



**Audits of Public School Construction Programs:  
A Literature Review**

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**Audit Team:**

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A Report by the Office of the District of Columbia Auditor  
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The Honorable Phil Mendelson, Chairman  
Council of the District of Columbia  
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Washington, D.C. 20004

Dear Chairman Mendelson:

## **Literature Review: Audits of Public School Construction Programs: A Literature Review**

### **Background**

In 2006, the District of Columbia Mayor and Council made school modernization a priority, creating a Public School Capital Improvement Fund and injecting an additional \$1.3 billion in capital project funding to D.C. Public Schools over a ten-year period. In a national context, school capital projects of this magnitude are less common but projects on a smaller scale are continuously being undertaken. This supplemental report provides examples of audits and reviews of school capital projects performed in other school systems. Capital projects are complicated ventures and developing best practices is a work in progress. Studying the findings and recommendations here may serve to help the District avoid future cost overruns, undue delays, a poor oversight structure and conflicts of interest. Some overall conclusions drawn include:

- The importance of the “tone at the top” when it comes to accountability, referenced in the first audit described below. Every aspect of a program’s control environment depends on leaders demanding accountability.
- The importance of planning and adhering to planning guidelines. One common theme in many reviews was change orders. A change order is a change in the contract that is agreed to by the architect and/or engineer, contractor, construction manager, and the owner. They result from a change in the contract time, price, and scope of work and can be due to unforeseen circumstances or owner requests. A change order can result in either an increase or decrease (credit) in project cost.
- Lack of controls and/or failure to adhere to controls outlined in policies and contracts also drive costs and limit accountability.
- Over-customization can drive costs as well. Audits from Texas and California suggest that major cost-savings are available when prototypes are used instead of customizing each school. If customization is necessary, efforts should be made not to over-customize. School facility needs are largely the same from school to school and district to district.
- The importance of avoiding conflicts of interest with regard to procuring goods and services. Generally defined, a conflict of interest occurs when an individual finds him or herself involved in a situation where loyalties are divided between professional and personal obligations and/or interests. Two audits below describe how conflicts arose in the hiring of contract professionals and a construction project management company.

## Objectives, Scope and Methodology

The objective of this supplemental report is to inform the Council of audits and reviews undertaken elsewhere in the United States that provide context for the Council committees – including the Committee on Education and Committee on Transportation and the Environment (with oversight for the Department of General Services) in meeting their oversight responsibilities for school capital projects – particularly as it relates to cost and quality factors.

To accomplish this objective, the Office of the District of Columbia Auditor (ODCA) conducted an extensive review of literature sources that included both legislative and state auditors, other state agencies and nonprofit entities.

Because this is a literature review and not an audit, we did not conduct a data reliability assessment or otherwise verify the information and/or data collected from cited sources beyond ensuring that it was correctly transcribed in this report. Therefore, the information in this report should be regarded as unaudited. We did not conduct the examination as an audit as defined by the Government Accountability Office's Government Auditing Standards. Additionally, this report is prepared with the understanding that local and state laws vary with regard to the subject matter covered and may not necessarily apply to District projects.

Following are summaries of school construction audits, grouped by topic, including capital planning, construction costs, buyout logs/buyout schedules, and conflicts of interest.

### Capital Planning:

#### [Greece Central School District: Internal Controls Over Selected Financial Transactions \(Capital Improvement Project \(CIP\) section\). Office of the New York State Comptroller - Division of Local Government & School Accountability, 2008](#)

This report details several notable issues pertaining to the CIP with a central theme of a poor control environment at the district which allowed the school Superintendent too much unchecked authority. According to the Office of the State Comptroller, a vital component of any internal control system is the control environment, or "the tone at the top." The control environment is a reflection of management's attitude about internal controls and includes the integrity, ethical values, and competence of the organization's people, and management's philosophy and operating style. When the control environment is strong, there is an expectation that everyone, including top management, will conform to established controls and uphold the public's trust. The foundation of any effective control environment is competent managers who have integrity and attentively monitor operations to safeguard public resources.

To address this control environment concern, the report recommended that the elected Board of Education "...should establish a strong control environment in the district as the foundation of an effective system of internal controls." The report also recommended that Board members assume an active role in both directing and monitoring operations.

The following were noted as findings under the capital improvement section:

- District officials expended \$2.5 million more on the CIP than the \$119.5 million authorized by the voters of the school district. The project is three years overdue and still not complete. Additionally, the district is engaged in legal action with contractors over incomplete or unsatisfactory work.
  - This was primarily due to poor planning and the district scrambling to submit capital planning documents to New York State by the deadline of an incentive period. Submission of documents during the incentive period would provide for state aid to cover 80 percent of the project cost and local funds providing for the remaining 20 percent. If submitted after the incentive period, the local cost of the project would increase by roughly 50 percent.
    - Change orders were a direct result of this poor planning. Change orders are to be expected in any construction undertaking; however, the auditors found that for the CIP's 95 bid contracts there were 2,400 change orders. More significantly though, 36 of the 95 bid contracts have included a cost change of 10 percent or more. The report notes the industry average for change orders is 2 to 5 percent of the base bid on a contract.
  - Poor cost monitoring during the project also allowed the district to expend more on the CIP than was authorized by voters. Although the Board hired a clerk of the works to monitor CIP progress on their behalf, he was not given the authority and information needed to oversee the project. Additionally, the Board did not approve change orders. The district has a policy that requires change orders exceeding \$20,000 to be Board approved. However, auditors found that only 6 of the 144 change orders above \$20,000 were approved by the Board. Also, the report noted that change orders were split to avoid the \$20,000 Board review threshold so as to shield the issues from the governing body.
  - The cost was exceeded in part due to the construction manager receiving an additional payment of almost \$1 million due to 2 change orders. The change orders were unsupported. According to a district official, he believed the payment to be contractually obligated due to the original timeframe for construction management services being exceeded. The contract between the construction manager and the district was ambiguous. The auditors found no evidence that the Board approved this or even knew about this additional payment.
- The district's claims auditor paid contractors without ensuring the work billed for was performed. The claims auditor is an individual appointed by the Board who ensures that claims against the district are for actual and necessary district expenses before approving them for payment. The state auditors found that 30 of the 70 claims tested, worth a total of \$1.7 million, were paid without the architect's certification that services billed were performed. The report notes that when contractors submit applications for payment, it is the architect's responsibility to ensure the work is high-quality and has progressed to the point indicated by the contractors. Without that required certification, the claims against the district should not have been paid as the district has no assurance that the work performed was high-quality and in compliance with contract documents.

