Making the grade

Houston Independent School District

Performance audit of 2012 bond program

August 11, 2016

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Audit Committee of the Board of Education
Houston Independent School District
4400 West 18th Street
Houston, TX 77092-8501

Dear Members of the Committee,

This report presents the results of our work conducted to address the performance audit objectives relative to the performance audit of Houston Independent School District's (HISD) 2012 bond program, based on our agreed upon work plan with HISD and contract dated January 4, 2016. Performance of the work took place during the period of January 18, 2016 through the date of this report.

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

This performance audit did not constitute an audit of financial statements in accordance with GAGAS. KPMG was not engaged to, and did not render an opinion on the HISD's internal controls over financial reporting or over financial management systems (for purposes of OMB's Circular No. A-127, *Financial Management Systems*, July 23, 1993, as revised). KPMG cautions that projecting the results of our evaluation to future periods is subject to the risks that controls may become inadequate because of changes in conditions or because compliance with controls may deteriorate.

This report is provided to HISD and is for the sole use of HISD, and is not intended to be, and may not be, relied upon by any third party. Within this report, KPMG presents no view that is to be considered public policy advocacy.

We thank you and the members of your staff who have worked diligently with our team in providing information through this performance audit. We look forward to having the opportunity to serve HISD in the future.

Very truly yours,

KPMG LLP

Contents

List of acronyms

Acronym	Definition
A/E	Architect/Engineer
CCD	Construction Change Directive
CD	Construction Documents
CFS	Construction & Facility Services
CMaR	Construction Manager at Risk
CO	Change Order
COH	City of Houston
CSP	Competitive Sealed Proposal
DB	Design Build
DBE	Disadvantaged Business Enterprise
DD	Design Development
ETC	Estimated Total Cost
FF&E	Furniture, Fixtures, and Equipment
HISD	Houston Independent School District
HVAC	Heating/Ventilation/Air Conditioning
IT	Information Technology
JOC	Job Order Contracting
LEED	Leadership in Energy and Environmental Design
LMWBE	Local Minority/Women Business Enterprise
PAT	Project Advisory Team
PM	Project Manager
PMT	Program Management Team
RFP	Request for Proposals
RFQ	Request for Qualifications
SD	Schematic Design
SOP	Standard Operating Procedure
SOQ	Statement of Qualifications

Executive summary

This performance audit complies with Generally Accepted Government Auditing Standards (GAGAS). Our work for this performance audit took place from January 18, 2016 to the date of this report, with significant fieldwork concluded by May 9, 2016.

Objectives

A performance audit is an objective analysis for management and those charged with governance and oversight to use to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and to contribute to public accountability. Further, performance audits seek to assess the effectiveness, economy, and efficiency of a program. The objective of a performance audit is not to uncover fraud or misconduct.

Scope

The scope of this performance audit focused on the 2012 bond program through a macro analysis of the bond program rollout and strategy including the Houston Independent School District's (HISD or district) overall:

— Project management planning

— Cost management

— Time management

— Risk management

— Quality management

— Contract administration

— Safety management, and

— Construction management professional practices

Additionally, KPMG was asked by the HISD Board of Trustees (Board) to independently evaluate the underlying factors that drove the program's need for additional funding as part of our performance audit scope.

Background

On November 6, 2012, Houston voters approved a $1.89 billion bond to replace and repair 40 schools across the district. The 2012 bond program also includes work that will benefit students across the district including technology upgrades, replacement of regional field houses and athletic facility improvements, middle school restroom renovations and, safety and security improvements.

The projects funded through the bond program include:

— New campuses for 21 high schools

— Partial replacement of three high schools

— Renovation of four high schools

— Conversion of five elementary schools to K-8 campuses

— Three new elementary campuses

— Replacing/completing two middle school campuses

Projects are segmented into four groups and phased for the duration of the program. Projects in Group 1 and Group 2 experienced increases in construction cost estimates as the projects were entering the construction phase. HISD management attributed the increase in the construction costs to price escalation resulting from increased construction activity in the Houston market following the approval of the program budget. HISD management proposed the approval of $211 million in additional funding to deliver all projects within the original scope of work approved for the program. The proposal included the issuance of $200 million in maintenance bond plus $11 million from the reserve fund from the 2007 Bond Construction Program to fund the increase. The proposal for the additional funding was approved in December 2015.

Legal matters

HISD provided KPMG with a letter from a former employee dated April 21, 2016 raising a number of issues relating to the potential misuse of bond money. While the letter makes allegations of fraud, our engagement was a performance audit not a forensic fraud audit. Our report contains observations around controls at HISD, but does not have any findings around fraud.

We were informed that certain documents exist as exhibits to the letter that include information related to purchase orders and furniture reports. We were not provided with such documents. Management may wish to consider obtaining and investigating the implications of the content of such documents as our report has not considered them. If HISD obtains the documents in the future, KPMG may need to consider additional procedures.

Additionally, we are aware that HISD is the defendant in the legal matter of *No.: 4:10-cv-04872; The Gil Ramirez Group, L.L.C. and Gil Ramirez, Jr. v. Houston Independent School District, Lawrence Marshall, Eva Jackson and RHJ-JOC, Inc.* KPMG was contacted by the plaintiff's counsel who informed us that HISD has likely not provided, or has otherwise limited or prevented, records and evidence that would greatly impact any audit, investigation or accounting of HISD bond construction programs, budgets, practices and policies. The plaintiff's counsel stated that his client[1] wished to provide the subject evidence and records to KPMG (or any other authorized agent) so that an accurate and full assessment and audit of the HISD bond construction programs may be completed. When we requested the evidence and records, plaintiff's counsel was not willing to provide us with actual documents. We reviewed materials that accompanied the summary judgment motions filed in the case applicable to the scope and period of our audit and considered these for our audit plan.

Summary of observations

The results of our performance audit indicate that HISD is lacking a number of core controls for delivering a program of its size and complexity. In order for the HISD bond program to better achieve its scope, schedule and budget objectives, the personnel tasked with delivering the program should implement

[1] The client in this case is not the Plaintiff, but another district subcontractor.

additional processes or controls, enhance existing controls, and improve their program delivery tools and the overall program organizational structure.

Due to the limitation of industry recognized local education specific construction cost indices as well the challenge of isolating other non-cost escalation factors, it is very difficult to assign specific cost figures to each factor that contributed to the $211 million in additional funding. However, it appears that escalation is the largest contributing factor to the need for additional funding, based on our review of available documentation.

