

## FINAL REPORT

## ATTITUDES OF VIRGINIANS TOWARD TRANSPORTATION SAFETY

Results of the 1978 Transportation Safety Public Opinion Poll

by

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## ABSTRACT

In October and November of 1978, the Virginia Department of Transportation Safety sponsored a statewide public opinion poll conducted by the Virginia Highway and Transportation Research Council. From the first of October through the fifteenth of November, approximately 2,000 randomly selected Virginia families were called and a member of each household over 16 years old was asked his opinion on various issues relating to transportation safety. This report presents the findings of the survey on the topics of 1) drinking and driving, 2) youthful drivers, 3) speed and enforcement, 4) motor vehicle inspection, 5) motorcycle helmet legislation, 6) seat belts and air bags, 7) highway safety improvement priorities, and 8) safety at railroad grade crossings.



## SUMMARY OF FINDINGS

The major findings of the 1978 transportation safety public opinion poll are enumerated below.

1. Drinking and Driving: About 80% of those Virginians questioned felt that persons convicted of drunk driving would benefit from an alcohol treatment program of some kind. However, only 58% felt that the criminal penalties for drunk driving should be waived for first offenders completing treatment. Virginians were about evenly split on the issue of license restrictions for first offenders, with about 50% preferring that the driver receive a license which allows driving only to and from work. Finally, 74% of those polled felt that second and multiple offenders should automatically lose their licenses, regardless of whether they undergo a treatment program.
2. Youthful Drivers: In relation to the question of the appropriate legal drinking age for beer in Virginia, a slight majority (53%) of the respondents preferred the 18-year limitation, with about 27% preferring 21 years. In relation to the legal drinking age for wine, slightly more respondents preferred 21 years to 18 years as the age restriction (42% vs. 39%). These figures reflect little change in opinion from previous years. An overwhelming majority of respondents (about 90%) felt that driver education should be a prerequisite for persons obtaining a license before turning 18.
3. Speed and Enforcement: The majority of Virginians (74%) still favor the maintenance of a 55 mph speed limit. However, the mandatory installation of speed regulation devices to prevent vehicles from exceeding the speed limit was extremely unpopular, especially among drivers. In regard to radar detectors, there was quite a bit of disagreement concerning the use of electronic devices to detect police speed traps and avoid being caught for speeding. Virginians were almost evenly split (49.1% vs. 48.8%) concerning whether radar detectors should be illegal, as they currently are. Of those persons who said radar detectors should be illegal, the majority felt that the devices should be confiscated if found to be in use. (Confiscation regardless of usage was less popular, but was still approved by the majority of this group.)

4. Motor Vehicle Inspection: The majority of Virginians (86%) were found to approve of the inspection concept as it is carried out in the Commonwealth. About 64% of the respondents preferred a six-month inspection interval, rather than a yearly one, and 34% preferred annual inspections. Finally, the majority of respondents (74%) felt that motor vehicle inspection stations are operated fairly and honestly.
5. Motorcycle Helmet Legislation: Over 90% of the respondents in this survey felt that motorcyclists should be required to wear helmets, affirming the helmet laws. Over 76% of the motorcyclists polled also favored mandatory helmet legislation.
6. Seat Belts and Air Bags: Only 33% of the respondents favored a mandatory seat belt usage law, which was less than favored this type of legislation in a 1977 survey. More respondents (55%) than in the previous year favored the Secretary of Transportation's action of mandating the installation of air bags or passive restraints. However, this figure just barely constitutes a majority of the respondents. Finally, about 56% of the respondents stated that they would purchase air bags or automatic safety belts in their next new car, if they cost around \$200.
7. Highway Safety Improvement Priorities: Of the respondents, 76% felt that adequate progress had been made in improving the highways, while 21% disagreed. When asked what aspects of the physical environment should be improved, the respondents gave answers ranging from improvement of pavement quality (18%) to improvement of traffic control devices (7%). It is interesting to note that 42% replied that there was no need for additional attention.
8. Safety at Railroad Grade Crossings: Subjects were first asked why they felt that accidents occur at railroad crossings. The most popular answer, chosen by 61% of the respondents, blamed accidents on dangerous practices on the part of motorists. Also in answer to this question, a sizeable number of respondents said that railroad crossing accidents were due to inadequate traffic control (i.e., signs, gates, etc.) at the crossings. In light of the fact that most respondents blamed accidents on the motorist, they were then asked why they felt the motorist did not stop at crossings. The bulk of the respondents felt that the motorist was either in too much of a hurry to stop (28%), was too daring in relation to the safety of the situation (20%), or was being inattentive in driving (19%).

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## INTRODUCTION

It is widely accepted that the field of highway safety has undergone tremendous change since the enactment of the Highway Safety Act of 1966 and the creation of the Highway Safety Division of Virginia\* in 1968. This change has occurred both in terms of understanding safety problems and in the political climate of the field. The importance of political considerations and, in particular, public opinion has increased as highway safety countermeasures have become increasingly comprehensive. Indeed, the furtherance of safety programs has now become as much an issue in public relations as a subject of research. It is no longer enough to show that a countermeasure saves lives and averts injuries to ensure its continuation. For instance, much sought-after motorcycle helmet legislation has been repealed in several states and is threatened in others, even though the benefits from mandatory helmet usage have been demonstrated. It is clear today that in order to survive a countermeasure must not only "work"; it must also generate favorable public opinion. Thus, in order to defend programs which have been implemented in Virginia and to institute new programs as they are developed, a method for assessing public sentiment toward highway safety has been developed. The work reported here was a systematic and statistically accurate attempt to measure the attitudes of Virginians toward transportation safety.

## PURPOSE

The purposes of this report are twofold. In terms of the present, it presents the results of an objective assessment

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\*The Highway Safety Division of Virginia became, by statute, the Virginia Department of Transportation Safety on July 1, 1979.

current public opinion and makes this information available to safety personnel and others who are interested in transportation safety. In terms of the future, it is hoped that results of the poll may be compared with results of subsequent polls to assess changes in attitudes which could have an impact on public support of safety programs.

## METHOD

### Subject Population

The population from which the sample was drawn included all persons over the age of 16 years residing in Virginia whose households had at least one valid Virginia telephone listing. Of these persons, a sample of over 2,000 were interviewed. Approximately half of the sample were male and the other half female.

### Instrumentation

A standard questionnaire was developed for use in this study by soliciting input from the various agencies in the state having an interest in transportation safety. Each agency participating contributed questions on safety topics which were considered to be important to the agency and the public.\* The topics included the 55 mph speed limit, alcohol and driving, driver education, seat belts and air bags, periodic motor vehicle inspection, the use of radar detectors and speed control devices, physical aspects of highways relating to safety, and motorcycle helmet legislation. Additionally, since the purview of the Department of Transportation Safety was recently increased to include non-highway modes of travel, the study included issues pertinent to other modes of transportation, such as the public's perception of why accidents occur at railroad grade crossings. Finally, the questionnaire included items on the demographic characteristics of the respondents. A copy of the questionnaire appears in Appendix A.

