



The Transportation Information Management System

*A Program of Computer-Assisted School Bus Routing and Scheduling
Generating Transportation Efficiencies in North Carolina's Public Schools*

Cabarrus County Schools 2009-2010 Transportation Efficiency Case Study

The Cabarrus County Schools (NC) transportation office utilized TIMS software during the summer to explore reducing the district bus fleet. A new transportation plan has since been adopted and is being implemented for the 2009-2010 school year.

By experimenting with a three-tiered, staggered bell time structure using Run Optimization, TIMS Staff determined the entire bus fleet could be reduced by nearly one-quarter and still have the capability to service the same geography and number of students.

Last year, Cabarrus County performed 963 distinct bus runs using 233 buses, for an average of 4.1 runs each day per bus (2 AM Runs, 2 PM Runs). Many of the longer runs were reworked and shortened to accommodate the new three-tier bell time structure.

After analyzing school transportation data in TIMS, Cabarrus County reduced the entire bus fleet to 180 buses and increased the number of distinct runs to 1,048 for the 2009-2010 school year, thereby increasing the average number of runs per bus to 5.8 each day (3 AM Runs, 3 PM Runs).

By increasing the number of daily runs for each bus, Cabarrus County has reduced the entire fleet by 53 buses (22.7%) and expects an average increase of 30 miles per day (39%) for each bus.

The successful staggering of bell times and pairing of runs and routes also reduced student ride time. The average total ride time decreased 3 minutes each day per student, while the longest ride times decreased an average of 12 minutes per student.

Cabarrus County Transportation Director, George Douglas, tipped his hat to the Board of Education for seizing this opportunity and following through on the detailed transportation plans developed by Doris Dry and the Cabarrus County TIMS Staff.

When asked about the success of the new transportation plan, Douglas said, "The only real challenge has been the routes and schedules are much tighter. Everyone has to relax and let things settle down after the first few days. The TIMS information, if well maintained, will prove to be accurate."

2008 - 2009		2009 - 2010		Differences	
Total Buses	233	Total Buses	180	Total Buses	-53.0
Assigned Students	21576	Assigned Students	23121	Assigned Students	1545
Hours Per Bus	4.4	Hours Per Bus	6.3	Hours Per Bus	1.9
Miles Per Bus	74.5	Miles Per Bus	103.9	Miles Per Bus	29.4
Total Runs	963	Total Runs	1048	Total Runs	85.0
Avg. # of Runs Per Bus	4.1	Avg. # of Runs Per Bus	5.8	Avg. # of Runs Per Bus	1.7
Student Ride Time in Minutes		Student Ride Time in Minutes		Student Ride Time in Minutes	
Avg. Ride Time	48	Avg. Ride Time	45	Avg. Ride Time	-3
Avg. AM Ride Time	20	Avg. AM Ride Time	20	Avg. AM Ride Time	-1
Avg. PM Ride Time	27	Avg. PM Ride Time	25	Avg. PM Ride Time	-2
Avg. 5% Longest Ride Time	108	Avg. 5% Longest Ride Time	97	Avg. 5% Longest Ride Time	-12