Strategies to Educate and Increase Occupant Protection Usage Among Rural Drivers and Passengers

Lauren M. Marchetti
William L. Hall
William W. Hunter
J. Richard Stewart

University of North Carolina
Highway Safety Research Center

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EXECUTIVE SUMMARY

This demonstration project examined the effects of strategies to increase seat belt use in a rural area. The project was conducted in Bertie County, North Carolina by the University of North Carolina Highway Safety Research Center (HSRC) in cooperation with the North Carolina Governor's Highway Safety Program (GHSP).

A community seat belt program was headed by a broad-based coalition of county leaders including the public health and medical community, emergency medical services, law enforcement, local media, and major employers in the county. The program was divided into three core components: a school-based program, a program conducted through the workplace, and a general community campaign. Strategies included the use of incentives in combination with seat belt checking stations; public service advertising and promotions with local media; displays, presentations, and events; and frequent feedback to the community on belt use rates. Monthly observational seat belt data were collected.

The findings of this study indicate that a community-based educational program can increase belt use among rural drivers:

- During the seat belt program, belt use in Bertie County rose from 33 percent to 51 percent. The usage rate in the comparison site was largely unchanged with overall usage in the low 30 percent range throughout the program.
- Increases were seen at all data collection sites - at the high school, the industries, the remote crossroads, and the main towns.
- Increases occurred for both men and women, whites and non-whites, and drivers of cars and pickup trucks.

A companion project, funded by the GHSP and discussed in this report, surveyed program-area residents along with residents in a comparison high-belt-use rural area at the beginning and end of the program. Seat belt attitudinal surveys were implemented in Bertie County (the seat belt program site), Hertford and Northampton Counties (the comparison sites) and Moore County (high belt use rural area) at the high schools and at driver license stations during the summer of 1990 and again in 1991. The first survey responses were used to construct the Bertie seat belt program. The second survey responses were used to measure changes in responses that might be associated with increased belt use among rural residents.

Analyses of survey responses indicated that, in general, belt knowledge was good at all sites. The high-belt-use population was more likely to indicate that they buckle up out of habit, while low-belt-use area residents were more likely to cite the possibility of getting a ticket as the reason for using restraints. High school students and pickup truck drivers in the low-belt-use areas were the groups whose responses were most resistant to seat belts. Belt knowledge and attitudes improved slightly at all sites by the second survey wave, with the program site realizing the most improvement.

I. INTRODUCTION

This report documents a demonstration project to evaluate the effectiveness of strategies to increase safety belt use among rural motorists. The project was conducted by the UNC Highway Safety Research Center (HSRC) in cooperation with the North Carolina Governor's Highway Safety Program (GHSP). The primary goal was to identify strategies and countermeasures that increase belt wearing among rural residents that can be replicated in other communities. Tasks undertaken to achieve this goal were: 1) investigate why belt use is lower in a rural site in North Carolina; 2) identify strategies to increase safety belt and child restraint use, 3) develop and implement a comprehensive community educational/promotional program in which educational activities are channeled through existing community agencies and networks, and 4) evaluate the results. The program was conducted in Bertie County, a rural area in northeastern North Carolina. Two neighboring rural counties served as comparison sites.

BACKGROUND ON RURAL BELT USE

National Fatal Accident Reporting System data show that 58% of fatalities occur on rural roads (National Highway Traffic Safety Administration, 1988). Rural road characteristics, such as narrow lane widths or unsafe shoulders, create a more hazardous driving environment. Travel speeds are higher on these lower volume roads, and response time for emergency medical services is greater in areas where larger territories are served from one location. The National Highway Traffic Safety Administration (NHTSA) has identified rural populations as a high risk target group because of their over representation in serious and fatal crashes and their low safety belt use.

Rural North Carolina drivers consistently have registered significantly lower belt use than their more urban counterparts in observational surveys conducted by the UNC Highway Safety Research Center at 72 sites across North Carolina. In particular, drivers of pickup trucks (a more common vehicle in rural areas) have consistently had usage rates about 20 percentage points lower than for passenger cars (Reinfurt, et al.,1987; Reinfurt, et al., 1988; Reinfurt, et al., 1990). These low usage figures combined with more hazardous environmental conditions cause rural North Carolina drivers to be one of the groups most at risk of injury or death in crashes.

Belt effectiveness in reducing deaths is in the range of 40 to 50 percent, and research indicates that with full compliance, belts are capable of producing a much greater casualty reduction than what is currently being observed (Hedlund, 1985). Clearly, from the standpoint of risk of injury in automobile crashes and low usage rates, rural areas can benefit substantially from programs that are effective in increasing belt use.

PROJECT DESCRIPTION

The concept of this project was to implement promising strategies for increasing belt use through existing community organizations and networks. The project included:

1) identification of a low belt use rural area;
2) identification of community-based support for conducting a program, including law enforcement, the emergency medical and health community, schools, industry and media;
3) development and implementation of a public information and education program; and
4) evaluation of the effectiveness of the program on increasing belt use.

Bertie County, in northeastern North Carolina, was selected as the experimental site for this program. Bertie is one of the largest counties in North Carolina, covering 721 square miles but with a total population of only 21,357. Data collected by HSRC indicated that countywide seat belt usage rates for drivers prior to program were about 32 percent.

An eight month program was implemented from November 1990 through June, 1991. To measure program effects, belt use data were collected in Bertie County and in two comparison counties beginning the July prior to the program startup and continuing for three months after the program's completion.

County leaders representing the health department, the high school, the rural health center, the police and sheriff departments, and emergency medical services formed the Bertie Committee for Seat Belt Safety. As in many rural areas, Bertie County had few resources from which to draw financial support for this program. Because of the large area this community program was to reach, the variety of agencies that were to conduct components of the program, and the low economic status of the area, a community grant was critical to constructing a program that could be evaluated as a potential model for other rural areas. The GHSP awarded the Bertie Committee a community grant of $20,000 for the purchase of printed materials and promotional/incentive items for the program. The Bertie County Health Department applied for a companion grant from the Injury Control Section of the NC Department of Environment, Health and Natural Resources to conduct programs targeted for the employees at major worksites in the county. A $7,000 grant was awarded.

The program was divided into three core components: a school-based program, a program conducted through the workplace, and a general community campaign. Strategies employed included the use of incentives in combination with seat belt checking stations, public service advertising and promotions with the local newspaper and radio station, displays, presentations, events, and frequent reporting of belt use rates. Monthly observational seat belt data were collected by the Search

Team of the Bertie County Rescue Squad. Key to the community effort was the involvement of law enforcement agencies, including the police, sheriff's department and highway patrol. The police and sheriff's departments decided not to use traditional enforcement strategies, but to rely on positive interactions such as education and seat belt checking stations. The highway patrol continued its normal enforcement efforts which did include citations. Although non-enforcement strategies were the main thrust of police involvement, the law and its potential enforcement is always a background component. (It should be noted that North Carolina is one of only eight states with seat belt laws that include primary enforcement, meaning that failure to buckle up can trigger the enforcement stop. Most state laws require that a motorist be stopped for another offense before a seat belt violation can be cited.)

II. SITE SELECTION

CRITERIA

The site for the program was to be a rural community or region. The size of the area was to be determined based on the extent of the area that maintains a sense of community. For this project it was felt that an area that shared the same school system, major employers, and media outlets, and that had a spirit of community could be defined as a community or region.

The site selection process was accomplished through a multi-level screening process. The initial list of candidate sites was determined using existing data and by consulting with resource organizations. The belt use data routinely collected by HSRC at 72 sites across North Carolina was examined to develop some candidate rural regions -- regions with belt use rates below the state average and therefore with potential to show improvement.

Through other projects, HSRC had documentation of previous local law enforcement activities in statewide child passenger safety and seat belt promotions, and this information was also used. Another important consideration was the presence of media elements. Having a local newspaper and radio station was considered highly desirable. This information was matched with the location of the most receptive rural health centers, high school systems, police departments, and other community resources. The NC Department of Human Resources Office of Health Resources Development and the NC High School Athletic Association were two resource organizations that provided names of candidate sites.

Once the initial list of candidate sites was formed, belt use data were collected through observational surveys for each county. The sampling included the local high school(s), major industrial sites, and various locations within the community and the surrounding area.

Next an interview protocol was developed to use in telephone conversations with prospective participants to determine level of interest. The potential participants included chiefs of police, sheriffs, directors of rural health centers, high school principals and athletic directors, major employers, town managers, directors of service clubs, local fire fighters or rescue squad personnel, and others. Through this contact an assessment was made of their willingness to become involved in a major program. Once the list was narrowed to two or three sites, the final selection was made based on visits to the areas and meetings with potential key participants.

SELECTION OF CANDIDATE SITES

The primary candidate sites for the community program were the Ahoskie area (Hertford County), Northampton, Halifax, Gates, Duplin and Bertie counties, all in eastern North Carolina. Data collectors were sent to each of these areas to collect

more extensive belt usage at various sites such as in towns, at rural crossroads, and at entrances and exits to major businesses, industries and high schools. Demographic information and potential community resources were also included in the area audits. All of these sites were very rural in nature and had belt use rates significantly below the state average of around 60 percent.

Telephone interviews were conducted with agencies in the potential program sites of Gates, Northampton, Bertie, Halifax, and Hertford Counties. Interviews were not conducted in Duplin County, included on the original list of candidate sites, because usage rates turned out to be considerably higher (around 50 percent) in Duplin county as compared to the other potential sites (around 30 percent). Through these surveys, Hertford and Bertie Counties were identified as the two sites with the most appropriate mix of support for this project and visits were made to those sites.

SELECTION OF BERTIE COUNTY

The level of enthusiasm and commitment shown from many groups and organizations in the county made Bertie the first choice for the conduct of the program. Representatives from the county at the site visit included the sheriff; the police chief from Windsor (the largest community); the high school principal and several of his staff; the director of emergency medical services; and the county health director. The high school principal volunteered the services of himself and his staff to head a community coalition.

The comparison site chosen was a combination of regions of Northampton County and Hertford Counties. The combination was chosen instead of one of the counties for two reasons: 1) the area was very similar in demographics and belt usage rate to the program site, yet was separated from exposure to the program efforts, and 2) the combination area provided a better match of industry sites and rural crossroad communities than did either county by itself. Figure 1 shows both the program and comparison site locations.

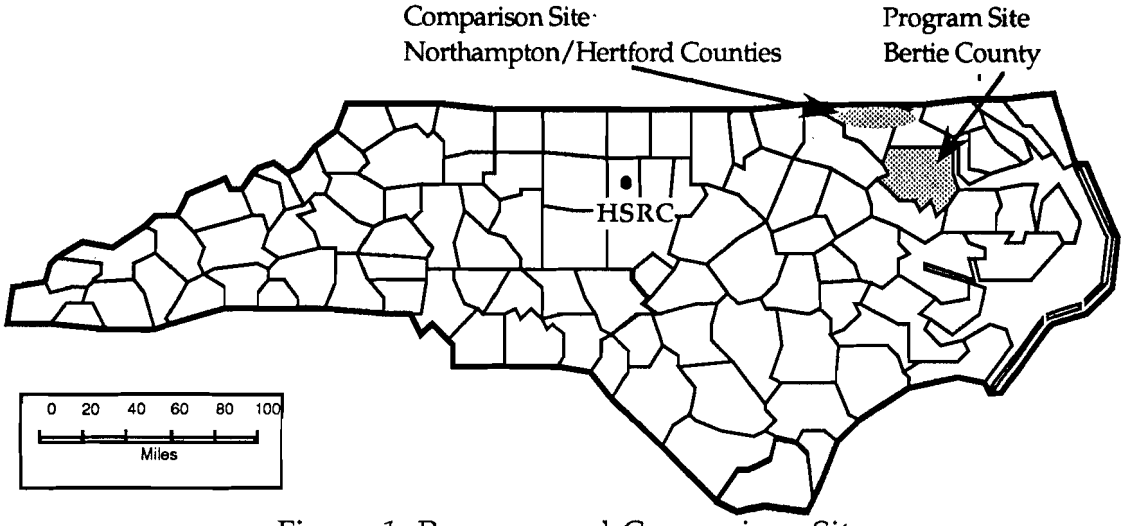


Figure 1. Program and Comparison Sites.

II. NEEDS ASSESSMENT

From the outset of planning for this project, the assumption was made that some type of needs assessment would need to be conducted to identify those factors in the target population and the community that contribute to the use or non-use of seat belts. The assessment that was conducted included gathering information about Bertie County residents' knowledge, attitudes and behaviors regarding buckling up. Behavioral information was gained through the collection of baseline observational seat belt data. Knowledge and attitude information was gathered through the use of surveys administered to the target population and comparison groups. These surveys were conducted through a separate project funded by the NC GHSP and the data were donated to this project for analysis. The assessment included the identification of resources in Bertie County, and in the state, that could contribute to the effectiveness of a seat belt program. This involved finding the right local leaders to conduct the core programs and the groups and individuals to play key support roles.

OBSERVATIONAL SEAT BELT USE

In order to understand what groups of drivers were the least likely to buckle up, and therefore in most need of having strategies targeted specifically toward them, observational belt use data were collected as part of the needs assessment of Bertie County. Ten sites were selected as representative of the county for data collection and these sites were used throughout the project as data collection locations. The high school was added as an eleventh site in the fall when students returned to class. Two of the sites (King and Granville Streets and Sterlingworth and Watson Streets) were intersections in downtown Windsor. Three sites represented major industry in the county (Wrangler Manufacturing, Perdue Poultry, and Colburn Lumber). Two sites were in small communities (Lewiston-Woodville and Aulander) and the remaining three were at rural crossroads (Trap, Merry Hill, and Whites Crossing).

Table 1 shows the initial belt use data recorded for 1,217 drivers at these sites in July, 1990. Overall belt use was about 33 percent. The usage rate observed in North Carolina as a whole, at 72 sites across the state as part of a separate study, was about 60 percent. In other words, Bertie County drivers were using belts at only about half the rate of the rest of the state. When examined by vehicle type, the data indicated that drivers of cars in Bertie County were buckled up more often than drivers of pickup trucks (37 versus 23 percent respectively). Black males posted the lowest numbers with 28 percent buckling up as drivers of cars and only 8 percent as drivers of pickup trucks. Highest wearing rates were observed for both black and white females in cars, who were buckling up in the 40 percent range. However, black females exhibited this level of use in pickup trucks, while belt use for white females in pickup trucks dropped to 25 percent. The lowest belt use, recorded at one of the most rural sites (White's Crossing), showed only 18 percent of all drivers belted and no males or drivers of pickup trucks buckled up.

This data supported the belief by the HSRC staff and local program leaders that Bertie County could benefit greatly from a seat belt program, and that the program needed to target pickup truck drivers and the remote rural areas if any significant overall increase in belt wearing was to occur.

Table 1. Percent of Drivers Wearing Seat Belts in Bertie County by Vehicle Type, Race, Sex and Location in July , 1990

Site	Car					Pickup Trucks					All
	WM*	WF	BM	BF	ALL	WM	WF	BM	BF	ALL	
King/Granville	37	35	32	59	40	27	20	13	67	26	36
Sterlingworth	43	56	33	22	38	29	0	0	67	22	34
Colburn Lumber	46	0	29	25	30	17		9		14	24
Wrangler	50	51	11	50	48	31	43	0	67	37	46
Lewiston-Woodville	24	50	27	31	33	42	50	0	50	25	30
Perdue	32	36	23	48	37	30	0	21	25	24	34
Aulander	29	48	15	7	28	21	33	10	0	18	25
Trap	22	44	36	27	32	17		0	0	10	24
Merry Hill	0	75	50	0	40	43	0	20		31	35
Whites Crossing	0	50	0	40	30	0	0	0		0	18
TOTAL PERCENT	**34**	**46**	**28**	**40**	**37**	**27**	**25**	**8**	**46**	**23**	**33**

*WM = White Male
WF = White Female
BM = Black Male
BF = Black Female

RURAL SEAT BELT ATTITUDINAL SURVEYS

As a means of understanding the attitudes and beliefs behind the decisions of rural motorists to buckle up or not, a separate GHSP project funded a series of two seat belt attitudinal surveys for administration to the general public and to the specific target group of young drivers. High school students were singled out because they constitute an age group that is overrepresented in crashes and fatal and serious injuries (Stutts, 1990), and they were to be the focus of one of the core components of the community program.

The surveys served both as an independent look at rural residents' attitudes and demographics and as a means of evaluating pre- and post-program responses to determine changes as a result of the program. (Follow-up surveys were conducted during the summer of 1991 after the program was completed.)

Two similar surveys were designed: one was aimed at canvassing the general public and was administered to applicants at driver licensing stations; the other survey was designed for high school students and was administered at the high schools by teachers. The surveys asked questions about current belt use, attitudes and knowledge about belts and NC's belt laws, and who would most likely influence their belt-wearing behavior.

The surveys were administered in the four counties shown in Figure 2: Bertie County, the experimental site for the program; Hertford and Northampton Counties, the comparison sites; and Moore County, a rural county with high belt use. The Bertie County data was used for construction of the demonstration program, and as a "before" measure that could be compared to survey responses taken after completion of the program. The Hertford/Northampton Counties data

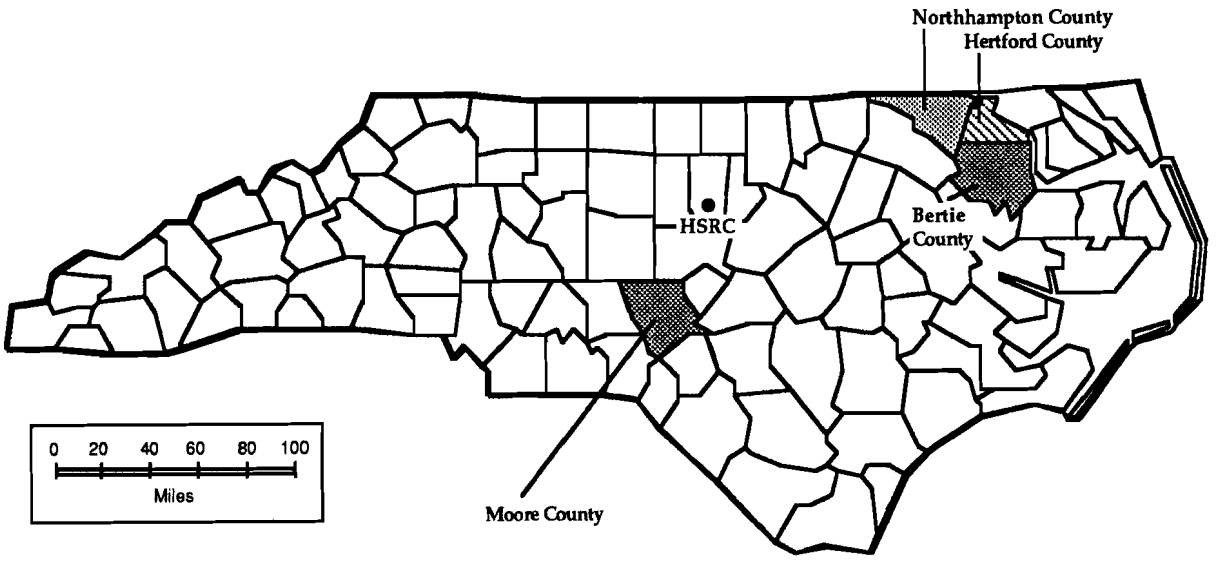


Figure 2. Driver License Station and High School Survey Counties

served as additional data about residents in low-belt-use rural areas, and as a comparison site against which to evaluate changes observed in the Bertie site. The data from Moore County enabled the project to examine any variation in responses that might explain the higher belt use.

High School Surveys

The high school survey, shown as Figure 3, was pilot-tested at Bertie High School with a group of students selected as representative of the student body by the principal. After the high school students filled out the questionnaires, they participated in a focus group discussion about the survey form and general seat belt issues. The survey instrument was also reviewed by the committee of community leaders.

After refinements, the survey was administered to tenth and eleventh graders at Bertie County High School in May, 1990. It was important to get the survey into Bertie High School prior to the end of the spring term, because the information about high school students was needed for the county campaign to be developed during the summer. In September, 1990, the same survey was given to the eleventh and twelfth graders at Hertford County High School and at Union Pines High School located in Moore County. By administering the survey to sophomores and juniors in the spring and to juniors and seniors in the fall, the same age group was surveyed in all three areas.

