SCHOOL BUS CONSULTANTS

Transportation Funding Review

State of Washington
Office of Superintendent of Public Instruction

January 14, 2019

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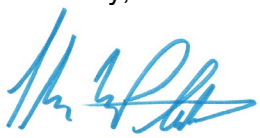
Mr. Glenn Gorton, Director of Student Transportation
Office of Superintendent of Public Instruction
600 Washington Street South
Olympia, WA 98504-7200

Dear Mr. Gorton:

School Bus Consultants (SBC) is pleased to submit the enclosed report to the State of Washington's Office of Superintendent of Public Instruction (OSPI) on our review of the transportation funding formula and its associated systems and processes. The entire project team at SBC greatly appreciate you and your staff's cooperation, support and involvement throughout the process. We have endeavored to cover all aspects of the required scope of work, and to do so in a manner that will add value to the state's ongoing efforts to improve the transportation funding allocation and performance management. We look forward to your thorough review of the enclosed report, and to addressing any comments received.

Sincerely,



Thomas W. Platt
Vice President

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Executive Summary

This report documents the results of a "State Funding – Transportation Funding Formula Study", as solicited under RFP No. 2018-24 in May, 2018. The scope of work for this study defines requirements for evaluating "the extent to which the formula corresponds to the actual costs of providing pupil transportation", and on providing "recommendations for necessary revisions to the state's pupil transportation formula". During the early phases of work, it became apparent that a more expansive focus was necessary to ensure that all aspects of funding formula design, implementation, and use are placed in an appropriate context relative to each other and the policy objectives of the state. Specifically, there were two elements of particular concern identified during early discovery that were not explicitly incorporated into the RFP scope of work:

1. The need to produce accurate biennial cost projections; and
2. Incorporation of periodic salary and benefit adjustments outside the regular funding allocation process.

This report therefore addresses these additional scope requirements within the broad framework of overall program effectiveness.

The current formula was implemented following a legislative mandate for research and study in 2007. That work was completed in 2008, and legislative action to adopt and implement the current formula began in 2009. This current study therefore benefits from several years of active use of the formula and its associated systems and processes. The emphasis for this study is on providing recommendations that are based on lessons learned over these intervening years, as well as accounting for changing circumstances since the original research was completed.

The current regression-based funding formula was chosen in accordance with the recommendation of the 2008 advisory committee, and included the use of an adjunct mathematical tool designed to encourage operational efficiency. That separate model uses the same data inputs as the funding formula to annually create what is colloquially known as an "efficiency rating" for each local school district. The main strength of the funding model is that it provides a good fit to the original 2007 legislative objectives for an approach that reflects actual costs and provides predictability in funding. The admittedly complicated, difficult to comprehend, linear programming-based efficiency model calculations were designed to provide a companion tool that measures the comparative efficiency of each district program with the intention that the results would then be used to motivate operational improvement within the local school districts.

There are three core findings resulting from this study:

1. The current methodology for allocating state funds for transportation is based on a mathematically valid set of calculations that accurately represent each school district's expected costs of providing its local transportation service, but some further adjustments are required to support the current full-funding requirements of the state.
2. The intended outcome for presenting a single efficiency score on each district has not been realized, and instead has resulted in lost confidence among most stakeholders while also undermining the actual value provided by the mathematical modeling that produces the score.

3. The additional concerns expressed by stakeholders at the outset of the project introduce the need for a biennial forecasting model to be added as a complement to the annual funding allocation calculations and for further investigation of options for implementing one-time and unique funding adjustments.

These and other findings lead to recommendations in each of two primary areas of study:

Funding Allocation Recommendations:

- Continue to utilize the existing funding allocation model, but with certain targeted adjustments that will realign the results with changes to local operating conditions, including a primary adjustment for costs related to the McKinney-Vento Act.
- Make targeted changes to the Washington Administrative Code to improve the overall utility of the current funding allocation process.
- Invest in software upgrades and associated redevelopment to ensure continuity of the current formula calculations and to improve usability and understanding, including associated improvements to reporting and accessibility.
- Develop a trend-based biennial cost forecast that utilizes as input the same data used in the annual funding allocation calculations.
- Make changes to the timing of data collection to improve cost forecasting and allocation management.
- Institute targeted process improvements to improve the auditability of the underlying data that support funding allocation decisions.

Funding Performance Management Recommendations:

- Retain the current disconnect between the calculation of funds to be allocated to local districts and the measurement of local district transportation performance.
- Eliminate the use of the Efficiency Rating and create a thoroughly revised, supportive and non-punitive performance management program focused not on a single score of performance, but rather on investigation of performance trends over time.
- Invest in a redesign and reprogramming of the associated mathematical model to combine its functionality with an expansion and formalization of the Key Performance Indicator program.

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Introduction and Background

Transportation Funding 2008 to 2018

An Act of the Washington State Legislature in 2007 mandated the development of two options for a new pupil transportation funding methodology[1]. Specific to the requirements of this Act was the establishment of a first priority "to create a methodology that reflects actual costs and builds incentives for the efficient use of resources"; and "as a secondary priority, the funding methodology, to the extent possible, shall provide school districts with predictable levels of funding." In a report to the State of Washington Office of Financial Management in November, 2008[2], two options were presented for consideration:

1. Unit Cost Model – The concept behind the Unit Cost Model is to reimburse each school district for the activities that it undertakes based on the statewide average cost of one unit of each activity. This option was similar in construct to the legacy approach to funding allocation in use at the time.
2. Expected Cost Model – The Expected Cost Model reimburses each school district based on the adjusted average actual transportation cost of all school districts in the state. The formula computes the average, or expected expenditures for each school district by constructing a multiple regression equation that is adjusted for local site characteristics. Site characteristics are demographic and geographic features that cannot be controlled by the school district, such as population density or the number of roadway miles.

Based on the report, the Office of Financial Management advisory committee recommended the adoption of the Expected Cost Model. The 2009 Washington State Legislature enacted Engrossed Substitute House Bill (ESHB) 2261, which included language requiring the implementation of the new formula no later than the 2013 school year. Subsequent legislation provided for the development and implementation of the supporting systems and processes, the use of which define the methodology of pupil transportation funding currently in use.

The requirements of the 2007 Act continue to reflect the objectives of the state's pupil transportation funding allocation and management program to the current day, although with enhanced requirements resulting from several years of actual experience using the revised formula. Nowhere within this initial enabling legislation was there a requirement to ensure broad understanding, the simplicity, or the clarity of the funding options to be developed or considered for implementation. These have since emerged, however, as factors limiting the utility of the formula, systems, and processes that resulted from the redesign. Indeed, the objectives of the current study continue to sidestep these factors, instead requiring that the study "evaluate the extent to which the formula corresponds to the actual costs of providing pupil transportation to and from school[3]", and to make recommendations accordingly.

Regardless of the stated objectives for this study, issues of utility should, in the opinion and experience of SBC, be given active consideration in the evaluation of the current formula's

[1] S-2609.1
[2] Development of Student Transportation Funding Methodology Options for Washington State; Management Partnership Services, Inc.; November 21, 2008
[3] RFP NO. 2018-24 Section 4.1

appropriateness. Five often conflicting goals of a funding formula were identified in the November, 2008 report: equity, clarity, motivation to use funds efficiently, predictability, and a low administrative burden. The emphasis placed on each of these five is a question of policy choice and fiscal realities, yet none of the five factors can be adequately considered absent awareness of its impact on the others.

The current Expected Cost formula was implemented in accordance with the recommendation of the advisory committee and included the use of an adjunct tool designed to encourage efficiency. This separate Target Cost model uses the same data inputs as the funding formula to annually create what is colloquially known as an "Efficiency Rating" for each of the local school districts. The main strengths of the regression-based Expected Cost funding allocation model are that it provides a good fit to the original 2007 objectives for an approach that reflects actual costs and provides predictability in funding. It does not provide a focus, however, on motivating local districts to improve the efficiency of their transportation programs. The admittedly complicated, difficult to comprehend, linear programming-based Target Cost model calculations were designed to provide a companion tool that measures the comparative efficiency of each district program with the intention that the results, the "Efficiency Rating", would then be used to motivate operational improvement.

The continued use of either or both of these models by the state will place emphasis on the equity, predictability, and efficiency characteristics of the ideal funding model at the expense of clarity and low administrative burdens. It is on two subjects: Whether the efficiency motivation factor is adequately in place; and the unintentional deemphasis on the clarity and low administrative burden goals, that much of this report will focus. A particular emphasis will be highlighted on the inherent burdens imposed by the design on the concurrent need for biennial cost forecasting and periodic adjustments to salary and benefit costs. But before introducing these subjects, we must begin with an emphasis on the identified requirements for the study.

Objectives for this Review

The objectives for this study, as stated in RFP 2018-24, are to:

- "Evaluate the extent to which the formula corresponds to the actual costs of providing pupil transportation to and from school for the state's statutory program of basic education, including local school district characteristics such as unique geographic constraints, and transportation for students identified as homeless under the McKinney-Vento Act"; and
- "Based on the results of this evaluation, OSPI must make recommendations for necessary revisions to the state's pupil transportation formula, taking into account the statutory program of basic education, promotion of the efficient use of state and local resources, and continued local district control over the management of pupil transportation systems. OSPI must make recommendations to clarify the sources of funding that districts can use to transport homeless students to and from school"

There are two main report sections that follow this introduction. Each of the objectives as stated above are parsed, discussed, and evaluated within the first section on Funding Allocation Management, with resulting recommendations discussed in context. In that section, however, we also add to the discussion an assessment of whether the current mechanism and methodology provides for adequate utility within the framework of current State and local operations, including

the concerns associated with biennial forecasting and salary (personnel)-based funding adjustments. In this way it is our expanded objective for this study to provide a holistic assessment of the current formula given the context of five years of use, and relative to the five overall goals of an effective formula as identified above.

The second main report section on Transportation Performance Management focuses entirely on the efficiency motivation element. It seeks to clarify the connection between the provision of funds and local district performance management within the context of the state's original objectives for the formula redesign, experience with the resulting methodologies and mechanisms, and SBC's broad base of experience with data-based approaches to motivating performance improvement. Contextually, we carry forward the attendant goals of equity, clarity, predictability, and low administrative burden into that section of the report as well.

Current Situation

Implementation of the current formula began in 2011 in accordance with the legislative mandate such that the systems and processes now in place have produced actionable data for the past five fiscal years (2013-2017). The program's associated processes revolve around the Student Transportation Allocation Reporting System (STARS), which was implemented following, and in support of, the formula design decision. This system allows multiple stakeholders to enter transportation related data, view and process these data, and consider multiple reports compiled by the system and OSPI staff. The STARS system pivots on the two mathematical models and their associated reports. The Allocation Report (1026A) provides an overview of a district's annual funding for transportation. The second is the Efficiency Report which provides an evaluation of each district's relative performance. Various other supplemental reports are produced by the STARS system, including a School Transportation Fuel report, a School Bus Mileage report, and a McKinney-Vento Transportation report. The core annual outputs of the STARS system are a funding allocation amount for each district based on the Allocation Report, and an efficiency rating from the Efficiency Report. These reports use similar input data but are not linked in terms of funding provided. The supplemental reports produce insight into specific expenditure categories and inform potential supplemental funding needs. Supplemental funds provided by the state are added to the Allocation Report after the calculations within STARS are complete.

A summary of the stakeholders involved in these processes and their roles in the STARS system and associated processes is as follows:

- **Local school districts** (*includes Board Members, Superintendents, Transportation Directors, Superintendents, Operations and Planning staff*): Districts enter their annual financial information as well as transportation service information during three reporting periods. They review the results of the Allocation Report and Efficiency Report. Clarifications and concerns are communicated by the districts to the OSPI staff and the RTCs.
- **OSPI Transportation leadership and staff** (*includes OSPI leadership, the OSPI Student Transportation Director, and three staff members with the following roles: Operations/Depreciation Allocations and Traffic Safety Education; GIS Data Administrator/Analyst; Bus Driver Certification and Regulations*): OSPI Staff are highly involved in all STARS processes. Current and past leadership have been instrumental over the past ten years in establishing, maintaining, and revising the system. Leadership

assists with the communication to districts regarding concerns and questions related to the STARS system and its reports. Leadership utilizes the system reports to communicate with the legislature and fiscal analysts regarding budgets, supplemental funding, and legislative changes. The OSPI staff members are highly involved with maintaining the STARS system and performing processes with the data to produce, package and disseminate the system's reports. OSPI staff work to provide annual summary reports on the efficiency of low scoring districts.

- **Regional Transportation Coordinators (RTCs):** These are five coordinators working at offices around the state, each with specific regions to which they are assigned. RTCs quality check and ensure the completion of information submitted into STARS by the districts. They assist districts with interpreting and understanding the reports generated by STARS as well as provide further analysis within reports focused on districts with results below established thresholds on their efficiency scores. RTCs meet with these low scoring districts to review their efficiency rating and discuss potential changes to their system. RTCs assist OPSI with other district concerns as well.
- **Fiscal Analysts:** Fiscal Analysts at OSPI work with the Transportation staff to review the allocation of funds generated by the STARS system, assist with annual state budgets and funding forecasts, and calculate the distribution of supplemental funds allocated by the state to districts. Their work involves all educational services, of which transportation is one of many.
- **Auditors:** State auditors work with the OSPI Transportation staff and districts to review the accuracy and compliance of financial information and related data reported by districts and the OSPI.
- **State Legislature:** Elected members of the Washington State Legislature pass laws and amendments related to funding, and any past and future adjustments to the system. Legislators rely on reports from STARS to create state budgets to fund transportation and allocate supplemental funding to salaries and other special programs related to transportation. Legislators review reports made by the OPSI staff and RTCs to gain understanding on district performance.

Funding Allocation Management

Funding Objectives and Related Requirements

One of the primary roles of the OSPI transportation program is to allocate state-provided funds for the purpose of supporting the provision of local school district pupil transportation services. The complexity surrounding this role is created through the manner in which the amounts to be allocated are determined and provided to each district. There are requirements and processes for data collection, software systems for calculation, reporting for information and education, and various levels of follow-up processing and auditing that collectively create a complex program requiring staff time, legislation, regulatory and procedural language, and numerous supporting systems and tools. Yet this complexity is largely necessary as there are hundreds of millions of dollars of public funds at stake. This, the first of two main report sections, addresses the current role of OSPI and its program of pupil transportation funding allocation within the context of its design and implementation, and in response to the specific requirements established for this study. These requirements are addressed in the series of subsections that follow, with findings and recommendations embedded in context throughout.

Full Funding of Transportation Services within Basic Education

The preamble to Article IX of the Washington constitution states: “It is the paramount duty of the state to make ample provision for the education of all children residing within its borders…”. The Washington Supreme Court has interpreted this to mean that the Legislature must define an instructional program of basic education for public schools and amply fund it from regular and dependable sources[4]. Since the selection of the current funding allocation formula for transportation services, the 2012 McCleary decision of the Washington Supreme Court found under-funding at the state level caused local districts to unconstitutionally rely on local levies[5]. A primary objective for this current review is therefore to “evaluate the extent to which the formula corresponds to the actual costs of providing pupil transportation to and from school for the state's statutory program of basic education, including local school district characteristics such as unique geographic constraints, and transportation for students identified as homeless under the McKinney-Vento Act”[6].

The specific tasking is to determine whether the current formula corresponds to the actual costs of providing the transportation service. The judicial interpretation of the requirement is to ensure ample funding. These are not necessarily equal, nor does either provide an adequate basis on which to assess the appropriateness of the current funding allocation formula. A set of working assumptions are therefore required that translate these broad definitional terms into a basis against which the efficacy of the current formula can be assessed.

