Development of Student Transportation Funding Methodology Options for Washington State

for the

State of Washington
Office of Financial Management

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November 21, 2008

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Management Partnership Services, Inc.

November 21, 2008

Mrs. Julie Salvi
Senior Budget Assistant
State of Washington Office of Financial Management
210 11th Avenue
Olympia, WA 98504

Dear Mrs. Salvi:

Management Partnership Services, Inc. is pleased to submit this report on the development of two student transportation funding models for the State of Washington. The report provides an overview of the funding model types found nationally, a review of the current funding formula and presents in detail the proposed new funding models, the results, and the strengths and weaknesses of each approach. The report also includes supporting documentation and analyses in the Appendix section. We are confident that the two approaches developed during the course of this project will provide the State with improved funding models that will remedy many if the historical issues identified with the present student transportation funding formula.

We would like to thank the staff of the Office of Financial Management, the Office of the Superintendent of Public Instruction and the many school district administrators and transportation professionals across the State who participated in this project. In particular we would like to thank you, Mr. Allan Jones, State Director of Transportation, and the members of the Project Advisory Committee for the hard work, guidance and invaluable input you provided throughout this project.

We appreciate having been given the opportunity to assist the State in this endeavor. Please do not hesitate to contact us if we be of further assistance.

Sincerely,

William A. Forsyth
Vice President

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Executive Summary

This report details the results of a project to develop two options for a new state student transportation funding methodology, as mandated by the Washington State Legislature in 2007. The study was conducted under the direction of the Office of Financial Management (OFM), in consultation with the Joint Legislative Audit and Review Committee (JLARC) and the Office of the Superintendent of Public Instruction (OSPI). Assisting was a 12-member Project Advisory Committee consisting of representatives of school superintendents, transportation coordinators, classified staff and business managers; regional transportation coordinators; organized labor representatives; and the Office of Superintendent of Public Instruction.

The study had two primary objectives with respect to providing state student transportation funding to school districts in the future:

- *Objective #1*: Create a methodology for generating and allocating student transportation funds to school districts that reflects actual costs while at the same time builds incentives for the efficient use of resources; and

- *Objective #2*: Provide school districts with predictable levels of state (transportation) funding to the extent possible.

The current student transportation formula used in Washington is a unit cost allocation approach based on a fixed amount of funding for each unit of service used in the formula. This unit of service is the number of students transported, based upon a weighted mileage factor adjusted for the distance of each student's stop to their destination school. The distance weighting factors "weight" the student count such that students residing farther from school ultimately generate higher funding amounts. The weighted student allocation rate is set by the Legislature and adjusted each year. This rate is multiplied by the student count, number of trips per day and distance weighting factor to determine the final funding amount for each school district.

From the survey taken and regional meetings with school districts across the state, several key issues emerged with the current funding approach:

- *Eligible distance*: The policy of transportation eligibility by radius mile excludes transportation funding for many students living within a mile from their school, but for whom walking is not an option.

- *Student Counts*: The method of counting students over a single one-week period does not accurately reflect the number of students transported[1].
- *Transportation Costs*: The current funding formula does not fully consider all transportation costs required to transport students to the various educational programs offered today.
- *Efficiency Incentives*: The formula does not provide adequate incentives for efficiency and in fact often rewards school districts who may be operating inefficiently.

To address the objectives established by the Legislature, and to address the concerns expressed by the stakeholders in the present system, a number of transportation funding models were examined by the project team and the Project Advisory Committee. From these, the following two funding model options were developed:

Option 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. The model developed establishes a series of values to compute the funding for each school district based on each school district's geographic density and the number of basic education and special education students transported. In this way, costs can be predicted and controlled, but not on a purely empirical basis.

This approach has the advantage of being simple and easy to understand, but it does not employ the best empirical methodology, requires subjective decisions on unit values, does not effectively promote transportation efficiency, and does not allow for differences in local demographic and geographic conditions.

Option 2 – Expected Cost Model

The Expected Cost Model reimburses each school district based on the adjusted average actual transportation cost of all of the 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.

[1] See further discussion on the issue of student counts in the *Data Management and Reporting Requirements* section of this report.

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.

The main strength of this model is that it employs an impartial, statistical approach using actual expenditures, adjusts for factors beyond a school districts control, and provides some constraints on transportation spending at the school district level. However, the regression methodology is difficult to understand for many users, requires more data than the Unit Cost Model, and rewards average, not optimal efficiency.

Since both funding models are limited in their ability to promote efficiency, an additional statistical methodology was developed as an adjunct tool to measure the comparative efficiency of each school district transportation program. This tool uses the same data elements used in the Expected Cost Model but predicts what each school district's cost should be based on the best possible performance of each peer school district. This *target cost* approach uses linear programming to determine a minimum expenditure level, taking into account all of the school district's site characteristics.

Each of the models produced significantly higher funding than the current student transportation funding formula. The table below shows the total state transportation funding produced by both models, as well as the current funding formula[2]:

Model	Allocation	% of Current Formula Allocation	% of 2006-07 Expenditures
Current	$233,892,887	100.0%	65.6%
Unit Cost Model	$305,274,892	130.5%	85.7%
Expected Cost Model	$337,236,250	144.2%	94.6%

Regardless of which funding option the state ultimately selects, it will be important to address several ancillary functions and systems. We suggest that the state put the new formula selected by the Legislature in place with the start of the 2011–2013 Biennium.

[2] Based on OSPI 2006 – 2007 Transportation Program 99 Expenditures/Revenue Report.

Prior to that time, a number of transitional and implementation considerations will need to be dealt with.

- Funding amounts should be buffered with a temporary "floor" and "ceiling" on the amounts funded to school districts to allow them sufficient time to make the changes needed to reduce their costs to the amount calculated under the new formula.
- A new formula will require development of information technology reporting and processing systems and school district data reporting procedures.
- State management, audit, support and training functions need to be carefully defined, planned and implemented during the transition period.
- State regulations and statutes, OSPI policies, and school district policies need to be restructured such that they are consistent with the requirements of the new funding formula.

Background and Overview

This report documents the results of a study by Management Partnership Services, Inc. (MPS) to develop options for a new K-12 student transportation funding methodology for Washington State. The study was initiated by the Washington State Legislature in July 2007 who directed the Office of Financial Management (OFM), in consultation with the Joint Legislative Audit and Review Committee (JLARC) and the Office of the Superintendent of Public Instruction (OSPI), to contract for the development of two options for a pupil transportation funding methodology.

The legislation that authorized this study followed the 2006 publication of a study by the Joint Legislative Audit and Review Committee (JLARC) that examined the current student transportation funding method used to reimburse student transportation costs to the 295 school districts in Washington. The study evaluated the extent to which the funding method reflects the costs of providing state-eligible student transportation, reviewed funding methods used in other states and identified alternative funding methods that would more accurately reflect transportation operating costs, promote the efficient use of resources, and allow for local control of transportation programs.

The results of the current study completed by MPS are detailed in the following report sections, which cover each major aspect of the study, and in a series of appendices providing supporting data in greater detail.

Project Objectives

The requirements for this study were enacted under Chapter 139, Laws of 2007 (2SSB 5114, student transportation funding) and Section 129(6) of Chapter 522 Laws of 2007 (SHB 1128, the operating budget bill) calling for the development of two options for a new state student transportation funding methodology, to be presented to the Governor and Legislature in a final report for consideration in budget development.

The study was to have two primary objectives with respect to providing state student transportation funding to school districts in the future:

- *Objective #1*: Create a methodology for generating and allocating student transportation funds to school districts that reflects actual costs while at the same time builds incentives for the efficient use of resources; and

- *Objective #2*: Provide school districts with predictable levels of state (transportation) funding to the extent possible.

Additionally, the study was to consider the use of public transit and to provide a descriptive analysis of the use of local public transit agencies in providing student transportation across the state, and evaluate the cost effectiveness of using such services.

Approach and Methodology

The student transportation funding formula study was conducted with the input and suggestions of the Project Advisory Committee (see *Appendix D*). The role of the Committee was to offer suggestions and insights from their unique, "on-the-ground" perspective as school district administrators, transportation managers, financial officers and organized labor representatives. Over a period of 13 months, the Committee met with MPS and the OFM/OSPI project team a total of eight times to review the results of the project as the different funding models were developed and refined. The project approach used in this study consisted of three primary yet interrelated stages.

- *Data collection and stakeholder input*: The first phase included collecting baseline transportation data, clarifying the issues and objectives around transportation funding in Washington, and soliciting input and comments from school districts, state administrators involved in transportation funding, legislative and state staff and others. The initial work included both a web-based survey instrument and six public outreach meetings conducted throughout the state at the beginning of this study (see the *Current Funding Process* section of this report and the survey results in *Appendix B*).

- *Conceptual approaches to funding:* Next, using the primary criteria for an effective funding formula, stakeholder input and comments, and the goals established by the Legislature for this study, various different funding methodologies were presented before the Project Advisory Committee. From these, two models were selected for development. These are explored in more detail in the sections that follow

- *Develop working prototype models:* The initial prototype models were developed and the assumptions, input requirements, and quantitative mechanisms of each were explored with the Project

Advisory Committee.

This allowed the project team and the committee to gain a sense of the relative strengths and weaknesses of both funding models, and how well or poorly they met the criteria defined for an effective funding mechanism (See *Overview of Funding Approaches* section of this report).

- *Evaluate impact among model options:* Finally, each of the funding models was run using actual data from the 2006-07 school year for 286 operational units[3] of the 295 school districts in the state. This was an iterative process, with the results compared according to different criteria, such as large vs. small school districts, and urban vs. rural systems. As data issues were resolved and other adjustments were made, each of the models was refined and the results compared, evaluated and discussed during the scheduled meetings with the Project Advisory Committee.

Constraints to Analysis

It is important to explain that during the course of this study, there were a number of limiting factors that must be considered within the context of the results of the models and the conclusions arising from these. Primarily, these are data related. Each of the models developed, and indeed *any* model that could be developed, is very sensitive to the underlying data used in the calculations they contain. This is particularly true in the case of the Expected Cost Model and Target Cost Tool, which use a statistical methodology that is wholly dependent upon the actual school district data provided, as opposed to values based on averages or industry sources. Given that, a number of comments are appropriate:

Financial data: The reported school district 2006 - 2007 school year expenditures were the basis for the costs used in the models[4]. The reported data did not provide adequate line item cost detail. The limitations imposed by having all transportation costs apportioned among only seven cost categories required adjustments in order to reasonably approximate certain specific cost elements. For instance, fuel costs were commingled within the "Purchased Services" category

[3] Models were run on 286 operational units comprised of 285 school districts and one co-op of four school districts. The remaining six (6) school districts do not transport students.

[4] OSPI 2006 – 2007 Transportation Program 99 Expenditures/Revenue Report.

and had to be disaggregated and estimated using reported miles driven and an assumed average fuel usage rate and average fuel cost.

It should be noted that these limitations existed despite the school district accounting procedure changes required by 2SSB 5114 effective September 1, 2007. These changes require school districts to isolate to/from transportation costs from "other" transportation costs, but do not mandate changes to the level of detail of reported cost categories. While these modifications to the accounting procedures were implemented as required, the project schedule precluded the use of the expenditure data for the 2007-08 school year. Therefore, while the district accounting system improvements have been made, the reporting and accounting of transportation costs for FY2006 - 2007 (the most recent year for which actual data was available) were not uniform across all school districts.

Logistical and student data: Many elements important to any formulation were simply not available for each school district. For example, the assumptions in the models and the coefficient values are dependent upon the number of students transported. Because the number of students eligible for transportation is not tracked, the headcounts conducted under the current funding formula had to be used instead. (We note that the current model's one-week snapshot headcount is one of the areas of dissatisfaction with many school districts). Similarly, the total number of bus stops and route details from the individual bus schedules were not available for all school district routes. As a result, some surrogate data needed to be employed in some of the models developed, such as school bus stop to school distance in radius miles instead of the preferred actual student to school distance in shortest road mile[5].

Other factors: A number of other factors to some extent may influence the results of this analysis. Some examples include the internal charges and payments for intra-school district transportation, such as cooperatives and non-high school districts; accounting for per-mile allowances for car transportation by parents (in lieu of school bus service); the number of magnet school programs and attending students; and others.

Current Funding Process

Extensive detail with respect to the present student transportation

[5] See further discussion on the issue of student counts in the *Data Management and Reporting Requirements* section of this report.

funding formula was provided by the Joint Legislative Audit and Review Committee (JLARC) in November 2006[6] following a comprehensive study. To provide context to the funding options provided within this report, the key characteristics of the present formula are described below.

Background

Article 9 Sections 1 and 2 of the Washington Constitution state that it is the "paramount duty of the state to make ample provision for the education of all children residing within its borders" and that the Legislature must "provide for a general and uniform system of public schools."

In 1981, the Legislature passed into statute a new student transportation funding methodology based on a per-unit allocation method. Under RCW 28A.160.150 through 28A.160.180, the statute states, "Operating costs as determined 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)" (italics/underline ours).

The statute defines specific transportation funding eligibility criteria for students, and prescribes a methodology based on the direct radius mile ("crow's flight") distance of each student's assigned bus stop location to their destination school, the number of students transported, minimum load factors, and weighted distance factors. The allocation amount is ultimately based upon a per-student allocation rate, which is adjusted each year by the Legislature.

Overview of Formula Design

The current formula used in Washington is a unit cost allocation approach. This type of formula is based on a fixed amount of funding for each unit of service used in the formula. In the present formula, this unit of service is the number of students transported, based upon a weighted mileage factor. There are several key components of the current funding formula.

- *Student count*: The number of transported students is counted at each stop on each bus route in the morning and on each shuttle route between learning centers for five consecutive days at the beginning of each school year.

[6] "K-12 Student Transportation Funding Study Final Report", State of Washington Joint Legislative Audit and Review Committee (JLARC), November 2006.

- *Bus stop distance to school*: This distance is measured as the direct (radius mile) distance between a bus stop and the school. Stops are grouped according to one-mile distance increments up to a maximum of 17 radius miles for each student counted.

- *Number of daily routes (trips)*: Home to school route buses are assigned two trips per day (morning and afternoon). Buses operating shuttles between learning centers are assigned one trip per day. Mid-day kindergarten routes providing transportation home in the middle of the school are also assigned one trip per day. Shuttles and kindergarten routes that operate fewer than four days per week are prorated. Eleven (11) trip categories are used, including home to school (basic routes); in lieu or private party contract transportation or transportation provided by a private individual under special circumstances; public transit trips; shuttles between schools and/or learning centers or special education agencies; and midday kindergarten pick up and drop off.

- *Distance weighting factor per radius mile*: Distance weighting factors are established for each radius mile increment between one (1) and 17 miles. These factors have different values for basic and special needs students, to reflect the relative difficulty and cost to transport special program students. The distance weighting factors "weight" the student count, such that students residing farther from school ultimately generate higher funding amounts.

- *Allocation rate*: A per weighted student allocation rate is set by the Legislature and adjusted each year. This rate is multiplied by the student count, number of trips per day and distance weighting factor to determine the final funding amount for each school district.

Key Issues with the Current Formula

The 2006 JLARC study referenced earlier assessed the extent to which the student transportation funding formula reflects the actual cost of providing to/from student transportation services. Two unique, competing dynamics relative to transportation funding were revealed.

(1) Student transportation is the responsibility of the local school districts, and

(2) Operating costs shall be funded at 100 percent or as close thereto as reasonably possible by the state. Given the first objective as

stated in the authorizing legislation for this study, we would add a third competing requirement: That the formula provide incentives for the efficient use of resources.

The mechanism of the current funding formula is somewhat opaque and does not adequately meet the policy goals mentioned above. It is unclear what costs can be funded, and the present formula does not fully fund student transportation operations for over 50 percent of the school districts responsible for busing 96.7 percent of the students transported in Washington.

Furthermore, the unique approach to determine funding eligibility, including only students whose route stop is more than one radius mile from the student's destination school site, raises questions of fairness. Most states utilize a measure of shortest roadway path rather than radius mile. Finally, the impact of minimum load funding is problematic. The understood intent of this provision was to ensure that school districts with low density are not penalized since the distances between students largely preclude fully utilizing the available passenger capacity of a school bus. However, larger, denser school districts are also utilizing the minimum load funding element. It is clear that the combination of the distance weighting factors and the per unit allocation do not reflect the cost of providing services.

Stakeholder Positions on the Current Formula

In November of 2007, all school districts in the state were invited to participate in a web-based survey regarding the present student transportation funding system in Washington. Responses were received from 211 school districts out of 295 for a total response rate of 71.5 percent. The survey consisted of 34 total questions in two parts. The first part consisted of paired questions designed to elicit the perceived issues and concerns with the present funding mechanism. The second part was designed to clarify the types of education programs and other factors which impact the resource requirements and costs of their transportation program. The overarching objective was to gain an understanding of how school districts have been affected by the student transportation funding formula.

The responses were structured to garner information relative to six factors:

1. Understanding the operation of the formula;
2. Understanding the objectives of the formula;

3. The perceived equity of the formula;

4. The adequacy of state funding;

5. The influence of the formula on local education and transportation decisions; and

6. Opinions on whether the formula should be changed or replaced.

The survey responses are detailed in *Appendix B*. The conclusion drawn from the survey and from the comments attached to it indicated that the student transportation funding formula is considered both insufficient and inequitable by over 75 percent of the school districts, and should be improved or replaced. Larger school districts, which have been funded below their expenditures for years with the present formula, were the most dissatisfied, and 65 percent of the respondents did not think the current funding provides efficiency incentives.

Not surprisingly, over 80 percent of those surveyed were dissatisfied with the amount of funding received from the state, and a slightly higher percentage were concerned that the current funding formula does not cover all transportation-related costs or take into account demographic or geographic characteristics in their school district. Most conveyed that the operation of the present formula is understandable, but its objectives are unclear. That is, the formula does not provide transparent indicators or suggest the types of logistical strategies that would generate adequate funding.

In terms of the type of transportation services provided, the responses from the survey indicated the following:

- Only 25 percent transport to magnet schools or schools of choice;

- Approximately 10 percent have contracted transportation programs;

- Only about 12 percent use public transit; mostly larger school districts;

- Choice transportation provided under No Child Left Behind (NCLB) and homeless transportation required under the McKinney-Vento Homeless Assistance Act rely heavily on portal (i.e., single point-to-point) transportation; and

- Some level of summer school program busing is provided by 89 percent of the school districts.

Expectations for a New Formula

MPS conducted regional stakeholder meetings at six locations across the state over a two-week period in January 2008. The purpose of these meetings was to share the results of the funding formula survey and to use the results to guide the discussions and flesh out the perspectives of the school districts in a more open, question-and-answer dialogue format.

Four distinct themes emerged from the regional stakeholder meetings. Stakeholders believed that any funding mechanism should address concerns over the following issues.

One Radius Mile Versus One Roadway Mile

The current funding formula excludes transportation funding for school bus stops within one radius mile of their school of attendance. Meeting participants felt strongly that the policy of measuring walk distance by radius mile excludes funding for many students who live more than one roadway mile from their school of attendance. In addition, oftentimes school districts choose to transport students who reside within one radius mile, as perceived hazardous conditions or community pressure compel them to do so even with a lack of state funding.

Participants suggested using a system of one roadway mile, or one mile along the safest accessible path. Furthermore, many suggested a shorter walk distance for kindergarten through fifth grade students, such as a half mile. There were many suggestions for how best to determine what one roadway mile or one mile along the safest path is. A partnership between city/county engineers and school districts was suggested, and the use of global positioning satellite (GPS) routing software to determine the safest and most efficient walking route. State-level standardization of GPS/geographic information system (GIS) routing software reporting requirements would likely be necessary under such an arrangement. Another suggestion was for the safest path to be decided upon between local groups and representatives from the state or to be determined by the school district utilizing guidelines created by OSPI.

Student Rider Counts

The survey and regional meetings revealed very strong opinions regarding transported student head counts. Participants thought that the current method, which counts students on morning runs over a one-week period in the fall of each year, does not provide a representative picture of transportation operations throughout the school year since counts are often higher later in the school year, and as a result school districts receive insufficient funding.

Furthermore, school districts have found that the morning ridership is lower than the afternoon ridership on many bus routes. While this may be counterintuitive as one considers after school programs, athletics, extra curricular activities, and tutoring, participants cited working parents who drop their children off at school but are not available to pick up their children from school at dismissal time as the reason for the additional demand for afternoon school bus transportation.

The issue of the accuracy of these headcounts came up several times as participants were concerned about the level of accuracy during each reporting stage, as student counts pass from drivers to administrators, then to transportation directors or superintendents.

The time and administrative costs to complete the student counts included in the school district's report were felt to be significant. Participants suggested use of student data obtained for other educational purposes as the basis for funding student transportation. Some suggested improvements included:

- Use assigned student counts based on eligibility through automated information systems;
- Conduct headcounts over several time periods during the school year; and
- Use the greater of morning or afternoon counts as the basis for determining the number of transported students on each route.

Factoring All Transportation Costs

The survey revealed a perception that the current funding formula does not consider all transportation costs. This sentiment was echoed in regional meetings, where participants related those costs that exceed the level of funding from the state, and that required educational programs have placed financial strain on school districts' transportation departments.

It was consistently stated at the meetings that federal and state mandated or expected academic programs have created operational challenges and additional transportation costs for transportation departments. There has been a significant increase in before- and after-school programs to ensure students meet Washington Assessment of Student Learning (WASL) standards and No Child Left Behind (NCLB) requirements since the present formula was put in place 25 years ago.

Another piece of federal legislation mentioned at each regional meeting was the McKinney-Vento Homeless Assistance Act. The act states that Local Education Agencies (LEAs) "must adopt policies and practices to ensure that transportation is provided, at the request of the parent or guardian, to or from the school or origin" Participants voiced their concern over this act and the transportation demands it creates. Due to the transient nature of the displaced or homeless population, children are often not included during count week, thus school districts do not receive funding for those children. Furthermore, the long distance often traveled to transport such students to and from their school of origin means that school districts must bear the burden of the high cost of transporting these students without extra financial assistance from the federal government or the state.

Inadequate Incentives for Efficiency

An unintended consequence of the current funding formula mechanism is that it may reward school districts that choose to operate inefficiently in order to receive minimum load factor funds. The original intent and purpose of minimum load factor was to ensure that sparsely populated school districts that are unable to achieve maximum passenger capacity utilization due to their demographic and geographic characteristics would not be adversely impacted in their state transportation funding. Participants felt that there is a misperception that only small school districts are using minimum load funding. However, participants voiced the concern that even larger, high-density school districts may take advantage of minimum load funding as a result of optional programs that result in lower utilized capacity. This is consistent with the findings of the 2006 JLARC study.

Meeting participants suggested that the new or revised funding formula should provide more efficiency incentives by encouraging:

- Increased passenger capacity utilization;
- Increased route tiering to permit multiple run assignments to each bus under a staggered bell structure;
- Elimination of the minimum load factor; and

- School districts to use their own methods to improve efficiency.

Overview of Funding Approaches

Formula Criteria

A funding formula often has a number of competing requirements that are intended to provide a certain level of service while containing costs. Overall, the ideal student transportation funding approach should strive to maximize each of five key characteristics:

1. High Clarity – The approach should be clear and easy for the average user to understand.
2. High Equity – The approach should distribute available funding in an equitable manner.
3. High Efficiency Motivation – The method of allocating funds should motivate the recipients to use funds in an economical manner.
4. Low Administrative Burden – The funding approach should be simple to implement and administer.
5. High Predictability – The formula should allow recipients to reasonably foresee likely funding levels from year to year.

In many ways these describe often conflicting goals, and typical funding methods seek to achieve the best balance among these five characteristics relative to the policy objectives of the governing body. Fiscal and political realities often constrain the range of available options as well. The goal in designing a funding formula should therefore be to first identify the desired policy objectives, then to maximize the impact of the key funding formula characteristics that will best meet these objectives. In some cases, this will result in a formula that emphasizes clarity and simplicity of administration, in others equity and motivating efficiency. In most, the goal will be to achieve an acceptable balance among all five objectives.

Types of Formulae

Considerable variation exists in the approaches used to allocate state funding to local school districts for student transportation across the United States. There are many reasons for these differences. To begin, each state has its own overarching philosophy regarding state support for services and the extent to which the state should be involved in oversight and regulation. In addition, each state has experienced its own historical development of student transportation and the manner in which the state provides supports for it. Moreover, each state faces its own set of geographical, demographic, and economic constraints.

There are generally five (5) categories of funding approaches, which are summarized below, along with a list of states that employ each approach. Included under each are comments about each approach and a general commentary on how Washington State might apply each. Within some categories, there are subcategories that correspond to the same general approach but with some important distinctions.

Category 1: Block Grant

Generic description: Each school district receives a lump-sum allocation that it can use as it sees fit for student transportation services, with certain restrictions. In many cases, the state allocates the available state funding based on the school district's total enrollment or the number of students that it transports, expressed as a proportion of the corresponding number statewide. For example, if a school district transports 3 percent of the statewide total number of students transported, then the school district will receive 3 percent of the available state funding for student transportation.

Category 1a: The allocation is included in the basic educational foundation grant.

States: Arkansas, Indiana, Iowa, Kansas, Louisiana, Minnesota, South Dakota.

Category 1b: The allocation is separate from the basic educational foundation grant.

States: Maryland, Michigan.

Comments: This approach provides school districts with maximum flexibility in how it uses state funds and it imposes minimal reporting requirements. It is simple to understand and places little administrative burden on the state. However, it provides no assurance that students will be treated equitably across the state, it fails to take into account variations in operating conditions among school districts, and it provides little or no incentive to improve operating efficiency.

Application to Washington State: This is not considered an appropriate structure, since it essentially apportions existing costs, with no mechanism to create incentives for efficiency or to contain cost escalation. In addition, the JLARC report indicated: "To the extent that some transportation costs may be considered basic education, there is also a legal question as to whether transportation funding can be distributed through block grants".

Category 2: Approved Cost

Generic description: The state establishes a detailed list of approved expenditure types and the percentage of each type that it will reimburse. Each school district receives an allocation that is the sum of various percentages of its approved expenditures. For example, the state might establish that driver salary is an approved cost and agree to reimburse a school district for 60 percent of all driver salaries incurred by a school district. The state may also establish a cap of $10.50 per hour on driver salaries such that the state will not reimburse any portion of a driver's salary in excess of the cap.

Category 2a: The allocation is not adjusted for the wealth of the school district.

States: California, Idaho, Illinois, Missouri, Oregon, West Virginia, Wyoming.

Category 2b: The allocation is adjusted for the wealth of the school district.

States: Connecticut, Tennessee.

Comments: This approach provides a uniform expenditure policy across school districts and avoids expenditures on items not previously approved by the state. However, it is very difficult to establish a complete and unambiguous list of approved expenditures, the allowable percentages and caps tend to be arbitrary and controversial, and the approach may encourage inefficient spending simply because it is reimbursable.

The approach can also lead to disparate service levels across school districts if the school district's wealth is not included in the formula.

Application to Washington State: As with the block grant approach, this methodology is considered unacceptable for Washington since it provides no mechanism to operate efficiently and may not provide legally required funding levels.

Category 3: Unit Cost

Generic description: Closely related to the Approved Cost method, under a Unit Cost approach, the state establishes a unit reimbursement rate for each of a set of measurable activities, such as students transported or miles driven. Each school district receives an allocation that is the sum of the products of the unit reimbursement rates times the extent of the activities. For example, the state might establish a unit reimbursement rate of $200 per basic education student transported and a unit reimbursement rate of $300 per special education student transported. A school district's reimbursement is then $200 times the number of basic education students it transported plus $300 times the number of special education students it transported. To a limited extent, the unit reimbursement rates may vary across school districts to account for local conditions that influence cost but that are beyond the control of school district management. We call such conditions site characteristics[7]. For example, the unit reimbursement rates may vary based on average student density (the number of students transported divided by the land area of the school district).

Category 3a: The allocations are not adjusted for site characteristics.

States: Alabama, Colorado, Hawaii, Montana, Nebraska, Pennsylvania, South Carolina, Utah, Washington.

Category 3b: The allocations are adjusted for site characteristics.

States: Alaska, Arizona, Delaware, Florida, Georgia, New Jersey, New York, Texas, Virginia, Wisconsin.

Comments: This approach differs from the Approved Cost approach primarily in that it focuses on student transportation activities rather than on student transportation costs. This approach recognizes that student transportation services exist to transport students, not to

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[7] A site characteristic refers to a condition or environmental factor that impacts transportation, but is beyond the control of management. For example, a school district with a rural site characteristic has a relatively more difficult logistical environment than one located in a more high-density, urban area. This is because a bus must travel farther to achieve maximum passenger capacity utilization, therefore incurring higher operating costs. Site characteristics differ from management choices in that management choices result from decisions made, not from environmental factors. For example, the decision to use a single bell schedule for all schools will have a major adverse impact on transportation costs in larger school districts, but is not a site characteristic; rather it is the result of a choice on the part of the school district administration and school board.

accumulate miles driven. However, measurement becomes a greater challenge since levels of activities are more difficult to measure accurately than are expenditures. In addition, the unit reimbursement rates are often arbitrary and controversial. The approach may provide some incentive to operate efficiently, but equity can be at risk, especially if the formula does not account for site characteristics.

Application to Washington State: This was selected as one of the funding approaches to be developed for this study. The primary attraction was that this funding model provides a very clear mechanism based on specific unit costs. However, while simpler and more transparent than other statistical/empirical methodologies, the model provides little incentives for efficiency, and does not adjust for many site characteristics.

