State Cost Requirements Imposed
On California's School Facility Program
After 1998

for

Coalition for Adequate School Housing

by

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Executive Summary

In 1998, the Legislature modified the way in which school facilities are funded. Under the new program, known as the School Facility Program (SFP), school districts receive grants from the state generally intended to cover 50 percent of the cost of building new school facilities. Since inception, the amount of the state grants has been the subject of considerable controversy, with many school districts asserting that the grants are not adequate to cover 50 percent of the costs of building new schools.

One important source of school districts' concern about the adequacy of the SFP grants stems from new requirements imposed on districts since the program was enacted. Many new requirements have been imposed while other requirements have been changed or enforcement of existing requirements has increased. The result, according to school district officials, is a significant increase in the cost to build new school facilities.

The Coalition for Adequate School Housing has undertaken a study of these new requirements and other changes that have occurred since the SFP was implemented in order to assess the impact of these changes on costs to build new school facilities.

The results of this analysis are presented in this report. According to our research, the impact on school districts of changes that have occurred can be broken down into several categories:

- First, during the period 1998 to 2005, the state has experienced an almost unprecedented boom in real estate. The result has been rapidly rising prices for land (including land used for school sites) and rapid increases in construction costs for new school facilities. This increase in construction costs has outpaced the increases in the state per pupil grant that have occurred during this period. Specifically, we estimate that costs to build schools in California have increased by about 6.5 percent on average each year during the period 1999 to 2005, based on our empirical analysis. This compares with a 4.4 percent annual average increase in the state per pupil grant amount. During the entire study period (1999 to 2005) we estimate that costs to build new schools have increased by about 48 percent. During the equivalent period, the per pupil grants increased about 29 percent.

- Second, a number of the newly imposed requirements have resulted in a lengthening of time required to complete new school facilities. While these requirements may serve important purposes, taken as a whole, they have increased the time required to obtain approval for and ultimately to build a new school facility. In an environment of rapidly rising costs, these delays have had the effect of increasing costs beyond the direct cost of the requirements themselves.

- Third, while many of the newly imposed requirements have been accompanied by additional state reimbursements, others have not. As a result, districts are, in many cases, bearing the full cost of these newly-imposed requirements. Even in cases where the state grant has been increased to accommodate these increased costs, local school districts still must bear a 50 percent share of the cost increase.

Taken as a whole, these factors have acted to increase costs for new school facilities beyond the amount provided via increases in per pupil grants received by school districts.

Introduction

In 1998, the Legislature significantly modified the way in which school construction is financed in California by requiring school districts to contribute 50 percent of the cost for new construction and 20 percent (changed in subsequent legislation to 40 percent) for modernization projects. The prior program, under which districts received project apportionments based on square footage per student, was replaced by a program that provides funding in the form of per pupil grants and a sharing of costs between the state and local districts. Under the current School Facility Program (SFP), the concept is that the state provides funding for roughly half the cost of new construction projects and sixty percent of the cost of "modernization," or renovation, of existing schools.

The Coalition for Adequate School Housing (C.A.S.H.), an organization representing approximately 480 school districts throughout the state, has undertaken a study of the impact of new requirements imposed on school districts as part of the SFP. The purpose of the study is to determine whether the changes that have occurred since the new program was enacted have imposed additional costs on school districts for school construction or modernization that were not contemplated when the program was established.

Organization of the Report

We begin the report with a brief description of the SFP. The next section describes the various program requirements in the SFP that have been imposed since the program was established in 1998. We also discuss what costs, if any, these requirements have imposed on school districts, to the extent we have been able to identify these costs. The second section of the report presents an empirical analysis of the change in school construction costs since the SFP was established and discusses what factors appear to be driving these costs.

Description of the School Facility Program

SB 50 (Chapter 407, Statutes of 1998) replaced the then-current K-12 state school building program (the Lease-Purchase Program (LPP)) with a new school construction financing program intended to provide districts with less project oversight by state agencies and an incentive to manage the cost of school construction. It replaced the prior program under which the state provided most of the funding for local school projects but dictated virtually all project specifications. The new program requires a significant local financial contribution but the intended trade off was greater local flexibility in the design of schools.

Under the SFP established by SB 50 districts are eligible for state funding in the form of specified per pupil grants intended to fund 50 percent of the cost of constructing a new school. These grants are adjusted annually with the intent of reflecting changes in the cost of construction. Districts draw upon their funding eligibility to finance specific projects but must match the state funds in order to be eligible to receive them. Additional state funding equal to 50 percent of the cost of site acquisition and development may be added to the per-pupil grant amount. Also, districts may be eligible for a number of other supplemental grants to address special project needs, such as school site hazardous waste assessment and remediation. Finally, districts can qualify for a state share of cost of more than 50 percent if they meet certain criteria related to financial hardship.

The SFP also provides districts with funding for the modernization of school facilities 25 years old or older (20 years or older for relocatable classrooms). Districts are eligible for per pupil grants from the state representing 60 percent of the cost of "essential project costs." (Originally, the state share for modernization projects was 80 percent.) The grant amounts are set in statute and are adjusted annually consistent with the adjustments made to the new construction per pupil grants. Districts must come up with a 40-percent matching share in order to qualify for the state funds.

Generally the first step that a district undertakes is to establish its eligibility for state funding under the SFP. For new construction funding, eligibility can be established on a district-wide or high school attendance area basis and involves identifying the number of "unhoused" students in the district based on enrollment projections and existing classroom capacity. Once eligibility is established, a district does not need to reestablish it for individual new construction projects, though it is updated for new enrollment. Eligibility for modernization funding is determined on a site-by-site basis according to the age of the facilities.

After establishing eligibility, a district requests funds for a specific project. Generally, this occurs after the district has acquired or identified a site for the project and after plans for the project are approved by the Division of the State Architect (DSA) and the California Department of Education (CDE). (CDE also approves site acquisition.) In the course of completing the approval process, the district may need to obtain approvals from other state agencies, such as the Department of Toxic Substances Control (DTSC) if there is an issue relating to hazardous substances on the site, for example.

Once the site and the plans are approved, a new construction adjusted grant is calculated. It includes the state's per pupil grant as well as any supplemental grants for site acquisition or development or other adjustments for which the district may be eligible. After the Office of Public School Construction (OPSC) processes the grant it is submitted to the State Allocation Board (SAB) for approval and then funds are released at the district's request after the district is able to demonstrate that it has met certain criteria required by law and regulation. The district reports its expenditures of state and local matching funds to OPSC, which ultimately concludes the process with a close-out audit.

Under the program a district has the flexibility to request less than the full number of per pupil grants for which it is eligible given the number of students the project would serve subject to limitations specified in the program regulations. This "banked" eligibility can be carried over to future construction projects.

Once the state makes its apportionment, it is a "full and final" amount. Therefore, the school district is at risk from cost overruns, legal disputes and other unanticipated costs. At the same time, districts have an incentive to manage projects as effectively as possible because any savings are retained by the district (along with interest earnings) and can be used for other district capital outlay projects.

This report does not address the question of whether the initial grant amounts established pursuant to SB 50 were adequate to pay for half the cost of constructing a "typical" school in 1999. That was the topic of a study conducted by a CASH task force involving school district representatives, state agency representatives, architects, construction industry representatives and others. That study concluded that at the time of the conversion of the LPP to the SFP in 1998 the per pupil grants were deficient by 8.8 percent for elementary schools, 27.7 percent for middle schools and 14.55 percent for high schools in meeting the legislative intent of providing per pupil grants under the SFP that equated to the per pupil project allocations school districts received to construct new schools under the LPP. This report instead addresses changes that have been made to the program since then to assess what impact these changes have had on school districts' capacity to build schools.

I. Newly-Imposed or Modified Program Requirements

There have been numerous changes to the statutes, regulations and administrative processes governing the SPF since the program was established by SB 50. Many of these changes have had a minimal impact on the program and related costs. Other changes have been much more significant, and some of the more significant changes have been accompanied by increased state funding intended to cover some of the additional costs generated by these new requirements. The following section of this report describes the various new requirements that have been imposed, and, where information about the cost of these requirements is available, discusses those cost impacts. Because in this section of the report cost information is generally based on interviews with school district personnel and other experts, in many instances this information is anecdotal.

The newly-imposed requirements fall into several major categories:

- Significant new program requirements
- Minor modifications to the program
- Building code changes
- Changes in regulations governing reporting and approval processes
- Changes in administrative practices that have had an impact on the conduct of the program

These categories are subjective and are intended simply to organize the discussion of the myriad ways in which the program has been modified since its inception. Appendix A lists the requirements discussed below.

A. Requirements for Which Additional State Funding is Provided

Hazardous Substance Contamination

Beginning in 1999, the Legislature enacted a series of bills significantly modifying the process whereby school districts determine the extent of contamination, if any, of potential school sites by toxic substances and provide for cleanup or mitigation. Previously, school boards were prohibited from approving a project involving the acquisition of a schoolsite or construction of a school unless the district had determined that the property purchased or to be built upon was not a current or former hazardous waste site.

SB 162 (Chapter 1002, Statutes of 1999) and AB 387 (Chapter 992, Statutes of 1999) required school districts, as a condition of receiving state funding under the SFP, to conduct phased environmental investigations, which are then reviewed and approved by DTSC. After completing these steps, which can include a Phase I Environmental Site Assessment and a Preliminary Endangerment Assessment (PEA), the school district must enter into an agreement with DTSC to oversee the response action at the site. The school district may not begin construction of a school building or occupy a school building following construction until it obtains certain certifications from DTSC. (See Appendix B for a description of the steps districts go through in complying with the DTSC requirements.)

