

ITRE School Bus Stop-Arm Camera Activities, 2014-2015 Program Year

The initial focus of ITRE efforts during the 2014-2015 program year was to assist the North Carolina Department of Instruction (DPI) in compiling information on procedures that school district transportation directors use to track and prosecute school bus stop-arm passing violations, particularly procedures involving enforcement actions with local law enforcement personnel and District Attorney's Offices. ITRE conducted a survey of local school district transportation directors in December 2014 to gather information on violation tracking and enforcement practices in cooperation with law enforcement and judicial agencies.

In the spring of 2015, the work focus shifted to conducting an ongoing data collection effort to document stop-arm violations. This ongoing effort collected information on passing violations as they occurred during the last part of the 2014-2015 school year, and is continuing through the 2015-16 school year.

ITRE activities involved the following:

1. Conducting a survey of LEAs to determine the procedures used with local law enforcement personnel and District Attorney's Offices to track school bus stop-arm passing violations.
2. Compiling and summarizing survey findings.
3. Developing and initiating an ongoing data collection effort to document stop-arm violations.
4. Compiling and providing a summary of initial findings from this data collection effort to NC DPI staff for use in a presentation at the NC Pupil Transportation Association (NCPTA) Conference.
5. Continuing the ongoing data collection activity in the 2015-2016 school year.
6. Compiling and providing a summary of results to date as of the end of September 2015.

More detail is provided below for each of those activities.

1. Surveying LEAs on procedures to track stop-arm passing violations—the purpose of this survey was to compile information on procedures used with local law enforcement personnel and District Attorney's Offices to track stop-arm passing violations across the state. Several activities were conducted including:
 - Developing a survey. A copy of the survey is provided in Appendix A.
 - Conducting a survey via email. The *Qualtrics* software available at NCSU at no charge was used for the survey. A link to the survey was provided in an email. Reminder emails were sent prior to, and following the response deadlines.
 - Downloading responses into a spreadsheet. ITRE contacted respondents to obtain clarification for questionable responses.

2. Compiling and summarizing survey findings.
 - Responses in the spreadsheet were compiled and summary findings were provided in a brief report to NC DPI, as shown in Appendix B.
3. Developing and implementing an ongoing data collection tool to gather information on school bus stop-arm passing violations. Activities involved:
 - Developing a data collection form. LEAs are to complete a form for each stop-arm passing violation. The survey is available at www.ncbussafety.org/stoparmviolationcamera. A copy of the data collection form is provided in Appendix C.
 - Providing LEAs with a link to the data collection form. The *Qualtrics* software available at NCSU was used for the survey. Prior to the start of data collection, NC DPI sent an email informing LEAs of the data collection activity and requesting their assistance in completing a form for each violation. ITRE provided a link to the data collection form via email to LEAs.
 - Downloading responses into a spreadsheet. ITRE reviewed and cleaned the data, and contacted respondents to obtain clarification for questionable responses.
4. Compiling and providing a summary of initial findings from this data collection effort to NC DPI for use in a presentation at the NC Pupil Transportation Association (NCPTA) Conference in late June 2015.
 - ITRE compiled initial results from completed data collection forms (35 records from April 17-June 18, 2015)
 - ITRE provided a brief summary of findings to NC DPI staff for use in a session at the annual NCPTA Conference (see Appendix D).
5. Continuing the ongoing data collection activity in the 2015-2016 school year.
 - At ITRE's request, NC DPI staff sent an email asking LEAs to continue to complete a data collection form for each passing violation during the 2015-2016 school year.
6. Compiling and providing a summary of results to date through September 2015.
 - ITRE compiled a summary of all records from April 17 through September 30, 2015 (see Appendix E).

Appendix A: Violation Tracking Survey Questionnaire

Stop Arm Camera Tracking & Enforcement

ITRE is helping the NC Department of Public Instruction to compile information on the use of school bus stop-arm camera systems to document and prosecute passing violations. Please complete the following questions by December 12, 2014.