We must first define the meaning of “actual costs” for transportation. The philosophical underpinnings for an effective allocation methodology described in the introduction recognize that the behavior of the recipient of funding will be affected by the amount of funding provided, and

[4] Final Bill Report EHB 2242, page 1, Background
[5] Final Bill Report EHB 2242, page 1, Background
[6] Request for Proposals RFP No. 2018-24, page 5, Objective

the manner in which it is provided. Thus, should "actual costs" be defined as "total expenditures", regardless of whether those expenditures are necessary, there would be no check on adverse behavior provided through the funding allocation process, and an unlimited potential liability would be created for the state. Conversely, should "actual costs" be defined as the *expected*, rather than the *actual* level of expenditures, then the recipient becomes behaviorally motivated to manage the funds received responsibly. In this way, over-spending on the part of the district would result in an insufficient level of funding provided by the state to operate the local service. Defining full funding in this way, however, creates a subsequent need to define or place parameters around the definition of "expected expenditures". This then must become a primary component of the funding allocation formula design.

Recommendation 1: Continue to consider the adequacy of transportation funding in the context of each local school district *expected* rather than *actual* costs. There are broad implications surrounding this recommendation. It is not for SBC to determine or recommend how best to satisfy the judicial interpretation of the requirement to ensure "ample" funding. Rather, we understand through our experience that transportation costs are largely derivative of policy decisions regarding educational programming and other factors (such as geography and local market conditions for the compensation of bus drivers) that influence how efficiently a transportation system can operate. Educational programs to be funded for transportation service have been defined by the state together with eligibility for those services. The influence of other factors influencing cost can be measured. It is, therefore, only within the factors controllable by local management that undefined variability in cost should be expected, such as when a larger than necessary fleet of buses is retained by the district. Expected costs, then, are determinable. It is within this context that we choose to evaluate the adequacy of funding provided by the current formula.

The current allocation funding formula is a multiple regression-based calculation that is adjusted for known characteristics within local districts that affect the district's cost basis. All regression-based models have a core limitation in that they represent, fundamentally, an averaging approach. Thus, the amount of funding provided to a district within the current model is based on:

- Historical expenditures of its and other school districts; and
- Comparisons of the district's expenditures to the regression-based results.

A school district receives the lesser of its past-year expenditures or the amount indicated by the regression result. Appendix A contains the results of an analysis of the current funding allocation formula's mathematical underpinnings. The analysis indicates a high statistical correlation between the model's input variables and the actual local costs of providing transportation services. This is reflected by the R-squared values of the modeling for the three most recent reporting periods, which are summarized in Table 1 below.

Table 1 – Funding Allocation Formula Statistical Correlation Results

Reporting Period	2014/15	2015/16	2016/17
R-Squared Value	0.963	0.963	0.964

The R-squared value explains how much of the variation in Y (costs) can be explained by variation in the input variables X. With over 96% of the variation in expenditures explained by the current

variables, there is only a small proportion of the local districts' expected costs that are unexplained by the model as currently constructed. This implies that there is no pressing need to look for additional explanatory variables. This also implies that the current model does an excellent job of capturing the multi-variate and complex nature of derivative-based transportation costs.

We therefore conclude that the current methodology for allocating state funds for transportation is based on a mathematically valid set of calculations that accurately represent each school district's expected costs of providing their local transportation service. The modeling also provides valuable comparative data to use for proper oversight of the districts' use of the funds provided.

Appendix B contains the results of a multi-year analysis that compares each district's funding and expenditure profile. From this and the preceding analysis we conclude that the current funding allocation formula is well-adapted to the tracking and accommodation of general cost trends across the state year-over-year. However, the associated mechanism applied to the results after their calculation whereby a local district only receives the lesser of expected costs or prior year expenditures, coupled with a lag in the timing and consideration of input data to the model, and the absence of certain unique local costs within the calculations, together serve to undermine the utility of the model and the achievement of the full funding mandate.

Recommendation 2: Continue to utilize the existing funding allocation model, but with certain targeted adjustments that will better align the results with changes to local operating conditions since implementation of the model, and with the full-funding mandate resulting from the McCleary decision. This is a core recommendation of this study. The complex nature of transportation costing prevents a simple unit-based calculation for the purpose of allocating state funds. The nature of transportation services and their resulting costs prevents easy application of the unit-based approach currently applied within other areas of education funding. Achieving a balance between simplicity, accuracy, and predictability for transportation funding requires a mathematical formulation. That said, no mathematical model should remain static indefinitely, and no mathematical model can hope to provide a 100% accurate or precise representation of reality at all times. The state must ensure that the calculations and methodologies it uses in conjunction with the mathematical modeling continue to provide districts with their expected costs of transportation, but in a way that is also responsive to changing circumstances. The following subsections address adjustments to the mathematical results and related processes that will better align this fundamentally sound allocation formula to current operational realities.

Sources of Funding Under McKinney-Vento

Within the current approach, only traditional school bus transportation to and from school is counted and considered for funding. There are six categories of routes, yet all mandate that transportation be provided via a designated school bus to be counted as a route within the STARS system. Since the formula was designed, the demands for service based on the requirements of McKinney-Vento Act (MVA) have led to an expanded use of taxis and other non-traditional transportation assets. Expenditures related to this service are indeed included within Program 99, and thus are contained within the cost base of the funding calculations. But the number of associated routes is not included per the current guidance of the STARS program.

Districts have the obligation of providing transportation across and outside of their district boundaries based on the needs of homeless students as mandated by the MVA, and the needs of students under foster care. The costs of these routes are generally higher and can require individualized transportation services. Many districts use non-school bus assets and non-school bus transportation vendors to provide services to these students as these: facilitate lower costs; allow buses to be used to service more centrally-located students; and are highly flexible in terms of planning. As previously stated, costs related to this non-school bus transportation are captured, but not the units of service provided in the form of route counts. Therefore, the relationship is lost in the current calculations of the Allocation Model which, at least in concept, is undermining a higher correlation result within this model.

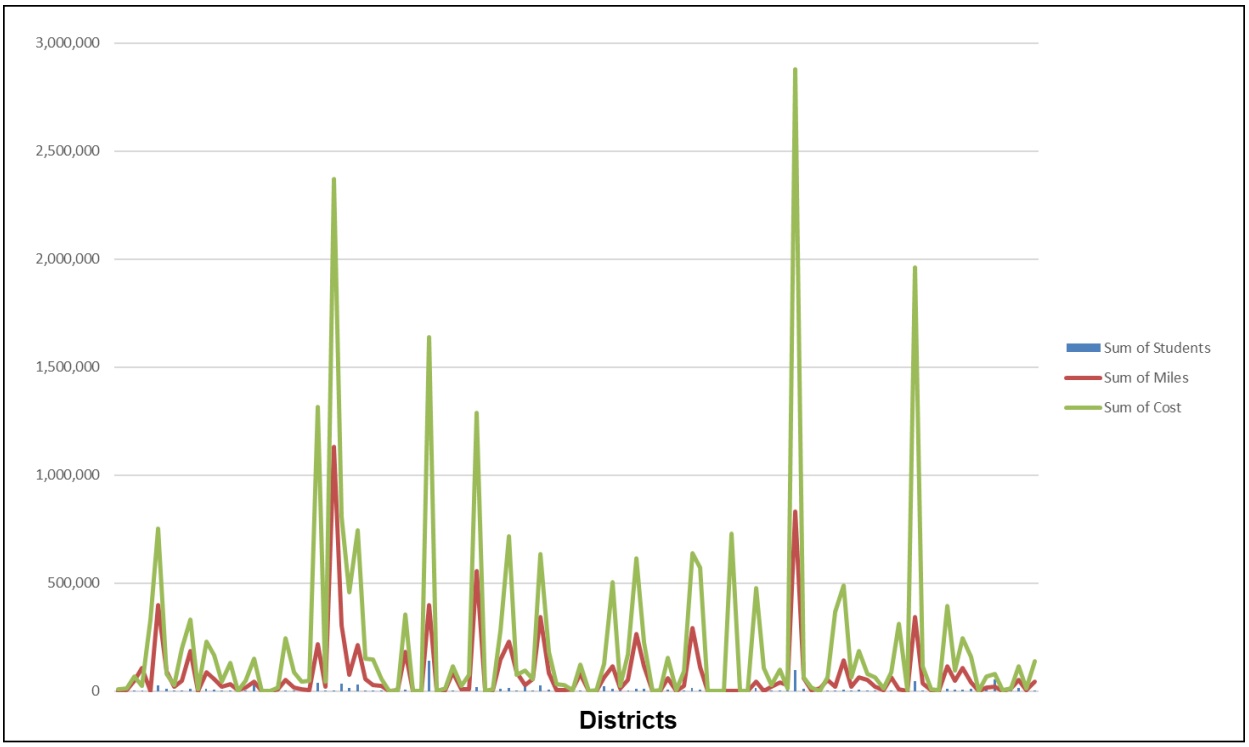
It is feasible for the language of the route categories under the STARS directions to include these non-school bus routes for homeless and foster care students and their home to school transportation. SBC understands the state's focus on school buses as the preferred vehicle option, given their greater safety record and other considerations. However, the state needs to better recognize this burgeoning transportation need and the multiple mechanism used by districts to provide services within their legal limits.

The inclusion of non-school bus routes in the data is one option to better associate this service with the associated expenditures, but is unlikely to assist those districts with the greatest funding needs related to high homeless student populations. As previously discussed, the correlation of the current transportation site characteristics (variables) in the model with overall expenditures is already quite high (above 96%). Including these generally longer, lower density routes for certain districts may increase this correlation, but is unlikely to provide substantial additional funding to those districts with the greatest, and generally disproportionally high homeless transportation requirement since the expenditures are already in the cost base.

Based on the information provided within the 2016-2017 Homeless Transportation Report, only 38% percent of districts reported homeless transportation related costs, and among these there was high variability in the number of students, miles, and costs from district-to-district. This understanding is limited in that the Homeless Transportation Report is not a mandated report and there may be missing data related to this assessment. Taken as is however, this illustrates that homeless transportation needs are not evenly distributed across the state due to district size and population characteristics. This implies a need for more focused funding to address the variable homeless needs, and a more targeted approach to their allocation. To include funding within the current allocation model would, through the construct of this model as an averaging approach, likely wash-out the unique nature of the service and individual district needs.

Figure 1 demonstrates this variability. Note that many districts are included on the X axis of the graph and are therefore not uniquely named in this presentation. This chart is simply provided to visually represent the variability in homeless transpiration needs.

Figure 1 – 2016-2017 Homeless Transportation Report: Students, Miles and Cost per District



Recommendation 3: Include MVA transportation as an Alternative Funding Adjustment Category in future years. Require a change in WAC to mandate detailed collection of MVA costs including transportation costs via non-school buses. Further studying the trends and expenditure amounts of non-included transportation costs related to homeless and foster care students should be a goal of the state. To assist in achieving this goal, a mandated report of expenditures would be required. From this study, targeted supplemental funding would be the best strategy within the current methodology to provide funds to the appropriate districts. This supplemental funding provision within the model is currently used to provide funds to districts based on other unique categories, making this a logical extension to an approach already used by the state.

Indirect Costs of Providing the Service

Another area of adjustment that should be considered for inclusion in the funding process is an expanded incorporation of indirect costs. Indirect costs are those expenditures not included in the Program 99 expenditures, such as utilities and overhead office expenses. Currently, only districts that receive their prior year expenditures, not their expected costs, receive an additional indirect cost allocation. Since indirect costs are not specifically calculated in the Program 99 expenditure, they are not included in the derived funding totals. The allocation of indirect costs is therefore completed by adding the Federal Restrictive Rate percentage of the prior year expenditures to the entire prior year expenditure amount, and applying this to those districts receiving their prior year amounts as their funding basis. With the “lesser of” mechanism, districts are not given all or any of this added indirect funding if they receive the calculated allocation amount.

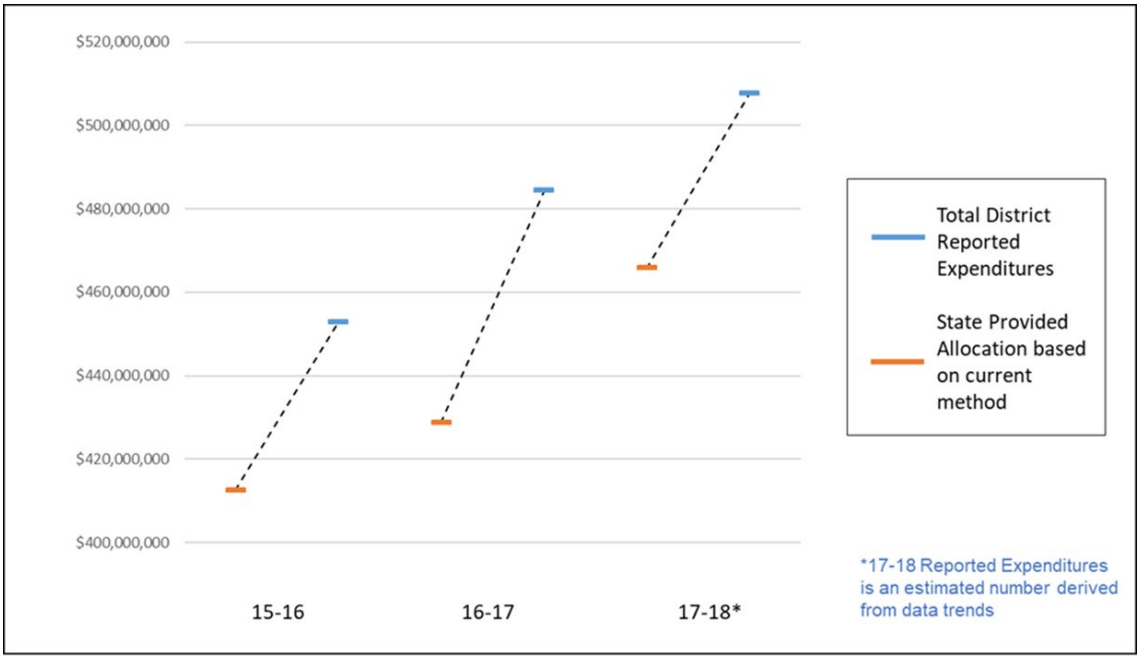
Recommendation 4: Indirect cost adjustments should be provided to all districts. Two options exist in which to correct this imbalance of indirect cost funding to districts. The first would be to ensure that the Program 99 expenditure calculation cover all conceivable costs related to home to school transportation. This, in effect, would do away with any post-model calculation, as indirect costs would be accounted for and predicted by the model as they are for all other transportation characteristics. This would put a focus on ensuring that all costs are truly and accurately captured in the Program 99 expenditure reports (see further discussion under the Audit and Process Control section); a goal that may be difficult to achieve. The second option would be to calculate and provide all districts with indirect costs based on the Federal Restrictive Rate. This can be done with or without the "lesser of" mechanism. The discussion of the "lesser of" provision as is its own adjustment to the Allocation Model is included in the following section. If the "lesser of" mechanism is continued, then indirect costs should be provided to all districts based on either all districts' prior year expenditures or calculated based on the lower of the model allocation or the prior year's expenditures. Calculating and providing funding based on all districts prior year expenditures would be equitable and ensure an amount closer to full funding. The amount of indirect costs that would be provided to all districts is provided as part of the analysis in Appendix B. Regardless of the mechanism chosen, language in the Washington Administrative Code should be adjusted accordingly.

Other Adjustments to Funding

As previously discussed, the "lesser of" mechanism leads to several issues within the allocation funding methodology as a whole. First, including this mechanism always results in a lag in funding provided to districts year-over-year relative to actual costs incurred. Second, it also contributes to the issues described above regarding lost indirect cost funding. Furthermore, the mechanism allows the predictive Expected Cost Model to adjust funds provided to an amount actually less than previous year's expenditures, yet does not provide corresponding positive adjustments.