Category 4: Expected Cost

Generic description: The state establishes a set of coefficients, or unit values, for student transportation activities (students transported, miles driven, and so forth) and for the site characteristics (average student density, average highway density, highway circuitry, percentage of highways miles that are unpaved, and more). The coefficients, together with a constant term, are chosen to compute, for each school district, the expected (average) cost to perform the given activities under the given site characteristics in that school district. Each school district receives an allocation equal to the constant term plus the sum of the products of the coefficients times the values of the respective activities or site characteristics.

As a hypothetical example, the state might establish a coefficient of $200 for the number of basic education students transported and a coefficient of $300 for the number of special education students transported. The state might also establish a coefficient of −$10 for average student density, −$2 for average highway density, and $1,000 for the percentage of highways miles that are unpaved.

The coefficients of the site characteristics reflect the facts that it is generally less expensive to transport students in higher density areas, it is generally less expensive to transport students in school districts with more highway miles per square mile, and it is generally more expensive to transport students in school districts with more unpaved highway miles. The state might also establish a constant term of $10,000, which reflects the fixed cost (for example, administrative cost) of operating a student transportation system. A school district's reimbursement is then $10,000 plus $200 times the number of basic education students it transported plus $300 times the number of Special Education students it transported minus $10 times its average student density minus $2 times its average highway density plus $1,000 times the percentage of its highways miles that are unpaved.

States: Kentucky, Maine, Mississippi, New Mexico, North Dakota, Ohio, Oklahoma

Comments: States normally compute the coefficients using a standard multivariate statistical methodology such as multiple regression analysis. Thus, the coefficients have scientific validity and the approach is likely to lead to equitable allocations across school districts. However, the approach imposes more of an administrative burden on the state than the previous models, even though affordable software programs that perform multiple regression analysis are widely available and easy to use. In addition, the approach leads school districts to reduce costs only to the average level required to operate rather than to the lowest possible level.

Application to Washington State: This was selected as the second funding approach to be developed for this study. The mathematical derivation, while less transparent than the Unit Cost model, is based on accepted empirical methodologies. Using an average cost creates a limited degree of incentive for efficiency, while proving a reasonable assurance that most school districts will receive full funding.

Category 5: Minimum (Target) Cost

Generic description: The model establishes an efficient frontier that identifies, for each school district, the minimum expenditure level required by the school district. To do this, the model combines the adjustments for site characteristics and the construction of the efficient frontier into a single step. This approach is empirically based because it constructs each school district-specific target based on the actual performance of all other school districts in the state.

In doing so, it makes no assumptions about what a school district "should" be able to do based on theoretical considerations. Rather, the model builds each school district-specific target from the actual peer data.

Each school district receives an allocation based on its distance from the efficient frontier. For example, suppose that a school district's total expenditures and number of buses used is such that it would need to reduce each by 15 percent to reach the efficient frontier. Thus, its efficiency score is 85 percent. Suppose further that the buffer equals 10 percent. Then the school district's budget rating equals 85 percent + 10 percent = 95 percent and the school district would receive a reimbursement equal to 95 percent of its allowable expenditures.

State: North Carolina

Comments: The most widely used, efficient frontier estimation methods are Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA). DEA itself is based on linear programming, a mathematical optimization method that was developed during World War II and which has been applied in literally thousands of business, government, and nonprofit organizations throughout the world ever since. The Target Cost approach is mathematically sound because it is based on an empirical methodology (DEA), which has been used extensively in a great number of applications over the past 30 years.

As with the Expected Cost approach, most people can understand the method when explained with simple graphs. However, with both approaches, the computational details may well be fairly opaque. The approach leads to equitable allocations and it provides very strong incentives to each school district to reduce both its expenditures and its bus fleet.

Application to Washington State: This approach also provides an empirically based funding mechanism that adjusts for conditions that are beyond the control of each school district. However, this funding mechanism aggressively drives efficiency in that it disburses only on the basis of what the minimum costs ought to be, rather than what actual costs are. As such, there will likely always be some school districts that do not receive full funding. However, because it fairly determines what the minimum cost of service ought to be for each school district, this method was developed as part of this project to be used as an adjunct management tool with which to evaluate the relative cost effectiveness of school district transportation programs.

Creating Incentives for Efficiency

A fundamental decision in any formula is whether, and the extent to which, the state wishes to control costs by providing incentives for efficiency. Efficiency in this context means maintaining output (i.e., transported students) while minimizing input (vehicles and operating expenditures). It is effectively impossible to accomplish this with a competing mandate that all actual transportation expenditures by the school districts should be fully funded by the State. In other words, the fundamental architecture of the formula can either be to fund what cost _are_ or what they _ought_ to be; they cannot be both.

Formula-based reimbursement approaches such as the Expected Cost Model (or the Target Cost approach) are generally the more effective mechanisms available to promote efficiency because they are predictive or competitive in nature and generally reward efficiency of operations rather than simply reimbursing school districts for costs they incur or defining funding through specified cost components. However, the formula-based reimbursement approaches are also the most complex and difficult to administer of the funding methodologies identified. This complexity results from the attempt to provide equity, while promoting efficiency. To incorporate equity into the formula requires that the calculations adjust for as many of the school districts' uncontrollable cost factors as possible. Uncontrollable factors are not the result of managerial choices, such as bell time structures or open enrollment policies, but consist of site characteristics such as student density, elevation, land impediments, or roadway circuity that may decrease the effectiveness and/or efficiency of their transportation program.

It should also be emphasized that some student transportation required by statue is inherently inefficient. For instance, a school district may be required to provide transportation for a single student to a specialized program. Shuttle transportation provided between learning centers can also be expensive, but the additional transportation costs may be much less than the cost of not centralizing those educational programs.

Other Factors

In any formulation strategy, there are a number of factors that are not an integral part of the funding mechanism, but need to be considered.

How these issues are handled will frame just what can and cannot be done in terms of establishing an effective student transportation funding program that will serve the needs of both the state and the school districts now and in the future.

Controlling Inputs versus Outputs

This is a fundamental philosophical decision that has important ramifications for the type of funding method to be employed, and how the state will manage it. Traditionally, government entities responsible for funding other government entities have attempted to modulate costs by controlling either the number of inputs used (such as miles or buses), or the value assigned to those inputs (such as cost per mile). Using this approach typically leads to disparities and inequities that are difficult to remedy without making arbitrary choices, since it employs primarily a "one-size-fits-all" approach to achieve the necessary cost controls. For example, a fixed wage allowance for a certain employee classification may not fairly take into account regional differences in the cost of wages and benefits.

The best methods take a different strategy. These use modern statistical and empirical methodologies to control costs rather than inputs. This is achieved by defining in some sense what the cost of student transportation should be, based on expenditures by peer school districts. This has the advantage of removing the state from the role of imposing strategic and operational choices on the school districts, and allowing them to make local decisions on how they will or will not contain their costs.

Complexity versus Transparency

Student transportation today is a complex activity, and employing a funding strategy that attempts to contain costs while remaining equitable unavoidably involves a complex solution. As a result, the more empirical methodologies tend to involve rather arcane statistical approaches that are often obscure to the average person. Additionally, such approaches do not require subjective adjustments of unit costs. Moreover, since they use actual expenditures as the basis of the funding calculation, such methodologies largely "self correct" to changing conditions, such as inflation.

Conversely, approaches such as Approved Cost or Unit Cost have more of an accounting format. Since they generally employ multiplying and totaling some unit of input by a fixed value, they are easier to understand and, in most respects, to reliably predict future funding amounts.

However, the derivation of the units and the unit values inevitably involve subjective, often arbitrary decisions by the managing entity on a cyclical basis. While simpler, questions of fairness often arise. Ironically, this often results in "tweaks" and changes to the formula that, over time, make the results less rational, and often, less fair.

Importance of Service Standards and Policies

A danger with any funding formula is that it may produce unintended consequences. Since student transportation is a service business, certain reasonable standards of service quality must apply along with assurance that the system is operating in accordance with legal safety standards.

These include an array of transportation parameters; to list a few examples:

- Maximum student ride times;
- Maximum planning capacity (students per seat);
- Walking distances to bus stops;
- Transportation eligibility criteria (student distance from school);
- Criteria for determining hazardous walking routes and stop locations; and
- Transportation for magnet schools, open enrollment, academic enrichment, and other non-traditional educational programs.

These and other policies and parameters need to be established at the local level, and where appropriate, at the state level to avoid reasonable standards of service being sacrificed in order to reduce operating costs. The challenge here is to encourage local choice by the schools, while carefully defining the limits of service the state is willing to fund.

Importance of Data

In any formulation, but in particular those using a statistical methodology such as the Expected Cost Model, the importance of accurate and complete data cannot be overstated. Understandably, bad data will lead to bad results. The most basic requirement for any formula is an accurate accounting of the number of students transported, the number of transportation dollars expended by each school district, and the number of vehicles used and miles driven.

For approaches such as the Expected Cost Model, additional data is required to incorporate the site characteristics used in the formula to adjust the projected funding amount for each school district. These include such school district specific data elements as road miles, population density, geographic area, roadway circuitry and more. To extract such data requires a sophisticated geographic information system (GIS) and a high level of technical expertise, which fortunately the state already has in place.

Funding Options Developed

Two models were developed for this project that produce funding allocations for student transportation, the Unit Cost Model and the Expected Cost Model. Along with these, a statistical model estimating the minimum target cost was developed to be employed as a management tool to test how far each funding mechanism varied from the costs that would be predicted for each school districts if they were operating at peak efficiency. A detailed explanation of how the target cost approach works is explained in *Appendix C*.

This section describes how the funding models which were developed for this project work, the results each produced using 2006-07 data as the baseline, and the relative advantages and drawbacks of both.

Both models have two features in common:

- Computed funding amounts are buffered, which adds 10 percent to the amount computed by the formula, and
- Each school district's allocation is limited to the smaller of (a) the amount computed by the basic formula plus the buffer, or (b) the school district's actual expenditures.

The buffer simply recognizes that no model can ever completely adjust for all site characteristics[8] since some are unmeasured and others, while real, influence only a small number of school districts. The buffer tilts the allocations somewhat in favor of the school districts but increases the acceptability of each approach by eliminating concerns about site characteristics that do not appear in the models.

Each approach limits the allocation to no more than the school district's expenditures since there is no apparent reason to reimburse a school district for expenditures that it did not incur.

Each approach, in principle, allows a school district to increase its expenditures in future years up to the amount computed by the basic formula plus the buffer and be fully reimbursed, thereby reducing the demand for local contributions. However, each school district must be mindful that the formula may change somewhat over time.

Both models were applied to the same data set, which included all the variables mentioned below for each one of the 289 of the 295 school districts in the state that transport students. Four of the school

[8] See earlier footnote explaining site characteristics.

districts (Kalama, Woodland, Ridgefield, and La Center) were combined into the KWRL Co-op, resulting in 286 operating units.

Option 1 – Unit Cost Approach

The basic idea of 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. Thus, the Unit Cost Model establishes statewide values for hourly wages and benefits for drivers and mechanics, mechanic hours required per 10,000 miles driven for large and small buses, fuel efficiency for large and small buses, and fuel cost per gallon[9]. Then, using some simple equations and the school district's numbers of basic and special education riders and land area, the Unit Cost Model computes the annual cost of transporting these students to and from school.

How it Works

We begin by writing some formulas for each of three cost elements. These formulas compute the *daily* costs of operations; we must multiply them by the school district's number of days of operation per year to obtain annual costs.

Drivers Wages and Benefits = (Driver Wages and Benefits/Hour) x (Total Driver Hours/Day)

Mechanics Wages and Benefits = (Mechanic Wages and Benefits/Hour) x (Mechanic Hours/Mile Driven) x (Total Miles Driven/Day)

Fuel Cost = (Cost of Fuel/Gallon) x (Total Miles Driven/Day) / (Bus Miles per Gallon)

Next, we establish the following values for the quantities in red for the 2006-07 school year:

Driver Wages and Benefits/Hour = $19.71

Mechanic Wages and Benefits/Hour = $26.66

Mechanic Hours/Mile Driven = 0.008062 (= 80.62 Mechanic Hours/10,000 Miles Driven) for large buses

[9] The values uses in this model were based on industry averages for driver and mechanic wages and fuel prices using U.S. Bureau of Labor (BLS) and U.S. Department of Energy/ Energy Information Administration statistics. Base year was 2006-07.

Mechanic Hours/Mile Driven = 0.007054 (= 70.54 Mechanic Hours/10,000 Miles Driven) for small buses

Cost of Fuel/Gallon = $2.80[10]

Bus miles per gallon and average speed depend on the size of the bus and on the rider density of the school district, as shown in the following tables. We use the first table for basic education riders and the second table for special education riders. We establish the rider density categories based on the 20th, 40th, 60th, 80th, 90th, and 95th percentiles of rider density within each group. We apply these values to all school districts statewide.

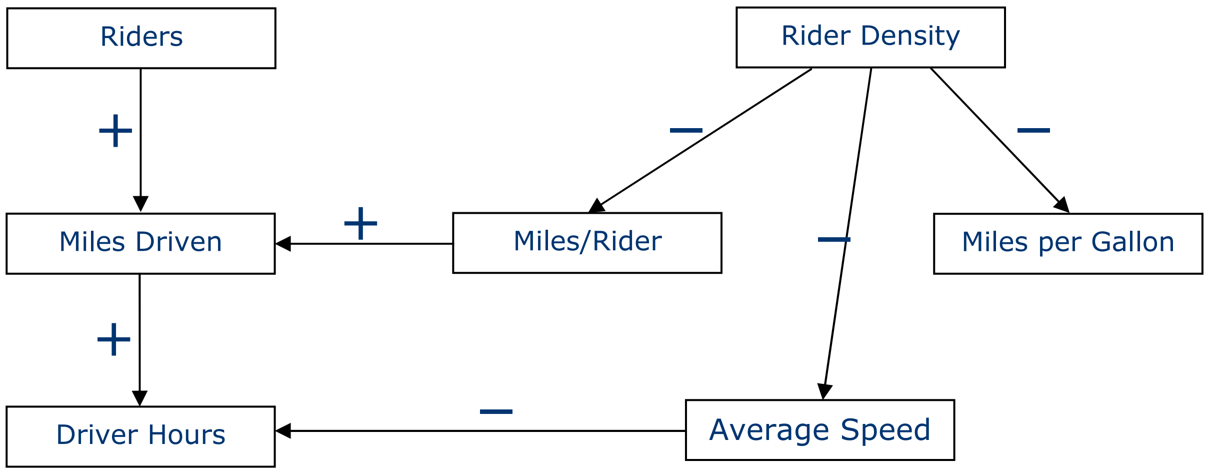
		Full-Size Buses		
RE Rider Density		Miles/Rider	Speed (mph)	MPG
0	0.86	2.75	28	8
0.87	2.39	1.63	25	7.5
2.4	7.9	1.16	22	7
8	25.9	0.97	20	6
26	84.9	1.00	18	5.5
85	350	0.71	10	4

		Small Buses		
SE Rider Density		Miles/Rider	Speed (mph)	MPG
0	0.03	8.53	28	10
0.04	0.16	4.39	27	9.5
0.17	0.49	4.78	26	9
0.5	1.9	3.44	25	8
2	6.9	3.63	18	7.5
7	40	1.79	10	5.5

That leaves us with only two quantities that must be determined for each school district: Total Driver Hours/Day, and Total Miles Driven/Day.

[10] Average diesel fuel price per gallon in Washington during FY 2006-07.

The diagram below shows how we do this.



In this diagram, an arrow from one variable to another means that the value of the variable at the tail of the arrow affects the value of the variable at the head of the arrow. A "+" sign means that the relationship is positive, that is, larger (smaller) values of the variable at the tail of the arrow lead to larger (smaller) values of the variable at the head of the arrow, if all other variables are held constant. For example, if school district A transports more riders than does school district B, and if school district A and school district B are identical in all other respects, then we expect that school district A will drive more miles per day than will school district B.

Similarly, a "–" sign means that the relationship is negative, that is, larger (smaller) values of the variable at the tail of the arrow lead to smaller (larger) values of the variable at the head of the arrow, if all other variables are held constant. For example, if school district C has a higher rider density than does school district D, and if school district C and school district D are identical in all other respects, then we expect that school district C will drive fewer miles per rider than will school district D.

There are two variables in the diagram that have no incoming arrows: Riders, and Rider Density. Therefore, if we know the values of these two variables for a given school district, then we can use the relationships shown in the tables above and the definitional equations below to compute the values of every other variable in the diagram.

The definitional equations are:

Miles Driven = (Riders Transported) x (Miles/Rider) and

Driver Hours = (Miles Driven) / (Average Speed).

The Unit Cost Model accounts for administrative costs and supplies (and other) costs by allocating a fixed amount depending on the total number of riders, as shown in the following table. We compute total staff expenditures from the number of full-time equivalent staff members using salaries plus benefits of $100,000 for transportation directors and $65,000 for other transportation staff members[11]. We establish the rider categories based on the 20th, 40th, 60th, 80th, 90th, and 95th percentiles of total riders.

Total Riders		Full-Time Equivalent Trans Director	Full-Time Equivalent Staff	Total Staff Expend	Supplies/Other
0	109	0.5	0	$50,000	$21,142
110	339	0.5	0.5	$82,500	$44,015
340	959	1	1	$165,000	$78,500
960	2,249	1	2	$230,000	$184,174
2,250	4,699	1.5	4	$410,000	$392,289
4,700	6,999	3	6	$690,000	$600,143
7,000	& up	5.5	15	$1,525,000	$943,290

As an example of how the Unit Cost Model works, suppose that a school district transports 1,500 basic education and 100 special education riders each day, has 150 square miles of land area, and operates 180 days per year. Then this school district has 1,600 total riders, a basic education rider density of 10 riders per square mile, and a special education density of 0.67 riders per square mile.

Basic education buses in this school district would drive 0.97 miles/rider at an average speed of 20 mph and experience an average fuel efficiency of 6 mpg.

The first definitional equation says that the school district's basic education buses will travel (1,500) x (0.97) = 1,455 miles per day. The second definitional equation says that the school district's basic education buses will require (1,455) / (20) = 72.75 driver hours per day.

[11] Average compensation values were estimated using regional data from the U.S. Bureau of Labor Statistics, *Statistics by Metropolitan Area*, and from a sampling of school districts in Washington.

- Equation 1 says that these driver hours for basic education riders will cost ($19.71) x (72.75) = $1,434 per day.
- Equation 2 says that mechanic hours for basic education riders will cost ($26.66) x (0.008062) x (1,455) = $313 per day.
- Equation 3 says that the school district will pay ($2.80) x (1455) / (6) = $679 per day for fuel for basic education riders.

Special education buses in this school district would drive 3.44 miles/rider at an average speed of 25 mph and experience an average fuel efficiency of 8 mpg. The first definitional equation says that the school district's special education buses will travel (100) * (3.44) = 344 miles per day. The second definitional equation says that the school district's special education buses will require (344) / (25) = 13.76 driver hours per day.

- Equation 1 says that these driver hours for special education riders will cost ($19.71) x (13.76) = $271 per day.
- Equation 2 says that mechanic hours for special education riders will cost ($26.66) x (0.007054) x (344) = $65 per day.
- Equation 3 says that the school district will pay ($2.80) x (344) / (8) = $120 per day for fuel for special education riders.

Therefore, we have the following daily variable operating cost analysis for this school district:

Daily Costs	Basic Education	Special Education	Total
Driver Wages plus Benefits	$1,434	$271	$1705
Mechanic Wages plus Benefits	$313	$65	$378
Fuel	$679	$120	$799
Total	$2,426	$456	$2,882

Since the school district operates 180 days per year, we multiply all daily variable costs by 180 to arrive at annual variable costs for the school district:

Annual Costs	Basic Education	Special Education	Total
Driver Wages plus Benefits	$258,120	$48,780	$306,900
Mechanic Wages plus Benefits	$56,340	$11,700	$68,040
Fuel	$122,220	$21,600	$143,820
Total	$436,680	$82,080	$518,760

With 1,600 total riders, the school district would have one full-time equivalent transportation director, costing $100,000 per year, and two full-time equivalent transportation staff, costing $65,000 each per year, for a total of $230,000 per year. In addition, the school district would spend $184,174 per year on supplies and other items.

Thus, adding the annual cost of transportation staff and the annual cost of supplies and other items to the total annual variable cost, we get $932,934. Next, we add the 10 percent buffer to arrive at $1,026,227.

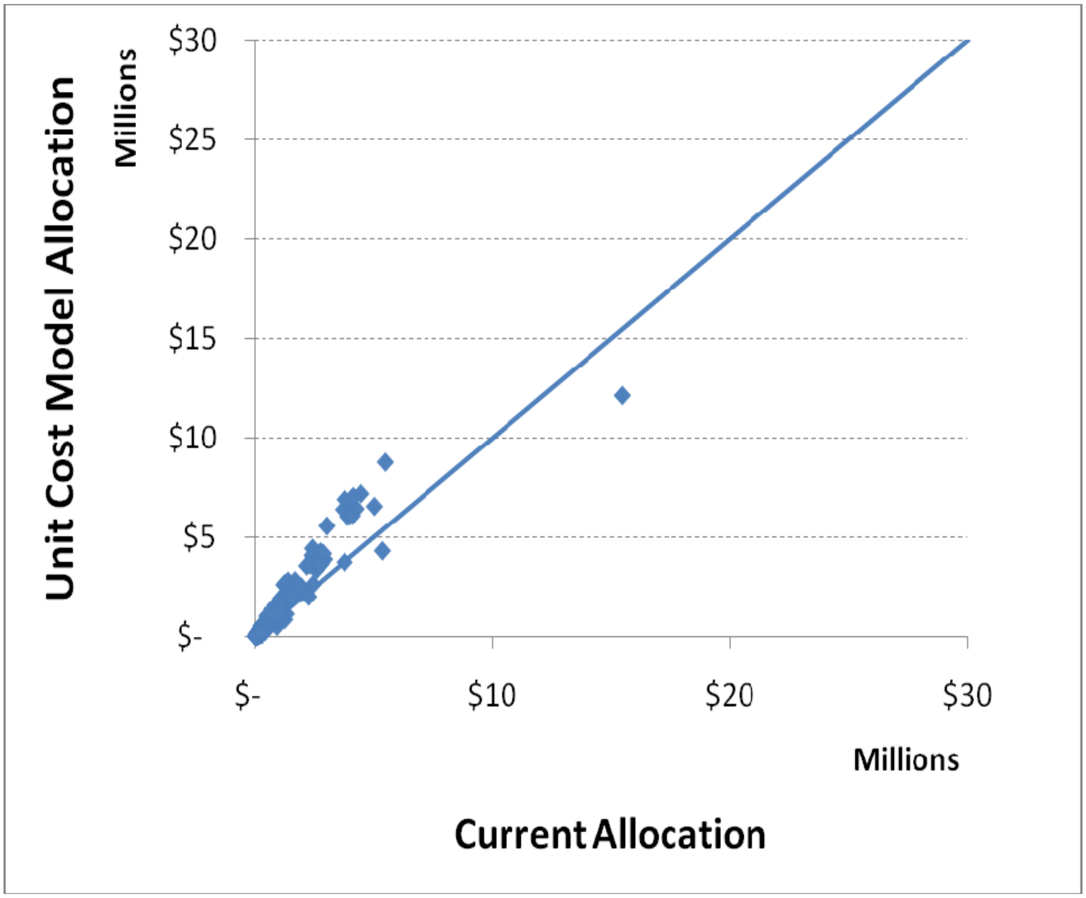
The Unit Cost Model would call for the state to reimburse this school district the smaller of either $1,026,227 or the school district's actual expenditures.

Results

Allocations produced by the Unit Cost Model for each school district in Washington State for the 2006-07 school year are presented in *appendix A*. Overall, the Unit Cost Model allocates $305,274,892, or 30.5 percent more than the $233,892,887 allocated by the current formula, and 14.3 percent less than the total expenditures of $356,386,229.

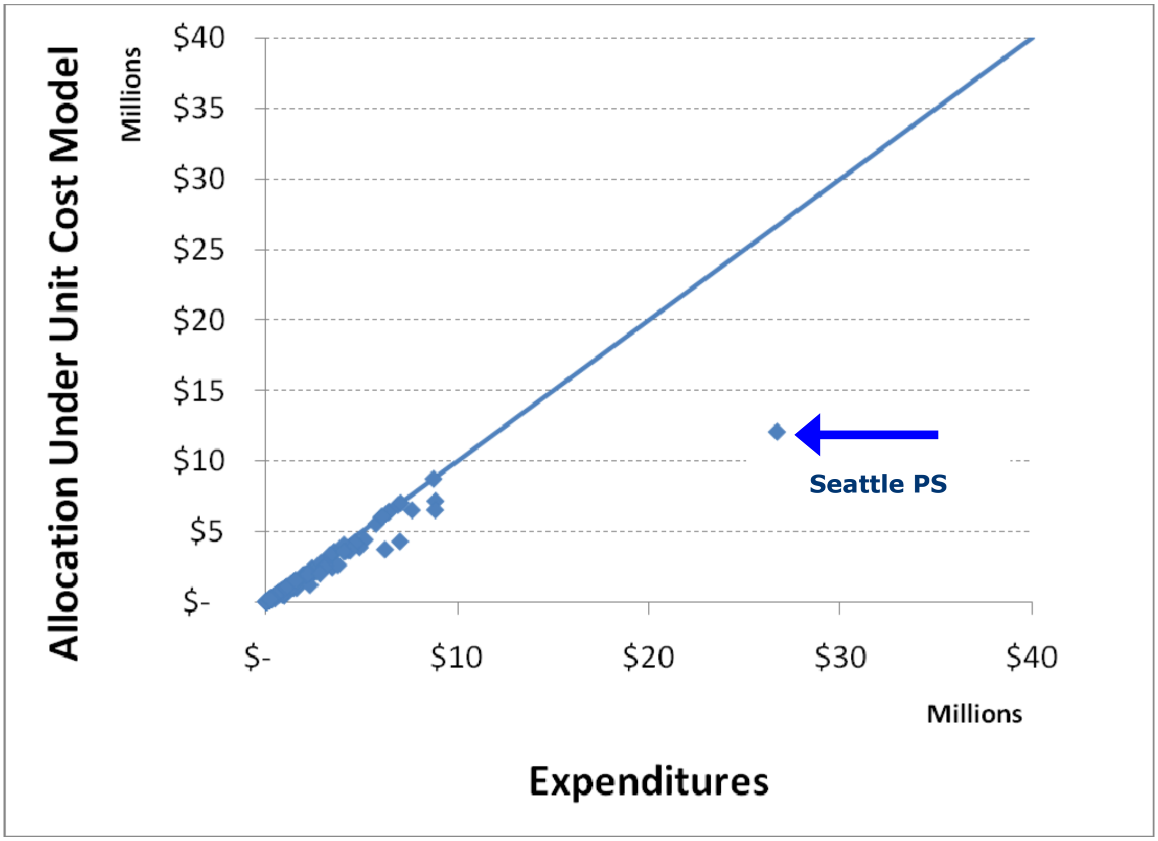
The next figure plots the allocations produced by the Unit Cost Model versus the current allocations. About two-thirds of the school districts (189 of 286, 66.1 percent) - representing 85.7 percent of the students transported statewide - receive more money under the Unit Cost Model than under the current allocation formula.

Funding Comparison: Current Model vs. Unit Cost Model



The next figure plots the allocations produced by the Unit Cost Model versus expenditures. Just over half of the school districts (160 of 286, 55.9 percent) - representing 38.9 percent of the students transported statewide - are fully funded, meaning that all of their expenditures are reimbursed by the state.

Comparison: Actual Expenditures vs. Unit Cost Model



Advantages and Drawbacks

The Unit Cost Model is reasonably clear in that it only involves simple arithmetic and it does so in a structure suitable for conversion into a spreadsheet format. It also offers predictability to the school districts and to managers at the state level in that the effects of changes in school district characteristics (riders, land area) or model parameters (cost allowances for driver wages and benefits, fuel and so forth) are easily computed. The Unit Cost Model is relatively easy to administer, although the determination of the model parameters, a critical step, involves a mixture of data analysis and subjective judgment.

The Unit Cost Model, however, is weaker in terms of the fairness with which it reimburses school districts. This stems primarily from the model's inability to account for several site characteristics that we know are both practically and statistically significant (note the outlying position of Seattle in the preceding graph, with funding well below its actual costs).

For example, the Unit Cost Model does not account for the average distance that riders live from their school of attendance, which clearly increases miles driven and all associated costs. The Unit Cost Model does not consider any aspects of the roadway network within the school district, such as the total miles of roadway or the circuity of those roadways. Neither does it account for the number or nature of schools in the school district, such as the presence or absence of a high school

Moreover, the Unit Cost Model provides school districts with less of an incentive to improve the efficiency of their operations. The allocation computed by the Unit Cost Model is unrelated to the school district's actual performance (other than being capped by the school district's expenditures) or the performance of other school districts.

On balance, the Unit Cost Model is relatively simple and transparent but it lacks the ability to incorporate important factors that influence the cost of transporting students. Moreover, it fails to provide a clear behavioral structure that will encourage local transportation directors to find ways to increase efficiency and save money.