1. Name of the staff person leading the stop-arm violation tracking process
2. Title of the staff person leading the stop-arm violation tracking process
3. Phone number of the staff person leading the stop-arm violation tracking process
4. Email address of the staff person leading the stop-arm violation tracking process
5. How many stop-arm camera systems have you purchased to date? (Enter a number, e.g., 1, 2, 3, etc. and include those ordered or to be ordered by 12/31/2014 but not yet installed.)
6. How many of the stop-arm camera systems are operational? (Enter a number, e.g., 1, 2, 3, etc.)
7. If you are not using the cameras and recorders, why not?
8. Are you capturing both video and still pictures of passing violations and then entering information on each violation (date, location, bus number, bus driver, etc.) into a file?
 - Yes (1)
 - No (2)If not, when will you start doing so (date)?
9. Describe the procedure you use to provide camera system video and still photos to local law enforcement personnel. If you do not have a procedure in use, write NONE.
10. Describe interactions (positive or negative) with law enforcement personnel related to the prosecution of stop-arm passing violations.
11. Name of the primary contact in your District Attorney's Office
12. Title of the primary contact in your District Attorney's Office
13. Phone number of the primary contact in your District Attorney's Office
14. Email address of the primary contact in your District Attorney's Office

15. Have you established procedures to provide camera system video and still photos to your District Attorney or his/her staff?

Yes (1)

No (2)

If Yes, briefly describe the process used to provide photo evidence to the District Attorney's Office

16. Briefly describe interaction (positive or negative) with the District Attorney's Office related to the prosecution of stop-arm passing violations:

17. How are you tracking stop-arm passing violations and the prosecution of each of those violations? (Check all that apply)

Informal notes (1)

Hard copy filing system (2)

Electronic data folder for each violation (3)

Spreadsheet (4)

Database (5)

Not tracking (6)

18. For what percentage of captured stop-arm violations have you been able to provide video evidence?

19. Briefly describe the quality of video or photos and the impact on using them as evidence:

20. Describe your work with local media to highlight the use of stop-arm cameras to help decrease the number of school bus stop-arm passing violations.

Thank you for completing the survey!

Appendix B: Summary of Violation Tracking Survey Findings

Summary of Survey Results—LEA Procedures to Track and Prosecute Violations Recorded by School Bus Stop-Arm Cameras

Introduction

During the 2013 North Carolina legislative session, funding was provided to support the installation of stop-arm cameras on school buses by Local Education Agencies (LEAs). Funding was made available for LEAs to purchase and install stop-arm cameras on two school buses during 2013-2014, and on two buses during 2014-2015. One hundred eleven LEAs were involved in the purchase and installation of stop-arm cameras during the 2013-2014 school year.¹

ITRE conducted a survey of LEAs in December 2014 for the Department of Public Instruction (DPI). The purpose of the survey was to compile information on the procedures LEAs use in conjunction with local law enforcement personnel and District Attorney's Offices in the tracking and prosecution of school bus stop-arm passing violations.

The survey was emailed to 112 LEAs², and was open for responses from December 3-December 19. A total of 87 responses were received, representing a response rate of 78%.

The survey asked LEAs to provide information on their experience with the implementation of the stop arm camera systems. Survey questions focused on the numbers of camera systems, procedures for gathering data, partnerships with law enforcement and the District Attorney's office and more.

According to the Department of Public Instruction, Transportation Services Section, there were a total of 482 buses on which stop arm camera systems were installed or on order at the end of the 2013-2014 school year. An additional 206 systems were ordered during the 2014-2015 school year. Beyond this, fifteen LEAs ordered a total of 134 additional units, bringing the total number of systems to over 800.

¹ Four LEAs did not purchase or install stop-arm cameras—Davie County Schools, Hoke County Schools, Macon County Schools, and Scotland County Schools.

² Davie County Schools had purchased and installed stop-arm cameras prior to the 2013-2014 school year, and a link to the survey was sent to that LEA.

Survey Results

Summarized results are contained in this report based on responses to questions on the following topics.

1. The number of stop-arm camera systems purchased and installed or on order by December 31, 2014
2. The number of those systems that were operational
3. Reasons for not using systems that were not operational
4. If video and still photos of passing violations were being stored, and if not, the date by which file storage would start
5. The procedure used to provide video and photo evidence of stop-arm passing violations to local law enforcement personnel
6. Their contact(s) in the local District Attorney's Office
7. The procedure used to provide video and photo evidence of stop-arm passing violations to the local District Attorney's Office
8. Methods used to track stop-arm passing violations and the prosecution of those violations
9. The quality of video/photos produced by onboard camera systems, and the impact from using them as evidence
10. Work with local media to highlight the use of stop-arm camera systems as a means to decrease the number of school bus stop-arm passing violations

Information on each of these topics is summarized in this document.