Our observations are summarized as follows:

Related to past practices:

1. Multiple factors influenced the growth in project budgets. Increased construction activity and the resulting market conditions (cost escalation) appear to be the primary factor affecting project costs resulting in the need for additional funds.

   In addition to construction escalation, we noted the following cost drivers:

   a. Incomplete project assumptions and differing conditions;
   b. Weak or nonexistent policies and procedures regarding budget development;
   c. Lack of conceptual planning;
   d. Misaligned programmatic specifications and project advisory teams (PAT) expectations; and
   e. Inconsistent construction bid evaluations.

   It is important to note that the request for additional funds does not by itself indicate that taxpayer money was wasted or that value was not received for the money spent.

Related to current practices:

2. HISD's policies and procedures for capital projects are not sufficiently developed.

3. The program is lacking an effective and efficient organizational structure.

4. The program is not providing sufficient oversight into subcontractor bidding activities nor is it shifting pricing risk to the CMaR contractor.

5. The program is not conducting sufficient project cost estimating, variance analysis, contingency management or reporting activities.

Background

On November 6, 2012, Houston voters approved a $1.89 billion bond to replace and repair 40 schools across the district. The total authorized bond fund dollars are for capital improvements for the renovation and replacement of aging facilities, and for the construction of new facilities. To gain an understanding of the 2012 bond program, a look back at past bond program history and pre-construction activities is necessary.

Pre-2012 bond program

The average age of schools in HISD is 42 years. The average age for primary schools is 39 years. Average age of secondary schools is 50 years. District data shows that HISD only built 3 new High Schools in the 2000-2010 decade with the 2002 and 2007 bond programs focusing on primary schools and existing school improvements.

HISD selected Magellan Consulting (Magellan) in December of 2006 to conduct a comprehensive facility assessment on HISD schools. The independent facility assessment focused on building condition, life-cycle forecast, and related facility information. HISD hired Parsons Environment & Infrastructure Group, Inc. (Parsons) in March of 2012 to update the Magellan data and consider improvements to HISD facilities from the 2007 bond in addition to other capital improvement work. Parsons issued an update to the 2007 facilities assessment on June 21, 2012.

Parsons provided recommendations to HISD in “themes” regarding which schools and facilities to focus on. The themes are the result of the observations from previous bond and capital improvement programs, as well as results from a condition and suitability analysis, and community input. The recommended themes were as listed below:

— High schools are “due”

— Reinvest in neighborhoods

— Match facility to program

— “Build it and they will come”

— Finish last phase of earlier project

— Maintain our heritage into the future

— Provide technology upgrades

— Revitalize appearance and capabilities

The recommended themes accompanied Parsons’ recommendations on school projects to focus on. The facility assessments provided information on the condition of the buildings but limited information regarding what it would take to remodel, renovate, or construct a building.

Design

Planning and design activities took place after the 2012 bond approval. HISD issued a request for qualifications (RFQ) for architectural-engineering (AE) services on December 3, 2012. HISD awarded a design package for each school to an AE firm. To aid in the design process and encourage involvement from the community HISD created Project Advisory Teams (PATs).

PATs work with HISD planners to develop capacity models and program definition for each school. The goal is to ensure that school and community members have the opportunity to take part in the planning and design of new schools and to monitor the progress of construction. PATs meet on a monthly basis throughout each phase of the project. A typical PAT is comprised of eight to 12 members including the school principal, students, teachers, staff, parents, community members, AE, and HISD Construction Facility Services (CFS).

Original budget

HISD segmented the projects within the $1.89 billion 2012 bond program into four groups. The bond program also includes work that will benefit students across the district including technology upgrades, replacement of regional field houses and athletic facility improvements, middle school restroom renovations and, safety and security improvements.

The projects funded through the bond program include:

— New campuses for 21 high schools

— Partial replacement of three high schools

— Renovation of four high schools

— Conversion of five elementary schools to K-8 campuses

— Three new elementary campuses

— Replacing/completing two middle school campuses

The program funding is broken down as follows:

Project	Proposed budget	Total budget
High School	$1,362,436,000	
Middle School	$73,950,000	
K-8	$121,345,000	
Elementary Schools	$79,534,000	
All schools Total		**$1,637,265,000**
District Athletic Improvements	$44,675,000	
Districtwide Land Acquisition	$55,767,000	
Middle School Restroom Renovation	$35,000,000	
Districtwide Technology	$100,000,000	
Districtwide Safety & Security	$17,293,000	
Districtwide Total		**$252,735,000**
Bond Total		**$1,890,000,000**

Contracting strategy

HISD executed projects using the Construction Manager at Risk (CMaR) delivery strategy. CMaR is a type of delivery strategy governed by Section 2269.253 of the Texas Government Code. The CMaR contractor serves as the general contractor responsible for soliciting and awarding bids to subcontractors. The CMaR contractor is also involved in the design process. The district has the choice to select a CMaR contractor utilizing either a one-step or a two-step method. HISD has adopted the use of the two-step method for its selection process for the 2012 bond program.

Another available delivery method in use by HISD is the Design Bid Build (DBB) delivery strategy. Otherwise known as the traditional project delivery model, this method requires 100% design drawings prior to solicitation. At HISD, DBB is also known as competitive sealed proposals (CSP). A CSP is typically comprised of unit and/or lump sum pricing for a bid line item.

HISD negotiated pricing for the construction with its CMaR contractors at 100% design drawings. If price negotiations with the CMaR were not successful, HISD had the option to re-bid the projects via CSP.

Supplemental funding

Projects in Group 1 and Group 2 experienced increases in construction cost estimates as the projects were entering the construction phase. HISD management attributed the increase in the construction costs to price escalation resulting from increased construction activity in the Houston market following the approval of the program budget.

In September 2015 HISD developed a revised total program budget of $1.89 billion, representing additional funding needs of $211 million over the approved bond program budget of $1.68 billion.[2] In order to address the additional budget needs and still meet overall program objectives, HISD management developed an additional funding proposal for the HISD Board of Trustees (Board). With its proposal, HISD management requested the Board to approve $211 million in additional funding to deliver all projects within the original scope of work approved under the program. The proposal included the issuance of $200 million in maintenance bond plus $11 million from the reserve fund from the 2007 Bond construction program to fund the additional monies. HISD management attributed the increase in the construction costs to inflation resulting from increased construction activity in the Houston market. The Board of Education approved the proposal for the additional funding on December 10, 2015.

