinions expressed during the focus-group discussions suggest that drivers were ambivalent about very rigorous controls over drinking and driving. Although discussants generally felt that drinking and driving posed very significant dangers on the highway, their attitude that social drinking is highly acceptable mitigated support for "drastic measures." There was also a strong attachment among discussants to the currently used penalties for drunk driving. Despite their collective acknowledgment that a substantial proportion of persons with suspended or revoked licenses drive anyway, discussants were more favorable toward stricter enforcement of license suspension than toward alternative approaches. The proposed strategies were expected to have only a marginal impact on the problem and, thus, were considered to be unwarranted. In particular, the mechanical devices were considered to be insufficiently restrictive because they would still allow the convicted drunk driver to drive legally. Discussants also felt that mechanical devices could be circumvented, and did not have any rehabilitative value.

The acceptability of the drunk-driver deterrence countermeasures will be examined in relation to four types of variables:

1. Drivers' perceptions of the effectiveness of the particular countermeasures
2. Demographic characteristics of the drivers surveyed

3. Drivers' perceptions of the drinking and driving problem and personal drinking and driving habits

4. For the mechanical devices, standards or conditions for implementation

Perceived effectiveness of the drunk-driver deterrence methods was measured in several different ways. First, effectiveness was defined in terms of deterrence--the extent to which the model law or having a car equipped with one of the mechanical devices was expected to reduce the incidence of people drinking when they expect to drive. A second aspect of effectiveness was defined in terms of prevention--the extent to which negative test results and activated warning signals (mechanical devices) were expected to deter driving, or the extent to which restricted driving hours would be honored by the penalized driver. Effectiveness was also defined in terms of enforcement--the extent to which the warning signals would help police identify and control drunk drivers. A fourth indicator of effectiveness, obtained only in conjunction with restricted driving hours, was the perceived extent to which accidents involving drinking and driving would be reduced.

It was apparent from the focus-group discussions that the public's perception of drinking and driving as a highway-safety problem entailed several facets. One dimension of the problem along which public perception varied is the definition of the problem population: Are countermeasures needed primarily for a small group of problem drinkers, or should they also be concerned with the occasional or social drinker? Thus, reactions were obtained in this study on how serious a safety problem was posed by nominal or moderate drinkers. A second perspective on the drinking and driving problem is the public's perception of the adequacy of current solutions, as measured by the proportion of persons whose licenses have been suspended or revoked because of a driving while intoxicated (DWI) conviction who are believed to drive anyway. Further, allowing convicted DWI drivers to drive, although with certain restraints, was considered to be contrary to the currently prevailing method of license suspension. Thus, a third perspective on the drinking and driving problem is the extent to which drivers were bound to the current approach whereby licenses are suspended and driving is prohibited. This commitment is measured in two ways: (1) whether allowing convicted drunk drivers to drive under special conditions is a good or bad idea, and (2) whether implementing special devices or suspending licenses is the better way to handle convicted drunk drivers. Finally, receptivity toward the drunk-driver deterrence countermeasures may be a function of

personal drinking and driving behavior. Thus, acceptability will also be examined in relation to whether the respondent ever drives after imbibing in alcohol.

The descriptions of the mechanical devices, as they were presented to respondents, covered only the basic characteristics of the strategies and left open a number of issues with respect to implementation. An examination of acceptance or rejection of these countermeasures should take certain operational provisos or conditions into account. Respondents were asked about four such implementation standards: (1) requisite accuracy rate for a device; (2) whether the device should detect not only severe drunkenness, but also moderate or slight drunkenness; (3) whether the devices should be implemented even if it is possible to circumvent them; and (4) whether they should be implemented even if other family members are also affected.

The presentation of results on the acceptability of the drink-driver deterrence countermeasures is organized into the following sections:

- Section 1 provides a context for the subsequent analysis by summarizing respondents' perceptions of drinking and driving as a highway-safety problem.
- Section 2 presents results on the acceptability of the drunk-driver deterrence methods and identifies variations in acceptability by demographic subgroup.
- Section 3 addresses perceptions of effectiveness. Data are also presented on (1) whether these perceptions varied by demographic characteristics, and (2) whether perceptions of effectiveness were related to the acceptability of drunk-driver deterrence methods.
- Section 4 examines acceptability and effectiveness in relation to respondents' attitudes toward drinking and driving as a highway-safety problem, and in relation to respondents' own drinking and driving habits.
- Section 5 presents data on standards for implementing the mechanical devices. The relationship between standards and acceptability of the countermeasures is also examined.

1. Perceptions of the Problem

Public values and concerns about the drunk-driver deterrence issue are defined here in terms of three dimensions: (1) the scope of the problem (perceived seriousness of driving after 2 to 3 drinks); (2) effectiveness of the current strategy (perception of what proportion of drivers with suspended licenses drive anyway); and (3) commitment to the current strategy (whether

indicated that this level of drinking represented a very serious safety problem. The spread of responses to this item (35.7 percent of drivers responding "somewhat serious," and 26.6 percent responding "not too serious") shows that the criteria used for delineating the drinking and driving problem and the attendant risks varied widely.

The degree to which driving after "moderate" drinking was thought to have safety implications was a function of (1) personal drinking and (2) personal drinking and driving habits. As could be expected, the perceived seriousness of driving after 2 to 3 drinks was greater among drivers who do not drink than among those who do. Almost half of the drivers who are total abstainers believed that driving after "moderate" drinking was a very serious safety problem. At the other end of the spectrum, drivers who reported driving after alcohol consumption attributed far less danger to driving after 2 to 3 drinks (38.2 percent indicated that this was "not too serious") than drivers who never drive after drinking.

Current penalties for dealing with convicted drunk drivers generally involve preventing them from driving for some period of time by revoking or suspending their license. Public confidence that this restraint does in fact keep convicted drunk drivers from driving appeared to be quite low (see Table II.2). The majority of respondents (64.9 percent of the drivers and 66.6

TABLE II.2

PERCEPTIONS OF THE PROPORTION OF DRIVERS WITH SUSPENDED LICENSES WHO DRIVE ANYWAY

Perceived Proportion Who Drive Anyway (Q. 2-8)	Nondrivers	Drivers	(Drivers) Use of Alcoholic Beverages		(Drivers) Ever Drink and Drive	
			Use Alcohol	Total Abstainer	Yes	No
Most	36.1	33.6	35.5	32.5	39.3	28.8
About half	29.5	31.3	29.0	37.5	27.9	30.6
Less than half	13.1	17.1	19.4	10.0	20.8	18.0
Very few	16.4	12.9	13.0	12.5	9.3	18.9
Undecided	4.9	5.1	3.1	7.5	2.7	3.6
Total	100.0 (61)	100.0 (434)	100.0 (293)	100.0 (120)	100.0 (183)	100.0 (110)

convicted drunk drivers should be allowed to drive and whether implementing special devices or suspending licenses is a better way, under special conditions, to handle convicted drunk drivers).

Attitudes toward drinking and driving are examined in terms of two personal characteristics of respondents: (1) whether they drink or are total abstainers, and (2) whether they ever drive after drinking. Of the drivers surveyed, 29 percent reported that they are total abstainers; 70.8 percent reported that they do use alcohol; and, of the drivers who do drink, 37.8 percent reported that they do not drive after drinking, and 62.2 percent reported that they do.[1/]

Slightly more than two-thirds of the drivers felt that driving after 2 to 3 drinks posed at least some hazards for highway safety (see Table II.1). However, 33.6 percent of the drivers and 49.2 percent of the nondrivers

TABLE II.1

PERCEPTIONS OF SERIOUSNESS OF DRIVING AFTER 2-3 DRINKS; ALSO BY USE OF ALCOHOLIC BEVERAGES AND WHETHER RESPONDENTS EVER DRINK AND DRIVE

Seriousness of Driving After 2-3 Drinks (Q. 2-28)	Nondrivers	Drivers	(Drivers) Use of Alcoholic Beverages: Use Alcohol	(Drivers) Use of Alcoholic Beverages: Total Abstainer	(Drivers) Ever Drink and Drive: Yes	(Drivers) Ever Drink and Drive: No
Very serious	49.2	33.6	27.7	48.3	21.9	36.9
Somewhat serious	24.6	35.7	38.2	30.0	36.1	41.4
Not too serious	22.9	26.6	30.7	16.7	38.2	18.0
Undecided	3.3	4.1	3.4	5.0	3.8	3.6
Total	100.0 (61)	100.0 (414)	100.0 (293)	100.0 (120)	100.0 (183)	100.0 (110)
			$p < .001$		$p < .001$	

[1/] This question was designed to classify respondents in very general terms. Interpretation of these data must take into account that respondents had to make very subjective decisions about "when [they] have had something to drink," since the question did not specify the number or the timing of drinks or what type of alcohol. Given that the question followed a series of questions on handling drinking and driving, there may have been an inclination for respondents to underrepresent their own drinking and driving behavior.

percent of the nondrivers) felt that at least half of the people whose licenses have been suspended or revoked drive regularly anyway. The differences in perception between drivers who use alcohol and drivers who are abstainers are not statistically significant.

The notion of legalizing driving for convicted drunk drivers by allowing them to drive under special conditions was not antithetical to the viewpoints of many of the drivers surveyed (see Table II.3). Given the proclivity of convicted drunk drivers to drive anyway, 55.4 percent of the drivers indicated that this was a good idea. Nondrivers were somewhat less likely to respond positively: 45.9 percent felt that this was a good idea.

TABLE II.3

PERCEPTIONS OF WHETHER ALLOWING CONVICTED DRUNK DRIVERS TO DRIVE IS A GOOD OR A BAD IDEA; ALSO BY USE OF ALCOHOLIC BEVERAGES AND WHETHER THEY EVER DRINK AND DRIVE

Allowing Convicted Drunk Drivers to Drive (Q. 2-9)	Nondrivers	Drivers	(Drivers) Use of Alcoholic Beverages: Use Alcohol	(Drivers) Use of Alcoholic Beverages: Total Abstainer	(Drivers) Ever Drink and Drive: Yes	(Drivers) Ever Drink and Drive: No
Good idea	45.9	55.4	57.3	53.3	63.4	46.9
Bad idea	52.5	40.4	38.9	43.3	33.9	47.7
Undecided	1.6	4.2	3.8	3.3	2.7	5.4
Total	100.0 (61)	100.0 (433)	100.0 (293)	100.0 (120)	100.0 (183)	100.0 (110)
						$p < .01$

This question was intended to measure general-public attachment to the license-suspension approach. These findings are especially interesting because respondents were asked this question prior to any descriptions of what the "special conditions" might be. Respondents could have interpreted these conditions to be such things as driving during certain times of the day or for certain purposes, like going to work.

Reactions to the idea of changing the existing mode of dealing with convicted drunk drivers (by establishing conditions under which they can drive) were not related to whether the respondent uses alcohol. Support for this

approach was related, however, to whether the respondent drives after drinking. Of those who do drink and drive, 63.4 percent felt that allowing convicted drunk drivers to drive under special conditions was a good idea; a smaller proportion (46.9 percent) of those who do not drink and drive felt that this was a good idea.

The question on the "better way of handling convicted drunk drivers" differs from the question, discussed above, about whether convicted drunk drivers should be allowed to drive, both because it specified special devices as an option and because it followed the description of the two mechanical devices. Whereas the earlier item simply indicated "under special conditions," respondents to the latter question were specifically referred to the DDWS and the CMD.

Given a choice, both drivers and nondrivers were more inclined to prefer license suspension over the use of special devices (see Table II.4). Of the drivers, 34.7 percent indicated that special devices were the "better way," versus 52.1 percent who indicated that suspending licenses was better. The responses for nondrivers were approximately the same: 32.8 percent preferred special devices, and 52.4 percent preferred license suspension.

TABLE II.4

PREFERRED WAY OF HANDLING CONVICTED DRUNK DRIVERS;
ALSO BY USE OF ALCOHOLIC BEVERAGES AND WHETHER THEY EVER DRINK AND DRIVE

Preferred Way (Q. 2-21)	Nondrivers	Drivers	(Drivers) Use of Alcoholic Beverages: Use Alcohol	(Drivers) Use of Alcoholic Beverages: Total Abstainer	(Drivers) Ever Drink and Drive: Yes	(Drivers) Ever Drink and Drive: No
Special Devices	32.8	34.7	35.5	34.2	37.7	31.5
Suspend License	52.4	52.1	49.8	56.7	48.1	53.2
Both (Volunteered)	6.6	7.4	8.9	4.1	9.3	8.1
Neither (Volunteered)	6.6	4.1	4.1	3.3	4.4	3.6
Don't Know	1.6	1.7	1.7	1.7	0.5	3.6
Total	100.0 (61)	100.0 (418)	100.0 (293)	100.0 (120)	100.0 (183)	100.0 (110)

When these results are compared to those obtained for the more general question about allowing convicted drunk drivers to drive under special conditions, it appears that respondents were more likely to support the idea rather than the actual alternatives presented. For drivers, 55.4 percent felt that having special conditions for driving in lieu of license suspension was a good idea; however, only 34.7 percent thought that the special devices were a better approach than license suspension. While allowing driving under certain conditions may have rather broad public acceptance, it appears that license suspension would clearly be the preferred approach.

The distribution of opinions about how best to handle convicted drunk drivers was fairly similar regardless of (1) whether the respondent drinks, and (2) whether the respondent ever drives after drinking.

a. Demographic Characteristics and Perceptions of the Problem

(Data on drivers' perceptions of drinking and driving as a highway-safety problem, broken down by demographic characteristics, are presented in Appendix Tables A.1 to A.3.)

Perceptions of the seriousness of driving after 2 to 3 drinks were related to the education and sex of the respondents. Educational level discriminated primarily between perceptions of very serious and somewhat serious. The more education, the less likely drivers were to consider "moderate" drinking and driving to be a very serious safety problem: 49.2 percent with less than a high school education versus 29.9 percent with some college responded "very serious." Differences in perceptions of seriousness by sex were less pronounced, but males were more likely to regard driving after moderate drinking as "not too serious." One variable for which differences were expected was age, with perceptions of seriousness increasing with age. Although the pattern of responses was in this direction, the differences are not statistically significant. Differences also did not occur between regions or income levels.

Drivers' perceptions of how many persons with revoked or suspended licenses (for driving while legally drunk) drive anyway were homogeneous across all of the demographic characteristics except region. Drivers surveyed in the Northeast tended to make smaller estimates of how many persons drive without a license.

Drivers' opinions about whether allowing convicted drunk drivers to drive under special conditions is a good or a bad idea did not vary with any of the demographic characteristics.

Drivers' opinions about whether implementing special devices or suspending licenses is a better way to handle convicted drunk drivers varied with age. Support for special devices was greatest among young drivers: of the drivers under age 30, 50.8 percent opted for special devices, as compared to 26.5 percent of the drivers age 45 and over. Preference for special devices or license suspension was not related to any of the other demographic characteristics. These findings on differential acceptance of special devices by age group are important in terms of other research findings that show a relationship between drivers' ages, drinking habits, and the likelihood of being involved in an accident. A series of studies have shown that young drivers, with even fairly low blood-alcohol levels, tend to have a higher risk of a crash than middle-age drivers.[1/] The relatively high acceptance of the idea of mechanical devices among young drivers would be a factor in decisions about implementing this countermeasure.

2. Acceptability of the Drunk Driver Deterrence Methods

Of the four drunk-driver deterrence methods, the model traffic violations law (MTVL) was the most acceptable--58.4 percent of the drivers surveyed favored its use (see Table II.5). Support for the two mechanical devices was similar, with the DDWS favored by 51.1 percent and the CMD favored by 51.6 percent. In contrast, restricted driving hours was relatively unpopular--only 35.8 percent of the drivers indicated support.

The pattern of responses among nondrivers differs from that for drivers primarily because nondrivers gave greater support to the model traffic violations law: 73.8 percent of the nondrivers favored such a law. Both nondrivers and drivers indicated support for the other three strategies in approximately the same proportions.

The pattern of acceptability across methods by particular respondents suggests that each of the methods received independent consideration. Just about all respondents favored at least one approach (only 3.5 percent of the drivers opposed all four methods). On the other hand, only 17.3 percent of the drivers favored all four methods. Further, relatively few respondents appeared

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[1/] See Ralph K. Jones and Kent B. Joscelyn. Alcohol and Highway Safety 1978: A Review of the State of Knowledge. The University of Michigan Highway Safety Research Institute. NHTSA Report No. UM-HSRI-78-5, 1978; The Driver Education Evaluation Program Study. U.S. Department of Transportation, National Highway Traffic Safety Administration, July 1975.

TABLE II.5

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE

Attitude Toward Use	Countermeasures: MTVL (Q. 2-7a)	Drunk Driver Warning System (Q. 2-10)	Continuous Monitoring Device (Q. 2-12)	Restricted Hours (Q. 2-16)
Drivers				
Favorable	58.4	51.1	51.6	35.8
Unfavorable	39.7	46.4	46.5	62.0
Undecided	1.9	2.5	1.9	2.2
Total	100.0 (433)	100.0 (433)	100.0 (425)	100.0 (419)
Nondrivers				
Favorable	73.8	50.8	57.4	36.0
Unfavorable	26.2	39.3	39.3	57.4
Undecided	--	9.8	3.3	6.6
Total	100.0 (61)	100.0 (61)	100.0 (61)	100.0 (61)

to be making choices in favor of only one of the three types of methods (model law, mechanical devices, restricted hours), and, when they did, the choice was almost always the model law. That is, while 25 percent of the drivers favored the model law only, a negligible proportion of drivers favored only the mechanical devices or only restricted hours (7.3 percent and 1.4 percent, respectively). Half of the drivers surveyed favored some combination of the three types of drunk-driver deterrence methods. The model law and the two mechanical devices were the only combination that received sizable support--18.5 percent of the drivers favored that set of countermeasures.

a. Region

Reactions to these countermeasures did not vary with the region of the country.

Acceptance or rejection of the drunk-driver deterrence methods within each of the regions was very similar to the overall distribution (see Table II.6).

TABLE II.6

PERCENTAGE OF DRIVERS, BY REGION, WHO FAVORED EACH DRUNK DRIVER DETERRENCE METHOD

Region	Drunk Driver Deterrence Method			
	MTVL (Q. 2-7a)	Drunk Driver Warning System (Q. 2-10)	Continuous Monitoring Device (Q. 2-12)	Restricted Hours (Q. 2-16)
Northeast (N=101)	58.4*	55.4	56.4	38.6
South (N=135)	60.7	54.8	48.1	34.1
Midwest (N=117)	54.7	41.0	48.7	31.6
West (N=76)	56.6	55.3	52.6	36.8

*This indicates that, of the 101 drivers surveyed in the Northeast, 58.4 percent were in favor of the model law.

b. Sex

Acceptance or rejection of the drunk-driver deterrence methods did not vary by sex (see Table II.7). For each of the methods, males and females tended to support the method in approximately the same proportions.

TABLE II.7

PERCENTAGE OF DRIVERS, BY SEX, WHO FAVORED EACH DRUNK DRIVER DETERRENCE METHOD

Sex	Drunk Driver Deterrence Method			
	MTVL (Q. 2-7a)	Drunk Driver Warning System (Q. 2-10)	Continuous Monitoring Device (Q. 2-12)	Restricted Hours (Q. 2-16)
Male (N=224)	55.4	49.1	51.6	35.9
Female (N=210)	61.4	52.9	51.2	35.3

c. Age

Drivers' reactions to two of the drunk-driver deterrence methods (the mechanical devices) varied with age (see Table II.8). Acceptance of both mechanical devices was greater among drivers under age 30 than among drivers age 30 or older. Acceptance of the model law did not vary by age.

TABLE II.8

PERCENTAGE OF DRIVERS, BY AGE, WHO FAVORED EACH DRUNK DRIVER DETERRENCE METHOD

	Drunk Driver Deterrence Method			
Sex	MTVL (Q. 2-7a)	Drunk Driver Warning System[a] (Q. 2-10)	Continuous Monitoring Device[b] (Q. 2-12)	Restricted Hours (Q. 2-16)
Less Than 30 (N=130)	53.8	60.8	61.5	39.2
30-44 (N=135)	56.3	48.2	45.9	35.6
45 and older (N=147)	63.3	46.9	49.0	34.0

[a] $p < .05$

[b] $p < .05$

d. Education and Income

Reactions to the drunk-driver methods were unrelated to either education or income (see Table II.9).

TABLE II.9

PERCENTAGE OF DRIVERS, BY EDUCATIONAL AND INCOME LEVEL, WHO FAVORED EACH DRUNK DRIVER DETERRENCE METHOD

	Drunk Driver Deterrence Method			
Sex	MTVL (Q. 2-7a)	Drunk Driver Warning System (Q. 2-10)	Continuous Monitoring Device (Q. 2-12)	Restricted Hours (Q. 2-16)
Education				
Less than high school (N=67)	65.7	56.7	55.2	31.3
High school graduate (N=159)	56.0	54.7	56.0	37.7
Any college (N=187)	56.7	47.6	47.6	36.4
Income				
Less than $12,000 (N=98)	60.2	53.1	51.0	39.7
$12,000 or more (N=295)	57.3	53.2	53.2	37.0

3. Perceived Effectiveness of Drunk Driver Deterrence Methods and Relationship to Acceptability

a. Reduction of Drinking and Driving

Table II.10 shows drivers' perceptions of the impact of the model law, the DDWS, and the CMD on the incidence of drinking and driving. To identify perceptions of the deterrent value of the model law, we asked respondents whether fewer people would drink and drive if this law were in effect. Over half (53.3 percent) of the drivers surveyed felt that the law would reduce the incidence of drinking and driving among the general public.

TABLE II.10

PERCEIVED IMPACT OF DRUNK DRIVER DETERRENCE METHODS
ON THE INCIDENCE OF DRINKING AND DRIVING

Would Fewer People Drink and Drive?	MTVL (Q. 2-7b)	Reduction in Drinking and Driving by CDDs*	DDWS (Q. 2-11b)	CMD (Q. 2-13b)	Reduction in # of Accidents Involving Drinking and Driving	Restricted Hours (Q. 2-17)
Drivers						
Yes	53.3	A lot	28.9	32.0	A lot	32.5
		A little	48.6	51.2	A little	39.9
No	42.3	Not at all	19.9	14.7	Not at all	25.2
Undecided	4.4	Undecided	2.6	2.1	Undecided	2.4
	100.0		100.0	100.0		100.0
	(433)		(432)	(428)		(421)
Nondrivers						
Yes	67.2	A lot	36.1	23.0	A lot	44.3
		A little	39.3	49.2	A little	24.6
No	29.5	Not at all	19.7	21.3	Not at all	27.9
Undecided	3.3	Undecided	4.9	6.6	Undecided	3.2
	100.0		100.0	100.0		100.0
	(61)		(61)	(61)		(61)

*Convicted Drunk Drivers

The DDWS and the CMD were presented specifically as strategies for handling DWI convictions; the question about the deterrent effect of the mechanical devices concerned the degree to which the countermeasures would reduce drinking and driving by convicted drunk drivers. The anticipated impact reported by drivers was very similar for the two devices: in both instances, approximately half of the drivers indicated that "a little" reduction in drinking and driving by convicted drunk drivers would occur. Much stronger effectiveness ("a lot" of reduction) was expected by 28.9 percent of the drivers for the DDWS and by 32 percent for the CMD. Given the technical properties of the devices (testing/monitoring and control via public warning signals), the finding that most drivers attributed only moderate deterrent potential to these devices is striking. According to half of the drivers surveyed, whether a DWI driver's car was equipped with such a device would not necessarily preclude drinking when he or she expects to drive.

The effectiveness of restricted driving hours was measured in terms of its impact on accident rates. Respondents were asked about the extent to which restricted hours would reduce the number of accidents that were caused by drinking and driving. One-third (32.5 percent) of the drivers indicated that the occurrence of such accidents would be reduced "a lot." Another 39.9 percent felt that the number of accidents would be reduced "a little." The effectiveness measures used for the mechanical devices and for restricted hours are not strictly comparable because a reduction in drinking and driving does not necessarily mean a reduction in the number of accidents. Although restricted hours received less support than the mechanical devices, the perceived benefits of this method, as measured by the expected reduction in accident rates, were thought to be relatively high.

Nondrivers attributed greater effectiveness to the model law, the DDWS, and restricted hours than did drivers. In particular, 67 percent of the nondrivers felt that fewer people would drink and drive if, under those circumstances, there would be a more severe punishment for moving violations.

b. Prevention of Driving if Impaired or During Certain Hours

The primary control feature of the mechanical devices is a warning signal (flashing lights and sounding horn) that is triggered if the testing or monitoring indicates impairment and the car is driven nonetheless. Another dimension of effectiveness is the public's perception of the likelihood that negative test results would actually stop impaired drivers from driving. Similarly, an indicator of effectiveness for the restricted-hours method is the likelihood that the drivers would not drive during those times. The relevant questions in the survey were asked from a negative standpoint: drivers estimated the degree to which the methods would be ineffective. (Table II.11 shows drivers' perceptions of ineffectiveness for the DDWS, the CMD, and restricted hours.)

There appeared to be little confidence among the drivers surveyed that an activated warning system would effectively stop those people from driving. The chances of driving "anyway" were particularly high for the DDWS, which tests drivers before they start driving--47.1 percent of the drivers felt that it was "very likely" that the person would drive regardless of negative test results from the DDWS. Only 20.8 percent of the drivers expected that it would be "not likely" for the person to drive anyway. In comparison with the DDWS, the CMD ranked higher as an effective way to prevent DWI drivers from driving when impaired. Fewer drivers (33.4 percent) reported that it was "very likely" that

people would continue to drive if the monitoring indicated that they were impaired and the warning system was activated. Also, as compared to the DDWS, a larger proportion of drivers (36.2 percent) felt that it was "not likely" that people would continue to drive.

Drivers found restricted driving hours a very ineffective way to control convicted drunk drivers. The chances that restricted drivers would drive during prohibited hours was considered very high: 72.8 percent of the drivers indicated "very likely." Very few drivers (2.9 percent) felt that this penalty would stop restricted drivers from driving during prohibited times.

The pattern of reactions from nondrivers parallels those of drivers for both of the mechanical devices, except that nondrivers expected them to be even less effective in preventing impaired people from driving. Despite the warning signals, 59 percent of the nondrivers felt that it was very likely that people would drive with activated DDWSs; for the CMD, 44.3 percent responded that driving under those conditions was "very likely" nonetheless.

TABLE II.11

DRIVERS' PERCEPTIONS OF THE IMPACT OF NEGATIVE TEST RESULTS OR RESTRICTED DRIVING HOURS ON LIKELIHOOD OF DRIVING ANYWAY

Likelihood of Driving with Negative Test Results or During Restricted Hours	DDWS (Q. 2-11a)	CMD (Q. 2-13a)	Restricted Driving Hours (Q. 2-18)
Drivers			
Very Likely	47.1	33.4	72.8
Fairly Likely	29.6	28.5	24.1
Not Likely	20.8	36.2	2.9
Undecided	2.5	1.9	0.2
	100.0	100.0	100.0
	(433)	(428)	(419)
Nondrivers			
Very likely	59.0	44.3	65.6
Fairly Likely	24.6	27.9	13.1
Not Likely	8.2	23.0	16.4
Undecided	8.2	4.9	4.9
	100.0	100.0	100.0
	(61)	(61)	(61)

c. Aid in Police Enforcement

Based on the results of the previous two indicators, drivers did not tend to find the mechanical devices especially effective in altering driving behavior. The extent to which the devices would alert police and facilitate police control of impaired driving was another aspect of effectiveness. In the

opinion of most of the drivers and nondrivers, the warning signal triggered by both the DDWS and the CMD would help police "a lot" (see Table II.12) in identifying and controlling drunk drivers. The proportions of drivers indicating each level of help were approximately the same for the two devices: 66 percent of the drivers expected each of the devices to help enforcement "a lot"; approximately another 25 percent expected the devices to help "a little." The mechanical devices were apparently much more likely to be seen as beneficial for control purposes rather than as deterrents to drinking and driving.

d. Demographic Factors in Perceptions of Effectiveness

(The data on the perceived effectiveness of drunk-driver deterrence methods by demographic characteristics are presented in Appendix Tables A.4a to A.8.)

The expectation that fewer people would drink and drive if a moving violation automatically carried a more severe penalty was related to the sex and educational level of the respondent. Females were more likely than males to anticipate a reduction in drinking and driving by the general public. Controlling for education, the proportion of drivers indicating that a reduction in drinking and driving would occur decreased as educational level increased: 62.1 percent of the drivers with less than a high school education expected a reduction, versus 46.5 percent of the drivers with some college education.

Although the two mechanical devices are very similar, perceptions of their effectiveness were associated with different demographic characteristics. With respect to the DDWS, drivers' opinions about two of the measures of effectiveness (reduction in drinking and driving, and the preventive value of negative test results) varied with age. Drivers under age 30 and those over age 45 were more likely to expect that drinking and driving would be reduced "a lot." A direct relationship exists between age and the belief that people would drive despite indications of impairment. Responses that "driving anyway" would occur "a lot" were increasingly more frequent as one moved from younger- to older-age categories, with older drivers far less convinced that the mechanical devices would prevent an impaired driver from driving.

TABLE II.12

DRIVERS' PERCEPTIONS OF THE DEGREE TO WHICH WARNING SYSTEMS WILL HELP POLICE

Degree of Help To Police	DDWS (Q. 2-11c)	CMD (Q. 2-13c)
Drivers		
A lot	66.1	66.4
A little	24.8	26.8
Not at all	7.4	5.4
Undecided	1.6	1.4
	100.0	100.0
	(431)	(425)
Nondrivers		
A lot	80.3	78.7
A little	13.1	16.4
Not at all	1.7	1.6
Undecided	4.9	3.3
	100.0	100.0
	(61)	(61)

Drivers' opinions about the extent to which the deterrence of drinking and driving can be achieved with the CMD were related to both education and income. Lower education and lower income were associated with the expectation that "a lot" of reduction would occur (i.e., high effectiveness). For example, 38.8 percent of the drivers with less than a high school education, versus 27.8 percent of the drivers with some college, responded "a lot." Similarly, 41.8 percent of the drivers with incomes under $12,000 responded "a lot," versus 29.6 percent of the drivers with higher incomes. On the other measure of effectiveness (the likelihood that impaired people would drive anyway), lower education was also associated with perceptions of low effectiveness. Of the drivers with less than a high school education, 41.8 percent felt that it was "very likely" that people would drive with the warning system activated; only 25.6 percent of the drivers with some college education responded "very likely."

The expected impact of restricted driving hours on the number of accidents which involve drinking and driving elicited a somewhat different pattern of response in the Northeast and the West. Drivers in the Northeast were more likely to expect "a lot" of reduction. In contrast, 38.2 percent of the drivers in the West, versus 16.8 percent in the Northeast, expected no reduction at all.

4. Relationship of Perceived Effectiveness and the Acceptability of the Drunk Driver Deterrence Methods

For each of the three effectiveness measures (deterrence of drinking and driving, prevention of driving under certain conditions, and improved police enforcement), perception of effectiveness was strongly related to the acceptability of the method (see Table II.13). The proportion of drivers who favored a particular method increased with increased perceptions of effectiveness. Furthermore, since the differences in acceptability were particularly large between perceptions of no effectiveness and some effectiveness, it appears that the perception of even moderate effectiveness was a sufficient precondition for support.

For the drivers surveyed who did expect that fewer people would drink and drive if the model law were in effect, 74.5 percent also favored the law. Similarly, for drivers who expected that drinking and driving (by convicted drunk drivers) would be reduced "a lot" with the DDWS, 64 percent favored using this device. Also, over half (52.9 percent) of the drivers who felt that there would be only "a little" impact favored the device nonetheless. The proportion of drivers favoring the DDWS dropped to 30.2 percent if no impact on drinking and driving was expected. The distribution of acceptability of the CMD by reduction in drinking and driving was very similar to that found for the DDWS, except that only 20 percent of the drivers who expected no impact favored using the CMD.

The acceptability of the restricted-hours method was only partially a function of its potential impact on accident rates. While drivers who felt that there would be no reduction in accident rates as a result of restricted hours almost invariably rejected the method, perceptions of greater effectiveness were linked to acceptability only about half the time. Of the drivers who believed the number of accidents would be reduced "a lot," 53 percent favored using this method.

As would be expected, drivers with more confidence in the ability of the methods to prevent impaired drivers from driving were also more likely to support these methods. However, detaining or preventing impaired drivers from driving was considered to be an overly stringent requirement to impose on drunk-driver deterrence. It is interesting that over one-third of the drivers who indicated that this would be achieved with the DDWS and the CMD nevertheless did not favor using these devices. From the opposite vantagepoint, a sizable group of drivers--39.7 percent for the DDWS and 41.3 percent for the CMD--did favor these devices, but did not have high expectations about their effectiveness. It

TABLE II.13

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS
BY TYPE AND LEVEL OF EFFECTIVENESS

Would Fewer People Drink and Drive?	MTVL[a]	Reduction in Drinking and Driving by CDD's*	DDWS[a]	CMD[a]	Reduction in # of Accidents Involving Drinking and Driving	Restricted Driving Hours[a]
Yes	74.5** (231)	A Lot	64.0 (152)	67.9 (137)	A Lot	53.0 (137)
		A Little	52.9 (210)	51.4 (219)	A Little	41.1 (168)
No	37.2 (183)	Not at All	30.2 (86)	20.6 (63)	Not at All	4.6 (106)

[a] $p < .001$

Likelihood of Driving with Negative Test Results or During Restricted Hours	DDWS[a]	CMD[b]	Restricted Driving Hours[c]
Very Likely	39.7 (204)	41.3 (143)	28.9 (305)
Fairly Likely	61.7 (128)	54.9 (122)	56.4 (101)
Not Likely	63.3 (90)	60.7 (155)	41.8 (12)

[a] $p < .001$

[b] $p < .01$

[c] $p < .001$

Degree of Help to Police	DDWS[a]	CMD[a]
A Lot	61.4 (285)	61.4 (285)
A Little	37.4 (107)	39.5 (114)
Not at All	12.5 (32)	4.4 (23)

[a] $p < .001$

*Convicted Drunk Drivers

**This indicates that, of the 231 drivers surveyed who believed that fewer people would drink and drive if the MTVL were in effect, 74.5 percent favored the MTVL.

appears that, quite frequently, considerations other than effective detention of impaired drivers guided decisions about acceptability.

