1. Agenda

   Documents:

   CTC AGENDA SEPTEMBER 19 2012 (PDF).PDF

2. CTC 09 19 2012 Public Hearing Cost Handouts (PDF)

   Documents:

   CTC 09 19 2012 PUBLIC HEARING COST HANDOUTS (PDF).PDF

3. CTC 09 19 2012 Public Hearing Social Handouts (PDF)

   Documents:

   CTC 09 19 2012 PUBLIC HEARING SOCIAL HANDOUTS (PDF).PDF

4. CTC 09 19 2012 Public Safety Handouts (PDF)

   Documents:

   CTC 09 19 2012 PUBLIC SAFETY HANDOUTS (PDF).PDF

5. CTC 09 19 2012 Hearing Presentation (PDF)

   Documents:

   CTC 09 19 2012 HEARING PRESENTATION (PDF).PDF

TOWN OF CONCORD
CITIZENS COMMITTEE TO STUDY SCHOOL TRANSPORTATION
Wednesday, September 19, 2012
7:00pm – 9:30pm
Hearing Room, Concord Town House

1. **Public Hearing Presentation, 7:00-9:15pm**

7:00 -7:30pm	Introduction and review of hearing format and goals
7:30 – 8:30pm	Break out sessions at three 'stations':
	Safety Factors: Mark Hanson, Lisa Bergen
	Cost Factors: Rick Anderson, Kate Damon
	Social Factors: Louise Haldeman, Abe Fisher
8:30 – 8:50pm	Regroup for discussion of break-out sessions
8:50 – 9:15pm	Citizen Comments

2. **CTC Committee Meeting, 9:15-9:30pm. (time permitting)**

   Issues for Discussion

   Next steps based on input from presentation

   Citizen Comments

3. **Adjourn**

Cost Analysis

Current Facility

- Approximately 2 acres
- 60 x 65 three bay maintenance building
- 24 x 60 modular office building includes:
    - day room/training room
    - 2 offices
    - reception area

Cost Analysis

Current Facility

- 5000 gallon fuel tank and pumping station

- Safety fencing and lighting

- Additional buildings

Cost Analysis

School Transportation

- Reviewed cost analyses published by the school administration
  - In-district Expenses and Projections through 2015
  - Invitation For Bid data from November and April
- Looked at national studies of school transportation
- Goal is to ensure an “apples-to-apples” comparison of in-district vs contract costs

Cost Analysis

Observations about SA "projections"

- Significant cost drivers in school administration's projections for in-district cost:
  - Personnel benefits estimated at $288,000 in 2014
  - Need for bus replacement seems inflated
    - 16 buses in 2014 and 2015, at a cost of $1,520,000
  - Replacement of transportation facility was included
    - Extreme worst-case estimate of $2,000,000

Cost Analysis

Personnel Benefits

- Benefits for health and retirements
  - Benefits costs are borne by the Town of Concord for 30 of the drivers – not in school budgets
  - Estimated by the town at $288,000 for 2014
  - Compensation review may be appropriate, to see if level of benefits (and salaries) is appropriate

Cost Analysis

Bus Replacement

- Current fleet consists of 36 buses with model years between 2000 and 2012

- Based on useful life:
  - At most 3 buses will be needed (instead of 16) by 2015
  - An appropriate ongoing bus replacement schedule would be 2 per year

Cost Analysis

Maintenance Building Replacement

Single Building Solution for maintenance and administration

Approximately 4800 square feet (60x80)

- 2 / 3 bays
- office space
- day room/training room
- reception area
- restroom facilities
- storage area

Rough estimate cost for above structure:
$480,000-$600,000 start to finish (foundation thru building completion)

Cost Analysis

Transportation Facility

- Current building plan demolishes existing facility
- SA estimate is $2,000,000 to replace it
- More realistic estimates range from $190,000 to $1,000,000
  - Depending on how much is to be moved or replaced, and where