It is understandable and reasonable that the state would not want to provide more funds than needed by a district. Currently, the model increases funds based on transportation characteristics that are being reported, but there is a time lag in this reporting. For example, if 100 more Basic riders are added to a system in 2017/2018, costs to the districts to provide transportation will also increase during 2017/2018. Currently these funds only appear during the 2018/2019 period when the subject district reports the increased costs incurred during 2017/2018. Thus, a lag is inherently built into the system and alternative funds are required by the district to cover these costs. Figure 2 provides an illustration of this effect.

Figure 2 – State Allocation vs Reported Expenditures



Recommendation 5: Consider including additional threshold-based adjustments to funding. Consider the inclusion of additional mechanisms beyond the application of the "lesser of" standard to the model results. One analysis completed by SBC applies floor and ceiling thresholds to funding increases and decreases as determined by the "lesser of" mechanism. Within Appendix B is a graph demonstrating the effect on funding against reported expenditures for the entire State if a 10% floor and ceiling threshold were utilized instead of the "lesser of" mechanism. A 10% percent threshold was utilized as an easy to understand base figure. What is apparent from this graph is that the funding is now closer to actual expenditures as the lag has been softened year-to-year. This approach would require the state to provide a one-year jump in funding to match what will be provided in the next year, but this "catch-up" funding would not be repeated. Regardless, this recommendation requires more analysis before a finalizing an approach, and there should be consideration of other potential alternatives to mitigate the issues as described.

A 10% threshold was applied for illustration purposes only. The State may decide to provide only a ceiling or floor threshold, or two different percentages for each. The threshold could also be based on a historical variance of the reported expenditures against the model calculated funding amount. For any given year there will be swings in funding that are valid based on changing site characteristics. Study of this variance will provide understanding into how much is common or average across the districts both higher and lower from prior year expenditures. Within Appendix B is a breakdown of this variance for 2015/16 and 2016/2017. SBC believes that further study is needed to ensure the efficacy of the approach, and that appropriate thresholds are used.

Utility of the Funding Allocation Methodology

Early in the discovery process, a disconnect became apparent between the intent of the funding allocation formula and its implementation. Key stakeholders do not fully understand the combination of methodology, calculation, and system that produce the final allocation amounts. Confusion and frustration, and a seeming inability to properly forecast and plan exists from local districts up through OSPI and the State Legislature. When coupled with turnover amongst leadership and staff, the original intent of the mathematical formulation, and the processes required for its implementation, have simply become unclear, resulting in a broadly held sense of uncertainty relative to the utility of the funding allocation methodology as a whole.

High clarity was previously identified as one of five often conflicting goals to be pursued in the design of a funding formula. The introduction to this report also alludes to a finding that the desire for clarity, together with another goal of low administrative burden, was either unknowingly deemphasized in the development process for the current formula, or was largely overcome by the desire to achieve other goals. Regardless of cause or intent, a need to refocus on the clarity and usability of the funding allocation formula and associated methodology emerged as a major, if unstated, requirement for this study.

The Washington Administrative Code (WAC) provides the regulatory guidance for the funding methodology. Appendix C provides an analysis of the current language, identifying gaps in coverage and shortcomings in interpretation that, we believe, have contributed to a short-of-success roll-out of the basic design. Much of the complexity and lack of understanding that leads staff at all levels to treat the process and the results as a “black box” can find its roots as much in the process defined in the WAC as in the complexity of the formula calculations.

Recommendation 6: Draft and implement changes to the Washington Administrative Code to improve overall utility of the current funding allocation process. The specific changes and enhancements recommended are described in more detail within Appendix C, and are summarized here:

- Adjust and substitute language requiring the timely completion of the allocation determination process to better support the annual funding and budgeting processes of the state;
- Better define a process of analysis and review for the funding allocation formula to ensure regular attention is placed on ensuring its continued utility and accuracy; and
- Better define the limits for, intent of, and practical application of funding adjustments allowed and applied outside the calculations of the formula itself.

Currently, annual funding amounts are determined by entering various logistical data collected from the local districts into STARS, the Student Transportation Allocation Reporting System, for fall, winter, and spring reporting periods. STARS is software designed specifically to provide a consolidated tool for the management of the funding allocation process. The model’s calculations occur within this software. After results are calculated, OSPI has the opportunity to incorporate certain adjustments.

STARS incorporates the ability for districts to enter their own required datasets, make changes as required, and review published reports. This access does not, however, provide any transparency into the formulation of, or any supporting analyses that interpret the results. There was no significant concern expressed concerning the processes surrounding the input of data, the requirements themselves, or the components related to elements such as Geographic Information Systems (GIS) route auditing, authorization for new schools, or Regional Transportation Coordinator (RTC) approvals. Interviews did, however, reveal concerns with other elements including, but not limited to:

- Confusion regarding the underlying calculations;
- Adjustments to funding following the model calculations;
- STARS not being fully automated;
- The need for additional software outside of STARS;
- The need to update the technology on which STARS and associated software is based;
- The ability and ease in finding historical data and reports;
- The decision to track mileage from stop to destination instead of actual mileage the bus travels in an operating day; and
- An absence of process to count homeless students that are not traveling to and from school on a yellow school bus.

Recommendation 7: Invest in software and related technology improvements that will improve the utility of the current methodology, and stabilize the systems required for its continued viability. It has been observed and discussed with SBC that the underlying software code of the STARS system needs updating to better align with modern web-based application languages. Therefore, an investment will be needed in software redevelopment, regardless of any other recommendation, so that the STARS program can continue to be a functional web-based tool in which districts can remotely submit transportation information, and so that OSPI can process this information into the end reports used for funding and performance assessment. The timing would align for legislative changes to be incorporated into the program mechanism used to produce the final allocation report. SBC believes the state has made a wise investment in ensuring the allocation system is in web-based program and it should ensure the longevity and modern upkeep of this program through periodic reinvestment.

Recommendation 8: Make reporting and accessibility improvements to the STARS program. A report is compiled in February of each year following the process as defined, and based upon the data inputs as described. An example of this report is included within Appendix D and illustrates the difference between the calculated (expected) cost of performing transportation services and the district's prior year actual expenditures. This output report is in itself poorly understood and is considered complex and confusing, with the result that districts often question their result, the reasoning behind their allocation, and are left wondering why neighboring districts received more. Over time, this can result in the users conjuring ways to undermine or otherwise "game" the system, further undermining its validity and utility. Redesigning the reporting and other outputs of the STARS system should become part of its overall redevelopment as recommended above, and doing so can serve to mitigate many of the other concerns expressed and summarized above.

Recommendation 9: Redevelop and make available appropriate educational materials and processes within OSPI to ensure maximum ongoing understanding of the underlying approach to funding. A core finding and recommendation of this study is the retention and continued use of the current expected cost funding mechanism. STARS is the key supporting software system that enables this approach. There was also considerable effort and attention placed on the design and implementation of this modeling technique. It is admittedly complex, and thus requires continued and ongoing efforts in education to ensure it continues to be understandable by all stakeholders, including local districts. If the previously discussed changes are implemented, modification to the reporting and the system's allocation mechanisms will be needed. SBC believes this also represents a logical opportunity to invest in educational materials on the formula's mathematical functioning and its validity and applied use. Appendix A provides example language in which to approach the explanation of the calculations.

Thus, the combination of formula, tool, and process currently act together in a symbiotic way to collect data and provide an allocation, but without sufficient insight or transparency into how the amount was determined. This is insufficient to ensure confidence in its accuracy or equity. Taken together with issues identified within the regulatory language, the image that emerges is of a fundamentally sound intent, but a roll-out that left much to be desired relative to its clarity and usability in a practical operating environment. The recommendations contained within this section are collectively designed to improve on this dynamic.

Accurate and Timely Cost Forecasting

The discussion up to this point has focused largely on the technical aspects of the formulation and recommended adjustments to the mathematics, tools, and processes used for determining an appropriate current year funding allocation to each local school district. These processes focus largely on capturing data and conducting calculations based on statistics and costs from past time periods. The funding allocation is therefore predicated on backward-looking historical costs rather than forward-looking forecasted costs. But school districts and their transportation operations are ongoing activities that require predictability and stability in the provision of funding on a go-forward basis. Thus, the challenge is to accurately calculate, and provide funding, to cover the costs associated with providing the service in the current fiscal period while also forecasting cost changes to ensure that adequate funding will be available in future periods. Our analysis indicates that certain changes to the manner in which input data is utilized could enhance the achievement of both objectives.

The state operates on a biennial budget as adopted by the legislature. This defines a need for a biennial cost forecasting methodology to complement the annual funding allocation methodology currently in place and as discussed earlier in this report. The best source of data to support these separate but complementary processes is the actual transportation data already being submitted during scheduled reporting periods by each local district. These data are currently utilized within the annual allocation calculations, but this is only focused on the determination of funding to be provided in the current year and does not currently support any mechanism in which to predict future transportation costs. The same data can be used to support both processes.

Accurately forecasting transportation costs involves predicting changes to the same input variables used to calculate current-year funding, as well as understanding overall economic

trends that are impacting transportation costs in a unique way. There are three input variables that have the most impact on funding allocation because these are the same variables that have the most impact on defining transportation costs:

- The count of Basic Riders served;
- The count of Special Riders served; and
- The count of Destinations (schools) served

Other variables that have influence on costs and funding are either derived from these factors, such as the number of route buses in use, or are predominantly static year-over-year, such as total land area within the district. Trend analysis on a district, regional and statewide basis for these three key variables is therefore a logical starting point for cost forecasting. Other known factors that may substantially alter these historical trends can then also be considered as additions to the forecasting methodology. If, for example, OSPI becomes aware of a school consolidation initiative in a particular local district, this finite and one-time change can be incorporated into the predictive modeling for the year in which the consolidation is to occur.

Once predictive changes to the key input variables are determined, overall cost trends should also be incorporated into the forecast. This portion of the forecasting methodology should include, but should also go beyond, the incorporation of an assumed inflation factor based on CPI or other published data, as there are specific trends that may impact transportation costs disproportionately relative to other aspects of education funding, such as:

- Fuel costs; and
- Driver salaries.

Some of these factors are already tracked by OSPI, and therefore a similar application of trend analysis and targeted adjustment based on local or regional knowledge can be applied. Trend analysis is likely already utilized to understand costs related to education needs for each district. The core underlying statistic that drives related funding decisions statewide is the number of students served. The benefit of the current transportation allocation calculation is that it translates this core value to values relevant to transportation: the number of students receiving transportation service in two major categories (Basic and Special), each of which have radically different cost structures. It then combines this with other transportation input values to gain an understanding of the appropriateness of the costs being incurred. The ultimate expression of cost in transportation is number of route buses needed. Unlike other aspects of funding, such as the number of teachers required for a given number of students and desired teacher to student ratios, the count of route buses is the most effective base resource value against which all transportation cost projections should be based.

Recommendation 10: Utilize a combination of trend and economic analysis to develop a biennial transportation cost forecast as a complement to the annual funding allocation process.

Using historical data from STARS, consider developing a trend-based cost forecast predicated on the three core input variables, as discussed above. The purpose would be to forecast one core value: the number of route buses predicted to be in use by each local school district for each of the next two years. Once the number of route buses has been forecasted, develop an aggregated cost forecast by applying the fully burdened cost per bus for the local district, again by using trends calculable using available historical data, to the total number of buses required. The cost

per bus should be adjusted based on historical trends, but also for other key economic factors uniquely impacting transportation costs such as expected changes to the cost of fuel, and labor market considerations that affect both the availability and cost of employing bus drivers. This cost forecasting methodology should become a routine adjunct to the funding allocation process. It should use the same input data, but should accumulate the year-over-year results to facilitate the underlying trend analysis on which the forecast will be based.

In addition to the biennial cost forecasting that is needed, the manner in which the current process utilizes input data to calculate current year costs also needs to be reexamined. The system incorporates prior year expenditures together with current student, mileage, and route data to predict expected costs for the current year. Returning to our analysis of the related WAC requirements within Appendix C, we find the timeliness of the entire process and its associated requirements leads to a complicated mix of prior and current year data inputs. This is especially true in the context of predictability and timeliness. It is true that the local districts can access the simulation capabilities of STARS to test and plan for changes within their systems. The system predicts results based on changes to eligibility requirements, seating guidelines (counts of riders), and destinations, but the core issue continues to be with the timing of the input data used within the modeling. The current schedule calls for multiple inputs on an annual cycle:

- The year and reporting period starts on September 1st;
- Districts work finalize their actual line item expenditures from the prior year;
- Fall routes, student counts, and mileage must be entered by October 31st;
- OSPI receives the final tally of actual expenditures in December;
- OSPI funding work preparations occur in January;
- Winter counts are due February 1st;
- The allocation runs in February, with totals provided to the districts on a prorated basis by the end of this month;
- Spring counts are due in March;
- Final coefficients with adjustments are due by June 1st.

Recommendation 11: Adjust timing of the Allocation report to be completed by the end of December or beginning of January each year. This can be accomplished via the removal of "Current Year Winter" data as an input into the Allocation model. Instead, a 50% previous year/50% current year input of transportation data should be used in the model. This balances the accounting for current year conditions and prior year conditions and links to the prior year expenditures used in the model. This can be implemented in one of two ways:

- Using a new reporting period falling between previous Winter and previous Spring plus current Fall (WS + F)
- Using previous year Winter and Spring plus the current Fall reporting figures multiplied by two (W + S +2F)

Audit and Process Control

With the recommended changes to the systems, as well as the clarity and timeliness of the methodology as recommended above, the overall utility of the entire process and mechanism will be improved. That said, the inherent complexity of the current funding allocation approach will remain. This implies the need for a robust program to audit the multiple data inputs that serve to produce the allocation results.

The state previously relied on a unit-cost allocation approach based on a fixed amount of funding for each unit of service delivered. For transportation, the units of service included the number of students transported based upon a weighted mileage factor, and then adjusted for the distance of each student's stop to their destination school. The distance factor "weights" the student count such that students residing farther from their school ultimately generate higher funding amounts.

The current revised allocation methodology utilizes an increased number of transportation variables, including students of both Basic and Special rider types, land area, average distance of bus runs, the number of destinations, and the inclusion of districts with no high schools and if they provide transportation to high school. Finally, these values are measured against the prior year expenditures of the districts within the allocation model based upon the Program 99 information from each district. This modeling complexity also leads to increased auditing complexity to ensure the underlying data feeding the system is accurate and complete.

Recommendation 12: Focus future transportation auditing efforts on the input values most impacting the results. Further details of the Program 99 lines items may assist the state in auditing and underlying expenditure details. Data entered into the STARS system should be important starting points to check for errors, but Program 99 schedules contain summarized line items in which little detail exists. Errors in the Program 99 schedule of each district affect not only that districts' potential funding, but also the underlying mathematics of the calculations. Future auditing efforts must investigate the detail behind the submitted reports for accuracy. In addition, the transportation characteristics themselves must be part of a regular auditing program. Expenditures aside, the accuracy of these input variables can have a significant impact on the level of funding as calculated in the system. Of particular focus should be the student counts, average distance of bus routes, and the number of destinations. However, SBC understands that in the submission process, OSPI Transportation staff and RTCs already review this data for general accuracy and completion. These staff members are knowledgeable of these transportation inputs and can easily discover discrepancies. The auditing program should leverage this expertise.