## **[PK-12 Public Educational Facilities Master Plan Evaluation Guide, 21<sup>st</sup> Century School Fund, 2011](#)**

The 21<sup>st</sup> Century School Fund is a 501(c)(3) nonprofit organization based in Washington D.C. whose mission is to build the “public will and capacity to modernize public school facilities so they support high quality education and community revitalization.” Per their PK-12 Public Educational Facilities Master Plan Evaluation Guide, the definition of an educational facilities master plan “...is a written document that describes a school district’s real estate and capital improvement requirements and its strategy and school specific plans for meeting these requirements over a 6-10 year period.” Specific to real estate, the plan will consider the space needs of schools (either expansion or contraction), proposed site selection, leasing and perhaps joint use locations. Regarding the capital improvement side, elements considered for the educational facility master plan will include the cost, schedule, and justification of new construction or modernization of current buildings.

The guide notes the absolute necessity of planning and states: “Proper planning of school facilities is critical for all school districts no matter how large or small, whether major construction is in the works or the district is managing enrollment declines. When school districts properly plan for their school facilities they have better schools, more public use and higher value for public spending.”

This guide was developed for major stakeholders, including school boards and superintendents, who are asked to develop these plans but likely do not have extensive experience in this area.

## **[2014 Educational Facility Planning Guide, Ohio School Facilities Commission, 2014](#)**

The Ohio Facilities Construction Commission (OFCC) is a state agency tasked with guiding capital projects for universities, state agencies, community colleges, and Ohio’s public K-12 construction and renovation program. The Commission sets “uniform rules, procedures, and standardized documents and is responsible for construction delivery methods, construction documents and process and procedures.” Within the agency lies the Ohio School Facilities Commission (OSFC) which is exclusively tasked with planning and programmatic issues with regard to K-12 construction.

Neither the OFCC or the OSFC perform audits of capital projects; they provide oversight and a wealth of resources to make capital projects successful. For example, the OSFC releases an annual document called the Ohio School Design Manual (OSDM). The OSDM has been developed to “provide consistent clear information for school districts and design professionals as a new generation of schools is being created for Ohio. The guidelines are the culmination of standards, accepted procedures, statutory requirements, and the experiences of experts and authorities throughout the United States.”

The manual is extensive and details, among other things, the planning process, assessing current facilities, and projecting enrollment. The planning process contains two distinct pieces: pre-planning/planning approval and funding. For the former, the manual describes establishing partnerships with the community at large, refining the district’s educational program, and then connecting the educational program to the district’s and community’s shared vision of facilities. For the latter part, the manual describes gathering essential data such as enrollment projections and the assessment of existing facilities, which is then incorporated into the master facilities plan. This process eventually culminates when a funding source is secured. The manual also details Ohio’s gross fundable square footage per student for a new elementary, middle, and high school facility.

Additionally OSFC's website (<http://osfc.ohio.gov/Construction/Evaluations.aspx>) contains evaluations of individual architects, engineers, construction managers, design builders, trade contractors, and maintenance plan advisors. These reviews are submitted by all participants in the capital project including the companies performing the actual work and the local school district. As the website notes, these evaluations prove useful when considering awarding future construction contracts.

**[Special Facility Construction Projects Appear Needed, but Have Excess Capacity, The Florida Legislature Office of Program Policy Analysis & Government Accountability \(OPPAGA\), January 2011](#)**

The Special Facility Construction Program is administered by the Florida Department of Education (DOE) and provides financial assistance to poor school districts that have urgent construction needs. Statutory requirements guide the Department in administering the program. The report notes that between fiscal years 1998 - 1999 and 2009 - 2010, the Special Facility Construction Account funded 25 school projects. The report noted that the DOE's process to "evaluate, select, and prioritize projects is consistent with the program's statutory framework." The report also found that for each of those 25 projects created, excess capacity in the schools resulted (using enrollment figures for the 2009 - 2010 school year), including over 25 percent excess student stations in more than half (13) of the 25 school buildings reviewed. The report cites two reasons for this; enrollment decline due to the poor economy but also restricting program funding to building new schools exclusively, as opposed to improving and expanding upon existing structures. The report estimates this excess capacity had a construction cost of roughly \$108 million, excluding operating costs.

