



**MOTOR CARRIER FACTORS GROUP CHAIRMAN'S
FACTUAL REPORT**

Chattanooga, TN

HWY17MH009

(20 pages)

**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**MOTOR CARRIER FACTORS GROUP CHAIRMAN'S
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A. CRASH INFORMATION

Location: 300 block of Talley Road, Chattanooga, Hamilton County, Tennessee
Vehicle #1: 2008 Thomas Built School Bus
Operator #1: Durham School Services LP of Warrenville, Illinois
Date: November 21, 2016
Time: Approximately 03:20 p.m. Eastern Standard Time (EST)
Fatalities: 6 school bus passengers
Injuries: 26 school bus passengers
NTSB #: **HWY17MH009**

B. MOTOR CARRIER FACTORS GROUP

Shawn Currie, Motor Carrier Factors Investigator, Group Chairman
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

Wade Haughton, Safety Investigator, Group Member
Federal Motor Carrier Safety Administration
640 Grassmere Park, Suite 111
Nashville, TN 37211

C. CRASH SUMMARY

For a summary of the crash, refer to the *Crash Summary Report* in the docket for this investigation.

D. DETAILS OF THE MOTOR CARRIER FACTORS INVESTIGATION

This investigative report addresses the motor carrier history and operations of the vehicle involved in this crash; a 2008 Thomas built school bus (hereafter referred to as the bus), owned and operated by Durham School Services LP of Warrenville, Illinois. This report also details the employment and training history of the driver, carrier safety culture, regulatory oversight of the motor carrier's operations and a review of complaints and discipline made about the driver of this bus.

1. Durham School Services LP History and Operations

The motor carrier in this crash was Durham School Services LP. Durham School Services is a subsidiary of National Express LLP¹. National Express LLP operates buses in 38 states and 4 Canadian Provinces in North America² and operates under the names of Durham School Services, Stock Transportation (Canada), Petermann, and several other smaller transportation services. Durham School Services traces its roots to a 3-bus company started in 1917 in California, that specialized in special education transportation. Over the years, it has expanded its fleet and operation. Per the carrier's latest MCS-150³, the carrier operated 13,806 vehicles and had 13,742 drivers in its employ⁴.

According to the Federal Motor Carrier Safety Administration (FMCSA) Motor Carrier Management Information System (MCMIS), Durham School Services was issued a United States Department of Transportation (USDOT) registration number 350651 in April 1989. The carrier was registered as an Interstate "For-Hire" motor carrier with a primary place of business in Warrenville, Illinois. The carrier did have active operating authority and had been issued a Motor Carrier (MC) # 163066, as a "for-hire" carrier of passengers. The bus in this crash was being operated as a contract school bus transporting students from school-to-home and home-to-school within the state of Tennessee under contract for the Hamilton County School District.

1.1. Company Hiring Practices

During an interview with the general manager of Durham School Services' Chattanooga terminal, the carrier's hiring process was explained to investigators. The process usually began with an advertisement or a display booth at a career fair, where prospective drivers would submit an application. Once the application was reviewed, the candidate would be called for an interview. The next step was an ESI exam⁵, to determine if the candidate was suitable, this was an addition non-regulatory required screening step utilized by the carrier. If the candidate was successful up to this point and did not have a Commercial Driver's License (CDL), they were enrolled in the CDL training program.

¹ National Express LLP is owned by National Express Group, headquarter in Birmingham, UK

² <http://www.nationalexpressgroup.com/about-us/our-businesses/north-america/>

³ Motor Carrier Identification Report

⁴ MCS-150 Durham School Services – Motor Carrier Factors Attachment #1

⁵ Employee Safety Inventory (ESI) is a survey tool, designed to assess the safety attitudes of job applicants. It measures safety-related competencies known to correlate with unsafe work or driving behaviors. Applicants receiving a "not recommended" result are not hired.

Durham School Services operates its own CDL training program using in-house personnel to train prospective drivers⁶. Once the candidate completed the training course, the candidate went to the Tennessee Department of Safety and Homeland Security, Drivers Services Division (TDOS) to obtain their CDL Permit. Upon obtaining the permit, the candidate was subject to a pre-employment USDOT drug test and a background check⁷.

Durham School Services utilized National Express LLC's (NELLC), *Driving Out Harm, Global Safety Standard 1,2,3 Competence and Fitness*⁸ standard operating procedure. This in-depth comprehensive policy covers the hiring process, qualification standards, disqualifying events and other factors.

The carrier also utilized a third-party service (TalentWise) to conduct a second background check. The carrier then checked the driver's history to ensure it complied with company policy of no more than 2 moving violations within the past 36 months and no driving under the influence or other major traffic violations convictions within 10 years. When favorable results were obtained, the candidate entered the "behind the wheel training" portion of the program.