Personnel-Based Adjustments to Funding

Another important issue brought to SBC's attention regarding the usability of the allocation model is the capacity to forecast and make supplemental adjustments to funding amounts outside of the established protocols. Of particular relevance are special or one-time personnel-based adjustments and the difficulty in understanding these costs and counts within the current processes. When the state provides adjustments based on classified or unclassified employees, these apportionments are provided to districts based on known pupil to Full Time Equivalent (FTE) ratios. These FTE-based ratios are utilized across multiple employee types in all situations where this is appropriate for relative apportionment. For transportation, the application of this ratio is far

more complicated than in other areas of education funding, for reasons as discussed above in the cost forecasting section.

The primary consideration is the nature of employment for most transportation employees. Total employment in this function is dominated by school bus drivers and, to a lesser extent, on-board attendants and aides. These employees are generally part time and work a flexible and often non-fixed schedule. The length of employment each day is generally determined by the time their assigned bus route takes to complete, which can be highly variable across a system, and can also vary day-to-day for an individual bus route. This makes it difficult to determine the number of FTE employees within a transportation operation at any given moment. This is further complicated by some operations being contracted to private sector providers, and by other variables that affect the number of bus routes in operation during any given school year such as the size of a district, population density, walk areas, and special rider amounts. These are examples of the factors considered within the current allocation funding approach, and further illustrate why this approach was implemented in favor of a unit-based allocation based on pupil counts.

The state currently has detailed figures of both classified and unclassified employees' in the S275 Personnel Summary Reports. SBC believes that utilizing the number of classified and unclassified employees in each district transportation operation, as reported, with comparisons of these values to the number of route buses in operation, will produce a more effective ratio on which to base supplemental apportionment for transportation than the pupils-per-employee ratios in use elsewhere. The number of bus types should be separated between Basic and Special Rider to account for real differences in the administrative and on-board staffing needs associated with these services. The few districts that outsource work to contracted service providers can be assessed separately.

Currently the allocation model performs a calculation based on key input characteristics that influence the number of route buses actually necessary to complete transportation work at each district. The Expected Allocation Value used in the Allocation model is, in the end, a relative resources-based value reflective of these characteristics. It is calculated before funding values have been assigned to each district. OSPI could use this resource value to apportion salary adjustments as this measurement already accounts for the variability of route buses needed by each district. SBC is not explicitly making this a recommendation as more investigation is required, and was outside the scope of this study, to ensure the staffing levels of self-staffed operations show a strong correlation to the Expected Allocation Value calculated within the allocation model. SBC expects that a strong correlation will be present, but was unable to make this determination within the scope of this project.

The fundamental suggestion in regard to making personnel adjustments to funding is therefore for OSPI to consider utilizing the number of route buses per district as the ratio-based value for determining the amounts to allocate. Further adjustments can be provided by a developing a subsidiary ratio between the number of regular education and special education buses in use. This places an obligation on the OSPI financial services team to confirm the validity of the approach. In order to limit this burden and to reuse the calculations within the STARS program, this ratio can be derived from the model's Expected Allocation Value. Further work should still be performed to ensure this correlation meets OSPI's end goals for personnel-based funding apportionment, but this would provide a reasonable basis from which to begin.

Transportation Performance Management

Performance Objectives and Related Requirements

While the primary objective for the state's pupil transportation program is to provide full funding of local district operations, there is an attendant responsibility to ensure the funds are used properly. We therefore continue with the important subject of how to encourage the efficient and effective use of state-provided funds. We focus this discussion on the state's responsibilities to *assess* and *encourage* without an attendant mandate to force change, as the need to retain local district control of operations is not in dispute. That said, we also add as part of this a renewed focus on the state's efforts to *assist* the districts in their improvement efforts.

In conjunction with the previously discussed Allocation Reporting System, the State of Washington OSPI currently employs a mathematical model to measure the efficiency of each district's transportation program. The implementation of this parallel efficiency system is the result of the 2008 study of multiple potential mathematical formulas. One of the two proposed solutions resulted in the current Allocation Reporting System, which included the adjunct Target Cost Model for measuring and reporting on efficiency, but with no direct link to the level of funding provided. The output of the Target Cost Model is an Efficiency Report that pivots entirely on a single composite score that is the summary output of this model. As part of the implementation of this mathematically sound, albeit complicated, system was a legislative mandate that districts performing below the somewhat randomly defined threshold of 90% efficiency be evaluated by OSPI.

When implementing this Efficiency Report system, the State decided that the resulting efficiency score and associated efficiency calculations should be separate and have no influence on the funding allocation provided, although common data serve as inputs to both mathematical models. This decision to measure efficiency, yet not relate efficiency to funding, was made after careful deliberation. It was in the design and subsequent implementation of this program that a number of key issues were revealed. It is only now with the perspective of several years of actual use that these issues have become apparent.

The current approach to performance assessment and any continuation of a similar program therefore require the further discussion of three overriding objectives of any performance management program:

1. Conducting assessment and analysis;
2. Providing performance improvement assistance; and
3. Retaining separation of the performance management and funding programs.

The subsections that follow will discuss each of the three objectives as they relate to the current system's effectiveness. Details on the implementation of each of the recommendations contained within each subsection will then be discussed in the context of a single revised overall transportation performance management program.

Performance Assessment and Analysis

The state is currently involved in performance assessment and analysis via the Efficiency Report and associated Efficiency Rating. The objective to understand how efficiently state-provided funding is being used by the districts is an important fiduciary role that must continue. The current mechanism focuses on a single output, score-based metric from the Target Cost Model in determining whether each district's use of funds is appropriate. Though this score is designed to be simple to comprehend as a single, overarching measure of performance, it fails to produce actual understanding of the factors that influence the result, nor does it provide for adequate explanatory context. Additionally, the mathematics behind the model are inherently complex and are difficult to understand absent close study. The intention to present a simplified score based on a complex mathematical model has not been realized, and instead has resulted in lost confidence among most stakeholders while undermining the actual value provided by the modeling.

SBC finds that closely associating the efficiency score itself with the actual performance of a district transportation system is problematic and not in line with the most appropriate use of the Target Cost Model's sophisticated mathematics. The Target Cost model measures the use of funds across multiple input variables for one district against a theoretical "target district". This target district is created from a collection of weighted factors among data provided by all other districts in the state. In other words, the model is using real life data to create a theoretical comparison district.

The weighting accounts for the fact that no two districts are truly the same, as each has their own unique characteristics and operational circumstances. The weights identified between the measured district and comparison districts are generated by the model to identify, for each school district, how much influence to place on each factor from each of the comparison districts in order to produce an appropriate target for the measured district. This "target" district deliberately lowers the funding and buses required by the largest possible percentage in comparison to the measured district by identifying the most efficient comparable factors in each comparison district. This is performed while maintaining the same number of students transported. The model is performing an analysis of the measured district against the all other districts in the state as if each had the same number of students requiring transportation, with the inclusion of the variance in site characteristics such as road density and district area. The model then provides a representative list of actual districts and a value that shows how much "weight" that district has the calculation of the theoretical target.

To summarize, the target district is a theoretical representation of the lowest the lowest value of funds and buses that could possibly be used by the district being measured, based on real data from all districts in the state, but weighted appropriately to account for varying site characteristics. Thus, across multiple weighted factors a theoretical district is created that is comparable to the measured district, but with maximized theoretical performance efficiency. This mathematical construction is therefore providing valuable comparative information regarding a district's theoretical potential versus its current results. This should, however, only be considered as a starting point – an initial indicator of performance – rather than a single all-encompassing measurement or judgment of performance.

There is a current mandate within legislation to report on all local districts that fall below a randomly defined 90% "Efficiency Rating" threshold as compared to their "Target District". Currently, the Regional Transportation Coordinators (RTCs) are mandated to use this score as derived from the Target Cost Model to further study these districts each year. Given the difficulty in understanding the underlying mathematics, and the inappropriateness in defining performance via a single metric, OSPI created a companion mechanism to use in these studies. Known within the program as Key Performance Indicators (KPI), these constitute a supporting use of additional measures to study those districts falling below the 90% threshold, as well as all other districts, to gain further understanding into overall performance. RTCs have appropriately used KPIs to assess districts over multiple years. This further level of trend analysis has proven to be highly understandable to districts and the RTCs. The current KPI reports, however, lack a focus on overall data trends, nor are the underlying mathematics as robust as those of the Target Cost Model. Thus, there are two parallel systems currently in place: One that is mandated, complex and overly focused on a single end score; The other is more readily understandable, yet less mathematically robust. Taken together, however, they provide a workable foundation for a valuable and functional performance management program.

Recommendation 13: Eliminate the use of the Efficiency Rating and combine the current performance management mechanisms into a single, expanded program. The implementation of, and focus on, the Efficiency Rating as a single, definitive judgement of each local district's transportation performance is misplaced. Its continued use is currently a major distraction to achieving the goal of understanding and ensuring proper use of resources. The state should revise the approach of performance assessment and analysis by merging the best concepts of the Target Cost Model and the Key Performance Indicators into a program that focuses on data trends and that eliminates the focus on a single efficiency score. This recommendation is expanded upon in the Transportation Performance Assistance Program section later in this report.

Performance Assistance

Assessment and analysis on their own provide no particular management value. Rather, the goal of any performance assessment and analysis mechanism should be to influence and encourage districts towards the best use of the funding resources provided by the state. The final report that is mandated for districts that are performing under the 90% Efficiency Rating threshold is inherently a tool of performance management, albeit an ineffective one. The report's goal is to provide direction to districts on how to better use their resources, if any is found. As previously stated, this requirement to report is based on the Efficiency Rating alone. Outside information via the KPI report is currently used to enhance the mandated report, but information gathered by the KPI report on districts with scores higher than 90% is not a focus of the mandate.

The result after five years of this current approach is a reoccurring reporting focus on the same districts, many of which are routinely receiving a rating below 90% and which are therefore the subject of repeated analyses per the requirement of the legislative mandate. Often, the same core findings are repeated in these reports, recognizing that the model is calculating the single assessment score the same way and is not entirely illustrative of all the unique characteristics or circumstances these districts are facing. No mathematical model can hope to be 100% accurate or representative of reality at all times. This, fundamentally, is why the focus on the single Efficiency Rating as a standard of performance is so misplaced. The laudable goal of providing

value-added assistance to districts in the performance program is therefore being lost in the singular focus on the efficiency score, and the consequent re-analysis of the same results year after year. Instead of assisting districts who may be able to improve the use of resources provided, the scores have created a pass/fail culture which has distracted entirely from the original purpose of the program. This makes approaching districts who are continuously receiving a lower score an exercise in diminishing returns, has increased levels of frustration with the mechanisms of reporting, while also allowing districts with higher scores to assume that no improvement is needed or possible.

The validity and utility of the Target Cost Model outputs are being obscured by the focus on the Efficiency Rating as a single measure of performance. As with the funding model, the underlying mathematics continue to be valid, and produce outputs that provide valuable indicators of performance. It is the manner of use that needs to be clarified, expanded upon, and applied in a manner that properly identifies and targets for further study specific examples of both sub-par and superior performance such that the analytical efforts can inform the entire state transportation system as to how to better manage scarce resources without undermining local control or decision-making.

Recommendation 14: To meet its fiduciary obligations, the state should implement a comprehensive, thoughtful, robust, supportive, and non-punitive program of transportation performance measurement and management. This program should incorporate the positive elements of the Target Cost Model, layered with an expanded and revised use of key performance indicators, and should be used to facilitate a far more targeted use of subsequent analysis and reporting. The objectives of this program should be to enhance the availability, visibility, and use of data to all local districts such that they can use the program to make improved, data-based decisions regarding the structure and performance of their individual transportation programs. This recommendation is expanded upon in the Transportation Performance Assistance Program section later in this report.

Performance Management and Funding

By design, and following extensive analysis, debate, and discussion during the 2008 formula design process, the Efficiency Report and its rating are not tied to the allocation of funds. To reengage in this debate now would be to relitigate the case, and is unnecessary in the opinion of SBC given that nothing has been fundamentally altered in the underlying circumstances that led to this decision in the first place. This is especially true given the increased focus on full funding imposed by the McCleary decision. Thus, the recommendations in the preceding two subsections, and the design of the proposed Transportation Performance Assistance Program that follows, presumes continued separation of funding from performance measurement.

The tradition of local control for school districts is strong, but must be maintained within the bounds of state legislation. Yet potential improvements can always be found, even amongst the highest performing districts. Implementation of these improvements should be encouraged through transparent reporting and peer-to-peer information sharing. As discussed in the funding allocation section of this report, SBC believes districts are indeed properly motivated by the design of the funding allocation formula itself, and the mechanisms used for its implementation, to properly utilize state-provided transportation funds. Guidance, however, based on OSPI expertise via RTC's and their analyses, can nevertheless help districts learn, innovate and enhance their

transportation systems. This level of state involvement need not be punitive via a scoring system or restriction on funds provided, but rather can be supportive and encouraging via the provision of expertise and resources not available to the local district. This focus on assistance and partnership that promotes change through understanding and analysis would serve to complement the continued use of the current funding allocation process.

Recommendation 15: Retain the current hard break between the calculation of funds to be allocated to local districts and the measurement of local district transportation performance. The state, after much study and debate, deliberately determined to have no direct tie between performance as measured, and the funds allocated to each local school district. SBC finds no compelling reason to alter this decision based on our analysis of the past five years of use for the current system. SBC furthermore believes that local districts are properly motivated to use state-provided funds responsibly, and that with an enhanced performance measurement and management program in place, the State will meet its objective of ensuring that this continues to be the case.

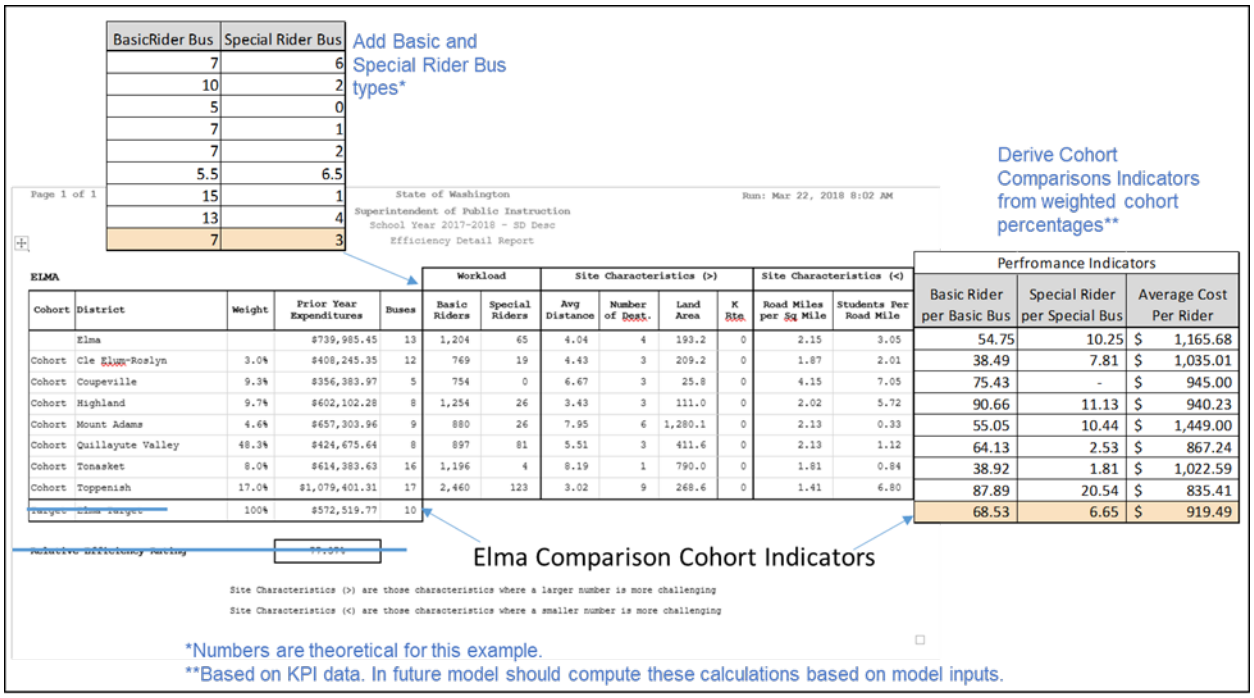
New: Transportation Performance Assistance Program

In pursuing the preceding recommendations for performance management, SBC believes the best path forward for the State includes continued use of the Target Cost Model, but only as a starting point for constructing a robust, expansive, and relevant performance reporting system. The focus on a final, definitive Efficiency Rating should be removed in favor of using the model to generate a set of weighted comparative performance indicators. Increased utility should be added to the reporting that allows for trend analysis over time and in relation to the comparison indicators. This, in essence, merges the core concepts of this modeling with the KPI program and utilizes the Target Cost Model as a robust comparative tool, as opposed to producing a judgment-based output.

