NORTH CAROLINA
State Board of Education
Department of Public Instruction

Report to the North Carolina General Assembly

Smart School Bus Safety Pilot Program

SL 2020-97 Section 4.16

Date Due: November 1, 2023
DPI Chronological Schedule, 2023-2024

STATE BOARD OF EDUCATION

STATE BOARD OF EDUCATION VISION: Every public school student in North Carolina will be empowered to accept academic challenges, prepared to pursue their chosen path after graduating high school, and encouraged to become lifelong learners with the capacity to engage in a globally-collaborative society.

STATE BOARD OF EDUCATION MISSION: The mission of the North Carolina State Board of Education is to use its constitutional authority to guard and maintain the right of a sound, basic education for every child in North Carolina Public Schools.

ERIC DAVIS
Chair: Charlotte – At-Large

ALAN DUNCAN
Vice Chair: Greensboro – Piedmont-Triad Region

MARK ROBINSON
Lieutenant Governor: High Point – Ex Officio

DALE FOLWELL
State Treasurer: Raleigh – Ex Officio

CATHERINE TRUITT
Superintendent & Secretary to the Board: Cary

JILL CAMNITZ
Greenville – Northeast Region

REGINALD KENAN
Rose Hill – Southeast Region

VACANT
North Central Region

OLIVIA OXENDINE
Pinehurst – Sandhills Region

VACANT
Southwest Region

JOHN BLACKBURN
Linville – Northwest Region

DONNA TIPTON-ROGERS
Brasstown – Western Region

J. WENDELL HALL
Ahoskie – At-Large

CATTY MOORE
Monroe – At-Large

NC DEPARTMENT OF PUBLIC INSTRUCTION

Catherine Truitt, State Superintendent :: 301 N. Wilmington Street :: Raleigh, North Carolina 27601-2825

In compliance with federal law, the NC Department of Public Instruction administers all state-operated educational programs, employment activities and admissions without discrimination because of race, religion, national or ethnic origin, color, age, military service, disability, or gender, except where exemption is appropriate and allowed by law.

Inquiries or complaints regarding discrimination issues should be directed to:
Thomas Tomberlin, Senior Director, Educator Preparation, Licensure, and Performance, NCDPI
6301 Mail Service Center, Raleigh, NC 27699-6301 / Phone: (984) 236-2114 / Fax: (984) 236-2099

Visit us on the Web: www.dpi.nc.gov

Smart School Bus Safety Pilot Program

This report was produced in accordance with the reporting requirements set forth in Session Law (SL) 2020-97 Section 4.16(e) for the Smart School Bus Safety Pilot Program established by SL 2020-97 Section 4.16:

> ***SECTION 4.16.(e)*** *Reports. – No later than November 1 and March 1 of each year the Program is in effect, the Department of Public Instruction, in consultation with each participating local school administrative unit, shall report at least all the following information to the Joint Legislative Education Oversight Committee, any committee constituted by the House of Representatives or Senate to address school safety, and the Fiscal Research Division:*
>
> *(1) An itemized breakdown of software infrastructure, hardware infrastructure, and equipment provided by qualifying vendors to participating local school administrative units pursuant to the Program.*
>
> *(2) A description of all services provided by qualifying vendors to participating local school administrative units pursuant to the Program.*
>
> *(3) A list of qualifying vendors contracting with participating local school administrative units pursuant to the Program.*
>
> *(4) The impact and effectiveness of the Program.*
>
> *(5) All expenditures of State funds pursuant to the Program.*

Executive Summary

Note: No content changes have been made from the March 1, 2023 version of this report.

In 2020, the General Assembly, in SL 2020-97 Section 4.16 (the "Legislation"), directed the Department of Public Instruction to create a School Bus Safety Pilot Program (the "Program") to "transform and improve the transportation of public school students through technology in response to the COVID-19 pandemic." The Legislation authorized a single local school administrative unit, Mt. Airy City Schools, to participate in the pilot program. Mt. Airy City Schools (the "District") elected to participate, so no alternate participant was sought.