The relationship between the acceptability of the mechanical devices and the degree to which they were expected to aid enforcement was almost identical for the two devices. Of the drivers who felt that the warning signals would be "a lot" of help, 61.4 percent also supported using these devices.

5. Acceptability and Effectiveness of Drunk Driver Deterrence Methods in Relation to Attitudes Toward Drinking and Driving

Respondents' attitudes toward drinking and driving--specifically, attitudes toward the seriousness of driving after 2 to 3 drinks, expectations of how many DWI drivers drive despite suspended or revoked licenses, advisability of allowing convicted drunk drivers to drive under special conditions, and preference for license suspension versus the use of special devices--defined, in part, the context within which specific countermeasures were evaluated. By examining the acceptability of the countermeasures against these attitudes, we can attempt to specify the type of orientation toward drinking and driving which tended to make drivers receptive or opposed to these drunk-driver deterrence methods. Further, an examination of the degree of support and perceptions of effectiveness among drivers considered "highly motivated" can help identify ways in which the countermeasures were considered appropriate or inappropriate solutions.

a. Acceptability, Effectiveness, and Attitudes toward Driving After 2 to 3 Drinks

Table II.14 shows the acceptability of the four drunk-driver deterrence methods by drivers' perceptions of drinking and driving safety. Drivers' perceptions of the safety implications of driving after 2 to 3 drinks were directly related to their support of the MTVL: the more serious the safety hazards posed by driving after 2 to 3 drinks, the higher the proportion of drivers favoring the MTVL. For the drivers who indicated that driving after moderate drinking was "very serious," the MTVL was considered a well-targeted approach: 71.9 percent of these respondents favored the law (see Table II.14).

The seriousness attributed to driving after 2 to 3 drinks was unrelated to the degree of support given to either of the mechanical devices.

Restricted driving hours, which received less overall support than the other three methods, was apparently most heavily favored by drivers with a more open-ended definition of safety with respect to driving after 2 to 3 drinks. Restricted hours was favored by 48.2 percent of the drivers from the "not too serious" category, as opposed to 28.1 percent from the "very serious" category.

TABLE II.14

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS BY PERCEIVED SERIOUSNESS OF DRIVING AFTER 2 TO 3 DRINKS

Seriousness of Driving After 2-3 Drinks (Q. 2-28)	Drunk Driver Deterrence Method			
	Model Law[a] (Q. 2-7a)	DDWS (Q. 2-10)	CMD (Q. 2-12)	Restricted Hours[b] (Q. 2-16)
Very Serious	71.9 (139)	46.0 (139)	49.6 (139)	28.1 (139)
Somewhat Serious	60.8 (148)	56.1 (148)	52.0 (148)	35.1 (148)
Not Too Serious	40.9 (110)	51.8 (110)	56.0 (110)	48.2 (109)

[a] $p < .001$

[b] $p < .01$

Table II.15 shows drivers' perceptions of the effectiveness of the drunk-driver deterrence methods, broken down by the seriousness of driving after 2 to 3 drinks. As noted above, perceived seriousness was related to the support of the MTVL, as well as to the expected effectiveness of the MTVL. Of the drivers for whom driving after a few drinks raised very serious safety concerns, 63.3 percent expected that fewer people would drink and drive if the model law were in effect. The proportion of drivers confident in the effectiveness of the model law dropped to 53.4 percent for those in the "somewhat serious" category, and to 45.5 percent for drivers who considered moderate drinking and driving "not too serious" (see Table II.15).

The effectiveness of the other three drunk-driver deterrence methods (DDWS, CMD, and restricted driving hours) was unrelated to drivers' perceptions of the safety hazards posed by drinking and driving. Drivers' definitions of the safety risks associated with drinking and driving apparently had no bearing on any of the three measures of effectiveness: (1) deterring or (2) preventing drinking and driving by convicted drunk drivers or (3) assisting in police enforcement. One explanation for this may be that because these three countermeasures are directed at convicted drunk drivers, the "seriousness" dimension, which referred primarily to the general population, may not have been relevant; in other words, persons who felt that driving after a few drinks did

TABLE II.15

DRIVERS' PERCEPTIONS OF THE EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS
BY PERCEPTIONS OF SERIOUSNESS OF DRIVING AFTER 2-3 DRINKS

Would Fewer People Drink and Drive with MTVL	Seriousness of Driving after 2-3 Drinks			Reduction in Drinking & Driving by CDD's with DDWS	Seriousness of Driving after 2-3 Drinks			Reduction in Drinking & Driving by CDD's with CMD	Seriousness of Driving after 2-3 Drinks			Reduction in # of Accidents with Restricted Hours	Seriousness of Driving after 2-3 Drinks		
	Very	Somewhat	Not Too		Very	Somewhat	Not Too		Very	Somewhat	Not Too		Very	Somewhat	Not Too
Yes	63.3	53.4	45.5	A Lot	26.6	29.7	32.7	A Lot	30.5	33.8	31.2	A Lot	31.7	31.7	36.4
				A Little	49.6	54.0	42.7	A Little	50.7	54.0	47.7	A Little	38.1	42.6	40.0
No	33.1	41.9	52.7	Not At All	21.6	14.9	20.9	Not At All	15.2	11.5	20.2	Not At All	26.6	25.0	22.7
Don't Know	3.6	4.7	1.8	Undecided	2.2	1.4	3.7	Undecided	3.6	0.7	0.9	Undecided	3.6	0.7	0.9
Total	100.0 (139)	100.0 (148)	100.0 (110)	Total	100.0 (139)	100.0 (148)	100.0 (110)	Total	100.0 (138)	100.0 (148)	100.0 (109)	Total	100.0 (139)	100.0 (148)	100.0 (110)
	$p < .001$														
Likelihood of Driving with Negative Test Results: DDWS				Likelihood of Driving with Negative Test Results: CMD				Likelihood of Driving During Restricted Hours							
Very likely	52.5	41.2	47.3	Very likely	37.7	24.3	31.2	Very likely	74.1	70.3	73.7				
Somewhat likely	31.0	29.7	28.2	Somewhat likely	27.5	31.8	27.5	Somewhat likely	23.0	26.3	23.6				
Not Likely	15.1	25.7	23.6	Not Likely	31.9	41.9	40.4	Not Likely	2.9	3.4	2.7				
Don't Know	1.4	3.4	0.9	Don't Know	2.9	2.0	0.9	Don't Know	0.0	0.0	0.0				
Total	100.0 (139)	100.0 (148)	100.0 (110)	Total	100.0 (138)	100.0 (148)	100.0 (109)	Total	100.0 (139)	100.0 (148)	100.0 (110)				
Aid to Police: DDWS				Aid to Police: CMD											
A Lot	64.8	65.5	70.0	A Lot	63.8	65.5	71.8								
A Little	29.5	27.0	18.2	A Little	31.1	27.0	19.1								
Not At All	4.3	6.1	10.9	Not At All	2.9	6.8	8.2								
Undecided	1.4	1.4	0.9	Undecided	2.2	0.7	0.9								
Total	100.0 (139)	100.0 (148)	100.0 (110)	Total	100.0 (138)	100.0 (148)	100.0 (110)								

not pose very serious safety problems may have used very different criteria and standards with respect to convicted drunk drivers.

b. Acceptability, Effectiveness, and the Proportion of Drivers with Suspended Licenses Believed to Drive Anyway

Table II.16 shows the acceptability of the drunk-driver deterrence countermeasures by perceived effectiveness of the current method for handling DWI convictions. Table II.17 shows the relationship between the perceived effectiveness of the current methods and the perceived effectiveness of the proposed countermeasures.

Whether the currently prevailing penalty for convicted drunk drivers (suspending or revoking the license) was considered effective (as measured by what proportion of people with suspended licenses are believed to drive anyway) was unrelated to the acceptability of any of the drunk-driver deterrence countermeasures. Perceptions of how effective or how ineffective license suspension is in preventing driving after drinking did not affect support for the four methods presented: acceptability levels were fairly similar regardless of whether respondents felt that a few or most people drive with a suspended license. That acceptability of the proposed methods was not a function of how the current method is working may have reflected a low level of concern about

TABLE II.16

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS
BY PROPORTION OF DRIVERS WITH SUSPENDED LICENSES
BELIEVED TO DRIVE ANYWAY

Proportion Believed to Drive Anyway (Q. 2-8)	Drunk Driver Deterrence Method			
	MTVL (Q. 2-7a)	DDWS (Q. 2-10)	CMD (Q. 2-12)	Restricted Hours (Q. 2-16)
Most	61.6* (146)	52.7 (146)	55.5 (146)	40.0 (145)
About Half	63.2 (136)	51.5 (136)	53.3 (135)	34.3 (134)
Less Than Half	47.3 (74)	44.6 (74)	47.3 (74)	34.7 (72)
Very Few	53.6 (56)	55.4 (56)	48.2 (56)	34.6 (55)

*This indicates that, of the 146 drivers who believed that most people with suspended licenses drive anyway, 61.6 percent favored the model law.

TABLE II.17

DRIVERS' PERCEPTIONS OF THE EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY PERCEPTIONS OF WHAT PROPORTION OF DRIVERS WITH SUSPENDED OR REVOKED LICENSES DRIVE ANYWAY

Would Fewer People Drink & Drive with HTVL	Most	About Half	Less Than Half*	Reduction in Drinking & Driving by CDD's with DDWS	Most	About Half	Less Than Half	Reduction in Drinking & Driving by CDD's with CMD	Most	About Half	Less Than Half	Reduction in Number of Accidents with Restricted Hours	Most	About Half	Less Than Half
Yes	50.0	57.3	55.4	A Lot	26.7	30.9	30.0	A Lot	26.7	34.3	34.9	A Lot	29.0	37.1	33.9
				A Little	48.6	47.8	50.8	A Little	55.5	50.0	48.8	A Little	40.7	38.8	41.9
No	45.2	39.0	42.3	Not At All	23.3	19.8	16.1	Not At All	16.4	14.2	14.0	Not At All	29.0	20.2	23.4
Undecided	4.8	3.7	2.3	Undecided	1.4	1.5	3.1	Undecided	1.4	1.5	2.3	Undecided	1.3	3.7	0.8
Total	100.0 (146)	100.0 (136)	100.0 (130)	Total	100.0 (146)	100.0 (136)	100.0 (130)	Total	100.0 (146)	100.0 (134)	100.0 (129)	Total	100.0 (145)	100.0 (134)	100.0 (124)
Likelihood of Driving with Negative Test Results: DDWS				Likelihood of Driving with Negative Test Results: CMD				Likelihood of Driving During Restricted Hours							
Very likely	52.0	44.8	42.3	Very likely	33.6	37.3	28.7	Very likely	82.8	68.4	59.2				
Somewhat likely	27.4	34.6	29.2	Somewhat likely	26.0	27.6	33.3	Somewhat likely	14.4	27.2	30.8				
Not Likely	19.2	18.4	26.9	Not Likely	38.4	32.1	38.0	Not Likely	1.4	2.2	5.4				
Don't Know	1.4	2.2	1.6	Don't Know	2.0	3.0	0.0	Don't Know	1.4	2.2	4.6				
Total	100.0 (146)	100.0 (136)	100.0 (130)	Total	100.0 (146)	100.0 (134)	100.0 (129)	Total	100.0 (146)	100.0 (136)	100.0 (130)				
										$p = .001$					
Aid to Police: DDWS				Aid to Police: CMD											
A Lot	65.1	73.3	60.8	A Lot	60.0	73.9	65.6								
A Little	27.4	20.0	27.7	A Little	31.0	22.4	28.1								
Not At All	6.1	5.2	9.2	Not At All	5.5	3.0	6.3								
Undecided	1.4	1.5	2.3	Undecided	3.5	0.8	0.0								
Total	100.0 (146)	100.0 (135)	100.0 (130)	Total	100.0 (145)	100.0 (134)	100.0 (128)								

*For purposes of this table the "less than half" and "very few" categories were combined. The chi-squares were calculated on the three-category variable.

allowing drunk drivers to drive. These findings may also indicate that the proposed methods were not considered alternative, or improved, strategies for drunk-driver deterrence.

In examining respondents' judgments about the effectiveness of the proposed methods in relation to judgments about the effectiveness of license suspension, the issue of interest is how the proposed methods rated as compared to the existing method. The proposed method would be considered an improvement to the extent that respondents who were least confident in the deterrent value of license suspension (i.e., those who felt that most people drive anyway) would (1) expect a reduction in the incidence of drinking and driving, or (2) expect a driver not to drive when test/monitoring results were negative or during restricted driving hours. The data show that drivers who felt that license suspension was quite ineffective nevertheless were not more likely to attribute effectiveness to either the model law or the mechanical devices. The proposed alternatives apparently were not regarded as better, or worse, than the current methods.

For restricted driving hours, a predictable relationship exists between the proportion of persons with suspended licenses who are believed to drive anyway and the expectation that a convicted drunk driver would drive during restricted hours. Of the drivers who felt that <u>most</u> people with suspended licenses <u>do</u> drive regularly, 82.8 percent also felt that it was "very likely" that driving during restricted hours would occur. The relationship here is based primarily on the degree to which driving during restricted hours was considered <u>very</u> likely; even for respondents who felt that few people with suspended licenses drive anyway, only 5.4 percent felt that driving during restricted hours was "not likely."

c. <u>Acceptability, Effectiveness, and Attitudes toward Allowing Convicted Drunk Drivers to Drive</u>

Current penalties for convicted drunk drivers typically include withdrawing the driver's right to drive for a certain period of time by suspending or revoking his or her license. One rationale for this procedure, as raised during the focus groups, was that in order to protect the safety of other drivers "dangerous drivers should be taken off the road." As an indication of whether the drivers surveyed were amenable to a change in this basic strategy, respondents were asked whether allowing convicted drunk drivers to drive, but only under special conditions, is a good or a bad idea.

The data show that a positive reaction to this alternative way of handling convicted drunk drivers was associated with the acceptability of the DDWS, the CMD, and restricted driving hours (see Table II.18). Of the respondents who felt that "allowing convicted drunk drivers to drive under special conditions" was a good idea, 57.1 percent favored the DDWS, 58.2 percent favored the CMD, and 47 percent favored restricted hours. Corresponding figures for acceptability when this alternative way was considered a bad idea are 42.3, 42.9, and 20.6 percent, respectively (see Table II.18).

Interpretation of drivers' reactions to allowing convicted drunk drivers to drive must take into account that the question preceded any specific description of the "special conditions," and that this term may have taken on various meanings for respondents. A very liberal understanding of "special conditions" (in which these conditions would not be considered very restrictive) would help explain the particularly strong relationship between attitudes on this dimension and the acceptability of restricted hours. As presented to respondents, restricted driving hours is less stringent than license suspension because the driving prohibition applies only to certain hours; support for a less stringent method was especially likely from respondents who were amenable to the idea of allowing convicted drunk drivers to drive. Rejecting the idea

TABLE II.18

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS BY WHETHER ALLOWING CONVICTED DRUNK DRIVERS TO DRIVE, UNDER SPECIAL CONDITIONS, IS A GOOD OR BAD IDEA

Allowing Convicted Drunk Drivers to Drive (Q. 2-9)	Drunk Driver Deterrence Methods			
	MTVL (Q. 2-7a)	DDWS[a] (Q. 2-10)	CMD[b] (Q. 2-12)	Restricted Hours[c] (Q. 2-16)
Good Idea	56.3 (240)	57.1 (240)	58.2 (237)	47.0 (236)
Bad Idea	61.1 (175)	42.3 (175)	42.9 (175)	20.6 (170)

[a] $p > .01$

[b] $p < .01$

[c] $p < .001$

of allowing people with DWI convictions to drive almost precluded support for the restricted-hours method.

Although positive attitudes toward the idea of allowing convicted drunk drivers to drive were related to acceptability, there was no relationship between these attitudes and expectations that the mechanical devices would be effective (see Table II.19). Two explanations for these findings can be given. One possibility is that interest in allowing convicted drunk drivers to drive did not necessarily reflect an expectation of increased deterrence (were such interest in evidence, respondents who felt that it was a "good idea" might also have been inclined to attribute "a lot" of effectiveness to the method). Another explanation is that while allowing convicted drunk drivers to drive under special conditions was considered a good idea, the particular devices presented were not expected to be effective.

Drivers with a positive attitude toward allowing convicted drunk drivers to drive, however, were more likely to expect "a lot" of reduction in the number of drinking and driving accidents from the restricted-hours method.

With respect to attitudes toward the general idea and attitudes toward the specific options, it appears that, for a sizable segment of the drivers surveyed, there was both general and specific support for less unequivocal methods than are currently applied--whereby it is illegal to drive altogether for certain periods of time (see Table II.19).

d. Acceptability, Effectiveness, and Preferred Approach for Handling Convicted Drunk Drivers

The question of whether license suspension or the use of special devices is the better way to handle convicted drunk drivers is of particular interest both because (1) in the interview this question followed descriptions of the various drinking and driving countermeasures, thus making respondents familiar with characteristics of the special devices, and (2) the question asked for a choice, independent of how acceptable special devices were, of which method was considered better. Predictably, the data show that respondents who indicated a preference for using special devices also favored the DDWS and the CMD to a very large extent (see Table II.20). Of the drivers who indicated that special devices were the "better way," 74.5 percent favored the DDWS and 75.2 percent favored the CMD. The extremely large differences in acceptance of the mechanical devices between drivers who preferred special devices and those who preferred suspension strongly suggests that an attachment to license suspension greatly reduced the chances that those drivers would support either the DDWS or

TABLE II.19

DRIVERS' PERCEPTIONS OF THE EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY ATTITUDES TOWARD ALLOWING CONVICTED DRUNK DRIVERS TO DRIVE

Would Fewer People Drink & Drive with NTVL	Good Idea	Bad Idea	Reduction in Drinking & Driving by CDDs with DDWS	Good Idea	Bad Idea	Reduction in Drinking & Driving by CDDs with CMD	Good Idea	Bad Idea	Reduction of Number of Accidents with Restricted Hours	Good Idea	Bad Idea
Yes	57.1	54.6	A Lot	29.3	29.2	A Lot	34.6	29.3	A Lot	37.5	27.2
No	39.4	41.0	A Little	51.9	45.7	A Little	49.8	53.5	A Little	41.7	37.9
Undecided	3.5	4.4	Not At All	15.9	23.4	Not At All	13.5	16.1	Not At All	18.7	33.1
			Undecided	2.9	1.7	Undecided	2.1	1.1	Undecided	2.1	1.8
Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0
	(231)	(183)		(239)	(175)		(237)	(179)		(237)	(174)

$p < .01$

Likelihood of Driving with Negative Test Results: DDWS			Likelihood of Driving with Negative Test Results: CMD			Likelihood of Driving During Restricted Hours		
Very likely	44.3	51.4	Very likely	29.5	39.1	Very likely	69.7	76.3
Somewhat likely	32.2	26.9	Somewhat likely	29.1	28.1	Somewhat likely	27.3	20.7
Not Likely	22.2	19.4	Not Likely	40.1	29.9	Not Likely	3.0	3.0
Undecided	1.3	2.3	Undecided	1.3	2.9	Undecided	0.0	0.0
Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0
	(249)	(175)		(237)	(174)		(234)	(169)
Aid to Police: DDWS			Aid to Police: CMD					
A Lot	70.6	62.3	A Lot	70.0	62.8			
A Little	22.4	28.0	A Little	24.5	29.6			
Not At All	5.4	8.6	Not At All	4.2	6.4			
Undecided	1.7	1.1	Undecided	1.3	1.2			
Total	100.0	100.0	Total	100.0	100.0			
	(248)	(175)		(237)	(172)			

TABLE II.20

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS
BY PREFERRED WAY OF HANDLING CONVICTED
DRUNK DRIVERS*

Preferred Way (Q. 2-21)	Drunk Driver Deterrence Methods			
	MTVL[a] (Q. 2-7a)	DDWS[b] (Q. 2-10)	CMD[c] (Q. 2-12)	Restricted Hours[d] (Q. 2-16)
Special Devices	54.4 (145)	74.5 (145)	75.2 (145)	44.8 (145)
Suspend License	59.6 (218)	33.5 (218)	33.6 (217)	30.7 (218)

* Chi-square calculations included the "both" and "neither" categories of the "preferred way" variable.

[a] $p < .01$

[b] $p < .001$

[c] $p < .001$

[d] $p = .05$

the CMD. Acceptance of the mechanical devices occurred predominantly among drivers who rejected the license-suspension method; preference for license suspension came close to precluding acceptability of the mechanical devices (see Table II.20).

To a lesser degree, preference for special devices was also associated with the acceptability of restricted driving hours, which received support from 44.8 percent of the drivers who opted for implementing special devices. The acceptability of the model law was independent of whether special devices or license suspension was preferred.

An examination of whether "preferred method" was associated with perceptions of how effective the various drunk-driver countermeasures were considered to be shows that preference for special devices was a function of perceived effectiveness (see Table II.21). As would be expected, drivers who preferred special devices tended to attribute much higher benefits to the DDWS and the CMD in terms of (1) reducing the incidence of drinking and driving, (2) stopping impaired drivers from driving, and (3) helping in police enforcement. "A lot" of reduction in drinking and driving as a result of the DDWS was

TABLE II.21

DRIVER PERCEPTIONS OF THE EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY PREFERENCE FOR EITHER SPECIAL DEVICES OR LICENSE SUSPENSION

Would Fewer People Drink & Drive With MTVL	Better Way for CDDs: Special Devices	Better Way for CDDs: Suspended License	Reduction in Drinking & Driving by CDDs with DDWS	Better Way for CDDs: Special Devices	Better Way for CDDs: Suspended License	Reduction in Drinking & Driving by CDDs with CMD	Better Way for CCDs: Special Devices	Better Way for CCDs: Suspended License	Reduction of Number of Accidents with Restricted Hours	Better Way for CDDs: Special Devices	Better Way for CDDs: Suspended License
Yes	53.1	56.2	A Lot	40.0	24.8	A Lot	38.6	29.8	A Lot	38.6	29.5
No	44.1	40.1	A Little	49.6	48.6	A Little	54.5	48.8	A Little	41.4	40.6
Undecided	2.8	3.7	Not At All	9.0	23.4	Not At All	5.5	19.1	Not At All	17.9	28.1
Total	100.0	100.0	Undecided	1.4	3.2	Undecided	1.4	2.3	Undecided	2.1	1.8
	(145)	(218)	Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0
				(145)	(218)		(145)	(215)		(145)	(217)
				p < .001			p < .001			p < .05	
Likelihood of Driving with Negative Test Results: DDWS			Likelihood of Driving with Negative Test Results: CMD			Likelihood of Driving During Restricted Hours					
Very likely	31.0	55.0	Very likely	20.7	35.8	Very likely	71.0	72.8			
Somewhat likely	42.1	23.4	Somewhat likely	36.6	26.0	Somewhat likely	24.8	24.9			
Not likely	26.2	19.3	Not likely	41.4	35.4	Not likely	4.2	1.8			
Undecided	0.7	2.3	Undecided	1.4	2.8	Undecided	0.0	0.5			
Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0			
	(145)	(218)		(145)	(215)		(145)	(217)			
	p < .001			p < .01							
Aid to Police: DDWS			Aid to Police: CMD								
A Lot	80.0	59.2	A Lot	80.0	57.4						
A Little	17.9	30.3	A Little	17.2	34.3						
Not At All	1.4	9.2	Not At All	2.1	6.9						
Undecided	0.7	1.4	Undecided	0.7	1.4						
Total	100.0	100.0	Total	100.0	100.0						
	(145)	(218)		(145)	(216)						
	p < .001			p < .001							

anticipated by 40 percent of the drivers who favored special devices; 38.6 percent of those drivers expected "a lot" of reduction with the CMD. Only 24.8 percent and 29.8 percent of the drivers who favored license suspension attributed "a lot" of reduction to the two respective mechanical devices. Percentage differences between the two preference groups were even larger on perceptions of whether negative test results would deter driving. Of drivers who preferred special devices, 31 percent felt that it was "very likely" that drivers would drive despite indications of impairment with the DDWS; of the drivers who preferred license suspension, the proportion which felt that impaired driving would be "very likely" increased to 55 percent. A similar pattern occurred for the CMD.

e. Acceptability, Effectiveness, and Personal Drinking and Driving Habits

Whether a respondent ever drives after drinking (an) alcoholic beverage(s) was expected to be a factor in acceptability in two respects. Not driving after drinking may reflect particular concerns about drinking and driving safety and may be a cause for greater receptivity to more stringent deterrence. On the other hand, for people who drive after drinking, the countermeasure (especially the model law) could potentially have personal implications, perhaps causing a greater resistance to the countermeasures.

The data show that personal drinking and driving habits were related to the acceptability of the model law and restricted driving hours (see Table II.22). Reactions to the model law followed the expected pattern: persons who

TABLE II.22

ACCEPTABILITY OF DRUNK DRIVER DETERRENCE METHODS BY DRINKING AND DRIVING HABITS

Ever Drink and Drive (Q. 2-34b)	Drunk Driver Deterrence Method			
	MTVL[a] (Q. 2-7a)	DDWS (Q. 2-10)	CMD (Q. 2-12)	Restricted Hours[b] (Q. 2-16)
Yes	45.9 (183)	53.6 (183)	53.6 (183)	42.6 (183)
No	63.1 (111)	53.2 (111)	54.0 (111)	27.0 (111)

[a] $p < .01$

[b] $p < .01$

do not drive after drinking were especially likely to support the law (63.1 percent of these drivers favored the law, versus 45.9 percent of those who drink and drive). An equally strong relationship exists between personal drinking and driving habits and the perceived effectiveness of the model law. The model law, which calls for more severe penalties for moving violations which involve alcohol, was much more likely to be considered a deterrent to drinking and driving by those who themselves do not drink and drive: 65.5 percent of the "drinkers and drivers" felt that fewer people would drink and drive if the model law were in effect; 42.6 percent of the respondents who do not drink and drive expected a reduction in drinking and driving. Table II.23 shows perceptions of effectiveness of the drunk-driver deterrence methods by whether or not the respondent drives after drinking.

Personal drinking and driving habits were not related to the acceptability of the DDWS and the CMD (see Table II.22). The similarity in degree of support for the mechanical devices regardless of whether a respondent drinks and drives may have stemmed from the fact that, since the target population for these devices is convicted drunk drivers, the impact of these devices may have seemed remote. Since we have found that "drink and drive" respondents were more amenable to the idea of allowing convicted drunk drivers to drive under special conditions (see Section 1 above), a plausible interpretation would be that the lack of greater acceptance within this group stemmed from an aversion to the particular devices.

Restricted driving hours, the least stringent of the methods for handling convicted drunk drivers, was more likely to be supported by respondents who reported that they do drive after drinking (see Table II.22). The levels of acceptability are as follows: 42.6 percent of "drinkers and drivers" were in favor; 27 percent of "nondrinkers and drivers" were in favor. This conforms to the notion that respondents who behaviorally attached lower risk to drinking and driving (because they themselves drive when they have had something alcoholic to drink) were less likely to be interested in greater control for both the general public and convicted drunk drivers. (As noted in Section 1 above, respondents who drink and drive also tended to have a more cynical view about the effectiveness of current methods: a large proportion of these drivers felt that most people with suspended licenses drive anyway.) While respondents who reported that they do drive after having imbibed in alcohol were more likely to support restricted hours, the group did not find this method any more effective than did "nondrinkers and drivers" (see Table II.23).

TABLE II.23

DRIVERS' PERCEPTIONS OF THE EFFECTIVENESS OF DRIVER DETERRENCE METHODS BY PERSONAL DRINKING AND DRIVING HABITS

Would Fewer People Drink and Drive with MTVL	Ever Drink & Drive Yes	Ever Drink & Drive No	Reduction in Drinking & Driving by CDDs with DDWS	Ever Drink & Drive Yes	Ever Drink & Drive No	Reduction in Drinking & Driving by CDDs with DDWS	Ever Drink & Drive Yes	Ever Drink & Drive No	Reduction in Number of Accidents with Restricted Hours	Ever Drink & Drive Yes	Ever Drink & Drive No
Yes	42.6	65.5	A Lot	31.7	23.4	A Lot	34.1	26.4	A Lot	33.3	26.1
			A Little	49.2	46.0	A Little	51.6	54.5	A Little	41.6	47.4
No	54.7	30.9	Not At All	18.0	27.9	Not At All	14.3	17.3	Not At All	25.1	25.2
Undecided	2.7	3.6	Undecided	1.1	2.7	Undecided	0.0	1.8	Undecided	0.0	6.3
Total	100.0	100.0	Total	100.0	100.0		100.0	100.0	Total	100.0	100.0
	(183)	(110)		(183)	(111)		(182)	(110)		(183)	(111)
Likelihood of Driving with Negative Test Results DDWS			Likelihood of Driving with Negative Test Results: CMD			Likelihood of Driving During Restricted Hours					
Very Likely	41.6	46.0	Very Likely	30.8	26.4	Very Likely	71.1	72.1			
Somewhat Likely	27.3	35.1	Somewhat Likely	27.5	38.2	Somewhat Likely	26.2	24.3			
Not Likely	28.4	18.0	Not Likely	40.6	33.6	Not Likely	2.7	3.6			
Undecided	2.7	0.9	Undecided	1.1	1.8	Undecided		-			
Total	100.0	100.0	Total	100.0	100.0	Total	100.0	100.0			
	(183)	(111)		(182)	(110)		(183)	(111)			
	p .10										
Aid to Police DDWS			Aid to Police CMD								
A Lot	67.0	67.6	A Lot	63.4	69.1						
A Little	26.8	21.6	A Little	29.5	23.6						
Not At All	4.6	9.0	Not At All	6.6	6.4						
Undecided	1.6	1.8	Undecided	0.5	0.9						
Total	100.0	100.0	Total	100.0	100.0						
	(183)	(111)		(183)	(111)						

6. Opinions About Implementation Standards for Mechanical Devices and Relationship to Acceptability of Those Countermeasures

The questionnaire scenarios for the DDWS and the CMD described only the basic characteristics of these devices. Implementation of the devices would require decisions to be made about a variety of technical and practical issues. To help specify criteria and conditions likely to be accepted by the public, and to guide further development and planning, four issues were included in the survey: the accuracy rate required as a condition for implementing the devices; the level of impairment to be detected by the devices; whether the devices had to be tamper-proof to be used; and whether affecting other drivers of the car precluded their use. Following are the respective questions used in the survey.

- If a device was inaccurate, it could lead someone who had too much to drink to believe he could drive safely. Or, it might identify a sober person as an unsafe driver. How accurate do you think one of these devices should be before it is used--accurate 75 percent of the time, 85 percent of the time, 95 percent of the time, 99 percent of the time, or what?

- Do you think warning systems like the two we've just talked about should be used to identify drivers who are only moderately or slightly drunk as well as those who are very drunk?

- Some people say that since it is always possible to get around mechanical devices, they should not be used as a condition for allowing convicted drunk drivers to drive. Others say that even if a few people find a way to get around them, they can still be useful. What is your opinion?

- Once any of these devices is installed in a convicted drunk driver's car, the use of that car by other drivers--such as other family members--would also be controlled or monitored. Because of this, some people say these devices should <u>not</u> be used. Others say that the need to do something about convicted drunk drivers justifies using these devices. What is your opinion?

a. Drivers' Opinions about Implementation Standards and Variations by Demographic Characteristics

(Table II.24 shows the distribution of drivers' opinions about all four variables. Opinions about implementation standards, by demographic characteristics, are shown in Appendix Tables A.9 to A.12.)

<u>Required Accuracy.</u> The distribution of accuracy rates mentioned by drivers shows that most of the drivers were willing to accept some margin of error, albeit a fairly small one. The acceptable range fell between 2 and 5 percent. Accuracy levels around the 98 percent mark were the minimal standard

for one-third (33.2 percent) of the drivers surveyed. Another 22 percent set the limit at around the 95 percent accuracy level. Accuracy 100 percent of the time was required by one-fifth (20.4 percent) of the drivers, and a similar proportion (20.9 percent) set the limit below 92 percent. The concentration of responses at the 95 percent level and above is particularly noteworthy given the question wording: examples of accuracy rates began at 75 percent, and 100 percent itself was not mentioned. The distribution of the accuracy rates specified indicates that drivers expected fairly high precision from the mechanical devices (see Table II.24).

