



North Carolina Department of Public Instruction  
Transportation Services Section  
301 N. Wilmington Street  
Raleigh, NC 27601  
(919) 715-1950

## A Cooperative Program to Reduce Incidents of Vehicles Passing Stopped School Buses in a Coastal Region of North Carolina



*This project was funded in part by the National Highway Traffic Safety Administration and conducted by the Institute for Transportation Research and Education at N.C. State University.*

## Executive Summary

In September, 1998, the North Carolina Department of Public Instruction was awarded one of four national grants by the National Highway Traffic Safety Administration (NHSTA) to demonstrate strategies for reducing the incidences of motorists passing stopped school buses. The North Carolina project focused on three coastal school districts: Onslow County, Pender County, New Hanover County. The project was conducted by the pupil transportation program at the Institute for Transportation Research and Education, North Carolina State University.

An approach designed to demonstrate various applications of technology yielded lessons learned more in the area of cooperation among agencies and, more specifically, the individuals within those agencies. The statewide Information Management System (TIMS) – a computer assisted system for school bus routing and scheduling – was used to document and report on incidents of motorists passing stopped school buses reported by school bus drivers. Law enforcement agencies were provided with these data to conduct week-long stepped-up enforcement campaigns, funded in part by the grant. In addition to providing an opportunity for increased enforcement, the campaigns provided an opportunity for public awareness through the local media.

The key component of this project, however, resulted from the installation of a video camera on a school bus in Onslow County. Stop arm violations caught on video tape provided law enforcement with additional information about stop arm violations reported by school bus drivers. Working together to review these violations, Onslow County Transportation Director Mr. Jeff Smith and State Highway Patrol Trooper R.A. Hood developed a close working relationship that has turned things around in Onslow County. As seen in the charts below, Onslow County's stop arm violations have decreased significantly.

Average Daily Number of Reported Violations

Date	New Hanover	Onslow	Pender
October 12-16, 1998	19.4	22.6	4.0
January 19-22, 1999	22.5	15.0	2.0
March 1-5, 1999	20.6	15.4	2.4
January 10-13, 2000	18.75	7.5	2.25
Feb 28-Mar 2, 2000	17.25	-	-

The success of the video camera has spread to other North Carolina school districts. Further, it was picked up by the media and continues to generate free publicity to bring this issue to the attention of the public. This was supplemented by statewide radio advertising and local television advertising during the project.

The project also highlighted the need for continuing training of school bus drivers on this subject and several important training materials were developed. These included brochures, an instructional video tape and school bus stop arm pamphlets targeted at the public.

While it is not an exact science, the numbers clearly tell us that somewhere between 1000 and 2000 times a day across the state of North Carolina, a motorist passes a stopped school bus, endangering the lives of students. School bus drivers, school district transportation staff, law enforcement and motorists have an important part to play in preventing such a risky act. Technology can be a valuable tool in this endeavor but, like most other things, it comes down to hard work and determination. The efforts displayed by individuals in the course of this project emphasize that and show that it is possible to better protect our children by reducing these incidents.

For more information on this project, contact the Department of Public Instruction Transportation Services at (919) 715-1950, or the Pupil Transportation in North Carolina web page at [www.ncbussafety.org](http://www.ncbussafety.org).

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## 1. Introduction

This report summarizes the project entitled “A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in North Carolina.” The program was funded primarily by the National Highway Traffic Safety Administration (NHTSA) and the North Carolina Department of Public Instruction (NCDPI).

The intent of the report is to provide an account of project activity and to focus on “lessons learned” so that other communities may benefit from the experience of this project. In addition to some initial background information, the report describes the various aspects of the program, including providing data to law enforcement, Operation Stoparm, public awareness and the use of video cameras on school buses.

## 2. Background and Introduction

In November, 1996, a report on the Florida stoparm study was presented at the National Association for Pupil Transportation Conference. Within two weeks of that presentation, a car that passed their stopped school bus hit two students in Davidson County, North Carolina. One student was treated and released; the other was very seriously injured. This drove home the fact that stop arm violations are not only a problem in Florida but in North Carolina as well. Taking the lead from the Florida study, the North Carolina pupil transportation community gathered baseline data in April, 1997.

Of 117 school districts in North Carolina, 114 participated in a one day stop arm violation count. This yielded a result of 2,636 stop arm violations reported by drivers on April 15, 1997. The 1997 stop arm violation count was instituted through a stoparm violation task force including representatives of local school districts, the Department of Public Instruction, Institute for Transportation Research and Education (NC State), Division of Motor Vehicles, State Highway Patrol, and the Governor’s Highway Safety Program. The task force felt that in order to do any meaningful measurement of the number of stop arm violations and any potential reductions, some baseline data was important. The results of the one-day count were used at a press conference in August, 1997, to emphasize this issue before the opening of school.

The statewide count has been conducted each spring since that time. This project, made possible through NHTSA funding, allowed the task force to continue working in a more proactive way to combat motorists passing stopped school buses.

## 3. Project Structure and Initial Activity

The numbers of violations reported on the statewide counts in 1997 and 1998 led to the selection of Onslow and New Hanover Counties to be included in the NHTSA project due to the relatively high number of occurrences compared with other parts of the state. Pender County, located between the other two counties, was included as well, since it shares media markets with Onslow and New Hanover.

### 3.1 Agency Involvement

The project, coordinated by the Department of Public Instruction, was conducted by the Institute for Transportation Research and Education (ITRE) at NC State University. Mr. Jeff Tsai, pupil transportation program director and Ms. Cynthia Wilson, pupil transportation research associate, staffed the project.

The pupil transportation program at ITRE is responsible for the implementation of the Transportation Information Management System (TIMS). TIMS, a program of computer-assisted routing and scheduling for school buses, is used by all school districts in North Carolina. The TIMS coordinators and transportation directors in the three school systems were very heavily involved, responsible for the project at the local level. Involved staff are shown below.

#### Onslow County Schools

Jeff Smith, Transportation Director  
Barbara Rooks, TIMS Coordinator

#### Pender County Schools

Thurman Casey, TIMS Coordinator & Transportation Supervisor

#### New Hanover County Schools

Michael Wayne, Transportation Director  
Jackie Genes, TIMS Coordinator

Law enforcement agencies in the three counties participated in the project as key participants. Education is important, but without motorists realizing that there are consequences to their actions, a program such as this is less effective. The State Highway Patrol had been involved for some time in working to combat stop arm violations from the patrol headquarters in Raleigh. Programs were in place where officers were directed to follow (shadow) buses and even ride buses in order to nab motorists who disregard the stop arm. In an effort to model the Operation Stop arm implemented successfully in Guilford County for a number of years, local law enforcement agencies were asked to partner with the public schools and the Patrol to focus on the stop arm issue. The involvement of local and state law enforcement agencies was critical to the success of this project.

Bus drivers in North Carolina are trained and certified by driver education specialists in the School Bus and Traffic Safety Section of the Division of Motor Vehicles. DMV bus driver trainers have regular contact with bus drivers and good insight into the issues that the drivers face. DMV Specialists were instrumental in the preparation of training materials in the course of this project.

### 3.2 Kickoff Meeting

On September 21, 1998 in Burgaw, NC (Pender County) a meeting was held of key participants in the project. The agenda for that meeting is shown in the Appendix, Exhibit 1A; the list of attendees is shown in the Appendix, Exhibit 1B. Representatives were in attendance from all key agencies, including school districts, State Highway Patrol, local law enforcement, Governor's Highway Safety Program, DMV School Bus and Traffic Safety, ITRE and the Department of Public Instruction. A copy of the PowerPoint slides used in the introductory presentation is included in the Appendix, Exhibit 9 at the end of this report. While the leadership from the various agencies had coordinated during the NHTSA proposal process, this was the first time that all project participants met together to discuss the project.

The most important thing that resulted from this meeting – one of the most important revelations of the entire project - resulted from opinions expressed by members of law enforcement. Information on the statewide problem of stop arm violations to date had been based on the one-day counts from 1997 and 1998. They felt that, while a problem exists with motorists passing stopped school buses, the figures that had been published during the past two years did not reflect reality. Further, they felt that some figures were inflated because of the driving practices of some school bus drivers. Specifically, the red flashing lights and the stop sign are not to be displayed (on most buses) until the vehicle has come to a complete stop. All too often, bus drivers attempt to control traffic by using these red lights too early. In such cases, a vehicle may appear to be passing a school bus, but the school bus has not completely stopped. *The project team agreed that, before any stepped up enforcement was requested, a new set of baseline data would be collected, emphasizing proper procedures.*

#### Lessons Learned

The project was set up to involve a variety of individuals and agencies in order to reduce stop arm violations most effectively. However, law enforcement staff “in the trenches” were not involved early enough in the process and, as a result, did not have the same conviction that a serious problem existed. By the time the kickoff meeting took place, the presentation focused on “Here’s the problem and here’s how you’re going to help us solve it.” Information should have been sent to them early on. The project team was caught off guard and had to very quickly implement some strategies to address the concerns raised and more closely involve all participants.

### 4. Driver Training Issues

Between the September 21 kickoff meeting and the first scheduled weeklong count in mid-October, a series of training sessions was conducted for all bus drivers that would be participating in the stop arm violation counts during the project. Additional information taken from a time and motion study pointed out the need for continual training, which resulted in the production of a brochure and a training video for school bus drivers.

#### 4.1 Training of Bus Drivers

Resulting from the September 21 meeting in which the possibility of inflated data was discussed, the Department of Public Instruction paid for all bus drivers in the three project counties to attend a training session. (This was funded from a contingency fund.) At these meetings, project team members and DMV trainers explained to bus drivers specifically what constitutes a stop arm violation in North Carolina. In addition to instruction provided by DMV and ITRE staff, the district attorney’s office was involved in the sessions in Onslow and New Hanover Counties. There were very helpful in discussing particulars of the law. This involvement was important because they have significant influence on the conviction ratio. The content of the handout used is shown as follows.

<p><b>What is a school bus stop arm violation?</b></p> <p><b>ANSWER:</b></p> <ol style="list-style-type: none"> <li>1. THE SCHOOL BUS MUST BE COMPLETELY STOPPED</li> <li>2. The RED lights must be activated</li> <li>3. The stop arm must be activated</li> <li>4. The passenger door must be open</li> <li>5. The bus must be stopped to load/unload students</li> </ol>	
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Compared to the daily counts taken in 1997 and 1998, the reported numbers during the first weeklong count in October, 1998 were way down in all three counties. There were, still, violations reported and many more than there should be. However, there was a significant reduction in the numbers reported previously. We can only infer that the apparent decrease was a direct result of the emphasis placed on the definition of a stop arm violation. The table below shows the number of violations reported (daily average) by county.

	New Hanover	Onslow	Pender
Daily Ave. (wk of 10/12/98)	19.4	22.6	4
April 15, 1996	80	40	9
April 21, 1997	93	61	20

#### 4.2 Time and Motion Study

To follow up more on the issue of bus driver behavior and how it contributes to the number of stop arm violations reported, ITRE conducted a time and motion study to look at how school bus drivers operate their traffic control devices: amber warning lights, red warning lights and stop arm. Specifically, bus drivers sometimes failed to come to a complete stop before activating the red warning lights and stop arm. With the use of the video camera system described later in the

report, project staff at ITRE conducted a time and motion study on the operation of school bus traffic devices to identify any training needs.

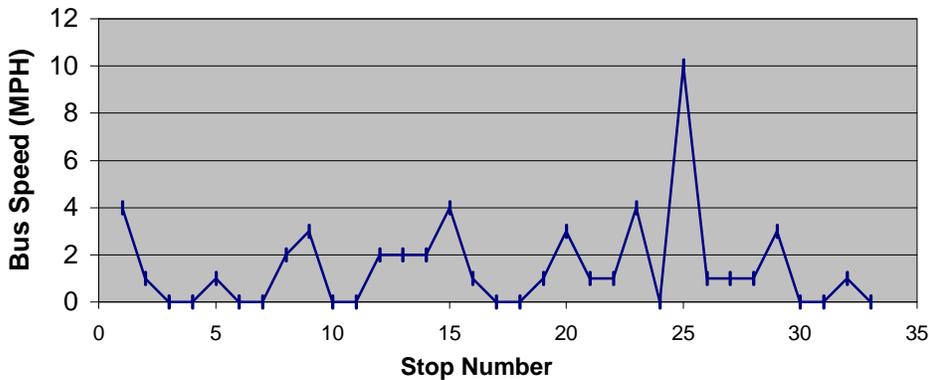
In North Carolina, the majority of the school buses are equipped with an eight light warning system. The “textbook procedure” for making a passenger stop is as follows:

- Activate the amber lights 300’ prior to the passenger stop,
- Stop the bus 15’ short of the closest passenger,
- Come to a complete stop, and then open the door. Opening the door activates the red warning lights and the stop arm.

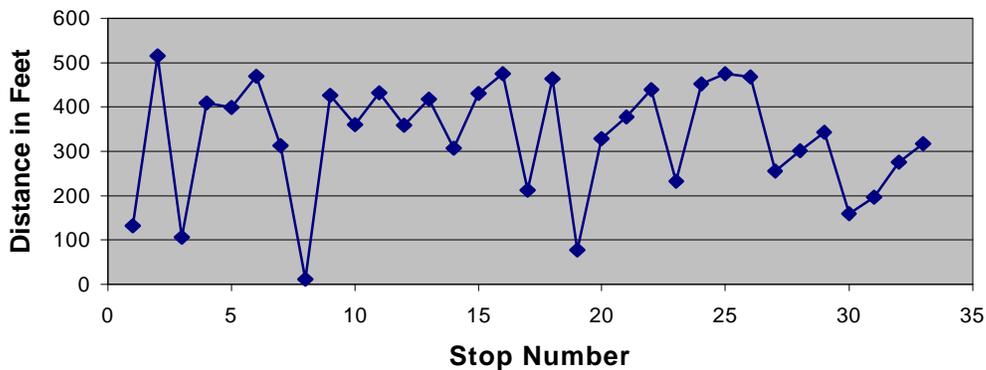
Using the recorded video, ITRE conducted the time and motion study for one bus equipped with a camera to capture exactly how the bus driver operated these traffic control devices. The first chart shown below is the bus speed when the door is opened (which activates the red warning lights and deploy the stop arm). Ideally, the bus should come to a complete stop before the red warning lights and stop arm are activated.

The second chart illustrates the distance traveled – for the same bus - from the point where the amber warning lights are activated to point where the red warning lights are activated. This chart assumes that the driver decelerates at the same rate for each stop.

**Bus Speed When Arm Deployed**



**Distance from Amber to Red**



The results of these two charts reveal two major operating issues:

- (1) The bus driver at times will “crack open” the door to activate the red warning lights and stop arm before the bus comes to a complete stop; and
- (2) The distance between the point when the amber lights are activated to the point where the bus stops is inconsistent.

This study reinforced the need for the project team to continue with bus driver training activities.

#### Lessons Learned

Despite one training session held for all bus drivers in the project area, there are some behaviors of some school bus drivers that may need some reinforcement to correct. The time and motion study, conducted several months after the project began and after the bus driver training session, pointed out that there is a need for continuing training.