Option 2 – Expected Cost Approach

The basic idea of the Expected Cost Model is to reimburse a school district based on the average cost of transporting its riders under its local site characteristics. We may interpret the amount computed by the Expected Cost Model formula for a given school district, before adding the buffer and applying the expenditure-level limit, as the average expenditure level that we would observe among a very large number of independently managed school districts that transport the same number of riders and operate under the same site characteristics.

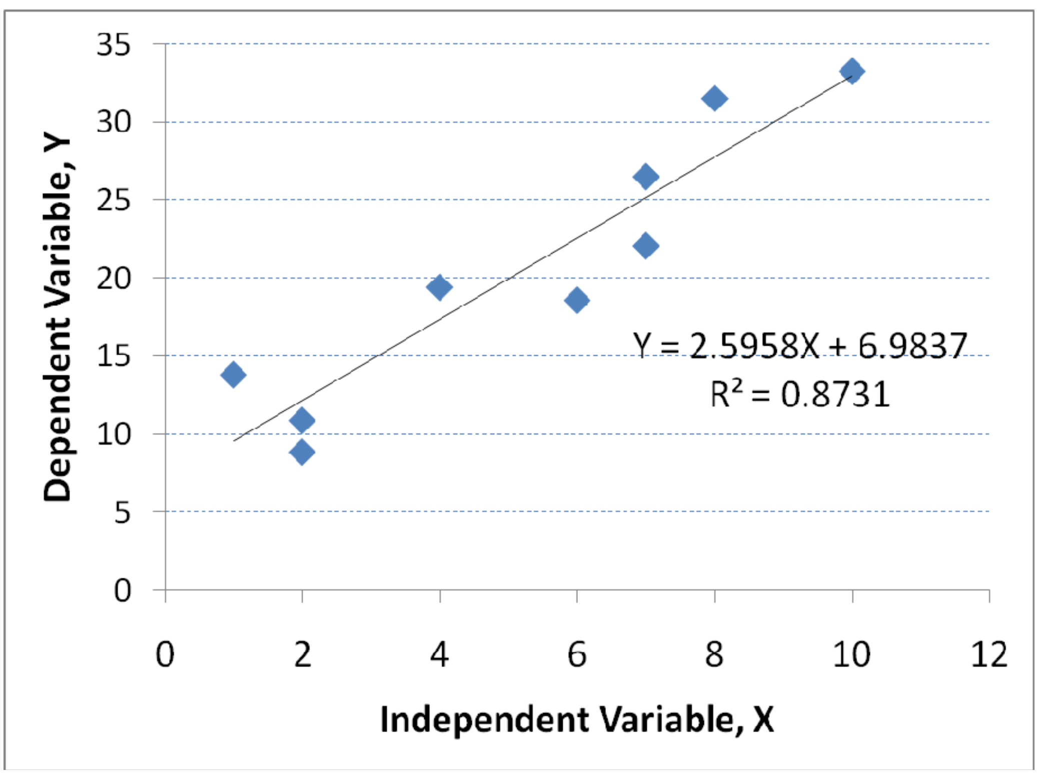
How it Works

The Expected Cost Model computes the average, or expected expenditures for each school district by constructing a multiple regression equation. Multiple regression analysis is a standard statistical methodology that has been in use since Francis Galton introduced the technique in 1886. Multiple regression analysis is one of the most widely used statistical techniques today.

The multiple regression model postulates that a *dependent variable*, such as expenditures, is a function (usually a linear function) of one or more *independent variables*, such as basic education riders, special education riders, and site characteristics. The linear function includes several unknown numerical values, called *parameters*, that we must estimate from available data. One parameter is the *constant term* (or the *y-intercept*) and the other parameters, one for each independent variable, are *slopes*. We use the *ordinary least squares (OLS)* method to estimate the unknown parameters from the data. The objective of the OLS method is to produce a linear model that passes as closely as possible to each of the observations.

The figure below shows an example of a linear regression model with only one independent variable, *X*. The dependent variable is *Y*. Each plotted point represents one observation and the line represents the linear regression model. The equation of the line appears on the graph along with the model's R^2 value of 0.8731, which indicates that 87.31 percent of the variation in *Y* is explained by variation in *X*. The R2 value indicates how well the variables in the model "fit", or explain the variance in the dependent variable; the higher the R2 value, the more precise the result. The constant term in this model is 6.9837, which is the height of the regression line where it crosses the *Y*-axis (where *X*=0). The slope of the line is 2.5958, which means that the line rises 2.5958 units for every one unit increase in *X*.

Example: Linear Regression Model



The Expected Cost Model, of course, is considerably more complex than this simple example. The Expected Cost Model has eight independent variables, which means that we cannot construct a graph like the one above. In addition, we *transform* the dependent variable and three of the independent variables using the natural logarithm function. This means that we use the natural logarithm of expenditures as the dependent variable rather than expenditures; we also use the natural logarithms of the number of basic education riders, the number of special education riders[12], and land area. The use of the natural logarithm in regression models is common and leads to very natural interpretations of the model parameters, as discussed below.

The following table shows the eight coefficients (the slopes) used in the Expected Cost Model and their approximate interpretations.

[12] Technically, we use the natural logarithm of the number of special education riders plus one to avoid the natural logarithm of zero, which is undefined. The "plus one" has no practical significance for the model or for its interpretation.

Variables and Coefficients Used in the Expected Cost Model

Variable	Coefficient	Approximate Interpretation
(Natural) Logarithm of Number of Basic Education Riders	0.69011	A 10% increase in the number of basic education riders is associated with a 6.9% increase in expenditures.
(Natural) Logarithm of Number of Special Education Riders +1	0.09854	A 10% increase in the number of special education riders is associated with a 0.9% increase in expenditures.
(Natural) Logarithm of Land Area	0.10259	A 10% increase in land area is associated with a 1.0% increase in expenditures.
Average Distance to School (Miles)	0.08828	An increase of one mile in average distance to school is associated with an 8.8% increase in expenditures.
Roadway Miles	−0.0001838	An increase of 10 roadway miles is associated with a 0.2% decrease in expenditures.
Number of Locations Served	0.01364	An increase of one location served is associated with a 1.4% increase in expenditures.
Binary Variable = 1 if the School District Transports its High School Students to Another School district	−0.19377	Transporting high school students to another school district is associated with a 19.4% reduction in expenditures, relative to school districts with a high school.
Binary Variable = 1 if the School District Does Not Transport its High School Students	−0.33122	Not transporting high school students is associated with a 33.1% reduction in expenditures, relative to school districts with a high school.
Number of Midday Kindergarten Trips per Week	0.00177	An increase of 10 in the number of midday kindergarten trips per week is associated with a 1.7% increase in expenditures.

The constant term in the model is 7.58326. This value is required to state the Expected Cost Model in its entirety but it does not have an interpretation similar to those above.

The model's R^2 value is 0.9586, which means that variation in the nine variables above explains 95.86 percent of the variation in expenditures. We note that variation in the numbers of basic education and special education riders alone accounts for 92.31 percent of the variation in expenditures.

All coefficients are statistically significant; the highest P-value is 0.0090. We consider a coefficient *statistically significant* if its P-value is less than 0.05. The P-value of a coefficient is the probability that we would compute a parameter as different from zero as we did compute if, in fact, the true value of the coefficient equaled zero. When the P-value of a slope is less than 0.05, then we can be almost certain that the apparent association between the corresponding independent variable and the dependent variable is real and not spurious.

Colinearity is not a major concern in the Expected Cost Model; the highest variance inflation factor is 6.6. A regression model suffers from colinearity when its independent variables are correlated with one another. (For example, imagine a classroom of 30 students. Fifteen students have brown hair and brown eyes, while 15 students have blonde hair and blue eyes. The two variables would be hair color and eye color and would be collinear.) Colinearity is a minor concern when one or more of the variance inflation factors exceed 5, and a major concern when one or more of the variance inflation factors exceed 10. The consequence of colinearity is a loss of precision in the estimation of some coefficients. However, all the coefficients in the Expected Cost Model are plausible and have the correct sign.

The model satisfies the remaining regression assumptions: linearity, constant variance of the residuals, and normality of the residuals. A residual, in this case, is the difference between a school district's natural logarithm of actual expenditures and the model's prediction of the natural logarithm of its expenditures.

We compute the allocation for a school district as the smaller of the school district's actual expenditures and 110 percent of the value computed by the regression model. This 10 percent buffer allows for site characteristics that are not present in the model. Thus, a school district must reduce its expenditures to at most 110 percent of the value computed by the regression model to receive full funding.

As an example of how the Expected Cost Model works, suppose that a school district (the same school district used for the Unit Cost Model example) transports 1,500 basic education and 100 special education riders each day, and has 150 square miles of land area.

Suppose further that the school district's riders live, on average, 5 miles from school, that the school district has 400 miles of roadways, that the school district serves 10 locations, including a high school, and that the school district makes 20 midday kindergarten trips per week.

We begin by computing the following natural logarithms (denoted ln):

- ln(Basic Education Riders) = ln(1,500) = 7.31322
- ln(Special Education Riders + 1) = ln(101) = 4.61512
- ln(Land Area) = ln(150) = 5.01064

Next, we multiply the value of each independent variable by its coefficient:

ln(RE Riders):	0.69011 x (7.31322)	= 5.04693
ln(SE Riders +1):	0.09854 x (4.61512)	=0.45477
ln(Land Area):	0.10259 x (5.01064)	= 0.51404
Avg. Distance:	0.08828 x (5)	= 0.44140
Roadway Miles:	−0.0001838 x (400)	= −0.07352
Number of Locations:	0.01364 x (10)	= 0.13640
Non-High Transporter:	−0.19377 x (0)	= 0
Non-High Non-Transporter:	−0.33122 x (0)	= 0
Midday K Trips:	0.00177 x (20)	= 0.03540

Next, we sum the resulting products to obtain 6.55542. Now add 7.58326, the constant term, to obtain 14.13868, which is the natural logarithm of the school district's expected cost. We then raise the number *e*, which is the base of the natural logarithm, to this power:

$e^{14.13868}$ = $1,381,499

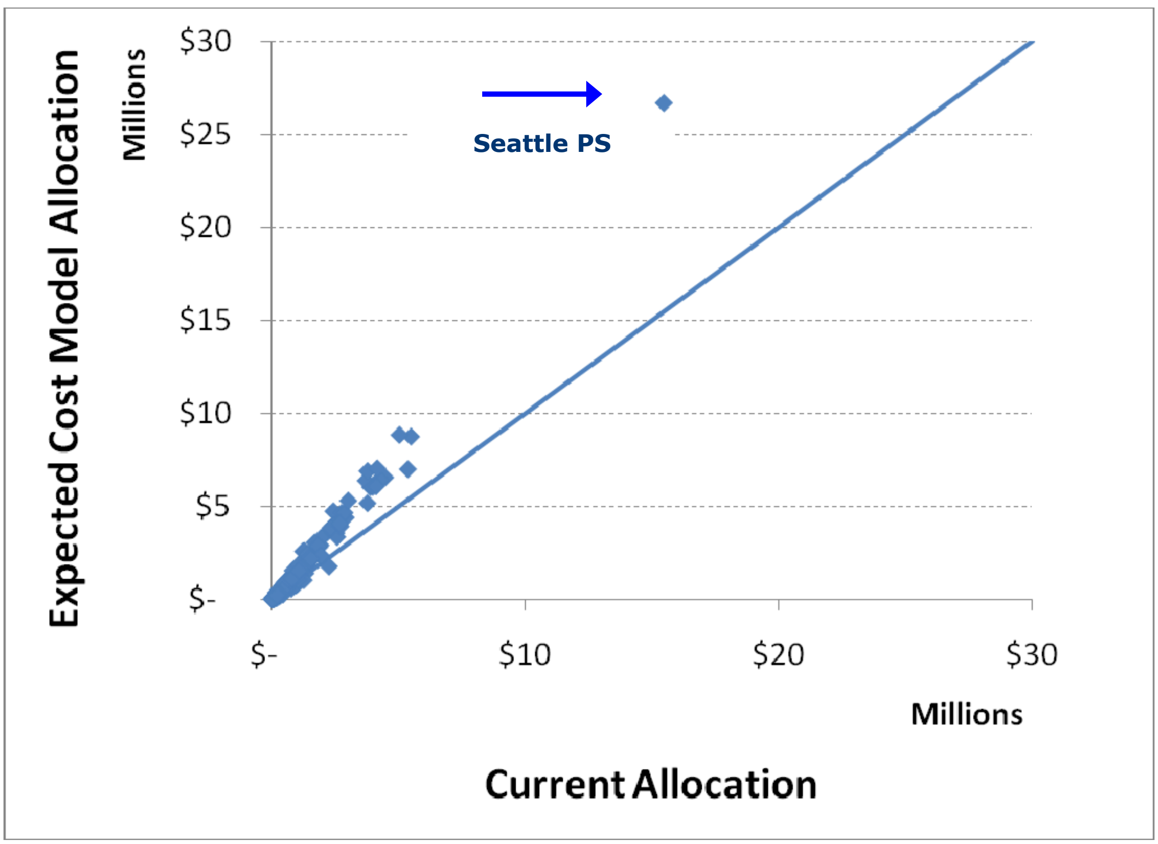
Finally, we add the 10 percent buffer to arrive at $1,519,649. The Expected Cost Model would call for the state to reimburse this school district the smaller of either $1,519,649 or the school district's actual expenditures.

Results

Allocations produced by the Expected Cost Model for each school district in Washington State for the 2006-07 school year are presented in *Appendix A*. Overall, the Expected Cost Model allocates $337,236,250, or 44.2 percent more than the $233,892,887 allocated by the current formula, and 5.4 percent less than the total expenditures of $356,386,229.

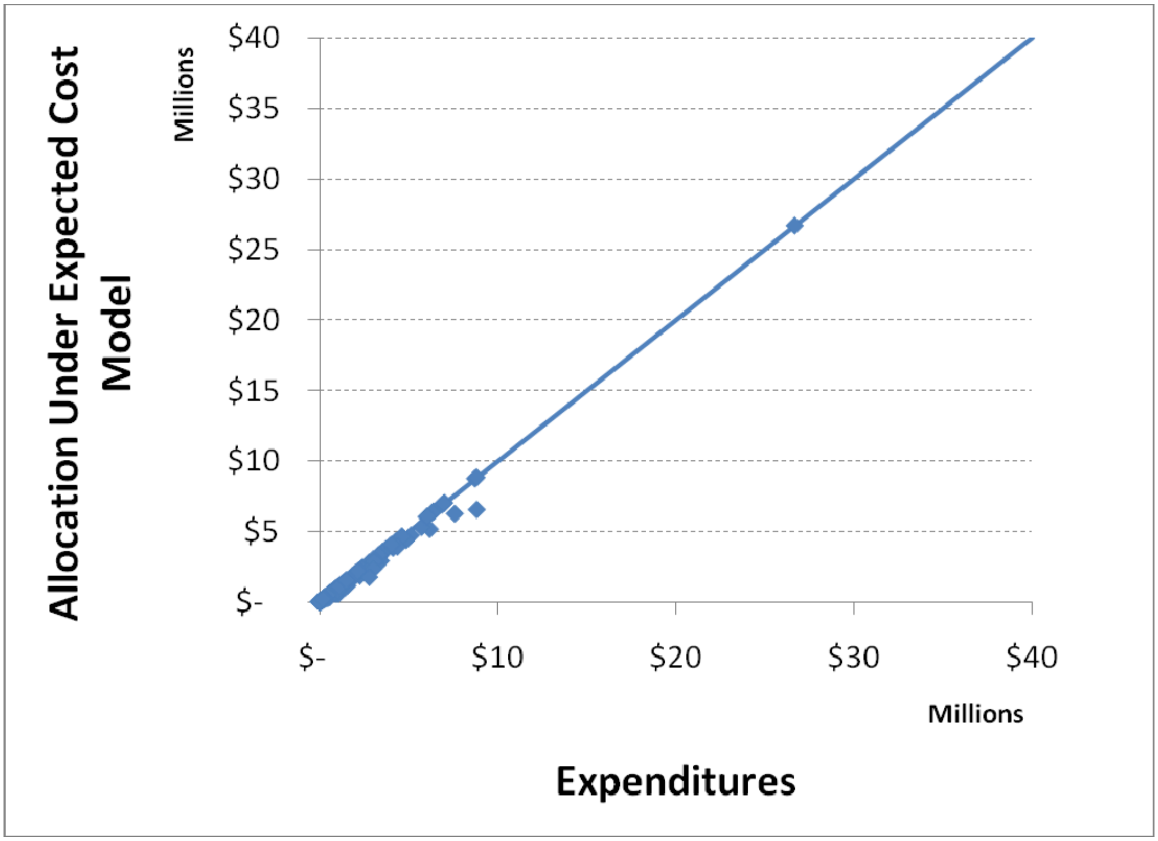
The figure below plots the allocations produced by the Expected Cost Model versus the current allocations. About two-thirds of the school districts (197 of 286, 68.9 percent) - representing 95.0 percent of the students transported statewide - receive more money under the Expected Cost Model than under the current allocation formula.

Comparison: Current Model vs. Expected Cost Model



The next figure plots the allocations produced by the Expected Cost Model versus the expenditures. About two-thirds of the school districts (192 of 286, 67.1 percent) - representing 64.5 percent of the students transported statewide - are fully funded, meaning that all of their expenditures are reimbursed by the state.

Comparison: Actual Expenditures vs. Expected Cost Model



Advantages and Drawbacks

The Expected Cost Model is reasonably easy to understand, although the technical details of the regression analysis (the use of the natural logarithm, the estimation of the coefficients) may be somewhat obscure to many people. On the other hand, one does not need to master the technical details to use the model – very few drivers understand the technical details of an internal combustion engine – and the interpretations of the coefficients are direct and meaningful.

The Expected Cost Model has a strong and statistically sound dependence on the data, which helps to ensure its validity and accuracy. Its ability to incorporate any reasonable number of site characteristics makes it a good choice from the standpoint of equity.

This model does require care and some statistical competence to build and update. State administrators will need to know how to use standard statistical software to perform transformations, build regression models, and test that they satisfy all the underlying assumptions.

The Expected Cost Model provides school districts with a mild incentive to improve the efficiency of their operations. The allocation computed by the Expected Cost Model is not directly linked to the school district's actual performance, but is influenced to some degree by a given school district's performance compared to the performance of other school districts. If other school districts reduce their expenditures over time, then the Expected Cost Model will begin to lower the allocations to some or all school districts. To the extent that school districts anticipate that other school districts will generally pursue cost reduction strategies, an incentive exists to reduce costs, though not a powerful one. In addition, by capping funding at the expenditure level of each school district, there is less incentive to increase expenditures unnecessarily. However, given the large number of school districts in Washington State, the allocations will respond slowly to changes that are not widespread.

The Expected Cost Model provides a school district with full funding if its performance is merely average or, considering the buffer, somewhat below average. In this sense, we can say that the Expected Cost Model encourages average performance, as school districts would have no incentives to aggressively reduce costs as long as they can still receive full reimbursement under their current operational structure and routing architecture.

On balance, the Expected Cost Model is an acceptable alternative as it provides equitable allocations, has a sound statistical foundation, and is technically manageable. However, the model provides only a limited incentive for school districts to improve the efficiency of their operation and is less demanding on those whose performance is below average.

Using the Target Cost Tool

As can be seen from the preceding discussions on the advantages and drawbacks of the two funding models selected for this project, both are limited in their ability to create incentives for efficiency. To overcome this, and to serve as a reference point in determining the extent to which each funding option is aligned with expected costs, a third model was developed. This model employs a methodology known as the Target Cost approach, which produces allocations based on the best possible performance of each school district, taking into account all of the school district's site characteristics, and relative to peer school districts.

The objective of the Target Cost Tool is to identify, for each school district, an empirically based and mathematically sound minimum expenditure level that allows the school district to transport its students to and from school while recognizing local site characteristics that influence cost but are beyond the direct control of school district management. For a more in-depth description of how this model works, the reader should refer to Appendix C.

The purpose therefore is to use the Target Cost Tool in conjunction with another funding model as a management diagnostic tool. In this way it is possible to compare the funding provided not only to what the transportation costs for each school district are, but what they should be. With it, it is possible to identify school districts that, while receiving full funding under the new model, still have room for improvement. It is also useful to employ this tool as a mechanism to identify what the costs should be for a school district that consistently expends more than the formula provides. In this sense, it provides a "target" of what such a school district should aim for in attempting to operate more economically.

The results of the Target Cost Tool can be used by OSPI and regional transportation coordinators to identify districts that may benefit from technical assistance efforts. This tool can be used to identify districts with less efficient operations; however, the tool does not provide explanatory data to inform district practice. To identify options to increase efficiency, technical assistance would be needed for additional on-site analysis conducted by regional transportation coordinators, in consultation with school district staff.

The Target Cost Tool can also be utilized by OSPI and regional transportation coordinators to identify the school districts with the most efficient operations. On-site visits and case studies of these districts may be used to help implement best practice ideas across the state.

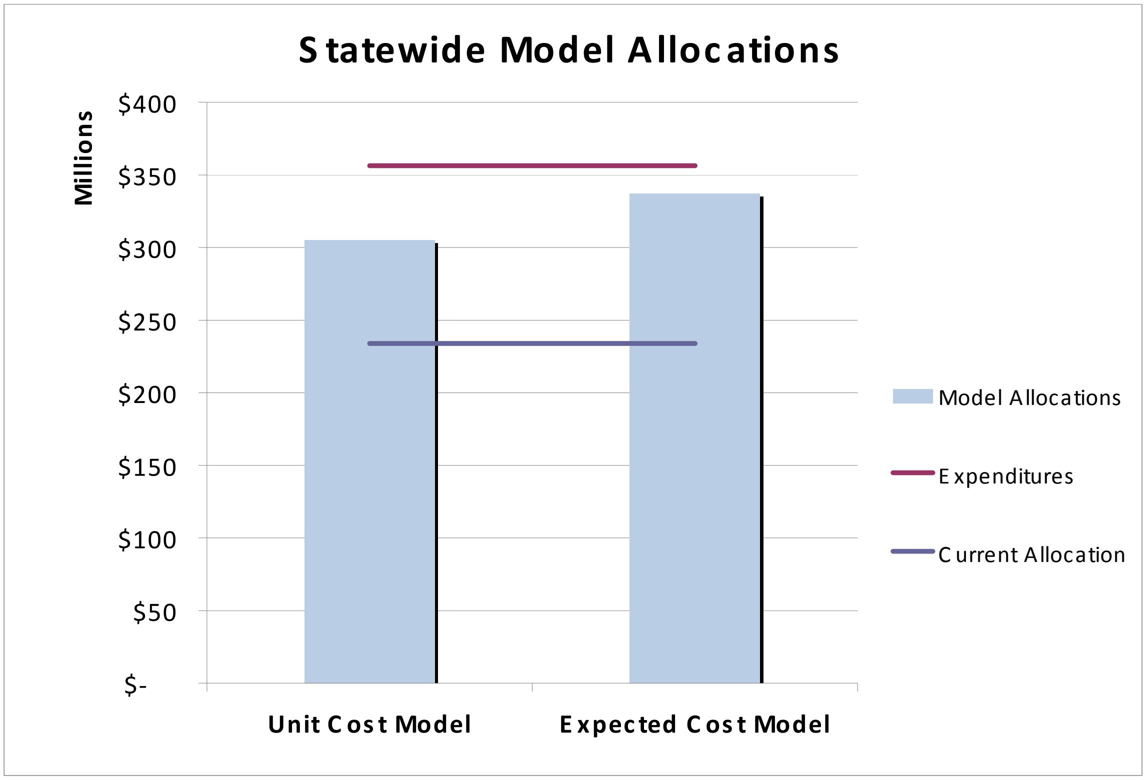
Comparative Analysis of the Options

The next table and figure show the statewide total allocations produced by both models relative to that produced by the current model and relative to statewide total transportation expenditures of $356,386,229[13].

[13] Comparative minimum (target) cost resulted in $323,469,179 total, 138.3%of current funding level and 90.8% of actual expenditures.

Projected Allocations by Model Type

Model	Allocation	% of Current Allocation	% of Expenditures
Current	$233,892,887	100.0%	65.6%
Unit Cost Model (UCM)	$305,274,892	130.5%	85.7%
Expected Cost Model (ECM)	$337,236,250	144.2%	94.6%

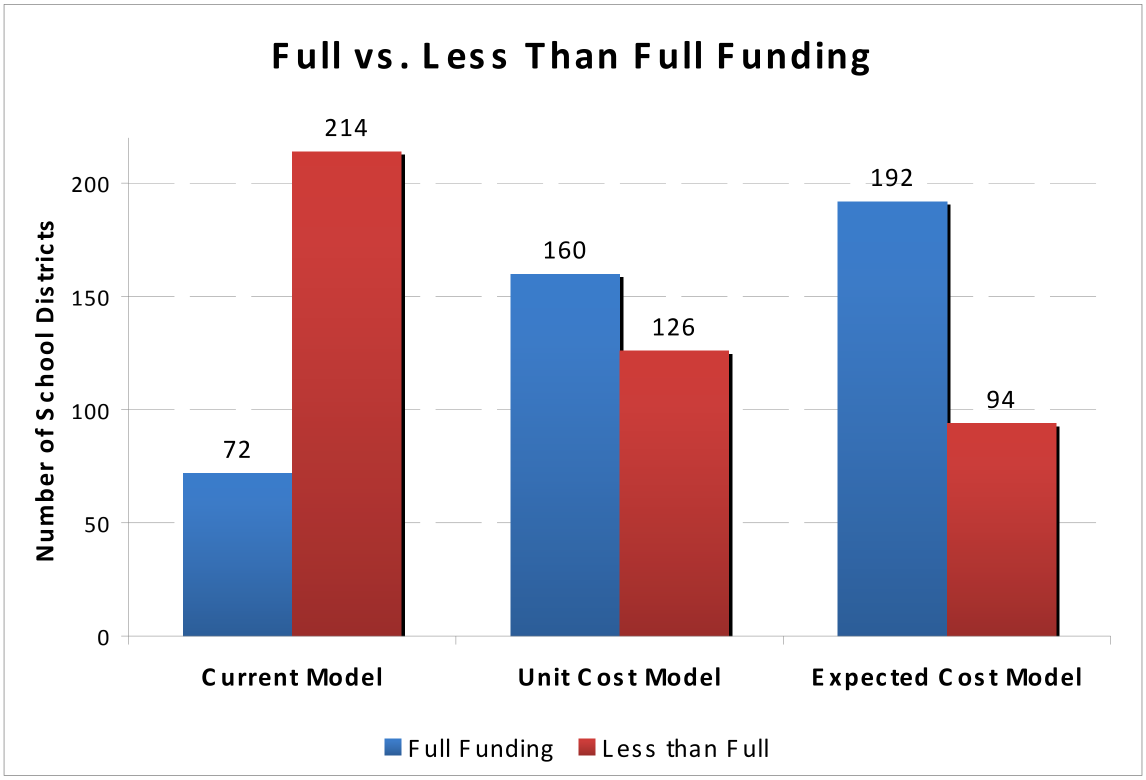


Both models result in statewide allocations that are considerably higher (30.5 percent to 44.2 percent) than that produced by the current formula.

In addition, both lead to statewide allocations that are reasonably close to total statewide expenditures, falling short by between 5.4 percent and 14.3 percent.

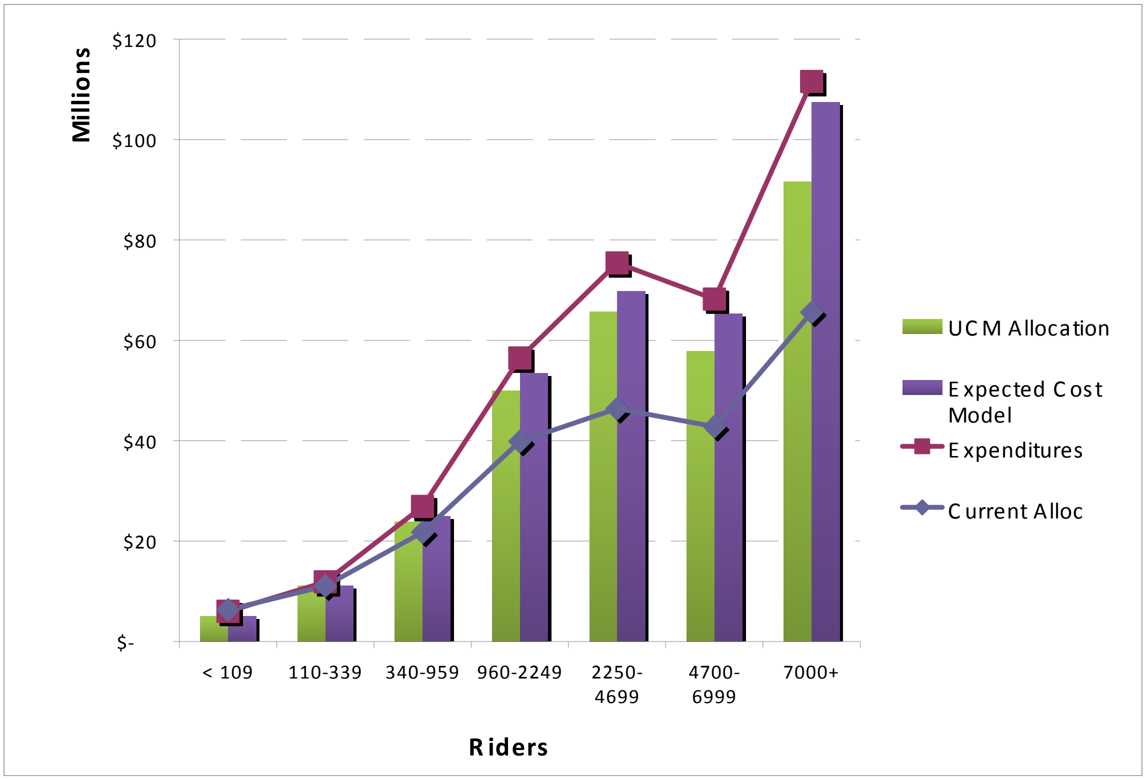
The following chart shows the number of school districts that receive full funding (and less than full funding) under the current funding formula and under both of the two models. Both models lead to full funding for more school districts than does the current model.

