

Transportation

Derek Graham

Section Chief, Transportation

NC Dept of Public Instruction



State PRC 56

- Expenses for Transporting Students to and from school
- Grades K-12
- Other parts of the regularly scheduled instructional day
- Sample Categories
 - bus driver salaries
 - personnel salaries
 - parts
 - Tires
 - fuel
 - contract transportation, etc.

PRC 56

Provides funding for all transportation related expenses for “yellow bus” use for eligible school age (K-12) students for travel to and from school and between schools. Examples of these expenses are contract transportation, transportation personnel (other than Director, Supervisor, and Coordinator), bus drivers' salaries, benefits, fuel, and other costs as defined in the Uniform Chart of Accounts. This includes expenses for contract transportation when a local school district finds it impracticable to furnish transportation by yellow bus for eligible school age (K-12) students for travel to and from school and between schools.

Allotment Formula

FORMULA:

1. Allotted based on a "budget rating" funding formula using the following factors: pupils transported; total eligible operating expenditures (local and state funds); number of buses operated.
2. The initial allotment shall consist of a portion of the projected final allotment.
3. The initial allotment will be adjusted within available funds by December 1. This adjustment is derived from establishing a final budget rating calculated annually from the three key factors outlined in #1 above.

Special Allotment Provisions

- Funds can be transferred into or out of this category by submitting an ABC Transfer Form.
- Transfers will impact efficiency ratings.

Special Allotment Provisions

These funds may not supplant other state, federal and local programs use of the “yellow bus” that serve the instructional purpose of the school, such as Pre-K, Smart Start, Head Start, Remediation Programs, Summer School, NC State Fair, Special Olympics, NC Symphony and other instructional field trips. When allotted state transportation funds are used to provide transportation services for these programs, the responsible program must reimburse this fund.

Special Allotment Provisions

Allotted funds cannot be used for the maintenance of local vehicles and machinery such as - activity buses, staff vehicles, school maintenance trucks and vehicles, etc. When state funds are used to pay for this kind of activity, those state funds must be reimbursed from local (or other non-state) sources.

Special Allotment Provisions

State Board of Education Policy states, "In order to be eligible to receive any mid-year transportation allotment resulting from increased fuel prices, an LEA must have a reduced idling policy in place at the beginning of the school year. For the 2005-2006 school year, the policy must be in place no later than January 10, 2006. The local policy must, at a minimum, prohibit all unnecessary school bus idling on school grounds and prohibit the warming up of buses longer than 5 minutes. As always, any increase in allotments will be subject to the availability of funds."

EXPENDITURES

State and Local

- State 56
- Local 56
- Local 706

- State 32, 69 etc.

State PRC 56

- Expenses for Transporting Students to and from school
- Grades K-12
- Other parts of the regularly scheduled instructional day

Local PRC 56

- Expenses for which you COULD HAVE spent State 56 funds if you had chosen to do so
- Local contribution due to gap between budget rating allotment and actual expenses

Local 706

- Anything related to the operation, maintenance, fueling of local vehicles
 - Activity buses
 - Drivers Ed Cars
 - Other Government Vehicles
 - LEA maintenance trucks
- Maintenance expenses – REIMBURSE State 56
 - Mechanic labor
 - Parts
 - Fuel
- Run from the MCIS report in the transportation system (BSIP – Business Systems Information Portal)

Funding Base:

- Actual expenditures from previous year – sum of state and local eligible expenditures.
 - Does not include 461, 541 and 542 (equipment)
 - Does not include expenses for highway use tax on new vehicles
 - Does not include driver bonuses, excess salaries, etc.

Budget Rating

% of Prior Year Funding Base Provided from State Funds

INPUT DATA

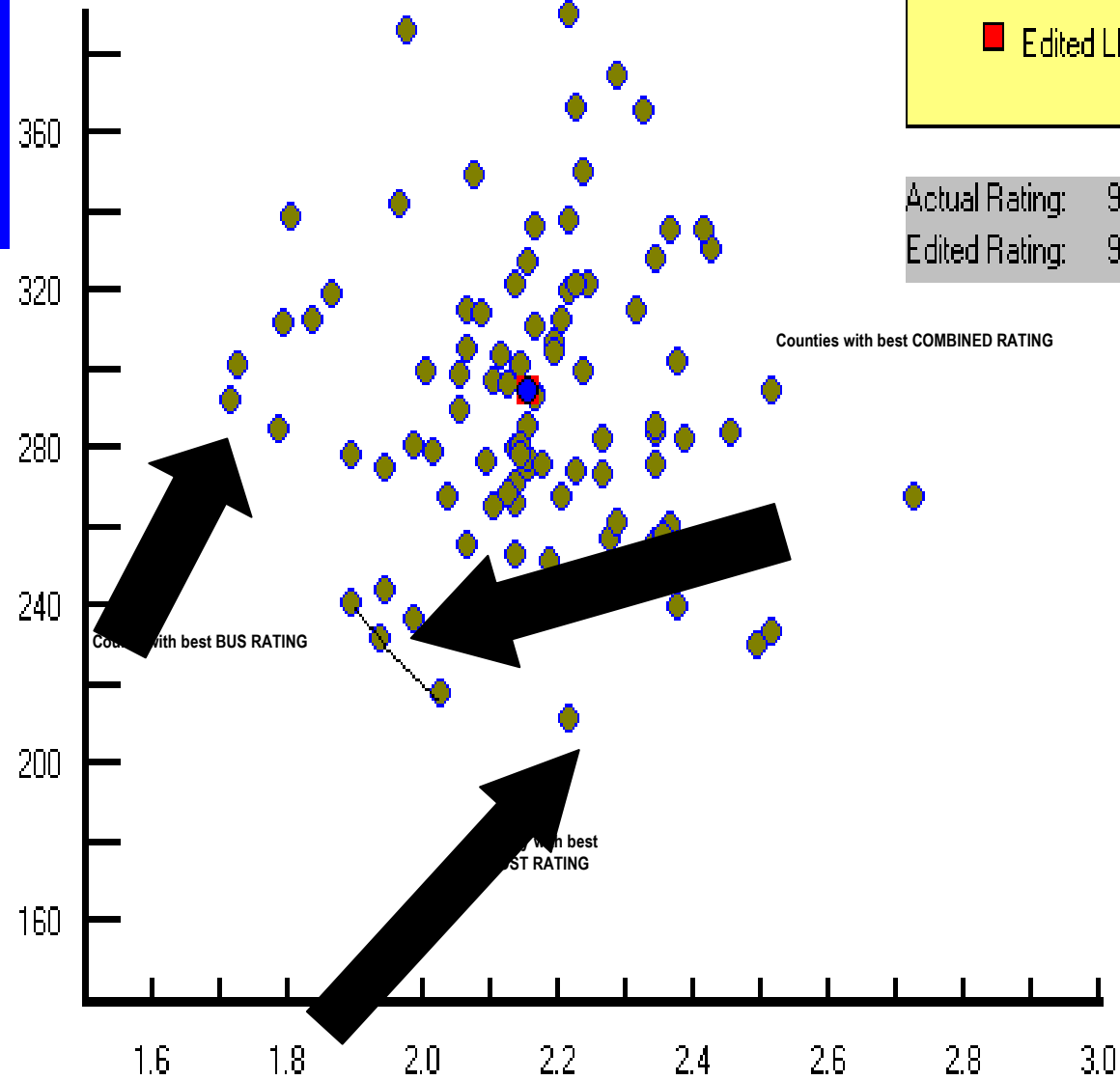
- Number of Buses Operated Last Year (91+ days)
- Number of Students Transported Last Year
- Total Eligible Expenses Last Year