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\*These agencies included the Division of Motor Vehicles, Department of State Police, Bureau of Emergency Medical Services, the Public Transportation and Traffic and Safety Divisions of the Department of Highways and Transportation, the Department of Education, and the Office of the Secretary of Transportation.

### Sampling Plan

In order to adequately distribute a sample drawn from the population of households having telephones, a comprehensive list of Virginia directories had to be compiled. Directories were solicited and received from the 25 telephone companies in operation in Virginia, which included the 3 large companies — C & P, Centel, and Continental — and 22 smaller, independent companies. Those directories carrying duplicate or non-Virginia listings were discarded, which left 68 directories containing approximately 2.5 million mutually exclusive Virginia listings. A list of these directories and information concerning their entries appear in Appendix B.

The appropriate sample size for the survey was then determined as shown in Appendix C. Since there were two intended purposes to the survey — to determine the general opinions of Virginians concerning safety issues and to detect changes in these opinions from year to year — the sample size was calculated by two methods, with each method corresponding with one of these objectives. The larger of the two calculations was then selected as the appropriate sample size. Also, since an estimate of the standard deviation was not available, the maximum possible standard deviation from past questionnaires was used in the calculations. These steps were taken to ensure the selection of the largest, and thereby most conservative, sample size. It was determined that 2,056 interviews were necessary to estimate accurately the opinions of the population within one-tenth of a point on a four-point scale and to detect a year-to-year difference as small as two-tenths of a point at the 99 percent level of confidence.

Telephone numbers for households to be sampled were computer-generated and printed with business, toll free, and other nonresidential numbers being excluded by the interviewers (see Appendix D for sample output). The number of interviews to be completed in each area was determined in proportion to its contribution to the total number of telephone listings; i.e., if 10 percent of the Virginia listings appeared in the metropolitan Richmond telephone book, then 10 percent of the sample would be selected from that area.

### Interviewer Quality

Prospective interviewers were screened before being hired to determine the extent of their interviewing skills. After being briefed on the purpose and procedures for the survey, the applicant was asked to complete a role-playing exercise using a subset of questions from the final questionnaire. The applicant was given

time to review this mini-questionnaire and ask questions. Each applicant then practiced the questionnaire with the person conducting the screening and received counseling on his technique. Finally, the applicant simulated a telephone interview by calling another staff member and delivering the questionnaire. Each applicant was then rated on interviewing skill and style on a standard rating sheet by both the person conducting the screening and the staff member who was interviewed. After all the screenings were completed, those persons with the highest scores were given first opportunity to accept jobs (and usually received the most hours of work). This hiring procedure ensured that the most articulate, poised and skillful applicants were hired. In this survey, a total of 16 of the 48 applicants were employed as interviewers.

Those persons selected then received three hours of additional training on interviewing skills using the full questionnaire. Their interviewing techniques were monitored at random throughout the survey to make sure that survey procedures were being followed.

#### Interview Procedure

Using the standard questionnaire, telephone interviews were conducted from 12 noon to 5 p.m. and from 5 p.m. to 9 p.m., Monday through Saturday, and from 1 p.m. to 4 p.m. and 4 p.m. to 8 p.m. on Sunday. Interviewers were encouraged not to work consecutive shifts and not to work more than three consecutive days, since the resulting fatigue tended to reduce both the efficiency and the quality of the interviews.

Since the sample was stratified by sex, interviewers received feedback on a daily basis concerning the fulfillment of these quotas. In this way, attempts to fill quotas were dispersed across the entire period rather than occurring during the final stages of the project. Data were coded onto forms for keypunching as shown in Appendix E. The forms were checked after each shift for accuracy.

#### LIMITATIONS

In previous polls by the Research Council, telephone numbers had been drawn from actual directories, excluding business numbers. Because of this technique, non-published numbers and very new listings had been excluded from the sample. This procedure had resulted in the sample not being generalizable to all Virginians, in that some upper-middle- to upper-class households (with non-published numbers) and some very mobile households (with new

listings) had been excluded from the sample. This problem was corrected in the 1978 survey, since, due to the random generation of telephone numbers, the probability of selection for non-published or new listings should be equal to their occurrence in the population of households with telephones. However, one group of households was still excluded from the survey, because of the choice of telephone interviewing over personal interviewing methods. Since those households without telephones were still beyond reach, the opinions of a group of possibly lower- to lower-middle-class families were not obtained.

Additionally, it should be noted that because it was prescribed that half the sample be male and half female (and non-drivers were allowed to respond), the sample was somewhat unrepresentative in terms of the driving population and its exposure, since it is accepted that more males drive more miles than do females. Thus, the results of the survey should not be generalized to all drivers.

## RESULTS

The results of the survey fall into nine categories, as follows: 1) Demographic characteristics, 2) drinking and driving, 3) youthful drivers, 4) speed and enforcement, 5) motor vehicle inspection- 6) motorcycle helmet legislation, 7) seat belts and air bags, 8) highway safety improvement priorities, and 9) safety at railroad grade crossings. The overall findings for each of these categories will be presented and target groups for future public information campaigns (those persons negative on safety aspects) will be identified based on general demographic characteristics. It should be remembered that the questions asked on each topic are not meant to be all inclusive, and that each question deals with information specifically needed by transportation safety personnel.

### Demographic Characteristics of the Sample

The demographic characteristics of the respondents are presented in tabular form in Appendix F. Over 90% of the sample of respondents were licensed drivers, 80% of whom had driven for at least 5 years (less than 2% had less than one year's driving experience, while almost 40% had driven for longer than 19 years). As mentioned previously, exactly half the sample was male and half female. About 96% of the respondents were over 18 years of age, with over 28% being over the age of 50 years. About 41%

had taken the classroom portion of a driver education course, either in school, in the service, or from a commercial vendor. Slightly less (38%) had taken the "behind the wheel" portion of a driver education course. Finally, while about 10% of the respondents had been involved in an automobile accident within the last year, only 7% had been involved in an accident which was reportable.\*

## Drinking and Driving

### Responses

In 1971, Virginia participated in a federally sponsored demonstration project establishing its first comprehensive alcohol countermeasure program. The Fairfax Alcohol Safety Action Project (ASAP) was one of only 35 such projects in the nation employing a multifaceted approach to intervening in drunk driving situations and to amending the behavior of drunken drivers. This concept of intervention and rehabilitation was employed in the establishment of other local alcohol countermeasure programs, or VASAP's, similar but not identical to the original Fairfax program. At this writing, there are 21 local VASAP areas covering about 90% of the state. Some of the programs have been in operation as long as four years.

