



Reducing the Costs of School Transportation

Lowering the Effective Annual Cost (EAC) of School Buses in New Jersey Using Lease Purchase and an Effective Resale Program

Background:

When the legislation was passed in 2011 that revised [NJSA 39:3B-5.1](#) & 5.2, to lengthen the useful life of certain school buses from 12 to 15 years the “Fiscal Impact” justification was the Equivalent Annual Cost (EAC) of the bus spread out over 15 years rather than 12 would be lower. The “Fiscal Impact” also stated that; *“These estimates assume that the average annual maintenance cost in years 13 through 15 are identical to the average maintenance cost in the earlier years. If the maintenance cost(s) are higher in these years, then the difference in the EAC would be decreased by the difference in the average maintenance cost”*.

While the intent of the revision gave school districts the ability to push out the useful life of their existing bus fleets in a time of



economic need, their own “Fiscal Impact” statement raises the question about



increasing maintenance costs of an aging bus fleet. Anything mechanical wears out with use and age. *Should a school district’s transportation budget be spent maintaining an older bus fleet or utilized more cost effectively in transporting students?*

Alternative Effective Method for Reducing EAC

If the intended savings anticipated by lengthening the term of bus ownership is more than offset by the increased costs of repair and maintenance of an aging bus fleet, what is a practical way to reduce the Effective Annual Cost?

Let’s look at the cost variables that can affect the EAC. There is the purchase price of the bus and the repairs/maintenance. The cost of purchase is fixed. You are buying an asset for your district; an asset with a defined useful life. The second is your repair and maintenance of the bus. Oil changes, brakes, tires all fit into routine maintenance. In the initial years of ownership manufacturers warranties cover major repairs. After that major repairs to engine and drive train become the responsibility of the owner. The third variable is the average age of the buses in the fleet. The older the average age of the fleet the larger the share of the transportation budget is spent on repair/maintenance.

The majority of lease purchase transactions for school buses in New Jersey have a term of five years even though N.J.A.C. 18A:18A-42 (f) allows buses the exception to finance for a term not to exceed 10 years. We see the optimal rate obtained for the five year term with the greatest number of bidders participating in these [bids](#). Banks who bid on the lease purchase transactions only have the asset, the bus, that they can rely on to recoup their investment, should there be

a problem with the lease purchase. The bankers see an asset that is readily marketable with a defined useful life. They know that a 5 year old bus with x number of miles will have 10 years of use left. Given the age and mileage of a bus a banker can conservatively predict the buses value in the wholesale market should the institution have to reposses at any point during the term of the lease.

By adjusting the variables in your bus you can reduce the EAC. Repair and maintenance increase with age. Instead of keeping a bus in your fleet for 8 to 12 years what if you were to institute a program of “five years and out” for your fleet? You would save on your out of warranty repairs, and greatly reduce out-of-service time while older buses are repaired. But if you are purchasing a replacement bus every five years. How do you save?

Optimizing the Bus Fleet as an Asset

Financing and Resale Keys to Optimization

We are all familiar with the ubiquitous car lease as a way to get more car for a lesser monthly payment. We can employ the same principles in the management of a school bus fleet. Let’s consider car leasing as a model for a school district to use to reduce EAC for its bus fleet.



The Commercial Leasing Model

An auto lease is for a finite term with a finite number of miles and the car is returned to the lessor at the end of the lease where it is sold to another. The car lessor finances the acquisition cost of your car for a finite term, for example let’s use 36 months with a fair market value purchase option. You can buy the 3 year old car for what it is worth in the market at the end of the three year term, or the leasing company will take it back, charge you for additional wear and tear, then sell it on the market keeping the profit for themselves.

The commercial auto leasing company structures their internal financing of a customer’s vehicle in the following way (for example purposes we are using a single car transaction): a loan is structured to pay for the acquisition of the vehicle. The loan term will be contemporaneous with the lease term to the customer. The loan will have a fixed balloon payment at the end of the term which the leasing company will be obligated to pay to their lender. The terms of the auto lease will state the number of miles that cannot be exceeded. The mileage for an auto lease is a key factor in establishing value at the end of the term.

The leasing company and their lender will want the balloon payment be less than the option to purchase that the end user will be offered. This amount must be less than the anticipated projected wholesale price at the end of the term. These values are established by using companies such as the *NADA Used Car Guide* (www.nadaguides.com), *Kelly Blue Book* (www.kbb.com) or *Edmunds* (www.edmunds.com). The goal of the auto leasing company is to be in a positive cashflow throughout the transaction and obtain a tidy profit at the end of the term upon disposition of the vehicle.

The Commercial Leasing Model Applied to Your School Bus Fleet

Our objective is to significantly reduce the annual costs associated with your bus fleet while maximizing up time by reducing out of service needs due to age related repairs. To do this we employ what works for the commercial auto lessor; putting the concept to work for a school bus fleet.