Survey Responses

1-3. Numbers of Camera Systems Purchased and Operational

The number of camera systems **purchased** by LEAs ranged from two to 150. The greatest number of LEAs (38) indicated having purchased four camera systems, the number for which state funds have been made available during the past and current school year. Only 20 of the 87 responding LEAs indicated having purchased more than four camera systems. However, note that the greatest number of LEAs (33) indicated having only two camera systems operational.

No. of Camera Systems	No. of Responses	No. of Operational Camera Systems	No. of Responses
		0	4
2	27	2	33
3	2	3	5
4	38	4	28
5	1	5	1
6	4	6	5
7	2	7	1
8	5	8	3
10	1	9	1
11	2	10	1

No. of Camera Systems	No. of Responses	No. of Operational Camera Systems	No. of Responses
27	1	27	1
29	1	29	1
40	1	40	1
98	1	94	1
150	1	125	1

Of the 87 respondents, 65 indicated that all the camera systems they had purchased were **operational**; the remaining 22 respondents had some systems that were not operational. Twelve of the LEAs indicating that not all their camera systems were operational provided an explanation. Generally, the reason for not having operational systems was that they were recent purchases that had not been received (1 LEA) or the system(s) had not yet been installed in a bus (8 LEAs). Only two LEAs reported that a problem with a camera system prevented it from being operational.

4. Use of Systems to Capture Stop-Arm Passing Violations

Eighty-three LEAs responded to a question asking if they were capturing both video and still pictures of passing violations and then entering information on each violation (date, location, bus number, bus driver, etc.) into a file. Sixty (72% of respondents to the question) indicated that they were capturing video and photos, and 23 indicated that they were not.

Those who were not capturing video and photos of stop-arm passing violations were asked the date by which they planned to start doing so. Twenty-two LEAs responded, with nine providing a date (generally in January or February 2015); four did not provide a date; five noted that they had not yet captured a stop-arm passing violation on camera; and four provided responses not directed to the question.

5. Procedure to Provide Video/Photos to Local Law Enforcement

Forty-six of 84 respondents described a procedure used to provide video and photos from camera systems to local law enforcement personnel. The two methods with the greatest use in transferring this evidence were email (12 responses) and use of a flash drive/DVD (9 responses). Interestingly, several LEAs make direct contact with local law enforcement personnel either by having them come by the school offices to pick up the material (10 responses) or by having the LEA drive the material to the local law enforcement office (4 responses).

Descriptions of procedures in use ranged from very general, such as “I call and tell them I have it if they need or want it for court” to more specific, such as “Once notification that someone has passed stopped school bus is received, we download that segment from the cameras on bus. We review to insure that someone did pass our stopped school bus. Proper forms and copy of camera download is hand delivered to appropriate authorities—such as highway patrol.”

Thirty-five of 84 respondents did not have a procedure to provide video and photos to local law enforcement personnel.

Three LEAs did not respond directly to the question, but noted that they had not yet had a violation to process.

LEAs were also asked to “describe interactions (positive or negative) with law enforcement personnel related to the prosecution of stop-arm passing violations.” Of the 79 responses to this question, 27 simply rated their interactions as “highly positive,” “very positive,” or “positive.” One “neutral” and one “negative” response were also submitted. Seven LEAs indicated that they had no interactions with law enforcement personnel in this area, and 10 LEAs had not yet had a stop-arm passing violation to track and prosecute.

