School Transportation Efficiency

2013


K–12 Financial Resources
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# TABLE OF CONTENTS

Executive Summary ....................................................................................................................................... 3

Introduction .................................................................................................................................................. 4

Review Process .............................................................................................................................................. 4

Review Findings ........................................................................................................................................... 5

Conclusion and Next Steps .......................................................................................................................... 7

## Appendices

Appendix 1: Tables ........................................................................................................................................ 8

   Table 1: Distribution of District Efficiency Ratings

   Table 2: Efficiency Quartiles by Combined (AM + PM) Student Count

   Table 3: Key Performance Indicators by Efficiency Quartile

Appendix 2: Map of Efficiency Ratings ........................................................................................................ 9
Executive Summary

An efficiency evaluation system of school district transportation operations was adopted as part of the new student transportation funding system implemented on September 1, 2011. The rating process was intended to encourage school districts to operate in as efficient manner as possible.

A statistical process is used to determine relative efficiency ratings. The process sets targets for transportation expenditures and the number of buses operated. The results show that a majority of school districts are operating efficiently, with more than 70 percent of districts rated at 100 percent. Reviews were conducted by the regional transportation coordinators at the 63 districts rated less than 90 percent.

The efficiency of a school district's transportation operation is determined by several interrelated factors, such as a district’s policy on minimum walking distance between a student’s home and a school bus stop; and school start and end times, which may be different for schools within a district. Other variations among school districts (for example, student enrollment or geographic characteristics) complicate the identification of the specific reasons for a particular district’s low efficiency rating.

Many required student transportation services are inherently inefficient. A special education student may require individualized services at a location well outside the district boundaries. This may limit the daily use of that school bus to providing service for that one student. The same may apply to transportation for gifted, bilingual, homeless, and skill center students. The challenge is to isolate the inherent inefficiencies of these workload requirements from the efficiency of the district's delivery of these services.

The primary causes of low efficiency in transportation are related to choice of school-bell times and service provided to students living outside district boundaries; i.e., a high school district providing bus service for a non-high district's high school students.

The efficiency reviews found that many of the school districts have already taken steps to increase efficiency by reducing the number of school buses. The regional coordinators also identified cases where the statistical model resulted in unrealistic target values for the number of buses operated based on the geographical characteristics of the district.

Based on the efficiency reviews conducted and comments from districts not subject to the review process, the efficiency system incorporated into the new student transportation funding system is a success. School districts are acting to reduce transportation costs. In addition, the implementation of this system has created an atmosphere where most school districts are now consistently asking, “What are the transportation costs?” during the decision-making process for proposed program changes.
Introduction

The 2009 Washington State Legislature adopted a new student transportation funding system. The new system, known as the Student Transportation Allocation Reporting System (STARS), was implemented on September 1, 2011. An efficiency evaluation system of school district transportation operations was included as an integral part of STARS. The intent of the legislature was to encourage school districts to operate their student transportation systems in a manner that makes efficient use of state resources. The regional transportation coordinators are required to conduct efficiency reviews of those districts with ratings less than 90 percent.

The statistical system used to create the efficiency ratings is called the Target Resource Model (TRM) and was developed by Management Partnership Services (MPS), the consultant hired by the Office of Financial Management to provide options for a new student transportation funding methodology. For districts rated as less than 100 percent efficient, TRM creates a statistical “target district” from actual school districts across the state that have environmental features, size characteristics and workload requirements that are the same or more challenging and compares the district’s total transportation costs and the number of buses used with this “target.” The target district establishes the expected resource requirements (expenditures and number of buses) that would be needed to achieve a 100 percent efficiency score.

The initial efficiency ratings couldn’t be calculated until district expenditure data for the 2011–12 school year was available, which was December 2012. The efficiency ratings, released in March 2013, are available on the OSPI Student Transportation website at: http://www.k12.wa.us/transportation/STARS/default.aspx under the “STARS Efficiency Ratings” section. This same section provides an option to download the regional transportation coordinator efficiency reviews of each district with a rating less than 90 percent.