School districts are eligible for reimbursement from the state for 50 percent of the cost of the evaluation of hazardous materials at a site and 50 percent of the response costs for removal of hazardous waste or other remedial action in connection with hazardous substances at that site. Reimbursement is capped at 50 percent of 1½ times the appraised value of the uncontaminated site (higher in instances of extreme need).

Districts that qualify for financial hardship status may obtain funding for up to 100 percent of the cost of the evaluation of hazardous materials and the response costs at a site, subject to the appraised-value cap.

The cost of complying with the DTSC requirements ranges from hundreds of thousands of dollars for the cost of environmental consultants to perform the initial assessment and sampling, if required as part of the assessment process, to potentially millions of dollars to the extent that hazardous wastes need to be removed from a site. As noted, generally the state pays for half of these costs. Districts are liable for the balance of these costs. And while prior to the enactment of the SFP districts had an obligation to ensure that schools were not built on current or former hazardous waste sites, establishment of the DTSC process has imposed additional costs on districts to comply with state oversight and timelines.

Some district representatives believe that the DTSC process is the biggest uncertainty districts currently face in terms of predicting the timing of a project. They indicated that the most significant unknown in terms of project-approval timing used to be the required signoff on a project from DSA. These observers argue that the DTSC process adds six months to two years to the process of completing a school. Some of this time relates to the statutory timelines for public review.

Early in the program DTSC and CDE were required to report regarding compliance with the timelines established in statute for completion of certain tasks. According to these reports, with few exceptions, DTSC completed its review of Phase 1 and PEA reports within the specified timelines. However, if DTSC requests additional information from a district, the allowable timeline starts over when the district resubmits the document to DTSC. These requests for additional information result from circumstances where, in DTSC's view, districts submit incomplete documentation or need to correct information already submitted. In addition, the statutory timelines do not include the time required for a district to negotiate an oversight agreement with DTSC, the time required by the district to prepare a PEA, or revisions necessary to complete a PEA.

Another concern raised by school districts relates to DTSC's costs. Districts are required to reimburse DTSC for its costs to review district submissions (half of these amounts are reimbursed by the state). Some of DTSC's costs are generated by its oversight of the consultants hired by districts to prepare the Phase I assessment and other documentation.

DTSC staff believe that they have been able to get this work done less expensively than at least some districts. In a pilot project involving seven districts over the last five years, DTSC used federal grant funds to perform the districts' PEAs. DTSC hired consultants to perform this work at from $35,000 to $85,000 per assessment, but DTSC indicates that school districts are paying upwards of $250,000 per PEA. Some observers believe that consultants hired to perform this work are charging districts more now than several years ago. We were unable to determine, however, whether the DTSC-administered PEAs were comparable in terms of complexity.

Another district concern relates to whether sampling should be performed as part of the Phase I assessment. Districts would prefer to submit limited sampling as part of the Phase I process rather than having to wait until the PEA (if one is required based on the Phase I assessment). The legislation establishing the program provides that a Phase I assessment generally involve a record search, rather than testing.

Given that school districts often acquire residential property for school sites, DTSC incorporated into Phase I testing for contaminants typically found on these properties (lead-based paint and PCBs) rather than waiting until the PEA to do testing. In addition, in an effort to keep districts moving through the site acquisition process, DTSC has established procedures that permit districts to receive state construction funding prior to the completion of remediation if they sign agreements with DTSC to keep clean up of PCBs and lead-based paint on track. Also, remediation can be performed while construction is occurring if it takes place at a different part of the site or if the remediation needs to be done as part of construction so long as DTSC indicates that it has no safety concerns.

As a result of these changes school districts recognize that DTSC is trying to help, but they still regard the program as time-consuming and costly.

Within the last two years another issue has emerged relating to naturally occurring asbestos. DTSC imposed a new requirement that school sites within a 10 mile radius of naturally occurring asbestos need to be evaluated. In some instances this has resulted in delays in completing projects where naturally occurring asbestos has been identified as the district has begun site preparation or construction.

In addition DTSC has been working with districts to develop an approach to long-term management of hazards, such as naturally occurring asbestos, that remain on the school site after construction is completed. Under the approach being contemplated, DTSC would require districts to develop a plan for ongoing mitigation thirty years into the future, provide an estimate of the yearly cost of the monitoring and mitigation effort, and submit periodic plans to DTSC for review. One district has estimated the cost of the monitoring plan for their school at $25,000 per year, not including the cost of DTSC review and oversight. At this point, because these costs are ongoing, it is not clear whether they will qualify for reimbursement of a state share of cost and, if so, how that reimbursement would be funded.

Storm Water Requirements

The federal Clean Water Act (National Pollutant Discharge Elimination System (NPDES)) provides that the discharge of pollutants into waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. For implementation purposes, the State Water Resources Control Board (SWRCB) has established a statewide General Permit that applies to all storm water discharges associated with construction activity.

In order to qualify for a General Permit school districts must prepare a storm water pollution prevention plan (SWPPP) if they engage in construction activity that will disturb an acre or more of land. The nine regional Water Quality Control Boards enforce these requirements. The SWPPP must list best management practices the discharger will use to prevent construction pollutants from contacting storm water, keep all products of erosion from moving off site and eliminate or reduce non-storm water discharges to storm sewer systems.

Historically, school districts have been required to submit a plan to one of the regional Water Quality Control Boards to certify that they are able to protect water quality. That plan is required to be more site specific, due to modifications made by the SWRCB to the General Permit in 2001 in response to a court judgment. The Court directed the SWRCB to require permittees to implement specific sampling and analytical procedures to determine whether best management practices implemented on a construction site are adequate to prevent (1) further impairment from sediment in discharged storm waters and (2) other pollutants from exceeding water quality objectives.

In addition, several years ago the regional water boards imposed design standards on permitees. Previously, compliance standards were self-defined. Also relatively recently, the U.S. Environmental Protection Agency began to require permitees to prepare district-wide plans as opposed to project-by-project plans.

Based on our discussions with districts, the cost of developing a storm water pollution prevention plan is approximately $25,000 to $35,000, but sometimes higher. The state share of these costs is covered within a district's per pupil grant allocation. Engineering costs for the design of mitigation measures are covered up to an amount equal to eight percent of total verified costs for mitigation measures reimbursed by the state.

In addition, under the SFP the state will fund 50 percent of the cost of erosion control up to $800 per acre as part of site preparation costs, but some districts argue that this covers only a portion of the cost of implementing the plan.

The SWRCB is currently considering setting numeric limits for ongoing discharges of contaminants, for example, from a school maintenance or corporation yard. This would necessitate ongoing monitoring by districts, resulting in general fund costs to school districts for which a state share would likely not be reimbursed.

Labor Compliance Program

Legislation enacted in 2002 (AB 1506, Chapter 868) requires school districts to initiate and enforce a labor compliance program as a condition of receiving 2002 and 2004 state school bond funds. Prior state law specifies a number of elements of labor compliance programs, which are designed to ensure compliance with prevailing wage requirements for public construction projects.

Under the 2002 legislation, the district must establish a labor compliance program or contract with a third party to enforce a labor compliance program. The district must certify to the SAB that it has complied with this requirement before state bond funds can be released to the district.

The bill also required the SAB to adjust the per pupil grant amounts to accommodate the state's share of the increased cost of new construction or modernization projects due to the imposition of the labor compliance program requirement.

Because regulations implementing the program were adopted relatively recently, districts do not have much experience dealing with this new requirement. Generally, however, in our discussions with districts, they indicated that the adjustment in the per pupil grant covers the state's share of the cost of establishing the compliance program (or hiring a third party to do it).

However, several district staff made two additional points. First, they believe that any additional cost to contractors to track paperwork related to the labor compliance program, which would show up in construction bids, is not covered by the reimbursement. Second, they believe that contractors now may err on the side of defining construction tasks as skilled (and thus eligible for prevailing wages) rather than unskilled in order to avoid potential violations, which would result in penalties. These district staff believe they saw this impact within 3 to 4 months of imposition of requirement. However, they acknowledge that contractors may have erred in the other direction (by inappropriately defining certain jobs as unskilled) prior to the imposition of this requirement.

Fire Suppression/Alarm Systems

SB 575 (Chapter 725, Statutes of 2001) provided that all newly constructed public schools are required to have an automated fire detection, alarm, and sprinkler system approved by the State Fire Marshal. Modernization projects that cost more than $200,000 are required to have an automated fire detection and alarm system (but not a sprinkler system).

Previously schools were only required to be equipped with a fire warning system. In addition, while prior to the enactment of SB 575 the California Code of Regulations required the installation of an automatic fire detection system and a sprinkler system in newly constructed public schools, a sprinkler system could be replaced by other construction elements referred to as "trade-offs." School districts could opt to install a sprinkler system based upon the requirements of the code if they choose to do so.

SB 16 (Chapter 33, Statutes of 2002) directed the SAB to adjust the amount of the state's per pupil grant to accommodate the state's share of cost for the requirement that these systems be installed. These adjustments range from $30 to $40 per pupil for fire detection and alarm systems and from $97 to $131 per pupil for sprinkler systems, depending on the type of school being constructed.

We saw no evidence that the initial increase in the state grant amount was insufficient to cover the state's share of these costs to install these systems. However, even if the grant adjustment was sufficient to cover the state's share of the cost, school districts face additional unreimbursed costs for their share of a project's costs due to the imposition of this requirement.

Energy Code Requirements and Grant Program

Energy efficiency requirements that apply to school construction are set out in the energy code (California Building Code (CBC), Title 24, Part 6). Generally school buildings are subject to the requirements that apply to commercial buildings. The State Department of General Services (DGS) made compliance with energy code requirements part of the district plan check process about a year ago.