[2] Please see Appendix A for the Proposed Supplemental Funding.

Audit scope and methodology

KPMG LLP (KPMG) was engaged to provide the performance audit of the 2012 bond program. This performance audit encompasses the 2012 bond program and does not include HISD's business operations, administration, or management of any projects outside of the bond program. In addition, KPMG's work under this engagement did not include providing technical opinions related to engineering, design, construction means & methods, facility operations, and maintenance.

Methodology

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS) as promulgated by the Government Accountability Office (GAO). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our comments and conclusions based on the audit objectives. We believe that the evidence obtained provides a reasonable basis for our comments and conclusions based on the audit objectives. As such, we followed the requirements of GAGAS and the district with respect to our methodology, which included the following elements:

- Conducting a **risk assessment** to identify focus areas.
- Designing an **audit plan** based on issues and risks identified in the risk assessment phase.
- Conducting **fieldwork** with detail testing to further assess the risks and carry out our audit plan.
- Preparing an audit **report** for the district based on the results of our performance audit.

We reviewed the district's internal policies, procedures, and documentation of key processes. We conducted interviews with HISD personnel and other contractors and consultants involved with the 2012 bond program. We reviewed relevant source documentation to gain an understanding of the key functions of the district as they relate to the scope of this audit and corroborated key interview statements with test work.

Performance audit plan

Our objective was to develop and carry out a performance audit plan that adheres to the scope of work agreed to in the contract. In order to carry out the audit approach we conducted a risk assessment to identify focus areas. From the focus areas, we developed test areas that correlate to the components listed in the scope of work.

Obtain an understanding of the voter approved 2012 Bond Program and how it relates to the initial facilities assessment. We performed the following procedures related to project planning, prioritization, and budget development:

- Interview key personnel, including trustees, construction administration and accounting personnel. Also, interview key consultants and contractors, as necessary.
- Review the facilities assessment report and understand how it relates to the projects included in the Bond Program.
- Review the district project prioritization process and evaluating construction needs and project scoping.
- Review Board Oversight Committee (BOC) reports and other project related reports.

Analysis of the of the sale and use of bonds to fund the 2012 Bond Program

- Interview key personnel, including trustees, construction administration and accounting personnel involved with the sale and use of bond funds.
- Obtain and reconcile supporting documentation related to the issuance of bonds to the bond amounts.
- Obtain an understanding of the accounting review process to assess project costs are in compliance with approved use of bond funds.
- Evaluate accounting practices and processes related recording and accounting of bond costs.
- On a sample basis, test the allowability of cost for various types of transactions in the district's expenditure report relative to bond stipulations to determine whether costs charged to the bond are allowable.
- Reconcile bond expenditure report to project status update reports and/or other documentation used by executives and BOC to monitor Program costs.

Analysis of the district's use of leading practices to control cost, limit surprises, accomplish milestones and meet construction deadlines.

- Audit the current cost management process for the Bond Program as a whole and review existing practices in place within the Construction and Facilities Services (CFS) organization.
- Interview key CFS personnel in the construction administration, accounting and, audit personnel.
- Also interview consultants and contractors, as necessary.
- Evaluate existing Policies and Procedures (P&P) and Standard Operating Procedures (SOP) related to budgeting, forecasting and cost management.
- On a project sample basis, review project documentation related to project budgets, and actual costs reconciliation, variance analysis and reporting.
- On a project sample basis, evaluate underlying assumptions for budget amounts and budget revisions, including estimated costs to complete.
- Obtain an understanding of the audit process to assess contractor cost compliance with contractor billings.

Analysis of budgetary controls, key assumptions, contingency planning and usage, and inflation impact.

- Interview personnel, including estimators, construction administration and accounting personnel.
- Also interview key consultants and contractors, as necessary.

— Evaluate existing Policies and Procedures and Standard Operating Procedures on estimated total costs (ETC) development and budget development and management.

— Document the process and key assumptions used in establishing baseline project budgets.

— Review Board Oversight Committee (BOC) and Program Manager Reports relating to project budgets.

— Attend a sample of weekly Project Review Meetings and evaluate the efficiency and effectiveness of the process.

— Assess the process used by Construction and Facilities resources in evaluating of project budgets and ETC.

— Evaluate a sample of project budgets and analyze assumptions and ETC estimates that are not immediately clear.

— Assess the experience level of the key employees involved with the key estimating efforts.

Methods utilized to identify and remediate construction risks.

— Evaluate existing Policies and Procedures and Standard Operating Procedures on risk management.

— Review documentation of project risk management plan at the Bond Program level and for a sample of projects.

— Review project risk registers (or similar document) for a sample of projects and assess the risk analysis process (quantitative and qualitative).

— Review documentation on risk mitigation plans for a sample of projects and how the district monitors and tracks risk resolution for a sample of projects.

Evaluation of various construction contract business models to maximize best value bid.

— Evaluate existing district policies and procedures for procurement of construction contractors including procedures around contractor qualification and selection.

— On a sample basis, analyze bid documentation on the procurement plan used for the Bond Program and evaluate adherence to the plan and leading practices.

— Review documentation of solicitation documents (RFP/IFB SOW, Contract Template, RFQ/RFP/IFB Template, etc.) for a sample of projects.

— Review documentation of RFQ/RFP/CSP invitation and distribution for a sample of projects.

— Review documentation on bid/proposal normalization process and bid/proposal normalization documentation for a sample of projects.

— Obtain an understanding of the source selection process and documentation for a sample of projects.

— Review standard contract templates and evaluate adherence for a selected sample of projects.

— Review approval of any modifications to standard contract templates.

— Review district's oversight over contractor solicitation activities.

Validation of original scope of work and change order process

— Evaluate district policies and procedures around change orders and CFS change order management practices.

— On a sample basis, analyze the change order execution process including pricing, acceptance, approval and documentation of the change order.

Evaluation of overall Bond Program strategy and coordination of construction efforts.

- Evaluate district policies and procedures around the development of Bond Program strategy development and compare the strategy to leading practices.
- Evaluate the district's Key Performance Metrics (KPM) for program success and monitoring thereof.
- Evaluate district's Program Management Organizational (PMO) structure.