- Cost per Student Transported
- Buses for 100 Students Transported

Budget Rating Simulator

1999-2000

Cost/Cost Adj. Stu.



Buses /100 Bus Adj. Stu.

Two Budget Ratings

- BUDGET RATING 1 - SIMULATOR RATING
- BUDGET RATING 2 - CURRENT RATING
- FUNDED ON HIGHEST RATING
- Allotment Adjustments
 - Early College
 - Fuel
 - Equipment Contingency
 - ADM, Salary Increases

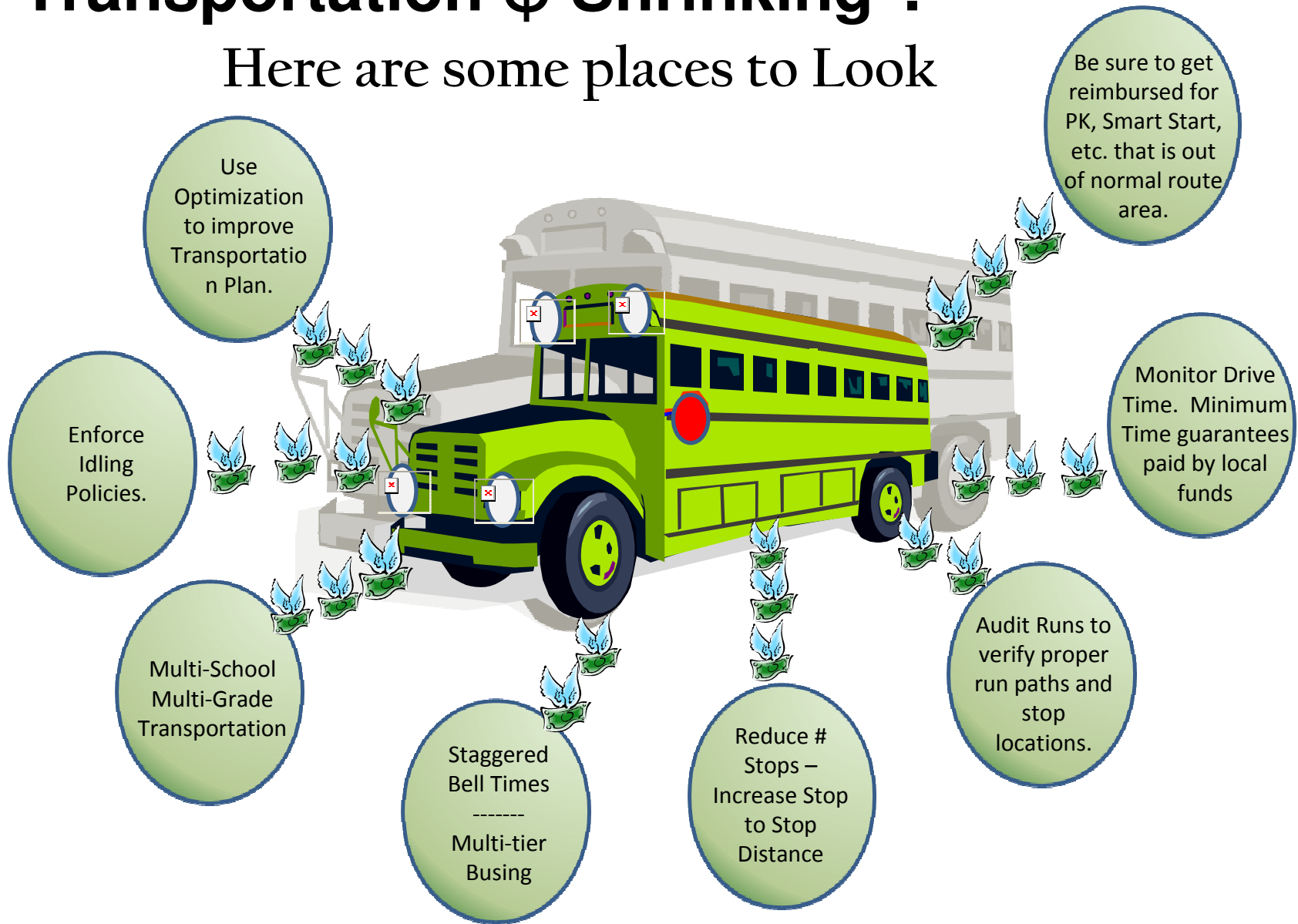
Allotment Adjustments

- Early College
- Fuel
- Equipment Contingency
- ADM Increases

Efficiency for School Transportation

Transportation \$ Shrinking ?