Quite a bit of interest has been shown recently in the General Assembly and elsewhere in these programs dealing with the drinking and driving problems of Virginians. For this reason, respondents were questioned about their feelings concerning various aspects of these programs. About 80% of those questioned felt that persons convicted of drunk driving would benefit from a treatment program of some kind (see Table 1). However, only 58% felt that the criminal penalties for drunk driving should be waived for first offenders completing treatment (see Table 2). Virginians were about evenly split on the issue of license restrictions for first offenders, with about 50% preferring that the driver receive a license which allows driving only to and from work (see Table 3). Finally, 74% of those polled felt that second and multiple offenders should automatically lose their licenses, regardless of whether they attended a treatment program (see Table 4).

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\*In Virginia, a reportable accident is defined as one which involves a fatality, injury, or property damage in excess of \$250.

Table 1

Do you feel that persons who are convicted of driving under the influence of alcohol would benefit from an alcohol treatment program?

	<u>Response</u>
Yes	79.8%
No	16.1%
Undecided/No Opinion	4.1%

Table 2

Do you feel that criminal penalties such as fine, jail or loss of license should be suspended for persons convicted of drunk driving for the first time, if they attend an alcohol treatment program?

	<u>Response</u>
Yes	58.1%
No	39.0%
Undecided/No Opinion	2.9%

Table 3

Do you think that first offenders for drunk driving who attend a treatment program should retain their full driving privileges, or would you prefer that they retain a license which allows them to drive only to and from work?

	<u>Response</u>
Full License	41.9%
Restricted License	50.5%
Other	4.7%
Undecided/No Opinion	1.9%

Table 4

Do you feel that persons convicted of drunk driving more than once should automatically lose their licenses, regardless of whether they attend a treatment program?

	<u>Response</u>
Yes	74.0%
No	23.9%
Undecided/No Opinion	2.0%

### Target Groups

There were few consistent patterns in relation to those groups with negative attitudes toward alcohol countermeasures. In relation to whether alcohol related treatment would help drunken drivers, persons who did not drive were more assured that the program would be of benefit than were persons who did drive. In this context, drivers as a group may be either more cynical or more realistic concerning the drinking/driving problem. In relation to whether persons convicted of drunk driving more than once should automatically lose their licenses, older persons who had not taken driver's education were more lenient toward offenders than were younger persons.

The only question which did polarize opinion and generate target groups for special informational efforts involved whether persons entering the VASAP program should retain their full driving privileges or whether they should be given a restricted license which would allow them to drive only to and from work. Younger persons who had taken driver education and had received a license, along with those persons who had been involved in an automobile accident within the last year, were more in favor of granting program participants a full license than were other respondents. Since this is the way the program is run, it may be that this young group of persons are being reached through driver's education courses and are thus positively disposed toward the current program. On the other hand, older persons, those who have not taken driver's education and those who do not drive are more in favor of the restricted license concept. If the judicial aspects of the VASAP's are to remain unchanged, then public information efforts should be centered on this group to elicit their support for the current licensing practice.

### Youthful Drivers

#### Responses

There has been considerable interest recently in a step taken several years ago which decreased the legal drinking age in Virginia to 18 years. Because studies in several states have indicated that this move has had a detrimental effect on the number and severity of crashes involving youthful drivers, in both 1978 and 1979 the General Assembly considered raising the legal drinking age for beer from 18 to 19 years in an attempt to reduce drunk driving among young drivers.

In relation to this question, a slight majority (53%) of the respondents preferred the 18-year limitations, while about 27% preferred 21 years (see Table 5). In relation to the legal drinking age for wine, slightly more respondents preferred 21 years to 18 years as the age restriction (42% vs. 39%) (see Table 6). These figures reflect little change in opinion from previous years, but do indicate that attitudes of Virginians are quite different from opinions nationwide, where over 62% of respondents prefer a legal drinking age of 21.<sup>(5)</sup>

Table 5

The General Assembly has established two legal drinking ages in Virginia, one for beer and one for wine and hard liquor. What do you believe the legal drinking age for beer should be in Virginia?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Under 18 Years	3.2%	2.9%
18 Years	53.4%	51.0%
19-20 Years	3.9%	5.0%
21 Years	27.9%	30.0%
Over 21 Years	2.1%	5.8%
No One Should Drink	7.3%	-
There Should Be No Limit	1.0%	-
Undecided/No Opinion	1.1%	5.1%

Table 6

What do you believe the legal drinking age for wine should be in Virginia?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Under 18 Years	2.2%	2.0%
18 Years	39.3%	41.1%
19-20 Years	3.8%	5.2%
21 Years	42.1%	38.9%
Over 21 Years	3.2%	7.1%
No One Should Drink	7.1%	-
There Should Be No Age Limit	0.9%	-
Undecided/No Opinion	1.2%	5.7%

One additional question concerning young drivers was included in the survey questionnaire and dealt with mandatory driver education. An overwhelming majority of respondents (about 90%) felt that driver education should be a prerequisite for persons obtaining a license before turning 18 (see Table 7). This finding reflects a significant change from previous years in that more respondents were either undecided or had no opinion on this question in 1978 than in 1977 ( $X^2 = 24.6$ ,  $p < .01$ ).

Table 7

Do you believe that persons under 18 should be required to complete a course in driver education before being issued a driver's license?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	89.8%	90.2%
No	9.4%	7.2%
Undecided/No Opinion	0.7%	2.6%

### Target Groups

Issues involving youthful drivers generated very few target groups for special attention. In relation to whether driver's education should be a prerequisite for the licensing of minors, persons who had taken driver education were more in favor of the requirement than persons who had not. Also, and very interestingly, persons who had been involved in an accident during the previous year were more favorable concerning driver's education than were accident free drivers.

### Speed and Enforcement

#### Responses

There has recently been considerable controversy concerning the 55 mph speed limit, not only in terms of increasing speed limits beyond 55, but also in terms of unusual or mechanized methods of surveillance and enforcement. In relation to these issues, respondents were polled concerning their views on the current speed limits and the use of radar detectors to escape apprehension for speeding.

The majority of Virginians (74%) still favor the maintenance of a 55 mph speed limit (see Table 8). This finding is very much in keeping with findings in other states and for the nation as a whole.<sup>(3,4,5,6)</sup> Nationwide, 77% of the respondents were either strongly in favor of maintaining the 55 mph speed limit or were somewhat in favor.<sup>(5)</sup> These figures do indicate, however, that there was significantly less support for the 55 mph speed limit in 1978 than there was in 1977.