As directed by the Legislation, the District issued a request for proposals to provide technology and services in accordance with the goals and minimum requirements of the Legislation. At their November 3, 2020, board meeting, the Mt. Airy City Schools Board of Education awarded the project to Tyler Technologies (the "Vendor").

Implementation of the pilot project commenced in December 2020 with initial equipment installation of touchless infrared thermometers and automated school bus safety cameras, as defined in G.S. 115C-242.1, combined with internal camera systems.

The immediate impact of the hardware installation was to eliminate the need for a second adult to provide temperature screening and support contact tracing efforts. It resulted in the reallocation of at least $3,500 per week in labor hours.

In the second phase of implementation, additional hardware including tablets and radio frequency identification (RFID) readers were installed on the school buses. As part of the pilot project, the Vendor provided training for District staff on the new hardware and software. The training was conducted throughout the year and was completed in October 2021.

Mt. Airy City Schools has implemented all aspects of the routing system for the purposes of 2021-2022 school bus routing and the system is in full use for the 2021-22 school year. These aspects include routing, turn-by-turn directions for drivers, GPS location, parent notification application, student tracking, and contact tracing. The State Board of Education approved of the routing system as equivalent to the Transportation Information Management System (TIMS) which is currently used throughout the state at no cost to the Public School Units (PSU). Mt. Airy City Schools was thus allowed to cease use of TIMS and proceed with 2021-2022 transportation route data submission utilizing the new system. This was completed successfully in 2021-22.

All $115,000 of state funds provided for this purpose by SL 2020-97 were allotted to the District and have been expended to support the terms, conditions and deliverables of the contract, including project management, new hardware, and software as a service over the project period. In addition, $2,703.49 of local funding supplemented the state funds to cover the full cost of the contract.

Vendor Provided Software, Hardware, and other Equipment

The following *Software as a Service* items were integral to the contract:

Traversa Routing Software:

These three elements make up the core routing and reporting functionality for the system including the ability to route school buses, quickly locate and assign students to stops, and the ability to report out information from the system.

- Traversa Core for up to 20 vehicles
- Traversa Advanced Routing for up to 20 vehicles
- Traversa Reporting Tool for up to 20 vehicles

Traversa GPS and Parent Services:

These four elements make up extended functionality of the Traversa system which allows GPS location of school buses and comparison to the route plan, student ridership tracking, a secure method for parents to access information on their student's bus, and the ability to push notifications out to groups of parents related to a bus delay, school closing, or other specific transportation needs.

- Traversa Advanced Automatic Vehicle Location (AVL) for up to 20 vehicles
- Traversa Electronic Rollout Sheet for up to 20 vehicles
- Traversa Ride 360 for up to 20 vehicles
- Traversa Ride 360 Parent App for up to 20 vehicles

Hardware:

15 Infrared Touchless Thermometers and Mounts

These devices enable contactless scanning of passenger temperatures without an operator. The systems provide an audible result of each scan and two visual indicators with a digital temperature reading and a color indicator of the results.

15 Combined Automated School Bus Safety Cameras and Internal Camera Systems

Cameras provide an internal record of events for contact tracing purposes, and as required by the legislation, exterior automated event monitoring concerning illegal passing of a stopped school bus.

15 Tyler Drive Tablets and Mounts and 5 Spare Tyler Drive Tablets

Tablets are the hardware on board the school bus which provide access to timekeeping, driver route directions, vehicle location, and student tracking.

15 Student Radio Frequency Identification (RFID) Readers for Tyler Drive

Radio frequency identification (RFID) hardware attachment for the tablets above which allows students to scan onto and off of the bus using RFID-based cards.

1 Student RFID PC Wedge Scanner (Hardware to associate tags to students)

A piece of equipment which attaches to a computer and allows the user to associate RFID tags to student IDs.