**Construction Costs:**

**[Public School Construction Costs: Examining what building schools costs the Texas taxpayers. Texas Comptroller of Public Accounts, July 2014](#)**

This 20-page report is described as "...an effort to provide Texas school districts and the property taxpayers who fund them an opportunity to see and analyze, side-by-side, construction costs for newly built campuses that opened between 2007 and 2013." Based on responses to open records requests and follow up contacts, the report contains information on 834 new campuses and \$15.4 billion in combined adjusted construction costs. It encompasses cost per square foot, cost per student at capacity and square feet per student. Of particular interest to other jurisdictions would be some of the factors that the authors contend helped to drive costs up, and other factors that served to control costs. The report also notes a wide range in cost for new schools: \$76 to \$260 per square foot. Secondary schools and pre-k schools were found to have the highest cost, and middle schools and elementary schools were the least expensive. The report also found significant fluctuations in total costs from year to year – with higher costs during the construction boom in 2009 and 2010 prior to the full impact of the recession, and lower project bids during the recession.

Factors found to help drive up individual school project costs:

- Site improvements: The two most expensive new schools in the Port Arthur Independent School District (ISD) required design and construction above ground to reduce hurricane damage potential, and a requirement for a costly sanitary sewer. Similarly, Del Valle ISD had to install concrete piers to strengthen a foundation built in "expansive red clay."

- Travel: Rice Consolidated ISD found that building in a rural area brought significant travel costs for construction workers.
- Compressed timeline: Paris ISD noted problems with the architect at the start of a high school project plus weather delays led to a compressed schedule and additional costs, including higher labor costs due to the need to pay for overtime.
- Environmental protections: Federal endangered species regulations brought higher building costs to the Northside ISD where nine endangered species were identified.

Factors that helped control overall costs:

- Sharing an architectural prototype: In United ISD and Cypress-Fairbanks ISD use of existing prototypes reduced costs. United ISD built six campuses using the same prototype and Cypress-Fairbanks used an existing architectural prototype for both elementary and secondary schools. Round Rock ISD, using elementary prototypes, can build an elementary school in an average of 14 months compared to an average build time of 18 months.
- Bulk purchasing: Joshua ISD reduced costs by buying materials in bulk for multiple projects.
- In-house construction department: Joshua ISD developed its own construction department and officials said this helped reduce construction costs.
- Timing and economic downturn: Several districts noted that with a slow market firms accepted terms favorable to the district. Hermleigh ISD said the “lull in the construction sector” in 2010 meant favorable bids.
- Renewable energy: Frisco ISD projected a 30 to 50 percent savings on the 20 schools they built using geothermal pumps that use renewable energy to heat and cool the buildings.
- Shared infrastructure: Cypress-Fairbanks ISD built an “educational village” collocating a new high school with elementary and middle schools enabling the schools to share a single cooling plant for the entire site.

**[Public School Construction Cost Reduction Guidelines, California State Allocation Board, April 2000](#)**

This report was produced by the California State Allocation Board (SAB), which is committed to providing quality learning environments for California’s children. The SAB was tasked with producing these guidelines in the wake of the Legislature passing SB 50 in 1998.

The legislation changed the funding mechanism for school facilities, emphasizing the grant approach and the ability for school districts to retain savings as an incentive to keep projects cost efficient. The SAB notes: “The prior system can be characterized as a ‘bottom up’ approach where a construction project was funded by adding up all of the elements of the project and arriving (at) a total state loan amount based on allowances for each element. In contrast the SB50 approach is ‘top down.’ The total state amount is a grant based on student eligibility. In the old system the incentive was to build as much as allowed because the district got more money. In the new system the incentive is to be as cost-effective as possible because the district gets a fixed amount regardless of the project, and it can use its savings on another project.”



Among others, the major factors affecting the costs of schools in California are:

- “The desire for school by school control and the resultant customizing of each school to meet what is perceived as local educational necessities, has caused a ‘one of a kind,’ start-over-every-time approach.”
- “The traditional project delivery methods, from initial planning through design and construction, are linear, step by step, prescriptive methods that fail to take advantage of current and evolving performance systems.”

Regarding the first point, the report strongly recommends not over-customizing the design, as it is the quickest way to increase the cost. “Customizing and/or personalizing a design takes extra time and dollars to accomplish. School facility needs are essentially the same from school to school and district to district. The tendency to have custom elementary ‘A’ for one school, and custom elementary ‘B’ for another is not cost effective. This is a political issue and not solvable within the context of these Guidelines. However, in the context of overall state-wide school construction program, this customization increases every aspect of the cost including district staff costs, design services, code review and construction.”

To the second point, the SAB offers two potential examples of performance systems related to design professional/architect services. It first suggests providing bonuses for completing design work early as this will allow adequate plan review and will also provide for a more favorable bid climate. Interestingly it also urges considering making additional projects for the design professional contingent on their performance on the first project. It notes: “There is a potential for reducing the costs of the project if the performance of the design professional’s services can be improved. The reduction in cost would be in the area of fewer construction changes and cost overruns due to better documents.” It suggests including an incentive clause that awards the next phase of a project or future projects contingent on satisfying mutually agreed goals or criteria. On the other hand, evaluating performance of this sort is difficult because many times changes occur that are beyond the design professional’s control.

### **Buyout Logs/Buyout Schedules**

Guaranteed Maximum Price (GMP) is a form of a contract between an owner and contractor where the total dollar value is the cost of the work plus a fee with a ceiling price. Unless there have been changes to the scope, the contractor is responsible for any costs above the ceiling price. Conversely, if the final cost of the work plus a fee is below the ceiling price, then the savings are shared between the owner and contractor. Project cost savings typically occur in one of two ways; 1) the buyout of subcontractors (cost of the work) is less than budgeted in the GMP, and 2) funds remain in the contingency at the end of the job. A contingency is a line item allowance that is intended for certain unforeseen costs that may arise during construction.