TABLE II.24

DRIVERS' OPINIONS ABOUT FOUR IMPLEMENTATION STANDARDS FOR MECHANICAL DEVICES

Required Accuracy Level (Q. 2-15)	Percent	Should Moderate (Or Only Severe) Drunkenness Be Detected (Q. 2-14)	Percent
100%	20.4	Yes	62.0
98-99%	33.2		
93-97%	22.0	No	32.3
88-92%	4.7		
83-87%	6.9	Undecided	5.7
less than 83%	9.3		
Undecided	3.5	Total	100.0
Total	100.0		(424)
	(422)		
Use if Can Be Circumvented (Qs. 2-19)		Use if Others Are Affected (Qs. 2-20)	
Do Not Use	29.2	Do Not Use	34.4
Can Still be Useful	66.7	Use Justified	61.5
Undecided	4.1	Undecided	4.1
Total	100.0	Total	100.0
	(418)		(418)

To facilitate analysis of requisite accuracy rates by demographic characteristics, the rates mentioned were collapsed further into three categories: 100 percent, 93 to 99 percent, and less than 93 percent (see Appendix Table A.9). Drivers' opinions varied as to what the necessary accuracy level should be, depending on the respondent's sex and age. Differences by sex occurred primarily when the requirement was less than 100 percent. Male drivers

were more likely to indicate lower accuracy rates: 25 percent of the males required the devices to be accurate less than 93 percent of the time.

When examined by the age of the drivers surveyed, acceptable accuracy rates were more likely to be very stringent among older drivers. Of the drivers over age 45, 27 percent felt that the devices should be accurate 100 percent of the time, whereas only 13.9 percent of the drivers under age 30 had this requirement. Lower accuracy requirements (accurate less than 93 percent of the time) were found in the same proportions within all three age groups.

A statistically significant relationship was not found between accuracy requirements and the region, education, or income of the drivers surveyed. Nevertheless, it is noteworthy that a relatively high proportion of drivers with less than a high school education chose not to identify a desirable accuracy rate.

Detection of Moderate Drunkenness. The majority of respondents (62 percent) thought that the devices should be set to detect not only severe drunkenness, but also moderate or slight drunkenness (see Table II.24). This preference for having the devices encompass a broader range of impairment may have reflected an interest in buttressing the credibility of these devices. As was discussed above (see Section 3.b), the mechanical devices were rated fairly low in effectiveness; for example, 76.7 percent of the drivers surveyed felt that it was "fairly likely" or "very likely" that drivers would drive despite negative test results from the DDWS. Another explanation for drivers' preference that the detection be more inclusive is that slightly or moderately drunk may have been considered a relatively serious highway-safety risk. A point of interest here is that one rationale for the question was not supported by the data--namely, that drivers would be concerned that the devices would be set below a severe level, and would therefore be too encompassing and impose an undue restraint.

Drivers' opinions about the level of drunkenness to be picked up by the devices were relatively homogeneous across all of the demographic characteristics (see Appendix Table A.10).

Usefulness of Devices Even if They Can be Circumvented. For a majority of the drivers surveyed, the fact that some convicted drunk drivers could circumvent the devices did not negate their potential utility. Two-thirds of the drivers responded that the devices could "still be useful" even if a few people found a way to circumvent them. While the concept of "usefulness" cannot be interpreted as support, the data do show that only 29.2 percent of the

drivers felt that the dismantling aspect of the mechanical devices should preclude implementation.

Drivers' opinions about the use/usefulness of the mechanical devices, given that some convicted drunk drivers will deactivate them, were not related to any of the demographic characteristics considered (see Appendix Table A.11).

Use of Mechanical Devices Given that Other Drivers of the Car Would be Affected. For approximately one-third of the drivers, the fact that other family members or other drivers of the car would also be subject to testing/monitoring was reason enough for the devices not to be used (see Table II.24). A majority of the drivers (61.5 percent) felt that their use was justified nonetheless.

The proportion of drivers who fell into the "do not use" and "use justified" categories was very similar across region, sex, education, and income categories (see Appendix Table A.12). Opinions about the use of the devices did vary by the age of the driver. Older drivers tended to be less tolerant of the intrusion on others: 40.1 percent of the drivers age 45 and older opposed using the devices because others would be affected; in contrast, 25.9 percent of the drivers under age 30 opposed using these devices for this same reason.

b. Opinions about Implementation Standards and Acceptability of Mechanical Devices

There was a strong association between drivers' positions toward the implementation criteria and their acceptance or rejection of the mechanical devices (see Table II.25). As a whole, a conservative stance toward implementation was associated with the rejection of the countermeasures. Drivers who objected to using the devices because they felt that (1) the devices could occasionally be circumvented or (2) other drivers of the car would also be affected almost invariably opposed using the DDWS and the CMD. Of the drivers who felt that the two devices should not be used given the conceivability of dismantling them, 80.3 percent opposed the DDWS and 79.3 percent opposed the CMD. Similarly, of the drivers who felt that an impact on other drivers should preclude their use, 76.4 percent opposed the DDWS and 77.6 percent opposed the CMD.

Opinions about whether the devices should be set to detect slight or moderate drunkenness were also related to acceptability. Acceptance of the DDWS and the CMD was concentrated among drivers who thought that the devices should be set to detect impairment at moderate levels as well. Conversely, drivers who preferred that the devices pick up only severe drunkenness were likely to oppose the devices: 60.6 percent of this group rejected the DDWS, and 61.3 percent rejected the CMD.

TABLE II.25

ACCEPTABILITY OF MECHANICAL DEVICES BY DRIVER OPINIONS ON IMPLEMENTATION ISSUES

Required Accuracy Level (Q. 2-15)	DDWS	CMD	Should Device Detect Moderate Drunkenness as Well (Q. 2-14)	DDWS[a/]	CMD[b/]	Should Device Be Used if it Can Be Circumvented (Q. 2-19)	DDWS[c/]	CMD[d/]	Should Device Be Used if Others Would be Affected (Q. 2-20)	DDWS[e/]	CMD[f/]
100%	48.8 (86)	43.0 (86)	Yes	62.4 (263)	63.1 (263)	Do Not Use	19.7 (122)	19.8 (121)	Do Not Use	22.2 (144)	21.7 (143)
93-99%	52.8 (233)	58.4 (233)	No	38.7 (137)	35.8 (137)	Can Still be Useful	66.7 (279)	57.0 (279)	Use Justified	69.3 (257)	70.0 (257)
Less than 93%	59.1 (88)	50.0 (88)									

[a/] $p < .001$

[b/] $p < .001$

[c/] $p < .001$

[d/] $p < .001$

[e/] $p < .001$

[f/] $p < .001$

7. Summary

The acceptability of three of the drunk-driver deterrence countermeasures (the MTVL, the DDWS, and the CMD) can be characterized as moderate, with acceptability rates for each being somewhat above the 50 percent mark. The acceptability rate for restricted driving hours was lower, with only 35.8 percent of the drivers favoring the approach. The findings on which drivers' characteristics and attitudes are relevant to acceptance or rejection can be organized around three themes:

- Perceptions of drinking and driving as a highway-safety problem provide a very useful framework within which reactions to drunk-driver deterrence countermeasures can be examined. Drivers, however, did not respond to the countermeasures in terms of a single-faceted level of concern about drinking and driving. Rather, the safety risks associated with drinking and driving as a general phenomenon and the appropriate way to handle convicted drunk drivers constituted two distinct attitudinal dimensions and played different roles in the assessment of countermeasures. Reactions to the MTVL were closely linked to drivers' attitudes toward the general issue of drinking and driving; reactions to the DDWS and the CMD tended to be compatible with attitudes toward alternative strategies for handling convicted drunk drivers; reactions to restricted hours were related to both of the attitudinal dimensions.

- The data show that drivers were generally skeptical about the effectiveness of the countermeasures. None of the countermeasures was considered exceptionally effective as a deterrent to drinking and driving or (for the mechanical devices) in preventing impaired driving. Acceptability of the countermeasures did appear to be a function of perceived effectiveness, although the standards for effectiveness need not have been very high--that is, acceptability rates did not increase appreciably between "some" and "a lot" of effectiveness. The data suggest that other factors (such as how adequate a penalty the countermeasure is) played a role in drivers' assessments of alternative strategies.

- Age and education surfaced as salient demographic characteristics in reactions to drunk-driver deterrence countermeasures. Age was a factor primarily in drivers' reactions to the mechanical devices. Perceptions of how effective each mechanical device is were also related to drivers' educational levels. The educational level of drivers figured prominently in reactions to the MTVL.

a. Perceptions of the Problem

Opposition to the MTVL, expressed by 39.7 percent of the drivers surveyed, was associated with a more liberalized definition of drinking and

driving hazards. Drivers who did not feel that moderate drinking posed driving-safety dangers and drivers who themselves drive after drinking were much more likely to oppose the MTVL.

Drivers' receptivity to the two mechanical devices appeared to depend heavily on their reactions to the use of the devices per se as an alternative way to handle convicted drunk drivers. The data do not support the position that drivers who doubted the deterrence value of the current approach for convicted drunk drivers would be more amenable to the use of mechanical testing and monitoring devices. (For example, 52.7 percent of the drivers who felt that most people with suspended licenses drive anyway supported the DDWS; 55.4 percent who felt that very few people drive with suspended licenses also supported the DDWS.) The data also do not support the position that acceptance of the devices would be greater among drivers who have a higher degree of concern about drinking and driving. Specifically, drivers who felt that driving after moderate drinking was a very serious safety problem were not more likely to favor the mechanical devices; similarly, drivers who do not themselves drive after drinking were also not more likely to find the two devices acceptable.

Acceptance of the DDWS and the CMD was associated with positive attitudes toward the idea of allowing convicted drunk drivers to drive under special conditions. Over half (55.4 percent) of the drivers surveyed indicated that this was a "good idea"; over one-third (34.7 percent) preferred special devices over license suspension as the better way to handle convicted drunk drivers. Both of these attitudes were strongly related to support for the mechanical devices. To the extent that the DDWS and the CMD were favored, the attachment appeared to be a strong one: use was warranted despite certain limitations and inconveniences. Of the drivers who favored either of the devices, nearly 90 percent felt that the devices were useful, even if they could be circumvented and even if other drivers would be affected.

Positive responses to restricted driving hours were quite low: only 35.8 percent of the drivers favored this method. Acceptance of this countermeasure, however, was linked to a liberalized view of both drinking and driving risks and the appropriate way to handle convicted drunk drivers. As with the MTVL, attitudes toward drinking and driving as a safety risk were related to the acceptance of restricted driving hours, but the association was reversed. Support for restricted hours was concentrated among drivers who felt that driving after 2 to 3 drinks was "not too serious" and who themselves drive after drinking. Acceptance of restricted hours was also more likely among

drivers who felt that the conditional-driving alternative to license suspension was a "good idea" and who preferred special devices to license suspension.

Two perspectives can be considered here. On the one hand, the drivers surveyed may have been exhibiting a consistent viewpoint--that is, the perception of the problem as "not too serious." Driving after having something alcoholic to drink was consistent with leaning toward less restrictive drunk-driver deterrence countermeasures. On the other hand, the consistency may also be considered self-serving. Drivers with a higher risk of being personally affected by these countermeasures may have preferred the less stringent approach in order to minimize the potential penalty to themselves.

b. Effectiveness

Approximately half (53.3 percent) of the drivers expected a reduction in drinking and driving among the general public if the MTVL were in effect. Of these drivers, 74.5 percent also favored the model law. Of the drivers who did not feel that the law would have a deterrent effect, 37.2 percent were in favor of the MTVL.

Most drivers expected the DDWS, the CMD, and restricted hours to cause some reduction in drinking and driving. Drivers' skepticism about controlling the drinking and driving problem and low expectations of effectiveness were apparent from the relatively high proportions of drivers who expected either no benefits or fairly small benefits from the mechanical devices, but who nonetheless indicated support for the devices. For example, 39.7 percent of the drivers who felt that it was very likely that a person would drive even if the test indicated impairment favored the DDWS. The results are somewhat clearer for restricted driving hours: very few (4.6 percent) of the drivers who expected no reduction in drinking and driving supported that countermeasure.

Drivers' definitions of the drinking and driving problem were unrelated to judgments about how effective the mechanical devices might be. In particular, these devices apparently did not correspond to the deterrent or control interests of drivers with a high level of concern about drinking and driving.

A review of the findings on effectiveness suggests that factors other than those included in this study may also have played a role in how drunk-driver deterrence countermeasures were assessed. One such factor may be how a countermeasure rated as a penalty for a DWI conviction. The effectiveness measures employed in this study may have underemphasized the penalty aspect of dealing with convicted drunk drivers. One finding that lends partial credence

to this interpretation is that, on the enforcement dimension, acceptability was associated primarily with perceptions of high effectiveness; moderate effectiveness appeared to be a sufficient condition of acceptability for the other effectiveness dimensions.

c. Age and Education

Drivers' receptivity to the mechanical devices was, to a considerable degree, a function of age. First of all, although younger drivers did not show a stronger predisposition to the general notion of allowing convicted drunk drivers to drive (whether this is a good or bad idea was not related to age), younger drivers were much more likely to feel that special devices were preferable to license suspension as the better way to handle convicted drunk drivers. One-half (50.8 percent) of the drivers under age 30 chose special devices, as opposed to only one-quarter (26.5 percent) of the drivers age 45 and older. Further, younger drivers supported both of the mechanical devices in far greater proportions than did older drivers. Younger drivers also were more likely to have confidence in the extent to which negative test results (and the warning signal) would stop impaired drivers from driving. Less direct, but still significant, differences by age occurred with respect to whether the mechanical devices were expected to reduce drinking and driving. For both devices, less impact was expected by the middle-age group (drivers age 30 to 44), while both the younger and older age groups were more likely to expect a reduction in drinking and driving.

The perceived effectiveness of the MTVL was interrelated with two other factors: seriousness of driving after moderate drinking, and the educational level of the driver. Lower educational levels were associated both with greater perceptions of seriousness and with expectations that the model law would deter drinking and driving. Perceptions of greater seriousness, in turn, were associated with expectations that the MTVL would be effective.

Educational level played a similar role in drivers' ratings of the deterrent value of the mechanical devices: greater deterrence was attributed by drivers with lower educational levels.

C. SPECIAL-INTEREST STUDY

Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for detailed description of the methodology employed for the special-interest study.

The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest perceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.

The drunk-driver deterrence countermeasures were presented to special-interest respondents as follows:

> A Model Traffic Violations Law would make special provisions for drivers who committed a dangerous moving violation and had a significant blood-alcohol level, but who were not legally drunk. Such drivers would be punished more severely than if they had not been drinking.
>
> The following three devices would be installed in the cars of convicted drunk drivers, in lieu of suspending or revoking their licenses:
>
> The Drunk Driver Warning System would require drivers to take a (psychomotor) test right after they started their car, to determine whether they had had too much to drink to drive safely. If a driver's coordination and alertness were found to be below a certain level, and the driver drove anyway, the device would make the car's emergency lights flash on and off. If the car went faster than 10 miles an hour, the horn would honk as well.

The Continuous Monitoring Device would measure a driver's coordination and alertness continuously while driving, not just before driving. If a driver was not driving safely, the car's emergency lights would flash on and off. If the car was driven faster than 10 miles per hour, the horn would honk as well.

Restricted Driving Hours as a condition of sentencing convicted drunk drivers would allow them to drive only during certain hours. The Operating Time Recorder would record when a car is driven. This record would be turned in to a probation officer.

1. Model Traffic Violations Law

Special-interest reactions to the model traffic violations law (MTVL) were of three types: (1) dubiousness that such a law would be effectively enforced, (2) objection to the basic premise of the law, and (3) support for the idea of differential penalties if the driver had been drinking. From one standpoint, opposition to the law was a practical matter: there would be no point in having legislation that would be rendered ineffective by existing judicial and plea-bargaining practices. Since relatively few convictions occur now for more serious drunk-driving charges, these respondents were skeptical that the provisions of the MTVL would hold up in the courtroom. Enactment of the law was also considered unlikely given the prevalence and public acceptance of social drinking. Another point of contention was the use of a quasi-drunk classification; having gradations of impairment and drunkenness was considered legally untenable. Taking a strictly legal point of view, some respondents argued that the law now sets a limit over which a person is considered driving while intoxicated. As such, a person is either drunk and should not be driving, or a person is not drunk and is able to drive. Furthermore, in order to institute a more severe penalty, it would have to be demonstrated that alcohol was a factor in the violation, and not that it was an unrelated condition. A third set of respondents had favorable reactions to the law--specifically, that it addressed a problem that has handicapped police in appropriately prosecuting traffic violators. Knowledge that stiffer penalties would be imposed for traffic violations after a person had been drinking was also thought to be an effective deterrent to drinking and driving.

a. Group-Specific Perspectives

State-police respondents were the primary supporters of the MTVL, whereas police-chief respondents were generally unenthusiastic about it. Although a few respondents did describe unsuccessful attempts to pass such

legislation, state-police respondents tended strongly to support the need for special consideration of "had been drinking" conditions. Police-chief respondents, however, whose enforcement options would also be enhanced by this law, tended to consider it "farfetched," unrealistic, and unnecessary if existing legislation were enforced.

The two dominant issues (enforceability of the MTVL and the legal status of "quasi-drunk") were raised by at least one respondent from each of the groups represented. Discussion of the enforcement issue, however, was especially common among highway-safety respondents, while bar-association respondents were especially vocal about the implications of introducing new standards of impairment.

Although any program that might reduce accidents would conceivably have been of specific interest to members of the AAA, insurance industry, and trucking associations, there was no indication by any of these respondents that the MTVL would be construed as particularly beneficial to their special interests. In addition to the group-specific emphasis on certain issues, noted above, the nature of the special-interest reactions to the MTVL appeared to be related directly to individual sophistication in analyzing the logic of drunk-driving legislation.

b. The Problem of Enforcement

Preventing passage of unenforceable laws was a major concern for representatives of the police-chief, state-police, and highway-safety offices. For a number of the respondents affiliated with these groups, the MTVL was highly objectionable because enforcement was considered unlikely. Outcomes of cases brought to court under existing legislation have set a poor precedent for the possibility of lesser charges (as represented by the MTVL) being enforced. The reticence of judges and the expectation that evidence of "had been drinking" would not hold up in court were cited as reasons for opposing the MTVL. Such concerns are illustrated in the following comments:

> "The court would never implement the law to make it effective. Today, judges won't prosecute unless the blood level is .11 because of questions about the inaccuracy of blood-level measurements." (Police chief respondent)

> "Courts would throw it out a lot; [it] would become an unenforceable law." (AAA respondent)

"Judges reduce the effect of .10 level now." (Highway-safety department respondent)

"[It] wouldn't be enforced. Sentences are usually reduced to let the driver off." (Highway-safety department respondent)

"It's illegal. Officers used to do it informally . . . if someone had been drinking, and at a stop sign they would write it down [on the citation]. [It was] found to be illegal." (State police respondent)

".10 is not enforced now, so why clutter up the books with other laws." (AAA respondent)

Some respondents attributed the problem of enforcing the model law to public pressure and to judicial susceptability to such pressure, as indicated by the following comments:

"The law as written now for drunk driving is not particularly severe, and yet it's seen by the public as severe enough to cause all kinds of maneuverings to get around it. Even if they're drunk, the judges and prosecutors use great discretion now to reduce the effect of .1, so I don't think it could be operational in [State]." (Highway-safety department respondent)

"[We] would not oppose existence of law, but it would be too difficult to enforce. The public acceptance of alcohol as a social drug prevents rigid enforcement. Judges or prosecutors would back off." (Highway-safety department respondent)

An additional enforcement issue dealt specifically with the prevalence of drivers pleading guilty to reduced charges in drunk-driving cases. Respondents argued that plea-bargaining has resulted in the prosecution of very few drunk-driving charges. As a result, there was concern that the MTVL would actually facilitate this process:

"[It is] not effective. We have adequate legislation to deal with the problem now. If you have enough money today you can get around the penalties. We're not getting people found guilty for DWI due to plea-bargaining." (State police respondent)

"[It] would give lawyers a convenient plea bargain. This may backfire if lawyers get charges reduced to impaired." (Insurance industry respondent)

c. Public Opposition

Special-interest respondents were divided in their opinion about whether the public would support or oppose the MTVL. Few explanations were provided by respondents, beyond the fact that "they would accept it" or "they would get used to it," and "the public would not tolerate it." Public reactions were expected to parallel personal drinking and driving habits: "Drinkers wouldn't like it; those who don't drink would approve." A more salient issue for respondents, however, was the conflict between the law and socially acceptable life-styles--that is, drinking, and driving afterwards, does not violate social custom. For example, a bar-association respondent predicted "lots of opposition. Drinking and driving is accepted. . . . Lots of people drink and drive." Similarly, an insurance-industry respondent felt that the MTVL would introduce new standards and objectionable labels:

> "The public would react adversely. Social drinking is well accepted, and few individuals who drink normally and consider themselves able to drive would accept the judgment that they are now impaired under a new law."

Public opposition was expected because the MTVL would be considered a punishment for a socially accepted action.

d. Legal Issues Raised by the MTVL

Two types of legal problems were associated with the MTLV: (1) What is the legal and safety significance of a condition which is "less than drunk," and (2) need there be an explicit link between drinking and the violation in order for the penalty to reflect the "had been drinking" condition?

Respondents arguing against the legality of the MTVL emphasized, first, that from a legal standpoint there can be only a single standard for drunkenness, and that if a person does not fall at or above a legally drunk limit it is permissible for him/her to drive. From a legal point of view, given a specific legal definition of what constitutes an acceptable/unacceptable driving condition, the determination of whether a driver's condition is acceptable can use only that definition:

> "[The MTVL] is difficult legally. You're either drunk or not drunk." (Highway-safety department respondent)

> "You're legally drunk or not. No in-between is needed. You can't be partially drunk." (Trucking association respondent)

"You can't do this. It's okay to drive if you are not legally drunk." (State police respondent)

"Not good. If you aren't legally drunk you're okay. There is no middle ground." (Bar association respondent)

It is interesting that respondents did not address the option of creating a new law that would make it illegal to drive while impaired by alcohol (as opposed to legally drunk). An impairment condition, for example, could be defined as having a blood-alcohol level of .03 or .04.

Related to these points, special-interest respondents repeatedly noted that the blood-alcohol limit for drunkenness which is currently in effect implicitly indicates that there is a meaningful cut-off point for safe driving.

The point was made that if it is necessary, or appropriate, to consider lower blood-alcohol levels as standards for dangerous driving, then the legal limit should be reduced accordingly. Respondents argued that there now is no connection (legally) between drinking per se and accidents. The only option, then, is to establish that there was a legal level of intoxication; otherwise, one would need to link low alcohol levels and accidents, which would result only in simply dropping the legally intoxicated limit. As indicated by these comments, lowering the legal limit, if data were to support such an action, would be the necessary step in lieu of the MTVL:

"We should have a lower level for conviction if impairment is so bad at a lower level." (Bar association respondent)

"The standard of legally drunk is set and is okay. You can't determine a significant level without calling it legally drunk." (Bar association respondent)

"You could not do this in [State] without constitutionally lowering the tolerance level to .05 or whatever you use." (Trucking association respondent)

Finally, some respondents indicated that the MTVL was acceptable, but only if drinking was shown to be a causal or at least a clear-cut factor in the violation. There was concern that persons not be penalized for an irrelevant condition, but for committing a crime ("for real harm-doing"):

"It would be absolutely necessary to prove that impairment led to the accident." (Insurance industry respondent)

"[It is] not desirable unless alcohol is directly related to violation." (Auto dealers association respondent)

"You have to tie alcohol into causation for violation." (Bar association respondent)

"People would be punished more severely for accidents that might happen anyway." (AAA respondent)

In summary, the legal implications of the model traffic violations law, as articulated by members of the special-interest groups, posed some intriguing issues. Whereas researchers emphasize that a positive association between alcohol and traffic accidents does not imply a direct causal relationship, legal specialists emphasize the need to establish the causality of alcohol in a motor-vehicle violation in order for the MTVL to be legally acceptable. Similarly, a legal interpretation tended to emphasize the necessity for an unequivocal criterion in the law: a driver is either drunk and should not drive or is not drunk and is able to drive. This view can be contrasted with the research position that drivers who are not legally drunk can still be impaired and therefore should not be driving. Resolution of these contrasting approaches would present a challenge for implementing such a law.

e. MTVL Responds to a Serious Highway Safety Problem

Respondents with a favorable attitude toward the MTVL supported and, in fact, strongly advocated the position that drivers who have been drinking, even if they are not legally drunk, pose very serious highway-safety hazards. One respondent indicated that statistics show that drivers with blood-alcohol levels between .05 and .09 "cause" or are involved in a greater number of accidents than drivers who are legally drunk. Proponents of the MTVL argued that the existing limit for drunkenness is a legal artifact, and that persons' driving skills can be impaired even though they are not "legally" drunk. Since alcohol affects people differently and since the .1 limit does not take individual tolerance levels into account, respondents argued that it is unreasonable to preclude actual impairment on the basis of a legal status. A variation on this theme is that the "not quite drunk" state in itself leads to bravado and carelessness, which is especially conducive to negligent and dangerous driving. A state-police respondent made the point that while "real drunks" are arrested and convicted, "the real problems are with the 'half-stiffs.' When stopped they

are able to fake it. In most serious accidents drivers aren't legally drunk. . . . Fatalities could be reduced if people on the borderline were careful. They are the speeders and the showoffs."

The MTVL was also of interest as an enforcement tool. Supporters of the MTVL were convinced that it would provide a more appropriate way of handling such charges than is currently available. Furthermore, a uniform policy may increase the "consideration of impairment" by judges:

> "I love it. It's a policeman's dream. Now a person who is not .1 is considered sober, and this frustrates police. [State] has a 'failure to maintain control' law, which is only a catch-all charge, like a reckless-operation charge, and this is used when erratic drivers don't reach .1 level. Judges don't pay much attention to it and don't enforce it. A model law would be uniform." (Police chief respondent)

f. Summary

Legal issues emerged as important criteria for evaluating the model traffic violations law. The "quasi" status, an important factor from the standpoint of programs for reducing the incidence of alcohol-related accidents, was thought to be inconsistent with existing legislation. Opposition to the MTVL was also voiced on the grounds that it would only facilitate the plea-bargaining process which already occurs. Finally, those respondents who supported the MTVL often did so for reasons similar to those raised in opposition to the countermeasures. For example, although opponents questioned the legal meaning of an impairment condition, supporters emphasized the safety hazards posed by such drivers. In fact, among some proponents of the MTVL, the alcohol-impaired driver was judged to be a greater safety problem than the legally drunk driver.

2. Drunk Driver Deterrence Devices

License suspension (whereby a person convicted of drunk driving loses the right to drive for a certain period of time) was the framework against which the drunk-driver-deterrence devices were evaluated. Despite their special interest and involvement in highway safety, respondents were largely unfamiliar with these types of countermeasures. The drunk driver warning system (DDWS), the continuous monitoring device (CMD), and the operating time recorder (OTR) came across as novel and startling approaches which depart sharply from existing policies. These devices represent a shift in concept--from a punitive approach

(license suspension) to a functional approach (the person can drive if not impaired). They also represent a shift in outcomes: convicted drunk drivers are permitted to drive, although only if monitored or controlled by a particular device. Finally, they introduce a mechanical entity which monitors the driver.

The three mechanical devices were typically discussed as variations on a type of approach, with very few respondents focusing on the individual devices. Negative reactions in particular identified concerns that the respondents had about all three devices. To the extent that respondents differentially preferred one or another device, the tendency was to select the operating time recorder (OTR) as the most acceptable.

The following discussion of special-interest reactions to the drunk-driver-deterrence devices is organized around specific issues. The first set of issues deals with problems of implementation: enforcement responsibility, coverage of costs, handling situations with multiple drivers of a car, the likelihood of circumvention, the value of a 5 and 10 mph trigger for the warning system, and liabilities of the warning system. The second set of issues deals with problems that are instrinsic to a mechanical-device approach: reaction against a mechanical mode, preference for existing methods, and nonresponsiveness of this approach to the drinking-driving problem. The third section covers favorable reactions to the mechanical-device approach for deterring drunk driving.

a. Implementation Issues

Enforcement. Highway-safety, state-police, and police-chief respondents tended to evaluate the mechanical devices in relation to their own enforcement roles and responsibilities. Even respondents who thought that this approach, in principle, had merit and warranted serious consideration were resistant because the devices seemed to represent an inordinate expenditure of government funds, both for the devices themselves and to maintain an enforcement program. A highway-safety respondent expected opposition, based on straightforward cost-benefit reasons: "[The devices] may have some value, but that value may not be commensurate with the costs involved . . . including new tasks for police. The police would oppose this." This approach was also thought to entail the development of a very complex monitoring system that would vastly expand existing enforcement efforts. As indicated in the following comments, the complexity and cost of an enforcement system were considered major impediments to support for state-police and police-chief respondents:

"This would be an enforcement nightmare. . . . It's too impractical and too expensive. (State police respondent)

"It's too difficult to enforce these. It's too costly to set up a probationary system to monitor enforcement." (State police respondent)

"It would cost too much to enforce. We'd actively support it if court probation officers handled enforcement. [The] problem is enforcing the person to drive that car. All cars with devices would need emblems . . . so police could easily keep track of their use by the violation." (Police chief respondent)

"It would be too costly and time-consuming for police to confine the driver to a car." (Police chief respondent)

Cost to Whom? On the issue of cost, a somewhat different vantage-point than the one discussed above was presented by a few respondents. These respondents proposed that the cost of the devices be passed on to the convicted drunk driver as part of his/her penalty: "Make the drivers pay for them. That would be great" (bar association). "The convicted person should pay for installation" (insurance industry). "The driver should pay for it" (auto dealers association). Transferring the cost burden to drivers, however, was considered an inequitable punishment by some respondents who pointed out that the additional expense would be a greater penalty for low-income drivers: "Who would bear the cost? The offender? Then you're penalizing the poor guy" (AAA).

Effectiveness. Drunk driving was ranked as the most important highway-safety problem for most special-interest respondents in this study. (When asked to rank the importance of drunk driving, speeding, and pedestrian safety, approximately two-thirds of the respondents ranked drunk driving as the most important.) Alternative approaches (alternative sentences) for convicted drunk drivers were of interest to the extent that they would be more effective than current methods in deterring, reforming, and penalizing convicted drunk drivers. The effectiveness of the mechanical devices and their appeal as alternative methods were seriously undermined by a belief that the devices could easily be disconnected or otherwise be made inoperable. Thus, the convicted drunk driver would not suffer any penalty at all. This approach to drunk-driver deterrence was thought to place the decision about complying with the sentence with the convicted drunk driver. Consequently, the use of these devices was seen to depend too much on the interests and motivations of the driver to take precautionary measures (that is, to succumb to testing or monitoring): "They

could only be effective if the driver cooperates." Moreover, respondents felt that the drivers who would not cooperate were actually the ones who were the greatest highway-safety risk: "The average citizen doesn't get in this position, and the person who does isn't going to pay attention to it anyway" (auto dealers association).

The contention that the devices are "all tamperable" and that drivers would simply find ways to circumvent them was the most frequently mentioned objection to the devices. Information provided during the interview that the devices are designed and constructed to be "tamper-proof" led to cynical arguments that this was not possible:

> "These are all too easy to tamper with. If a man makes it, a man can screw it up. The concept is ridiculous. You can't make them tamper-proof." (Trucking association respondent)

Moreover, recent experience with seat-belt systems and burglar-proof locks exemplified the fact that, given an incentive, drivers would find a way to by-pass the devices:

> "The industry spent millions to develop the seat-belt interlock system, and that could be circumvented. That was a waste of money and so is this." (Auto dealers association respondent)

> "One of the worst problems we have with new cars is theft, and for every new anti-theft device that's manufactured, someone figures out how to get around it, and the same thing would happen here. Even license suspension doesn't work. They drive anyway. Someone with a device would either unhook it or drive another car." (Auto dealers association respondent)

Respondents discussing the likelihood of circumventing the devices did not draw explicit comparisons to the effectiveness or ineffectiveness of the license-suspension method. The implication, however, was that these devices made it very easy for convicted drunk drivers totally to elude the deterrent impact of the sentence. A police chief stressed that "anyone could get around these devices. . . . They would just borrow or rent another car." A bar-association respondent concurred: "These could easily be disconnected, [and] people would rent cars to get around it."

Enabling Impaired Drivers to Drive Even at Slow Speeds. A puzzling aspect of the DDWS was that it would be possible for the convicted drunk driver

to drive even if the test indicated impairment. Respondents pointed out that serious accidents could also occur at low speeds ("You could still hit kids."). Furthermore, once he/she is on the road, the impaired driver could also choose to disregard the lights and horn, thus creating a very dangerous highway situation. As indicated by the following comments, it was considered far more preferable to have the testing occur prior to starting the car, and have the car inoperable in case of impairment:

> "The test should be taken before starting the car: don't let them start the car at all. This infers it's okay to go 10 miles per hour. It's very unsafe." (Highway-safety department respondent)
>
> "In each case, the drunk driver is still driving. He's still on the road. If you could make the device lock the engine unless the driver passed the test, that would be better." (State police respondent)
>
> "Make it that if you don't pass the test, the car wouldn't start, period." (ACLU respondent)
>
> "It would make more sense to take the test even before starting the car." (Bar association respondent)

Liabilities of the Warning System. A distinctive feature of the DDWS and the CMD is that if the driver drives after the test or the monitoring indicates impairment, a warning system would be triggered: at 5 mph the lights would flash, and at 10 mph the horn would honk. The warning system caught some respondents by surprise, causing such reactions as "[it] is like a dream" and "that would be chaotic; it's ridiculous."

There was concern that, by interferring with the traffic flow, the warning system would itself be a safety problem. For example, an insurance respondent noted that the "devices might cause a worse traffic problem than drunk drivers. The lights would distract other drivers." Similarly, an ACLU respondent pointed out, "The noise would disturb other drivers, who would get scared or jolted and cause more accidents." A trucking-association respondent felt that statutes should not "abuse the use of emergency flashers and horns," and that the deterrence devices were counter to the basic driving principle that horns should be used in a very limited and restricted way.