Driver License Station Surveys

A survey similar to the high school instrument was developed for use at driver license stations (Figure 4). This survey included family questions such as *What vehicle is driven when your whole family goes somewhere?* and *How many people are in your family?* The high school survey asked *What are your plans after high school,* whereas the driver license survey asked respondents to *circle the last grade completed in school.*

Through the generous assistance of the NC Division of Motor Vehicles Driver License Section, driver license examiners in Bertie, Hertford, Northampton and Moore Counties were trained to administer the survey to driver license applicants after they had completed the licensing process and were waiting for their photographs to be developed. The reason for giving the survey at that point was so that the applicants would not be anxious about getting their licenses or think that their survey responses would bear on whether or not they got their licenses. The data were collected for a period of one month in Hertford/Northampton and Moore Counties. Because of the low number of driver applicants in Bertie County, the data were collected for two months at that site in order to get comparable volume.

Many Bertie County residents actually lived or worked closer to the Hertford County driver license station than the one in Bertie County, and this was taken into

The University of North Carolina Highway Safety Research Center requests your help in finding out information about how people feel about seat belts. Your participation is voluntary. We do not need to know who you are, just how you really feel or think. Thank you for your help.
If you have any questions, call 800 672-4527 (toll free in NC) between 8 am and 5 pm Mondays - Fridays.

1. Out of the last 5 times you drove or rode with someone else, how many times did you buckle up?

Circle your answer: 0 1 2 3 4 5

2. When you wear a seat belt, what is the most important reason? You may check two.

- ☐ Because it's the law
- ☐ To avoid the $25 fine
- ☐ To be safe in an accident
- ☐ Because friends/family want me to
- ☐ It's a habit, I don't think about it
- ☐ My own experience in an accident
- ☐ Someone else's accident experience
- ☐ Other _____

☐ *Check here if you never wear a seat belt.*

3. When you do not wear a seat belt, what is the most important reason? You may check two.

- ☐ Belts do more harm than good
- ☐ Riding in car or truck that has no belts
- ☐ Belts are uncomfortable
- ☐ Belts can trap you in the car
- ☐ Riding in the back seat
- ☐ Not going very far
- ☐ In a hurry
- ☐ I forget, I'm not in the habit
- ☐ Other _____

☐ *Check here if you always wear a seat belt.*

4. Out of the last 5 times you drove with children under age 6 in the car, how many times did you make them buckle up?

Circle your answer: 0 1 2 3 4 5

☐ *Check here if you never drive with children under age 6 in the car.*

5. Out of the last 5 times you drove with your friends in the car, how many times did you make them buckle up?

Circle your answer: 0 1 2 3 4 5

☐ *Check here if you never drive with your friends in the car.*

6. Who would most likely influence you to wear your seat belt? You may check two.

- ☐ Police officer
- ☐ Race car driver
- ☐ Doctor/Nurse
- ☐ Rescue squad member
- ☐ TV/radio personality
- ☐ Teacher you respect
- ☐ Accident survivor/family member of victim
- ☐ Local minister/other religious leader
- ☐ Other _____

7. What vehicle do you drive most of the time?

Year: ____ Type: ☐ Car ☐ Station Wagon ☐ Jeep, Bronco, etc. ☐ Van ☐ Pickup truck ☐ Other _____

8. Check the answer that describes how you feel:

Agree	Disagree	
☐	☐	Seat belts can keep you from getting hurt in a car wreck.
☐	☐	In an accident, it's better to be thrown clear of the car.
☐	☐	Belts are not needed in the back seat.
☐	☐	Belts will trap you in a burning car.
☐	☐	Seat belts are a hassle to use.
☐	☐	Adults can protect children in a wreck by holding them in their arms.
☐	☐	Belts hurt you more than help you.
☐	☐	Belts are needed most on long trips.
☐	☐	Where I live, if you don't buckle up children, you are likely to get a ticket.
☐	☐	The law for children should be kept.
☐	☐	Where I live, if adults ride without a belt on, they are likely to get a ticket.
☐	☐	The law for adults should be kept.

9. Check whether the following statements about the NC Child Passenger Law are true or false:

True	False	
☐	☐	Children under age 6 must be buckled up when riding in the front or back seat.
☐	☐	Children under age 3 must ride in safety seats; older children can use seat belts.
☐	☐	Children have to be buckled up only when their parents are driving.

10. Check whether the following statements about the NC Seat Belt Law are true or false:

True	False	
☐	☐	Only the driver and passengers in the front seat have to wear seat belts.
☐	☐	Pickup trucks are exempt.
☐	☐	Police can stop you if they see you without your seat belt, even if you aren't breaking any other traffic law.

11. Your age: ___ **12. Sex:** ☐Male ☐Female

13. Your race or ethnic origin: _____

14. Circle your current grade: 9 10 11 12

15. What are your plans after high school:

☐ 4-year college ☐ Junior or community college ☐ Military ☐ Go to work ☐ Other _____

Thank you !

Figure 3. High School Seat Belt Survey Instrument.

The University of North Carolina Highway Safety Research Center requests your help in finding out information about how people feel about seat belts. Your participation is voluntary. We do not need to know who you are, just how you really feel or think. Thank you for your help.
If you have any questions, call 800 672-4527 (toll free in NC) between 8 am and 5 pm Mondays - Fridays.

1. **County where you live:** _____
   County where you work: _____

2. **Out of the last 5 times you drove or rode with someone else, how many times did you buckle up?**
   Circle your answer: 0 1 2 3 4 5

3. **When you wear a seat belt, what is the most important reason? You may check two.**

   ☐ Because it's the law
   ☐ To avoid the $25 fine
   ☐ To be safe in an accident
   ☐ Because friends/family want me to
   ☐ It's a habit, I don't think about it
   ☐ My own experience in an accident
   ☐ Someone else's accident experience
   ☐ Other _____

   ☐ *Check here if you never wear a seat belt.*

4. **When you do not wear a seat belt, what is the most important reason? You may check two.**

   ☐ Belts do more harm than good
   ☐ Riding in car or truck that has no belts
   ☐ Belts are uncomfortable
   ☐ Belts can trap you in the car
   ☐ Riding in the back seat
   ☐ Not going very far
   ☐ In a hurry
   ☐ I forget, I'm not in the habit
   ☐ Other _____

   ☐ *Check here if you always wear a seat belt.*

5. **Out of the last 5 times you drove with children under age 6 in the car, how many times did you make them buckle up?**

   Circle your answer: 0 1 2 3 4 5

   ☐ *Check here if you never drive with children under age 6 in the car.*

6. **Out of the last 5 times you drove with someone age 6 to 15 in the car, how many times did you make them buckle up?**

   Circle your answer: 0 1 2 3 4 5

   ☐ *Check here if you never drive with anyone age 6 to 15 in the car.*

7. **Who would most likely influence you to wear your seat belt? You may check two.**

   ☐ Police officer
   ☐ Race car driver
   ☐ Doctor/Nurse
   ☐ Rescue squad member
   ☐ TV/radio personality
   ☐ Teacher you respect
   ☐ Accident survivor/family member of victim
   ☐ Local minister/other religious leader
   ☐ Other _____

8. **What vehicle do you drive most of the time?**
   Year: ____ Type: ☐ Car ☐ Station Wagon
   ☐ Jeep, Bronco, etc. ☐ Van ☐ Pickup truck
   ☐ Other _____

9. **What vehicle is driven when your whole family goes somewhere ?**
   ☐ *Check here if same vehicle as Question 8.*
   Year: ____ Type: ☐ Car ☐ Station Wagon
   ☐ Jeep, Bronco, etc. ☐ Van ☐ Pickup truck
   ☐ Other _____

10. **How many people are in your family?**
    _____ Adults _____ Children under 16

11. **Check the answer that describes how you feel:**

Agree	Disagree	
☐	☐	Seat belts can keep you from getting hurt in a car wreck.
☐	☐	In an accident, it's better to be thrown clear of the car.
☐	☐	Belts are not needed in the back seat.
☐	☐	Belts will trap you in a burning car.
☐	☐	Seat belts are a hassle to use.
☐	☐	Adults can protect children in a wreck by holding them in their arms.
☐	☐	Belts hurt you more than help you.
☐	☐	Belts are needed most on long trips.
☐	☐	Where I live, if you don't buckle up children, you are likely to get a ticket.
☐	☐	The law for children should be kept.
☐	☐	Where I live, if adults ride without a belt on, they are likely to get a ticket.
☐	☐	The law for adults should be kept.

12. **Check whether the following statements about the NC Child Passenger Law are true or false:**

True	False	
☐	☐	Children under age 3 must ride in safety seats; older children can use seat belts.
☐	☐	Children have to be buckled up only when their parents are driving.

13. **Check whether the following statements about the NC Seat Belt Law are true or false:**

True	False	
☐	☐	Pickup trucks are exempt.
☐	☐	Police can stop you if they see you without your seat belt, even if you aren't breaking any other traffic law.

14. **Your age:** _____ 15. **Sex:** ☐ Male ☐ Female

16. **Your race or ethnic origin:** _____

17. **Circle last grade completed in school:**
    1 2 3 4 5 6 7 8 9 10 11 12
    13 14 15 16 16+

18. **Your occupation:** _____

Thank you !

Figure 4. Driver License Seat Belt Survey Instrument.

account in the design of the survey. Question #1 asked for *county where you live* and *county where you work,* and if Bertie County appeared as the answer to either, the responses were counted in the Bertie County group. The rationale behind this was that anyone who either works or lives in Bertie County has a good likelihood of being exposed to the program and should be in the experimental group and not the comparison group.

The driver license examiners were asked to tally the number of licenses and ID cards issued and the number of surveys completed each day in order to provide an indication of the number of refusals. This did not provide an accurate count, however, because the examiners indicated that sometimes they were either too busy or forgot to ask an applicant to fill out the survey. The examiners who were contacted noted that there were few outright refusals. In any event, since participation was voluntary, it is obvious that self-selection bias cannot be discounted.

ANALYSIS OF COMMUNITY SURVEYS

As previously noted, the questionnaires were administered for two reasons. The primary reason was to attempt to determine if there were any particular characteristics or attitudes of the target population that seemed to lead to lower belt use than in other parts of the state. If certain attitudes or lack of knowledge were detected, it might be possible to structure community programs and publicity to include messages addressing these issues. This is the main reason that Moore County was selected for inclusion in the surveys. It was felt that information from this rural county with relatively high observed belt-wearing rates could serve as a useful comparison. Secondly, these questionnaires were a measure of reported belt-wearing rates and attitudes and beliefs relating to safety belts that could be replicated in a follow-up survey at the end of the project to determine whether attitudes and knowledge had changed, as well as belt-wearing rates. Hertford and Northampton Counties were included in the surveys as controls for this aspect (discussed in Section V).

Appendix A provides a complete listing of the responses to the questions administered through these questionnaires. Responses are given for both the high school and the driver license examiner sites for all counties so that comparisons can be made. Some of the more pertinent information will be discussed below and a statistical analysis of the responses will be discussed.

Driver License Stations

The number of completed questionnaires obtained through the driver license offices, after assignments to groups based on county of residence or work, were 172 for Bertie, 225 for Hertford/Northampton, and 660 for Moore.

Respondents from the three areas differed significantly with respect to each of the demographic variables: age, sex, race, and educational level (Figure 5). The respondents from Moore County were generally more highly educated, older, and contained a higher proportion of males and whites than the other two areas. Bertie County respondents represented the opposite extreme on each of these characteristics, while Hertford/Northampton County respondents fell in between, though usually more similar to Bertie respondents than to Moore respondents.

The questionnaires contained three seat belt use questions which asked: *Of the last five times you drove or rode with someone, how many times did you buckle up? Make children under age six riding with you buckle up? Make passengers age 6 to 15 buckle up?* In each case the responses differed significantly, on average between counties. Table 2 shows the average values by county. Moore respondents reported belt use at higher rates than Bertie and Hertford/Northampton respondents and were consistent in this belt use across all 3 questions. Bertie and Hertford/Northampton respondents indicated that they were more likely to buckle up small children than to use their own belt or buckle up older children.

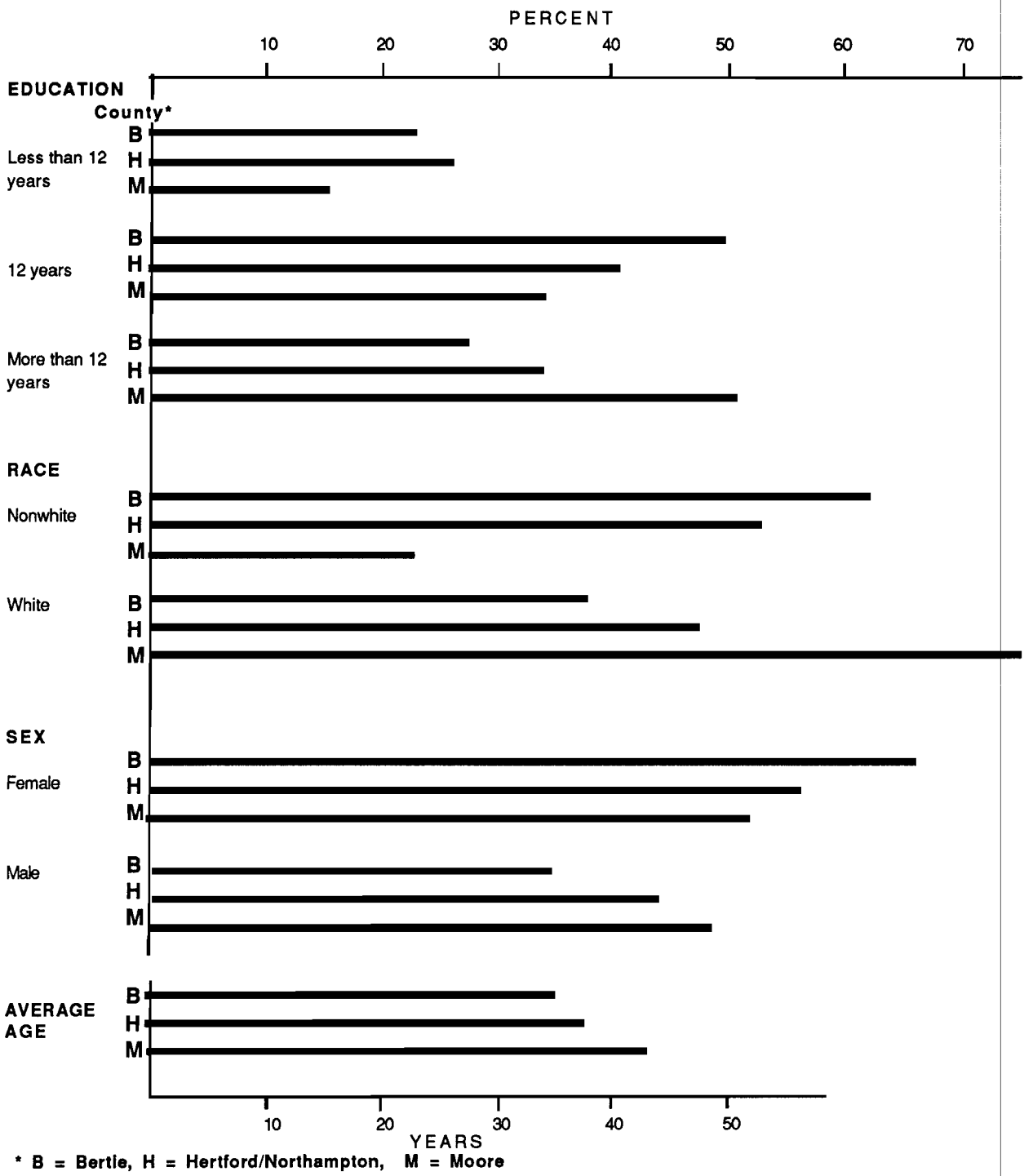


Figure 5. Distribution of Education (Highest Grade Completed), Race, Sex and Age of Respondents by County

Table 2. Average Values for Last 5 Trips.

County	Respondent Buckled Up	Made Under 6 Buckle Up	Made 6-15 Buckle Up
Bertie	* 3.82	4.30	3.59
Hertford/Northampton	3.99	4.30	3.96
Moore	4.47	4.74	4.56

*Within each column, mean values included in a bracket did not differ significantly at a 5% level of significance

It should be noted that self-reported belt wearing rates are traditionally inflated, and indeed, the self-reported use in these surveys was considerably higher than the observed use data . While residents in all the counties overestimated their own belt use, the rates did not change the rank order obtained through observational belt use data. Rather than paying much attention to reported belt use, we were more interested in the responses to questions that asked what factors affected the decision to buckle up or not.

The questionnaire contained 18 questions on attitudes toward seat belts or knowledge of restraint laws. On eight of these questions the responses did not differ significantly by county. These are listed below along with the overall response.

1. In an accident, it is better to be thrown clear of the car.
   89% Disagreed

2. Seat belts are a hassle to use.
   74% Disagreed

3. Adults can protect children in a wreck by holding them in their arms.
   96% Disagreed

4. Belts are needed most on long trips.
   55% Disagreed

5. The law for children should be kept.
   96% Agreed

6. Children under age 3 must ride in safety seats; older children can use seat belts.
   95% Marked True

7. Children have to be buckled up only when their parents are driving.
   95% Marked False

8. Pickup trucks are exempt from NC Seat Belt Law.
   95% False

These responses indicate an amazingly good level of knowledge and acceptance of belts and belt laws. This knowledge in combination with North Carolina's seat belt law and excellent enforcement are likely factors in the state's 60 percent overall belt use rate.

On the other 10 questions, the responses did differ significantly by county. Figure 6 shows these responses for eight of these questions. For example, to question 1, 17% of the Bertie County respondents disagreed with the statement that seat belts keep you from getting hurt in a wreck. In Hertford/Northampton and Moore counties, the disagree responses were 13% and 5%, respectively. The differences in these responses were statistically significant based on a chi-square test with 2 degrees of freedom and a p-value of $p < .001$. Even so, 80 percent or more in each county reported a favorable attitude towards belts.

In general, Moore County responses were most favorable toward seat belts, Bertie County least favorable, with Hertford/Northampton Counties in between. On several questions the responses from Bertie and Hertford/Northampton Counties were fairly similar and quite different from those of Moore County.

The two additional attitude questions that were analyzed asked for reasons why seat belts were used and not used. Respondents were asked to select as many as two reasons from a candidate list. For analysis, the one or two reasons selected were classified into three groups for each question. Reasons for wearing seat belts were classified into groups that represent attitudes toward belts:

Class 1: Habit was listed. (Most positive belt response.)

Class 3: Never wear seat belts, to avoid fine, or because it's the law were the only reasons listed. (Responses that indicate negative attitude toward belts or belt use because of external pressure.)

Class 2: All other combinations. (Neither positive nor negative responses.)

