# Year-Round School Incentive Programs

## *An Evaluation*

Legislative Analyst's Office
April 1990

# Table of Contents

Introduction ..... 1

Executive Summary ..... 3

Chapter I
Description of State Year-Round Incentive Programs ..... 7

Chapter II
Criteria for Evaluating Year-Round Incentive Programs ..... 11

Chapter III
Evaluation of Existing Year-Round Incentive Programs ..... 13

Chapter IV
An Alternative Method of Providing Incentive Payments ..... 19

Chapter V
Summary of Findings and Recommendations ..... 23

Appendix A
Glossary of Terms Used in Report ..... 25

Appendix B
Members: Year-Round Incentive Payments Advisory Committee ..... 27

Appendix C
"Year-Round Schools"
Reprinted from The 1989-90 Budget: Perspectives and Issues ..... 29

Appendix D
Costs of Building a New School Compared to Costs of Providing
Year-Round Incentive Payments Under the SB 327 Program ..... 37

Appendix E
Economic Analysis: Practical Method for Determining the
Optimal Level of Incentive Payment ..... 41

# Introduction

This report is submitted pursuant to Chapter 886, Statutes of 1986 (SB 327, Leroy Greene).

Chapter 886, the Greene-Hughes School Facilities Act of 1986, made numerous changes and additions to the state's school facilities aid program. One such provision established a financial incentive payment program for qualified school districts operating year-round schools because of overcrowding. This program was in addition to a separate year-round incentive program established in 1984-85 by Chapter 498, Statutes of 1983 (SB 813, Hart). Chapter 886 also requires the Legislative Analyst to report to the Legislature regarding the value of year-round education incentive funding pursuant to this act in reducing the need for school facility construction.

Because of significant similarities between the incentive programs provided for in Chapters 498 and 886, we treat both programs together in this review. In particular, both programs (1) require, as a condition of eligibility, that a school district be sufficiently overcrowded to otherwise qualify for state school construction aid and (2) provide general-purpose aid (in the form of incentive payments) in return for accommodating additional pupils through the use of multitrack year-round schedules. As a result, both programs provide incentive payments to virtually the same group of school districts.

The first chapter of this report contains a brief description of year-round education and describes the state's current involvement in providing financial incentives to school districts to operate year-round education programs. Chapter II presents our criteria for evaluating such incentive payment programs, and Chapter III evaluates the existing programs based on these criteria. Based on this evaluation, we conclude that the existing year-round incentive programs are of little or no value in serving the state's interest in promoting year-round schools as an alternative to constructing new facilities. Consequently, we recommend that the Legislature repeal the existing programs.

Recognizing that the Legislature may, nevertheless, wish to continue to provide some form of year-round incentives, Chapter IV describes the major features that an alternative incentive payment program should include, in order to better meet the criteria identified in Chapter II. Chapter V summarizes our findings and recommendations.

In addition to Chapter 886, The Supplemental Report of the 1989 Budget Act directed the Legislative Analyst to convene an advisory group to provide advice and assistance in determining the effectiveness of the current year-round incentive payment programs. This supplemental language provided for the membership of the advisory committee to include, at a minimum, representatives from: (1) the State Department of Education, (2) the Office of Local Assistance in the Department of General Services, (3) the Department of Finance, and (4) the National Association for Year-Round Education, including a public school governing board member, a public school administrator, and a public school teacher.

This advisory committee met five times between July 1989 and October 1989. Individual members are identified in Appendix B.

We would like to acknowledge and thank the members of the advisory committee for the valuable assistance they provided us. The

conclusions and recommendations contained in this report, however, are solely those of the Legislative Analyst, and are not necessarily endorsed by the advisory committee or the agencies whose cooperation facilitated the report's completion.

This report was prepared by Nancy Rose Anton under the supervision of Ray Reinhard. Jon David Vasche provided valuable comments regarding the economics of incentive payments. Secretarial services were provided by Maria Ponce, and the report was formatted for publication by Kathy Van Dort.

# Executive Summary

## Program Description

- California provides year-round school incentive funds through two separate programs—"SB 813" and "SB 327"—to encourage school districts to operate year-round education programs as an alternative to constructing new school facilities. To qualify for these incentive funds, school districts must (1) be eligible to participate in the State School Building Lease-Purchase program and (2) accommodate overcrowding through the use of year-round schools.
- The SB 813 and SB 327 programs share several features in common, including (1) providing funding only for year-round schools that are operated on a "multitrack" basis; (2) designating the incentive funding as general-purpose aid, which may be spent for any purpose the district chooses; and (3) allowing school districts to remain "in line" for state-financed new schools, while receiving the incentive funds.
- The SB 813 program, which began in 1984-85, provides a flat rate payment of $25 per pupil, for every pupil attending an eligible year-round school. In addition to this $25 payment, the SB 327 program, which began in 1987-88, provides a variable rate payment of up to $125 (as adjusted annually for inflation), for every such pupil. The SB 327 payments are intended to share with the affected school district the state's "savings" resulting from avoiding the costs of constructing a new school.
- In 1988-89, the state provided a total of $34.8 million ($30 million from the State School Building Lease-Purchase Fund and $4.8 million from the General Fund) to fund both the SB 327 and SB 813 programs. These funds were provided to 31 school districts for an estimated 272,000 students that were attending eligible year-round schools. In the current year (1989-90), $43 million has been made available to fund these two programs ($35.7 million from the General Fund and $7.3 million from the Lease-Purchase Fund).

## The State's Interest in Year-Round Schools

- We find that the state's *primary* interest in year-round education is its potential for reducing school districts' demands for limited state resources to construct new school facilities.
- Other reasons why the state might be interested in promoting year-round education, besides its potential to reduce the need for new funds for school facility construction, either have not been conclusively established or are not strongly enough in the state's interest to merit the provision of financial incentives.

## Criteria for Evaluating Year-Round School Incentive Programs

- *Primary Criterion: Maximizing The State's Net Cost Avoidance.* Our review indicates that, given the potential for year-round school programs to reduce the demand for school facilities aid funds, the state's *primary* goal in providing incentive payments should be to maximize

the net amount of the state's cost avoidance from not having to construct new facilities. *Net cost avoidance* or "net savings" means the amount of costs avoided by not constructing a new school facility (the "gross" cost avoidance or "savings"), *less* the costs of providing year-round school incentive payments.

- ***Secondary Criterion: Simplicity.*** Our review indicates that a secondary, though also desirable, feature in a year-round school incentive program is *simplicity*—from the perspectives of both the state and the participating districts. The goal of simplicity, however, may sometimes conflict with the primary criterion of maximizing the net amount of the state's cost avoidance. For this reason, we believe that simplicity alone should not compensate for a formula's failure to maximize the state's "net savings."

## Evaluation of Existing Year-Round Incentive Programs

- ***Primary Criterion.*** Our review indicates that the SB 327 and SB 813 programs fail to maximize the amount of the net state cost avoidance, for three reasons:
  - ***First,*** for most school districts, the combined level of incentives provides *more than 100 percent* of the state's cost avoidance, thereby resulting in *no net savings* that the state could use to meet other districts' pressing school construction needs. The only possible exception to this general conclusion may occur for school districts that have extraordinarily high land costs (such as Los Angeles Unified). In such cases, the $125 "cap" in the SB 327 program may serve to limit the amount of the incentive payment.
  - ***Second,*** even in school districts with high land costs and/or high percentages of excess pupils accommodated, the state *still may realize no net savings.* This is because:
    - The SB 327 incentive payment formula overpays school districts for land costs relative to the actual costs which would have been incurred under the state building program.
    - As currently designed, the programs may function as a subsidy for a district while waiting in line for new construction funds, rather than as an alternative to new construction. *To the extent that a district receives both the incentive payments and a new facility, the state clearly realizes no savings at all.*
  - ***Third,*** there is little evidence that the existing incentive programs have had any discernible impact in increasing the total number of pupils on multi-track year-round schedules statewide beyond levels that would have occurred in the programs' absence. *Instead, what appears to motivate school districts to implement year-round programs is their recognition that funding provided through the State School Building Lease-Purchase program will not become available quickly enough to meet pressing needs for additional capacity.*
- Judging by the criteria identified above, we conclude that the existing incentive programs have *little or no effect* in promoting the state's primary interest in year-round education, which is to maximize the amount of the state's net costs avoided by reducing demand for state-financed school construction.

## Recommendations

- ***We recommend that the Legislature repeal the existing year-round school incentive programs.*** Our review indicates that the SB 327 and the SB 813 programs could be eliminated, with very little impact on the total number of pupils attending year-round schools. The Legislature could then use the associated funding for other, higher priority purposes within K-14 education.

- We recognize, however, that the Legislature may wish to continue to provide some form of year-round school incentives to the extent that *some* school districts may respond by increasing the numbers of pupils attending year-round schools. If the Legislature wishes to continue to provide incentive payments using a uniform percentage of savings method, we recommend that the Legislature enact an alternative program of incentives which includes *all* of the following features:
  - Provide school districts with no more than 50 percent of the state's "savings."
  - Reflect district-specific land and construction costs, as provided for in the State School Building Lease-Purchase program.
  - Include safeguards to ensure that incentives are an alternative to new school construction, rather than a subsidy while waiting in line for a state-financed school. These features assume the continuation of existing practices for financing new construction through the Lease-Purchase program. To the extent that the Lease-Purchase program changes, these features would probably also change.

# Chapter I
# Description of State Year-Round Incentive Programs

## Year-Round Schools

Year-round education is an alternative schedule for learning that reorganizes the academic calendar so that instructional blocks and vacation periods are evenly distributed across a 12-month calendar. Year- round education is not an alternative curriculum for learning. Students attending a year-round school attend the same types of classes and receive the same amount of instruction—generally 180 days per academic year—as students attending traditional nine-month calendar schools.

In general, there are three reasons why school districts may choose to adopt year-round calendars. These are:

- To increase school facilities capacity;
- To attempt to improve academic achievement; and/or
- To accommodate parental and teacher preferences for an alternative calendar offering shorter, but more frequent, vacations.

Year-round schools can be operated on either a "single-track" or "multitrack" basis; however, *it is only when the multitrack format is implemented that the enrollment capacity of a school can be increased and corresponding facility-related costs reduced.* A single-track system provides for the entire school population (that is, all students and teachers) to follow the same calendar with the same vacation periods. This means that all students and teachers are either in school or on vacation at the same time. On a multitrack system, however, students and their teachers are grouped into different tracks, with staggered instructional blocks and vacation periods. While one track is on vacation, another track is using its space, thereby allowing for an increase in the enrollment capacity of the school.

Because the existing state incentive programs provide payment only for schools that have increased their enrollment capacity (that is, those that operate on a multitrack basis), for purposes of this report, the term "year-round"—unless otherwise indicated—will refer exclusively to multitrack programs. (For further information regarding the mechanics of year-round school operations, as well as the advantages and disadvantages of year-round education, please see Appendix C of this report, which is reprinted from our publication *The 1989-90 Budget: Perspectives and Issues.)*

## Current Year-Round Incentive Programs

Through the State School Building Lease-Purchase program, the state provides funds to school districts for the construction of new, or the modernization of existing, school buildings. In order to receive these funds, an eligible school district is required to:

- ***Contribute a Specified Local Match.*** This match is based on the amount that the school district could raise if it imposed the maximum level of developer fees, authorized by current law, for a specified time period. (Statewide, the amount of the local match constitutes about 5 percent of total costs to acquire a new facility.) The state funds the balance of the costs of acquiring land and constructing the facility, and rents it to the district for a minimal fee (usually $1 per year) under a long-term, lease-purchase agreement.

- *Meet a Minimum Threshold of Overcrowding.* A school district generally must accommodate 10 percent more students than it has the capacity to accommodate on a traditional nine-month calendar—as measured by existing state standards—in order to be eligible for lease-purchase funds.[1]

Currently, school districts are eligible to receive year-round incentive funds if they (1) are eligible to participate in the Lease-Purchase program and (2) mitigate overcrowding through the use of year-round schools. The purpose of the incentive payments is to encourage school districts to operate year-round education programs as an alternative to using state funds to construct new school facilities under the State School Building Lease-Purchase program. The incentive funds are provided through two different programs—"SB 813" and "SB 327"—each authorized under a separate statute.

The SB 813 and the SB 327 programs share several features in common. Specifically, they both:

- Provide incentive funding only for year-round schools that are operated on a multitrack basis;
- Provide the incentive funding as general-purpose aid, which may be spent for any purpose the district chooses; and
- Allow school districts to remain "in line" for state aid to construct new facilities to accommodate these pupils, while they receive the incentive funds.

Specific details of each program are as follows:

**Senate Bill 813 (Ch 498/83).** Among numerous other provisions related to education finance and reform, SB 813 (Hart) authorizes a flat rate incentive payment of $25 per pupil, for every pupil in an eligible school which is operated on a year-round basis because of overcrowding. In 1988-89, the fifth year of program operations, the SB 813 program provided $6.7 million in payments to school districts.

**Senate Bill 327 (Ch 886/86).** The SB 327 (Leroy Greene) program authorizes a sliding scale incentive payment of up to $125 (adjusted annually for inflation), *in addition to the $25 payment provided by SB 813,* for every pupil in an eligible school which is operated on a year-round basis because of overcrowding. The exact per-pupil amount varies among districts and is based on a complicated formula that generally reflects both (1) the amount it would have cost the state to acquire a site and construct a new school of sufficient size to house the excess students accommodated through year-round operations and (2) the extent to which the district succeeds in increasing its enrollment capacity to a target level of 15 percent more students than its traditional (nine-month calendar) capacity. In 1988-89, the second year of program operations, the SB 327 program provided $28.1 million in payments to school districts.