Descriptions of interactions were generally positive, and included the following:

- “SHP representative, School Board Attorney and myself work together along with DA on violations.”
- “All interactions with NCHP and Local Law Enforcement are positive. All sides are willing to work together concerning violations.”
- “Officers are appreciative of the technology.”
- “NCHP & DA's office in Cleveland County are awesome.”
- “They have been very impressed with what we can provide.”
- “Positive – They will send Officer out to monitor trouble stops, follow buses, and even ride buses.”
- “Very positive. They have even ridden our buses. Just last month Troopers rode one of our buses and cited two violations.”
- “NC Hwy Patrol other Law Enforcement are amazed to see the information we are getting on video! Their words are that this is a smoking gun in court. That there is no way that the driver can deny or get out of the video.”
- “We met with law enforcement and the District Attorney prior to installation of the stop arm cameras and (there) has been a positive interaction. When we had a stop where too many violations were occurring we worked to move the stop to a safer location.”
- “Law enforcement loves it. When we go to court it is a different thing. The courts don't ask for it so they plead to a less sentence.”
- “I have a GREAT rapport with SHP and they try really hard to issue a citation on every violation. My issue is that the process really slows down when it get to the DA. The standard procedure in the past has been to send to driving school and reduce the ticket in improper equipment. I (think) I am turning this around though; the DA has been personally calling me on the last couple of violations to discuss things.”

6. Contact in the local District Attorney's Office

LEAs were asked to provide information on their primary contact in the local District Attorney's Office including: the contact's name, title, phone number, and email address. The responses to the name of the primary contact in the local District Attorney's Office demonstrated that LEAs are less involved in working with staff at that office than they are in working with local law enforcement agencies. The 57 responses revealed the following:

- 31 LEAs provided a contact name
- 7 LEAs responded “unknown”

- 5 LEAs responded “none”
- 5 LEAs responded “N/A”
- 30 LEAs did not respond

Descriptive responses indicated that some LEAs that had not established a working relationship with the local DA’s Office were working exclusively with law enforcement personnel, as illustrated by the following:

- “We have only worked with the Highway Patrol to this point.”
- “Only use Highway Patrol as contact. They meet with DA.”
- “NCSHP is who we contact.”
- “Don’t have. Working primarily with law enforcement.”
- “Law enforcement officers handle it after determining if charges are warranted.”
- “With the election we have a new DA and this has not been addressed yet.”
- “We work through our School Resource Officers.”
- “Not established.”

Of the 45 respondents who provided the title of their contact in the DA’s Office, the majority (29) indicated that their contact was the District Attorney/Assistant District Attorney/County District Attorney. Five respondents did not know their contact’s title, four did not have a contact, four responded “N/A”, and three responded with other information.

Only 29 respondents provided the phone number for their contact in the DA’s Office, and nine provided the email address.

7. Procedure to Provide Video/Photos to Local District Attorney’s Office

Only 16 of 77 respondents indicated that they had established procedures to provide camera system video and still photos to their District Attorney or his/her staff. The majority (79%) of those responding to the question do not have a procedure in place.

When asked to describe the process, there were only 15 responses that included several methods for providing material documenting a stop-arm passing violation, including:

- Law enforcement provides to DA: 4
- Put on a flash drive/DVD: 4
- Provide information via email: 3
- Hand deliver to DA’s Office: 1

The descriptive responses ranged from “Same as with Law Enforcement” to somewhat more detailed, such as “Once a citation has been written, the SHP gives me the name of the defendant and the court date. I then E-mail Mr. _____ to let him know that I have a violation that I feel needs to be prosecuted. I then will forward the video / photos and he determines if he is willing to prosecute.”

Finally, LEAs were asked to describe interaction (positive or negative) with the District Attorney’s Office related to the prosecution of stop-arm passing violations. Of the 63 responses to this question, 24 (38%) responded “None” and an additional six responded “N/A”. Of the 42

descriptive responses, 14 LEAs indicated having a positive relationship with the DA's Office, 13 did not have a relationship, and three had not yet recorded a stop-arm violation.

Descriptive responses included:

- "I called left message, no call back."
- "Relationship is good but no requirement to meet. NCSHP takes the data, issues the citation, and defends it in court."
- "There is not much interaction with the DA's office. I send information and it is sometimes days (maybe weeks) before I hear anything again. I know they are busy so I try and leave them alone but I would really like a quicker response to at least acknowledge that they have received the material. If a case gets continued, I have to look it up myself on the public court document site to see the new court dates. I would like to be kept in the loop, but I at least have their attention now and it is a start at least."
- "Positive-SRO writes ticket, District Attorney prosecutes."

The survey indicates that at this point in time, while many LEAs have developed good working relationships with local law enforcement personnel, only a few LEAs have developed similar working relationships with their local District Attorney's Office. It will be critical to develop stronger relationships with those working in the courts if prosecutions are to be carried out successfully.