### 4.3 Training Program for School Bus Drivers

In an effort to educate all 13,000+ bus drivers in 117 school systems in North Carolina on exactly what constitutes a school bus stop arm violation, a training video was produced entitled “Your School Bus Passenger Stop... Consistency Makes the Difference”. The six and a half minute videotape delivers a simple but clear message to bus drivers: “The school bus warning lights and stop arm is the main way for you to communicate to motorists sharing your roadway. Consistency in how and when to operate these devices is critical, so motorists near the school buses are fully aware of where and when the bus is about to make a passenger stop.” The video also states specifically that the following must occur in order for a passing vehicle to be guilty of passing the stop arm:

- the bus must be completely stopped for loading or unloading passengers
- the red warning lights must be activated, and
- the stop arm must be fully extended

Examples of roadway layouts are also illustrated in the video explaining when traffic in either direction must stop. Over 200 copies were made and the video made its debut during the North Carolina Pupil Transportation Association summer conference in the week of June 21<sup>st</sup> 1999. The video was distributed to 117 school systems and all (about 90) school bus driver trainers in the state.

In addition to the video, 20,000 brochures (copy enclosed) were also produced for bus drivers to reiterate key points from the training video. The



#### **Your School Bus Passenger Stop... Consistency Makes The Difference!**

**Length 06:47**

North Carolina Department Of Public Instruction  
Institute For Transportation Research & Education,  
North Carolina State University

*Funding provided by the National Highway Traffic Safety Administration*

brochures were mailed to school systems just in time for school opening. Production of the training video and brochure was a joint effort between ITRE, the Department of Public Instruction, the North Carolina State Highway Patrol, and the Division of Motor Vehicle, School Bus and Traffic Safety section. The training materials were very well received by local school districts.

#### Lessons Learned

The production of materials that can be used from year to year provides an opportunity to carry forward the message rather than relying on one-time events. For instance, a driver that may have had to miss the one-time driver meetings held in early October, 1998 will have a chance to receive a very similar message by watching the video. Further, it can be pulled off the shelf and easily used for refresher training on an annual basis.

### 5. Stop Arm Violation Counts

One key to measuring the success of this project is having data measured over a period of time. The reporting process was based on the same process followed for the one-day counts that had been conducted in 1997 and 1998.

#### 5.1 Five Day Counts

For a period of 5 consecutive days, school bus drivers were asked to count the number of times that a motorist passed their stopped school bus. They were to use the definitions and concepts presented during the October, 1998 training sessions. The following information was recorded for each violation, on the form shown in Exhibit 2 of the Appendix:

- Time of Violation
- Location of Violation
  - TIMS Bus Run ID
  - TIMS Bus Stop ID
- Whether the vehicle passed from the
  - Front
  - Rear
- Which side the vehicle passed on
  - Left
  - Right
- Type of Roadway
  - 2 lanes
  - 2 lanes + turn lane
  - 4 lanes
  - 4 lanes + turn lane
  - More than 4 lanes with median

The violations were to be reported regardless of whether the driver could identify the motorist or the driver. The data collected were consistent with those items gathered statewide during the one-day counts conducted in 1997-2000.

Transportation directors were responsible for compiling the bus driver sheets and submitting them to the ITRE office for distribution to law enforcement and analysis.

Lessons Learned

This data gathering process had been worked out pretty smoothly through the statewide counts that were conducted in the past. We had already eliminated some data items to streamline the report. For instance, original data were gathered on whether or not the road was paved. That item did not add any value to the resulting data since nearly all of the violations occurred on paved roads, because nearly all route miles are on paved roads.

5.2 Violation Count Results

Four weeklong counts were conducted. In some cases, a 4-day count was used instead of a 5-day count due to a school holiday. Stop arm violation counts (as well as an Operation Stop arm) were delayed in the Fall, 1999, due to Hurricane Floyd and its aftermath which hit eastern North Carolina, including the project area, very hard. Counts were conducted in October 1998, January 1999, March 1999 and January 2000. An extra count was conducted in New Hanover County in March, 2000, following the television Public Service Announcements that aired in Wilmington during January.

Exhibits 3A, 3B and 3C show the data reported during the four weeklong counts. The following summary table gives an indication of how the numbers changed through the course of the project.

Average Daily Number of Reported Violations

Date	New Hanover	Onslow	Pender
October 12-16, 1998	19.4	22.6	4.0
January 19-22, 1999	22.5	15.0	2.0
March 1-5, 1999	20.6	15.4	2.4
January 10-13, 2000	18.75	7.5	2.25
Feb 28-Mar 2, 2000	17.25	-	-

The measures taken in Onslow County, including video cameras and working closely with the State Highway Patrol, proved very beneficial and can be seen in the decreasing numbers. Because of the lack of decline in New Hanover County, the television PSA's were targeted for that location. Pender County experienced some decline from the initial count, but the numbers are consistently low and difficult to draw any significant conclusions.

5.3 Statewide Stop arm Violation Counts

On April 28, 1999, school districts across the state participated in the third annual stop arm violation count in which each driver is asked to record instances of stop arm violations, regardless

of whether or not he/she has enough information for law enforcement to prosecute the offense. Of the 117 local education agencies (LEAs) in the state, 98 participated in the count. This accounts for about 94% of the state's 13,000 school buses.

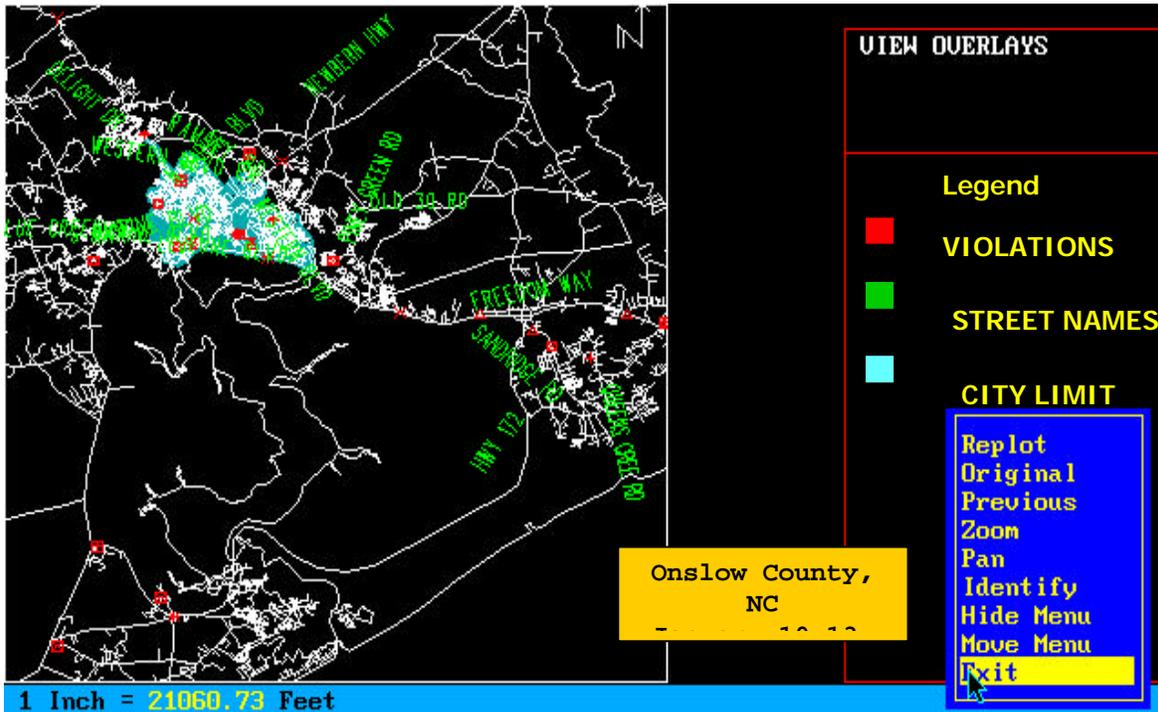
Statewide, drivers reported 1,756 stop arm violations on this date. This was down from 1,935 the previous year. In 1998 there was actually less participation (about 50 fewer buses). The first year of the count, 1997, yielded 2,636 violations reported, with over 99% of buses participating. In general there is a definite downward trend, attributable – we believe – to two main factors.

- Bus drivers are more aware than ever of what exactly constitutes a stop arm violation and are doing a better job of identifying incidents what are true violations.
- Motorists are more aware of the dangers of passing stopped school buses, presumably through more coverage in the press than in the past.

On March 22, 2000, the fourth annual statewide count was conducted (after the end of this project period). The total number of violations reported was 1,511. The results for the statewide counts are shown in the Appendix , Exhibits 4A-4D.

## 6. Providing Data for Law Enforcement

One of the main emphases of the project was to provide information to law enforcement on the locations of reported stop arm violations. Stop arm violation count data were compiled and, through the Transportation Information Management System (TIMS), maps and reports were generated to indicate exact locations of reported violations. All bus stops in each county are in that county's TIMS database. TIMS, which is normally used for bus routing, was used to generate the reports and maps to provide some geographical reference for use by law enforcement. A sample screen from TIMS displaying bus stop locations is shown below.



The first step in the process is to identify the locations of the stop arm violations. Bus drivers reported these on the Bus Driver Survey Form described earlier and summarized on the county reporting form.

The Bus Stop ID's from TIMS were then entered into a spreadsheet and cross-referenced with the TIMS Database. From this, a report was generated that indicated the bus stop locations where the reported violations occurred.

		ONslow COUNTY REPORTED STOP ARM VIOLATIONS JANUARY 19, 1999												
1/19/99 Stop ID of Violation:	AM	PM	Stop Description	Vehicle passed from		Passed on which side		Type of Roadway						
				Front	Rear	Left	Right	2 Lns	2 Ln+t urn	4 Ln, no med	4 Ln+t urn	> 4 Ln w. med.		
324814	6:00		113 NEW RIVER DR	X		X		X						
304024	7:45		367 BELL FORK RD	X		X				X				
312125		3:30	CORNER BELL FORK RD & CAVINESS DR	X		X		X						
312101		3:41	126 BELL FORK RD		X	X		X						
312101		3:41	126 BELL FORK RD		X	X		X						
344183	7:55		HICKORY HILLS TRAILER PARK		X	X						X		
343173	7:08		BEYOND PONY FARM/HWY 53 AT FLOYD TRANS	X		X				X				
343008		3:17	JUST BEFORE INTERSECTION OF HWY 53 & PONY	X		X				X				
308030		2:23	4332 RICHLANDS HWY – RIGHT		X	X							X	
345215		2:50	641 BEN WILLIAM RD	X		X		X						
314254	7:15		742 N 17 W		X	X		X						
321002	7:30		2390 PINEY GREEN RD	X		X		X						
322023	7:25		2331 PINEY GREEN RD	X		X		X						
322213	7:46		CORNER LAKE COLE RD & ROCKY RUN	X			X	X						
351174	6:40		CORNER HWY 172 & WILLOW ST	X		X		X						
670002		2:55	125 BELL FORK ROAD	X		X				X				

The graphical output that corresponds to this report is shown in the Appendix A, Exhibit 5.

After the first count in October, 1998, the process was fine-tuned. Data from the January 1999 count were mapped and reported to various law enforcement agencies. The maps and reports were sent through the mail to the various law enforcement agencies. Possibly because this was early in the project and there was not sufficient “buy in” from law enforcement, it appears that these data were not used extensively during February. All subsequent distributions of maps and reports were done in person either by ITRE staff or LEA transportation staff to ensure a clear communication of expectations.

Lessons Learned

The geographic tools available for doing school bus routing are very well suited to being used for locating stop arm violations. Rather than recording physical descriptions of violations, drivers simply had to record the TIMS bus stop number. Since stop arm violations, by definition, occur at bus stops, all of the potential locations for violations are pre-loaded in the routing system. Even though this seemed to be a very good way to distribute the information, law enforcement agencies tended to rely on more traditional methods (see following discussion under Operation Stop Arm).

## 7. Operation Stop Arm

One of the key components of the project was specific time periods to be identified for stepped up enforcement. This was modeled after a successful program in Guilford County where all law enforcement agencies joined together to focus on the stop arm problem for a specified week. In preparation for Operation Stop Arm, NHTSA grant funds were used to contract with the State Highway Patrol for additional trooper hours in New Hanover and Onslow Counties, in addition to the regularly assigned hours dedicated to school bus issues.

### 7.1 Operation Stop Arm # 1 – February 8-12, 1999

The first rendition of Operation Stop Arm included stepped-up enforcement and a show of support at two press events. The Department of Public Instruction contracted with the Highway Patrol to provide additional troopers in addition to those already assigned to monitor school bus activity. During the week of February 8-12, an additional 100 trooper hours were assigned in Onslow and New Hanover Counties. Two officers were assigned on each of three days in New Hanover and Onslow Counties.



While Pender County troopers were involved, additional man-hours were not purchased because of the relatively low volume of reported violations.

On Monday, February 8, 1999 at 10 o'clock a.m., a press conference was held at Blue Creek Elementary School in Jacksonville, NC. Attendees included the local superintendent and transportation director, representatives from the project team from DPI and ITRE, representatives from the Jacksonville Police, Onslow County Sheriff's Department and North Carolina Highway Patrol. The media were presented information about the project and the importance of educating motorists about the dangers of passing stopped school buses. In addition, the camera mounted on the Onslow County bus was shown as well as videotape taken from the camera. This press conference resulted in some fairly detailed coverage in the Jacksonville newspaper.

That afternoon, a 2:00 p.m. press conference was held at Codington Elementary School in Wilmington. Attendees included representatives from the New Hanover and Pender County Pupil Transportation Departments, assistant superintendent (New Hanover), project team representatives, State Highway Patrol, Wilmington Police, and New Hanover County Sheriff's Department. This press conference was covered on the local TV news that evening.

### 7.2 Operation Stop Arm # 2- January 24-31, 2000

The second Operation Stop arm was originally scheduled for September, 1999 but had to be postponed until January, 2000. Based on the stop arm reports from drivers earlier in January, 2000, the ITRE staff prepared maps and reports for the Highway Patrol and city police in Jacksonville and Wilmington. These maps were delivered to the law enforcement agencies the week before Operation Stop Arm. This information was used by law enforcement to target their

areas of observation. During this week there was also news coverage of Operation Stop Arm stimulated by a press release issued by the Department of Public Instruction.

Surveys were completed by two Highway Patrol representatives and are shown in Appendix A, Exhibit 6A, B. In addition, a summary of the citations issued by officers during this week of stepped up enforcement is shown in the Appendix, Exhibit 6C.

Lessons Learned

Law enforcement agencies are very willing to show their support for safety initiatives such as this. However, they need to be involved in the entire process. The project team went into the project with the thought that using “our” data would be the best way for law enforcement to approach “their” enforcement efforts. There was not the close communication that was needed in order for them to provide input into the form or format of the data that could be supplied. Further, the maps and reports only duplicated what the county schools already knew in terms of “hot spots” of violation report. As a result, there was not the value added to the project that was originally anticipated.

8. School Bus Stop Arm Violation Video Surveillance

One of the technologies that the project team wanted to investigate was the use of video cameras to “nab” stop arm violators. There had been some work done in this area, but no technology had been identified for use in school transportation that could effectively deal with the problem. Onslow County Schools was the first in North Carolina to install a video camera system to monitor school bus stop arm violation activities: a SilentWitness System SWS310 system equipped with a weatherproof camera. The camera head measures barely over 3” x 2 ¾”.