Funding Levels by Model Type



The next graph shows the allocations produced by both of the models and the current formula for school districts of various sizes, as measured by the total number of riders. The school districts are grouped according to the approximate 20th, 40th, 60th, 80th, 90th, and 95th percentiles of the total number of riders. The red and blue lines trace the total expenditures and current allocations in these groups.

Funding Allocation ($ Millions) by School District Size (Student Riders)

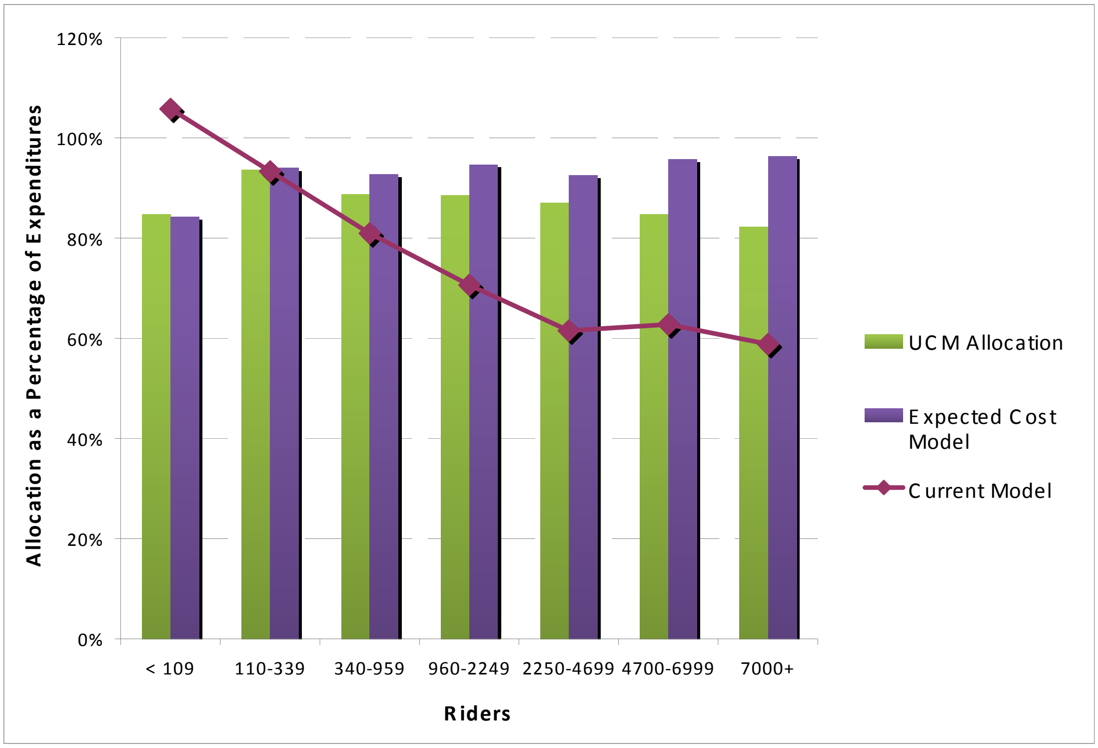


We can see that the allocations produced by the current model are very close to actual transportation expenditures for smaller school districts but fall far short in larger school districts. By contrast, the Expected Cost Model is considerably more equitable, while the Unit Cost Model also generally favors smaller school districts at the expense of the larger school districts, though not to the degree of the current funding formula.

The following graph and table show the allocations of both models expressed as percentages of the current allocation for these same groups of school districts. Here we can see more clearly how the current model favors smaller school districts over larger school districts. In fact, the 57 smallest school districts, those with fewer than 109 riders, now receive allocations that exceed their expenditures by almost 6 percent while the 59 largest school districts receive allocations that fall nearly 40 percent below their expenditures. Interestingly, a comparison of the two funding options developed during this project indicates that while 31 - 33 percent of the school districts receive less than under the current formula, 54 – 61 percent of those receiving less still are funded equivalent to their level of expenditure.

This provides some context as to the magnitude of the current discrepancy caused by over-funding certain school districts.

Funding Allocation (%) by School District Size (Student Riders)



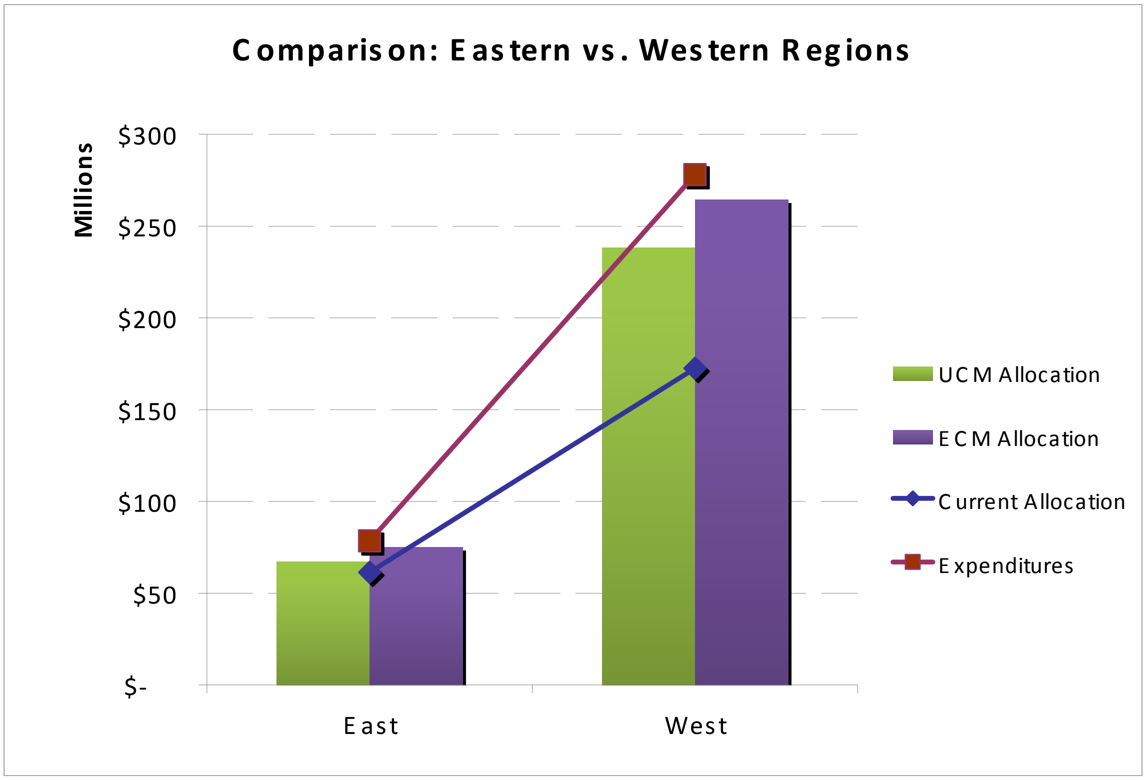
Riders	< 109	110-339	340-959	960-2249	2250-4699	4700-6999	7000+
Percentile	< 20th	20th-40th	40th-60th	60th-80th	80th-90th	90th-95th	> 95th
School districts	57	58	57	55	31	15	13
Current Model	**105.8%**	**93.3%**	**81.0%**	**70.6%**	**61.5%**	**62.8%**	**58.8%**
Unit Cost Model	**84.8%**	**93.7%**	**88.8%**	**88.6%**	**87.1%**	**84.8%**	**82.2%**
Expected Cost Model	**84.3%**	**94.0%**	**92.8%**	**94.7%**	**92.6%**	**95.8%**	**96.3%**

The Unit Cost Model tends to allocate more funds to smaller school districts than to larger school districts, with the exception of the smallest 20 percent of school districts, which collectively receive only 84.8 percent of expenditures versus 93.7 percent for the second smallest group of 20 percent. As under the current model, the percentage of expenditures under the Unit Cost Model also falls as the number of riders grows, but not nearly as quickly, reaching 82.2 percent of expenditures for the largest 5 percent of school districts.

By contrast, the Expected Cost Model funds at a higher level to larger school districts than to smaller ones. The smallest 20 percent of school districts receive 84.3 percent of expenditures. Between the 20th and the 90th percentile, which includes 70 percent of the school districts, the allocation percentage remains nearly steady between 92.6 and 94.7 percent of expenditures. The largest 10 percent of the school districts receive about 96 percent of their transportation expenditures.

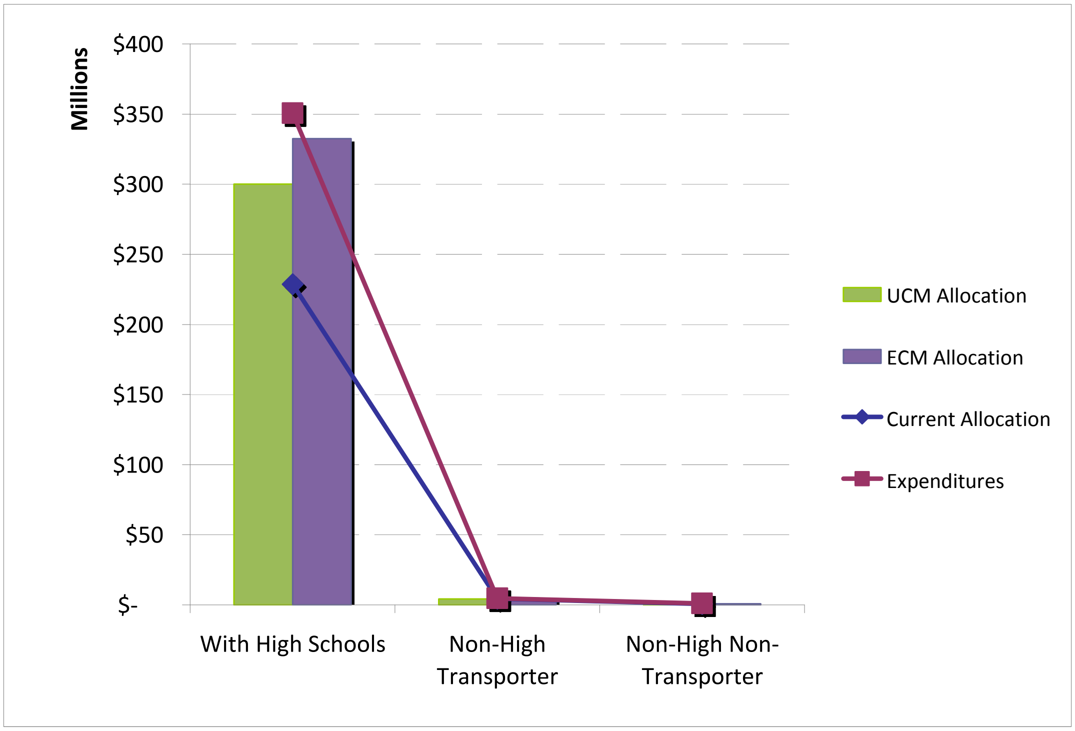
The next graph compares the allocations produced by the models for school districts in the eastern and western[14] regions of the state. The red and blue lines trace the total expenditures and current allocations in these regions. We see that the current model provides funding much closer to their actual expenditures for eastern region school districts relative to those in the west, while the Expected Cost Model shows no such bias. The Unit Cost Model appears to provide slightly higher funding relative to expenditures for the eastern sector school districts. It is important to note when considering these differences that the eastern region of the state contains a much higher proportion of small school districts than are found in the west.

[14] For the purpose of this analysis, the state is divided into east and west by Educational Service School district (ESD). School districts in the east are those in ESDs 101, 105, and 123, and in the North Central ESD 171. School districts in the west are those in ESDs 112 and 113, and in the Olympic ESD 114, the Puget Sound ESD 121, and the Northwest ESD 189.

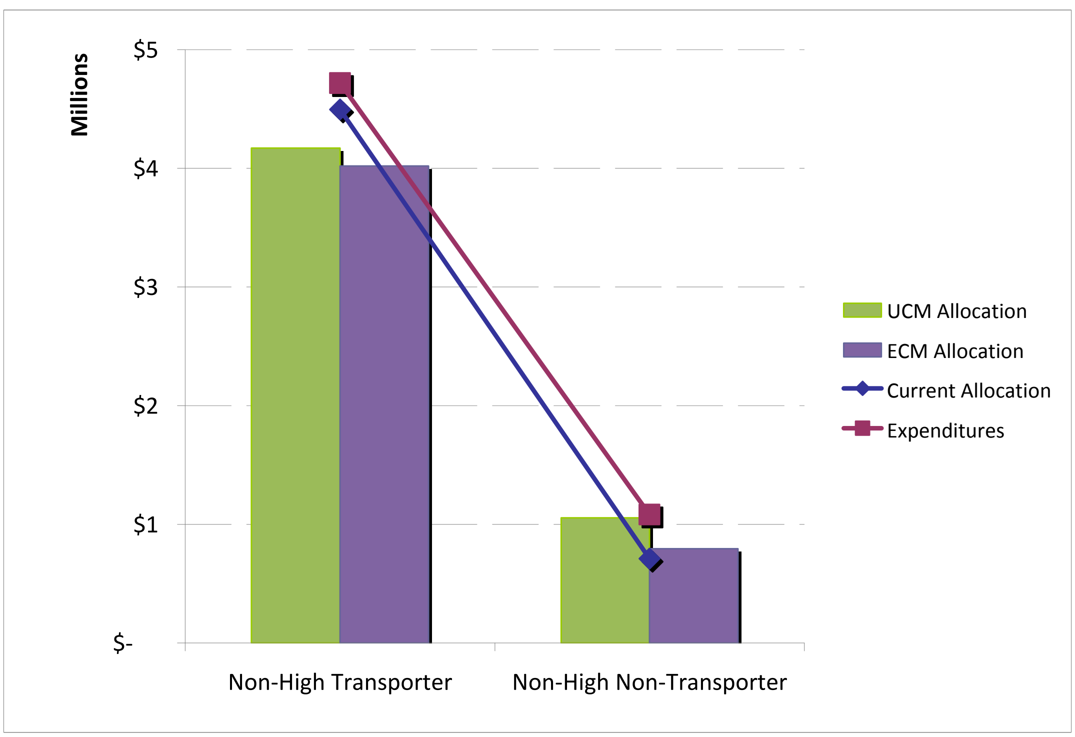


An area requiring closer scrutiny was the cost impact of school districts that do not have high schools ("non-high" school districts), but either transport their students to a neighboring system with a high school, or that have transportation services provided by the school district with the high school their students attend. The next graph shows the allocations produced by both of the models for school districts with high schools, school districts without a high school that transport their high school students, and school districts without a high school that do not transport their high school students. The two lines trace the total expenditures (upper line) and current allocations (lower line) in these groups. The second chart on page 48 shows the school districts without a high school alone for better clarity. Translated proportionately, those school districts with high schools receive only 62.5 percent of their expenditures under the current model while those without a high school receive 89.8 percent of their expenditures.

Impact on High and Non-High School Districts



Impact on Non-High School Districts

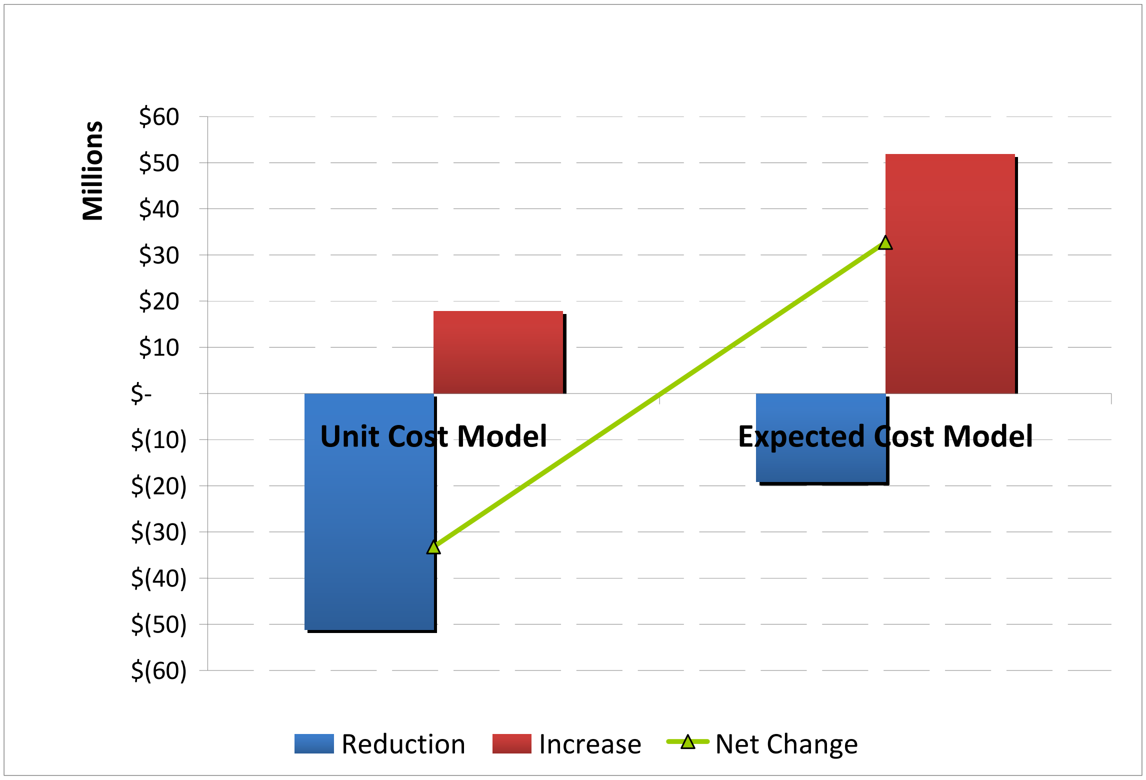


The Unit Cost Model provided funding at a higher level to those non-high school districts that do not transport their high school students (97.5 percent of expenditures) over non-high school districts that do transport their high school students (88.4 percent of expenditures) and school districts with high schools (85.6 percent of expenditures). On the other hand, the Expected Cost Model tends to provide more funding to school districts with high schools (94.8 percent of expenditures) over non-high school districts that do transport their high school students (85.2 percent of expenditures) and non-high school districts that do not transport their high school students (73.3 percent of expenditures).

The chart that follows compares the potential long-term impact of both of the models and the current formula to total statewide expenditures. The underlying assumption is that each school district will adjust its expenditures to match its allocation. In other words, we assume that school districts that currently spend more than a model would allocate will reduce its expenditures to its allocation level and eliminate local contributions. The blue bars show these reductions. Similarly, we assume that school districts that currently spend less than a model would allocate will increase its expenditures to its allocation level. The red bars show these increases. The green line shows the net changes in expenditures.

Under these assumptions, employing the Unit Cost Model would lead to a long-term potential reduction in expenditures of $33.2 million, while the Expected Cost Model would lead to an increase of $32.8 million over time. The Unit Cost Model achieves this net reduction primarily through its tendency to fund less for larger school districts. The net increase associated with the Expected Cost Model is attributable entirely to the 10 percent buffer. While the buffer affects each of the models, the Expected Cost Model would produce a net change of very nearly zero in the absence of a buffer.

Future Impact on State Funding Demands



In summary, we find that both models perform significantly better than the current model with respect to the formula criteria defined earlier. The Unit Cost Model suffers from a certain bias in favor of smaller school districts at the expense of larger school districts, and towards school districts in the eastern part of the state compared to those in the western half. The Expected Cost Model funds the larger school districts closer to their expenditure levels, while the smaller school districts and those without a high school tend to receive less funding.

Finally, under a simple behavioral assumption, we find that the Expected Cost Model could lead to a long-term increase in expenditures over time. By contrast, the Unit Cost Model might over time lead to long-term decreases in expenditures, though perhaps this would not be entirely equitable to certain categories of school districts. It is for this reason that we suggest employing the minimum (target) analysis as a management tool, particularly if the Expected Cost Model were to be selected as the funding model used by the state in the future.

Implementation Considerations

Regardless of which funding option the state ultimately selects, it will be important to consider an array of ancillary functions and systems needed to support the student transportation funding program. In the discussion that follows, the most significant of these considerations are explained, along with the general steps we suggest in response.

Phase-In of New Funding Approach

We suggest that the state not implement the new formula selected by the Legislature before the start of the 2011–2012 school year. There are a number of practical considerations which have prompted this recommendation.

Financial impacts need to be buffered in the early years of the new funding approach. As noted in the 2006 JLARC study statistical estimates revealed that 187 student transportation programs (71 percent) experienced a negative funding variance in 2004-05. That is, when JLARC completed their analysis, these programs were found to receive less state funding than their statistically expected costs. By contrast, 76 student transportation programs (29 percent) received more state funding than their statistically expected costs.

Any of the funding options developed in this project will improve these variances. However, putting the new funding formula in place will result in a reduction of the historic funding levels experienced by some of the school districts across the state. To cushion the impact on these school districts, and to allow them a reasonable amount of time to make the operational changes needed to reduce their transportation costs, it may be necessary to establish some type of hold-harmless policy for a period of time. A suggestion would be to establish a decreasing scale that will buffer school districts who receive less funding than their current expenditures such that in the first years they might receive no less than their actual expenditures. This would decrease incrementally over the time period established for the phase-in period until they receive the amount calculated by the new funding formula.

Time is needed for some school districts to make necessary operational changes. The question naturally arises as to why a three (or two, or five) year "buffer period" should be provided. The reason is that time is needed for school districts to evaluate why their costs are higher than expected, develop an improvement plan, and to put the necessary changes in place.

Given the nature of public school transportation, major changes of this type, along with the internal and public outreach and the local board approvals needed, may take several fiscal cycles to accomplish. For example, a school district might be able to reduce the number of buses required to transport its students if it went to a balance staggered bell structure. The internal review and development of options would take place in year 1. Testing the changes in simulation and allowing time for public and board input might take place in year 1 and part of year 2. The balance of year 2 would be spent actually restructuring the transportation system to leverage the changes to the school bell times. In year 3, the changes (and resulting cost reductions) would go into effect.

Outreach and training will be an important part of the implementation. Funding formulas are designed to influence the behavior of the recipients consistent with the objectives of the funding entity (State). This very fundamental precept can be accomplished only to the extent that the school districts understand the formula and its stated objectives. The statistical aspects, particularly of the Expected Cost Model and the Target Cost Tool, are not simple, but they are understandable. By conducting a series of training sessions at the nine regional ESD locations, school district personnel can be given the opportunity to ask questions and learn how the formula works, its objectives, and what they can do to ensure that their expenditures do not exceed the funding provided by the formula.

Time is needed to establish the necessary information systems and management procedures. The details of the information systems and management/auditing/oversight requirement are expanded in detail in the section that follows Overall, it will take a period of time to determine what steps have to be taken to manage the new funding system, who will do what functions, and what resources are required. As a first step, an implementation task plan needs to be developed that address the following general tasks:

- Modify the necessary statutory and regulatory language and mandates;
- Define the roles of OSPI, OFM and other government entities who will participate in some aspects of the selected funding program;
- Refine and finalize internal management procedures and reporting requirements, such as auditing and data verification;

- Design and procure necessary software, program interfaces, and network architecture to efficiently and accurately collect and disburse needed data; and

- Evaluate the necessary staffing and training requirements at the State and regional level.

Following a coherent, structured implementation plan will anticipate and avoid many of the pitfalls that might otherwise arise if the new funding program were simply implemented and state agencies were left to their own devices to make it work in an *ad hoc* manner. Further, this will provide school districts with the information they need regarding how the program will be implemented, when and what their expected participation and reporting requirements will be.

Data Management and Reporting Requirements

As stated earlier in this report, the quality and validity of the funding formula results are tremendously dependent upon the accuracy and completeness of the data that is entered into it. During this project, and preceding it[15], there have been a number of concerns about the quality of the base financial, demographic and logistical data.

The survey conducted in November 2007 indicated that just over 30 percent of the 295 schools school districts in the state have and use route planning software. Given the limited information technology presently in use, particularly in many of the smaller school districts, it will be important to design a reporting system that is flexible enough to accommodate both manual and automated information systems without placing unrealistic burdens on both the school districts and the state. What we envision for this is a web-based portal to the OSPI website that is designed to accept required data using a format that is compatible with modern open Structured Query Language (SQL) database architectures conforming to International Organization for Standardization (ISO) standards. This will permit flexibility at the local level in choosing route planning or student information systems applications, while facilitating the transfer of large amounts of data in a useable format at OSPI. Specifically, the primary changes that need to be incorporated include:

Implement a unified transportation cost accounting system. For either of the funding models, it will be critical to have an accurate and complete accounting of transportation costs in order to correctly

[15] See JLARC report "K-12 Pupil Transportation Funding Study", November 2006.

calculate funding based on *true*, *actual* costs. Because this is dependent upon a number of policy and statutory decisions, the elements to be included in the tabulation of transportation costs for each school district cannot yet be precisely itemized. Refer to the discussion in the *Policy and Regulatory Considerations* subsections that follows.

Use student headcounts in the formula calculation. Ultimately, using eligible student counts from route planning software products or other database sources for use in the funding calculation is the best solution (see below). Realistically, this may take several years to implement. In the interim, we propose using headcounts with the following modifications from the present practice:

- Perform one or two-day counts three times annually (in the fall, winter, and spring);
- Use the greater of either morning or afternoon counts for the formula calculation; and
- Perform counts on a per-route basis (not per stop).

This procedure is less cumbersome than the current practice of counting the students at every bus stop, and will average out the variances in ridership levels that are to be expected. Also, the present method of counting students takes into account only the morning riders, which may be less than the number that ride in the afternoon, and the count is taken over a five-day period in the fall of each year, distorting the true picture of how many students are actually transported during the course of the school year.

Base transported student counts on eligibility, rather than physical counts. The best solution is to base the transported student counts on eligible students, as opposed to physical headcounts. This is because route planning depends heavily on the expected number of riders; it is impractical and unrealistic to think that entire transportation networks can be reconstructed after the start of school once the utilized capacities are known based on actual ridership. In addition, using eligible riders as the funding basis is easier to audit and requires less administrative effort for both the state and the school districts.

However, implementing this will require a standardized system of reporting to OSPI, such that the number of eligible riders can be determined for each bus route. Given the fact that different routing and scheduling software programs are in place across the State, and that approximately 70 percent of the school districts do not use route planning software, it will be necessary to implement a centralized, web-based reporting solution as described above.

Integrate student and school data into the state GIS database. Once a standardized method of reporting has been developed, student address, grade level, program, and school assignment data can be compiled into a single database, along with school building and eligible program location data. These data should then be imported into the GIS planning software. The resulting site characteristics, such as student distance to school, can then be employed in the funding models.

Test site characteristic data on a periodic basis (Expected Cost Model only). For this model, it is only necessary to calculate total eligible student transportation costs and total basic and special education students transported on an annual basis. However, site characteristics such as student location data, school locations and school counts, roadway miles, transportation to out-of-school district high schools ("non-high" school districts), and the number of daily midday trips for kindergarten students need to be tested for significance in the models every three-to-five years. In addition, new site characteristics may need to be tested from time to time for statistical significance.

Collect and evaluate unit cost values on an annual basis (Unit Cost Model only). This model is very sensitive to the specific unit value used in the calculation, so it will be necessary for the state to update the following data for each school district each year in order to calculate state average values for the coefficients used in the formula:

- Average fuel cost per gallon;
- Number of FTE support staff and transportation management positions;
- Number of FTE bus drivers and aides; and
- Number of FTE school bus fleet technicians.

In addition, it will be necessary for OSPI to collect on a less frequent basis (perhaps every five-to-ten years) a random sampling of annual fleet mileage and mechanic hours charged to maintenance and repair activities in order to refine the parameters used in the model for fuel consumption rates, staffing ratios, and labor hours worked. In this way, the model will adjust as operating conditions change over the years to maintain an equitable funding level.

Data collection requirements for the Target Cost Tool. While the Target Cost Tool can be used in conjunction with the Expected Cost Model without any additional data collection requirements, if the tool is implemented with the Unit Cost Model there will be substantial additional data collection requirements separate from those strictly associated with the initial determination of the allocation. This would reduce one of the advantages of the Unit Cost Model: simpler reporting requirements.

State Management and Support Functions

Beyond the collection, tabulation and incorporation of reported data into the funding formula, specific procedures need to be implemented to ensure data accuracy and to provide oversight in case-eligible costs or other factors are misrepresented.

Monitor reported school district transportation costs. This will require OSPI to employ standard financial statement reporting procedures on a regular basis that conforms to state auditing standards. Additionally, it will be necessary to periodically verify the basis for reported costs to ensure that expenditures for transportation services, which are not funded under the statutes, are not included in the annual reports from the school districts. Particular attention should be paid to internal cost adjustments for revenues received or disbursed to other school districts or government entities for outside services received or rendered. These include intra-school district or interdepartmental charges for fleet maintenance service, fuel, non-high school transportation, and other collaborative transportation services.