Here are some places to Look



Local Policies

- Bell times, program placement, magnet programs, etc. and how these policies affect the efficient utilization of the transportation fleet.
- If the transportation plans are developed solely from a school-level perspective, opportunities to more efficiently utilize the school bus fleet may be lost.
- TIMS Staff has the experience to advise in these matters.

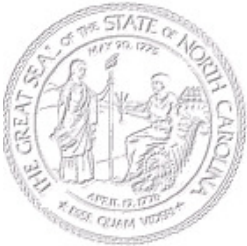
A journey of a thousand miles begins with a single step.

North Carolina School Bus Safety

Web

North Carolina Department of Public Instruction - Raleigh, North Carolina

[safety](#) [NC resources](#) [vehicles](#) [library](#) [training](#) [mailing lists](#) [archived news](#) [contact](#) [safety center](#) [home](#) [search](#)



NC Laws and Policies

[Public School Laws Governing Pupil Transportation](#)

[Requirement for Transportation to/from At-Risk Programs](#)

[School Bus Drivers - Cell Phone Use Prohibited](#)

[Policies of the NC State Board of Education Regarding Pupil Transportation](#)

[School Attendance and Student Accounting Manual](#)
(Inclement Weather Closing After Buses are Rolling, page 38)

[DPI Office of Financial and Business Services Allotment Policy Manual - Transportation](#)
(Including Idling Reduction Requirements)

[Services by Governmental Units G.S. 66-58 section c\(9b\)](#)
Stipulates allowable use of activity buses by outside groups (non-profits transporting children)

[Law governing sale of tax-free fuel](#)

Other Laws

14-33. [Misdemeanor assaults, batteries, and affrays, simple and aggravated; punishments.](#)(school employees)

14-132.2. [Willfully trespassing upon, damaging, or impeding the progress of a public school bus.](#)

State TORT CLAIMS ACT

Transportation of Students to Programs OTHER than to/from School

State Board of Education (SBE) policy states that *“...These funds may **NOT** supplant other state, federal and local programs use of the “yellow bus” that serve the instructional purpose of the school, such as **Pre-K, Smart Start, Head Start, etc., Remediation Programs, Summer School, NC State Fair, Special Olympics, NC Symphony and other instructional field trips. When allotted state transportation funds are used for these services for these programs, the responsible program must reimburse this fund.**”*

Transportation of Students to Programs OTHER than to/from School

- Transportation of students in these special programs **without reimbursement** is provided **only if the bus does not have to make a deviation to the route established for authorized students and if there is sufficient capacity.**
- Otherwise, transportation for these students must be reimbursed.
- Creating **additional unnecessary runs to increase available capacity is not permitted**, unless the additional non-authorized students' transportation costs are reimbursed.

Transportation of Students to Programs OTHER than to/from School

BENEFITS – If these students are being transported on regular “yellow buses” it is imperative that the transportation department is being reimbursed from the appropriate sources for the additional time and mileage incurred. This will add additional dollars to the transportation budget.

Idling Policy

“In order to be eligible to receive any mid-year transportation allotment resulting from increased fuel prices, an LEA must have a reduced idling policy in place at the beginning of the school year.”

While all districts should have the idling policy in place, is it being enforced within your LEA?

BENEFITS – Reduced Idling results in reduced fuel consumption, therefore, reduced fuel costs. A side benefit is reduced pollution.

Bus Route Creation Using TIMS

TIMS provides the ability to analyze alternate scenarios including multi-school transportation or multi-tier transportation through the use of staggered bell times and the simulation of routing impacts on proposed program implementation and/or placement.

