

Student Enrollment and Attendance

Income Research Paper

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CBO Mentor Project
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Executive Summary

In California, school districts receive public funding based on how many students attend. Enrollment and Average Daily Attendance (ADA) are both used for funding purposes.

Enrollment, as defined by the California Department of Education, is a count of the students enrolled in each school and district on a given day in October. Enrollment data is available at the school, district, county and state levels.

Average Daily Attendance (ADA) is the total number of days of student attendance divided by the total number of days in the regular school year. A student attending every school day would equal one ADA. ADA is the basis for a school district's revenue limit income. ADA is generally lower than enrollment due to transience, dropouts, and illnesses.

Before actual numbers of student enrollment and average daily attendance are counted and calculated, school administrators and policy makers require accurate and reliable estimates of future student populations in order to make informed decisions on such issues as adequate facilities, staffing, textbooks and other instructional materials, support services, and other operational costs. Decisions can also be made whether to build new schools or consolidate existing ones.

This report will cover the methodologies involved in enrollment projections, from which ADA projections can also be derived.

The role of the CBO is critical in this exercise. The CBO needs to know the various determinant factors related to projecting student enrollment.

CBO Leadership Role

The CBO must be able to guide his/her district in informed decision-making process relative to growth or decline in student enrollment and ADA projections. The CBO must employ forecasting methods to arrive at a reliable percentage of increase or decrease in student enrollment and average daily attendance. In districts experiencing enrollment growth, it is possible to recover from inaccurate enrollment projects. In districts experiencing enrollment decline, however, there is no margin for error in determining student enrollment and ADA projections.

Projections are based on assumptions. If any of the assumptions change, so, too, will the projections. The real goal in the forecasting process is to reduce the range of error and monitor the process over time so it can continually be improved.

Key factors in the reliability of projections are:

1. Migration in or out of the schools
2. Retention in the same grade
3. Changes in school program
4. Drop-outs, transfers, etc.
5. Birth rates
6. Residential housing starts
7. Influx or exit of special needs students

Based on these factors, the CBO can analyze the impact on the district and be able to advise the district's decision and policy makers which direction the district should take, all the while focusing on student achievement, growth and productivit

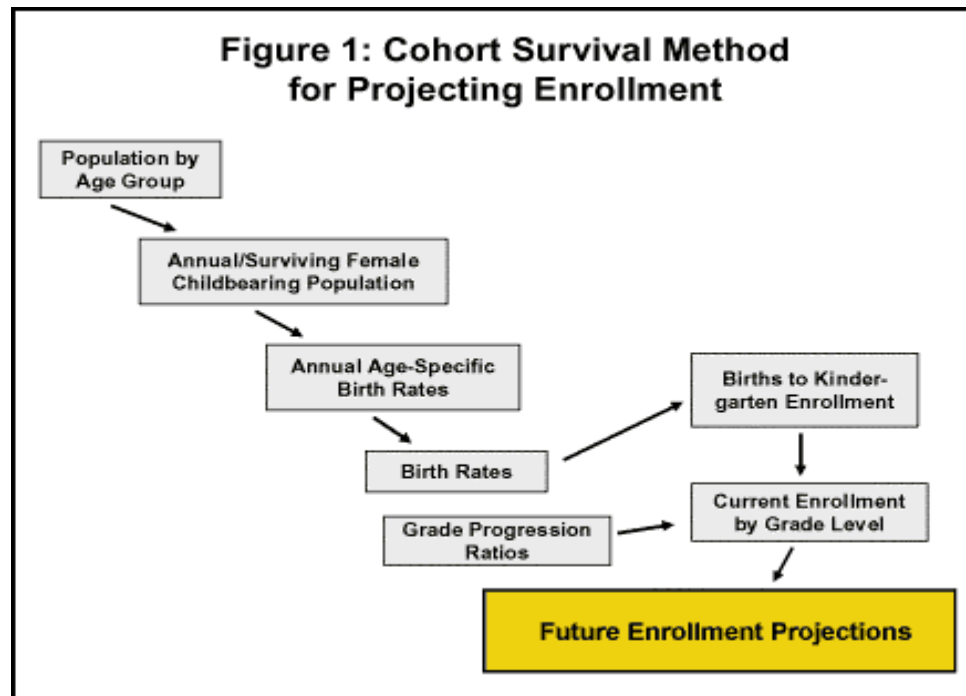
Methodologies

Cohort Survival Method:

The cohort survival technique is the most frequently used method of preparing school enrollment forecasts. The District should utilize this methodology but modify the technique, in order to move away from forecasts, which are wholly computer or formula driven. Such modification permits the incorporation of current district-specific information into the generation of the enrollment forecasts. The cohort method is basically the application of an average growth rate over time to the current year's enrollment. This growth rate can be taken from the previous year, or from an average of several previous years. The resulting ratio or growth is then applied to the current year's enrollment to project the next year's enrollment.

By its nature, the cohort-survival method captures the effects of changes in population, migration, new housing construction, birth rate, and other determinants of enrollment. This method relies on historical data to establish proper ratios and evaluation of other data, such as new housing permits and changes in population and household size.

The path to the Cohort Survival method for projecting enrollment:



Based upon a reasonable set of assumptions in regard to each of these factors, ratios must be indicative of present/future trends and are determined for each pair of grades or years. To project for the future, the ratios thus selected are applied to the present enrollment statistics for a predetermined number of years, say five years.

The reliability of the cohort-survival method is related to both the number of years one is projecting as well as the historical data. Projections covering five years or less tend to be more reliable than projections going out more than five years.

The cohort ratio calculation in the following example describes the progression of 6th graders to 7th grade on average over three years. The result is a forecast that is used as a baseline for the out-year forecasts for any desired number of years. The use of mixed cohorts may also be employed to adjust for differing growth rates within the district. The forecaster can adjust the number of years used to calculate the cohort ratio to adjust for current and expected economic conditions and produce better results for forecasting.

Grade	2003	2004	2005	2006	Cohort Ratio	Forecasted 2007
6 th	3,782	3,790	3,892	3,888		
7 th	N/A	3,857	3,830	3,957	1.0139	3,949

$$1. \text{ Cohort Ratio} = (7^{\text{th}}_{2004} + 7^{\text{th}}_{2005} + 7^{\text{th}}_{2006}) / (6^{\text{th}}_{2003} + 6^{\text{th}}_{2004} + 6^{\text{th}}_{2005})$$

7^{th}_{2006} indicates 7th grade cohort of 2006.

$$2. \text{ Cohort Ratio} = (3,857+3,830+3,957) / (3,782+3,790+3,892) = 1.0157$$

$$3. \text{ Forecasted 2007 7}^{\text{th}} \text{ Grade Cohort} = 3,888 \times 1.0157 = 3,9499$$

Other Variations of the Cohort Method:

Following samples are courtesy of Fiscal Crisis Management Team.

1. Sample spreadsheet for enrollment forecast for Oakland Unified School District adjusted by retention rates. Poor academic progress is a critical factor in a district like Oakland when predicting future enrollment.
2. a) Sample spreadsheet for West Fresno Elementary School District adjusted by birth rates due to growing Kindergarten student population.
b) CBEDS enrollment.
3. Sample analysis performed by FCMAT for Alameda Unified School District and adjusted by cohort analysis.
4. Generation Factor: Students generated by future residential development taken from a justification study – Developer Fee Report.

FY04 ACTUAL ENROLLMENT AT END OF FIRST SCHOOL MONTH AS OF Sept 2003
 ENROLLMENT PROJECTIONS (COHORT METHOD) - Includes proposed retention data for FY05