Table 8

The 55 mph maximum speed limit has been in effect since 1973. Do you feel the maximum speed limit should remain at 55 mph?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	73.7%	79.1%
No	25.7%	20.2%
Undecided/No Opinion	0.5%	0.7%

In relation to mechanized methods of enforcing speed limits, the mandatory installation of speed regulation devices to prevent vehicles from exceeding the speed limit was extremely unpopular, especially among drivers (see Table 9). In regard to radar detectors, there was quite a bit of disagreement concerning the use of electronic devices to detect police speed traps and avoid being caught for speeding. Virginians were almost evenly split (59.1% vs. 48.8%) concerning whether radar detectors should be illegal, as they currently are (see Table 10). Of those persons who said that radar detectors should be illegal, the majority felt that the devices should be confiscated if found to be in use. Confiscation regardless of usage was less popular but still approved by the majority of this group (see Tables 11 and 12).

Table 9

Currently the burden of enforcing the speed laws is placed on the police. Do you believe that there should be legislation requiring all vehicles to be equipped with speed control devices to keep them from exceeding the 55 mph speed limit?

	<u>Response</u>
Yes	31.8%
No	66.7%
Undecided/No Opinion	1.4%

Table 10

Radar detectors are devices which alert drivers to the presence of police radar. Do you believe that radar detectors should be illegal?

	<u>Response</u>
Yes	49.1%
No	48.8%
Undecided/No Opinion	2.0%

Table 11

Do you believe that radar detectors found to be in use should be confiscated?

	<u>Response</u>
Yes	38.8%
No	59.1%
Undecided/No Opinion	2.1%

Table 12

Do you believe that all radar detectors should be confiscated, regardless of whether they are found to be in use?

	<u>Response</u>
Yes	27.2%
No	70.3%
Undecided/No Opinion	2.5%

### Target Groups

The issues surrounding maintenance of the 55 mph speed limit also tended to polarize the respondents in this survey, in that specific demographic groups differed significantly in their opinions concerning this question. Persons under 18 and over 50 were considerably more in support of the 55 mph speed limit than were any other age groups. Persons who did not drive and had not taken driver's education were also more favorable. As was the case in 1977, these figures indicate that driver's education classes did not relay the necessary information concerning the safety aspects of the 55 mph speed limit to the

young driver population until very recently. Finally, persons who had been in automobile accidents within the last year who felt they had no control over accident causation were less in favor of maintaining the 55 mph speed limit than other groups.

In contrast, demographic groups did not differ much in their opinions on the use of radar detectors. Drivers were more likely to feel that radar detectors should be illegal than were non-drivers. Demographic groups did not differ at all in their opinions of whether radar detectors found to be in use should be confiscated, while they did differ somewhat in their opinion of confiscation regardless of usage. Older persons who had not taken driver's education were more likely to favor the confiscation of all radar detectors than were younger persons.

### Motor Vehicle Inspection

Respondents were also questioned concerning Virginia's 47-year-old inspection program and changes which have recently been made in the system. The majority of Virginians (86%) approve of the inspection concept as it is currently carried out in the Commonwealth (see Table 13). This finding is somewhat in keeping with those from other surveys, which have found that a majority of respondents favor the concept of inspection, even at a cost of \$7.00 per inspection.<sup>(6,7)</sup> About 64% of the respondents preferred a six-month inspection interval rather than a yearly one, with 34% preferring annual inspection (see Table 14). These findings are significantly different from the results of the 1977 survey in that fewer respondents now prefer a six-month inspection for all cars ( $X^2 = 22.6, p < .01$ ). Finally, the majority of respondents (74%) felt that motor vehicle inspection stations are being operated fairly and honestly (see Table 15).

Table 13

Currently in Virginia most motor vehicles must be inspected for defects once every six months to make sure that they are in safe mechanical condition. Do you agree with this practice?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	85.7%	85.3%
No	13.9%	14.2%
Undecided/No Opinion	0.2%	0.5%

Table 14

Would you prefer a six-month or a yearly inspection for all cars?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Six Month	64.5%	71.6%
Yearly	33.9%	26.8%
Undecided/No Opinion	1.5%	1.6%

Table 15

On the whole, do you feel that motor vehicle inspection stations are being operated fairly and honestly?

	<u>Response</u>
Yes	73.7%
No	21.9%
Undecided/No Opinion	4.3%

### Motorcycle Helmet Legislation

#### Responses

Over the last two to three years, many states have repealed their laws mandating the use of motorcycle helmets. The use of helmets has been shown to be extremely effective in reducing the severity of motorcycle accidents, and the numbers of fatalities occurring in motorcycle accidents have dramatically increased in states that have repealed their helmet laws. In the last several years, attempts have been made to repeal Virginia's helmet laws. Thus, respondents in this survey were asked their opinion of the helmet laws. Over 90% felt that motorcyclists should be required to wear helmets, affirming the helmet laws. Over 76% of the motorcyclists polled also favored mandatory helmet legislation (see Table 16).

Table 16

Virginia law currently requires that all motorcyclists wear a helmet while they are riding. Do you agree that motorcyclists should be required to wear helmets?

	<u>Motorcyclists</u>	<u>Non-Motorcyclists</u>
Yes	76.4%	93.4%
No	23.3%	6.0%
Undecided/No Opinion	0.3%	0.6%

Again, these findings are supported by other non-Virginia survey data. In a recent survey, Market Opinion Research of Detroit found that 82% of all respondents and 52.5% of all responding motorcyclists favored the helmet laws. While about 45% of the motorcyclists were opposed to the helmet laws, 67% felt that helmets should be worn at all times.(6,7)

### Target Groups

Only one target group emerged in relation to the motorcycle helmet law issue. Persons who drive and who have taken driver's education are significantly less likely to approve of mandatory helmet legislation than non-drivers. In this case, this target group may be reached through the dissemination of information on helmet usage in regular driver's education classes.