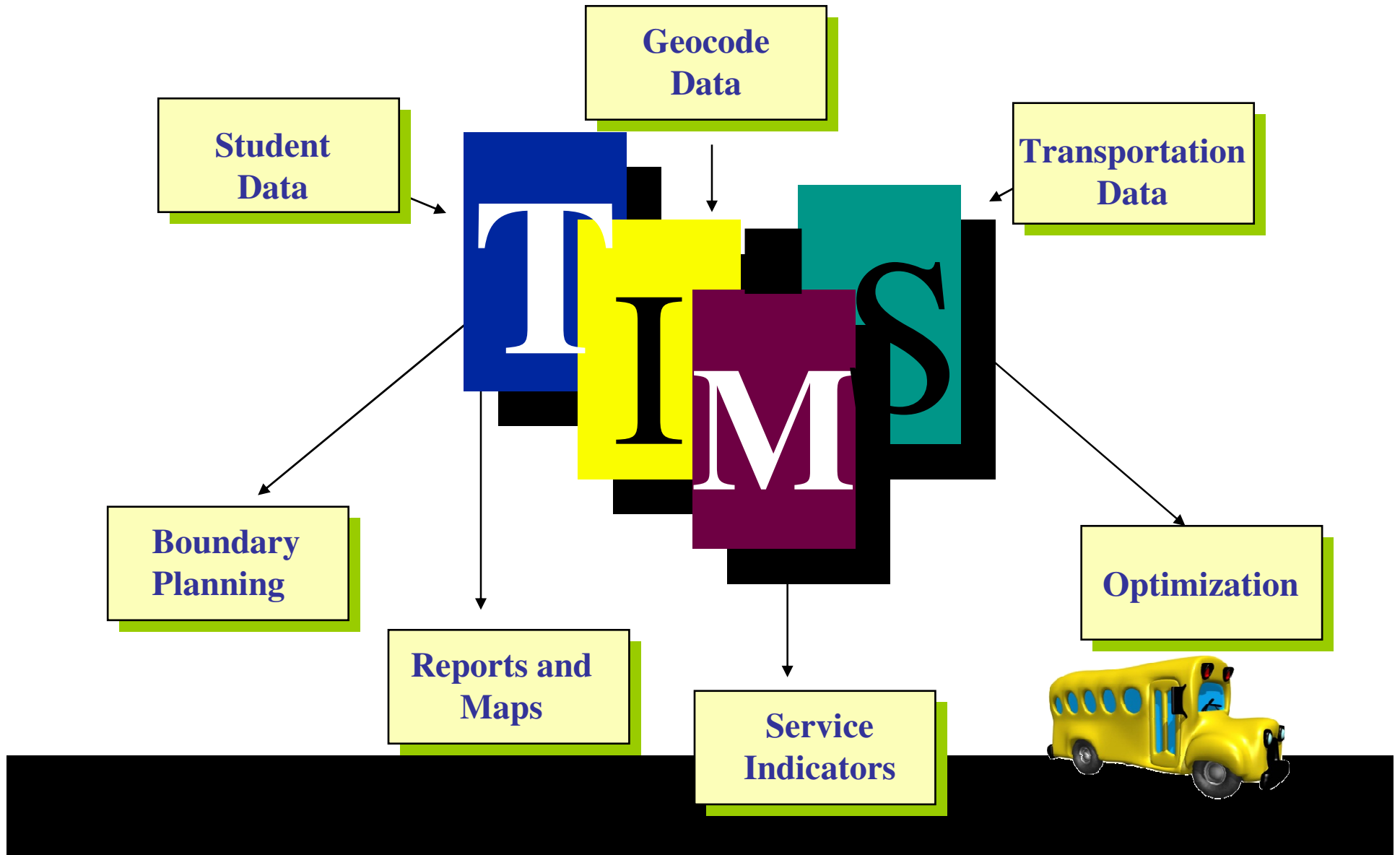
Simulation shows actual student impact

- Overall mileage

- Ride times

- Early/Late pickup

The TIMS System



The TIMS Map (geocode)

- TIMS provides graphical views for transportation planning.

The image displays the Edulog software interface, which is used for transportation planning. The main window, titled 'Edulog', shows a map of a school district with various transportation routes and stops. The map is overlaid with a network of cyan lines representing routes, with arrows indicating the direction of travel. A prominent pink arrow points to a specific route segment. The map also shows numerous red and blue pins representing stops, and yellow triangles with numbers (e.g., 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33) indicating specific stop locations. A scale bar at the bottom right indicates a distance of 1/4 mile.

On the left side, there is a panel titled 'Students' with checkboxes for 'Unassigned Students', 'Assigned Students', 'Stops for Loaded Students', and 'Stops on loaded runs'. Below this is a 'Runs' section with checkboxes for '302.011 MTWUF-' and '302.011 MTWUF-00'. The 'GIS Overlays' section has a checkbox for 'Autostreet'.

In the foreground, the 'Edit Run Directions' dialog box is open. It contains the following information:

- Current Run Info:** Run ID: 302 011, Day Pattern: MTWUF...
- Update Run Times, Generate Report...
- Description:** AG COX RUN 431
- Frequency:** MTWUF-----0, **Max Load:** 80, **Max Time:** 180 min.
- Run Directions:** A list of directions including 'Proceed on MAIN ST 28590' (repeated multiple times) and 'Proceed on E MAIN ST' and 'Proceed on F MAIN ST'.
- Time @ stop: _____
-
- Delete Existing Directions
- Auto generate for all day patterns
-

Map Calibration

- In the Geocode, determining and setting realistic speeds that a bus can travel on each street and making sure the street directions are correct is called Map Calibration.
- Map Calibration is critical in making sure your runs generate correctly and accurately in TIMS.
- If your map is not calibrated correctly, TIMS may not generate runs accurately or reflect accurate stop times.



Reports

- Multiple pre-set reports are available in TIMS
- With TIMS we have the ability to customize reports to show exactly the data you need.
- Runs with stops and student names
- Runs with driver directions
- Passenger Lists
- Stop Locations
- Reports on geographical information (street names and attributes)
- Summaries of Route Time and Miles



Route Directions with Run, Stop, and Student Info

Route ID: 370 Bus Number: 370 Vehicle Capacity: 0
 Route Description: WG/AGC 370

Stop Time & Description	Student Address	Acc Miles
RunID: WPI.001		
Run Description: WPI RUN 370		
6:29 AM 0 WINTERGREEN DR		0.0000
<p style="text-align: center;"> Proceed on WINTERGREEN DR Turn Right on WINTERGREEN DR Turn Left on COUNTY HOME RD Turn Left on OLD FIRE TOWER RD Proceed on COUNTY HOME RD Proceed on E ARLINGTON BV Turn Left on W ARLINGTON BV Proceed on W ARLINGTON BV *RR XING* 904553V Turn Left on BEASLEY DR Turn Right on BEASLEY DR </p>		
6:44 AM 1406 BEASLEY DR		6.6254
XTT, MOHAMED	353 BEASLEY DRIVE	406 01
XLL, SPENCER	355 BEASLEY DRIVE	406 01
XOO, SHANESE	355 BEASLEY DRIVE	406 01
XOO, ESLAM	411 BEASLEY DR	404 04
XHH, THURMAN	355 BEASLEY DRIVE	404 03
XYY, DASHAUN	350 BEASLEY DR	406 02
XRE, DANASIA	350 BEASLEY DR	404 04