Balloon Payment

Historically we have seen the overwhelming majority of school bus financing in New Jersey with a term of five years. For a bus costing \$98,800, five annual payments commencing at the time of delivery and acceptance would be approximately \$20,220**. Upon the final payment the bus is paid off. By structuring the repayment schedule to include a 30% (\$29,640) balloon payment due at the end of the fifth year, the five annual payments are reduced to approximately \$14,966 per year. This is an annual savings of \$5,254 per year during regular five year term when compared to the full payout lease purchase.

By using a balloon payment structure we have reduced the annual payments by about 25%. This repayment structure, in essence, gives your district the ability to get the utilization of four new buses for the annual financing carrying cost of three new buses if traditional financing were used.

Conservative Value Assigned to Balloon

Commercial automobile lessors have a large number of variables to consider when establishing an auto lease. They have the credit worthiness of the individual which underlies the interest rate component. Also to be considered is what the specific brand and model of car will be worth in the future given certain annual mileage limitations when they determine a balloon payment for their residual value calculation. All of the factors go into the cost of the financing.

Projecting what a school bus in New Jersey will be worth in 3, 5, 7 or 10 years, on the other hand, is very predictable. As a public entity public school districts have a very inexpensive cost of capital to finance the purchase. The ability to obtain financing at tax-exempt interest rates minimizes that variable.

Since the school buses are single purpose vehicles for the transportation of students mileage is somewhat standardized. The mileage on the buses is weighed into the equation but it is not as crucial in determining the future value. New Jersey school buses have a useful life of 15 years as established by statute. Therefore the age of the bus is the crucial component in establishing what the price of the bus will be in future years.

The basic functionality and design of a school bus varies little from one manufacturer to another. There is a historical and trackable used bus market in New Jersey. A typical five year old 54 passenger school bus in New Jersey will sell for between 55-70 % of its original sales price. (Those school districts who use this program should consider purchasing transferable extended warranties for their vehicles which will further increase the value of the bus after five years.)

Using a conservative estimate of 50% our sample bus would typically sell for \$49,400 after five years of use. For the purposes of our balloon payment we have only used 30% of the original price, \$29,640, as the assigned payment. The difference between the balloon payment and the projected sales price of the bus is \$19,760. The original annual lease payment for this bus was \$14,966.

The first year's lease purchase payment for a new replacement bus will adequately be covered by the net sales proceeds from the sale of the five year old bus. Going forward after the first five year cycle you will have further reduced your bus acquisition cost by 20% by letting the asset work for you. All well and good, but the typical school business administrator is not in the business of selling used school buses. How can this be facilitated?

Hunterdon County ESC's Bus Resale Program

Hunterdon County Educational Services Commission (HCESC) has a large school bus fleet which services numerous school districts in New Jersey. Serving many districts mandates that the HCESC bus fleet be dynamic to meet our clients changing needs. To optimize fleet management the HCESC has developed a school bus resale program. Initially for HCESC's own need, this program has expanded to include the remarketing needs of other NJ school districts.



The process is handled through inter-local agreements where the HCESC takes on the tasks associated with a public body auctioning the buses. This ranges from public notice, marketing the buses and conducting the auctions.

HCESC has the expertise in the process and can reach out to a broader market. Since the HCESC is a public agency we can do it cost effectively and efficiently. As a public agency the HCESC also gives participating school districts the assurance that the process is compliant while obtaining the best possible price for the school buses sold.

Flexibility

What happens if a board wants to keep the buses that are financed with the balloon payment? The balloon payment is the responsibility of the board to pay. The balloon can be paid off in a lump sum or it can be financed via a tax-exempt lease purchase.

Remember that one of the exceptions to the five year term limit for lease purchase in N.J.A.C. 18A:18A-42 (f) are school buses which *“may be awarded for any term not exceeding in the aggregate ten years.”* If a board desires, the balloon payment can be financed for an additional two to four years without exceeding the term limit imposed by N.J.A.C. 18A:18A-42 (f).

A New Paradigm

We opened with this question: *Should a school district's transportation budget be spent maintaining an older bus fleet or utilized more cost effectively in transporting students?*

The market for used buses are school districts and private school bus companies. There is a finite number of buses serving the NJ school's needs. This represents all the buses for the school districts and the contractors. This gross number does not dramatically change. The State sought to reduce the fleet costs by lengthening the service life of school buses from 12 to 15 years. This gave a short term reduction in costs by allowing an interruption in the then traditional school bus replacement cycle. The reality is, we live in a highly regulated state where school buses can be put out of service for a number of age related maintenance issues.

Envisioned is a transformation of the sales model. School bus contractors use higher interest rate commercial financing to purchase their new buses. As businesses they are acutely sensitive to fixed costs associated with their fleets. As the model evolves, eventually the school districts will be purchasing a greater share of the new bus purchases, because of their lower cost of acquisition/financing.