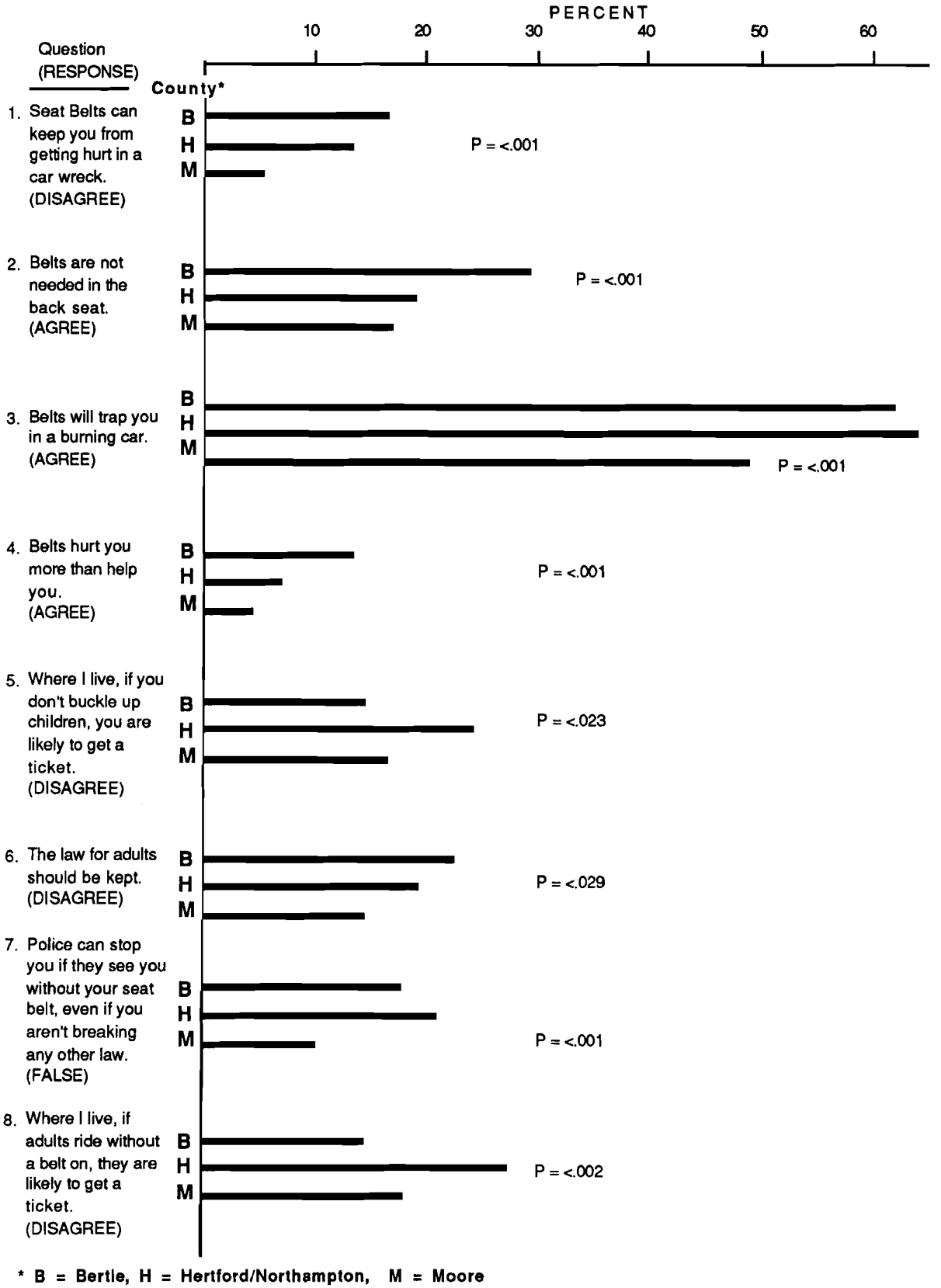


Figure 6. Responses to Seat Belt Questions by County

Reasons for not wearing seat belts were classified as:

Class 1: Always wear belts or vehicle has no belts was listed. (Most positive belt response or nonuse response caused by external factors.)

Class 3: Belts do more harm than good or belts trap you in the car were only reasons listed. (Responses that indicate negative attitude toward belts.)

Class 2: All other combinations. (Neither positive nor negative responses.)

The responses on both of these questions differed significantly across the counties. With respect to reasons for wearing belts, 17.6%, 17.7% and 25.8% included habit as reason in Bertie, Hertford/Northampton, and Moore Counties, respectively. Those responding that they never wore seat belts or only did so because of the law constituted 24.2%, 21.3%, and 14.1%, respectively. Those responding to the reasons for not wearing seat belts by saying they always wear belts or their vehicle had no belts were 42.5%, 34.7%, and 51.9% across the three counties, while 4.2%, 4.1%, and 2.2% responded that belts do more harm than good and/or trap you in the car.

This seems to indicate that Moore County residents respond somewhat less to the threats of sanctions to induce their belt wearing, but instead have been wearing their belts and thus have developed this behavior as a habit to a somewhat greater degree. Whereas it is possible that they first started wearing their belts for law-related reasons, these responses suggested that the appropriate approach to take in Bertie County would be to provide positive reinforcements, such as small prizes, to encourage belt-wearing behavior as a habit, since few Bertie respondents cite regular habit as the reason for compliance.

The respondents at the driver license offices were also asked to indicate who would be most likely to influence them to wear their seat belts. The two responses given most often in all three counties were a police officer (66.95, 63.6% and 55.2%) and an accident survivor or family member of a victim (39.0%, 44.4%, and 42.9%).

In view of the differing demographics of the respondents from the three sites, the question naturally arises as to whether the differences in attitudes toward seat belts is simply a reflection of differences in demographics. The answer seems to be no.

This question was investigated by first combining the data from Bertie and Hertford/Northampton Counties, then running a series of 3 and 4-way contingency tables. Bertie and Hertford/Northampton data were combined since the samples from these counties were relatively small and the responses on many of the survey questions were similar for the respondents from these counties. (It should also be noted that Bertie, Hertford and Northampton Counties form a geographic area with similar characteristics and observed belt wearing rates in those counties were similar.) Three-way tables were then run of each demographic variable by each attitude question by county (Bertie and Hertford/Northampton vs Moore). Then 4-

way tables of education level by race by attitude questions by county were run. In only one instance was an attitude which differed significantly over the three areas found to not differ significantly over the two county groups after adjusting for one or two demographic characteristics. In that instance the attitude toward keeping the seat belt law for adults did not differ significantly ($p = .068$) after adjusting for differences in respondent age. In all other instances the differences in attitude remained after adjusting for demographic differences. Results from one of the 4-way analyses are shown in Figure 7.

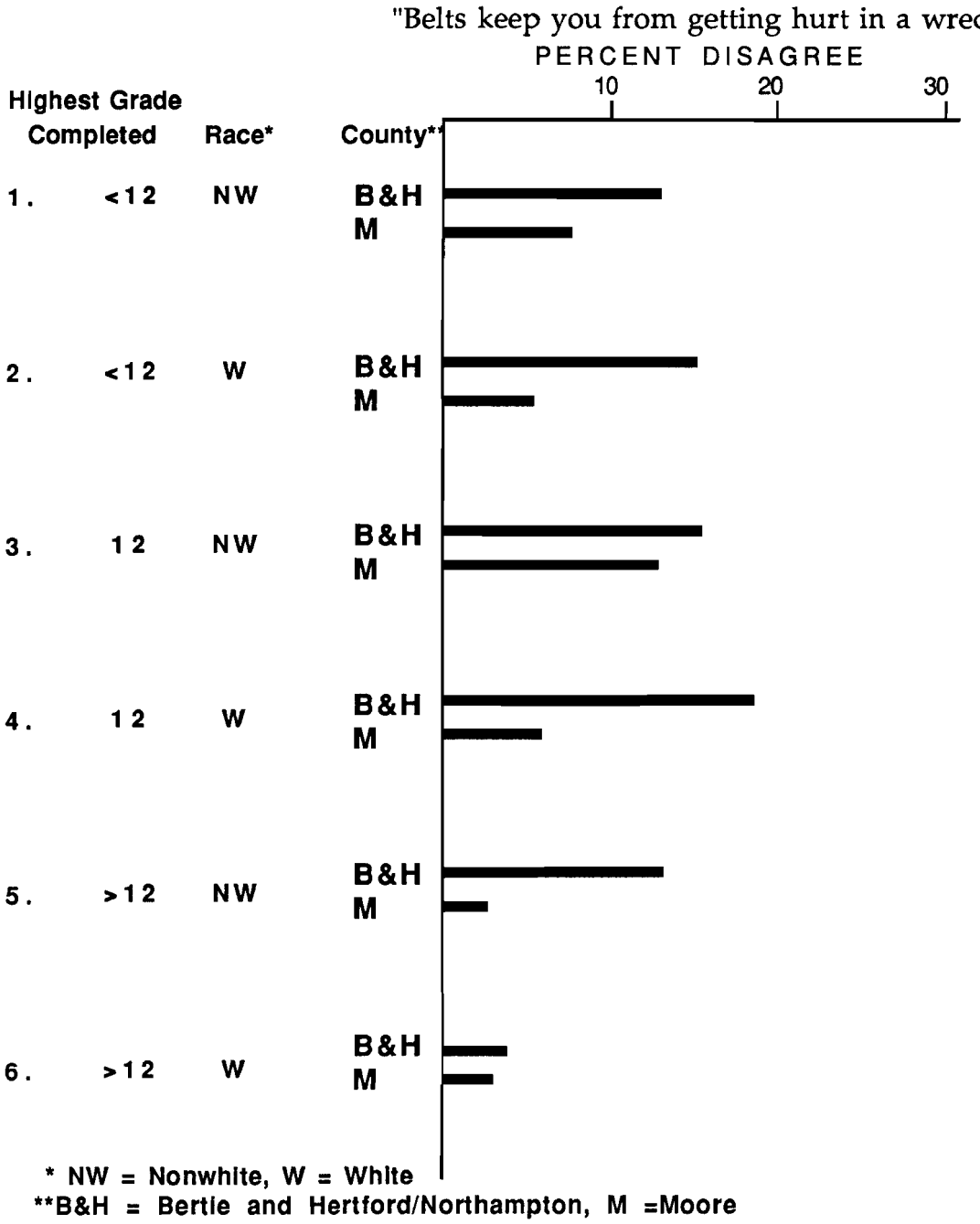


Figure 7. Example of Four-Way Breakdown

Within each combination of educational level and race, a higher percentage of respondents from Bertie and Hertford/Northampton Counties disagreed that seat belts protect you than did those from Moore County. Overall, these analyses indicate that respondents from Bertie and Hertford/Northampton Counties have somewhat less favorable attitudes toward seat belts than do respondents from Moore county, and that these attitudes are not simply due to differences in the age, sex, race, and educational level of the respondents.

High Schools

A similar questionnaire was given to students at the high schools in Bertie and Hertford Counties, and one high school in Moore County. Since the questionnaires were given to all eligible students (rather than a sample), no statistical tests were applied to these results. While, overall, the high school responses correlated reasonably well with the community responses in terms of variation across questions and were substantially favorable to belts across the board, the negative response rate among high school students was higher than that of the community responses (Table 3).

Table 3. Selected overall responses (percent agree) to questionnaire items.

Item	High School	Community
1. Adult law should be kept	73.5%	83.6%
2. Seat belts are a hassle	37.5%	25.9%
3. Belts needed most on long trips	60.9%	45.1%
4. Belts hurt more than help	17.1%	6.2%
5. Belts keep you from being hurt	81.1%	91.2%
6. Belts not needed in back seat	34.7%	19.1%
7. Better to be thrown clear	25.8%	12.0%
8. Belts will trap you	80.7%	54.2%

The relationships among the responses of the 502 Bertie students, 419 Hertford students, and 307 Moore students were similar to those gathered through the Driver License Offices. The high school students from Moore County usually responded

more favorably toward seat belts than those from the other counties. Students from Hertford County, however, often responded less favorably than those from Bertie County, which was unlike the community responses.

About half of Bertie students and 40 percent of the Hertford students said that they had worn their belts four or five out of the last five times they drove or rode with someone else compared to a larger 70 percent of Moore students who said that they had done so. The Moore students were only slightly less likely than Bertie and Hertford students to wear their belts because "it's the law" or to avoid the $25 fine. This is in contrast to the sample of residents where the differences were greater. However, as with the residents, the Moore County students were almost twice as likely as Bertie students and three times as likely as the Hertford students to wear their belts out of habit.

It appears that the belt-wearing behavior of the students also transferred to situations where they were driving and had young children in the car or when they were driving their friends. Over a third of both student groups said that they never drove with children less than six in the car, but of the students who said that they did drive with children in the car, Moore County students reported much higher belt use for children (81.6% of Moore students vs 50.6% in Bertie and 59.7% in Hertford indicated they had buckled children 4-5 times out of 5). The same trends were present for when the students drove with their friends in the car, which about 9 out of 10 indicated they did. About half of the Moore County students made their friends buckle up 4-5 times out of 5, compared to less than 30% of the Bertie students and 20% of Hertford students.

The students were asked to indicate the most important reasons that they did not wear safety belts. Again mirroring the sample of residents, the Bertie and Hertford students tended to have more negative feelings about safety belts. More Bertie and Hertford students felt that belts do more harm than good, that belts are uncomfortable, and that belts can trap you in the car. Although Bertie respondents expressed more negative feelings about belts, the vast majority of students at all locations did not believe belt myths.

When asked to agree or disagree with certain belt-related beliefs, the responses again indicated that the Bertie and Hertford students had more negative feelings or lack of knowledge as to the effectiveness of seat belts. Still, negative beliefs, such as *it is better to be thrown clear of the car in a crash, belts are a hassle,* and *seat belts hurt you more than they help,* were held by only a small percentage of students. However more than half of the students at all schools believed that *belts will trap you* (83.0%, Bertie; 83.2%, Hertford/Northampton; and 69.5%, Moore) and that *belts are needed only on long trips* (61.3%, Bertie; 65.6%, Hertford/Northampton; and 52.7%, Moore), and about a third of all students said that they did not wear their belts when they are in the back seat. It appeared these were myths that an educational campaign needs to tackle, along with providing more education about belts in the rear seat.

Most students were strong in their positive feelings about North Carolina's safety seat and seat belt laws. More than nine out of ten students felt that the law for children should be kept while smaller, but still similar, proportions (more than 7 out of 10) felt that the law for adults should be kept.

When asked to indicate who would be most likely to influence them to wear their seat belts, the high school surveys produced results much like the sample of residents. Students across the board checked "police officer" most often. "Accident survivor/family member of victim" was the only other response checked by a large proportion of any group.

PICKUP TRUCK DRIVERS

Since safety belt observations in Bertie and Hertford counties showed belt use to be considerably lower in pickup trucks than in cars, another objective of the analysis was to see if pickup truck drivers had different attitudes towards seat belts than did car drivers. From the driver license surveys, the average number, out of the last five trips, of reported belt use was significantly lower for pickup trucks than for cars (3.36 vs 4.06, $p = .0012$). The only attitude type question on which the responses differed significantly, however, was the statement that seat belts are a hassle to use. The percentages in agreement with that statement were 27.7% for car drivers and 46.3% for pickup truck drivers ($p = .007$). High school students who drove pickup trucks also reported buckling up less often than car drivers (1.93 out of last 5 trips vs 3.02 out of last 5 trips), and thought that seat belts were more of a hassle (55.6% vs 37.1%). Another major difference among the high school drivers was that 75.8% of the car drivers agreed that the adult seat belt law should be kept, while only 49.3% of the pickup truck drivers did so. The responses of the two groups were very similar on most other questions.

SUMMARY

The responses to these surveys gave a good overview of the belt-wearing habits of students and adults in a low-belt-use rural area, and allowed this to be contrasted to a high-belt-use rural county. Several observations could be made from the responses:

- The high-belt-use population more frequently listed the fact that buckling up is a habit as the main reason for using seat belts, while the low-belt-use area was more likely to cite the possibility of getting a ticket as the reason for buckling.

- Respondents from low-belt-use areas were more likely to say that belts do more harm than good and believe myths about belts (such as belts will trap you in the car or that it is better to be thrown clear). Even so, the great majority did not believe these false notions.

- Low-belt-use area high school students more often expressed the opinion that belts do more harm than good, believe in myths more frequently that the general population, and were the group with the lowest approval rate for the adult seat belt law. Even so, these were not the feelings of the majority of students.

- High-belt-use area respondents indicated that they buckle up children more often than low-belt-use area respondents.

- Pickup truck drivers reported lower belt use than car drivers in all areas, and high school students who drive pickup trucks in the low-belt-use areas reported the lowest use. Pickup truck drivers were more likely to indicate that belts were a hassle and to be opposed to the adult seat belt law. Again, high school students were the pickup drivers who expressed these feelings the most often.

- Over a third of all respondents indicated seat belts were not needed when riding in the back seat.

- Both high- and low-use-area respondents indicated police officers and accident survivors or the family member of a victim as someone most likely to influence them to wear belts.

- Although demographics such as higher economic status or education are often associated with higher belt use, the differences listed above were still significant after the data were analyzed by demographic variables such as age, sex, race, and education.

This information could be used to help plan for a county-wide program that is designed to increase seat belt use in a rural community such as Bertie County. For the most part, the higher belt use in Moore County seemed to be associated with more positive feelings about seat belts themselves and with a more accurate understanding of how seat belts work and their effectiveness. The residents of Moore County did not say they depend on the presence of laws or the threat of enforcement of these laws to keep them wearing their seat belts.

There were two basic implications for planning a program for a rural community, such as Bertie County, that arise out of this information. The first was that methods need to be devised to get residents to begin wearing their seat belts in the first place. Both positive (e.g., incentives); and negative (e.g., active enforcement programs) interventions, should be implemented to get residents in the belt -wearing habit. Secondly, an educational program should be implemented to provide accurate information on the effectiveness and functions of restraint systems in order to help maintain belt-wearing after it has been initiated. Part of this educational program should include testimony from survivors of bad crashes who were wearing their seat belts and, if possible, testimony from unbelted victims (or

their family members) who can relate the trauma that can be inflicted on those who do not wear their seat belts and on their families. Messages about the need for belt use in the rear seat and that dispel misinformation about rear belts also should be included.

An essential element in a program to increase overall belt use is messages and incentive programs focused on pickup truck drivers, high school students, and other young adults. Incentive programs need to be of sufficient duration to create belt-wearing habits. Public information programs and materials should include messages to dispel myths about belts and foster confidence that buckling up is a lifesaving, injury-preventing habit and not something one does merely to avoid problems with the law.

IV. PROGRAM ACTIVITIES

OVERVIEW AND PROGRAM PLANNING

The initial coalition of local leaders included the Sheriff's Department, Windsor Police Department, Bertie County High School, the Search Team of the Bertie County Rescue Squad, the Bertie County Rural Health Association, and the County Health Department. During the planning stage of the project the Aulander and Lewiston-Woodville Police Departments and *The Bertie Ledger* joined the coalition, which named itself the Bertie Committee for Seat Belt Safety. The inclusion of these two police departments meant that every department in the county was involved in the program.*The Bertie Ledger*, published on a weekly basis, was the only paper in the county and was read by most county residents.

The information gained from the needs assessment (reported in Section III.) indicated that activities such as incentive programs to get Bertie County residents to begin wearing their seat belts combined with educational programs to provide accurate information on the effectiveness and functions of restraint systems would be a good approach for increasing and maintaining belt use in the county. The assessment also indicated that target groups for concentrated efforts should include pickup truck drivers, high school students, and other young adults. High visibility involvement of law enforcement agencies and testimony from survivors of bad crashes who were wearing their seat belts seemed to be other potentially effective strategies.

The coalition of local leaders met several times to discuss the various elements of the programs and how the agencies could complement each other's efforts. The high school personnel took the lead and many of the core organizations planned to use student organizations to help staff their programs. An eight month public information and education program was planned. The theme "Bertie Buckles Up" was chosen and used on all project materials. An October program kick off was chosen to coincide with the beginning of the school year.

COMMUNITY GRANTS

One of the difficulties in launching a demonstration program in a rural area is that rural communities tend to have less resources available than more urban settings. Most rural sites share low belt use and low economic profiles and need financial assistance in putting together a program that could have a measurable impact. Since a potential source of funds for rural seat belt community programs in most states would be that state's Office of Highway Safety, it was consistent with the replicative intent of the rural demonstration project for the program site to apply for a community grant from the NC GHSP.

HSRC assisted Bertie County in putting together a proposed program and a community grant in the amount of $20,000 ($6,000 in FY 1990; $14,000 in FY 1991)

was awarded by GHSP, with HSRC serving as the grant-monitoring agency. The funds were used by the lead agencies to purchase printed materials, promotional items, and other products such as displays, signs, etc. The 1990 funds were used for the preparation and production of materials for the kickoff, and the 1991 funds were used to sustain the public awareness activities over the life of the program. Each agency was required to specify a plan for using their share of the funds. For example, the high school requested funds for the purchase of modest prizes to be given out by high school students to children in the elementary schools across the county, and the police department requested funds for signs and materials to use at checkpoints.

The health department won a $7,000 grant from the Injury Control Section of the NC Department of Environment, Health and Natural Resources to conduct a companion seat belt project in which they would work with major employers in the area to increase belt use among employees. The health department project purchased the costumes for Vince and Larry, the crash-test dummies that appear in the national seat belt PSAs, through that grant and shared their use with this project.

