

Transportation, Efficiency and the High Cost of Fuel



05/17/04 AP Photo

Derek Graham
DPI Transportation Services

July 1, 2008

www.ncbussafety.org/documents/presentations/2008SummerLeadershipTransportation.pdf

Transportation Appropriation From General Assembly

1. Capital – Replacement of School Buses
2. Operations – Block Grant
 - Fuel, oil
 - Driver Salaries
 - Technicians, other personnel
 - Parts, tires, supplies
 - etc.

Transportation Appropriation

State budget for pupil transportation includes an amount based on an average per-gallon price of diesel fuel designated by the Office of State Budget and Management

Appropriation distributed to 115 LEAs according to the transportation funding formula and a transportation budget rating, based, in part, on efficiency

Impact of Fuel Cost on Annual Fuel Allotments

2007-2008 State Budget: 1.69/gallon
 Actual: 2.95/gallon

Additional mid-year state allotments to
“grow” fuel allocation from 1.69 to 2.80

Impact of Fuel on Annual Fuel Allotments

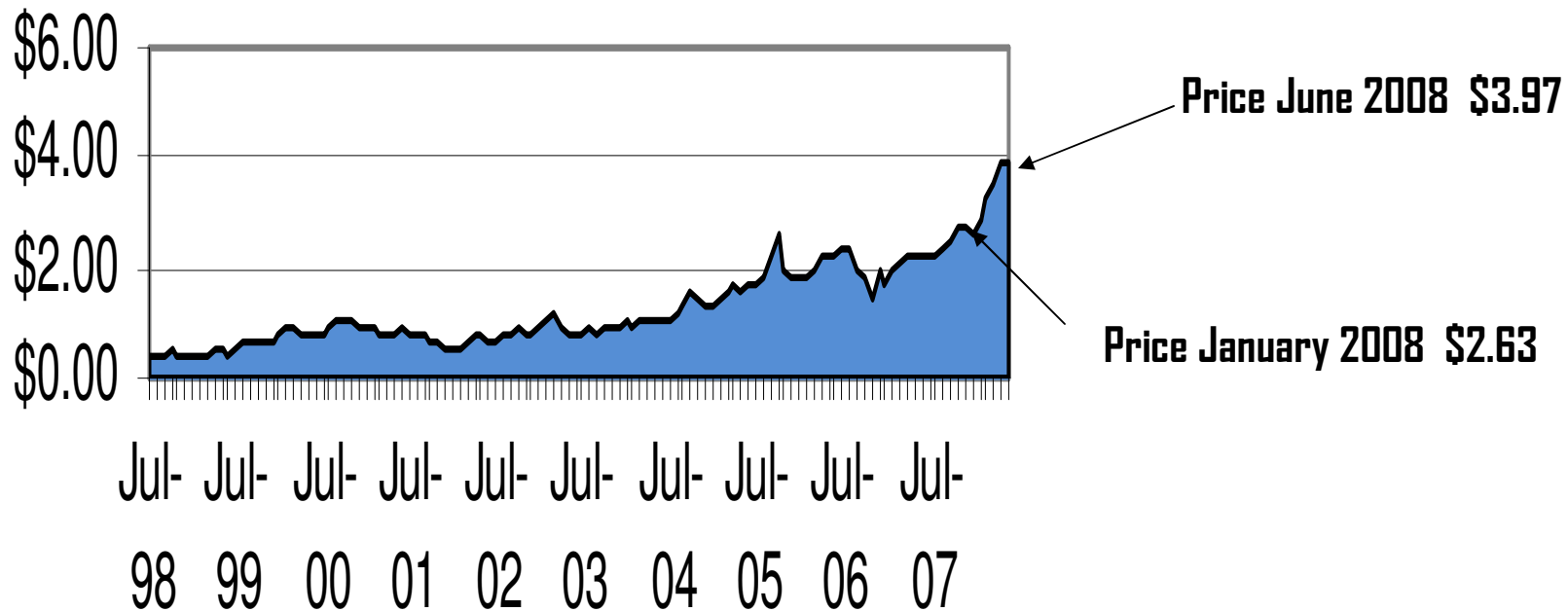
2008-2009 State Budget: \$1.83/gallon
 Current: about \$4/gallon
 Actual: ???

Legislative Deliberations

Latest conference budget: \$31 million
(About \$3.11 per gallon)

Diesel Fuel - 10 Year Price Per Gallon Trend

(Based on price paid by NC Public Schools)



Dealing with High Cost of Fuel

Dealing with High Cost of Fuel

- Reducing Fuel:
 - Efficient Routing
 - Policies
- Efficiency Requirements
 - North Carolina General Statutes
 - State Board of Education Policy
 - Administrative Procedures Act (APA)

APA 16 NCAC 6B.0004

BUS ROUTES

- (a) Superintendents shall plan bus routes in a way designed to conserve fuel and to use buses efficiently.
- (b) A route may not deviate from a general path of direction for a distance of less than one-half mile and then return to the original path except for groups of 10 or more pupils, unescorted pupils in grades K-3 or special education pupils.

