



The Transportation Information Management System

A Program of Computer-Assisted School Bus Routing and Scheduling

Generating Transportation Efficiencies in North Carolina's Public Schools

Transportation Efficiency Case Study

Currituck County Schools

August, 2009

The results of this study served to provide suggestions for the improvement of the transportation efficiency for Currituck County Schools. The focus was to improve student ride times.

Options Investigated:

1. Picking up students for multiple schools on the same bus.

Currituck has historically operated separate busses for each respective school with the exception of extreme circumstances. Combining students from different school levels is still considered to be an undesirable option.

2. Adding additional buses to provide more runs in order to shorten overall ride times.

This option would prove to be very costly.

3. Adding additional runs in order to shorten overall ride times.

Adding an increased number of bus runs would reduce travel times but would require the school start times to be modified to compensate for the alternating arrival times.

Solution Chosen:

1. By using TIMS to observe the results of a staggered bell time system between schools, bus runs were paired up, therefore maximizing efficiency of each school bus by gaining additional runs, without involving more busses. It was determined that a 1 hour staggered bell time was needed between 2 elementary schools and one middle school.

Result:

1. A reduction in ride time for all students in the target areas to reasonable levels. Previously, some students rode as long as 2 hours and 16 minutes. With the changes suggested, the longest ride time will be 1 hour and 23 minutes. The number of students with long ride times went from 309 students to 72 and most of those were actually in the 65 minute range.
2. By making several runs shorter, and reusing a single bus for an additional school run, the total number of buses needed to transport the students to school is reduced.

| School Name | Current Runs | Proposed Runs |
|----------------------|--------------|---------------|
| Moyock Middle School | 9 | 12 |
| Shawboro Elementary | 6 | 9 |
| Moyock Elementary | 5 | 8 |

Current number of buses needed: 20

Proposed number of buses needed: 17

Currituck can now utilize the 'extra' three buses in other parts of the county and not have to purchase additional buses.

Gary Cox, Transportation Director: "This has worked out better than thought it would. The staggering of bell time allows us reduce most of the ride times of our students to less than an hour where it was as much as 2. In the outer areas reducing their ride times, that were as much a 2 plus hours, to less than 90 minutes. As a bonus, we were able to park 2 buses saving the county about \$170000.00 in new bus purchases and reallocate a third to service our early college program. Over all a big success for the Currituck County Schools."