Maximization of resources efficiencies to achieve goals.

- Evaluate existing Bond Program organizational structure and compare the district's structure to leading practices.
- Review documentation supporting the district's selection of its current Bond Program organizational structure.
- On a sample basis, review resource schedules and projections.
- Review Bond Program roles and responsibilities and interfaces between district resources and third party vendors (Program Managers, Construction Managers at Risk, Design Firms, and others).
- Review existing commitment/expenditure approval authority and Bond Program responsibility matrices.

Evaluate effectiveness of internal and external communication to build trust and public confidence.

- Review Board Oversight Committee reports published on the Bond Program website.
- Review meeting minutes and other reports published by Construction Managers at Risk and Program Managers.
- Compare the district's available Bond Program documentation to leading practices.

Analysis, and cause and effect of deficient Bond Program funds and underlying assumptions.

- Analyze assumptions included in original budget, including evaluating source projects for the per-square-footage costs used in the "Bluesheet."
- Costs: Evaluate construction market cost escalation since costs of source projects were established.
- Type of Projects: Compare source projects to 2012 Bond Program projects in terms of scope and type. Evaluate level of standardization.
- Delivery Methodology: Compare source projects delivery methodologies to 2012 projects in terms of scope and type.
- Evaluate design process for Group 1 Projects to gain an understanding of design cost overruns.
- Review Board Oversight Committee reports published on the Bond Program website.
- Review meeting minutes and other reports published by Construction Managers at Risk.

Audit results and recommendations

1. Multiple factors influenced the growth in project budgets. Increased construction activity and the resulting market conditions (cost escalation) appear to be the primary factor affecting project costs resulting in the need for additional funds.

It appears that escalation is the largest contributing factor to the need for $211 million in additional funding, based on our review of available documentation. Our audit identifies multiple factors contributing to the need for additional funding. Increased construction activity in the Houston area and the resulting market conditions and pricing escalation were just one factor affecting project costs. Due to the interplay of all factors we identified, it is not possible to isolate the impact of each individual factor.

The projects in Group 1 and Group 2[3] experienced increases in construction cost estimates as the projects were entering the construction phase. HISD management attributed the increase in the construction costs to escalation resulting from increased construction activity in the Houston market following the approval of the original program budget. HISD management proposed the approval of $211 million in additional funding to deliver all projects within the original scope of work approved under the program. It is important to note that the request for additional funds does not by itself indicate that taxpayer money was wasted or that value was not received for the money spent.

Condition: HISD's 2012 bond program projects experienced construction cost overruns relative to the initial construction budgets used as the basis to approve the $1.89 program budget. Specifically, HISD experienced that construction bids exceeded the original project construction budgets by approximately 10% - 37% when projects were bid. The original program budget was finalized in August 2012 at an average cost of $160 per square foot, based on actual costs from the 2007 bond program.

In early 2014, the first 2012 bond projects were bid at $192 per square foot. By the end of 2014, design estimates were $210 per square foot. The higher construction costs were unexpected and resulted in the request for additional funding.

Criteria: HISDs budget processes were compared against leading practices employed by other organizations and governmental agencies with construction programs of similar size and complexity as

[3] See Appendix A for a complete list of projects included with each Group.

well as other applicable governing regulations and procedures. Included, but not limited to those leading practices, regulations and procedures are:

- Texas Government Code
- HISD Standard Operating Procedures (SOPs)
- Association for the Advancement of Cost Engineering, International (AACEI) promulgated recommended practices
- Construction Industry Institute (CII) promulgated best practices
- Elements of budgeting practices for a variety of agencies and school districts previously reviewed by KPMG

Cause: Although we agree that the main driver of the higher than anticipated construction cost resulted from the increased construction activity in the Houston market, there were a number of limitations and constraints in HISD's budgeting processes that contributed to the pricing variances.

Based on our audit, we identified the following contributing factors affecting the voter approved project budgets. The contributing factors relate to budgets being established based on high level assumptions. This approach to budgeting is a choice by HISD, who otherwise would risk incurring project planning costs which may not be recovered if a bond measure does not pass.

Project assumptions and differing conditions

- **Elementary schools versus high schools:** HISD used project costs from the 2007 bond program as the basis for the original budgets in the 2012 program. The project mix in the 2007 bond program included 96% of new construction or replacement projects for elementary schools compared to the 2012 bond program with 80% of the new construction or replacement projects focused on high schools. Market research shows that construction costs per square foot for high schools can be higher than the construction costs for elementary schools by approximately 16% - 26% due in part to the different spatial requirements and features. Price differential is driven by the specific site educational specifications.
- **Budget based on high-level concept:** At the time the initial program budget was established, very little was known about the details of the program including specific concepts for each school. The budget variables were very limited and included basic parameters such as capacity, square footage, type of construction (new construction, addition, replacement) and an assumed per-square-foot-cost based on prior projects as well as an assumed escalation.
- **Project specific requirements and designs:** The initial budget did not take into consideration project specific requirements. Each school project was subsequently designed with community input to reflect the unique needs of the students and neighborhoods. Schools included differing designs resulting in departures form the assumptions made at the time the project budgets were established. The unique design of each individual project limits the usefulness of actual cost data to estimate future projects.
- **High cost programming need:** Several design factors drove construction costs higher. A February 2016 Greater Houston Bulletin of The Associated General Contractors of America lists several "hidden" drivers of rising construction costs including sustainability driven influences, collaborative learning spaces, technology, etc. Although certain projects with "special needs" were identified by HISD, meaning that they included an unusual and more costly programming element, higher cost drivers were otherwise not consistently identified and considered at the time the initial budget was established. Additionally, the 2007 bond program did not include the 21st Century learning component in the school designs. However, HISD does not believe the 21st Century design elements other than IT costs, contributed to higher costs.

— **Project schedules:** Project budgets included project reserves, estimated at 5% of the construction budget, as well as a budget component to cover inflation. At the time the budget was developed, inflation projections were based on the district's anticipated inflation rate of 5% applied to a 18 – 27 month range estimate from the time the budget was developed (February 2012) to an estimated bid date. The table below provides a sample of five projects with the estimated bid dates included in the budget compared to the actual contract dates.