APA 16 NCAC 6B.0004

BUS ROUTES

- (c) Unless safety factors require otherwise, superintendents may not plan bus stops closer together than 0.2 miles. Each student must be at the designated stop at the time of the bus's arrival.

APA 16 NCAC 6B.0004

BUS ROUTES

- (e) Drivers shall park buses at night and on weekends in locations which lessen opportunities for persons to steal fuel and commit vandalism.
- (f) Service personnel shall maintain buses to ensure greatest fuel economy.

§ 115C-246. School bus routes.

- (a) The superintendent of the local school administrative unit shall, prior to the commencement of each regular school year, prepare a plan for a definite route, including stops for receiving and discharging pupils, for each school bus so as

**to assure the most efficient use
of such bus**

and the safety and convenience of the pupils assigned thereto. The superintendent may, in his discretion, obtain the advice of the State Board of Education with reference to the plan. The buses shall be operated upon the route so established and not otherwise, except as provided in this Article. From time to time the principal may suggest changes in any such bus route as he shall deem proper for the said purposes, and the same shall be effective when approved by the superintendent of the local school administrative unit.

Efficiency and Service

Legislative Funding Formula Committee

- Shocked at the length of some student ride times
- Introduced legislation dealing with how to reduce ride times
- More efficient (fewer buses) can translate to longer bus rides

Conflicting Objectives



SERVICE INDICATORS

- Average student ride time: 24 minutes
- Average of the longest 5% of ride times for each LEA: 75 minutes
- Average distance of students to bus stops: .08 miles

www.ncbussafety.org

=> TIMS

Saving Fuel = Reducing Miles

- Reducing Mileage = Reducing Driver Time
- Not popular with drivers
- “My pay was cut”

ENFORCE Reduced Idling Policy

- Each LEA has a reduced idling policy (a condition of receiving additional fuel money)
- No idling on school grounds, max 5-minute warmup time, max 2-minute cooldown
- Savings are real once identified and enforced

Planning for 2008-2009

Planning for 2008-2009

- Are you prepared if fuel prices continue to increase?
- Doubtful if state dollars can cover a significant shortfall.

Planning for 2008-2009

- Are you ready if more students want to ride this fall?
 - Utilize existing capacity
 - Re-assign buses if necessary

Local Policies and the Assignment of Transportation Responsibilities

Assignment of Transportation Responsibilities

- Do you consider the effects of policy choices on cost, safety and efficiency? Is there accountability?
- Transportation Policies – Are there written stop placement and routing policies? Are they consistent with state policies?

Assignment of Transportation Responsibilities

- What is the school's role in daily transportation issues?
- Are routing decisions being made by staff without a stake in the financial cost of those decisions?
- Who sets the bell times for each school?
Is there coordination with transportation staff?

Assignment of Transportation Responsibilities

- Are transportation staff involved in IEP meetings related to transportation decisions?

Assignment of Transportation Responsibilities

- Reviewing and auditing bus routes – who does it? How often? Who is responsible?

Assignment of Transportation Responsibilities

- Do parent complaints dictate the transportation plan? Does the local board overrule transportation policies? How much does this cost?

Assignment of Transportation Responsibilities

- Transportation Planning—Do internal planning policies consider the costs of transportation in both dollars and student ride time?
- Locations of special programs, magnet programs and new schools can have significant effects on transportation. Are the right people included in these decisions?