The camera has a unique locking system so it can be removed easily from the bus for security at the end of day. The recorder is an industry standard VHS analog recording system that is capable of recording electronic sensor activities. The installation at Onslow County records time, bus speed, activation of amber warning lights, activation of red warning lights and stop arm deployment. This system is widely used for in-bus surveillance purposes in U.S. and Canada school districts. The installation in Onslow County is the first application of this technology for school bus stop arm violations. The equipment described in this section was funded by the Department of Public Instruction.

*In the sequence below, a vehicle is shown approaching and passing the school bus while it is stopped. The time stamp also indicates that the lights are RED and the speed is 0 m.p.h.*



### 8.1 Video Cameras in Onslow County

The results of the implementation of this technology in Onslow County were very different than what was originally envisioned. In Onslow County, the most important advantage of videotaping stop arm violations for this project was providing law enforcement officials with “hard evidence” that the problem existed. A general perception by law enforcement was that the numbers of reports were highly inflated, fueled somewhat by the driver behavior issues discussed previously. Prior to this project, law enforcement officers did not have a standard procedure established to follow-up reported violations. Reports were handled differently depending on the individual trooper. In many cases, if the bus driver could not positively identify the perpetrator, then the report was marked as “incomplete” and dropped.



As a result of the videotaping, Onslow County now has a dedicated trooper that responds to stop arm violation reports, works closely with school transportation personnel and is involved in drivers’ training. One example of such a relationship was illustrated in the February 2, 1999 memo regarding proper procedure to make a “corner bus stop” (Exhibit 7) which was initiated by law enforcement and the district attorney.

The video camera technology is not sufficiently sophisticated to reveal license tag numbers, or even to identify the driver. But it is sufficient for the highway patrol to use as the basis for a follow-up investigation and, in many cases, motorists have pleaded guilty (to passing a stopped school bus or possibly a reduced charge) without ever going to court.

It is also noted that the involvement of the district attorney is critical to the success of this project. In Onslow County, the majority of violators are now not going to court. Rather they are pleading

guilty and the charge is reduced from a school bus stop arm violation (5 points) to improper passing (4 points). At first glance, this might seem to be a “watering down” of the punishment, 4 points is still a major violation that impacts not only the driver’s license, but insurance costs as well. After learning that they were caught on videotape, very few violators decide to go to trial. A few of the charges were not reduced due to unusual circumstances. Onslow County has been very successful in increasing the conviction rate of motorists that pass stopped school buses because the videotape has served as a catalyst for cooperation between law enforcement, the public schools and the district attorney.

**Lessons Learned.**

**This sense of cooperation is the “big story” in this project. The focus on stop arm violations and the implementation of the video technology brought the school system transportation staff and law enforcement agencies together to work toward a common goal. While each group had dealt with the issue in its own way prior to the project, the videotaped evidence and exchange of information helped to increase convictions of reported violations and the resulting publicity has helped to decrease overall violations. It comes down to the close working relationship developed by Transportation Director Jeff Smith and State Trooper R. A. Hood.**

8.2 Video Cameras in New Hanover County

One of the very important issues identified by the project team from the success in Onslow County is the need to convince law enforcement agencies of the magnitude of the stop arm violation problem. The school stop arm violation is the ONLY type of traffic violation in North Carolina where law enforcement relies on citizens’ reports; therefore, it is important to present sufficient evidence. This project showed that videotaping of actual stop arm violations was the convincing factor for Onslow County’s law enforcement agencies.

Since New Hanover County had not seen significant reductions in reported violations in the last three counts, two video cameras identical to the ones installed in Onslow County were installed on buses there. A concerted effort was put forth by the New Hanover County Schools transportation staff during the week of a stop arm violation count in January 10-13, 2000 to record all violations and share the information with law enforcement agencies. Project team members made a personal visit to meet with city and state law enforcement officials in New Hanover County. They reviewed video clips, violation maps and other statistics. The New Hanover County school transportation personnel and project team members felt that the video clips of violations made a significant impact.

Again, while the videotapes did not show positive identifications of drivers or license tags, they provided a point of reference for the school staff and law enforcement staff to talk from.

In New Hanover County, while significant interest was developed initially between the Wilmington Police, Highway Patrol and local schools, the continuity seen in Onslow County never materialized during the remainder of the school year. At this writing, school has been out

for the summer, so what proactive efforts may materialize during the 2000-01 school year remain to be seen.

### 8.3 Other Counties

Several school systems, based on the Spring, 1999 statewide stop arm violation count, were given the opportunity to place external video cameras on buses to observe stop arm violations. This included additional cameras in Onslow County and new cameras in New Hanover County – both in the project area. In addition, cameras were purchased by the Department of Public Instruction for Winston Salem/Forsyth County Schools (where a stop arm fatality occurred). The staff at the Institute for Transportation Research and Education (ITRE) worked directly with the camera supplier on the project and discussed the need for new technology to improve the image of the tapes. At this time, the cost of development for this application seems to be keeping the manufacturer from making much progress in this area.

## 9. Public Awareness

One of the key aspects of this project was to investigate ways to heighten public awareness of the danger associated with passing a stopped school bus. It is the feeling of task force members that, if people realize the danger involved, they will be less likely to pass the stop arm. A number of approaches were used to get this word out. Unfortunately, it is difficult to measure the effectiveness of any one approach. But, to be sure, any amount of education of the public is more effective than *no* education of the public.

### 9.1 Radio Advertising

The North Carolina Department of Public Instruction entered into a partnership with Alltel Communications for a program of radio advertising featuring a message that motorists should be aware of the dangers of passing stopped school buses. The partnership called for the public service announcements to be aired during August before school started, during National School Bus Safety Week in October and during the first two weeks in January as students returned from the holiday vacation. In exchange for a brief tag line at the end of the commercial, Alltel purchased about \$42,000 in airtime matched by \$8,000 in state funds from the Department of Public Instruction. The public service message was aired on the eight-five affiliate stations of the North Carolina News Network.

#### Lessons Learned.

Advertising is very expensive. Given the limits of public funding for school transportation, such a program is virtually impossible without external sponsorship. The partnership with Alltel gave that company a way to become associated with a “cause” and provided the means for joint participation in the exhibit at the state fair, etc. There was no real way to measure how effective the campaign was, but using this statewide radio network provided a means to reach a large segment of the population.

## 9.2 Television Advertising

The 30 second Public Service Announcement “The Bus Stops Here” was produced jointly by the Department of Public Instruction and the DMV School Bus and Traffic Safety Section with assistance from the Stop Arm Violation task force prior to the NHTSA project. (The PSA can be seen online at <http://itre.ncsu.edu/GHSP/stream.html>.) Since it was originally produced, it has been distributed to various TV stations from time to time with a plea to air it as a public service announcement free of charge. This met with very little success.

In order to ensure that the PSA was aired, advertising time was purchased in Wilmington where it was aired at least 100 times during the week of Operation Stop Arm in January, 2000. Paid for by the Department of Public Instruction, three TV stations (ABC, NBC and WB) aired the commercial during this one-week period. There was even an airing during the Super Bowl preview show! The total cost, paid by the Department of Public Instruction was \$4425.

### Lessons Learned:

Advertising is very expensive. Given the limits of public funding for school transportation, such a program is virtually impossible without external sponsorship. There was no real way to measure how effective the campaign was; however, the count that was conducted in March AFTER the campaign showed slightly lower numbers of violations reported compared to the count BEFORE the campaign. The PSA was also shown during a period of time when there was some additional press coverage from Operation Stop Arm.

## 9.3 Press Conferences

Earlier in the report, information was provided on the press conferences in Onslow and New Hanover Counties during Operation Stop Arm in early 1999. The show of support from the school system, law enforcement and state agencies guaranteed at least *some* coverage on the news that day. This is publicity that is much less expensive than paying to air a public service announcement.

Later that year, a task force initiated by the Division of Motor Vehicles was assembled in response to two loading zone fatalities at the end of the 1998-99 school year. One was a stop arm violation fatality reported last quarter; the other was an incident where a student who had already left the bus ran back in front of it.



Press conferences were held in Raleigh on August 12, 1999 and in Winston-Salem and Charlotte on August 13. Participants in the press conferences included the State Superintendent (above, right), the DMV commissioner and Secretary of Crime Control and Public Safety (above, left) as well as state troopers and other agencies representatives. Visuals included poster depictions of the school bus stop arm law and a computer kiosk (above, right) focusing on North Carolina's school bus safety web application for students. By holding three different press events in different parts of the state, interest was generated by several media that would not have covered the story otherwise.

Lessons Learned:

Including high profile officials – such as the heads of state agencies and departments – ensures decent press coverage at events such as those described above. The 30 seconds to three minutes of coverage on the evening news is free and much more cost effective than paying to air public services announcements. Also, the involvement of these individuals bolsters their support for and increases their familiarity with the issue.

9.4 Response to Fatality in Winston-Salem

Unfortunately, at the same time that this key project activity was underway, North Carolina experienced the death of a student (whose father, ironically, was a member of the local board of education) when a motorist passed a stop school bus in Winston-Salem. The incident was particularly disturbing in that the primary cause was an area not targeted in any of the work that has been done thus far in the area of education and prevention:

- The motorist was a lady from out of the country driving a rental car.
- She carried only an International driver's license.
- In her country (Costa Rica) she stated that motorists are not required to stop for school buses.

Based on this event, the project team is exploring the concept of providing a written description of the school bus stop arm law to rental car agencies.

This tragic event led to the formulation of a local task force in Winston-Salem. While not in the project area, it serves as a model for other school systems. The task force involved staff from the school system, law enforcement, district attorney's office and judges. The group held a variety of press events to send the message clearly to the public that passing a stopped school bus can – and does – have deadly consequences for students.

One of the real tragedies is that such a devastating event had to take place to spur the community to action. Across the state of North Carolina, of the 96 counties that were neither involved in the NHTSA project nor suffered a fatality, only a small handful have taken a proactive approach to reducing stop arm violations.

Lessons Learned:

A tragedy such as the death of a student – and few things are more tragic – served as the catalyst to pull together community agencies to promote school bus safety. The show of support from the legal system, law enforcement and the school system got the attention of the community and, through this deadly example, the public was educated. By assembling the task force and proactively taking their message to the public through press conferences, etc. the school system took a terrible situation and generated something positive.

9.5 Education Materials

For quite some time, the Division of Motor Vehicles School Bus and Traffic Safety Section has produced a brochure that details the state's school bus stop arm law. During the course of this project, the brochure was refined to provide additional examples of when vehicles have to stop on a variety of road configuration (e.g. 4 lane, 2 lanes plus a turn lane, etc.). Through the NHTSA grant, 200,000 of these brochures were printed. The brochure is shown in Exhibit 8. These will be distributed at the State Fair and are available for school districts to use at local fairs and exhibits or other for other needs.

Lessons Learned:

An important part of public awareness is talking to people about the issue, whether at a press event, one-on-one, at a community event or elsewhere. Having something in writing that explains to people the rules of the school bus stop sign is very important, especially as the rules are different from one state to the next. This brochure serves as that vehicle.

9.6 Public Awareness: School Bus Safety Week 1999 and North Carolina State Fair

Two main activities took place during National School Bus Safety Week in North Carolina. First, our partnership with Alltel resulted in statewide radio advertising for a week. The message, which encourages motorists to not pass a stopped school bus, aired on the eight-five affiliate stations of the North Carolina News Network (NCNN).

During the North Carolina State Fair, which ran October 15-24, 1999, an outdoor exhibit was set up to focus on school bus safety and education regarding the school bus stop arm law. The exhibit featured the following three large props:

- A 1999 conventional school bus
- A 1961 (restored) school bus
- A kiosk provided by Alltel allowing visitors to make free local phone calls (a large banner over the kiosk reads Alltel Supports School Bus Safety)



Volunteers from school districts around the state (including Pender and Onslow counties in the study area) staffed the exhibit. They passed out stickers to kids and passed out copies of the stop arm law to fair goers. Inside the “new” school bus, a continuous airing of several public service announcements (focusing primarily on the stop arm law) was played.

#### Lessons Learned:

There are a number of benefits to this type of public awareness. First, it provides an opportunity for citizens from around the state to become aware of some important school bus safety issues. One of the most important things in the exhibit is for people to be able to get on a school bus and see the safety features built into the construction of today’s bus. It also provides an opportunity for them to receive information on the school bus stop arm law. An important side benefit is involving school districts from around the state in this effort and the team building that it fosters.

## 10. Summary

The proposal that led to this project funded by NHTSA laid out an approach that built on historical data and systems to provide information to law enforcement for stepped up enforcement and public awareness for motorist education. As the project progressed, some aspects played out as expected and some unexpected lessons were learned.

### 10.1 Public Awareness

One of the keys to reducing the incidents of motorists passing stopped school buses is making people aware of the danger to kids. Over the course of this project there were two categories of education: activities involving significant cost and those involving little or no cost.

Television advertising is very expensive. DPI spent over \$4000 to broadcast the public service message during one week in January 2000 in one television market (Wilmington). The partnership with Alltel made it possible to take limited state funds (\$8000) along with Alltel’s match (\$42,000) and broadcast a public service message on the radio statewide during 4-5 weeks over the course of the school year.

The Alltel partnership also developed a relationship whereby the company provided promotional items for the state fair exhibit, free print “advertising” on their Community Watch page in the newspaper and more. The value of this public/private partnership should not be underestimated.

A disadvantage that state governments and local school districts have in getting their message to the public is limited financial resources. However, an *advantage* that they have is access to the media in *making news*. Several media events during the course of this project resulted in coverage during the 6:00 news. For instance, the back to school press conferences featuring leaders of state agencies generated interest from TV and radio stations in each media market where the event was held. Further, the press conferences held before the first Operation Stop arm featured the first video camera installed on a school bus in Onslow County. Not only did the media cover the press conference; they also followed up and featured numerous stories on the video cameras.

In terms of this particular project, the most important lessons learned were (1) the value of partnering to find resources to get the message on the air and (2) the value of “making our own news” through media events. It is difficult – if not impossible – to measure the effectiveness of the advertising campaigns. But, it is absolutely certain that more people in North Carolina heard the message of stop arm safety than they would have in the absence of the advertising efforts.

## 10.2 The Importance of Data and Its Use

The reason that North Carolina submitted an application to NHTSA for this project was due to a need for reducing stop arm violations demonstrated through historical data. There is a lot of value in having a wealth of information on this subject. But, in addition to presenting the data, it must be explained and possibly defended.

Modeled after the 1996 Florida Study, the data collection process of asking school bus drivers to document and report stop arm violations has worked very well for over 4 years in North Carolina. The key data elements have been refined so that the data gathered are useful, but not too burdensome for the bus driver.

The state’s stop arm task force, initiated in 1997, included representatives of the State Highway Patrol (SHP) representing the law enforcement community. The SHP also supported the application for this grant. However, when the NHTSA grant kickoff meeting took place, the project team was surprised to learn that the law enforcement community (whose involvement was a critical part of the project strategy) was very skeptical of the historical data leading up to this point. In short, they didn’t believe that the number of violations was as high as reported. And, while the number of violations is still high, the earlier reports were, indeed, exaggerated. In the opinion of the project team, this exaggeration was due to bus drivers counting some incidents as violations when, indeed, they were not (possibly because the bus was not completely stopped).

