

# OFFICE OF SUPERINTENDENT OF PUBLIC INSTRUCTION K-12 SCHOOL ENROLLMENT PROJECTIONS STUDY

## Task Force Meeting – October 27, 2009 Summary of Analysis, Findings and Recommendations

### Legislative Proviso

The appropriation in this section is provided solely for OSPI to contract with a research organization to conduct an evaluation of the accuracy and reliability of the current method used for forecasting school district enrollment for determining eligibility for the school assistance program. This evaluation must also include a review of different methodologies used by school districts in projecting their enrollment for capital planning and budgeting purposes. A final report resulting from this evaluation must be submitted by January 1, 2009.

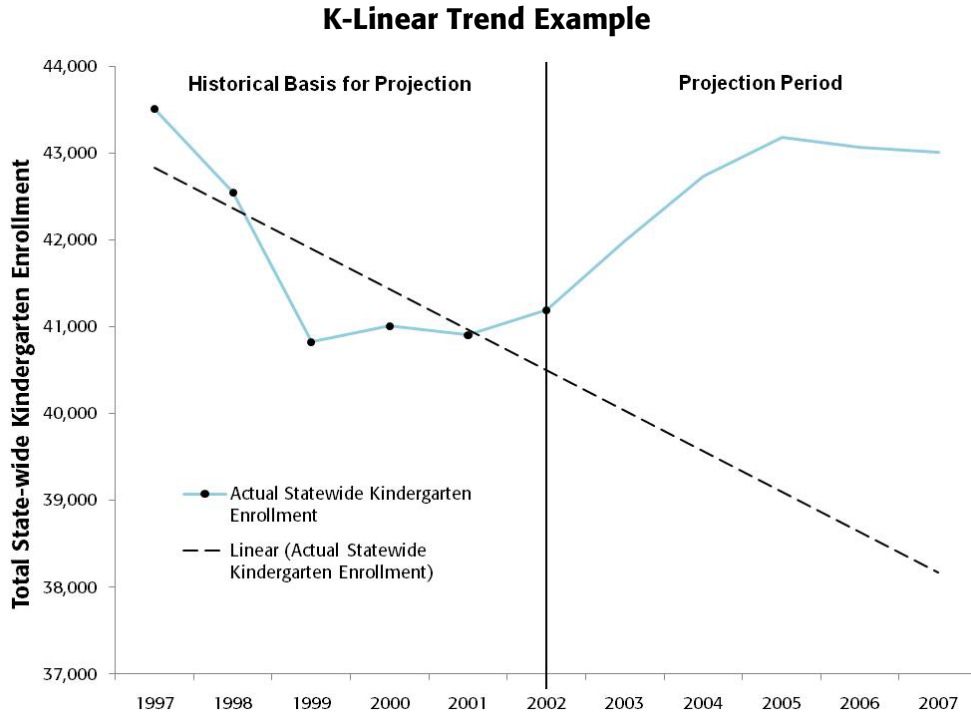
(Chapter 328, Laws of 2008, Section 5016, Enrollment Projections Evaluation Study)

### Methodology

1. Enrollment projection methods to test were identified based on conversations with school districts and other states in addition to a review of the 1990 *Report of Cohort Survival Enrollment Projection Refinement* and current industry practices.
2. Four different enrollment projection methodologies were tested:
  - OSPI's current method (K Linear Cohort Survival)
  - OSPI's current method with an adjustment to capture housing unit growth
  - Births-to-Kindergarten Cohort Survival
  - Births-to-Kindergarten Cohort Survival with an adjustment to capture housing unit growth
3. Within each of these four methods, 3 different methods for averaging grade progressions were tested.
4. The testing included using historical data to "project" enrollments for 2003-2007 for each school district in Washington and comparing results to actual enrollments during the same time period.
5. A comparative analysis evaluated results by district size and district growth rate.

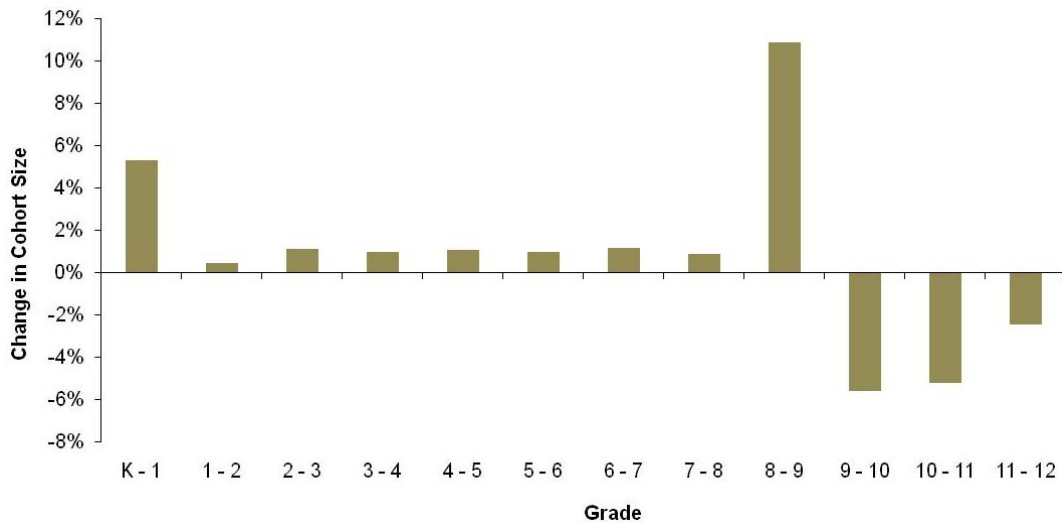
**OSPI Current Methodology for Enrollment Projections:  
 “K Linear Cohort Survival”**

