

Transportation Services Analysis – Westbrook

Background

In October 2009 performance data pertaining to the operation of school buses in the Westbrook School Department was gathered and analyzed. After a discussion of this data with administrators from the Portland, South Portland, and Westbrook School Departments, Dr. Reza Namin, Superintendent of the Westbrook School Department, asked that it be put in the form of a report to the Westbrook School Committee for more discussion on potential cost savings and restructuring of Westbrook's school bus services.

The analysis was performed by Kevin Mallory. Mr. Mallory is a National Association for Pupil Transportation (NAPT) Certified Director of Pupil Transportation with thirty-seven (37) years of transportation management experience, the previous fourteen (14) years as Director of Transportation for the Portland Public Schools. The Maine Association for Pupil Transportation has contracted with Mr. Mallory in the past to perform this type of evaluation, as well as having done so as a private consultant.

Data was provided by the Westbrook School Department and the Maine Department of Education. The data used is similar, but more extensive, to that which is used by the DOE to establish funding under the Essential Programs and Services (EPS) Transportation Model.

It should be understood that no actual examination has been done in terms of analyzing routes or route structure with the scheduling and routing software (Versa -Trans) that both Westbrook and Portland currently use. The raw data used and analyzed is simply a set of industry standard efficiency measurements applied to the gathered data for various aspects of the transportation operation.

It should also be understood that no attempt has been made to go beyond the findings themselves, only to show the direction the outcomes point to. No policies, procedures, or other data beyond that listed was examined. It is assumed that the data provided for this study by Westbrook and the DOE is accurate. The data was taken from the 2008 – 2009 school year. Changes made to the transportation operation beyond that point are not evident in this report.

The following areas were examined:

- ▶ I. Density and the EPS Formula
- ▶ II. Vehicles
- ▶ III. Runs and Routes
- ▶ IV. Labor Costs

I Density

The City of Westbrook has 89.83¹ miles of Class A roads. As such, it is the densest community in the state, in terms of students, with 29.67 students per road mile. With the EPS Transportation Model built around density, Westbrook has the distinction (from a DOE standpoint) of being considered the “*easiest*” community to operate school buses in. Whether agreeing with the formula or not the fact remains that this is what the state bases transportation funding on.²

In 2008 – 2009 DOE allocated \$913,589 through the EPS formula to fund transportation in Westbrook. It should be pointed out that the EPS formula will only fund to-and-from school transportation, and nothing more. After analyzing all to-and-from school costs it was estimated that Westbrook actually spent \$905,859 on this type of transportation. While it is true that operating expenses were less than the funding provided (\$7,730), had several efficiencies been achieved, it is possible the gap may have widened to Westbrook’s advantage. With cuts in funding predicted from DOE, it is essential that the cost of transportation be kept below EPS funding levels. With current expenses what they are, this can only be achieved through one of two ways, increasing efficiency, or cutting service.

Comparison to Portland³

Westbrook has⁴:

- 69.7% fewer road miles
- 16.5% more students per road mile
- 76.9% fewer road miles to cover per active vehicle

¹ DOE

² The Maine Association for Pupil Transportation believes the formula is flawed due to it’s unwillingness to accept the fact that many districts have high cost drivers that the formula does not recognize. Examples of this might be: a lake in the middle of the district, large amounts of programming transported within a district, or wage disparities by region.

³ See attached comparison

⁴ Portland was used as a baseline comparison in this study based on proximity (operating conditions) and familiarity with the Portland system.

II Vehicles

A. Vehicle Cost

With vehicle operating expense being the second most expensive portion of any transportation budget, it is essential that as many savings as possible be achieved through well defined maintenance practices, fleet upgrades, and a reduction of miles where possible to limit fuel use.

DOE requires that all Class C school buses be operated for a period of not less than ten years and accumulated mileage of not less than 125,000 miles. Requirements vary for Class A, B, and D school buses. Westbrook currently has nine (9) vehicles that fit this description, with one as old as nineteen (19) years.

Fleet Age

Westbrook	8.08 years
Portland	7.18 years
S. Portland	6.09 years
State Average	6.00 years ⁵

Fuel cost per mile - all transportation

Westbrook	\$.337
Portland	\$.358

Maintenance cost per mile – all transportation

Westbrook	\$.867
Portland	\$.782

Total vehicle cost per mile – all transportation

Westbrook	\$1.204
Portland	\$1.140

B. Number of Vehicles

The second aspect of vehicle operation is to examine the number of vehicles necessary to do an adequate job. This includes route vehicles, additional buses for afternoon athletic trips when route vehicles are tied up, and spare vehicles to replace those vehicles that are out of service for repairs.