The private contractors who have a better maintenance infrastructure will take advantage of the lower cost of the 5 year old vehicles to add to their fleets. This should dramatically reduce their acquisition costs which will more than offset the increase their cost of repairs. This model should give the private carriers a regular source of lower initial cost, mid-term use buses. It is a way to increase their profit margins while keeping bus route prices competitive to New Jersey school districts.

This is a shift in thinking and the way that business has been traditionally conducted. However the school bus market in NJ has shown that it can adapt to change. We have seen how individual school districts have saved by departing from independently bidding for bus acquisition to the co-op pricing model. This has demonstrable savings since it was introduced in 2010.

The answer is yes. Here is a method to improve service and reduce costs. Given today's budgetary constraints a school business administrator needs to be innovative. Spending less to transport the same amount of students while not compromising on quality or service makes sound fiscal sense.

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**** Assumes an interest rate of 2% with annual payments commencing upon delivery**

The following are the mathematical examples of this program. The examples all assume a single bus cost of \$100,000. This is done purposely to give the reader an ability to plug in estimated costs as a percentage of the numbers below. The interest rate used for all examples is 2%.

The Base line is the traditional five year financing via a lease purchase. The payments are structures with five equal annual payments commencing at delivery of the new bus. This is a full pay out lease purchase.

The First 5 Year Cycle is structured the same as the base line with the exception of a 30%, \$30,000, balloon payment due at the end of the initial 5 year term. The auction of the 5 year old bus assumes a conservative 50% of original price obtained or \$50,000. The balloon is paid off with the proceeds of the sale and results in a \$20,000 profit from the sale of the 5 year old bus.

The Second 5 Year Cycle financing is structured the same as the first five year cycle but has two alternatives based on how you use the \$20,000 profit

Alternate 1 applies the \$20,000 profit to reduce the price of the replacement bus, financing \$80,000, over the next 5 years.

Alternate 2 applies the \$20,000 profit to the first year's payments which are financing the full \$100,000, for a five year period.

Reducing the Costs of School Transportation							Leasing as a Budgeting Tool Series		EDUCATIONAL SERVICES COMMISSION	
Lowering the annual costs of school buses by employing the commercial leasing model with a school district being both lessee and lessor.										
The following are the mathematical examples. The Base Line is a traditional 5 year lease purchase of a bus.										
All examples assume the price of a new bus at \$100K. Financing is calculated at a 2% interest rate.										
Base Line: Traditional 5 year financing.										
54 Passenger Model CoE \$100K, term 5 yrs., no balloon (Standard Transaction)										
	Acquisition	pmt. yr. 1	pmt. yr. 2	pmt. yr. 3	pmt. yr. 4	pmt. yr. 5				Total outlay per bus:
	\$ 100,000.00	\$ 20,907.00	\$ 20,907.00	\$ 20,907.00	\$ 20,907.00	\$ 20,907.00				\$ 104,535.00
First 5 Year Cycle										
54 Passenger Model CoE \$100K, term 5 yrs. with 10 semiannual payments in adv. 30% balloon due at end of term										
	Initial year Acquisition	pmt. yr. 1	pmt. yr. 2	pmt. yr. 3	pmt. yr. 4	pmt. yr. 5	50% resale -	yr. 6 Balloon		Total outlay per bus over initial 5 yrs.
	\$ 100,000.00	\$ 15,229.00	\$ 15,229.00	\$ 15,229.00	\$ 15,229.00	\$ 15,229.00	\$ 50,000.00	\$ (30,000.00)	profit	
								\$ 20,000.00		\$ 76,145.00
Second 5 Year Cycle; Alternate 1, (Greatest Leverage)										
Resale profit applied to acquisition cost of bus (actually paying off \$80K in 5 yrs.)										
	New \$100k	pmt. yr. 6	pmt. yr. 7	pmt. yr. 8	pmt. yr. 9	pmt. yr. 10	50% resale -	yr. 10 Balloon		Alternate 1 Total outlay per bus over 2nd 5 yr. cycle
	profit \$ (20,000.00)						\$ 50,000.00	\$ (30,000.00)	profit	
	\$ 80,000.00	\$ 11,048.00	\$ 11,048.00	\$ 11,048.00	\$ 11,048.00	\$ 11,048.00		\$ 20,000.00		\$ 55,240.00
Second 5 Year Cycle; Alternate 2										
Resale profit applied to first years payment (actually paying off \$80K 4 yrs. in arr.)										
	New	pmt. yr. 6	pmt. yr. 7	pmt. yr. 8	pmt. yr. 9	pmt. yr. 10	50% resale -	yr. 10 Balloon		Alternate 2 Total outlay per bus over 2nd 5 yr. cycle
		profit					\$ 50,000.00	\$ (30,000.00)	profit	
	\$ 100,000.00	\$ 20,000.00	\$ 13,950.00	\$ 13,950.00	\$ 13,950.00	\$ 13,950.00		\$ 20,000.00		\$ 69,750.00