Audit changes in the number of reported students. All of the funding options developed in this project are highly sensitive to the number of students transported. As such, this is the area with the greatest potential for manipulation or error. The State Auditor's Office should regularly verify the accuracy of reported student riders through their annual audit processes.

In addition, increases or decreases in reported riders should be checked against the change in annual average daily attendance for all enrolled students reported by the school districts. Large discrepancies in the difference in the percentage change of riders versus enrolled students should flag that school district for an audit of their reported rider count.

Identify school districts with higher than expected costs. Should the Expected Cost Model be selected as the funding formula for Washington, the base data and site characteristics used in this model can be readily applied to the Target Cost Tool in order to identify those school districts with transportation programs that are costing more than they should, given the comparison with similar peers. In this way, it can be used to identify less-efficient transportation operations. Similarly, the model can be used to identify the most cost effective transportation programs to establish a baseline of peer best practices to be evaluated and used to help other school districts.

Provide assistance to identified school districts. Using the statistical tool just described, the resources and expertise of OSPI and the regional transportation coordinators should be applied to work with school districts identified as having operations which are less efficient and more costly than expected. Once identified, OSPI should examine these transportation programs more closely to identify specific route planning and/or operational changes that could be implemented to make them more cost effective. For example, a hypothetical school district with high costs compared to its peers might be found on closer examination not to have appropriately staggered bell times, limiting the number routes assigned to each bus, and therefore requiring more buses than necessary to transport a given number of students.

Policy and Regulatory Considerations

A number of statutory and regulatory issues will need to be resolved prior to the inception of a new funding method. Listed below are the key items for consideration.

Cost reporting requirements need to be clarified. A critical component of the funding models developed is accurate and reasonably detailed cost reporting. The current transportation cost reporting separates to/from and "other" transportation costs within general cost categories, but does not supply sufficient line-item detail, particularly for the Unit Cost model which requires the differentiation of certain costs, such as fuel and administrative costs.

Also, the financial statements show only the reported student transportation costs and not the allocated school district-wide indirect costs attributable to transportation. "Indirect" costs include centralized school district services such as personnel and information technology support. Currently, each school district has a different percentage of allowable indirect costs, which is established by the state and is not included in the current student transportation funding formula. Only those school districts currently funded at over 100 percent of their direct transportation costs are able to recover any of their associated indirect expenditures. Indirect costs are not unique to student transportation programs. Ultimately, any consideration of how to treat indirect costs must take into account funding structure recommendations that will be submitted by the Basic Education Finance Task Force.

Some categories of expense are reported differently from school district to school district. Examples include bus aides, utilities, vehicle and liability insurance. For some school districts, these costs are allocated on a percentage or use basis to transportation, while others assign these costs to other cost centers.

Inter-school district charges for shared services are not always adjusted in the financial reports. Many school districts provide transportation to other school districts, or for programs within their school districts, for which they are compensated. However, there is no prescribed reporting methodology for adjustments involving charges for trips, transportation for non-high school districts, and other services among school districts. This results in under-reporting of costs, or reporting costs without the offsetting adjustment for compensation received.

It is important to have as accurate a picture as possible of the transportation expenditures for each school district. The state should consider clarifying a uniform procedure for school districts to provide consistent, line-item detail on their reported transportation costs that reflect allocated debits and credits, apportioned overheads and indirect costs, and other adjustments.

Student transportation eligibility criteria should be redefined. The one-mile funding exclusion was intended to discourage school districts from transporting student who could reasonably be expected to walk to school. However, hazardous walking conditions (discussed below), roadway configurations and topographical barriers may preclude a child from safely or reasonably walking to school.

For instance, a child residing one radius mile from his or her school may have to walk two miles by shortest path to go around a lake or a mountain to get to school. Given the GIS capability of the state, we see no particular difficulty in defining the walking area as one mile *by shortest walking path* rather than by radius mile.

Hazardous access criteria should be defined. The current regulatory language requires school districts to establish walking routes for each elementary school. Historically, Washington has determined students within one mile to not be eligible for to/from transportation funding. In addition to the regular transportation allocation, the state provides additional funding for students in grades K-5 who live within one mile of school; these funds can be used for safety improvements for walking routes or for transportation services. The determination to which students to transport is left completely up to local school districts. Many of the school districts related that they transported students who live within one mile out of liability and safety concerns. Given the walking route requirements defined under WAC 392-151-025, specific criteria for determining hazardous walking criteria should be established which would grant transportation funding for students who are within one mile of school, but who are precluded from walking to school because of hazardous conditions.

Clarification of the definition of basic home-to-school transportation is necessary. In the 25 years since Washington's present transportation funding method was developed, both the state and federal governments have placed new mandates on school districts that did not exist at that time. The expectations for education programs such as Head Start and Early Childhood Education and Assistance Program (ECEAP), which target low-income three and four-year-olds and other at-risk children, including migrant children, Native Americans and those at risk for school failure due to developmental or environmental factors, have expanded considerably during that time. The federal No Child Left Behind expectations that all students meet state standards have increased remediation and assistance programs, such as after-school learning opportunities, and have expanded the need for transportation services.

The present language under the WAC does not explain whether certain types of transportation, such as field trips of an instructional nature, qualify as "instruction specifically required by statute" and are therefore eligible for transportation funding. A decision should be made clarifying those education programs for which transportation costs are eligible under the funding formula.

Clarification is needed on the principle of local control and efficiency requirements. Particularly if the Target Cost tool is used to determine the efficiency of a school district's transportation operation, the Legislature would need to implement statues specifying under what circumstances a less than optimal efficiency rating will result in a reduction of funding. For instance, if a school district is fully funded but is determined to be less than optimally efficient, specific authority would be required in order for the funding level to be reduced.

Commentary: Use of Public Transit

In 2007-2008, 33 of 295 school districts utilized public transit to transport approximately 11,800 students; which is 2.6 percent of the total number students transported in the state. Of the 33 school districts using public transit, 22 (67 percent) use this service to transport less than five (5) percent of the total number of students bused in their school district. Only five school districts, Seattle, Mercer Island, Bellevue, Pullman, and Cosmopolis transport 20 percent or more of their students on public transit. The table in a*ppendix E* lists the schools using public transit service for some of their students.

Given the generally rural nature of most of Washington, there are too few regional transit authorities to provide enough capacity to materially reduce the total transportation costs for the state beyond the present level. In certain specific cases where a small area is covered by a regional transit authority, such as Mercer Island, Pullman or Bellevue, or a large urban center such as Seattle, the school district is already utilizing this service.

The use of public transit carries with it a number of important caveats. First, under the Urban Mass Transit Act of 1964, as amended in 1973, bus routes are fixed by the Federal Transit Administration (FTA). Transit companies are to provide regularly scheduled mass transportation service, but not in competition with private school bus companies. The so-called "Tripper Rule" has resulted in a number of court decisions since the regulations were enacted; the most recent decisions from FTA attorneys have clarified that federal rules allow for subsidized fares and additional buses to handle students on established lines but not for creating special routes exclusively for students.

Because special routes, bus stops and accommodations cannot be made under FTA rules, and because the vehicles do not employ eight-way crossing lights and other safety features required for school buses, this service is generally considered to be suitable only for secondary school aged students. This is important because, while subsidized fares may reduce costs for students who can safely access transit service, it does not usually result in an across-the-board decrease in school bus demand for school districts. This is because larger systems (who have the greatest access to public transit) usually have in place multi-tiered routing systems to accommodate staggered school bell structures.

These are typically designed so that each bus does, for example, a secondary school route, followed by a middle or elementary school route and perhaps a third school after that. Even where one tier can be entirely eliminated for some buses by putting students on public transit, the buses still must serve the remaining schools on their schedule. Hence, there may be a reduction in rolling costs on the margin, but not necessarily a reduction of buses in service, which means that the typical $50,000 - $70,000 operating cost for each bus is still incurred.

Accordingly, it is our opinion that only a very limited opportunity exists in Washington to expand the use of public transit beyond the present levels. Moreover, the cost impact, since it can be accessed by only a small percentage of the total students transported, will not likely be significant. Indeed, when tested as site characteristic, the use of public transit did not emerge as statistically significant factor in explaining the variance in student transportation expenditures among school districts.

Conclusion

Analysis confirms the earlier findings by JLARC that the current funding formula is not sufficient to meet the requirements of providing a reasonable level of funding for home-to-school student transportation as a related educational service. All of the models developed in this study provide a much higher level of funding that is closer to the student transportation expenditures actually being incurred by school districts across the state (see next chart).

Funding Levels by Model Type ($ Millions)

Model	Allocation	% of Current Allocation	% of Expenditures
Current Model	$233,892,887	100.0%	65.6%
Unit Cost Model	$305,274,892	130.5%	85.7%
Expected Cost Model	$337,236,250	144.2%	94.6%

As stated earlier, any model developed will inevitably trade off certain advantages and disadvantages in reference to the five criteria that comprise a good working formula. In terms of these criteria, our assessment is summarized in the table below:

Formula Performance by Criterion

Criterion	Unit Cost	Expected Cost
Clarity	Simple to understand and transparent to user.	Concept easy to understand, but statistical adjustments more difficult. The use of simulator programs helps this.
Equity	Forces single value for variables used. Does not reflect most site characteristics. Does not "self correct"; inflation, etc. must be factored each year.	Uses peer-adjusted average cost and site characteristics. Values empirical, not subjective. Self correcting, since actual costs are used to calculate.
Administrative Ease	Relatively simple to administer. Requires calculation of variable unit costs annually.	Requires adjustments for site characteristics. Reasonable statistical knowledge needed for regression modeling.
Efficiency	Relatively indifferent to efficiency. Does partially hold costs as a function of miles and density. School districts only need to operate below funding threshold.	May provide some incentive for efficiency, but requires only average performance.
Predictability	Easy to predict: Plug in numbers and results are computed.	Fairly predictable, as averaging method dampens year-to-year changes.

In critiquing the models, the following gives a summary of the relative strength and weaknesses of each.

Unit Cost Model

Strengths: The greatest strength of this model is that it provides predictable levels of funding which are closer to actual expenditures than the current model. The calculations are straightforward and easy to understand to the average user.

Weaknesses: The Unit Cost Model does not incorporate important site characteristics and therefore leads to funding inequities. This model provides little incentive to improve efficiency. Unit dollar values must be adjusted each year, based on cost-of-living changes. This model uses a one-size-fits-all approach for key variables, which does not reflect local cost differences for labor, fuel and other factors. Moreover, this model provides only a very basic incentive for school districts to contain their costs, since the funding levels are based on fixed factors.

Expected Cost Model

Strengths: The key strength to this approach is that it uses an accepted statistical methodology, using actual expenditures, that determines what the average cost of a school district's transportation program should be after uncontrollable factors are factored. Therefore, by taking into account important site characteristics, the Expected Cost Model is likely to produce equitable allocations. Like the Unit Cost Model, it is more closely aligned with school districts' expenses for to/from transportation than the current formula. Moreover, its empirical design requires little or no subjective intervention, and inflation factors are automatically computed as school district expenditures change over time.

Weaknesses: Because the regression methodology is opaque to many people, the model is less understandable to many users. It requires collecting detailed geographic and demographic data to compute the results. While providing more efficiency incentives than the Unit Cost Model, it only demands average, as opposed to optimal performance from school districts.

Limitations of the Funding Model Options

Finally, it is important to emphasize that no model, no matter how sophisticated, can fully reflect all of the possible conditions and contingencies found in student transportation. Any funding approach will involve certain trade-offs. For example, a school district may be so large or small that a given model may not adequately adjust for the conditions to be found there.

To remedy this, a careful management evaluation process may be needed for those true "outliers" with site characteristics that are so unique that they cannot be adequately accounted for in the funding model. From this managerial review, the decision might be to reduce or increase the funding amount to a level which is considered appropriate given their unique constraints or characteristics.

Lastly, some Educational Service Districts, such as ESD 112 in Vancouver that manage special education transportation cooperatives will need to be funded outside of the funding formula. This is because the ESDs are organized and report their expenditures in a fundamentally different way than school districts, and do not fit into any of the models developed (for example, what would be used for land area or road miles site characteristics?).

It is important to keep in mind that regardless of the funding approach adopted, there will always be certain exceptions or anomalies different enough that no formula can adequately respond to them as a turnkey solution. So long as these do not comprise a significant number of the school entities being funded, solutions outside of the formula itself are entirely appropriate.

Appendices

Appendix A: Comparison of the Funding Models

			Current Model				Unit Cost Model			Expected Cost Model		
			$ 233,892,887	$ 356,386,229	$ (122,493,341)	-34.4%	$ 305,274,892	$ (51,111,336)	-14.3%	$ 337,236,250	$ (19,149,978)	-5.4%
District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Aberdeen	958	West	$ 413,503	$ 650,625	$ (237,122)	-36.4%	$ 610,588	$ (40,036)	-6.2%	$ 650,625	$ -	0.0%
Adna	332	West	$ 187,411	$ 232,576	$ (45,165)	-19.4%	$ 232,576	$ -	0.0%	$ 232,576	$ -	0.0%
Almira	44	East	$ 134,761	$ 120,617	$ 14,144	11.7%	$ 108,655	$ (11,962)	-9.9%	$ 101,028	$ (19,589)	-16.2%
Anacortes	1,173	West	$ 603,857	$ 771,073	$ (167,217)	-21.7%	$ 771,073	$ -	0.0%	$ 771,073	$ -	0.0%
Arlington	2,824	West	$ 1,477,002	$ 2,028,394	$ (551,391)	-27.2%	$ 1,863,123	$ (165,271)	-8.1%	$ 2,028,394	$ -	0.0%
Asotin-Anatone	199	East	$ 261,971	$ 249,433	$ 12,538	5.0%	$ 249,433	$ -	0.0%	$ 249,433	$ -	0.0%
Auburn	6,739	West	$ 2,432,832	$ 5,164,303	$ (2,731,471)	-52.9%	$ 4,437,092	$ (727,210)	-14.1%	$ 4,742,119	$ (422,183)	-8.2%
Bainbridge	2,331	West	$ 831,178	$ 1,423,130	$ (591,952)	-41.6%	$ 1,423,130	$ -	0.0%	$ 1,384,181	$ (38,949)	-2.7%
Battle	6,854	West	$ 3,782,236	$ 6,227,133	$ (2,444,898)	-39.3%	$ 3,743,175	$ (2,483,958)	-39.9%	$ 5,178,155	$ (1,048,978)	-16.8%
Bellevue	6,369	West	$ 2,758,959	$ 4,660,559	$ (1,901,600)	-40.8%	$ 4,259,555	$ (401,004)	-8.6%	$ 4,660,559	$ -	0.0%
Bellingham	3,830	West	$ 1,500,041	$ 2,420,755	$ (920,714)	-38.0%	$ 2,418,888	$ (1,868)	-0.1%	$ 2,420,755	$ -	0.0%
Benge	7	East	$ 85,854	$ 42,689	$ 43,166	101.1%	$ 42,689	$ -	0.0%	$ 27,079	$ (15,610)	-36.6%
Bethel	10,810	West	$ 4,480,051	$ 8,864,257	$ (4,384,205)	-49.5%	$ 7,189,572	$ (1,674,685)	-18.9%	$ 6,563,362	$ (2,300,894)	-26.0%
Bickleton	68	East	$ 131,739	$ 151,654	$ (19,915)	-13.1%	$ 125,237	$ (26,417)	-17.4%	$ 151,654	$ -	0.0%
Blaine	1,019	West	$ 551,610	$ 744,143	$ (192,533)	-25.9%	$ 744,143	$ -	0.0%	$ 744,143	$ -	0.0%
Boistfort	109	West	$ 151,969	$ 140,884	$ 11,086	7.9%	$ 140,884	$ -	0.0%	$ 127,678	$ (13,206)	-9.4%
Bremerton	2,286	West	$ 859,114	$ 1,561,266	$ (702,152)	-45.0%	$ 1,561,266	$ -	0.0%	$ 1,364,889	$ (196,377)	-12.6%
Brewster	277	East	$ 162,124	$ 244,929	$ (82,805)	-33.8%	$ 244,929	$ -	0.0%	$ 244,929	$ -	0.0%
Bridgeport	132	East	$ 116,985	$ 136,002	$ (19,017)	-14.0%	$ 136,002	$ -	0.0%	$ 136,002	$ -	0.0%
Brinnon	63	West	$ 84,227	$ 64,399	$ 19,828	30.8%	$ 64,399	$ -	0.0%	$ 64,399	$ -	0.0%
Burlington-Edison	1,784	West	$ 936,894	$ 1,218,191	$ (281,297)	-23.1%	$ 1,061,794	$ (156,397)	-12.8%	$ 1,218,191	$ -	0.0%
Camas	3,215	West	$ 1,339,151	$ 2,245,602	$ (906,451)	-40.4%	$ 2,085,001	$ (160,600)	-7.2%	$ 1,986,769	$ (258,833)	-11.5%
Cape	212	West	$ 202,041	$ 266,354	$ (64,313)	-24.1%	$ 266,354	$ -	0.0%	$ 235,269	$ (31,084)	-11.7%
Carbonado	71	West	$ 53,739	$ 43,575	$ 10,164	23.3%	$ 43,575	$ -	0.0%	$ 43,575	$ -	0.0%
Cascade	584	East	$ 558,916	$ 676,326	$ (117,410)	-17.4%	$ 488,009	$ (188,317)	-27.8%	$ 630,265	$ (46,061)	-6.8%
Cashmere	445	East	$ 226,756	$ 286,809	$ (60,053)	-20.9%	$ 286,809	$ -	0.0%	$ 286,809	$ -	0.0%
Castle	688	West	$ 490,431	$ 565,893	$ (75,462)	-13.3%	$ 528,334	$ (37,560)	-6.6%	$ 565,893	$ -	0.0%
Centerville	91	West	$ 80,558	$ 79,477	$ 1,082	1.4%	$ 79,477	$ -	0.0%	$ 79,477	$ -	0.0%
Central	5,317	West	$ 2,793,901	$ 4,327,483	$ (1,533,582)	-35.4%	$ 3,671,099	$ (656,384)	-15.2%	$ 4,327,483	$ -	0.0%
Central	3,605	East	$ 1,924,467	$ 3,475,043	$ (1,550,576)	-44.6%	$ 2,464,064	$ (1,010,979)	-29.1%	$ 2,922,278	$ (552,765)	-15.9%
Centralia	1,548	West	$ 862,035	$ 1,611,602	$ (749,567)	-46.5%	$ 1,004,896	$ (606,706)	-37.6%	$ 1,164,772	$ (446,830)	-27.7%
Chehalis	1,061	West	$ 702,038	$ 757,137	$ (55,100)	-7.3%	$ 757,137	$ -	0.0%	$ 757,137	$ -	0.0%
Cheney	1,847	East	$ 1,334,239	$ 1,406,675	$ (72,436)	-5.1%	$ 1,135,411	$ (271,263)	-19.3%	$ 1,406,675	$ -	0.0%
Chewelah	408	East	$ 416,302	$ 416,397	$ (95)	0.0%	$ 416,397	$ -	0.0%	$ 416,397	$ -	0.0%
Chimacum	695	West	$ 498,760	$ 850,167	$ (351,408)	-41.3%	$ 525,879	$ (324,288)	-38.1%	$ 663,807	$ (186,360)	-21.9%
Clarkston	633	East	$ 313,913	$ 582,560	$ (268,646)	-46.1%	$ 523,578	$ (58,982)	-10.1%	$ 582,560	$ -	0.0%
Cle	549	East	$ 334,491	$ 292,905	$ 41,586	14.2%	$ 292,905	$ -	0.0%	$ 292,905	$ -	0.0%
Clover	5,907	West	$ 2,922,553	$ 4,900,991	$ (1,978,438)	-40.4%	$ 3,891,250	$ (1,009,741)	-20.6%	$ 4,408,669	$ (492,322)	-10.0%
Colfax	382	East	$ 363,430	$ 327,124	$ 36,306	11.1%	$ 327,124	$ -	0.0%	$ 327,124	$ -	0.0%
College	537	East	$ 303,477	$ 292,769	$ 10,709	3.7%	$ 292,769	$ -	0.0%	$ 292,769	$ -	0.0%
Colton	77	East	$ 135,115	$ 125,568	$ 9,547	7.6%	$ 125,568	$ -	0.0%	$ 112,080	$ (13,489)	-10.7%
Columbia	204	East	$ 302,621	$ 263,572	$ 39,048	14.8%	$ 263,572	$ -	0.0%	$ 263,572	$ -	0.0%
Columbia	493	East	$ 308,981	$ 354,612	$ (45,631)	-12.9%	$ 354,612	$ -	0.0%	$ 354,612	$ -	0.0%
Colville	860	East	$ 1,006,242	$ 1,069,967	$ (63,725)	-6.0%	$ 669,467	$ (400,500)	-37.4%	$ 822,850	$ (247,117)	-23.1%
Concrete	564	West	$ 277,550	$ 399,165	$ (121,614)	-30.5%	$ 399,165	$ -	0.0%	$ 399,165	$ -	0.0%
Conway	318	West	$ 131,722	$ 179,314	$ (47,592)	-26.5%	$ 179,314	$ -	0.0%	$ 167,156	$ (12,158)	-6.8%
Cosmopolis	85	West	$ 53,008	$ 45,933	$ 7,074	15.4%	$ 45,933	$ -	0.0%	$ 45,933	$ -	0.0%
Coulee-Hartline	90	East	$ 288,734	$ 246,620	$ 42,114	17.1%	$ 140,436	$ (106,184)	-43.1%	$ 178,539	$ (68,082)	-27.6%
Coupeville	581	West	$ 212,461	$ 317,195	$ (104,734)	-33.0%	$ 317,195	$ -	0.0%	$ 317,195	$ -	0.0%

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District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Crescent	102	West	$ 87,217	$ 91,838	$ (4,621)	-5.0%	$ 91,838	$ -	0.0%	$ 91,838	$ -	0.0%
Creston	71	East	$ 150,542	$ 124,214	$ 26,328	21.2%	$ 124,214	$ -	0.0%	$ 124,214	$ -	0.0%
Curlew	174	East	$ 149,091	$ 88,866	$ 60,225	67.8%	$ 88,866	$ -	0.0%	$ 88,866	$ -	0.0%
Cusick	169	East	$ 209,863	$ 203,935	$ 5,928	2.9%	$ 203,935	$ -	0.0%	$ 189,487	$ (14,448)	-7.1%
Darrington	230	West	$ 135,712	$ 138,627	$ (2,915)	-2.1%	$ 138,627	$ -	0.0%	$ 138,627	$ -	0.0%
Davenport	198	East	$ 309,966	$ 317,311	$ (7,345)	-2.3%	$ 283,694	$ (33,617)	-10.6%	$ 317,311	$ -	0.0%
Dayton	129	East	$ 236,237	$ 191,825	$ 44,413	23.2%	$ 191,825	$ -	0.0%	$ 191,825	$ -	0.0%
Deer Park	1,135	East	$ 883,368	$ 866,158	$ 17,210	2.0%	$ 866,158	$ -	0.0%	$ 866,158	$ -	0.0%
Dieringer	824	West	$ 248,781	$ 596,272	$ (347,491)	-58.3%	$ 569,516	$ (26,756)	-4.5%	$ 336,169	$ (260,103)	-43.6%
Dixie	53	East	$ 145,640	$ 148,127	$ (2,487)	-1.7%	$ 116,690	$ (31,437)	-21.2%	$ 90,418	$ (57,709)	-39.0%
East Valley (Spokane)	1,987	East	$ 883,520	$ 1,397,334	$ (513,813)	-36.8%	$ 1,148,372	$ (248,961)	-17.8%	$ 1,397,334	$ -	0.0%
East Valley (Yakima)	1,483	East	$ 563,508	$ 833,769	$ (270,262)	-32.4%	$ 833,769	$ -	0.0%	$ 833,769	$ -	0.0%
Eastmont	2,076	East	$ 637,259	$ 1,090,323	$ (453,065)	-41.6%	$ 1,090,323	$ -	0.0%	$ 1,090,323	$ -	0.0%
Easton	50	East	$ 49,175	$ 60,754	$ (11,579)	-19.1%	$ 60,754	$ -	0.0%	$ 60,754	$ -	0.0%
Eatonville	981	West	$ 756,091	$ 940,959	$ (184,868)	-19.6%	$ 822,880	$ (118,079)	-12.5%	$ 940,959	$ -	0.0%
Edmonds	8,478	West	$ 4,110,357	$ 7,630,122	$ (3,519,765)	-46.1%	$ 6,538,572	$ (1,091,549)	-14.3%	$ 6,278,035	$ (1,352,087)	-17.7%
Ellensburg	1,061	East	$ 733,211	$ 918,839	$ (185,628)	-20.2%	$ 854,883	$ (63,955)	-7.0%	$ 918,839	$ -	0.0%
Elma	963	West	$ 653,291	$ 680,734	$ (27,443)	-4.0%	$ 680,734	$ -	0.0%	$ 680,734	$ -	0.0%
Endicott	83	East	$ 194,573	$ 172,296	$ 22,278	12.9%	$ 139,466	$ (32,830)	-19.1%	$ 172,296	$ -	0.0%
Entiat	267	East	$ 110,867	$ 109,051	$ 1,816	1.7%	$ 109,051	$ -	0.0%	$ 109,051	$ -	0.0%
Enumclaw	2,945	West	$ 1,403,691	$ 2,012,444	$ (608,754)	-30.2%	$ 1,968,519	$ (43,926)	-2.2%	$ 1,862,933	$ (149,511)	-7.4%
Ephrata	1,011	East	$ 504,911	$ 912,443	$ (407,532)	-44.7%	$ 827,632	$ (84,810)	-9.3%	$ 912,443	$ -	0.0%
Evaline	44	West	$ 5,877	$ 12,608	$ (6,731)	-53.4%	$ 12,608	$ -	0.0%	$ 12,608	$ -	0.0%
Everett	7,743	West	$ 3,895,646	$ 6,049,313	$ (2,153,667)	-35.6%	$ 6,049,313	$ -	0.0%	$ 6,049,313	$ -	0.0%
Evergreen (Clark)	13,633	West	$ 5,500,687	$ 8,761,614	$ (3,260,928)	-37.2%	$ 8,761,614	$ -	0.0%	$ 8,761,614	$ -	0.0%
Evergreen (Stevens)	22	East	$ 58,780	$ 49,553	$ 9,227	18.6%	$ 49,553	$ -	0.0%	$ 38,686	$ (10,867)	-21.9%
Federal Way	8,673	West	$ 3,716,100	$ 6,395,712	$ (2,679,612)	-41.9%	$ 6,395,712	$ -	0.0%	$ 6,395,712	$ -	0.0%
Ferndale	2,462	West	$ 1,362,382	$ 1,878,545	$ (516,163)	-27.5%	$ 1,768,799	$ (109,746)	-5.8%	$ 1,878,545	$ -	0.0%
Fife	1,835	West	$ 782,838	$ 1,290,476	$ (507,637)	-39.3%	$ 1,240,665	$ (49,811)	-3.9%	$ 1,051,871	$ (238,604)	-18.5%
Finley	610	East	$ 301,030	$ 427,823	$ (126,793)	-29.6%	$ 427,823	$ -	0.0%	$ 427,823	$ -	0.0%
Franklin Pierce	3,980	West	$ 1,232,883	$ 2,897,679	$ (1,664,796)	-57.5%	$ 2,621,944	$ (275,735)	-9.5%	$ 2,590,519	$ (307,160)	-10.6%
Freeman	579	East	$ 521,260	$ 578,877	$ (57,617)	-10.0%	$ 475,133	$ (103,744)	-17.9%	$ 578,877	$ -	0.0%
Garfield	196	East	$ 214,729	$ 178,296	$ 36,433	20.4%	$ 178,296	$ -	0.0%	$ 178,296	$ -	0.0%
Glenwood	42	West	$ 32,518	$ 47,549	$ (15,031)	-31.6%	$ 47,549	$ -	0.0%	$ 47,549	$ -	0.0%
Goldendale	326	East	$ 285,510	$ 340,190	$ (54,681)	-16.1%	$ 340,190	$ -	0.0%	$ 340,190	$ -	0.0%
Grand Coulee Dam	413	East	$ 401,804	$ 340,781	$ 61,023	17.9%	$ 340,781	$ -	0.0%	$ 340,781	$ -	0.0%
Grandview	1,121	East	$ 389,908	$ 642,628	$ (252,720)	-39.3%	$ 642,628	$ -	0.0%	$ 642,628	$ -	0.0%
Granger	560	East	$ 251,508	$ 280,261	$ (28,754)	-10.3%	$ 280,261	$ -	0.0%	$ 280,261	$ -	0.0%
Granite falls	1,303	West	$ 559,251	$ 974,635	$ (415,384)	-42.6%	$ 945,501	$ (29,134)	-3.0%	$ 974,635	$ -	0.0%
Grapeview	239	West	$ 87,799	$ 105,687	$ (17,888)	-16.9%	$ 105,687	$ -	0.0%	$ 105,687	$ -	0.0%
Great Northern	63	East	$ 51,474	$ 66,570	$ (15,096)	-22.7%	$ 66,570	$ -	0.0%	$ 60,636	$ (5,934)	-8.9%
Green Mountain	136	West	$ 55,484	$ 96,080	$ (40,596)	-42.3%	$ 96,080	$ -	0.0%	$ 96,080	$ -	0.0%
Griffin	496	West	$ 386,051	$ 543,195	$ (157,144)	-28.9%	$ 435,197	$ (107,997)	-19.9%	$ 364,868	$ (178,326)	-32.8%
Harrington	74	East	$ 139,678	$ 173,168	$ (33,489)	-19.3%	$ 129,382	$ (43,785)	-25.3%	$ 121,457	$ (51,711)	-29.9%
Highland	724	East	$ 288,801	$ 355,129	$ (66,329)	-18.7%	$ 355,129	$ -	0.0%	$ 355,129	$ -	0.0%
Highline	5,824	West	$ 2,873,358	$ 4,662,313	$ (1,788,955)	-38.4%	$ 4,175,930	$ (486,383)	-10.4%	$ 4,662,313	$ -	0.0%
Hockinson	1,109	West	$ 776,336	$ 1,099,310	$ (322,974)	-29.4%	$ 810,513	$ (288,797)	-26.3%	$ 582,437	$ (516,873)	-47.0%
Hood Canal	334	West	$ 369,310	$ 387,215	$ (17,905)	-4.6%	$ 306,470	$ (80,745)	-20.9%	$ 312,368	$ (74,847)	-19.3%
Hoquiam	466	West	$ 347,762	$ 958,548	$ (610,786)	-63.7%	$ 454,000	$ (504,547)	-52.6%	$ 586,167	$ (372,380)	-38.8%