### Seat Belts and Air Bags

#### Responses

In 1977, the Secretary of Transportation mandated the installation of passive restraints in all new cars by 1983, a move which was heralded by highway safety enthusiasts. In relation to the seat belt/air bag issue, respondents were questioned concerning their feelings toward seat belt legislation and their willingness to purchase air bags or other passive restraints. Only 33% of the respondents favored a mandatory seat belt usage law, significantly less than favored this type of legislation in 1977 (see Table 17). This is also somewhat less support than has been shown nationwide, where 54% of those responding were either strongly or somewhat in favor of the passage of mandatory seat belt use legislation.(5)

Table 17

In 1963, the federal government began requiring that all new cars be equipped with safety belts. Now, even though almost all cars have belts, few people use them. Do you feel that the Virginia General Assembly should pass a law requiring the use of safety belts?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	33.4%	37.8%
No	64.1%	57.6%
Undecided/No Opinion	2.4%	4.6%

When questioned concerning their views on whether passive restraint systems should be mandated for all cars, more respondents favored the Secretary of Transportation's action in this regard than did in 1977 (55%). However, this constitutes a very slim majority of the respondents (see Table 18). There is some disagreement among pollsters in other states and nationwide as to the support for air bags and passive restraints. A recent Gallup poll found that 46% of the sample favored the mandatory installation of air bags, while 37% opposed the move, and 17% were undecided.<sup>(1,2)</sup> Peter D. Hart Associates found that 58% of their respondents either strongly or moderately supported the DOT's decision on passive restraints, while researchers at Teknekron found 73% support for mandating passive restraints by 1984.<sup>(9,4,5)</sup>

Table 18

In light of the fact that safety belts often go unused, scientists have developed air bags and automatic safety belts which work automatically without the driver or passengers having to "buckle up". Do you feel that the government should require auto manufacturers to equip all cars with air bags or automatic safety belts?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	54.8%	49.9%
No	41.0%	38.1%
Undecided/No Opinion	4.2%	12.0%

In relation to the psychological and market value of passive restraints, respondents were asked whether they would be willing to purchase air bags or automatic safety belts for their next new car at a cost somewhere around \$200. As shown in Table 19, about 56% of the respondents felt that they would purchase passive restraints under these conditions. Given that this figure represents self-reporting of individuals in relation to a hypothetical situation, it is remarkably close to the 43% of the owners of air-bag-equipped General Motors vehicles who felt that the air bags were worth the extra cost to the consumer.<sup>(8)</sup> However, this figure also shows a significant decrease in support for air bag purchase at this price since 1977.

Table 19

Would you be willing to have air bags or automatic seat belts installed in your next car, if they cost around \$200?

	<u>Response</u>	
	<u>1978</u>	<u>1977</u>
Yes	56.4%	61.9%
No	40.0%	28.8%
Undecided/No Opinion	4.6%	9.3%

### Target Groups

These issues regarding restraints generate an interesting set of target groups for additional public information efforts. In terms of the mandatory seat belt usage laws, persons who did not drive and who had not taken driver's education were more likely to approve of passage than were persons who did drive and had taken the course. Also, very young persons (under 17 years old) were most likely to approve, while persons 19 to 21 years old were the least likely, a finding that, perhaps indicates recent changes in the driver education curriculum.

In relation to the mandatory installation of passive restraints and willingness to purchase passive restraints, younger persons who had attended driver education courses were much more favorable than other groups. Also, non-drivers were more favorably disposed than drivers.

### Highway Safety Improvement Priorities

#### Responses

There has been considerable discussion recently of the various safety needs relating to the physical environment of the highway (and of exactly where the Virginia Department of Highways and Transportation should concentrate its efforts). In an attempt to obtain public input, respondents were asked if they were satisfied with the current state of physical safety and what, if anything, should receive more attention.

Of the respondents, 76% felt that adequate progress has been made in improving the highways, while 21% disagreed (see Table 20). When asked what aspects of the physical environment should be improved, the respondents gave answers ranging from improvement of

pavement quality (18%) to improvement of traffic control devices (6.9%). It is interesting to note that 42% replied that there was no need for additional attention (see Table 21).

Table 20

The Virginia Department of Highways and Transportation is responsible for improving Virginia's highways, including removing roadside obstacles, improving pavement markings, widening narrow bridges and so forth. Do you feel that adequate progress has been made in making Virginia's highways safer?

	<u>Response</u>
Yes	76.3%
No	20.6%
Undecided/No Opinion	3.1%

Table 21

Is there anything about the highways that you feel should receive more attention?

	<u>Response</u>
Widen Narrow Roads	5.9%
Improve Pavement Quality	17.7%
Remove Roadside Obstacles	2.0%
Improve Pavement Markings	4.8%
Improve Highway Structures	1.5%
Improve Traffic Control Devices	6.9%
Improve Construction/Work Zones	1.7%
Other	13.7%
General Improvements Needed	3.7%
No Improvement Needed	42.2%

#### Target Group

The issues relating to highway safety improvements generated no target groups for special attention.

Safety At Railroad Grade Crossings

Responses

In 1978, the Virginia Department of Transportation Safety was given the responsibility of assisting with the coordination of safety efforts in all modes of transportation, not just highway travel. In keeping with this role, some questions pertaining to railroad travel were included in the survey. Specifically, the questions dealt with railroad grade crossings.

Subjects were first asked why they felt that accidents occur at railroad crossings. The most popular answer, chosen by 61% of the respondents, blamed accidents on dangerous practices on the part of motorists (see Table 22). Also in answer to this question, a sizeable number of respondents felt that accidents at railroad crossing were due to inadequate traffic control (i.e., signs, gates, etc.) at the crossings. In light of the fact that most respondents blamed accidents on the motorist, they were then asked why they felt the motorist did not stop at the crossing (see Table 23). The bulk of the respondents felt that the motorist was either in too much of a hurry to stop (28%), was too daring in relation to the safety of the situation (20%), or was being inattentive in driving (19%).

Table 22

Although much time and effort has gone into improving railroad grade crossings, accidents at railroad crossings remain a serious problem. Why do you think accidents occur at railroad crossings?

	<u>Response</u>
Inadequate Traffic Control (Including Signs, Lights and Gates)	23.5%
Dangerous Roadway Characteristics at Crossings (Poor Visibility, Grade, Rough Pavement)	4.1%
Dangerous Practices on the Part of the Motorist	61.0%
Dangerous Practices on the Part of R. R. Personnel	0.8%
Trains are Infrequent and Unexpected	5.1%
Other	3.1%
Undecided/No Opinion	2.2%

Table 23

It has been observed that some motorists do not stop at railroad grade crossings and cross in front of oncoming trains. Why do you feel that motorists do not stop at railroad crossings?

	<u>Response</u>
Motorist Uninformed Concerning Signs and Laws	2.1%
Motorists Too Daring	19.7%
Motorists Not Attentive	18.7%
Signs Not Visible Enough	2.0%
Signs Not Effective Enough	7.0%
Suicide	0.7%
Motorist in a Hurry	28.0%
Trains are Infrequent and Unexpected	8.1%
Other	8.6%
Undecided/No Opinion	4.3%

#### CONCLUSIONS AND RECOMMENDATIONS

As was indicated during last year's survey, attitudes toward highway and transportation safety are generally very favorable in Virginia. A majority of the public supports such programs as periodic motor vehicle inspection, rehabilitation for persons convicted of drunk driving, driver education as a prerequisite for licensing those under 18 years old, maintenance of the 55 mph speed limit, and mandating motorcycle helmet usage. However, there are some areas, as noted below, where improvement is indicated.