At the time of the crash, Durham School Services had five part-time trainers at its Chattanooga location. The trainers taught and observed skills in the lot at the terminal and on-the-road. These skills included, pre-trip inspections, child checks⁹, and safe operation of the bus. The duration of this portion of the program was a minimum of 14 business days, depending on the competency of the driver candidate. Upon reaching the 14th day or an appropriate level of competency as required, the candidate scheduled and took the CDL test with TDOS. Upon obtaining a CDL with the appropriate endorsements, the candidate became a driver and eligible for compensation for hours worked after that point.

Durham School Services had an introductory/probationary period policy¹⁰. Newly hired employees are considered probationary employees for a period of 90 days from their date of hire. During this period, policy states that probationary employees shall be subject to termination without warning at the sole discretion of the Company. Non-scheduled workdays (holidays, summer, spring breaks, etc.) were not considered in the period

1.2. Safety Culture

National Express provides Durham School Services and its employees with a 66-page employee handbook¹¹. Safety was mentioned in several places. On page 7, the core values of the company were listed. Safety was listed as a core value, with the accompanying statement, "We only do what is safe and stop any unsafe behavior". The company had its mission statement on page 8, "Our mission, getting students to school safely, on time and ready to learn". Safety was again mentioned on pages 19-20, where there was a list of serious safety violations that an employee can and may be terminated for on the first offense. These violations included:

⁶ Summary of CDL training program – Motor Carrier Factors Attachment #2

⁷ A background check involves a search for criminal history and driver's license history review

⁸ Motor Carrier Factors Attachment #3

⁹ A child check is a visual inspection to ensure no students are left on the bus

¹⁰ National Express Employee Handbook, Page 22

¹¹ National Express Employee Handbook Excerpts – Motor Carrier Factors Attachment #4

- Inappropriate verbal or physical interactions or contact with a child or passenger including, but not limited to threats; abusive, profane or sexual language; striking, pushing, pulling or restraint
- Recklessness or negligence while on company property or while performing company business
- Operating passenger transport vehicle while distracted
- Failure to perform a proper child check
- Failure to report an accident or injury in a timely manner
- Use of a cell phone or other personal communication device while operating a company vehicle or
- Failure to adhere to company safety training and protocols

On page 33, safety appears again under the heading of “Safety and Loss Control”. From page 33 to page 37, the handbook referenced a safety goal of zero accidents and injuries, shared responsibilities, the use of drugs and alcohol, motor vehicle record standards, physicals, smoking policy, charges for traffic and criminal issues and safety meetings and safety events. Some of the shared responsibilities listed included:

- Immediately reporting any accident, incident or injury to supervisors or managers
- Continuously exercising caution while performing work duties
- Taking no unnecessary chances that could result in an accident or injury
- Attending all mandatory safety meetings and safety training

The carrier stated they held periodic mandatory safety meetings and safety training for all drivers/employees. Investigators asked for documentation that the bus driver had attended these safety related events, as well as a listing of the content of the events the driver would have been exposed to. The carrier was unable to locate documentation of the driver attending any of the mandatory safety events the carrier hosted, and the driver’s payroll records showed no record of having attended a mandatory safety event. Durham School Services was unable to provide information as to why the driver did not attend.

Durham School Services also required that all accidents and incidents be reported immediately to the driver’s supervisor, regardless of the severity. Failure to report an accident or incident could result in in termination of employment for the first offense.¹²

Durham School Services had a policy on preventable accidents.¹³ The Company stated their goal was zero accidents. Within the topic, it covers retraining and potential disciplinary steps.

¹² National Express Employee Handbook, Page 50

¹³ National Express Employee Handbook, Pages 56 and 57

Preventable Rear-end collisions maybe disciplined up to and including discharge for the first offense. In general, if there was a third preventable accident within a rolling 24-month period, the employee would have been terminated. No employee was allowed a certain amount of preventable crashes.

Durham School Services also required its route drivers to report any outside employment if it involved driving that may affect hours of service issues. This information was covered in the driver training for drivers that made trips other than school to home and home to school. The driver in this crash was not provided that training as it did not apply to his operations as a route driver

Federal Motor Carrier Safety Administration Oversight

1.3. CSA and SMS

In 2010, the FMCSA introduced the Compliance, Safety, Accountability (CSA) system as an initiative to improve large truck and bus safety and ultimately reduce crashes, injuries, and fatalities that are related to CMVs. It introduced a new enforcement and compliance model that allows the FMCSA and its state partners to contact a larger number of carriers earlier to address safety problems before crashes occur. Along with CSA, the FMCSA also introduced a new operational model called the Safety Measurement System (SMS), which replaced its predecessor, known as the SAFESTAT¹⁴ model. SMS uses a motor carrier's data from roadside inspections, (including all safety-based violations), state-reported crashes, and the Federal Motor Carrier Census to quantify performance in the following Behavior Analysis and Safety Improvement Categories (BASICS).