This provided an opportunity (by necessity) to train bus drivers in the project area about what exactly constitutes a stop arm violation. Materials developed for this purpose include the video “Your School Bus Stop – Consistency Makes the Difference.” Had it

not been for the discussion about bus drivers' procedures, this training opportunity would have been lost. Further, the materials developed can be used for continuing training for bus drivers for some time to come.

The approach of using the geographical data from TIMS was quite unique. Because the bus drivers were already using TIMS output for their route descriptions, cross-referencing the bus stops with the reported incidents was very straightforward. The project team was able to use TIMS to generate reports and maps specific to reported stop arm violations. This resource was not used to a large extent during Operation Stop arm; rather, officers chose to rely on their own knowledge of the geography and previous reports. In order to integrate the data in law enforcement, a more detailed training process – including involvement up front from the field – is needed.

### 10.3 Enforcement – An Important Key to Reducing Incidents

Ultimately, it is up to state and local law enforcement agencies to cite motorists for failure to stop for a stopped school bus. Bus drivers and school transportation officials do not have the enforcement authority. Judges and District Attorneys cannot prosecute and sentence motorists without the citation. So, the officer is the key to enforcing the stop arm violation law. As mentioned previously, these officers in general, were skeptical of the initial data and this dampened their enthusiasm at the outset.

The turning point seemed to be the installation of the video cameras and the sharing of the results. This was demonstrated nowhere more successfully than in Onslow County, North Carolina. Transportation Director Jeff Smith installed the camera and VCR on an Onslow County school bus. The bus was assigned to a route with a high incidence of reported stop arm violations and, just as predicted, the camera captured actual violation on tape. Mr. Smith began working very closely with an individual assigned by the State Highway Patrol to address reported stop arm violations – Trooper R.A. Hood.

Sending report information from the bus driver to be verified by the transportation director and cited by the trooper has been bolstered by the presence of the cameras. But, a unique working relationship between the school system and the law enforcement agency has been established as a result of the work of these individuals. It has led not only to increased citations and decreased reports, but also to public awareness with the assistance of the local news media.



*This relationship and the resulting accomplishments is the success story of this project!*

#### 10.4 Next Steps

In the time that has passed since the end of the project and the preparation of this document, several of the project initiatives continue to go forward. Onslow County now has four video cameras. Other counties with cameras mounted on buses (or that have been ordered) include Lee, New Hanover, Forsyth and Craven Counties. The message for those school systems is to use the video as a tool to establish or build on an excellent working relationship between the school district and law enforcement.

The partnership with Alltel has been renewed and the message “The Bus Stops Here ...and So Should You.” is being aired statewide via the North Carolina News radio network. Alltel is also helping to sponsor the state fair exhibit. (Because of the cost involved, television advertising will probably not be pursued in the absence of some corporate sponsorship.)

The education materials developed will continue to be used for public awareness and training of bus drivers. As a result of this project, bus drivers are more aware than ever of what exactly constitutes a stop arm violation and are doing a better job of identifying incidents what are true violations. The video and brochures can be used for drivers year after year as part of continuation training.

By making the results of this study available to all school districts in North Carolina, it is anticipated that others will have the chance to make the progress seen in this project. LEAs statewide are encouraged to adopt the public awareness approach, the technology and the data-based strategies demonstrated in this project. If they are willing to work toward the type of cooperation demonstrated by Jeff Smith and Trooper R.A. Hood in Onslow County, there is no question that the incidents of motorists passing stopped school buses will be reduced.

**Exhibit 1A**

**A Cooperative Program to Reduce Incidents of Vehicles Passing Stopped School Buses in Onslow, Pender and New Hanover Counties**

**Meeting Agenda**

**Burgaw, NC**

Monday, September 21, 1998

- I. **WELCOME /INTRODUCTIONS/Project Overview.....** **Derek Graham**  
DPI Transportation Services
  
- II. **LAW ENFORCEMENT INVOLVEMENT**
  - Officer on the Bus.....** **Sgt. Jeff Winstead**  
**Stop for the School Bus** NC Highway Patrol
  
  - B. Operation Stop Arm.....** **Jim Moen**  
Guilford County Schools  
**Sgt. Ray Puckett**  
Guilford County Sheriff's Office
  
- III. **DATA GATHERING**
  - A. TIMS Overview.....** **Jeff Tsai**  
Institute for Transportation  
Research & Education (ITRE)
  
  - B. Data Gathering.....** **Cynthia Wilson**  
ITRE
  
- IV. **TECHNOLOGY APPLICATIONS.....** **Jeff Tsai**  
ITRE  
**Onboard computers and Video Cameras**
  
- V. **PUBLIC AWARENESS**
  - Public Service Announcement .....** **Derek Graham**
  
- VI. **NEXT STEPS**

**Exhibit 1B**

**Kickoff Meeting Attendees  
Monday, September 21, 1998  
Burgaw, NC**

<i>Name, Organization</i>		<i>Name, Organization</i>
Jeff Smith	*	Donnie Smith – Lumberton Dist 4
Onslow County Schools	*	DMV School Bus Traffic Safety
Barbara Rooks	*	Joan Silvey
Onslow County Schools	*	DMV School Bus Traffic Safety
Jeri Blick	*	Charles Mitchell
Onslow County Schools	*	DMV School Bus Traffic Safety
Dr. Ron Singletary	*	Mick Wayne
Onslow County Schools	*	New Hanover County Schools
Pete Andrews	*	Jackie Genes
Onslow County Schools	*	New Hanover County Schools
Deputy Bright	*	
Jacksonville Police Department	*	Governors Highway Safety Prog
Sargent Houston	*	Capt Apple
Jacksonville Police Department	*	Highway Patrol
Jerry Faulk	*	Sgt. Strickland
Pender County Schools	*	New Hanover
Thurman Casey	*	Sgt. Dewane Ward
Pender County Schools	*	New Hanover Sheriff Dept.
Billy Sugg	*	Jim Moen
NCDPI	*	Guilford County
Derek Graham	*	Sgt. Jeff Winstead
NCDPI	*	State Highway Patrol
Jeff Tsai	*	Capt. David West
NCSU-ITRE	*	Onslow County Sheriff Dept.
Cynthia Wilson	*	Capt. Paul Brian
NCSU-ITRE	*	Onslow County Sheriff Dpet
Tracey Ennis	*	1st Sgt. Christopher
DMV School Bus Traffic Safety	*	State Highway Patrol
Sargent Austin Nevi	*	Keith Hinkle
Wilmington Police Dept	*	Burgaw Police Dept

## Exhibit 2

### Sample Daily Stoparm Violation Bus Driver Report

County: **Pender County Schools**

Bus #:

Driver: \_\_\_\_\_

Date: **January 14, 2000**

TIMS Run ID	TIMS Stop ID	Vehicle Passed From the:	Passed on Which Side of the bus?	Type of Roadway
<input type="text"/>	<input type="text"/>	Front (opposite way)	Left (driver Side)	2 Lanes _____ 2 Lanes + Turn Lane _____ 4 Lanes, no Median _____
Time of Violation:		Rear (going same way)	Right (door side)	4 Lanes Center Turn lane _____ Over 4 Lanes with Median _____
Location of Violation (address or intersection): _____				

TIMS Run ID	TIMS Stop ID	Vehicle Passed From the:	Passed on Which Side of the bus?	Type of Roadway
<input type="text"/>	<input type="text"/>	Front (opposite way)	Left (driver Side)	2 Lanes _____ 2 Lanes + Turn Lane _____ 4 Lanes, no Median _____
Time of Violation:		Rear (going same way)	Right (door side)	4 Lanes Center Turn lane _____ Over 4 Lanes with Median _____
Location of Violation (address or intersection): _____				

## **Exhibits 3A, 3B, 3C**

### **Stoparm Violation Summary Reports Results of Four One-Week Counts of Stop arm Violations**

- **New Hanover County**
- **Onslow County**
- **Pender County**

## New Hanover County Schools

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway				
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.
10/12/98	9	20	<b>29</b>	21	8	29		13	4	5	1	6
10/13/98	6	12	<b>18</b>	12	6	17		10	2	2	2	2
10/14/98	10	13	<b>23</b>	16	7	24		13	4	2	2	3
10/15/98	6	9	<b>15</b>	12	3	15		8	3	1	2	1
10/16/98	5	7	<b>12</b>	9	3	12		6	2	2	1	1
<b>5-Day Total</b>			<b>97</b>	70	27	97	0	50	15	12	8	13
<b>Daily Average</b>			<b>19.4</b>	72%	28%	100%	0%	51%	15%	12%	8%	13%

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway				
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.
1/19/99	12	11	<b>23</b>	15	8	23		10	2	3	2	6
1/20/99	5	18	<b>23</b>	17	6	23		9	6	2	1	5
1/21/99	7	13	<b>20</b>	11	9	20		8	3	1	0	8
1/22/99	7	17	<b>24</b>	21	3	24		8	8	5	0	3
<b>4-Day Total</b>			<b>90</b>	64	26	90	0	35	19	11	3	22
<b>Daily Average</b>			<b>22.5</b>	72%	28%	100%	0%	51%	15%	12%	8%	

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway				
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.
3/1/99	14	13	<b>27</b>	24	3	27	0	13	10	1	2	1
3/2/99	5	12	<b>17</b>	11	5	17		2	9	3		3
3/3/99	10	9	<b>19</b>	17	2	19		11	6	1		1
3/4/99	9	6	<b>15</b>	9	6	15		6	2	1	3	2
3/5/99	12	13	<b>25</b>	21	3	25		14	10		1	
<b>5-Day Total</b>			<b>103</b>	82	19	103	0	46	37	6	6	7
<b>Daily Average</b>			<b>20.6</b>	81%	19%	100%	0%	45%	36%	6%	6%	7%

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway				
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.
1/10/00	9	10	<b>19</b>	15	4	19	0	5	7	4	1	2
1/11/00	7	14	<b>21</b>	14	7	20	1	10	3	2	2	4
1/12/00	8	13	<b>21</b>	11	10	20	1	9	3	2	2	5
1/13/00	6	8	<b>14</b>	13	1	14	0	12	1	1	0	0
<b>4-Day Total</b>			<b>75</b>	53	22	73	2	36	14	9	5	11
<b>Daily Average</b>			<b>18.75</b>	71%	29%	97%	3%	48%	19%	12%	7%	15%

## Onslow County Schools

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
10/12/98	8	19	27	20	6	25	1	17	4			4	1
10/13/98	10	15	25	18	7	25		14	3	2		6	
10/14/98	11	13	24	18	6	23	2	14	3	3		5	
10/15/98	8	15	23	20	2	23		14	3	2		4	
10/16/98	5	9	14	10	4	14		7	3	2		1	1
<b>5-Day Total</b>			<b>113</b>	86	25	110	3	66	16	9		20	2
<b>Daily Average</b>			<b>22.6</b>	77%	23%	97%	3%	58%	14%	8%		18%	2%

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
1/19/99	9	6	15	10	5	14	1	10	2	1		2	
1/20/99	10	10	20	12	8	20		5	5	4		5	1
1/21/99	4	7	11	9	2	11		7	0	1		2	
1/22/99	6	8	14	11	3	14		9	1	2		1	1
<b>4-Day Total</b>			<b>60</b>	42	18	59	1	31	8	8		10	2
<b>Daily Average</b>			<b>15</b>	70%	30%	98%	2%	53%	14%	14%		17%	3%

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
3/1/99	6	7	13	10	3	13	0	11	1	0		1	0
3/2/99	5	11	16	14	2	16	0	10	2	2		2	0
3/3/99	5	10	15	13	2	15	0	8	0	4		2	1
3/4/99	7	13	20	14	6	20	0	12	1	2		3	2
3/5/99	8	5	13	8	5	13	0	5	3			4	1
<b>5-Day Total</b>			<b>77</b>	59	18	77	0	46	7	8		12	4
<b>Daily Average</b>			<b>15.4</b>	77%	23%	100%	0%	60%	9%	10%		16%	5%
<b>Reported to law enforcement:</b>			<b>7</b>										

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
1/10/00	8	5	13	7	6	13	0	5	0	3		0	3
1/11/00	4	4	8	7	1	8	0	5	1	1		1	0
1/12/00	0	3	3	1	2	3	0	0	1	0		1	1
1/13/00	2	4	6	4	2	6	0	3	0	1		0	1
<b>4-Day Total</b>			<b>30</b>	19	11	30	0	13	2	5		2	5
<b>Daily Average</b>			<b>7.5</b>	63%	37%	100%	0%	48%	7%	19%		7%	19%

Exhibit 3C

## **Pender County** **Schools**

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
10/12/98	2	4	6	4	2	6		3	1		2		
10/13/98	1	3	4	3	1	4		2	2		1		
10/14/98	2	1	3		3	3			1		2		
10/15/98		5	5	3	2	5		1	3		1		
10/16/98		2	2	1	1	2			1				1
<b>5-Day Total</b>			<b>20</b>	11	9	20	0	6	8	0	6	1	
<b>Daily Average</b>			<b>4</b>	55%	45%	100%	0%	29%	38%	0%	29%	5%	

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
1/19/99	1	3	4	4		4		1	3				
1/20/99													
1/21/99	1	2	3	2	1	3		1	1		1		
1/22/99	1	0	1	1		1			1				
<b>4-Day Total</b>			<b>8</b>	7	1	8	0	2	5	0	1	0	
<b>Daily Average</b>			<b>2</b>	88%	13%	100%	0%	25%	63%	0%	13%	0%	

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
3/1/99	2	2	4	4		4		3	1				
3/2/99	1	1	2	2		2		1	1				
3/3/99	1	2	3	2		2		1	1				
3/4/99	2		2	1	1	2			1		1		
3/5/99	1		1		1	1		1					
<b>5-Day Total</b>			<b>12</b>	9	2	11	0	6	4	0	1	0	
<b>Daily Average</b>			<b>2.4</b>	82%	18%	100%	0%	55%	36%	0%	9%	0%	

Date	AM	PM	Daily Total	Vehicle passed from		Passed on which side		Type of Roadway					
				Front	Rear	Left	Right	2 Lns	2 Ln+turn	4 Ln, no med.	4 Ln+turn	> 4 Ln w. med.	
1/10/00	1	1	2	1	1	2	0	2	0	0	0	0	0
1/11/00	2	4	6	5	1	6	0	5	0	0	0	0	1
1/12/00	1	0	1	0	1	1	0	1	0	0	0	0	0
1/13/00			0										
<b>4-Day Total</b>			<b>9</b>	6	3	9	0	8	0	0	0	0	1
<b>Daily Average</b>			<b>2.25</b>	67%				89%	0%	0%	0%	0%	11%