According to one highway-safety respondent, the possibility that someone would have a defective device, whereby a warning system might be triggered erroneously, was reason enough to block the use of the devices. Another

respondent argued that while the potential for embarrassment could be an effective deterrent, "the lights would expose the driver to such intense public ridicule that it would be too cruel if the device was triggered accidently." The warning system was also thought to be unfair to the general public, who would have to put up with the increased noise levels and ruckus on the road: "Citizens in general are being imposed on. . . . The horn would be a public disturbance" (ACLU). "The public wouldn't support them. They couldn't stand the buzzers for seat belts, so they certainly wouldn't stand for flashing lights and horns honking" (Auto dealers association).

b. Legal Issues

While the mechanical devices were not thought to conflict with constitutional rights per se, bar-association and ACLU respondents did identify several legal issues against which the mechanical devices should be assessed. The following points are drawn primarily from interviews with a bar-association respondent and an ACLU respondent.

The first issue is whether the devices represent a greater good than does individual privacy. The question was, "To what end is this being done, and is giving up privacy for this worth it?"

Second, it was argued that there are certain limits on the extent to which the state can oversee persons to determine whether they are doing the correct thing. Probation may carry certain restrictions, but there are limits as to what one can do to implement probation. License suspension or revocation may not be working--but that ought to be a sufficient deterrent.

Third, sentencing someone to make them "better" or "more acceptable" was considered inappropriate. In legal terms the only appropriate reason for punishment is retribution--to incapacitate someone.

Fourth, programs that attempt to penalize someone before the crime occurs are objectionable. The mechanical devices represent a shift from punishment to control. Although they ostensibly provide more freedom for the criminal, an ACLU respondent argued that they may be construed as a way to prevent the convicted drunk driver from committing another crime, and not as a way to punish him/her.

These points suggest that all three mechanical devices may cross the boundary between law-enforcement interest and unreasonable control. It should be pointed out that these two respondents were identifying primarily

legal issues that may be raised in conjunction with implementation; they were not themselves taking a stand on these issues.

c. Objections to Mechanical Devices

Reactions Against the Mechanical Mode. The use of various mechanical devices for administrative and patrolling purposes, if not an acceptable practice, nevertheless would not be considered unusual. The application of technology to control and penalize individuals was a more questionable practice. For some special-interest respondents, the mechanical aspects of the drunk-driver deterrence devices made them unacceptable. The use of mechanical devices was considered an "expensive band-aid" approach and an inadequate substitute for rigorous enforcement of existing policies. Devices should not be expected to correct problems or to enforce laws: "You cannot use devices to force people to obey laws. They will not work" (highway-safety department). A trucking-association respondent made the same point: "These gadgets are not an answer at all. [They are] too gimmicky. Severe court action is the only deterrent."

In other instances, rejection of these countermeasures simply reflected a personal bias against technological applications:

> "I have no confidence in technology. A hell of a lot of machines [that] are supposed to be solutions are ending up aggravating the problem." (Insurance industry respondent)

> "I would object to hooking people up to machines. I fear gadgets. My own answer would be to avoid gadgets." (Insurance industry respondent)

This rejection of technology was the most common position taken by insurance respondents. While we may have expected insurance-company interest in this approach (perhaps along the lines of reduced rates for drivers who install these devices), their reactions indicated that the devices do not meet insurance companies' interest in more stringently controlling convicted drunk drivers.

Another aspect of the anti-technology bias involved the association between these devices and inordinate government surveillance and control. The devices tended to conjure up images of a highly controlled, "Big Brother" society. The prospective implications of the mechanical devices were pointed out by a bar-association respondent: "This would open the door for other

drivers--the elderly, etc.--to be controlled. It's too Orwellian. . . . Eventually it would be put in all cars."

Preference for Existing Approach. Because a convicted drunk driver would not legally lose the right to drive, some respondents felt that the mechanical devices represented a trend toward leniency: "These devices just seem to be methods of allowing the drunken driver to continue driving." State-police and police-chief respondents, in particular, tended to prefer the current policy and were confident that suspending or revoking licenses was the most effective approach. In the opinion of a number of state-police and police-chief respondents, "the suspension of licenses is still the most effective," and what is needed is "enforcement of existing laws and toughness with offenders."

Recognizing that the current policy has not necessarily been maximally effective, other respondents also saw the problem as one of lax enforcement:

> "We have enough laws now to handle the drunk driver, but they're not enforced by the courts, and these devices won't be used by the judges either." (AAA respondent)

> "We have the means to minimize the drunk-driver problem, but we don't have the will. We should get the drunk driver off the road. The judges should enforce the law and take licenses. The devices sound like such a brainstorm." (Trucking association respondent)

Need to Redefine the Drinking and Driving Problem. To some respondents, the important issue was not necessarily how best to penalize or control the convicted drunk driver, but rather how to deal with drinking as a social and medical problem: society would be better advised to direct attention and energy to "the source of the problem, which is drinking." From this perspective, developing alternative ways to handle convicted drunk drivers is like trying to alleviate symptoms without addressing the cause of the illness. One police chief advocated a redefinition of the drinking and driving problem: "Money would be better spent by trying to get at the root of the problem. Alcoholism is a disease." General-public acceptance of drinking as an established social phenomenon was viewed as an impediment to confronting the drinking and driving problem effectively: "There is too much acceptance of it. Until this is resolved, there can be no solution to the problem. . . . Attitudes have to change."

d. Favorable Reactions

The reactions of special-interest respondents to the mechanical devices were not all negative. One or a few respondents from each of the group types had a positive orientation to the devices; a favorable stance, however, could not be associated with any group type in particular.

Favorable reactions to the devices tended to be much more succinctly stated and did not elicit the range of objections and explanations that negative reactions had prompted. Typically, acceptance was indicated by brief comments, such as, "we would support that" and "they sound like a good idea." More enthusiastic comments included, "it's a fantastic deterrent" and "it is a long shot to solve the problem, but we need a long shot" (AAA).

Although most respondents directed their comments at mechanical devices as a whole, in a few instances the devices were considered independently and were compared with each other. If special-interest respondents were given a choice among the three devices, the operating time recorder (OTR) would be the one most frequently selected. Resistance to change and interest in minimizing disruption appeared to be the underlying factors for this choice. The OTR deviated least from current procedures and was thought to be the "easiest and least upsetting" to implement. In the context of current procedures, the documentation provided by the OTR might even facilitate enforcement.

> "I especially like [OTR] because of the simplicity of enforcement. You get the offender to report to a probation officer once a week, with a record of driving hours." (Highway-safety department respondent)
>
> "[I] support [OTR] to the hilt. With a record of compliance as evidence available, it would be very effective." (Police chief respondent)
>
> "[OTR is the] most logical and simplest. There's been good experience now with time recorders in trucks." (Bar association respondent)

Finally, support for the mechanical devices also stemmed from an interest in expanding the limited sentencing options that are now available to judges. Instead of instituting a mechanical-device program as a replacement for license suspension, it was also suggested that they be made available to judges to use as an alternative to suspending licenses and plea-bargaining:

"[I] would recommend it on a pilot basis to broaden judicial alternatives. Judges are now required to invoke jail for the third offense, and they avoid this by seeing that the person does not get convicted a third time. Judges are looking for alternatives." (Highway-safety department respondent)

"It would be good for the court to have something other than a fine or throwing someone in jail as a punishment to be used." (ACLU respondent)

e. Summary

Opponents of the mechanical deterrent devices were quite expressive in their reactions. However, in considering these responses, it is important to distinguish resistance based on skepticism and insufficient information from an outright and unequivocal rejection of this approach.

Despite the predominantly negative attitudes, a closer look at the responses shows that many of the responses focused on conditions, although frequently very demanding conditions, for acceptance. In disseminating these countermeasures, it would be necessary to dispel a number of concerns about effectiveness--for example, that the device could be disconnected; that the test could be taken by someone else; that convicted drunk drivers would merely drive another car; that all drivers in single-car families would also then be penalized; that the devices would prohibitively burden state and local budgets. For state-police and police-chief respondents, the enforcement of these methods loomed as a very difficult, very cumbersome, and very expensive responsibility.

The scenarios presented to respondents described the basic features of the countermeasures; the emphasis that respondents placed on implementation problems suggests that acceptance of these types of approaches would depend on how and how well these devices would work in practice.

Special-interest respondents generally were very concerned that court rulings and sentencing in drunk-driver cases were overly lenient, and that existing policies were not being effectively enforced. Some respondents found it even more unlikely that judges "would pay any attention to these devices." Some respondents also felt that these devices reflected a tendency toward greater leniency, whereby the devices make the penalty for drunk driving appear to be normal and perfunctory. From this vantagepoint, allowing a convicted drunk driver to drive was seen as a strategy designed to serve the interests of the driver rather than society.

III. ROADSIDE SURVEYS

Roadside surveys differ from other countermeasures included in this study, in that they are not designed as safety strategies in themselves. Rather, they represent different methods and types of data collection on the prevalence of drug and alcohol use among drivers.

Developing effective countermeasures requires valid information about the nature and scope of highway-safety problems. Data from roadside surveys are necessary to establish (1) whether relationships exist between the type of drivers' impairments and the occurrence of accidents, and (2) the prevalence of accident-related conditions among drivers. To obtain accurate estimates of drivers' conditions, and hence to develop appropriate highway-safety programs, the data collection methods must be acceptable and designed in a manner that maximizes participation. While roadside surveys are not safety strategies in themselves, their success does depend on the extent of public acceptability of the data collection methods used.

Two components of roadside surveys were addressed in the study: (1) the circumstances under which drivers are stopped and asked to participate, and (2) requests for a specific type of data--namely, body-fluid samples.

A. FOCUS GROUP DISCUSSIONS

The topic of roadside surveys was included in 13 of the group discussions--5 of these groups consisted of participants under the age of 30, 4 groups consisted of participants over age 30, and 4 groups consisted of members from special-interest groups. Participants were asked to consider stopping methods first, without prior information about the types of tests involved. Reactions to these methods are presented in the first section below. Reactions to the particular body-fluid tests are discussed in the second section.

1. Stopping Methods

The following descriptions of three different stopping methods were presented to the discussants:

> As cars approach the survey point on a road or highway, a police officer, on a random, periodic basis, pulls a car over. The police officer introduces a researcher who describes the purpose of the survey and asks the driver to participate.
>
> As cars proceed down a road or highway, a police officer, on a random, periodic basis, pulls a car over and directs the car

to a research area. This area is located at the stop point but is not visible from the stop point. The police officer does not know if the person took part in the study or not. A researcher describes the purpose of the study and asks the driver to participate.

A researcher approaches a driver at a natural stop point, such as a traffic light or stop sign, and asks the driver to participate in a research study.

The stopping methods vary primarily in the degree of police involvement--namely, (1) having a police officer stop traffic and also be present when the study is explained by a researcher, (2) having a police officer stop traffic and divert it to a research area, and (3) having a researcher stop traffic and explain the study without any police presence. Stopping methods also differ, in that police diversion may occur along an open highway, while the researcher approach would occur only at a natural stop (e.g., at a traffic light). All groups consistently took a highly critical stance with respect to roadside surveys in general, and with individual stopping methods in particular. While a number of alternatives to roadside surveys were suggested (and will be presented later in this section), they were overwhelmingly opposed throughout all the discussions. Although the stopping methods elicited a quite diverse set of negative responses, they centered largely around two key issues: police involvement and the validity of conducting research by using these accessing methods.

a. Police Involvement

Objections were voiced in all groups about using police to stop cars, regardless of the nature of the research. These objections stemmed from the stigma associated with being stopped by a police officer. A police stop is an emotionally charged situation; both younger and older participants agreed that being stopped by police was frightening. Recognizing that the fear may be rationally unwarranted, discussants still noted that the immediate reaction to being stopped by the police was that they had done something illegal: "A policeman stopping you causes great anxiety. Although nothing wrong was done, you still feel your license will be taken away."

The association between wrongdoing and any interaction with the police, and defining the policeman's role exclusively in those terms, underlied a number of comments voiced in the discussions. In a personal vein, a special-interest participant in Atlanta queried, "What if I lived in a small town and someone I

knew saw me being stopped? It might get around that I was in some sort of trouble." Similarly, a participant in a Denver group stated, "Who does a policeman stop? He stops the bad guy. Well, I'm not a bad guy."

To some participants the very idea of roadside surveys did not make sense: "If people are driving properly, why stop them?" Other participants felt that stopping cars for surveys was overstepping police prerogatives, and was challenged "because it's a violation of a person's rights. No one has the right to stop someone unless they have a cause or are in violation of something." There were many variations on this theme. A somewhat stronger opinion was expressed by a young Trenton discussant: "I don't like police participating in this sort of a check, whether voluntary or not. Their function is to prevent you from breaking the law, and that's it. Regulation of traffic extends only so far. . . . I don't want anyone enpowered to stop me unless I'm breaking the law." Discussants in one group took this topic one step further by associating the stopping methods with roadblocks, which they felt were justified only for apprehending criminals. An additional proviso dealt with the potential for abuse: "We better have exceedingly good reasons, or we will look like other countries where roadblocks are commonplace and not very well received."

Another objection to police stops was that using police for this purpose was unnecessary and wasteful. In general, most discussants simply thought that "there are better things for the police officer to do."

The authority and power associated with police have an impact on the perception of whether participation would truly be voluntary--especially with stop methods when the police remain in view. The presence of the police was noted repeatedly as precluding, or at least reducing, the voluntary nature of participation. One participant felt that it was contradictory: "You have a police officer with authority, and you have supposedly voluntary research: no way [is it] voluntary with police." Many discussants felt that police are intimidating, and raised the fear that repercussions were possible if one refused to participate: "He will think you are hiding something."

Although police presence was described as making participation "less voluntary," discussants in all groups acknowledged that, police presence notwithstanding, people who had used alcohol or drugs would not participate. Thus, while the intimidation of police presence was seen to increase the overall participation rate, it was also felt likely to increase self-selection bias. Discussants acknowledged the fact that with the method whereby the driver is directed to a research area, a police officer is not present when the driver

decides to participate. However, there was some cynicism that police, although ostensibly not involved in the research, would nonetheless find ways to identify nonparticipants and possibly harass them. For example, one participant wondered whether the "police will later stop those that refused," while another stated, "I might feel that he may get me. I'm going to get more parking tickets, or else he's going to see me doing something else wrong, and I'm going to get paranoid. Then I might do it. But then we're talking about coercion." A related issue was the credibility of the confidentiality pledge. Some discussants felt that any police presence obviated confidentiality pledges made by the research staff. License-plate numbers were cited as an easy way to trace the identity of drivers.

Despite the various types of objections to police involvement in roadside surveys, many discussants preferred the two police-stop methods over the researcher-stop method because of the legitimacy associated with the police. A Cincinnati man put it succinctly: "I would rather have a policeman do it than some person not identified at all. Everyone knows a policeman." This suggests that the authority and legality associated with the police may be a prerequisite for gaining participant cooperation in an actual roadside situation. Although the researcher-stop method was considered more voluntary and less authoritarian, it was rejected largely because of possible dangers in being stopped by an unofficial person: "A policeman I would trust. I would not open my window to anyone else." Private individuals conducting roadside surveys were also associated with modern highwaymen: "[The surveys] could be copied and used as a front for robberies." "Everyone can start being a researcher." Given an opportunity to choose between the three methods, the researcher-stop was preferred by a few discussants because they felt they wanted to minimize any contact with the police.

b. Validity of the Research

A highly salient topic in many of the group discussions was that when participation is voluntary, test results will be biased because persons under the influence of alcohol or drugs will not agree to participate. This potential bias was discussed at length and served to discredit the entire research approach. One discussant felt that the research findings could easily be debunked and that the entire effort was worthless: "The results of all of them are going to be so biased [that] it's ridiculous to do it. Anyone with any drug or alcohol content will not stop." The following were similar attitudes:

"How are you going to get people under the influence of drugs to participate? The only people I would think that would participate would be those who had nothing better or more interesting to do."

"It would be slanted. Real culprits would not participate, and you would be back to where you started from."

Although prior announcements would definitely legitimize the survey, a more prevalent concern was that they would lead to a systematic avoidance of the research area, which would bias survey participation even more.

Because they believed a voluntary program would result in poor information, some discussants felt that such a program would be absurd, and that "the only way to do it is pull out all the stops and do the best survey--most medically rigorous and with random stop points all over." Because they considered self-selection detrimental to the validity and value of the study, several discussants felt that participation should be mandatory. One suggestion was "to deter everyone for X minutes." Another suggestion was to have "15 minutes of a certain hour where everyone is stopped," and to schedule these periods for different times of the day.

Time of day was also an issue in the discussion. Daytime was preferred because of safety considerations; however, from the standpoint of research validity, many discussants felt that it was important to perform the survey at different times of the day: "Since not that many people are drinking in the morning, you would have a higher response rate; [however], you would need several different times [of day] to get different kinds of people." The need for more data than already exists was also questioned. Doubting the importance and utility of the data that would be obtained, one Cincinnati discussant said, "What are we going to learn that we do not already know? . . . We need to get people off the road. We know the problem already. A study on top of a study. At some point we have to make a decision to do something about it." Roadside surveys were seen as diverting funds and attention away from actual programs: "We know there are drunk drivers. We should not waste time and money taking surveys. They should invest the money in treatment programs." "We need action, not more statistics" expressed an impatience with additional research and the preference for direct intervention programs for drunk drivers.

c. Additional Issues

In contrast to objections raised about the principle of roadside survey was the practical consideration that drivers would be unwilling to participate because of the inconvenience of being detained. A typical reaction was that drivers are usually eager to reach their destination and generally travel without time to spare. This attitude was expressed by the following comment: "I can't see anyone consenting to this. If you are driving along a highway, you are in a hurry to get somewhere." A similar comment was made by a Cincinnati discussant: "Most of the time you'reheading somewhere in a certain amount of time. Not too many people just get in a car to drive around." Other, similar comments were made about the purposeful direction of drivers, which suggests that in the judgment of many of the discussants, being stopped for a survey on a street or highway reflects a presumptuous and cavalier attitude on the part of the roadside-survey staff.

The scenario describing roadside surveys included the proviso that if, during the course of the survey, alcohol or drug levels were found to be illegally high, the research staff would ask the driver not to drive, but that legal action would not be taken against the driver. Granting drunk drivers immunity from the law and, if they refuse assistance, allowing them to drive was felt to be an untenable research strategy. One type of objection was made on moral grounds: "To let them go is just not right." Another objection was that the approach goes against the grain of highway safety, in that "it defeats the purpose of preventing drunk-driver accidents if the drunk is allowed to drive." A related point that was particularly salient among the special-interest groups ties into the implications of police presence: "A police officer must do his duty." "An officer would be under violation of the law if he didn't arrest the person." However, a police-chief discussant felt that this aspect would also cause an uproar among local residents and would be blocked by local politicians.

d. Alternative Research Strategies

The objections to roadside surveys described above stemmed from two different attitudes--general opposition to any research, and opposition specifically to the roadside-survey stopping methods under discussion. Many of the discussants who expressed the latter attitude also indicated they might approve roadside surveys if there were "a better way of doing it." Numerous suggestions were made and are listed below:

"Give a test to people when they wait in line to get their licenses."

"Hand out questionnaires at a red light and have people mail them back."

"[We] need a survey in a bar. Ask people: 'How many miles do you drive home after you leave here? How many times a week do you go to a bar and drive home?'"

"Stop people at toll booths."

"The thing to do is at toll booths. You [have to] stop there anyway. You could have a series of balloons set up, and just throw it to these people and they do it or they don't get through."

"Test needs to be done quickly. Hand people a card to lick to send back anonomously. Can call it 'spit for safety.'"

"One option [to pulling people off the road] is to put a sign on the road that says 'Stop Voluntarily.'"

"I would like to participate if there was a big motor van in a shopping center in a well-populated area with the institute doing the study plainly on the side, and it's something . . . like the University of Cincinnati or Cornell University--especially somebody with prestige--and it's right there and legitimate, and where you could approach it rather than be stopped."

"Set the survey up at gas stations. There is no need for a policeman there."

"Send out questionnaires."

"Better to mail a survey to everybody."

"Why not go to a court and ask the jury to make participating in a survey a condition of sentencing. Study repeated offenders in-depth. Take all the data on this person, make up a composite, and then study these people in-depth. This information could be given to a jury, and then if this person falls into category X and has X characteristics . . ."

2. Body Fluid Tests

It is important to note that the discussants' reactions to the scenarios describing the body-fluid tests were very emotional and remained on a forceful level throughout the discussions. The discussions typically followed a progression of thought that may be indicative of the general public's need for an adjustment period when they are exposed to something novel and unfamiliar. The-

idea of roadside testing, as opposed to a question-and-answer survey, and in particular the blood and urine tests, had an immediately jarring impact. The discussants were initially incredulous, and dismissed the tests on the whole as "ridiculous," "preposterous," or "absurd." As the discussion progressed, the tenor shifted to more thoughtful reactions that more reasonably weighed the pros and cons of participating in these surveys.

Despite this tendency to shift from an emotional to a more rational discussion, two distinct perspectives on the tests can be identified. Total resistance characterized one set of reactions. Surveys are conventionally understood in information-giving terms. Furthermore, body fluids are usually only requested, and provided, under a very restricted and personal set of circumstances (for example, at doctors' offices). Discussants felt that if body fluids were to be requested routinely in conjunction with "just a survey," it would convey a disregard and a disrespect for the privacy of the individual. As a Trenton discussant put it, "It is unreasonable to ask anyone to volunteer to have your body invaded." A Cincinnati discussant expressed a sense of deception: "You asked to survey me, but this is an invasion of my body." A suggestion was made along these lines to conduct a more acceptable type of survey: "If you want to know the extent of alcohol and drugs in drivers, you should ask them. You can test on subjects what the effects are, and then separately ask drivers what kind of drugs they take and drive with." In addition, several other types of objections were made. The actual body fluid was seen as incontrovertible evidence of wrongdoing--that is, "Asking is one thing but to provide proof, no one will do that." Another discussant felt that probable cause was a key factor: "A person has to show signs of driving debility. Then they should be required, and only then." Finally, the nature of the tests simply compounds the inconvenience of being stopped.

The second perspective on the tests was quite different: acceptability was seen as a function of how useful the body fluids are, and how valuable the test results would be. In this light, discussants felt that providing body fluids for tests of marginal utility was a more serious concern than simply the act of providing the body fluids in itself: "If I'm going to participate in a survey, I would rather give them that which is going to be most useful, and [in rating the various tests for unacceptability] I'd prefer whatever have the most reliable results." One way to implement this, suggested by a Cincinnati discussant, is to give the drivers information on the utility of each test and have drivers decide for themselves which samples they would provide.

General reactions to roadside testing and the particular tests would invariably play a role in individual decisions whether to participate. Actual participation, however, would also depend on practical considerations. One criterion is based on minimizing the time and effort required of the driver. When faced with the four different tests, several discussants mentioned that they would prefer the test for which "they didn't have to get out of the car and where it would take a minute or two." Quickness and convenience clearly affect the inclination and agreement to participate. Another criterion that might motivate participation would be offering financial incentives. Some discussants saw payments as one way to obviate other objections, as well as the only condition under which it seemed reasonable to expect anyone to participate. Typical comments were the following: "This won't work unless you pay people." "I'd like to be reimbursed." "Now, if I were getting $10 . . ." In addition to monetary incentives, one Trenton discussant simply felt there had to be some sort of bonus for participating: "Give them something--a lottery ticket or a cookie." In speculating about the participation rate with these tests, there was some feeling that having a mandatory survey was the only way to run it. A characteristic opinion was that no one would volunteer, and that only "if [they made it] mandatory could they maybe get some results." Skepticism along these lines was expressed by a special-interest-group police officer, who, having had experience with the body-fluid tests, said, "I still have great difficulty imagining that any amount of people would cooperate on the second series of tests. We have refusals now and it's a law that you must give them, and people simply refuse them--so what kind of cooperation are you going to get?"

Although four specific body-fluid samples were presented to the groups for consideration, discussants frequently tended to treat them as two sets: breath and saliva as one set, and blood and urine as another. Reactions to the specific tests are analyzed accordingly.

a. Breath and Saliva

Familiarity and minimal inconvenience appeared to be the most significant factors in the relative support given to breath and saliva samples. This was evidenced by such comments as "All the tests are terrible except for the breath test, which is done now," and "Saliva sample is better because people can stay in their car." The most typical comments about these samples,

however, was a simple statement of preference: "Breath and saliva I'd rather give," and "Breath and saliva are least objectionable." The extensive equipment and apparatus considered necessary for blood and urine tests also made the breath and saliva test more desirable: "Mobile medical units are very expensive. The breath test is best because it's cheapest." Still another reason for favoring the breath and saliva samples stemmed from an implicit restriction on what was "appropriate" for the survey. This point of view was expressed by the following comments:

> "For a survey, saliva is good enough."
>
> "It seems silly if you are stopped for a roadside survey to have to get out and give a urine sample or a blood sample. It seems overdone."

b. Blood and Urine

These are the more sensitive and intrusive of the tests, and reactions toward them were exclusively negative. As a general reaction, blood and urine were seen as an unreasonable demand of people in a roadside survey: "You have to draw the line somewhere. To stop people to have them go to the bathroom to have these statistics . . ." Other comments were equally telling:

> "I don't want someone poking around my veins on the highway."
>
> "Considering we'd be on the roadside, I don't want to give anyone my blood or urine."

Blood tests elicited an especially strong reaction because of the particular danger and discomfort associated with them. The potential for infection was the single, most outstanding concern, with the roadside situation precluding any "insurance against germs." A special caution about medical matters was voiced by a Cincinnati discussant: "I've never heard a recommendation about him at all. Somebody I don't know sticking a needle in me and taking blood--that's dangerous to begin with."

B. GENERAL PUBLIC SURVEY

1. Stopping Methods

The following descriptions of ways to stop drivers for roadside surveys were used during the general-public survey interview:

> There are a number of different ways of carrying out surveys on roads and highways. I am now going to describe one way.
>
> Signs would be placed along the roadway to indicate that there is a voluntary survey ahead and that you may be asked to stop and participate. A police officer would select a car at random and have it pulled over to the side of the road. The police officer tells the driver that a survey is in progress, and directs the driver to a researcher. The researcher explains to the driver that the purpose of the research is to develop better ways of preventing accidents, and that participation is voluntary. The researcher also shows the driver a certified letter from a high government official stating that the results will be completely confidential.
>
> Now I am going to describe another way of carrying out surveys on roads and highways:
>
> In this approach the signs would also be used to indicate that there is a voluntary survey ahead and that you may be asked to stop and participate. Again the officer will select a car at random and direct it to an area off to the side of the road. In this case, however, the police officer does not talk to the driver and cannot see the research area. A person easily identified as a researcher then explains to the driver that the purpose of the research is to develop better ways of preventing accidents and that participation is voluntary. The researcher also shows the driver a certified letter from a high government official stating that the results will be completely confidential.
>
> A third way of carrying out a roadside survey would also use signs to indicate that there was a voluntary survey ahead. A person clearly identified as a researcher would come up to a car at a natural stop point such as a traffic light, stop sign or gas station, explain that the purpose of the research is to develop better ways of preventing accidents and that participation is voluntary. The researcher also shows the driver a certified letter from a high government official stating that the results will be completely confidential. The researcher asks the driver to drive to a nearby research area if the driver is willing to participate. A police officer is not present in this situation.

One major difference between the three methods is the extent to which police are involved in obtaining driver participation. With the first method, the officer diverts cars from the traffic stream and is present while the driver decides whether to participate. With the second method, the officer diverts traffic but is otherwise physically separated from the research area and does not know whether the driver participates. With the third method, a police officer is not present. A second major difference is the location of the survey. With the first two methods, drivers are stopped while driving on a road or a highway; with the third (natural-stop) method, drivers are approached at a point where they have come to a stop anyway.

The idea of police involvement with roadside surveys elicited conflicting reactions from focus-group discussants. On the negative side, discussants felt that being stopped by a police officer was an emotionally charged and anxiety-ridden situation, and would be inappropriate for any non-law-enforcement (i.e., research) purposes. Police presence was also seen to undermine two basic research principles: voluntary participation and confidentiality of information provided by participants. As a practical matter, however, since roadside surveys are unfamiliar to drivers and could be threatening, police presence was thought to provide reassurance about personal safety and about the legitimacy of the research.

Another negative aspect raised by the discussants was that voluntary surveys are useless and wasteful because they are highly subject to self-selection by respondents. There was a consensus that drivers would be likely to volunteer only if they were "clean," and, hence, that the volunteers would represent a biased segment of the driving public. Despite strong objections to authoritarian strategies, strong concerns that the research be valid suggest that drivers may consider more stringent methods (and, therefore, more definitive surveys) preferable to more appealing <u>methods</u> that, in turn, would yield poor-quality information.

<u>Methodological Note.</u> The survey subsample which received Questionnaire #2, which included the roadside-survey questions, had a larger proportion of females in the sample than there was in the driver population.[1/] As a result, variables on which responses varied by sex were weighted to reflect the proportion of males and females in the driver population. Survey results that

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[1/] Additional information on the representation problem is provided in the methodological discussion in Volume I.

may be affected by differences by sex are noted in the discussion, and weighted distributions are labeled as such. To provide a point of comparison for the reader, corresponding unweighted tables are provided in Appendix B.

a. Key Dimensions of Acceptability

Public reactions to the stopping methods were obtained along four dimensions:

- Predisposition

  The acceptability of conducting surveys along roads or highways is a separate issue from the acceptability of various ways to stop cars for the surveys. Respondents' attitudes toward roadside surveys per se will indicate their predisposition toward this research approach, independent of their attitudes toward particular stopping methods.

- Evaluation

  Based on key features of the stopping methods and the concerns raised during the focus groups, four dimensions were identified as important considerations in deciding whether to participate: (1) perceived personal safety, (2) perceived coercion, (3) credibility of the confidentiality pledge, and (4) perceived validity of the information obtained from respondents. Drivers' opinions about each of these criteria are important indicators of acceptability.

- Participation

  The likelihood of respondents' participation with the respective stopping methods is a behavorial measure of acceptability.

- Logistical Factors

  To further specify conditions of acceptability and to guide the design and implementation of roadside surveys, data were obtained on (1) the length of time for which it would be acceptable to ask drivers to stop, and (2) whether having to get out of the car has a adverse or a positive effect on the chances of participation.

The presentation of survey results on the roadside-survey stopping methods will be organized according to the four areas identified above.

Predisposition. To measure public acceptability of the general idea of roadside surveys (that is, conducting studies of drivers for purposes of improving highway-safety programs), respondents were asked the following question:

- At the present time the Government does not have enough information about how and why accidents happen for it to develop better ways of preventing accidents. The only way to get the needed information is to conduct surveys at certain points along a road or highway. In general, do you favor or do you oppose carrying out surveys at certain points along roads or highways to get this kind of information?

(Table III.1 shows the responses for drivers and nondrivers, and by demographic characteristics of drivers.)

Roadside surveys were acceptable to 63.5 percent of the drivers surveyed; among nondrivers, a slightly higher proportion (66.2 percent) were in favor of roadside surveys.

The acceptability of roadside surveys varied with region. Drivers in the South were most likely to support these surveys: positive reactions were obtained from 69 percent of those drivers. The least support for roadside surveys was found among drivers in the Midwest and in the West, where only 58.9 and 58.2 percent, respectively, were in favor. The educational level of drivers was also a factor in the acceptability of roadside surveys. Drivers with some college education were almost twice as likely to oppose roadside surveys than drivers who did not graduate from high school: the proportions were 39 percent and 21.5 percent, respectively. Comprehension of the roadside-survey concept may also have been related to educational level: a higher proportion of drivers with less than a high school education were undecided about acceptability.

Evaluation of the Stopping Methods. Four evaluation criteria were applied to each of the stopping methods; the following questions were used:

- Would you be concerned about your personal safety in this situation?
- Would you feel you could refuse to participate in this situation?
- Would you believe that the results will be kept confidential in this situation?
- Do you think most people will give honest answers in this situation?

As identified during the focus-group discussions, these four dimensions represented the primary public concerns about the stopping methods.

Drivers' opinions about how the stopping methods rate along the four dimensions are of interest as an indication of public acceptability. Opinions

TABLE III.1

ATTITUDES TOWARD CONDUCTING SURVEYS ALONG ROADS OR HIGHWAYS,
FOR DRIVERS AND NONDRIVERS AND BY DEMOGRAPHIC CHARACTERISTICS OF DRIVERS

Attitude Toward Roadside Surveys (Q. 1-8)[a/]			Region				Sex		Age			Education			Income	
	Non-drivers	Drivers	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Favorable	66.2	63.5	63.0	69.0	58.9	58.2	65.2	62.1	63.5	60.9	66.9	69.9	63.1	60.0	71.4	62.5
Unfavorable	29.4	33.7	33.0	27.2	38.8	41.8	32.8	34.4	35.8	37.1	28.0	21.5	35.7	39.0	26.8	35.5
Undecided	4.4	2.8	4.0	3.8	2.3	--	2.0	3.5	0.7	2.0	5.1	8.6	1.2	1.0	1.8	2.0
Total	100.0 (68)	100.0 (457)	100.0 (100)	100.0 (158)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (253)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
					$p < .05$								$p < .001$			

[a/] Indicates questionnaire and question number for this variable. For example, these data are based on question #8 in questionnaire version #1.

about these dimensions are also expected to be associated with individual decisions about whether to participate; thus, they help identify the method(s) that are likely to yield the highest participation rates. Specifically, the extent to which police are involved in the stopping method was expected to have an impact on how drivers assessed the method along these four dimensions. Police presence was expected to be associated with a sense of personal safety, and with the attitudes that one could not refuse to participate, that the information provided would not necessarily be kept confidential, and that respondents would not, for fear of repercussions, provide honest answers.