8. Methods Used to Track Stop-Arm Passing Violations

LEAs were asked to indicate the methods they were using to track stop-arm passing violations and the prosecution of each of those violations. Approximately two-thirds of respondents (50 of 77) indicated that they were using some method to track violations, including:

- Informal notes 9
- Hard copy filing system 17
- Electronic folder for each violation 14
- Spreadsheet 8
- Database 2

The other 27 respondents were "Not Tracking" violations.

9. Quality of Video / Photos

LEAs were asked to describe the quality of video or photos from their camera systems and the impact of using that material as evidence. There were a total of 61 responses, of which 46 provided descriptive statements. Seven responses indicated "None," seven stated "N/A," and one response was "Unknown". Many of the descriptive responses indicated that the camera systems provide good quality video/photos, as evidenced in the following comments:

- "Excellent quality and usually a conviction if it goes to trial."
- "Excellent. Our cameras show front of vehicle, side picture of driver and rear tag. I am hearing from around the community that citizens are becoming highly aware about passing stopped school buses."

- “Law enforcement liked the quality. They can make out the faces and tag numbers. Most of the time they say the violators admit during investigation to the violation.”

Concerns/problems with the video/photo quality, included comments such as:

- “Video quality for violation is great. The side profile image of driver has been poor and leads to not following through with prosecution.”
- “Video is good, but you cannot always recognize the driver.”
- “Video is usually pretty good but rarely all three cameras get all of the data needed namely picture of driver.”
- “Very hard to get the actual person in the vehicle most of the time.”
- “Bad on the one time with rainy weather.”
- “Sometimes the video is outstanding, but in low light conditions the images are not always clear enough for law enforcement officers to use.”

Only one LEA indicated poor video/photo quality. Seven LEAs responded by noting that they had not used video/photos yet.

10. Work with Local Media Highlighting Use of Stop-Arm Cameras

Finally, LEAs were asked to describe work with local media to highlight the use of stop-arm cameras to help decrease the number of school bus stop-arm passing violations. Many of the 67 responding LEAs described their activities (49); 15 had none; and three responded “N/A”.

Twenty-seven of the LEAs had an article in a newspaper, or had been mentioned/featured on the radio or television. Such activities have ranged from “Article in local newspaper” to “We have released article to the local news as well as making several radio spots” and “We have a multi-media event at the Opening of Schools, along with CMPD Law Enforcement - Motorcycle Division.”

Eleven other LEAs, while not mentioning a specific event, indicated that they are in contact with the media, as evidenced by comments such as “Currently working with law enforcement to prepare a media day” and “We contacted media and received coverage of the stop arm cameras and hopefully this reduced the number of violations.” The need to maintain an ongoing relationship with local media to keep getting school bus safety information to the public was summed up well by the LEA that responded, “Good but more is needed. It is a work in progress and we are constantly working to inform the public on awareness.”

Appendix C: Ongoing Data Collection Form

Form for Data from Video Recordings of School Bus Stop-Arm Passing Violations

The Institute for Transportation Research and Education (ITRE) is working with the North Carolina Department of Public Instruction (DPI) to compile information on school bus stop-arm passing violations. The purpose is to learn more about the numbers of those violations that occur, as well as the procedures to enforce and prosecute the violations.

School districts are requested to enter data into separate forms for each recorded school bus stop-arm passing violation. Do not fill in a form for any passing violation that occurs but was not recorded. Complete this form separately for each recorded passing violation, as each form will be saved as a unique record. ITRE will download information periodically to compile information for the NC DPI on violations that occur throughout North Carolina.

You should plan to enter all information into the form when you first open it, as there have been problems getting back to partially completed surveys. After you click on the >> in the final frame, you will not be able to change/add any information.