Summary of Route Time and Miles

Route Time and Miles

Summary for Review

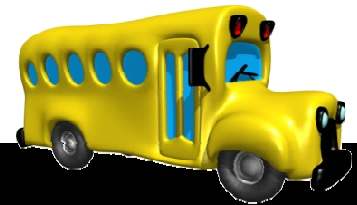
2008-2009

Mileage		Time In hours	
		Negative slack is not included in total.	
Loaded	7763.88	Loaded + Checkpoint	471.4
Deadhead	484.33	Deadhead	24.0
Checkpoint	3001.90	Slack	57.7
		Negative Slack	-10.5
Total	11250.12	Total	553.1



Run Optimization

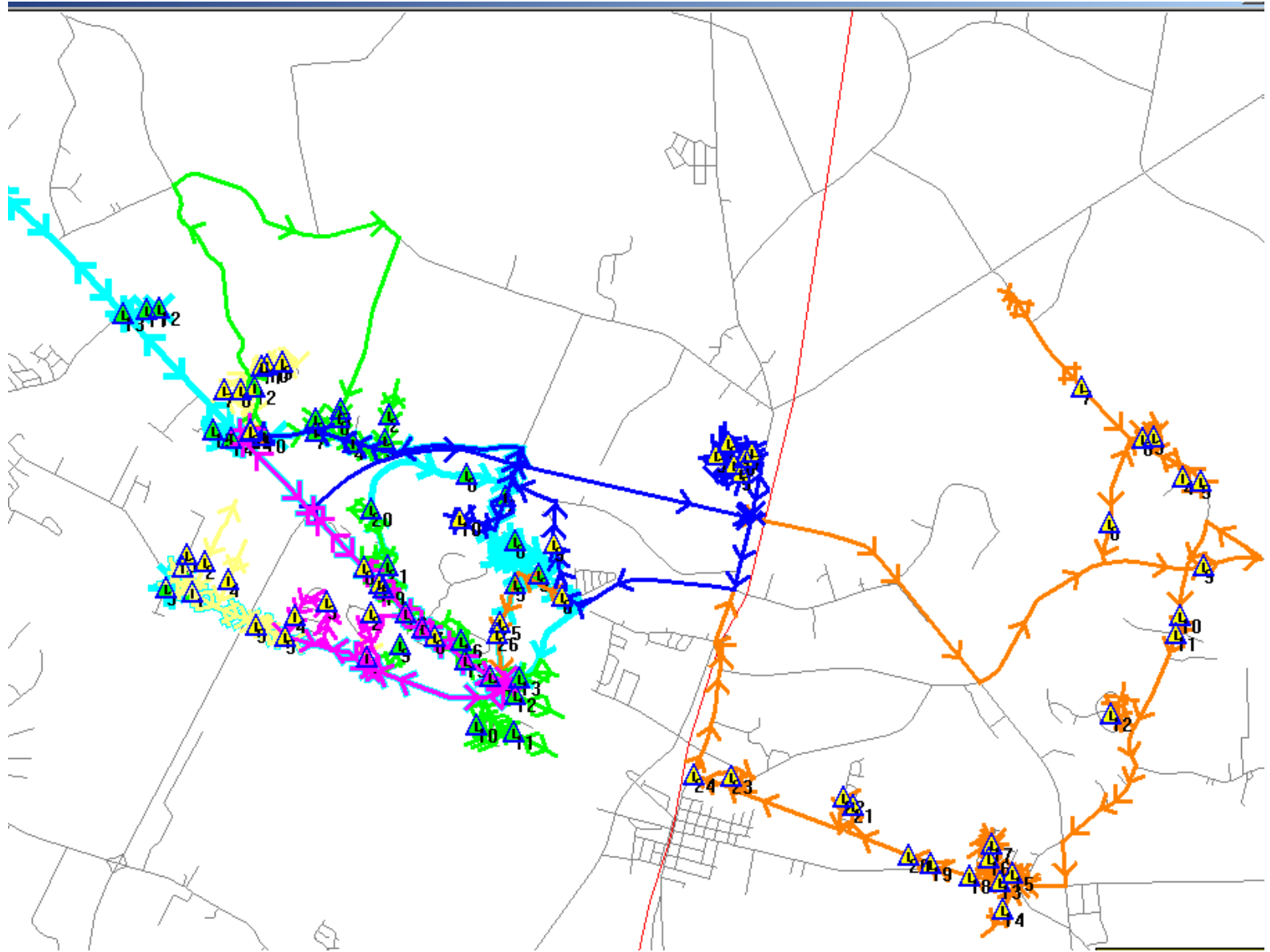
- Run Optimization takes a group of bus stops and creates a new set of runs that meet the needs of your LEA.
- This usually involves picking up the most students with the fewest number of buses in the least amount of time.
- The three factors involved are:
 - Bus capacity
 - Total miles
 - Run time