1. **K Linear:** Kindergarten enrollments are projected using a 5-year historical trend:



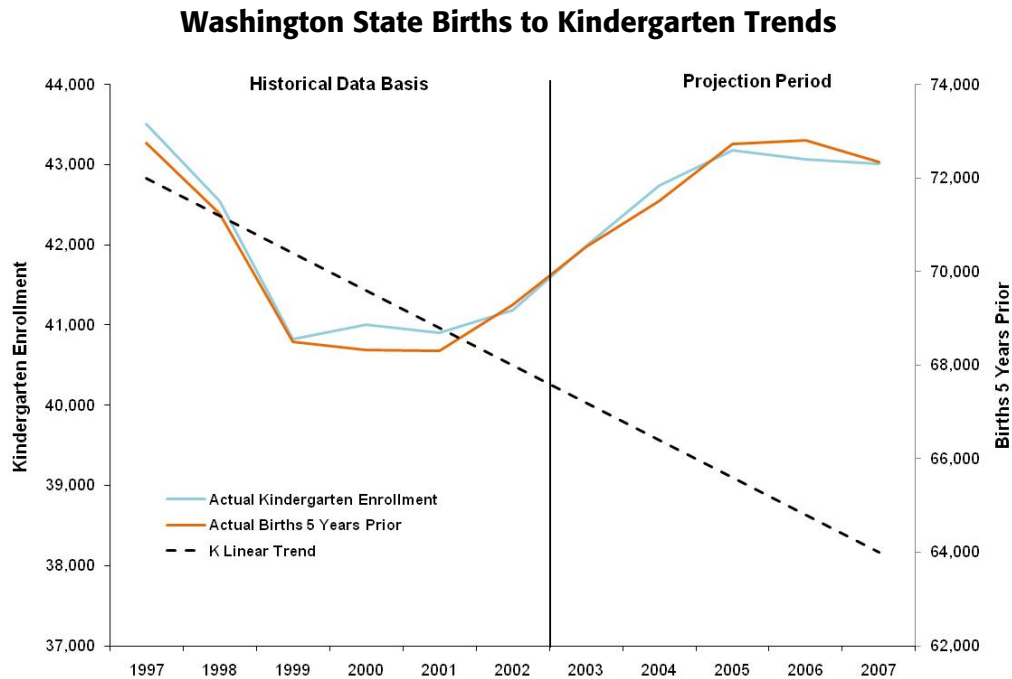
2. **Cohort Survival:** Grades 1-12 are projected assuming that this year’s kindergartners become next year’s first graders, this year’s first graders become next year’s second graders, and so on. The portion of the class (cohort) that “survives” into the next year is based on 5-year historical averages.