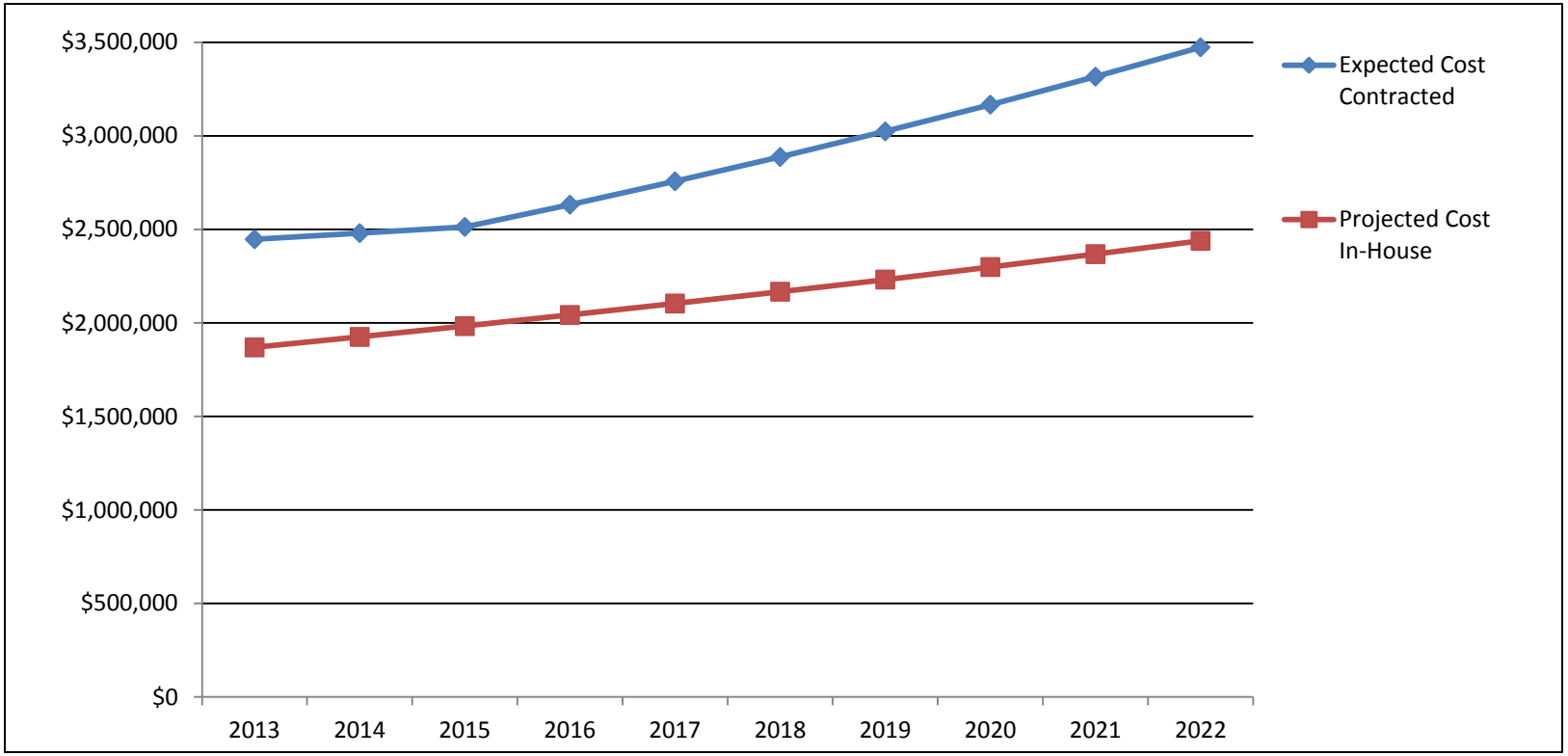
Cost Analysis

Facility Replacement Options

- Option 1: Keep entire transportation facility on school property, either at present location or sited elsewhere
- Option 2: Keep some of the transportation facility on school property, some at town landfill
- Option 3: Rebuild everything at the town landfill
- Option 4: Purchase a new site and rebuild everything

Cost Analysis

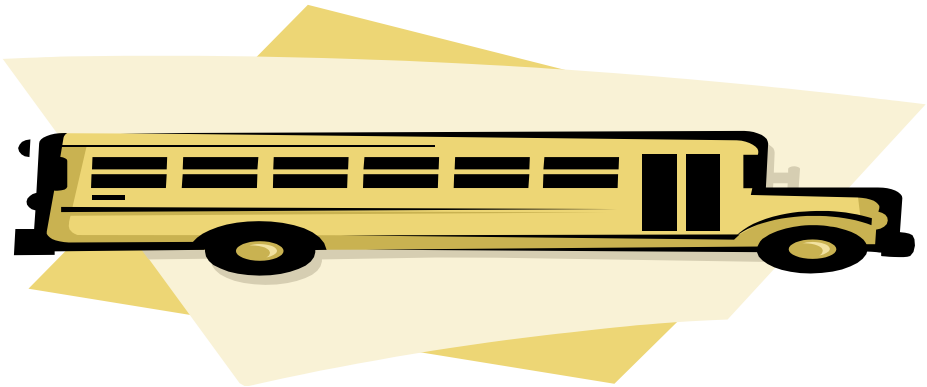
10 Year Cost Comparison



Increase in Contracted Estimate after initial contract is based on March 2012 Keystone Research Center report on Cost of School Student Transportation Services in Pennsylvania, and earlier studies from Oregon and Ohio

In-House excludes: Personnel Benefits (mostly borne by Town of Concord), Replacement buses (needed by 2016 in either case), and Capital and Transition costs incurred due to construction of the new High School

WHAT MAKES THE BUS SYSTEM WORK?



THE PEOPLE

BUS DRIVERS

MECHANICS

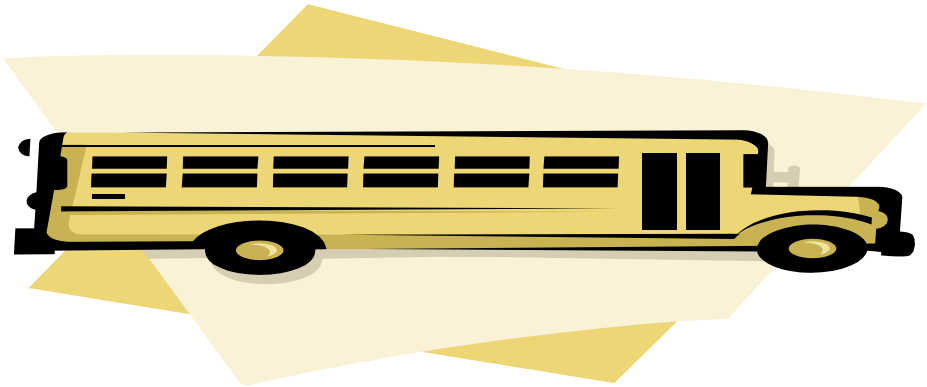
MANAGER

SUPPORT STAFF

THE LOCATION

OWNERSHIP

SERVICE



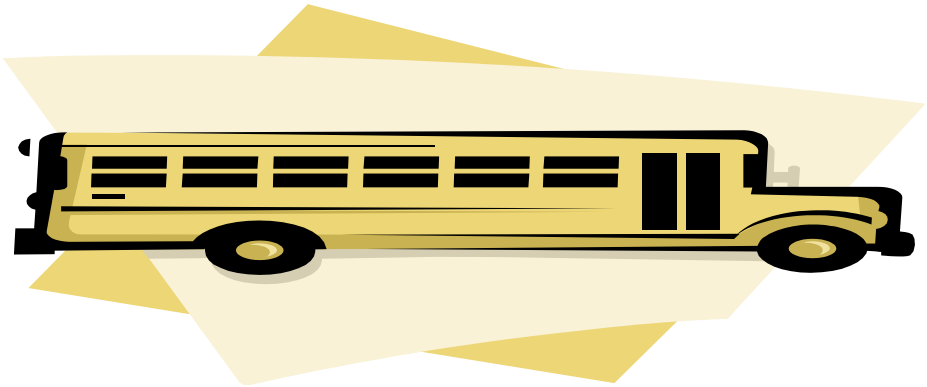
THE PEOPLE, WHO ARE THEY?

BUS DRIVERS: All the drivers are employees of the schools. They are interviewed, hired and if necessary, fired by school management. They are trained according to department standards, which exceed the state minimum and are covered by a collective bargaining agreement negotiated with the School Committee. Concord has a fairly low turnover, drivers tend to stay for many years and their knowledge of the town is an advantage as the drivers know the roads as well as the students and their families and vice versa.

MECHANICS: The Department has two mechanics who are also licensed bus drivers. They perform all routine maintenance and can fill in as substitute drivers when needed. Because they are there on site, most minor repairs and maintenance can be done quickly and does not require sending the buses somewere else. Major repairs though might require sending the bus to the dealer. There is a total of 36 buses owned by the two systems as well as trucks and other vehicles. The mechanics also service the other vehicles owned by the schools.

MANAGER: The Transportation Manager oversees the department generally and is responsible for designing the bus routes. As of May 2012 a total of 170 separate bus runs were required to transport the students of Concord and Concord-Carlisle as well as our Metco students and Concord residents who attend private schools. Bus routes and drivers schedules are arranged so that very few, mostly those later than 5:30PM, reqire overtime pay. The manager is also a licensed bus driver.