School	Estimated bid date	Contract date	Difference
Furr High School	5/1/14	7/27/15	14 months
Lee High School	3/1/14	8/17/15	17 months
Sterling High School	5/1/14	12/19/14	7 months
Mandarin K-8	11/1/13	3/2/15	16 months
Sharpstown High School	8/1/13	11/13/15	27 months

— **Prototype designs:** Prototype designs allow for shorter design and construction phases and lower project costs due to limited changes in the design, among other things. The nature of HISD's projects located in an urban settings with existing infrastructure does not suit prototype design and thus limits cost savings opportunities provided by building prototype schools.

Policies and procedures

HISD has no formal policies and procedures in place to govern the initial budgeting process of construction projects/programs including a defined process for initial program budgeting prior to seeking approval for funding.

Conceptual planning

HISD did not perform a conceptual planning process to evaluate construction projects and conduct preliminary design activities before budgets were established and presented to voters.

Before employing an architect to design a new school, an essential preceding step is the preparation of pre-design assessment. This is an analysis and documentation of key aspects of the anticipated building. It may require the services of architectural and engineering consultants[4]. Instead, HISD's planning activities to define project programs and educational specifications were performed after the budget was approved. Design and other professional services firms were engaged after the budgets were approved

[4] The purpose of a pre-design assessment (which may be called a number of things) is for example to: define and identify: the goals of the project; opportunities and constraints of the designated site; key issues influencing the design; the sizes and design criteria for every room in the building; the limits of the project site and the scope of all related site improvements, such as roads, landscaping, and utilities; design criteria for all building systems; estimated construction cost. Faculty, staff and students typically participate in these studies in order to assure that their needs and goals are incorporated. The assessment serves several key purposes: It forms and documents a consensus among the project constituency; it supports funding requests; and it guides the architects and engineers who design the project.

affecting the development of preliminary designs to assist in the scope and budget development process of planned projects.

Embarking on a more detailed design prior to bond approval is costly and although such an effort normally is expected to produce better defined cost drivers and variables, the district risks not being able to recuperate those costs if a bond does not pass.

Programmatic specifications and project advisory teams (PAT) expectations

School level programmatic or, educational, specifications were developed for each individual project based on an approved districtwide educational program.

HISD created Project Advisory Teams (PAT), comprised of members of the project stakeholder group (i.e. principal, teachers, parents, etc.) to participate in monthly meetings to discuss school programmatic needs and project updates.

KPMG reviewed PAT monthly meeting minutes from 2013 – 2015 for a sample of projects noting the following:

- HISD brought a representation of PAT members on visits to out of state schools to observe the 21st Century learning experience. Some of the schools that were visited were national award winning schools with square foot costs as high as $832 per square-foot (sq/ft). PAT members mentioned the $832 sq/ft as *"quite impressive as a model for consideration."* PAT meeting organizers expressed that the potential downside of seeing "models" is that those examples become expectations of what the school should be, instead of designing a response to the specific school needs.
- PATs work with HISD planners to develop the capacity models and program definition for each school. The target variable used by HISD planning during the educational program definition phase is square footage. The PAT decide how to use the approved square footage after the educational program is established, which may result in cost variances.
- PAT activity is not limited to updates on the status of the project and monitoring that approved programmatic needs are met. PAT members are actively involved in the design process and participate in decisions around site studies, floor plans, elevations, materials and, finishes sometimes resulting in a high number of revisions to the project design. PATs are encouraged to "use their imagination and to think outside of the box" when it comes to planning their new space. A better approach may have been to limit the PAT to certain choices in order to keep the designs moving forward at effectively and efficiently.
- The PAT meeting minutes do not include enough evidence that the cost implications of the PAT requests are communicated to the PAT. As a result, PAT members may not have fully understood the cost implications of their requests. The earliest instance of communication of projects exceeding approved budgets was mid-2014.
- Educational programs were not adjusted after cost estimates exceeded the project budget. Some areas were deferred or postponed until there was a better idea of available construction funds.

Construction bid evaluation

Project budget iterations included input from the project manager, architect and general contractor who each presented their own independent cost estimates at different points of the design process. Based on these estimates it was generally believed that the bid price would match the estimates. However, it was not until the actual bids were received that the construction cost overruns were fully realized.

Based on our audit, the contractor bid evaluation and normalization paper work was often very difficult to understand. Reliance was placed on the CMaR contractor to conduct the evaluation and provide a recommendation without sufficient scrutiny by HISD. As a result, auditing the basis for award and documenting the reason for the cost overrun was not always possible. Based on the inherent limitations in the supporting bid documentation, we could not conclude that HISD always obtained the best value for each trade contractor that was selected. Additionally, there were, at times, single bidders' price accepted without an explanation and justification. Lastly, we did not observe any follow-up of non-bidding subcontractors in order for HISD to understand the reason for not bidding which can aid HISD in the future to better formulate its contracting strategies. (*Subcontractor bid oversight by HISD is discussed in a separate observation within this report.)***Effect**: As a result of the limitations to the HISD budgeting process and bid evaluation practices in combination with unprecedented market escalation, the original project budgets were not representative of actual conditions and resulted in additional costs. It is important to note that the request for additional funds does not indicate waste or mismanagement of taxpayer funds, but rather indicates that the initial budget was based on what was later proven to be unrealistic assumptions.

Recommendations

1a. HISD's Board should consider approving budgets for conceptual planning activities including preliminary project design before project/program budgets are finalized and presented for Board approval. Policies and procedures to capture pre-construction costs need to be developed and implemented to establish a control structure over this process, if it is an elected option.

1b. HISD should perform a project-by-project scope and budget analysis instead of applying a limited number of variables and assumptions across the population of proposed projects. Contingency amounts should be reflective of the budget uncertainty and should be reviewed and adjusted as the scope and budget are refined.

1c. HISD should consider other factors that drive costs higher such as sustainability, collaborative learning spaces, technology, etc. and incorporate allowances for those factors into the budget development process.

1d. HISD should consider limiting design choices when involving members of the project stakeholder groups to participate design decisions in order to retain efficiency in the design process and to limit overall cost impacts.

1e. If cost is a primary key performance indictor for HISD, HISD should consider adopting standardized elements of school design to allow for shorter design and construction phases and lower project costs. This can be particularly useful for elementary schools.

Management Response

Management agrees with the finding that increased construction activity in the Gulf Coast area, and the resulting market conditions, were the primary driver affecting project costs. Management agrees in part and disagrees in part with the recommendations regarding other factors that potentially influenced project budgets.