**Exhibit 4A**  
**2000 Statewide**  
**Count**

<b>MARCH 22, 2000</b>				<u>Time of Day</u>			<u># Stu. at Stop</u>			<u>Passed From:</u>		<u>Side of Bus:</u>		<u>Passing Vehicle</u>			<u>Roadway</u>					
<u>LEA NO.</u>	<u>School District (LEA) NAME</u>	<u># Buses Operated</u>	<u># Passing Buses Per Bus</u>	<u>AM</u>	<u>PM</u>	<u>Total</u>	<u>1-5</u>	<u>6-10</u>	<u>11+</u>	<u>Front</u>	<u>Rear</u>	<u>Left</u>	<u>Right</u>	<u>Car</u>	<u>PU/ Van</u>	<u>Truck</u>	<u>2 Lane</u>	<u>2 In turn</u>	<u>4 Lane</u>	<u>4+ lane</u>	<u>4+ median</u>	
010	ALAMANCE	152	0.230	13	22	35	25	6	4	29	6	32	3	18	9	8	27	3	4	1		
020	ALEXANDER	61	0.000	0	0	0																
030	ALLEGHANY	25	0.000	0	0	0																
040	ANSON	82	0.159	10	3	13	13			4	9	13		10	1	2	12					
050	ASHE	57	0.105	2	4	6	6			5	1	6		4	2		6					
060	AVERY	36	0.000																			
070	BEAUFORT	95	0.063	2	4	6	6	0	0	5	1	6	0	3	3		2	1	3			
080	BERTIE	86	0.000	0	0	0																
090	BLADEN	100	0.010	0	1	1	1			1		1			1		1					
100	BRUNSWICK	139	0.072	3	7	10	9	1		5	5	10		7	3		4	4		2		
110	BUNCOMBE	267	0.176	18	29	47	35	7	5	38	9	46	1	29	17	1	22	8	7	7	1	
111	ASHEVILLE	31	0.000																			
120	BURKE	107	0.084	4	5	9	9			7	2	9		6	3		8	1				
130	CABARRUS	142	0.183	11	15	26	16	5	5	22	4	25	1	17	9		24	1		1		
132	KANNAPOLIS	18	0.167	1	2	3	3			3		3		2		1			3			
140	CALDWELL	113	0.115	3	10	13	12		1	7	6	3	10	8	2	3	7			1	5	
150	CAMDEN	18	0.000	0	0	0																
160	CARTERET	93	0.194	9	9	18	17	1		17	1	17	1	11	7		3	14				1
170	CASWELL	67	0.015	0	1	1	1	0	0	1		1		1			1					
180	CATAWBA	142	0.056	3	5	8	8			8		8		5	3		6	2				
181	HICKORY	22	0.000																			
182	NEWT-CON.	31	0.387	1	11	12	11	1	0	11	1	12	0	12	0	0	12	0	0	0	0	0
190	CHATHAM	92	0.207	7	12	19	12	0	5	13	3	15	1	11	6	0	11	1	3	1		
200	CHEROKEE	46	0.000																			
210	CHOWAN	40	0.000	0	0	0																
220	CLAY	20	0.000	0	0	0																
230	CLEVELAND	111	0.234	13	11	26	24	1	1	17	9	26		15	9	1	18		8			
231	KINGS MT.	37	0.000																			
232	SHELBY	24	0.000																			
240	COLUMBUS	144	0.076	4	7	11	10	1		11		11		8	3		10			1		
241	WHITEVILLE	31	X																			
250	CRAVEN	156	0.090	8	6	14	5	6	3	12	2	13	1	9	5		6		7		1	
260	CUMBERLAND	475	0.133	36	27	63	40	13	10	39	24	63		50	12	1	35	1	12	13	2	
270	CURRITUCK	47	0.000	0	0	0																
280	DARE	41	0.000	0	0	0																
290	DAVIDSON	182	0.121	9	13	22	15	2	2	23	1	22		13	11		16	10				
291	LEXINGTON	22	X																			
292	THOMASVILLE	11	0.000																			
300	DAVIE	59	0.136	2	6	8	8			8		8		5	3		4	3	1	2		
310	DUPLIN	130	0.085	4	7	11	9	0	2	10	1	11		9	2		9					
320	DURHAM	287	0.164	26	21	47	40	3	4	36	11	46	1	35	11	1	28	7	11	1		
330	EDGECOMBE	107	0.131	7	7	14	14	0	0	11	3	11	3	12	2	0	12	1	1			
340	FORSYTH	359	0.159	15	42	57	50	4	3	48	9	57		44	12	1	38	8	5	6		
350	FRANKLIN	98	0.133	9	4	13	13			10	3	11	1	9	3	1	9	3	1			
360	GASTON	181	0.138	8	17	25	21	3	1	22	3	24	1	20	5		21		4			
370	GATES	36	0.056	1	1	2	2				2	2		1	1		2					
380	GRAHAM	21	0.000	0	0	0																
390	GRANVILLE	105	0.038	4	0	4	3	1	0	4		4		3	1		3		1			
400	GREENE	50	0.000	0	0	0																
410	GUILFORD	577	0.189	44	65	109	84	11	14	82	27	107	2	84	24	1	64	7	28	6	4	
420	HALIFAX	127	0.094	3	9	12	8	1	3	11	1	12		7	3	2	8	3	1			

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C.

<b>MARCH 22,2000</b>				<u>Time of Day</u>			<u># Stu. at Stop</u>			<u>Passed From:</u>		<u>Side of Bus:</u>		<u>Passing Vehicle</u>				<u>Roadway</u>				
<u>LEA NO.</u>	<u>School District (LEA) NAME</u>	<u># Buses Operated</u>	<u># Passings Per Bus</u>	<u>AM</u>	<u>PM</u>	<u>Total</u>	<u>1-5</u>	<u>6-10</u>	<u>11+</u>	<u>Front</u>	<u>Rear</u>	<u>Left</u>	<u>Right</u>	<u>Car</u>	<u>PU/ Van</u>	<u>Truck</u>	<u>2 Lane</u>	<u>2 In + turn</u>	<u>4 Lane</u>	<u>4+t urn</u>	<u>4+ median</u>	
421	R. RAPIDS	11	X																			
422	WELDON	14	X																			
430	HARNETT	198	0.146	21	8	29																
440	HAYWOOD	77	0.026	0	2	2	2	0	2		2			1	1		1	1				
450	HENDERSON	102	0.059	2	4	6	5	1	0		6		6	4	2		6					
460	HERTFORD	73	0.027	1	1	2	1				1		1	1			1	1				
470	HOKE	71	0.000	0	0	0																
480	HYDE	14	0.000	0	0	0																
490	IREDELL	148	0.088	4	9	13		13			11	2	13	11	2		10		2		1	
491	MOORESVILLE	16	0.250	0	4	4	0	4	0		4		4	3	1		4					
500	JACKSON	44	0.136	2	4	6	5	1			1	5	4	5	1		6					
510	JOHNSTON	261	0.077	10	10	20	13	5	2		18	2	20	9	8	3	13	3			4	
520	JONES	33	0.000	0	0	0																
530	LEE	92	0.196	9	9	18	13	1	4		16	2	18	11	6	1	9	3		6		
540	LENOIR	142	0.049	2	5	7	6		1		5	2	6	4	3	1	7					
550	LINCOLN	101	0.099	5	5	10	6	2	2		10		10	5	3	2						
560	MACON	50	0.100	2	3	5	5					5	5	3	2						5	
570	MADISON	51	0.000	0	0	0																
580	MARTIN	65	0.015	1	0	1			1		1		1		1		1					
590	McDOWELL	67	0.060	0	4	4	2	2			3	1	3	3	1		3					1
600	MECKLENBURG	924	0.136	48	78	126	89	29	19		85	34	117	98	26	4	25	19	62	13		
610	MITCHELL	36	0.000	0	0	0																
620	MONTGOMERY	59	0.034	0	2	2	2				2		2	1	1		1	1				
630	MOORE	135	0.000	0	0	0																
640	NASH	200	0.110	8	14	22	18	2	2		22		22	17	5		20		2			
650	NEW HANOVER	174	0.195	13	21	34	28	5	1		18	16	34	22	10	1	16	9	3	6		
660	NORTHAMPTON	69	0.000	0	0	0																
670	ONSLOW	201	0.184	19	18	37	34	1	11		22	15	33	19	17	1	11	5	8	7	6	
680	ORANGE	81	0.000	0	0	0																
681	CHAPEL HILL	54	0.222	4	8	12	8	4			9	3	12	10	2		5	4	2	1		
690	PAMLICO	33	0.091	2	1	3	3				2	1	2	1	2		3					
700	PASQUOTANK	56	0.107	2	4	6	3		3		6		5	6								
710	PENDER	85	0.035	3	0	3	1	2			1	2	3	2	1		3					
720	PERQUIMANS	34	0.000	0	0	0																
730	PERSON	76	0.092	3	4	7	7				7		7	3	3	1	5					2
740	PITT	206	0.121	12	13	25	24		1		17	11	25	21	10	1	7	3	7	8	1	
750	POLK	32	0.063	2	0	2	1	0	1		1	2	2		2		2					
760	RANDOLPH	165	0.061	3	7	10	7	3			10		10	10			7	1	2			
761	ASHEBORO	14	0.214	2	1	3	3				3		3	2	1		3					
770	RICHMOND	92	0.174	12	4	16	13	1	2		14	2	16	13	3		6	8	2			
780	ROBESON	268	0.056	5	10	15	13	1	1		13	2	15	11	4							
790	ROCKINGHAM	145	0.117	8	9	17	17	0	0		17		16	13	4		9	5	3	2		
800	ROWAN	197	0.239	20	27	47	38	4	5		43	4	47	33	10	4	26	13	7	1		
810	RUTHERFORD	112	0.045	2	3	5	5				5		5	3	2		4	1				
820	SAMPSON	130	0.046	2	4	6	6				5	1	6	6			3	3				
821	CLINTON	22	0.273	4	2	6	5	1			5	1	6	5	1		6					
830	SCOTLAND	79	0.114	4	5	9	5	1	3		8	1	8	9			6	2	1			
840	STANLY	103	0.058	1	5	6	4	1	1		4	2	6	3	3		3	2	0	1		
850	STOKES	103	0.010	0	1	1	1				1		1	1	1		1					
860	SURRY	118	0.153	5	13	18	16	1	1		15	3	17	11	6	1	8	7	1	2		
861	ELKIN	7	X																			

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

<b>MARCH 22,2000</b>				<u>Time of Day</u>			<u># Stu. at Stop</u>			<u>Passed From:</u>		<u>Side of Bus:</u>			<u>Passing Vehicle</u>			<u>Roadway</u>					
<u>LEA NO.</u>	<u>School District (LEA) NAME</u>	<u># Buses Operated</u>	<u># Passing Buses</u>	<u>AM</u>	<u>PM</u>	<u>Total</u>	<u>1-5</u>	<u>6-10</u>	<u>11+</u>	<u>Front</u>	<u>Rear</u>	<u>Left</u>	<u>Right</u>	<u>Car</u>	<u>PU/ Van</u>	<u>Truck</u>	<u>2 Lane</u>	<u>2 In + turn</u>	<u>4 Lane</u>	<u>4+t urn</u>	<u>4+ me dia n</u>		
862	MOUNT AIRY	10	X																				
870	SWAIN	26	0.000	0	0	0																	
880	TRANSYLVANIA	36	0.056	2	0	2	1	0	1	1	1	2		0	2	0		2					
890	TYRRELL	12	0.000	0	0	0																	
900	UNION	194	0.015	2	1	3	3			3		3		2	1			3					
910	VANCE	84	0.071	3	3	6	5	1	0	6	0	5	1	5	1	0		3	0	3	0		
920	WAKE	711	0.287	94	110	204	136	41	29	153	48	192	10	148	70	9		115	31	22	21	9	
930	WARREN	55	0.018	1	0	1	1			1		1		1				1					
940	WASHINGTON	48	0.021	0	1	1	1			1		1			1			1					
950	WATAUGA	62	0.258	4	12	16	16			13	3	16		9	7			7		9			
960	WAYNE	216	0.097	17	4	21	18	3		16	5	19	2	17	4			12	3	6			
970	WILKES	108	0.130	3	11	14	14			14		14		10	4			12	1	1			
980	WILSON	140	0.036	4	1	5	4	1		3	2	5		4	1			1		2	1	1	
990	YADKIN	72	0.056	3	1	4	3		1	4		4		3		1		4					
995	YANCEY	43	0.093	0	4	4	4			4		4		3	1			2	2				
TOTALS		12,957		656	853	1,511	1,158	185	157	1,150	324	1,412	61	1,049	410	53		833	206	251	114	35	
X = did not conduct survey				43%	57%		77%	12%	10%	78%	22%	96%	4%	69%	27%	4%		58%	14%	17%	8%	2%	

**Exhibit 4B**  
**1999 Statewide**  
**Count**

APRIL 28, 1999				Time of Day			# Stu. at Stop			Passed From:		Side of Bus:			Passing Vehicle					Roadway				
LEA NO.	School District (LEA) NAME	# Buses Operated	# Passing Buses	AM	PM	Total	1-5	6-10	11+	Front	Rear	Left	Right	Car	PU/ Van	Truck	2 Lane	2 In + turn	4 Lane	4+t urn	4+ me dia n			
010	ALAMANCE	152	0.132	9	11	20	15	2	3	17	3	19	1	13		7	16	3	1					
020	ALEXANDER	61	0.000	0	0	0																		
030	ALLEGHANY	25	0.040	1		1	1					1		1			1							
040	ANSON	82	X																					
050	ASHE	57	0.035	1	1	2	2					2				2	1					1		
060	AVERY	36	0.028	0	1	1	1	0	1	0	1	0	1	1	0	0	1	0	0	0	0	0		
070	BEAUFORT	95	0.105	2	8	10	9		1	8	2	10		5		5	2		7	1				
080	BERTIE	86	0.000	0	0	0																		
090	BLADEN	100	0.000	0	0	0																		
100	BRUNSWICK	139	0.129	6	12	18	14	4	0	11	4	12	3	9	6	2	7	6	0	3	0	0		
110	BUNCOMBE	267	0.139	12	25	37	30	5	2	26	11	36	1	21	14	2	21	6	5	4	0	0		
111	ASHEVILLE	31	X																					
120	BURKE	107	0.168	8	10	18	16		2	14	4	17	1	13	5	0	12	3	2	1	0	0		
130	CABARRUS	142	0.056	3	5	8	5	3	0	7	1	8	0	7	1	0	8	0	0	0	0	0		
132	KANNAPOLIS	18	X																					
140	CALDWELL	113	0.159	8	10	18	18	0	0	9	9	18	0	8	9	1	13	2	0	3	0	0		
150	CAMDEN	18	0.000	0	0	0																		
160	CARTERET	93	0.215	5	15	20	19		1	19	1	20		15	5		10							
170	CASWELL	67	0.000	0	0	0																		
180	CATAWBA	142	0.070	5	5	10	7	0	3	10	0	10	0	8	2	0	10	0	0	0	0	0		
181	HICKORY	22	0.318	3	4	7	4	3	0	5	2	7	0	5	2	0	2	3		2				
182	NEWTON-CON.	31	0.097	2	1	3	2	0	1	3	0	3	0	3	0	0	1	0	2	0				
190	CHATHAM	92	X																					
200	CHEROKEE	46	0.000	0	0	0																		
210	CHOWAN	40	0.025	0	1	1	0	1	0	1	0	1	0	1	0	0	1	0	0	0	0	0		
220	CLAY	20	0.000	0	0	0																		
230	CLEVELAND	111	0.063	1	6	7	4	2	1	5	2	7	0	5	1	1	5	0	0	1	1	1		
231	KINGS MT.	37	0.135	1	4	5	4	0	1	4	1	5	0	3	2	0	4	0	1	0				
232	SHELBY	24	0.292	2	5	7	6	1	0	5	2	6	1	6	1	0	6	0	1	0	0	0		
240	COLUMBUS	144	X																					
241	WHITEVILLE	31	X																					
250	CRAVEN	156	0.186	12	17	29	21	6	2	24	5	28	1	23	5	1	6	0	20	3	0	0		
260	CUMBERLAND	475	0.164	45	33	78	58	12	8	43	35	78	0	57	20	1	34	9	9	16				
270	CURRITUCK	47	X																					
280	DARE	41	0.000	0	0	0																		
290	DAVIDSON	182	0.110	8	12	20	12	5	3	20	0	20	0	12	5	3	15	4	0	1	0	0		
291	LEXINGTON	22	X																					
292	THOMASVILLE	11	0.182	2	0	2	1	1	0	2	0	2	0	2	0	0	1	1	0	0	0	0		
300	DAVIE	59	0.271	6	10	16	11	0	5	13	3	14	2	11	5	0	13	3	0	0	0	0		
310	DUPLIN	130	0.046	5	1	6	5	1	0	2	4	6	0	3	2	1	3	0	2	0	1	1		
320	DURHAM	287	0.240	37	32	69	56	7	6	57	12	66	3	59	9	1	46	4	12	5	0	0		
330	EDGECOMBE	107	0.093	6	4	10	7	1	1	8	2	9	0	5	6	0	7	1	0	0	0	0		
340	FORSYTH	359	0.245	39	49	88	68	11	9	78	10	87	1	52	33	3	53	25	7	3	0	0		
350	FRANKLIN	98	0.143	10	4	14	11	2	1	11	3	12	2	9	4	2	12	0	1	1				
360	GASTON	181	0.271	20	29	49	30	7	12	42	7	43	6	42	6	1	40	0	0	9	0	0		
370	GATES	36	0.111	0	4	4	4	0	0	2	2	4	0	2	2	0	3	1	0	0	0	0		
380	GRAHAM	21	0.000	0	0	0																		
390	GRANVILLE	105	X																					
400	GREENE	50	0.020	1	0	1	1	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0		
410	GUILFORD	577	0.158	42	49	91	68	16	7	66	25	87	4	75	14	2	47	12	24	7	0	0		