A number of changes were made to the energy code requirements in 2001 and again in October 2005. The most significant change made in 2005 relates to the design and placement of windows and related structures in buildings ("fenestration"). In addition, installers face more stringent testing requirements relating to ensuring acceptable performance of lighting and mechanical devices, such as heating and ventilation systems. Finally, special provisions were detailed for determining the energy efficiency of relocatable classrooms.

No additional state funds are provided to cover costs associated with meeting these requirements (except through the grant program described below). However, because the requirements are designed to generate savings from lower energy costs over time, state officials argue that they will pay for themselves within a relatively brief period – on the order of five to seven years. Thus, it is likely districts will face higher-up front costs to construct school facilities as a result of these requirements, but experience lower operating costs (which are generally supported from district general fund monies rather than from capital facilities funds) for these buildings.

SB 16 provides state grant funds to encourage districts to exceed the energy efficiency requirements imposed by the state building code on school facilities (among other provisions of the bill). State assistance is provided for various energy efficiency measures included in construction projects, including conservation, load reduction technologies, peakload shifting, solar water heating technologies, the use of ground source temperatures for heating and cooling, and photovoltaics. The grants cover the state's share of cost for these efficiency measures up to five percent of the total state per pupil grant for the project. In order to be eligible, the project must exceed the energy efficiency standards set forth in Title 24 by at least 15 percent and have a projected payback period of seven years. A total of $20 million from each of the 2002 and 2004 school bonds was appropriated for grants provided under this program.

B. Requirements for Which No Additional State Funding is Provided

Building Code Changes

As periodic changes are made to the CBC, districts must incorporate these changes into their school building designs. Since the adoption of the SFP in 1998, a number of changes have occurred to building code provisions that affect the construction of schools. Among some of the more significant changes are:

- A change to the specifications regarding load and resistance factors relating to structural steel buildings (Sections 2206A and 2207A of the CBC, Title 24, Part 2, Volume 2), which primarily affects welding requirements. This change has resulted in potentially significant additional costs for materials inspection and retesting. Architects interviewed noted that retesting costs in particular would likely be borne solely by districts.

- A change that allows wood sill plates to directly contact a masonry or concrete foundation rather than a one-half inch grout bed on the foundation. This change results in significant savings to construct schools, estimated by some at in excess of one percent of the total construction bid for the project.

- A change involving the adoption of seismic provisions for structural steel buildings (Sections 2210A and 2211A of the CBC, Title 24, Part 2, Volume 2), affecting only steel moment frame buildings, which represent a relatively small portion of school construction projects. As a consequence, the impact of this change is relatively modest.

A building code issue mentioned frequently in interviews with districts relates to the toilet and urinal counts imposed by the Uniform Plumbing Code. In 1994, DSA adopted a fixture count regulation, which specified the number of toilets and urinals required to accommodate a specified school site population. This regulation was followed with a minor revision in 1998. However, districts noticed more stringent enforcement around 1998 when DSA started requiring compliance with this code provision. This change can result in significant additional cost to districts depending on the configuration of the construction project. For example, if the district is making a relatively minor addition to a campus, they may not have planned to add a restroom; this requirement could require them to do so if the number of students served triggers the need for additional stalls or urinals. Even though this requirement predated the enactment of the SFP, because it was apparently not enforced until later, it is not clear whether districts were complying and, as a consequence, whether the initial state per pupil grant took account of the additional cost it imposed.

In addition, as districts have come to rely on the use of relocatable classrooms to meet at least a portion of their classroom needs, that has triggered a number of issues related to code requirements. For example, code provisions specify that restrooms be available within a certain distance from relocatable classrooms. This can result in the need to extend plumbing and sewer lines to a campus location where they may not have previously existed, potentially at considerable additional cost relative to the total budget for a project. Thus, the use of more relocatables has resulted in districts encountering costs that may not have been anticipated when the SFP was established.

Access Compliance Requirements

Like all public agencies, school districts are required to meet building code requirements relating to access for the disabled. In order to accomplish this, districts are required to inventory their facilities to identify instances where they are not in compliance with code requirements and develop a transition plan for these deficiencies to be remedied. Generally, these requirements are related to ensuring that the "path of travel" and public accommodations (phones, water fountains, etc.) are accessible.

The requirement to ensure that buildings are accessible is not per se a newly-imposed requirement in the SFP. But as periodic changes are made to the CBC, districts must incorporate these changes into their school building designs. A set of code changes related to access compliance occurred in 2001. Many of the 2001 changes are relatively minor in nature. However, cumulatively these changes likely result in costs to districts on the order of tens of thousands of dollars per project, depending on the project. In a number of other instances, again depending on the project, the costs resulting from these changes are more significant. For example, the requirement that toilet stalls be 60 inches wide could result in significant costs particularly in the instance of a modernization project, if it results in the need to reroute plumbing and sewer connections. Similarly, the requirement that unloading aisles in parking lots not exceed a 2 percent slope can result in significant costs if it affects drainage or results in the need for regrading. See Appendix C for a list of access requirement changes incorporated into the CBC in 2001 and estimates of the likely cost impact. The California Building Standards Commission is scheduled to consider another set of DSA-recommended changes to the access compliance code provisions in the Spring and Summer of 2006.

Districts do not receive additional funding specifically related to the cost of successive code changes nor is there any specific funding under the SFP for access compliance. In theory these costs are reflected in the annual adjustments made by the State Allocation Board to the state's per pupil grants to districts that are intended to reflect increases in construction costs. However, it does not appear that the construction cost index adjustments cover all of these costs. See the discussion of construction cost adjustments on pages 21 and 30 later in this study.

The more significant challenge districts face regarding access compliance issues likely relates to modernization projects. Because these projects deal with older (over 25 years) buildings, numerous deficiencies are identified due to changes in access code requirements that have occurred during the intervening period.

Discussions with districts indicated that until recently they could generally satisfy access requirements when engaged in a modernization project by making reasonable accommodation rather than strict adherence to code requirements. This was supported by a DSA regulation that provided for a cap of ten percent of the total project cost for access compliance modifications.

In 2002, DSA determined that there was little legal basis for a cap based on the percent of a project's budget spent on access modifications. Accordingly, DSA eliminated the cap and requires districts to more aggressively address deficiencies in their compliance with these requirements. As a result, in effect, if a project "touches" a building, the district must spend whatever it takes to achieve compliance with code requirements in and around that building.

Some districts believe that as a result of this change they now spend upwards of 70 percent of their budget for a modernization project on American's with Disabilities Act compliance. We did not determine whether this is true on a statewide basis.

Geotechnical Studies

School districts have been required to complete a geotechnical study for projects located in a seismic hazard zone since prior to the enactment of the existing SFP. The Seismic Hazards Mapping Act of 1990 imposed a requirement that prior to approving any project within their jurisdiction local governments require geotechnical studies of any project located in a seismic hazard zone.[1] The State Geologist has responsibility for mapping seismic hazard zones in the state and largely completed preparation of maps for the Los Angeles, Orange and Ventura area in the 1990s. Geotechnical studies for school construction projects are submitted to DSA as part of the permitting process and DSA forwards the studies to the California Geological Survey (CGS) for their review.

Continued progress in mapping seismic hazard zones in the state has resulted in a significant number of additional zones being identified. In addition, in light of significant population growth and attendant school construction activity in areas of the state such as the Inland Empire, several years ago DSA began to require geotechnical reports on a significantly larger number of projects, even though mapping of seismic hazards in these areas was not yet completed. DSA worked with CGS to develop guidelines relating to this higher level of reporting. DSA's more aggressive effort resulted in approximately a ten-fold increase in the number of reports reviewed by CGS.

The CGS reviews studies prepared by the district's consultant to determine whether there are hazards and reviews the district's calculations. Sometimes districts fail to adequately assess the seismic risks of a project, according to the CGS. In those instances CGS sends the study back to the district and asks them to redo the analysis. Generally, CGS staff believe that the consultants retained by districts to perform these studies are gaining a better understanding of what is required to satisfy CGS review and, as a consequence, they are seeing better quality reports. Roughly 75 percent of reports a year ago were deemed inadequate and were sent back; now about 50 percent are returned to districts for additional work. Roughly a quarter of the reports identify a seismic hazard and the need to accommodate this in construction. Thus, depending on whether the consultant hired to perform the geotechnical study is able to avoid the need to revise and resubmit the study, review of these studies could result in an unanticipated delay in project approval.

No state funds are provided for the cost of these studies except to the extent that they are covered by the state per pupil grant.

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[1] See Section 17212 of the California Education Code for specific requirements relating to school districts.

Air Quality Requirements

Legislation enacted in 2003 (SB 352, Chapter 668) expanded the scope of "facilities" that school districts are required to evaluate to ensure that schools are not sited near sources of air-borne hazardous materials. Previously, districts were prohibited from acquiring a site for a school construction project unless, as part of the CEQA process, the district consulted with certain entities to identify facilities within 1/4 mile of a proposed school site that might be anticipated to emit hazardous air emissions. Districts were also required to make a finding that the facility will not constitute an endangerment of public health or that anticipated corrective measures will mitigate the hazardous air emissions.

SB 352 included within the definition of "facilities" for which the district must make one of these findings freeways and other busy traffic corridors, large agricultural operations and rail yards. The bill also provided that for a schoolsite with a boundary within 500 feet of a freeway or other busy traffic corridor (as defined in the bill) the district must determine through air dispersion modeling that the air quality at the site poses neither significant short- nor long-term health risks for the students.