1. While the majority of Virginians support the VASAP concept of rehabilitating rather than sanctioning persons convicted of drunk driving, there is still a considerable body of respondents who are opposed to the concept. Certainly, there is great support for restoring to the drunken driver only a restricted license rather than full driving privileges, which is currently not a part of the VASAP concept. Additionally, there is great support for automatic license suspension for persons convicted of drunk driving more than once, while such persons may currently reenter the VASAP program multiple times. Wherever public opinion does not support program operations, there is a need either to modify the program or to give more attention to changing public opinion toward the program.

2. There is still considerable support in the state for the 18-year-old minimum drinking age. This limit, however, has been found to result in increased involvement of young persons in alcohol related crashes. There is still a great need to educate the public concerning this deleterious aspect of the low drinking age and perhaps generate support for incrementally increasing the legal drinking age.
3. There was significantly less support in 1978 for the 55 mph speed limit than there was in the 1977 survey. Although the impending energy shortage may increase awareness of the safety aspects of the 55 mph limit, some concentration of effort may be needed to reverse the trend of decreasing public support and to increase voluntary compliance with the limit.
4. Although a majority of Virginians still support it, there is also decreasing support for semiannual inspections of all motor vehicles. This finding could indicate that there is increased support for annual inspection, based upon the public's experience with the annual inspection of new vehicles. If semiannual inspections are to be continued, some attention should be given to increasing public support.
5. There has been a significant shift in public support of efforts promoting the use of restraints in vehicles. While seat belt usage legislation has lost favor, the mandatory installation of passive restraint systems has gained support. However, significantly fewer persons were willing to pay around \$200 for passive restraints in 1978 than in 1977. Since the Secretary of Transportation's decision to mandate passive restraints is becoming more popular, it would appear that more work is needed to justify the cost of these systems in the public's mind. Additionally, through conversation with the public, it was discovered that there are numerous misconceptions and considerable mistrust among the respondents concerning both air bags and automatic seat belts.



## ACKNOWLEDGEMENTS

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## APPENDIX A

## SURVEY QUESTIONNAIRE

INTERVIEWERS: DO NOT READ THE OPTIONS TO THESE QUESTIONS UNLESS YOU ARE SPECIFICALLY INSTRUCTED TO DO SO.

## SURVEY QUESTIONNAIRE

## PUBLIC OPINION SURVEY

1978

Good (Afternoon/Evening). My name is \_\_\_\_\_.  
 We are conducting a brief transportation survey for the Virginia Highway Research Council. May I speak with someone in your household (MALE, FEMALE AS NEEDED TO FILL QUOTA) who is 16 years of age or older.

I'd like to ask you a few questions concerning your views on transportation safety. Your answers will be very valuable and will remain strictly confidential (GO RIGHT INTO THE FIRST QUESTION, IF APPROPRIATE).

1. First, do you drive?

- 1..... Yes
- 2..... No (Skip to question 3)
- 3..... Refused

2. How many years have you been driving?

- 1..... Less than 1 year
- 2..... 1-2 years
- 3..... 3-4 years
- 4..... 5-9 years
- 5..... 10-14 years
- 6..... 15-19 years
- 7..... Over 19 years
- 8..... Don't know
- 9..... Refused

3. Do you believe that persons under 18 should be required to complete a course in driver education before being issued a drivers license?

- 1..... Yes
- 2..... No
- 3..... Undecided
- 4..... No opinion
- 5..... Refused

4. The General Assembly has established two legal drinking ages in Virginia, one for beer and one for wine and hard liquor. What do you believe the legal drinking age for beer should be in Virginia?

1..... Under 16 years  
 2..... 16 years  
 3..... 17 years  
 4..... 18 years  
 5..... 19 years  
 6..... 20 years  
 7..... 21 years  
 8..... Over 21 years  
 9..... No one should be allowed to drink  
 10..... There should be no age limit  
 11..... Undecided  
 12..... No opinion  
 13..... Refused

5. What do you believe the legal drinking age for wine should be in Virginia?

1..... Under 16 years  
 2..... 16 years  
 3..... 17 years  
 4..... 18 years  
 5..... 19 years  
 6..... 20 years  
 7..... 21 years  
 8..... Over 21 years  
 9..... No one should be allowed to drink  
 10..... There should be no age limit  
 11..... Undecided  
 12..... No opinion  
 13..... Refused

6. Do you feel that persons who are convicted of driving under the influence of alcohol would benefit from an alcohol treatment program?

1..... Yes  
 2..... No  
 3..... Undecided  
 4..... No opinion  
 5..... Refused

7. Do you feel that criminal penalties such as fine, jail or loss of license should be suspended for persons convicted of drunk driving for the first time, if they attend an alcohol treatment program?

1..... Yes  
 2..... No  
 3..... Undecided  
 4..... No opinion  
 5..... Refused

8. Do you think that first offenders for drunk driving who attend a treatment program should retain their full driving privileges, or would you prefer that they retain a license which allows them to drive only to and from work?
- 1..... Full license
  - 2..... Restricted license
  - 3..... Other (Specify on coding form)
  - 4..... Undecided
  - 5..... No opinion
  - 6..... Refused
9. Do you feel that persons convicted of drunk driving more than once should automatically lose their licenses, regardless of whether they attend a treatment program?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
10. Are you required to stop for a school bus which is loading or unloading students when you approach it from the rear on a two-lane road?
- 1..... Yes
  - 2..... No
  - 3..... Don't know
  - 4..... Refused
11. Are you required to stop for a school bus which is loading or unloading students when you approach it on a two-lane road from the front?
- 1..... Yes
  - 2..... No
  - 3..... Don't know
  - 4..... Refused
12. Are you required to stop for a school bus which is loading or unloading students if its red lights are not flashing?
- 1..... Yes
  - 2..... No
  - 3..... Don't know
  - 4..... Refused
13. Currently in Virginia, most motor vehicles must be inspected for defects once every six months to make sure that they are in safe mechanical condition. Do you agree with this practice?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused

14. Would you prefer a six-month or a yearly inspection for all cars?
- 1..... Six months
  - 2..... Yearly
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
15. On the whole, do you feel that motor vehicle inspection stations are operated fairly and honestly?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
16. The 55 mph maximum speed limit has been in effect since 1973. Do you feel the maximum speed limit should remain at 55 mph?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
17. Currently the burden of enforcing the speed laws is placed on the police. Do you believe that there should be legislation requiring all vehicles to be equipped with speed control devices to keep them from exceeding the 55 mph speed limit?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
18. Would you support efforts to hire additional police or State Troopers to patrol the highway?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused

