# 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
## Pender County Schools
## August, 2009

During the 2008-2009 school year, the Pender County Schools Transportation office noticed that bus driver travel times were not matching what the TIMS route reports where generating. Additionally, as new student information was uploaded into the TIMS system, routing specialists noticed that many children were not being geographically matched in the system.

Upon further investigation by the TIMS support staff, it was discovered that the TIMS electronic map was in need of updating. It was missing new streets and addressing and the bus travel speeds needed calibration. The geographic data issues were resulting in route reports that, erroneously, stated buses could travel some streets at higher speeds than was possible.

County government geographic information systems (GIS) data are now widely available in nearly every county of North Carolina – which was not the case when the TIMS map was initially created. Nearly all school districts have converted their TIMS system to a GIS-based map. After the initial update of a TIMS map based from a GIS system, the school district's map can easily be updated from time to time.

Time was of the essence for Pender County Schools to produce accurate and efficient bus routes. Not only was a GIS-map conversion needed, but they needed a turn-key TIMS dataset (whereby all students, routes, streets, speeds, addressing, etc are optimized and ready for operation). The TIMS staff acquired their county GIS data and began the conversion process in April. After only a month of data collection, conversion, and optimizing, a new TIMS system based on county GIS data was implemented in Pender County.

The results were astounding. After optimization with the new GIS map in place, Pender County was able to reduce their fleet by three buses, shred 950 daily miles of travel and realize savings of approximately $386,000 this school year.

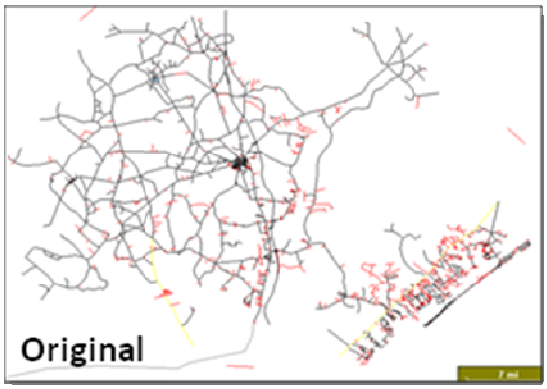
Ricky Carter, Transportation Director for Pender County, had no regrets. "Switching over to GIS has been a positive for Pender County Transportation. The new GIS data is more accurate in every aspect, saving us lots of time and making our route times and mileages more accurate. We would do it all over again! ".

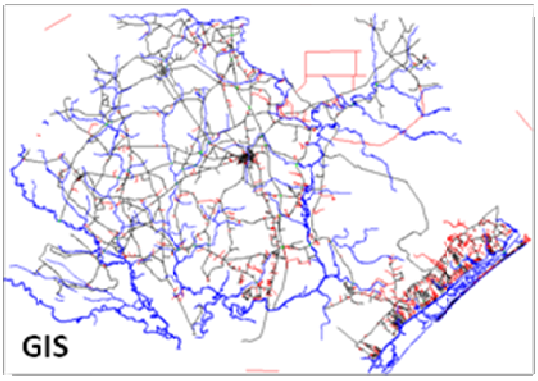
Notable net results from GIS data conversion

- Three buses were parked and over 950 miles of travel time were saved as a result of accurate GIS mapping and speed calibration.
- Pender County has plans to begin paying their bus drivers using data generated from the TIMS system.
- Optimization enabled Pender to share buses between schools and create double runs for morning and afternoon routes.
- Transportation savings of approximately $386,000

The images below represent Pender County's original TIMS map and their new, more detailed, GIS map.

Red represents non-travel streets, grey are travelable streets, and blue shows water features (rivers & lakes).




GIS maps can also contain data such as bridge, boundary, zip code, railroad, city code and other important data.

Public Schools of North Carolina
State Board of Education
Department of Public Instruction

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