Because several school districts operate transportation services for neighboring districts or operate as transportation cooperatives, there were a total of 288 districts included in the efficiency rating process. A total of 203 districts rated at 100 percent (70.5 percent); 63 districts were rated less than 90 percent and were selected for regional coordinator review. For the distribution of school district efficiency ratings, see Table 1 and the map of efficiency ratings (Appendix 2).

Review Process

The regional transportation coordinators, MPS and OSPI worked on the development of the district review process, including a report template and an online survey. The survey allowed districts to provide information regarding their transportation operations prior to the initial meeting between the regional coordinator and district staff. As a result, meetings were able to focus on substance, instead of on gathering background information. A copy of the district response to the survey is included as an appendix in each district’s report.

After the in-person meeting, additional contact was primarily through email. The regional coordinator drafted descriptions and comments regarding district operations and possibilities for improving efficiency. This was then emailed to district staff for response.
The primary audience for the efficiency reports was expected to be school district administrative staff, local school boards and interested members of the community. Because many of them would have no background in either statistical systems or transportation logistics, the report template includes extensive standardized background material.

**Review Findings**

Many districts struggle with a statistical system that determines their efficiency rating based in part comparing that district to others in the state. Washington State has substantial variations in school districts, as measured by enrollment, land area or roadways, to name a few. “Why are we being compared to district X?” was a frequent question in the review process. In many cases, districts are used to comparing themselves to neighboring districts, regardless of disparity in size or other characteristics. Districts were divided into quartiles based on the number of student riders, then evaluated to ensure that comparisons were made between similar-sized districts (see Table 2).

A secondary efficiency evaluation process was developed to provide an alternate method of comparing a district’s operation with that of similar districts and the efficiency reference set (or efficiency cohort). This process used “Key Performance Indicators” (KPIs) to compare district transportation operations in three categories:

1) number of basic program students per basic program bus,
2) number of special education students per special education bus and
3) cost per student transported.

While KPIs have some of the same weaknesses of the statistical rating process, they provide an easier-to-grasp method of comparing a district’s operational performance with districts of similar characteristics. The statewide KPIs, provided in Table 3, show the expected ability of larger districts to take advantage of efficiencies of scale not available to small districts.

One of the features of the legacy funding system was that small districts’ funding increased with inefficient routing. Many districts were aware of the steps necessary to improve the efficiency of their routing. In many districts the regional transportation coordinators found that changes had already been taken to reduce expenditures by using fewer school buses to transport the same number of students.

School districts generally reacted positively to the efficiency evaluation process as a method to help them identify steps they could take to reduce costs. As a result of budget pressures, many districts had already identified and implemented steps to reduce costs by modifying school start and end schedules (referred in this document as “bell times”) and/or by combining bus routes. Some of these changes were implemented in the 2012–13 school year and should result in higher efficiency ratings for those districts when the next rating set is released in March 2014.

Modifying bell times is the most complicated process. Changes in the start of the school day can disrupt family schedules. Second, those changes are subject to bargaining agreements with multiple employee groups. As a result, bell-time changes can take a year or longer to occur. Since the implementation of bell-time changes is typically aligned with the start of a school year, there can be
a multiple-year lag between starting the modification process and the seeing the impact the changes have on the efficiency rating.

A third challenge with bell-time changes is that none of the computer routing software used by districts calculates the optimum bell times for a given school scenario. Instead, the software requires bell times to be entered, along with student locations, to determine the optimum route(s) necessary to get students to school on time. Running simulations to determine the impact of changing bell times is labor intensive and involves significant skill in choice of individual school bell times.

Finally, local community values constrain flexibility of bell times. For instance, some communities have strongly held views on whether it is appropriate to mix age groups on buses. Combining elementary, middle school and high school students on a single bus can be a difficult concept for parents used to having separate school buses for each age group.

Higher-than-expected costs were also found in transportation services provided to students living outside the school district boundaries. One example is a high school district providing required transportation to students residing in a non-high district. Another example is a district providing transportation to “school choice” students residing in a neighboring district.