Number of buses and vans

Westbrook	31
Portland	27

Number of spare vehicles

Westbrook	10
Portland	6

Annual miles per active vehicle

Westbrook	9,816
Portland	15,869

C. Vehicle Capacity

The final aspect of vehicle operations to consider is the number of students each bus can carry and how it impacts the number of routes necessary.

Seats per bus – excluding special ed equipment

Westbrook	71.8
Portland	78.0

⁵ DOE

III. Runs and Routes

For the purpose of this report, runs are defined as a series of routes performed by a single driver. Routes are defined as a group or groups of students being transported to one or more schools by a single driver.

IV. Number of Runs and Routes

The number of runs and routes are dictated by the following:

- Number of students transported – eligibility
- Number of schools served
- Time constraints – bell times – number of bus stops – route length
- Density – ease of operation
- Programming⁶
- Vehicle capacity

B. Number of Students Transported – Eligibility

Guidelines for eligibility address the distance from home to school to qualify for bussing. The shorter the distances to meet eligibility requirements, the more students become eligible to ride. Ultimately the number of actual riders is determined by the number eligible.

Students transported daily

Westbrook	1,873	77.4%
Portland	2,350	33.4%
S. Portland	1,800	58.2%

Eligibility requirements⁷

Westbrook			
K (a.m.)	.1 mile	528 feet	5 house lots ⁸
K (p.m.)	.3 mile	1,584 feet	16 house lots
1 – 2	.3 mile	1,584 feet	16 house lots
3 – 5	.3 mile	1,584 feet	16 house lots
6 – 8	1.0 mile	5,280 feet	53 house lots
9 – 12	1.5 mile	7,920 feet	79 house lots
Portland			
K	.5 mile	2,640 feet	26 house lots
1 – 5	1.0 mile	5,280 feet	53 house lots
6 – 12	2.0 mile	10,560 feet	106 house lots
S. Portland			
K – 5	1.0 mile	5,280 feet	53 house lots
6 – 12	1.5 mile	7,920 feet	79 house lots

C. Number of Schools Served

The number of schools served, the distance between each school, and the location of the each school all are determining factors in the number of routes necessary.

Number of schools served

Westbrook	6
Portland	16

Cost per school served

Westbrook	\$150,977
Portland	\$67,855

⁶ Many larger school districts will not have the same programming in each school. As a result programming such as sped and ELL must be bussed to different schools other than their neighborhood school.

⁷ Westbrook Schools Transportation Policy

⁸ For purposes of this report a typical house lot is defined as 100 feet of road frontage.

D. Time Constraints – Bell Times – Number of Bus Stops – Route Length

► Bell Times

Bell times, or the time each school starts and ends its day have a direct bearing on the number of routes that are needed. Staggered bell times can have a significant impact on the number of transportation employees needed.

District	School	Grades	Earliest Drop	Start Time
Westbrook	Middle (1)	6 – 8	7:12	7:25
Westbrook	High (1)	9 – 12	7:20	7:30
Westbrook	Canal	3 – 5	8:00	8:15
Westbrook	Congin	3 – 5	8:00	8:15
Westbrook	Prds. Cor.	1 – 2	8:15	8:35
Westbrook	Prds. Cor.	K	8:45	8:45
Westbrook	Sacarapa	1 – 2	8:10	8:15
Westbrook	Sacarapa	K	8:45	8:45
Portland	High (4)	9 – 12	7:00	7:45
Portland	Middle (3)	6 – 8	7:40	8:15
Portland	Elementary (8)	K – 5	8:20	8:50

► Number of Bus Stops

The amount of bus stops that must be created are a direct result of eligibility requirements and the need to keep walk distances at less than the eligible distance to and from school.

Example: a street that is one mile long, with ten kindergarten students living .11 miles apart would require ten bus stops equally spaced at 580 feet. The same street with eligibility distances of .50 miles for kindergarten students would require one bus stop in the center of the street spaced exactly 2,640 from either end.