PROGRAM KICKOFF

Both the community and school programs kicked off in November. The county program began with a full day of events including presentations and incentive programs at local industry, visits by Vince and Larry to the downtown areas of the communities in the county, and seat belt checks conducted by law enforcement agencies. Vince and Larry attended the high school football game the next night and public service messages about seat belts were incorporated into the game festivities.

The high school kicked off its effort with an assembly program that included skits by the cheerleaders and the Beta Club, and presentations by a State Highway Patrol trooper and an HSRC staff member. The skits were clever and included audience participation. The trooper used facts about Bertie County youths in crashes provided by HSRC. Division of Motor Vehicles data revealed that teenagers in Bertie County were involved in serious or fatal crashes at a rate that is nearly twice that of the state as a whole. These youths were being killed in crashes at a rate eight times that of the state average, were determined to be under the influence of alcohol in crashes at over twice the state rate, and were three times more likely to be in rollovers.

CORE PROGRAMS

The program was divided into three core components: a work place-based program, a program conducted through the high school, and a general community campaign. The following is a brief description of each of the core programs.

Workplace Program

The Bertie County Health Department and Office of Emergency Management teamed up to work with the major employers in the area. The EMS coordinator and a health department representative worked with many of the safety officers and employers in the county to get industry personnel to conduct their own programs. Three major employers were targeted for high visibility programs: the local poultry processing plant (largest employer in the county), a textile plant, and a lumber yard. The safety officers of these businesses were recruited to be part of the program and presentations were made to all shifts of employees.

The Search Team of the Bertie County Rescue Squad collected belt use on a regular basis and barometers were set up at the plants to monitor each site's progress. Usage rates were also posted in the break rooms at the plants and follow up presentations were made. Two employment groups reached belt use rates over 70 percent and received awards from NHTSA. The Wrangler manufacturing plant with 180 employees reached belt use of 83 percent. The county government employees, approximately 154 persons, reached 86 percent belt use.

One of the major occupations in the county is farming, and from data collected through the needs assessment, farmers and pickup truck drivers in general had very low belt wearing rates. The health department and EMS coordinator worked with this group by trying to reach them where they congregate. One of the most promising approaches for reaching farmers and pickup truck drivers was the local agri-business stores (suppliers of seed, fertilizer, and equipment for the farming industry). During the off-season, these agri-business centers invite farmers in for coffee and to hear about the latest products.

Educational programs were held inside the stores and prizes given out in the parking lots of these agri-business centers. Some stores put the buckle up message on the signs in front of their stores. Presentations were made at meetings of the cotton producers and peanut growers. Vince and Larry made appearances at these meetings and handed out prizes. Prizes were carefully thought out to be items that would give the program high visibility and have real value for the recipient. Popular items with farmers were rain gauges, neon orange hunting caps (the caps also helped hunters meet the visibility codes), fly swatters, and key chains that pull apart (a common rural practice was to leave the ignition key in the truck and this key chain enabled the driver to still use other keys).

High School Program

The principal of Bertie High School, the only high school in the county, was the head of the community coalition. The school participated from several standpoints: 1) students and faculty conducted programs to encourage belt use among the high school students; 2) the students conducted programs in the elementary schools across the county; and, 3) the students, through clubs and special classes, provided

manpower and resources to the various community programs. For instance, the shop class made seat belt check signs for the police departments, and the art department painted banners. The *Smart Moves* package, developed by HSRC for assisting schools conduct seat belt programs, was distributed to student groups and the elementary schools. Using driver education teachers and students, the high school collected its own belt use data.

The high school program began in late November, 1990 with an assembly program and skits performed by the cheerleaders and several of the clubs. In December, clubs built a float for the Christmas parade. Students were sitting in a car seat mounted onthe float with their seat belts on while a boom box played "I'll be home for Christmas." The principal and select students met with representatives from all the county schools to inform them about the program and get ideas on the types of activities to conduct at the schools. Stickers, pencils, cups, frisbees, and rulers with each school's name personalized the "Bertie Buckles Up" message for the elementary school students. Through the high school and the health department and EMS coordinator's efforts, every elementary school in the county received presentations along with visits from Vince and Larry, who gave prizes to belted children.

The high school's main effort took place in the spring when they launched a campaign using the "Lifeguard on Duty" theme. They built a lifeguard stand and monitored belt use at the high school parking lots. Beach-theme prizes such as neon sunglasses were given to belted students. Also, the wrecked vehicle of a high school student who was belted and uninjured in a crash was placed in front of the high school as a reminder to students to buckle up.

General Community Program

The main goal of the overall community program was to reach as much of the county as possible. Windsor, the county seat, is the main town in the county; however, many small communities needed ownership in the program for countywide belt use to increase.

Law Enforcement. All the law enforcement agencies in the county participated in the program. The Windsor, Aulander, and Lewiston-Woodville Police Departments, along with the Bertie County Sheriff's Department and the North Carolina State Highway Patrol, conducted seat belt road checks in which belted motorists were given small prizes. They also gave out information, made presentations, used the Vince and Larry costumes, and worked with high school clubs in promotions all around the county. Since the Windsor police department had the most manpower among the departments and the Chief was a key supporter of the program, the majority of the checkpoints, approximately 4 or 5 per month, took place in Windsor. Emphasis was not on enforcement, but rather on giving motorists warnings, prizes and general information on belts.

Media Both the local newspaper and radio station gave excellent support to the program. *The Bertie Ledger*, the only newspaper produced in the county, ran ads promoting belt use throughout the project period. The paper gave extensive coverage to the kickoff and ran at least one major article a month on some aspect of the program, such as what high school students were doing, how the Search Team was collecting use data, how pickup truck drivers needed to increase their belt use, etc. They also gave regular updates on belt use rates.

WDRP, the local radio station, supported the program though the production and playing of various radio public service announcements (PSAs). These PSAs identified communities by name such as "Buckle up Aulander" to enhance the ownership by the outlying communities. The radio station also conducted their own seat belt promotion in which the station gave away tapes and compact discs to motorists who were observed buckled up. License tag numbers were read over the radio station and motorists who heard their tag numbers came in to claim their prizes.

Local Data Collection Observational seat belt data was collected on a monthly basis by the Search Team of the Bertie County Rescue Squad at eleven sites throughout the county. Using local data collectors turned out to have many advantages, the most salient of which was that their presence at street corners and crossroads stimulated belt use. The data collectors noted that motorists began watching for them and proudly showed their shoulder belt as a gesture of support for the program. The combination of the Search Team being a group of well respected volunteers in the community and their experience providing emergency medical treatment for crashes gave their seat belt message tremendous credibility.

Promotional Strategies

Based on information gained through the needs assessment, one of the most promising components for the program was the use of incentive strategies, the rewarding of motorists who are *caught* buckled up with small prizes. This also worked in the reverse, by encouraging unbelted motorists to buckle up and win too. This was the most widely used strategy. The law enforcement agencies, the radio station promotion, and efforts at the worksites, agri-business centers, and schools all used incentives as a part of their educational efforts.

Several items were developed to promote the concept that good things happen to people who buckle up, with the double-entendre that "good" could mean being safe in a crash or in Bertie County could mean getting a prize for being buckled up.

Checkpoint Cards. Cards were printed for distribution to motorists stopped in seat belt checks that read either "Sorry, you missed out" for unbuckled motorists or "Congratulations, you win" for belted motorists. Both cards explained the program and listed the agencies involved in the program.

Newspaper Ads. *The Bertie Ledger* began running small filler ads weeks prior to the kickoff (Figure 8) alerting people to buckle up because "Starting November 2nd, good things will happen to people who wear seat belts in Bertie County." After the program began, they changed their ads to read "Good things are happening to people who wear seat belts in Bertie County."

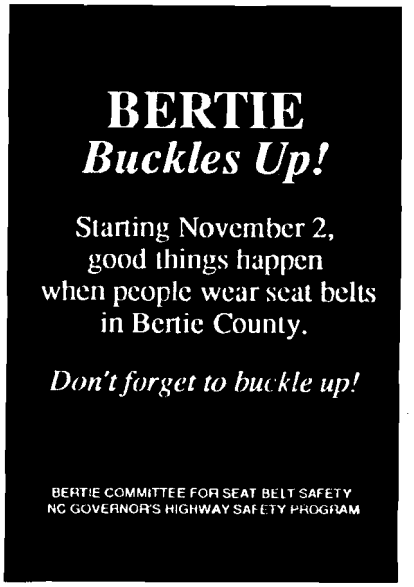


Figure 8. Sample Newspaper Ad.

Prizes. Prizes were carefully chosen to be items of value to the target audiences and that would give the project visibility. Popular prizes were rain gauges, pot holders, key chains, mirrors, and nail files.

Other items or strategies were meant to serve as general reminders for residents to buckle up:

Car Door Hangers. Church, scout and 4H club members were recruited to place materials on car doors in church and community parking lots around the county. Over 4,000 door hangers were placed on cars that reminded motorists to "Please Buckle Up".

Bumper Stickers, Banners, Posters and Signs. To keep the message before the public, bumper stickers were placed on county vehicles and distributed to residents. Banners were hung at the major entrances to Windsor and Aulander and Lewiston-Woodville. Signs that said "Bertie Buckles Up" and "Windsor (Colerain, Aulander, etc.) Buckles Up" were placed along the roadside throughout the county. A poster reiterating the message that good things happen to people who buckle up in Bertie County was developed and distributed.

Vince and Larry. The Bertie program purchased a set of Vince and Larry costumes, and they were used extensively during the program. Vince and Larry assisted with police checkpoints, made appearances at meetings, at the elementary schools, businesses such as banks and grocery stores, and community fund raising events. They attended football games, appeared in two Christmas parades, and helped make presentations at worksites and agri-business centers. An ad in the newspaper announced that Vince and Larry had set up residence in Bertie County and gave an address for groups to write Vince and Larry to invite them to a special occasion. This was an effective promotion, resulting in many groups and school classes requesting

appearances.

Rollover Simulator. A rollover simulator, a device that illustrates what happens to an unbelted motorist during a rollover, was borrowed from the Tarboro Police Department for the week of the Injury Prevention Fair. The fair, which is held annually in Bertie County each April, used seat belts as it's theme. Presentations were made throughout the county, and the rollover simulator was used as part of each presentation.

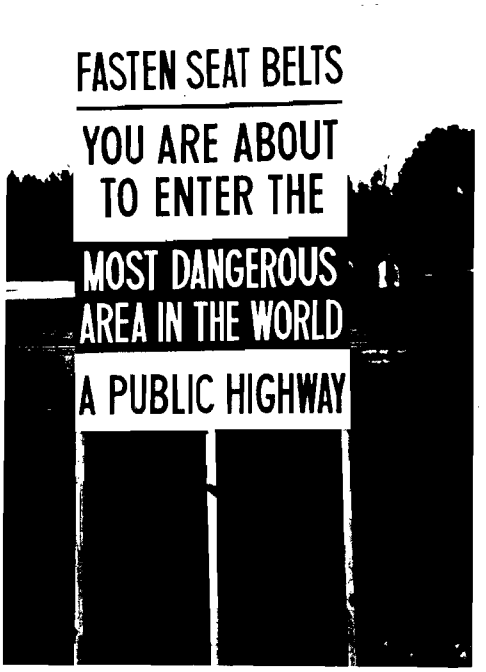
Litter Bags. A different approach for reaching the rural county residents involved working with American Refuse Systems, the company that handles the county garbage sites. As county residents passed the manned gates to deposit garbage, belted motorists received litter bags imprinted with the seat belt program message. In rural areas, the majority of residents do not have garbage pickup service, so this approach was a way to reach the remote residents as well as many pickup truck drivers.

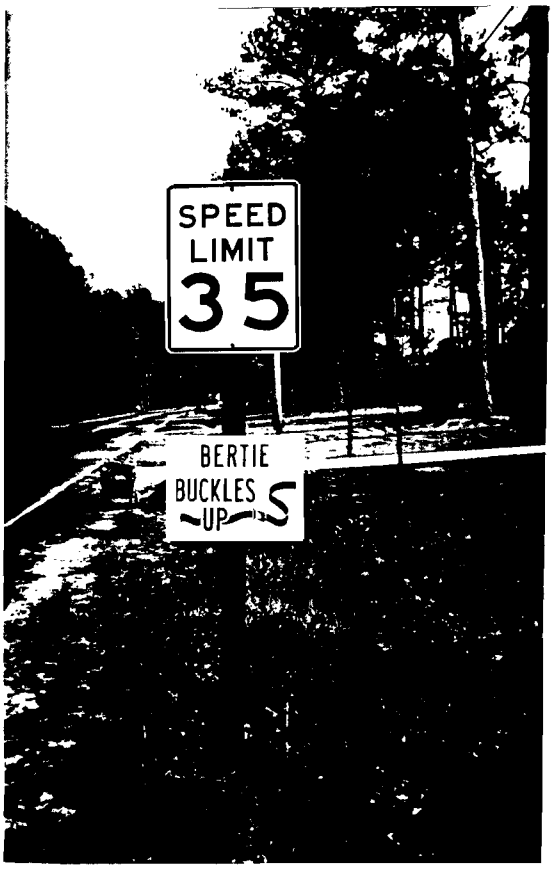
Barometers. Large barometers painted on boards were placed at the employment sites that were participating in the program, and a central one was erected in the center of Windsor. These barometers were changed monthly to reflect the latest belt wearing rates.

Place Mats. All the restaurants in the county were supplied with placemats imprinted with the "Bertie Buckles Up" message.

"Saved by the Belt" Awards. Bertie printed certificates and gave them to persons who were spared serious injury or death in crashes in Bertie County because they were wearing seat belts. These awards were reported in the local newspaper.

A site visit to Bertie County during the program documented the multiple methods of exposure the project was receiving. As motorists entered Windsor, the county seat, they saw a banner, road sign and agri-business store marquee all displaying "Buckle Up Bertie" messages. Then they would pass a barometer at a local industry displaying the current belt use rate by employees, and a half mile later, a barometer in the center of town showing the overall community rate. Eight out of the 10 cars parked on main street had "Buckle Up Bertie" bumper stickers. A man working on his pickup truck had on "Buckle Up Bertie" cap. Lunch at a local restaurant included a "Buckle Up Bertie" place mat at each place setting. Figures 9 - 13 show examples of the activities and materials that were part of the program.





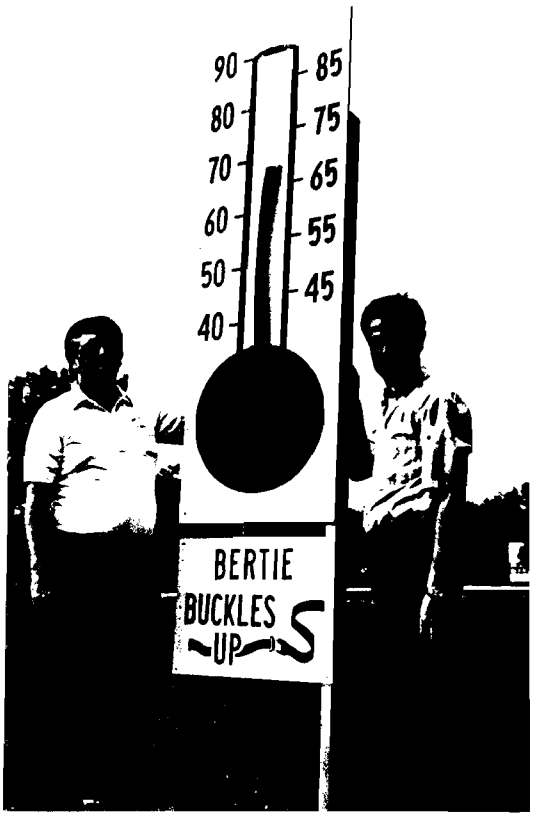
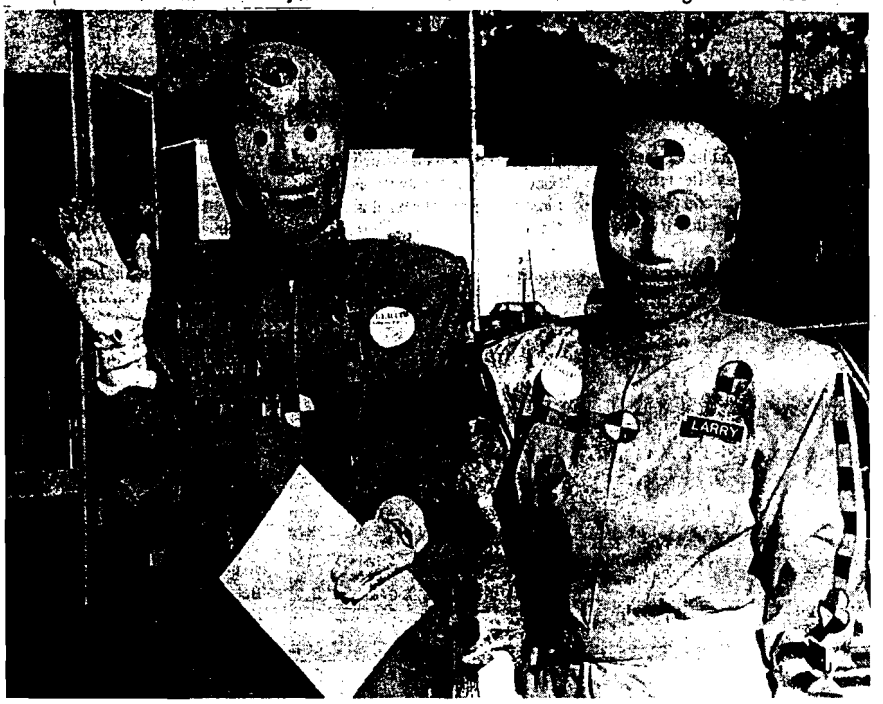


Figure 9. Examples of Program Publicity (clockwise from top left): Banner, Parking Lot Sign, Belt Use Barometer and Roadside Sign.



Available to groups

Vince and Larry, the two "dummies" used in television commercials to promote seat belts and other safety features on vehicles, are visiting Bertie County as part of an ongoing drive to increase seat belt use. The county's average is far below that of the state and organizers of "Bertie Buckles Up" are aiming for 61 percent usage, one percent above the state average. The two are available to any interested youth or adult group and can be contacted by writing to P. O. Box 586, Windsor, N.C. 27983. (Photo by Jeanette White)

Figure 10. Ad Promoting Appearances by Vince and Larry.

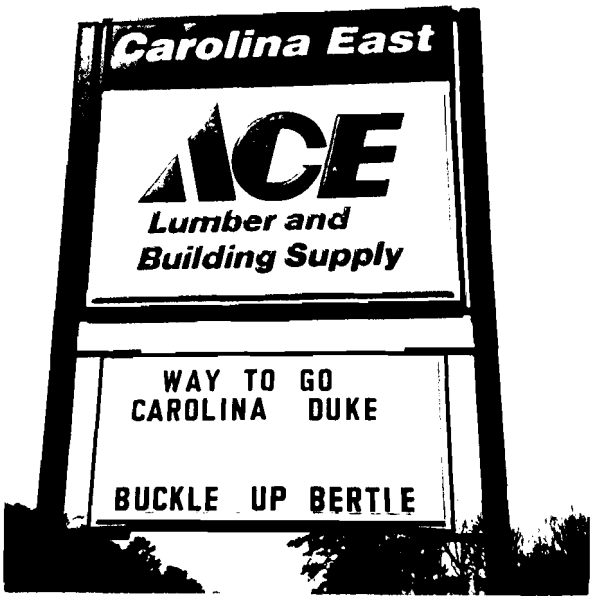


Figure 11. Seat Belt Message on Agri-business Store Sign (left) and Car Door Hanger (right).