A schedule of values (SOV) is a detailed statement outlining the portions of the total GMP dollar value. The initial schedule of values is included as an exhibit in the GMP contract where the original dollar amount is established. Throughout the course of a project, the SOV is used as the basis of progress payments to the contractor.



A buyout log (also known as a buyout schedule) is a document prepared by the contractor that mirrors the schedule of values and shows the variance between purchased subcontractor work relative to what was budgeted in the GMP. Any aggregated savings of actual cost versus budgeted cost gets added to the contingency while any cost overruns would be funded by the contingency. Some jurisdictions (including the District) incentivize contractors to both prepare buyout logs and to get subcontractors to do work efficiently by granting the contractor a portion of any savings on the actual cost of work compared to the GMP.

The two reports discussed below represent audits with significant findings related to buyout logs for two school district contracting projects—one in the Los Angeles Unified School District (LAUSD) in California and one in Palm Beach County Schools in Florida.

#### **[Contract Audit Report of Incurred Costs by the LAUSD from Turner Construction Company Contract No. 0910019, Office of the Inspector General, April 2014](#)**

In December 2008, LAUSD approved a contract in the amount of \$94,676,344 for the construction of Central Region High School No. 16. In February 2013, however, the contract value was increased to \$98,654,808 due to approved change orders. The approved purchase price finally decreased slightly to \$98,371,999 as a result of approved allowance and contingency underruns. The general contractor, Turner Construction Company (Turner), was entitled to receive 50 percent of the remaining construction contingency at the end of the project. This audit reports on the incurred costs resulting from the contract between the LAUSD and Turner, including amounts requested and granted in change orders, contingency allowance disbursements/underruns, and buyout savings to determine whether the invoice documentation submitted by Turner was adequately supported.

By and large, the auditors found that the majority of items they examined were adequately supported and allowable under the terms of the contract, but noted \$191,771 in questioned costs related to the inclusion of general condition/requirements costs in the calculation of savings in the buyout log. The inclusion of these costs (which represented dust control and material relocation fees incurred by Turner) meant that Turner understated the buyout savings and overstated the total billable costs through the contingency. Because Turner was entitled to 50 percent of the remaining construction contingency, but 100 percent of billable costs within the contingency, this resulted in a larger disbursement of total funds to Turner than would have otherwise resulted if the costs had been properly accounted for.

The report does not offer suggestions for how to prevent such mischaracterizations of expenses in the future, instead simply recommending that Turner repay the \$191,771 to LAUSD. Eventually Turner agreed to pay back \$190,000.

#### **[Audit of Two Construction Projects, School Board of Palm Beach County, May 2011](#)**

The audit committee of the School Board of Palm Beach County produced a required audit of two elementary school construction projects in 2011 to determine whether the contract manager for the district adhered to contractual provisions, properly approved payments, properly authorized changes in work through change orders, and instituted adequate controls in project management and contract administration.

This report found a number of deficiencies in each of the areas it focused on. First, it found that several pay applications for the construction manager, architect, and a number of subcontractors were paid out without properly attached invoices or other documentation to substantiate the costs incurred. As the report notes, “a total of \$460,263 was paid to construction managers and architects without sufficient support documentation; and more than \$13 million in payments for subcontractor work were made without subcontractor pay requests, subcontractor change orders, or review of subcontractor releases; and subcontractor pay requests totaling \$729,850 were not signed or initialed by the subcontractor.” To correct this, the report recommends that the contract manager develop and implement formal written procedures for district staff, contractors, and subcontractors documenting the required steps to ensure accountability in the payment approval process.

Another major problem with the execution of the contract identified by the auditors was lax overall contract enforcement in a number of areas. The audit found that construction managers exceeded authorized spending limits for some line items by tampering with the overall budget through a reduction in some line items to support cost overruns in other areas, instead of using the contingency funds as required. Because buy-out savings were determined by line item, this tampering with specific line items potentially reduced the savings returned to the district at the end of the projects. Compounding this problem, the contract manager continued to approve payments even after the unauthorized revisions to specific line items, meaning the district lost its ability to track and monitor the use of funds. To correct this problem in the future, the auditors recommend that all movements of funds between line items should be monitored, reviewed, and approved prior to any payments being authorized.

The auditors also found that accounting reports were not submitted as required in many cases, that monthly pay applications were not reviewed by the Project Controls Department, and that use of the GMP contingency monies was not properly reviewed and approved prior to contractors performing the work. The accounting reports not submitted included items such as the cost status report, the payment status report, and the cash flow diagram. The auditors found that without these reports, the district is not as able to monitor and control the flow of funds or project costs. Similarly, the contract manager did not properly forward monthly pay applications to the Project Controls Department, which prevented contract compliance ensuring work was performed within the authorized cost and scope. Likewise, proper forms authorizing the use of GMP contingency funds for cost overruns were not filled out or approved prior to the work being performed, potentially leading to work being funded that is not necessary or not approved.

One final significant deficiency the auditors found is that several payments to construction managers were accelerated ahead of the rate stipulated in the contract agreement in violation of the School Board’s policy prohibiting advance payments. Subsequent payments were reduced so that the total payment amount was in compliance with the contract agreement.