The additional incentive payments available under the SB 327 program are intended to share with the affected school district the state's "savings" resulting from avoiding the costs of constructing a new school. Under the terms of the law (as amended by the annual Budget Act), districts meeting the 15 percent target may annually receive incentive funding equal to *5 percent* of the amount it would cost the state (in total, excluding interest costs) to purchase a site and construct a school of sufficient size to serve the excess students accommodated through year-round education. The incentive payment is capped at a maximum of $125 per pupil (as annually adjusted for inflation). The total amount of funding provided to a district under this program is reduced more-than-proportionally if it fails to meet the target level of 15 percent excess capacity accommodated, and is increased proportionally (paralleling the state's savings) if it exceeds this level.

Because the SB 327 incentive amount is recalculated annually, based on the prevailing cost of construction and land acquisition, the amount of the incentive funds provided keeps pace with inflationary increases in these costs. As

[1] In addition to the Lease-Purchase program, the state operates a number of other school facilities aid programs, including the State School Deferred Maintenance Program, The School Facilities Asbestos Abatement Program and the Emergency Portable Classroom Program.

noted, however, the law provides that in no case shall the total amount of the incentive payment per pupil attending the eligible year-round schools exceed $125, increased annually for inflation based on a specified cost of construction index; in the current year the "cap" is $131.

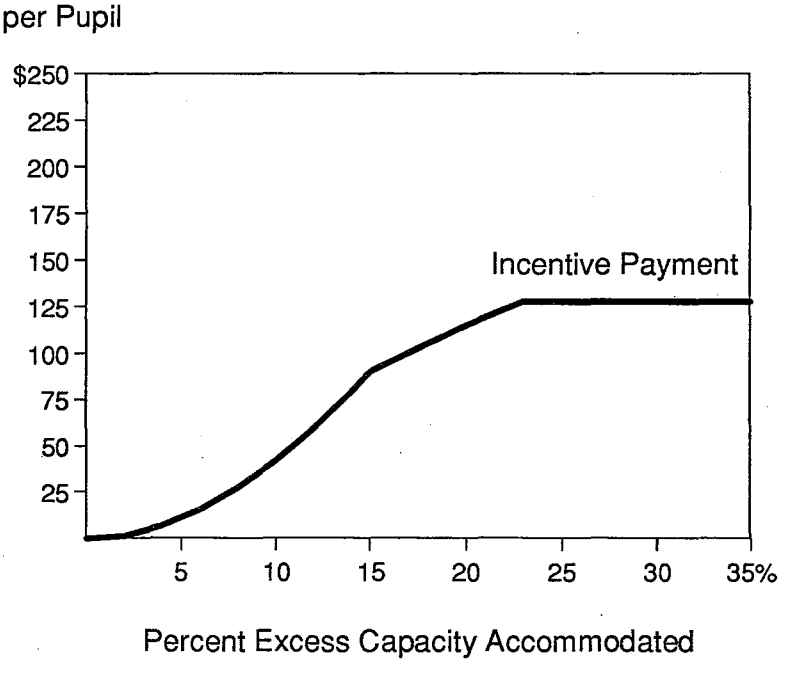
Chart 1 shows how the amount of per-pupil incentive payment provided under the SB 327 program varies, depending on the percentage of pupils accommodated through year-round operations, in excess of "traditional" (nine-month) facilities capacity. (The specific example shown is for a hypothetical school district, with land costs of $250,000 per acre.)

As the chart shows, if this district uses year-round education to accommodate 5 percent or fewer additional pupils, then the SB 327 program provides a very low level—about $10 or less—of annual incentive payment per pupil. However, as a district accommodates an increasing percentage of excess capacity up to 15 percent, the level of per-pupil payment increases significantly. In this particular case, the incentive payment reaches a level of approximately $90 per pupil annually at 15 percent excess capacity accommodated. Although further increases (beyond 15 percent) in the percentage of excess capacity accommodated result in additional increases in the incentive payment, these increases are not as great as in the zero percent to 15 percent range. Finally, the chart shows that the level of per-pupil incentive payment may not exceed the overall "cap" of $125 (as adjusted for inflation).

Thus, the SB 327 program appears to have been intended to provide school districts with an incentive to accommodate at least 15 percent excess capacity through the use of year-round education; more modest incentives beyond the 15 percent level are provided in order to continue increasing the percentage of excess pupils served. The effect of these incentives, however, may be significantly weakened by the impact of the overall $125 cap. (Though not evident from Chart 1, the percentage at which the cap becomes operative varies depending on the level of land costs; the higher the cost of land in a district, the lower is the percentage of excess capacity at which the cap takes effect.)

**Chart 1**

**Relationship Between SB 327 Incentive Payment and Level of Excess Capacity Accommodated**



## Funding History

Table 1 displays the participation and funding history for both the SB 813 and the SB 327 programs, since the inception of each.

The table shows that, since the inception of the first incentive payment program in 1984, the state has provided a total of approximately $119 million in year-round incentive payments. Of this amount, $78.1 million was from tidelands oil revenues within the State School Building Lease-Purchase (SSBLP) Fund; the remaining $40.5 million was appropriated from the General Fund.

Table 1 also shows that, on an annual basis, the SB 327 program has cost about four times as much as the SB 813 program. Finally, the table shows that, with the exception of one small decline between 1984-85 and 1985-86, the number of districts participating in each of these programs has steadily increased.

Although current law requires that $150 million in tidelands oil revenues be appropriated annually through 1990-91 for school facilities programs, the Legislature has waived this statutory provision every year since 1986-87, due to shortfalls in the actual level of such revenues. Because past appropriations of tidelands oil revenues within the SSBLP Fund have been exhausted and projections indicate that revenues will continue to fall short of the level needed to result in allocations for school facilities, it is likely that any future funding for the incentive program would be provided entirely from the General Fund.

**Table 1**

**History of Year-Round Incentive Programs**

**1984-85 through 1989-90**

**(dollars in millions)**

| Year | Program | | | | | | Total State Cost |
|---|---|---|---|---|---|---|---|
| | SB 813 ($25) | | | SB 327 ($125) | | | |
| | Number of Districts | Number of Pupils | State Cost | Number of Districts | Number of Pupils | State Cost | |
| 1984-85 | 13 | 180,972 | $4.5 | — | — | — | $4.5[a] |
| 1985-86 | 11 | 176,153 | 4.4 | — | — | — | 4.4[a] |
| 1986-87 | 15 | 206,036 | 5.2 | — | — | — | 5.2[a] |
| 1987-88 | 18 | 220,043 | 5.5 | 13 | 193,862 | $21.2 | 26.7[a] |
| 1988-89 | 29 | 269,964 | 6.7 | 27 | 245,742 | 28.1 | 34.8[b] |
| 1989-90 | NA[c] | NA | NA | NA | NA | NA | 43.0[d] |
| | | | | | Total State Cost | | $118.6 |

[a] Funding Source: State School Building Lease-Purchase (SSBLP) Fund (tidelands oil revenues).

[b] Funding Source: $30 million from the SSBLP Fund and $4.8 million from the General Fund.

[c] Not available.

[d] As appropriated in the 1989-90 Budget Act. Funding Source: $35.7 million from the General Fund and $7.3 million from the SSBLP Fund.

# Chapter II
# Criteria for Evaluating Year-Round Incentive Programs

As noted in the Introduction to this report, Chapter 886 requires the Legislative Analyst to report on the "value" of year-round education incentive funding in reducing the need for school facility construction. In order to respond to this directive, it is necessary to clarify what is meant by the term "value." Our approach to this task was first to determine the *state's interest* in promoting year-round education. Having done this, we identified two key *criteria* that should be satisfied by any incentive program that seeks to further the state's interest.

## State's Interest in Promoting Year-Round Education

Our review indicates that the state's *primary* interest in year-round education is its potential for reducing school districts' demands for limited state resources to construct new school facilities. (This interest is based on the existence of the current state Lease-Purchase program which in recent years has provided substantial financial assistance—hundreds of millions of dollars annually—to school districts to build new facilities. To the extent that the Lease-Purchase program is altered, or the state no longer provides such assistance to school districts, the nature of the state's interest in year-round education would probably change.)

There are several other reasons why the state might be interested in promoting year-round education, besides its potential to reduce the need for new state funds for school facility construction. Our review indicates, however, that such reasons either have not been conclusively established or are not strongly enough in the state's interest to merit the provision of financial incentives. Two of these reasons are discussed below.

- *Enhancing Educational Quality.* It has been suggested by some (including members of the advisory committee to this study) that, to the extent that year-round education results in improved academic performance, the state should be willing to pay some amount (perhaps even an amount in excess of its facilities-related cost avoidance) in order to promote year-round education. Although we concur with the *theory* behind this position, there is a significant *practical* problem in identifying this as a justification for state interest. Specifically, our review of the existing field of literature suggests that students in multitrack year-round programs *generally do no better or no worse* than their counterparts in traditional calendar schools. In the absence of evidence to indicate that year-round education results in improved academic performance, therefore, we can find no analytical justification for the state to provide financial incentives based on improving educational quality. (Please see Appendix C for additional information regarding academic achievement and year-round school programs.)
- *Offsetting Increased Operational Costs.* It has also been suggested that year-round education results in additional operating costs to districts, and that the state should have an interest in providing some amount of financial assistance to districts to help defray these costs. Our review of a small field of literature (two studies), however, indicates that although there may be initial *start-up* costs, the ongoing operational costs of year-

round schools on a *per-pupil basis* generally are slightly *less* than those of their traditional calendar counterparts. (This is because certain fixed costs of operation are "spread out" over a larger number of pupils.) Given this finding, we can find no analytical justification for providing financial assistance based on this rationale. Moreover, even if it could be demonstrated that year-round schools were more costly to operate than their traditional calendar counterparts, we do not believe that the mere existence of such costs would provide a compelling rationale for providing state aid. Put another way, we can find no justification for the state—in the absence of any other demonstrable benefits—to provide funding for an activity *simply because it is costly.*

Having identified the state's primary interest in year-round education as promoting a less costly alternative to new construction, we now discuss the criteria that an incentive formula should meet in order to further this interest.

## Primary Criterion: Maximizing Net State Cost Avoidance

Our review indicates that, given the potential for year-round school programs to reduce the demand for school facilities aid funds, the state's *primary* goal of providing year-round school incentive payments should be to maximize the state's "net cost avoidance" or "net savings." By "net cost avoidance" or "net savings" we mean the amount of costs avoided by not constructing a new school facility (the "gross" cost avoidance or "savings,") *less* the costs of providing year-round school incentive payments. In other words, the state should seek to maximize the total amount of resources "freed up" from both the State School Building Lease-Purchase program and the General Fund, after accounting for the cost of the incentive payments. In this manner, the state will be able to ensure that its limited resources are used to accommodate the *maximum* number of pupils needing school facilities.

## Secondary Criterion: Simplicity

Our review indicates that a secondary, though also desirable, feature in a year-round incentive payment program is simplicity—from the perspectives of both the state and participating districts. For the state, simplicity refers to the ability of the state to easily identify eligible participants, and also calculate quickly and accurately an individual district's level of payment.

On the local level, simplicity refers to the ability of school districts to understand the program so that they can accurately determine whether (1) they are, in fact, eligible (thereby minimizing the amount of time they and the state must spend completing and reviewing potentially unnecessary paperwork) and (2) it is worth participating (that is, that the "incentive" outweighs both any monetary costs and potential community resistance). Simplicity also refers to a district's ability to determine the level of payment it will be eligible for, both as a check on the state's accuracy in calculating the incentive payment and as a tool for predicting future revenues.

The goal of simplicity, however, may sometimes conflict with the primary criterion of maximizing the net amount of the state's cost avoidance. For example, in order to maximize the total amount of net state "savings," a formula might provide a higher level of incentive payment to school districts with higher land costs, because in these cases the potential cost avoidance to the state is greater. This, in turn, leads to a formula which is more complicated than a formula in which the level of incentive payment is not affected by land costs or other individualized district features.

In evaluating alternative incentive formulas, therefore, we believe that the simplicity criterion should generally be used as a "tiebreaker." Thus, in a comparison of two formulas that are roughly equivalent in terms of maximizing the net amount of state cost avoidance, the simpler formula would be preferred. Simplicity, however, would not compensate for a formula's failure to maximize the amount of the state's net cost avoidance.

# Chapter III
# Evaluation of Existing Year-Round Incentive Programs

In Chapter II of this report, we identified two criteria—one primary and one secondary—by which to assess the value of year-round school incentive payment programs in reducing the need for new school facilities. In this chapter, we assess the existing system of providing state incentive payments according to these criteria.

## Primary Criterion: Maximizing Net State Cost Avoidance

Our review indicates that the SB 327 and SB 813 programs fail to maximize the amount of net state cost avoidance, for three reasons.

*First,* for most school districts achieving the "target" level of 15 percent excess capacity accommodated, the state provides a combined level of incentive payment that exceeds the state's "savings" (that is, the programs cost the state more than it would cost to build new facilities, resulting in *no net savings*).

*Second,* even in school districts where—in theory—the "savings" could potentially exceed the costs of incentive payments, the state *may not realize any net savings in practice.*

*Third,* even at the high levels of incentive payment noted, there is little evidence that the existing programs have had any discernible impact in increasing the total number of pupils on multitrack year-round schedules statewide beyond levels that would have occurred in the programs' absence.

## Incentive Payment Can Exceed State's Gross Cost Avoidance

As part of this report, we conducted a detailed analysis of the fiscal effects of the SB 327 and SB 813 programs. Specifically, we compared the costs to state taxpayers of accommodating students through the construction of new, state-funded schools (financed over a 20-year period), to those of providing year-round school incentives under the SB 327 and SB 813 programs. (In the *Analysis of the 1987-88 Budget Bill,* we presented a similar analysis of the fiscal effects of the SB 327 program *alone;* that analysis has been updated with more recent data and is presented in Appendix D of this report.)

The SB 327 incentive payments are intended to share with the affected school district the state's "savings" from avoiding the costs of constructing a new school under the state building program. And, although current law is silent as to the purpose of the $25 per-pupil payment provided by the SB 813 program, there is little reason in practice to distinguish its effect from that of the SB 327 program.