1.4. CSA BASICS¹⁵

- **Unsafe Driving** — Operation of CMVs by drivers in a dangerous or careless manner. *Example violations:* Speeding, reckless driving, improper lane change, and inattention. (FMCSR Parts 392 and 397)
- **Hours-of-Service (HOS) Compliance** — Operation of CMVs by drivers who are ill, fatigued, or in non-compliance with the HOS regulations. This BASIC includes violations of regulations pertaining to records of duty status (RODS) as they relate to HOS requirements and the management of CMV driver fatigue *Example violations:* false HOS RODS, and operating a CMV while ill or fatigued. (FMCSR Parts 392 and 395)
- **Driver Fitness** — Operation of CMVs by drivers who are unfit to operate a CMV due to lack of training, experience, or medical qualifications. *Example violations:*

¹⁴ Safety Status

¹⁵ CSA Methodology retrieved from www.fmcsa.dot.gov

Failure to have a valid and appropriate commercial driver's license (CDL) and being medically unqualified to operate a CMV. (FMCSR Parts 383 and 391)

- **Controlled Substances and Alcohol** — Operation of CMVs by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications. *Example violations:* Use or possession of controlled substances/alcohol. (FMCSR Parts 382 and 392)
- **Vehicle Maintenance** — Failure to properly maintain a CMV and/or properly prevent shifting loads. *Example violations:* Brakes, lights, and other mechanical defects, failure to make required repairs, and improper load securement. (FMCSR Parts 392, 393, and 396)
- **Hazardous Materials (HM) Compliance** — Unsafe handling of HM on a CMV. *Example violations:* Release of HM from package, no shipping papers (carrier), and no placards/markings when required. (FMCSR Part 397 and Hazardous Materials Regulations Parts 171, 172, 173, 177, 178, 179, and 180)
- **Crash Indicator** — Histories or patterns of high crash involvement, including frequency and severity based on information from state-reported crashes

A carrier's measurement for each BASIC depends on the following:

- The number of adverse safety events (violations related to that BASIC or crashes).
- The severity of violations or crashes.
- When the adverse safety events occurred (more recent events are weighted more heavily).

After a measurement is determined, the carrier is then placed in a peer group (i.e., other carriers with similar numbers of inspections/carrier size). Percentiles from 0 to 100 are then determined by comparing the BASIC measurements of the carrier to the measurements of other carriers in the peer group. A percentile of "100" is indicative of the worst performance.

The FMCSA established threshold levels that would require agency action. Unsafe Driving, HOS, and Crash BASICs were set at lower thresholds because of their inherent risk. Additionally, passenger and hazmat carriers have lower thresholds than all other carriers because

of their inherent risk. **Table 2** represents the thresholds set by the FMCSA that help prioritize agency intervention and resource management.¹⁶

Table 2. BASIC thresholds.¹⁷

BASIC	Passenger Carrier	HM Carrier	All Other Motor Carriers
Unsafe Driving, HOS, Crash	50%	60%	65%
Driver Fitness, Drug & Alcohol, Maintenance	65%	75%	80%
Hazardous Materials	80%	80%	80%



On a carrier’s SMS profile, which is publicly available on the Safety and Fitness Electronic Records (SAFER) website for only passenger carriers, an “alert” symbol is displayed in any designated BASIC where the carrier has exceeded the corresponding threshold.¹⁸ This is also referred to as having an “alert” in a BASIC.

At the time of the crash, the Durham School Services displayed an alert in Driver Fitness (score of 93). The carrier had shown a Driver Fitness alert for 10 of the 12 past months. Durham School Services was not in an “alert” status in Crash category at the time of the accident, with a score of 45. However, Durham School Services had shown an alert in 6 of the previous 12 months with a score of 50 or higher in the Crash category. The SMS profile also shows that at the time of the crash, the carrier’s vehicle out-of-service rate was 3.5 percent. The carrier’s driver out-of-service rate was 1.8 percent. Both out-of-service rates were less than the national average of 20.7 percent and 5.5 percent respectively.

Prior to the crash, between 2007 and 2013, Durham School Services had one comprehensive compliance review (CR) and six non-rated or focused CR’s. A focused CR is used when two or fewer BASICs have exceeded their thresholds or when only certain portions of the CFR relate to the carrier’s operations. A focused CR normally does not result in a safety rating and is usually classified as “non-rated” when completed, however it may result in an adverse safety rating (conditional or unsatisfactory)¹⁹. A comprehensive CR is used when three or more BASICs

¹⁶Retrieved from www.fmcsa.dot.gov

¹⁷Retrieved from <http://csa.fmcsa.dot.gov/FAQs.aspx>.