6 RUNS

Total students/Beginning run time

- 38/6:26
- 27/6:12
- 50/6:38
- 36/6:16
- 16/6:42
- 23/6:56



Run Optimization

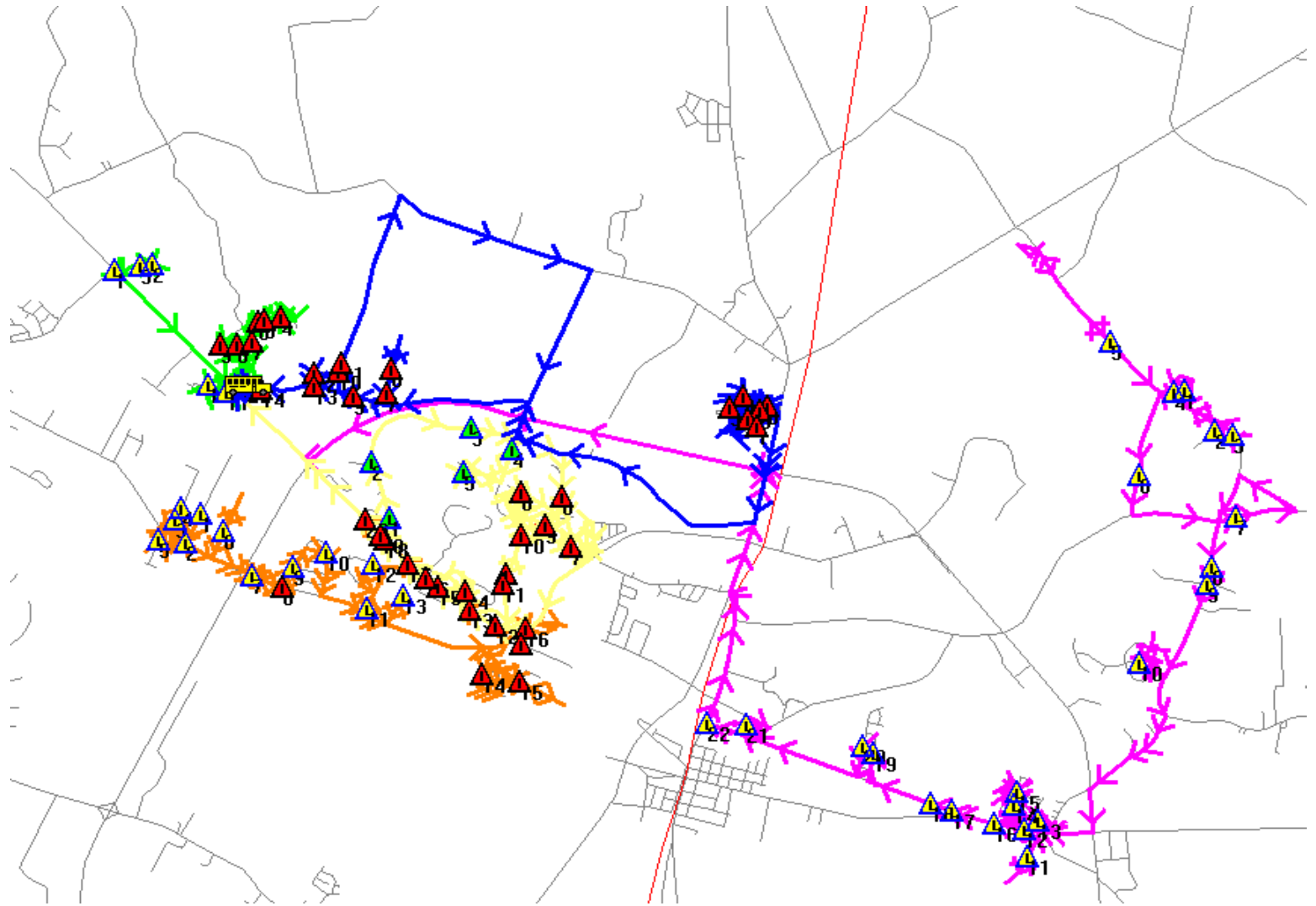
5 basic steps to run optimization

- Load the data and define the optimization problem
- Use the optimization functions to create a set of optimized runs.
- Evaluate the results
- Make manual adjustments as necessary
- Confirm and save the runs