In particular, both programs (1) require, as a condition of eligibility, that a school district be sufficiently overcrowded to otherwise qualify for state school construction aid and (2) provide general-purpose aid in return for accommodating additional pupils through the use of multitrack year-round schedules. As a result, both programs provide funding to virtually the same group of school districts. Specifically, in 1988-89, of the 29 districts that received funding under the SB 327 program, 25 also received funding under the SB 813 program.

How, then, does the *combined* level of incentive payments provided under both the SB 327 and the SB 813 programs compare to the state's gross cost avoidance from not having to build school facilities? As shown in Charts 2 through 4, the answer to this question depends primarily on the level of land costs in the particular school district. For most school districts (except

those with extraordinarily high land costs), however, the combined effect of the two programs is generally to provide districts with a level of annual incentive payment that *exceeds* what it would have cost the state to provide a permanent school facility—irrespective of the level of excess capacity accommodated through the use of year-round operations.

The three charts show the relationship between per-pupil costs and state "savings," as the amount of excess capacity accommodated increases from 0 to 35 percent. The land costs shown in these charts were chosen to represent the range of such costs identified by the 25 districts which participated in both programs in 1988-89.

Specifically, Chart 2 (land cost of $50,000 per acre) shows that, for locations with relatively low land costs (such as Fontana, Madera, or Elk Grove), the level of the incentive payments in all cases exceeds the amount of state savings at all levels of excess capacity accommodated. The level of incentive payment ranges from a low of $25 per pupil—for *all* pupils attending the year-round school—where just one additional pupil is accommodated, and increases at a faster rate than does the state "savings" up to approximately $93 per pupil at the target level of 15 percent excess capacity accommodated. Thereafter, the per-pupil payment increases at a rate paralleling the state "savings," until the $150 payment cap is reached.

Chart 2

**State "Savings" versus State Cost of Year-Round Incentive Payments**

**Land Cost of $50,000 per Acre**

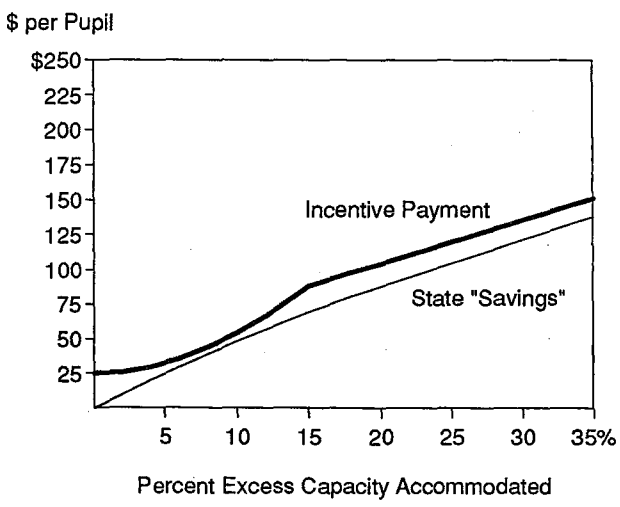
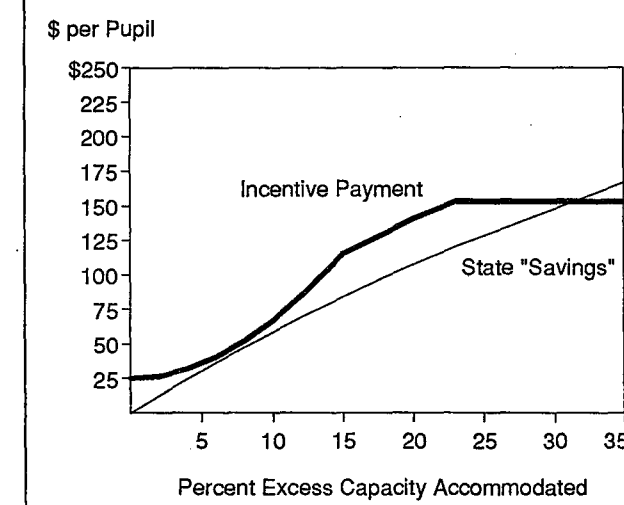



Chart 3 (land cost of $250,000 per acre) provides, for locations with moderate land costs (such as Escondido, Fresno, and Oakland), a picture similar to that of Chart 2. Specifically, for districts with land costs in this range, the level of the incentive payment exceeds the amount of state savings in all cases—unless more than 33 percent excess capacity is accommodated. (We know of only one calendar schedule— predominantly used by Los Angeles—which allows a district to achieve a greater than 33 percent capacity increase.)

Chart 3

**State "Savings" versus State Cost of Year-Round Incentive Payments**

**Land Cost of $250,000 per Acre**

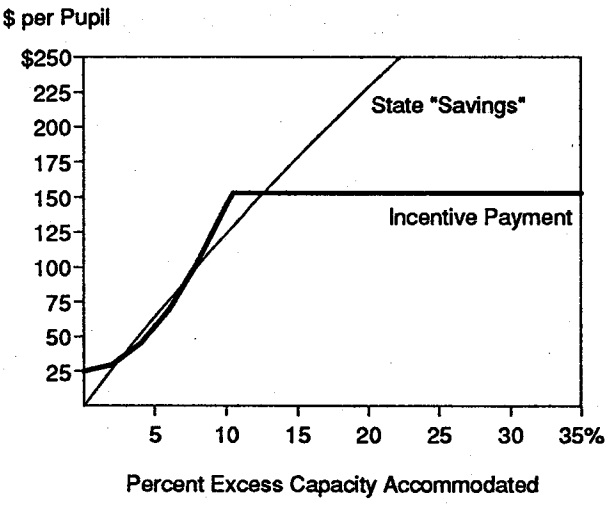


Finally, Chart 4 (land cost of $1.5 million per acre) shows that for districts with extraordinarily high land costs (such as Los Angeles Unified) the amount of the state's cost avoidance—in theory— consistently exceeds the level of incentive payment. As noted below, however, there are several reasons why—in practice—the state still may realize *no net savings* even under these circumstances.

**Chart 4**

**State "Savings" versus State Cost of Year-Round Incentive Payments**

**Land Cost of $1.5 million per Acre**




In sum, these charts indicate that—for most currently-participating school districts—the existing year-round school incentive payment programs actually cost the state taxpayers more than it would have cost to accommodate these students by building additional, traditional-calendar school facilities.

## Savings In Theory May Not Equal Savings In Practice

Our review indicates that, even in school districts with high land costs, the state may not realize any net savings in practice. This is because:

- The SB 327 incentive payment formula overpays school districts for land costs relative to the actual costs which would have been incurred under the state building program.
- As currently designed, the programs may function as a subsidy for a district while it waits in line for new construction funds, rather than as an alternative to new construction. This is because both programs allow school districts to receive incentive payments while they "wait in line" to receive new school facility funding through the Lease-Purchase program. *To the extent that a district receives both the incentive payments and a new facility, the state clearly realizes no savings at all.*

In the specific case of Los Angeles Unified School District, even if one were to correct the problems just noted, the level of incentive payment still would be "too high" to maximize the amount of the state's net cost avoidance. This is because (as demonstrated in greater detail later in this report) the only case in which the state should pay a district more than 50 percent of the state's gross cost avoidance is where the district responds to a given percentage increase in the level of incentive payment with a more-than-equivalent percentage increase in the number of students attending year-round schools. In the case of Los Angeles, however, (1) the majority of the district's pupils attending year-round schools were doing so *prior* to the enactment of the incentive programs and (2) a 500 percent increase in the level of incentive payment (implemented in 1987-88) has led to only a 0.6 percent increase in the total number of pupils on multi-track year-round schedules.

## Little Discernible Impact on Number of Year-Round Pupils

Although it is difficult to estimate precisely the effect of the existing year-round incentives, available evidence suggests that the number of pupils attending year-round schools has been affected little—if at all—by the existence of such payments. Instead, it appears that the major impetus for districts to adopt year-round sched-

ules is the combined effects of (1) overcrowded schools and (2) a recognition that state funding will not become available quickly enough to meet pressing needs for additional capacity.

Unfortunately, consistent data on numbers of districts, schools, and pupils under year-round schedules do not exist for the entire period 1973-74 through 1988-89. Instead, we have two somewhat dissimilar data sets: one from 1973-74 through 1983-84, covering both single-track and multitrack schools, and another from 1984-85 through 1988-89, covering just those multitrack schools that qualified for either the SB 327 or SB 813 incentive payments.

Table 2 presents the first of these two data sets, covering 1973-74 through 1983-84. As the table shows, both the number of schools and the number of pupils on year-round schedules grew substantially over this period—*prior* to the existence of the state's first year-round incentive payment program in 1984-85. Specifically, the number of schools on year-round schedules increased from 100 to 253, while the number of pupils on such schedules nearly quadrupled—growing from 61,233 to 230,797. Clearly, in the absence of incentive payments, other factors were motivating school districts to switch to year-round education programs.

Chart 5 presents the second set of data on numbers of pupils in year-round schools—from 1984-85 through 1988-89. The chart also presents data on the dollar value of applications for new construction funds under the Lease-Purchase program at the beginning of the preceding school year. As the chart shows, the numbers of pupils qualifying for year-round school incentive payments has been steadily increasing over this entire period. More importantly, this trend appears to be strongly related to—and explainable by—the extent of demand for state school facilities aid.

Specifically, the chart shows that, as the extent of the "backlog" in requests for state new construction funds grows (that is, the dollar value of applications on file increases), the number of pupils in eligible year-round schools increases—with about a one-year lag. In other words, what appears to be motivating school districts to implement year-round programs is their recognition that funding provided through the Lease-

**Table 2**

**Growth of Year-Round Education Programs in California**

**1973-74 through 1983-84[a,b]**

| Year | Number of Districts | Number of Schools | Number of Students |
|---|---|---|---|
| 1973-74 | 30 | 100 | 61,233 |
| 1974-75 | 38 | 127 | 79,305 |
| 1975-76 | 45 | 159 | 102,184 |
| 1976-77 | 56 | 200 | 116,242 |
| 1977-78 | 56 | 195 | 106,322 |
| 1978-79 | 42 | 138 | 76,531 |
| 1979-80 | 40 | 148 | 86,382 |
| 1980-81 | 45 | 195 | 154,000 |
| 1981-82 | 41 | 260 | 219,875 |
| 1982-83 | NA[c] | NA | NA |
| 1983-84 | 39[d] | 253 | 230,797 |

[a] Source: California State Directory of Year-Round Education, State Department of Education 1984-85.

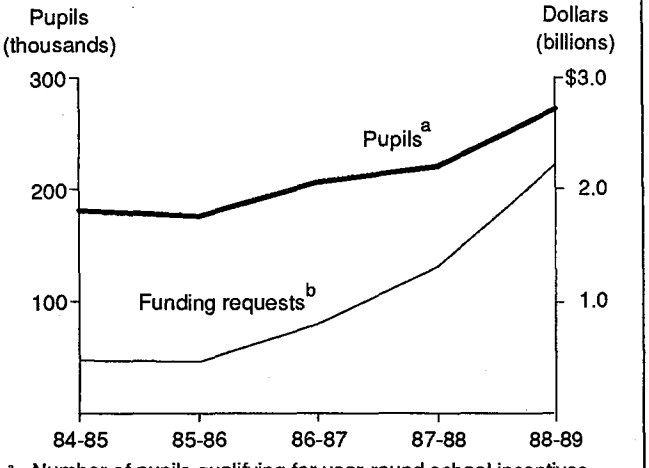
[b] Includes districts operating and students attending single-track as well as multitrack year-round programs.

[c] Not available.

[d] Represents a loss of three districts and a gain of one district.

**Chart 5**

**Number of Pupils in Year-Round Schools Increases As School Construction Funding Backlog Grows**




[a] Number of pupils qualifying for year-round school incentives.

[b] Dollar value of applications for school construction aid, as of July of prior fiscal year.

Purchase program will not become available quickly enough to meet pressing needs for additional capacity. (Because the Lease-Purchase program generally provides school facilities aid on a "first-come, first-served" basis, increases in the "backlog" of requests translate into longer waiting periods from the time an application is filed to the completion of construction.) ***In fact, a more detailed statistical analysis indicates that, when the level of demand for new construction funds is controlled for, the availability of the SB 327 year-round incentive payments has no discernible, statistically significant effect on the total number of pupils in year-round schools.***

Neither Table 2 nor Chart 5 contain the data necessary to identify the impact of the SB 813 ($25) incentive program, which began in 1984-85. Our review indicates, however, that, of the 13 districts that received SB 813 incentive payments in the program's first year, 11 (85 percent of the total) were operating year-round programs prior to the advent of the incentives. Specifically, five of the 11 had begun their programs by 1974, and three more had begun programs by 1980.

In sum, the available evidence indicates that:

- The number of pupils attending year-round schools was growing significantly prior to the advent of the first year-round incentive program in 1984-85;
- The SB 813 ($25) program had little impact in its first year (1984-85) in increasing the number of school districts operating year-round schools; and
- Growth since 1984-85 in the numbers of pupils attending year-round schools that are eligible for state incentive payments appears to be explainable as a school district responds to increasing backlogs in the dollar value of applications for school construction aid.

Based on this evidence, it appears that the number of excess pupils accommodated through year-round operations is not responsive to the availability of incentive payments, within the range of payment levels provided by the SB 327 and SB 813 programs. To the extent that this is, in fact, the case, then the bulk of the $43 million in incentive payments appropriated in 1989-90 will not influence school district behavior, but will merely provide "windfall gains" to those districts that receive such funding.