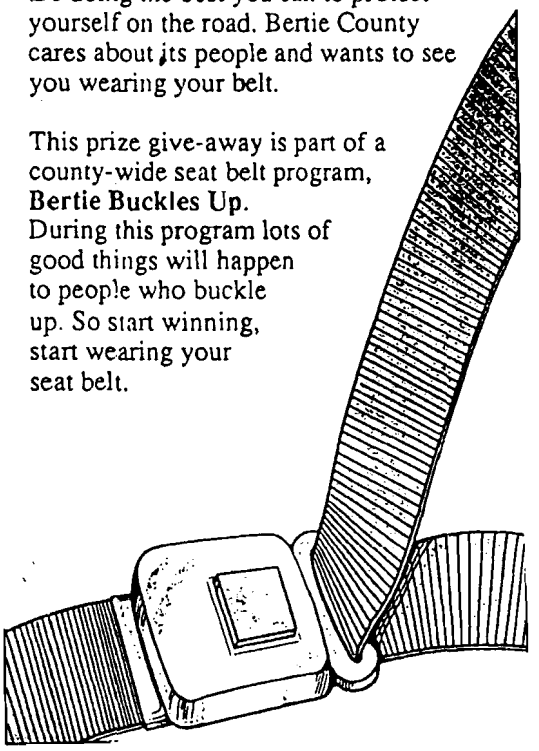
BERTIE
Buckles Up!

Sorry, You Missed Out.

If you were wearing your seat belt you would have won a prize.

But more important than prizes is your safety. When you buckle your belt, you are doing the best you can to protect yourself on the road. Bertie County cares about its people and wants to see you wearing your belt.

This prize give-away is part of a county-wide seat belt program, **Bertie Buckles Up.** During this program lots of good things will happen to people who buckle up. So start winning, start wearing your seat belt.



Bertie County Committee for Seat Belt Safety.

Figure 12. Program Card for Unbelted Motoritsts at Seat Belt Checks.

Figure 13. Newspaper Ad (top) and Restaurant Place Mats (bottom).

V. RESEARCH METHOD

OVERVIEW OF METHODOLOGY AND DATA COLLECTION PROCEDURES

The primary impact evaluation variable was the seat belt wearing rate. Thus, a critical effort was to determine suitable data collection sites. As in other seat belt promotion efforts, we tried to identify data collection sites that portrayed the seat belt wearing "picture" for both the target and a comparison area. Data were then collected before, during, and after the program in the target area, as well as on a consistent schedule in the comparison area. Data elements included driver race, sex, and belt status, along with vehicle type (passenger cars and minivans versus pickup trucks, vans, and utility vehicles). Data collection procedures are detailed in Appendix B.

Observational data for the project were collected in Bertie County on a monthly basis by the Search Team of the Bertie County Rescue Squad. The project compensated the Search Team with a $3,000 grant that they used to purchase emergency equipment for the county. HSRC staff collected the data for the comparison sites on an every other month schedule. Within both Bertie County (the target area) and Hertford and Northampton counties (the comparison area), seat belt observations were performed at town centers and rural crossroads to examine general population trends, and at selected businesses and high schools for special populations. Seat belt citations were also tracked for both the experimental and comparison areas.

The evaluation of the program included an assessment of the level of effort expended, as well as whether practical changes in seat belt use occurred as a result of the demonstration efforts. The belt use changes were compared both to the changes occurring in the comparison area and to the overall statewide level of belt use. Basically the evaluation design was a before/after with comparison group. The major outcome variables were the change in seat belt use overall and by various subgroups.

The evaluation also included the administration of pre- and post-program written surveys in both the experimental and comparison areas. This enabled the project to identify factors in the target populations and the community that potentially contributed to any change in use of occupant restraints that did not occur at the comparison sites.

RESULTS

The observational seat belt use data collected in Bertie County and comparison sites provided information that indicated positive results for the program: belt use increased significantly in Bertie County; the increase in belt use coincided with implementation of the program; and such an increase was not experienced in the comparison county.

Figure 14 shows the overall change in belt use associated with the Bertie campaign. Before onset of the campaign, belt use in Bertie as well as in the comparison counties was about 33%, well under the 60 percent statewide rate that North Carolina has maintained in recent years. Observed belt use rose to more than 50% and was just under 50% at the time of the final post-campaign observation period. The overall gain was about 15 percentage points, which represents a 50 percent gain in belt use for the area. These overall numbers are disaggregated in subsequent figures to identify where and among whom the changes occurred.

Dates that have special significance in the implementation of the program are shown on the graphs. November 2, 1990 marked the kickoff of the campaign. The month of April, 1991 was the time when the most program elements were occurring, and special efforts, such as the use of a rollover simulator, were conducted throughout the county as part of an injury prevention fair. June was the last month of program activities.

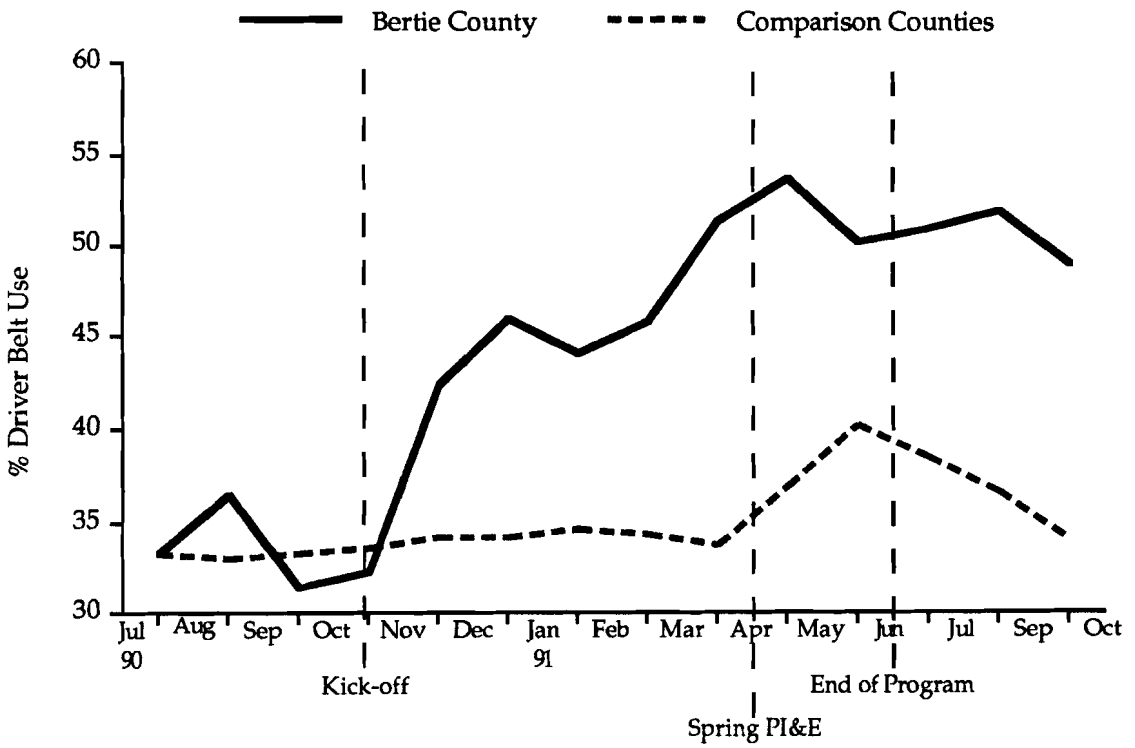


Figure 14. Overall Driver Belt Use: Bertie vs. Comparison Counties

Figure 15 shows belt usage for several subsets of the population. Each of the four groups showed a gain, but the least gain was manifested in "other" Bertie county communities, the most rural areas of the county, where the gain was about 10

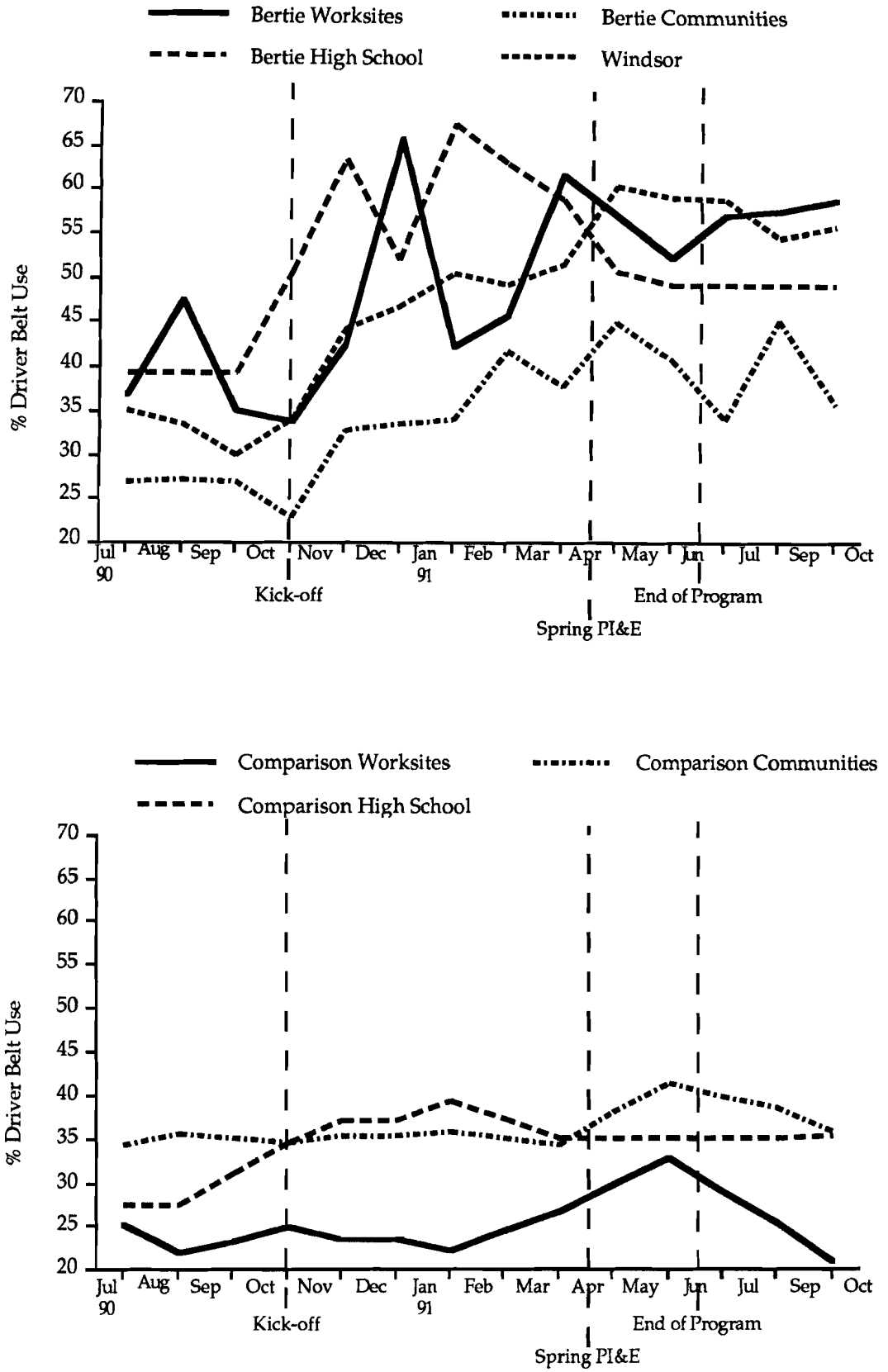


Figure 15. Driver Belt Use by Type of Data Collection Site: Bertie vs. Comparison Sites

percentage points from about 27% to 37%. The gain was 20 percentage points in the town of Windsor, where the most program activities occurred, from about 35% to about 55%. At the high school, the gain was about 11%, having started at about 39%. Note, however, that during the height of the campaign the high school rate peaked at more than 60%. Perhaps it is not surprising that among these young people the effects of the campaign were somewhat exaggerated relative to the rest of the community, and the effects perhaps also wore off more quickly. For worksites the change was about 20 percentage points, again with a peak greater than 60%. Changes in belt use in the comparison counties did not correspond to the strategies introduced into Bertie, and indicate therefore that the changes in Bertie cannot be explained in terms of any pervasive regional trend.

Figure 16 is a breakdown by vehicle type. The difference between belt use in cars versus pickup trucks persisted, though gains were seen in both. There is perhaps indication of a "loss of effect" in the case of pickup trucks after the end of the campaign. The local program leaders commented that during October and November increased numbers of pickup trucks are in use because of seasonal farming demands. They suggested that this activity could affect belt wearing among pickup truck drivers because more farm workers are brought in who only drive the trucks during this period, and that the drivers are in "work mode," meaning that they may be more likely to think they are not covered by the law and that the frequent stops they are making may cause them to decrease belt use. This theory is supported by a drop in belt use shown for pickup truck drivers during the October-November period prior to onset of the program as well.

Figure 17 shows the large sex difference (which exists in like manner all over NC) in which female belt use exceeds that of males by between 15 and 20 percentage points. Growth was seen among both sexes, and growth was roughly of the same magnitude; therefore, the sex difference persisted throughout. The campaign did not seek to produce any differential improvement for males, and it did not do so.

Figure 18 shows a race difference of about 5 percentage points in which white drivers were slightly more often belted than non-white drivers. This difference persisted though gains were seen among both black and white drivers. For North Carolina as a whole, the difference between races is likewise about five percentage points, but is in the other direction, with black drivers slightly more often belted than white drivers.

Figure 19 shows enforcement rates and belt use rates in Bertie and the comparison counties. Since the State Highway Patrol was the only law enforcement agency actively involved in belt use enforcement, citation rates are based on tickets issued by the patrol per 1,000 licensed drivers. Overall enforcement rate in the comparison counties was higher throughout than in Bertie. Nevertheless the usage rates increased in Bertie, but did not in the comparison counties. Enforcement rates appear to have increased in both counties throughout the period, and the slope of the increase appears to be about the same in both. However, in the comparison

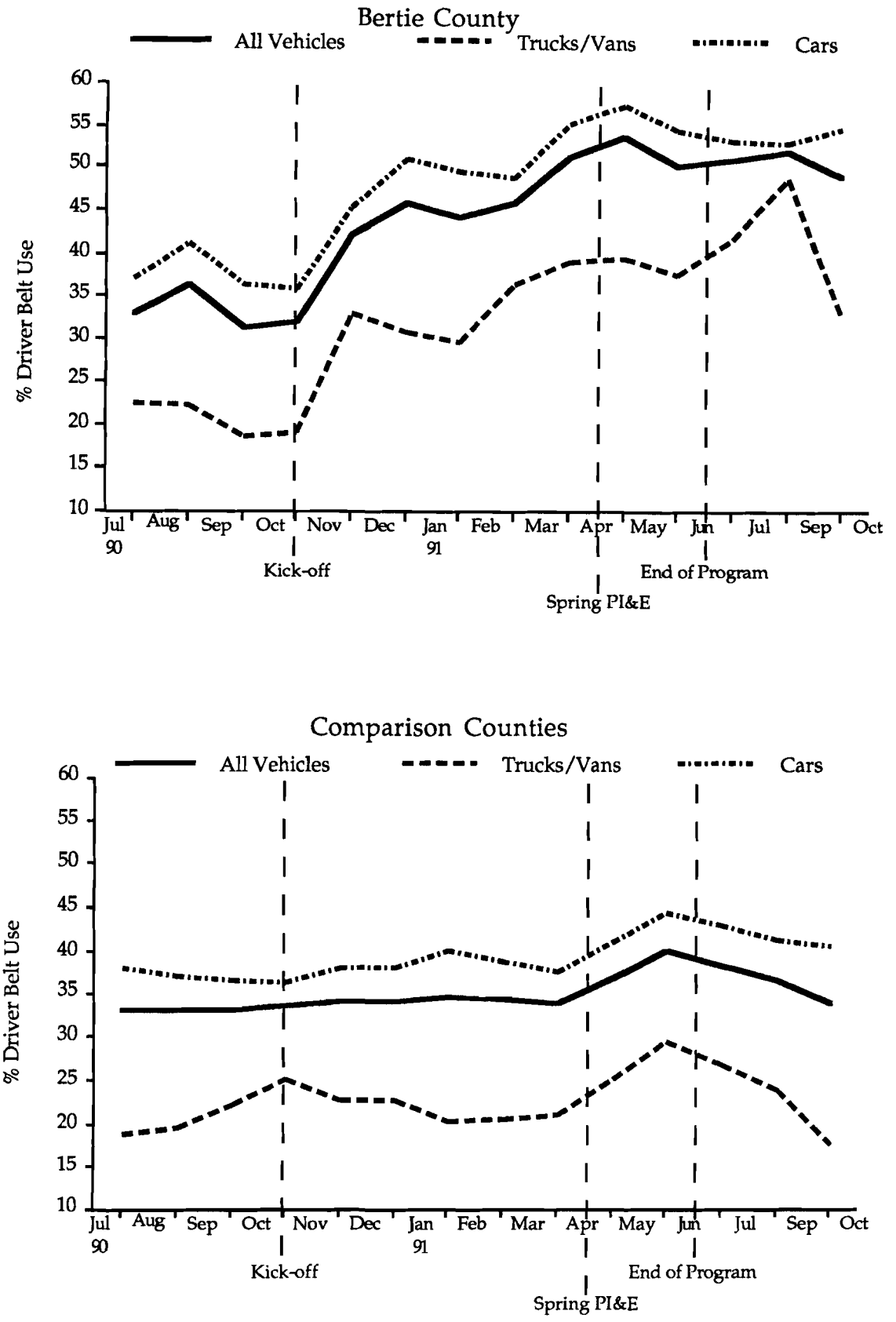


Figure 16. Driver Belt Use by Type of Vehicle Driven: Bertie vs. Comparison Counties