1. Name of person completing survey
2. Name of your School District/LEA (drop-down box provided with names of all LEAs)
3. Date of the violation information. Enter the Month, Day, and Year in the next three drop down boxes.
4. Time of violation
 - am (1) _____
 - pm (2) _____
5. Location of violation (street address preferred, if not available, use nearest intersection)
6. TIMS bus stop ID (Optional--example: 340.054)
7. Bus number
8. Driver name
9. Lighting condition
 - Daylight (1)
 - Dawn/Dusk (2)
 - Dark (3)
10. Number of highway lanes at location of passing violation

- 2 lanes (1)
- 2 lanes plus center turn lane (2)
- 3 lanes (3)
- 3 lanes plus center turn lane (4)
- 4 lanes (5)
- 4 or more lanes plus center turn lane (6)
- 2 or more lanes with center median (7)

11. Direction passing vehicle was travelling

- Oncoming (toward front of bus) (1)
- Overtaking (from rear of bus) (2)

12. On which side of bus did the passing violation occur?

- Left (driver's side) (1)
- Right (passenger door side) (2)

13. Was violation information given to law enforcement for action?

- Yes (1)
- No (2)

If No Is Selected, Then the survey software was set to Skip To “If violation information was not given to law enforcement for action, why not?”

14. Name of law enforcement agency that was given the violation information (for example, NCHP, (name of county) Sheriff, (city/town name) police (applicable only if violation information was provided)

15. Date that the violation information was provided to law enforcement. Enter the Month, Day, and Year in the next three drop down boxes (if applicable)

16. Date that the violation information was provided to District Attorney staff. Enter the Month, Day, and Year in the next three drop down boxes (if applicable)

17. District Attorney staff member to whom violation information was given (optional)

18. If violation information was not given to law enforcement for action, why not?

- License tag could not be determined from recorded images (1)
- Driver could not be identified from the recorded images (2)
- Bus was not completely stopped (3)
- Stop arm was not fully extended (4)
- Other (describe below) (5) _____

Thank you for providing information on this school bus stop-arm passing violation.

ITRE will add this information to a file of violations statewide to assist the NC DPI in compiling information on the tracking and enforcement of stop-arm violations. Do not click on the >> button if you have not filled in all information for this passing violation. After you click on the >> button you may not be able to get back into a partially completed survey.

Appendix D: Brief Summary of Ongoing Data Collection Findings Through June 18, 2015

Summary of Responses to Ongoing Data Collection Form June 18, 2015

As of June 18, 2015, **35 forms have been completed** with information on stop-arm passing incidents. **Only seven LEAs have completed forms** providing information for the ongoing data collection process. Three LEAs reported one passing violation (Unknown (name not provided) in Alamance County, Woody Dotson in Swain County, and Alan Justice in Transylvania County), one LEA reported two passing incidents (Timothy Thompson in Davidson County), one LEA reported nine passing incidents (Ricky Whaley in Greene County), one LEA reported 10 passing incidents (Billy Sugg in Johnston County), and one LEA reported 11 passing incidents (Linda King in Avery County).

Most of the reported passing incidents occurred in April (19, or 56%), with nine (26%) having occurred in May. Three incidents were reported in June, two in January, one in February, and one with no month reported.

Most passing violations were recorded in the afternoon (23, or 70%) between 2:30 pm and 4:30 pm, with 10 (30%) occurring in the morning, between 6:40 am and 8:15 am.

The majority of passing violations occurred in daylight (28, or 76%), with eight (24%) having occurred during dawn/dusk.

Most passing violations were recorded on two-lane highways (24, or 73%), with eight (24%) recorded on a two-lane highway with a center turn lane, and one (3%) recorded on a highway with four or more lanes plus a center turn lane.

Several streets or locations were reported multiple times as having had a passing violation. This information can be very valuable in determining on which routes camera-equipped buses should be deployed.

The majority of passing violations involved an oncoming vehicle traveling in the opposite direction toward the bus (32, or 91%), with only three violations involving a vehicle overtaking the bus from the rear (9%).

All passing violations occurred on the left (driver's side) of the bus.

In most cases (32, or 91%), violation information was given to law enforcement for action. In each of those cases, the **information was given to the NC Highway Patrol.** The **reasons for not giving violation information to law enforcement** for the three other incidents were:

- License tag could not be determined from recorded images.
- Stop arm was not fully extended.
- Other (Drivers Ed handled)

Violation information was given to local District Attorney's Office only for one violation.

This highlights the need for increased collaboration between LEAs and their local District Attorney's Office. While violation information has generally been provided to local law enforcement personnel, it has not been provided to the District Attorney's Office. Ensuring that the District Attorney's Office has violation information is critical to prosecuting passing violations. While the data collection form does not ask about an LEA's involvement in the legal process, it appears that LEAs may not be actively involved in that process.