			Current Model				Unit Cost Model			Expected Cost Model		
			$ 233,892,887	$ 356,386,229	$ (122,493,341)	-34.4%	$ 305,274,892	$ (51,111,336)	-14.3%	$ 337,236,250	$ (19,149,978)	-5.4%
District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Inchelium	101	East	$ 162,639	$ 151,816	$ 10,824	7.1%	$ 149,325	$ (2,491)	-1.6%	$ 151,816	$ -	0.0%
Index	37	West	$ 83,722	$ 84,180	$ (458)	-0.5%	$ 84,180	$ -	0.0%	$ 61,820	$ (22,360)	-26.6%
Issaquah	7,416	West	$ 3,022,232	$ 5,756,545	$ (2,734,314)	-47.5%	$ 5,563,620	$ (192,925)	-3.4%	$ 5,312,167	$ (444,378)	-7.7%
Kahlotus	47	East	$ 93,263	$ 74,166	$ 19,097	25.7%	$ 74,166	$ -	0.0%	$ 74,166	$ -	0.0%
Kalama		West										
Keller	88	East	$ 181,534	$ 134,208	$ 47,325	35.3%	$ 134,208	$ -	0.0%	$ 134,208	$ -	0.0%
Kelso	2,255	West	$ 1,064,716	$ 1,519,566	$ (454,850)	-29.9%	$ 1,519,566	$ -	0.0%	$ 1,519,566	$ -	0.0%
Kennewick	4,863	East	$ 2,180,408	$ 3,593,549	$ (1,413,141)	-39.3%	$ 3,562,807	$ (30,742)	-0.9%	$ 3,593,549	$ -	0.0%
Kent	10,371	West	$ 3,988,656	$ 6,051,559	$ (2,062,903)	-34.1%	$ 6,051,559	$ -	0.0%	$ 6,051,559	$ -	0.0%
Kettle Falls	372	East	$ 479,981	$ 480,936	$ (955)	-0.2%	$ 441,059	$ (39,877)	-8.3%	$ 417,959	$ (62,978)	-13.1%
Kiona-Benton City	735	East	$ 358,974	$ 514,363	$ (155,388)	-30.2%	$ 514,363	$ -	0.0%	$ 514,363	$ -	0.0%
Kittitas	254	East	$ 191,165	$ 238,809	$ (47,644)	-20.0%	$ 238,809	$ -	0.0%	$ 238,809	$ -	0.0%
Klickitat	64	West	$ 123,267	$ 123,638	$ (371)	-0.3%	$ 106,469	$ (17,169)	-13.9%	$ 89,531	$ (34,108)	-27.6%
La Center		West										
LaConner	288	West	$ 117,197	$ 332,260	$ (215,063)	-64.7%	$ 232,878	$ (99,382)	-29.9%	$ 207,545	$ (124,715)	-37.5%
LaCrosse	47	East	$ 195,254	$ 197,417	$ (2,163)	-1.1%	$ 110,728	$ (86,689)	-43.9%	$ 121,108	$ (76,309)	-38.7%
Lake Chelan	563	East	$ 420,864	$ 523,403	$ (102,539)	-19.6%	$ 486,644	$ (36,759)	-7.0%	$ 523,403	$ -	0.0%
Lake Quinault	196	West	$ 302,056	$ 249,210	$ 52,846	21.2%	$ 226,250	$ (22,960)	-9.2%	$ 249,210	$ -	0.0%
Lake Stevens	4,178	West	$ 1,280,653	$ 3,256,659	$ (1,976,006)	-60.7%	$ 2,683,376	$ (573,283)	-17.6%	$ 2,616,442	$ (640,217)	-19.7%
Lake Washington	8,705	West	$ 4,280,600	$ 6,433,954	$ (2,153,354)	-33.5%	$ 6,433,954	$ -	0.0%	$ 6,433,954	$ -	0.0%
Lakewood	1,837	West	$ 689,660	$ 1,051,403	$ (361,742)	-34.4%	$ 1,051,403	$ -	0.0%	$ 1,051,403	$ -	0.0%
Lamont	25	East	$ 72,225	$ 44,371	$ 27,854	62.8%	$ 44,371	$ -	0.0%	$ 44,371	$ -	0.0%
Liberty	409	East	$ 467,408	$ 427,864	$ 39,544	9.2%	$ 427,864	$ -	0.0%	$ 427,864	$ -	0.0%
Lind	114	East	$ 291,072	$ 244,472	$ 46,600	19.1%	$ 224,371	$ (20,101)	-8.2%	$ 244,472	$ -	0.0%
Longview	2,538	West	$ 1,395,887	$ 2,231,177	$ (835,290)	-37.4%	$ 1,817,632	$ (413,546)	-18.5%	$ 2,128,196	$ (102,981)	-4.6%
Lopez	131	West	$ 123,697	$ 133,265	$ (9,567)	-7.2%	$ 133,265	$ -	0.0%	$ 133,265	$ -	0.0%
Lyle	196	West	$ 200,055	$ 199,894	$ 161	0.1%	$ 199,894	$ -	0.0%	$ 199,894	$ -	0.0%
Lynden	1,388	West	$ 498,650	$ 741,848	$ (243,199)	-32.8%	$ 741,848	$ -	0.0%	$ 741,848	$ -	0.0%
Mabton	216	East	$ 124,484	$ 147,386	$ (22,902)	-15.5%	$ 147,386	$ -	0.0%	$ 147,386	$ -	0.0%
Mansfield	34	East	$ 163,281	$ 151,042	$ 12,240	8.1%	$ 101,747	$ (49,295)	-32.6%	$ 103,845	$ (47,196)	-31.2%
Manson	477	East	$ 152,264	$ 212,552	$ (60,288)	-28.4%	$ 212,552	$ -	0.0%	$ 212,552	$ -	0.0%
Mary M Knight	155	West	$ 165,914	$ 156,578	$ 9,337	6.0%	$ 156,578	$ -	0.0%	$ 156,578	$ -	0.0%
Mary Walker	341	East	$ 336,270	$ 332,083	$ 4,187	1.3%	$ 332,083	$ -	0.0%	$ 332,083	$ -	0.0%
Marysville	5,295	West	$ 2,542,654	$ 3,573,709	$ (1,031,054)	-28.9%	$ 3,573,709	$ -	0.0%	$ 3,573,709	$ -	0.0%
McCleary	210	West	$ 74,177	$ 80,449	$ (6,272)	-7.8%	$ 80,449	$ -	0.0%	$ 80,449	$ -	0.0%
Mead	4,324	East	$ 1,955,859	$ 3,477,519	$ (1,521,660)	-43.8%	$ 2,526,080	$ (951,439)	-27.4%	$ 3,323,921	$ (153,598)	-4.4%
Medical Lake	1,019	East	$ 796,302	$ 862,793	$ (66,491)	-7.7%	$ 818,604	$ (44,189)	-5.1%	$ 862,793	$ -	0.0%
Mercer Island	2,224	West	$ 826,927	$ 1,479,638	$ (652,711)	-44.1%	$ 1,389,268	$ (90,369)	-6.1%	$ 1,044,819	$ (434,819)	-29.4%
Meridian	1,173	West	$ 424,958	$ 631,123	$ (206,165)	-32.7%	$ 631,123	$ -	0.0%	$ 631,123	$ -	0.0%
Methow Valley	421	East	$ 377,225	$ 335,786	$ 41,439	12.3%	$ 335,786	$ -	0.0%	$ 335,786	$ -	0.0%
Mill A	91	West	$ 64,277	$ 85,933	$ (21,657)	-25.2%	$ 85,933	$ -	0.0%	$ 85,933	$ -	0.0%
Monroe	3,098	West	$ 1,415,607	$ 2,457,637	$ (1,042,030)	-42.4%	$ 2,049,925	$ (407,712)	-16.6%	$ 2,457,637	$ -	0.0%
Montesano	476	West	$ 355,378	$ 389,444	$ (34,067)	-8.7%	$ 389,444	$ -	0.0%	$ 389,444	$ -	0.0%
Morton	184	West	$ 159,608	$ 158,492	$ 1,116	0.7%	$ 158,492	$ -	0.0%	$ 158,492	$ -	0.0%
Moses Lake	2,769	East	$ 1,508,791	$ 2,334,323	$ (825,532)	-35.4%	$ 1,961,356	$ (372,967)	-16.0%	$ 2,292,918	$ (41,405)	-1.8%
Mossyrock	359	West	$ 310,899	$ 311,355	$ (456)	-0.1%	$ 311,355	$ -	0.0%	$ 311,355	$ -	0.0%
Mount Adams	648	East	$ 374,254	$ 500,296	$ (126,043)	-25.2%	$ 500,296	$ -	0.0%	$ 500,296	$ -	0.0%
Mount Baker	1,736	West	$ 894,405	$ 1,310,906	$ (416,500)	-31.8%	$ 1,098,308	$ (212,598)	-16.2%	$ 1,310,906	$ -	0.0%
Mount Pleasant	71	West	$ 25,697	$ 55,528	$ (29,832)	-53.7%	$ 55,528	$ -	0.0%	$ 54,729	$ (799)	-1.4%
Mount Vernon	2,602	West	$ 1,104,947	$ 1,946,579	$ (841,632)	-43.2%	$ 1,946,579	$ -	0.0%	$ 1,803,047	$ (143,532)	-7.4%

			Current Model				Unit Cost Model			Expected Cost Model		
			$ 233,892,887	$ 356,386,229	$ (122,493,341)	-34.4%	$ 305,274,892	$ (51,111,336)	-14.3%	$ 337,236,250	$ (19,149,978)	-5.4%
District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Mukilteo	5,539	West	$ 2,449,995	$ 4,008,857	$ (1,558,862)	-38.9%	$ 3,862,348	$ (146,509)	-3.7%	$ 4,008,857	$ -	0.0%
Naches valley	817	East	$ 516,049	$ 582,350	$ (66,301)	-11.4%	$ 560,549	$ (21,800)	-3.7%	$ 582,350	$ -	0.0%
Napavine	269	West	$ 142,715	$ 179,944	$ (37,229)	-20.7%	$ 179,944	$ -	0.0%	$ 179,944	$ -	0.0%
Naselle-Grays River Valley	244	West	$ 193,908	$ 248,718	$ (54,811)	-22.0%	$ 247,576	$ (1,142)	-0.5%	$ 248,718	$ -	0.0%
Nespelem	162	East	$ 69,778	$ 195,776	$ (125,998)	-64.4%	$ 195,776	$ -	0.0%	$ 143,260	$ (52,516)	-26.8%
Newport	528	East	$ 947,030	$ 944,448	$ 2,582	0.3%	$ 523,788	$ (420,660)	-44.5%	$ 765,644	$ (178,805)	-18.9%
Nine Mile Falls	995	East	$ 452,519	$ 642,090	$ (189,570)	-29.5%	$ 642,090	$ -	0.0%	$ 642,090	$ -	0.0%
Nooksack	1,159	West	$ 519,121	$ 590,849	$ (71,728)	-12.1%	$ 590,849	$ -	0.0%	$ 590,849	$ -	0.0%
North Beach	435	West	$ 177,104	$ 362,692	$ (185,588)	-51.2%	$ 362,692	$ -	0.0%	$ 357,308	$ (5,384)	-1.5%
North Franklin	1,057	East	$ 1,050,135	$ 1,018,310	$ 31,825	3.1%	$ 954,165	$ (64,146)	-6.3%	$ 1,018,310	$ -	0.0%
North Kitsap	3,682	West	$ 1,870,973	$ 2,814,899	$ (943,926)	-33.5%	$ 2,279,641	$ (535,258)	-19.0%	$ 2,814,899	$ -	0.0%
North Mason	1,549	West	$ 1,108,837	$ 1,371,562	$ (262,725)	-19.2%	$ 992,224	$ (379,338)	-27.7%	$ 1,366,396	$ (5,166)	-0.4%
North River	54	West	$ 112,244	$ 120,487	$ (8,242)	-6.8%	$ 115,564	$ (4,922)	-4.1%	$ 105,959	$ (14,527)	-12.1%
North thurston	6,247	West	$ 2,412,862	$ 4,081,086	$ (1,668,224)	-40.9%	$ 4,081,086	$ -	0.0%	$ 3,964,489	$ (116,597)	-2.9%
Northport	145	East	$ 206,376	$ 178,949	$ 27,427	15.3%	$ 178,949	$ -	0.0%	$ 178,949	$ -	0.0%
Northshore	10,209	West	$ 3,785,100	$ 6,904,274	$ (3,119,174)	-45.2%	$ 6,904,274	$ -	0.0%	$ 6,904,274	$ -	0.0%
Oak harbor	2,410	West	$ 1,157,331	$ 1,520,088	$ (362,757)	-23.9%	$ 1,520,088	$ -	0.0%	$ 1,520,088	$ -	0.0%
Oakesdale	42	East	$ 210,708	$ 170,627	$ 40,081	23.5%	$ 106,928	$ (63,699)	-37.3%	$ 99,787	$ (70,840)	-41.5%
Oakville	138	West	$ 123,816	$ 156,378	$ (32,562)	-20.8%	$ 156,378	$ -	0.0%	$ 156,378	$ -	0.0%
Ocean Beach	706	West	$ 541,979	$ 627,270	$ (85,291)	-13.6%	$ 545,711	$ (81,559)	-13.0%	$ 627,270	$ -	0.0%
Ocosta	420	West	$ 307,968	$ 298,083	$ 9,886	3.3%	$ 298,083	$ -	0.0%	$ 298,083	$ -	0.0%
Odessa	70	East	$ 225,660	$ 213,235	$ 12,425	5.8%	$ 126,273	$ (86,961)	-40.8%	$ 155,772	$ (57,463)	-26.9%
Okanogan	466	East	$ 346,307	$ 386,924	$ (40,616)	-10.5%	$ 386,924	$ -	0.0%	$ 386,924	$ -	0.0%
Olympia	3,104	West	$ 1,358,962	$ 2,599,739	$ (1,240,777)	-47.7%	$ 2,174,845	$ (424,894)	-16.3%	$ 2,285,502	$ (314,236)	-12.1%
Omak	758	East	$ 427,936	$ 532,756	$ (104,819)	-19.7%	$ 532,756	$ -	0.0%	$ 532,756	$ -	0.0%
Onalaska	589	West	$ 399,037	$ 401,488	$ (2,450)	-0.6%	$ 401,488	$ -	0.0%	$ 401,488	$ -	0.0%
Onion Creek	59	East	$ 117,499	$ 91,382	$ 26,117	28.6%	$ 91,382	$ -	0.0%	$ 91,382	$ -	0.0%
Orcas Island	157	West	$ 78,986	$ 87,840	$ (8,855)	-10.1%	$ 87,840	$ -	0.0%	$ 87,840	$ -	0.0%
Orchard prarie	65	East	$ 13,024	$ 20,099	$ (7,075)	-35.2%	$ 20,099	$ -	0.0%	$ 20,099	$ -	0.0%
Orient	105	East	$ 299,627	$ 222,172	$ 77,455	34.9%	$ 124,908	$ (97,264)	-43.8%	$ 183,119	$ (39,054)	-17.6%
Orondo	267	East	$ 202,334	$ 180,126	$ 22,208	12.3%	$ 180,126	$ -	0.0%	$ 180,126	$ -	0.0%
Oroville	254	East	$ 231,575	$ 276,914	$ (45,339)	-16.4%	$ 258,728	$ (18,186)	-6.6%	$ 276,914	$ -	0.0%
Orting	1,036	West	$ 403,301	$ 721,500	$ (318,198)	-44.1%	$ 721,500	$ -	0.0%	$ 721,500	$ -	0.0%
Othello	1,278	East	$ 690,605	$ 704,407	$ (13,801)	-2.0%	$ 704,407	$ -	0.0%	$ 704,407	$ -	0.0%
Palisades	85	East	$ 92,493	$ 72,260	$ 20,233	28.0%	$ 72,260	$ -	0.0%	$ 72,260	$ -	0.0%
Pasco	4,668	East	$ 2,444,881	$ 3,776,127	$ (1,331,246)	-35.3%	$ 2,633,777	$ (1,142,349)	-30.3%	$ 3,776,127	$ -	0.0%
Pateros	132	East	$ 97,915	$ 125,291	$ (27,376)	-21.9%	$ 125,291	$ -	0.0%	$ 125,291	$ -	0.0%
Paterson	142	East	$ 162,771	$ 185,943	$ (23,172)	-12.5%	$ 185,943	$ -	0.0%	$ 185,943	$ -	0.0%
Pe Ell	222	West	$ 164,376	$ 182,100	$ (17,724)	-9.7%	$ 182,100	$ -	0.0%	$ 182,100	$ -	0.0%
Peninsula	5,634	West	$ 2,581,280	$ 3,368,153	$ (786,873)	-23.4%	$ 3,368,153	$ -	0.0%	$ 3,368,153	$ -	0.0%
Pioneer	576	West	$ 303,595	$ 418,052	$ (114,457)	-27.4%	$ 418,052	$ -	0.0%	$ 418,052	$ -	0.0%
Pomeroy	132	East	$ 247,350	$ 196,449	$ 50,900	25.9%	$ 196,449	$ -	0.0%	$ 196,449	$ -	0.0%
Port Angeles	1,438	West	$ 1,028,726	$ 1,453,724	$ (424,997)	-29.2%	$ 1,002,764	$ (450,960)	-31.0%	$ 1,318,970	$ (134,753)	-9.3%
Port Townsend	529	West	$ 310,694	$ 509,913	$ (199,219)	-39.1%	$ 462,448	$ (47,465)	-9.3%	$ 457,524	$ (52,390)	-10.3%
Prescott	168	East	$ 276,425	$ 268,347	$ 8,078	3.0%	$ 255,236	$ (13,110)	-4.9%	$ 268,347	$ -	0.0%
Prosser	1,329	East	$ 802,315	$ 979,228	$ (176,912)	-18.1%	$ 979,228	$ -	0.0%	$ 979,228	$ -	0.0%
Pullman	982	East	$ 532,813	$ 606,630	$ (73,817)	-12.2%	$ 606,630	$ -	0.0%	$ 606,630	$ -	0.0%
Puyallup	10,958	West	$ 4,165,317	$ 7,050,315	$ (2,884,998)	-40.9%	$ 7,050,315	$ -	0.0%	$ 7,050,315	$ -	0.0%
Queets-Clearwater	30	West	$ 106,707	$ 71,756	$ 34,951	48.7%	$ 71,756	$ -	0.0%	$ 71,756	$ -	0.0%
Quilcene	167	West	$ 155,877	$ 139,856	$ 16,021	11.5%	$ 139,856	$ -	0.0%	$ 139,856	$ -	0.0%

			Current Model				Unit Cost Model			Expected Cost Model		
			$ 233,892,887	$ 356,386,229	$ (122,493,341)	-34.4%	$ 305,274,892	$ (51,111,336)	-14.3%	$ 337,236,250	$ (19,149,978)	-5.4%
District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Quillayute Valley	625	West	$ 305,613	$ 462,327	$ (156,714)	-33.9%	$ 462,327	$ -	0.0%	$ 462,327	$ -	0.0%
Quincy	1,138	East	$ 623,916	$ 1,092,845	$ (468,929)	-42.9%	$ 867,993	$ (224,852)	-20.6%	$ 1,006,362	$ (86,483)	-7.9%
Rainier	528	West	$ 179,852	$ 374,263	$ (194,411)	-51.9%	$ 374,263	$ -	0.0%	$ 374,263	$ -	0.0%
Raymond	396	West	$ 331,538	$ 293,334	$ 38,204	13.0%	$ 293,334	$ -	0.0%	$ 293,334	$ -	0.0%
Reardan-Edwall	451	East	$ 587,814	$ 589,639	$ (1,825)	-0.3%	$ 485,117	$ (104,522)	-17.7%	$ 589,639	$ -	0.0%
Renton	4,865	West	$ 2,317,305	$ 4,161,058	$ (1,843,754)	-44.3%	$ 3,624,877	$ (536,181)	-12.9%	$ 3,849,623	$ (311,436)	-7.5%
Republic	198	East	$ 182,586	$ 196,596	$ (14,010)	-7.1%	$ 196,596	$ -	0.0%	$ 196,596	$ -	0.0%
Richland	2,955	East	$ 1,921,768	$ 2,418,220	$ (496,452)	-20.5%	$ 2,189,089	$ (229,131)	-9.5%	$ 2,354,396	$ (63,824)	-2.6%
Ridgefield		West										
Ritzville	119	East	$ 333,927	$ 338,397	$ (4,470)	-1.3%	$ 223,960	$ (114,437)	-33.8%	$ 240,315	$ (98,082)	-29.0%
Riverside	1,069	East	$ 1,267,717	$ 1,150,112	$ 117,605	10.2%	$ 857,731	$ (292,381)	-25.4%	$ 1,039,650	$ (110,461)	-9.6%
Riverview	1,864	West	$ 1,022,791	$ 1,454,153	$ (431,361)	-29.7%	$ 1,119,329	$ (334,823)	-23.0%	$ 1,454,153	$ -	0.0%
Rochester	1,317	West	$ 1,035,158	$ 1,254,003	$ (218,845)	-17.5%	$ 911,102	$ (342,901)	-27.3%	$ 1,074,939	$ (179,063)	-14.3%
Roosevelt	48	West	$ 72,018	$ 60,436	$ 11,582	19.2%	$ 60,436	$ -	0.0%	$ 60,436	$ -	0.0%
Rosalia	115	East	$ 172,681	$ 150,971	$ 21,711	14.4%	$ 150,971	$ -	0.0%	$ 150,971	$ -	0.0%
Royal	969	East	$ 435,040	$ 731,547	$ (296,507)	-40.5%	$ 731,547	$ -	0.0%	$ 731,547	$ -	0.0%
San Juan	311	West	$ 119,280	$ 194,636	$ (75,357)	-38.7%	$ 194,636	$ -	0.0%	$ 194,636	$ -	0.0%
Seattle	20,607	West	$ 15,488,048	$ 26,698,291	$ (11,210,243)	-42.0%	$ 12,111,938	$ (14,586,353)	-54.6%	$ 26,698,291	$ -	0.0%
Sedro-Woolley	1,821	West	$ 829,799	$ 1,554,218	$ (724,420)	-46.6%	$ 1,140,423	$ (413,795)	-26.6%	$ 1,554,218	$ -	0.0%
Selah	1,381	East	$ 528,376	$ 804,491	$ (276,114)	-34.3%	$ 804,491	$ -	0.0%	$ 804,491	$ -	0.0%
Selkirk	289	East	$ 317,004	$ 245,095	$ 71,909	29.3%	$ 244,402	$ (693)	-0.3%	$ 245,095	$ -	0.0%
Sequim	931	West	$ 629,843	$ 707,029	$ (77,185)	-10.9%	$ 604,885	$ (102,144)	-14.4%	$ 707,029	$ -	0.0%
Shelton	2,048	West	$ 1,047,103	$ 2,304,221	$ (1,257,118)	-54.6%	$ 1,217,484	$ (1,086,737)	-47.2%	$ 1,862,252	$ (441,969)	-19.2%
Shoreline	4,108	West	$ 1,695,992	$ 3,062,020	$ (1,366,028)	-44.6%	$ 2,818,039	$ (243,981)	-8.0%	$ 3,062,020	$ -	0.0%
Skamania	57	West	$ 71,258	$ 60,224	$ 11,034	18.3%	$ 60,224	$ -	0.0%	$ 60,224	$ -	0.0%
Skykomish	46	West	$ 93,865	$ 75,531	$ 18,334	24.3%	$ 75,531	$ -	0.0%	$ 75,531	$ -	0.0%
Snohomish	5,953	West	$ 2,716,269	$ 4,411,417	$ (1,695,148)	-38.4%	$ 3,667,901	$ (743,516)	-16.9%	$ 3,934,568	$ (476,848)	-10.8%
Snoqualmie Valley	3,085	West	$ 1,289,738	$ 2,099,022	$ (809,284)	-38.6%	$ 1,941,436	$ (157,585)	-7.5%	$ 1,918,079	$ (180,942)	-8.6%
Soap Lake	256	East	$ 159,955	$ 207,038	$ (47,084)	-22.7%	$ 207,038	$ -	0.0%	$ 207,038	$ -	0.0%
South Bend	347	West	$ 282,064	$ 313,056	$ (30,992)	-9.9%	$ 313,056	$ -	0.0%	$ 302,322	$ (10,734)	-3.4%
South Kitsap	5,730	West	$ 2,679,009	$ 4,077,748	$ (1,398,739)	-34.3%	$ 3,600,804	$ (476,945)	-11.7%	$ 4,077,748	$ -	0.0%
South Whidbey	1,084	West	$ 556,085	$ 917,879	$ (361,794)	-39.4%	$ 827,021	$ (90,858)	-9.9%	$ 917,879	$ -	0.0%
Southside	111	West	$ 39,552	$ 74,266	$ (34,714)	-46.7%	$ 74,266	$ -	0.0%	$ 71,976	$ (2,290)	-3.1%
Spokane	6,993	East	$ 5,377,727	$ 7,007,027	$ (1,629,300)	-23.3%	$ 4,314,078	$ (2,692,950)	-38.4%	$ 7,007,027	$ -	0.0%
Sprague	54	East	$ 103,290	$ 126,522	$ (23,232)	-18.4%	$ 115,564	$ (10,957)	-8.7%	$ 104,102	$ (22,420)	-17.7%
St. John	144	East	$ 353,244	$ 292,998	$ 60,247	20.6%	$ 238,655	$ (54,343)	-18.5%	$ 241,108	$ (51,890)	-17.7%
Stanwood-Camano	2,805	West	$ 1,484,180	$ 2,090,113	$ (605,933)	-29.0%	$ 1,944,940	$ (145,173)	-6.9%	$ 2,090,113	$ -	0.0%
Star	22	East	$ 66,203	$ 73,545	$ (7,342)	-10.0%	$ 73,545	$ -	0.0%	$ 45,263	$ (28,282)	-38.5%
Starbuck	15	East	$ 107,551	$ 53,830	$ 53,721	99.8%	$ 53,830	$ -	0.0%	$ 53,830	$ -	0.0%
Steilacoom Hist.	1,144	West	$ 659,555	$ 871,523	$ (211,968)	-24.3%	$ 871,523	$ -	0.0%	$ 871,523	$ -	0.0%
Steptoe	44	East	$ 46,030	$ 59,126	$ (13,096)	-22.1%	$ 59,126	$ -	0.0%	$ 57,493	$ (1,633)	-2.8%
Stevenson-Carson	401	West	$ 216,916	$ 352,755	$ (135,840)	-38.5%	$ 352,755	$ -	0.0%	$ 307,701	$ (45,055)	-12.8%
Sultan	1,143	West	$ 653,087	$ 940,862	$ (287,775)	-30.6%	$ 888,467	$ (52,395)	-5.6%	$ 940,862	$ -	0.0%
Summit Valley	47	East	$ 51,965	$ 45,331	$ 6,634	14.6%	$ 45,331	$ -	0.0%	$ 45,331	$ -	0.0%
Sumner	4,405	West	$ 1,409,127	$ 2,880,287	$ (1,471,160)	-51.1%	$ 2,802,072	$ (78,215)	-2.7%	$ 2,432,079	$ (448,208)	-15.6%
Sunnyside	2,176	East	$ 792,332	$ 1,022,027	$ (229,695)	-22.5%	$ 1,022,027	$ -	0.0%	$ 1,022,027	$ -	0.0%
Tacoma	8,402	West	$ 5,043,230	$ 8,848,648	$ (3,805,418)	-43.0%	$ 6,551,474	$ (2,297,173)	-26.0%	$ 8,848,648	$ -	0.0%
Taholah	44	West	$ 41,830	$ 159,944	$ (118,114)	-73.8%	$ 108,655	$ (51,288)	-32.1%	$ 64,180	$ (95,763)	-59.9%
Tahoma	4,501	West	$ 1,822,309	$ 3,093,473	$ (1,271,164)	-41.1%	$ 2,603,592	$ (489,881)	-15.8%	$ 2,884,423	$ (209,050)	-6.8%
Tekoa	47	East	$ 106,346	$ 127,289	$ (20,944)	-16.5%	$ 111,671	$ (15,618)	-12.3%	$ 72,864	$ (54,425)	-42.8%