During the efficiency review process, it became clear that a small number of the districts had reported 2011–12 school year expenditures that were unrealistically low. This was not necessarily an error on the part of the reporting district. The accounting system provides some flexibility in the manner districts report expenditures; for example, there is no requirement to include supervision costs. The result, however, was that in some cases the efficiency targets for expenditures and buses using these districts’ cost of providing transportation service were unrealistically low.

OSPI is continuing to work with the School District Accounting Advisory Committee and the Washington Association of School Business Officials to increase standardization in the transportation expenditure reporting process. For those few cases in which an error in reporting is made or where a district’s reporting choices result in an artificially low cost for transportation, OSPI is attempting to identify a consistent, justifiable methodology for removing such districts from the data set or adjusting the data. This will ensure realistic target values for all districts.

**Conclusion and Next Steps**

Based on the efficiency reviews conducted and comments from districts not subject to the review process, the efficiency rating system is a success. Most school districts whose transportation system was intentionally inefficient (to take advantage of features of the prior funding system) have already made changes to reduce transportation costs. The regional transportation coordinators found that most school districts are now consistently asking, “What are the transportation costs?” during the decision-making process for proposed program changes.

The ratings to be released in March 2014 will likely show substantial similarity to the 2013 ratings. Most changes resulting from the efficiency review process would be implemented with the
beginning of the 2014–15 school year and reflected in the ratings released in March 2016. This reflects the lag time required for changes in operational costs to show up in school-year financial reports. In other cases, the low rating may be a result of unique characteristics outside the district’s control. Regional transportation reviews will continue for those districts with ratings less than 90 percent, but primary emphasis will be focused on those districts where additional work is required to identify potential reductions in costs.

This year’s efficiency rating process has established a benchmark for comparing the operational efficiency of each school district’s transportation service. The ratings released in March 2014 will reveal more about the changes in efficiency than this single year’s set of relative ratings. Annual year-to-year review of each district’s KPIs will provide an alternate means of evaluation of school district operations.

References

A technical description of the Target Resource Model or Target Cost Management Tool is available in Appendix C of “Development of Student Transportation Funding Methodology Options for Washington State” available on OSPI’s Student Transportation website under “Reports/Studies” at: http://www.k12.wa.us/Transportation/publications.aspx.
Appendix 1: TABLES

Table 1: Distribution of District Efficiency Ratings

<table>
<thead>
<tr>
<th>District Efficiency Rating</th>
<th>Number of Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>203</td>
</tr>
<tr>
<td>90% to 99.99%</td>
<td>22</td>
</tr>
<tr>
<td>80% to 89.99%</td>
<td>21</td>
</tr>
<tr>
<td>70% to 79.99%</td>
<td>20</td>
</tr>
<tr>
<td>60% to 69.99%</td>
<td>12</td>
</tr>
<tr>
<td>Less than 60%</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2: Efficiency Quartiles by Combined (AM + PM) Student Count

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Minimum Student Count</th>
<th>Maximum Student Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quartile</td>
<td>17</td>
<td>224</td>
</tr>
<tr>
<td>2nd Quartile</td>
<td>225</td>
<td>799</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>800</td>
<td>2993</td>
</tr>
<tr>
<td>4th Quartile</td>
<td>2994</td>
<td>28,907</td>
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</table>

Table 3: Key Performance Indicators by Efficiency Quartile
(riders per bus is calculated at one half of combined student count)

<table>
<thead>
<tr>
<th>Quartile</th>
<th>KPI: Basic Program Rider per Basic Program Bus</th>
<th>KPI: Special Ed Riders per Special Ed Bus</th>
<th>KPI: Cost per Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quartile</td>
<td>18</td>
<td>1</td>
<td>$2,723.33</td>
</tr>
<tr>
<td>2nd Quartile</td>
<td>36</td>
<td>5</td>
<td>$1,505.09</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>58</td>
<td>9</td>
<td>$1,066.14</td>
</tr>
<tr>
<td>4th Quartile</td>
<td>84</td>
<td>9</td>
<td>$1,001.00</td>
</tr>
</tbody>
</table>
Appendix 2: MAP OF EFFICIENCY RATINGS
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