Personal safety. Police involvement in roadside surveys greatly reduces the chances that drivers would be concerned about personal safety. Relative to the natural-stop method, for which 71.9 percent of the respondents indicated that personal safety would be a concern, a much lower proportion of drivers felt that there were personal safety risks with the other two methods: 39.1 percent when the police are present when the survey is explained, and 48.3 percent when the police direct the driver to a research area (see Table III.2).[1/]

TABLE III.2

DRIVERS' CONCERNS ABOUT PERSONAL SAFETY WITH THREE DIFFERENT STOPPING METHODS

	Stopping Method		
Concern about Personal Safety	(1) Police Stop and Police Presence (Q. 1-9a)*	(2) Police-Stop Only (Q. 1-10a)*	(3) Natural Stop (Q. 1-11a)
Yes	39.1	48.3	71.9
No	58.7	48.6	27.2
Undecided	2.2	3.1	0.9
Total	100.0 (457)	100.0 (456)	100.0 (455)

*These are weighted distributions

1/ The proportion of males and females who would be concerned about personal safety differed for both of the police-stop methods. Since the sample had an overrepresentation of females, the distributions for these two stopping methods were weighted to reflect the proportion of males and females in the driver population. Unweighted distributions for the two stopping methods are presented in Appendix Table B.1.

With respect to the two police-stop methods, the fairly large segment of drivers who indicated concern suggests that safety risks were an issue with roadside surveys despite police presence. For a substantial proportion of drivers (40 to 50 percent), safety concerns were not obviated by the presence of a police officer--a presence which ostensibly would have very high credibility in guaranteeing personal safety. The fact that almost three-quarters of the drivers associated safety risks with the natural-stop method may have reflected public apprehension about situations that may be dangerous. The natural-stop method may have been considered contrary to publicized safety dictums about the importance of taking precautions against criminal guises (for example, not rolling a window down when approached on a road).

Table III.3 shows the distributions of drivers' concerns about safety with the three stopping methods across demographic characteristics.[1/] Regional differences in perceptions of safety risk occurred for the natural-stop method. For the natural-stop method, safety concerns were least likely among drivers in the West: 56.7 percent of the drivers in the West, as compared to an average of 73.9 percent across the other three regions, indicated that they would be concerned about their personal safety.

Women were more likely than men to report that they would have safety concerns with the two police-stop methods. Safety was an issue for approximately 10 percent more women than men when the police officer talks to the driver and introduces the researcher, and for approximately 15 percent more women than men when the officer simply directs the driver to the research area. Because safety overall was a more salient concern for women, it was expected that, for this group, safety concerns associated with the police-stop methods would have been far less prevalent than safety concerns with the natural stop. Actually, the survey results show that police presence mitigated safety concerns more for male drivers than for female drivers: while men were almost as likely as women to feel that the natural stop was a safety risk, they were far less likely to have safety concerns if a police officer were involved in the stop. It may be that the women were generally more sensitive to potential safety risks; regardless of police involvement, the circumstances surrounding roadside surveys appeared to be more threatening to female drivers.

Having a police officer direct the driver to a separate research area tended to raise safety concerns among drivers in the older age group. Of the

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[1/] Unweighted distributions for the two police-stop methods are found in Appendix Table B.2.

TABLE III.3

DRIVERS' CONCERNS ABOUT PERSONAL SAFETY FOR THREE STOPPING METHODS, BY DEMOGRAPHIC CHARACTERISTICS

Whether There Is Concern About Personal Safety (Q. 1-9a, -10a, -11a)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1* (Police Stop and Police Presence)														
Yes	35.8	42.9	40.0	32.1	34.3	43.9	44.7	33.3	39.1	55.2	42.5	28.1	43.9	34.9
No	63.3	55.1	56.9	64.9	63.3	54.1	54.5	66.0	55.9	40.7	55.0	70.9	53.1	64.7
Undecided	0.9	2.0	3.1	3.0	2.4	2.0	0.8	0.7	5.0	4.1	2.5	1.0	3.0	0.4
Total	100.0 (100)	100.0 (158)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (253)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
					$p < .05$						$p < .001$			
Stopping Method #2* (Police Stop Only)														
Yes	42.9	53.6	50.7	40.2	40.7	55.9	47.2	40.0	55.1	72.8	50.2	34.4	58.5	42.8
No	53.9	43.3	46.9	56.8	55.9	41.3	50.6	59.3	38.4	26.2	46.2	62.4	39.5	55.2
Undecided	3.2	3.1	2.4	3.0	3.4	2.8	2.2	0.7	6.5	1.0	3.6	3.2	2.0	2.0
Total	100.0 (100)	100.0 (157)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (252)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
					$p < .01$			$p < .01$			$p < .001$		$p < .01$	
Stopping Method #3 (Natural Stop)														
Yes	72.0	76.9	72.9	56.7	69.1	74.1	69.4	69.5	74.4	83.7	75.6	62.1	70.3	70.2
No	28.0	22.5	26.3	40.3	29.9	25.1	29.9	29.8	24.3	15.2	23.8	36.8	28.8	29.1
Undecided	0.0	0.6	0.8	3.0	1.0	0.8	0.7	0.7	1.3	1.1	0.6	1.1	0.9	0.7
Total	100.0 (100)	100.0 (156)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (251)	100.0 (137)	100.0 (151)	100.0 (156)	100.0 (92)	100.0 (168)	100.0 (190)	100.0 (111)	100.0 (299)
		$p < .05$									$p < .001$			

*These are weighted distributions for all variables except sex

drivers over 45 years of age, 55.1 percent indicated that safety was an issue with this method, as compared to 40.0 percent of the drivers age 30 to 41. Note also that, compared with younger drivers, a greater proportion of drivers over 45 years of age were undecided about the safety of this stopping method.

For each of the three stopping methods, drivers' perceptions of personal safety varied dramatically with educational level. In each case, the proportion of drivers concerned with personal safety dropped substantially as the educational level increased. The differences are very striking. With the police-presence method, 55.2 percent of the drivers who are not high school graduates were concerned about personal safety, compared with 42.5 percent of drivers who are high school graduates and 28.1 percent of drivers with some college. A similar pattern occurred with the method whereby the police serve only to stop and direct cars; the respective proportions from low to high educational level were 72.8, 50.2, and 34.4 percent. The disparity in safety concerns was smaller for the natural-stop method: concern for personal safety was reported by 83.7, 75.6, and 62.1 percent of the drivers in the three respective educational categories. Two possible explanations for these differences should be considered. Lower education may be associated with (1) greater distrust of the police, and (2) a difficulty in understanding the purposes of a roadside survey as described during the interview.

For the police-stop-only method, concern about safety was also associated with lower income levels. This finding is consistent with the variations found by educational level.

Voluntary participation. For all three stopping methods, the majority of the drivers though that they would feel free to refuse to participate (see Table III.4). Because such a large proportion of drivers (80.9 percent) felt that participation would in fact be voluntary (despite police presence when participation is requested), the position that police involvement would have a coercive effect on drivers is not supported by these data. Nevertheless, to the extent that drivers felt they would be compelled to participate, it would most likely be when police were present: 17.6 percent felt that they could not refuse when a police officer was present, as compared to 10.8 percent when the officer was not present at that point.

Table III.5 shows drivers' perceptions across demographic characteristics about whether participation would be voluntary with the three stopping methods. Regional variations in perceptions of voluntariness occurred with both the police-presence and natural-stop methods. In both cases, drivers

TABLE III.4

DRIVERS' BELIEFS THAT PARTICIPATION IS VOLUNTARY WITH THREE DIFFERENT STOPPING METHODS

Belief that Participation is Voluntary	Stopping Method (1) Police Stop and Police Presence (Q. 1-9f)	(2) Police-Stop Only (Q. 1-10f)	(3) Natural Stop (Q. 1-11f)
Yes	80.9	87.9	91.6
No	17.6	10.8	7.3
Undecided	1.5	1.3	1.1
Total	100.0 (455)	100.0 (453)	100.0 (453)

in the South were more likely than drivers in the other regions to feel that they could not refuse. Given that drivers in the South would feel coerced to participate both with and without police involvement, the compunction to participate cannot be linked to pressure stemming from police presence per se.

Educational level figured very prominently in perceptions of voluntariness. For each of the stopping methods, drivers with higher educational levels were more likely to feel that they could refuse to participate. The differences are especially large for the police-presence method: whereas 87.9 percent of the drivers with some college felt that they could refuse, only 69.6 percent of the drivers who were not high school graduates felt that they would not have to participate. Similarly, almost all of the college-educated drivers (96.3 percent) perceived the natural-stop method to be strictly voluntary; in contrast, only 81.5 percent of the drivers with a lower educational level saw the situation that way. One interpretation of these findings is that drivers with lower educational levels are less likely to challenge or turn down a person of authority, even if authority is represented by a researcher.

As expected, the relationship between income level and feeling free to refuse to participate follows the pattern for education. Differences by income level are particularly pronounced for the natural-stop method: 12.6 percent of the drivers with family incomes of less than $12,000 felt that they would be compelled to participate, as compared to 4.7 percent of the drivers whose family income is $12,000 or more.

TABLE III.5

DRIVERS' PERCEPTIONS THAT PARTICIPATION IS VOLUNTARY WITH EACH OF THE STOPPING METHODS, BY DEMOGRAPHIC CHARACTERISTICS

Perception that Participation Is Voluntary (Q. 1-9b, 10f, 11f)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1* (Police Stop and Police Presence)														
Yes	86.0	72.4	84.5	85.1	81.3	80.5	81.8	82.0	79.5	69.6	80.2	87.9	74.8	83.2
No	13.0	25.0	14.0	14.9	17.7	17.5	18.2	16.0	17.9	23.9	19.8	12.1	22.5	16.4
Undecided	1.0	2.6	1.6	0.0	1.0	2.0	0.0	2.0	2.6	6.5	0.0	0.0	2.7	0.4
Total	100.0 (100)	100.0 (156)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (252)	100.0	100.0	100.0	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
		$p < .05$									$p < .05$			
Stopping Method #2* (Police Stop Only)														
Yes	89.0	84.4	87.6	94.0	85.7	89.6	88.3	88.0	88.4	82.6	86.2	92.6	81.1	90.9
No	11.0	13.0	10.8	6.0	13.3	8.8	11.7	11.3	8.4	14.1	13.2	6.3	14.4	9.1
Undecided	0.0	2.6	1.6	0.0	1.0	1.6	0.0	0.7	3.2	3.3	0.6	1.1	4.5	0.0
Total	100.0 (100)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (250)	100.0	100.0	100.0	100.0 (92)	100.0 (167)	100.0 (189)	100.0 (111)	100.0 (298)
											$p < .05$			
Stopping Method #3 (Natural Stop)														
Yes	95.0	85.7	93.8	95.5	90.1	92.8	94.2	93.3	87.2	81.5	91.6	96.3	83.8	95.3
No	4.0	12.3	5.4	4.5	9.4	5.6	5.8	6.0	10.2	14.1	7.8	3.7	12.6	4.7
Undecided	1.0	2.0	0.8	0.0	0.5	1.6	0.0	0.7	2.6	4.4	0.6	0.0	3.6	0.0
Total	100.0 (100)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (202)	100.0 (251)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
		$p < .05$									$p < .01$		$p < .01$	

Belief in confidentiality pledge. The description of each stopping method, as read to respondents, explicitly stated that "the researcher also shows the driver a certified letter from a high government official stating that the results will be completely confidential." Drivers were more likely to believe that this would in fact be the case with the two police-stop methods than with the natural stop (see Table III.6). Given the situation in which a

TABLE III.6

DRIVERS' BELIEFS THAT RESULTS WILL BE KEPT CONFIDENTIAL, WITH THREE STOPPING METHODS

Belief that Results will be Confidential	Stopping Method (1) Police Stop and Police Presence (Q. 1-9b)	(2) Police-Stop Only (Q. 1-10b)	(3) Natural Stop (Q. 1-11b)
Yes	66.7	68.4	51.8
No	23.0	25.5	40.3
Undecided	10.3	6.1	7.9
Total	100.0 (457)	100.0 (455)	100.0 (454)

police officer is present during the introduction, 66.7 percent of the drivers felt that the confidentiality pledge would be credible; slightly more (68.4 percent) felt that the confidentiality pledge would be credible given the situation in which the police merely direct the car to a research area. In contrast, only about half (51.8 percent) of the drivers expected that the results obtained with the natural-stop method would be kept confidential. The sharp drop in confidence with the natural-stop method may have reflected drivers' perceptions that the operational process would be less rigorous and more loosely controlled. One may argue that police involvement with roadside surveys would lead drivers to believe that law-enforcement agencies would then be privy to individual survey responses or tests. However, for approximately two-thirds of the drivers, police presence seemed to reinforce rather than undermine the legitimacy and credibility of the pledge. It is also important to note that a relatively high proportion of drivers, especially for the police-presence method, indicated that they "didn't know" whether the results would be kept confidential.

Table III.7 shows drivers' beliefs in the confidentiality pledge with the three stopping methods, across demographic characteristics. Given police presence, age was the most salient demographic factor in whether drivers expected that confidentiality would be preserved. With the police-presence method, drivers over 45 years of age were much less likely than drivers under age 30 to believe that the results would be kept confidential: 75.2 versus 56.0 percent. The cynicism prevalent among older drivers may have reflected more experience with government systems and perceptions of "police" as highly authoritarian and not accountable to the public.

Drivers' beliefs that survey responses would be kept confidential did not vary significantly by the other demographic characteristics.

Perceived validity of responses. In the opinion of a majority of the drivers surveyed, each of the three stopping methods is conducive to providing honest survey responses (see Table III.8). The proportion of drivers who expected honest answers was approximately equal for the two methods that involve police (72 and 72.6 percent, respectively); somewhat fewer (64.3 percent) of the drivers surveyed felt that respondents participating in the natural-stop survey would provide honest answers. These results are contrary to the expectation that police presence would act as a deterrent to honesty among respondents. In fact, it appears that police involvement may enhance the legitimacy and importance of the survey and, in fact, may add an element of "legality," making the survey analogous to other official information requests.

Table III.9 shows drivers; perceptions of the validity of survey responses with each of the three stopping methods, by demographic characteristics. Drivers' opinions about whether individuals would provide honest answers were fairly similar across regions, sex, age, education, and income for all three stopping methods.

The Pattern of Drivers' Reactions to the Three Stopping Methods. The above discussion presented drivers' evaluations of the three stopping methods along four criteria: concerns about personal safety, perceived coercion, belief in confidentiality pledge, perceived validity of the data.

To summarize, we found that for all three stopping methods a concern about safety was much more important among drivers than concerns about the other three evaluation dimensions. Skepticism about confidentiality and the honesty of survey respondents rank next as undesirable characteristics of the three stopping methods. That the stopping methods may be coercive was the least salient issue. These findings on individual criteria raise a further issue: To what extent do respondents tend to generalize certain attitudes to all three of

TABLE III.7

DRIVERS' BELIEFS IN CONFIDENTIALITY PLEDGE FOR EACH STOPPING METHOD, BY DEMOGRAPHIC CHARACTERISTICS

Perception that Participation is Voluntary (Q. 1-9b, 10b, 11b)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1 (Police Stop and Police Presence)														
Yes	70.0	65.8	63.6	71.6	63.7	69.2	75.2	72.9	56.0	64.5	62.5	71.6	63.4	71.2
No	18.0	24.7	24.8	20.9	27.5	19.3	18.2	20.5	30.0	23.7	25.6	20.5	25.9	22.4
Undecided	12.0	9.5	11.6	7.5	8.8	11.5	6.6	6.6	14.0	11.8	11.9	7.9	10.7	6.4
Total	100.0 (100)	100.0 (158)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (253)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
								$p < .01$						
Stopping Method #2 (Police Stop Only)														
Yes	69.0	66.7	67.4	74.6	66.2	70.1	75.9	71.5	60.3	61.3	68.4	71.4	69.6	69.9
No	19.0	29.5	27.9	19.4	28.4	23.1	21.9	22.5	29.5	28.0	27.4	22.8	24.2	25.8
Undecided	12.0	3.8	4.7	6.0	5.4	6.8	2.2	6.0	10.2	10.7	4.2	5.8	6.2	4.3
Total	100.0 (100)	100.0 (156)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (251)	100.0 (137)	100.0 (151)	100.0 (156)	100.0 (93)	100.0 (168)	100.0 (189)	100.0 (112)	100.0 (299)
Stopping Method #3 (Natural Stop)														
Yes	54.0	50.3	46.5	62.7	50.7	52.6	58.8	49.7	48.7	53.3	47.9	54.2	59.5	50.7
No	36.0	40.0	49.6	28.3	42.4	38.6	36.0	42.4	40.4	40.2	43.2	38.4	35.1	42.3
Undecided	10.0	9.7	3.9	9.0	6.9	8.8	5.2	7.9	10.9	6.5	8.9	7.4	5.4	7.0
Total	100.0 (100)	100.0 (155)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (251)	100.0 (136)	100.0 (151)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)

TABLE III.8

DRIVERS' BELIEFS THAT RESULTS WILL BE VALID WITH THE THREE STOPPING METHODS

Will People Answer Honestly?	Stopping Methods (1) Police Stop and Police Presence (Q. 1-9c)	(2) Police-Stop Only (Q. 1-10c)	(3) Natural-Stop Only (Q. 1-11c)
Yes	72.0	72.6	64.3
No	22.3	22.1	29.3
Undecided	5.7	5.3	6.4
Total	100.0 (457)	100.0 (453)	100.0 (454)

the stopping methods? For example, if a respondent is concerned about safety with one stopping method, is he/she also likely to be concerned about safety with the other stopping methods as well? Table III.10 lists different combinations of stopping methods (from all three, to different combinations, to none), and shows the proportion of drivers who responded "yes" to evaluation criteria for each combination of methods.

The premise that respondents have a particular attitude toward roadside surveys which is then generalized to all stopping methods did characterize drivers' evaluations of voluntariness, confidentiality, and validity of responses. For each of these criteria, approximately half or more of the respondents consistently indicated that, for all three stopping methods, they would feel free to refuse, that they believed the results would be kept confidential, and that persons would provide honest answers. Generalization was strongest along the "voluntariness" dimension: more than three-quarters of the drivers felt that they could refuse with all three stopping methods. For almost half (47.2 percent) of the drivers, survey responses from all three stopping methods would be kept confidential; for an additional 19 percent of the drivers, confidentiality would be assured only if there were some apparent police involvement. From a negative standpoint, 17.4 percent felt that confidentiality would not be maintained with <u>any</u> of the methods. A similar pattern occurs for perceptions of whether individuals would provide honest answers: 57.2 percent expected that respondents would provide honest answers with all three methods; 12.7 percent expected valid responses only with the police-stop methods; 13.9

TABLE III.9

DRIVERS' OPINIONS ABOUT WHETHER PEOPLE WILL ANSWER HONESTLY WITH EACH STOPPING METHOD, BY DEMOGRAPHIC CHARACTERISTICS

Will People Answer Honestly (Q. 1-9c, 10c, 11c)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1 (Police Stop and Police Presence)														
Yes	69.0	76.0	70.5	70.1	74.0	70.4	67.9	73.5	74.5	69.9	72.0	72.6	66.1	75.9
No	26.0	17.7	23.3	25.4	22.1	22.5	28.5	22.5	16.6	23.7	23.2	21.1	25.9	20.4
Undecided	5.0	6.3	6.2	4.5	3.9	7.1	3.6	4.0	8.9	6.4	4.8	6.3	8.0	3.7
Total	100.0 (100)	100.0 (158)	100.0 (129)	100.0 (67)	100.0 (209)	100.0 (253)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
Stopping Method #2 (Police Stop Only)														
Yes	73.0	74.0	69.8	73.1	76.3	69.6	67.6	74.2	75.5	64.1	74.8	74.6	64.9	75.8
No	23.0	21.4	23.3	20.9	21.2	22.8	27.2	23.2	16.1	27.2	19.8	21.7	25.2	21.5
Undecided	4.0	4.6	7.0	6.0	2.5	7.6	5.2	2.6	8.4	8.7	5.4	3.7	9.9	2.7
Total	100.0 (100)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (250)	100.0 (136)	100.0 (151)	100.0 (155)	100.0 (92)	100.0 (167)	100.0 (189)	100.0 (111)	100.0 (298)
Stopping Method #3 (Natural Stop)														
Yes	62.0	67.1	62.0	64.2	63.6	64.9	66.2	60.9	67.3	64.1	62.3	66.3	69.4	63.4
No	33.0	25.8	32.6	26.9	33.0	26.3	30.1	35.1	21.2	27.2	33.5	26.3	22.5	32.2
Undecided	5.0	7.1	5.4	8.9	3.4	8.8	3.7	4.0	11.5	8.7	4.2	7.4	8.1	4.4
Total	100.0 (100)	100.0 (155)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (251)	100.0 (136)	100.0 (151)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)

$p < .10$

TABLE III.10

PATTERN OF REACTIONS TO THE THREE STOPPING METHODS, FOR EACH EVALUATION CRITERION

Combination of Methods	Evaluation Criteria (Percent of "Yes Responses) Safety is a Concern	Feel Free to Refuse (Voluntary)	Believe Results Will be Confidential	Believe People Will Give Honest Answers
Assessment Holds for All 3 Methods	28.4	76.6	47.2	57.2
Assessment Holds for High Police Presence Only (#1 and #2)	5.9	2.7	19.0	12.7
Assessment Holds for Low Police Presence Only (#2 and #3)	15.3	10.0	5.6	5.2
Assessment Holds for Method #1 Only	2.8	1.8	5.3	4.9
Assessment Holds for Method #2 Only	3.1	1.1	3.6	2.4
Assessment Holds for Method #3 Only	27.7	5.2	2.4	3.8
Assessment Not Applied to Any of the Methods	16.9	2.5	17.4	13.9
Total	100.0 (426)	100.0 (440)	100.0 (415)	100.0 (425)

percent did not expect that respondents would be honest with any of the methods.

The safety dimension differs from the other criteria in that drivers tended to apply this dimension differentially across methods. A very strong pattern for the safety dimension is that respondents were unlikely to be concerned about safety with the two police-stop methods if they were not also concerned about safety with the natural-stop method. Thus, for 71.4 percent of the drivers, safety was a concern with the natural-stop method and with one or

both of the other methods. Only relatively few drivers (11.8 percent) indicated that safety was a concern with either or both of the police-stop methods, but not with the natural-stop method.

Drivers' Reactions to Stopping Methods as a Function of General Attitudes Toward Roadside Surveys. To further pursue the question of whether drivers' evaluations of stopping methods are part of a general positive or negative attitude, drivers' reactions to each of the evaluation criteria were examined in relation to favorable or unfavorable attitudes toward roadside surveys as a whole (see Table III.11).

Two points can be made about the relationship between attitudes toward the general concept of roadside surveys and specific assessments of the stopping methods. First, it is noteworthy that in most instances an unfavorable attitude toward roadside surveys did not necessarily indicate a negative evaluation of the stopping methods. For most of the criteria, it appeared that the evaluation was made independently of the acceptability of the general idea of roadside surveys. Second, the particular instances in which evaluations are, or are close to being, significantly different suggest that unfavorable attitudes were associated with a reaction to police presence. Thus, drivers unfavorably disposed toward roadside surveys were more likely to be cynical about the characteristics of the stopping methods (confidentiality, honesty of responses) when police are involved. Drivers who were not amenable to roadside surveys were also more likely to find the natural-stop method (no police involvement) safe.

b. Likelihood of Participation with Different Stopping Methods

The acceptability of the three stopping methods for roadside surveys was measured in terms of behavioral intentions. For each stopping method, drivers were asked:

- How likely is it that you would agree to participate in this situation--very likely, somewhat likely, or not likely?

(Table III.12 shows the results for each stopping method.)

The situation most conducive to participation is having a police officer stop the car and also be present when the study is being explained. Given this stopping method, 50 percent of the drivers felt that they would definitely participate in a roadside survey; an additional 31.9 percent of the drivers indicated that there was some chance that they would participate with this stopping method. Again, under the most favorable conditions (police stop and

TABLE III.11

DRIVERS' EVALUATIONS OF THE THREE STOPPING METHODS, BY ATTITUDES TOWARD ROADSIDE SURVEYS

Concern About Personal Safety	Attitude toward Roadside Surveys		Belief that Participation is Voluntary	Attitude toward Roadside Surveys		Belief that Results will be Confidential	Attitudes toward Roadside Surveys		Belief That People Will Answer Honestly	Attitudes toward Roadside Surveys	
	Favorable	Unfavorable		Favorable	Unfavorable		Favorable	Unfavorable		Favorable	Unfavorable
Stopping Method #1											
Yes	37.3	43.5		79.2	84.4		70.7	59.7		75.9	65.6
No	61.0	53.9		20.1	13.6		20.0	29.2		18.3	29.9
Undecided	1.7	2.6		0.7	2.0		9.3	11.1		5.8	4.6
Total	100.0 (290)	100.0 (154)		100.0 (288)	100.0 (154)		100.0 (290)	100.0 (154)		100.0 (290)	100.0 (154)
							$p < .05$			$p < .05$	
Stopping Method #2											
Yes	48.1	50.7		85.7	91.5		70.9	64.7		75.3	68.0
No	49.5	46.1		13.2	6.5		22.8	30.7		19.2	28.8
Undecided	2.4	3.2		1.1	2.0		6.3	4.6		5.5	3.3
Total	100.0 (289)	100.0 (154)		100.0 (287)	100.0 (153)		100.0 (289)	100.0 (153)		100.0 (287)	100.0 (153)
							$p < .10$			$p < .05$	
Stopping Method #3											
Yes	75.4	65.6		90.2	94.8		53.0	49.4		64.8	64.3
No	24.0	33.1		8.7	4.6		39.0	44.8		28.2	33.1
Undecided	0.7	1.3		1.1	0.6		8.0	5.8		7.0	2.6
Total	100.0 (288)	100.0 (154)		100.0 (286)	100.0 (154)		100.0 (287)	100.0 (154)		100.0 (287)	100.0 (154)
	$p < .05$										

police presence), 17.9 percent of the drivers indicated that their participation would not be likely. The other stopping method which also involves police (for which the police officer serves only to divert the car from the traffic stream) was a close second in engendering participation. With the police-stop-only method, 43.7 percent of the drivers indicated that participation would be "very likely"; an additional 31.6 percent reported that participation would be "somewhat likely." One-quarter (24.2 percent) of the drivers surveyed indicated that they would probably not participate with this stopping method.[1/]

Police presence was a key factor in whether drivers expected to participate: expected participation rates dropped substantially for the natural-stop method. With the natural-stop method, participation in the study was "very likely" only for 22.9 percent of the drivers; participation was "somewhat likely" for 21.2 percent of the drivers. More than half of the drivers (55.5 percent) felt that participation was "not likely."

To specify whether any particular driver characteristics and attitudes are associated with expectations of participation in a roadside survey, the likelihood of participation with the different stopping methods was examined in relation to three sets of factors:

TABLE III.12

LIKELIHOOD OF PARTICIPATION WITH EACH OF THE THREE STOPPING METHODS

	Stopping Method		
Likelihood of Participating	(1) Police Stop and Police Presence (Q. 1-9d)	(2) Police-Stop Only* (Q. 1-10d)	(3) Natural Stop (Q. 1-11d)
Very Likely	49.9	43.7	22.9
Somewhat Likely	31.9	31.6	21.2
Not Likely	17.6	24.2	55.5
Undecided	0.6	0.5	0.4
Total	100.0 (455)	100.0 (454)	100.0 (454)

*This is a weighted distribution

[1/] The likelihood of participation with the police-stop-only method differed between male and female drivers: females were less likely to participate. Since the sample has an overrepresentation of females, the distribution for this stopping method was weighted to reflect the proportion of males and females in the driver population. An unweighted distribution for the likelihood of participation with this stopping method is presented in Appendix Table B.3.

- Demographic characteristics, including the use of alcoholic beverages and drinking and driving habits
- Attitudes toward roadside surveys in general
- Opinions about the safety, voluntariness, confidentiality, and validity of responses for the respective stopping methods

In addition, a fourth section below focuses on reasons for nonparticipation. Drivers who indicated that participation was "somewhat" or "not" likely were asked, "What can be done to make it more likely that you would participate?" Responses to this question indicate conditions under which participation rates would increase; these responses also identify specific features of the stopping methods that drivers found objectionable.

Demographic Variations. (Table III.13 shows the likelihood of participation for drivers with each stopping method, by demographic characteristics.)[1/] Differences in expected participation across regions are not statistically significant.

With the police-stop-only method a differential likelihood of participation was found between male and female drivers. Police presence was a factor in expected participation among women. With the police-stop and police-presence methods, approximately the same proportions of male and female drivers indicated that participation would be "very likely." However, given the situation in which police officers simply stop the car and direct it to a research area, the proportion of women "very likely" to participate was much lower than the proportion of men: 34.7 percent to 49.8 percent, respectively. The likelihood of participation with the natural-stop method was quite low for the full sample of drivers, and the difference between male and female drivers is not significant for this stop method.

The likelihood of participation with the police-involvement methods varied with the age of the driver: the proportion of drivers who expected to participate increased with each age category for the two police-stop methods. Police presence (which may be either a coercive or a reassuring factor) was especially strongly associated with the participation of older drivers in

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[1/] Unweighted distributions for the police-stop-only method can be found in Appendix Table B.4.

TABLE III.13

LIKELIHOOD OF PARTICIPATING WITH EACH
OF THE STOPPING METHODS, BY DEMOGRAPHIC CHARACTERISTICS

Likelihood of Participating (Q. 1-9d, -10d, -11d)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1 (Police Stop and Police Presence)														
Very Likely	47.0	55.8	45.7	50.7	50.3	49.6	37.9	48.7	63.5	65.2	49.7	43.2	52.3	51.3
Somewhat Likely	35.0	31.4	33.3	25.4	31.5	32.1	40.9	33.3	21.1	22.8	34.1	34.2	29.7	32.2
Not Likely	18.0	12.8	19.4	22.4	18.2	17.1	21.2	18.0	13.5	9.8	16.2	22.1	18.0	15.8
Undecided	0.0	0.0	1.6	1.5	0.0	1.2	0.0	0.0	1.9	2.2	0.0	0.5	0.0	0.7
Total	100.0 (100)	100.0 (156)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (252)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
							$p < .001$			$p = .05$				
Stopping Method #2 (Police Stop Only)														
Very Likely	33.9	50.7	37.6	45.7	49.8	34.7	34.3	45.4	47.8	52.9	47.1	33.4	42.5	43.4
Somewhat Likely	37.7	27.6	33.2	32.7	30.5	34.3	42.1	30.9	24.9	23.2	29.9	38.8	29.0	32.9
Not Likely	28.4	21.7	27.8	19.9	19.2	30.2	22.8	23.7	26.1	22.9	23.0	26.7	26.6	23.7
Undecided	0.0	0.0	1.4	1.7	0.5	0.8	0.8	0.0	1.2	1.0	0.0	1.1	1.9	0.0
Total	100.0 (89)	100.0 (139)	100.0 (116)	100.0 (60)	100.0 (203)	100.0 (251)	100.0 (122)	100.0 (136)	100.0 (139)	100.0 (82)	100.0 (149)	100.0 (171)	100.0 (97)	100.0 (269)
					$p < .01$			$p = < .05$			$p < .05$			
Stopping Method #3 (Natural Stop)														
Very Likely	20.0	25.2	22.5	23.9	25.6	20.7	19.0	19.3	30.8	33.7	23.3	17.9	31.5	20.8
Somewhat Likely	24.0	21.9	13.9	28.4	24.1	18.7	24.8	21.3	18.0	20.6	22.2	20.5	-	-
Not Likely	56.0	52.3	62.8	47.7	50.3	59.8	56.2	58.7	50.6	43.5	54.5	61.6	47.8	57.4
Undecided	0.0	0.6	0.8	0.0	0.0	0.8	0.0	0.7	0.6	2.2	0.0	0.0	20.7	21.8
Total	100.0 (100)	100.0 (155)	100.0 (129)	100.0 (67)	100.0 (203)	100.0 (251)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
										$p \leq .05$				

roadside surveys. The disparity across groups is very pronounced: participation was very likely for 63.5 percent of the drivers over age 45, in contrast to only 37.9 percent of the drivers under age 30. Similarly, 47.8 percent of the older drivers were quite definite about participating with the police-stop-only method, as compared to 34.3 percent of the younger drivers. (The relationship between age and the likelihood of participation with the natural stop is not statistically significant.)

The likelihood of participation also varied with educational level. With each stopping method, the proportion of drivers who thought that their participation would be "very likely" decreased with increased education. Whereas 65.2 percent of the drivers with less than a high school education indicated that they would participate (with the police-presence method), only 43.2 percent of the drivers with some college education were that definite. The same pattern holds for the other two stopping methods. With the police-stop-only method, the proportions of drivers very likely to participate were 52.9 (less than high school) versus 33.4 (any college). With the natural-stop method, the proportions were 33.7 (less than high school) versus 17.9 (any college).

The likelihood of participation did not vary by the income level of the drivers surveyed.