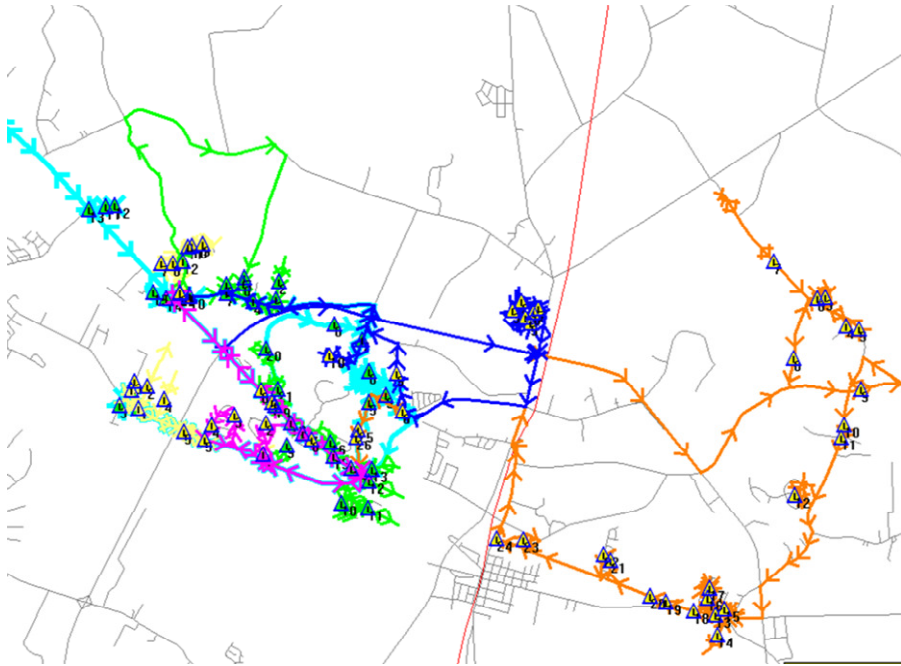


- 5 RUNS
- Total students/Beginning run time

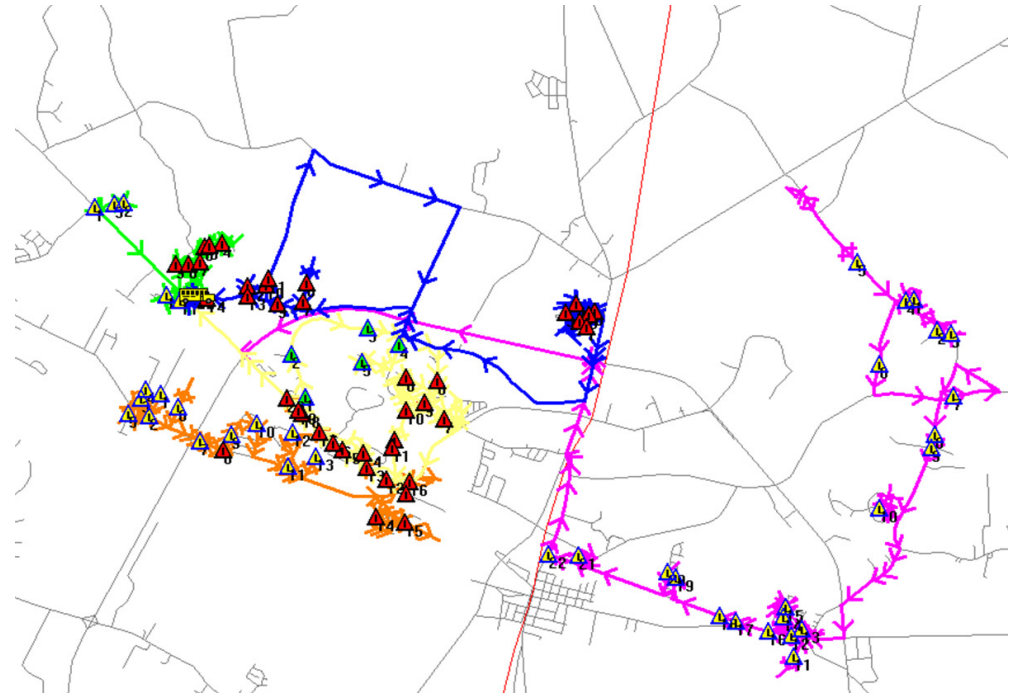
- 27/6:41
- 51/6:50
- 43/6:43
- 53/7:08
- 16/6:47



6 Runs

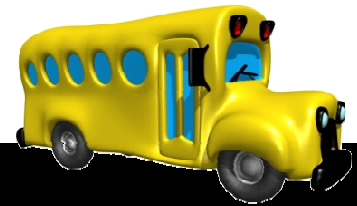


5 Runs



(demo)

Using TIMS for Efficiency



Using TIMS for Efficiency

Who makes your routing decisions?

- How are your routing decisions made?
 - Stop Placements
 - Stop Order
 - Student Assignments
 - # of Runs per School
 - Sharing buses among schools
- Are they made by...
 - School(s)?
 - Transportation Office?
 - Board of Education?



Development of the Transportation Plan

- The transportation plan should be developed and guided by LEA personnel that have the best tools and broadest view of the entire transportation system
- When a plan is developed at the school level, consideration is often given only to a narrow set of circumstances. However, school level supervision and input that is vital to an overall efficiently run transportation plan.
- The LEA Administration, school administrators and the Transportation Department should form a cooperative team that that provides and implements a well-developed transportation plan.



Routing Decisions

How involved is the Transportation Department?

- Who is looking at the big picture?
 - Is transportation considered when placing EC students, special programs or magnet locations?
 - Is routing reviewed prior to the start of each year?
 - Who sets the bell times for each school?
 - Are these times coordinated to improve efficiency?



Routing Decisions

Staggered Bell Times

- High School
 - 8:00am



- Middle School
 - 8:00am



- Elementary School
 - 8:00am



* If all three schools start at the same time, then three buses are required to get the students to school.

Reusing buses by staggering bell times reduces the number of buses and costs.



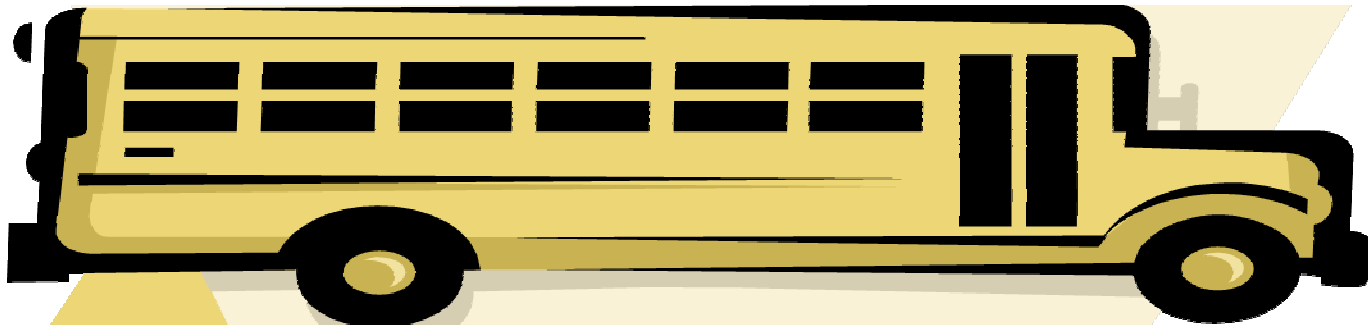
Routing Decisions

Staggered Bell Times

High School

Middle School

Elementary School



7:30 AM
School Start

8:15 AM
School Start

9:00 AM
School Start

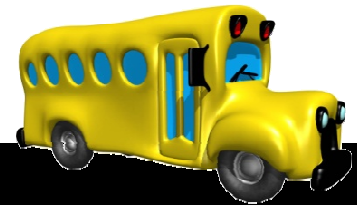
Offsetting bell times by 45 minutes under the same scenario reduces route fulfillment requirements from three buses to ONE bus.