			Current Model				Unit Cost Model			Expected Cost Model		
			$ 233,892,887	$ 356,386,229	$ (122,493,341)	-34.4%	$ 305,274,892	$ (51,111,336)	-14.3%	$ 337,236,250	$ (19,149,978)	-5.4%
District	**Riders**	**Region**	**Current Alloc**	**Expenditures**	**Curr Alloc-Exp**	**% Change**	**UCM Allocation**	**UCM Alloc-Exp**	**% Change**	**ECM Allocation**	**ECM Alloc - Exp**	**% Change**
Tenino	692	West	$ 518,642	$ 898,377	$ (379,735)	-42.3%	$ 538,994	$ (359,383)	-40.0%	$ 660,285	$ (238,092)	-26.5%
Thorp	99	East	$ 42,875	$ 56,715	$ (13,841)	-24.4%	$ 56,715	$ -	0.0%	$ 56,715	$ -	0.0%
Toledo	371	West	$ 343,334	$ 316,051	$ 27,282	8.6%	$ 316,051	$ -	0.0%	$ 316,051	$ -	0.0%
Tonasket	613	East	$ 500,261	$ 505,230	$ (4,969)	-1.0%	$ 505,230	$ -	0.0%	$ 505,230	$ -	0.0%
Toppenish	1,161	East	$ 441,677	$ 728,546	$ (286,869)	-39.4%	$ 728,546	$ -	0.0%	$ 728,546	$ -	0.0%
Touchet	133	East	$ 68,739	$ 91,818	$ (23,079)	-25.1%	$ 91,818	$ -	0.0%	$ 91,818	$ -	0.0%
Toutle Lake	434	West	$ 259,385	$ 233,840	$ 25,546	10.9%	$ 233,840	$ -	0.0%	$ 233,840	$ -	0.0%
Trout Lake	75	West	$ 59,215	$ 80,646	$ (21,431)	-26.6%	$ 80,646	$ -	0.0%	$ 80,646	$ -	0.0%
Tukwila	672	West	$ 233,514	$ 493,930	$ (260,416)	-52.7%	$ 493,930	$ -	0.0%	$ 429,832	$ (64,098)	-13.0%
Tumwater	3,124	West	$ 1,472,552	$ 2,276,790	$ (804,238)	-35.3%	$ 2,064,722	$ (212,067)	-9.3%	$ 2,242,940	$ (33,849)	-1.5%
Union Gap	140	East	$ 81,872	$ 55,117	$ 26,755	48.5%	$ 55,117	$ -	0.0%	$ 55,117	$ -	0.0%
University Place	1,955	West	$ 759,511	$ 1,309,296	$ (549,785)	-42.0%	$ 1,301,453	$ (7,843)	-0.6%	$ 1,096,989	$ (212,307)	-16.2%
Valley	248	East	$ 446,712	$ 482,308	$ (35,595)	-7.4%	$ 252,424	$ (229,884)	-47.7%	$ 270,576	$ (211,732)	-43.9%
Vancouver	9,269	West	$ 4,119,619	$ 6,086,640	$ (1,967,021)	-32.3%	$ 6,086,640	$ -	0.0%	$ 6,086,640	$ -	0.0%
Vashon Island	978	West	$ 505,920	$ 657,158	$ (151,238)	-23.0%	$ 657,158	$ -	0.0%	$ 657,158	$ -	0.0%
Wahkiakum	303	West	$ 186,742	$ 253,621	$ (66,879)	-26.4%	$ 253,621	$ -	0.0%	$ 253,621	$ -	0.0%
Wahluke	1,095	East	$ 327,002	$ 509,533	$ (182,531)	-35.8%	$ 509,533	$ -	0.0%	$ 509,533	$ -	0.0%
Waitsburg	53	East	$ 121,253	$ 105,678	$ 15,575	14.7%	$ 105,678	$ -	0.0%	$ 88,645	$ (17,033)	-16.1%
Walla Walla	1,562	East	$ 735,360	$ 1,024,855	$ (289,494)	-28.2%	$ 1,024,855	$ -	0.0%	$ 1,024,855	$ -	0.0%
Wapato	1,240	East	$ 560,523	$ 951,936	$ (391,413)	-41.1%	$ 926,341	$ (25,595)	-2.7%	$ 951,936	$ -	0.0%
Warden	194	East	$ 184,124	$ 234,828	$ (50,704)	-21.6%	$ 234,828	$ -	0.0%	$ 227,537	$ (7,291)	-3.1%
Washougal	2,055	West	$ 1,040,604	$ 1,309,026	$ (268,422)	-20.5%	$ 1,162,985	$ (146,041)	-11.2%	$ 1,309,026	$ -	0.0%
Washtucna	32	East	$ 144,226	$ 130,983	$ 13,243	10.1%	$ 100,019	$ (30,964)	-23.6%	$ 82,161	$ (48,822)	-37.3%
Waterville	99	East	$ 207,787	$ 172,629	$ 35,158	20.4%	$ 146,309	$ (26,320)	-15.2%	$ 157,284	$ (15,345)	-8.9%
Wellpinit	178	East	$ 265,019	$ 229,900	$ 35,119	15.3%	$ 218,252	$ (11,647)	-5.1%	$ 229,900	$ -	0.0%
Wenatchee	1,839	East	$ 965,900	$ 1,380,876	$ (414,975)	-30.1%	$ 1,142,823	$ (238,053)	-17.2%	$ 1,380,876	$ -	0.0%
West Valley (Spokane)	1,499	East	$ 477,583	$ 1,054,703	$ (577,120)	-54.7%	$ 1,031,184	$ (23,519)	-2.2%	$ 861,255	$ (193,448)	-18.3%
West Valley (Yakima)	1,971	East	$ 792,629	$ 1,131,899	$ (339,270)	-30.0%	$ 1,131,899	$ -	0.0%	$ 1,131,899	$ -	0.0%
White Pass	367	West	$ 359,679	$ 296,600	$ 63,079	21.3%	$ 296,600	$ -	0.0%	$ 296,600	$ -	0.0%
White River	2,421	West	$ 1,070,778	$ 1,543,353	$ (472,575)	-30.6%	$ 1,543,353	$ -	0.0%	$ 1,543,057	$ (296)	0.0%
White Salmon Valley	501	West	$ 414,492	$ 502,012	$ (87,520)	-17.4%	$ 488,061	$ (13,951)	-2.8%	$ 502,012	$ -	0.0%
Wilbur	103	East	$ 250,333	$ 233,028	$ 17,305	7.4%	$ 150,707	$ (82,321)	-35.3%	$ 194,943	$ (38,085)	-16.3%
Willapa Valley	289	West	$ 309,984	$ 319,495	$ (9,511)	-3.0%	$ 267,348	$ (52,148)	-16.3%	$ 288,717	$ (30,779)	-9.6%
Wilson Creek	83	East	$ 168,064	$ 168,980	$ (915)	-0.5%	$ 135,600	$ (33,380)	-19.8%	$ 168,980	$ -	0.0%
Winlock	438	West	$ 227,688	$ 298,415	$ (70,727)	-23.7%	$ 298,415	$ -	0.0%	$ 298,415	$ -	0.0%
Wishkah Valley	92	West	$ 93,475	$ 83,620	$ 9,855	11.8%	$ 83,620	$ -	0.0%	$ 83,620	$ -	0.0%
Wishram	12	West	$ 25,225	$ 17,551	$ 7,674	43.7%	$ 17,551	$ -	0.0%	$ 17,551	$ -	0.0%
Woodland		West										
Yakima	3,377	East	$ 1,948,084	$ 3,054,216	$ (1,106,131)	-36.2%	$ 2,446,958	$ (607,258)	-19.9%	$ 2,360,963	$ (693,253)	-22.7%
Yelm	3,288	West	$ 1,547,394	$ 2,190,277	$ (642,883)	-29.4%	$ 1,992,439	$ (197,838)	-9.0%	$ 2,190,277	$ -	0.0%
Zillah	330	East	$ 210,967	$ 219,557	$ (8,590)	-3.9%	$ 219,557	$ -	0.0%	$ 219,557	$ -	0.0%
KWRL Co-Op	3,243	West	$ 2,263,728	$ 2,830,840	$ (567,112)	-20.0%	$ 2,028,915	$ (801,925)	-28.3%	$ 1,776,717	$ (1,054,123)	-37.2%

Appendix B: Stakeholder Survey Summary Results
Analysis of Responses by Category

The initial survey items 1-7 collected information regarding the survey respondent.

Survey item 8, statements 1-27, was included in the survey to gain an understanding of how school districts are affected by the pupil transportation funding formula. The responses were structured to garner information relative to six factors:

1. Understanding the operation of the formula.
2. Understanding the objectives of the formula.
3. The perceived equity of the formula.
4. The adequacy of state funding.
5. The influence of the formula on local education and transportation decisions.
6. Opinions on whether the formula should be changed or replaced.

At least one matched pair of statements was included for each factor. Each of these was designed to validate responses. The respondent indicated the extent to which he or she agreed or disagreed with the statement. The possible responses were:

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

In the following section each matched pair of questions are shown, grouping the responses into the following three primary categories to provide for a more clear interpretation of the results:

1. Strongly Disagree or Disagree
2. Neutral
3. Strongly Agree or Agree

Understanding the operation of the formula

The following tables show that the respondents generally understand how the current funding formula works.

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
6	I understand the basics of how the current formula works.	12.4%	9.7%	77.9%
23	The current funding formula is a mystery to me.	57.0%	24.9%	18.1%

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
5	I understand how my transportation allotment is calculated.	16.2%	16.2%	67.7%
19	The computation of my transportation allotment is unclear to me.	58.8%	23.5%	17.6%

Understanding the objectives of the formula

The following table show inconclusive results regarding respondents' understanding of the current funding formula's objectives.

Statement	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
7	I understand the current formula's objectives.	31.4%	27.1%	41.5%
20	The current formula's objectives are unclear.	28.6%	31.1%	40.3%

The perceived equity of the formula

The following tables show that respondents are concerned about the equity of the current funding formula. The most concern is expressed regarding the treatment of school district site characteristics, as reflected in statements 24 and 15.

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
22	The current funding formula equitably allocates available state pupil transportation funds to my school district.	64.0%	20.8%	15.3%
25	The money my school district receives for student transportation does not cover all costs.	11.2%	4.5%	84.3%

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
24	The current funding formula takes into account the important demographic, traffic, and roadway characteristics of my school district.	87.0%	8.4%	4.6%
15	My school district has many demographic or geographic characteristics that are not accounted for in the current funding formula.	7.1%	13.0%	79.9%

The adequacy of state funding

The following table shows that the respondents believe State funding for pupil transportation is inadequate.

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
26	The State provides adequate overall funding for pupil transportation.	80.8%	10.0%	9.2%
18	State funding for student transportation is not adequate.	4.2%	8.8%	87.0%

The influence of the formula on local education and transportation decisions

The following tables show that the majority of school districts consider the effect of the funding formula when making changes to their transportation system, but not when they are considering changes to their educational programs.

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
11	My school district considers the impact on the funding formula allotment when evaluating changes to our transportation system.	24.7%	13.7%	61.6%
16	My school district makes changes to our transportation system without considering the impact on funding formula allotment.	46.4%	20.9%	32.6%

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
10	My school district considers the impact on the funding formula allotment when making educational program decisions.	45.8%	25.3%	28.9%
17	My school district makes educational program choices independent of student transportation funding allotments.	20.1%	19.2%	60.7%

Opinions on whether the formula should be changed or replaced

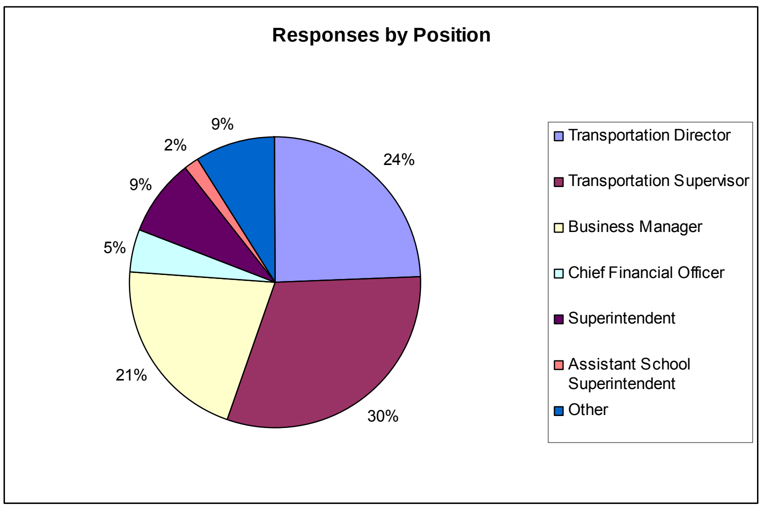
The following table shows that respondents believe the formula needs to be changed or replaced entirely.

Item	Statement	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
2	I am satisfied with the current student transportation funding formula.	76.2%	9.0%	14.8%
3	I believe the current formula should be replaced entirely.	23.2%	23.6%	53.2%

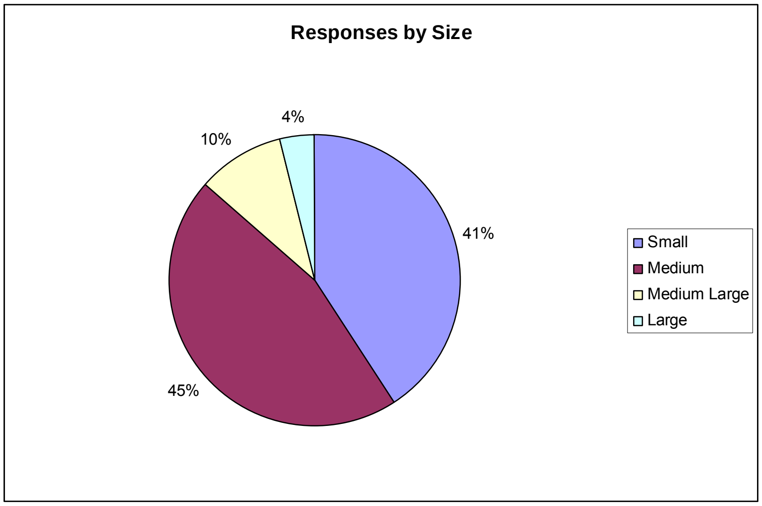
Analysis of Responses by Respondent and School District Type

In this section, associations were sought between responses received and the position of the respondent within their organization. Such associations were also sought between responses received and the characteristics of the respondent's school district, namely its relative size and population. Population is defined by standards that are applied to Census Bureau data and categorized as Metropolitan Division, Metropolitan Statistical Area, Micropolitan Statistical Area, and Non-core. Each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. Each micropolitan statistical area must have at least one urban cluster of at least 10,000 inhabitants but less than 50,000 inhabitants. A metropolitan statistical area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as metropolitan divisions. Non-core areas are those that have less than 50,000 inhabitants.

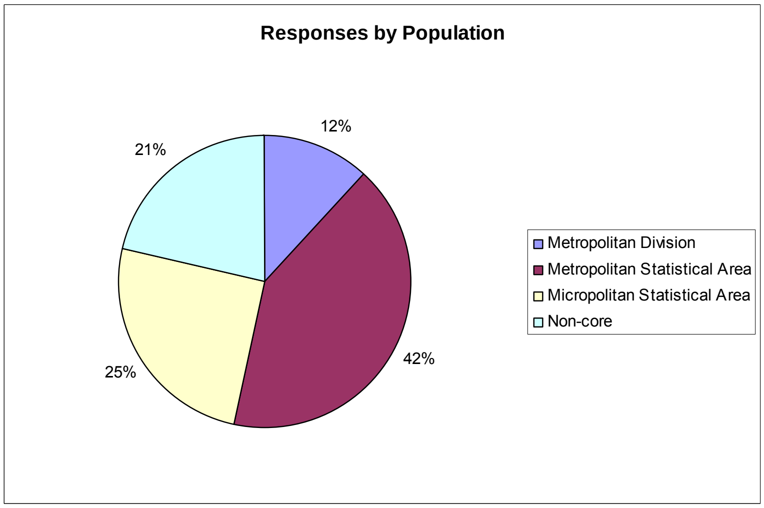
Position	Number of Respondents	Percent
Transportation Director	91	24.4%
Transportation Supervisor	115	30.8%
Business Manager	78	20.9%
Chief Financial Officer	18	4.8%
Superintendent	32	8.6%
Assistant School Superintendent	6	1.6%
Other (please specify)	33	8.9%
Total	**373**	**100%**



Size	Number of Respondents	Percent
Small	154	41%
Medium	171	45.4%
Medium Large	36	9.6%
Large	15	4%
Total	**376**	**100%**



Population	Number of Respondents	Percent
Metropolitan Division	45	12.1%
Metropolitan Statistical Area	154	41.3%
Micropolitan Statistical Area	94	25.2%
Non-core	80	21.4%
Total	**373**	**100%**



Variance Analysis

The survey statement results were analyzed by assigning the following values to possible responses:

- Strongly Disagree -2
- Disagree -1
- Neutral 0
- Agree +1
- Strongly Agree +2

Responses were grouped according to professional position of the respondents and the school district type characteristics described above. Next, the values assigned to responses received, were averaged and then tested for variance within position and school district type characteristics. A high variance indicated significant difference among responses. For example, if one respondent strongly agreed with a statement and another respondent strongly disagreed with a statement there would be high variance. For sake of clarity for the reader, both the Transportation Director and Transportation Supervisor, and the Superintendent and Assistant Superintendent positions have been grouped together.

Position

There is a high variance for statements 2, 3, 16, 21, and 22. The following table shows that:

- Superintendents and Assistant Superintendents are more likely to be satisfied with the current funding formula and less likely to believe the current formula should be replaced entirely.

- Superintendents and Assistant Superintendents are less likely to agree that their school district makes changes to their transportation system without considering the impact on the funding formula allotment.

- Chief Financial Officers are more likely to agree that the current funding formula creates no incentives for operating efficiently and are more likely to disagree that the current funding formula equitably allocates available state pupil transportation funds to their school district.

Appendix C: The Target Cost Management Tool

As part of this project, a tool was developed, using a methodology known as the Target Cost approach, that produces allocations based on the best possible performance of each school district, taking into account all of the school district's site characteristics. While the Target Cost approach could certainly be employed as a funding formula, it was developed primarily as a management tool for this project. The Advisory Committee felt that by driving towards a minimum cost, this model did balance the competing demands of the first objective to develop of formula that generates and allocates transportation funds to school districts so as to reflect actual costs while promoting efficiency. Also, the complexity of the statistical methodology used, while acceptable, was hard to understand and changed based on the expenditures experienced by school districts from year to year. This limited its ability to meet the second project objective: providing school districts with predictable levels of state transportation funding to the extent possible.

The intent is that the Target Cost Tool would serve in conjunction with another funding model as a diagnostic tool to identify school districts that, while receiving full funding under another model, still have room for improvement. It is also useful to employ this tool as a mechanism to identify what the costs should be for a school district that consistently expends more than the formula provides. In this sense, it provides a "target" of what such a school district should aim for in attempting to operate more economically.

It is important to note that using the Target Cost Tool in conjunction with the Expected Cost Model can be done using the same required dataset. However, use of the Target Cost Tool with the Unit Cost Model would require the collection of a significantly expanded dataset.

How it Works

The Target Cost Tool uses the optimization power of linear programming rather than the averaging approach of linear regression used by the Expected Cost Model. The Target Cost Tool identifies for each school district an empirically based hypothetical target school district that spends less money, uses fewer buses, and transports the same number of students while operating under inferior operating conditions. In this sense, it identifies and rewards the best performers while providing an expenditure target (and a target bus fleet size) for each school district that is not a best performer.

The objective of the Target Cost Tool is to identify, for each school district, an empirically based and mathematically sound[16] minimum expenditure level that allows the school district to transport its students to and from school while recognizing local site characteristics that influence cost but are beyond the direct control of school district management.

The Target Cost Tool is empirically based because it constructs each school district-specific target based on the actual performance of all other school districts in the state. In doing so, it makes no assumptions about what a school district "should" be able to do based strictly on theoretical considerations. Rather, this methodology builds each school district-specific target from actual peer data, not from a mathematical model estimated from the data.

The key to the Target Cost Tool is the idea of a *target school district*. The target school district for a specific school district (call it School District A) is a weighted average of school districts throughout the state. To illustrate, suppose that the target school district for District A is 60 percent of district B, 30 percent of district C, and 10 percent of district D, the weights having been determined mathematically from the data using linear programming[17]. This means that the expenditures, buses, riders, and site characteristics associated with the target school district equal 60 percent of the value at district B plus 30 percent of the value at district C plus 10 percent of the value at district D.

[16] The Target Cost Tool approach is mathematically sound because it is based on the methodology of Data Envelopment Analysis (DEA), which has been used extensively in a great number of applications over the past 30 years. Indeed, the scholarly literature contains nearly 2,000 articles covering DEA theory, methods, and applications. DEA itself is based on linear programming, a mathematical optimization method that was developed during World War II and which has been applied in literally thousands of business, government, and nonprofit organizations throughout the world ever since. Three of the original developers of linear programming (Wassily Leontief in 1973, and Leonid Kantorovich and Tjalling Koopmans in 1975) received the Nobel Prize in Economics for their work in this area.

[17] The Target Cost Tool determines, for each school district, how much weight to place on each school district in the state to produce a target that simultaneously reduces expenditures and buses by the largest possible percentage while maintaining the number of riders and ensuring that the target's site characteristics are no better than those of the school district. It is in this sense that district A's target school district represents the best possible performance for district A. If district A were operating efficiently, then it would have placed 100 percent of its weight on itself and district A's target would be identical to district A.

See the table below, which shows hypothetical data for districts A through D and for district A's target, using land area as the only site characteristic, for purpose of illustration.

School District	Weight	Expenditures	Buses	Riders	Land Area
A	---	$900,000	32	1530	130
B	60%	$1,000,000	30	2000	200
C	30%	$100,000	10	100	30
D	10%	$2,000,000	60	3000	100
District A's Target	**---**	**$830,000**	**27**	**1530**	**139**

Thus, the expenditures for district A's target is (0.6)($1,000,000) + (0.3)($100,000) + (0.1)($2,000,000) = $600,000 + $30,000 + $200,000 = $830,000. We perform the calculations for buses, riders, and land area in the same manner.

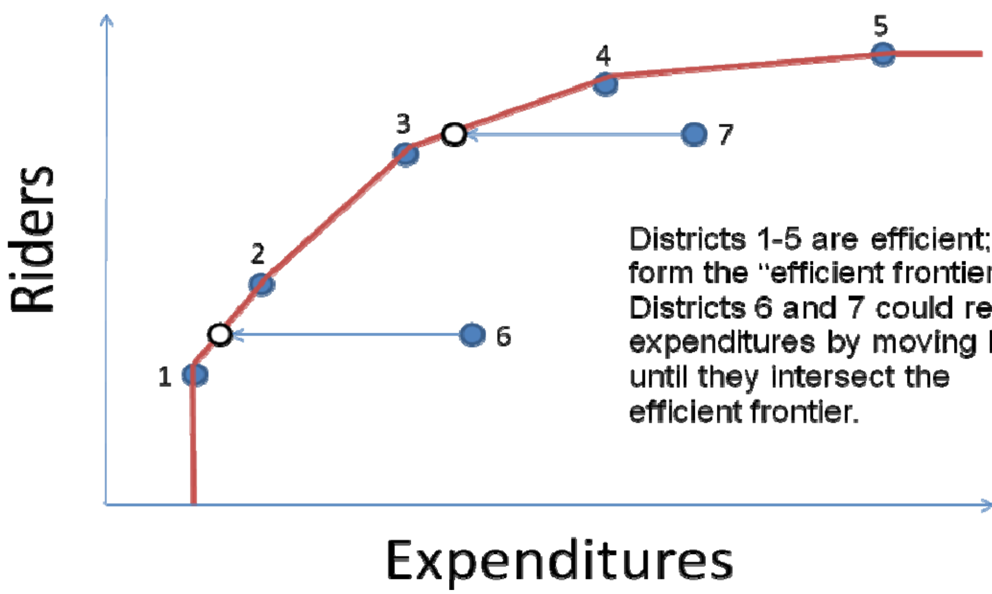
The important observation is that district A's target performs better than district A and does so under conditions that are the same or worse. The target spends $70,000 less, uses five fewer buses, transports the same number of riders, and has larger land area[18]. Yet, it is reasonable to assume that the performance of the target school district is achievable since it is constructed as a weighted average of actual school districts. The Target Cost Tool uses all site characteristics, not only land area as in this example.

We must remember that district A's target is a weighted average of (often several) school districts and that the school districts that enter into the average (known as the *efficient reference set* for district A) may not all be similar to district A. In our example, district B is generally similar to district A, but district C is considerably smaller and district D is considerably larger. However, district A's target will always consume fewer (or the same) resources (money and buses) while transporting the same number of (regular education and special education) riders and will always have site characteristics worse than (or the same as) district A. It follows that some guidance is available to district A from the school districts in its efficient reference set but that generally district A should look to those school districts with the larger weights.

[18] Recall that we know (from the Expected Cost Model) that districts with larger land area are also likely to have higher costs, if all else is equal.

The allocation for district A is computed as the lesser of district A's actual expenditures and 110 percent of its target expenditures. This 10 percent buffer allows for site characteristics that are not present in the model. Thus, district A must reduce its expenditures to at most 110 percent of its target expenditures be considered efficient in this analysis.

We may visualize the Target Cost Tool by considering the graph below, which shows how it would apply to a small group of seven (7) school districts if we used only expenditures and riders in the model. Thus, we are ignoring buses and all the site characteristics, and we are not distinguishing between regular education riders and special education riders. This model might be appropriate if all school districts transported no special education riders, used the same number of buses, and had identical site characteristics. Of course, we would not use such a model in practice because of these obvious weaknesses, but limiting the model in this way allows us to construct the graph in two dimensions rather than ten.



In this graph, districts 1-5 are efficient; together they establish curved line forming the *efficient frontier*. Each of these school districts place 100 percent of their weight on themselves and therefore each serves as its own target.

Now consider district 6. It clearly is not efficient. It transports fewer riders but spends more money than does either district 2 or district 3.

We find the target for district 6 by moving horizontally to the left until we encounter the efficient frontier, which occurs at the line segment between districts 1 and 2. The target clearly transports the same number of riders, as does district 6 while spending less money. It is reasonable to assume that district 6 could potentially operate like its hypothetical target school district since the target lies directly between two actual school districts, namely, districts 1 and 2. In this case, district 6 would place some weight on district 1 and the rest of its weight on district 2 to produce the target, and districts 1 and 2 would constitute district 6's efficient reference set.

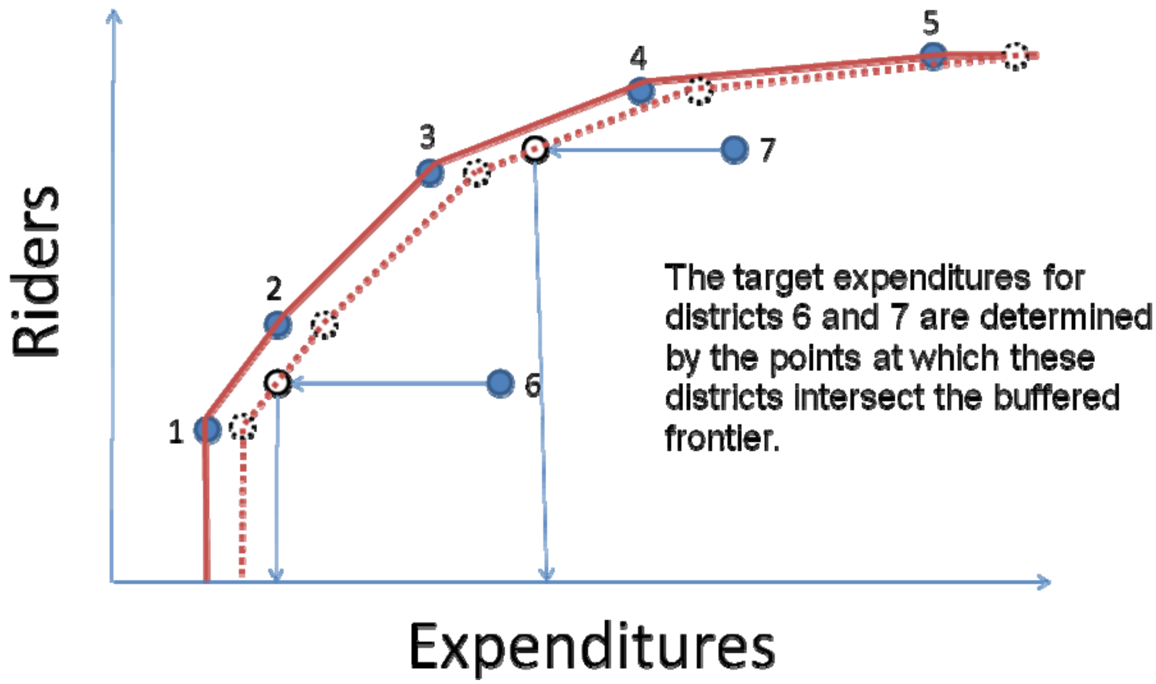
We perform the same analysis for district 7 and find that its target lies on the efficient frontier between districts 3 and 4. District 7 would be able to spend more money than would district 6 – its target is to the right of district 6's target – since district 7 transports more riders than does district 6. The efficient frontier traces out the expenditure level required to be efficient based on the number of riders in the school district.