¹⁸FMCSA BASIC information publicly available for Passenger and Hazardous Material carriers only. See additional information at the FMCSA Safer website: <http://safer.fmcsa.dot.gov/CompanySnapshot.aspx>.

¹⁹ Safety rating or rating means a rating of “satisfactory”, “conditional”, or “unsatisfactory” using the factors prescribed in 49CFR385.7 as computed under the Safety Fitness Methodology. **Safety Ratings:** (1) **Satisfactory** means a motor carrier has in place, functioning safety management controls to meet the safety fitness standards prescribed in 49CFR385.5. (2) **Conditional** means a motor carrier does not have adequate safety management controls in place to ensure compliance with the safety fitness standards that could result in occurrences listed in §385.5 (a) through (k). (3) **Unsatisfactory** means a motor carrier does not have adequate safety management controls in place to ensure compliance with the safety fitness standard which has resulted in occurrences listed in §385.5 (a) through (k). (4) **Unrated** means that a safety rating has not been assigned to the motor carrier by FMCSA.

have exceeded their thresholds. A comprehensive CR may also be used if the carrier was involved in a crash or there has been a complaint made about the carrier. A comprehensive CR addresses all aspects of the carrier’s operation and normally results in a safety rating. The safety rating is determined by FMCSA using safety rating methodology outlined in 49CFR385.5 which evaluates patterns of critical and acute violations²⁰.

Between 2007 and 2015 (when Durham School Services resolved their conditional rating) the FMCSA did not conduct any reviews to follow-up on the conditional rating for 2007. All 6 non-rated reviews were initiated as the result of complaints made, crashes or drug and alcohol task forces. Between the October 2007 comprehensive review and the post-crash November 2016 comprehensive terminal review, the FMCSA did not conduct any “risk-based” reviews even though the carrier was frequently in an alert status in Crash and Driver Fitness. **Table 3** summarizes the carrier’s CR history.

Table 3. Compliance Reviews.

Type of CR	Review Date	Terminal Location	Safety Rating
Comprehensive Review	10/03/2007	Illinois	Conditional*
Focused review	09/08/2009	Kansas	Non-Rated
Focused review	08/05/2010	South Carolina	Non-Rated
Focused Review	04/17/2012	Texas	Non-Rated
Focused Review	06/11/2012	Illinois	Non-Rated
Focused Review	05/30/2013	Warren County, Tennessee	Non-Rated
Focused Review	09/24/2013	Illinois	Non-Rated

²⁰ Acute violations are those identified where non-compliance is so severe as to require immediate corrective action by the motor carrier regardless of the overall safety posture of the carrier. Critical violations relate to management and/or operational controls that show a pattern of non-compliance. A list of acute and critical violations is listed in Appendix B of 49CFR385.

Comprehensive Review (post-crash)	03/10/2017	Chattanooga, TN	Non-Rated
Comprehensive Review	06/21/2017	Illinois	Conditional

*On July 31, 2015, the carrier submitted a request and was granted an upgrade from the conditional rating issued on October 3, 2007. Normally upgrade requests are submitted in a timelier fashion as a conditional rating will affect insurance rates. When asked, the carrier stated they were self-insured and had not submitted the request to upgrade initially as it did not affect their operations.

A comprehensive post-crash compliance review was conducted by FMCSA on the carrier's Chattanooga terminal. The review was non-rated because the scope of a terminal review does not cover the carrier's entire operation. Due to the operation of the bus in school-to-home service²¹, violations discovered during the CR were limited to alcohol and controlled substance testing. As a result, the following violations were noted:

- Alcohol and controlled substance testing violations
 - Using a driver who has refused to submit to an alcohol test
 - Using a driver before a negative pre-employment test result
 - Failing to conduct a post-accident test
 - Failing to ensure random test dates are reasonably spread throughout the calendar year

Because of violations discovered during the post-crash CR completed on March 10, 2017, FMCSA conducted a comprehensive review of the carrier's complete operations. As a result, the Comprehensive CR was completed on June 21, 2017 finding Durham School Services, with a proposed Conditional rating. On August 12, 2017 the conditional rating was determined to be a final rating after Durham School Service's corrective action plan was not submitted prior to the expiration of the 45-day window provided by 49 CFR 385.11. The following violations were noted along with various minor record keeping issues:

- Alcohol and controlled substance testing violations

²¹ 49CFR390.3T(f)(1) Unless otherwise specifically provided, the rules in this subchapter do not apply to all school bus operations as defined in §390.5T, except for the provisions of §§391.15(e) and (f), 392.80, and 392.82 of this chapter.