This evidence also suggests that, if the Legislature is interested in encouraging school districts to use existing school facilities more intensively through year-round operations, the most cost-effective way of doing so would be to change the existing school building aid program. Specifically, the Legislature may wish to consider (as we recommended in our publication, *The 1989-90 Budget: Perspectives and Issues*) providing school facilities aid only in amounts sufficient to support the construction of new schools that would be operated on a year-round basis, accommodating additional capacity beyond that of a traditional, nine-month calendar school. A stronger incentive for year-round operations would be to calculate a school district's overall eligibility for state building aid under the assumption that it had already taken full advantage of districtwide year-round operations as a means of accommodating overcrowding. Under this approach, a district might not qualify for state aid until it was at least 10 percent overcrowded using a *year-round calendar* standard of operations (which would be equivalent to, say, 30 percent overcrowded using a traditional, nine-month standard)—rather than the 10 percent (traditional calendar) threshold currently used to determine eligibility.

## Secondary Criterion: Simplicity

Our review indicates that by having two different incentive payment programs to promote year-round education, the existing system is more complicated than is necessary. Moreover, one of these two programs—the SB 327 variable rate incentive—is a complex and difficult program both to understand and to administer.

Because the SB 327 program is so complicated, most school districts are unable to calculate their own funding entitlement. In the current year, the formula is statutorily composed of 15 steps that must be executed for each year-round school within an applicant district. In addition, because of the complexity, different interpretations have been assigned to the dif-

ferent steps, resulting in significant statutory changes to the formula in every year of the program's three-year existence.

## Conclusion

Judging by the criteria identified above, we conclude that the existing year-round school incentive payment programs are of little or no value in promoting the state's primary interest in year-round education—which is to maximize the amount of net costs avoided by reducing demands for state-financed new school construction.

Put another way, the available evidence suggests that the SB 327 and SB 813 programs could be eliminated, with little impact on the total number of pupils attending year-round schools. The Legislature could then use the associated funding for other, higher priority purposes within K-14 education. (Proposition 98 requirements preclude these funds from being used for nonK-14 purposes.)

For this reason, ***we recommend that the Legislature repeal the existing year-round school incentive programs.***

We recognize, however, that the Legislature may wish to continue to provide some form of year-round school incentives, to the extent that *some* school districts may respond by increasing the numbers of pupils attending year-round schools. In Chapter IV of this report, we identify those features that our analysis indicates should be included in a revised incentive program, in order to better achieve the primary goal of maximizing the state's net cost avoidance and the secondary goal of simplicity.

# Chapter IV
# An Alternative Method of Providing Incentive Payments

In this chapter, we describe the primary features of an alternative year-round incentive formula—should the Legislature choose to continue to pay incentives based on sharing state "savings"—that would better meet the two criteria presented earlier. Again, the features of such a formula are based on existing practices for financing new construction through the Lease-Purchase program. To the extent that the Lease-Purchase program changes, these features would probably also change. Specifically, these features are:

- Provide school districts with the optimal level of shared "savings," in order to maximize the state's net cost avoidance;
- Reflect district-specific land and construction costs, as provided for in the State School Building Lease-Purchase program; and
- Create an alternative to new school construction, rather than a subsidy while waiting in line for a state-financed school.

## Provide Optimal Level of Shared "Savings"

As outlined in Chapter II, the optimal level of incentive payment is that which maximizes the total amount of the state's net cost avoidance. How, in practice, does one determine what this payment should be? The answer to this question consists of two parts: (1) a procedure for determining the *theoretically* optimal payment level and (2) a practical procedure for determining the optimal payment level, if the conditions necessary for determining the theoretically optimal level cannot be met.

**Theoretical Optimum: Vary Payment by District Responsiveness.** In theory, the ideal way of maximizing the state's net cost avoidance is to vary the level of incentive payment depending upon how responsive districts are in placing pupils on multitrack year-round schedules. (A district would be "responsive," if the percentage increase in the number of pupils on year-round schedules in the district is greater than the given percentage increase in the level of per-pupil incentive payment.) Under such an approach, the state would not pay any year-round incentives for students who would have been on year-round schedules in the absence of the incentives. In addition, the state would offer relatively low incentive payments to those districts in which the number of pupils on year-round schedules were less responsive to such incentives, and relatively higher payments to districts in which the number of pupils were more responsive. *In no case, however, would the state offer a level of incentive payment that exceeded 100 percent of its gross cost avoidance.*

In order to implement this type of incentive payment system, however, one must be able to estimate the extent to which individual districts would respond to the offering of year-round school incentives. This, in turn, requires a fairly sophisticated analysis of data from individual school districts, which controls for all significant factors other than the level of incentive payment (for example, the degree of districtwide overcrowding using a traditional, nine-month schedule) that might affect the "supply" of pupils attending year-round schools in each district.

This is not to say that a practical system of providing differential levels of incentive payments, based on degree of school district responsiveness, cannot be developed. Unfortunately, however, within the constraints of time, data, and resources available to prepare this report, we were unable to conduct the type of analysis necessary to do so. Moreover, we are not aware of any research supporting the notion that the extent to which a district accommodates pupils in excess of its traditional calendar capacity—one of the factors affecting the level of SB 327 incentive payments—is related to its responsiveness to incentives. As a result, our research suggests that if the Legislature wishes to optimize incentive payments, a new payment system must be put in place. We can find no evidence that a modified version of the SB 327 program's variable payment approach would serve to maximize the amount of the state's net cost avoidance.

**Practical Solution: Uniform Percentage of "Savings" for All Districts.** If it is not possible to distinguish among individual districts' responsiveness to the offering of year-round incentives, then a reasonable alternative would be to pay all districts the *same* percentage of the state's gross cost avoidance. (Individual districts' per-pupil payments would still vary, to reflect differences in gross cost avoidance related to costs of land and construction.) As demonstrated in greater detail in Appendix E, the optimal level of incentive payment which should be provided to school districts under these conditions (that is, paying all districts the *same* percentage of the state's "savings") depends upon the overall, statewide level of school districts' responsiveness to changes in the level of such payments.

Based on the evidence presented in Chapter III, it appears that the total number of pupils attending year-round schools statewide is quite unresponsive to the level of incentive payment offered. This, in turn, implies that if the Legislature wishes to pursue the alternative of providing all school districts with the same percentage of the state's gross cost avoidance, ***this sharing ratio should probably also be quite low—and in no case should it exceed 50 percent.***

We note that, even if the sharing ratio were set at no more than 50 percent, this would not eliminate the possibility of "windfall gains" to certain school districts. To the extent that a school district was already operating its schools year-round prior to the offering of incentive payments—or had no practical alternative but to move to a year-round calendar in order to accommodate overcrowding—the provision of incentive payments would not result in any additional pupils on year-round schedules, but would merely reward the district for actions it would have taken anyway in the program's absence. Such windfall gains will always occur in any practical funding mechanism that is unable to distinguish each district's unique responsiveness to the offering of incentives. (Please see Appendix E for a mathematical proof of the maximum sharing ratio.)

## Reflect Individual Land and Construction Costs

Because the amount of the per-pupil gross cost avoidance varies significantly depending upon a district's land costs (and, to a lesser extent, its construction costs), any formula that seeks to maximize the amount of the state's net cost avoidance should take these factors into account.

In order to reflect accurately the state's cost avoidance, the computation of land and construction costs must parallel the *actual practices* of the Lease-Purchase new construction program. This is because the primary interest of the state in the incentive program is to avoid the cost of building schools. Because the Lease-Purchase program does not pay districts for sites that the district has already acquired, neither should the incentive formula. Specifically, this means that the cost of land should be factored into an incentive formula only where a district does not already have a site—irrespective of who actually paid for the site. By similar logic, the estimated amount of land and construction costs avoided through using year-round operations should be based on actual practices of the Lease-Purchase program, in which the total number of excess pupils accom-

modated would have been aggregated into groups of sufficient size to justify the construction of a new school (or schools). (Under the existing incentive programs, the land and construction costs are estimated under the assumption that the state would have built numerous unrealistically small schools, each accommodating a small number of pupils. This assumption can overstate—by over 100 percent—the amount of land and construction costs actually avoided by the state.)

## Create an Alternative, Not a Subsidy

In order to maximize the state's net cost avoidance, the purpose of any incentive payment program must be to encourage year-round programs as an *alternative* to new construction, rather than as a *subsidy* while waiting for new construction funding. Our review indicates that there are at least two methods by which an incentive program can ensure that this is accomplished:

- *"Getting Out of Line."* Under this approach, a school district receiving incentive payments would be required to reduce its applications for new school facilities funding by the amount of excess pupils accommodated (and receiving payment) through the year-round incentive program.
- *Financial Penalties.* Under this approach, a district would be assessed penalties if it used state funds to build new schools to accommodate students for which the state previously provided year-round incentive payments. Such penalties" could include (1) a requirement to pay back incentive payments previously received, or (2) a reduction from any future state construction funding allocation in an amount equal to the incentives that previously had been paid to the district.

Our review indicates that the particular type of financial safeguard chosen is not as important as a safeguard being part of any alternative incentive program enacted by the Legislature.

## Conclusion

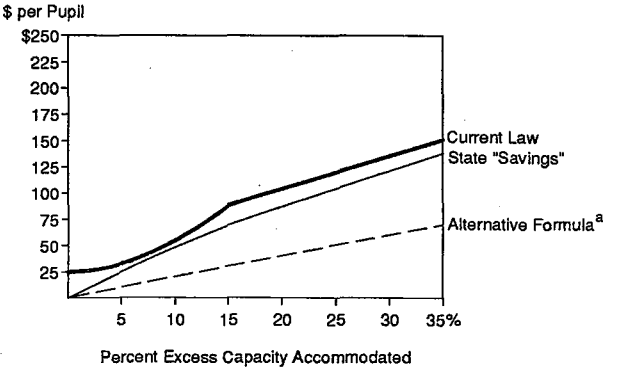
Charts 6 through 8 show the *maximum* level of year-round school incentive payment that should be provided to school districts, *if the Legislature decides to continue to provide incentive payments using a uniform percentage of savings method.* (The charts illustrate the maximum level of incentive payment for school districts with the levels of land costs previously illustrated in Charts 2 through 4.) These charts assume that the revised year-round school incentive program would also (1) reflect district-specific land and construction costs, as provided for in the State School Building Lease-Purchase program and (2) create an alternative to new school construction, rather than a subsidy while waiting in line for a state-financed school.

Specifically, Chart 6 (land cost of $50,000 per acre) shows that, for locations with relatively low land costs, the *maximum* level of state incentive payment should range from zero (where no additional pupils are accommodated) to approximately $69 per pupil (at 35 percent excess capacity accommodated). (For levels of excess capacity accommodated in excess of 35 percent, the maximum incentive payment that should

**Chart 6**

**State Cost versus State "Savings": Current Law and Alternative Formula**

**Land Cost of $50,000 per Acre**




[a] *Maximum* level of incentive payment, assuming adoption of all other changes (see text).

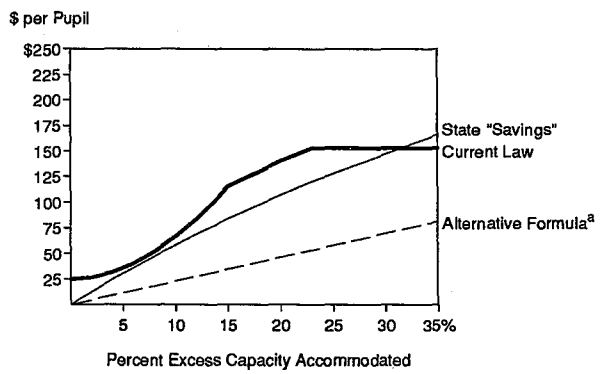
be provided would increase proportionally.) The chart also shows that in no case would such payments exceed 50 percent of the state's "savings" at any given level of excess capacity accommodated.

Chart 7 (land cost of $250,000 per acre) shows that, for locations with moderate land costs, the *maximum* level of state incentive payment should range from zero (where no additional pupils are accommodated) to approximately $84 per pupil (at 35 percent excess capacity accommodated).

**Chart 7**

**State Cost versus State "Savings": Current Law and Alternative Formula**

**Land Cost of $250,000 per Acre**



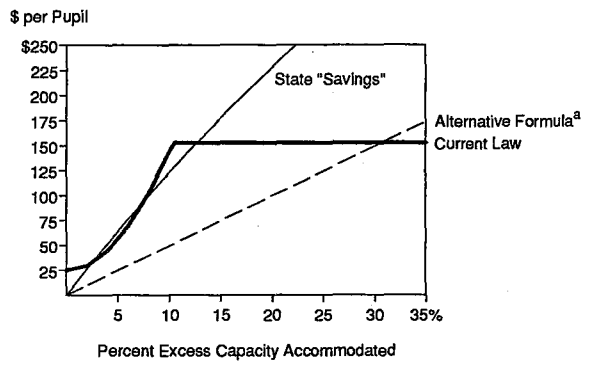

[a] *Maximum* level of incentive payment, assuming adoption of all other changes (see text).

Finally, Chart 8 (land cost of $1.5 million per acre) shows that, for locations with extraordinarily high land costs, the *maximum* level of state incentive payment should range from zero to $175 per pupil (at 35 percent excess capacity accommodated). The chart also shows that, in cases where such school districts accommodated additional pupils in excess of 30 percent of capacity, the maximum level of incentive payment *could* exceed the amount provided under the existing SB 327 and SB 813 programs.

**Chart 8**

**State Cost versus State "Savings": Current Law and Alternative Formula**

**Land Cost of $1.5 million per Acre**




[a] *Maximum* level of incentive payment, assuming adoption of all other changes (see text).

In sum, adoption of this alternative would ensure that—to the extent practically feasible—the incentive payment program maximizes the amount of the state's net cost avoidance (that is, the avoided costs from not having to build school facilities, minus the costs of the incentive payments). Adoption of this alternative would also ensure that school districts receive year-round school incentives as an alternative to new construction, rather than as a subsidy while waiting for such funding. The "savings" so generated could be used to address the pressing statewide demand for school facilities aid, or for other high-priority K-12 education needs.

# Chapter V
# Summary of Findings and Recommendations

In this chapter, we summarize the findings and recommendations that result from the analysis presented in the previous chapters.