First School Month 9/26/03

DRAFT

Retentions not known yet-FY03 projections used

Grade	ACTUAL Enrollment at End of First School Month					AVERAGE CHANGE		Projected Enrollment				
	99-00#	00-01##	01-02	02-03	03-04			04-05	05-06	06-07	07-08	08-09
K	7,541	7,393	6,973	6,805	6,607	0.968	K	6,396	6,191	5,993	5,801	5,615
1	7,890	7,899	7,781	7,572	7,421	1.077	1	7,466	6,888	6,668	6,454	6,248
2	7,916	7,811	7,606	7,399	7,236	0.959	2	6,767	7,160	6,606	6,395	6,189
3	7,973	8,211	8,001	7,741	7,557	1.022	3	7,695	6,916	7,318	6,751	6,536
4	7,606	7,548	7,809	7,579	7,502	0.957	4	6,932	7,364	6,619	7,003	6,461
5	7,045	7,849	7,623	7,766	7,663	1.008	5	7,762	6,987	7,423	6,672	7,059
Gr. K-5	45,971	46,711	45,793	44,862	43,986		Subtotal	43,018	41,506	40,627	39,076	38,108
6	6,817	6,750	7,484	7,473	7,503	0.973	6	7,256	7,552	6,798	7,223	6,492
7	6,554	6,851	6,771	7,547	7,439	1.002	7	7,518	7,271	7,567	6,812	7,237
8	6,515	6,768	6,712	6,607	7,342	0.981	8	7,298	7,375	7,133	7,423	6,683
Gr.6-8	19,886	20,369	20,967	21,627	22,284		Subtotal	22,072	22,198	21,498	21,458	20,412
9	6,344	6,609	6,919	7,125	6,956	1.045	9	7,672	7,626	7,707	7,454	7,757
10	5,775	6,140	6,415	6,729	6,955	0.973	10	6,768	7,465	7,420	7,499	7,253
11	5,031	5,466	5,793	5,869	6,165	0.924	11	6,426	6,254	6,898	6,856	6,929
12	4,673	4,662	4,988	5,264	5,277	0.907	12	5,592	5,828	5,672	6,256	6,218
Gr. 9-12	21,823	22,877	24,115	24,987	25,353		Subtotal	26,458	27,173	27,697	28,065	28,157
Total K-12	87,680	89,957	90,875	91,476	91,623		Total K-12	91,548	90,877	89,822	88,599	86,677
Special Ed	2,034	1,995	2,037	2,079	2,157	1.015	Special Ed	2,189	2,222	2,255	2,289	2,323
Other * **	1,992	1,702	1,671	1,508	1,719	0.970	Other * **	1,667	1,617	1,568	1,521	1,475
Total S.E./Oth	4,026	3,697	3,708	3,587	3,876		Total S.E./Oth	3,856	3,839	3,823	3,810	3,798
Total	91,706	93,654	94,583	95,063	95,499	1.010	Total	95,404	94,716	93,645	92,409	90,475
Net Change		1,948	929	480	436		Net Change	(95)	(688)	(1,071)	(1,236)	(1,934)
%age Inc/(Decr) from prior year		2.12%	0.99%	0.51%	0.46%			-0.10%	-0.72%	-1.13%	-1.32%	-2.09%

Revised 11/23/99 due to SASI Reporting correction.

20th Day enrollment data for FY01 only.

* INCLUDES EPHS, CAMS, Options for Youth, ISP, Opportunity, PG Minors, Home Hospital, ASWP, Shelter, Spec'l Ed Transition; Block Grant funded Charter Schools not included

**OPTIONS FOR YOUTH NOT LBUSD CHARTER IN FY 2000

Note: Emerson Elementary converted to a Charter School in FY02

Per C. Steinhauser, 11/14/01:

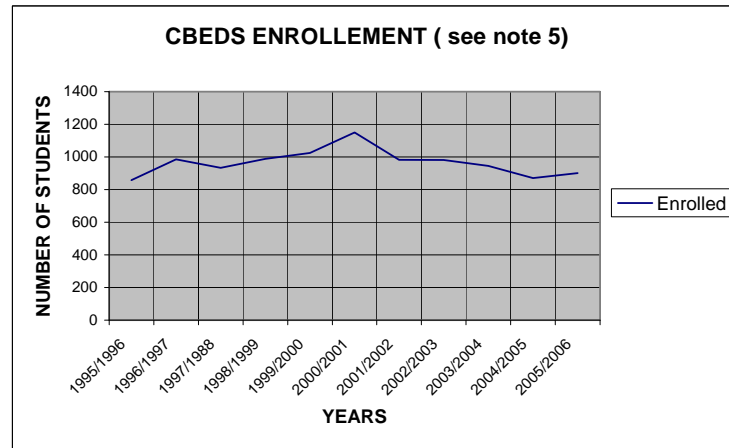
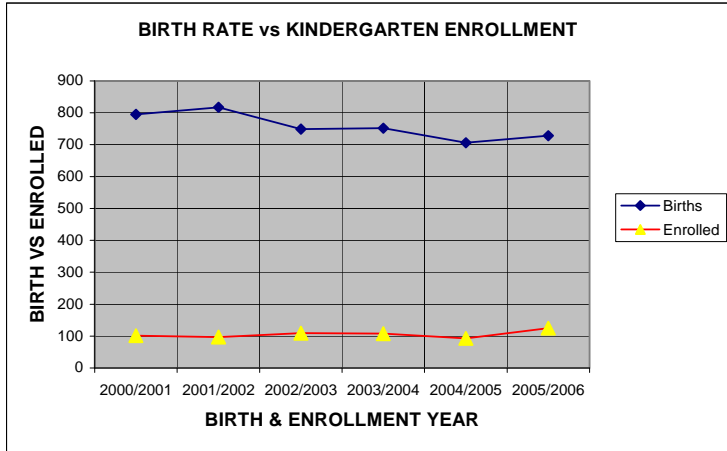
Proposed Retentions:	Gr.1: +350	Gr.3: +300	Gr.5: +200
	Gr.2: (350)	Gr.4: (300)	Gr.6: (200)
Adj made to Gr. 1,2,3,4,5,6 due to proposed retentions in FY03.			
Estimate for 8th gr. retention not included.			