19. Radar detectors are devices which alert drivers to the presence of police radar. Do you believe that radar detectors should be illegal?
- 1..... Yes
  - 2..... No (Skip to question 22)
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
20. Do you believe that radar detectors found to be in use should be confiscated?
- 1..... Yes
  - 2..... No (Skip to question 22)
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
21. Do you believe that all radar detectors should be confiscated regardless of whether they are found to be in use?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
22. Virginia law currently requires that all motorcyclists wear a helmet while they are riding. Do you agree that motorcyclists should be required to wear helmets?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused
23. Would you classify yourself as a motorcyclist?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... Refused
24. In 1963, the federal government began requiring that all new cars be equipped with safety belts. Now, even though almost all cars have belts, few people use them. Do you feel that the Virginia General Assembly should pass a law requiring the use of safety belts?
- 1..... Yes
  - 2..... No
  - 3..... Undecided
  - 4..... No opinion
  - 5..... Refused

25. In light of the fact that safety belts often go unused, scientists have developed airbags and automatic safety belts which work automatically without the driver or passengers having to "buckle up". Do you feel that the government should require auto manufacturers to equip all cars with airbags or automatic safety belts?

1..... Yes  
 2..... No  
 3..... Undecided  
 4..... No opinion  
 5..... Refused

26. Would you be willing to have airbags or automatic seat belts installed in your next car, if they cost around \$200?

1..... Yes  
 2..... No  
 3..... Undecided  
 4..... No opinion  
 5..... Refused

27. The Virginia Department of Highways and Transportation is responsible for improving Virginia's highways, including removing roadside obstacles, improving pavement markings, widening narrow bridges and so forth. Do you feel that adequate progress has been made in making Virginia's highways safer?

1..... Yes  
 2..... No  
 3..... Undecided  
 4..... No opinion  
 5..... Refused

28. Is there anything about the highway that you feel should receive more attention?

1..... Widening narrow roads  
 2..... Improving pavement quality (including potholes)  
 3..... Removing roadside obstacles  
 4..... Improving pavement markings  
 5..... Improving structures such as bridges and tunnels.  
 6..... Improving bad signing and traffic control  
 7..... Other (Specify on coding form)  
 8..... Nothing needs improvement  
 9..... Work zone problems  
 +..... General improvement

29. Although much time and effort has gone into improving railroad grade crossings, accidents at railroad crossings remain a serious problem. Why do you think accidents occur at railroad crossings?

- 1..... Inadequate traffic control (including signs, lights, gates)
- 2..... Dangerous roadway characteristics at crossings (poor visibility, bumpy road and track connections, too steep a grade, etc.)
- 3..... Dangerous practices on the part of the motorist
- 4..... Dangerous practices on the part of railroad personnel
- 5..... Other (Specify on coding form)
- 6..... Don't know (Probe before accepting this answer)
- 7..... No opinion
- 8..... Refused
- 9..... Trains infrequent, motorists don't expect them

30. It has been observed that some motorists do not stop at railroad grade crossings and cross in front of oncoming trains. Why do you feel that motorist do not stop at railroad crossings?

- 1..... Motorist uninformed concerning signs and laws
- 2..... Motorist too daring
- 3..... Motorists nonattentive
- 4..... Signs not visible enough
- 5..... Signs not effective enough (need more gate installations)
- 6..... Suicide
- 7..... Other (Specify on coding form)
- 8..... Don't know/undecided
- 9..... No opinion
- 10..... Refused
- 11..... Motorists in a hurry
- 12..... Trains infrequent

31. Each year thousands of dollars are lost due to vandalism of railway property by juveniles. Which of the following do you feel would be effective in reducing railroad vandalism? Do you feel that (READ OPTIONS) would be effective?

1	2	3	
Effective	Not Effective	Don't know/ No Opinion	
_____	_____	_____	31. Programs put on in schools
_____	_____	_____	32. Public service ads on TV, radio and in newspapers
_____	_____	_____	33. Information posted or given out at the Division of Motor Vehicles
_____	_____	_____	34. Additional fencing of the railroad right-of-way and property

35. Have you been involved in an automobile accident within the last year?
- 1..... Yes
  - 2..... No (Skip to question 37)
  - 3..... Don't know
  - 4..... Refused
36. Did the accident involve injury or property damage in excess of \$250.00?
- 1..... Yes
  - 2..... No
  - 3..... Don't know
  - 4..... Refused
37. How much control do you feel you have over whether you are involved in an automobile accident? Would you say it was . . . (READ OPTIONS)
- 1..... A great deal of control
  - 2..... Some control
  - 3..... A little control
  - 4..... No control
38. In which category does your age fall? Is it (READ OPTIONS)
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1..... 16-21</li> <li>4..... 22-24</li> <li>5..... 25-34</li> <li>6..... 35-49</li> <li>7..... 50 or over</li> <li>8..... Refused</li> </ol> | PROBE: 1 = 16-17<br>2 = 18<br>3 = 19-21 |
|---|---|
39. Did you take the in-class portion of a driver education course in school?
- 1..... Yes
  - 2..... No
  - 3..... Don't remember
  - 4..... Refused
40. Did you take the "behind the wheel" portion of driver's education in school?
- 1..... Yes
  - 2..... No
  - 3..... Don't remember
  - 4..... Refused

This survey has been sponsored by the Virginia Department of Transportation Safety. Thank you for your time and cooperation.

Sex

\_\_\_\_\_ Male

\_\_\_\_\_ Female

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## APPENDIX B

## VIRGINIA TELEPHONE DIRECTORIES AND RELATED INFORMATION

SAMPLE APPORTIONMENT

<u>Name and Book Number</u>	<u>Number of Pages</u>	<u>Names Per Page</u>	<u>Total Number of Names</u>	<u>Number of Subjects In the Sample</u>
1. Abingdon	74	152	11248	10
2. Cape Charles	112	174	19488	18
3. Altavista	17	152	2584	3
4. Amelia Court House	15	150	2250	3
5. Amherst	46	150	6900	6
6. Beaverdam	12	152	1824	2
7. Bedford	46	174	8004	7
8. Blackstone	58	152	8816	8
9. Bluefield	177	63	11151	10
10. Bowling Green	167	274	45758	42
11. Bristol	96	107	10272	9
12. Brookneal	27	152	4104	4
13. Buchanan	8	174	1392	2
14. Burkes Garden	---	---	81	0
15. Chancellor	---	---	---	---
16. Charlottesville	175	273	47775	44
17. Chase City	60	150	9000	8
18. Clifton Forge	43	280	12040	11
19. Clinchco	15	174	2610	2
20. Clinchport	49	148	7252	7
21. Culpeper	139	174	24186	22
22. Danville	84	530	44520	41
23. Deerfield	---	---	265	1
24. Emporia	69	145	10005	9
25. Farmville	57	152	8664	8