An additional driver characteristic which was expected to be related to participation was whether the driver ever drives after having something alcoholic to drink. The expectation was that drivers who have been drinking prior to being stopped for a survey may attach greater risk to police presence and therefore be less likely to participate in that situation. Table III.14 shows the likelihood of participation with each stopping method, broken down by (1) whether the driver uses alcohol, and (2) whether the driver reported ever driving after drinking.

The data on the likelihood of participation and drinking and driving habits do not support the expectation that drivers who may feel more at risk would be less interested in participating if police were at all in evidence--differences between "high risk" and "low risk" drivers are fairly small and are not statistically significant. Neither being a drinker nor driving after drinking appears to be a factor in whether drivers would be likely to participate, regardless of stopping method. The lack of difference, particularly for the police-stop methods, suggests that the fear of detection was not a dominant concern for drivers. This conclusion is consistent with the findings on confidentiality, for which a majority of drivers believed that the results would be kept confidential.

TABLE III.14

LIKELIHOOD OF PARTICIPATION WITH EACH STOPPING METHOD,
BY USE OF ALCOHOLIC BEVERAGES AND DRINKING AND DRIVING HABITS

Likelihood of Participation (Q. 1-9d, 10d, 11d)	Use of Alcoholic Beverages		Ever Drink and Drive	
	Use Alcohol	Total Abstainer	Yes	No
Stopping Method #1 (Police Stop and Police Presence)				
Very Likely	49.4	52.3	46.5	52.7
Somewhat Likely	31.4	32.3	30.6	32.4
Not Likely	18.6	14.6	22.9	13.5
Undecided	0.6	0.8	-	1.4
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)
Stopping Method #2 (Police-Stop Only)				
Very Likely	39.3	47.7	41.2	37.2
Somewhat Likely	34.6	26.9	35.3	33.8
Not Likely	25.8	23.9	22.9	29.0
Undecided	0.3	1.5	0.6	-
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)
Stopping Method #3 (Natural Stop)				
Very Likely	22.3	25.4	24.1	20.3
Somewhat Likely	23.3	16.2	22.9	23.6
Not Likely	54.4	56.9	53.0	56.1
Undecided	-	1.5	-	-
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)

Participation as a Function of Attitudes Toward Roadside Surveys in General. Predictably, there was a very strong relationship between the acceptability of roadside surveys and whether a driver would expect to participate in such surveys (see Table III.15). The relationship was particularly strong for the two police-stop methods. Whereas approximately half (49.9 percent) of the drivers overall would be very likely to participate with the police-presence method, for drivers who were opposed to roadside surveys per se the proportion which was definite about participating dropped to 24.7 percent. Equally noteworthy is that opposition to roadside surveys not only made it less likely that

the driver would participate, but in fact was associated with the more negative position of being "not likely" to participate. The results for the police-stop-only method are similar: only 22.1 percent of the drivers opposed to roadside surveys would be very likely to participate; 44.2 percent explicitly would not expect to participate. The extent of the disparity in expected participation between drivers in favor of and drivers opposed to roadside surveys suggests that

TABLE III.15

LIKELIHOOD OF PARTICIPATION WITH EACH STOPPING METHOD, BY ATTITUDE TOWARD ROADSIDE SURVEYS

Likelihood of Participation (Q. 1-9d, 10d, 11d)	Attitude Toward Roadside Surveys (Q. 1-8)					
	Method #1		Method #2		Method #3	
	Favor	Oppose	Favor	Oppose	Favor	Oppose
Very Likely	64.2	24.7	51.9	22.1	26.5	16.9
Somewhat Likely	29.5	35.7	32.8	32.5	19.9	23.4
Not Likely	6.3	38.3	15.3	44.2	53.7	59.7
Undecided	-	1.3	-	1.3	-	-
Total	100.0 (288)	100.0 (154)	100.0 (287)	100.0 (154)	100.0 (287)	100.0 (154)
	$p < .001$		$p < .001$			

the driver's mindset about roadside surveys in general was a powerful factor in the the decision to participate, even under the most favorable (police-stop) conditions. Acceptance of the basic premise of the survey (necessity of the data) and acceptance of the idea of roadside surveys appeared to be important prerequisites for participation.

Although drivers opposed to roadside surveys were also less likely to participate with the natural-stop method, the differences are fairly small and are consistent with the tendency of all drivers not to participate with this method.

Evaluations of the Stopping Methods and Likelihood of Participation. For each stopping method, the likelihood of participation was consistent with certain attitudes toward the evaluation criteria (see Table III.16).[1/] As a rule, the likelihood of participation was lower to the extent that:

[1/] Unweighted distributions for the police-stop-only method can be found in Appendix Table B.5

TABLE III.16

LIKELIHOOD OF PARTICIPATION WITH THE THREE STOPPING METHODS, BY DRIVERS' EVALUATIONS OF THE RESPECTIVE STOPPING METHODS

Likelihood of Participation	Concern About Personal Safety		Perception of Voluntariness		Belief In Confidentiality		Belief that Answers Will be Honest	
	Yes	No	Yes	No	Yes	No	Yes	No
Stopping Method #1 (Police Stop and Police Presence)								
Very Likely	39.1	57.1	47.3	61.3	54.8	34.6	56.7	29.7
Somewhat Likely	35.2	30.1	32.9	27.5	31.5	35.6	31.1	37.6
Not Likely	25.7	12.1	19.3	11.3	13.4	28.8	11.6	32.7
Undecided	-	0.7	0.5	-	0.3	1.0	0.6	-
Total	100.0 (179)	100.0 (266)	100.0 (368)	100.0 (80)	100.0 (305)	100.0 (104)	100.0 (328)	100.0 (101)
	$p < .001$				$p < .001$		$p < .001$	
Stopping Method #2* (Police Stop Only)								
Very Likely	32.1	54.1	41.0	55.2	49.3	25.1	49.1	22.2
Somewhat Likely	30.0	34.2	32.0	34.5	34.9	27.5	32.7	32.4
Not Likely	37.5	11.7	26.5	10.3	15.5	47.4	18.2	45.4
Undecided	0.4	-	0.5	-	0.3	-	-	-
Total	100.0 (223)	100.0 (217)	100.0 (398)	100.0 (49)	100.0 (310)	100.0 (115)	100.0 (329)	100.0 (99)
	$p < .001$		$p < .05$		$p < .001$		$p < .001$	
Stopping Method #3 (Natural Stop)								
Very Likely	13.5	48.4	18.6	72.7	32.8	12.1	30.8	8.3
Somewhat Likely	17.2	30.7	22.2	12.1	31.1	9.9	25.3	12.1
Not Likely	68.7	21.0	59.0	15.2	36.1	78.1	43.9	79.6
Undecided	0.6	-	0.2	-	-	-	-	-
Total	100.0 (326)	100.0 (124)	100.0 (415)	100.0 (33)	100.0 (235)	100.0 (182)	100.0 (292)	100.0 (132)
	$p < .001$		$p < .001$		$p < .001$		$p < .001$	

* These are weighted distributions

- Safety was a concern (drivers were less inclined to participate if safety were an issue)
- Participation was perceived as voluntary (drivers who felt free to refuse were less likely to indicate that they would participate)
- Results were not actually expected to be kept confidential (drivers were less likely to participate if they did not believe the confidentiality pledge)
- Respondents in the survey were not expected to provide honest answers (chances of participation were lower among drivers who did not believe that survey responses would be valid)

The degree to which the above evaluations affected the likelihood of participation varied with each stopping method. With respect to the police-presence method, for drivers who were concerned about safety, who felt free to refuse, and who were dubious about confidentiality and validity, the likelihood of participation tended to shift to "somewhat likely." For the police-stop-only method and, to an even greater extent, the natural-stop method, drivers indicating these same evaluations were not, for the most part, likely to participate at all. For example, of the drivers who did not feel that people would provide honest answers with the police-presence method, 29.7 percent were very likely to participate, 37.6 percent were somewhat likely, and 32.7 percent were not likely at all. (Of the drivers who did believe that the answers would be honest, the corresponding percentages were 56.7, 31.1, and 11.6.) In comparison, of the drivers who did not feel that people would provide honest answers with the police-stop-only method, 22.2 percent were very likely to participate, 32.4 percent were somewhat likely, and 45.4 percent were not likely. (The corresponding percentages for drivers who did believe the answers would be honest were 49.1, 32.7, and 18.2.)

Two additional points can be made about participation with the natural stop. First, compared to the 22.9 percent for the drivers overall who would be very likely to participate with this method, a substantial increase (to 48.4 percent) occurred among drivers who were not concerned about personal safety with the natural stop. Second, participation with this method was almost precluded among drivers who did not believe that (1) the results would be kept confidential (78.1 percent were not likely to participate) or (2) people would provide honest answers (79.6 percent were not likely to participate).

Conditions for Engendering Participation. To identify the basis of driver resistance to the different stopping methods, drivers who indicated that

they were only "somewhat likely" or "not likely" to participate were asked, "What can be done to make it more likely that you would participate?" The question was designed to focus responses on personal, as well as constructive, aspects of drivers' reluctance to participate.

Drivers' responses to this question were very diverse, and illustrate the range of considerations that entered into the decision to participate. The various conditions for participation and suggestions for alternative methods and procedures were grouped according to the type of response; the following are a brief description and a few examples of each type:

OBJECTION TO ROADSIDE

This category covers resistance to the roadside location of the surveys:

"I wouldn't want to be stopped on a road to do a survey."

"If the survey were done somewhere else . . ."

While some drivers indicated only that roads and highways were not appropriate for a survey, others preferred a specific alternative:

"If they called me on the phone . . ."

"If they sent a questionnaire to my house . . ."

"They should ask people questions when they come in to renew their driver's license or take a driver's test."

SAFETY OF SURVEY LOCATION OR SURVEY AREA

Apprehension about safety or precautions because of safety risks were mentioned in conjunction with both the nature of the road or highway and the appearance of the actual survey area:

"Depends on the area--there are certain highways I wouldn't stop on."

"If it looks official . . ."

"If there is more than one car around . . ."

"Need proof that it is not dangerous."

"With the crime rate, I would be hesitant to stop."

NATURE OF STOPPING METHOD

The fact that a driver was being stopped (as opposed to stopping voluntarily) or the circumstances under which cars were stopped was problematic:

"Don't like the way they approach you."

"If a person could pull over voluntarily when he saw the sign . . ."

"If they gave advance warning . . ."

TIME OF DAY

The respondent would participate only if the survey took place at certain times of the day:

"If it wasn't dark out . . ."

"If it was daytime . ."

"Not during high traffic hours."

PRESENCE OF POLICE OFFICER

Participation depended on the presence of a police officer, either on the scene or throughout, as the survey is being conducted:

"If an officer is there the whole time . . ."

"If there is an officer in uniform . . ."

ABSENCE OF POLICE OFFICER

Participation was more likely if a police officer is not present; police presence was objectionable because it compromises the notion of voluntary participation:

"Sight of [an] officer would make me wonder."

TIME FACTOR: DURATION OF SURVEY OR TIME CONSTRAINTS ON RESPONDENT

Participation was a function of how much time the survey would require and the availability of respondent's time:

"Depends on how long it will take."

"Depends on whether I had time."

"If it's convenient . . ."

CONTENT OF SURVEY

Respondent would need more information about the purpose and nature of the survey:

"Depends on what they are going to ask."

"Depends on what survey is about."

RECEIPT OF INCENTIVES

Chances of participation would increase if respondents received some compensation:

"If they filled up my car with gas . . ."

"If I got paid . . ."

NOTHING

An unequivocal refusal--respondent indicated that nothing could be done to make it more likely that he or she would participate:

"Nothing."

"Under no condition."

"I just wouldn't."

DON'T KNOW

Respondent did not know what would make it more likely that he or she would participate.

OTHER

A few responses were idiosyncratic comments that were not relevant to roadside surveys:

"The best way to improve highway safety is to remove teenage hot rods."

Prior to discussing the frequency with which each of these reasons was mentioned, several comments should be made about the nature of the responses. First, a major difference should be noted between (1) drivers who found some specific feature of the design or the procedures objectionable (represented by all of the responses except "nothing" and "don't know") and (2) drivers who, either explicitly or by default, were entrenched in their decision that their participation would be unlikely (represented by the "nothing" and "don't know" responses). An examination of the tone and nature of the responses shows that

the first group of drivers were, on the whole, amenable to roadside surveys and that their participation would depend on practical considerations. On the other hand, drivers who indicated that "nothing" could be done seemed to object to roadside surveys or a particular stopping method in principle, and took a very definite stand against participation.

A second difference is based on the types of conditions cited by drivers: a closer look at the individual response categories suggests that nonparticipation for drivers who generally would be amenable to the survey was a matter of (1) insecurity about the safety of the situation and (2) personal motivation to take part in the surveys. Thus, in addition to the explicit safety concerns voiced by drivers, interest in having surveys conducted during the day, the requirement that police clearly be present throughout the survey, the use of advance publicity, and the requirement that individuals not be approached while at a stop sign indicate that drivers wanted assurance in advance that the survey was legitimate and safe and would not place a participant in a dangerous or vulnerable situation. Other conditions mentioned by drivers underscore the fact that survey participation depended on personal convenience and interest. The view-point that roadside surveys are presumptuous, and may just be too inconvenient for drivers, was reflected by the preference for less disruptive data collection methods (telephone and mail surveys), by suggestions that drivers be asked to stop voluntarily, and by concerns that the time involved in participation or the timing of the survey would preclude participation. Similarly, personal prerogative was an issue when participation depended on the topic or purpose of the particular survey.

Table III.17 shows the distribution of drivers' responses about how the likelihood of participation could be increased. Adamant resistance to participation ("nothing" can be done to make participation more likely) represented a fairly small proportion of the responses; the percentages were 10.2, 11.1, and 8.4, respectively, for the three stopping methods.

The distribution of responses on the detailed categories are widely scattered. Even when grouped into broader sets (with the exception of safety-related issues), the suggestions for increasing participation remain fairly equally spread across three types of strategies. First, the roadside location of the survey posed a problem for one segment of the drivers. One commonly cited alternative called for a more conventional setting for research studies that would be less disruptive for the driver on the road (such as when drivers have licenses renewed). A second suggestion called for revamping the design of

TABLE III.17

DISTRIBUTION OF DRIVERS' RESPONSES ON HOW TO INCREASE LIKELIHOOD OF PARTICIPATION, BY STOPPING METHOD

Ways of Increasing Likelihood of Participation[a]	Stopping Method (1) Police Stop and Police Presence (Q. 1-9e)		Stopping Method (2) Police-Stop Only* (Q. 1-10e)		Stopping Method (3) Natural Stop (Q. 1-11e)	
General Objections to Roadside	6.8	20.1	5.7	14.5	3.5	10.9
Prefer Survey by Telephone	2.3		0.7		0.7	
Prefer Survey by Mail	4.9		3.0		2.0	
Prefer Specific Other Method	6.1		5.1		4.7	
Nature of Stopping Method	14.8		14.8		15.3	
Safety of Survey Location	3.0		8.1		7.2	
Time of Day	0.8	6.4	0.7	23.6	0.7	46.4
Presence of Police Officer	2.6		14.8		38.5	
Absence of Police Officer	2.6		2.7		0.2	
Time/Convenience	20.8	22.3	16.2	17.5	8.9	9.9
Content of Survey	1.5		1.3		1.0	
Receipt of Incentives	2.0		1.0		1.0	
Nothing	10.2		11.1		8.4	
Don't Know	18.6		14.1		7.2	
Other	3.0		0.7		0.7	
Total	100.0		100.0		100.0	
	(264)		(297)		(404)	

[a] Up to two discrete responses were coded per respondent. The total numbers for each method, therefore, are a count of responses, not individual respondents.

the stopping method by allowing drivers to pull over voluntarily. The third response was more of a condition than a suggestion: essentially, participation would depend on whether the driver had the time to stop.

The pattern of responses on the safety issue parallels the findings discussed earlier about whether drivers would be concerned with their personal safety for each of the stopping methods--namely, safety precautions were a relatively minor factor with the police-presence method; however, they accounted for almost one-quarter (23.6 percent) of the responses when the police serve

only to stop the driver, and for almost one-half (46.4 percent) of the responses with the natural-stop method.

c. Logistical Factors

The design of roadside surveys involves a number of logistical considerations. In particular, two decisions may have to be made: how much time drivers can reasonably be expected to give, and whether asking drivers to get out of their cars would deter or encourage participation. Further, in the event that a longer time period would be necessary than is considered reasonable by most drivers, or that drivers would have to get out of their cars for purposes of a particular survey, are these circumstances less acceptable to certain demographic segments of drivers? In other words, by varying these two design features of roadside surveys, is it more likely that some groups of drivers would be excluded from the survey?

Reasonable Duration. The following question was asked of drivers

- For these kinds of surveys for how many minutes do you think it is reasonable to ask people to stop?

Responses to this question ranged from "no" minutes ("It's not reasonable at all.") to a high of 45 minutes for one respondent. (Table III.18 shows the distribution for three sets of minutes.)

TABLE III.18

DRIVERS' OPINIONS ABOUT REASONABLE NUMBER OF MINUTES FOR ROADSIDE SURVEY

Number of Minutes (Q. 1-12)	Percent
No minutes	2.4
1-7 minutes	36.3
8-12 minutes	34.5
13 minutes or more	20.6
Undecided	6.2
Total	100.0 (452)

Drivers tended to be oriented toward fairly short surveys. Over one-third of the drivers (36.3 percent) thought that the survey should last only

about 5 minutes. Another third of the drivers (34.5 percent) indicated that a reasonable time limit would be somewhere around 10 minutes. A 15-minute duration was the next most popular time period (15.9 percent of the drivers would limit these surveys to 15 minutes), and a few of those drivers also indicated that 20 and 30 minutes were reasonable time limits.

Table III.19 shows drivers' opinions about reasonable duration, by demographic characteristics. The distribution of drivers' opinions about 5-, 10-, or 15-minute time periods for surveys is fairly constant for all of the demographic subgroups. Male and female drivers had very similar opinions about reasonable duration. Although for the other characteristics there was some fluctuation between the 5- and 10-minute periods, the proportion of drivers who felt that these surveys could be of a longer duration (over 13 minutes) was quite similar across regions and age, education, and income groups. The absence of stronger differences by age and education in particular may have been a function of the fact that older drivers and drivers with less than a high school education were more likely to be undecided and not to identify a specific time.

These findings indicate that, on the basis of the time involved, surveys in the 10-minute range would be acceptable to most of the drivers (between 50 and 60 percent), regardless of demographic characteristics. Between 30 and 40 percent of the drivers, however, set the reasonable limit lower--that is, at around 5 minutes.

Impact of Asking Drivers to Get Out of the Car. The following question was asked to gauge the impact of conducting an out-of-car survey on the decision whether to participate:

- For some surveys it may be necessary for the driver to get out of the car and walk over to a nearby research station, such as an office trailer. Would having to get out of the car make you less likely to participate, more likely to participate, or would it not make any difference in whether you would participate?

Asking drivers to get out of their cars was likely to jeopardize participation for 57.4 percent of the drivers (see Table III.20).[1/] For 39.3 percent,

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[1/] The extent to which having to get out of the car affects the chances of participation differed between male and female drivers: females were less likely to participate. Since the sample has an overrepresentation of females, the distributions were weighted to reflect the proportion of males and females in the driver population. Unweighted distributions for the impact on participation are presented in Appendix Table B.6.

TABLE III.19

DRIVERS' OPINIONS ABOUT REASONABLE DURATION OF SURVEYS,
BY DEMOGRAPHIC CHARACTERISTICS

Number of Minutes (Q. 1-12)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
0	5.0	0.6	3.1	1.5	2.5	2.4	1.5	2.7	3.2	1.1	1.8	3.7	1.8	2.4
1-7 minutes	36.4	33.8	38.0	38.8	35.8	36.6	38.0	35.6	35.9	35.9	41.3	32.8	42.3	35.7
8-12 minutes	35.4	39.6	27.9	34.3	33.8	35.1	35.0	41.6	26.3	26.1	32.3	39.7	21.6	38.4
13+ minutes	20.2	18.2	22.5	22.4	21.9	19.5	21.9	18.8	21.8	23.9	19.8	20.1	25.3	20.9
Undecided	3.0	7.8	8.5	3.0	6.0	6.4	3.6	1.3	12.8	13.0	4.8	3.7	9.0	2.6
Total	100.0 (99)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (201)	100.0 (251)	100.0 (137)	100.0 (149)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (189)	100.0 (111)	100.0 (297)

TABLE III.20

THE IMPACT OF GETTING OUT OF THE CAR ON PARTICIPATION AND BY LIKELIHOOD OF PARTICIPATION WITH EACH STOPPING METHOD

Impact of Getting Out of Car on Participation in Roadside Surveys* (Q. 1-13)	Total Percent	Stopping Method #1 Participation			Stopping Method #2 Participation			Stopping Method #3 Participation		
		Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely
Disincentive	56.1	49.4	61.2	66.4	45.6	61.9	66.0	42.2	57.9	61.3
Incentive	1.8	2.2	0.6	2.8	3.3	1.2	0.0	6.0	0.9	0.3
No Impact	40.6	46.9	37.4	28.5	50.0	34.7	33.2	49.7	40.3	37.1
Undecided	1.6	1.5	0.8	2.3	1.1	2.2	0.8	2.1	0.9	1.3
Total	100.0 (453)	100.0 (226)	100.0 (144)	100.0 (80)	100.0 (188)	100.0 (147)	100.0 (115)	100.0 (104)	100.0 (96)	100.0 (251)
		$p < .05$[a/]			$p < .01$[a/]			$p < .001$[a/]		

[a/] Because of small cell sizes (resulting in expected frequencies of less than 5) the chi-square test may not be valid.

*These are weighted distributions.

this would have no effect on their decision to participate. Having to get out of the car was clearly not an incentive for participation: less than 2 percent reported being more likely to participate. In order to identify the extent to which drivers who were less likely to participate under these conditions were not inclined to participate anyway, Table III.20 shows the impact of getting out of the car by the likelihood of participation with the different stopping methods. Predictably, drivers who would not be likely to participate with the various stopping methods did represent a disproportionate segment of the drivers who would be less likely to participate if they had to get out of the car. Having to get out of the car, however, also adversely affected the chances of participation among drivers who otherwise indicated that they would be very likely to participate. For example, while 66.4 percent of the drivers who were not likely to participate anyway (with the police-stop/police-presence method) would be less likely if they had to get out of the car, 49.4 percent of those who otherwise would be very likely to participate may not be inclined to participate under this condition. The impact was similar for drivers who would be very likely to participate with the police-stop or the natural-stop methods: 45.6 percent and 42.2 percent of otherwise highly amenable drivers would be less likely if they had to get out of the car.

Table III.21 shows the impacts of having to get out of the car, by demographic characteristics.[1/] The extent to which drivers reported that out-of-car roadside surveys would deter participation varied with the sex and the educational level of the driver. A far larger proportion of women drivers than male drivers reported being less likely to participate--68.9 percent versus 43 percent. Greater safety concerns would be an obvious explanation for this difference. A similar differential also occurred between the lower and the higher educational categories. Whereas 41.3 percent of the drivers with less than a high school education were less likely to participate, the proportion increased to 64.5 percent among drivers with some college education. This pattern is consistent with the earlier finding that the likelihood of participation varied inversely with educational level--that is, as educational level increased, the proportion of drivers who would be very likely to participate with each of the stopping methods decreased.

[1/] Unweighted distributions can be found in Appendix Table B.7.

TABLE III.21

IMPACT OF GETTING OUT OF THE CAR ON PARTICIPATION,
BY DEMOGRAPHIC CHARACTERISTICS

Impact of Getting Out of Car on Participation in Roadside Surveys* (Q. 1-13)	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Disincentive	59.7	48.9	58.7	60.0	43.0	68.9	54.4	57.3	56.2	41.3	56.0	64.5	53.0	57.0
Incentive	2.3	1.9	2.3	0.0	2.0	1.6	1.3	1.3	2.7	3.4	2.3	0.6	3.5	1.4
No Impact	37.1	48.5	35.7	38.6	53.0	28.3	42.7	40.6	38.6	50.6	40.6	34.3	42.7	40.2
Undecided	0.9	0.7	3.3	1.4	2.0	1.2	1.6	0.8	2.5	4.6	1.1	0.6	0.8	1.4
Total	100.0 (100)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (202)	100.0 (251)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
					$p < .001$[a/]					$p < .05$[a/]				

[a/] Because of small cell sizes (resulting in expected frequencies of less than 5) the chi-square test may not be valid.

*These are weighted distributions for all variables except sex.

2. Body Fluid Samples

Surveys in which the data provided by respondents include body-fluid samples are a very specialized application of survey methodology. The following explanation for the necessity of body-fluid samples for certain research purposes was given to respondents, who were then asked, hypothetically, whether they themselves would agree to give each of four types of samples:

> One reason for conducting roadside surveys is to find out if the use of certain medicines or other drugs causes highway accidents. To do this it is necessary to find out how many drivers on the road have been taking these medicines or drugs.
>
> There are several ways of getting information on the presence of medicines or drugs in the body--for example, testing samples of a driver's breath, blood, saliva, or urine.
>
> Suppose a roadside survey was set up to test for the presence of medicines or drugs in drivers. All tests would be given by medically qualified people. The results of these tests would not be available until the next day or later.
>
> If you were asked to participate in a roadside survey would you agree to give . . .
>
> a. A blood sample
> b. A breath sample
> c. A saliva sample
> d. A urine sample

To minimize possible bias stemming from a tendency for reactions to the initial sample to be carried over to the other samples, we rotated the order in which each sample was mentioned to each respondent.

The reactions of focus-group discussants to requests for body-fluid samples defined two diametrically different positions. Staunch resistance to surveys that require body-fluid samples stemmed from the position that the request was an invasion of privacy, was unwarranted for research purposes, and was untenable at the roadside. In contrast, a pragmatic perspective on providing body-fluid samples was that the willingness to participate is a function of the value and utility of the tests: acceptability depended on how important it was to collect the information, and on whether the particular sample would yield the most useful information.

During the focus-group discussions, the four samples were not considered equally acceptable or objectionable. In contrast to an overall resistance to requests for blood and urine samples, discussants were relatively, although

begrudgingly, amenable to breath and saliva samples. Minimal inconvenience and the fact that breath and saliva samples are more conventional and less intrusive were significant factors in their acceptability. As a general reaction, blood and urine samples were thought to be an unreasonable demand and, especially, highly incongruous with a roadside setting.

Table III.22 shows drivers' responses to whether they would agree to provide each of the body-fluid samples.[1/] The two samples most likely to be provided by the drivers were breath (68 percent indicated that they would agree) and saliva (64.1 percent). Predictably, a lower proportion of drivers would agree to a blood sample (44.2 percent) or to a urine sample (46.2 percent). Nevertheless, the extent to which drivers reported that they would provide the highly intrusive samples and would not provide the moderately intrusive samples is surprising. Considering that the breath sample is the most innocuous of the body-fluid samples, is widely used, and is a well-established procedure in a highway context, the proportion of drivers who responded that they would not provide the breath sample is fairly large. On the other hand, given the medical nature of a blood sample, the discomfort, and perhaps a perceived risk of infection, agreement by 44.2 percent is higher than would have been expected.

Because the body-fluid questions in the interview followed those on participation in roadside surveys, agreeing or refusing to provide samples may have been linked to whether drivers were inclined to participate in roadside surveys. Table III.22 also shows drivers' reactions to the body-fluid samples by the *likelihood of drivers' participation in roadside surveys*. Two comparisons are of particular interest: (1) the extent to which receptivity to requests for body-fluid samples was concentrated among drivers who would be very likely to participate in roadside surveys, and (2) the extent to which drivers who would not be likely to participate with the various stopping methods accounted for refusals to provide body-fluid samples.

Regardless of the stopping method, drivers who were likely to participate in a roadside survey would be more likely to agree to provide body-fluid samples. Despite the fact that the term "survey" generally connotes a question-and-answer methodology, drivers positively disposed toward participating,

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[1/] A smaller proportion of female drivers than male drivers would agree to give a urine sample. Since the sample has an overrepresentation of females, the distribution of the proportion of drivers agreeing to give a urine sample was weighted to reflect the proportion of males and females in the driver population. Unweighted distributions for agreeing to give a urine sample are presented in Appendix Table B.8.

TABLE III.22

DRIVERS' AGREEMENT TO GIVE BODY FLUID SAMPLES AND BY LIKELIHOOD OF PARTICIPATION IN ROADSIDE SURVEYS

Agree to Provide . . . (Q.I-14 a-d)	Total Percent	Stopping Method #1 Participation			Stopping Method #2 Participation			Stopping Method #3 Participation		
		Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely
Blood Sample										
Yes	44.2	57.1	36.1	22.5	61.7	36.0	27.0	62.5	49.0	35.1
No	52.1	40.3	59.7	75.0	36.2	59.2	71.3	36.5	43.7	62.5
Undecided	3.7	2.6	4.2	2.5	2.1	4.8	1.7	1.0	7.3	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(453)	(226)	(144)	(80)	(188)	(147)	(115)	(104)	(96)	(251)
			$p < .001$			$p < .001$			$p < .001$	
Breath Sample										
Yes	68.0	78.3	67.4	41.2	83.0	61.9	51.3	76.0	71.9	63.8
No	30.9	21.2	31.3	57.5	17.0	36.1	47.8	24.0	26.0	35.4
Undecided	1.1	0.5	1.3	1.3	--	2.0	0.9	--	2.1	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(453)	(226)	(144)	(80)	(188)	(147)	(115)	(104)	(96)	(251)
			$p < .001$			$p < .001$			$p < .05$	
Saliva Sample										
Yes	64.1	74.3	61.5	40.5	78.2	56.8	50.9	74.0	67.7	59.0
No	34.4	24.8	36.4	58.2	20.7	41.8	47.4	25.0	28.1	40.6
Undecided	1.5	0.9	2.1	1.3	1.1	1.4	1.7	1.0	4.2	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(451)	(226)	(143)	(79)	(188)	(147)	(114)	(104)	(96)	(249)
			$p < .001$			$p < .001$			$p < .01$	
Urine Sample*										
Yes	46.8	56.0	43.1	28.1	60.9	41.4	31.6	62.3	50.8	39.1
No	50.6	41.6	54.1	70.5	37.5	56.0	66.6	36.0	43.2	59.7
Undecided	2.6	2.4	2.8	1.4	1.9	2.6	1.8	1.7	6.0	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(451)	(226)	(144)	(79)	(188)	(147)	(114)	(104)	(96)	(250)
			$p < .001$			$p < .001$			$p < .001$	

*These are weighted distributions.

regardless of stopping method, also tended to be amenable to requests for "body-fluid" data for the less-intrusive samples. Thus, for the most popular stopping method (police presence), 78.3 percent of those who were very likely to participate would agree to a breath sample, and 74.3 percent would agree to a saliva sample. The results are similar for the natural stop: 76 percent of those who were likely to participate would provide a breath sample, and 74 percent would provide a saliva sample. Compared to the low-intrusion samples, however, the proportion of drivers who would be "very likely to participate" and who would be willing to provide the high-intrusion samples was much lower. For example, only 57.1 percent of the drivers who would be very likely to participate with the police-presence method would agree to provide a blood sample, and 56 percent would agree to a urine sample.

An additional question of interest here is the particular combination of samples that drivers would agree to provide. (Table III.23 shows a distribution of drivers based on which combination of body-fluid samples they would give.) Four sets of responses are of particular interest: (1) agreeing to all four samples; (2) excluding either of the highly intrusive samples; (3) agreeing only to the low-intrusion samples; and (4) refusing all four samples.

TABLE III.23

DISTRIBUTION OF COMBINATIONS OF BODY FLUID SAMPLES TO WHICH DRIVERS AGREE

Agree to Provide . . .	Percent	
All four samples	37.0	
All but breath	0.2	
All but saliva	0.2	
All but urine	5.5	14.1
All but blood	8.6	
Saliva and urine only	0.9	
Saliva and blood only	0.2	
Saliva and breath only	10.1	
Saliva only	1.5	16.7
Breath only	5.1	
None of the samples	30.6	
Total	100.0 (453)	

The majority of the drivers surveyed (69.4 percent) indicated that they would provide at least one of the four body-fluid samples. In fact, once a driver agreed to any of the samples, it was more likely that he or she would agree to all four rather than selectively to each. Over one-third (37 percent) of the drivers indicated that they would agree to provide each of the four samples. Despite the fact that of all the samples the breath sample was the most widely associated with a roadside situation, very few (5.1 percent) of the drivers indicated that they would agree only to that sample. Further, relatively few drivers chose to restrict their participation to the low-intrusion samples: 16.7 percent would agree to provide breath and/or saliva samples. An additional 14.1 percent would agree to all but one or the other of the high-intrusion samples (blood or urine). Finally, 30.6 percent of the drivers indicated that they would refuse each of the four samples.

Drivers' responses to requests for body-fluid samples for highway-safety research purposes will be examined further from two vantagepoints:

- Whether the willingness to provide samples varied with the demographic characteristics of the driver
- The reasons drivers gave for not being willing to provide the particular sample

a. Demographic Variations

Table III.24 shows drivers' reactions to body-fluid requests, by demographic characteristics.[1/] Willingness of drivers to provide body-fluid samples did not vary by region; statistically significant differences were found for some samples between sex, age, education, and income groups.

Differences by sex in agreeing to provide body-fluid samples occurred only for the urine sample. Female drivers were less likely to provide a urine sample than male drivers: 41 percent indicated that they would agree to a urine sample, as opposed to 52.7 percent of the males. Requests for blood, breath, and saliva samples elicited almost equally positive and negative reactions from both men and women.