- Failing to maintain on file a record stating the reason a post-crash alcohol test did not occur
- Failing to maintain on file a record stating the reason a post-crash controlled substance test did not occur
- Failing to ensure that each driver subject to random alcohol/controlled substance testing has an equal chance of being selected
- Failing to ensure that random testing dates are reasonably spread throughout the calendar year
- Using a driver known to have tested positive for a controlled substance (**Acute**)
- Failing to conduct post-accident alcohol/controlled substance testing following a recordable accident (**Critical/Critical**)
- Allowing an employee to operate a CMV during any period in which the driver has a CDL disqualification by a state.
- Failing to place a note related to the verification of the medical examiners listing on the National Registry of Certified Medical Examiners as required by 391.23(m)
- Requiring or allowing a passenger carrying driver to drive more than 10 hours
- Failing to require driver to maintain RODs in form and manner prescribed

On October 4, 2017, Durham School Services requested FMCSA upgrade the conditional rating determined from the post-crash compliance review. After reviewing Durham's safety management plan and evidence submitted, granted the carrier a satisfactory rating on October 30, 2017.

1.5. Carrier Roadside Inspections

According to the MCMIS carrier profile, Durham School Services had 485 driver inspections and 5,583 vehicle inspections during the period from December 28, 2014 to December 28, 2016.²² These inspections resulted in 1.8 percent of the drivers being placed out-of-service (OOS) and 3.5 percent of the vehicles being placed OOS. This is in comparison to the national average of 5.5 percent OOS for drivers and 20.7 percent for vehicles.²³ The MCMIS profile also indicated the carrier had 337 DOT reportable crashes²⁴ during that same period which was in the

²² Durham School Services MCMIS Profile (excerpts), See Motor Carrier Attachment #5

²³ Roadside Inspection OOS Rates for both Large Truck and Bus Statistics Fiscal Year 2015, retrieved from: <https://csa.fmcsa.dot.gov/>

²⁴ A DOT reportable crash is an incident involving a fatality, injury or having a vehicle involved that is damaged to the point of having to be towed from the scene.

45th percentile for carriers of a similar size. Many the roadside inspections were Level 5²⁵ inspections that did not occur roadside.

1.6. Alcohol and Controlled Substance Testing

Under 49 *Code of Federal Regulations* (CFR) 382.301, motor carriers are required to administer pre-employment controlled substance testing and not employ a driver in a safety-sensitive function (driving) until a negative test result is obtained. Also under 382.305, motor carriers are required to randomly test all subject drivers to random alcohol and controlled substance testing. There was a violation discovered in the post-crash CR that on August 16, 2016, where the driver had driven before a negative pre-employment controlled substance test result was received²⁶. The driver had two pre-employment tests done in February 2016 and April 2016 when he was first hired. Those tests both had negative results.

In the comprehensive review completed in June 2017, FMCSA discovered several post-crash testing violations where Durham School Services did not note why the driver involved in a reportable crash was not tested as required. Also, FMCSA identified issues with the randomness and scheduling of the alcohol/controlled substance testing within Durham School Services drug and alcohol testing program.

1.7. Hours-of-Service (HOS)

At the time of the crash, the driver was not subject to the hours-of-service regulations as he was operating a school bus in “school-to-home” activities. A driver operating in a school-to-home situation can work beyond the hours that a passenger carrying driver would normally be restricted²⁷. The driver was also employed by Amazon in their distribution center. The driver did not operate vehicles for Amazon and was not required by regulation or Durham School Services’ policies to report his hours of outside work. Durham School Services has a policy that requires drivers to report outside employment if the driver operates a vehicle for the other employer. Investigation revealed the driver was not working at Amazon the day prior to the crash, for further information refer to the *Human Performance Factors Group Chairman’s Factual Report*.

1.8. State and County Oversight

The state of Tennessee and Hamilton County had oversight of the carrier’s operations. The Tennessee Code Annotated § 65-15-106 gives the Tennessee Highway Patrol (THP) the authority to stop and inspect commercial vehicles and buses. The rules the carriers are subject to are spelled out in 49CFR 390-397 and adopted by the state. The Hamilton County Board of Education (HCBE) has a 42-page Transportation Policy, last edited in 2012, on its website. After reviewing the policy, investigators determined that Durham School Services was not subject to that policy as it was meant for direct employees of the Hamilton County School District. Hamilton County

²⁵ A CVSA Level 5 inspection is an inspection that includes examination of vehicle inspection report(s) (if applicable); brake systems; cargo securement; coupling devices; driveline/driveshaft; exhaust systems; frames; fuel systems; lighting devices (headlamps, tail lamps, stop lamps, turn signals and lamps/flags on projecting loads); steering mechanisms; suspensions; tires; van and open-top trailer bodies; wheels, rims and hubs; windshield wipers; buses, motor coaches, passenger vans or other passenger-carrying vehicles – emergency exits, electrical cables and systems in engine and battery compartments, and seating.

²⁶ This violation occurred during the training portion, on a bus with no students.