Figure 3 provides a visual representation of the major changes SBC recommends be made to the current Efficiency Report output of the Target Cost Model for any given district. It should be noted that this figure and those that follow incorporate actual data from the Target Cost Model and the KPI reports with some theoretical calculations added in, such as the number of Basic vs Special rider buses[7].

Figure 3 – Changes to Model Inputs and Derived Indicators

[7] The figures contained in each example are meant to illustrate the utility of a new system only, and are not meant to be definitive or representative of any current district's performance.



It should be noted that in Figure 3 that the Efficiency Rating is fully removed. This is done to refocus the attention on the actual comparison metrics being calculated by this system and currently being lost with the focus on this rating. In addition, SBC recommends that Basic Rider and Special Rider bus types should be added to the report. This will require additional minor data collection as inputs to the modeling. Currently only “buses” in a general sense are entered and thus provided as output metrics in the model. Identifying separate types of buses in the model will demand the definition of bus types by the state for the purposes of the STARS program and the inclusion of this detailed information in the submission of information from districts. SBC believes that this extra level of definition will:

1. Allow districts and RTCs to better understand the number of assets used across what are normally two very different transportation systems in terms of operation, planning, and costs. Understanding how many buses for each system are currently needed and potentially needed per the model is more beneficial than a single total bus number.
2. Entering the number of each bus type into the system will allow for the calculation of Rider per Basic Bus and Rider per Special Bus performance indicators.

As is currently the case with the total number of buses, the state should ensure that districts input only the number of buses that are actively used to perform daily home to school route work for either Basic or Special transportation as defined under the Route Categories in the Detailed Guidance Manual. Determination of bus types should follow the determination of the routes as reported to STARS. Though it is not common, if a bus is used for both Basic and Special routes (or Basic and Special Education students on the same route) it should be defined by the state how to account for this in STARS. SBC believes that simplicity should be used in this case to avoid confusion and lower administrative miscalculation (e.g., any bus that does both Basic and Special route work could be counted as 0.5 bus for each category).

Finally, it will be noted Figure 3 that the Key Performance Indicators currently calculated and used by RTC's and the State: Basic Rider per Basic Bus, Special Rider per Basic Bus, and Average Cost per Rider have been layered onto this report for illustration purposes. The system should *not* be revised to calculate these indicators for the actual districts but employ the same weighted mathematics to derive comparison cohort indicators for each district. Thus, further understanding is gained on the system's current performance as well as how a theoretical comparison district would perform along the same indicators.

These modifications as described would provide a strong starting point for a revised annual reporting structure, but further indicators can be added. For example, Costs per Basic and Special Riders would be ideal indicators as the costs to transport each student type are typically vastly different. Parsing and providing further granularity to the outputs would enhance the value of the reporting. However, this would require further Program 99 definition of costs for each service type and likely estimated or derived calculations for costs that cannot be easily ascribed to each. The state must achieve an appropriate balance between the level of effort required to capture and report on the more granular data, and the management value gained. Though these example KPI enhancements would be beneficial for greater understanding, the higher administrative burden would likely frustrate districts and OSPI staff due to added complication, outweighing any enhanced analytical benefits at this time.

Recommendation 16: Invest in a redesign and reprogramming of the Target Cost Model to combine its functionality with an expansion and formalization of the Key Performance Indicator program. Currently the Efficiency Report is created yearly based on the data entered by all districts in the STARS system. A manual process is then performed to retrieve, format and run the site characteristic and cost values for each district in a linear programming mathematical program. The current program is an annually-purchased *Microsoft Excel* add-in named *Solver*. The program's outputs are then compiled into the Efficiency Report used today. The current KPI reports are also manually prepared based on the data input in STARS. Though elements of each process are automated through STARS, the linear programming built into *Solver*, and *Excel* Marcos, many manual steps are taken to transfer, manipulate, and utilize data. These steps add to potential errors in processing the data and time focused on report preparation. Furthermore, the recommended changes to the performance assessment report process will add in extra manual process and a redesign of the underlying coding used in the *Solver* program.

Therefore, it is recommended that an investment into automation of the performance assessment data be made by the state. Changes are already needed to update the current STARS program to bring the underlying web-based coding up to date. Furthermore, SBC's recommendation to adjust the mechanism used in the allocation report will also result in software coding changes in STARS. SBC recommends that the State use this potential period of dedicated funds and time to reprogram and further automate the data processing involved with the performance assessment data models. A more automated system will allow the OSPI staff to spend more time in analysis rather than generating the base data. Finally, an automated process ensures that the program continues on through the department and does not hinge on the understanding of any individual staff member.

The enhancements recommended above, together with the revisions to the underlying tools that enable the calculations, will provide for a sustainable mechanism to support the annual collection and use of operational data and to develop the annual outputs required by the recommended program enhancements. Figure 4 illustrates the steps that should follow. Annual calculations, just

like the current Efficiency Rating, provide a view of district performance as a snapshot in time. True management value is derived not only by comparing this snapshot with other districts, but also over time as a trend analysis. Figure 4 encapsulates the changes previously discussed and further focuses on output indicators and trends by removing the site characteristic values used in the underlying calculations from the output report. The site characteristics are potentially valuable for subsequent analysis and should be accessible to Districts and OSPI staff as needed, but excluding them from the report lends clarity and focus to the desired indicators. Adding additional value are the previous year actual and comparison cohort indicators. These are used to calculate percentage changes and therefore trends in each indicator. Trends can then be analyzed on an indicator basis and against the comparison cohort over time. Note that the percentage change year to year is adjusted so the positive percentages relate to positive change in use of resources, and vice versa. A positive change from previous to current year indicators for Basic Rider per Basic Bus and Special Rider per Special Bus results in a positive percentage of change. A decrease in Average Cost Per Rider results in a positive percentage of change. Finally, entire State average indicators are given for additional comparative trend analysis.

Figure 4 – Example of a Potential Indicator Report

				Buses			Perfromance Indicators				
District	Period	Type	Expenditures	Total Count	Basic Rider Bus	Special Rider Bus	Basic Rider per Basic Bus	Special Rider per Special Bus	Average Cost Per Rider		
ELMA	2015-2016	Reported	$648,356.36	15	8	7	53.36	7.35	$ 969.87		
ELMA	2015-2016	Comparison Cohort	$525,104.78	12	6	6	61.30	8.01	$ 909.33		
ELMA	2016-2017	Reported	$699,855.51	13	7	6	53.39	13.72	$ 1,125.51		
ELMA	2016-2017	Comparison Cohort	$550,480.63	10	6	5	63.51	9.23	$ 904.64		
ELMA	2017-2018	Reported	$739,985.45	13	7	6	54.75	10.25	$ 1,165.68		
ELMA	2017-2018	Comparison Cohort	$572,519.77	10	7	3	68.53	6.65	$ 919.49		
ELMA	% Change from previous year	Reported					2.55%	-25.29%	-3.57%	**-8.77%**	Aggregate %
ELMA	% Change from previous year	Comparison Cohort					7.90%	-27.94%	-1.64%	**-7.22%**	
ELMA	% Change over 3 years	Reported					1.30%	30.69%	-9.81%	**7.39%**	
ELMA	% Change over 3 years	Comparison Cohort					5.75%	-6.31%	-0.56%	**-0.37%**	
State Avg	2015-2016	Reported					47.61	4.54	$ 1,497.65		Aggregate %
State Avg	2016-2017	Reported					49.17	5.15	$ 1,581.09		
State Avg	2017-2018	Reported					50.79	4.95	$ 1,623.24		
State Avg	% Change from previous year	Reported					3.29%	-3.88%	2.67%	**0.69%**	
State Avg	% Change over 3 years	Reported					3.16%	5.99%	4.66%	**4.60%**	

The above example report offers three years of comparison data, but the state could choose to include analysis over four or five years (or longer) to gain a greater understanding of cost and performance over time. Including a data analysis and presentation tool in the redesign and upgrade of the supporting software, as recommended above, would also greatly enhance the utility of the outputs and the visualization and analysis of trends. The annual reporting for this recommended program can therefore be routinized and automated to a high degree, greatly reducing the administrative burden and freeing state resources to focus on value-added analysis.

Recommendation 17: Redesign and refocus the OSPI reporting and analysis program to focus on investigation of trends meeting pre-defined criteria. Instead of basing reports on a designated threshold score, SBC recommends that reports should be based on the overall changes and trend analysis. A data-based, data-centric reporting of all data and to all stakeholders should be an annual objective. Areas of particular note, be they positive or negative

changes or trends, should be analyzed in more detail and become the focus of more granular, but targeted, reporting. The goal should be greater understanding of the root causes behind the results achieved. Only with this information should recommendations for change be made. Presented in a positive manner, districts and other stakeholders will have actionable information on which to base changes in behavior. In particular:

- A master report should be created each year to communicate the overall data trends year-over-year for each indicator.
- Specific district reports should be created within each region based on data trend observations, not via the mandated use of a score system.
- District performance can be understood through the assessment of indicators within special cohort groups as previously described.
- A tabular presentation of *all* districts and their indicators over the determined multiple year period (their relative change percentages) should be provided so that a district can compare themselves against any other district of their choosing. Such a table would also assist OSPI and the RTC's with overall trend analysis.

In the example provided in Figure 4 it can be observed that the change in Special Education Riders per Special Bus is in line from last year with the comparison cohort. In following the recommended approach, and for this metric compared to last year, no further analysis should be needed. Continuing the example, though, it is apparent that change is more drastic in comparison over a three-year period due to an increase in riders 2016-2017. This may trigger an analysis to understand why 2016-2017 had higher Special Riders per Special Bus than the prior and later years. For Basic Buses per Basic Riders the measured change is similar for the actual district and its comparison. However, the comparison is increasingly higher each year. This shows the actual district is utilizing Basic buses slightly more effectively each year, but that the comparison is still suggesting a better use is possible based on weighted metrics of other districts. From this, attention could be focused on how the district plans basic education bus routes. These initial takeaways are, again, entirely theoretical and are only provided to illustrate how the recommended performance assessment reporting can help the State to understand trends which, in turn, can provide appropriate triggers to initiate further research and value-added analysis by OSPI. Either example of additional research could be performed for this given district. However, if other district's trends are more dramatic in a given reporting period then limited State resources could focus their attention elsewhere and the value of the reporting would not be lost.

This further research and analysis, as described in the preceding example, can lead in unexpected directions. Indeed, in its own assessment work SBC relies on an initial set of indicators to provide direction to its analysis, but often enhances the detailed assessment with a number of additional qualitative and quantitative performance factors and metrics. These add further contextual understanding that help focus on not just cost terms, but overall service levels. By means of further illustration, these factors and metrics can include, but are not limited to:

- Average route lengths;
- Average route times;
- Use of technologies;
- District tiering structures;

- Contracts related to transportation services; and
- Driver pay rates.

Though some of the above factors and metrics are not easily adjusted or are not under the authority of the OSPI to mandate change, their assessment will provide greater understanding of service levels of districts and potential cost factors that underly a district's performance trends. Potential solutions may be provided to lower costs based on service changes, yet in other cases the partnership with the State will allow the districts to serve as an advocate to the state on factors that are preventing better use of funds throughout other service regions.

Figure 4 provided an example of a revised report for a district that has the potential for lower expenditures and buses per the Target Cost Model. In other words, it is a district that was scored at less than 100%. Though SBC recommends that the state no longer focus on this score, and instead on changes in performance trends, the initial score will play a role of deciding the comparison cohort in the new report. As a final illustration of the proposed approach, in Figure 5 the comparison cohort is derived from the target model as a potential benchmark of performance for 100% districts. SBC believes a comparison cohort is still necessary to understand any relative change in performance indicators for all districts being reported. For this comparison, the performance indicators for all 100% districts are averaged. Thus, trends of the reported districts are compared to all the districts that the model has assessed as best using funds based on the transportation characteristics.

Figure 5 – Example of a Potential Indicator Report: 100% Districts

				Buses			Perfromance Indicators				
District	Period	Type	Expenditures	Total Count	Basic Rider Bus	Special Rider Bus	Basic Rider per Basic Bus	Special Rider per Special Bus	Average Cost Per Rider		
EVERETT	2015-2016	Reported	$8,427,813.54	109	47	62	85.08	9.3	$ 1,266.60		
EVERETT	2015-2016	Comparison Cohort (Frntr AVG)	$1,479,248.00	25	20	5	77.90	4.83	$ 1,564.09		
EVERETT	2016-2017	Reported	$9,198,558.33	127	49	78	86.16	8.53	$ 1,311.55		
EVERETT	2016-2017	Comparison Cohort (Frntr AVG)	$1,607,017.21	26	20	6	77.51	5.08	$ 1,563.10		
EVERETT	2017-2018	Reported	$9,970,125.40	128	52	76	91.11	7.62	$ 1,393.32		
EVERETT	2017-2018	Comparison Cohort (Frntr AVG)	$1,794,214.44	27	21	6	78.80	5.16	$ 1,669.22		
EVERETT	% Change from previous year	Reported					5.75%	-10.67%	-6.23%	**-3.72%**	Aggregate %
EVERETT	% Change from previous year	Comparison Cohort (Frntr AVG)					1.66%	1.57%	-6.79%	**-1.18%**	
EVERETT	% Change over 3 years	Reported					3.51%	-9.47%	-4.89%	**-3.62%**	
EVERETT	% Change over 3 years	Comparison Cohort (Frntr AVG)					0.58%	3.38%	-3.36%	**0.20%**	
State Avg	2015-2016	Reported					47.61	4.54	$ 1,497.65		
State Avg	2016-2017	Reported					49.17	5.15	$ 1,581.09		Aggregate %
State Avg	2017-2018	Reported					50.79	4.95	$ 1,623.24		
State Avg	% Change from previous year	Reported					3.29%	-3.88%	2.67%	**0.69%**	
State Avg	% Change over 3 years	Reported					2.58%	5.55%	4.39%	**4.17%**	

From the example report in Figure 5 it could be derived that the increase in Average Cost per Rider is in step with the average of all the districts on the frontier (100%) of the Target Cost model. Thus, no further research would be necessary based on this indicator. Of contrast is the higher positive of Basic Riders per Bus over time compared to the frontier comparison cohort and the state average. This may be attributed to higher student ridership based on increased district

population. This example district however, saw an increase in ridership higher than the averages without a higher than average cost increase. This provides an example of where investigating positive trends can be an important part of this program. Further research on the part of OSPI could reveal other qualitative and quantitative factors that may, in turn, provide useful and actionable information to improve performance in other districts.