Routing Decisions

Improving Efficiency by Reducing Time & Miles

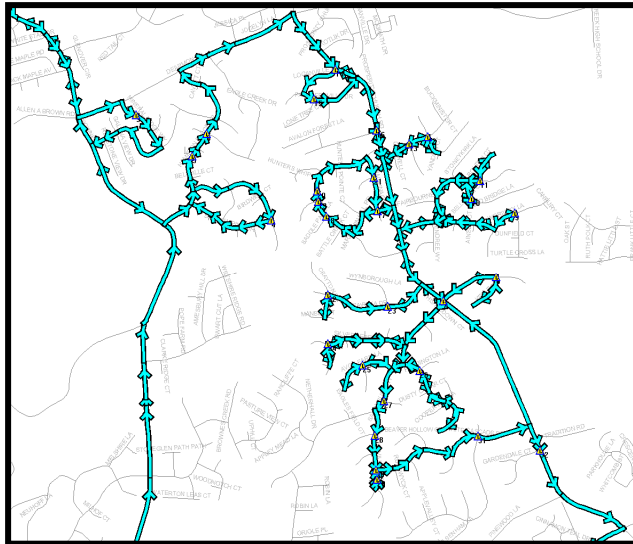
- Many districts have started creating neighborhood ‘community stops*’ within:
 - Housing developments
 - Subdivisions
 - Small neighborhoods
- These reduce the number of miles and driver hours accumulated each day as well as a decrease in student ride times.
- Community Stops should be reviewed to ensure student safety will not be comprised



Community Stops

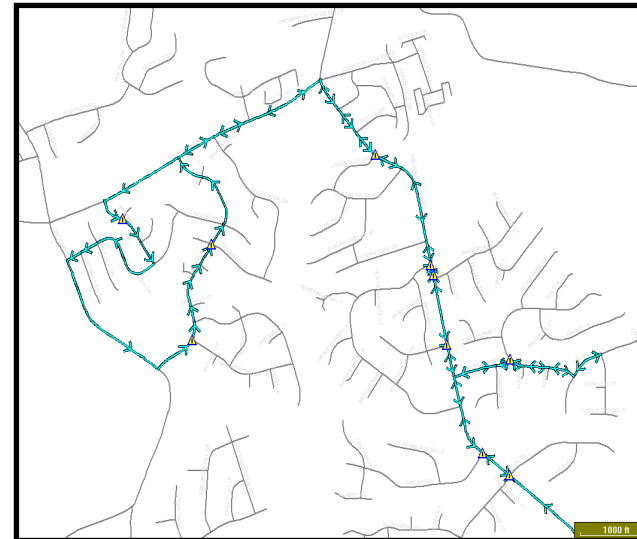
Improving Service by Reducing Time & Miles

Before



Cost: 31 miles one way
62 miles per day
 $62 \times \$2.00 = 124.00$
 $\$124.00 \times 180 \text{ days} = \$22,320$

After



Cost: 18 miles one way
36 miles per day
 $36 \times \$2.00 = 72.00$
 $\$72.00 \times 180 \text{ days} = \$12,960$

\$9,360 savings for 1 bus



Community Stops

Improving Efficiency by Reducing Time & Miles

- Utilizing 'community stops' in conjunction with staggered bell times will result in an extremely efficient transportation operation and will produce:
 - Driver Salary Savings
 - Fuel Savings
 - Maintenance & Support Cost Savings
- TIMS features a simulation module in which you can experiment with altering your transportation plan and then examine the potential savings before implementing the changes.



Routing Decisions

Examining the Impact of Community Stops

- Over the summer, Iredell-Statesville Schools discontinued 'home stops' for middle and high school students within certain areas and relocated over 500 stops by creating 'community stops'.

2010-2011 Mileage Reductions: Iredell-Statesville School						
School(s)	# of Buses	Miles Reduced	Savings: Bus Miles* (1)	Savings: Driver Wages (2)	State Bus Replacement Expenses (3)	Total Estimated Savings (1+2+3)
LNHS	27	224	\$110.82	\$73.28	\$109.23	\$293.33
NIHS/NIMS	30	477	\$235.73	\$44.49	\$232.34	\$512.55
SIHS/TMS	23	313	\$154.77	\$52.63	\$152.54	\$359.94
WIHS/WIMS	25	225	\$110.98	\$6.14	\$109.39	\$226.50
SHS	10	72	\$35.36	\$16.52	\$34.85	\$86.73
EIMS	13	138	\$68.05	\$15.58	\$67.07	\$150.69
LMS	12	150	\$74.03	\$49.44	\$72.96	\$196.43
BMS	20	289	\$142.96	\$74.10	\$140.91	\$357.98
Daily Total	160	1888	\$932.69	\$152.57	\$919.29	\$2,004.55
Annual Total	160	339,777	\$167,883.82	\$27,463.32	\$165,471.40	\$360,818.53



Funding and Safety

- Caution – If plans are so different that students and parents choose NOT to ride the bus.....
 - Lower Student Count without reducing cost or buses means a lower budget rating
 - Fewer students riding the bus means that overall safety is reduced



Efficiency Seminar for SchoolTransportation