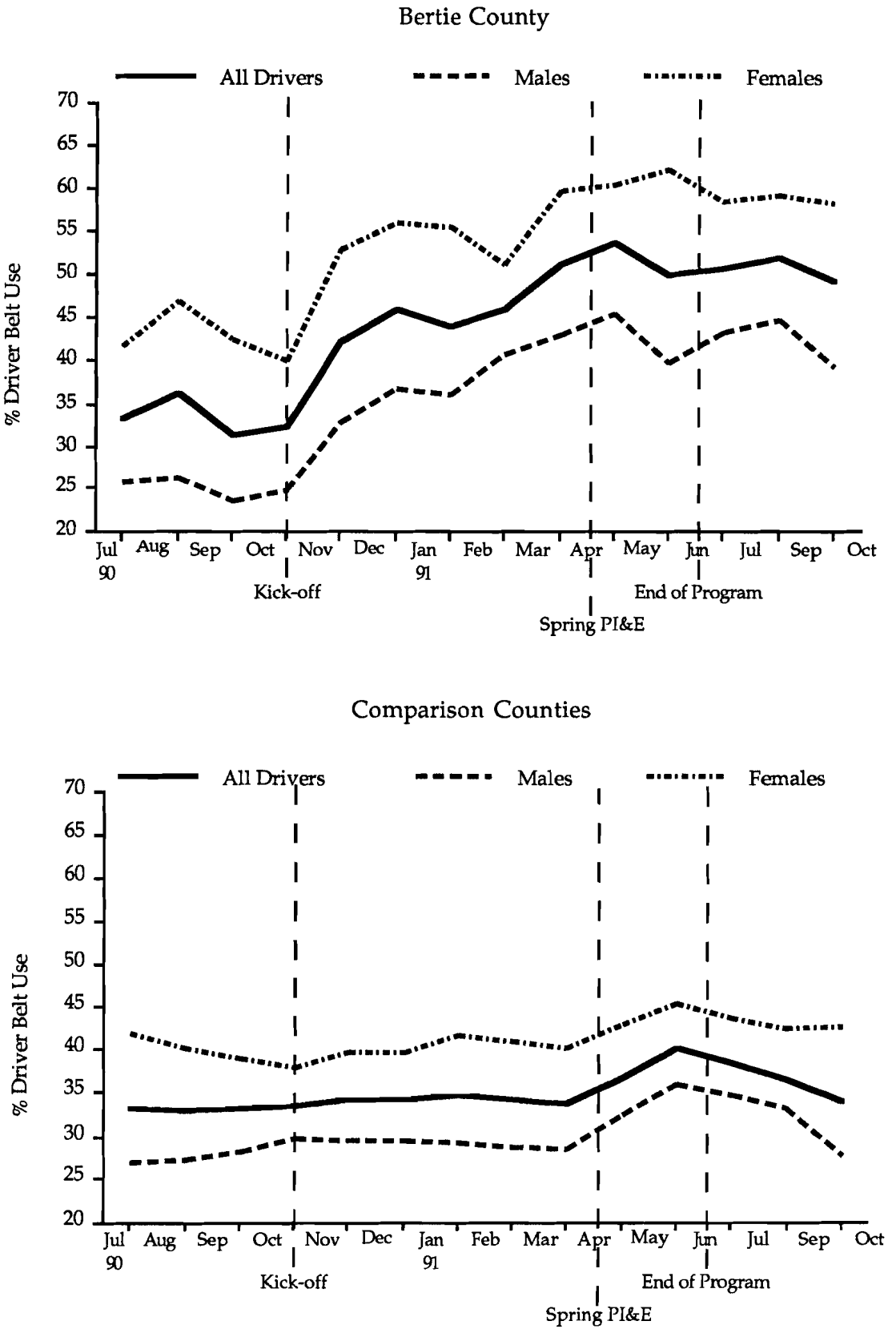


Figure 17. Driver Belt Use by Sex of Driver: Bertie vs. Comparison Counties

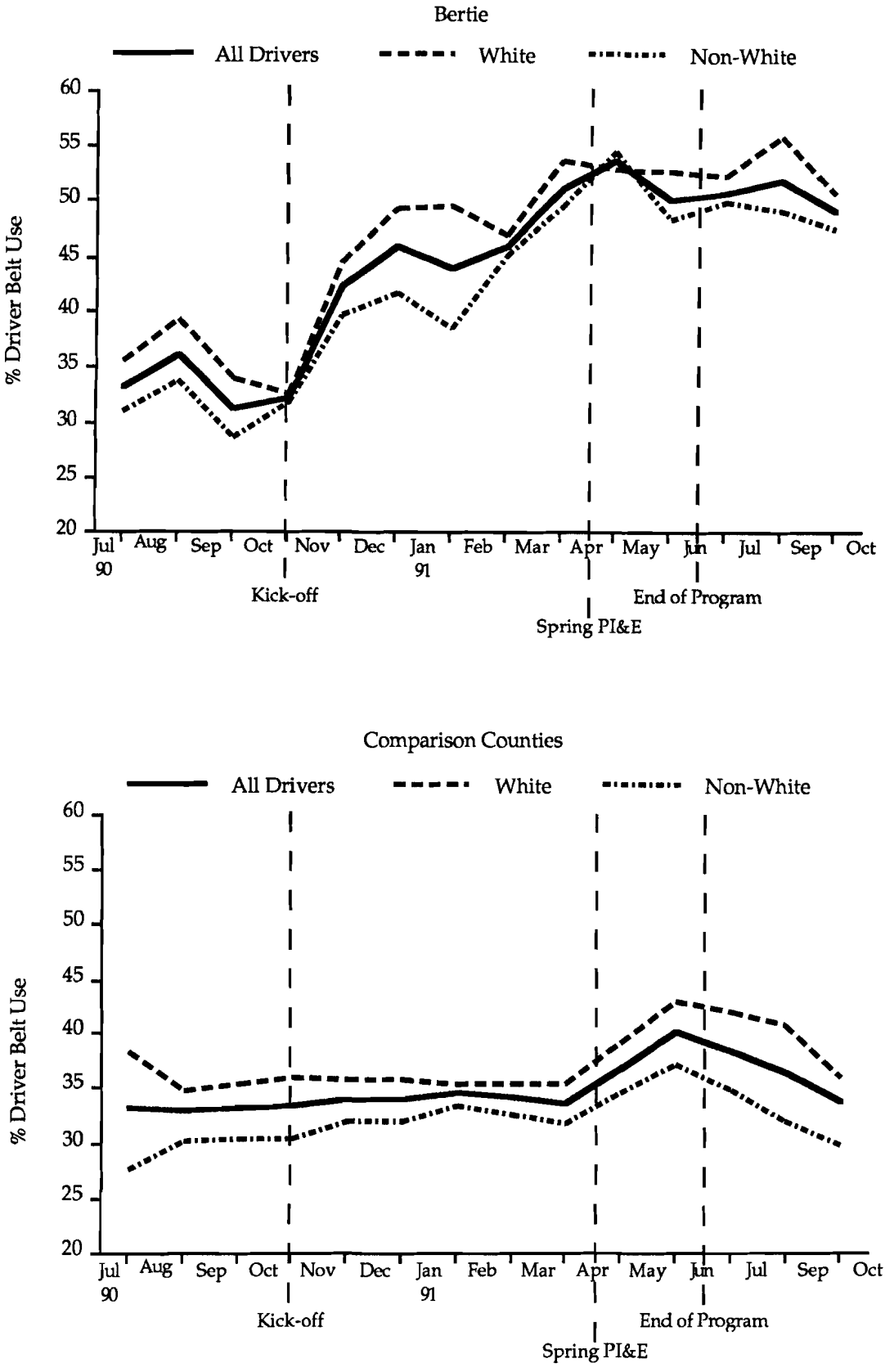


Figure 18. Driver Belt Use by Race of Driver: Bertie vs. Comparison Counties

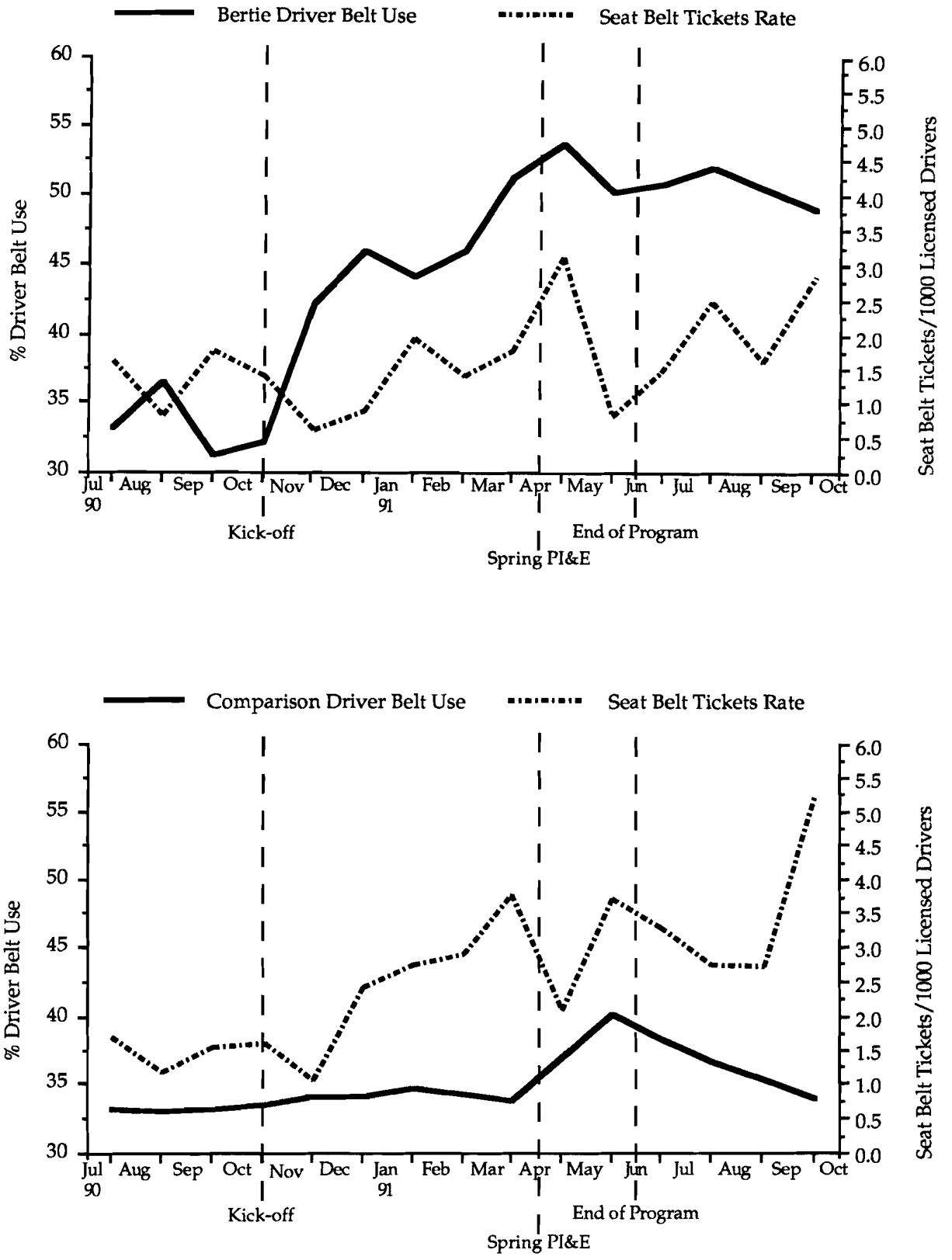


Figure 19. Driver Belt Use by Rate (Per 1000 Licensed Drivers) of Seat Belt Tickets Issued: Bertie vs. Comparison Counties

counties there was no increase in usage as enforcement increased whereas in Bertie there **was** an increase in belt usage concurrent with the enforcement increase. As is obvious, enforcement alone cannot account for the changes in Bertie.

ANALYSIS OF PRE- AND POST-PROGRAM ATTITUDINAL SURVEYS

Analyses of Community Surveys

Because of manpower differences at the driver license stations from the first to second survey period (the state was under a hiring freeze and vacant positions were not being filled), the overall sample size for the second round of driver license surveys was less than half the size of the first round. This resulted in statistical tests that are less sensitive to between-county differences than was the case with the initial surveys. Nonetheless, the same type of analyses as done earlier were again carried out to identify items on which the respondents from different counties responded differently in the after-program period. The following shows average self reported number of times out of the last five trips that:

A. The Respondent Buckled Up

County	Before	After
Bertie	3.82	4.03
Hertford/Northampton	3.99	3.59
Moore	4.47	4.64

B. Made Children Under 6 Buckle Up

Bertie	4.30	4.49
Hertford/Northampton	4.30	4.67
Moore	4.74	4.88

C. Made 6-15 Buckle Up

Bertie	3.59	4.07
Hertford/Northampton	3.96	4.23
Moore	4.56	4.68

Two-way analyses of variance models were fit to the mean values listed above, where the two factors were county and year. Mean values for the variable *number of times buckled up out of the last 5 trips* differed significantly by county with Moore County significantly different from the other two counties. The reported number of times the respondents buckled up did not change significantly from 1990 to 1991. Since the observed belt use numbers did change, this is another indication that self-reported data is not very reliable.

For the other two variables there were statistically significant, $p < .01$, effects for

both the county and year factors, but no significant interactions. Thus the change over time was essentially the same for all three counties. Again Moore county differed significantly from the other two which did not differ significantly from each other.

No significant differences between counties were found on any of the eight attitude questions for which no differences were found in the earlier surveys. In fact, all of the overall responses to these questions fell within 2 percentage points of their values estimated from the first survey. From this we can conclude that attitudes and knowledge did not change but belt use did; however, the pre-program knowledge was exceptionally good despite the low belt use.

Among the 8 questions where significant differences were found in the earlier surveys as shown in Figure 6, in only one were significant differences found in the follow-up surveys. This question asked whether or not police could stop you for a seat belt violation only (Item 7). Figure 20 shows both sets of results for these eight questions. This figure shows the Bertie county responses are, generally, somewhat more favorable to seat belts on the follow-up survey than on the initial survey. The same seems also to be true for the other counties, though perhaps to a lesser extent.

A discrete variable analog of analyses of variance was carried out on the percentages of Figure 20 for selected variables. For example, a categorical logistic model fit to the data from question 1 showed significant ($p < .05$) effects due to both county and year, but again no significant interactions. Thus, the percent of respondents who disagreed that seat belts can keep you from getting hurt decreased at essentially the same rate in all three counties. On the other hand, an analysis of the responses to question 7 showed a significant ($p < .001$) county effect, but neither the year effect nor the county by year interaction was statistically significant ($p = .223$ and $p = .366$, respectively).

To analyze the responses to the questions concerning the reasons for using and not using seat belts, two models were fit to the data for each. In one model the percent responding most positively was compared with all other responses, and in the other model the percent responding most negatively was compared with all others. For the question concerning reasons for using seat belts, a significant county effect ($p < .001$) was indicated in both models, while neither the year nor the county by year interaction effects were found to be significant ($p > .155$) in either model. Similar results were found for the model for the most positive reasons for not using seat belts, while in the model for the most negative reasons for not using seat belts, none of the effects was significant, ($p > .239$).

Overall, the analyses seem to show that many of the between county differences detected by the initial survey were still present in the follow-up survey. At the same time there seemed to be some increased acceptance of seat belts in all three counties over time, but little evidence of differential changes over time by county.

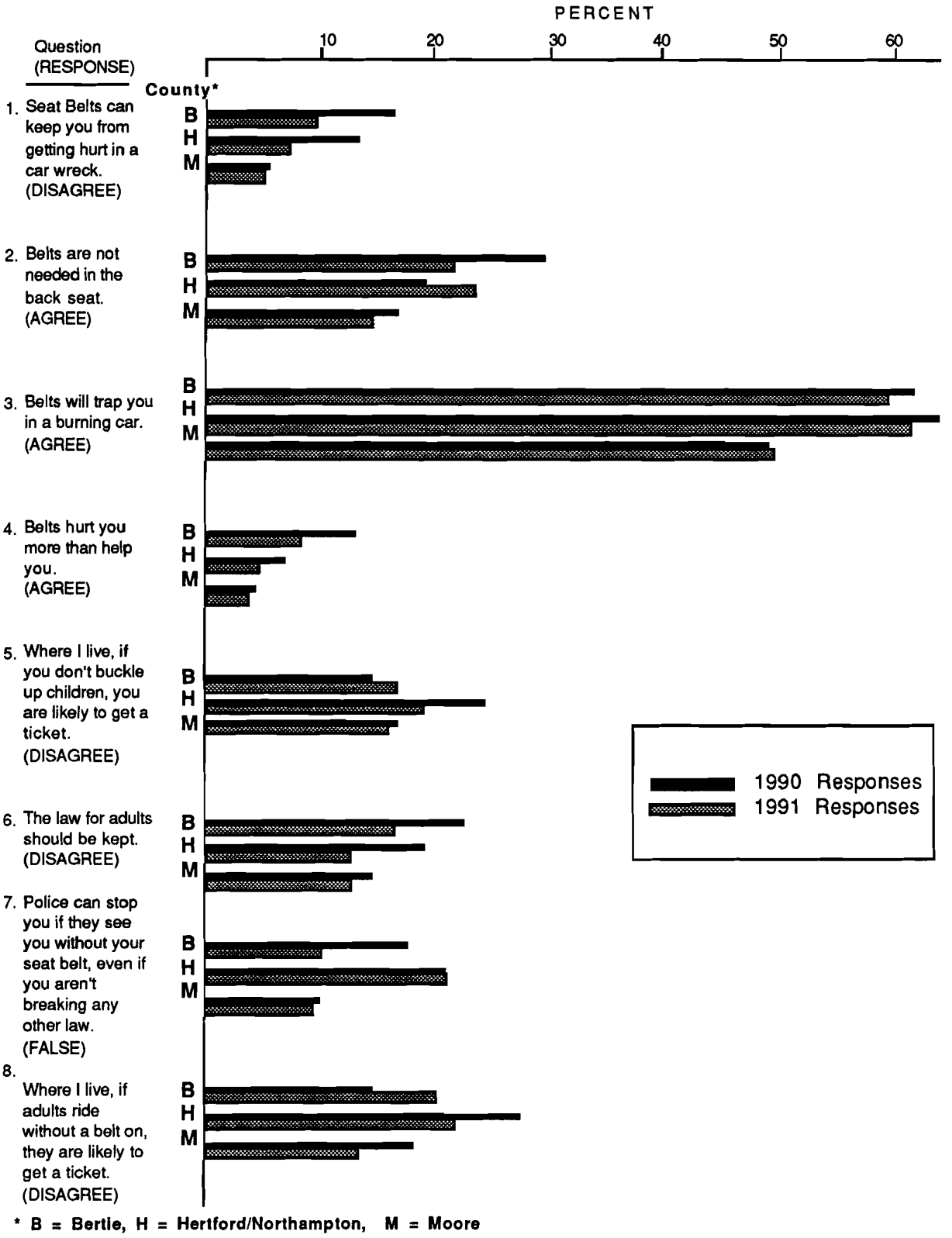


Figure 20. Pre- and Post-Program Responses to Seat Belt Questions by County

Analysis of High School Surveys

Seat belt questionnaires were given to high school students in each of the three counties in 1990 and 1991. Responses to seat belt use questions showed that reported belt use increased in each of the counties. The increase was clearly greatest, however, in Bertie County. The following shows the average self-reported times out of the last five trips that:

A. The Respondent Buckled Up

High School	Before	After
Bertie	3.01	3.52
Hertford	2.69	2.89
Moore	3.90	4.17

B. Made Children Under 6 Buckle Up

Bertie	2.99	3.63
Hertford	3.33	3.52
Moore	4.29	4.34

C. Made Friends Buckle Up

Bertie	1.79	2.56
Hertford	1.56	2.09
Moore	2.91	3.04

Responses to selected seat belt attitude questions discussed in Section III showed the already fairly favorable attitudes toward seat belts becoming, generally, more favorable from the 1990 survey to the 1991 survey. These changes seemed about the same across counties as shown in Table 4.

At all three high schools, the students did not change their opinions about the need for belts in the rear seat, with about a third of students indicating that rear seat belts are not needed. Bertie community responses, shown in Figure 20 on page 45, did show a decrease in the number of drivers who believe they were not needed.

Table 4. Percent of Respondents Agreeing with Seat Belt Statements by High School and Year.

	Year	Bertie	Hertford	Moore
1. **Adult law should be kept**				
	1990	74	72	74
	1991	76	80	75
2. **Seat belts are a hassle**				
	1990	37	43	32
	1991	32	37	31
3. **Belts needed most on long trip**				
	1990	62	66	53
	1991	53	59	43
4. **Belts hurt more than help**				
	1990	15	25	10
	1991	18	21	11
5. **Belts keep you from getting hurt**				
	1990	81	79	85
	1991	83	85	87
6. **Belts not needed in back seat**				
	1990	33	38	33
	1991	33	37	40
7. **Better to be thrown clear**				
	1990	25	35	16
	1991	21	23	22
8. **Belts will trap you**				
	1990	84	84	71
	1991	72	81	64

DISCUSSION

The critical behavior targeted in this campaign, use of seat belts, changed markedly. Overall belt use in Bertie County went up from about 33% to about 49%, a gain of nearly half. Thus, for every 100 who wore belts beforehand, about 148 did so afterwards.

In a most intriguing contrast to that clearly observed change, it is noted that there was very little change in self reported behavior. Those surveyed did not report much of an increase in belt use (only about a 5% increase), nor did they profess any large changes in opinions about belts, nor did those surveyed manifest any large scale increase in information. Let us consider each of those three separately.

Self Reported Belt Use: These findings are one more manifestation of the now well known fact that self reported belt use is not accurate. It is always over reported, and bears little relationship to actual levels of belt use or changes therein.

Professed Changes in "Attitude": In highway safety much has been made over the years of the role of attitude (bad mostly) in the production of crashes, and the advocated need to deal with attitudes and to try to change them for the better. The counterpoint to that theme states that it is not really necessary to change attitude, that behavior is the change needed, and that it is possible to change behavior without changing attitude. While both positions are over simplified, the experience here does serve to show that, at least with respect to seat belt wearing, it is possible to bring about behavioral changes apparently without much in the way of change in either positive or adverse attitudes toward the necessity and advisability of wearing belts.

Self-reported change in level of information: Likewise in this study it was not apparent that great increases in information level were produced. First and foremost that may be because the level of information was rather high to begin with. For example, when it came to questions about the traditional myths about belts, the great majority of respondents clearly knew the "correct" position even before the campaign. The slight gains were probably quite consistent with the modest magnitude of intervention compared to the many years of public information that preceded this campaign.

It is also worth noting that this increase in belt use was brought about with the high visibility of law enforcement officers but with no increased enforcement of the seat belt law. It is well documented how enforcement combined with public information about the enforcement efforts can increase belt use. The results from this study supports the case that law enforcement agencies can substantially increase belt use through non-enforcement strategies as well (Hunter, et al., 1991).

VI. CONCLUSIONS AND RECOMMENDATIONS

The findings of this project indicate that a community-based educational program can increase belt use among rural drivers. This project was a difficult test of the concept. The area where the program was conducted was poor and very rural, and the residents started the program with usage rates about half that of the state average. What the site did have was energetic and committed local leadership that represented a wide variety of organizations and groups.