Utilizing the average of the districts that lie on the frontier of the Target Cost Model is not the only comparison option available for 100% districts. Variations may include finding a comparison tool that does not utilize the Target Cost Model. SBC believes, however, that the value of the Target Cost Model is that it factors multiple indicators to arrive at comparison cohorts. In contrast the currently used KPI Report creates a group of cohorts based on a list of 10 higher and 10 lower districts in terms of total students. This comparison mechanism is only building a cohort based one cost related indicator, whereas the Target Cost Model is utilizing multiple characteristics related to costs to arrive at cohorts. Here again, the proposed performance assessment report utilizes robust mathematics that are then applied to more understandable metrics.

For the final report on any district, special cohort groups can be made for further understanding and tend companion based on understood similarities. Examples of potential comparison groups based on similar district factors include, but are not limited to:

- No High School districts;
- Districts with high homeless and foster care transportation costs;
- Largest (highly Urban) Districts;
- Smallest (rural) Districts;
- District that use contracted vendors.;
- Districts based on Regional Transportation Coordinator Groups;
- Charter Schools; and
- Tribal Schools.

Currently the site characteristics used within the Efficiency Report are based on a full set of previous school year reporting periods (Fall, Winter and Spring) against the end of year reported expenditures. This connection is valid in order to understand the full year's costs as they are related to a full year's service characteristics. However, the Allocation Report has a mixed prior and current year site characteristic composition (prior year Winter and Spring, and current year Fall) with the previous school year reporting periods. These differentiating reporting periods are logical in their own needs, however increased connection between their input characteristics would add increased understanding in the changes in allocation and how they relate to indicator and overall performance changes.

Recommendation 18: Clarify the connection between funding provided and the Transportation Performance Assistance Program. If inputs are linked, districts that report difficulties with their allocation model-based funding can work with RTCs and utilize the performance assessment report to better understand where their indicators are higher compared to other districts. Aligned data inputs gives this understanding relative to the allocation model greater value. The revised performance assessment report can be used to focus on unique cohort

groups to understand rise in costs such as districts with higher homeless needs or those that have contracted services.

In the allocation section of this report, there is a recommendation to revise the periods of input in order to provide allocation amounts earlier in the school year. Therefore, SBC recommends aligning the inputs to the Target Cost Model and the derived performance assessment report with the revised Allocation reporting period. Similar inputs will allow allocation and performance to be related but not linked. This should further add clarity to data trends being experienced by the entire state as a whole as costs fluctuate per the allocation model.

It is also a possibility that a performance assessment be run twice a year: once with the current input structure, and a second with the previous year's structure. This would add even greater value and understanding to the underlying indicator trends with one providing a pure year assessment of performance, and another relating to the cost allocation. Here again balance would be needed between maximization of report generation and metrics and their associated administrative burden on district and OSPI staff. Therefore, SBC believes that of the two, an allocation related performance assessment would provide the greatest direct input to districts and the state in determining association between performance and cost.

Path Forward

In order to incorporate the recommended program changes described above, several legislative and reeducation steps are required. Recommendations for the performance assessment program would require alteration of the current legislation mandating the mechanisms used to generate the current Efficiency Report. Changes in legislation will likely need to be made in whole to this section to refocus on performance trends, renaming the end report, and removing the prescribed mechanisms of district report creation based on the efficiency rating. WAC changes should precede redevelopment of STARS and the performance system so that understood direction is given to the redesign and recoding work of the programs used in their generation.

As previously stated and in following with SBC's recommendations the legislation should expressly remove the score-based mandate on which the state currently provides district-focused reports. Instead the legislation should speak to reports that can be generated by the state on specific trends derived from indicators that can be used to further understand costs and performance of districts. The state may decide to mandate a number of district reports per year and/or per region. Additionally, reports could be mandated based on thresholds of change to the indicators over a defined time frame. To the former point, SBC would advise that a prescriptive number of reports be made with a strong consideration of OSPI staff and RTC time and resource availability. A pre-determined number may not be necessary per legislation and instead be made more adaptable as the program evolves as a working policy within the OSPI. To the latter point, SBC would further caution against a prescriptive requirement for reporting on districts based on predetermined thresholds or only the highest and lowest changes. Defining the report mandate will return the system to a score focus and would limit the staff's ability to allow their analysis to derive the most noteworthy districts in which to report both positive and negative trends.

In conjunction with this implementation, reeducation is needed to the districts and all stakeholders involved in the performance assessment program on how the base Target Cost Model works so that trust is built in the new system. The trust in the tool and scope of its use should be as a

comparison tool, not as a tool to arrive at a final score. The current explanatory documents on the STARS website provide valuable explanations on how the Target Cost Model works both conceptually and mathematically. SBC recommends that these documents be revised to downplay the focus on the final score and instead the use of the model outputs as a theoretical comparative cohort. The reports, or a newly designed one, should further focus on how the model generated outputs and indicators can be used to gain understanding of district performance.

Conclusions and Recommendations

The preceding sections of this report describe the process and results of a review and analysis of the current pupil transportation funding formula and allocation methodology in use by the State of Washington, as administered by the Office of the Superintendent of Public Instruction (OSPI). The objectives for this review were defined in the scope of work provided in the associated request for proposals, which focused primarily on two requirements:

1. Evaluating the extent to which the current formula, and by association the manner in which the formula is applied, corresponds to the actual costs incurred by local school districts in the provision of pupil transportation services; and
2. Based on this evaluation, to provide recommendations for adjustments that may be required.

It was determined early in the process that remaining focused solely on these narrowly defined objectives would fail to provide the holistic assessment necessary to place the results in an appropriate context of day-to-day operations at both the state and local district levels. The review therefore took a more expansive view of the requirements as stated, which included the historical context behind the adoption and use of the current formula, and the overall objectives for the provision and use of state-provided public funds in general.

A primary role of the OSPI transportation program is to properly allocate state-provided funds. It is in the complexity surrounding this role where most of the review was focused. There are requirements and processes for data collection, software systems for calculation, reporting of information, education of stakeholders, and various levels of follow-up processing and auditing that collectively create a complex program requiring staff time, legislation, regulatory and procedural language, and numerous supporting systems and tools. Equity, clarity, predictability, motivating efficiency in the use of public funds, and a low administrative burden were all identified as often competing goals in the design of any funding formula. It is these five objectives that provide the context for our overall conclusions and recommendations, which are summarized here within each of the two major subject areas of the review.

Funding Allocation Management

The first core finding of this review is that the current funding formula is functioning as designed, and provides a mathematically sound, statistically valid mechanism for determining the actual cost of providing pupil transportation services at local school districts. Within the context of the state's requirement to provide full funding of these services, SBC finds no compelling rationale to consider any fundamental change to the current calculations or approach to funding allocation. That said, significant gaps have emerged over the ten years spanning the decision to implement the current formula. These exist within the practical utility of the approach itself, and the need for further adjustments within the determination of funding to be provided to adequately consider changing circumstances. Each of these subsequent findings are discussed in context within the preceding report sections. In conclusion, we summarize the associated recommendations here:

- Continue to consider the adequacy of transportation funding in the context of each local school district's expected rather than actual costs.

- Continue to utilize the existing funding allocation model, but with certain targeted adjustments that will realign the results with changes in local operating conditions, including:
  - A new adjustment to be incorporated outside the formula itself to better reflect actual costs associated with implementation of the McKinney-Vento Homeless Assistance Act;
  - Changes to the manner in which valid indirect costs associated with providing the service are considered; and
  - Further analysis of a threshold-based adjustment to the calculated results, or a similar approach, to better reflect valid year-over-year variability in local district operating costs.
- Targeted changes to the Washington Administrative Code to improve the clarity and usability of the current funding allocation process.
- A recommitment to appropriate educational materials and related processes within OSPI to ensure maximum ongoing understanding of the underlying approach to funding.
- Investment in software upgrades and redevelopment to ensure continuity of the current formula calculations and to improve usability and understanding, including associated improvements to reporting and accessibility.
- Changes to the timing of data collection to improve cost forecasting and allocation management.
- Targeted process improvements to improve the auditability of the underlying data that support funding allocation decisions.

Funding Performance Management

The second core finding of this review is that the state's fiduciary responsibility to ensure the proper use of public funds provided to the local school districts for pupil transportation is appropriately supported in concept by the design of the current funding allocation methodology and its supporting systems, but the current program as implemented is failing to achieve its objectives. The current methodology focuses on a single, score-based metric in determining whether each district's use of funds is appropriate. This is an output of an adjunct, mathematically sound model implemented as part of the funding redesign process in which it was deliberately determined that there should be no direct link between the performance as measured and the funding provided to each district. Instead, legislation as enacted requires the reporting of this score and an analysis of any district falling below a pre-determined threshold. The implementation of, and focus on, this scoring system as a single, definitive judgement of each local district's transportation performance is misplaced. Its continued use is currently a major distraction to achieving the goal of understanding and ensuring proper use of state resources. Discontinuing the use of this metric and substituting a revised approach will be a fundamental requirement to support the continued use of the current funding methodology. Each of the related findings are discussed in context within the preceding report sections. In conclusion, we summarize the associated recommendations summarized here:

- Retain the current hard break between the calculation of funds to be allocated to local districts and the measurement of local district transportation performance.
- Eliminate the use of the Efficiency Rating and combine the current performance management mechanisms into a single, comprehensive, thoughtful, robust, supportive, and non-punitive program of transportation performance measurement and management.
- Invest in a redesign and reprogramming of the associated mathematical model to combine its functionality with an expansion and formalization of the Key Performance Indicator program.
- Redesign and refocus the OSPI reporting and analysis program to focus on investigation of trends meeting pre-defined criteria.

As part of an expanded and ongoing education program, clarify the connection between funding provided and the objectives of a new Transportation Performance Assistance Program.

Appendix A – Current Formula Analysis

The following is a study of the regression coefficients used in the Allocation Model over the last four reporting periods:

- 31-Dec-2013 (2013/2014)
- 23-Dec-2014 (2014/2015)
- 5-Jan-2016 (2015/2016)
- 16-Jan-2017 (2016/2017)

The focus of this study was to evaluate the stability of the model over time by checking how much the coefficients changed from period to period.

Each coefficient estimates the effect of a specific characteristic of the school district. It can be thought of like the slope of a straight line: the change in Y associated with a unit change in X. The current regression model is not in two dimensions like a line but rather in 8 dimensions because there is one Y and 7 Xs. The Y, or dependent variable, represents the district's expenditures. (Technical note: Y is actually the natural logarithm of the district's expenditures. This is done because, in this application, it results in a model that better conforms to the underlying regression assumptions). The Xs are:

3. ReLn: The natural logarithm of the number of regular education riders plus 1 (see technical note below)
4. SeLn: The natural logarithm of the number of special education riders plus 1 (see technical note below)
5. LandLn: The natural logarithm of the district's land area
6. AvgDist: The average distance between the riders' homes and their schools
7. NoDest: The number of destinations served by the district (mainly schools)
8. NHYes: A binary variable = 1 if the district does not have a high school but transports its HS students, =0 otherwise
9. NHNo: A binary variable = 1 if the district does not have a high school and does not transport its HS students, = 0 otherwise

Technical note: The "plus 1" is necessary to account for the possibility that a district may have zero such riders. The natural logarithm of 0 does not exist. The "plus 1" has no material effect on the model.

Note: 3 of the 7 Xs also use the natural logarithm for the same reason: better compliance with the model's underlying assumptions.

To understand the functioning of the model, one cannot think about the slope of a line in two dimensions but rather the 7 slopes of a hyperplane in 8 dimensions. We cannot draw, or even visualize, such a hyperplane but the concept of a slope remains valid. Each coefficient tells us how much Y changes if we were to increase the corresponding X by one unit while keeping all the other Xs unchanged.

Let's imagine a large sheet of plywood lying on the uneven slope of a grassy hill. There's an ant in the middle of the sheet. If the ant walks one-inch due east, her height above sea level increases by, let's say, 0.5 inches. The sheet is sloping upward in the easterly direction. However, if the ant walks one-inch due north, her height above sea level decreases by, let's say, 2 inches. The sheet is sloping downward in the northerly direction.

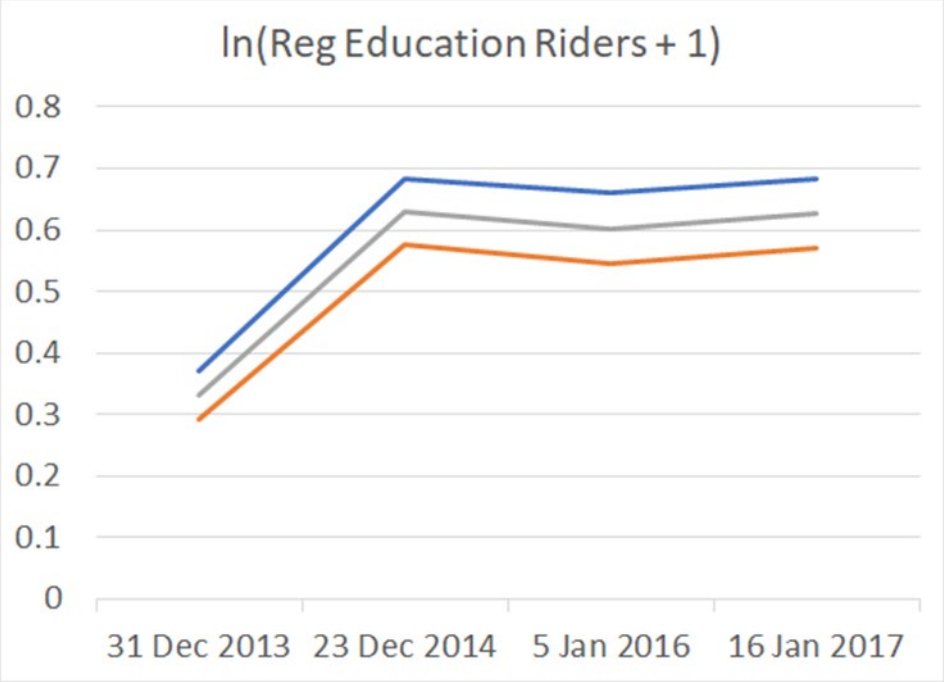
Using Y to represent height above sea level, X1 to represent the ant's easterly distance from her starting position, and X2 to represent her northerly distance from her starting position, then the ant would discover that the plywood has an eastbound slope of 0.5 and a northbound slope of -2. These two values, 0.5 and -2, would be the coefficients of the variables East and North, which represent the easterly and northerly distance from the ant's starting position. Thus, no matter where the ant goes on the sheet, she can calculate her height above sea level using the equation Y=b0+0.5*X1-2*X2, where b0 is the height above sea level of the ant's starting position.

If we return the next day and wonder if the board has shifted, we can check to see if its coefficients have changed. This is our motivation to check the coefficients of the funding model over time. If we see substantial changes, then we should be concerned about the stability of our model. But first, it is necessary to consider how much change is enough to be meaningful.