Annual Stops	
Westbrook	465,500
Portland	236,250
Daily Stops	
Westbrook	2,660
Portland	1,350
Stops per route	
Westbrook	33
Portland	9
Stops per road mile	
Westbrook	30
Portland	5
Students per stop	
Westbrook	1.41
Portland	3.48

► **Route Length – distance and time⁹**

Determining factors for the length of a route include:

- | | |
|--|---------------|
| •Area served by a school | distance/time |
| •Road miles served by a specific route | distance/time |
| •Number of bus stops | time |
| •Number of students riding | time |
| •Average miles per hour and congestion | time |

Average route length

Westbrook	14.18 miles
Portland	9.60 miles

IV. Labor Costs

As with the education side of school districts, labor expenses are undoubtedly the biggest cost driver. Factors that can impact labor expenses from an operational standpoint include, but are not limited to:

- Number of runs
- Number of students riding
- Time constraints
- Additional programming needs other than regular ed transportation

Labor cost per mile – all transportation

Westbrook	\$3.640
Portland	\$3.112

Labor cost – to-and-from school

Westbrook	\$731,592
Portland	\$783,227

Labor cost per student – to-and-from school - annual

Westbrook	\$390.60
Portland	\$333.29

⁹ No data was available to examine for route hours

	<u>WESTBROOK</u>	<u>PORTLAND</u>	<u>Difference</u>	
1	Road Miles	89.83	296.50	206.67
2	Pupil Density	29.67	25.47	-4.20
3	District Schools Serviced	6	16	10
4	Buses	29	26	-3
5	Vans	2	1	-1
6	Spare Buses	10	6	-4
7	Roads miles per active bus and van- coverage	3.59	15.61	12.01
8	Annual miles per active bus and van	9,816	15,869	6,053
9	Annual miles all vehicles	6,632	10,098	3,466
10	Avg. Bus Age (years)	8.08	7.18	-0.90
11	Drivers	19	22	3
12	Floats or Swing Drivers	2	3	1
13	Assistants	3	6	3
14	Administration	2	2	0
15	Runs	17	19	2
16	Routes	81	158	77
17	Annual routes	14,175	27,650	13,475
18	Average route length (miles)	14.18	9.60	-4.58
19	Vehicle Miles	245,389	333,249	87,860
20	Total cost per Mile	\$4.973	\$4.967	-\$0.006
21	Vehicle cost Per Mile	\$0.867	\$0.782	-\$0.084
22	Fuel cost Per Mile	\$0.337	\$0.358	\$0.021
23	Labor cost per Mile	\$3.640	\$3.112	-\$0.527
24	Annual driver and assistant wages and benefits	\$893,166	\$1,037,209	\$144,043
25	Total annual vehicle cost	\$212,654	\$377,585	\$164,931
26	Routes per run	4.76	8.32	3.55
27	Total district students	2,419	7,036	4,617
28	Students transported one way	1,873	2,350	477
29	Students transported - a.m. and p.m.	3,746	4,700	954
30	Percent of riders	77.43%	33.40%	-44.03%
31	Students transported per active bus and van (daily)	156.08	223.81	67.73
32	Students transported per route (daily)	46.25	29.75	-16.50
33	Students transported per run (daily)	110.18	123.68	13.51
34	Annual to - and - from school miles	201,000	265,308	64,308
35	Percent of total miles for to-and-from school	81.91%	79.61%	-2.30%
36	Annual to - and - from school wage cost	\$731,592	\$783,227	\$51,635
37	Annual to - and - from school vehicle cost	\$174,267	\$302,451	\$128,184
38	Annual to - and - from school wage and vehicle cost	\$905,859	\$1,085,678	\$179,819
39	Annual labor cost per student transported	\$390.60	\$333.29	-\$57
40	Annual vehicle cost per student transported	\$93.04	\$128.70	\$36
41	Annual cost per student to-and-from school	\$483.64	\$461.99	-\$21.65
42	Stops per day	2,660	1,350	-1,310
43	Annual stops	465,500	236,250	-229,250
44	Stops per run	156	71	-85
45	Stops per route	33	9	-24
46	Stops per road mile	30	5	-25
47	Students per stop	1.41	3.48	2.07
48	Cost per stop	\$1.95	\$4.60	2.65
49	Cost per school for bussing	\$150,977	\$67,855	-\$83,121.62