Our review of the SB 327 and the SB 813 year-round school incentive payment programs indicates that they are of little or no value in promoting the state's primary interest in year-round education—which is to maximize the amount of net costs avoided by reducing demands for state-financed new school construction. This is because:

- For the vast majority of school districts achieving the "target" level of 15 percent excess capacity accommodated, the existing programs provide a combined level of incentive payment that exceeds 100 percent of the state's gross cost avoidance (that is, the programs result in incentive-payment costs which exceed the costs the state would have incurred had it built new schools.)
- Even in school districts with high land costs, the state still may realize *no net savings* because (1) the incentive payment formula overpays districts for land costs, relative to the actual costs which would have been incurred under the state building program and (2) the incentive programs may function as a subsidy for districts while they wait in line for new construction funds, rather than as an alternative to new construction.
- Even with this generous level of incentive payment, there is little evidence that the existing programs have had any discernible impact in increasing the number of pupils on multitrack year-round schedules beyond levels that would have occurred in the programs' absence.

For these reasons, ***we recommend that the Legislature repeal the existing year-round school incentive programs.***

We recognize, however, that the Legislature may wish to continue to provide some form of year-round school incentives, to the extent that *some* school districts may respond by increasing the numbers of pupils attending year-round schools. If the Legislature wishes to continue to provide incentive payments based on sharing a uniform percentage of the state's "savings," we recommend an alternative program that would include *all* of the following features:

- Provide school districts with no more than 50 percent of the state's "savings";
- Reflect district-specific land and construction costs, as provided for in the State School Building Lease-Purchase program; and
- Create an alternative to new school construction, rather than a subsidy while waiting in line for a state-financed school.

These features assume the continuation of existing practices for financing new construction through the Lease-Purchase program. To the extent that the Lease-Purchase program changes, these features would probably also change.

# Appendix A

## Glossary of Terms Used in Report

*Excess capacity accommodated:* The number of additional pupils accommodated in a school in excess of its traditional (nine-month calendar) capacity, expressed as a percentage of this traditional capacity.

*Gross cost avoidance:* The costs avoided by the state by not building new school facilities under the State School Building Lease-Purchase program, as a result of school districts accommodating excess capacity through year-round education. (In this report, the term "savings" is sometimes used as a briefer—though less precise—alternative to "gross cost avoidance.")

*Net cost avoidance:* Gross cost avoidance, minus the cost to the state of paying year-round school incentives. (The term "net savings" is sometimes used as an equivalent term.)

*Present discounted value*: A mathematical technique used to calculate the value at the present time of a stream of payments (or a single payment) to be received in the future, based on a specific discount rate. It is based on the simple notion that a dollar's worth of goods or services received one year from today is worth less than the same goods or services received today. The discount rate reflects the fact that money can be invested to earn interest or, alternatively, that borrowing money costs interest.

*Year-round education:* An alternative schedule for learning that reorganizes the academic calendar so that instructional time blocks and vacation periods are evenly distributed throughout the year.

# Appendix B

## Members: Year-Round Incentive Payments Advisory Committee

Warren Baker
Board Member
Hesperia Unified School District

Charles Ballinger
Executive Director
National Association for Year-Round Education (NAYRE)

Tom Bancroft
Legislative Advocate NAYRE

Larry Branman
Resource Specialist
Montebello Unified School District

Kathy Gaither
Rick Vargas
Department of Finance

DuWayne Brooks
Henry Heydt
State Department of Education

Eddie Hernandez
John Jenkin
Lori Morgan
Office of Local Assistance, Department of General Services

Bernie Korenstein
Assistant Superintendent, Educational Services
Oxnard School District

# Appendix C

"Year-Round Schools"
(Reprinted from The 1989-90 Budget: Perspectives and Issues, pp. 170-183)

# Year-Round Schools

***What Are Year-Round Schools and How Can Their Use Reduce the Demand for Limited School Facilities Aid Funds?***


***Summary***

- *Currently, school district requests for state aid to accommodate unhoused students through the State School Building Lease-Purchase program far exceeds–by several billion dollars–the amount of funds currently available from the state. In addition, the demand for these limited state resources will mount in the coming years as the K-12 school-age population continues to grow.*
- *Through the use of year-round education, school districts can make more intensive use of existing facilities, thereby expanding the capacity of a school site by up to one-third (or more, in certain cases).*
- *As a result, year-round school programs can reduce the demand for school construction funds by hundreds of millions of dollars. In addition, these programs can reduce school district per-pupil operating costs.*
- *The academic achievement of students attending year-round school programs is generally comparable to that of their counterparts in traditional calendar schools.*
- *In order to maximize the number of pupils that can be housed with limited state financial resources for school construction, we recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis.*


## Introduction

The Department of Finance (DOF) estimates that, on a statewide basis, the California K-12 school-age population will grow by approximately 140,000 students per year between now and 1997, resulting in a need for an additional 2,100 new schools. The State Department of Education (SDE) estimates that the cost associated with providing these additional facilities could be as high as $11 billion. There are several methods available to school districts to finance their school facilities needs using either state resources, local resources, or a combination of the two. First, the State School Building Lease-Purchase program provides most of the money used by local public school districts to construct and/or modernize school facilities. Currently, school district requests for state aid





through the Lease-Purchase program far exceed the funding available for this purpose. Specifically, as of November 1988, applications from school districts for state aid ($4.3 billion) exceeded existing available funding ($800 million) by approximately $3.5 billion.

In addition to the state program, school districts may raise funds locally for school facilities through three primary methods:

- ***The Mello -Roos Community Facility Act of 1982.*** Pursuant to this act, school districts are authorized to form "community facilities" districts, subject to the approval of two-thirds of the voters, to sell bonds to raise revenue for building new, or modernizing existing school facilities.
- ***Local General Obligation Bonds.*** School districts are generally authorized to incur bonded indebtedness for school facilities construction purposes, subject to a two-thirds voter approval.
- ***Developer Fees.*** Since January 1, 1987, school districts have been authorized to impose developer fees, as specified, on a per-square-foot basis upon new residential and commercial/industrial construction. These fee revenues can be used only for the construction or modernization of school facilities.

One important way to reduce the cost of providing school facilities is through the use of year-round schools. Year-round school provides a more intensive use of existing facilities, thereby expanding the capacity of a school site, and commensurately reducing the need for new facilities. In the discussion that follows, we describe what year-round education is, how its use can accommodate more students at an existing site, why it is educationally sound, and why we believe it should be an essential component of any state program to assist school districts in meeting their school facility needs.

## What Is Year-Round Education?

Year-round education is an alternative *schedule* for learning; it is not an alternative *curriculum* for learning. Students attending a year-round school go to the same types of classes and receive the same amount of instruction–generally 180 days per academic year–as students attending traditional nine-month calendar schools. The year-round school calendar is organized into instructional blocks and vacation periods that are evenly distributed across a 12-month calendar year.

Specifically, on a traditional calendar, students generally attend school for nine months followed by a three-month summer vacation. On a year-round calendar, the three-month summer vacation is divided into several shorter vacation periods which are then spread throughout the school year. As a result, year-round students receive several shorter vacations; however, the total amount of vacation afforded to each pupil is

still the same as that of students attending a traditional-calendar school. Typically, a year-round student receives three one-month vacations or four three-week vacations during one academic year.

***Single-Track Versus Multitrack.*** Year-round schools can be operated on either a "single-track" or "multitrack" basis; however, *it is only when the multitrack format is implemented that the capacity of the school can be increased.* A single-track system provides for the entire school population (that is, all students and teachers) to follow the same calendar with the same vacation periods. This means that, at any given time, all of the students and teachers are in school, or they are all on vacation. The school is typically closed during the vacation periods when neither the students nor teachers are present.

On a "multitrack" system, students and their teachers are grouped into different tracks, with staggered instructional blocks and vacation periods. While one track is on vacation, another track can use its space, thereby allowing for an increase in the capacity of the school. For example, depending on the actual calendar used, students and their teachers may be divided into four tracks. At any one time, three of these tracks, or three-quarters of the school's students/teachers, will be in school, and the remaining track, representing one quarter of the school's students/teachers, will be on vacation. (The remainder of this discussion will focus on the characteristics of multitrack programs because it is only on a multitrack system that the capacity of a school site can be increased and corresponding facility-related costs reduced.)

Chart 1 compares the different attendance patterns for a traditional, single-track and multitrack calendar program. It shows that both the traditional calendar and single-track calendar can accommodate only 600 students and that all students are either in school or on vacation at the same time. Chart 1 also shows that, by dividing students into four tracks and staggering instruction and vacation periods, the multitrack calendar can accommodate 800 students, a 33 percent increase in capacity.

***Track Assignments.*** On a multitrack system, students and teachers typically are assigned to one of either three or four "tracks." There are a variety of methods for assigning students to tracks including: (a) geographically (that is, by address), with entire blocks, sides of streets, or apartment buildings assigned to the same track; (b) randomly (for example, alphabetically); (c) by ability grouping (for example, by a student's proficiency with English); (d) self-selection; and (e) individually (that is, a one-by-one placement to customize the characteristics of each track).

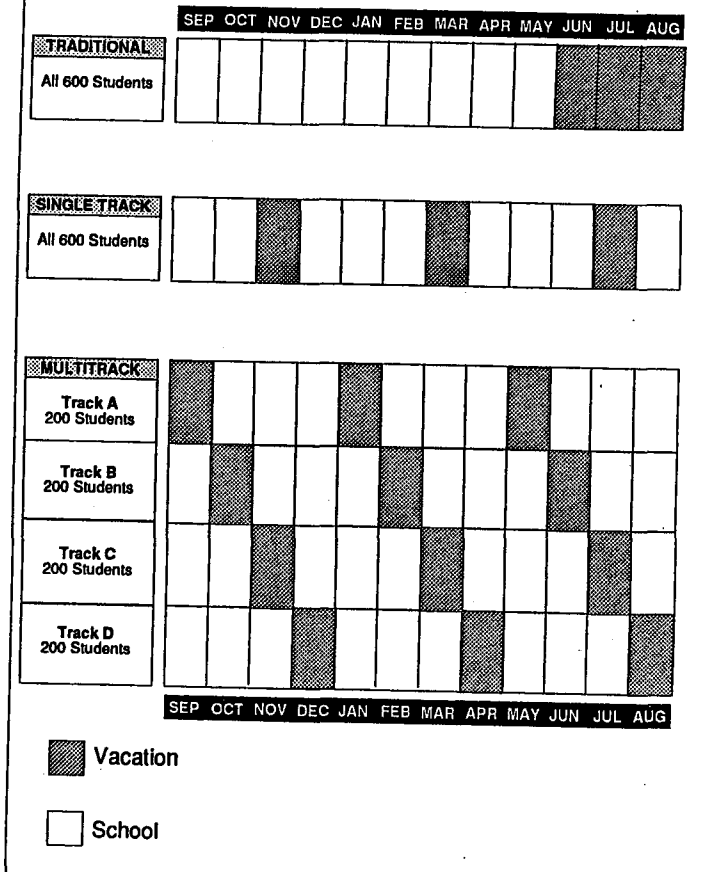
Most districts offer parents the opportunity to indicate a preferred choice of tracks, and also provide for students from the same family to be





**Chart 1**

**Attendance Patterns**
**Traditional, Single-Track and Multitrack Calendar Programs[a]**
**For A School Which Can Accommodate 600 Students At Any Time**




[a] For purposes of illustration, we have assumed: (1) a "60-20" calendar (60 school days – or about 3 months – on and 20 days – or about one month – off); (2) that school starts September 1 and ends June 1, (3) no winter vacation, and (4) that full capacity increase can be obtained.

assigned to the same track. Similar variations occur regarding the assignment of teachers to tracks, although generally a much larger degree of self-selection is available (providing that each track yields the necessary number of teachers for each grade level).

***Shared Classrooms.*** Because a classroom remains in use when one track goes on vacation, teachers are generally grouped so that four teachers share three classrooms. Teacher grouping is generally made on the basis of grade level, so that similar supplies and equipment can be shared.

By necessity, the sharing of rooms requires a revised system for the storage of teacher and classroom materials during the "off-track" period. Most multitrack programs have developed some type of modular or portable storage system that can be moved between classrooms and storage areas. Innovative designs in schools specifically designed and built to accommodate year-round programs provide a central teacher storage/workspace area linked to several classrooms.

**Year-Round Education in California**

According to the SDE, there are currently an estimated 69 California school districts operating year-round school programs, with about 360,000 students (about 8 percent of pupils statewide) attending such programs. Thirty-five of these districts operate multitrack programs, with an estimated 300,000 students enrolled in such programs. A review of districts operating multitrack year-round programs indicates that the majority of these programs–approximately 90 percent–are operated at the elementary school level, with the remainder operated at the junior high or senior high school level. For the most part, multitrack programs have been implemented for the sole purpose of relieving either site-specific or districtwide overcrowding.

Table 1 identifies the 10 districts which have the greatest number of students attending multitrack year-round programs. It shows that during the current year, the 10 largest multitrack year-round programs include approximately 234,000 students, or about 25 percent of the districts' overall enrollment. Of these programs, the Los Angeles Unified School District (LAUSD) operates the largest program, with an estimated 135,000 students participating, and the Oxnard Elementary School District operates the most extensive program, with *all* of its students attending year-round programs.





