Public Schools of 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: March 1, 2021

DPI Chronological Schedule, 2020-2021

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NC DEPARTMENT OF PUBLIC INSTRUCTION

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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

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, Mount Airy City Schools, to participate in the pilot program. Mount 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 Mount Airy City Schools Board of Education awarded the project to Tyler Technologies (the Vendor).

Implementation of the pilot project commenced in December 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. Vendor-provided training on the new hardware and software, which are part of the pilot project, also began in December and will continue in January and February of 2021.

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. This has resulted in the reallocation of at least $3,500 per week in labor hours.

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 (Installation Pending – as of early January) 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 (Installation Pending – as of early January)

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 or is scheduled to begin providing prior to March 1, 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

The following services are part of the contracted project services, but they are scheduled for a post-February start in the system implementation framework:

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, Mount 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, Mount 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 some 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.

Temperature screening of students has great promise in assuring the safest possible school bus environment for those students returning to school. This touchless technology with audible alerts makes temperature screening effortless on the part of the bus driver. In turn, this allows the driver to keep their attention on the road and to ensure students outside the bus remain safe.

Since students returned in August, in a strong show of support for student safety during the pandemic, Mt. Airy City Schools has been performing temperature screening, management of students, and contact tracing using an additional staff member on board every school bus. 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. Mount Airy City Schools estimates $3,500 or more per week in labor hours repurposed. Assuming screening remains a required element of school bus transportation, this savings would result in a benefit to the school system greater than half the cost of the pilot program in the second semester of 2020-21 alone.

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.