



Shrewsbury Public Schools

Patrick C. Collins, Assistant Superintendent for Finance & Operations

18 October 2017

To: Dr. Sawyer

Subj: INPUT REGARDING SCHOOL TRANSPORTATION AND
FUTURE GRADE CONFIGURATION

Background

As part of the decision-making process regarding the district's future grade configuration, you have asked for input regarding the estimated impacts and differences in transportation costs and services if the "Beal 2.0 School" were a K-1 grade configuration versus a K-4 grade configuration.

Assumptions

It is assumed for this type of estimating that the district would retain the basic three-tier bus utilization system whereby the same bus has a high school route, a middle school route and an elementary school route so as to maximize cost and use efficiency of that asset. It is also assumed that "Beal 2.0" would be part of the elementary tier. Moreover, it is assumed that the district would shift into either offering or requiring full-day kindergarten for all students under either grade configuration. Finally, it is noted that actual bus routes and number of buses required are not part of this preliminary estimating process, which focuses simply on the differences that can be estimated at this point in the two different configuration options.

Current Statistics

One way to ascertain the differences in the proposed configurations is to look at current data as the district is actually operating in a hybrid grade configuration status now. After aggregating data from the 250+ bus routes we currently operate, one can see some relatively significant differences in efficient use of bus assets and average bus route times in the K-1 versus K-4 schools.

Beal currently operates as a K-1 school and has an average of 22 students per bus with an average route length of 13 miles and 41 minutes. However, busing for our K-4 schools operates more favorably with an average of 38-51 students per bus, an average route length of 7-9 miles, and an average ride time of 28 to 35 minutes. Obviously, the "neighborhood school" model lends itself to shorter bus rides as opposed to a centralized/district school for all students in the same grade.

All of this data is depicted in the table below.

	Grade Span	Avg. Riders/Bus	Avg. Route Length [Miles]	Avg. Route Time [Minutes]
Beal	K-1	22	13	41
High School	9-12	48	13	39
Spring	K-4	38	9	35
Paton	K-4	40	9	33
Sherwood/Oak	5-8	50	9	32
Floral	1-4	52	9	29
Coolidge	K-4	51	7	28

Estimating Bus Assets Required Under Each Model

The table on the following page is used to estimate and demonstrate the differences among our current model of service, a future K-1 model, and a future K-4 model for our elementary grades. Again, given the assumption of operating under a three-tier system with students for a given school/age level based together, we would need significantly more bus assets if Beal 2.0 were a K-1 school. As a reference point, the current annual cost of a bus is \$60,316. Under the K-1 model, it's estimated that an additional 10-15 more buses would be needed at a total incremental cost of \$600,000 to \$900,000 more on an annual basis.

		Current		
Tier 1	SHS	24		
	Special Education-SHS	2		
	Private School	2		
		Current		
Tier 2	Oak/Sherwood	33		
	Special Education-Middle	2		
	Private School	7		
Tier 3		Current	Estimated K-1 Model	Estimated K-4 Model
	Beal	9	25-30	15
	Spring	6	6	6
	Paton	5	5	5
	Floral	11	11	11
	Coolidge	5	5	5
	Special Education-Elem	6	6	6
	Private School	2	2	2
		44	60-65	50
Notes:				
1. Given that <i>Beal 2.0</i> would operate on Tier 3 and be required to transport students from the entire geography of the town, we would need sufficient assets at the same time we are using a separate set of buses to collect students in grades 2-4.				
2. Given that we plan to moderately reduce student population at elementary schools at the time of opening <i>Beal 2.0</i> , we may be able to re-allocate some bus assets to service <i>Beal 2.0</i> .				

Summary Comments

The data strongly suggests that from a transportation perspective, the K-4 model would be significantly more cost effective and also lead to shorter rides times for students and more efficient use of bus assets.