**Table 1**
**Ten Largest Multitrack Year-Round Programs**
**(by district)**
**1988-89**

| | *Enrollment* | | |
|---|---|---|---|
| | | *Year-Round* | |
| *District* | *Districtwide* | *Number* | *Percent of Total* |
| 1. Los Angeles Unified | 594,000 | 135,000 | 22.7% |
| 2. San Diego City Unified | 117,000 | 17,700 | 15.1 |
| 3. Fresno Unified | 65,500 | 17,900 | 27.3 |
| 4. Santa Ana Unified | 40,000 | 12,000 | 30.0 |
| 5. Montebello Unified | 31,600 | 8,200 | 25.9 |
| 6. Lodi Unified | 22,500 | 9,900 | 44.0 |
| 7. Fontana Unified | 22,300 | 7,600 | 34.1 |
| 8. Rialto Unified | 17,300 | 7,700 | 44.5 |
| 9. Oxnard Elementary | 11,800 | 11,800 | 100.0 |
| 10. Hesperia Unified | 10,900 | 6,200 | 56.9 |
| Totals | 932,900 | 234,000 | 25.1% |

Of the 10 largest school districts in California, six currently operate multitrack year-round school programs, with a range from between 5 percent to 35 percent of students attending a year-round program.

***Variation of Calendars.*** Our review indicates that there are four basic calendars used by the districts in the state which operate year-round programs. The calendar adopted by a school district for its year-round education program determines the frequency and length of the instructional blocks and vacation periods that students and teachers will receive. Generally, the type of calendar selected does not affect the extent to which a facility will be able to accommodate additional pupils; rather, it only affects the number of transitions students and teachers have to make between periods of instruction and vacation.

The majority of students attending multitrack year-round programs are accommodated by some variation of the following four basic calendars:

- ***"90/30."*** On the "90/30" calendar, each track of students and their teachers are present in school for 90 days (18 weeks), and then recess for 30 days (6 weeks). This calendar is similar to a "two semester" school schedule in that instruction occurs during two 18 week blocks, each separated by a six-week break.
- ***"60/20."*** On the "60/20" calendar, each track attends school for 60 days (12 weeks), and then recesses for 20 days (4 weeks). On this type of calendar, students/teachers are present in school during three three-month blocks, each separated by a one-month break.
- ***"45/15."*** On the "45/15" calendar, students/teachers are present in school for 45 days (9 weeks), and then recess for 15 days (3 weeks). This calendar involves four transitions–the most of any of these calendars–between instruction and vacation during an academic year.

- ***"Concept 6."*** This calendar provides for only 163, rather than 180 days of instruction; however, the school day is lengthened by 25 to 38 minutes, depending on the grade level. Consequently, over an academic year students still receive the same amount of instructional time as their counterparts in a traditional-calendar school.

The "Concept 6" calendar divides the year into six instructional terms (each about two months long), with students required to attend four of the six terms (for an eight-month school year). This calendar allows a district to accommodate the greatest percentage increase in additional students (up to 50 percent). Despite this, Concept 6 has not been used by many districts. This is because, prior to July 1, 1988, school districts (with the exception of the LAUSD) were prohibited from offering students fewer than 175 days of instruction per academic year. This made the Concept 6 calendar difficult to implement. From July 1, 1988 through July 1, 1995, however, current law authorizes *all* school districts to offer a Concept 6-type calendar, provided that the total amount of instructional time provided to students meets existing statutory requirements.

Table 2 provides a comparative summary of these four basic year-round calendars with that of the traditional-calendar school. It shows that, although the length and number of instructional terms vary among the different calendars, all but the Concept 6 calendar provide students with the same number of instructional days–generally 180–per academic year. Table 2 also shows that, although the length and number of vacations vary between the different calendars, all students receive approximately 12 weeks of vacation, except for Concept 6 students, who receive approximately 16 weeks of vacation.

**Table 2**
**Comparative Summary**
**Traditional and Year-Round School Calendars**

| | Calendar | | | | |
|---|---|---|---|---|---|
| *Features* | *Traditional* | *90/30* | *60/20* | *45/15* | *Concept 6* |
| Number of instructional days | 180 | 180 | 180 | 180 | 163 |
| Number of instructional terms | 1 | 2 | 3 | 4 | 4 |
| Length of term | 180 days (36 weeks) | 90 days (18 weeks) | 60 days (12 weeks) | 45 days (9 weeks) | 41 days (8.2 weeks) |
| Number of Vacations | 1 | 2 | 3 | 4 | 2 |
| Length of Vacation | 12 weeks | 6 weeks | 4 weeks | 3 weeks | 8.1 weeks |
| Maximum percent capacity gain | –[a] | 33% | 33% | 33% | 50% |
| Number of Tracks | –[a] | 4 | 4 | 4 | 3 |

[a] Not applicable.

As mentioned above, districts often modify a particular basic calendar format in order to meet their individual needs. For example, one school with a typically low enrollment during January arranged its calendar so that the school was closed that month. Other districts that wanted to provide a slightly longer vacation period during the summer months



lengthened the vacations falling during this period and commensurately shortened other breaks. Our review of California school districts which operate a year-round program indicates that no two districts have identical calendars; in fact, it is not uncommon for a single district to operate several different calendars.

***No "Best" Calendar.*** Our review indicates that, although there are virtually an unlimited variety of calendars that can be implemented for year-round education, *there is no single "best" calendar.* For example, a school needing to accommodate only 20 percent more students may not want to implement the Concept 6 calendar, which provides for increasing student capacity by up to 50 percent. Similarly, a district with a larger degree of overcrowding might determine that it makes more sense to operate one or several Concept 6 calendar schools, rather than an increased number of "45/15" or "60/20" schools, each of which individually affords a smaller capacity increase. A district with overcrowding only at the high school level might elect to implement the Concept 6 model, as it provides the greatest flexibility for scheduling classes where students rotate among teachers because it has fewer but larger tracks. On the other hand, a district with overcrowding only at the elementary level might opt for a calendar which allows for the easiest transition for students from a year-round calendar elementary school to a traditional-calendar secondary school. In sum, our review indicates that the "best" calendar is the one that fits a particular district's (and its community's) needs.

***Capacity.*** As illustrated above, most multitrack calendars allow for a 33 percent increase in capacity. Most schools, however, achieve a *lower* capacity increase for several reasons.

First, not all classrooms that are available on a traditional calendar can be maintained as classroom space in a year-round calendar program. For example, because generally one quarter of the teachers are not present at any one time, space needs to be allocated for the storage of these teachers' materials and as a workroom in which they can prepare upcoming materials during their "off-track" time. Second, because the school site is in continual use, such necessary maintenance and upkeep activities as cleaning and painting are difficult to perform unless some classrooms are periodically "cycled out" and kept empty and available for such services. Finally, in order to operate "intersession" programs–the year-round school equivalent of summer school–additional classroom space must also remain unoccupied.

***Uses of Increased Capacity.*** The increased capacity that results from a multitrack system may be desirable for reasons other than providing space for unhoused students. For example, where overcrowding has already been accommodated through other means–such as using libraries,

computer labs, special education or multipurpose rooms as classroom space–the conversion to multitrack may simply allow a school site to again "free up" these areas for their originally designated educational purposes.

Where overcrowding is unique to a particular site or sites, rather than districtwide, the increased capacity can be used to reduce or eliminate the need for busing students from a crowded site to one that has available space or for altering individual school site attendance areas.

The increased capacity also can be used to integrate selectively a school that is segregated racially, socially, or by ability. For example, the increased capacity generated at a racially segregated school can be filled with students of underrepresented races.

Finally, a change to a year-round calendar could be made to reduce class sizes without having to expand the facility. For example, a school with an enrollment of 480 students and an average class size of 30 students requires 16 classrooms. To reduce the class size by 20 percent (to 24 students per class), four additional classrooms (a total of 20 classrooms) would normally be required. By converting to a multitrack schedule, however, the school could make five additional classrooms available, thereby avoiding the costs of constructing any additional classroom spaces.

**Advantages and Disadvantages**

There are both benefits and costs–monetary and otherwise–associated with operating multitrack year-round educational programs. Below, we focus on two of the more significant areas of state concern–the costs and savings associated with year-round schools and its impact on students' academic achievement. In addition, we summarize other advantages and disadvantages of a multitrack calendar.

***Costs and Savings.*** In the area of *capital outlay,* the use of multitrack year-round programs could result in major state and local savings in school construction and rehabilitation costs. For example, our analysis indicates that, on average, it costs almost $5 million to purchase acreage and build a new elementary school to house 500 California students, for a per-student cost of about $10,000. Thus, each unhoused student who is accommodated through the use of a year-round schedule saves the local district a significant amount of capital outlay funds. For the state, the implementation of year-round programs in lieu of constructing new facilities would reduce the demand for state school facilities aid funds by potentially hundreds of millions of dollars.

These savings would be offset by certain capital and one-time costs to operate year-round schools. For example, many schools would require air conditioning and added insulation to operate during summer months, and almost all schools would have additional storage needs. Our review





indicates, however, that these one-time costs are fairly small in comparison to the capital savings.

In the area of *operating expenditures,* we are aware of only two in-depth financial analyses which compare the costs of year-round and traditional schools: one by the Oxnard Elementary School District and the other by the San Diego City Unified School District.

The Oxnard district is an entirely year-round district serving approximately 11,800 K-8 students. In a study conducted in 1986-87, the district compared actual per-pupil costs over a four-year period (1981-82 through 1985-86) of operating its year-round schools to its costs of operating traditional-calendar schools. The study found that the annual per-pupil cost of maintaining year-round schools averaged about 5.5 percent (or $123) *less* than what the district paid for traditional schools. The district attributes the overall savings primarily to economies of scale–that is, the additional enrollment permitted by a year-round program did not require a proportionate increase in expenses. In addition, the study identified four specific factors which contributed to these operational savings:

- Sharing of classroom and reference materials since four classes of students share three sets of materials.
- Avoiding the cost of additional benefit packages, as staff extended from 10-month to 11- or 12-month contracts did not require additional benefits.
- Reduced student and teacher absenteeism.
- Reduced school site burglary and vandalism.

The San Diego Unified School District is a K-12 district serving approximately 117,000 pupils. Of these, almost 18,000, or 15 percent, attend year-round schools. In a study focusing on the 1987-88 school year, the district compared the ongoing operational costs of accommodating excess enrollments through year-round schools to those of traditional schools. The district determined that, on an ongoing, per-pupil basis, there were *no increased costs* when capacity was increased by 20 percent and there were *savings of $8.92 per pupil per year* when capacity was increased by 25 percent. (The district's analysis also identified $400,000 in one-time costs associated with the conversion to year-round operations.)

Thus, while there currently is limited information on this issue, the evidence from these two studies indicates that, *on a per-pupil basis,* the operational costs of year-round schools are slightly *less* than those of their traditional calendar counterparts.

***Academic Achievement.*** In evaluating year-round education, a critical concern is its impact on academic performance. The field of literature

addressing this issue is quite limited. Following are the conclusions of several of the studies that have been conducted:

- A 1979 study of the Pajaro Valley Unified School District conducted by the Stanford Research Institute indicated that its year-round school program had little impact on a student's achievement test scores.
- A 1984 study conducted by the Los Angeles Unified School District concluded that its year-round programs relieved overcrowding without reducing educational quality or negatively affecting student's academic performance.
- The authors of a 1986 study of proficiency scores in the Oxnard Elementary School District found that year-round students outperformed traditional students in math, but the reverse was true in reading–although the differences in performance in both cases were small.
- The SDE, in a 1987 report on year-round education, analyzed test scores of students attending traditional, single-track, and multitrack calendar schools. Allowing for the special needs and demographics of the communities in which multitrack year-round schools have been placed, SDE concluded that the year-round calendar is a viable educational option "that can be associated with achievement at or above predicted levels."

Thus, a review of these studies suggests that students in year-round programs generally do no better or no worse than their counterparts in traditional calendar schools. We also discussed the issue of academic achievement with various practitioners during the course of our review. There appears to be a general consensus among principals and teachers in year-round schools that students' retention of subject matter is greater, thereby leading to a reduction in the amount of time that must be devoted to reviewing old material and enabling more new material to be covered.

*Other Considerations.* Chart 2 highlights many of the advantages and disadvantages associated with multitrack year-round education programs. Specifically, the chart indicates that year-round education can increase both the supply of substitute teachers and teachers' overall earnings to the extent that "off-track" teachers make themselves available as substitute teachers during some or all of their vacation time. Our visits to districts operating year-round programs indicate that almost all offer off-track teachers first priority for substituting at their home school during their vacation periods. Multitrack programs generally also offer the opportunity for classified personnel (for example, maintenance and cafeteria workers) to increase their overall earnings by converting from 10- or 11-month contracts to full-year contracts.





**Chart 2**

## Multitrack Year-Round Schools Advantages and Disadvantages

### ADVANTAGES

**Fiscal:**
- Is a cost-effective alternative to constructing or modernizing a new facility.
- Can reduce per-pupil operating costs.
- Reduces student and teacher absenteeism.
- Reduces school site burglary and vandalism.

**Facility Utilization:**
- Generally increases school site capacity up to 33 percent depending on the calendar selected, number of tracks, and other facility needs. Alternatively, allows for a reduction in class size, without adding additional classroom spaces.
- Acts as an alternative to busing, double sessions, or extended day schedules when overcrowding is present.
- Increases both school and community facility use.
- Allows more students to attend neighborhood schools.
- Increases flexibility for meeting district desegregation needs.

**Academic/Instructional:**
- Reduces the amount of remedial review done each September after the traditional vacation period learning regression.
- Encourages/requires teaching staff to be better organized.
- Enables intersessions to be offered for enrichment/remediation programs at more frequent intervals than summer school.

**Employment:**
- Increases availability of substitute teachers to the extent that year-round teachers elect to substitute during some or all of their "off-track" periods, and also increases salary opportunities for those teachers electing to substitute.
- Provides the opportunity for year-round employment for both support service personnel and educators.
- May provide secondary students with greater opportunities for vacation employment.

**Other:**
- Allows staff and families the opportunity to take vacations during "nonpeak" times.

### DISADVANTAGES

**Fiscal:**
- May present large initial implementation costs for building renovation (for example, the addition of air conditioning or storage facilities).