The report also highlights a number of more minor compliance issues, including:

- The preliminary schedule of values was not submitted by the construction manager for either project, leading to payments going out before line items had been approved.
- The architect’s statements on changes did not comply with Board policy requiring them to certify whether changes represented an additional cost.

- Critical records were not properly retained by the contract manager, making it difficult for the auditors to effectively do their work.
- Required approvals were not obtained for project budget line item adjustments and transfers.

## **Conflicts of Interest**

Generally defined, a conflict of interest occurs when an individual finds him or herself involved in a situation where loyalties are divided between professional and personal obligations and/or interests. While there is no absolute panacea, establishing a strong code of ethics and requiring annual disclosure statements noting financial and familial relations are two strong preventive measures.

A code of ethics would detail the professional parameters, which all employees are expected to follow while disclosure statements would reduce the risk that employees, particularly those in contract administration or those having contact with vendors, might engage in relationships that may constitute conflicts of interest (including kickbacks). Disclosure statements are frequently completed on an annual basis and in some entities, at the cessation of employment. Some governmental agencies have post-employment limitations on former employees leaving service and becoming employed by an entity that does business with their former employer.

The two reports below describe two distinct scenarios in which conflicts of interest occurred with contractors.

### **[Performance Audit of LAUSD's Facilities Services Division, New Construction Branch: Selection Process of Contract Professionals Using Construction Management Contracts, Los Angeles City Controller, October 2010](#)**

This report details improper hiring of contractors by school district employees and other contractors. In the late 1990s, the Los Angeles Unified School District (LAUSD) undertook an ambitious plan to improve school facilities in the form of new construction and/or renovation of existing facilities. The program was supported by several bond programs that totaled over \$20 billion. The school district decided to outsource professional services in the construction arena rather than hire district employees, as the projects had a limited lifespan. From July 2002 to 2010 the district hired more than 1,000 contract professionals (CP), many of which were already working or associated with an existing construction firm. To hire CPs, the district chose to utilize interview panels that consisted of district employees or other CPs to evaluate candidates and when warranted, forward their hiring recommendations to the LAUSD hiring authority. The report notes that the school district had policies in place to prevent individuals on the interview panel from incurring real or perceived conflicts of interest: "The district outlines in its policies that CPs earning more than \$300 from the firm, holding investments greater than \$1000 in that firm, or acting as a director, manager, or officer of the firm would constitute a potential financial conflict of interest which would preclude the CP from participating in the hiring decision."

The audit found that there were more than 225 instances in which a contract professional sat on an interview panel that selected a person employed by the CP's employer. The audit also uncovered 80 CP selections that were made without any hiring panel being convened. Finally, four instances were discovered when an individual on the hiring panel hired a CP in a firm in which they had an investment and thus received a direct financial benefit.

The audit recommended that employees and CPs alike, file a statement of economic interest upon hiring and at the conclusion of district employment, in addition to filing one annually. Another recommendation was that managers of the school district should review the statements of CPs and key managers to identify any potential conflicts; especially those with the ability to hire employees and/or award contracts.

### **[Audit of the Rockwood R-VI School District, February 2013](#)**

Among other findings, this audit report discussed a board member's conflict of interest in regard to the district's capital project. Over the course of seven years, the district issued voter-approved bonds of \$226 million for construction, renovation, and maintenance projects in addition to technology upgrades. The district contracted with Glenn Construction Company to perform project management duties, with compensation set at seven percent of bond issuances specific to construction and renovation. One of Glenn Construction Company's employees, Steve Smith, has served several times as a board member but most recently from May 2010 to the present. He disclosed his employer to the board prior to joining. Mr. Smith began employment with Glenn Construction Company in 2004 and resigned from his duties in June 2012.

The audit found that Glenn Construction Company was paid additional fees, totaling more than \$1.2 million, for managing projects outside of the original scope of the contract, without modifying or renegotiating the existing contract. These additional services could have also been solicited for bids to ensure a fair and competitive playing field for all parties involved. Soliciting bids, or more formally called a request for proposal (RFP), is a process that involves publicly inviting organizations to submit a "bid" or price on the advertised goods or services needed. The additional \$1.2 million appears to represent an overpayment, as there was no contractual basis for the additional monies to be paid.

Instead of recusing himself from voting on all matters related to his employer, Mr. Smith voted on change orders and additional projects that directly resulted in additional fees being paid to his employer. This violated Missouri law and board policy which states: "Members shall avoid being placed in a position of conflict of interest, and shall not use the Board position for personal or partisan gain..."

The report recommended that the school board ensure that each board member recuse him or herself from any decisions that could result in the appearance of a conflict or an actual conflict of interest.

### **Additional Audit Reports**

#### **[Recovery School District – A Compliance Audit Report on the Capital Construction Program, Louisiana Legislative Auditor, June 2012](#)**

The Louisiana Legislative Auditor (LLA) performed this compliance audit to determine contractor (architecture and engineering firms, and the district's program manager) adherence to written obligations. The LLA analyzed planning, design, construction and project management with regard to the district's capital construction program.

The report listed the following findings:

- Architecture and engineering (A&E) monthly reports: The report notes that architecture and engineering consultants are contractually required to perform inspections and meet with the general contractor about any issues that could affect the project. Their inspection records and meeting minutes are to be included in a report that is submitted to the district and to the project manager to keep both parties apprised. The auditors reviewed inspection and site meeting reports for eight schools and found that while they were being performed, the reports varied significantly from school to school. The Project Manual for New Orleans Public Schools requires that all reports include “(1) deviations from the contract documents and from the most recent construction schedule submitted by the contractor, and (2) defects and deficiencies in the work.” Four of the eight projects failed under this requirement.