1062174 - WEST FRESNO ELEMENTARY SCHOOL DISTRICT

TEN YEAR ENROLLMENT, CBEDS, P-1,P-2, BIRTHRATE DATA, & THREE YEAR PROJECTIONS

SOURCE/YEAR	1995/1996	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	-----Projections----->		
	2005/2006	2006/2007	2007/2008	2008/2009										
CBEDS ENROLL. ^(note 3)	858	985	933	987	1024	1149	982	981	945	871	901			
P-1/CBEDS Enrollment	No Data	No Data	No Data	No Data	93.0%	86.0%	97.9%	93.9%	95.2%	92.5%	93.1%			
P-1 ^(note 2)	No Data	No Data	No Data	No Data	951.84	988.57	961.54	921.49	899.77	805.8	838.78			
P-2 ^(note 2)	No Data	No Data	No Data	No Data	954.00	982.52	950.58	927.25	893.58	794.87	834.65			
P-2/CBEDS Enrollment.	No Data	No Data	No Data	No Data	93.2%	85.5%	96.8%	94.5%	94.6%	91.3%	92.6%			
P-1/p-2 DIFF.	No Data	No Data	No Data	No Data	2.16	-6.05	-10.96	5.76	-6.19	-10.93	-4.14			

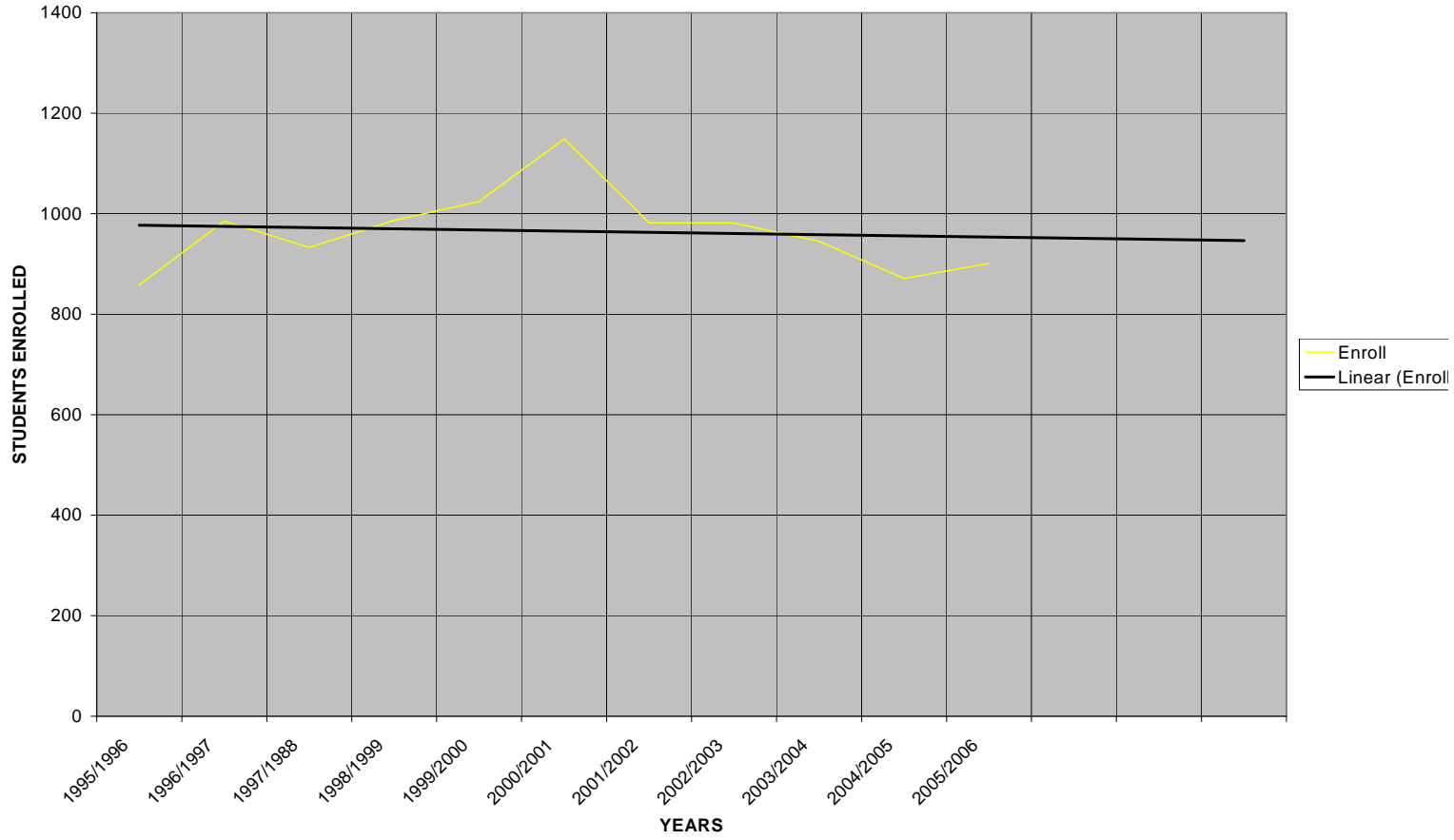
	1995/1996	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
BIRTHRATE ^(see note 1)	795	817	749	752	706	795	817	749	752	706	728
Kindergarten											
CBEDS Enrollment ^(note 4)	125	115	100	120	104	101	97	109	108	93	125



NOTES:

- 1) Birth Rates for Zip Code 93706 for 1996/1996 thru 1999/2000. This Birth Rate generates the Enrollment for 2000/2001 through 2005/2006
- 2) Relevant data for each of the year from 1995 to 1999 is not readily available.
- 3) Source CBEDS DATA from CDE :
- 4) Source CBEDS DATA from CDE :
- 5) CBEDS ENROLLEMENT CHART & regression MODEL. The calculated $R^{(2)}$ is very small suggesting that the MODEL is not a strong predictor of future enrollment. Data suggest that enrollment is declining