While Management recognizes that it is possible to procure and retain architects to perform programming and preliminary project design services prior to voter approval, such a practice would, as KPMG points out, subject the District to certain risks. First, in the event a bond referendum fails, the planning and design costs expended could not be reimbursed from bond proceeds. Management is also aware that certain school districts that have hired design professionals and proceeded with preliminary design activities in advance of a voter election have been criticized as appearing presumptuous and premature in the expenditure of taxpayer funds. If, however, the Board of Education opts to approve the procurement of and funding for architectural services prior to a bond election, Management agrees that such measures would enable preliminary budgets to reduce the need

for design assumptions and include upfront input from stakeholder groups. Management also agrees that, in the absence of such pre-election design services, contingency budgets should be higher to reflect the budget uncertainty, and adjusted as design and budget are later refined.

Management agrees that the role of project advisory teams (PATs) should be limited to recommendations and feedback, rather than active input into design decisions.

With respect to KPMG's recommendation that HISD adopt "standardized elements for school design," HISD has adopted uniform Educational Specifications and Design Standards for its facilities, including standards for sustainability, collaborative learning and technology. Such considerations were accounted for in the 2012 bond budgets. That said, as pointed out by KPMG, a district such as HISD is limited in its ability to standardize all aspects of its campus designs, due to the urban environment in which HISD projects are constructed and the unique pre-existing conditions of each site. Unlike rural and suburban school districts, where the districts have flexibility to standardize the size and site layout of new campuses and the attendant placement of road and utility infrastructure, urban landlocked school districts do not have the same flexibility. HISD must therefore tailor the design of each newly constructed campus within the constraints of the conditions of the existing site, making overly standardized, uniform or prototype designs not feasible.

Management's response to KPMG's observations related to bid evaluations is more fully addressed in Management Response to finding #4.

Action Items: As finding #1 relates to pre-election and budget planning matters, no action is warranted.

2. HISD's policies and procedures for capital projects are not sufficiently developed.

Comprehensive policies and procedures are utilized by leading organizations worldwide to describe the process requirements necessary to fulfill the goals and objectives of a major construction (or bond) program. Policies and procedures provide project personnel with the necessary guidelines, rules and controls for planning and executing a capital program and individual construction projects. Policies and procedures contain explicit, step-by-step instructions on how to perform specific tasks.

HISD developed a draft set of Standard Operating Procedures (SOPs) at the beginning of the bond program in 2013. The objective of the SOPs was to standardize the activities performed by the project team to deliver the projects within the program. A majority of the HISD current SOPs were not drafted until March and April of 2014, at which point a portion of the bond program efforts such as program budgeting, planning and design were well underway or had already taken place. Many of the policies and procedures are still in draft form.

Condition: KPMG compared critical elements of HISD's policies and procedures against generally accepted leading practices and identified a number of deficiencies or weaknesses. We found that several SOPs do not describe the process in enough detail to be effective or efficient, nor does it contain key elements prescribed by prevailing industry standards.

It is our opinion that the SOPs and the related documentation listed above do not provide the necessary level of detail or completeness required for a program of the size and complexity as the HISD bond program and therefore represents a control deficiency. Although the bond program is well underway, there is still a significant amount of taxpayer dollars left to be spent and day-to-day bond program administration processes that require comprehensive policies and procedures.

In our discussions, members of the CFS team expressed dissatisfaction with the lack of updated policies and procedures. Staff reported that they still rely on the outdated or draft SOPs in conjunction with their own internal practices, and/or that they figure out process requirements on a case-by-case basis.

HISD's standard operating procedures (SOPs) currently in place cover several key construction and design processes. KPMG did not perform a comprehensive gap analysis of all the policies and procedures in place, but did observe throughout our audit, that the lack of defined processes, documents, tools, roles and responsibilities impact the ability of HISD to effectively and efficiently deliver the bond program projects.

For example,

> 1.04.03 - Describes the master schedule review process as the following: *"The schedule is reviewed on a monthly basis and updated to address any revisions."*
>
> 2.03.02 - Describes the reporting process as the following: *"Gather report information from all Program Managers and compile into a single draft. Forward the draft to identified HISD staff for review. Incorporate all revisions into the final report document."*

These procedures are much too generic and high level to provide any meaningful guidance to the user.

Additionally, there are no policies and procedures in place for several critical processes such as quality control in the subcontractor bid process, job order contracting (which we understand are under

development), conflict of interest, cost reporting, cost forecasting, risk management or approval authority, for example.[5]

Criteria: Leading practices in policies and procedures were reviewed and considered during this analysis. The policies and procedures were compared against leading practices employed by KPMG, other organizations, and governmental agencies. Included, but not limited to those leading practices are:

- Project Management Institute of America (PMI)
- Construction Management Association of America *Construction Management Standards of Practice*
- Construction Industry Institute (CII) *Best Practices*
- American Institute of Architects, *The Architect's Handbook of Professional Practice*
- Elements of policies and procedures for a variety of agencies previously reviewed by KPMG.

The prevailing industry standards on policies and procedures prescribe the following key elements of an effective procedure:

- The procedures identifies who is responsible, accountable, consulted, and/or informed.
- The procedure includes clear objectives and detailed instructions on how to perform the task.
- The procedure states when the tasks needs to take place.
- The procedure includes references to relevant forms and documents.
- The procedure includes graphic diagrams and or business process flow charts.
- The procedure prescribes records retention and document update requirements.
- The procedure is maintained, updated, and issued by a centralized function.
- Procedure update notifications are generated and distributed automatically through a Project Management Information System (PMiS) or other leading document repository system.
- End users are involved in developing procedures.
- Superfluous terms such as "may, should, as applicable, and as necessary" are avoided and replaced with clearly defined requirements.

We encourage HISD to consider these key elements as they approve and formalize versions of their policies and procedures.

HISD management recognizes that the current SOPs are not finalized and that weaknesses and deficiencies may exist.

Cause: HISD experienced high turnover at the senior management level which resulted in construction management practices changing with the changes in personnel and the SOPs not being continually updated and refined. Since several of the key SOPs were not implemented until 2014, it was not possible for CFS team members to follow them until this time. At present time, the current CFS leadership do not have time or resources to accomplish this task.