Drivers who were willing to provide the high-intrusion samples tended to be older, less-educated, and to have lower incomes. Of the drivers under 30 years of age, 37.2 percent agreed to a blood sample, and 38.7 percent to a urine

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[1/] Unweighted distributions for the urine sample are presented in Appendix Table B.9.

TABLE III.24

AGREEMENT TO GIVE BODY FLUID SAMPLES, BY DEMOGRAPHIC CHARACTERISTICS

	Region				Sex		Age			Education			Income	
Agree to Give . . .	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Blood Sample														
Yes	37.0	52.6	42.6	40.3	45.0	43.3	37.2	42.7	54.5	60.9	45.5	35.8	59.5	39.9
No	58.0	45.4	55.0	55.2	51.5	53.4	59.9	54.0	41.7	37.0	50.3	61.1	36.9	57.1
Undecided	5.0	2.0	2.3	4.5	3.5	3.2	2.9	3.3	3.8	2.2	4.2	3.1	3.6	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(100)	(154)	(129)	(67)	(202)	(251)	(137)	(150)	(156)	(92)	(167)	(190)	(111)	(298)
							$p < .01$			$p < .001$			$p < .001$	
Breath Sample														
Yes	67.0	74.0	64.3	62.7	63.9	71.3	69.4	64.0	72.5	75.0	69.5	64.2	82.9	65.4
No	32.0	24.7	34.9	35.8	35.6	27.1	29.9	34.7	26.9	23.9	29.3	34.7	16.2	33.9
Undecided	1.0	1.3	0.8	1.5	0.5	1.6	0.7	1.3	0.6	1.1	1.2	1.1	0.9	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(100)	(154)	(129)	(67)	(202)	(251)	(137)	(150)	(156)	(92)	(167)	(190)	(111)	(298)
													$p < .001$	
Saliva Sample														
Yes	60.6	70.1	60.9	61.2	64.0	64.1	62.1	62.0	69.7	73.9	64.7	59.3	78.4	61.3
No	36.4	29.2	37.5	37.3	35.0	33.9	37.2	36.7	27.7	22.8	34.1	39.7	18.0	38.0
Undecided	3.0	0.7	1.6	1.5	1.0	2.0	0.7	1.3	2.6	3.3	1.2	1.0	3.6	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(99)	(154)	(128)	(67)	(200)	(251)	(137)	(150)	(155)	(92)	(167)	(189)	(111)	(297)
										$p < .05$			$p < .001$	
Urine Sample*														
Yes	40.8	53.5	42.3	51.5	52.7	41.0	38.9	48.4	54.4	57.1	44.8	44.5	59.9	44.0
No	54.4	44.6	56.3	45.5	45.8	55.4	59.4	49.7	41.5	38.7	53.6	52.9	36.4	53.8
Undecided	4.8	1.9	1.4	3.0	1.5	3.6	1.6	1.9	4.1	4.2	1.6	2.6	3.7	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(100)	(154)	(128)	(67)	(201)	(251)	(137)	(150)	(156)	(92)	(167)	(171)	(111)	(269)
					$p < .05$		$p < .05$						$p < .01$	

*These are weighted distributions for all variables except sex.

sample; corresponding proportions for drivers over age 45 were 54.5 percent and 53.2 percent. A similar disparity occurred between educational levels. Whereas 35.8 percent of the drivers with some college would provide a blood sample and 44.4 percent a urine sample, a far larger proportion of drivers with less than a high school education indicated that they would provide these samples (60.9 percent for blood, and 56.5 percent for urine). Drivers with higher educational levels were also less likely to provide a saliva sample.

Income level was a strong factor in the acceptability of all four samples. A much larger proportion of drivers with incomes under $12,000 than those with $12,000 or more would agree to each of the samples. For example, 59.5 percent of the lower-income drivers reported that they would provide a blood sample, versus 39.9 percent of the high-income drivers.

Drivers' agreement or refusal to provide body-fluid samples was also examined in relation to whether the driver drinks and whether the driver reported that he or she drives after consuming alcohol (see Table III.25).[1/] Apparently, whether a driver drinks per se, as opposed to simply driving after drinking, was a significant factor in whether he or she would agree to a body-fluid sample. This was true for the low-intrusion samples as well as for the blood and urine samples. For example, 55.4 percent of the total abstainers stated that they would be willing to provide a blood sample, as opposed to 40.2 percent of the drivers who use alcohol. These findings suggest that risking possible detection (from driving under the influence, etc.) was not a significant motivational factor for nonparticipation. On the other hand, being a nondrinker may have been associated with a greater interest in contributing to efforts that may lead to a more effective regulation of drinking and driving.

b. Reasons Why Drivers Would Refuse to Provide Body Fluid Samples

Drivers were asked, "Why would you not agree to give . . . [a specific sample]" for each sample to which they responded "No." Following are brief descriptions of the different types of reasons drivers gave for why they would not provide certain body-fluid samples:

[1/] Unweighted distributions for the urine sample are presented in Appendix Table B.9.

TABLE III.25

AGREEMENT TO PROVIDE BODY FLUID SAMPLES, BY DRINKING AND DRIVING HABITS

Agree to provide . . .	Drink Alcoholic Beverage: Yes	Drink Alcoholic Beverage: Abstainer	Ever Drink and Drive: Yes	Ever Drink and Drive: No
Blood Sample				
Yes	40.2	55.4	37.1	43.9
No	56.3	41.5	58.8	53.4
Undecided	3.5	3.1	4.1	2.7
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)
	$p < .01$			
Breath Sample				
Yes	64.5	78.5	62.3	66.9
No	34.6	20.0	36.5	32.4
Undecided	0.9	1.5	1.2	0.7
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)
	$p < .01$			
Saliva Sample				
Yes	61.6	71.3	57.1	66.9
No	37.1	26.4	41.2	32.4
Undecided	1.3	2.3	1.7	0.7
Total	100.0	100.0	100.0	100.0
	(318)	(129)	(170)	(148)
	$p < .05$			
Urine Sample				
Yes	43.3	57.2	38.9	48.7
No	54.2	40.0	58.3	49.3
Undecided	2.5	2.8	2.8	2.0
Total	100.0	100.0	100.0	100.0
	(318)	(130)	(170)	(148)
	$p < .01$			

PERCEPTION OF RESEARCH AS UNNECESSARY OR INVALID

Respondents questioned the necessity for particular body-fluid samples, given the availability of other data sources, as well as because the voluntary nature of the survey results would be biased or invalid:

"I don't think it's necessary."

"I don't understand the significance."

"It's a waste of time."

"People who volunteered would not be taking medicines or drugs."

CREDIBILITY OF RESEARCH

Suspicions about the legitimacy of the research and whether the rationale, as presented to drivers, was actually valid were factors in refusing to participate:

"If they were on the up and up I might . . ."

"There may be some drug they are giving me."

"I don't believe in just giving my blood out unless I knew what was going to be done."

"It might be incriminating."

ONLY AT MEDICAL FACILITIES WITH MEDICAL STAFF

The roadside setting was an impediment to respondents who felt that body-fluid samples should be provided only in conventional medical settings:

"Don't feel it's a proper place for it to be done."

"Should be done in a medical lab."

"I would want my own doctor."

"Because they wouldn't be doctors; if they would take me to the hospital of my choice I would go."

FOR BLOOD SAMPLE ONLY: OBJECTIONS TO NEEDLES IN GIVING BLOOD

The blood sample elicited a series of responses reviling against the process of giving blood:

"Hate needles."

"Afraid of needles."

"Don't want anyone sticking me."

EXCESSIVE INTRUSION AND IMPROPRIETY

Body-fluid samples were defined as highly personal; providing such samples would be unpleasant and embarrassing. Requests for such samples were considered an invasion of privacy:

"A violation of my personal rights."

"Invasion of privacy."

"It would be kind of personal."

"It's embarrassing."

INCONVENIENCE

Body-fluid samples would not be provided because they would be too time-consuming and too much trouble for the driver:

"It's inconvenient."

"Too much time is involved."

NO SPECIFIC REASON

Refusal to provide a sample was sometimes based on a generalized resistance to the idea:

"I wouldn't want to."

"I just don't like the idea."

A number of specific reasons for nonparticipation given by drivers reflected opposition to the concept of providing body-fluid samples as research data--resistance and disinterest in general, the perception that these requests were an invasion of privacy, and the position that these types of data were not useful or necessary--raised questions about the basic research methodology. A second set of reasons identified a variety of practical concerns and reservations: the propriety of roadside medical tests, insecurities about the qualifications of staff, personal fear associated with any type of injection, the time and effort involved, and speculations about possible covert research objectives--all were identified as risks to be taken by the driver.

Table III.26 shows the distribution of the reasons given by drivers for not agreeing to the different body-fluid samples. Invasion of privacy was the most prevalent reason drivers gave for refusing each of the samples. Around 40 percent of all the reasons given for not providing breath, saliva, and urine samples dealt with the invasion-of-privacy issue; the proportion for blood samples was 26.6 percent. However, a major objection associated with blood samples was the fact that this would involve a needle injection. Preference for a more conventional medical setting accounted for 18.8 percent of the reasons for not providing a blood sample, and for 15.8 percent of the reasons for not providing a urine sample. Inconvenience was a factor cited primarily in conjunction with providing a urine sample.

TABLE III.26

DISTRIBUTION OF REASONS FOR NOT PROVIDING BODY FLUID SAMPLES, FOR EACH SAMPLE

Reasons for not Providing[a] (Q. 1-15a-d)	Body Fluid Samples			
	Blood Sample	Breath Sample	Saliva Sample	Urine Sample
Unnecessary/Invalid	8.9	11.4	12.7	8.4
Credibility	3.0	3.4	4.2	2.6
Only in Medical Setting	18.8	13.1	13.2	15.8
Invasion of Privacy	26.6	41.8	41.3	39.9
Inconvenient	6.8	7.4	9.0	16.9
Objection to Needle	19.5	--	--	--
No Specific Reason	12.3	17.2	15.9	13.1
Other	4.1	5.7	3.7	3.3
Total	100.0 (293)	100.0 (122)	100.0 (189)	100.0 (273)

[a] Up to two reasons were coded per respondent. The totals, therefore, are a count of responses and not individual respondents.

Although the specific proportions differed across samples, concept-type objections outranked practical considerations almost 2 to 1 for both the low-intrusion (breath and saliva) and high-intrusion (blood and urine) samples. Drivers' opinions that requesting samples constituted an invasion of privacy and that the body-fluid-sample surveys were unnecessary, as well as the attitude that they simply did not want to provide samples, appeared to be the primary rationales for nonparticipation in these surveys.

3. Summary

Safety and legitimacy (represented by police involvement) appeared to be major considerations in drivers' decisions whether to participate in roadside surveys. Roadside surveys were generally unfamiliar to drivers and, because roadside-survey installations are not an established, routine highway operation, they did not have immediate credibility and acceptance. The importance of the safety-legitimacy theme is indicated by several findings:

- Drivers reported a greater likelihood of participation with the two police-stop methods than with the natural-stop. Given police involvement, twice as many drivers reported a definite interest in participating, as compared with the situation in which the research is conducted only at a natural-stop point.

- Concerns about personal safety were substantially lower with the two police-stop methods than with the natural stop. When police involvement is greatest (police stop and police presence during the introduction), 39.6 percent reported safety concerns; this increased to 49.1 percent with the police-stop-only method and to 71.9 percent with the natural-stop method. Predictably, perceptions of safety were strongly related to decisions to participate. For each stopping method, drivers who did not have concerns about personal safety would be much more likely to participate.

- For the two stopping methods with low police involvement (police-stop only and the natural stop), drivers who were not very likely to participate tended to identify safety-type changes to the methods as conditions for their participation. Typical conditions mentioned were having police present, limiting the survey to daytime, and having an official-looking area.

- Police involvement also enhanced drivers' assessments about other dimensions. A larger proportion of drivers believed that the results would be kept confidential and that people would give honest answers with the two police-stop methods than with the natural-stop method.

Roadside surveys as a general strategy for obtaining information to develop more effective highway-safety countermeasures were acceptable to 63.5 percent of the drivers surveyed. Drivers' opinions about the reasonable length of time for a survey were spread between a 5- and a 15-minute range. One-third of the drivers set the limit at around 5 minutes, another third set it at approximately 10 minutes, and approximately 20 percent indicated 15 minutes. Having to get out of the car was clearly a deterrent to participation: 57.4 percent of the drivers responded that they would be less likely to participate if they had to get out of the car.

Approximately two-thirds of the drivers surveyed would agree to breath and saliva samples. Fewer drivers would agree to blood and urine samples--44.2 percent and 49.8 percent, respectively. Agreement to provide body-fluid samples was related to how likely drivers would be to participate with the different stopping methods. That is, drivers agreeing to any of the body-fluid samples

tended also to be those drivers who would be very likely to participate in roadside surveys with one or the other of the stopping methods.

The acceptability of roadside surveys in general, as well as the acceptability of particular stopping methods and particular types of data (body-fluid samples), consistently varied with the educational level of the driver. Acceptability decreased with each higher educational level. Specifically, with higher education, the drivers surveyed were:

- Less likely to favor roadside surveys in general
- Less likely to participate in roadside surveys with all three of the stopping methods
- Less likely to participate if they had to get out of the car
- Less likely to provide saliva, blood, or urine samples

Drivers with higher educational levels were also:

- Less likely to feel constrained to participate in a roadside survey, regardless of police presence
- Less likely to have personal-safety concerns with any of the stopping methods

Three other demographic characteristics showed consistent variations in reactions to stopping methods and body-fluid samples: sex of driver, age of driver, and region of the country.

- Women drivers tended to be more negative than male drivers when presented with situations that have safety implications. Women drivers were more likely to have personal-safety concerns with the two police-stop methods. Women drivers would be less likely than men to participate when the police officer stops the car and directs it to a research area. Women drivers were also less likely to participate if the survey called for them to get out of the car. In addition, women drivers were more likely to refuse to provide a urine sample.
- Drivers who indicated that they would be very likely to participate with each of the stopping methods tended, disproportionately, to be over 45 years old. Older drivers were also more likely than younger drivers to agree to provide blood and urine samples.

In evaluating the stopping methods, older drivers were more likely to have personal-safety concerns when the police direct the car to a research area. Older drivers also tended to be more confident that the data would be more valid (with the two police-stop methods) and more skeptical that confidentiality would be preserved (police-presence method).

- The South stood out as a region in which drivers were inclined to be more cooperative with respect to both survey participation and providing body-fluid samples. Specifically, drivers in the South were more likely to favor roadside surveys in general and to participate with the two police-stop methods.

C. SPECIAL INTEREST GROUP STUDY

Special-interest perspectives were included in this research in an effort to identify expert and leadership opinion about highway-safety countermeasures. The reader is cautioned, however, that respondents in this study do not constitute a statistically representative sample, and their reactions to the countermeasures should not be generalized to special-interest groups as a whole. Further, although respondents were selected because of their affiliation with certain groups and they responded from that vantagepoint in most cases, they were not acting as official spokespersons for those groups and their position should not be construed as the official position of that organization. Readers should consult Volume I (Chapter II) of this report for a detailed description of the methodology employed for the special-interest study.

The following reactions by special-interest groups were based on brief and very general descriptions of the countermeasures. The intent was to represent the overall concept and to allow specific issues and areas of concern to surface through informal, open-ended discussions. It is important to recognize that the reactions represent opinions and judgments and are not necessarily definitive analyses of the highway-safety issues discussed. Special-interest pereceptions of these countermeasures are especially useful to highway-safety planners in formulating appropriate educational programs and implementation strategies.

The following descriptions were provided to special-interest respondents during the course of those interviews.

METHODS

To obtain information necessary to develop highway-safety countermeasures, it is necessary to conduct surveys at certain points along roads or highways.

Three different ways to carry out surveys on roads and highways are described below. In each case, the driver will be informed that participation in the survey is voluntary. Drivers will also be shown a certified letter from a high-government official, stating that the results of the survey will be kept completely confidential.

1. Signs would be placed along the roadway to indicate that there was a voluntary survey ahead and that drivers might be asked to stop and participate. A police officer would select a car at random and have it pull over to the side of the road. The police officer would tell the driver that a survey was in progress, and would direct the driver to the researcher. The researcher would then explain the purpose of the survey and ask the driver to participate.

2. Signs would be placed along the roadway to indicate that there was a voluntary survey ahead and that drivers might be asked to stop and participate. Again, the officer would select a car at random and direct it to an area off the side of the road. In this case, however, the police officer would not talk to the driver and would not be able to see the research area. A person easily identifiable as a researcher would then explain the purpose of the research and ask the driver to participate.

3. A third way to carry out a roadside survey would also use signs to indicate that there was a voluntary survey ahead. A person clearly identified as a researcher would come up to a car at a natural stop point (such as at a traffic light, stop sign, or gas station), explain the purpose of the research, and ask the driver to participate. If the driver was willing to participate, the researcher would ask him/her to drive to a nearby research area. A police officer would not be present in this situation.

SAMPLES

One type of information important for developing countermeasures is the extent to which drivers use certain medicines or drugs. There are several ways to obtain information about the presence of medicines or drugs in the body--specifically, by testing samples of a driver's breath, blood, saliva, or urine.

Roadside surveys would be set up to test for the presence of medicines or drugs in the driver's body, and drivers would be asked to provide either or a combination of the following:

1. A breath sample
2. A blood sample
3. A saliva sample
4. A urine sample

All tests would be conducted by medically qualified personnel. The results of the tests would not be available until the next day or later.

1. Stopping Methods

Special-interest respondents were highly sensitive to the authority and power represented by a police officer and, in reacting to the stopping methods, focused primarily on the implications of police involvement.

Police presence, or absence, as cars are stopped and the study is introduced was of interest to respondents in two distinct ways--first, from a research standpoint, police presence was expected to have an impact on whether drivers would agree to participate in the survey; second, from an infringement-of-rights standpoint, police presence was thought possibly to curtail drivers' rights and options. Respondents tended to adopt one or the other perspective and to evaluate the stopping methods accordingly. Thus, respondents who were oriented toward the quality of the research project were interested in maximizing cooperation. A complicating factor here is that opinions differed as to which stopping method would best serve the interests of the research project (that is, the one which would yield higher participation rates). Among special-interest respondents who were concerned about maximizing cooperation, some were of the opinion that police presence was vital--that the police represent power and authority, which would ensure or encourage public participation in the survey; others were of the opinion that police presence would discourage participation and would inhibit candidness.

From the other standpoint, respondents concerned that, with police presence, drivers may feel compelled to participate were interested in minimizing coercion. Police presence was objectionable because it represented authority, because this authority was unacceptable in the context of a roadside survey, and because it contradicted the idea of voluntary participation.

Opinions about whether police presence would facilitate or impede the successful implementation of a roadside survey were distributed across respondents from each of the special-interest groups. Negative judgments about having police involved in roadside surveys, however, were made primarily by ACLU and bar-association respondents. Respondents with a legal vantagepoint were likely to interpret police presence as implicit coercion, and to take the position that a request from a police officer was not a request that persons feel free to refuse.

The first section below presents arguments for and against the use of police to increase the number of volunteers. The second section covers objections to police involvement, regardless of any advantages such involvement may have for the survey participation rate.

a. Impact of Police Presence on Participation

Advantages of Police Presence. That the presence of a police officer significantly affects public reactions in that situation was a basic premise for special-interest respondents. A second premise was that the general public would rather not participate in a roadside survey. The dominant opinion was that participation would be greater if police were visible. The stopping method with the greatest police involvement (i.e., having police stop the cars and be present as the research is explained) was considered the most effective way to obtain participation in roadside surveys. The following comments all refer to the police-stop and police-presence methods:

> "It's the best way because of respect for officers. People would ask why they're being stopped and the officer would explain." (Highway-safety department respondent)
>
> "No problem with this one. Law-enforcement-officer presence helps get volunteers to participate. We tried it without police in [State] and got very few participants." (Highway-safety department respondent)
>
> "People are more likely to go along because of the intimidation factor of police presence." (Highway-safety department respondent)
>
> "The police officer as an authority figure would increase the number of those volunteering." (ACLU respondent)
>
> "It would be tough to back out. You act polite to the police." (Insurance industry respondent)
>
> "'A' [police stop and police presence] is best: an authority stopping people. . . . People will try to cooperate with the police." (Auto dealers association respondent)

In addition to the general point that people are simply more likely to participate with a police officer present, having the police present was also thought to be an effective way to offset some specific reasons for public resistance to surveys. Concern about safety was one negative factor that would be minimized with police presence. A state-police respondent felt that public skepticism about situations that are as unusual as roadside surveys necessitated a very visible police role: "People would think it's dangerous. You'd have to have a police car pull them off the road. This causes less fear on the part of the driver." The importance of safety considerations was also noted by trucking-association respondents:

"You have to have a uniformed officer to stop people due to so many muggings. The majority of motorists just will not stop for someone unless that person is in uniform."

"I prefer the presence of the police officer. This gives assurance that the researcher's not some lunatic who somehow got a license to do this."

It was also expected that police presence would legitimize the research and would indicate to drivers that the survey was a serious effort and not merely a researcher's "brainstorm." An insurance respondent stressed the value of police in authenticating the research effort: "Authority makes it more bona fide, [and] people need an authority figure to lend credibility to the survey." In addition, with official support and endorsement, the research would "gain importance and would assume an air of respect."

Police presence was also viewed as a pragmatic strategy. Respondents felt that if the research is necessary it should be conducted as professionally as possible, and police involvement would be a logical way to improve the quality of the sample. It was argued that, to obtain a reasonably representative sample, it may be necessary to put aside the issue of privacy and voluntariness. A strictly voluntary approach was expected to yield such a poor sample that "it would be a total waste of time and money." An insurance respondent, for example, did not think that police presence was really an option: "You have to have an officer present. Otherwise, only people who are disposed to be cooperative will respond, and this will be a biased sample."

Because police involvement in and of itself was the dominant focus of discussion, the intermediate-stopping method (in which police only stop the cars) did not draw very much attention. A few respondents, however, did feel that the police-stop method was the preferred approach, in that both the legitimacy and confidentiality requirements could be met. Police would be very useful in diverting cars from the traffic stream--they would allay the initial fear of being stopped and would generally "expedite the process." However, since police presence would inhibit persons' responses to the actual survey, there was interest in limiting police involvement to logistical matters. A police-chief respondent stipulated that "the officer should not be near the testing area." To disassociate the officer from the study itself, a state-police respondent felt that "it's better to let the researcher explain it."

The advantages of having police involved in the roadside-survey operation were echoed in special-interest reactions against the natural-stop method. Having a researcher approach a driver at a natural-stop point, such as at a traffic light or a stop sign, was expected to yield very few participants. Without the pressure exerted by having at least some police involvement, "no one would volunteer." A state-police respondent was adamant that "a completely voluntary survey would not work," and one would not be able to "get enough volunteers to yield a valid set of data." A trucking-association respondent felt that it was "just too easy to say 'No' to a researcher." Without police presence, concerns about safety and suspicions about the research were expected to reduce the willingness to participate. Drivers would be too skeptical and fearful of the researchers: "They would think you're a 'Mooney' or something, [or they] might think you were a quack."

Disadvantages of Police Presence. The opinion that police presence would increase the chances of participation in a voluntary survey was not shared by all special-interest respondents. A few respondents (not limited to any particular types of groups) felt that police would be a liability. These respondents expected that the driver would feel that he or she had a real option to refuse, and would in fact refuse. Given that police are in evidence, the driver may feel that the chances for negative repercussions would be greater if they did take part in the survey. An AAA respondent noted that "the presence of police officers keeps people from volunteering. There is [the] fear of being caught for something when the police are there." A bar-association respondent felt that there were negative connotations associated with "police," and that the public would be more amenable if approached by a researcher: "People are more likely to cooperate with a researcher. People act negatively to the police." A police chief had the same opinion: "People will be more receptive to researchers. There are no advantages to having police involved in the survey."

Conducting the research without police presence was also expected to improve the quality of the data. It was felt that people would be more candid and more likely to be honest:

> "[With the two police-stop methods] people would be intimidated and would tell the researcher what they wanted to hear. . . . No way drivers will trust and cooperate with the police there. Never." (State police respondent)

> "[The natural-stop method] is the best because cooperation and information would be given more freely if the police were not involved. Give the survey some publicity so people won't think they're being mugged when the researchers stop them." (Police chief respondent)

Law-enforcement respondents pointed out that the roadside-survey situation posed a dilemma for the police as well. "We are enforcers, and how would we respond if enforcement was required?" On the one hand, guarantees of immunity from arrest were vital for research purposes; on the other hand, if the police were confronted with a violator, they would be obligated to fulfill their law-enforcement responsibilities.

b. Concerns About Coercion

From the vantagepoint of protecting persons' rights and liberties, police presence would invalidate the notion that participation would be voluntary. At issue with the two police-stop methods was that police presence, in and of itself, implies that the driver is expected to participate in the survey: "Police involvement lends a covert, mandatory aspect to it" (ACLU). Despite the fact that the driver is technically given the information that participation is voluntary, "people are extremely intimidated" by police presence; therefore, these methods may not actually be giving them a choice.

Furthermore, it was argued that the power of police presence is such that the use of various survey procedures, such as signs or explanations, may not be effective in counteracting the pressure to participate:

> "The sign says voluntary, but the policeman's presence says, 'We want you!'" (AAA respondent)

> "The third method [natural stop] is the only one that is voluntary. The police officer affects voluntariness no matter how you cut it. Peoples' perception is that if the police ask, it's not really a request but a polite order. No matter how well you explain it, people will feel they should take part." (ACLU respondent)

> "A sufficiently obsequious police officer who could convey voluntary participation would be all right, but as a practical matter this wouldn't work. Researchers want to keep the people there and therefore may imply that it is not voluntary. . . . You really are not under any obligation to talk to the researcher, [but] nobody will say 'No' to a cop." (ACLU respondent)

Distrust of how police would implement roadside surveys and the potential for police abuse were also reasons for objecting to the police-stop methods. The random-selection process in particular could potentially be used by police in a discriminatory fashion. Placing police in a position to make judgments or decisions about randomness was considered suspect--the situation would be too difficult to control, and the stopping methods could be used by police for other purposes:

> "There is no way to tell if police are doing it scientifically. You can't trust police to do this fair." (ACLU respondent)

> "Selective stopping of cars, even if you say random, is a problem. It's always the broken-down car being stopped. You never see the new Chrysler stopped with a nice-looking couple in it." (Trucking association respondent)

There were also concerns that the police may want to assert their authority and would "stop people who refuse, and harass and follow them."

2. Body Fluid Samples

The likelihood of obtaining body-fluid samples as part of a general-public survey was the primary issue raised by special-interest respondents. There was agreement that, in general, it was unlikely that people would volunteer to provide any of the samples; in particular, it was unfathomable that alcohol or drug users would voluntarily provide any of the samples. The need and the utility of this type of information was generally accepted; only one respondent indicated that there would be no value whatsoever in obtaining such data on drivers. The pervasive skepticism was directed at both the expected outcome (self-selection would make the data and the results questionable) and the impractical methodology (these types of research questions might be better addressed with data from more feasible, although less ideal, sources).

While there is nothing legally objectionable about asking for these samples, ACLU respondents emphasized that the voluntary nature of the request must be made very clear. This raised the issue of informed consent. Great care would be necessary to provide adequate explanation, using laypersons' language. A second concern raised by ACLU respondents dealt with the protection of data confidentiality. There respondents indicated that procedures for retaining

records and for destroying any information that could be traced to the individual would be scrutinized.

a. Expected Public Response

A number of special-interest respondents were quite startled by the idea of providing body-fluid samples during roadside surveys. Based on their estimates, cooperation could be expected from a very few "particularly interested or intimidated people." An insurance respondent expected that the public would, like himself, be surprised and incensed: "Those that did stop would be furious when they found out what was wanted, and [they] would drive right on. Almost no one would volunteer once they found out what was wanted from them." Other respondents differentiated between the low-intrusion (breath and saliva) and the high-intrusion (urine and blood) samples. A trucking-association respondent was adamant that "no one will stop on the road and give a researcher blood or urine. Breath, maybe. Saliva, maybe." Low expectations with respect to providing blood and urine samples were fairly common: "People are not going to stop to give you a urine sample." "People are unwilling to give blood." "People are afraid to give blood." "Blood and urine would be too complicated, too time-consuming."

A highly charged issue for the special-interest respondents was that drivers who had any substances in their system that would be of research interest could not reasonably be expected to provide body-fluid samples voluntarily. The point was made repeatedly that no one using alcohol or drugs would consent to any of the samples. With the relevant population self-selecting themselves out of the study, the data would show "zero levels" of use. Because seriously biased samples would be the foregone result, the following comments suggest that surveys based on body-fluid samples may be indefensible from a research standpoint.

> "[They would be a] waste of time and money. This sample business wouldn't have any effect at all. Human behavior is too cautious, and no one would trust the police. Volunteers would have zero levels. Anyone who volunteered while on drugs would be a damn fool." (Police chief respondent)

> "People with drugs would not stop for a survey. If it were mandated that the driver had to cooperate, then . . . but if it's voluntary I would assume drug users would not stop, and to think otherwise would be naive." (Police chief respondent)

b. Alternatives

Some respondents were unclear about the need to conduct roadside surveys to collect body-fluid samples from drivers in order to obtain data on the prevalance of drug and alcohol. The need to obtain a baseline measure and the need to use a body-fluid sample methodology was sometimes not appreciated by respondents. Thus, a highway-safety respondent felt that data available from other sources (such as DWI records) could be used, and that "one could impute [both] the effect of drugs and the percent really driving when on drugs." A number of respondents felt that the same data were already available from DWI forms. In one instance, a highway-safety respondent was concerned that this research would parallel, and perhaps duplicate, other research efforts on alcoholism:

> "DOT should participate in the work that's going on in the judicial area and the social-service area. It's silly to distinguish the drinking-driver problem from the overall alcoholism problem. NHTSA and DOT should not become another body of experts in this area, but should lend support and use their influence to aid the work already being done in this area."

Finally, a trucking-association respondent suggested a different strategy for determining which medicines impair driving and what their effect is. Research could be conducted in cooperation with physicians. The researchers would ask the doctor's patients to participate in a special driving test. Results on reaction time, vision, and other indicators could then be corrolated with information obtained from the doctor on exactly what medication each driver was taking.

3. Summary

The differences between the stopping methods had important implications for special-interest respondents. The nature of the reaction to the stopping method, however, depended specifically on whether the respondent's mindset was oriented toward (1) the quality of the resulting research product, or (2) protecting the driver's right to choose to participate.

The dominant stance was that, given the need for a certain methodology (i.e., a roadside survey), and given these three options for stopping drivers, the approach most consistent with the requirements of the research should be used. Special-interest opinion suggests that the different methods would involve two types of tradeoffs. First, whether or not there is police

involvement (police presence versus natural stop) will have an impact on participation rates. Second, the degree of police involvement (police presence during introduction versus police-stop only) will have an impact on the nature (candidness) of responses. Perspective was all-important in how police involvement was interpreted by special-interest respondents. From the perspective of research quality, the fact that police presence would have a persuasive impact was viewed as vital for the successful implementation of a roadside survey. Police were considered necessary because they provide assurances about safety, legitimacy, and importance.

An exception to this focus on quality occurred among some bar-association and ACLU respondents, who evaluated the stopping methods in terms of their possible infringement on individual rights. The key issue here was that drivers should not be pressured into participating in a survey; the concern was that police presence may invalidate the notion of voluntary participation. The potential for police presence to have a coercive impact may well be a point of argument with those stopping methods--in terms of both the symbolic associations with "police" and the possibility of police abusing the roadside-survey methodology.

Data quality was also the major underlying theme in reactions to the body-fluid samples. Special-interest attention focused on expectations of widespread public resistance. In particular, it was not at all credible that drivers who would be using alcohol or drugs would agree to provide these samples.

With respect to the body-fluid samples, special-interest respondents in general had relatively little appreciation for the need for such information or its current unavailability.

IV. IMPAIRMENT RESISTANCE

Two countermeasures directed at impairment resistance were included during the initial (focus-group discussion) stages of the overall study. Because of the large number of countermeasures included in this study, and because from the standpoint of public-acceptability issues they did not rank as top NHTSA priorities, these two countermeasures were dropped after the focus-group discussions.

The two impairment-resistance countermeasures were described to the focus-group discussants as follows:

> Giving a special driver-training course that would train drivers how to drive safely when they are tired or have had several alcoholic drinks.
>
> Another way would be to make changes on roads and highways that would aid alertness, such as increasing the size and frequency of signs or changing highway surfaces.

These countermeasures each use different strategies to enable drivers to operate vehicles under mild impairment from alcohol or fatigue. The objective of the first countermeasure (highway design) is to create a less demanding and more supportive physical environment in which the mildly impaired driver would be able to drive safely. The objective of the second countermeasure (special driver-training courses) is to raise the level of driving skills so that a mild degree of impairment would not be likely to create a hazardous driving situation. Six discussion groups were conducted--two with members of the general public over age 30, two with young people under age 30, and two with special-interest representatives.

In general, all discussants approved of introducing a supportive physical environment for drivers. Specifically, the concept was seen as "an excellent idea" that "has a lot of merit." Approval was based on the belief that the design features would be practical to implement and would be effective because they would "operate in spite of the driver." Even those who questioned how effective the approach would be did not disapprove: "Not a bad idea, but I would question its effectiveness."