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

APRIL 28, 1999				Time of Day			# Stu. at Stop			Passed From:		Side of Bus:			Passing Vehicle			Roadway				
LEA NO.	School District (LEA) NAME	# Buses Operated	# Passing s Per Bus	AM	PM	Total	1-5	6-10	11+	Front	Rear	Left	Right	Car	PU/ Van	Tru ck	2 Lane	2 In + turn	4 Lane	4+t urn	4+ me dia n	
420	HALIFAX	127	0.000	0	0	0																
421	R. RAPIDS	11	X																			
422	WELDON	14	X																			
430	HARNETT	198	0.076	5	10	15																
440	HAYWOOD	77	0.065	1	4	5	5	0	0	4	1	4	1	2	5	0	4	0	0	0	1	0
450	HENDERSON	102	0.039	2	2	4	4	0	0	3	0	0	1	3	1	0	4	0	0	0	0	0
460	HERTFORD	73	0.027	1	1	2	1	0	0	1	0	1	0	1	1	0	1	0	0	0	0	0
470	HOKE	71	0.239	10	7	17	13	1	3	14	3	17	0	13	4	0	17	0	0	0	0	0
480	HYDE	14	0.000	0	0	0																
490	IREDELL	148	0.128	6	13	19	16	2	1	19	0	19	0	18	1	0	18	0	1	0	0	0
491	MOORESVILLE	16	0.125	0	2	2																
500	JACKSON	44	X																			
510	JOHNSTON	261	0.073	7	12	19	13	0	6	16	3	19	0	14	5	0	14	2	0	3	0	0
520	JONES	33	X																			
530	LEE	92	0.337	11	20	31	26	4	1	23	8	31	0	21	8	2	14	3	11	3	0	0
540	LENOIR	142	0.148	12	9	21	20	1	0	20	4	22	0	13	9	1	16	6	0	0	0	0
550	LINCOLN	101	0.129	11	2	13	10	0	3	13	0	13	0	8	5	0	12	1	0	0	0	0
560	MACON	50	0.120	2	4	6	4	1	1	1	5	6	0	2	4	0	3	2	0	1	0	0
570	MADISON	51	X																			
580	MARTIN	65	0.092	4	2	6	6	0	0	6	0	5	1	3	3	0	6	0	0	0	0	0
590	McDOWELL	67	0.090	2	4	6	5	1	0	3	3	6	0	2	2	1	5	0	0	1	0	0
600	MECKLENBURG	924	0.326	158	143	301	219	93	39	206	95	268	33	243	61	3	91	35	119	21	35	0
610	MITCHELL	36	X																			
620	MONTGOMERY	59	0.017	0	1	1	1	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0
630	MOORE	135	0.044	4	2	6	5	0	1	4	2	6	0	6	0	0	5	0	0	1	0	0
640	NASH	200	0.100	6	14	20	12	6	2	17	3	18	2	16	4	0	13	0	2	5	0	0
650	NEW HANOVER	174	0.138	14	10	24	17	5	2	18	6	24	0	17	9	0	11	5	4	2	2	0
660	NORTHAMPTON	69	0.000	0	0	0																
670	ONSLOW	201	0.070	6	8	14	14	0	0	12	2	14	0	10	4	0	9	3	0	2	0	0
680	ORANGE	81	0.062	1	4	5	4	0	1	5	0	5	0	3	2	0	2	3	0	0	0	0
681	CHAPEL HILL	54	0.259	5	9	14	7	6	1	11	3	14	0	9	5	0	14	0	0	0	0	0
690	PAMLICO	33	0.121	3	1	4	1	0	0	3	1	4	0	2	2	0	1	0	0	0	0	0
700	PASQUOTANK	56	0.054	2	1	3	1	0	2	1	2	3	0	3	0	0	3	0	0	0	0	0
710	PENDER	85	0.106	3	6	9	6	3	0	8	1	9	0	5	4	0	4	4	0	1	0	0
720	PERQUIMANS	34	0.029	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0
730	PERSON	76	0.197	6	9	15	12	1	2	13	2	14	1	14	0	1	7	7	1	0	0	0
740	PITT	206	0.073	10	5	15	15	0	0	8	7	15	0	12	3	0	9	1	1	4	0	0
750	POLK	32	0.031	1	0	1	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0
760	RANDOLPH	165	0.055	7	2	9	8	0	1	5	4	8	0	10	5	1	6	1	0	1	0	0
761	ASHEBORO	14	X																			
770	RICHMOND	92	0.174	5	11	16	11	3	2	13	3	16	0	11	4	1	5	11	0	0	0	0
780	ROBESON	268	0.108	9	20	29	21	6	2	22	7	28	1	21	7	1	25	3	0	1	0	0
790	ROCKINGHAM	145	0.069	2	8	10	8	2	0	8	2	10	0	8	2	0	8	0	0	2	0	0
800	ROWAN	197	0.259	22	29	51	50	4	1	43	9	44	1	30	21	1	18	18	15	0	0	0
810	RUTHERFORD	112	0.036	3	1	4	3	1	4	4	0	4	0	4	0	0	4	0	0	0	0	0
820	SAMPSON	130	0.038	4	1	5	5	0	5	0	5	0	4	0	1	0	5	0	0	0	0	0
821	CLINTON	22	X																			
830	SCOTLAND	79	0.127	2	8	10	9	0	1	9	1	10	0	10	0	0	5	2	0	3	0	0
840	STANLY	103	0.078	3	5	8	7	1	0	6	2	8	0	5	3	0	5	1	0	2	0	0
850	STOKES	103	0.000	0	0	0																
860	SURRY	118	0.076	3	6	9	9	0	0	8	1	9	0	3	6	0	6	3	0	0	0	0

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

APRIL 28, 1999				Time of Day			# Stu. at Stop			Passed From:		Side of Bus:		Passing Vehicle			Roadway					
LEA NO.	School District (LEA) NAME	# Buses Operated	# Passing Buses	AM	PM	Total	1-5	6-10	11+	Front	Rear	Left	Right	Car	PU/ Van	Truck	2 Lane	2 In + turn	4 Lane	4+t urn	4+ me dia n	
861	ELKIN	7	X																			
862	MOUNT AIRY	10	X																			
870	SWAIN	26	0.000	0	0	0																
880	TRANSYLVANIA	36	0.167	1	5	6	6	0	0	6	0	6	0	5	1	0	6	0	0	0	0	0
890	TYRRELL	12	0.000	0	0	0																
900	UNION	194	0.139	13	14	27	22	5	0	22	5	27	0	21	5	1	26	0	1	0	0	0
910	VANCE	84	0.179	7	9	15	15	1	0	13	3	15	1	10	4	2	8	4	3	1	0	0
920	WAKE	711	0.291	102	105	207	161	20	25	164	43	199	0	158	62	5	138	31	18	12	5	0
930	WARREN	55	0.036	1	1	2	2	0	2	2	0	2	0	2	0	0	2	0	0	0	0	0
940	WASHINGTON	48	0.000	0	0	0																
950	WATAUGA	62	0.242	4	11	15	14	0	1	15	0	15	0	10	5	0	10	1	0	4	0	0
960	WAYNE	216	0.125	12	15	27	27	0	0	21	6	27	0	23	4	0	14	9	0	0	4	0
970	WILKES	108	0.074	2	6	8	8	0	0	8	0	8	0	3	5	0	5	3	0	0	0	0
980	WILSON	140	0.086	7	5	12	8	0	4	7	5	12	0	10	2	0	6	1	1	4	0	0
990	YADKIN	72	0.125	5	4	9	4	0	5	9	0	9	0	5	4	0	7	2	0	0	0	0
995	YANCEY	43	0.186	3	5	8	7	1	0	8	0	8	0	5	3	0	4	4	0	0	0	0
TOTALS		12,957		812	945	1,756	1,353	258	188	1,337	399	1,643	74	1,273	446	55	1,000	250	271	136	48	
X = did not conduct survey				46%	54%		75%	14%	10%	77%	23%	96%	4%	72%	25%	3%	59%	15%	16%	8%	3%	

Exhibit 4C – 1998 Statewide Count

APRIL, 1998		No.	# Passings	Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle Roadway								
LEA NO.	LEA NAME	Buses	per Bus	AM	PM	Total	1-5	6-10	11+	Frt	Rear	Left	Rt	Car	PU/ Van	Truck	2 Ln	2+tu rn	4 Ln	4+tu rn	4+m ed	
10	ALAMANCE	did not participate																				
020	ALEXANDER	61	0.066	2	2	4	4	0	0	4	0	4	0	3	1	0	4	0	0	0	0	0
030	ALLEGHANY	24	0.000	0	0																	
040	ANSON	49	0.061	1	2	3	0	0	0	2	1	2	1	1	2	0	1	0	0	0	0	0
050	ASHE	62	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060	AVERY	36	0.056	1	1	2	2	2	2	1	1	1	1	1	1	0	1	0	1	0	0	0
070	BEAUFORT	96	0.094	4	5	9	7	1	1	5	1	8	0	7	2	0	5	0	3	1	0	0
080	BERTIE	86	0.047	2	2	4	4	0	0	4	0	4	0	3	1	0	3	1	0	0	0	0
090	BLADEN	100	0.070	3	4	7	7	0	0	7	0	5	0	6	1	0	7	0	0	0	0	0
100	BRUNSWICK	119	0.067	2	6	8	8	0	0	4	3	9	0	6	2	1	7	2	0	0	0	0
110	BUNCOMBE	311	0.199	21	41	62	54	6	2	47	15	60	2	46	16	0	25	3	28	6	0	0
120	BURKE	104	0.240	11	14	25	23	0	2	21	4	24	1	15	8	2	16	1	2	6	0	0
130	CABARRUS	142	0.092	7	6	13	10	2	1	12	1	13	0	7	6	0	11	0	1	1	0	0
132	KANNAPOLIS	18	0.556	5	5	10	7	2	1	0	0	10	0	8	1	1	3	0	7	0	0	0
140	CALDWELL	113	0.274	9	22	31	72	0	0	25	6	31	0	26	3	2	31	0	0	0	0	0
150	CAMDEN	18	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	CARTERET	92	0.163	7	8	15	13	2	0	12	3	15	0	10	4	1	8	5	1	1	0	0
170	CASWELL	69	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	CATAWBA	143	0.077	3	8	11	7	1	3	11	0	11	0	8	3	0	11	0	0	0	0	0
181	HICKORY	18	0.667	3	9	12	7	3	2	9	3	12	0	9	3	0	10	0	0	2	0	0
182	NEWTON-CON.	26	0.115	1	2	3	1	1	1	3	0	3	0	2	1	0	3	0	0	0	0	0
190	CHATHAM	92	0.239	11	11	22	20	2	0	21	1	22	0	15	6	1	20	1	0	1	0	0
200	CHEROKEE	46	0.043	2	0	2	2	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0
210	CHOWAN	40	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
220	CLAY	20	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	CLEVELAND	172	0.099	8	9	17	15	1	1	15	2	17	0	13	4	0	12	1	3	0	1	0
231	KINGS MT.																					
240	COLUMBUS	175	0.023	4	0	4	3	0	0	3	1	4	0	3	1	0	3	1	0	0	0	0
241	WHITEVILLE																					
250	CRAVEN	156	0.160	15	10	25	19	4	2	19	6	24	1	17	7	1	19	0	3	3	0	0
260	CUMBERLAND	474	0.289	50	87	137	105	19	13	89	48	131	6	101	34	2	79	23	9	18	8	0
270	CURRITUCK	12	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
280	DARE	41	0.000																			
290	DAVIDSON	182	0.104	10	9	19	16	0	3	16	3	18	1	12	7	0	17	2	0	0	0	0
291	LEXINGTON																					
292	THOMASVILLE																					
300	DAVIE	59	0.034	0	2	2	2	0	0	2	0	2	0	2	0	0	1	1	0	0	0	0
310	DUPLIN	130	0.092	7	5	12	11	1	0	11	1	12	0	8	3	1	6	1	3	2	0	0
320	DURHAM	281	0.228	24	40	64	57	3	4	49	15	60	4	51	13	0	30	3	24	7	0	0
330	EDGECOMBE	107	0.028	1	2	3	1	1	1	3	0	2	0	2	0	1	3	0	0	0	0	0
340	FORSYTH	359	0.362	59	71	130	102	12	16	112	118	129	1	91	38	1	90	16	12	9	3	0
350	FRANKLIN	106	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
360	GASTON	181	0.033	3	3	6	0	1	5	6	0	6	0	5	1	0	6	0	0	0	0	0
370	GATES	did not participate																				
380	GRAHAM	22	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
390	GRANVILLE	105	0.076	3	5	8	7	1	0	6	2	8	0	8	0	0	8	0	0	0	0	0
400	GREENE	50	0.060	1	2	3	3	0	0	3	0	3	0	3	0	0	2	1	0	0	0	0
410	GUILFORD	575	0.193	48	63	111	84	16	11	78	33	110	1	87	22	2	65	8	16	12	10	0
420	HALIFAX	151	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
421	R. RAPIDS																					