The bill also permits districts, in spite of adverse results of air dispersion modeling or the lack of mitigating corrective measures, to make a finding that it is unable to locate an alternative schoolsite due to a severe shortage of sites.

For the primarily urban districts that consider a school site in close proximity to a busy traffic corridor, the requirement for air dispersion modeling imposes significant additional costs on the order of hundreds of thousands of dollars. No state funds are provided for the cost of these studies except to the extent that they are covered by the state per pupil grant.

Other Statutory and Regulatory Changes

Aside from the statutory changes specifically discussed in this report, a number of other statutory changes have been made to the SFP since its inception. The changes relate to a variety of issues such as provisions governing local school bond elections, information sharing between school districts and local government entities regarding school construction projects, and eligibility criteria for modernization funding, to name a few. It does not appear that these other statutory changes have imposed significant additional costs on districts to construct schools. In addition, other legislative enactments created new programs such as the Charter School Facility Program, the Critically Overcrowded Schools Program and the School Facility Joint Use Program, which provide funding for special circumstances. Finally, other bills enacted into law provide for reimbursement of certain costs, such as site acquisition and development costs for sites already owned by a school district, that were not provided for when the SFP was originally established. In general, these statutory changes have not significantly affected either the cost of building schools or the state funding provided for a "typical" school.

In addition, numerous changes have been made to the regulations governing the SFP since the initial implementing regulations were adopted following the establishment of the program. Most of these regulatory changes have dealt with the implementation of new statutory provisions enacted since the inception of the SFP or with modifications to the calculation of eligibility under the program. Again, it does not appear that these changes have significantly affected the cost to build schools independent of the impact of the statutory changes they were intended to implement.

Other Cost Impact Issues

In the course of our discussions with school districts the two issues affecting the cost and timing of school construction projects came up frequently: the California Environmental Quality Act (CEQA) process and locally imposed offsite improvements. While these issues are not the result of state legislative or administrative action, they were raised by school district officials in almost every interview and appear to be significant factors in districts' ability to deliver schools on time and within budget.

a. California Environmental Quality Act

The CEQA establishes a process for evaluating the environmental effects of a project (California Public Resources Code Section 21000 et. seq.). For projects not exempt from CEQA an initial study is prepared to determine whether the project may have a significant effect on the environment. If the initial study shows that there would not be a significant effect, the lead agency on the project must prepare a statement to that effect called a negative declaration. If the initial study shows that the project may have a significant effect, the lead agency must prepare an Environmental Impact Report (EIR).

Generally, an EIR must accurately describe the proposed project, identify and analyze each significant environmental impact expected to result from the proposed project, identify mitigation measures to reduce those impacts to the extent feasible, and evaluate a range of reasonable alternatives to the proposed project. Prior to approving any project that has received environmental review, an agency must make certain findings. If mitigation measures are required to be incorporated into a project, the agency must adopt a reporting or monitoring program to ensure compliance with those measures.

The statutory requirements relating to CEQA that affect school districts have not changed significantly since the enactment of the SFP (see the discussion of Air Quality Requirements below). A number of experts we spoke with, however, indicated that the development of case law relating to CEQA and a greater degree of sophistication on the part of potential opponents to construction projects has resulted in a heightened sense of vulnerability to challenges on the part of school districts. Many districts raised concerns over delays associated with the CEQA process. They argue, for example, that numerous additional site studies relating to various issues such as electromagnetic fields, biological studies, etc. are driven by CEQA and concern over potential litigation. Districts choose to have the studies done – in effect "covering their bases" – because the risk of delay as a result of litigation is unacceptable from their perspective. These studies cost approximately tens to hundreds of thousands of dollars each. The state share of cost is reimbursed to the extent that these costs fall within the district's per pupil grant amount.

More critical for districts is the potential to incur additional costs due to delay of a project. One district, for example, facing a declining enrollment circumstance had planned to use an elementary school campus as an alternative site for grade 6, 7, 8 students. The district believed it could satisfy CEQA with a mitigated negative declaration. However, this determination was challenged by the local residents. Ultimately, the cost of the project rose from $8 to $12 million as a result of the delay associated with the development of a new EIR. The new EIR itself cost $250,000.

b. Locally-Imposed Offsite Improvements

Local agencies such as cities or counties impose various requirements on school districts for improvements relating to traffic, water and sewer hookups and fire suppression, among other things. Local requirements for construction, grading, codes, inspections, completion bonds, permits, fees and design changes vary from one agency to another and can result in significant additional costs to build a school.

Supplemental state grants for site acquisition are not always sufficient to pay the state share of cost for all of the local mitigation requirements, according to district officials. With respect to traffic improvements, for example, the state's contribution as determined by the OPSC is generally limited to improvements in close proximity to the site, even though the local mitigation requirements for traffic signals, highway off ramps and curbing are sometimes more extensive and not within the immediate vicinity of the school site.

It appears that in some instances school district (and to a certain extent state) resources are looked to by local entities to pay for local improvements that may not be directly related to the construction of a school. Some have suggested that this local pressure may be partly in response to the limitations on the imposition of developer fees to support school construction as a condition of local development approval that were included in SB 50. Because local permit approvals are required in order for the districts to move ahead with the project, they have little choice in most circumstances but to agree to these improvements or challenge them and risk delay.

Some districts attempt to minimize the extent to which the state grant will fail to cover certain improvements by working with school site owners or developers to make improvements before the sale of the site to the district. This provides greater assurance that these costs will be covered by the state's site acquisition grant.

Another problem districts encounter in dealing with locally-required improvements relates to the timing of the imposition of these requirements by local entities. Generally districts attempt to identify all of the required improvements and costs at the time they submit estimated total project costs to OPSC. On this basis, they request documentation from local entities of required improvements and fees in order to provide them to OPSC so as to secure the state's share of funding for these costs.

In a number of our interviews, however, we were informed of circumstances where local agencies changed required fees or required additional improvements after construction had begun. This can lead to delay while the state evaluates whether it will reimburse a share of these costs. And even if the state ultimately provides reimbursement for its share of costs, districts face their own share of additional costs to build schools that were not anticipated when the project was designed and initially budgeted.

II. Empirical Analysis of School Construction Costs

Since the SFP was implemented in 1998, costs to build new schools or to add to existing schools have increased significantly. According to the results of our analysis, the cost to build new school facilities in California has increased by about 6.5 percent per square foot on average each year since 1999.[2]

During this same period, per pupil grants have increased substantially as well, although many school districts report that the increase in grants has been insufficient to keep up with the rapid escalation in site acquisition, site development, and construction costs. Since February 1999 (the date when the grants were first adjusted by the SAB to reflect construction cost increases since the statutory grant amounts were enacted by SB 50), the per pupil grant increased, on average, by a little less than one third, or about 4.4 percent per year through March 2005 (see chart below).[3] For elementary schools, the grant increased from $5,240 to $6,769. Grants for middle schools increased from $5,542 to $7,159. Finally, grants for high schools increased from $7,225 to $9,372 during the period February 1999 to March 2005.

SPF Grant Amounts

Grant	1998 Statutory Grant	Feb 1999 SAB Adjusted Grant	Jan-00	Jan-01	Jan-02	Jan-03	Jan-04	Mar-05
Elementary	$ 5,200	$ 5,240	$ 5,480	$ 5,640	$ 5,720	$ 5,840	$ 6,040	$ 6,769
Middle	$ 5,500	$ 5,542	$ 5,796	$ 5,965	$ 6,050	$ 6,177	$ 6,388	$ 7,159
High	$ 7,200	$ 7,255	$ 7,587	$ 7,809	$ 7,920	$ 8,086	$ 8,363	$ 9,372

Source: CASH

Factors leading to increased school construction costs

Many factors account for the rapid increase in construction costs observed during the past seven years. The state has experienced a remarkable real estate boom, which has led to almost unprecedented increases in land values since 1998. This boom, which has spanned both the residential and commercial sectors, has increased prices paid by districts acquiring sites for new school facilities. In addition, the real estate boom spurred considerable residential development, and with it employment in construction industries. This increased activity acted to increase competition for workers, contractors and construction materials, which likely led to increased construction costs. Indeed, many school districts have reported that the “bid climate” has become difficult in recent years, with fewer contractors bidding on new school construction projects.

[2] Based on the results of our regression analysis of school construction projects. See below for additional information about our empirical analysis.
[3] The SAB increased the per pupil grant amounts by an additional 4.62 percent in January 2006.

The global economy has also acted to increase upward pressure on prices for construction contracts, specifically on prices for steel. Many economists have noted that China's rapidly expanding economy has consumed increasing quantities of this important construction material. As a result of this increased demand, steel prices have risen significantly over the past several years. Between January 1999 and December 2005, global steel prices increased by more than 75 percent, according to the CRU Global Steel Price Index.[4] Because steel is a critical ingredient in virtually all school construction projects, this increase in global steel prices has acted to increase construction costs for school districts throughout the state.

In addition to these more "traditional" sources of cost increases, delays in constructing new schools can also lead to substantial increases in costs. In an environment of rapidly rising land and construction costs, delays can significantly increase total project costs. Delays can also result in payments to contractors or others if construction is halted. (See the section "Impact of Delays" for a further discussion of the impact of delays on construction costs.)

Finally, costs to build new schools or expand existing sites have increased as a result of the newly-imposed requirements identified in the previous section of this report. (Even if, as is the case, additional state funds are provided for some of these new requirements, districts still shoulder roughly half of these additional costs.) While it is not possible to identify the precise impact of each of these factors on the increases in costs to build new or expand existing schools, the newly imposed requirements have certainly contributed. In the following sections we identify how some of these cost pressures have driven school construction project costs during the past seven years.