Support Staff: The secretary handles the paper work and handles customer relations. The latter includes working directly with parents and students to find lost items, determine the correct bus stop etc.



THE OTHER PARTS OF THE SYSTEM HOW IMPORTANT ARE THEY?

LOCATION

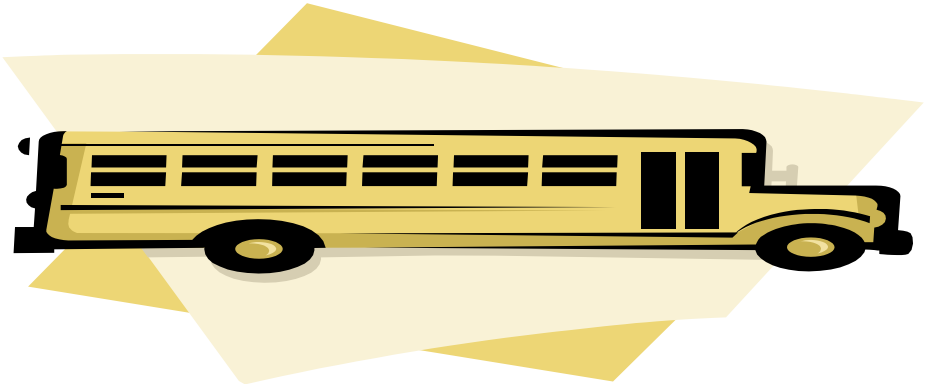
Currently the school buses are parked on the CCHS grounds. There is a maintenance building which includes 3 bays and a fuel pump in close proximity to the bus parking area. There is also a small (modular) building which houses office space as well as a day/work room and rest room facilities. Bus drivers are able to park their own cars nearby. Because of the close proximity of the key parts of the system there is very little extra driving or gas consumption. In its present location , the bus department is fairly secure from vandalism. In the event that maintaining the present location is no longer possible, it will be important to consider finding a new site which could be similarly arranged.

OWNERSHIP

The buses are purchased directly by the schools according to their specifications which may change depending on what type of vehicle is required.
Since the buses are school property the incentive to keep them in good shape is strong, drivers take great pride in their buses and are responsible for keeping them clean. The buses are used primarily for transporting students to and from school and for the field trips and trips for “away” games which are all part of normal school activity. They are also available to the Town in the case of an emergency such as a fire which might require the evacuation of a large number of people.

SERVICE

Because the buses are owned by the schools, Concord is able to offer more busing services to more students than is done in many neighboring communities. Concord has many narrow streets which have no sidewalks and which now carry a great deal of traffic. Students who live on these streets are taken by bus even though they live within the mileage limit for which the state will reimburse. In other towns, a fee is usually charged if this service is offered at all.
The safety of students is the primary concern. Where students do walk, a crossing guard is provided at the elementary schools. Kindergarten students are bused separately.



LOOKING TO THE FUTURE

POINTS TO CONSIDER

We must have school buses and whether they continue to be owned by the School systems or out-sourced, the costs of busing, are ultimately paid for by the taxpayers.

Even if we decide to outsource the buses, they and their drivers will need to be accommodated somewhere. The further the buses are from the area where they needed the more expensive they will be to operate and the likelihood of bus delays will be greater. While construction of the high school is going on, we may well need to put up with less than optimum conditions but the buses must continue to roll.

THE QUESTIONS BEFORE US

How important is it to keep the degree of service we have now?

Concord offers a greater degree of service than is actually required by the Commonwealth. School systems which use a private bus company do not offer the same degree of service as we do. Fees are usually charged for any bus service which is over and beyond what is required by State law.

Are we willing to pay a contractor to retain our current level of service or do we wish to ask parents to pay a fee for "extra" service.?

If we can't keep the buses in their present location how willing are we to make a capital investment in other land and to build new facilities?

If the transportation staff are no longer employees of the Town, how will this affect the relationship of the transportation department to the schools as a whole?

If we switch to a private contractor, the Town would have no future post- employment obligations beyond those for persons who are already vested* but would this offset the increases in costs of using a private for-profit service?

**Post Employment Benefits for Transportation Employees*

As of May 3rd, 2012 there were 32 bus drivers enrolled in the pension system. Of those, 11 had vested (ten years creditable service).

Eligibility for post-employment health coverage requires that the retiree be receiving or be eligible to receive a public pension. The spouse of the retiree is also eligible for health insurance coverage. At age 65, retirees eligible for Medicare MUST sign up for Medicare Part B, but prior to age 65 (or if not Medicare eligible either directly or through a spouse) the retiree is eligible to remain on the active-employee plan.

The years of service of those vested as of May 3, 2012 ranged from 11 years to 39 years.

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Citizens Transportation Committee

Safety

Summary of Findings

Here is what we found:

To and from school, a bus is safer than walking, biking or riding in a car.

We analyzed the police assessment of accident contributory factors assigned to the bus driver recorded in Mass DOT accident data from 2002-2010. It shows Concord's rate is 31%. Neighboring towns ranged from 21% to 56%[1].

Mass DOT school bus inspections for Concord, and First Student show our buses have 1/5th the defect rate.