CBEDS ENROLLMENT



A critical component of the Multi-Year Financial Projection analysis is to determine the geographical growth potential of the district and analyze any grade fluctuations in student enrollment. This information provides a link for establishing projections for Average Daily Attendance (ADA).

Enrollment projections utilizing a modified cohort survival method based upon available data can also provide the basis for student enrollment projections utilized in the Multi-Year Financial Projections. A summary of the enrollment projections (provided by FCMAT for the Alameda Unified School District) are presented below:

CBEDS ENROLLMENT FORECAST								
FISCAL YEAR	CBEDS	P-2 ADA *	Actual ADA	CBEDS & Actual ADA Difference	% DIFFERENCE	Increase Between Actual P-2 Periods	CBEDS increase between years	
02/03	10,615	9,946	9,946	(669)	-6.30%			
03/04	10,621	9,938	9,938	(683)	-6.43%	(8)	6	
04/05	10,454	9,756	9,756	(698)	-6.68%	(182)	(167)	
05/06	10,160	9,503	9,503	(657)	-6.47%	(253)	(294)	
Avg. Totals	10,463	9,786	9,786	(683)	-6.47%	(148)	(152)	
06-07 CBEDS	1,331			Average increases (decrease) between CBEDS Periods:			(152)	

This report projects the number of students that will be generated by new single and multi-family housing units based on information provided by the Santa Maria Joint Union High School District and the City of Santa Maria. A total of 3,022 SFD units in the District meet the criteria referenced above. The student generation factor utilized for this study reflects the March 11, 2005 SGR data provided by the District.