Key Points:

- Few LEAs have participated in this data collection process. Further encouragement is needed to increase participation so that the dataset becomes more robust. A more robust dataset will help to determine the true extent of stop-arm passing violations, and to identify common characteristics of violation incidents, which can be used to target enforcement activities.
- Little collaboration was reported between LEAs and their local District Attorney's Office.
- From the few responses received, it is evident that multiple passing violations have occurred on several highways or at particular locations. Information from this data collection activity can be used to note locations with high incidence of stop-arm passing violations. Information on other characteristics of passing violations, such as time of day, type of highway, and driving behavior can also be compiled to help identify attributes of passing violations that are most common. That knowledge can then be used as LEAs work with local law enforcement agencies to target high-incidence locations to decrease the rate of stop-arm passing violations.

Appendix E: Summary of Ongoing Data Collection Findings Through September 2015

Summary of Ongoing Data Collection Through September 2015—Tracking and Enforcing School Bus Stop-Arm Camera Violations

Introduction

During the 2013 North Carolina legislative session, funding was provided to support the installation of stop-arm cameras on school buses by Local Education Agencies (LEAs). Funding was made available for LEAs to purchase and install stop-arm cameras on two school buses during 2013-2014, and on two buses during 2014-2015.

ITRE developed a tool for the North Carolina Department of Public Instruction (NC DPI) to enable collection of data on stop-arm passing violations. The tool was provided to LEAs on April 17, 2015, and was in use through the end of the 2014-2015 school year. Use of the tool resumed at the start of the 2015-2016 school year, and data collection will run through May 2016. The survey is available at www.ncbussafety.org/stoparmviolationcamera.

A link to the data collection form was emailed to transportation directors or designated recipients at all LEAs in April 2015, and a reminder to resume use of the form was emailed in August 2015. A total of 117 responses had been received through the end of September 2015.

The survey asked LEAs to provide brief information on school bus stop-arm passing violations, including the location, direction of passing vehicle, time of day, etc. as well as if and when the violation was reported to local law enforcement personnel and prosecutors in the District Attorney's Office.

Responses through September 2015

This report summarizes results based on responses to questions on the following topics.

1. The number of LEAs that had completed at least one violation form
2. The months for which violation information was reported
3. Time of day of violations
4. Lighting condition at time of violations
5. Type of highway on which violations occurred
6. Direction of travel by passing vehicle
7. Side of school bus on which violation occurred
8. Provision of passing violation information to local law enforcement
9. Provision of passing violation information to the local District Attorney's Office

Information on each of these topics is summarized below.

1. LEAs Completing Forms

Thirteen LEAs completed forms providing information for the ongoing data collection process. The number of completed forms by LEA ranged from one to 29, broken out as follows:

- Five LEAs reported one passing violation (Iredell, Mitchell, New Hanover, Swain, and Transylvania Counties)
- Two reported two passing violations (Davidson, and Rockingham Counties)
- One reported three passing violations (Henderson County)
- One reported five violations (Caldwell County)
- Two reported 20 violations (Avery, and Greene Counties)
- One reported 29 violations (Johnston County)
- One reported 30 violations (Guilford County)

2. Months for which violation information was reported

LEAs were asked to provide information on passing violations that had been recorded back since January 2015. A total of 116 violations were recorded, with the greatest number of reported violations occurred during September 2015, and high numbers also reported during April, May, and August 2015, as shown below.

Month (2015)	Violations
January	3
February	2
March	7
April	23
May	21
June	4
August	22
September	34
TOTAL	116

Other than Wednesday, violations were relatively evenly distributed by day of the week.

The greatest number of violations was reported on Wednesday, as shown in the table below:

Weekday	Violations (No.)	Violations (%)
Monday	21	18%
Tuesday	20	18%
Wednesday	29	25%
Thursday	23	20%
Friday	21	18%
TOTAL	114*	99%

* The number of responses for each question may not sum to 116 due to lack of responses to some questions.