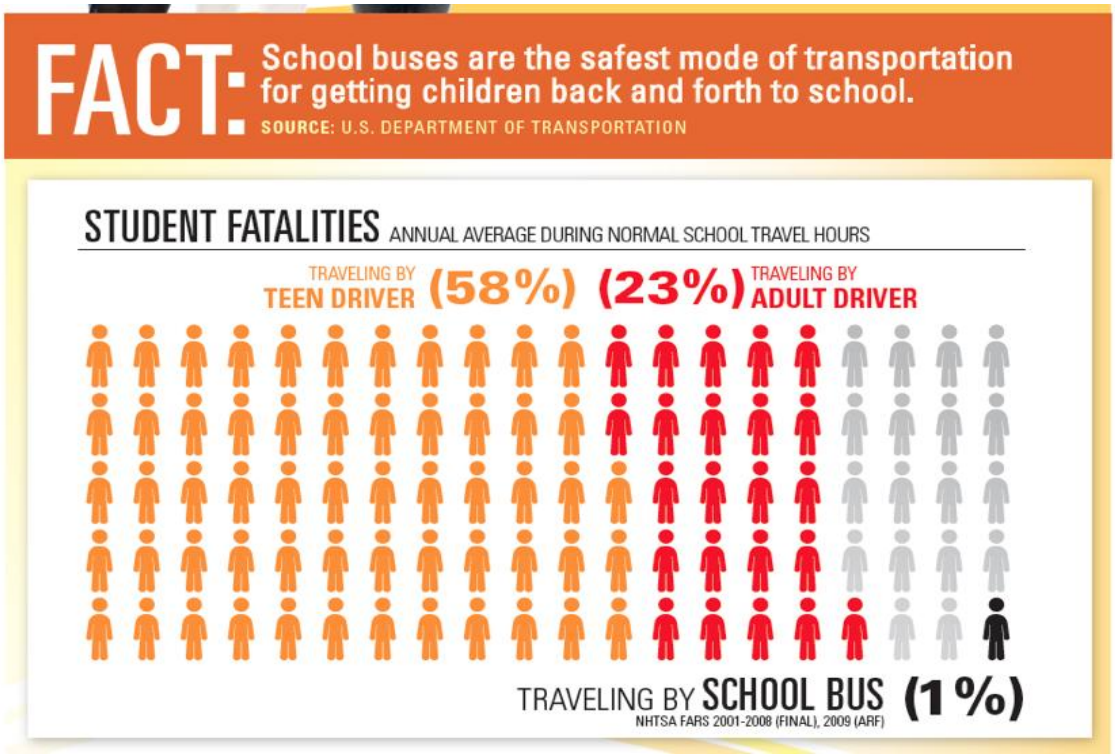
Finally, a larger portion of students ride our buses than in Sudbury or Lincoln, which reduces congestion while it increases safety, because we provide a higher level-of-service -- more bus stops and routes -- and we don't charge fees.

[1] These statistics are highly variable because of the small number of accidents in each town over the study period, making exact comparisons invalid.

Background: The greatest fatality risk is riding to school in a car

The figure below, from a National Highway Traffic Safety Administration (NHTSA) shows school buses are the safest way to transport children to school. Not only is busing safer than riding in a car, it is safer than walking or riding a bicycle (the fatalities indicated in the right most section). Teenage drivers are the least safe way to get to school.

School buses are safer than other modes because:



- A school bus is a large vehicle designed to keep children safe.
- School bus drivers are comprehensively trained and carefully licensed.
- Three times a year state inspectors go over the bus interior, exterior, chassis, and engine compartment. Failed items must be repaired.
- Before and after each trip the school bus driver safety-checks their bus[2].

Bus safety is continually improving. The NTHSA and US Department of Transportation conducts crash tests to improve the safety. Drivers attend training to maintain their licenses. The state updates the inspection checklists for their

2 If you would like to view a video on how a driver checks a bus see http://www.youtube.com/watch?v=xmpR6kc4xQ0&feature=related and http://www.youtube.com/watch?v=63GmHRCFYoY&feature=fvwrel).

inspectors and for drivers as needed to improve safety and respond to improved vehicle designs.

Introduction

This section describes Concord's in-house transportation department's safety. The following aspects, most of which are under the control of our in-house school bus transportation department, address safety. These aspects, or frames-of-reference, are not the only ways to look at safety. This list may change as we learn more. We tried to select aspects of safety that were measurable using outside sources of data. The aspects we selected are:

- Driver qualification, training, and route preparation: which help drivers avoid accidents, work effectively with students, and improve safety.
- Bus maintenance and specification: which maintains the physical condition and safety of buses.
- Accident statistics: that measure driver performance at avoiding collisions.
- Annual driver turnover: which addresses our ability to find and retain good drivers.
- Level-of-service: which encourages more students to take the bus and minimizes on-street walking to bus stops.

Where possible, this section compares the safety of Concord's in-house transportation department with neighboring towns and outsourcing companies using these aspects.

The discussion of these aspects also address a child's experience riding the bus to and from school and a parent's confidence in their child's security while riding the bus. Safety is a broad topic.

Driver Qualification, Training, and Preparation

Qualification: Before drivers are hired, the transportation department reviews their experience and background, including a CORI check. All drivers in the department must pass annual CORI checks and random drug tests.

Training: To retain their licenses, school bus drivers attend at least eight hours of driver training annually. Concord provides more than eight hours of training. Specialists in each topic area conduct training sessions. A safety specialist from the Federal Railway Administration conducted railroad safety training. School

counselors provided training on bullying. Drivers are trained to administer first aid and CPR.

Preparation: For each route, the department provides drivers with information about the special needs of students on their routes, so the drivers are prepared to respond appropriately, if needed. This is handled confidentially. Before the start of each school year, drivers review their routes and test-drive them to validate the schedules. These preparatory efforts reduce driver stress and improve safety.

The transportation department instructs children to act safely. Annually, drivers drill children on safe bus evacuations. Each fall Concord provides school bus orientation for Kindergarten children before school starts, so new school children can be familiar with a bus and know how to behave safely when riding.

Also in Concord, drivers are assigned a bus. They keep their bus from year to year. It is essentially 'their bus'. This policy encourages a driver to keep the bus spotless. Drivers wash and clean their buses inside and out. (As opposed to an outsourcing firm, our bus are not used for transporting parties of adults on the weekend.) These factors help keep the bus clean and in good working order. Drivers work closely with maintenance people as needed to fix mechanical problems. Finally, as mentioned above, before and after each trip the each driver inspect their bus inside and out using a detailed checklist (a copy is provided for your review in Appendix ____). Drivers fill out this checklist for each trip. A driver can lose their license for driving a bus that fails the pre-trip inspection checklist.

Untitled

Bus No.: _____ Date: _____

Driver: _____

Start Mileage: _____ End Mileage: _____

1. **In the columns provided, enter the appropriate inspection codes for each trip taken:**

X - QUESTIONABLE O - DEFECTIVE

2. **If (X) or (O) is entered for any item, please explain in the comment section below.**

Items not noted have no known defects

____ Engine
____ Service Brakes
____ Parking Brake
____ Wheels / Tires
____ Body Damage / Paint
____ Exterior Lights / Flashers
____ Reflectors
____ Steering Mechanism
____ Horn
____ Windshield Wipers
____ Mirrors
____ Exhaust System
____ Glass
____ Interior Lights
____ Emerg. Exits / Buzzers / Triangles
____ First Aid Kit / Fire Extinguishers
____ Driver / Passenger Seats
____ Doors / Windows
____ Heat / Air Conditioning
____ Gauges
____ Cleanliness
____ Other: _____

DRIVER COMMENTS: _____

I have reviewed the previous DVIR, performed a pre-trip inspection and find:

☐ NO DEFECTS ☐ DEFECTS AS NOTED

Condition of the above vehicle is: ☐ SATISFACTORY ☐ UNSATISFACTORY

Pre-Trip Signature: _____

I have performed a Post-Trip Inspection, checked for remaining students or belongings and find:

☐ NO DEFECTS ☐ DEFECTS AS NOTED

Post-Trip Signature: _____

MECHANIC'S COMMENTS: _____

☐ Above Defects Corrected
☐ Above Defects Need Not Be Corrected For Safe Operation of Vehicle

Mechanic's Signature: _____ Date: _____

Driver Reviewing Repairs: Signature: _____ Date: _____

Bus Maintenance

Well-maintained buses provide safer and cleaner transportation for students. State inspectors check the physical condition of buses three times each school year; in the fall, winter, and spring, using a list covering 48 categories of items on the interior and exterior, the chassis including brakes, and the engine compartment. Using copies of 1534 inspection records covering December 2008 to January 2012, we measured the physical condition of Concord's buses and buses in Sudbury and Fitchburg, which First Student provides. The results show problems with First Student's maintenance.