Two reasons for the generally favorable responses to highway-design changes are that discussants conceptualized them in very specific terms drawn from personal experience, and that they thought the features would aid all

drivers, and not only those who were mildly impaired: "We need as many helps to the driver as possible." "Listening to certain sounds keeps people alert." "Rest stops are very helpful." "Bumps in the road are very effective--you react to it." "We need frequent signs and something to read."

Approval of highway-design changes, however, should not be interpreted to mean that discussants specifically approved of impairment resistance as such. For example, one young Denver discussant said, "We need better signs--this is a definite action." The discussant went on to state, "People should not drink when driving." Impairment from alcohol was the target of especially sharp criticism: "If they have been drinking, they should not be driving." Some discussants were concerned that special driver-training courses might implicitly or explicitly countenance drunk or fatigued driving, which dampened their approval of this countermeasure. On the other hand, highway-design features that would aid the mildly impaired driver were not criticized on these grounds.

The following are illustrative of the intense opposition to special driver-training classes because they could outwardly or tacitly condone impaired driving:

> "Useless--on the verge of condoning driving when you are intoxicated or tired."
>
> "Tells people it's OK to be a little tired and a little drunk because we're going to tell you how to handle it."
>
> "Condones driving when you are intoxicated or tired."
>
> "People will think I'm not really sleepy. I can just do this and that and get by with it."
>
> "This is like giving you the green light--'Go ahead, get tired and drive.'"
>
> "Now they are telling you go ahead and drive, and we'll show you how to drive."

Discussants felt that special-training courses accommodated impaired driving and were thus seen as encouraging dangerous and "wrong" behavior. Thus, the special driver-training classes were considered contrary to an apparently deep-seated belief: "It's the standard rule--if you're drinking or you're tired, just don't drive." This reaction is an interesting contrast to other responses to drunk-driver deterrence, which found social drinking and driving acceptable. Apparently, some discussants felt that social drinking stopped short of impairment.

Others questioned how realistic the "don't drive" rule is. A young Denver discussant stated, "We do have to come up with alternatives for 'don't drive.' Everyone in this room goes out and has a drink or two and drives home." Such discussants saw a value in courses that provide the driver with "things to remember" when mildly impaired. Thus, another Denver discussant felt that "people need not only to get a license; they should [also] be given additional information."

Questions were also raised about the effectiveness of special driver training. Skepticism was voiced as to the feasibility of such courses: "Can this be done?" "You cannot bring a drunk driver to drive safely." "Alcohol impairs judgment, vision, reaction, and alertness, and you need these functions to drive . . . each time you drive, regardless of how familiar the road or route." Such discussants clearly had in mind drivers who, if not legally drunk, would be close to the point of inebriation.

Some discussants made a distinction between impairment from fatigue and impairment from alcohol. Thus, a middle-age Seattle discussant observed, "Fatigue is different." Another discussant agreed: "For fatigue they may have some ideas that may be worthwhile." Driving while tired was more likely to be seen as part of normal living and, thus, should not be subject to the social disapproval of driving while intoxicated: "Sometimes just going home from work you are tired." "What if you don't start out tired?" As a result, special-training courses directed primarily at coping with alcohol impairment may be subject to more extensive criticism than courses concerned primarily with fatigue impairment.

A statement from a middle-age Seattle discussant expressed the attitude of many who held favorable attitudes toward special driver-training courses: "If this kind of information is available, it should be published in newspapers where a lot of people would be exposed to it in a semivoluntary way." This discussant was concerned about how such a course could be implemented. A suggested solution was to make it available in a form that makes it beneficial to all drivers. This contrasted with a question asked by a discussant who opposed these courses: "Would people have to be drunk to be trained? If not, how can you train them to do the right thing?" Such discussants reacted emotionally to the idea of drinking, which led them to reject courses designed specifically to train a driver to cope with mild alcohol impairment. On the

other hand, mandatory driver training prior to licensing for all applicants as well as periodic, mandatory reexamination were accepted by many of the discussants who rejected the special courses. Similarly, informational campaigns, whether in the form of newspaper features or booklets, were also acceptable.

APPENDIX A

DATA ON PERCEPTIONS OF DRINKING AND DRIVING AS A HIGHWAY SAFETY PROBLEM, BY DEMOGRAPHIC CHARACTERISTICS

TABLE A.1

DRIVER PERCEPTIONS OF DRINKING AND DRIVING AS A HIGHWAY SAFETY PROBLEM BY REGION

	NE (101)	S (135)	MW (117)	W (76)
A. Seriousness of Drinking After 2-3 Drinks				
Very serious	30.7	35.6	29.0	30.3
Somewhat serious	31.7	34.1	35.1	36.8
Not too serious	26.7	20.7	29.9	26.3
Undecided	10.9	9.6	6.0	6.6
Total	100.0	100.0	100.0	100.0
B. Proportion Who Drive With Suspended License				
Most	19.8	34.1	35.9	44.8
About half	30.7	35.6	26.5	32.9
Less than half	21.8	17.0	18.8	9.2
Very few	20.8	8.9	12.0	11.8
Undecided	6.9	4.4	6.8	1.3
Total	100.0	100.0	100.0	100.0
	$p < .05$			
C. Allowing Convicted Drunk Drivers to Drive Under Special Conditions				
Good idea	46.5	53.3	61.5	60.5
Bad idea	46.5	44.4	32.5	36.9
Undecided	7.0	2.3	6.0	2.6
Total	100.0	100.0	100.0	100.0

TABLE A.2

DRIVER PERCEPTIONS OF DRINKING AND DRIVING AS A HIGHWAY SAFETY PROBLEM BY SEX AND AGE

	Sex		Age		
	Male (216)	Female (198)	< 29 (130)	30-44 (135)	45 + (147)
A. Seriousness of Driving after 2-3 Drinks					
Very serious	34.3	32.8	33.1	32.6	35.4
Somewhat serious	30.1	41.9	43.8	34.1	29.9
Not too serious	30.1	22.8	22.3	28.9	28.6
Undecided	5.5	2.5	0.8	4.4	6.1
Total	100.0	100.0	100.0	100.0	100.0
	$p < .05$				
B. Proportion Who Drive With Suspended License					
Most	33.9	33.3	41.5	35.6	27.9
About half	32.6	30.0	32.3	27.4	34.7
Less than half	19.6	14.3	17.8	17.8	15.0
Very few	10.7	15.3	6.9	16.3	15.0
Undecided	3.1	7.1	1.5	2.9	7.4
Total	100.0	100.0	100.0	100.0	100.0
C. Allowing Convicted Drunk Drivers to Drive Under Special Conditions					
Good idea	58.5	52.1	58.5	54.9	55.8
Bad idea	39.7	41.2	39.2	40.7	40.1
Undecided	1.8	6.7	2.3	4.4	4.1
Total	100.0	100.0	100.0	100.0	100.0

TABLE A.3

DRIVER PERCEPTIONS OF DRINKING AND DRIVING AS A HIGHWAY SAFETY PROBLEM BY EDUCATION AND INCOME

	Education			Income	
	< High School (67)	High School Grad. (159)	Any College (187)	< $12,000 (98)	$12,000 + (295)
A. Seriousness of Driving After 2-3 Drinks					
Very serious	49.2	31.4	29.9	35.7	33.2
Somewhat serious	19.4	34.6	42.8	36.7	36.3
Not too serious	23.9	30.2	24.1	21.4	27.8
Undecided	7.5	3.8	3.2	6.1	2.7
Total	100.0	100.0	100.0	100.0	100.0
		$p < .01$			
B. Proportion Who Drive With Suspended License					
Most	38.8	34.6	33.2	34.7	34.6
About half	34.3	32.7	29.4	33.7	30.5
Less than half	9.0	20.0	19.8	15.3	17.3
Very few	13.4	13.2	12.3	12.2	13.5
Undecided	4.5	2.5	5.3	4.1	4.1
Total	100.0	100.0	100.0	100.0	100.0
C. Allowing Convicted Drink Drivers to Drive Under Special Conditions					
Good idea	52.2	55.3	57.8	58.2	55.6
Bad idea	43.3	43.4	36.9	35.7	41.7
Undecided	4.5	1.3	5.3	6.1	2.7
Total	100.0	100.0	100.0	100.0	100.0

TABLE A.4a

DRIVER PERCEPTIONS OF EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY REGION

	MODEL LAW				Reduction in Drinking and Driving by CDD's	DDWS				CMD				Reduction in # of Accidents Involving Drinking and Driving	RESTRICTED HOURS			
	NE	S	MW	W		NE	S	MW	W	NE	S	MW	W		NE	S	MW	W
Would Fewer People Drink and Drive?																		
Yes	52.5	60.0	46.2	52.6	A Lot	26.7	28.9	28.2	34.2	29.7	33.3	29.9	35.5	A Lot	39.6	29.6	30.8	26.3
					A Little	45.5	51.1	51.3	44.7	58.4	47.4	53.8	40.8	A Little	39.6	40.0	42.7	31.6
No	41.6	46.5	49.6	46.1	Not at all	23.8	18.5	17.1	18.4	8.9	15.6	13.7	19.7	Not at All	16.8	23.7	22.2	38.2
Undecided	5.9	5.2	4.3	1.3	Undecided	4.0	1.5	3.4	2.6	3.0	3.7	2.6	3.9	Undecided	4.0	6.7	4.1	3.9
Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	Total	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)
																p < .05		
Likelihood of Driving With Negative Test Results or During Restricted Hours																		
Very likely	Not					43.6	50.4	51.3	38.2	30.7	34.1	33.3	31.6		71.2	68.9	69.2	73.7
Fairly likely	Applicable					30.7	26.7	25.6	39.5	33.7	22.2	29.1	30.3		21.8	24.4	24.8	21.1
Not at all likely						21.7	21.5	19.7	21.0	33.7	39.3	35.0	35.5		3.0	1.5	3.4	3.9
Undecided						4.0	1.4	3.4	1.3	1.9	4.4	2.6	2.6		4.0	5.2	2.6	1.3
Total						100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)		100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)
Degree of Help to Police																		
A Lot	Not					68.2	68.9	58.1	71.1	69.3	65.2	61.5	65.8			Not		
A Little	Applicable					23.8	24.4	29.9	18.4	24.7	26.7	28.2	25.0			Applicable		
Not at All						5.0	5.9	9.4	9.2	4.0	4.4	6.8	7.9					
Undecided						3.0	0.7	2.6	1.3	2.0	3.7	3.4	1.3					
Total						100.0 (101)	99.9 (135)	100.0 (117)	100.0 (76)	100.0 (101)	100.0 (135)	100.0 (117)	100.0 (76)					

TABLE A.4b

DRIVER'S PREFERENCE FOR HANDLING CONVICTED DRUNK DRIVERS,
BY DEMOGRAPHIC CHARACTERISTICS

Preferred Way	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< $12,000	$12,000+
Special Device	28.7	29.6	37.6	40.8	31.6	38.0	50.8	29.6	26.5	23.9	40.3	34.8	34.7	36.6
Suspend License	54.4	54.1	46.2	43.4	56.4	47.5	38.5	55.6	59.9	59.7	51.6	49.2	52.1	50.5
Both (Volunteered)	6.9	6.7	8.5	6.6	6.9	8.0	6.1	8.9	7.5	10.4	5.0	8.5	5.1	8.8
Neither (Volunteered)	5.0	3.7	3.4	3.9	3.7	4.5	3.8	5.9	2.0	1.5	2.5	5.9	6.1	2.7
Don't Know	5.0	5.9	4.3	5.3	1.4	2.0	0.8	-	4.1	4.5	0.6	1.6	2.0	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(101)	(135)	(117)	(76)	(218)	(200)	(130)	(135)	(147)	(67)	(159)	(187)	(98)	(295)
									$p < .001$					

TABLE A.5

DRIVER PERCEPTIONS OF EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY SEX

	MODEL LAW		Reduction in Drinking and Driving by CDD's	DDWS		CMD		Reduction in # of Accidents Involving Drinking and Driving	RESTRICTED HOURS	
	M	F		M	F	M	F		M	F
Would Fewer People Drink and Drive?										
Yes	48.2	58.8	A Lot	32.7	46.7	36.5	27.2	A Lot	34.3	30.7
			A Little	47.1	31.4	47.3	55.3	A Little	37.9	42.1
No	47.8	36.4	Not at All	17.0	19.0	13.5	16.0	Not at All	25.1	25.2
Undecided	4.0	4.8	Undecided	3.2	2.9	2.7	1.5	Undecided	2.7	2.0
Total	100.0 (224)	100.0 (209)	Total	100.0 (223)	100.0 (210)	100.0 (222)	100.0 (206)	Total	100.0 (219)	100.0 (202)
	$p < .05$									
Likelihood of Driving With Negative Test Results or During Restricted Hours										
Very likely	Not			47.5	46.7	34.7	32.0		72.0	73.6
Fairly likely	Applicable			27.8	31.4	26.1	31.1		24.3	23.9
Not at all likely				22.4	19.0	37.8	34.5		3.2	2.5
Undecided				2.2	2.9	1.4	2.4		0.5	--
Total				100.0 (223)	100.0 (210)	100.0 (222)	100.0 (206)		100.0 (218)	100.0 (201)
Degree of Help to Police										
A Lot	Not			65.5	66.8	64.3	68.3		Not	
A Little	Applicable			26.0	23.6	29.4	23.9		Applicable	
Not at All				7.2	7.7	5.4	5.8			
Undecided				1.3	1.9	0.9	2.0			
Total				100.0 (223)	100.0 (208)	100.0 (221)	100.0 (205)			

TABLE A.6

DRIVER PERCEPTIONS OF EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY AGE

	MODEL LAW			Reduction in Drinking and Driving by by CDD's	DDWS			CHD			Reduction in # of Accidents Involving Drinking and Driving	RESTRICTED HOURS		
	< 29	30-44	45 +		< 29	30-44	45 +	< 29	30-44	45+		< 29	30-44	45+
Would Fewer People Drink and Drive?														
Yes	48.5	56.3	55.1	A Lot	36.6	20.0	33.3	36.1	25.2	34.0	A Lot	30.8	29.6	36.7
				A Little	52.3	55.6	40.8	53.1	56.3	44.3	A Little	46.1	40.8	34.0
No	46.9	42.2	39.5	Not at All	12.3	23.0	21.1	10.8	17.8	15.6	Not at All	23.1	28.9	24.5
Undecided	4.6	1.5	5.4	Undecided	0.8	1.5	4.8	--	0.7	6.1	Undecided	--	0.7	4.8
Total	100.0 (130)	100.0 (135)	100.0 (147)	Total	100.0 (130)	99.9 (135)	100.0 (147)	100.0 (130)	100.0 (135)	100.0 (147)	Total	100.0 (130)	100.0 (135)	100.0 (147)
					$p < .01$									
Likelihood of Driving With Negative Test Results or During Restricted Hours														
Very likely	Not				36.2	49.6	53.8	23.1	37.8	34.7		71.5	71.9	74.8
Fairly likely	Applicable				37.7	28.1	23.8	34.6	27.4	24.5		24.6	25.9	21.8
Not at all likely					24.6	20.7	19.0	41.5	33.3	36.5		3.9	2.2	2.7
Undecided					1.5	1.5	3.4	0.8	1.5	4.8		--	--	0.7
Total					100.0 (130)	100.0 (135)	100.0 (147)	100.0 (130)	100.0 (135)	100.0 (147)		100.0 (130)	100.0 (135)	100.0 (147)
					$p < .05$									
Degree of Help to Police														
A Lot	Not				74.6	59.2	65.3	77.7	59.3	61.2		Not		
A Little	Applicable				22.3	31.2	23.1	19.2	33.3	27.9		Applicable		
Not at All					3.1	8.9	8.8	3.1	6.7	7.5				
Undecided					--	0.8	2.8	--	0.7	3.4				
Total					100.0 (130)	100.0 (135)	100.0 (147)	100.0 (130)	100.0 (135)	100.0 (147)				
								$p < .05$						

TABLE A.7

DRIVER PERCEPTIONS OF EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY EDUCATION

	MODEL LAW			Reduction in Drinking and Driving by by CDD's	DDWS			CMD			Reduction in # of Accidents Involving Drinking and Driving	RESTRICTED HOURS		
	< High School	High School Grad.	Any College		< High School	High School Grad.	Any College	< High School	High School Grad.	Any College		< High School	High School Grad	Any College
Would Fewer People Drink and Drive?														
Yes	62.1	58.5	46.5	A Lot	37.3	28.9	26.7	38.8	34.2	27.8	A Lot	37.3	35.2	28.3
				A Little	49.2	49.1	49.7	52.2	52.5	49.7	A Little	35.8	42.1	40.1
No	30.3	37.1	51.3	Not at All	10.5	19.5	21.9	4.5	12.6	20.3	Not at All	23.9	19.5	30.5
Undecided	7.6	4.4	2.2	Undecided	3.0	2.5	1.6	4.5	0.6	2.1	Undecided	3.0	3.1	1.1
Total	100.0 (66)	100.0 (159)	100.0 (187)	Total	100.0 (67)	100.0 (159)	100.0 (187)	100.0 (67)	100.0 (158)	100.0 (187)	Total	100.0 (67)	100.0 (159)	100.0 (187)
		p < .05							p < .05					
Likelihood of Driving With Negative Test Results or During Restricted Hours														
Very likely		Not			49.2	53.5	40.1	41.8	35.4	25.6		70.1	76.1	70.6
Fairly likely		Applicable			28.4	29.6	30.5	17.9	33.5	28.9		26.9	20.8	26.2
Not at all likely					20.9	16.3	25.7	34.3	29.8	44.4		1.5	3.1	3.2
Undecided					1.5	0.6	3.7	6.0	1.3	1.1		1.5	--	--
Total					100.0 (67)	100.0 (159)	100.0 (187)	100.0 (67)	100.0 (158)	100.0 (187)		100.0 (67)	100.0 (159)	100.0 (187)
									p < .01					
Degree of Help to Police														
A Lot		Not			67.2	71.7	62.0	65.7	70.9	62.6	Not			
A Little		Applicable			23.8	22.7	28.3	29.9	24.7	27.8	Applicable			
Not at All					6.0	5.0	8.6	1.4	4.4	8.0				
Undecided					3.0	0.6	1.1	3.0	--	1.6				
Total					100.0 (67)	100.0 (159)	100.0 (187)	100.0 (67)	100.0 (159)	100.0 (187)				

TABLE A.8

DRIVER PERCEPTIONS OF EFFECTIVENESS OF DRUNK DRIVER DETERRENCE METHODS, BY FAMILY INCOME

	MODEL LAW		Reduction in Drinking and Driving by CDD's	DDWS		CMD		Reduction in # of Accidents Involving Drinking and Driving	RESTRICTED HOURS	
	< $12,000	$12,000 +		< $12,000	$12,000 +	< $12,000	$12,000 +		< $12,000	$12,000 +
Would Fewer People Drink and Drive?										
Yes	52.0	53.9	A Lot	30.6	29.5	41.8	29.6	A Lot	35.7	31.9
			A Little	47.0	50.5	44.9	53.4	A Little	39.8	40.3
No	39.8	43.7	Not at all	21.4	18.0	10.2	15.6	Not at All	22.5	25.8
Undecided	8.2	2.4	Undecided	1.0	2.0	3.1	1.4	Undecided	2.0	2.0
Total	100.0 (98)	100.0 (295)	Total	100.0 (98)	100.0 (295)	100.0 (98)	100.0 (295)	Total	100.0 (98)	100.0 (295)
				p = .05						
Likelihood of Driving With Negative Test Results or During Restricted Hours										
Very likely	Not			46.9	44.8	33.6	29.9		73.5	71.9
Fairly likely	Applicable			36.7	28.1	23.5	31.3		22.5	25.1
Not at all likely				13.3	25.4	28.8	38.1		3.0	3.0
Undecided				3.1	1.7	4.1	0.7		1.0	--
Total				100.0 (98)	100.0 (295)	100.0 (98)	100.0 (295)		100.0 (98)	100.0 (295)
				p < .05						
Degree of Help to Police										
A Lot	Not			69.4	66.8	65.3	68.0		Not	
A Little	Applicable			21.4	26.4	26.5	26.5		Applicable	
Not at All				9.2	5.8	7.2	4.8			
Undecided				--	1.0	1.0	0.7			
Total				100.0 (98)	100.0 (295)	100.0 (98)	100.0 (294)			

TABLE A.9

DRIVERS' OPINIONS ON THE ACCURACY LEVEL REQUIRED FOR THE MECHANICAL DEVICES, BY DEMOGRAPHIC CHARACTERISTICS

Required Accuracy Level	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< $12,000	$12,000+
100%	20.8	20.0	15.4	23.7	20.9	19.8	13.9	19.3	27.2	20.9	17.8	23.0	19.4	21.2
93-99%	54.5	53.3	58.1	48.7	50.0	60.9	64.6	58.5	43.5	43.3	55.4	59.9	51.0	57.3
< 93%	18.8	20.0	20.5	23.7	25.5	15.8	21.5	18.5	21.1	25.4	24.2	15.5	23.5	19.5
Undecided	5.9	6.7	6.0	3.9	3.6	3.5	0.0	3.7	8.2	10.4	2.6	1.6	6.1	2.05
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(101)	(135)	(117)	(76)	(220)	(202)	(130)	(130)	(135)	(67)	(157)	(187)	(98)	(293)
					$p < .05$		$p < .05$							

TABLE A.10

DRIVERS' OPINIONS OF WHETHER MODERATE DRUNKENNESS SHOULD BE DETECTED BY MECHANICAL DEVICES

Should Moderate Drunkenness be Detected	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< $12,000	$12,000+
Yes	60.4	63.7	57.3	63.2	58.2	66.2	63.8	57.8	61.9	71.6	63.3	56.5	63.3	62.5
No	33.7	28.9	35.0	28.9	35.0	29.4	33.9	37.8	27.2	22.4	34.2	36.0	30.6	33.1
Undecided	5.9	7.4	7.7	7.9	6.8	4.4	2.3	4.4	10.9	6.0	2.5	7.5	6.1	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(101)	(135)	(117)	(76)	(220)	(204)	(130)	(135)	(147)	(67)	(158)	(186)	(98)	(293)

TABLE A.11

DRIVERS' OPINIONS ON WHETHER THE MECHANICAL DEVICES SHOULD BE USED IF THEY CAN BE CIRCUMVENTED, BY DEMOGRAPHIC CHARACTERISTICS

Use If Can Be Circumvented	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< $12,000	$12,000+
Do Not Use	23.7	25.9	30.8	32.9	32.6	25.5	24.6	30.4	32.7	29.9	27.1	31.0	28.6	28.2
Can Still Be Useful	71.3	65.9	61.5	59.2	64.7	69.0	73.1	66.6	61.2	58.2	67.9	69.0	63.3	69.8
Undecided	5.0	8.2	7.7	7.9	2.7	5.5	2.3	3.0	6.1	11.9	5.0	0.0	8.1	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(101)	(135)	(117)	(76)	(218)	(200)	(130)	(135)	(147)	(67)	(159)	(187)	(98)	(295)

TABLE A.12

DRIVERS' OPINIONS ON WHETHER THE MECHANICAL DEVICES SHOULD BE USED IF OTHER FAMILY MEMBERS ARE AFFECTED, BY DEMOGRAPHIC CHARACTERISTICS

Use If Others Affected	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	< 30	30-44	45+	< High School	High School Grad	Any College	< $12,000	$12,000+
Do Not Use	30.7	34.1	27.6	39.5	35.8	33.0	23.9	39.3	40.1	31.3	33.3	36.9	32.6	32.9
Use Justified	63.4	57.8	57.5	53.9	61.0	62.0	74.6	58.5	52.4	61.2	62.9	60.4	63.3	63.4
Undecided	5.9	8.1	7.1	6.6	3.2	5.0	1.5	2.2	7.5	7.5	3.8	2.7	4.1	3.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	(101)	(135)	(127)	(76)	(210)	(200)	(130)	(135)	(147)	(67)	(159)	(187)	(98)	(295)

$p < .01$

APPENDIX B

Unweighted Tables for Tabulations and Cross-Tabulations Which May Have Been Affected by Overrepresentation of Females in Subsample #1.

TABLE B.1

DRIVERS' CONCERNS ABOUT PERSONAL SAFETY FOR TWO STOPPING METHODS
(UNWEIGHTED DISTRIBUTION)

Concern about Personal Safety	(1) Police-Stop and Police Presence	(2) Police-Stop Only
Yes	39.6	49.1
No	58.2	47.8
Undecided	2.2	3.1
Total	100.0 (457)	100.0 (456)

TABLE B.2

DRIVERS' CONCERNS ABOUT PERSONAL SAFETY WITH EACH OF THE STOPPING METHODS, BY DEMOGRAPHIC CHARACTERISTICS (UNWEIGHTED DISTRIBUTION)

Whether There Is Concern About Personal Safety	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #1 (Police Stop and Police Presence)														
Yes	36.0	43.7	40.3	32.8	34.3	43.9	44.5	34.4	39.5	55.9	42.9	28.4	44.6	35.1
No	63.0	54.4	56.6	64.2	63.3	54.1	54.8	64.9	55.4	39.8	54.8	70.6	52.7	64.6
Undecided	1.0	1.9	3.1	3.0	2.4	2.0	0.7	0.7	5.1	4.3	2.4	1.0	2.7	0.3
Total	100.0 (100)	100.0 (158)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (253)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
					$p < .05$						$p < .001$		$p = .05$	
Stopping Method #2 (Police Stop Only)														
Yes	44.0	54.1	51.2	41.8	40.7	55.9	47.4	41.1	56.0	73.1	51.2	35.3	58.9	43.5
No	53.0	42.7	46.5	55.2	55.9	41.3	50.4	58.3	37.6	25.8	45.2	61.6	39.3	54.5
Undecided	3.0	3.2	2.3	3.0	3.4	2.8	2.2	0.7	6.4	1.1	3.6	3.1	1.8	2.0
Total	100.0 (100)	100.0 (157)	100.0 (129)	100.0 (67)	100.0 (204)	100.0 (252)	100.0 (137)	100.0 (151)	100.0 (157)	100.0 (93)	100.0 (168)	100.0 (190)	100.0 (112)	100.0 (299)
					$p < .01$			$p < .01$			$p < .001$		$p = .01$	

TABLE B.3

LIKELIHOOD OF PARTICIPATION WITH THE POLICE-STOP-ONLY METHOD
(UNWEIGHTED DISTRIBUTION)

Likelihood of Participation	(2) Police-Stop Only
Very Likely	41.4
Somewhat Likely	32.6
Unlikely	25.3
Undecided	0.7
Total	100.0 (454)

TABLE B.4

LIKELIHOOD OF PARTICIPATION WITH THE "POLICE STOP ONLY" METHOD,
BY DEMOGRAPHIC CHARACTERISTICS
(UNWEIGHTED DISTRIBUTION)

Likelihood of Participation	Region				Age			Education			Income	
	NE	S	MW	W	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Stopping Method #2 (Police Stop Only)												
Very Likely	33.0	49.7	37.2	44.8	33.6	44.7	46.8	52.2	45.5	33.2	42.3	42.3
Somewhat Likely	38.0	27.7	33.3	32.8	42.3	32.3	24.0	22.8	30.5	39.0	28.8	33.6
Not Likely	29.0	22.6	27.9	20.9	23.4	24.0	26.9	23.9	24.0	26.8	27.1	24.1
Undecided	0.0	0.0	1.6	1.5	0.7	0.0	1.3	1.1	0.0	1.0	1.8	0.0
Total	100.0 (100)	100.0 (155)	100.0 (129)	100.0 (67)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
						$p < .05$			$p < .05$			

TABLE B.5

LIKELIHOOD OF PARTICIPATION WITH THE "POLICE STOP ONLY" METHOD, BY DRIVERS' EVALUATIONS OF THIS STOPPING METHOD (UNWEIGHTED DISTRIBUTIONS)

Likelihood of Participation	Concern About Personal Safety		Perception of Voluntariness		Belief of Confidentiality		Belief that Answers Will be Honest	
	Yes	No	Yes	No	Yes	No	Yes	No
Stopping Method #2 (Police-Stop Only)								
Very likely	30.9	53.9	40.2	55.1	43.4	24.4	48.0	22.2
Somewhat likely	30.5	34.1	32.2	34.7	35.2	27.8	33.1	32.3
Not likely	38.1	12.0	27.1	10.2	16.1	47.8	18.9	45.5
Undecided	0.5	--	0.5	--	0.3	--	--	--
Total	100.0 (223)	100.0 (217)	100.0 (398)	100.0 (49)	100.0 (310)	100.0 (115)	100.0 (329)	100.0 (99)
	$p < .001$		$p < .05$		$p < .001$		$p < .001$	

TABLE B.6

IMPACT OF GETTING OUT OF CAR ON PARTICIPATION AND BY LIKELIHOOD OF PARTICIPATION WITH EACH STOPPING METHOD (UNWEIGHTED DISTRIBUTION)

Impact of Getting Out of Car on Participation in Roadside Surveys	Total Percent	Stopping Method #1 Participation			Stopping Method #2 Participation			Stopping Method #3 Participation		
		Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely
Disincentive	57.4	50.9	62.5	67.5	46.8	63.3	66.9	43.3	59.4	62.6
Incentive	1.8	2.2	0.7	2.5	3.2	1.4	0.0	5.8	1.0	0.4
No Impact	39.3	45.6	36.1	27.5	48.9	33.3	32.2	49.0	38.6	35.8
Undecided	1.5	1.3	0.7	2.5	1.1	2.0	0.9	1.9	1.0	1.2
Total	100.0 (453)	100.0 (226)	100.0 (144)	100.0 (80)	100.0 (188)	100.0 (147)	100.0 (115)	100.0 (104)	100.0 (96)	100.0 (251)
		$p < .05$[a/]			$p < .001$[a/]			$p < .001$[a/]		

[a/] Because of small cell sizes (resulting in expected frequencies of less than 5) the chi-square test may not be valid.

TABLE B.7

IMPACT OF GETTING OUT OF CAR ON PARTICIPATION,
BY DEMOGRAPHIC CHARACTERISTICS
(UNWEIGHTED DISTRIBUTION)

Impact of Getting Out of Car on Participation in Roadside Surveys	Region				Sex		Age			Education			Income	
	NE	S	MW	W	M	F	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Disincentive	61.0	50.0	60.5	61.2	43.0	68.9	55.5	58.7	57.7	43.5	56.9	65.8	54.1	58.4
Incentive	2.0	2.0	2.3	0.0	2.0	1.6	1.4	1.3	2.5	3.3	2.4	0.5	3.6	1.4
No Impact	36.0	47.4	34.1	37.3	53.0	28.3	41.6	39.3	37.2	48.9	39.5	33.2	41.4	38.9
Undecided	1.0	0.6	3.1	1.5	2.0	1.2	1.5	0.7	2.6	4.3	1.2	0.5	0.9	1.3
Total	100.0 (100)	100.0 (154)	100.0 (129)	100.0 (67)	100.0 (202)	100.0 (251)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (190)	100.0 (111)	100.0 (298)
					$p < .001$[a/]					$p < .01$[a/]				

[a/] Because of small cell sizes (resulting in expected frequencies of less than 5) the chi-square test may not be valid.

TABLE B.8

AGREEING TO GIVE URINE SAMPLE AND BY LIKELIHOOD OF PARTICIPATION IN ROADSIDE SURVEYS (UNWEIGHTED DISTRIBUTION)

Agree to Give . . .	Total Percent	Stopping Method #1 Participation			Stopping Method #2 Participation			Stopping Method #3 Participation		
		Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely	Very Likely	Somewhat Likely	Not Likely
Urine Sample										
Yes	46.2	55.3	42.4	27.8	60.1	40.8	31.6	61.5	50.0	38.8
No	51.1	42.0	54.9	70.9	37.8.	56.5	66.7	36.5	43.8	60.0
Undecided	2.7	2.7	2.7	1.3	2.1	2.7	1.7	2.0	6.2	1.2
Total	100.0 (451)	100.0 (226)	100.0 (144)	100.0 (79)	100.0 (188)	100.0 (147)	100.0 (114)	100.0 (104)	100.0 (96)	100.0 (250)
			$p < .001$			$p < .001$			$p < .001$	

TABLE B.9

DRIVERS' AGREEMENT TO GIVE URINE SAMPLE, BY DEMOGRAPHIC CHARACTERISTICS AND DRINKING AND DRIVING HABITS (UNWEIGHTED DISTRIBUTION)

Would Agree to Give . . .	Region				Age			Education			Income	
	NE	S	MW	W	<30	30-44	45+	<High School	High School Grad	Any College	<$12,000	$12,000+
Urine Sample												
Yes	40.0	52.6	42.2	50.7	38.7	48.0	53.2	56.5	43.7	44.4	59.4	43.4
No	55.0	45.4	56.3	46.3	59.8	50.0	42.3	39.1	54.5	54.5	37.0	54.6
Undecided	5.0	2.0	1.5	3.0	1.5	2.0	4.5	4.4	1.8	2.1	3.6	2.0
Total	100.0 (100)	100.0 (154)	100.0 (128)	100.0 (67)	100.0 (137)	100.0 (150)	100.0 (156)	100.0 (92)	100.0 (167)	100.0 (189)	100.0 (111)	100.0 (297)
						$p < .05$						$p < .05$

	Use of Alcoholic Beverages		Ever Drink and Drive	
	Use Alcohol	Total Abstainer	Yes	No
Urine Sample				
Yes	42.8	56.2	38.2	48.0
No	54.7	40.7	58.9	50.0
Undecided	2.5	3.1	2.9	2.0
Total	100.0 (318)	100.0 (130)	100.0 (170)	100.0 (148)
	$p < .01$			