Effect: If policies and procedures are not documented, adhered to, clearly communicated, and audited for compliance, there is a potential for a lack of consistency and baseline to measure project performance.

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5 KPMG is not identifying a complete list of HISD's SOP's that need improvement in this report. We reviewed a limited number of SOP's from which we could draw our conclusions.

As evidenced by our audit results, HISD's opportunities for improvements identified in this report correspond to areas where no or limited systematic instructions exist for construction administration personnel to follow.

Lack of formally documented procedures may result in:

— Program Managers (PMs), Construction Managers at Risk (CMaRs) and Architects performing similar tasks in different ways which leads to organizational confusion and disorganization and reduced accountability.

— Inaccurate estimates, poor cost control, and unreliable forecasts.

— Weak procurement management controls that do not cover end to end solicitation to award process.

— Lack or limited visibility into major project issues, scope creep, unnecessary project risks, and cost overruns.

— Lack of integrated procedures, tools, methods and organization needed to timely complete the program.

Recommendation

2a. HISD should dedicate resources to finalize their Standard Operating Procedures manual covering all critical project and/or program delivery areas. HISD should prioritize their effort based on criticality of the SOPs and the status of key milestones within the bond program. Examples of process areas where focus should be initially placed to effect the future activities of the program include:

— Quality control in the subcontractor bid process

— Evaluation of CMaR proposals on self-performed work

— Risk and contingency management

— Cost reporting

— Cost forecasting

— Cost variance analysis

— Approval authority matrix

Management Response

The topics listed above are already addressed in HISD's standard contract documents with its program managers, design professionals and contractors. However, Management agrees that all existing procedures pertaining to the above topics should be consolidated into an SOP manual that HISD can utilize for program oversight and enforcement, and to ensure uniform cost reporting, forecasting and analysis activities among HISD's various bond-related vendors.

Action Item: HISD will identify the list of SOP sections needed to satisfy the above audit recommendations within 45 days.

3. The program is lacking an effective and efficient organizational structure.

HISD's organizational structure for its Construction & Facility Services (CFS) organization, tasked with delivering the 2012 bond program, changed from the CFS organizational structure used during HISD's 2007 bond program. HISD's current CFS organizational structure consists of two distinct "silos:" one for "Design" and one for "Construction."

Organizations delivering capital projects may take on a number of different structures and be both efficient and effective in meeting program goals. However, an organization that creates silos, whether by design or unintentionally, often encounter challenges and are less productive. Silos disconnect functions across critical, continuous processes and does not facilitate teaming, among other things.

There is no "one size fits all" when it comes to organizational design. However, organizations should document convincing reasons why they chose a particular organizational structure over another. Additionally, the level of staff employed, their roles and responsibilities at each level needs to be carefully assessed and documented in order to right size the organization.

Condition: Based on our audit of HISD's selection of its current CFS organizational structure and also based on our interviews with CFS employees, we identified a number of areas where the current CFS organization does not meet leading practices. There are opportunities for HISD to improve in the following areas:

- There are no documented or convincing reasons why the current CFS organizational structure of two "silos" was selected and why it was deemed the best approach to deliver the current program goals.
- There is no organizational assessment available to demonstrate that the right level of staff resources are utilized in the delivery of the bond program.
- The CFS organization has many relatively new employees, creating a need for cross-training and collaboration and sharing of institutional knowledge. Currently this is not taking place efficiently and effectively by CFS.
- During our audit, several employees expressed dissatisfaction with the current organizational structure in particular the lack of interaction between the Construction and Design functions. Additionally, employees expressed concerns with many unnecessary layers within the organization which inhibit information from being effectively and efficiently shared.
- Morale and motivation among some employees appears to be low. Several employees expressed frustrations of not "being heard", of not having clear instructions for their day-to-day tasks. They reported frequent instances of miscommunication within the CFS organization, of not understanding management decisions, and believing that the current organizational structure is not working.

Criteria: HISDs organizational structure was compared to those of other leading capital programs observed by KPMG as well as organizational assessments and views on organizational design and organizational "silos' as expressed by leading organizations and institutions such as Forbes, Harvard,

Other criteria utilized include those published by National Institute of Science and Technology, Project Management Institute, and American Society of Civil Engineers (ASCE), among others.

Recommendation

3a. HISD should consider conducting an internal organizational assessment of its CFS organization and create an organizational document that aligns with its bond program goals.

Management Response

Management agrees with this finding and has implemented a restructuring of the department. This new organizational structure has eliminated departmental layers and silos, which in turn, has streamlined a number of processes and created a clear structure of accountability.

Action Item: No additional action necessary.

4. The program is not providing sufficient internal oversight into subcontractor bidding activities nor is it shifting pricing risk to the CMaR contractor.

Section 2269.251 of the Texas Government Code allows a governmental entity to implement the CMaR delivery method to contract with a general contractor to oversee the design and construction, rehabilitation, alteration, or repair of a district facility. The HISD Board of Education adopted a resolution in 2008, with its latest revision in April 2013, to utilize this delivery method for its 2012 bond program.

A CMaR manages the solicitation and selection of subcontractors to perform work for the project. A CMaR is required to publicly advertise for bids for performance of the major elements of the work other than the minor work that may be included in the general conditions.

The design process for program projects progressed to the point where Guaranteed Maximum Price (GMP) for the project is negotiated at 100% design. Up until this point, project budget iterations had included input from the project manager, architect and CMaR contractor who each presented their own independent cost estimates at different points of the design process. Based on these estimates it was generally believed that the bid price would match the pricing estimates. However, it was not until the actual bids were received that the construction bid overruns were fully realized.

HISD does not own the bid process, the CMaR does, unless there is a related party bid involved. However, HISD can require the CMaR to submit adequate supporting documentation to fully document the process.

Condition: HISD negotiates the project's Guaranteed Maximum Price (GMP) with the CMaR contractor at 100% design drawings, leaving virtually no pricing risk with the CMaR, an approach which is permitted under Texas law. The CMaR, however, has little motivation to press subcontractor costs down as the CMaR gains no incentive for doing so. We recognize that HISD may exercise the option of ceasing negotiations with the CMaR and re-bid under a Competitive Sealed Proposal (CSP) if pricing cannot be agreed to, however this is often a time consuming endeavor which may delay start of construction. Therefore, closely monitoring the subcontractor selection process, without interfering, becomes critical to HISD.