The auditors also reviewed the few architecture and engineering consultant reports that were submitted to the construction manager. The report notes that: “A&E consultants should be inspecting work related to the scope of work and providing reports to RSD (the district) and the project manager that indicate the status of the work inspected. These reports are important because they establish a written record of the observations of the licensed engineering professionals who inspected the work and can be used by RSD management in cases of contract disputes and substandard workmanship.”

Auditors recommended minimum requirements for all A&E reports including the use of standard American Institute of Architects (AIA) forms, photographic records, sufficiently detailed statements about outstanding issues, names of individuals at status meetings, and any other potential performance or safety issues noted. Additionally, auditors recommended that these reports should be filed monthly and maintained in an accessible manner by the project manager.

- Request for Information Logs: The audit report notes that a request for information (RFI) is a “communication process initiated by the contractors to the A&E consultants, project manager and RSD (district officials) about items in the contract drawings or specifications that need clarification. RFIs often result in changes to contract drawings and/or alternative specifications and can produce change orders.” Auditors reviewed the RFI logs for two schools and noted that A&E consultants identified items that would reduce the cost to the district if processed through a credit change order. As of the date of their audit, none of these credit change orders have been submitted to the district.
- Materials Testing Reports: Third-party testing agencies typically determine material (concrete, steel, masonry etc.) conformance with project specifications. The auditors reviewed the testing reports for one elementary school and noted:
  - Different concrete mixes that were not approved by the testing agency were utilized that were below the 4000 psi (pounds per square inch) specification.
  - Three concrete reports (out of 120) contained samples that appear to be much weaker than the required design strength.
  - Testing protocol was not followed for 4 concrete reports as the concrete pours should exclusively be performed by the testing agency.

- Project Permitting: Capital project best practice is to have all permits obtained before a project is bid. The auditors noted two instances where permits were obtained after the projects were bid which resulted in a charge for modifications to the project and also the loss of custom-made manholes for an additional cost of over \$8,000.
- Change Orders: According to school district policies, change orders undergo a three-tiered approval process. First, they are provided to the appropriate architect/engineer consultant, who forwards them on to the project (or construction) manager, and finally to the district for approval. The project managers' review is generally more cursory and consists of ensuring all the necessary paperwork is accounted for and checking for math errors while the architect/engineer consultant checks for necessity and pricing (labor, material, and/or equipment rates).

The auditors reviewed all approved change orders and noted the following:

- Several change orders had been approved without a thorough review, which resulted in the district incurring a higher cost than necessary. For instance, the auditors found 29 change orders that exceeded the overhead and profit percentage. Industry standard caps change order overhead and profit at 10 percent of the direct cost of the work performed. Auditors found instances where overhead and profit was 39 percent of the direct cost of work.
- Auditors also reviewed credit change orders which did not include contractually required reductions for overhead, profit, insurance and bonds which totaled over \$17,000.
- Auditors found three instances where change orders that included charges and credits calculated overhead and profit based on the gross charges as opposed to the AIA industry standard of net charges (charges less credits). This goes against American Institute of Architects (AIA) standards and resulted in the district paying \$1,500 more than necessary.
- Auditors found instances of change orders that contained "elevated material quantities and costs, types and quantities of labor, labor burden, and charges for equipment..." This resulted in similar change orders at different locations that had vastly different costs (in one instance 247 percent more than the cost at another site). Contractually, the project manager was supposed to "...monitor, document, and report all time and materials change orders" but clearly this was not occurring.
- Change orders involving multiple trades were incorrectly calculated using a single labor burden rate. AIA standards require a contractor who is submitting a change order to include the labor burden by trade for subcontractors and the general contractor. Labor burden is defined as the total cost to an employer for taxes including payroll, social security, unemployment and worker's compensation. According to the report, the key variable is worker's compensation insurance, which is calculated based on the risk involved with each trade. As a general benchmark, the auditors reviewed labor rates at two other schools (Crocker and Frantz Elementary) within the district that were also part of the capital construction project. The report notes that the labor rates for those two schools ranged from 10 percent (supervisors) to 31 percent (for steel erectors). Auditors noted five change orders with a labor burden that exceeded the 10 to 31

percent range. For instance, the labor burden for concrete work in one school was 45 percent.

**[Audit of the Department of General Services, Office of Public School Construction Proposition 1D bond funding. Prepared by the Office of State Audits and Evaluations, January 2011](#)**

California voters approved Proposition 1D, otherwise known as the Kindergarten-University Public Education Facilities Bond Act of 2006. The Act provided over \$10 billion in general obligation funds which would go toward the construction and modernization of educational facilities. The School Facilities Program (SFP) provides state funding (including from Proposition 1D) to school districts, charter schools and county education offices.

The Office of Public School Construction (OPSC) resides within the California Department of General Services and is, among other things, responsible for processing funding applications in addition to performing compliance and expenditure audits.

California's governor issued an executive order soon after Proposition 1D was passed that provided a framework for bond accountability and required all departments to ensure "...projects and programs met the intended outcomes and specified ongoing project status reporting requirements."

Audit findings were numerous and included a lack of audits being performed by OPSC, both incomplete and inaccurate project status reporting, and a lack of outcome-based performance measures to assess whether SFP goals are met.