How Much Have Costs Increased?

In order to assess both the rate at which school construction costs have been increasing as well as the factors that have caused the increase, we employed a multi-part empirical analysis. First, we examined the increase in site acquisition costs reported by districts acquiring new building sites. Next, we conducted a "same school" analysis, in which we compared costs reported by districts that reused plans and built an identical or very similar school two or more times during the period since the SFP was implemented. Finally, we conducted a survey of school districts, and analyzed how costs for school construction projects have changed during the past seven years. The results of our analysis follow.

Site Costs

To evaluate the increase in site acquisition costs, we examined data from OPSC on actual prices paid (as reported by districts on SAB form 50-04) for acquired sites during this period. According to our analysis, costs to acquire school sites have increased significantly during the period in which the SFP has been in effect. Between 1999 and 2004, costs per acre to acquire

[4] The CRUspi Global weighted index is compiled from the transaction prices for five carbon steel products (HR coil, CR coil, hot-dipped galvanized sheet, reinforcing bar and structural/beams) in the three major consuming markets of North America, Europe and Asia.

school sites have increased from $2.3 million to $4.2 million, or by an average of 15 percent per year.[5]

Change in estimated school site costs per acre

Year	Number of Observations	Mean	Std Dev	Minimum	Maximum
1999	33	$2,319,172	2,596,116	$ 86,000	$ 11,000,000
2000	40	$2,848,941	3,549,303	$ 50,000	$ 15,149,354
2001	34	$2,680,029	3,458,535	$ 12,932	$ 12,818,000
2002	130	$2,652,515	3,772,236	$ 9,678	$ 27,213,190
2003	38	$4,065,046	10,200,509	$ 560	$ 46,116,204
2004	15	$4,202,148	3,659,027	$ 193,000	$ 12,415,878

As the table above indicates, costs to acquire school sites in California have increased very rapidly during the past seven years. While the state generally pays for 50 percent of the cost of acquiring new school sites, districts must nevertheless pay for their portion of these rapidly escalating costs. These increases directly affect the costs to build new school facilities, and can also influence costs to expand existing schools if adjacent land is acquired for the project.

Same School Analysis

In order to estimate the extent to which construction costs for schools have increased during the period in which the SFP has been in effect, we identified examples where school districts built the same school two or more times. By comparing identical (or substantially similar) schools built over a period of time, we are able to isolate the impact of newly-imposed requirements and construction cost inflation on the overall cost of building new schools or expanding existing school sites. In other words, by comparing very similar or identical construction projects, we can better isolate the factors contributing to the cost increases reported by school districts during the SFP period. For example, in evaluating increased costs in these projects, we can eliminate factors such as engineering and design costs as possible explanations for the changes. We also can address the claim that part of the cost increase observed during this period is attributable to larger or more complicated projects, or to projects that are built with a higher level of finishes and amenities. In essence, a "same school" analysis provides a ready-made controlled experiment for identifying the change in construction costs over time.

[5] School site costs were estimated by multiplying the state payment for site acquisition as reported by OPCS times 2 and dividing by the reported site acres.

In order to identify examples where school districts built the same school multiple times, we asked school districts via an electronic survey conducted during fall 2005 to identify examples where they had built the "same school" more than once during the period in which the School Facility Program has been in effect (i.e., between 1999 and 2005).[6] The examples we included in this report were selected at random from this list. Districts that appeared based on the survey results to have built suitable projects were contacted with an information request and were subsequently screened based on our determination as to whether the projects met our criteria (i.e. the same or a substantially similar school project was completed by a district during the period in which the SFP has been in effect.)

The projects discussed in the following section consists of examples where the same school was built using the same construction method, including the same (or substantially similar) interior and exterior finishes. These schools were the same size and housed the same number of students.[7] Construction costs for these projects have increased substantially, as the subsequent discussion indicates.

Val Verde Unified School District

During 2004 and 2005, Val Verde Unified School District built two virtually identical elementary schools consisting of conventional and modular construction. In 2004, construction on Laselle Elementary School was started. This school opened in 2005. In 2005, construction was started on Triple Crown Elementary School, which is scheduled to open in 2006. Although Triple Crown is not yet open, construction bids have been received and construction has begun. Consequently, this comparison provides an example of the most current state of costs for school construction projects in California.

Just during the intervening year, from the start of construction on Laselle in 2004 to the start of construction on Triple Crown in 2005, costs to build this school have increased by nearly 25 percent, from $10 million to $12.4 million.

The two schools are virtually identical, according to the architects that designed both projects. Both schools are designed for 851 students to be housed in 33 regular and 2 "SDC" classrooms. The size of both projects is also virtually identical, with Laselle consisting of 53,636 square feet and Triple Crown consisting of 53,580 square feet. Both projects use a combination of conventional and modular construction, with each school consisting of 32 modular buildings totaling 34,560 square feet.

[6] See the section "Analysis of Survey Results" for a more detailed explanation of how the survey was conducted.
[7] If minor differences were noted between projects, cost adjustments were made based on information provided by the districts of their architects in order to maximize the comparability of the projects and ensure a true "apples-to-apples" comparison.

While the two schools are very similar, the costs to build them are not. As mentioned, Laselle cost about $10 million to construct, while Triple Crown is anticipated to cost more than $12.4 million to build.

The architects for both projects divided the costs into three categories: "utility fees," "building and site conventional construction," and "modular construction." The following displays a breakdown by cost category for the two projects.

Same School Comparison- Val Verde Unified School District

	Laselle	Triple Crown	Difference	Percent Change
UTILITY FEES	$ 323,306	$ 336,116	$ 2,811	4.0%
BUILDING AND SITE CONVENTIONAL CONSTRUCTION	$ 6,915,355[8]	$ 8,668,133	$1,752,778	25.3%
MODULAR CONSTRUCTION	$ 2,730,291	$ 3,412,413	$ 82,122	25.0%
TOTAL Construction Costs	$ 9,968,951	$12,416,662	$2,447,710	24.6%

As the table above indicates, costs for both conventional and modular construction increased by about 25 percent during the span of a single year. On a cost per square foot basis, the cost of conventional construction (and any included site work) increased from $363 to $456 while the cost per foot for modular construction increased from $79 to $99 per foot. The overall increase in cost per square foot was about $46, from $186 for Laselle to $232 for Triple Crown.

Poway Unified School District

The Poway Unified School District located in San Diego County has undertaken two very similar school projects between 2003 and 2006. Stone Ranch Elementary, built in 2003, consisted of 59,811 square feet. Total construction cost was $14,378,726, or $240.40 per square foot. Monterey Ridge Elementary is currently being built and is scheduled to open in September 2006. Both schools used the same plans, with some minor modifications for Monterey Ridge. The second project consists of 65,811 square feet with a total construction cost of $20,230,518, or $323.63 per square foot.

At the request of the district, the architect, NTD Edge, conducted an analysis of the factors contributing to the difference in total cost between the two projects. The most significant factor was the addition of 6,000 square feet to the basic design used in Stone Ranch. After adjusting for the increase in size as well as several other factors including a more expensive HVAC system and a photovoltaic system, the total adjusted (i.e., net of any differences between the two

[8] Note that a $1,479,747 charge for site grading was removed from this line item to maximize comparability of the projects.

projects) cost was estimated to be $15,529,267. On an adjusted per square foot basis, the Monterey Ridge project is projected to cost $259.64, an increase of $19.24 over the cost of Stone Ranch.

Etiwanda Elementary School District

The Etiwanda Elementary School District located in San Bernardino County built four very similar elementary schools between 1999 and 2003. The district also built two virtually identical intermediate schools, one between 12/2000 and 9/2002 and the other between 2/2003 and 9/2004.

<u>Elementary Schools</u>

The Cecilia L. Solorio Elementary School design served as the prototype design for four elementary schools built by the district, starting in 1999. This first school consisted on 27 classrooms with a stated capacity of 675 students. Following completion of the initial school construction, an additional classroom "pod" was added, bringing the total capacity to 775 students in 31 classrooms. The total square footage of this school is 50,030.

The next elementary school built by the district was John L. Golden Elementary School (formerly University Elementary School). This project was started in September 2000 and opened in September 2001. This school consisted of 31 classrooms with a stated capacity of 775 students. This school was identical to Celia L. Solorio in all respects with the exception of an added bathroom "pod" consisting of 3,000 square feet. The total square footage of this school is 53,530.

The next elementary school was the Grapeland Elementary School (formerly Etiwanda Elementary School). The project started in September 2001 and opened in September 2002. This school consisted of 36 classrooms with a capacity of 875 students. This school is identical to John L. Golden Elementary with the exception of an added classroom "pod." The total square footage of this school is 57,868.

Finally, the district built the Etiwanda Colony Elementary School (formerly West Banyan Elementary School) starting in May 2003. The school opened in September 2004. This school is virtually identical to Etiwanda Elementary in all respects.

Although there are minor differences between these four schools, they are very comparable. And, because the differences between the projects, where present, consist of additions of complete classroom or restroom "pods" adjusting the total project costs in order to make the projects directly comparable is straightforward.

The following chart displays the relevant cost information and adjustments (if any) used to compare the four schools.