Table 1

School Level	Student Generation Rates
9-12 General Ed	0.198
9-12 SDC	0.006
9-12 Severe	0.002
Total SGR	0.206

Students Generated by Future Residential Development

Information provided by the City of Santa Maria Planning Department indicates 3,022 residential dwelling units will be constructed in the District over the next five years as compared to 3,973 in the previous year. (See Appendix B Major Residential Project List) This data represents information obtained from the City of Santa Maria and is independent of residential development reported to the State on SAB Form 50-01.

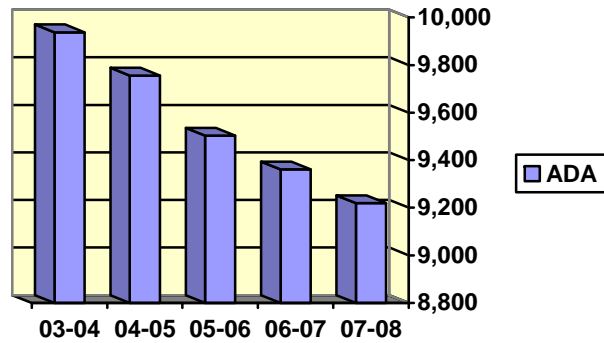
Table 2

Students Generated by Future Residential Development			
Grade Level	Student Generation Rate	New Residential Units	Total Students
Single Family	0.198	3,022	598.36
SDC Non Severe	0.006	3,022	18.13
SDC Severe	0.002	3,022	6.04
Total	0.206	3,022	622.53

Average Daily Attendance:

For purposes of calculating the district’s revenue limit, district apportionments are based on the greater of current or prior year second period report (P-2) for Average Daily Attendance. Due to the historical and projected future trends of the district, this Multi-Year Financial Projection will utilize the prior year ADA to model the forecast. The following chart depicts the district’s historical decline in Average Daily Attendance:

In order for the district to manage and sustain the recommended Reserves for Economic Uncertainties, a significant amount of attention will need to be focused in this projection regarding ADA. The projection for ADA is only a snapshot in time for the future years and should be adjusted with each monthly report and all interim reports. Historical and future trends require careful analysis which includes but is not limited to charter schools, community day school (new), county and district special education, non public schools, and prior year adjustments.



03/04 Actual		9,938
04/05 Actual:		9,756
05/06 Projection:		9,503
06/07 Projection:		9,361
07/08 Projection:		9,219

How ADA (Average Daily Attendance) Generate Revenue for the District:

Student #1 has perfect attendance, calculated this way:
142 days attended / 142 days of school taught = 1.0 ADA

Student #2 attended 136 of the 142 days taught, calculated this way:
136 days attended / 142 days of school taught = .96 ADA

A student, with perfect attendance, generates the full revenue limit per ADA rate, for example \$5,912 (as determined by the Revenue Limit calculations).

Student #1: 1.0 ADA x \$5,912 = \$5,912.00

Student #2: .96 ADA x \$5,912 = \$5,675.52, a loss of \$236.48 in possible revenue

If all students attended daily, a district with 2,000 students enrolled would have all 2,000 counted toward ADA. When ADA drops, revenue dips accordingly.

Perfect attendance: 2,000 x \$5,912 = \$11,824,000
Estimated ADA @ 9.59% 1,918 x \$5,912 = \$11,339,216

Student absences affect school budgets. Schools and school districts get a significant amount of their funding based on actual ADA. Potential losses in ADA revenue lead to budget cuts affecting a variety of programs, as well as individual schools.

Schools and school districts should develop sound and reasonable strategies for increasing student attendance by first identifying the reasons why their students do not attend school. Then they can target specific areas and develop support for students so that they will be more likely to remain in school.

Sources:

Anthony Bridges, Fiscal Crisis Management Team: Sample Spreadsheets

School Attendance Review Board

Paul Goldfinger, "Revenue Limit", School Services of California, Inc. 2003