Most defects an inspector finds are fixed the same day, for example replacing a missing decal or freeing sticking emergency doors. An inspector removes the bus's inspection sticker and applies an "Out-of-Service" (OOS) sticker for a defect that makes the bus unsafe, for example a problem with the brakes or exhaust system. An OOS bus must be repaired and reinspected before it can return to service. Typically defects have been a problem on the bus for some time before the inspection. Proactive maintenance provided by conscientious drivers and mechanics, keeps buses safer and cleaner by eliminating problems as they occur and not waiting for inspectors to find the problems. The results show Concord's drivers and mechanics are more proactive than First Student's drivers and mechanics in Fitchburg and Sudbury.

The condition of a bus affects the ability of the driver to operate it safely, the frame of mind of the students and student behavior while on board. A well maintained bus is more likely to have well-behaved riders and a driver who is in control.

The columns in the table below show:

1. The town and service provider
2. The number of inspection sheets examined
3. The number of buses inspectors took out of service (OOS)
4. The number of buses inspectors failed with one or more defects
5. The total number of defects inspectors found
6. The most defects found on a bus.

The final three columns show percentages versus the number of inspections.

Type C and D bus inspection	Inspections	Out of Service	Failed	Defects	Most Defects per bus	Out of Service%	Failed %	Defects %
Concord	361	4	47	81	4	1%	13%	22%
First Student Fitchburg	816	65	416	903	11	8%	51%	111%
First Student Sudbury	357	18	216	360	6	5%	61%	101%

State inspection records reveal Concord buses are in better shape than First Student's buses serving Fitchburg and Sudbury[3].

[3] This analysis was inspired by an earlier analysis by Susan Kalled presented at the Special Town Meeting in April. That tally differed slightly in counts for Concord and Fitchburg as additional inspection records were found and included in this comparison.

35085 Bus inspection.qxd 11/22/10 12:42 PM Page 1

massDOT RMV

MASSACHUSETTS REGISTRY OF MOTOR VEHICLES
SCHOOL BUS INSPECTION FORM (10/2007) Date

Operator: _____ Location: _____

VIN: _____ Reg. #: _____ Odometer _____

Body Manufacturer: _____ Body Year: _____ Body Type: A B C D Lift Equipped: Y N

Chassis Manufacturer: _____ Chassis Year: _____ Bus Number: _____ Reinspection?: Y N

COMMENTS *required for all fails and equipment defects:* _____

BODY INTERIOR

BUS IDENTIFICATION 1. [ ]
registration, plates, VIN, inspection sticker,
SAFETY EQUIPMENT - fire ext., first aid kit, 2. [ ]
body fluid clean up kit, reflectors, chock blocks,
belt cutter
DRIVER'S SEAT - adjust, seat belt 3. [ ]
STEERING 4. [ ]
wheel, column, horn, directional indicator, 4-way
BRAKE, CLUTCH 5. [ ]
brake operation, starter interlock
GAUGES - speedometer, oil, air, vacuum, volt, 6. [ ]
amp, brake warning, school bus monitor board
WINDSHIELD - glass, wipers, washers, sun shield 7. [ ]
MIRROR - interior, sun shield 8. [ ]
SERVICE DOOR - operation, seals, padding 9. [ ]
INTERIOR LIGHTS 10. [ ]
HEATER, DEFROSTER 11. [ ]
FLOOR COVERING, AISLE - steps, step well, 12. [ ]
nosing, hand rail
SEATS , RESTRAINING BARRIERS 13. [ ]
secured, proper tape repairs, upholstery, seat belt
operation if equipped
EMERGENCY DOOR - operation, locking device, 14. [ ]
seals, alarm, decals, light, padding
EMERGENCY WINDOWS, ROOF HATCHES 15. [ ]
operation, buzzer, decals
WINDOWS 16. [ ]
operation, sash, frames, glass, latches
INTERIOR BODY PANELS - ceiling, side, 17. [ ]
wheel housing, any sharp edges
CLEANLINESS - trash receptacle & broom 18. [ ]

BODY EXTERIOR

LIGHTS - head, marker, stop, tail, directional, 19. [ ]
reflectors, backup light/alarm
FRONT WHEEL - bearings, kingpins, lugs, seals 20. [ ]
FRONT TIRES 21. [ ]
MIRRORS AND BRACKETS 22. [ ]
rear view, cross view
SCHOOL SIGNS 23. [ ]
SCHOOL LIGHT SYSTEM 24. [ ]
STOP ARM - if equipped crossing arm 25. [ ]
BODY - panels, rub rail, bumpers 26. [ ]
HOOD, LOCK, BATTERY 27. [ ]
STIRRUP STEPS 28. [ ]
REAR WHEELS 29. [ ]
lugs, flange bolts, leaks
REAR TIRES - including mud flaps 30. [ ]
LETTERING - vehicle markings, owner, operator, 31. [ ]
bus number, roof number, unlawful to pass,
R/R crossing, 100'

CHASSIS

STEERING - gearbox, pump, hoses, leaks 32. [ ]

CHASSIS (Con't)

pitman arm, draglink, tie-rod ends
EXHAUST SYSTEM - leaks, hangers 33. [ ]
FRONT AXLE - springs, shackles, U-bolts, 34. [ ]
shock absorbers, air suspension
HYD BRAKES - brake lines, connectors, leaks 35. [ ]
wheel cylinders, hydrovacs, drums
AIR BRAKES - valves, cams, chambers, lines, 36. [ ]
linings, drums, leaks, adjustments
TRANSMISSION - leaks, mountings 37. [ ]
EMERGENCY BRAKE SYSTEM - operation, 38. [ ]
low air warning, adjustment
DRIVE SHAFT - universal joints, guards 39. [ ]
REAR AXLE - differential leaks, leaks, springs, 40. [ ]
shackles, U-bolts, shock absorbers, seals,
air suspension
FRAME - cross members, outrigger, unibody 41. [ ]
FUEL SYSTEM – lines, brackets, leaks, fuel 42. [ ]
tank cage