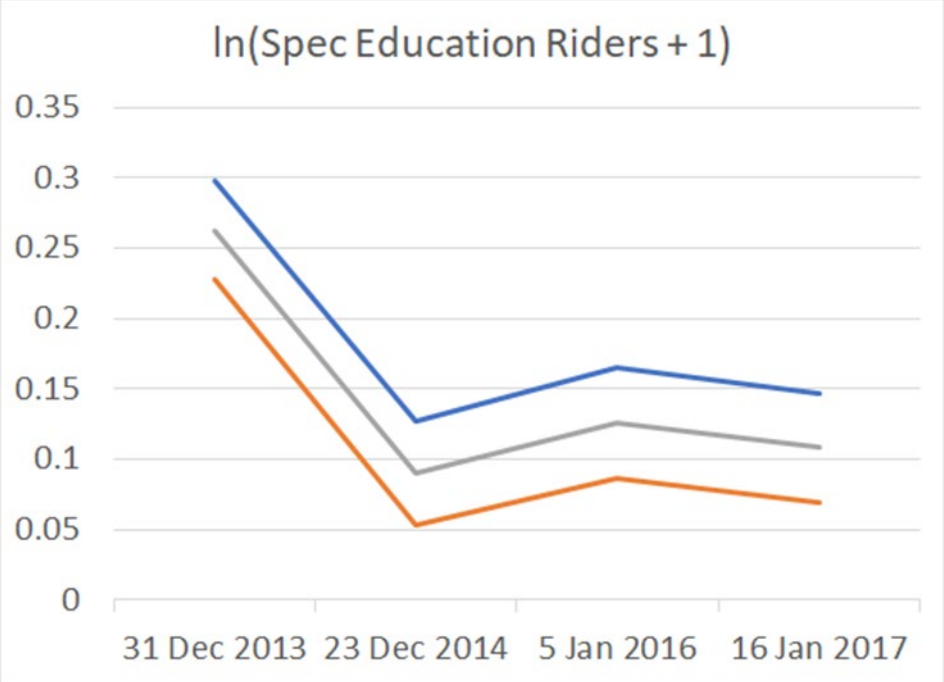
The model is computed using observed data (Y and X1 through X7) from over 280 school districts. These data change somewhat from year-to-year and therefore it is to be expected that will some shifting in the coefficients. It is then important to understand how much shifting can be expected from this year-to-year variation in the underlying data.

The answer lies in the standard errors of the coefficients, which are an output by the computer model. A small standard error indicates that there can be confidence that the estimated coefficient is close to the (unobservable) "correct" value that we would have found had Washington State infinitely many school districts. The standard error of a coefficient to build a confidence interval for its correct value is often used in mathematics. It is typical to use 95% confidence in building this confidence interval. The coefficients and their 95% confidence intervals can be compared from year-to-year to see if the observed variation in the coefficient values is greater than what can be reasonably expected if randomness were the only cause.

Our findings when we examine the coefficient of X1, the natural logarithm of the number of regular education riders plus one is illustrated in the charts below (the grey line; the orange and blue lines are the 95% confidence intervals). The result is quite clear. The first coefficient (31 Dec 2013) is much lower (0.331) than the next three (0.630, 0.602 and 0.627), which hardly vary at all relative to their 95% confidence intervals.



- Now examining the graph for the coefficient of X2, the natural logarithm of the number of special education riders plus one, that follows. The pattern is similar except that the first period (0.263) is much higher relative to the next three (0.091, 0.126 and 0.108).



The first set of coefficients reveal, in loose terms, how expensive it is to transport a regular education student. The second set does the same for a special education student. It is unclear why should regular education students have suddenly become more expensive at the same time that special education students have become less expensive, but may result from a first-year recognition and adaptation to the workings of the model.

A similar presentation is available for all other coefficients in the model. These are not included here in favor of brevity, but all follow the same basic pattern revealed in the two charts above.

Overall conclusions are:

1. The model is stable. I don't see any recent jumping around of the coefficients.
2. The model is powerful. The R-squared values are 0.941, 0.963, 0.963, and 0.964. (Same pattern.) R-squared tells us how much of the variation in Y can be explained by variation in the Xs. Clearly, with over 96% of the variation in expenditures explained, there's only less than 4% unexplained. This implies that there is no pressing need to look for additional explanatory variables.
3. The model is statistically valid. By this we mean that the coefficients are all highly statistically significant. We see this in their very low P-values (called Sig. in the statistical outputs), signifying that it is very unlikely that the true unobservable coefficients being estimated are really zero.

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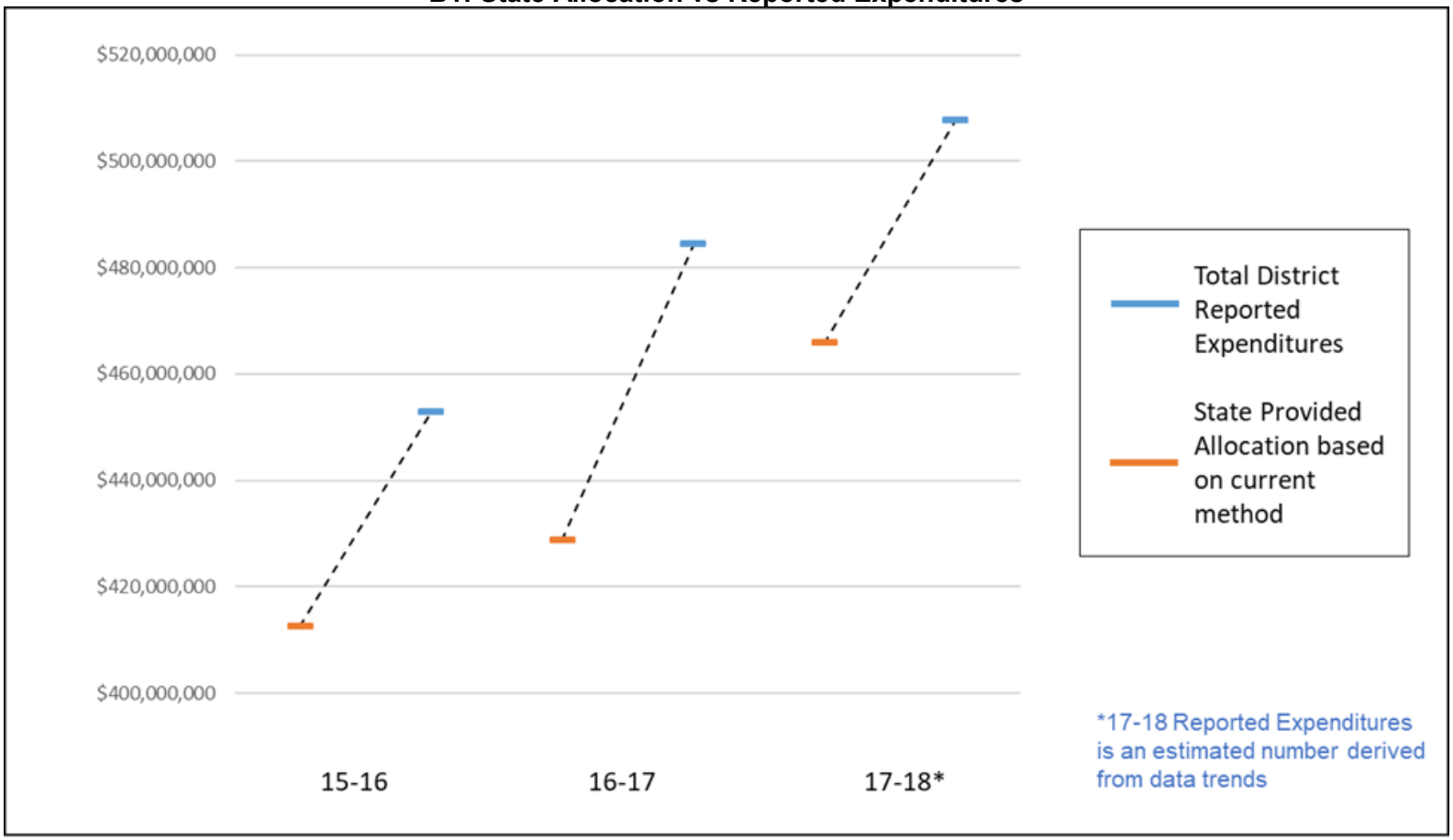
Appendix B – Funding & Expenditure Analysis

B1: State Allocation vs Reported Expenditures



B2: Potential Increase in Indirect Costs per Reporting Year

Reporting Year	Current Total of Indirects Funding Provided	Potential Increase in Funding if all Districts Provided with Indirects*	Total Transportation Funding	Percent increase in funding if all districts provided with Indirects
17-18	$6,748,312.25	$13,646,545.68	$480,403,115.65	2.84%
16-17	$5,452,074.82	$13,966,886.10	$433,544,663.15	3%
15-16	$7,059,558.22	$11,043,962.28	$421,000,844.14	2.62%

B3: Per District Model Allocation compared to Actual Allocation and Reported Expenditures: 2015-2016

B4: Per District Model Allocation compared to Actual Allocation and Reported Expenditures: 2016-2017

B5: Per District Model Allocation compared to Actual Allocation and Reported Expenditures: 2017-2018

B6: Per District Variance of Reported Expenditures to Actual Allocations, Model Based Allocations, and a ±10 Threshold based on the Model Allocation: 2015-2016 and 2016-2017

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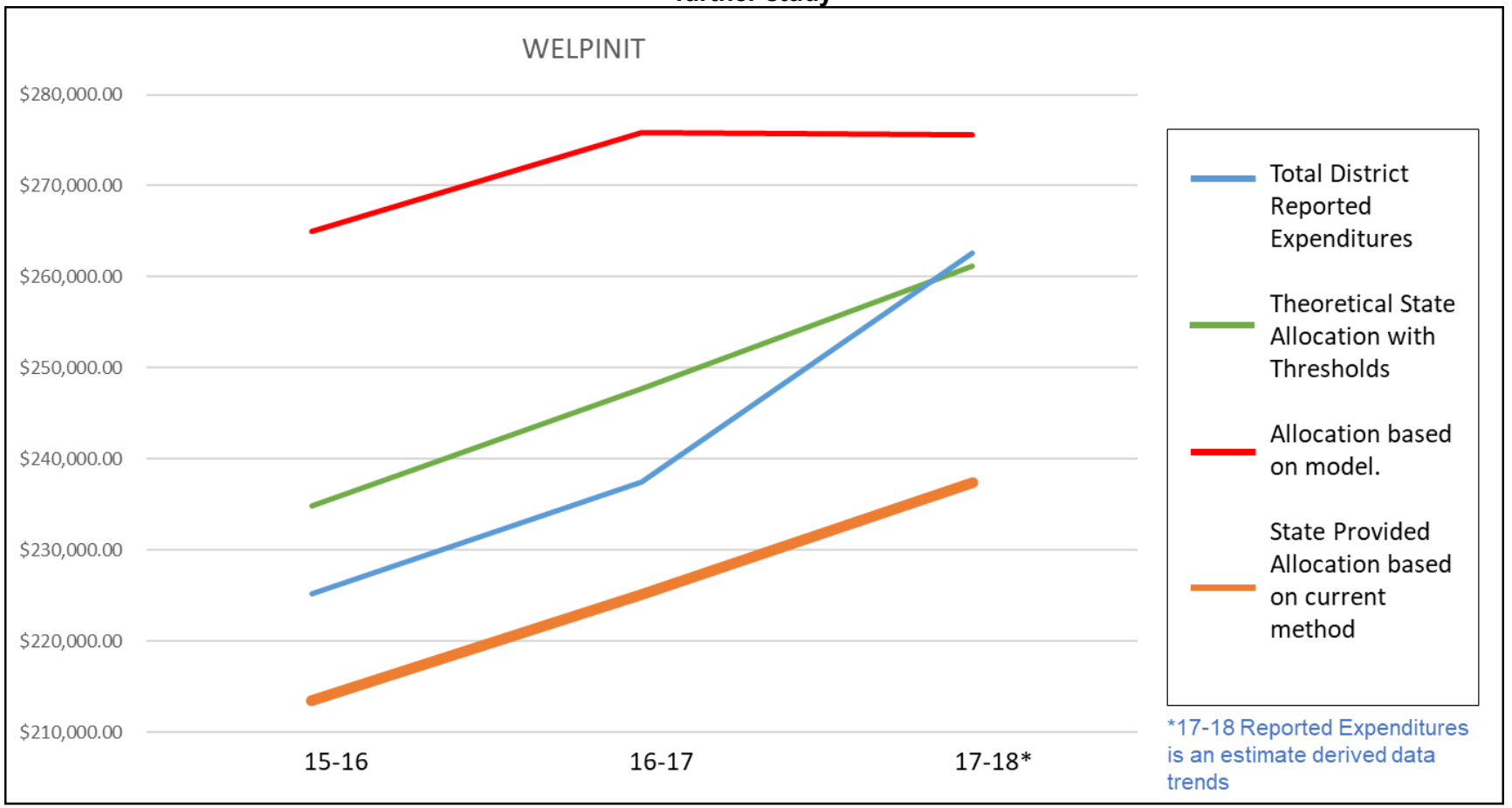
B7: Threshold Example: Welllpinit calculations based on a 10% threshold. Actual thresholds could be adjusted based on further study



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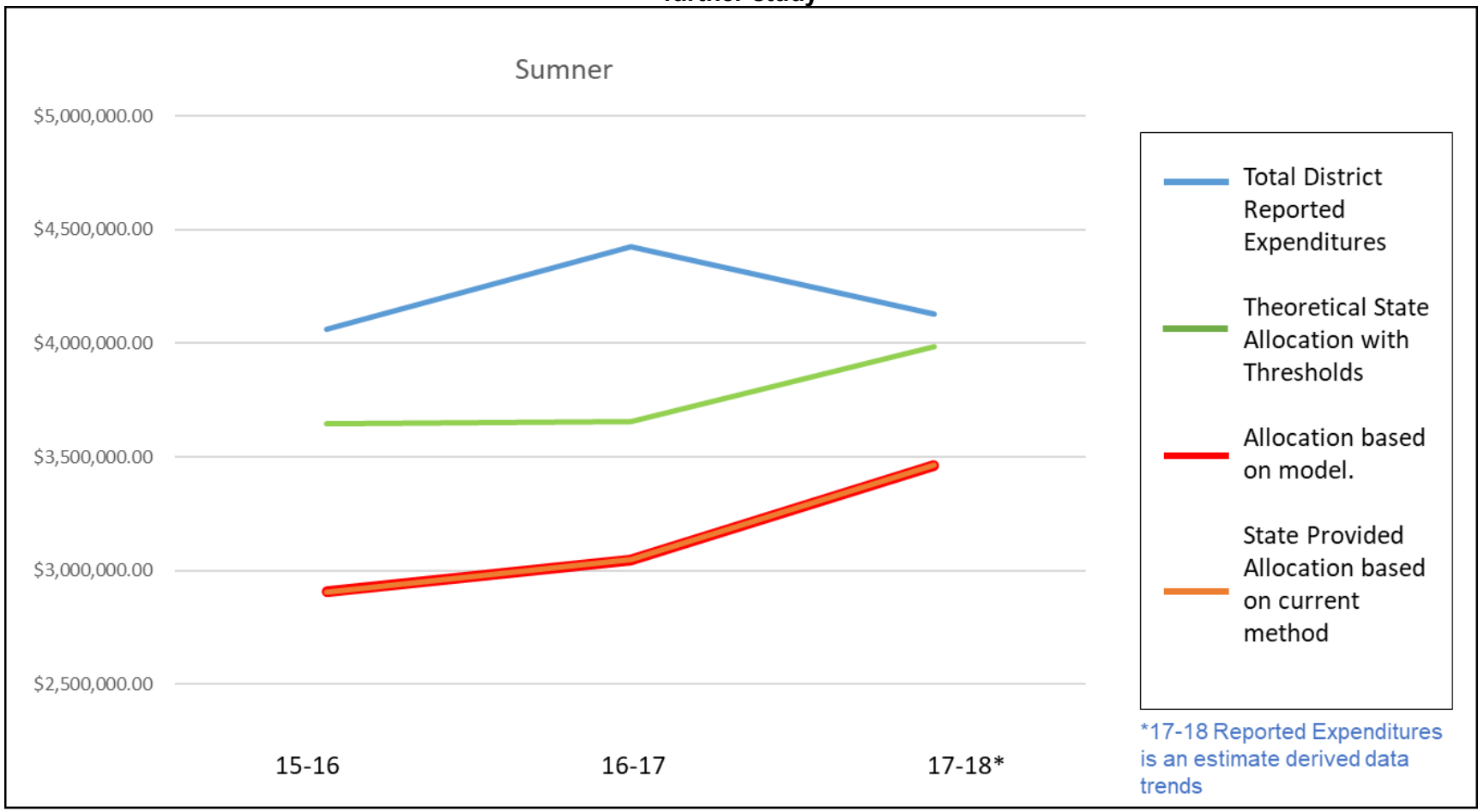
B8: Threshold Example: Sumner calculations based on a 10% threshold. Actual thresholds could be adjusted based on further study