Same School Comparison
Etiwanda Elementary School District – Elementary Schools

	Solorio	Golden	Grapeland	Etiwanda Colony
Total project cost net of F&E	$ 8,087,311	$ 10,733,515	$ 10,937,729	$ 12,248,450
Classrooms	31	31	36	36
Stated Student Capacity	775	775	875	875
Square feet as completed	50,530	53,530	57,868	57,868
Estimated Cost Adjustments				
Add Bathroom Pod	$ 480,149	$ -	$ -	$ -
Add Classroom Pod	$ 388,067	$ 388,067	$ -	$ -
Total Adjusted Cost	$ 8,955,527	$ 11,121,582	$ 10,937,729	$ 12,248,450
Sq. ft. adjustments				
Add bathroom	3000	0	0	0
Add classroom pod	4338	4338	0	0
Total adjusted square feet	57,868	57,868	57,868	57,868
Total adjusted cost/ft.	$ 154.76	$ 192.19	$ 189.01	$ 211.66
Percentage Change		24%	-2%	12%
Start Date	Sep-99	Sep-00	Sep-01	May-03
Occupancy date	Sep-00	Sep-01	Sep-02	Sep-04

As indicated in the table above, the costs to build these elementary schools increased substantially during this period. Specifically, between 2000 and 2004, the cost per foot to build the schools increased from $154.76 to $211.66, an increase of 36.7 percent, or about 9 percent per year.[9]

<u>Intermediate Schools</u>

The Etiwanda School District also built two virtually identical intermediate schools during this period, Heritage Intermediate and Day Creek Intermediate (formerly Edison Intermediate). Both schools consist of 53 classrooms and 102,736 square feet. The student capacity of each school is

[9] In order to present directly comparable results, costs were estimated for an added bathroom pod for Solorio based on average cost per square foot. Costs for the an added classroom pod for Solorio and University were based on actual costs to build such a pod at Solorio as reported by the district to OPSC.

1,750 7th and 8th grade students.[10] Heritage Intermediate was started in December 2000 and opened in September 2002. Edison was started in February 2003 and opened in September 2004.

Same School Comparison
Etiwanda Elementary School District – Intermediate Schools

	Heritage	Edison
Total project cost net of F&E	$ 15,370,283	$ 17,301,611
Classrooms	53	53
Stated student capacity	1,750	1,750
Square feet as completed	102,736	102,736
Cost adjustments	$ -	$ -
Total adjusted cost	$ 15,370,283	$ 17,301,611
Sq. ft. adjustments	$ -	$ -
Total adjusted square feet	102,736	102,736
Total adjusted cost/ft.	$ 149.61	$ 168.41
Percentage Change		13%
Start date	Dec-00	Feb-03
Occupancy date	Sep-02	Sep-04

As indicated above, the cost to build these virtually identical schools increased from $15.4 million to $17.3 million during this period. On a per square foot basis, costs rose from $150 per square foot to more than $168 per square foot, an increase of 13 percent in a period of a little more than two years.

Temecula Valley Unified School District

Between June of 2003 and March of 2004, the Temecula Valley Unified School District, located in Riverside County, built the same elementary school three times. In each case, the sites were pre-graded by the developers and the surrounding streets were improved by the developers. Each school consisted of the same number of square feet, 104,347, and was identical in all relevant respects, according to district officials.

The total construction cost for the first school, Alamos Elementary, was $14,740,385, based on a bid date of June 2003. Seven months later, in January 2004, bids for Tony Tobin Elementary were $16,140,780, an increase of $1,400,395, or 10 percent. Two months after Tony Tobin was bid, in March 2004, bids for La Vorgna Elementary came in at $16,846,992, an increase of more

[10] Note that according to data reported to OPSC, the official rated capacity of Edison Intermediate School is 187 Special Education students and 1,176 7th and 8th grade students. However, according to school district officials, the physical structures are identical in every relevant respect.

than $700,000 in just two months. In the span of less than one year, costs to build this elementary school increased by 14 percent.

School District Survey

In order to assess the extent and causes of increases in school construction costs during the period 1999 to 2005, we analyzed project specific information obtained from OPSC and conducted a survey of all school districts that built new school facilities since the SFP was implemented.

As the starting point for our analysis, we obtained from OPSC a list of all new construction projects started after the SFP was implemented and that were 95 percent or more complete as of August 2005. This data set contained information about each new construction project based on the forms that districts are required to fill out in order to obtain funding for their construction projects. Specifically, the data comes from the 50-04 and 50-06 forms that districts submit. In addition to information identifying the district and project, the key variables in the dataset included site acquisition cost, total state contribution to the project, total reported expenditures from both state and local sources, number of students, and number of classrooms.

Using the dataset provided by OPSC as a starting point, we developed a survey instrument designed to supplement the OPSC data. Because the OPSC data does not contain information about the size of school construction projects (i.e., number of square feet) so as to allow us to make an apples-to-apples comparison across projects, we asked school districts to provide information about the size of their new construction projects. In addition, the data from the 50-04 and 50-06 forms does not contain information about characteristics of individual projects thought to be related to total project costs. For example, the data does not include information about whether or not a new construction project included auditoriums, gymnasiums, swimming pools, or science labs. Nor does the data indicate whether a project was a single-story or a multi-story building or if the project was an entirely new school or an expansion of an existing school.

Because the OPSC data only includes expenditures reported by districts on the 50-06 forms, to the extent that districts make additional expenditures that are not reimbursable or otherwise not required to be reported, the 50-06 data may understate the actual total project cost. Additionally, the data set provided by OPSC consisted of unaudited data. For these reasons, we asked school districts to confirm the accuracy of the cost information contained in the OPSC dataset.

Our school district survey was designed to collect information about these additional factors in order to permit us to conduct an empirical analysis of new construction projects. The survey was conducted electronically during the fall of 2005. All districts that had built new school facilities were emailed a link to an on-line survey form. To boost the response rate, follow-up calls and emails were used. Overall, 82 districts responded to our survey, providing information about 178 new construction projects for an overall response rate of 26 percent.

Analysis of Survey Results

Using the combined results of the OPSC data and the survey results, we conducted a regression analysis designed to measure the change in cost for new construction projects while controlling for other factors that may influence cost. Regression analysis is a technique commonly used to determine the effect of an influencing factor (such as inflation in construction costs) on an outcome (such as total project cost), while controlling for other possible explanatory factors (such as the size or complexity of construction projects). The results of our regression analysis are presented below, and additional information is provided in Appendix D.

Because school construction projects vary in terms of their size and complexity, it is not possible to simply compare the average cost for a recently built school to the cost for one built in the past. If the newer school is larger, more complex, or included additional amenities relative to the older school, such a simple comparison will overstate the increase in cost due to inflation. In other words, in such a case, some portion of the increased cost is due to the additional complexity and some portion to inflation.

Our regression analysis allows us to control for factors such as new multipurpose rooms, new gymnasiums, new auditoriums, or other factors that may influence construction cost. In addition, we can control for characteristics such as type of school (i.e. elementary school, middle school, etc.), use of modular classrooms, number of stories, and other factors.

By controlling for these factors, we were able to isolate the impact of construction cost inflation from variations in project characteristics and complexity. The results of this analysis indicate that, on average, costs to build new construction projects have increased by about 6.5 percent each year since the SFP was implemented, when controlling for other factors that influence costs.

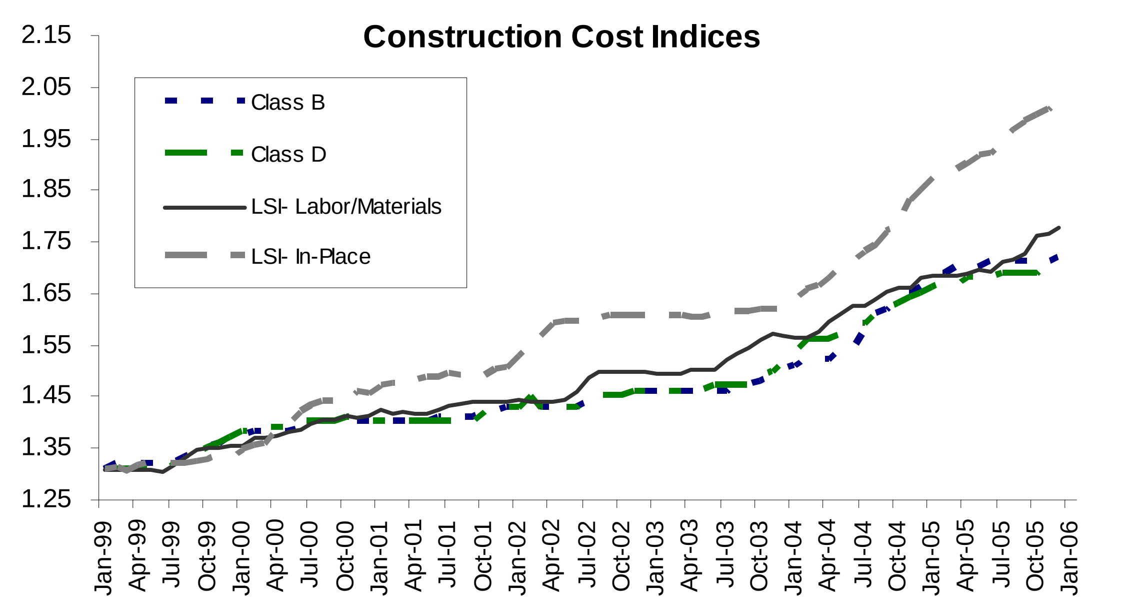
Increase in Construction Costs Generally

During the period in which the SFP has been in existence, construction costs for commercial buildings generally have been on the rise. We examined data from several construction cost indexes in order to assess whether school construction costs have been rising more or less rapidly relative to commercial construction costs generally.