**Average Grade Progressions (2006-2007)**



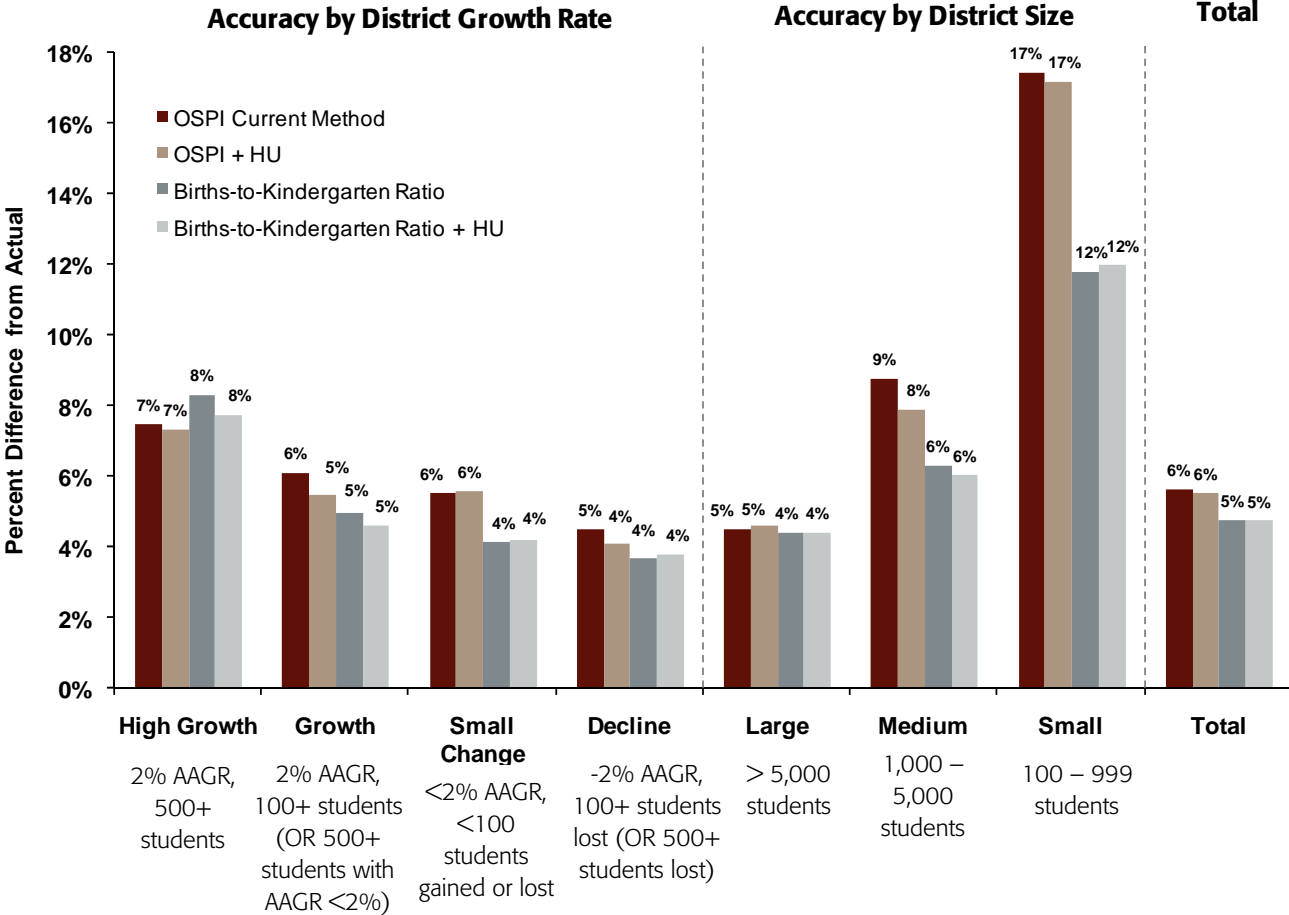
## Other Methods Tested

1. **Births to Kindergarten Ratio:** Kindergarten enrollments can be projected using the average ratio of births 5 years prior to current kindergarten enrollments.



2. **Housing Unit Adjustments:** If the projection period includes expected spikes or dips in housing development Relative to the historical period the projections are based upon, adjustments can be made to the cohorts through an additive process.

**Summary of Results by District Size and Growth Category**



District Growth	Number of Districts in	2007 Total Enrollments	Percent of Total
High Growth	10	82,695	8.2%
Growth	27	170,900	16.9%
Small Change	228	625,596	61.8%
Decline	16	93,448	9.2%
Strong Decline	3	39,976	3.9%
<b>Total</b>	<b>284</b>	<b>1,012,615</b>	

District Size Category	Number of Districts in	2007 Total Enrollments	Percent of Total
Large	60	759,515	75.0%
Medium	87	203,948	20.1%
Small	105	47,396	4.7%
Very Small	32	1,756	0.2%
<b>Total</b>	<b>284</b>	<b>1,012,615</b>	

## **Key Findings**

1. Projections using OSPI's current method were more accurate for larger districts than smaller districts.
2. OSPI's current method is more accurate in projecting short-term enrollment than long-term enrollment.
3. For large districts, even a low error rate at or below  $\pm 5\%$  is a large number of students. These students could mean a difference of several classrooms when planning for school facilities.
4. There are tradeoffs in time and accuracy between incorporating local knowledge and data and using a more straightforward method. Several school districts use their own econometric projection method, drawing upon local data sources, to get more accurate enrollment projections. For OSPI's purpose, these types of methods would be too time intensive, involving much data gathering and analysis.
5. The births-to-kindergarten method is more accurate at projecting kindergarten enrollment than the K linear method.
6. In most cases, the addition of a housing unit adjustment did not increase the projection's accuracy, though the high growth and growth categories did see small improvements in accuracy.
7. High online learning enrollments negatively affected the accuracy of projections. Given the recent set up of online learning programs, grade progressions based on historical inputs had not accounted for these enrollments.

## **Recommendations**

1. OSPI should consider using a Births-to-Kindergarten ratio instead of K Linear to project kindergarten enrollments
2. OSPI should consider giving districts that are expecting uncharacteristically high housing growth the option of including a housing unit adjustment
  - The district would have to provide data on new housing units by types (6 years of historical data and 5 years of projected data, approved by the relevant agency)
  - This adjustment adds complexity to the projection methodology for modest improvements
3. Given high error rates for small districts, enrollment projections should not be a direct input into the SCAGP formula for small districts
  - The small high school formula could be a model applied on a district-wide level for small districts
  - The State would need to determine appropriate square foot allocations for small districts
  - The *K-12 School Construction Funding Formula Transparency Study* includes a recommendation that the State commission a study to determine average square foot space needs by grade span, and recommended square foot allocations for small districts should be included as part of that study
4. For the purposes of SCAGP, OSPI should use district enrollment data that excludes online students