Regarding the latter finding, auditors found that while OPSC tracked the total amount of bond funds provided to schools and the average number of days to process applications, metrics to ensure the achievement of the programs primary goals (for example "to improve the educational environment of California's children" etc.) did not exist. The audit noted: "...how is OPSC determining if the educational environment of California's school children is improving? Possible metrics include collecting data on the condition of school facilities." The audit further notes that there is no complete school inventory listing which describes the condition of the schools and when they were built. This type of information is critical to decision makers as they seek to determine the amount of funding necessary to keep education facilities up to par.

The audit also found that projects for charters schools, career technical education, high performance, and joint use are not reported on the state's bond accountability website. This is a requirement per the governor's executive order. Finally, auditors noted that OPSC does not regularly reconcile information reported to the public with internal fiscal and accounting records that it receives.

**[Capital Appreciation Bonds: Ticking Time Bombs, Superior Court of California, San Mateo County, 2012](#)**

According to this report from the Superior Court of California, San Mateo County, capital appreciation bonds (CAB) became one increasingly common funding method for school districts to finance the construction and renovation of facilities. This report came about after the San Mateo County Civil Grand Jury investigated the use of these contentious debt-financing instruments by school districts.



The report notes that: “While most bonds are due in 25 years, some CABs have terms up to 40 years. More troubling is that all CABs, regardless of the length of their term, don’t require any payment (principal or interest) until they are due. During that time, the interest payments continue to accrue and compound, creating massive balloon-type payments at or near the CABs’ maturity dates.” CABs also present a disconnect, in that those approving these loans will likely not be present when the payments become due.

The report details three bonds that were issued by the San Mateo Union High School District in 2010 and 2011 that totaled approximately \$190 million dollars that will in turn create a debt of almost \$1 billion dollars that will come due (or presumably be refinanced) between 2034 and 2050.

Recommendations put forth by the Grand Jury to county school districts include:

- Adopting prudent loan parameters for the issuance of school debt.
- Ensuring bond financing is as transparent as possible by posting information on the school website, including all bonds outstanding, the bond amount, the interest rate, the maturity date and any other relevant details.

#### **[Review of Project Management Processes for School Construction, Fairfax County Public Schools Internal Audit Office, November 2006](#)**

This review was conducted to examine the project management processes for school construction during the 2004 - 2005 fiscal year. The report fails to provide the capital project dollars spent over the scope period but notes that for fiscal years 2006 and 2007, \$ 277.4 million was budgeted for new construction and renovation.

The audit highlighted the following issues:

- Project Modification Documentation: There were 60 change orders reviewed for a total of 905 project modifications. The auditors review of the 905 project modifications resulted in the following 42 findings:
  - 24 project modifications were lacking documentation
  - In 17 instances, the dollar amount noted on project modification documentation was different than the amount processed in the corresponding change orders
  - Overhead was incorrectly assessed for 1 modification (dollar amount not provided).

The report recommended that project managers ensure that each modification is accurately and fully documented. Additionally, it was noted that completing project “post mortems” or reviews would be helpful so that change orders could be minimized going forward.

The report concluded that the 4.2 percent change order rate was reasonable given industry standards (change orders totaled nearly \$5.6 million with an original contract amount of \$132.1 million) but noted that with continued and projected budget pressures, increasing the level of change order scrutiny could be warranted. Change orders initiated by offices and departments not directly involved in the project was specifically cited as a concern.

- **Project Completion Dates:** The listing of open and completed projects in the accounting system did not agree with the listing maintained by the design and construction staff. This could result in the district exceeding the total amount authorized for the capital project. The report recommended a meeting between accounting and design and construction staff annually before year end to ensure proper close out procedures in the accounting system. With this occurring, unspent project balances can be transferred to the general project reserve or to other projects that are short on funds.

### **Annual Capital Risk Assessment and Audit Plan, Seattle Public Schools Office of Internal Audit, April 2014**

The Office of Internal Audit and Ethics conducts risk-based audits to support and promote transparency, efficiency, and accountability with respect to school district operations. To ensure independence from district management, the office reports directly to the Audit and Finance Committee of the Board of Directors. The office employs an individual with a non-traditional background which allows the organization to audit capital projects. The stated overall goal of capital audits is to review processes, activities, and transactions that impact the Capital Project Fund with a focus on higher-risk aspects. Some of the specific procedures performed in developing the audit plan were to interview Board Directors and individuals from the Capital, Accounting, and Finance departments, review monthly status reports, and to review construction audits of local governments or schools that are similar to Seattle Public Schools. Their Annual Capital Risk Assessment and Audit Plan included the following:

- **Project Closeout Procedures:** This audit seeks to evaluate the legal and financial risks associated with closing out a project including ensuring all required certifications, statements, and state approvals are obtained before the release of retainage. Retainage is defined as the amount or percentage of the contract price that remains unpaid until the contractor or subcontractor satisfies their obligation.
- **Design Schedule:** This audit will determine how effective the district is in controlling the design schedule and whether billings for the architect are consistent with the work performed and terms of their contract.
- **Accuracy and Reliability of Financial Reporting:** This audit will seek to determine whether monthly reports are timely, accurate, and comprehensive enough to provide a clear picture of how the capital project is progressing.
- **Appropriateness of interfund transfers:** This audit seeks to determine whether or not capital project funds are being used to support non-capital project related expenditures. Another potential audit could be the reverse of this scenario where one would seek to determine whether a capital project is supported by non-capital project funds.
- **Contractor compliance with apprenticeship and prevailing wage laws:** This audit seeks to determine whether contractors pay prevailing wages and also comply with apprenticeship utilization. For projects exceeding \$1 million, the State of Washington requires 15 percent apprenticeship participation.
- **Contractor accountability:** This audit seeks to determine whether or not the district protects taxpayers' interest by enforcing contract terms, evaluating contractor performance, and using the results of those performance evaluations in future hiring decisions.