3. Time of day of violations

More passing violations were recorded in the afternoon (61, or 53%) between 2:30 pm and 4:30 pm **than in the morning**, with 55 (47%) occurring between 6:40 am and 8:15 am. However, the hourly period with the greatest number of reported violations was 7:00-7:50 AM. The afternoon hourly period with the greatest number of violations was 3:00-3:59 PM, with somewhat fewer violations reported between 4:00-4:59 PM. The numbers of violations were distributed by hourly periods as shown in the following table.

Time	Violations (No.)	Violations (%)
6:00-6:59 AM	9	8%
7:00-7:59 AM	35	31%
8:00-8:59 AM	8	7%
9:00-9:59 AM	1	1%
12:00-12:59 PM	1	1%
2:00-2:59 PM	11	10%
3:00-3:59 PM	27	24%
4:00-4:59 PM	22	19%
TOTAL	114	100%

4. Locations of violations

Passing violations were reported multiple times at several highways or locations. While most passing violations were reported having occurred at unique locations, there were at least 12 instances in which more than one violation was reported at a particular location. Two violations were reported having occurred at each of eight locations, three violations at one location, four violations at each of two locations, and five violations at one location. Locations with multiple violations will be useful to LEAs so that they may work with local law enforcement agencies to target those areas for increased enforcement activities.

5. Lighting condition at time of violations

The majority of passing violations occurred in daylight (102, or 88%), with fourteen (12%) having occurred during dawn/dusk. No passing violations were recorded when it was dark. Note that the majority of months for which data are available are during the late spring/summer/early fall period, when days are longer than in winter (winter data not yet collected).

6. Type of highway on which violations occurred

Most passing violations were recorded on two-lane highways (87, or 76%), with an additional 16 violations (16%) recorded on a two-lane highway with a center turn lane. Twelve violations were recorded on various other types of highways as shown in the following table.

Number of Lanes	Violations (No.)	Violations (%)
2	87	76%
2 plus center turn	16	14%
3	1	1%
3 plus center turn	3	3%
4	4	3%
>4 with center turn	1	1%
2 or more with center median	3	3%
TOTAL	115	100%

7. Direction of travel by passing vehicle

The majority of passing violations involved an oncoming vehicle traveling in the opposite direction toward the bus (105, or 91%), with only 11 violations involving a vehicle overtaking the bus from the rear (9%).

8. Side of school bus on which violation occurred

All passing violations occurred on the left (driver's side) of the bus. No passing violations were recorded as having occurred on the right (door) side of a bus.

9. Provision of passing violation information to local law enforcement

In most cases (102 of 114, or 89%), violation information was given to law enforcement for action. In most of those instances, the information was given to the NC State Highway Patrol, as shown in the table below.

Type of Law Enforcement Agency Given Violation Information	Violations (No.)	Violations (%)
NC State Highway Patrol	68	67%
Local Police/Sheriff	26	25%
Both NC State Highway Patrol and Local Agency(s)	8	8%
TOTAL	102	100%

The reasons for not giving violation information to law enforcement for the twelve incidents for which information was not provided to law enforcement were as follows:

- License tag could not be determined from recorded images—8 responses
- Bus was not completely stopped—1 response
- Stop arm was not fully extended—2 responses
- Other—1 response (Drivers Ed handled)

10. Provision of passing violation information to the local District Attorney's Office

Violation information was given to local District Attorney's Office only for three violations. This demonstrates the enforcement process primarily involves providing information from LEAs

to law enforcement agencies rather than to those in the judicial system. LEAs rely on law enforcement agencies to provide violation information to the courts.

Key Points:

- Few LEAs (13) have participated in this data collection process to date. Further encouragement is needed to increase participation so that the dataset becomes more robust. A more robust dataset will help to determine the true extent of stop-arm passing violations, and to identify common characteristics of violation incidents, which can be used to target enforcement activities.
- The LEAs from which data were collected provide school bus stop-arm passing violation information to state and local law enforcement agencies. They rely on those agencies to provide violation information to the local District Attorney's Office for prosecution.
- From the responses received, it is evident that multiple passing violations have occurred on several highways or at particular locations. Information from this data collection activity can be used to note locations with high incidence of stop-arm passing violations. Information on other characteristics of passing violations, such as time of day, type of highway, and driving behavior can also be compiled to help identify attributes of passing violations that are most common. That knowledge can then be used as LEAs work with local law enforcement agencies to target high-incidence locations to decrease the rate of stop-arm passing violations.