ENGINE COMPARTMENT

AIR CLEANER 43. [ ]
ELECTRICAL SYSTEM - secured, wiring. 44. [ ]
BELTS 45. [ ]
HEATER VALVES 46. [ ]
ENGINE - leaks, critical components 47. [ ]

SPECIALLY EQUIPPED SCHOOL BUSES

WHEELCHAIR LIFT/RAMP 48. [ ]
wheelchair securement, door open signal, restraint system

INSPECTED BY:

_____
Inspector Signature and Badge Number

_____
Copy Received by

_____
Equipment Defects Have Been Corrected (authorized signature)*

_____
Title/Date

Must mail within (7) days to: RMV, Vehicle Safety & Compliance Services, ATTN: School Bus Compliance, P.O. Box 55892, Boston, MA 02205-5892.

| ✓ | INDICATES PASS

| F | INDICATES FAIL (Do NOT sign and return form. You must call RMV for reinspection of bus after repairs are made)

| E | EQUIPMENT DEFECT #_____ (repair defects and return signed form to RMV)

| ER | EQUIPMENT DEFECT (same day repair) | FR | FAIL (same day repair)

STICKER # ISSUED: _____

OUT OF SERVICE DECAL ISSUED YES [ ] NO [ ]

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Why does First Student have so many more defects?

One reason Concord's buses are in better shape is the policy that each bus driver is assigned to a particular bus, so the driver is invested in the condition of the bus and they can give mechanics better information on problems. Our mechanics are skilled and adequately staffed. They maintain 36 buses and __?__ other school department vehicles. They are able to keep up with the work. Drivers and mechanics notice defects and fix them as they occur.

Outsourcing companies actively solicit weekend work. The following text was taken from company websites "All of our buses … are great for schools, churches

and temples, company outings, birthday parties, Bar and Bat Mitzvahs, bachelor and bachelorette parties, weddings, and other activities." or, "shuttling your wedding guests doesn't need to cost a fortune. Leave the transportation to our professionally trained drivers and put the savings toward the honeymoon you've always dreamed of". If a driver on one of the outings fails to clean up afterward the inspector will fail the bus on cleanliness. For example here's a comment from a Sudbury inspection: "ALL HOLIDAY DECORATIONS MUST BE REMOVED FROM INSIDE OF BUS FOR THIS BUS TO PASS INSPECTION. ALL WINDOW DECORATIONS MUST ALSO BE REMOVED." Concord does not provide it's buses for transporting parties.

Optional Equipment that Improves Safety

Concord specifies 'thermo-pane' glass for our buses windshield, door, and selected windows to allow the driver to see in wet conditions when single pane glass would fog up. The double layer glass is much easier to defrost. Better visibility in stormy weather increases driver situational awareness, which enhances safety.

Accidents

Mostly, other vehicles hit the school buses. School bus drivers are among the most highly trained and safest motor vehicle operators on the road.

This analysis of Concord's school bus accident statistics uses a selection of all accidents involving a school bus in the Massachusetts Registry of Motor Vehicles (RMV) accident database covering 2002-2010 -- as much school bus accident data as they have.

The table below shows the result of our analysis of the RMV data. The percentage of accidents in Concord possibly caused by a school bus driver is similar to neighboring towns and the rest of the state combined. Acton has an in-house system like us. Sudbury contracts with First Student, Lexington contracts with C&W, Lincoln with Doherty and First Student, and Bedford and Carlisle with Bedford Charter.

Massachusetts Registry of Motor Vehicles records of school bus accidents 2002-2010	
Towns	**Percentage possibly contributed to by school bus driver**
Concord	*31%*
Lincoln	*50%*
Sudbury	*21%*
Carlisle	*50%*
Bedford	*56%*
Lexington	*47%*
State Total	*24%*

Why do the percentages vary so much town-to-town?

School bus accidents are infrequent, and they occur at random. Accident statistics for individual towns vary widely from year to year. The percentages vary because of the limited number of accidents in each town, even over the nine year period covering 2002 -2010. While the percentage variation is large, it does not conclusively reflect an actual difference in driver performance. Concord's drivers have an accident record that is about the same as drivers in neighboring towns, given the limited sample.

Also shown in the table above is the state average. The proportion for the state as a whole is less variable over time, because of the larger sample.

In May the school administration issued a table showing Concord's buses have a lot more accidents per mile, 2-times C&W transit's rate (Lexington) and 13-times First Student's (Sudbury and part of Lincoln). However, the proportion of accidents caused by the bus drivers in each of these towns are too similar to

Concord's to support the 2x or 13x difference. Most of the accidents are not caused by the school bus driver. For Concord to have 13 times as many accidents per mile as First Student operating in Sudbury, somehow all drivers in Concord would have to be crashing into our buses 13 times more often than they do in Sudbury. Traffic conditions vary town to town, but not that much.

Our analysis differs from the administration's in the following ways:

- We used a single database, the Massachusetts RMV accident data, making comparisons between towns easy. The administration used Concord's insurance claims for Concord and the Federal Motor Carrier Safety Administration (FMCSA) accident data for contractors, which complicated comparison of Concord's accident rate to contractors because the insurance company and FMCSA define accidents differently.
- The RMV collects accident records from police using a uniform system. In-house school buses are treated the same as contractor buses.
- Our results cover nine years; the administration's two. The longer timeframe reduces statistical fluctuations.
- RMV accident records omit vehicle owners. So if a bus from Maynard gets in an accident in Concord, our analysis counted it as a Concord bus and vice-versa. This is a minor weakness.

How did we select relevant accidents?

From all school bus accidents in the RMV database we first selected accidents involving buses that carry more than 15 people. This is as close to the Type C and D buses as possible, it excludes accidents involving smaller school buses: cars and vans.

How did we determine the "Percentage possibly contributed to by the school bus driver"?

No one can say for sure what causes an accident. Police record their assessment of driver contributing codes on the RMV accident form. The table below lists the codes police assigned to school bus drivers of the large buses we selected. For this analysis we decided to tag some of the codes as "possibly contributory" to causing the accident, as also listed in the table below. This assignment is a judgment that may or may not be valid. It was done 'blind' and applied to all

towns uniformly. We used these to determine the percentage of accidents possibly contributed to by the school bus driver.

From 2002-2010 the data base contained 4311 driver contributing codes. This table lists the codes assigned to bus drivers in descending order based on how many times a code was assigned.