**Administrative:**
- Increases difficulty in scheduling schoolwide educational and extracurricular activities because one group of staff/students is always absent.
- Makes it difficult to communicate with "off-track" students and staff.
- Increases scheduling problems with transportation, central supply, and maintenance.
- Presents storage difficulties for "off- track" teacher's and classroom materials.
- Generally requires an increased level of coordination with ancillary community service organizations that provide recreational and child care services to vacationing students.
- May be difficult to schedule children from the same family that are in different grades.
- Becomes more difficult to regroup students once they are assigned to a track.

**Employment:**
- May reduce staff professional development opportunities, to the extent that courses are offered only in the summer.

**Other:**
- Parents have difficulty adjusting to a change in the traditional school calendar.
- Periodic vacations may create baby- sitting/ child care problems.
- May be difficult for families to coordinate vacations where children attend different schools that do not use the same calendar.

Chart 2 also indicates that there are many administrative difficulties associated with operating a multitrack year-round program, such as communicating with off-track students and staff, and scheduling such activities as maintenance, transportation, staff development and school-wide events. In addition, discussions with school district personnel indicate that parents frequently resist attempts to convert to a year-round education program until many of the advantages and disadvantages can be identified and thoroughly discussed.

#### Legislature's Interest in Year-Round Education

***State School Building Lease-Purchase Program.*** As noted earlier, the state currently has an estimated $800 million in bond funds available to finance $4.3 billion in requests from school districts under the State School Building Lease-Purchase program. This aid is provided primarily in the form of grants. To the extent that school districts file additional requests for aid between now and the next time additional funds could be made available to the program–either July 1989 (an appropriation in the Budget Act) or June 1990 (bond funds provided at the next statewide election)–the disparity between requests and availability of funds will continue to grow.

In addition to aid provided through the Lease-Purchase program, the Legislature also has enacted two year-round school "incentive" payment programs–SB 813 (Ch 498/83) and SB 327 (Ch 886/86)–which provide approximately $30 million annually to eligible school districts operating year-round programs. [A detailed discussion of these programs appears in our *1987-88 Analysis* (please see page 1008) and *1988-89 Analysis* (please see page 889).]

There is one low- or no-cost method through which the Lease-Purchase program could promote the use of year-round schools, thereby increasing the number of pupils that can be housed with available state revenues. Specifically, the Legislature could revise the funding allocation formulas to reflect year-round school operations.

***Revise Funding Formula.*** Under current law, school districts qualifying for the new construction program are awarded a total amount of funds based on a complex funding formula. This formula assumes that the new school to be constructed will operate on a traditional nine-month calendar, rather than on a multitrack year-round calendar. However, if the facility to be built were to operate on a year-round basis, the same number of students could be accommodated in a smaller facility at a significantly lower cost. To the extent that the state were to allocate funds on this multitrack basis (assuming a minimum 20 percent capacity increase), the $800 million currently available for expenditure could finance the equivalent of $935 million (an additional $135 million) in new





facilities construction. (The savings is less than 20 percent because there are certain fixed costs–such as basic acreage allotments and administrative facilities–that do not vary with the incremental addition of students.) To the extent that the state were to allocate funds on the assumption that newly constructed schools could accommodate greater than a 20 percent capacity increase (such as the Concept 6 calendar, which yields up to a 50 percent capacity increase), state savings would be even greater.

#### Summary and Recommendation

***We recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis.***

Our review indicates that multitrack year-round programs greatly reduce the demand for school facilities, are educationally sound and provide a viable alternative to the traditional nine-month calendar educational program. In light of this, and given the state's limited financial resources for constructing new school facilities, our analysis indicates that it is appropriate for the state to promote the use of year-round educational programs in lieu of the traditional nine-month calendar schools. Further, we can find very little analytical justification for the state to continue to provide funds under the Lease-Purchase program for the construction of traditional, rather than year-round schools.

Accordingly, to maximize the number of pupils that can be housed with available state revenues, we recommend that the Legislature enact legislation requiring Lease-Purchase program funds for new construction to be allocated to school districts as if the facility would operate on a year-round basis. In implementing this recommendation, the Legislature would not have to *require* districts participating in the Lease-Purchase program to operate year-round schools. Rather, the funds would be allocated *as if* the school were to be operated on a year-round basis, and the district could retain the option to operate the school on a nine-month calendar basis if locally raised funds were used to construct the larger (and more costly) facility needed to house the same number of students.

# APPENDIX D

## Costs of Building a New School Compared to Costs of Providing Year-Round Incentive Payments Under the SB 327 Program

In our publication, *Analysis of the 1987-88 Budget Bill*, we presented a detailed analysis of the fiscal effects of SB 327. In that analysis, we compared the costs to state taxpayers of accommodating students through the construction of new, state-funded schools (financed over a 20-year period), to those of providing year-round school incentives under the SB 327 program alone (that is, providing only the $125 per-pupil incentive). Using this same methodology, we have updated the earlier analysis for this report.

Our analysis indicates that, for the majority of school districts participating in the SB 327 program, the level of incentive payment provided in the annual Budget Act gives roughly *100 percent* of the state's gross cost avoidance to any school district attaining at least the 15 percent target" level of excess capacity accommodated through year-round operations. The only possible exception to this general conclusion may occur for school districts that have extraordinarily high land costs (such as Los Angeles Unified). In such cases, the $125 "cap" may serve to limit the amount of incentive payment, such that the state shares less than 100 percent of its gross cost avoidance.

## Costs of Building Schools Versus Year-Round Incentives

Table 3 presents the detailed analysis of the costs to state taxpayers of accommodating students through the construction of new, state-funded schools (financed over a 20-year period), versus providing year-round school incentives under the SB 327 program *alone* (that is, *not* including the additional $25 per pupil incentives provided through the SB 813 program). The table presents this analysis for three hypothetical school districts, with widely varying land costs: (1) $50,000 per acre, (2) $250,000 per acre, and (3) $1.5 million per acre.

This analysis reflects (1) principal and interest costs of school facilities aid bonds, (2) local property tax revenue losses associated with removing the site of the new school from the property tax roll, and (3) the value of the facility at the end of the 20-year period. In order to allow for appropriate comparisons of the value of money over the 20-year time span, both the school facility costs and the costs of incentive payments were expressed in present discounted value terms. (A "present discounted value" expresses future costs in terms of their equivalent value at the present, by taking into account the interest rate at which funds may be borrowed.)

In constructing this table, we have made the following, additional assumptions:

- 23,000 pupils attend year-round schools in the hypothetical districts, and these schools are accommodating the target level of 15 percent excess capacity.
- Constructing a new school to accommodate the 3,000 "excess" pupils costs $25.5 million ($8,500 per pupil).
- The value of the facility depreciates 2 percent annually over a 20-year period, and the value of the land appreciates 5 percent annually over this same period.
- Construction costs increase by 5 percent annually.
- State school construction bonds are sold at a 7 percent interest rate.

Table 3 shows that—for districts not affected by the $125 (inflation-adjusted) "cap" in per-pupil funding—the SB 327 year-round incentive program provides school districts with roughly 100 percent of the state's "savings" from not acquiring a site and building a school.

Table 3

## Costs of Building a New School Compared to Costs of Providing SB 327 Year-Round Incentive Payments For Hypothetical School Districts

(dollars in thousands)

| Land Cost of $50,000/Acre | | | | | | |
|---|---|---|---|---|---|---|
| | Taxpayer Cost of School Facility[a] | | | Taxpayer Cost of Year-Round Incentives | | |
| Year | Per Pupil | Total Cost | PDV[b] | Per Pupil | Total Cost | PDV[b] |
| 1 | $161.09 | $3,705 | $3,491 | $63.49 | $1,460 | $1,411 |
| 2 | 157.00 | 3,611 | 3,176 | 66.66 | 1,533 | 1,383 |
| 3 | 152.91 | 3,517 | 2,887 | 69.99 | 1,610 | 1,355 |
| 4 | 148.83 | 3,423 | 2,622 | 73.49 | 1,690 | 1,329 |
| 5 | 144.76 | 3,329 | 2,380 | 77.17 | 1,775 | 1,302 |
| 6 | 140.69 | 3,236 | 2,159 | 81.03 | 1,864 | 1,276 |
| 7 | 136.63 | 3,142 | 1,956 | 85.08 | 1,957 | 1,251 |
| 8 | 132.57 | 3,049 | 1,772 | 89.33 | 2,055 | 1,226 |
| 9 | 128.52 | 2,956 | 1,603 | 93.80 | 2,157 | 1,202 |
| 10 | 124.47 | 2,863 | 1,448 | 98.49 | 2,265 | 1,178 |
| 11 | 120.43 | 2,770 | 1,308 | 103.41 | 2,378 | 1,155 |
| 12 | 116.40 | 2,677 | 1,179 | 108.58 | 2,497 | 1,132 |
| 13 | 112.37 | 2,584 | 1,062 | 114.01 | 2,622 | 1,110 |
| 14 | 108.34 | 2,492 | 956 | 119.71 | 2,753 | 1,088 |
| 15 | 104.33 | 2,400 | 859 | 125.70 | 2,891 | 1,066 |
| 16 | 100.32 | 2,307 | 770 | 131.98 | 3,036 | 1,045 |
| 17 | 96.31 | 2,215 | 690 | 138.58 | 3,187 | 1,024 |
| 18 | 92.32 | 2,123 | 617 | 145.51 | 3,347 | 1,004 |
| 19 | 88.33 | 2,032 | 551 | 152.79 | 3,514 | 984 |
| 20 | 84.35 | 1,940 | 490 | 160.43 | 3,690 | 965 |
| | | $56,372 | $31,976 | | $48,283 | $23,487 |
| LESS Value of: | | | | | | |
| Facility | | $17,024 | $4,300 | | | |
| Land | | 7,960 | 2,010 | | | |
| NET TOTAL COST | | $31,388 | $25,665 | | $48,283 | $23,487 |
| Cost of Incentives as a Percentage of Facility Cost | | | | | | 91.5% |

| Land Cost of $250,000/Acre | | | | | | |
|---|---|---|---|---|---|---|
| | Taxpayer Cost of School Facility[a] | | | Taxpayer Cost of Year-Round Incentives | | |
| Year | Per Pupil | Total Cost | PDV[b] | Per Pupil | Total Cost | PDV[b] |
| 1 | $228.91 | $5,265 | $4,961 | $90.22 | $2,075 | $2,005 |
| 2 | 223.10 | 5,131 | 4,513 | 94.73 | 2,179 | 1,965 |
| 3 | 217.30 | 4,998 | 4,102 | 99.47 | 2,288 | 1,926 |
| 4 | 211.50 | 4,865 | 3,726 | 104.44 | 2,402 | 1,888 |
| 5 | 205.71 | 4,731 | 3,382 | 109.66 | 2,522 | 1,851 |
| 6 | 199.93 | 4,598 | 3,068 | 115.14 | 2,648 | 1,814 |
| 7 | 194.16 | 4,466 | 2,780 | 120.90 | 2,781 | 1,778 |
| 8 | 188.39 | 4,333 | 2,517 | 126.95 | 2,920 | 1,743 |
| 9 | 182.63 | 4,201 | 2,277 | 133.29 | 3,066 | 1,708 |
| 10 | 176.88 | 4,068 | 2,058 | 139.96 | 3,219 | 1,674 |
| 11 | 171.14 | 3,936 | 1,858 | 146.96 | 3,380 | 1,641 |
| 12 | 165.41 | 3,804 | 1,676 | 154.30 | 3,549 | 1,609 |
| 13 | 159.68 | 3,673 | 1,510 | 162.02 | 3,726 | 1,577 |
| 14 | 153.96 | 3,541 | 1,358 | 170.12 | 3,913 | 1,546 |
| 15 | 148.26 | 3,410 | 1,220 | 178.62 | 4,108 | 1,515 |
| 16 | 142.56 | 3,279 | 1,095 | 187.56 | 4,314 | 1,485 |
| 17 | 136.87 | 3,148 | 980 | 196.93 | 4,529 | 1,456 |
| 18 | 131.19 | 3,017 | 877 | 206.78 | 4,756 | 1,427 |
| 19 | 125.52 | 2,887 | 782 | 217.12 | 4,994 | 1,398 |
| 20 | 119.86 | 2,757 | 697 | 227.98 | 5,243 | 1,371 |
| | | $80,108 | $45,439 | | $68,612 | $33,376 |
| LESS Value of: | | | | | | |
| Facility | | $17,024 | $4,300 | | | |
| Land | | 39,799 | 10,052 | | | |
| NET TOTAL COST | | $23,284 | $31,087 | | $68,612 | $33,376 |
| Cost of Incentives as a Percentage of Facility Cost | | | | | | 107.4% |

**Table 3 Continued**

| Land Cost of $1.5 Million/Acre | | | | | | |
|---|---|---|---|---|---|---|
| | Taxpayer Cost of School Facility[a] | | | Taxpayer Cost of Year-Round Incentives | | |
| Year | Per Pupil | Total Cost | PDV[b] | Per Pupil | Total Cost | PDV[b] |
| 1 | $652.83 | $15,015 | $14,149 | $128.09 | $2,946 | $2,846 |
| 2 | 636.25 | 14,634 | 12,870 | 134.49 | 3,093 | 2,790 |
| 3 | 619.70 | 14,253 | 11,699 | 141.22 | 3,248 | 2,735 |
| 4 | 603.17 | 13,873 | 10,627 | 148.28 | 3,410 | 2,681 |
| 5 | 586.66 | 13,493 | 9,646 | 155.69 | 3,581 | 2,627 |
| 6 | 570.17 | 13,114 | 8,749 | 163.47 | 3,760 | 2,575 |
| 7 | 553.71 | 12,735 | 7,929 | 171.65 | 3,948 | 2,524 |
| 8 | 537.26 | 12,357 | 7,179 | 180.23 | 4,145 | 2,474 |
| 9 | 520.84 | 11,979 | 6,495 | 189.24 | 4,353 | 2,425 |
| 10 | 504.44 | 11,602 | 5,870 | 198.70 | 4,570 | 2,377 |
| 11 | 488.06 | 11,225 | 5,300 | 208.64 | 4,799 | 2,330 |
| 12 | 471.71 | 10,849 | 4,779 | 219.07 | 5,039 | 2,284 |
| 13 | 455.38 | 10,474 | 4,305 | 230.03 | 5,291 | 2,239 |
| 14 | 439.08 | 10,099 | 3,873 | 241.53 | 5,555 | 2,194 |
| 15 | 422.80 | 9,724 | 3,480 | 253.60 | 5,833 | 2,151 |
| 16 | 406.55 | 9,351 | 3,122 | 266.28 | 6,125 | 2,108 |
| 17 | 390.33 | 8,978 | 2,796 | 279.60 | 6,431 | 2,066 |
| 18 | 374.13 | 8,605 | 2,500 | 293.58 | 6,752 | 2,026 |
| 19 | 357.96 | 8,233 | 2,231 | 308.26 | 7,090 | 1,985 |
| 20 | 341.82 | 7,862 | 1,987 | 323.67 | 7,444 | 1,946 |
| | | $228,456 | $129,585 | | $97,412 | $47,385 |
| LESS Value of: | | | | | | |
| Facility | | $17,024 | $4,300 | | | |
| Land | | 238,797 | 60,313 | | | |
| NET TOTAL COST | | ($27,365) | $64,972 | | $97,412 | $47,385 |
| Cost of Incentives as a Percentage of Facility Cost | | | | | | 72.9% |

[a] Assumes: (1) a per-pupil construction cost of $8,500; (2) a facility depreciation rate of 2 percent, and a land appreciation rate of 5 percent; (3) a 7 percent interest rate; (4) 23,000 pupils attending eligible year-round schools where 15 percent excess capacity is accommodated; and (5) a 5 percent annual increase in construction costs.