Other Equipment:

800 Initial Student RFID Cards

These cards will be associated with student bus riders and given to them to allow tracking of ridership and easier contact tracing. The cards use near field communication (NFC) technology and could potentially also be used in other aspects of the school operation in the future such as food service point of sale and library cards if those systems support NFC.

Vendor-Provided Services

To date, the Vendor has successfully provided the following in a manner that is consistent with the Contract:

Overall Project Management (continual throughout the project)

Equipment Installation

Creation of Surry County Map in Traversa from a local Geographic Information System (GIS) source

Traversa Core Implementation including online training

Traversa Advanced Automatic Vehicle Location (AVL) Installation and Overview

Traversa Core Training

Traversa Advanced Routing Training

Traversa Advanced AVL Training

Traversa Electronic Rollout Sheet Training

Traversa Ride 360 Training

Traversa Ride 360 Parent App Training

Tyler Drive Driver Training for up to 25 drivers

Tyler Drive Configuration

Tyler Drive Data Analysis

Tyler Drive Go Live Assist

Qualifying Vendors

As the sole district participating in the pilot project, Mt. Airy City Schools contracted with a single qualifying vendor to provide all elements of the project. Upon approval by the local Board of Education, Tyler Technologies (https://www.tylertech.com) was awarded the contract.

As part of the contractual agreement between the District and the Vendor, payments were made directly to one of the solution vendors, Safety Vision, for cameras, infrared thermometers, and installation services.

Impact and Effectiveness of the Program

In city school systems there is a high level of coordinated effort to provide transportation services between the city and county school system with each responsible for different elements of service. As such, Mt. Airy City Schools, Surry County Schools, DPI, and the Vendor worked closely to identify safe installation locations for all new equipment in the driver and passenger loading areas of the school bus. School bus equipment modifications have been approved by DPI and all equipment has been installed. The district staff have received training in the new routing software, new hardware on buses, and new system capabilities.

The initial impact was primarily made by the swift provisioning and installation of automated school bus safety cameras and interior cameras as well as touchless infrared thermometers.

The infrared thermometers and full interior camera systems have allowed the District to repurpose the staff time used for a second adult on the bus to perform the temperature screening, while also continuing to assure the district can screen and monitor students for contact tracing purposes. Mt. Airy City Schools estimates $3,500 or more per week in labor hours repurposed during the time screening was required.

District staff as well as students and their parents are able to effectively track relevant school buses and student locations as well as see which students got on or off the school bus and at which locations. Further the tablet and routing technology has allowed for drivers to receive turn-by-turn directions on their route which assists to assure the school bus drivers, especially substitute drivers, have the necessary support to safely and efficiently transport students to their destinations.

The Traversa technology allowed Mt. Airy City Schools to manage their routing effectively for the start of the 2021-2022 school year during a time of extreme school bus driver shortages. In support of efforts to reduce the impact of the personnel shortage, it has allowed Mt. Airy to successfully eliminate two bus routes.

In addition, work on aligning Vendor routing system reports to the type of output expected for state reporting was completed and the State Board of Education approved the Mt. Airy reports implementation as equivalent to the Transportation Information Management System (TIMS). As such Mt. Airy City Schools was cleared to discontinue use of TIMS and proceed with submission of route data via the new system. Mt. Airy City Schools successfully submitted required 2021-2022 data via the new system in January 2022.

Expenditures of State Funds Pursuant to the Program

Safety Vision was paid directly on December 8, 2020 as a subcontractor for installation of cameras and infrared thermometers in an amount totaling $34,058.95

Tyler Technologies was paid for their contract to provide software, hardware, training, and to manage the program implementation in an amount totaling $83,644.54 of which $80,941.05 was from state funds and $2,703.49 was from local funds.

The total expenditure of state funds for the pilot project totaled $115,000, the full amount allocated to the Program by the General Assembly in the Legislation.