According to a construction cost index published by the OPSC and prepared by the firm Marshall and Swift, commercial construction costs increased by about 29 percent between February 1999 and March 2005, the period previously discussed (see graph below). The index tracks construction costs in ten western states, and excludes all site work, such as connecting utilities and grading. The index tracks two different types of construction, Class "B" Buildings constructed primarily of reinforced concrete with steel frames and Class "D" Buildings constructed primarily of wood.

We also obtained LSI construction cost data from the Sierra West Group. The LSI Index is a construction cost index specifically focused on California construction costs. The labor-material cost index weighs labor and materials at 54 percent and 56 percent, respectively. The labor factor is based on quotes for 9 crafts in 16 cities. The materials factor reflects 23 materials in 20 cities. The "In-Place" index values reflect actual prices charged by contractors (i.e., labor and materials plus other costs and contractor profits).

As indicated in the graph below, the labor and materials index has increased more or less in line with the Marshall and Swift indices, or by about 29 percent during the period February 1999 to March 2005. The "In-place" index, however, has increased much more rapidly, by about 44 percent during this same period. This latter index may more accurately reflect the costs actually paid by school districts.



Class B buildings are constructed primarily of reinforced concrete; Class D buildings are constructed primarily of w ood. Source: Marshall and Sw ift. LSI indices provided by Sierra West.

Has the per pupil grant kept up with increases in costs?

As noted previously, we estimate that costs to build schools in California have increased by about 6.5 percent on average each year during the period 1999 to 2005, based on our empirical analysis. This compares with a 4.4 percent annual average increase in the state per pupil grant amount and a 3.5 to 6.5 percent annual increase in the various construction cost indices reported above.[11] During the entire study period (1999 to 2005) we estimate that costs to build new schools have increased by about 48 percent. During the equivalent period, the per pupil grants increased about 29 percent.

Impact of Delays

Like any large construction project, school construction projects are frequently subject to delays. These delays can come in the planning and financing stages as well as immediately prior to or during construction. To a certain extent, districts can plan for and accommodate delays. Lengthy or unexpected delays, however, can significantly add to costs for school districts. Based on an analysis of common causes of delay, we have identified several areas where delays are likely to occur. We then examine the impact of delays on school construction costs.

Site

State approval of school sites constitutes one potential source of delay in building new schools. Before school districts can begin construction of a new school, the CDE must approve the site.

As part of the CDE approval process, districts may need to conduct an environmental review of any proposed site consistent with the requirements of the CEQA. This review can be time consuming to complete and can potentially delay approval of a proposed school site.

In addition to approval from CDE, districts must navigate the newly established DTSC site approval process. As noted previously in this report, the DTSC process often requires testing and/or mitigation of school sites. According to many of the school districts with whom we spoke, the DTSC process can take a considerable amount of time to complete. To the extent that this process does not run concurrently with other planning and site development processes, districts may experience delays in starting construction or in opening school sites.

Many school districts also reported in our survey that wetland mitigation/remediation involving the Army Corp of Engineers causes substantial delays in obtaining final approval to build or complete a school construction project.

Litigation associated with site acquisition represents another important potential cause of school construction project delays. Litigation can take many forms such as a claim by project opponents that a proposed construction project does not fully comply with CEQA. While such litigation infrequently prevents a school construction project from proceeding indefinitely, it can result in substantial delays.

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[11] Note that the per pupil grant is not the only source of state funds available for new construction projects. Districts may, for example, obtain state funds for site acquisition, financial hardship, and several of the state-imposed requirements discussed in the previous section of this report.

Design

All school construction projects must be approved by the DSA as well as the CDE. Either entity can require changes to a project. Depending on the timing and extent of these changes, this process can result in delays.

Financing

Problems with financing are one common source of delay, according to our survey of school districts. These problems with financing can stem from inadequate local resources to delays in receiving state funds.

According to the Legislative Analyst's Office (LAO), one important problem with the current school financing system in California is the mechanism by which state bond funds are allocated. Under the current system, school districts wishing to build new school projects must apply for state grant funds made available by statewide school bonds. To the extent that a district is otherwise prepared to proceed with a school construction project but available state bond funds are not available, the district may be forced to wait until voters authorize a new bond and the state makes additional funds available. According to the LAO Report, "when districts submit eligible projects to the state after a bond measure's funds are depleted, districts may wait years until additional state funds are authorized by voters."[12] The report goes on to say that "this unpredictability in state funding impairs district capacity to plan, build schools, and raise supplementary local funds."[13] Bond measures approved by the state's voters in 2002 and 2004 have mitigated this concern lately, but it could reappear.

Locally Caused Delays

Of course, not all delays are caused by state actions or funding shortfalls. In many cases, delays are caused by school districts themselves or by other local governments from whom districts must obtain approval to build new schools or expand existing sites. Local financing resources may not be available, or districts may make design or other changes to a project that result in delays.

In addition, because school districts must not only obtain approval from the state government, but also from local government entities, including cities, counties, and special districts, these local governments may require improvements, changes, or modifications to a school construction project, which can result in delays.

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[12] Legislative Analyst's Office, "A New Blueprint for California School Facility Finance," May 2001.
[13] Op. cit.

Construction Delays

Other common sources of school construction project delays include delays caused by contractors, adverse weather, or design errors.

How do delays affect costs?

Delays can end up costing school districts significant amounts of money. At the most basic level, in an environment characterized by rapidly rising construction costs, delays can increase total project costs by delaying the project start date or the time it takes to complete a project (assuming that the delays are not the fault of the contractor and that the contractor does not absorb these additional costs). If inflation in construction raises prices by 12 percent per year, for example, then even a relatively short three month delay could increase costs by three percent, or $300,000, on a $10 million project.

To the extent that delays prevent a new school building from opening on schedule, districts can incur costs for temporary housing, transportation, related insurance, and other costs associated with operating a temporary site, in addition to any construction cost delays associated with the new project.

Finally, if delays are not the fault of contractors, school districts may end up making legally required payments to contractors if delay results in idle workers, equipment, etc.

How Do State Requirements Cause Delays and Influence Costs?

The state has a significant role to play in both the financing and oversight of school construction projects. In the course of fulfilling that role, the state has imposed a significant number of requirements on local school construction projects, as identified previously in this report. In most cases, state-imposed requirements serve an important purpose and act to protect the safety of school children. Nevertheless, these requirements do not come without cost.

Perhaps the most significant impact of state requirements on school construction projects stems from the impact on the time required to complete a project. Although it may only take individual districts a few days or weeks to comply with any individual state requirement, when combined, the impact of the various state-required reviews from CDE, DSA, DTSC, OPSC, and potentially other state departments can significantly lengthen the time required to complete a school construction project.

We were not able to determine precisely how much time is added to the school construction process as a result of state-required reviews and oversight, however, it is certainly the case that these reviews add significantly to the time required to complete a project. Given the rapidly rising cost environment characteristic of the past several years, the additional time added to a project as a result of state requirements likely serves to significantly increase total project costs.

To some extent these additional costs are offset by increases in state grants. However, even where additional state funds are provided, school districts must still pay for that portion of the resulting cost increases not covered by increases in the per pupil grant.

Conclusion

Costs to build schools are rising rapidly. And while grant levels have increased significantly as well over the past several years, there is evidence that the grant amounts may not be adequate to keep pace. Specifically, our analysis indicates that, since the SFP was implemented, costs to build new schools or to add to existing schools have increased by about 6.5 percent per square foot, on average, each year since 1999. During this same period, per pupil grants have increased by about 4.4 percent per year while construction costs generally have increased by between 3.5 and 6.5 percent each year.

The causes of rapidly rising costs are many, and include rising land prices, inflation in construction costs generally, and, importantly, the impact of state-imposed requirements.

While it is not possible to identify with precision the impact of each of these factors on the overall increase in costs, it is clearly the case that each of these factors has had a significant impact on the costs of building new schools or adding to existing schools in California.

Appendix A
Imposed Cost Requirements

A. SOME STATE FUNDING PROVIDED (Intent is the State pays 50 percent of the costs and the district pays the remaining costs)	
Issue	**Range of Costs**
Hazardous Substances Contamination	Tens to hundreds of thousands of dollars for initial assessment and sampling to millions to remove hazardous wastes
Storm Water Requirements	$25,000 to $35,000 to develop pollution prevention plans. Additional variable costs for mitigation measures
Labor Compliance Program	Tens of thousands of dollars to establish program
Fire Suppression/Alarm Systems	$30 to $40 per pupil for fire detection and alarms to $97 to $131 per pupil for sprinkler systems
Energy Code Requirements	Initial costs vary, but the intent is to recoup up front costs in five to seven years from lower energy costs
B. NO ADDITIONAL STATE FUNDING PROVIDED	
Building Code Changes	Costs vary depending on the code change.
Access Compliance	Districts report as much as 70 percent of their modernization budget is spent on ADA compliance
Geotechnical Studies	State agency reviews can result in unanticipated delays
Air Quality Requirements	Up to hundreds of thousands of dollars to perform air dispersion modeling in urban districts
Other Cost Impact Issues: A. California Environmental Quality Act B. Locally Imposed Offsite Requirements	 Tens to hundreds of thousands of dollars to prepare an EIR. Potential, major additional costs related to required mitigation, delays, and litigation Costs vary depending on the requirements imposed by local agencies. Projects can be significantly delayed adding unanticipated costs to the project

Appendix B

Department of Toxic Substances Control Process

As noted, SB 162 (Chapter 1002, Statutes of 1999) and AB 387 (Chapter 992, Statutes of 1999) required school districts, as a condition of receiving state funding under the School Facility Program (SFP), to conduct phased environmental investigations, which are then reviewed and approved by the State Department of Toxic Substances Control (DTSC). Specifically, the district must contract with an environmental assessor to conduct a "Phase I" environmental assessment of the risks posed to children from any released or naturally-occurring hazardous materials on the schoolsite. Site sampling or testing is not part of a Phase I assessment.