[b] Present discounted value at 7 percent.

tive program provides school districts with roughly 100 percent of the state's "savings" from not acquiring a site and building a school.

Specifically, the table shows that, for a school district with land costs of $50,000 per acre, the state's taxpayers would pay a total of $48.3 million in SB 327 incentive payments, over the 20-year period that a facility is typically financed, for a facility that would have cost approximately $56.4 million (in principal and interest payments on bonds) to acquire a site and construct. The table further shows that, if we subtract out the value of the site and facility at the end of this period and express costs in terms of their present discounted value, the state would pay $23.5 million in incentive payments to avoid $25.7 million in costs to provide a new facility. Thus, the incentive payments (in present discounted value terms) would total about 92 percent of the state's net cost of acquiring a site and building a school (again in present discounted value terms).

The table also shows that, for a school district with land costs of $250,000 per acre, the present discounted value of incentive payments over the 20-year period would equal about 107 percent of what it would have cost the state to acquire a site and build a school—after allowing for the value of these assets at the end of the period.

Finally, the table shows that, for a school district with extraordinarily high land costs of $1.5 million per acre (such as Los Angeles Unified School District), the present discounted value of incentive payments over the 20-year period would equal only 73 percent of the state's cost avoidance. This is because the $125 "cap" acts to limit the amount to which the district would otherwise be entitled under the SB 327 program. (Although not shown in the table,

inclusion of the additional $25 per pupil incentive payment provided under the SB 813 program would raise the present discounted value over the 20-year period of the *combined* level of incentive payments to 83 percent of the state's cost avoidance.)

Even in school districts with high land costs (such as Los Angeles Unified), however, the state still may realize no net savings. This is because:

- The SB 327 incentive payment formula overpays school districts for land costs relative to the actual costs which would have been incurred under the state building program. Specifically, the formula pays districts for land costs in cases where the State School Building Lease-Purchase program would *not* have bought the district a school site (for example, where a district already owns a site that it acquired with its own funds) and (2) based on the assumption that the state would have built several unrealistically small schools, rather than on the state's actual practice of aggregating the total number of excess pupils into groups of sufficient size to justify the construction of a larger school (or schools).
- As currently designed, both the SB 327 and the SB 813 programs may function as a subsidy for a district while waiting in line for new construction funds, rather than as an alternative to new construction. To the extent that a district receives both the incentive payments and a new facility, the state clearly realizes no savings at all.

# Appendix E

## Economic Analysis: Practical Method for Determining the Optimal Level of Incentive Payment

This appendix presents a more detailed economic analysis to support the conclusions that, if the state pays all districts the same percentage of gross cost avoidance:

- The more inelastic[1] the supply curve of pupils in year-round schools, the lower is the optimal level of incentive payment, and
- In the case of relatively inelastic supply (elasticity < 1), the optimal level of incentive payment is no greater than one-half the per-pupil cost of acquiring land and building a new facility.

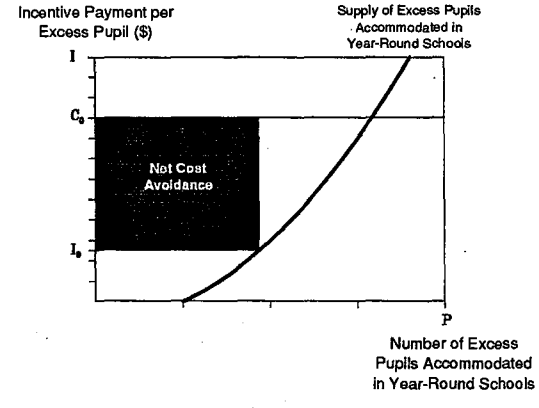
Chart 9 illustrates a hypothetical "supply curve" relating the number of pupils in excess of nine-month capacity that are accommodated through year-round operations (horizontal axis) to the level of annual per-pupil incentive payment offered by the state (vertical axis). It is important to note that the vertical axis shows the amount of incentive payment expressed as an amount per *excess* pupil accommodated through year-round operations (in contrast to the SB 327 program, which provides such payments based on the *total* number of pupils accommodated in year-round schools).

The reason for displaying incentive payments in this manner is to make the analysis consistent with that used in describing the state's cost avoidance. Specifically, because only those pupils in *excess* of existing schools' capacities would otherwise need to be accommodated through acquiring land and building new schools, the per-pupil cost avoidance from not having to do so also reflects only *excess* pupils. In order to be consistent, therefore, it is necessary to describe the costs of incentive payments also in terms of costs per *excess* pupil accommodated through year- round operations.

In Chart 9, the supply curve slopes upward to the right, reflecting a basic assumption underlying the offering of incentive payments: that school districts will respond to such payments by increasing the numbers of pupils on year-round schedules, and that (other things being equal), a higher level of incentive payment will lead to greater increases. In this particular example, the curve also crosses the horizontal

**Chart 9**

**Relationship Between Supply of Excess Pupils and Optimal Level of Incentive Payment**




[1] In economic terms, "elasticity" refers to the responsiveness of "quantity" (number of pupils attending year-round schools) to a change in "price" (the level of incentive payment). Specifically, elasticity is defined as (1) the percentage change in the number of pupils on year-round schedules, divided by (2) the percentage change in the level of per-pupil incentive payment. The closer this quotient is to zero, the more "inelastic" is the supply curve.

axis at a point to the right of the origin, reflecting the reasonable assumption that school districts would continue to maintain some number of schools on year-round schedules, even if *no* incentive payment were offered.[2]

In the chart, the horizontal line labeled $C_0$ indicates the annual amount it would cost the state per pupil to accommodate excess enrollments in new facilities.[3] For any particular level of incentive payment, I, therefore, the net amount of annual costs avoided per pupil equals $C_0$ minus I. Multiplying this amount by the total number of pupils in year-round operation, P, gives the total, net amount of annual cost avoidance associated with any particular level of incentive payment:

$$\text{Annual net cost avoidance} = (C_0\text{-}I) * P$$

In terms of the graph, this amount is given by the area within the rectangle.

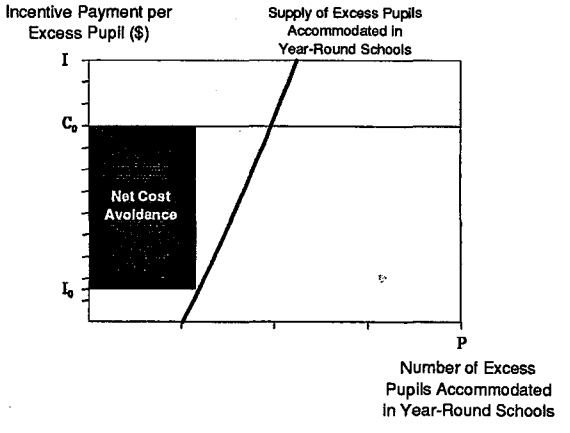
The optimal level of incentive payment, therefore, is the one which maximizes the size of the rectangle shown in the chart. Put another way, the goal is to increase the level of incentive payment to the point where any further increase in the payment level would result in additional state costs (in terms of incentive payments) that exceeded the additional state "savings" (in terms of avoided costs of school facilities). In other words, the optimal level of incentive payment is the point at which the marginal state "savings" just equal the marginal state costs. In the chart, the optimal level of incentive payment is $I_0$, and it is at this point that the area within the rectangle is greatest.

Chart 10 shows how the optimal level of incentive payment is affected by variations in the shape of the supply curve. In this chart, the slope of the curve is much steeper, indicating that—in this example—changing the level of incentive payment would have very little effect on the number of excess pupils accommodated through year-round operations. As the chart shows, in this instance the optimal level of incentive payment is quite low. Intuitively, this result makes sense as well: if school district behavior is influenced very little by the level of incentive payment offered, then a very high level of incentive payment will primarily result in windfall gains to districts that would have been using year-round operations in any event.

A supply curve such as the one shown in Chart 10—in which the percentage change in "quantity" for a given percentage change in "price" is quite small—is said to be "inelastic." Generally speaking, the more inelastic the supply curve, the lower is the level of incentive payment which maximizes the total amount of

**Chart 10**

**Relationship Between Supply of Excess Pupils and Optimal Level of Incentive Payment—Inelastic Supply**




[2] The lack of availability of state school facilities aid funds, for example, coupled with overcrowding in existing facilities, would undoubtedly lead some school districts to implement year-round operatons, whether or not the state offered incentive funding. Changes in these, or any important factors other than the level of incentive payment offered by the state, cause the supply curve to change shape—or to shift position. Thus, increases in the level of overcrowding statewide would tend to shift the supply curve outward. This, in turn, would lead to an increase in the number of excess pupils accommodated through year-round schedules, even with no change in the level of incentive payment offered.

[3] As shown elsewhere in this report, the actual amount of this per-pupil cost avoidance can vary greatly, depending primarily on local land costs. For the purpose of the example, the supply curve assumes an aggregation of school districts with roughly similar land costs.

net costs avoided by the state. Further, for any supply curve with an elasticity of less than one (that is, a supply curve in which a given percentage change in the level of incentive payment results in a lesser percentage change in the number of pupils on year-round schedules), the optimal level of per-pupil incentive payment cannot exceed one-half the amount of the state's gross cost avoidance per pupil.

## Mathematical Proof of Optimization Condition

Assume that the state wishes to maximize the total amount of net costs avoided through not having to construct new facilities:

$$(C_0\text{-}I) * P$$

where P is the number of pupils in excess of facility capacity who are accommodated on year-round schedules, $C_0$ is the per-pupil cost of acquiring land and building new facilities to accommodate such pupils, and I is the level of year-round school incentive payment (per pupil in excess capacity) offered by the state.

Assume further that the number of pupils, P, on year-round schedules is a function of the level of incentive payment, I, offered by the state:

$$P = f(I)$$

Using a standard method of mathematical economics,[4] the optimal level of incentive payment, I, may be found through maximizing the following Lagrangean function, Z:

$$Z = (P)*(C_0\text{-}I) - L(P - f(I))$$

This function, in turn, is maximized by solving the following system of simultaneous equations:

$$dZ/dI = -P - L(df/dI) = 0$$
$$dZ/dP = C_0 - I + L = 0$$
$$dZ/dL = f(I) - P = 0$$

These equations lead to the optimization condition:

$$dP/dI = P/(C_0\text{-}I)$$

Or, multiplying both sides by (I/P):

$$E_{P,I} = I/(C_0\text{-}I)$$

where $E_{P,I}$ is the elasticity of P with respect to I.

Rearranging terms and solving this equation for I yields:

$$I = C_0 * (E_{P,I}/(1+E_{P,I}))$$

This equation states that the optimal level of incentive payment, I, is found by multiplying the per-pupil cost of a new facility by the ratio of the elasticity of supply to one plus this elasticity.

Thus, for a completely inelastic supply curve (E = 0), the optimal level of incentive payment is:

$$I = C_0 * (0/(1 + 0)) = 0$$

And, for a relatively inelastic supply curve (E < 1):

$$I < C_0 * (1/2)$$

Finally, as the elasticity of supply approaches infinity, the optimal level of incentive payment approaches $C_0$. In no case, however, does the optimal level of incentive payment exceed $C_0$.

Thus, if the overall number of pupils on year-round schedules is:

- *Completely unresponsive* (that is, a given percentage increase in the level of payment results in *no* increase in the number of pupils in year-round schools), then the optimal level of incentive payment is zero.
- *Relatively unresponsive* (that is, a given percentage increase in the level of payment results in a less-than-equivalent increase in the number of pupils in year-round schools), then the optimal level of incentive payment is between 0 percent and 50 percent of the state's gross cost avoidance.

[4] See, for example, Alpha C. Chiang, Fundamental Methods of Mathematical Economics (2d ed.), (New York: McGraw-Hill), 1974, pp. 376-9.

- *Relatively responsive* (that is, a given percentage increase in the level of payment results in a more-than-equivalent increase in the number of pupils in year-round schools), then the optimal level of incentive payment is between 50 percent and 100 percent of the state's gross cost avoidance.
- *Infinitely responsive* (that is, a given percentage increase in the level of payment results in an *infinite* increase in the number of pupils in year-round schools), then the optimal level of incentive payment is 100 percent of the state's gross cost avoidance.