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

APRIL, 1998		No.	# Passings	Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle			Roadway					
LEA NO.	LEA NAME	Buses	per Bus	AM	PM	Total	1-5	6-10	11+	Frt	Rear	Left	Rt	Car	PU/ Van	Truck	2 Ln	2+tu rn	4 Ln	4+tu rn	4+m ed	
422	WELDON																					
430	HARNETT	198	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
440	HAYWOOD	77	0.130	2	8	10	10	0	0	9	1	10	0	9	0	1	9	0	0	1	0	0
450	HENDERSON	0				11	11	0	0	11	0	11	0	6	5	0	11	0	0	0	0	0
460	HERTFORD	73	0.027	0	2	2	0	0	2	2	0	1	1	2	0	0	1	1	0	0	0	0
470	HOKE	71	0.113	5	3	8	8	0	0	8	0	8	0	7	1	0	8	0	0	0	0	0
480	HYDE	15	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
490	IREDELL	148	0.101	7	8	15	15	0	0	13	2	13	0	12	1	2	10	3	2	0	0	0
491	MOORESVILLE			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500	JACKSON	45	0.222	1	9	10	10	0	0	8	2	10	0	6	1	3	7	0	0	0	0	3
510	JOHNSTON	261	0.100	14	12	26	24	1	1	18	8	26	0	18	7	1	23	3	0	0	0	0
520	JONES	33	0.061	1	1	2	2	0	0	2	0	2	0	1	1	0	2	0	0	0	0	0
530	LEE	92	0.174	10	6	16	12	2	2	11	5	16	0	13	3	0	11	1	4	0	0	0
540	LENOIR	142	0.092	8	5	13	10	0	3	9	4	13	0	7	5	1	9	0	0	4	0	0
550	LINCOLN	101	0.089	4	5	9	8	1	9	8	1	9	0	5	4	0	6	1	2	0	0	0
560	MACON	50	0.040	1	1	2	0	2	0	2	0	2	0	2	0	0	0	0	0	2	0	0
570	MADISON	42	0.024	1	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0
580	MARTIN	65	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
590	McDOWELL	67	0.104	3	4	7	3	4	0	3	4	7	0	4	3	0	2	0	1	4	0	0
600	MECKLENBURG	927	0.391	168	194	362	267	49	46	268	94	328	34	276	74	12	153	25	135	25	24	0
610	MITCHELL	36	0.056	1	1	2	2	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0
620	MONTGOMERY	58	0.017	1	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0
630	MOORE	did not participate																				
640	NASH	200	0.160	17	15	32	27	4	1	22	9	30	1	26	5	1	17	1	8	5	0	0
650	NEW HANOVER	174	0.460	35	45	80	53	16	11	46	34	80	0	59	20	1	37	13	18	6	6	0
660	NORTHAMPTON	74	0.135	6	4	10	9	1	0	8	2	10	0	7	2	1	10	0	0	0	0	0
670	ONSLow	203	0.197	21	19	40	32	3	5	29	11	40	0	25	13	2	21	4	7	8	0	0
680	ORANGE	76	0.092	4	3	7	5	2	0	6	1	6	1	5	2	0	6	1	0	0	0	0
681	CHAPEL HILL	55	0.455	13	12	25	12	6	7	22	3	24	1	17	6	2	15	8	0	2	0	0
690	PAMLICO	33	0.091	1	2	3	3	0	0	3	0	3	0	3	0	0	1	2	0	0	0	0
700	PASQUOTANK	56	0.125	3	4	7	5	2	0	6	1	7	0	4	3	0	6	1	0	0	0	0
710	PENDER	85	0.106	9	0	9	7	2	0	7	2	9	0	5	2	2	9	0	0	0	0	0
720	PERQUIMANS	34	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
730	PERSON	76	0.224	13	6	17	14	3	0	16	1	16	1	9	8	0	16	1	0	0	0	0
740	PITT	206	0.214	25	19	44	31	6	7	35	9	44	0	30	12	1	29	9	3	3	0	0
750	POLK	32	0.031	1	0	1	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0
760	RANDOLPH	165	0.067	6	5	11	10	0	1	10	1	11	0	5	6	0	9	1	1	0	0	0
761	ASHEBORO																					
770	RICHMOND	93	0.097	3	6	9	7	2	0	6	3	9	0	6	2	1	7	2	0	0	0	0
780	ROBESON	275	0.029	4	4	8	5	0	1	5	0	7	0	5	2	1	7	1	0	0	0	0
790	ROCKINGHAM	153	0.059	6	3	9	9	0	0	6	3	9	0	8	1	0	8	1	0	0	0	0
800	ROWAN	192	0.141	13	14	27	21	4	2	22	4	27	0	16	8	0	18	2	7	2	0	0
810	RUTHERFORD	117	0.051	2	4	6	3	1	2	6	0	6	0	5	1	0	6	0	0	0	0	0
820	SAMPSON	130	0.015	0	2	2	2	0	0	2	0	2	0	1	1	0	2	0	0	0	0	0
821	CLINTON	22	0.409	0	9	9	1	0	0	9	0	9	0	8	1	0	9	0	0	0	0	0
830	SCOTLAND	79	0.063	4	1	5	5	0	0	4	1	5	0	5	0	0	5	0	0	0	0	0
840	STANLY	103	0.078	4	4	8	7	1	0	6	2	8	0	4	3	1	3	4	0	1	0	0
850	STOKES																					
860	SURRY	137	0.044	2	4	6	6	0	0	5	1	5	1	4	2	0	5	1	0	0	0	0
861	ELKIN																					
862	MOUNT AIRY																					
870	SWAIN	did not participate																				
880	TRANSYLVANIA	36	0.333	1	11	12	11	1	0	12	0	12	0	5	7	0	6	0	6	0	0	0
890	TYRRELL	12	0.083	1	0	1	0	0	1	0	1	1	0	0	1	0	1	0	0	0	0	0

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

APRIL, 1998		No.	# Passings	Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle			Roadway					
LEA NO.	LEA NAME	Buses	per Bus	AM	PM	Total	1-5	6-10	11+	Frt	Rear	Left	Rt	Car	PU/ Van	Truck	2 Ln	2+tu m	4 Ln	4+tu m	4+m ed	
900	UNION	did not participate																				
910	VANCE	84	0.143	5	7	12	12	0	0	10	2	12	0	7	5	0	8	0	0	4	0	
920	WAKE	714	0.244	84	90	174	130	26	18	138	34	160	7	116	52	9	110	29	19	8	5	
930	WARREN	55	0.018	1	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	
940	WASHINGTON	48	0.063	1	2	3	3	0	0	1	2	3	0	2	1	0	1	1	0	1	0	
950	WATAUGA	62	0.290	8	10	18	18	0	0	18	0	18	0	12	5	1	16	1	1	0	0	
960	WAYNE	217	0.051	8	3	11	9	2	0	8	3	11	0	7	3	1	8	3	0	0	0	
970	WILKES	108	0.185	7	13	20	14	3	3	16	4	17	3	9	10	1	14	3	3	0	0	
980	WILSON	145	0.145	9	12	21	14	1	6	14	7	21	0	14	7	0	13	1	2	2	3	
990	YADKIN	72	0.028	2	0	2	2	0	0	2	0	2	0	1	1	0	1	1	0	0	0	
995	YANCEY	43	0.093	1	3	4	4	0	0	4	0	4	0	2	2	0	2	2	0	0	0	
TOTALS		12,090	0.119	875	1,051	1,935	1,550	226	199	1,483	531	1,852	69	1,381	491	63	1,191	197	332	147	63	

Exhibit 4D – 1997 Statewide Count

April 15, 1997		No.	# Passings		Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle				Roadway	
LEA NO.	(LEA) NAME	Buses	Per Bus	AM	PM	Total	1-5	6-10	11+	Frt	Rear	Left	Rt	Car	PU/V an	Truck	2 Ln	4 Ln	4+Ln	4+n ed
010	ALAMANCE	130	0.215	12	16	28	24	0	4	23	5	27	1	20	8	0	21	5	2	
020	ALEXANDER	60	0.067	1	3	4	4	0	0	4	0	4	0	4	0	0	4	0	0	
030	ALLEGHANY	27	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
040	ANSON	82	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
050	ASHE	63	0.127	3	5	8	8	0	0	8	0	8	0	6	2	0	2	6	0	
060	AVERY	42	0.190	1	7	8	7	1	0	7	1	8	0	5	3	0	7	1	0	
070	BEAUFORT	97	0.103	4	6	10	8	2	0	7	3	10	0	9	1	0	8	2	0	
080	BERTIE	85	0.024	0	2	2	2	0	0	0	2	2	0	2	0	0	2	0	0	
090	BLADEN	101	0.040	1	3	4	4	0	0	4	0	4	0	1	3	0	4	0	0	
100	BRUNSWICK	139	0.173	9	15	24	22	1	1	19	5	24	0	16	7	1	20	0	4	
110	BUNCOMBE	309	0.385	33	86	119	87	13	19	87	32	116	3	93	22	4	55	53	4	
120	BURKE	108	0.185	11	9	20	18	2	0	15	5	19	1	13	6	1	18	1	1	
130	CABARRUS	138	0.188	12	14	26	23	1	2	26	0	26	0	16	10	0	26	0	0	
132	KANNAPOLIS	18	0.278	5	0	5	4	0	1	4	1	5	0	4	1	0	2	3	0	
140	CALDWELL	114	0.088	2	8	10	10	0	0	8	2	10	0	9	0	1	8	1	1	
150	CAMDEN	17	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
160	CARTERET	88	0.261	5	18	23	19	1	3	21	2	23	0	19	1	2	22	1	0	
170	CASWELL	65	0.015	1	0	1	0	0	1	1	0	1	0	1	0	0	1	0	0	
180	CATAWBA	143	0.042	2	4	6	6	0	0	5	1	6	0	2	4	0	6	0	0	
181	HICKORY	18	0.278	1	4	5	2	0	3	2	3	5	0	3	1	0	2	0	3	
182	NEWTON-CON.	31	0.258	5	3	8	7	1	0	6	2	7	1	6	2	0	5	3	0	
190	CHATHAM	X		X	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	
200	CHEROKEE	44	0.159	0	7	7	7	0	0	7	0	7	0	7	0	0	4	3	0	
210	CHOWAN	42	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
220	CLAY	20	0.050	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0	0	
230	CLEVELAND	130	0.131	9	8	17	14	0	3	15	2	16	1	13	4	0	9	8	0	
231	KINGS MT.	36	0.500	4	14	18	16	2	0	7	11	18	0	13	2	3	3	5	10	
240	COLUMBUS	145	0.014	0	2	2	2	0	0	1	1	2	0	2	0	0	2	0	0	
241	WHITEVILLE	32	0.250	2	6	8	8	0	0	8	0	8	0	6	1	1	7	1	0	
250	CRAVEN	159	0.157	12	13	25	18	5	2	21	4	25	0	18	7	0	17	8	0	
260	CUMBERLAND	485	0.361	103	72	175	138	31	6	121	54	170	5	149	20	6	102	35	30	
270	CURRITUCK	45	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
280	DARE	42	0.024	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0	0	
290	DAVIDSON	183	0.148	13	14	27	20	4	3	25	2	25	2	16	10	1	25	1	0	
291	LEXINGTON	24	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
292	THOMASVILLE	11	0.273	0	3	3	3	0	0	3	0	3	0	3	0	0	1	2	0	
300	DAVIE	61	0.131	4	4	8	7	0	1	8	0	8	0	7	0	1	8	0	0	
310	DUPLIN	134	0.112	8	7	15	12	1	2	13	2	14	1	10	4	1	7	7	1	
320	DURHAM	278	0.165	23	23	46	37	6	3	42	4	45	1	36	9	1	30	14	2	
330	EDGECOMBE	112	0.054	3	3	6	4	1	1	5	1	6	0	2	3	1	2	0	4	
340	FORSYTH	359	0.315	47	66	113	86	18	9	90	23	111	2	95	17	1	88	4	21	
350	FRANKLIN	97	0.010	0	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	
360	GASTON	175	0.286	28	22	50	31	5	14	37	13	41	9	43	6	1	30	14	5	
370	GATES	36	0.056	1	1	2	2	0	0	2	0	2	0	0	1	1	2	0	0	
380	GRAHAM	22	0.045	0	1	1	1	0	0	1	0	1	0	1	0	0	1	0	0	
390	GRANVILLE	102	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
400	GREENE	47	0.106	5	0	5	5	0	0	1	4	5	0	3	2	0	5	0	0	
410	GUILFORD	596	0.136	35	46	81	51	15	15	70	11	80	1	67	12	2	50	20	9	
420	HALIFAX	127	0.039	3	2	5	3	0	2	5	0	4	1	4	1	0	5	0	0	
421	R. RAPIDS	11	0.273	1	2	3	1	1	1	2	1	2	1	3	0	0	3	0	0	
422	WELDON	14	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
430	HARNETT	189	0.111	12	9	21	11	4	6	21	0	21	0	12	9	0	20	1	0	