School Bus Driver Contributing Code	State total 2002-2010	Possibly Contributory
(No improper driving)	2,632	No
()	650	No
(Unknown)	375	No
(Inattention)	290	Yes
(Failed to yield right of way)	160	Yes
(Other improper action)	139	Yes
(Failure to keep in proper lane or running off road)	105	Yes
(Made an improper turn)	87	Yes
(Followed too closely)	77	Yes
(Visibility obstructed)	65	No*
(Over-correcting/over-steering)	63	Yes
(Swerving or avoiding due to wind; slippery surface; vehicle; object; non-motorist in roadway; etc)	41	No**
(Distracted)	39	Yes
(Operating vehicle in erratic; reckless; careless; negligent or aggressive manner)	24	Yes
(Wrong side or wrong way)	11	Yes
(Driving too fast for conditions)	10	Yes
(Glare)	7	No
(Exceeded authorized speed limit)	6	Yes
(Illness)	5	Yes
(Operating defective equipment)	4	Yes
(Emotional)	3	Yes
(History heart/epilepsy/fainting)	3	Yes
(Fatigued/asleep)	1	Yes
(Computer)	1	No
total	**4,311**	

*Unknown - might be due to temporary problem or mechanical failure.
**Unknown - might be due to avoiding swerving cyclist or a child that ran into street.

Driver Turnover

Low turnover increases safety because drivers are more familiar with the town, students, their families, and our transportation system. Low turnover is an indication that the town is providing drivers with a reasonable working environment where they can get work satisfaction.

Provider	Annual Turnover
Concord	8%
Foxboro	4%
Cohasset	2%*
First Student	10%

Concord's current turnover rate is lower than outsourcing companies despite recent turmoil of displacing the depot for the new high school construction. Before 2010 our turnover rate was about 4%. Our turnover rate is higher currently because of driver uncertainty about the future of working here. Even with the current uncertainty, our turnover rate is lower than First Student's. In a survey of Foxboro and Cohasset[4] both have stable in-house busing systems.

Level-of-Service

The number of bus routes and stops affects safety. More bus stops versus a given enrollment means bus stops can be closer to student's homes. More bus stops means fewer students per stop. We pick up students at their home in areas where it might be unsafe for students to walk, especially early on dark winter mornings.

More bus routes decreases the number of bus stops per route. Fewer bus stops per route means less travel time for the students, which increases safety and reduces the potential for delays.

The tabulation below shows that Concord's level-of-service is higher than surrounding towns. Buses pick up and drop off students closer to home and our routes are shorter. Possibly this higher level-of-service, encourages more students to take the bus. Our ridership proportion is about 10% higher (70%) than Sudbury. Another reason may be that Concord students ride for free whereas Lincoln and Sudbury charge a fee[5].

[4] Cohasset's turnover rate of 2% is too low to be sustainable -- again the effect of a small sample over a limited time frame (9-years in this case). Four percent is better.

[5] Students living within 2 miles of schools pay a fee: $350 per student per year with a $650 cap per family per year.

Though it is difficult to measure precisely, our buses typically transport about 70% of our students to and from school, whereas in Sudbury we were told about 60% of students ride the bus. We don't charge a fee, whereas Lincoln and Sudbury charge a fee.

		Level-of-Service			
Town/District	**Enrollment**	**Routes**	**Stops**	**Average students/stop**	**Average stops/route**
CCHS	**1209**	**43**	**600**	**2.02**	**13.95**
Concord K-8	**1991**	**95**	**1595**	**1.25**	**16.79**
LSRHS	**1601**	**34**	**563**	**2.84**	**16.56**
Sudbury K-8	**3102**	**59**	**1332**	**2.33**	**22.58**
Lincoln K-8	**505**	**14**	**266**	**1.90**	**19.00**

Note about fees: Fees reduce the number of students using the bus to get to school. Fees reduce safety because more students are walking, biking, or driving to get to school. Fees cost money to collect. Registering students to be picked up, collecting fees and issuing bus passes requires administrative time. Late registrations (after the end of July) may require re-routing buses and altering bus schedules. No fees encourages ridership, which increases safety. No fees eliminates the work of registering riders, collecting fees and rerouting buses to pickup and drop off those who register late.

Citizen School Transportation Committee

To search diligently for ways to maintain the existing bus transportation department.

Public Hearing

September 19, 2012

CTC Members

Rick Anderson	rick.and@comcast.net
Lisa Bergen	lbergen.concord@gmail.com
Ray Bruttomesso*	(Navy Reserves, deployed)
Kate Damon	katedamon@comcast.net
Abe Fisher	abefisher@misterfisher.com
Louise Haldeman	louise4292@earthlink.net
Mark Hanson	mhanson@alum.mit.edu

Presentation Agenda

- CTC charge
- Break-out Sessions
- Citizen Comments
- CTC Committee Meeting

  (time permitting)

CTC Charge

To search diligently for ways to maintain the existing bus transportation department.

Areas of Research

- Safety
- Social Factors and Intangibles
- Level of Service
- Cost Analysis
- Potential Sites