Belt use increased from about thirty percent to around fifty percent. Increases were seen at all data collection sites - at the high school, the industries, the remote crossroads and the main towns. Increases occurred for both men and women, whites and non-whites, and drivers of cars and pickup trucks. Interestingly enough, area residents at the beginning of the project, although they were not wearing belts, did have good knowledge about belts and most knew that wearing belts made sense. During the program these attitudes did not change much, but behavior obviously did. Several recommendations for programs aimed at rural drivers can be derived from this project:

Use strategies to create and sustain buckling up habits. Key to change is to have a program that gets people to begin wearing their seat belts and to sustain this use over a period of time long enough to create the belt-wearing habit. The use of prizes, education, and constant reminders can start people buckling up, and continuing this activity over several months can lead to buckling up being an automatic process rather than an "each trip" decision. Once belt-wearing is a habit, the behavior has a greater likelihood of continuing after the prompts are withdrawn. This is supported by the analysis of the driver license station and high school surveys in which rural residents in high-belt-use areas indicated that they buckled up out of habit more often than did residents in low-belt-use areas.

Conduct a comprehensive effort with widespread ownership. Covering a large rural area is a lot of work. By joining forces, more people can be reached with less effort. Key groups to include are health departments, law enforcement agencies, the rural health community, schools, emergency medical personnel, local media, churches, major employers and youth groups such as scouts and 4-H club members.

Try to reach all parts of the community. Seat belt data collection, presentations, and prize-giving to belted motorists should be spread throughout the county. Each small community needs personalized messages on their prizes, posters, banners and in radio messages.

Pickup truck drivers can be reached. This is important because they are a large part of the vehicle mix in rural areas and they have consistently exhibited low belt use compared to drivers of cars. Belt use for this group, although it started lower and stayed lower than that for cars, did almost double during the program. Programs need to go where pickup truck drivers are. Presentations at agri-

business centers and crop producer meetings were well received as were prizes that fit their needs. This group, traditionally one of the hardest to reach, does seem to have seasonal fluctuations in belt use. When they are in "work mode" they seem to be less likely to buckle up, perhaps because they think they are exempt from the law when using the truck as farm equipment, they forget, or the pickups are being driven by temporary help. Strategies for this group might include approaching farmers as a worksite-type program with messages about on-the-job injuries.

Worksite programs are a valuable and effective component. The highest belt use was recorded at two worksites where a combination of educational presentations and seat belt checks was used. Safety directors and safety committees of major employers are generally receptive to these programs.

School programs can reach students and adults. High school students were an important target group because of their traditionally low belt use and overrepresentation in crashes. Children in grade school were an age group that survey responses indicated that residents were not likely to buckle up. In rural areas, the schools are also a source of community pride that involves more than parents. High school football, basketball and other sporting events draw from the entire county and can be good seat belt publicity events.

The involvement of law enforcement agencies is essential. Many rural police departments are reluctant to write large numbers of seat belt citations. However, the involvement of sheriff's departments, state police and local police departments in conducting non-enforcement activities - such as seat belt checks in which they give out information and prizes to belted motorists - can be a crucial component in a community program.

Make the program that the community puts together positive and fun. The message presented to Bertie residents was that good things were going to happen to people who wore seat belts. Vince and Larry, as well as the other strategies, were used as friendly reminders to buckle up. The message was that the program leaders cared about the communities' safety.

Local data collection can give programs much more than data. Seat belt use data should be collected on a regular basis, at least once a month, during a program. This gives the program information to use in publicity (i.e., the program is working, or we need to do better) and to target program elements and reinforce efforts in general. A side benefit is that the presence of these data collectors can contribute to increasing belt use. Local residents began looking for data collectors and were proud to show off their belts. Having an organization like a rescue squad collect the data is a boon to a program. These people are recognized and respected in the community as caring volunteers who have first hand experience with the consequences of crashes, and this boosts the program's credibility.

Highway safety advocates have struggled to find strategies to increase belt use among hard-to-reach populations such as rural drivers. The traditional paradigm has been to increase information and change attitudes as a means of influencing behavior. It may be that, in fact, we have come a long way in changing attitudes, even of the people who still choose to not buckle up. Positive attitudes and knowledge about belts were high at all project survey locations, including the counties where belt use was extremely low. Even after a rather large change in behavior in Bertie County, attitudes showed only marginal changes.

Most people may already have the requisite knowledge needed for high belt use, and where low belt use prevails, it may simply be that mechanisms are not in place to make people think about belts enough to develop the habit to support their use. Interventions that prompt, remind or reward motorists for buckling up may be what is needed as much as anything else to get people to develop belt-wearing habits.

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APPENDIX A:

PRE-PROGRAM SURVEY RESPONSES BY QUESTION

RESPONSES TO RURAL SURVEY QUESTIONNAIRES ADMINISTERED THROUGH DRIVER LICENSE EXAMINERS' OFFICES AND HIGH SCHOOLS

Question #
DL HS
1a NA* COUNTY WHERE YOU LIVE:

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	172	224	660	na	na	na
RESPONSES:						
Bertie	92.4	0.0	0.0	na	na	na
Edgecombe	0.0	0.5	0.0	na	na	na
Gates	0.6	1.3	0.0	na	na	na
Hertford	5.8	71.0	0.0	na	na	na
Moore	0.0	0.0	100.0	na	na	na
Northampton	1.2	27.2	0.0	na	na	na

*NA/na denotes that the question was not applicable to this group of respondents.

Q #
DL HS
1b NA COUNTY WHERE YOU WORK:

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	119	143	444	na	na	na
RESPONSES:						
Other	10.9	4.9	9.5	na	na	na
Bertie	77.3	0.0	0.0	na	na	na
Hertford	11.8	74.1	0.0	na	na	na
Moore	0.0	0.0	90.5	na	na	na
Northampton	0.0	21.0	0.0	na	na	na

Q # DL	Q # HS	
2	1	OUT OF THE LAST 5 TIMES YOU DROVE OR RODE WITH SOMEONE ELSE, HOW MANY TIMES DID YOU BUCKLE UP? (CIRCLE YOUR ANSWER.)

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	170	221	654	493	410	305
RESPONSES:						
0	7.7	5.0	3.5	15.8	20.5	10.5
1	2.9	3.2	2.9	8.5	9.3	3.3
2	6.5	7.7	2.5	14.4	15.6	5.3
3	16.5	13.1	4.7	12.0	16.3	11.2
4	15.9	14.0	6.9	11.8	10.0	14.8
5	50.6	57.0	79.5	37.5	28.3	55.1

Q #
DL HS

3 2 WHEN YOU WEAR A SEAT BELT, WHAT IS THE MOST IMPORTANT REASON? YOU MAY CHECK TWO.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	172	225	660	502	419	307
RESPONSES:						
Because it's the law	59.9*	58.7	51.8	36.1	39.1	34.0
To avoid the $25 fine	27.9	17.3	14.4	45.0	41.1	41.0
To be safe in an accident...	58.1	69.3	69.5	48.4	53.9	46.3
Because friends/family want me to	6.4	2.7	3.8	13.0	7.6	7.2
It's a habit, I don't think about it	16.9	17.3	26.5	17.1	11.5	31.6
My own experience in an accident	6.4	4.9	5.3	5.6	2.9	9.5
Someone else's accident experience	5.2	5.3	5.0	5.6	8.4	5.5
Other.....	1.2	0.4	0.6	2.6	1.4	2.6
You never wear a seat belt	2.9	0.9	2.1	4.0	6.7	2.3

*Percentages indicate the proportion of respondents among the corresponding groups that checked this answer as one of the two reasons.

Q #
DL HS

4 3 WHEN YOU DO NOT WEAR A SEAT BELT, WHAT IS THE MOST IMPORTANT REASON? YOU MAY CHECK TWO.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	172	225	660	502	419	307
RESPONSES:						
Belts do more harm than good	1.7*	2.2	1.4	6.4	8.8	3.9
Riding in car or truck that has no belts	30.2	20.0	22.7	12.0	12.4	17.9
Belts are uncomfortable	22.1	16.4	9.7	24.9	33.5	20.9
Belts can trap you in the car	12.2	10.2	5.5	19.1	23.2	9.1
Riding in the back seat	36.6	35.6	31.4	32.3	25.8	34.9
Not going very far	22.1	18.7	16.7	26.1	19.1	24.1
In a hurry	7.6	14.7	8.9	10.8	7.9	12.1
I forget, I'm not in the habit	13.4	17.8	8.5	23.1	23.9	14.3
Other	0.6	3.6	4.9	3.4	2.9	3.9
You always wear a seat belt	16.9	17.8	34.2	9.6	7.2	18.2

*Percentages indicate the proportion of respondents among the corresponding groups that checked this answer as one of the two reasons.

Q #
DL HS

5 4 **OUT OF THE LAST 5 TIMES YOU DROVE WITH CHILDREN UNDER AGE 6 IN THE CAR, HOW MANY TIMES DID YOU MAKE THEM BUCKLE UP? (CIRCLE YOUR ANSWER.)**

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	168	222	654	497	407	306
RESPONSES:						
0	5.4	3.6	1.8	15.1	15.0	4.3
1	0.6	1.8	0.0	5.0	3.4	1.6
2	3.6	2.3	0.2	6.0	5.2	2.0
3	3.0	5.9	2.8	6.4	3.7	3.3
4	6.0	5.9	1.7	5.0	5.9	4.3
5	56.0	51.8	59.2	28.4	34.6	45.1
You never drive with children under age 6 in the car	25.6	28.8	34.4	34.0	32.2	39.5

Q #
DL HS

6 5 **OUT OF THE LAST 5 TIMES YOU DROVE WITH SOMEONE AGE 6 TO 15/FRIENDS IN THE CAR, HOW MANY TIMES DID YOU MAKE THEM BUCKLE UP?**

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	170	224	653	496	403	303
RESPONSES:						
0	11.8	5.4	3.2	43.2	45.7	28.7
1	0.0	2.2	1.1	6.5	7.0	2.6
2	7.1	4.5	1.1	7.5	8.7	5.3
3	15.3	13.4	3.5	6.1	8.7	12.5
4	5.3	10.3	2.3	6.7	4.2	7.9
5	42.9	46.9	62.8	19.0	12.7	37.0
Never drive with anyone age 6 to 15/ friends in the car	17.7	17.4	26.0	11.3	13.2	5.9

Q #
DL HS

7 6 WHO WOULD MOST LIKELY INFLUENCE YOU TO WEAR YOUR SEAT BELT? YOU MAY CHECK TWO.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	172	225	660	502	411	307
RESPONSES:						
Police officer	66.9 *	63.6	55.2	63.0	65.0	56.4
Race car driver	4.7	4.0	6.1	5.0	6.6	8.5
Doctor/Nurse	3.5	8.0	8.2	2.2	2.7	2.9
Rescue squad member	9.9	11.6	15.3	5.4	6.3	9.8
TV/radio personality	9.9	4.0	3.5	7.0	4.6	4.9
Teacher you respect	2.9	3.1	2.7	4.0	3.2	1.6
Accident survivor/ family member of victim	39.0	44.4	42.9	44.4	41.1	42.7
Local minister/ other religious leader	1.7	1.3	2.3	3.6	3.7	1.0
Other	15.1	18.2	16.1	9.4	7.5	11.4
Parents	na	na	na	12.4	10.5	16.0

*Percentages indicate the proportion of respondents among the corresponding groups that checked this answer as one of the two reasons.

Q #
DL HS
8 7 WHAT VEHICLE DO YOU DRIVE MOST OF THE TIME? YEAR

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	127	159	485	351	238	241
RESPONSES:						
<1967	0.8	1.3	0.8	0.0	0.4	0.8
1967-1969	0.8	0.0	0.8	0.3	0.0	0.4
1970-1979	22.1	15.1	13.4	8.3	9.7	21.6
1980-1989	74.0	79.9	75.7	83.5	79.0	68.9
1990+	2.4	3.8	9.3	8.0	10.9	8.3

WHAT VEHICLE DO YOU DRIVE MOST OF THE TIME? TYPE

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	169	218	650	482	384	295
RESPONSES:						
None	0.0	0.0	1.1	0.0	1.8	1.0
Car, S.W	75.8	75.7	77.1	82.2	77.3	76.6
Jeep, Bronco, etc.	3.0	3.7	3.4	3.9	4.4	5.0
Other	2.4	1.8	1.7	3.1	1.3	2.0
Pickup truck	14.2	15.1	12.8	8.3	8.6	13.9
Van	4.7	3.7	4.0	2.5	6.0	2.0

Q # DL	Q # HS	
9	na	WHAT VEHICLE IS DRIVEN WHEN YOUR WHOLE FAMILY GOES SOMEWHERE? YEAR

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	112	143	450	na	na	na
RESPONSES:						
<1967	0.0	0.0	0.2	na	na	na
1970-1979	13.4	13.3	9.8	na	na	na
1980-1989	83.9	81.8	79.8	na	na	na
1990+	2.7	4.9	10.2	na	na	na

WHAT VEHICLE IS DRIVEN WHEN YOUR WHOLE FAMILY GOES SOMEWHERE? TYPE

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	165	219	637	na	na	na
RESPONSES:						
None	0.0	0.0	0.6	na	na	na
Car	80.0	74.9	79.3	na	na	na
Jeep, etc.	1.8	4.1	2.7	na	na	na
Other	1.2	0.5	0.9	na	na	na
Pickup truck	5.5	4.1	3.9			
Station Wagon	4.9	8.2	6.1	na	na	na
Van	6.7	8.2	6.4	na	na	na

Q # DL	Q # HS	
10	na	HOW MANY PEOPLE ARE IN YOUR FAMILY? ADULTS

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	165	215	650	na	na	na
RESPONSES:						
1	10.9	14.4	16.8	na	na	na
2	57.6	55.4	62.2	na	na	na
3	13.3	10.7	7.2	na	na	na
4	7.9	9.3	7.9	na	na	na
5	4.2	3.7	3.2	na	na	na
6+	6.1	6.5	2.8	na	na	na

HOW MANY PEOPLE ARE IN YOUR FAMILY? CHILDREN UNDER 16:

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	154	187	547	na	na	na
RESPONSES:						
0	40.9	39.6	55.6	na	na	na
1	26.6	21.9	22.5	na	na	na
2	19.5	25.7	14.6	na	na	na
3	5.8	9.1	5.9	na	na	na
4	5.2	2.1	0.9	na	na	na
5	0.7	1.6	0.6	na	na	na
6+	1.3	0.0	0.0	na	na	na

Q #
DL HS

11 8 CHECK THE ANSWER THAT DESCRIBES HOW YOU FEEL: AGREE, DISAGREE.

Seat belts can keep you from getting hurt in a car wreck.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	170	218	647	499	401	303
RESPONSES:						
Agree	82.4	86.7	94.3	79.6	76.6	82.8
Both Checked	1.2	0.0	.05	1.4	3.0	2.3
Disagree	16.5	13.3	5.3	19.0	20.5	14.9

In an accident, it's better to be thrown clear of the car.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	160	209	614	489	380	299
RESPONSES:						
Agree	14.4	14.8	10.3	24.7	34.7	15.4
Both Checked	1.3	0.0	0.3	0.8	0.3	1.7
Disagree	84.4	85.2	89.4	74.4	65.0	82.9

Belts are not needed in the back seat.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	162	215	629	498	391	302
RESPONSES:						
Agree	29.0	19.1	16.5	32.7	38.1	33.1
Both Checked	1.2	0.0	0.0	0.2	0.5	0.7
Disagree	69.8	80.9	83.5	67.1	61.4	66.2

Belts will trap you in a burning car.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	153	205	592	495	381	298
RESPONSES:						
Agree	60.8	63.9	48.8	83.0	83.2	69.5
Both Checked	1.3	0.0	0.2	1.4	0.8	1.7
Disagree	37.9	36.1	51.0	15.6	16.0	28.9

Seat belts are a hassle to use.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	159	213	633	495	384	304
RESPONSES:						
Agree	32.7	25.8	24.2	36.4	42.7	31.9
Both Checked	0.0	0.0	0.2	0.8	0.3	0.3
Disagree	67.3	74.2	75.7	62.8	57.0	67.8

Adults can protect children in a wreck by holding them in their arms.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	166	215	636	494	385	305
RESPONSES:						
Agree	6.0	4.2	3.8	3.4	11.2	3.6
Both Checked	na	na	na	0.8	0.5	0.0
Disagree	94.0	95.8	96.2	95.8	88.3	96.4

Belts hurt you more than help you.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	163	210	629	495	379	300
RESPONSES:						
Agree	12.9	7.1	4.1	15.2	24.0	10.0
Both Checked	1.2	0.0	0.3	1.6	4.0	2.0
Disagree	85.9	92.9	95.6	83.2	72.0	88.0

Belts are needed most on long trips.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	165	215	361	496	381	302
RESPONSES:						
Agree	44.2	46.1	45.0	61.3	65.6	52.7
Both Checked	na	na	na	0.6	0.8	0.7
Disagree	55.8	54.0	55.0	38.1	33.6	46.7

Where I live, if you don't buckle up children, you are likely to get a ticket.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	163	213	623	497	374	303
RESPONSES:						
Agree	85.9	76.1	83.3	66.2	69.3	68.0
Both Checked	na	na	na	0.4	0.3	0.0
Disagree	14.1	23.9	16.7	33.4	30.5	32.0

The law for children should be kept.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	166	217	637	500	378	305
RESPONSES:						
Agree	94.6	96.8	96.4	92.6	86.2	95.7
Both Checked	na	na	na	0.2	0.8	0.0
Disagree	5.4	3.2	3.6	7.2	13.0	4.3

Where I live, if adults ride without a belt on, they are likely to get a ticket.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	163	212	623	497	371	305
RESPONSES:						
Agree	85.9	72.6	82.0	64.2	63.3	72.1
Both Checked	na	na	na	0.0	0.0	0.7
Disagree	14.1	27.4	18.0	35.8	36.7	27.2

The law for adults should be kept.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	164	215	643	497	374	303
RESPONSES:						
Agree	78.1	80.9	85.7	74.0	71.4	73.9
Both Checked	0.0	0.0	0.2	0.2	0.8	0.7
Disagree	22.0	19.1	14.2	25.8	27.8	25.4

Q #
DL HS

12 9 CHECK WHETHER THE FOLLOWING STATEMENTS ABOUT THE NC CHILD PASSENGER LAW ARE TRUE OR FALSE:

Children under age 6 must be buckled up when riding in the front or back seat.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	na	na	na	499	363	305
RESPONSES:						
Both checked	na	na	na	0.0	0.3	0.0
False	na	na	na	5.2	9.6	5.6
True	na	na	na	94.8	90.1	94.4

Children under age 3 must ride in safety seats; older children can use seat belts.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	171	222	650	500	360	306
RESPONSES:						
Both checked	0.0	0.0	0.2	0.0	0.3	0.0
False	5.3	5.4	4.6	4.2	8.6	4.3
True	94.7	94.6	95.2	95.8	91.1	95.8

Children have to be buckled up only when their parents are driving.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	166	216	636	497	358	306
RESPONSES:						
Both checked	na	na	na	na	na	na
False	94.6	96.8	94.7	97.4	88.0	95.8
True	5.4	3.2	5.4	2.6	12.0	4.3

Q #
DL HS

13 10 **CHECK WHETHER THE FOLLOWING STATEMENTS ABOUT THE NC SEAT BELT LAW ARE TRUE OR FALSE:**

Only the driver and passengers in the front seat have to wear seat belts.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	na	na	na	499	352	304
RESPONSES:						
Both checked	na	na	na	0.0	0.3	0.0
False	na	na	na	42.7	36.1	29.0
True	na	na	na	57.3	63.6	71.1

Pickup trucks are exempt.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	161	210	614	493	348	303
RESPONSES:						
Both checked	na	na	na	na	na	na
False	93.8	91.4	94.0	85.4	86.2	93.4
True	6.2	8.6	6.0	14.6	13.8	6.6

Police can stop you if they see you without your seat belt, even if you aren't breaking any other traffic law.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	170	219	643	497	344	304
RESPONSES:						
Both checked	na	na	na	0.0	0.6	0.0
False	17.1	21.9	10.0	17.7	33.1	13.5
True	82.9	78.1	90.1	82.3	66.3	86.5

Q #
DL HS
14 11 **YOUR AGE:**

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	166	220	645	495	344	298
RESPONSES:						
12				0.2	0.0	0.0
14				3.4	0.3	0.0
15				23.8	28.2	3.4
16				39.4	48.0	43.6
17				25.3	17.7	45.0
18				6.9	4.7	6.7
19				0.8	0.9	1.0
20+				0.2	0.3	0.3
<20	14.5	15.0	10.2			
20-29	28.3	20.0	20.2			
30-39	23.5	25.0	19.2			
40-49	18.1	16.8	14.1			
50-59	5.4	12.3	10.5			
60-69	6.6	5.9	16.3			
70+	3.6	5.0	9.5			

Q #
DL HS
15 12 YOUR SEX:

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	170	222	653	498	353	302
RESPONSES:						
Female	65.9	56.3	51.8	50.4	58.4	48.0
Male	34.1	43.7	48.2	49.6	41.6	52.0

Q #
DL HS
16 13 YOUR RACE OR ETHNIC ORIGIN:

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	161	208	638	496	351	301
RESPONSES:						
White	39.1	49.5	76.7	26.4	30.5	79.1
Black	53.4	46.2	16.6	71.2	61.0	17.6
Amer. Indian	3.7	1.0	0.6	0.6	2.3	1.0
Hispanic	0.0	0.0	0.2	0.0	0.3	0.0
Other	0.0	0.0	1.3	0.4	1.7	0.7
Unknown	3.7	3.4	4.7	1.4	4.3	1.7

Q #
DL HS
17 14 CIRCLE LAST GRADE COMPLETED IN SCHOOL/CURRENT GRADE.