- Change order use: This audit seeks to determine whether change orders are justified and whether the district has procedures in place to control changes in design or scope, particularly when it results in an increased cost.

**[Capital Internal Audit Report – Fairmount Park Elementary School Construction, Seattle Public Schools Office of Internal Audit, December 2014](#)**

This audit found three areas for improvement:

- Right to Audit Clause: Currently the district has a clause in its boilerplate contract that allows the district “the right to access and audit the contractor’s records in order to substantiate changes to the contract and claims.” The report recommends that the district’s contract should state exactly how long the contractor is required to make their records available. Additionally the report recommends that the district “ensure the right to audit clause is sufficient to allow the district to examine any of the contractor’s or subcontractors’ records that pertain to their entitlement to payment under the contract or subcontracts.” An audit clause provides for transparency and assures accuracy of contractor billings.
- Contractor Insurance Coverage: “The district requires the construction contractor to maintain liability and builder’s risk insurance at all times. A certificate of liability insurance with an additional insured endorsement is to be provided to the district before work commences and 45 days prior to renewal, termination, cancellation, expiration, or alteration of the policy. However, the district does not demand that the contractor include the endorsement with the certificate. A certificate without the endorsement does not amend the insurance policy to protect the district. In addition, the district has no procedures to ensure it obtains new certificates and endorsements when coverage expires.” The report recommends that the project manager monitor expiration dates and ensure endorsements for liability insurance. The report further recommends that the project manager regularly request renewal certificates for builder’s risk insurance until the work has been inspected and accepted by the district.
- Change Order Process: The report states that: “Project managers maintain a change order log that reflects the cost of all approved change orders as well as the estimated cost of changes that have been authorized but not yet approved through a formal change order. These incurred obligations generally originate from change directives which authorize the contractor to perform additional work even though the parties may still be negotiating the final price and/or time adjustment. They are generally issued to prevent schedule delays. Because these costs are pending, they are not reflected in the accounting system when the Accounting Department checks for funds availability.” The district utilizes project management software called e-Builder but it is not fully implemented and does not interface with the district’s accounting system. The report recommends including the cost of pending obligations from change directives with changes orders that are submitted for approval. This would allow the districts accounting office to better control costs and avoid exceeding the budget.

## Conclusion

Based on our review of public school construction programs, it is clear that capital projects are complicated ventures that require careful planning, constant communication, and consistent oversight. Two overall observations from this literature review: (1) the District of Columbia is not alone in struggling with specific challenges in its school capital program and (2) the District, like other school systems, could benefit from a set of best practices developed by a national consortium of school facilities practitioners--something that is in motion today by the National Council on School Facilities.

The specific challenges identified here and also apparent in the ODCA 2011 audit entitled "[Auditor's Review of the Operations and Administration of the Office of Public Education Facilities Modernization](#)" and the companion audit of the school modernization program published today:

- The importance of the "tone at the top" when it comes to accountability, referenced in the first audit described here. Every aspect of a program's control environment depends on leaders demanding accountability. In the District, as noted in the 2011 and 2015 audits, responsibility for school facilities has been broadly dispersed among two major departments, with oversight from two deputy mayors, and the project management previously provided by the D.C. Public Schools facilities department, which was privatized and resides with a partnership of two firms on contract with the Department of General Services.
- The importance of planning, and adhering to planning guidelines. Audits here note, consistent with the ODCA audits, that proceeding on construction without fully developed and agreed-upon design and construction specifications raises projects costs, often with a proliferation of change orders.
- Lack of controls and/or failure to adhere to controls outlined in policies and contracts also drive costs and limit accountability. The discussions here about buy-out logs and documenting project costs are mirrored in the ODCA audits of the modernization program.
- Over-customization can drive costs as well. Audits from Texas and California suggest that major cost-savings are available when prototypes are used but there has been no such discussion in the District about building essentially the same school in more than one location, though that was the practice earlier in the history of DCPS.

These issues, found consistently in audits of school construction programs, are elements that could be usefully addressed by a new [National Council on School Facilities](http://www.bestfacilities.org/ncsf-home/about.asp) (<http://www.bestfacilities.org/ncsf-home/about.asp>) that is in the planning stages based on a feasibility study led by the 21<sup>st</sup> Century School Fund in consultation with school facility directors from various states. According to the fledgling organization's website, the feasibility study concluded that "There is no governmental, non-profit or for profit organization established to specifically meet the range of unique needs of state agencies or officials responsible for PK-12 facilities"

Moving forward, the facility directors determined that there is "a need for a professional organization where state officials responsible for PK-12 public facility infrastructure can build a knowledge base of research, data and best practices to guide facilities work for today and for the future; where they can collaborate across states to save time and money; and where they can help guide and influence federal, state and local policy and practice affecting PK-12 public school facilities."

This is a positive and hopeful development for the District of Columbia and its school modernization program, as well as every other major urban school district facing the need to rebuild and refresh its education infrastructure. In the short and medium-term, we hope this information is helpful particularly in terms of cost saving measures and oversight methodologies.

Sincerely,

A handwritten signature in blue ink that reads "Kathleen Patterson". The signature is fluid and cursive, with the first name "Kathleen" and the last name "Patterson" clearly legible.

Kathleen Patterson  
District of Columbia Auditor