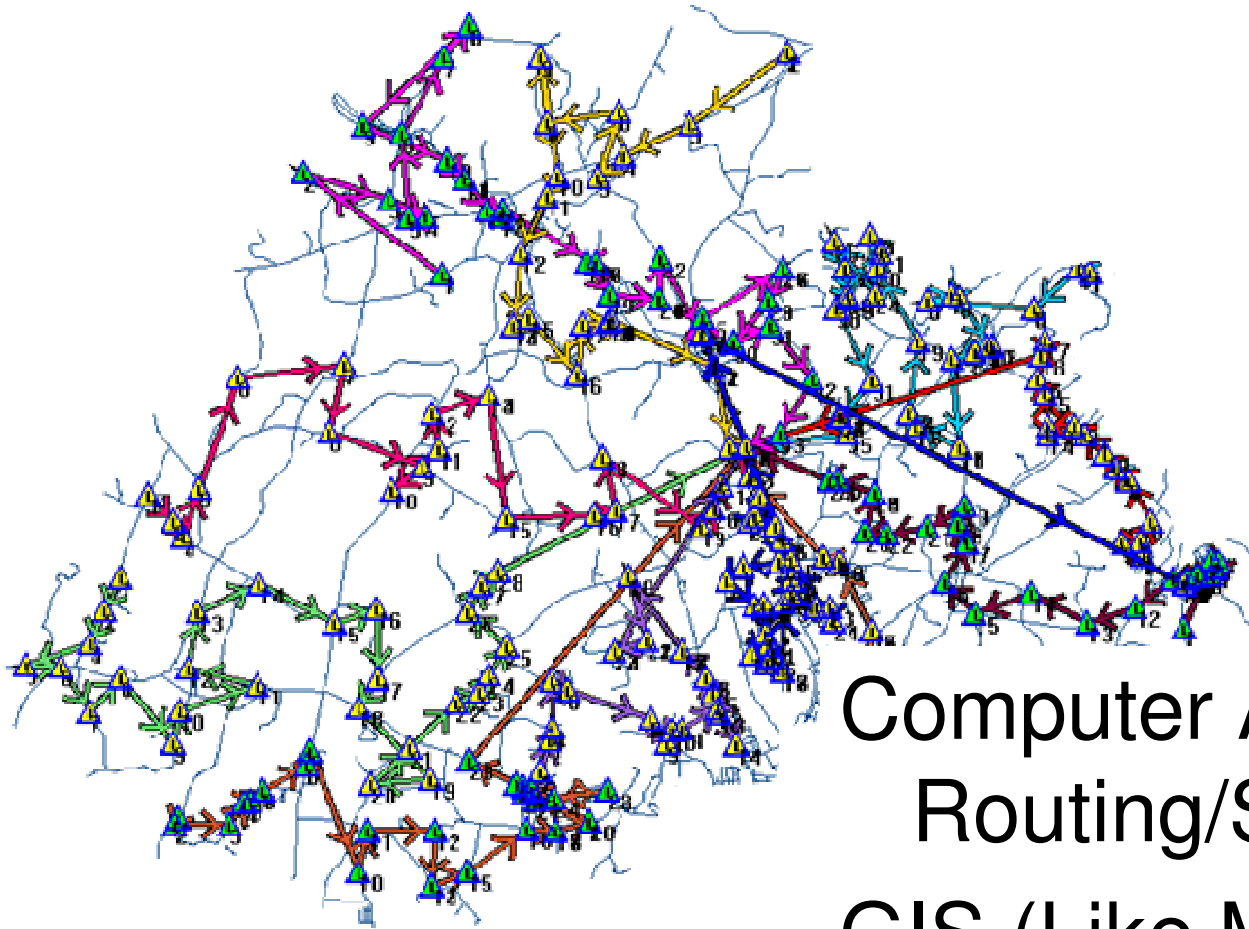
Assignment of Transportation Responsibilities

- Is anyone looking at the big picture?
 - Staggered bell times MAY have large fleet savings potential.
 - Are bus stops reviewed so the total number of stops is limited and they are placed strategically?

Assignment of Transportation Responsibilities

- Is routing reviewed anew prior to each school opening? Are transportation needs of newly enrolling kindergarten students identified?
Do schools, transportation staff and bus drivers communicate effectively?

Transportation Information Management System (TIMS)



Computer Assisted
Routing/Scheduling
GIS (Like MAPQUEST)

TIMS

- Statewide license for software in 1986
 - Funded by the State Energy Office
 - Their goal: Save Fuel!
- Required by law September 1992
- Identifies locations of students, schools, bus stops, etc
- OPTIMIZATION component allows for the generation of efficient bus routes
 - But you have to use it with that goal
 - (otherwise it becomes a file cabinet for manually derived bus routes)

OPTIMIZATION IS YOUR FRIEND

Using TIMS to Reduce Fuel Cost: A Six Step Approach

1. Do a visual review of routes using TIMS mapping features.
2. Assign schools or areas to one of two categories:
 1. Requires minor cleanup or needs major revision. Examples of problems are incorrect stop order and stops assigned to the wrong bus.

Using TIMS to Reduce Fuel Cost: A Six Step Approach

3. Make manual modifications to areas where there are only a few problems that can be easily addressed.
4. Use run optimization in areas with larger issues to revamp routes more completely.

Using TIMS to Reduce Fuel Cost: A Six Step Approach

5. Ensure this moves from paper and planning to practice.
6. Institute policies and procedures that will ensure periodic and frequent review to maintain efficient routing structure.

Finally, a Revolutionary Fuel-Saving Idea

No Diesel Fuel Required!



Transportation, Efficiency and the High Cost of Fuel



05/17/04 AP Photo

Derek Graham
DPI Transportation Services

July 1, 2008

www.ncbussafety.org/documents/presentations/2008SummerLeadershipTransportation.pdf