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

April 15, 1997		No.	# Passings		Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle			Roadway			
LEA NO.	(LEA) NAME	Buses	Per Bus	AM	PM	Total	1-5	6-10	11+	Frt	Rear	Left	Rt	Car	PU/V	Truck	2 Ln	4 Ln	4+Ln	4+n	
440	HAYWOOD	79	0.139	4	7	11	9	2	0	8	3	11	0	5	5	1	8	1	2	0	
450	HENDERSON	103	0.126	7	6	13	13	0	0	13	0	13	0	9	4	0	13	0	0	0	
460	HERTFORD	73	0.096	1	6	7	7	0	0	5	2	7	0	5	2	0	7	0	0	0	
470	HOKE	69	0.188	6	7	13	12	0	1	8	5	13	0	10	1	2	9	0	0	0	
480	HYDE	15	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
490	IREDELL	140	0.093	7	6	13	11	1	1	13	0	13	0	12	1	0	12	1	0	0	
491	MOORESVILLE	14	0.071	1	0	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	
500	JACKSON	47	0.043	0	2	2	2	0	0	2	0	2	0	1	1	0	2	0	0	0	
510	JOHNSTON	250	0.120	14	16	30	27	1	2	21	9	29	1	24	3	3	26	0	4	0	
520	JONES	33	0.182	6	0	6	6	0	0	5	1	6	0	2	4	0	6	0	0	0	
530	LEE	90	0.333	14	16	30	25	1	4	28	2	30	0	20	7	3	22	8	0	0	
540	LENOIR	142	0.155	14	8	22	18	1	3	19	3	21	1	13	7	2	9	8	5	0	
550	LINCOLN	102	0.049	4	1	5	4	0	1	5	0	5	0	4	1	0	5	0	0	0	
560	MACON	51	0.059	1	2	3	2	0	1	2	1	3	0	2	1	0	3	0	0	0	
570	MADISON	51	0.078	2	2	4	4	0	0	4	0	4	0	2	2	0	4	0	0	0	
580	MARTIN	67	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
590	McDOWELL	71	0.042	1	2	3	3	0	0	3	0	3	0	3	0	0	3	0	0	0	
600	MECKLENBURG	854	0.391	167	167	334	245	46	43	249	85	288	46	272	53	9	153	137	31	1	
610	MITCHELL	36	0.083	3	0	3	3	0	0	3	0	3	0	2	1	0	2	1	0	0	
620	MONTGOMERY	58	0.052	1	2	3	1	0	2	3	0	3	0	2	1	0	3	0	0	0	
630	MOORE	127	0.087	5	6	11	9	1	1	7	4	11	0	11	0	0	11	0	0	0	
640	NASH	197	0.132	14	12	26	15	3	8	20	6	23	3	24	1	1	20	4	2	0	
650	NEW HANOVER	168	0.554	42	51	93	67	6	20	59	34	92	1	57	29	7	51	34	6	0	
660	NORTHAMPTON	74	0.176	6	7	13	12	1	0	11	2	13	0	9	2	2	11	0	2	0	
670	ONSLOW	201	0.303	30	31	61	43	10	8	53	8	59	2	43	14	4	52	7	2	0	
680	ORANGE	73	0.110	2	6	8	7	1	0	7	1	7	1	5	3	0	8	0	0	0	
681	CHAPEL HILL	54	0.093	3	2	5	5	0	0	3	2	3	2	5	0	0	5	0	0	0	
690	PAMLICO	35	0.057	2	0	2	2	0	0	0	2	2	0	1	1	0	2	0	0	0	
700	PASQUOTANK	55	0.145	6	2	8	8	0	0	6	2	7	1	8	0	0	3	4	1	0	
710	PENDER	83	0.241	11	9	20	15	5	0	19	1	20	0	9	7	4	19	1	0	0	
720	PERQUIMANS	34	0.088	2	1	3	2	1	0	3	0	3	0	2	1	0	3	0	0	0	
730	PERSON	74	0.176	9	4	13	11	0	2	9	4	13	0	9	2	2	12	0	0	0	
740	PITT	200	0.220	21	23	44	32	3	9	32	12	40	4	33	7	4	34	5	4	0	
750	POLK	32	0.031	1	0	1	1	0	0	0	1	0	1	1	0	0	1	0	0	0	
760	RANDOLPH	168	0.054	3	6	9	7	1	1	9	0	9	0	7	2	0	8	1	0	0	
761	ASHEBORO	14	0.571	3	5	8	3	4	1	8	0	8	0	4	4	0	7	1	0	0	
770	RICHMOND	92	0.033	0	3	3	3	0	0	2	1	2	1	3	0	0	0	3	0	0	
780	ROBESON	271	0.280	30	46	76	64	5	7	52	24	76	0	57	19	0	69	7	0	0	
790	ROCKINGHAM	160	0.138	8	14	22	19	1	2	15	7	21	1	19	1	2	17	2	1	0	
800	ROWAN	191	0.257	18	31	49	46	0	3	46	3	49	0	34	14	1	34	12	3	0	
810	RUTHERFORD	108	0.111	4	8	12	10	1	1	9	3	10	2	8	3	1	10	2	0	0	
820	SAMPSON	128	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
821	CLINTON	22	0.409	3	6	9	9	0	0	4	5	9	0	8	1	0	9	0	0	0	
830	SCOTLAND	80	0.050	2	2	4	3	0	1	4	0	4	0	1	3	0	4	0	0	0	
840	STANLY	103	0.039	1	3	4	3	1	0	4	0	4	0	3	1	0	4	0	0	0	
850	STOKES	113	0.133	5	10	15	13	0	2	13	2	15	0	12	3	0	13	1	1	0	
860	SURRY	117	0.137	7	9	16	13	1	2	15	1	16	0	10	6	0	14	2	0	0	
861	ELKIN	X		X	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
862	MOUNT AIRY	X		X	X	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
870	SWAIN	29	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
880	TRANSYLVANIA	36	0.500	6	12	18	18	0	0	14	4	16	2	11	7	0	7	7	4	0	
890	TYRRELL	12	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
900	UNION	108	0.370	22	18	40	37	2	1	33	7	40	0	35	4	1	37	3	0	0	
910	VANCE	84	0.226	10	9	19	18	1	0	13	6	18	1	13	6	0	12	3	4	0	

A Cooperative Program to Reduce the Incidents of Motorists Passing Stopped School Buses in a Coastal Region of N.C

April 15, 1997		No.	# Passings			Time of Day			# Stu. at Stop			Passed from:		Side of Bus:		Passing Vehicle			Roadway			
LEA NO.	(LEA) NAME	Buses	Per Bus	AM	PM	Total	1-5	6 - 10	11+	Frt	Rear	Left	Rt	Car	PU/V	Truck	2 Ln	4 Ln	4+tu	4+n		
920	WAKE	687	0.703	192	291	483	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	
930	WARREN	56	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
940	WASHINGTON	48	0.063	2	1	3	3	0	0	1	2	3	0	2	1	0	1	0	2	0	0	
950	WATAUGA	68	0.176	5	7	12	12	0	0	11	1	12	0	8	2	2	6	6	0	0	0	
960	WAYNE	216	0.097	11	10	21	20	1	0	18	3	21	0	16	3	2	21	0	0	0	0	
970	WILKES	114	0.114	10	3	13	10	1	2	12	1	13	0	7	6	0	13	0	0	0	0	
980	WILSON	116	0.198	15	8	23	15	1	7	14	9	23	0	18	5	0	20	0	3	0	0	
990	YADKIN	72	0.028	0	2	2	2	0	0	2	0	2	0	2	0	0	2	0	0	0	0	
995	YANCEY	43	0.279	2	10	12	12	0	0	11	1	11	1	8	3	1	9	3	0	0	0	
TOTALS		12,641	0.147	1,187	1,449	2,636	1,697	218	238	1,685	468	2,052	101	1,634	434	83	1,474	463	174	4	0	
X = did not conduct survey				45%	55%		79%	10%	11%	78%	22%	95%	5%	76%	20%	4%	68%	22%	8%	2%	0%	
*** = did not gather data																						



National Highway Traffic Safety Administration (NHTSA)  
Demonstration Project DTNH22-98-H-15130

A Cooperative Program to Reduce the Incidence of Motorists Passing Stopped Schools Buses in a Coastal Area of North Carolina: Activity Summary

Agency: NC Highway Patrol  
Contact Person, Title: F/Sgt. D.G. Christopher  
Person Completing Questionnaire, Title: F/Sgt. D.G. Christopher

During the week of September 8-17, 1999 your agency was asked to be involved in a stepped-up enforcement of school bus stop arm violations. Please complete the following information as it relates to both ongoing activities and activity during that week.

1. ***How many stop arm violations were reported to your agency during the week of September 8-17, 1999?***  
Troopers are patrolling in areas where we are having problems with vehicles not stopping for the buses. Troopers are following the buses and taking the appropriate actions when the troopers see violations.
2. ***How many stop arm violations were investigated by your agency during the week of September 8-17, 1999?***  
All available troopers followed buses in there assigned area. Troopers made severel charges in conjunction with the stop arm program.
3. ***How many stop arm violations resulted in citations being issued by your agency during the week of September 8-17, 1999?***  
Several charges were made for failing to stop for a school bus the week of this program. We are continuing to enforce G.S. 20-217 and other violations the troopers encounter while monitoring the school buses.
4. ***How many law enforcement officers from your agency participated in the on-site observations?***  
I feel the program is off to a great start. The new media is doing a good job my making the public aware. Troopers know there problem areas and are delegating patrolling and enforcing problems in these areas.
5. ***How did you select the site?***
6. ***Did your agency use the maps provided by the Transportation Office?***
7. ***In your opinion, were the maps and stop locations provided by the Transportation Office adequate?***
8. ***In your opinion, are North Carolina School Bus Drivers adequately trained on the definition of a Stop Arm Violation?***

Thank you for your participation in this important project. Feel free to attach additional sheets if necessary. Please return by September 10, 1999 to:

Jeff Tsai  
Pupil Transportation Program Director  
NCSU-ITRE  
Campus Box 8601  
Raleigh, NC 27695-8601

National Highway Traffic Safety Administration (NHTSA)  
Demonstration Project DTNH22-98-H-15130

A Cooperative Program to Reduce the Incidence of Motorists Passing Stopped Schools Buses in a Coastal Area of North Carolina: Activity Summary

Agency: State Highway Patrol  
Contact Person, Title \_\_\_\_\_  
Person Completing Questionnaire, Title F/Sgt. J.C. Strickland

During the week of September 8-17, 1999 your agency was asked to be involved in a stepped-up enforcement of school bus stop arm violations. Please complete the following information as it relates to both ongoing activities and activity during that week.

1. **How many stop arm violations were reported to your agency during the week of September 8-17, 1999?**  
We discuss the issue of school bus safety with all school bus drivers at the beginning of each school year. We also ensure that all drivers are familiar with the correct process for filing an alleged violation of school bus law (G.S. 20-217). We also placed on each school bus what elements they must have to report a violation.  
We place troopers on school buses periodically and follow these buses using unmarked cars. Shift assignments are made so Troopers can follow assigned school buses in the morning and afternoon each day that school is in session.  
We have utilized our TV stations and new media to educate the general public on school bus safety.
2. **How many stop arm violations were investigated by your agency during the week of September 8-17, 1999?**  
During the week of 8-12 February 1999, our Troopers did TSI programs in the schools, patrolled school zones and monitored school bus stops for stop arm violations. Troopers also rode school buses and followed them during this week.
2. **How many stop arm violations resulted in citations being issued by your agency during the week of September 8-17, 1999?**  
During the week of February 8-12 1999, our Troopers issued 26 citations for speeding; 1 improper passing; 2 no operators licenses; 1 revoked license; 18 seat belt citations; and 3 other school zones in New Hanover County.
5. **How many law enforcement officers from your agency participated in the on-site observations?**  
School bus drivers must receive more training on what constitutes passing a stopped school bus. The numbers that they are seeing is not occurring in New Hanover County. Our court systems must be made aware that this is a serious violation and that the charge should not be reduced to dismissed as they have been in New Hanover County.
5. **How did you select the site?**
6. **Did your agency use the maps provided by the Transportation Office?**
8. **In your opinion, were the maps and stop locations provided by the Transportation Office adequate?**
8. **In your opinion, are North Carolina School Bus Drivers adequately trained on the definition of a Stop Arm Violation?**

Thank you for your participation in this important project. Feel free to attach additional sheets if necessary. Please return by September 10, 1999 to:

Jeff Tsai  
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Raleigh, NC 27695-8601

DATE	ON SLOW						NEW HANOVER									
	IMPLIED CONSENT	YIELD	TOO CLOSELY	PASSING STOPPED SCHOOL BUS	OTHER PASSING	SUSP/ REV	OTHER	TOTALS	IMPLIED CONSENT	YIELD	TOO CLOSELY	PASSING STOPPED SCHOOL BUS	OTHER PASSING	SUSP /REV	OTHER	TOTALS
1/10/2000								0								0
1/11/2000								0								0
1/12/2000							1	1								0
1/13/2000						1	19	20								0
1/14/2000								0								0
1/17/2000								0								0
1/18/2000								0								0
1/19/2000								0						5	5	5
1/20/2000	1				2	16	24	43								0
1/21/2000								0								0
1/24/2000								0						3	3	3
1/25/2000								0								0
1/26/2000								0	1					9	10	10
1/27/2000								0						20	20	20
1/28/2000								0								0
1/31/2000								0								0
2/1/2000								0								0
2/2/2000								0								0
2/3/2000								0								0
2/4/2000								0								0
<b>TOTALS</b>	1	0	0	0	2	17	44	64	1	0	0	0	0	0	37	38

Exhibit 7

**MEMORANDUM FROM DIRECTOR OF TRANSPORTATION, ONSLOW COUNTY SCHOOLS, REGARDING THE CLARIFICATION OF HOW TO MAKE PASSENGER STOPS AT CORNERS.**

Date: February 2, 1999

To: Transportation Coordinators  
All School Bus Drivers

From: Jeff Smith, Transportation Director  
Barbara Rooks, TIMS Coordinator

Re: Bus Stops in Intersections "Corner Bus Stops"

There has been some discussion on the proper way to make a "corner bus stop" at a three-way or four-way intersection. Apparently some buses have been pulling into the intersection to make the passenger stop in an attempt to stop traffic from all directions, for the safety of the students. The Highway Patrol has discussed these type bus stops with the District Attorney, and they have determined that the bus **can not legally stop the traffic from 3 or 4 directions at once**. This means that traffic on the cross street does not legally have to stop. If you attempt to make stops in this manner, you could be liable in the event of an accident.

In the future, this should not be done. If you have to, make 2 stops, one on each side of the intersection in the direction that you are traveling. This is how this kind of stop should be handled. Please see the attached diagram to clarify this.

If you have been making bus stops on this manner, inform the students, and make the needed changes immediately. The students need to be informed to wait at their proper bus stops. If you know that a student is crossing an intersection to go to the incorrect bus stop, the student needs to be warned and the parents notified. This way, if an accident occurs in this situation, we have taken the proper precautions and made our passenger stops in the safest manner possible.

If you have to make additional bus stops to correct this type of situation, don't forget to give the information to your coordinator so that your TIMS information can be modified.

c C.T. Hoyt  
R.A. Hood  
Otis Johnston  
A.W. Zaremski

**Exhibit 8**  
**School Bus Stop Arm Law Brochure47150**

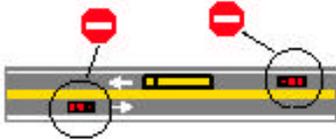
**North Carolina School Bus Stop Law**



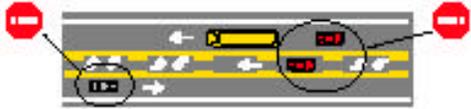

N.C. Department of Transportation  
Division of Motor Vehicles  
School Bus & Traffic Safety Section  
1100 New Bern Avenue  
Raleigh, N.C. 27697-0001

phone: (919) 861-3109  
fax: (919) 715-3306  
www.dmv.dot.state.nc.us

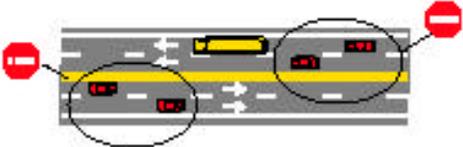
**1 Two-lane roadway:**  
When school bus stops for passengers, all traffic from both directions must stop!



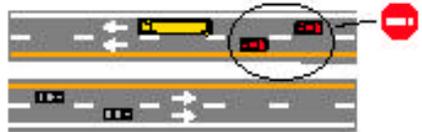
**2 Two-lane roadway with a center turning lane:**  
When school bus stops for passengers, all traffic from both directions must stop!



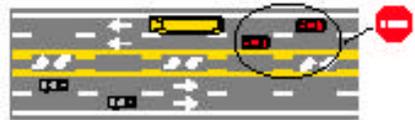
**3 Four-lane roadway without a median separation:**  
When school bus stops for passengers, all traffic from both directions must stop!



**4 Divided highway of four lanes or more with a median separation:**  
When school bus stops for passengers, only traffic following the bus must stop.



**5 Roadway of four lanes or more with a center turning lane:**  
When school bus stops for passengers, only traffic following the bus must stop.



 200,000 cards were printed on recycled paper at an estimated cost of \$4096.30. 2/00  
Paid for by the North Carolina Department of Public Instruction with funding from the National Highway Traffic Safety Administration.

**APPENDIX B – POWERPOINT SLIDES from KICKOFF MEETING**