<u>3110</u> Name and Book Number	<u>Number of Pages</u>	<u>Names on Page</u>	<u>Number of Names of Names</u>	<u>Number of Names In the Sample</u>
26. Floyd	27	149	4023	4
27. Franklin	61	151	9211	8
28. Fredericksburg	138	172	23736	22
29. Front Royal	49	150	7350	7
30. Galax	105	152	15960	15
31. -----	---	---	---	---
32. Giles County	37	174	6438	6
33. Gretna	32	152	4864	4
34. Harrisonburg	98	283	27734	26
35. -----	---	---	---	---
36. Lee County	31	174	5394	5
37. Lexington	79	197	15563	14
38. Warrenton	138	172	23736	22
39. Lovingston	20	174	3480	3
40. Luray	39	152	5928	5
41. Lynchburg	106	530	56180	52
42. Marion	74	152	11248	10
43. Martinsville	103	265	27295	25
44. McDowell	23	65	1495	1
45. -----	---	---	---	---
46. Blacksburg	201	174	34974	32
47. Mt. Solon	21	151	3171	3
48. Newcastle	12	147	1764	2
49. Northern Virginia	780	552	430560	396
50. Appalachia	93	174	16182	15
51. Peninsula	238	530	126140	116
52. Petersburg	175	530	92750	85
53. Princess Anne	---	---	---	--

	<u>Number of Pages</u>	<u>Names Per Page</u>	<u>Total Number of Names</u>	<u>Number of Subjects In The Sample</u>		
54. Prince William	230	276	63480	58	<b>3111</b>	
55. Raphine	8	146	1168	1		
56. Richmond	570	530	302100	278		
57. Roanoke	246	530	130380	120		
58. Rocky Mount	63	143	9009	8		
59. Russell	35	174	6090	6		
60. Shenandoah	86	152	13072	12		
61. Smithfield	69	141	9729	9		
62. South Boston	37	542	20054	18		
63. South Hill	37	152	5624	5		
64. Staunton	121	174	21054	19		
65. Suffolk	83	174	14442	13		
66. Troutville	14	300	4200	4		
67. Norfolk	589	530	312170	287		
68. Waverly	---	---	---	---		
69. Waynesboro	43	277	11911	11		
70. Williamsburg	81	174	14094	13		
71. Winchester	127	174	22098	20		
72. Wytheville	68	152	10336	10		
73. West Point	10	162	1620	1		
74. Pulaski	54	174	9396	9		
			<u>2,237,392</u>	<u>2,056</u>		
		GRAND TOTAL				



## APPENDIX C

## SAMPLE SIZE DETERMINATION

Alpha Level = .01 (2.58) Beta Level = .80 (1.29)  
 Maximum Standard Deviation = 1.66\*  
 Maximum Allowable Sampling Error = .1  
 Minimum Detectable Difference = .2  
 (Two Tailed Test)

---

Sample Size for Estimation Only:

$$N = \left( \frac{Z_{1-\alpha} \text{ Sd}}{E} \right)^2$$

$$N = \left( \frac{2.58 (1.66)}{.1} \right)^2$$

$$N = 1835$$

Sample Size for Significance Testing:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2 (Sd_1^2 + Sd_2^2)}{(\bar{X}_1 - \bar{X}_2)^2}$$

$$N = \frac{(2.58 + 1.29)^2 (2.75 + 2.75)}{(.2)^2}$$

$$N = 2056$$

\*Largest standard deviation (on a five-point scale) during previous surveys.

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APPENDIX D

SAMPLE OUTPUT FROM THE RANDOM SELECTION PROGRAM

INTERVIEW NO.  INTERVIEWER NO.  TELEPHONE NO.  BOOK NO.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

SEX: M F

INTERVIEW NO.  INTERVIEWER NO.  TELEPHONE NO.  BOOK NO.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

SEX: M F

INTERVIEW NO.  INTERVIEWER NO.  TELEPHONE NO.  BOOK NO.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

SEX: M F



## APPENDIX E

SAMPLE OUTPUT OF THE  
RANDOM NUMBER GENERATION  
PROGRAM

BOOK NUMBER 3: ALTAVISTA (AREA CODE 804) 3 INTERVIEWS

PLEASE BEGIN CALLING THE NUMBER AT THE TOP OF THE PAGE  
AND WORK DOWN, INDICATING THE OUTCOME OF EACH CALL.  
REMEMBER: DIAL 8, THE AREA CODE, AND THE NUMBER. RECORD UNDER  
INTERVIEW COMPLETED THE SEX OF THE RESPONDENT (M OR F). FOR  
THOSE NUMBERS WHICH WILL BE TRIED AGAIN (BUSY OR DON'T ANSWER)  
INDICATE ON WHICH SHIFT THE LAST CALL WAS MADE (D OR N).  
FOR THOSE NUMBERS WHERE RESPONDENTS HAVE REQUESTED THAT THEY  
BE CALLED BACK AT A SPECIFIC TIME, RECORD THAT TIME AND CALL  
IT TO THE ATTENTION OF THE SUPERVISOR.

NUMBER	O U T C O M E					
	BUSY	DON'T ANSWER	BUSINESS	NOT IN SERVICE	REFUSED	COMPLETED
369-9536						
369-5770						
369-3622						
369-5059						
369-3844						
369-8809						
369-0747						
369-9165						
369-5068						



## APPENDIX F

## DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Table F-1

## LICENSING STATUS OF RESPONDENTS

<u>Response</u>	<u>Percentage</u>
Licensed Driver	90.6
Not Licensed Driver	9.4

TABLE F-2

## YEARS OF DRIVING EXPERIENCE

<u>Response</u>	<u>Percentage</u>
Less Than 1 Year	1.9
1-2 Years	3.9
3-4 Years	4.5
5-9 Years	14.4
10-14 Years	13.5
15-19 Years	12.5
Over 19 Years	39.8
Does Not Drive	9.5

TABLE F-3

## AGE

<u>Response</u>	<u>Percentage</u>
16-17 Years	3.7
18 Years	2.0
19-21 Years	5.2
22-24 Years	8.1
25-34 Years	27.7
35-49 Years	24.6
50 or More Years	28.6
Refused/Not Stated	0.1

TABLE F-4  
DRIVER EDUCATION STATUS

<u>Response</u>	<u>Percentag</u>
Had taken the "In-Class" portion of drivers education	41.0
Had not taken the "In-Class" portion of drivers education	58.2
Had taken the "Behind The-Wheel" portion of drivers education	37.9
Had not taken the "Behind The-Wheel" portion of drivers education	61.3