On the basis of the Phase I assessment, a recommendation is made whether a preliminary endangerment assessment (PEA) is necessary to determine the extent of a release or threatened release of hazardous materials or whether there is a naturally-occurring hazardous material present on the site. The DTSC must sign off on or reject this recommendation before the district can proceed with site acquisition.

If a PEA is required, the district enters into an agreement with DTSC to oversee its preparation. The PEA must examine the site for both hazardous situations caused by a release or those that are naturally occurring, with a particular focus on the risk posed to children's health. A PEA must include sampling and testing of the site and must be made available to the public for 30 calendar days and be certified by DTSC. School districts must provide notice to residents in the immediate area prior to the commencement of work on a preliminary endangerment assessment, hold a public hearing on the assessment and forward public comments to DTSC.

If the PEA determines that there has been a release of hazardous material, that there is the threat of a release of hazardous materials or that a naturally occurring hazardous material is present, any of which that require further investigation, the district is required to take the following steps if it wants to continue to consider the site:

a) Prepare a financial analysis estimating cost of any necessary response action;

b) Describe the benefits and suitability of using this site compared to alternatives sites; and

c) Obtain approval from California Department of Education (CDE) that the site meets schoolsite selection standards.

After completing these steps the school district must enter into an agreement with DTSC to oversee the response action at the site. The school district may not begin construction of a school building or occupy a school building following construction until it obtains certain certifications from DTSC.

Appendix C
2001 Changes to Accessibility Building Standards

Issue	2001 CBC	1998 CBC	Cost Impact
Application of provisions	All buildings are required to be accessible regardless of % of occupancy or time occupied.	Required accessibility for buildings occupied 50% or more or occupied for periods in excess of 2 years.	Effectively not a new requirement
Tactile exit signs (incl. egress control device signage)	Tactile exit signs are required next to various exit doors (plus signs regarding egress control devices, if applicable)	No requirement for signs specified	Cost of approximately $10,000 on a $10 million project
Distance between vertical access & stairs	Vertical access (lifts, etc.) must be within 200 feet of stairs on any floor (buildings over 10,000 sq. ft.)	No distance requirement between vertical access and stairs	Affects approximately 20 percent of projects
Requirements for swimming pool lifts	Lifts must meet certain design specifications, support 300 lbs. and be operable from deck or water	Less specific requirements regarding swimming pool lifts	Minor
Clear space for personal lift devices	Specifies minimum clear space under beds required for personal lift devices	No minimum clear space requirement	Minor
Toilet stall design	Eliminated exception regarding toilet stall design which permitted lateral or front transfer design as an equivalent facilitation	Provided for exception regarding design	Minor
Force required for shower controls	Specifies 5 lb. maximum force requirement for operation of showers	5 lb. maximum force requirement for generally specified. Not specifically applied to showers	Minor
Toilet stall width	Toilet stalls required to be 60” wide minimum	No specific width requirement	Cost to modernization project could be significant
Children’s sink clearances	“Corrected” error in prior code regarding knee clearances for sinks used by children (27” versus 29”)	Code provision in error	Minor

Wheelchair lifts	Wheelchair lifts used as part of egress system must have back-up power. Also specifies use of lifts for access to assembly areas	No specific provisions	Minor
Signs and identification	Specifies design requirements for signage (signage for assistive listening systems and volume control telephones)	No specific requirements	Minor
Cleaner air symbol	New standards to identify rooms, paths of travel, etc. for people affected by airborne chemicals (public facilities)	No specific requirements	Minor
Accessible parking	Various requirements relating to signage, unloading aisles for vans, elimination of ramp encroachment into parking spaces and a prohibition against unloading aisles exceeding a 2% slope	No comparable requirements	Cost could be significant if it affects drainage or grading; often triggered by additions
Strike edge clearances	Specifies minimum strike edge clearances for doors recessed 8" or more	Specified no requirement for recessed doors	Modest impact
Door operation effort	Specifies maximum 5 lb. effort to operate exterior doors	Specified 8.5 lb. exterior door effort	Minor
Minimum sweep period for door closure	Specifies 3 second minimum sweep, as defined, for door closure	No minimum sweep specified	Minor
Handrail orientation	Specifies directional orientation of handrails relative to stair runs and nosing	Did not specify handrail orientation	Minor
Ramp width	Specifies 48" minimum width for ramps	Specified 48" minimum width only for entrances	Generally minor; could be more significant on existing campuses
Landings	Requires ramp landings to be level	Did not address slope of ramp landings	Minor
Free-standing signs	Signs mounted on posts less than 80" high must now have rounded edges	Did not address free-standing sign edges	Minor
Signs	Extensive list of signs are required to comply with code provisions alterations, structural repairs or additions are made	Alterations, structural repairs or additions to existing facilities did not trigger compliance with code requirements	Minor

	to existing facilities	relating to signage	
Minimum door clear width for automatic doors	Specifies a 32" clearance for at least one door when an automatic door opener is used to operate a pair of doors	Did not address minimum door clearance when utilizing an automatic door opener	Automatic doors generally not used

Appendix D
Regression Results

Regression analysis is a statistical technique commonly used to analyze the influence of a group of factors on a single variable of interest. Regression analysis allows us to determine the effect of an influencing factor (or independent variable) on an outcome (the dependent variable), while allowing us to control for other possible explanatory factors. As such, it provides a powerful tool for isolating the relationship between increases in construction costs generally from other factors that may influence total costs to build new school facilities, such as the size of the project, whether or not a project includes more complex construction features such as new science labs, etc.

The most commonly used regression analysis technique, Ordinary Least Squares (OLS), was used for the analysis described in this section. The results table (below) provides both the parameter estimates, which are point estimates of the coefficient value as estimated from the regression, and the t-statistic. Our model used the natural log of cost per square foot as the dependent variable. By using the natural log of cost per square foot, we can normalize across observations, in order to more accurately compare large school projects with small school projects. Cost per square foot was calculated by taking total project expenditures as reported by school districts and subtracting cost to acquire the school site (where applicable).

The independent variables are given in the first column of the table, and correspond to the survey data collected and the information provided by OPSC.

Independent variables included several measures of the complexity of a project, such as the number of stories and the percentage of classrooms that were modular. We also included a "dummy variable" for new school, which takes the value of 1 if the project is a new school and 0 if the project is an addition to an existing school. As we would expect, the cost per square foot is somewhat higher for multiple story projects as compared with single story projects and for new schools as compared with additions to existing schools. These results indicate that as complexity increases, costs increase. Conversely, cost per foot decreases as the percent of the classrooms that are modular increases, as would be expected for this low cost construction technique.

We also included the natural log of the total number of classrooms in order to measure economies of scale that may be present. That is, as the number of classrooms increases, we would expect that economies of scale would result in lower costs per square foot, which is in fact what we find in the regression results.

Finally, numerous binary project characteristics (whether or not project included a gymnasium, or an auditorium, etc.) were included as well as a variable for school type (i.e. Elementary, Middle, or High School).

The key explanatory variable in our analysis was a measure of the time between the implementation of the SFP and the start date of a construction project (as measured by the data at which an application was submitted to the SAB for funding – the "SAB Date"). This variable, "Years," serves as a measure of the increase in costs each year, while controlling for the other factors listed above. That is, we can measure the increase in costs to build new schools while controlling for variations in project type, complexity, and construction method.

According to our regression results, the cost per square foot to build new school facilities has increased by 6.6 percent per year since the SFP was implemented. Using the coefficient on years in our regression analysis (0.065) we can calculate the increase in cost per foot per year as follows:

1. Take the initial cost per square foot

    a. Initial cost per foot = $243 (mean cost per foot in our sample, but could be any value)

2. Estimate the new cost per foot one year late
    a. New cost per foot (1 year later) =
    e raised to the power (0.065 * 1 year + log of $260) = $259

3. Calculate the change in cost per foot and determine the percent increase

    a. Increase = ($259-$243)/$243 = 6.58%

Exhibit C-1: Regression Results

Variable	Description	Coefficient	T-Stat
Intercept	Intercept	5.7516	21.82*
New_school	1 if school is new, 0 if addition to existing school	0.3005	1.49
Stories	Number of Stories	0.279	2.9*
New_mpr	1 if proj includes new multipurpose room, 0 otherwise	0.2749	1.59
New_gym	1 if proj includes new gym room, 0 otherwise	-0.0678	-0.36
New_stadium	1 if proj includes new stadium room, 0 otherwise	0.3814	1.4
New_labs	1 if proj includes new labs room, 0 otherwise	0.0955	0.68
New_auditorium	1 if proj includes new auditorium room, 0 otherwise	0.1512	1
New_pool	1 if proj includes new pool room, 0 otherwise	0.114	0.27
New_library	1 if proj includes new library room, 0 otherwise	-0.134	-0.84
New_juf	1 if proj includes new joint use facility, 0 otherwise	-0.0861	-0.38
log_classrooms	Natural log of number of classrooms	-0.3901	-4.64*
percent_modular	Percent to total classrooms that are modular	-0.4758	-4.13*
HI	1 if proj is a high school, 0 otherwise	0.0073	0.04
MI	1 if proj is a middle school, 0 otherwise	-0.0004663	0
Non_Sev	Number of non-severely disables students	0.0021	0.34
Severe	Number of severely disables students	-0.0023	-0.14
Years	Number of years since SFP was implemented	0.065	2.11*

* Statistically significant at the 95% confidence level.