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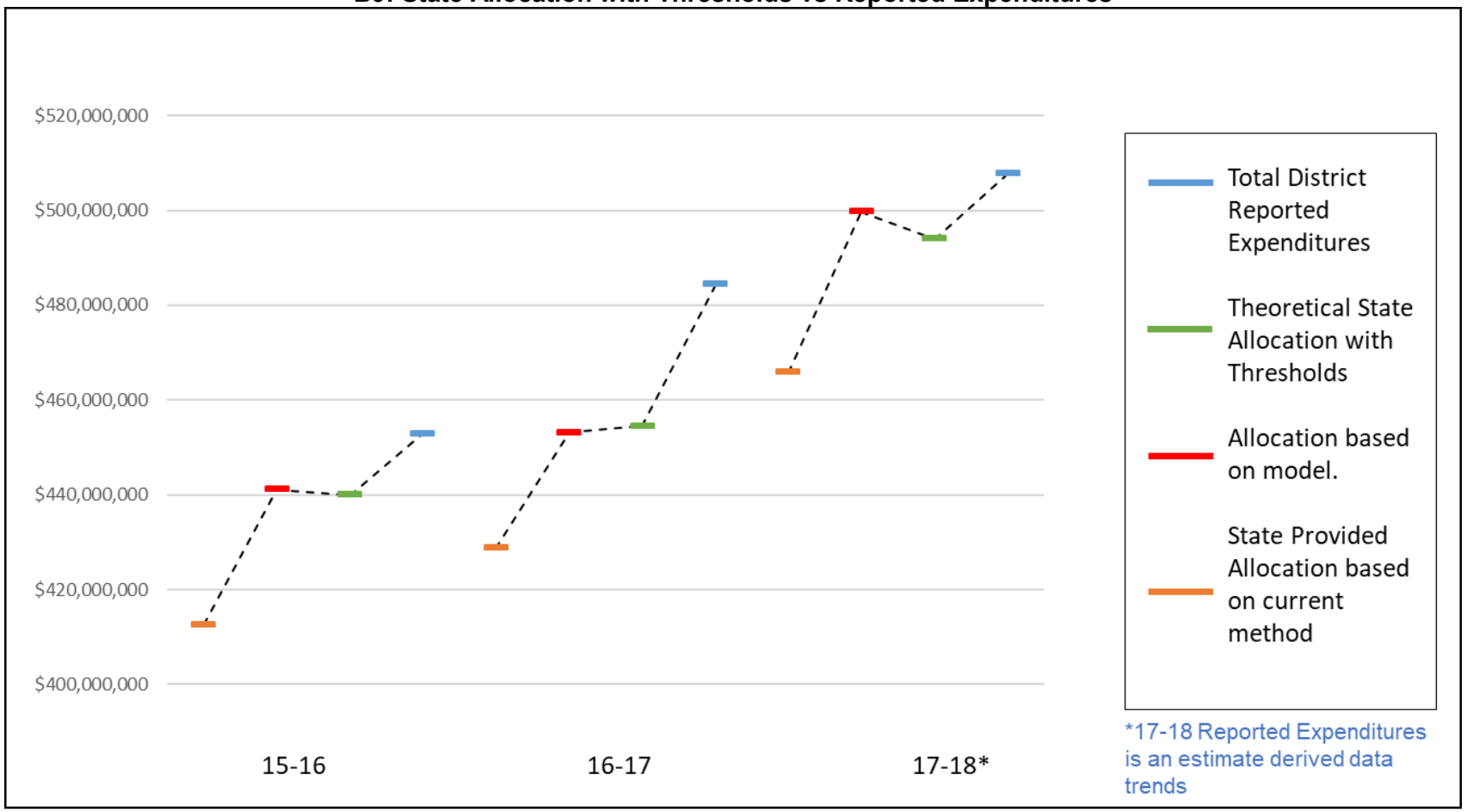
B9: State Allocation with Thresholds vs Reported Expenditures



Appendix C – Regulatory Analysis

The Washington Administrative Code (WAC) was reviewed for clarity of purpose and intent relative to the implementation and use of the funding allocation system now in use. Various gaps and potential changes to language were identified, and are analyzed below. Critical language is italicized to bring attention to those passages where SBC offers recommendations for change.

Title 392, Washington Administrative Code, Public Instruction, Superintendent Of – Chapter 392-141, State Allocation for Operations. Section 360, Operation Allocation Computation

Each district's annual student transportation allocation shall be determined by the Superintendent of Public Instruction (OPSI) in the following manner:

- The superintendent shall *annually* calculate the transportation allocation for those services provided for in RCW 28A.160.150.[8] The allocation formula may be *adjusted* to include such additional differential factors as *basic and special passenger counts* as defined by the superintendent of public instruction, average distance to school, and number of locations served.
- The allocation shall be based on a *regression analysis of the number of basic and special students transported* and *as many other site characteristics that are identified as being statistically significant*.
- Prior to *June 1st of each year* the superintendent shall submit to the Office of Financial Management (OFM), and the education and fiscal committees of the legislature, a report outlining the methodology and rationale used in determining the statistical coefficients for each site characteristic used to determine the allocation for the following year.[9]

Title 392, Washington Administrative Code, Public Instruction, Superintendent Of – Chapter 392-141, State Allocation for Operations. Section 300, Authority and Purpose

The Superintendent of Public Instruction shall phase-in the implementation of the distribution formula under this chapter for allocating state funds to school districts for the transportation of students to and from school[10] on the following basis:

[8] Funds allocated for transportation costs, except for funds provided for transportation and transportation services to and from school shall be in addition to the basic education allocation. The distribution formula developed in RCW 28A.160.150 through 28A.160.180 shall be for allocation purposes only and shall not be construed as mandating specific levels of pupil transportation services by local districts. Operating costs as determined under RCW 28A.160.150 through 28A.160.180 shall be funded at *one hundred percent* or as close thereto as reasonably possible for transportation of an eligible student to and from school as defined in RCW 28A.160.160(3). In addition, funding shall be provided for transportation services for students living within the walk area as determined under RCW 28A.160.160

[9] RCW 28A.160.180 Student transportation allocation determination — Report

[10] To and from school only refers to the regulation in RCW 28A.160.160 that states that transportation to and from school means: to and from route stops and schools, transportation to and from schools pursuant to an interdistrict agreement, to and from learning centers, the transportation of students with disabilities, and all transportation required under the provisions of the McKinney-Vento Homeless Education Assistance Act.

- The formula must be developed and *revised on an ongoing basis* using the major cost factors in student transportation, including basic and special student loads, school district land area, average distance to school, roadway miles, and number of locations served. Factors must include all those site characteristics that are statistically significant after analysis of the data required by the revised reporting process
- The formula *must allocate funds to school districts based on the average predicted costs* of transporting students to and from school, using a regression analysis.[11] *Only factors that are statistically significant shall be used in the regression analysis*. Employee compensation costs included in the allowable transportation expenditures used for establishing each school district's independent variable in the regression analysis shall be limited to the base salary or hourly wage rates, fringe benefit rates, and applicable health care rates provided in the omnibus appropriations act the costs of providing to and from school transportation.
- The result of the regression analysis *shall be offset by one year* and *adjusted for inflation.*
- Annually, each school district:
  - Shall *receive the lesser* of the previous school year's pupil transportation operations allocation determined by the regression analysis when compared against the total of allowable pupil transportation expenditures identified on the previous school year's final expenditure report to the state
  - *Plus*[12], district indirect expenses using the federal restricted indirect rate as calculated in the district annual financial report

- Annually, the amount identified in (a) of this subsection *shall be adjusted* for any budgeted increases provided in the omnibus appropriations act for salaries or fringe benefits;
- Annually, any funds appropriated by the legislature more than the maintenance level funding amount for student transportation shall be distributed among school districts on a *prorated* basis using the difference between the amount identified in (a) adjusted by (b) of this subsection and the amount determined under the formula in RCW 28A.160.180;[13]"

[11] Operating costs as determined under RCW 28A.160.150 through 28A.160.180 shall be funded at one hundred percent or as close thereto as reasonably possible for transportation of an eligible student to and from school as defined in RCW 28A.160.160(3). In addition, funding shall be provided for transportation services for students living within the walk area as determined under RCW 28A.160.160

[12] There have recently been proposed changes to RCW 28A 160 in the terms of rewording and restructuring. The word plus in the original code follows a semicolon ';' and not a comma.

[13] RCW 28A.160.192 Student transportation allocation — Distribution

Title 392, Washington Administrative Code, Public Instruction, Superintendent Of – Chapter 392-141, State Allocation for Operations, Section 380, Alternate Funding

The superintendent shall *adjust* the amount of the transportation operation allocation for low ridership, nonhigh, districts in interdistrict transportation cooperatives, and educational service districts operating special transportation services in the following manner:

- The district's *prior school year's transportation funding percentage* is compared to the state *median percent funded*;
- If the district's prior year transportation funding percentage is greater than the state median percent funded *no adjustment is made*; and
- If the district's *prior year transportation funding percentage is less than the state median percent funded, the allocation shall be adjusted by the difference between the state median percent funded and the district's prior year transportation funding percentage*.[14]

Analysis and Interpretation

These extracts from the code, with key phrases italicized, provide a reasonable summation of the approach selected following the 2008 study and selection process. With that said, there is a significant amount of room for interpretation, and certain unexpected consequences resulting from the manner in which this language was drafted, including:

- The requirement for annual funding calculations is perfectly appropriate, but coupled with the June 1st requirement for submission of a report, has resulted in a process that does not meet the timing needs of the overall fiscal year budgeting process, as described in the Accurate and Timely Cost Forecasting section of this report. *Recommendation: remove the June 1st requirement and substitute language requiring the timely completion of the allocation determination process to better support the annual funding and budgeting processes of the State (see further discussion below).*
- The requirement for the allocation to be regression-based, with the number of students transported and “other site characteristics”, while a succinct and accurate representation of the model selected, fails to provide any guidance on how or when such determinations should be conducted. *Recommendation: Better define a process of analysis and review for the efficacy of the funding allocation formula to ensure regular attention is placed on ensuring its continued utility and accuracy.*
- A simple statement that the allocation formula “may be adjusted” to include other factors is an important inclusion in the language, but the interpretation of this language as to how these adjustments should be considered is inadequate. *Recommendation: Better define the limits for, intent of, and practical application of funding adjustments allowed and applied outside the calculations of the formula itself.*

[14] WAC 392-141-380 Alternate funding systems for low enrollment districts, nonhigh districts, districts participating in interdistrict transportation cooperatives, and educational service districts operating special transportation services.

Looking into the related WAC and RCW requirements in the timeliness of the entire process and it's attached requirements has resulted in a complicated mix of prior and current year data inputs that further undermines the utility and clarity of the entire system. This is especially true when considering predictability and timeliness. Further review of the language is included below, again with key points italicized for emphasis. This language will also require change in accordance with the reporting timeliness and utility recommendations contained within the body of this report.

Title 392, Washington Administrative Code, Public Instruction, Superintendent Of – Chapter 392-141, State Allocation for Operations, Section 320, Reporting Requirements

The superintendent shall *notify* districts of their student transportation allocation *before February 15th*. The superintendent shall recalculate and prorate the district's allocation for the transportation of pupils to and from school.

- The superintendent shall make the student transportation allocation in accordance with the apportionment payment schedule in RCW 28A.510.250. Such allocation payments may be based on the prior school year's ridership report for payments to be made in *September, October, November, December, and January*.
- Reports shall be submitted by each district or charter school to the superintendent *no later than the last business day in October, the first business day in February, and the first business day in May*. These reports shall reflect to the extent practical the *planned* student transportation program for the entire report period and which is in operation during the ridership count period. The superintendent shall have the authority to make modifications or adjustments in accordance with the intent of RCW 28A.160.150. Each district or charter school shall submit the data required on a timely basis as a condition to the continuing receipt of student transportation allocations.
- In each report period, districts shall report such operational data and descriptions, as required by the superintendent to determine the operations allocation for each district, including:
  - School bus route information;
  - Student count information; and
  - An update to the estimated total car mileage for the current school year.
  - For the fall report, districts shall report to the superintendent as required:"
  - *The coefficients will be determined using the prior school year fall, winter, and spring reports and prior year expenditures*.
  - For the calculation of the regression analysis coefficients, the prior year expenditures for each district shall be adjusted as required by the legislature.

The adjusted allocation is the result of modifying the expected allocation by:

- Adding any district car mileage reimbursement; and

- Adding any adjustment resulting from the alternate funding systems identified in WAC 392-141-380; and
- Making any deduction resulting from an alternate school year calendar approved by the state board of education under the provisions of RCW 28A.305.141; and
- Making any adjustment as required by the legislature.

Each district's actual allocation for student transportation operations is the lesser of the district's prior year expenditures adjusted as required by the legislature or the adjusted allocation.

Appendix D – Example Report

State of Washington
Superintendent of Public Instruction
School Year 2017-2018
Operations Allocation Detail Report 1026A

EVERETT SCHOOL DISTRICT

SECTION A - CALCULATION OF EXPECTED ALLOCATION

Allocation Items	Values	Coefficient Rate	Calculated Value
Land Area (Ln)	38.2	0.03765	0.13711
Average Distance	2.90612	0.05163	0.15004
Destinations	81.12500	0.01432	1.16184
Basic Program (Ln)	13,246.50	0.63154	5.99435
Special Program (Ln)	1527.25	0.12422	0.91073
Non-High Yes	No	-0.13874	0.00000
Non-High No	No	-0.38763	0.00000

A.1. Sum of Calculated Values		**8.35407**
A.2. Expected Allocation Constant Value		8.12484
A.3. Expected Allocation Value		16.47891
A.4. Initial Allocation		$14,344,937.05
A.5. Local Characteristics Factor	1.00000	
A.6. CALCULATED EXPECTED ALLOCATION		**$14,344,937.05**

SECTION B - ALTERNATE FUNDING SYSTEM ADJUSTMENTS

B.1. Non-High	$0.00	
B.2. Low Ridership	$0.00	
B.3. Transportation Co-op	$0.00	
B.4. ESD	$0.00	
B.5. Other	$0.00	
B.6. Alternate System Total	$0.00	$14,344,937.05

SECTION C - OTHER ADJUSTMENTS

C.1. Alt Calendar Modifier	1.000	$14,344,937.05
C.2. Car Mileage Reimbursement	$136,250.00	
C.3. Other Adjustments Total	$136,250.00	$14,481,187.05

SECTION D - DETERMINATION OF FINAL STARS ALLOCATION

D.1. Adjusted Allocation		$14,481,187.05
D.2. Prior Year Expenditures		$9,970,125.40
D.3. Federal Restricted Rate Indirects		$359,921.53
D.4. Adjusted Prior Year Expenditures		$10,330,046.93
D.5. Lesser of Adjusted Allocation or Adjusted Prior Year Expenditures		$10,330,046.93
LEGISLATIVE ADJUSTMENTS		
D.6. Legislative Salary		$133,610.47
D.7. Legislative Benefit		$28,191.81
D.8.	**ACTUAL ALLOCATION AMOUNT**	**$10,491,849.21**

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