²⁷ 49CFR390.3 Exemptions for school-to-home operations

School Board clearly states in the contract with Durham School Services that “supervision, training and direction in the performance of personnel job duties” is the responsibility of Durham²⁸.

2. School Bus Driver History

2.1. School Bus Driver’s Driving Record

The crash driver was identified as a 24-year-old male. At the time of the crash the driver held a valid Tennessee Class B CDL, with endorsements for passengers and school bus operation. The driver obtained his Tennessee CDL on April 22, 2016. The current CDL was due to expire on April 2024. There were restrictions on the CDL requiring the driver to wear corrective lenses and to prohibit him from operating commercial vehicles equipped with manual transmissions. A driver’s license history was obtained from the State of Tennessee. The license history includes, a prior crash on September 20, 2016 (school bus) and a conviction for failing to show insurance on March 3, 2014 (passenger vehicle).

2.2. Medical Certification

At the time of the crash, the driver held a valid DOT medical certificate with an issue date of February 10, 2016 and an expiration date of February 10, 2017. A one-year medical certificate is the maximum allowed by the State of Tennessee for school bus drivers. The medical certificate contained a restriction requiring the driver to wear corrective lenses. For further medical certificate information, see *Human Performance Group Chairman’s Factual Report*.

Effective May 21, 2014, medical examiners conducting DOT medical examinations must be listed on the National Registry of Certified Medical Examiners.²⁹ The bus driver’s DOT medical certificate indicated National Registry number 152117372, as the medical professional who performed the DOT physical. According to the FMCSA National Registry, this medical professional held the proper certifications under the federal regulations.

2.3. School Bus Driver’s Crash History

According to the carrier’s records and the State of Tennessee, the bus driver has had a previous reportable crash and a non-reportable crash since April 2016. According to a crash report obtained by NTSB investigators, on September 20, 2016 the bus driver was involved in a crash while operating a school bus. The driver side-swiped a passenger car in a curve at low speed.³⁰ The non-reportable crash occurred on August 18, 2016, when the driver misjudged the curb and struck it during an intersection movement causing damage to the bus, this information was contained in the carrier files and as a non-reportable crash was not reported to the police or in the Tennessee license history. The driver was disciplined for failing to report the incident and received remedial training.

²⁸ Hamilton County Department of Education, Transportation Agreement Paragraph 14

²⁹ 49CFR§391.42 Schedule for use of medical examiners listed on the National Registry of Certified Medical Examiners

³⁰ Chattanooga Police Department Crash Report #16-099074 – Human Performance Factors Attachment #3

2.4. School Bus Driver's Hours of Service

The driver was not subject to the hours of service regulations at the time of the crash. Information was obtained that the driver was employed by Amazon in their local facility. Investigators obtained time records showing the hours worked in the days prior to the crash. The driver was working an overnight shift that was approximately 12 hours long beginning at 6:00 p.m. and ending at approximately 6:30 a.m. the following morning. The driver worked this shift the 17th, 18th and 19th of November. His time records show him logging out at 6:28 a.m. on the 20th.

The driver worked a split shift operating the school bus. The morning run started between 5:45-6:00 a.m. and ended between 8:15-8:30 a.m. The afternoon routes began between 1:45-1:55 p.m. and ended between 4:30-4:45 p.m. Each driver was guaranteed 5.5 hours for pay. The route of the driver was estimated by carrier officials to be just less than 5 hours in length. The driver was scheduled to transport students from 2 schools on the morning route and 3 on the afternoon route.

For further information on the school bus driver's work hours, refer to the *Human Performance Group Chairman's Factual Report, Driver Activity Table*.

2.5. School Bus Driver Training

The school bus driver applied to Durham without having a CDL. He was enrolled in the driver training program taught by Durham at their facility in Chattanooga. A synopsis of the course was obtained by investigators. The course was described as two seven-hour long days that contained the following topics:

- CDL Test
- Driver Qualifications
- Safety Rules
- Diving Safely
- Transporting Passengers Safely
- Air Brakes
- School Buses
 - Danger zones/Use of mirrors

- Loading/Unloading
- Emergency Exit/Evacuation
- Railroad-highway grade crossings
- Student Management
- Anti-lock Brake Systems
- Special Safety Consideration

After completing the course and obtaining a CDL, the applicant became a paid driver.

The driver had received remedial training on August 25, 2016 after the non-reportable crash involving a curb. Documentation provided by Durham School Services shows approximately 2 hours of remedial training that included videos and testing on:

- Post-accident procedures
- Intersections
- Safety Basics
- Behind the wheel training

After the driver's collision with another vehicle on September 20, 2016, remedial training was conducted on October 25, 2016. This training was documented to have contained:

- LLLC³¹ Defensive driving/test
- Behind the wheel training

When asked for any records of attendance for the bus driver at the mandatory safety meetings or events, the carrier stated the driver had not attended any that they offered. There were five safety meetings scheduled that should have been attended by the bus driver. These meetings were held in May, August, September, October, and November of 2016.