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	168	219	643	484	344	299
RESPONSES:						
9				28.1	0.0	0.0
10				38.6	41.9	0.7
11				31.6	49.7	53.5
12				1.7	8.4	45.8
<12	23.2	26.0	15.7			
12	49.4	40.2	33.9			
13-16	23.8	28.3	32.8			
17+	3.6	5.5	17.6			

Q #
DL HS
18 NA YOUR OCCUPATION

Not Coded

Q #
DL HS
NA 15 WHAT ARE YOUR PLANS AFTER HIGH SCHOOL?

	DL STATIONS			HIGH SCHOOLS		
	Bertie	Hert/NH	Moore	Bertie	Hertford	Moore
N =	na	na	na	499	352	300
RESPONSES:						
College	na	na	na	45.9	55.4	40.0
Jr./Com. College	na	na	na	19.6	19.9	39.0
Military	na	na	na	17.8	12.5	8.7
Other	na	na	na	2.6	3.7	4.3
Work	na	na	na	14.0	8.5	8.0

APPENDIX B:

SEAT BELT DATA COLLECTION PROCEDURES

INSTRUCTIONS AND OPERATING PROCEDURES FOR SEAT BELT DATA COLLECTION

PURPOSE

Seat belt data collection is an extremely important component of programs designed to increase the number of people wearing seat belts in a community. The data you will be collecting will help indicate if the program has had any effect on the belt wearing habits of the community. Since this is a part of the program evaluation, it is also extremely important that the data be collected according to the following guidelines and that you be as objective as possible in collecting the data. Sites have been selected and the procedures have been developed to make this information comparable to data collected in other North Carolina communities.

Except in special circumstances, you will be observing traffic at intersections and collecting data from both roadways. For this reason, a two-person observation team is more efficient.

VEHICLES TO BE COUNTED

The data form is divided into two sections. The larger section on the left of the page is for passenger cars and minivans. The smaller section on the right is for pickup trucks, large vans and utility vehicles. The basic groupings are as follows:

PASSENGER CARS AND MINIVANS: All 1968 and later model passenger cars and station wagons with headrests or high front seat backs (which indicate that it was equipped with a lap/shoulder belt) and minivans such as the Dodge/Plymouth Caravan/Voyager, Ford Aerostar, and Chevrolet Astro. Minivans used for delivery or other commercial purposes should also be counted on this section.

PICKUPS, VANS, UTILITY VEHICLES: This section is for all other vehicles required to have shoulder belts (1976 and later models under 10,000 lbs. gross vehicle weight). Most of the vehicles entered on this section will be pickup trucks. Jeeps, Blazers, Broncos and other similar multipurpose vehicles are included here even though many are really used as passenger vehicles.

EXCLUDED VEHICLES: Vehicles over 10,000 lbs GVW are not required to have shoulder belts and are excluded in these data collection procedures. Ignore vehicles such as buses, large panel trucks (e.g. UPS trucks), dump trucks, tractor trailers, etc.

WHO TO OBSERVE

The data to be collected will be limited to **drivers** of the vehicles indicated above. In addition, vehicles of these types will be limited to those that have shoulder belts. Remember that you will be observing only the driver and for these purposes will ignore all other occupants. You will count the drivers as being belted only if you observe them wearing their shoulder belt. Due to the nature of the observation procedures, drivers wearing only a lap belt cannot be seen and thus will not be counted as belted. Also, drivers must be wearing the shoulder belt correctly across the shoulder and chest to be counted. Drivers wearing the shoulder belt under the arm or behind the back are to be counted as unbelted. Drivers who put on their seat belt while approaching the site should be counted as unbelted.

Data is to be collected for males and females and for three race categories of "White," "Black'" and "Other." American Indians, Hispanics, Orientals and other ethnic groups that do not fit into the white/black categories should be coded as "Other." As indicated on the form, codes to be used are:

1= White Male	3= Black Male	5= Other Male
2= White Female	4= Black Female	6= Other Female

HOW TO USE THE DATA COLLECTION FORM

Before starting the actual data collection, you should fill in the header information at the top of the form. Fill in the site number, your initials, month (01-12), day, and time. As you are starting, fill in the "Start Time" according to the 24-hour clock (with 11:00 am being 1100, noon being 1200, 11:00 pm being 2300, and midnight being 2400). Fill in the finish time in the same way. With the exception of parking lots, data should be collected for a total of one hour at each site. With a two-person team, each person will collect data for 30 minutes. If for any reason one person is covering a site, data should be collected for one hour. "Start Vol.," "End Vol.," and "Unknown" will be covered later.

As you are observing traffic, enter the appropriate sex/race code for each driver in a space under the appropriate section (either cars/minivans or pickups/etc.). Start with the first blank in the section and enter the data across the rows until the row is completed and then start on the next row within that section. If the driver is wearing his or her shoulder belt, circle the code. For instance, "1" would indicate a non- shoulder-belted white male and "(4)" would indicate a shoulder- belted black female. If you are unsure as to either the sex, race or belt status of the driver, count it as an "Unknown." Keep track of "unknowns" by making a mark at the end of the row that you are currently on, but not within one of the spaces for one of the valid

observations (refer to the sample form). Unknowns will not be counted in the high volume situation.

There is enough space on the form for 150 passenger cars/minivans and 75 pickups/etc. If the count for an intersection exceeds these numbers for a vehicle type, you should continue your counts on a second page. after you have finished your observations, fill in the page identification information at the top of the form. If only one page is used, this should be filled in as "Page 1 of 1." If additional pages are used, indicate these as being "Page 1 of 2", "Page 2 of 2", and so forth.

COLLECTING DATA IN HIGH VOLUME SITUATIONS

In general, "volume counts" are takén when traffic is so heavy that you will be missing a large number of vehicles and getting a lot of unknowns. To collect in this situation, count the number of target vehicles passing through the site for five minutes. While doing this, do not try to make belt, sex or race judgments, just count vehicles. For the volume count, you do not separate the vehicles into the car/minivan and pickup/etc. groupings. To insure an accurate count, find space on the form to make marks as you count (see volume count sample). After five minutes, enter the number of vehicles counted as your "Start Vol." at the top of the form. Then, conduct standard observations (do separate them into the vehicle categories at this point) for another 30 minutes getting as many vehicles as possible. Remember, do not worry about keeping track of the unknowns but do enter zeros in the header blanks for "unknowns." To maintain objectivity, try to establish a workable sampling scheme so that the vehicles you count will be as random as possible. For instance, you might be able to get the first two or three vehicles through a stoplight, look down to enter the information on the form and then look up and get the next two or three vehicles you see. You may find that you can get every other vehicle. What works for you is OK as long as it produces a random sample of vehicles.

After collecting the standard data for 30 minutes, do another volume count for 5 minutes and record this count at the top of the page as the "End Vol."

COMPUTING USAGE RATES

The boxes at the bottom of the page are for the counts of each sex/race group foe each vehicle category -- the large box on the left is for cars and minivans and the large box on the right is for pickups etc. A microcomputer program has been furnished to the local data collection coordinator to facilitate these computations. If you elect not to use the microcomputer, follow these steps:

•Count the number of belted White Males in passenger cars/minivans and enter this number in the top box under the WM column in the car/minivan section.

•Count the total number of White Males observed, both belted and unbelted, and enter this number in the middle box under the WM column.

•Calculate the percentage of belted White Males by dividing the number of belted WM's by the total number of WM's and enter this percentage in the bottom box under the WM column (round off to the nearest tenth of a percent, e.g., 56.7%).

•Repeat the process for the other five race/sex categories in the car/minivan section.

•Calculate the Total % for cars/minivans by adding the numbers in the "Belted" row across the six race/sex groups and then add the numbers in the "TOTAL" row all the way across. Divide the total belted by the total observed to obtain the total percent belted for cars/minivans.

•Repeat the process for the pickup/etc. section using the box on the bottom right of the page.

Counts and percentages should be completed each time data are collected and turned into the local data collection coordinator.

SAFETY RULES

Remember that a two-person team is most efficient for data collection and provides more safety than working alone. The most important safety rules are to <u>be alert at all times</u> and <u>never turn your back on the traffic.</u> Do not listen to radios or do anything else that will distract you or otherwise reduce your alertness. Other safety rules are to wear orange safety vests for high visibility and to position yourself in a safe location. Stand on the side of the roadway as far from traffic as possible while still being able to see the drivers.

During sunny weather, you should wear a good pair of sunglasses to help reduce glare and eyestrain as well as to help you see into the vehicles better. Try to position yourself so that you are not blinded by looking directly toward the sun. Also, don't forget the sunscreen.

FIELD PROCEDURES

Some sites may be at entrances to school or business parking lots. In these cases, the position of the observers will be determined by the layout of the particular site. Data collection at parking lots should be done when drivers are arriving for school or work. If data is collected when traffic is exiting the parking lot, the drivers may see the observers and buckle up because of the data collection itself, not due to

any programs that are being conducted. The arriving traffic is generally a more accurate measure of belt usage.

As previously mentioned, the primary data collection sites will be at pre-selected intersections. These intersections have been selected as being representative of the community and also can be efficiently worked while maintaining the safety of the data collectors. You will be furnished with a diagram of each intersection that indicates patterns of traffic flow and suggested positions for collecting data. You will also be furnished with a schedule for data collection that will indicate which sites are to be worked during different time periods. Time periods are broken down into four general time categories; morning peak (7:00am-9:00am), morning non-peak (9:00am-noon), afternoon non-peak (noon-4:00pm), and afternoon peak (4:00pm-6:00pm). Times for data collection at schools and businesses will be determined by when the traffic will be arriving or leaving.

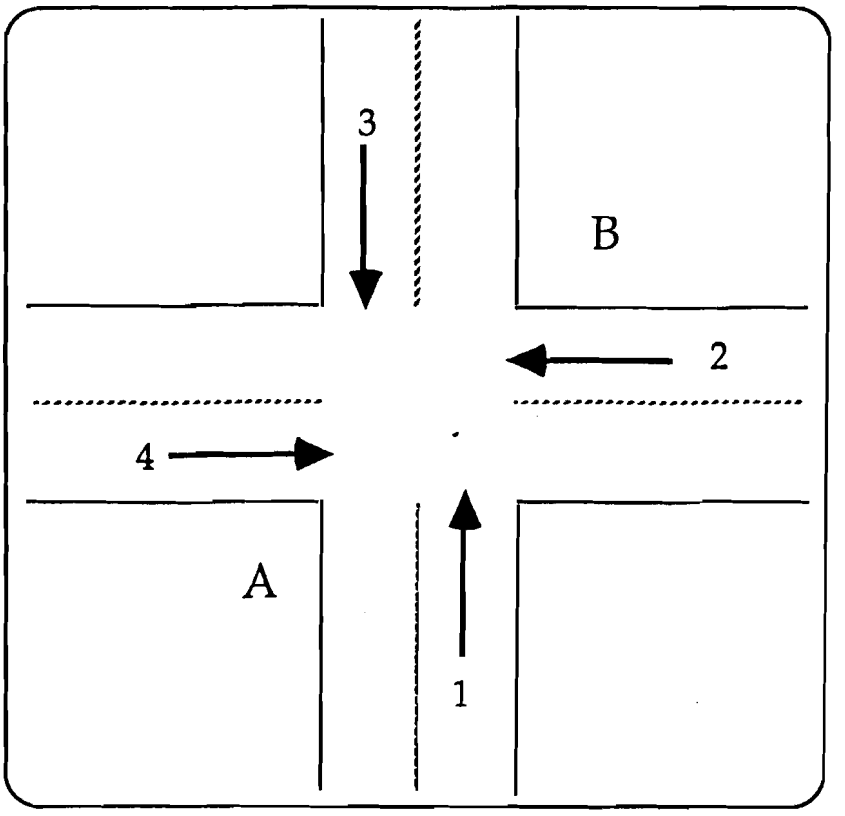
The best position for observing driver belt use is generally from the driver's side of his/her vehicle. This basic fact will dictate where you position yourself to work an intersection.

At a basic intersection with crossing roadways and no turn lanes, Observer A should position himself on one corner and Observer B would be caddy-corner on the other side of the intersection (see Example A). Observer A would count the vehicles in lanes 1 and 2 and Observer B would cover the vehicles in lanes 3 and 4. Vehicles turning right at the intersection may need to be picked up by the other observer.

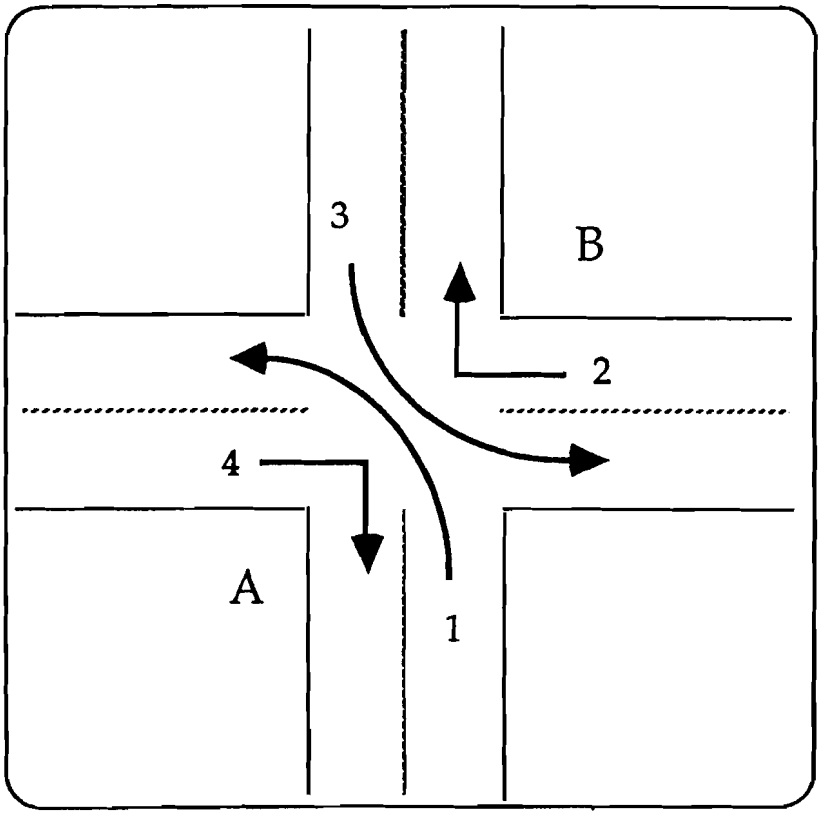
At a similar intersection with turning traffic, the observers will need to agree as to who will pick up the turning traffic (see Example B). In this case, Observer A will have no trouble spotting the belt use of left turning drivers in Lane 1 but may have trouble seeing the right turning drivers in Lane 2. In this case, Observer B should pick up the right turns from Lane 2 and Observer A would pick up right turns from Lane 4.

You may run into other situations and types of intersections where the observers will need to take a few minutes and discuss how the intersection is to be handled. It really does not matter who picks up which lanes of traffic as long as <u>all traffic is counted</u> and <u>duplicate counts are not made.</u>

Example A



Example B - Turning Traffic



(5/90)

Bertie County Seat Belt Observation Form

Site No.	Observer	Month	Day	Year	Start Time	Finish Time	Start Vol.	End Vol.	Unknwn-C

Page ___ of ___

Unknwn-T

WHAT	Cars with headrests or high seatbacks (1968 or later models). 1976 or later model pickup trucks.
WHO	Drivers wearing shoulder belt across shoulder, not under arm.
HOW	Record observation as:

1 White Male 3 Black Male 5 Other Male
2 White Female 4 Black Female 6 Other Female

Circle the number when person is belted.
Omit observation if unsure of belt status, race or sex.

PASSENGER CARS, MINIVANS	PICKUPS, VANS, UTILITY VEHICLES
(10)	(5)
(50)	(25)
(100)	(50)
(150)	(75)

	Passenger Cars, Minivans							Pickups, Vans, Utility Vehicles						
	WM	WF	BM	BF	OM	OF	TOTAL	WM	WF	BM	BF	OM	OF	TOTAL
Belted														
TOTAL														
%														

Page ___ of ___ ___ ___ ___ ___ ___ ___

Site No. Observer Month Day Year

PASSENGER CARS, MINIVANS	PICKUPS, VANS, UTILITY VEHICLES
(200)	(100)
(250)	(125)
(300)	(150)
(350)	(175)
(400)	(200)

Bertie County Seat Belt Observation Form

02	WcH	04	14	90	0945	1015	000	000	07
te No.	Observer	Month	Day	Year	Start Time	Finish Time	Start Vol.	End Vol.	Unknwn-C

01 Unknwn-T

Page 1 of 1

WHAT	Cars with headrests or high seatbacks (1968 or later models). 1976 or later model pickup trucks.
WHO	Drivers wearing shoulder belt across shoulder, not under arm.
HOW	Record observation as:

1 White Male 3 Black Male 5 Other Male
2 White Female 4 Black Female 6 Other Female

Circle the number when person is belted.
Omit observation if unsure of belt status, race or sex.

PASSENGER CARS, MINIVANS

1	(2)	(1)	3	(4)	4	2	1	5	3	(10)
1	(1)	1	(2)	4	(3)	1	(2)	(2)	2	11
(3)	(1)	4	(6)	(1)	(1)	2	3	(2)	1	
1	(4)	(1)	2	(2)	(2)	2	6	(1)	(3)	1
(3)	2	(4)	2	(1)	(1)	(4)	(3)	2	2	(50)
4	(1)	2	(2)	(1)	1	(5)	1	(2)	(3)	111
3	(2)	4	(1)	(2)	2	(1)	1	3	3	
2	(4)	5	(4)	(4)	1	(2)	1	(1)	(6)	
4	(2)	(2)	2	(3)	3	1	(3)	2	4	1
1	3	(2)	4	(1)	(1)	(3)	4	(4)	2	(100)
5	(2)	2	(4)	(4)	4	(3)	6			
										(150)

PICKUPS, VANS, UTILITY VEHICLES

1	(3)	(1)	2	4	(5)
1	1	(3)	3	2	1
4	(4)	1	(1)	3	
(2)					
					(25)
					(50)
					(75)

	WM	WF	BM	BF	OM	OF	TOT
Belted	16	13	10	10	1	3	53
TOTAL	31	31	18	20	4	4	108
%	51.6	41.9	55.6	50.0	25.0	75.0	49.1

	WM	WF	BM	BF	OM	OF	TOT
Belted	2	1	2	2	0	0	7
TOTAL	6	3	4	3	0	0	16
%	33.3	33.3	50.0	66.6	0	0	43.8