We also observe that district 7's efficient reference set, namely districts 3 and 4, differs from that of district 6. This is because district 7 is larger than district 6 and therefore should (and does) have relatively larger school districts in its efficient reference set. In this sense, the Target Cost Tool automatically accounts for the relative size of each school district. This is important since the data indicate that student transportation operations exhibit significant economies of scale, that is, an increase in the number of riders by a certain percentage (say 10 percent) in an efficient school district leads to a smaller percentage (<10 percent) increase in expenditures.

In the full Target Cost Tool, not only will the target expend less money than the school district while transporting the same number of regular education riders and special education riders, but also it will do so under the same or worse operating conditions, as measured by the site characteristics. Thus, not only will the target be of the same size, as measured by riders, but it will also have more land area, greater average distance to school, and so forth. In particular, a non-high school district that transports (does not transport) its high school students will have only non-high school districts that transport (do not transport) their high school students in its efficient reference set.

The next chart displays the effect of the buffer. Each school district on the frontier is moved 10 percent to the right, as represented by the open circles with dashed borders.

The dashed lines connecting these circles constitute the *buffered frontier* – the point at which we encounter the buffered frontier is the *buffered target* for a school district. The allocation for a school district is the expenditure level associated with the buffered target. In other words, a school district can be considered efficient if its expenditures are within 10 percent of its target.



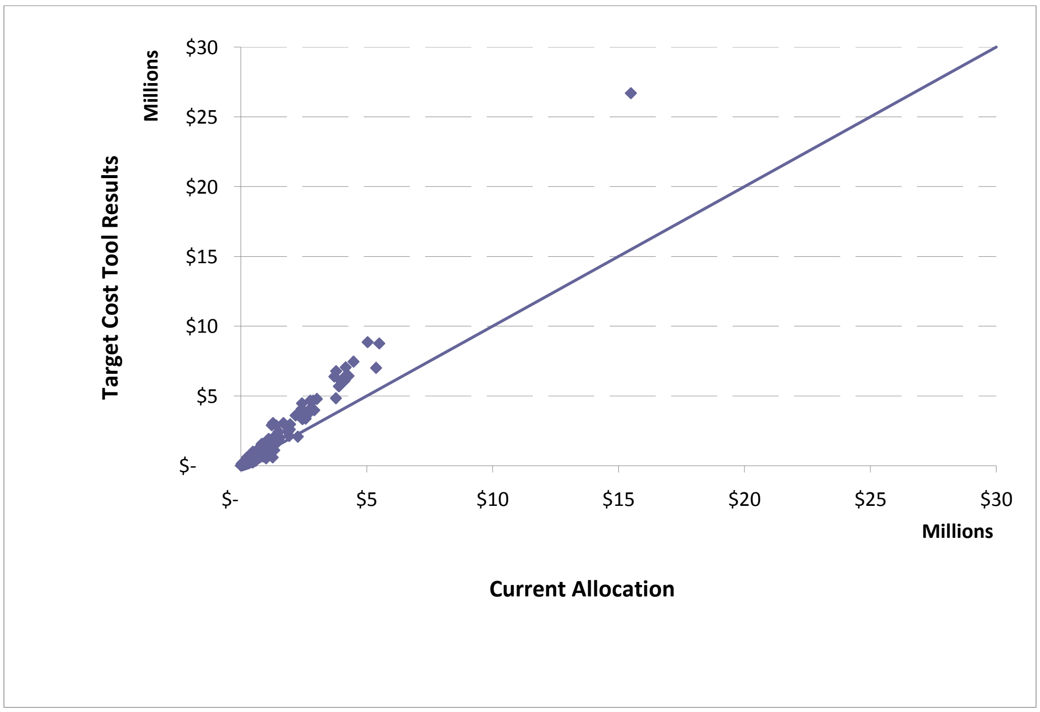
We now return to our example with district A, which spends $900,000. Its target spends $830,000; its buffered target would spend 10 percent more, or $913,000. Thus, district A's expenditures lie between those of its target and its buffered target, meaning that district A lies between the efficient frontier and buffered frontier. Using the Target Cost approach, district A would be considered efficient.

Results

When applied using 2006–2007 actual state transportation expenditures, the resulting statewide allocation totaled $323,469,179, or 38.3 percent more than the $233,892,887 allocated by the current formula, and 9.2 percent less than the total expenditures of $356,386,229.

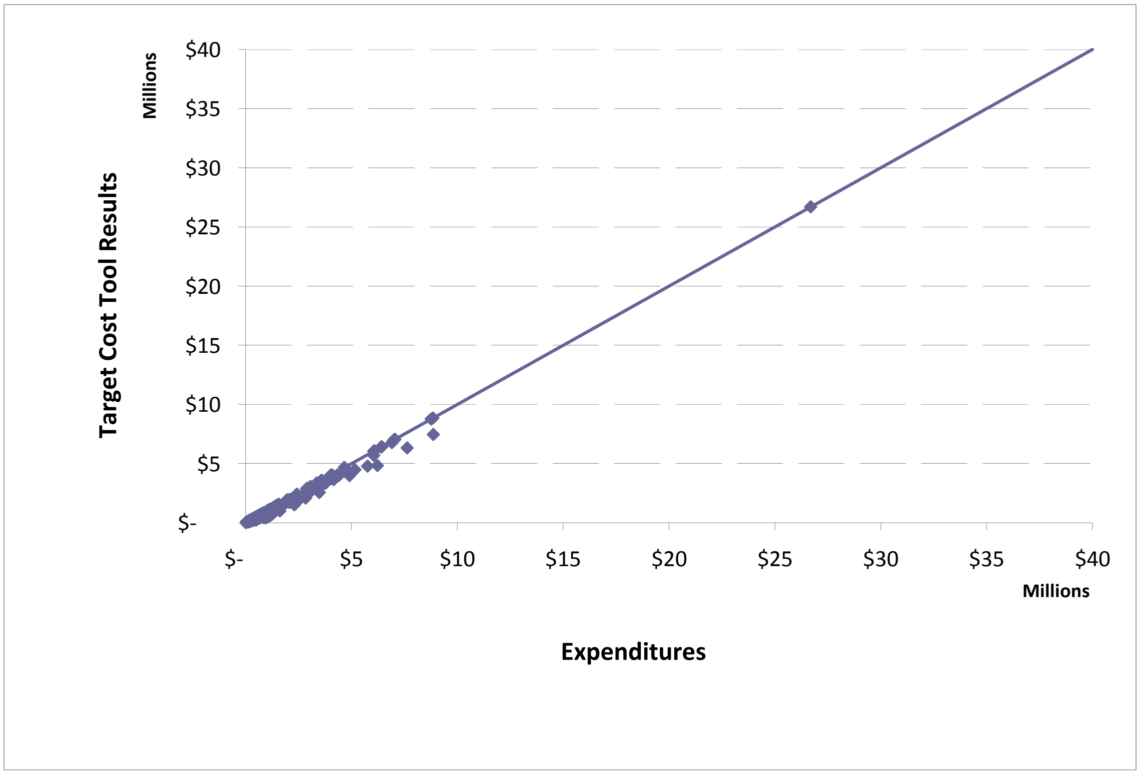
The following figure plots the allocations produced by the Target Cost Tool versus the current allocations. Nearly three out of five school districts (169 of 286, 59.1 percent) – representing 91 percent of students transported statewide – calculate a higher level of expenditure using the Target Cost Tool than under the current allocation formula.

Comparison of Target Cost and Current Formula Allocations



The next figure plots the allocations produced by the Target Cost Tool versus the expenditures. Nearly half of the school districts (130 of 286, 45.5 percent) – representing 46 percent of students transported statewide - have efficient operations, meaning that all of their expenditures are equal the allocation calculated by the Targeted Cost Tool.

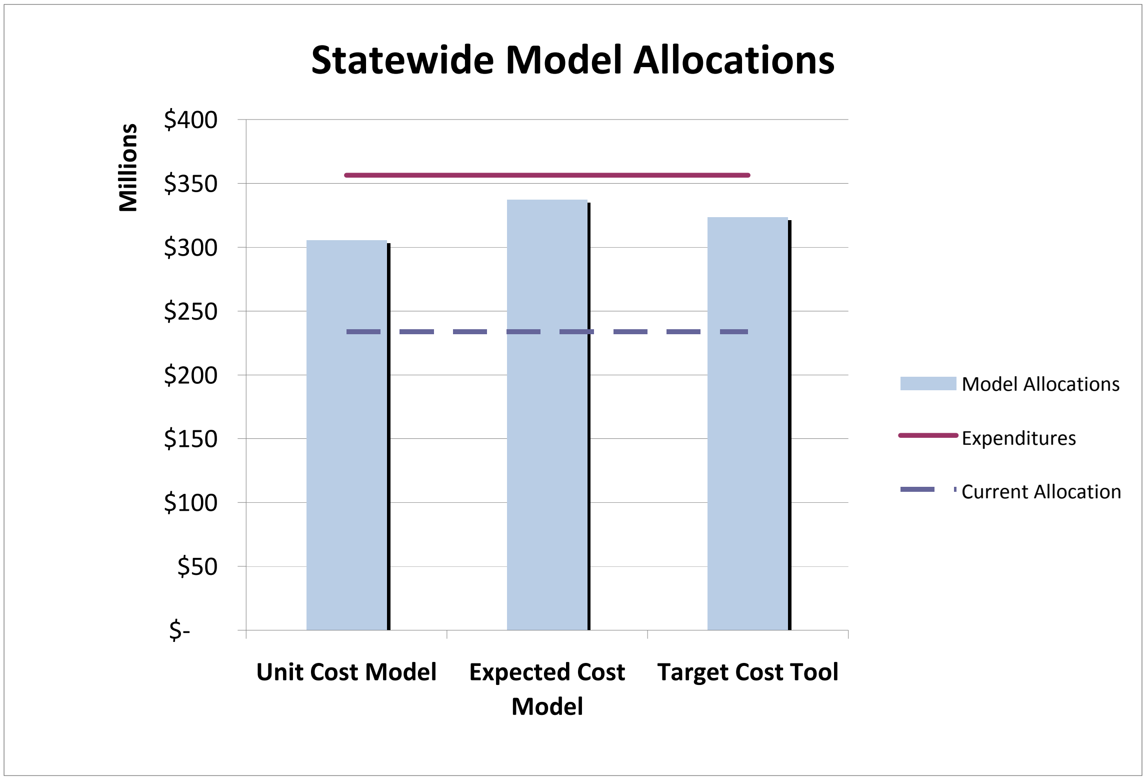
Comparison of Target Cost and Current Expenditures



Comparative Analysis

In order to provide a basis for comparison, we evaluated the funding amounts produced using the Target Cost Tool alongside the two funding models developed for this project. The next table and figures show the statewide total allocations produced by the two models and the Target Cost Tool relative to that produced by the current model and relative to statewide total expenditures ($356,386,229).

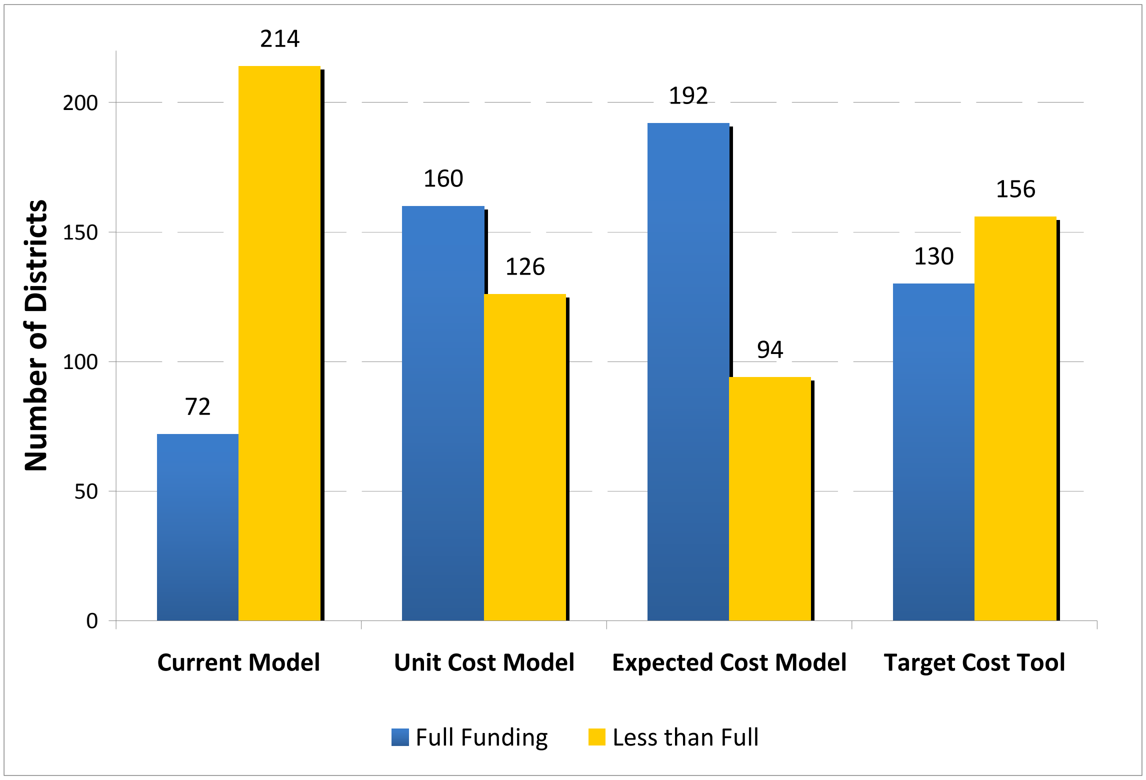
Model	Allocation	% of Current Allocation	% of Expenditures
Current	$233,892,887	100.0%	65.6%
Unit Cost Model	$305,274,892	130.5%	85.7%
Expected Cost Model	$337,236,250	144.2%	94.6%
Target Cost Tool	$323,469,179	138.3%	90.8%



Both models and the Target Cost Tool result in statewide allocations that are considerably higher (30.5 to 44.2 percent) than that produced by the current model. In addition, all three lead to statewide allocations that are close to total statewide expenditures, falling short by between 5.4 and 14.3 percent.

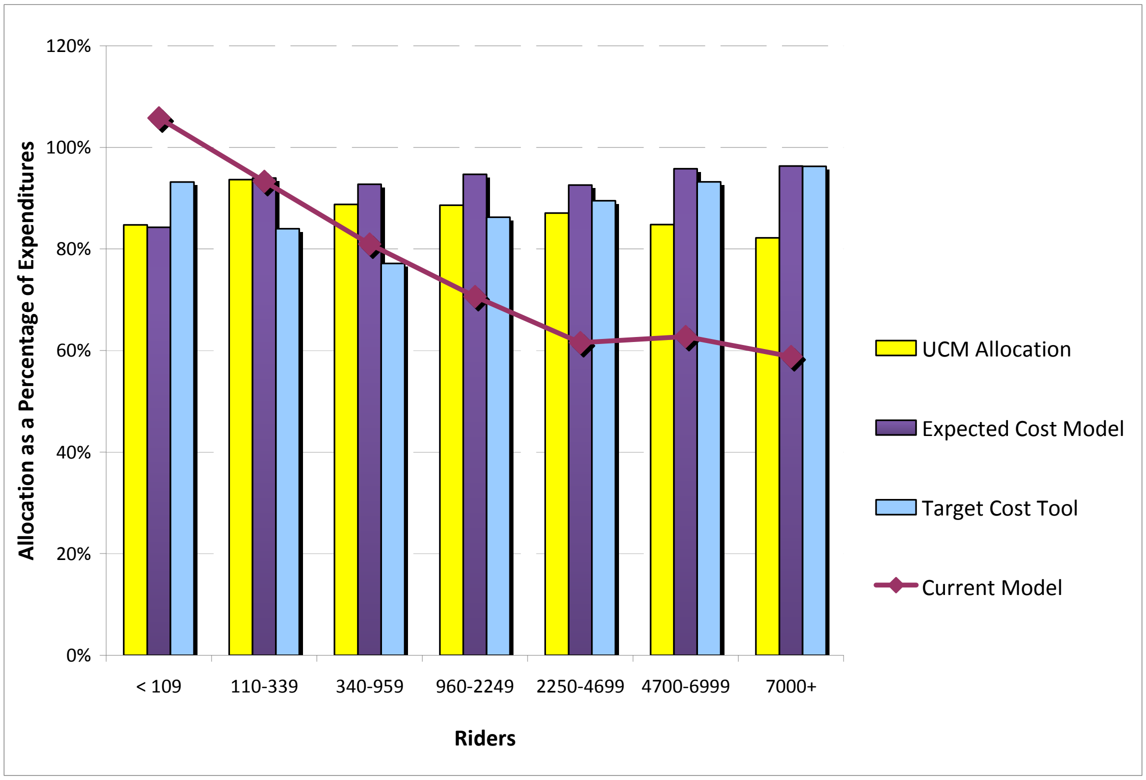
The figure below shows the number of school districts that receive full funding (and less than full funding) under the current model and under the two models and the Target Cost Tool. All three lead to full funding for more school districts than does the current model.

Analysis of Full Funding



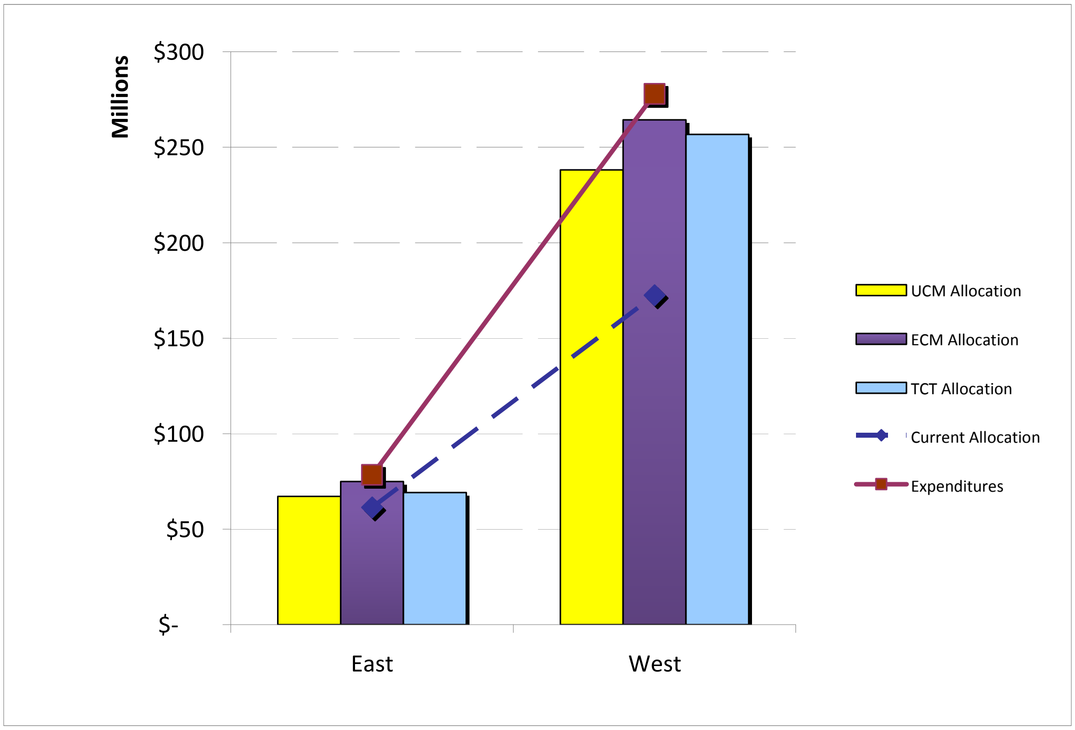
The graphs and tables that follow provide a visual comparison of the results of the current and proposed funding model options with the results of the Target Cost Tool.

Funding Allocation (%) by School District Size (Student Riders)

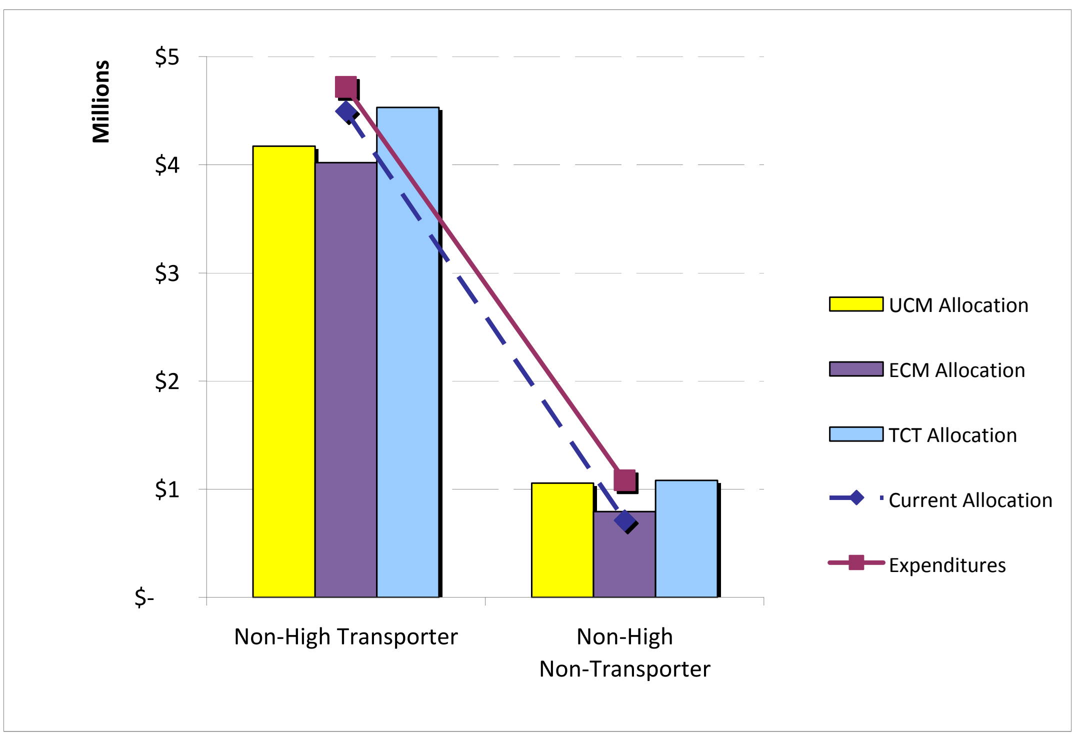


Riders	< 109	110-339	340-959	960-2249	2250-4699	4700-6999	7000+
Percentile	< 20th	20th-40th	40th-60th	60th-80th	80th-90th	90th-95th	> 95th
School Districts	57	58	57	55	31	15	13
Current Model	105.8%	93.3%	81.0%	70.6%	61.5%	62.8%	58.8%
Unit Cost Model	84.8%	93.7%	88.8%	88.6%	87.1%	84.8%	82.2%
Expected Cost Model	84.3%	94.0%	92.8%	94.7%	92.6%	95.8%	96.3%
Target Cost Tool	93.2%	84.0%	77.2%	86.3%	89.5%	93.2%	96.3%

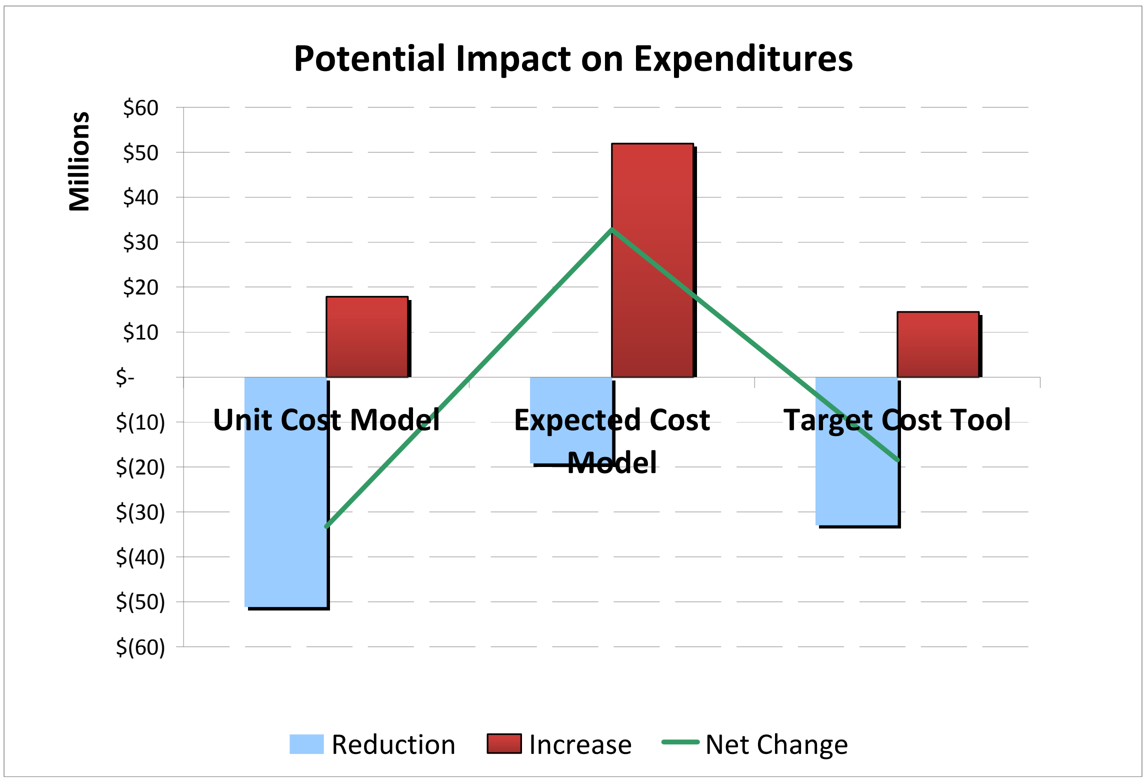
Comparison of Eastern and Western Regions



Impact on Non-High School Districts



The figure below shows the potential long-term impact of the two models and the Target Cost Tool on total statewide expenditures if compared as funding mechanisms. The underlying assumption is that each school district will adjust its expenditures to match its allocation. In other words, we assume that a school district that currently spends more than a model would allocate will reduce its expenditures to its allocation level and eliminate local contributions. The blue bars (the bar to the left in each set) show these reductions. Similarly, we assume that a school district that currently spends less than a model would allocate will increase its expenditures to its allocation level. The red bars (the bar to the right in each set) show these increases. The green line shows the net changes in expenditures.



Appendix D: Project Advisory Committee Members

Name	Title	School district / Organization
Jim Baker	Executive Director, Finance	Marysville School district
John Deeder	Superintendent	Evergreen School District
Harvey Erickson	Chief Financial Officer	Bethel School District
Karen Ernest	Superintendent	Mossyrock School District
Allan Jones	Director of Pupil Transportation	Office of Superintendent of Public Instruction
Mike Kenney	Regional Transportation Coordinator	ESD 101
Scott Logan	Transportation Supervisor	Lake Chelan School District / South Kitsap School District
Alta Micone	Transportation Director	Yakima School District
Randy Millhollen	Regional Transportation Coordinator	Puget Sound ESD
Jennifer Priddy/ Melissa Beard	Assistant Superintendent for Financial Resources / Senior Budget Analyst	Office of Superintendent of Public Instruction
Susan Silva	Head Dispatcher	Central Valley School District (Spokane)
Patty Warren	Senior Business Agent	Teamsters Local 174 (Laidlaw contract)

Appendix E: School Districts Using Public Transit

ESD	School district Name	Number of Transit Riders	Total Riders (including Yellow Bus)	Pct. Using Transit
113	ABERDEEN	26	957	3%
121	AUBURN	4	6,738	0%
121	BAINBRIDGE ISLAND	2	2,331	0%
121	BELLEVUE	2,444	6,369	38%
189	BELLINGHAM	91	3,830	2%
114	BREMERTON	23	2,286	1%
121	CLOVER PARK	42	5,709	1%
113	COSMOPOLIS	51	85	60%
189	EDMONDS	904	8,478	11%
189	EVERETT	43	7,743	1%
121	FEDERAL WAY	8	8,673	0%
121	FRANKLIN PIERCE	8	3,980	0%
121	HIGHLINE	51	5,823	1%
121	LAKE WASHINGTON	951	8,704	11%
189	MARYSVILLE	1	5,295	0%
121	MERCER ISLAND	559	2,224	25%
189	MUKILTEO	3	5,539	0%
112	OCEAN BEACH	4	706	1%
123	PASCO	176	4,668	4%
121	PENINSULA	10	5,634	0%
101	PULLMAN	536	982	55%
121	PUYALLUP	4	10,958	0%
114	QUILLAYUTE VALLEY	2	625	0%
113	QUINAULT	2	196	1%
123	RICHLAND	391	2,955	13%
121	SEATTLE	4,084	20,606	20%
189	SOUTH WHIDBEY	3	1,084	0%
101	SPOKANE	263	6,992	4%
121	TACOMA	570	8,402	7%
112	VANCOUVER	64	9,268	1%
123	WALLA WALLA	192	1,562	12%
101	WEST VALLEY	18	1,499	1%
105	YAKIMA	267	3,377	8%
	Total for School Districts Using Public Transit	11,797	164,278	7%