3. Alcohol and Controlled Substance Testing

The school bus driver had a pre-employment drug test on February 10, 2016 and another pre-employment test on April 15, 2016. Durham School Services officials stated the reason for the two pre-employment tests was that the driver had a break in his training program that exceeded the allowed timeframe from the first test. The driver also completed a post-crash drug test/alcohol

³¹ Look ahead, Look around, Leave room, Communicate

test on September 20, 2016. The driver also had a post-crash drug and alcohol test after this crash. All tests were negative for the controlled substances tested in standard DOT drug testing protocols.

4. Complaints and Discipline

During this investigation, information was received that there had been numerous complaints made about the bus driver’s operation of the bus. Investigators determined parents were provided a complaint telephone number at the beginning of the school year to call if there were any transportation issues. Calls made to the telephone number were received at the Durham School Services’ Chattanooga terminal.

NTSB investigators also obtained the drivers discipline file and interviewed the site supervisor (driver’s supervisor) to determine the number and type of complaints received. It became clear that not all complaints had been forwarded to Durham School Services’ main office in Chattanooga.

The site supervisor was found to be maintaining a log of calls received in the office in notebooks. Within the two notebooks provided, investigators found numerous complaints which were not found elsewhere in the driver’s personnel file. Investigators also requested any emails regarding complaints against the driver. **Table 4** depicts the complaints/incidents/discipline, discovered by investigators, that occurred between August 11, 2016, the start of the school year and November 17, 2016.

Table 4 Complaints/Discipline

Date	Incident	Type	Source
August 11	Speeding	Complaint	Notebook/phone interview
August 12	Speeding	Complaint	Notebook/phone interview
August 12	Missing stop	Complaint	Email
August 18	Preventable Non-reportable crash/failure to report	Discipline	Driver’s file
September 20	Preventable Reportable Crash	Crash	Driver’s file
September 21	Failure to conduct a child check	Discipline	Driver’s file

October 4	Late to work (6 occurrences)	Discipline	Driver's File
October 20	Crossing centerline/blocking traffic while discharging students who needed to cross the street	Complaint	Notebook
October 26	Absent/late from work (final warning - 8 occurrences)	Discipline	Driver's file
October 27	Speeding	Complaint	Notebook
October 28	Speeding/obstructing other traffic while discharging students who needed to cross the street	Complaint	Notebook
November 2	Issues with students	Complaint	Driver's file/Email
November 8	Speeding	Complaint	Email
November 11	Writing up too many students	Complaint	Email
November 16	Swerving	Complaint	Email
November 17	Taking bus home (final warning)	Discipline	Driver's file

In instances where phone numbers were listed for the complainants, investigators called and spoke to the person who had filed the original complaint. Most callers had complained about the driver's speed, stating to investigators that on at least one occasion he had been going too fast to stop at the designated point to discharge students and had stopped down the street. Also, several complainants stated they had made two or three additional phone complaints. Investigators were unable to locate any record of these complaints being received or investigated.

Several complaints originated with emails to the Hamilton County Department of Education's transportation supervisor and were routed to Durham School Services in Chattanooga. There was no indication that the school's representative sought or obtain any final resolution or feedback as to the outcome of the forwarded complaints.

The carrier's representatives were asked if there was a formal complaint system in place that would track complaints in a centralized location, showing the complaint and the results.

Investigators were told that no system was currently in place either at Durham School Services or at any of National Express LLP's subsidiaries companies prior to the crash.

During an interview with the terminal manager for Durham School Services Chattanooga terminal the way the current complaint system functioned was explained as follows:

- A complaint was received
- The terminal manager evaluated if it was an addressable complaint (missed stops, etc.)
- The GPS and on-board video was downloaded from the bus
- If it was a speeding complaint, GPS was checked to verify speed
- The GPS and on-board video was reviewed
- A determination was made as to validity of complaint
- If the complaint is validated
 - Sent to site supervisor if minor or deemed addressable at that level
 - May result in "coaching" or written discipline at the terminal level
- Some complaints were handled at the site supervisor level and were not recorded in the employee's personnel file

If there was no direct evidence of the bus speeding or committing the alleged violation, there was no disposition.

Investigators spoke with a representative of the Hamilton County School District. Per the current contract between Hamilton County and Durham School Services, all driver and vehicle issues are handled by Durham School Services. Hamilton County is not responsible for the investigation or tracking of complaints against Durham School Services' drivers or vehicles. The school district's procedure was to forward the complaints to the carrier. A principal of a school did have the ability to prohibit children from getting on a bus leaving the school if they thought it was warranted due to safety reasons. The district representative stated that in the past, a principal had stopped children from boarding a bus whose driver was thought to be impaired. When asked if the district representative was aware of the disposition of the impaired driver issue. The district's representative did not know, whether the driver was intoxicated or received discipline from the carrier.