Break-out Sessions

- Safety Factors

  Mark Hanson, Lisa Bergen

- Social Factors

  Louise Haldeman, Abe Fisher

- Cost Factors

  Rick Anderson, Kate Damon

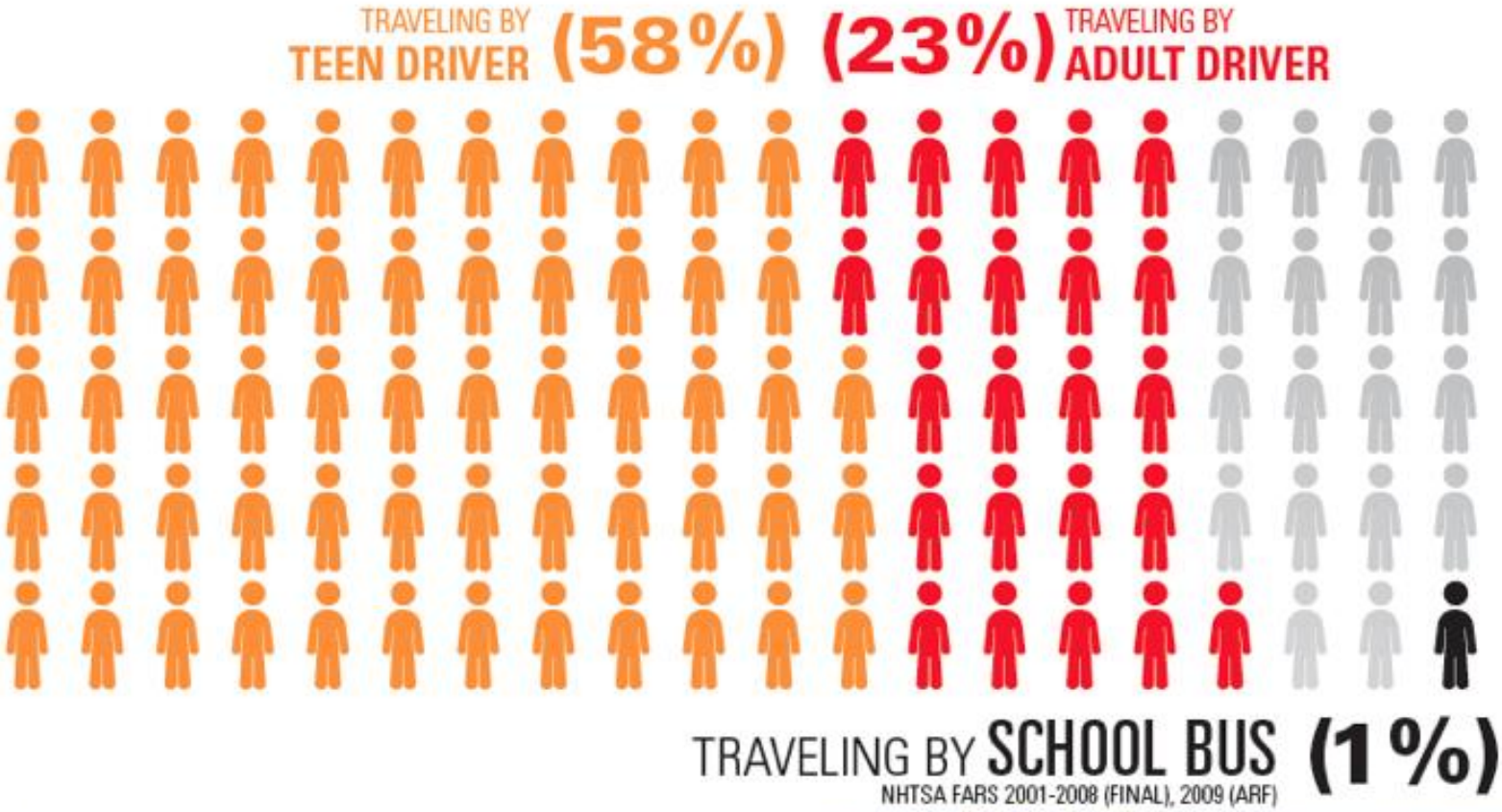
Safety

- Driver Training
- Bus Inspection
- Accidents
- Driver Turnover
- Level-of-Service

FACT: School buses are the safest mode of transportation for getting children back and forth to school.

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION

STUDENT FATALITIES ANNUAL AVERAGE DURING NORMAL SCHOOL TRAVEL HOURS



Safety

Bus Inspection

Type C and D bus inspection	Out of Service%	Failed %
Concord	1%	13%
First Student Fitchburg	8%	51%
First Student Sudbury	5%	61%

Bus Safety

Bus Accidents

Massachusetts Registry of Motor Vehicles records of school bus accidents 2002-2010	
	proportion caused by school bus driver
Concord	*0.31*
Lincoln	*0.50*
Sudbury	*0.21*
Carlisle	*0.50*
Bedford	*0.56*
Lexington	*0.47*
State Total	*0.24*

Social Factors

What makes the Concord School Bus System work?

Personnel
Location
Ownership
Service
Other Uses

Social Factors

Other Uses of Transportation System

- Buses NOT just for getting to school
- Extra-curricular activities
  - field trips;
  - athletics;
  - late buses;
  - private schools; and
  - Concord Recreation summer camp
- Local Emergency Preparedness

  Example of bus use on September 18, 2012:

http://www.wickedlocal.com/concord/thisjustin/x1547508701/Walden-Rehab-in-Concord-evacuated-after-electrical-fire#axzz26qXKzZBv

Social Factors

The Inconvenient Truths

- September will come year after year.
- There will always be students.
- There must be school buses.
- Fuel costs money and drivers expect to be paid.
- The taxpayer will pay for transportation whether it is run by the schools or contracted to a private company.

Cost Factors

Current Operating Costs

- Current cost to operate transportation department: around $1.8m
- Cost of interim plan with maintenance in Billerica, buses in Acton and management at Ripley approximately $400,000/school year
- Outsourcing bids from April 2012 range from $2.5-2.6m assuming no change in routes and trips

Cost Analysis

School Transportation

- Reviewed cost analyses published by the school administration
  - In-district Expenses and Projections through 2015
  - Invitation For Bid data from November and April
- Looked at national studies of school transportation
- Goal is to ensure an “apples-to-apples” comparison of in-district vs contract costs

Cost Analysis

Observations about SA "projections"

- Significant cost drivers in school administration's projections for in-district cost:
  - Personnel benefits estimated at $288,000 in 2014
  - Accelerated bus replacement schedule
    - 16 buses in 2014 and 2015, at a cost of $1,520,000
  - Replacement of transportation facility was included
    - Extreme worst-case estimate of $2,000,000

Cost Analysis

Current Facility

- Approximately 2 acres
- 60 x 65 three bay maintenance building
- 24 x 60 modular office building includes:
    - day room/training room
    - 2 offices
    - reception area

Cost Analysis

Current Facility

- 5000 gallon fuel tank and pumping station

- Safety fencing and lighting

- Additional buildings

Cost Analysis

Facility Replacement

Single Building Solution for maintenance and administration

Approximately 4800 square feet (60x80)

- 2 / 3 bays
- office space
- day room/training room
- reception area
- restroom facilities
- storage area

Rough estimate cost for above structure:
$480,000-$600,000 start to finish (foundation thru building completion)

Cost Analysis

Facility Replacement Options

- Option 1: Keep transportation facility on school property
- Option 2: Rebuild everything at the town landfill
- Option 3: Purchase a new site and rebuild everything

Break-out Sessions

- Safety Factors

  Mark Hanson, Lisa Bergen

- Social Factors

  Louise Haldeman, Abe Fisher

- Cost Factors

  Rick Anderson, Kate Damon

Citizen School Transportation Committee

Schedule

Committee Meetings

~~September 27th, 7-9:30pm Harvey Wheeler Center~~

No quorum for above date

Two additional meetings in October, to be scheduled

Presentation to School Committee

October 23, 6:30pm, CCHS Library

Citizen School Transportation Committee

Thank you!

Rick Anderson
Ray Bruttomesso
Louise Haldeman
Kate Damon

Lisa Bergen
Abe Fisher
Mark Hanson