Investigators spoke with the terminal manager for Durham in Chattanooga. He stated he was responsible for the investigation of complaints against the drivers. He also stated that due to shortage of drivers and other duties, he was trying to fill schedules and complete other tasks many days. He stated, the assistant terminal manager was frequently required to drive school bus routes due to driver shortages. Investigators asked the terminal manager about his investigation of the

most recent complaint (November 16) and the allegations the driver was intentionally swerving the bus to throw students out of the seats.

The terminal manager stated he had received the complaint, acquired the video from the bus, and had begun the review process prior to the crash. He did not complete the viewing due to the work week ending (Friday). His intention was to finish viewing the video over the weekend. Over the weekend, he came down with an illness and was unable to complete the viewing prior to the crash. He finished reviewing the video after the crash.

Investigators reviewed the video from the swerving complaint and several portions of the video show children falling out of their seats and into the aisles as the bus appears to sway side-to-side. In addition, during the portions of the video that children are falling out of their seats, the audio contains sounds of children yelling and of apparent engine acceleration noises.

Investigators also spoke with representatives of Durham School Services regarding the warnings in the driver's file. Specifically, the two "final" warnings that were discovered. It was explained that an employee could have multiple final warnings in different categories for different issues. In this case, final warnings for taking the bus home without permission and one for excessive unauthorized absences. A Durham School Service's representative stated the issues were not cumulative, but were all separate for disciplinary purposes.

In May of 2017, NTSB investigators met with representatives from Durham School Services. The purpose was for Durham School Services to provide a detailed description of actions the company has taken to improve complaint monitoring. In the week following the crash (November 28, 2016), Durham School Services implemented an interim complaint monitoring program in Hamilton County, Tennessee. The program was implemented as an interim fix to address the company's immediate concerns with driver performance monitoring. The program provided a portal with which school and carrier management could generate a record of a complaint. The program collects information in a central database, ensures the complaint is addressed in a timely manner, and documents the results of the investigation. It also ensures that any disciplinary or training actions are included in the employee's personnel file. Since the date of inception at the Chattanooga terminal, there have been 352 complaints made and tracked through this system. The complaints were broken down by week. Immediately after the crash and implementation of the interim system, Durham recorded 64 complaints. After the Christmas break, the average number of weekly complaints was determined to be 16.

Durham School Services also described a long-term plan and demonstrated a more robust employee monitoring system that is currently in beta testing. This program is to be implemented throughout the parent company, in each division, for all its commercial drivers at more than 200 sites in the United States. Because of the large number of drivers, the program is to be implemented in phases.

In addition to the features of the interim system, the long-term program, when fully implemented, will provide a portal for citizens, employees, and management to initiate a complaint about a driver. It will collect information about complaints in greater detail and have increased complaint resolution accountability. Response deadlines will be generated according to a system determined complaint priority; the greater the safety risk, the higher the priority. For example, a "high" priority complaint would require intervention within 48 hours. If no intervention has taken

place within 24 hours, an automatic email will be sent to the Regional Manager. When a response to a complaint is delinquent, a notification to senior management will be generated to ensure prompt action. Public access to the portal will be available through the Department of Education's website. At the time of this report, the performance monitoring program is scheduled to be implemented in the Hamilton County Department of Education System by the end of the calendar year 2017. It is scheduled to be implemented companywide by the end of the calendar year 2017.

In addition to a complaint monitoring system, Durham School Services had installed driver monitoring cameras on school vehicles in Chattanooga, TN before January 4, 2017. The system provides a forward-facing view of the bus as the vehicle travels as well as an inward facing view of the driver. The system temporarily records on a continual looped system and creates a recording event when the system is triggered. Recording events are triggered by an unusual driving event such as hard braking, sharp turns, crashes, or excessive speed. A monitoring service evaluates each event and determines if the event is of a safety concern. The carrier is then notified of an unsafe event and when required, the employee receives additional training or discipline as appropriate. At the time of this report, the carrier has over 3054 cameras in use at nineteen of its locations and fully expects to have it implemented in all Durham School Services vehicles by 2018 and all National Express LLP vehicles by 2019.

DOCKET MATERIAL

The following attachments are included in the docket for this investigation:

LIST OF ATTACHMENTS

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|-----------------|---|
| Attachment #1 - | MCS-150 |
| Attachment #2 - | CDL Training summary |
| Attachment #3 - | <i>Driving Out Harm, Global Safety Standard 1, 2, 3</i> |
| Attachment #4 - | National Express Handbook |
| Attachment #5 - | MCMIS Profile |

END OF REPORT

Shawn D. Currie
Motor Carrier Factors Investigator