An approach not currently utilized by HISD, that is common practice in many other jurisdictions and permitted under Texas law, involves negotiation a GMP at approximately 60%-70% design with costs the lesser of the actual cost of the work plus a fee, or the fixed ceiling amount. This model is a hybrid of lump sum and time and material compensation. It allows an owner to enjoy both budgetary certainty and the benefit of any cost savings earlier in the process. As with all delivery methodologies, it comes with benefits as well as disadvantages (such as the importance of due diligence in establishing the GMP). However, it adds another contracting vehicle for HISD's to utilize as the circumstances dictate.

Based on our audit, the contractor bid evaluation and normalization paper work was not standardized and often it was very difficult to understand. Reliance was placed on the CMaR contractor to conduct the evaluation and provide a recommendation without sufficient scrutiny by HISD. As a result, auditing the basis for award and documenting the reason for the bid overrun was not always possible. Based on the inherent limitations in the supporting bid documentation, we could not conclude that HISD always obtained the best value for each trade contractor that was selected. Additionally, there were, at times, single bidder pricing being accepted without an explanation and justification. Lastly, we did not observe any follow-up of non-bidding subcontractors in order for HISD to understand the reason for not bidding which can aid HISD in the future to better formulate its contracting strategies.

We believe HISD's policies and procedures governing the solicitation and selection process of subcontractors by the CMaR do not meet leading practices as they do not promulgate critical review by HISD to help ensure that best value is achieved. Among other things:

- HISD does not have a formal policy or procedure around procurement activities or defined internal requirements for CMaRs around the subcontractor solicitation and selection process. HISD's CMaR contracts include provisions for the CMaR contractors' responsibility related to compliance and accountability.
- HISD does not have a minimum bid requirement that CMaRs need to comply with during the subcontractor bid solicitation process.
- HISD does not require CMaRs to complete *Conflict of Interest Forms* or disclose bid activity from affiliated parties.
- HISD does not document its participation in the subcontractor bid receipts and tabulations of subcontractor bids.
- HISD does not perform an evaluation of "best value" when CMaRs bid to self-perform a portion of the work.
- Subcontractor bid evaluations and normalizations[6] were not consistently documented. Many evaluations contained unexplained plug numbers and amounts that did not consistently reconcile back to underlying subcontractor bid documentation.
- HISD does not regularly follow up with non-bidding subcontractors to gain an understanding of why a bid was not submitted.

Criteria

- Texas Government Code Section 2269.251, 2269.253
- HISD CH Legal and CH Local policies
- Association of General Contractors of America, *Construction Manager at Risk – A reference guide for Texas K-12 Educational Construction Projects*
- Joint Committee of the Associated General Contractors of America, Houston, TX, *Construction Manager at Risk, a Reference Guide for Texas K-12 Educational Construction Projects*
- Elements of policies & procedures and leading practices for a variety of agencies previously reviewed by KPMG.

Effect: In a construction market with high owner demand for skilled labor and many competing projects for subcontractors to bid on, it becomes crucial for an owner to reach out to the contracting community and establish itself as an attractive owner. It is of equal importance that the owner dedicate sufficient resources to identify and avoid unnecessary charges and inflated costs that may be proposed by subcontractors.

Using additional delivery and contracting methodologies, such as establishing a CMaR at 60%-70% of design, will provide more options to facilitate a better overall program delivery strategy for HISD. As a result, HISD may realize cost savings and/or enjoy pricing certainty earlier in the delivery process in a

[6] The process of reducing of a group of bid responses to common set of dominators is generally referred to as bid normalization. Normalization facilitates the bid evaluation process by establishing a baseline for comparing individual components across all responses.

construction market where pricing escalation is a concern. We recognize there are positive as well as negative aspects with every delivery methodology, however, critically considering all options and adapting along the way will provide increased flexibility for HISD.

As a result of insufficient policies and procedures governing the solicitation and selection process of subcontractors and the lack of a fair and critical review process documented by HISD to help ensure best value is achieved, HISD is risking:

- Inconsistent practices by the different parties involved in the program, which compromises the integrity of pricing and subcontractor selection process,
- Lack of transparency that could impact the contractor pool bidding on district projects resulting in decreased competition and higher prices,
- Lack of accountability from process owners as roles and responsibilities are not clearly defined,
- Highly subjective, convoluted and unbalanced evaluations which can be used to manipulate the bid scores, and
- Misevaluated subcontractor proposals, which may lead to bid protests and result it lengthy and costly legal proceedings.

Recommendation

4a. HISD should consider additional delivery and contracting methodologies to supplement its current bond program selections of CMaR (GMP currently negotiated at 100% design), and CSP. HISD should consider negotiating the project GMP at 60% - 70% design.

4b. HISD should consider documenting their internal quality assurance oversight role in the subcontractor bid evaluation practices in a formal district policy and procedure. The document should:

- Define a minimum number of subcontractor bidders a CMaR is required to receive when bidding the work. If a CMaR received less than the minimum number of bids, a justification should be provided.
- Define the minimum requirements and criteria that CMaRs need to include in their review process.
- Define standard criteria and format to evaluate subcontractor bids so that highly different formats and bid contents are avoided and a straight forward bid normalization is facilitated.
- Require CMaRs to provide notification of intent to self-perform any portion of the work individually or through an affiliate and/or provide *Conflict of Interest Waivers*.
- Define a process to evaluate “best value” when CMaR bids to self-perform work.
- Define a process for following up with subcontractors.

Management Response

With respect to recommendation 4a. Management disagrees that HISD should utilize any contracting methodology other than CMaR and CSP for its major bond projects. The only other construction contracting methods legally available to school districts are competitive bidding (lowest responsible bidder with no ability to negotiate), design-build (contracting with a single entity or team who performs both design and construction), and job order contracting. Management does not believe that competitive bidding or design-build would result in best value for HISD, and such methods are rarely ever used by K-12 public school districts for capital bond projects. While the job order contracting method may have limited applicability and value for certain minor construction, renovation or repair projects initiated by CFS, it is not a legally permissible method for large capital projects. Management would not, therefore, recommend that the district deviate from the methods (both CMaR and CSP) that HISD has already

designated for the current bond projects. For future projects, Management will continue to recommend only the CMaR or CSP methods, unless the unique nature of a given project lends itself to consideration of an alternative method.

Management agrees with the recommendation contained in 4a. above concerning negotiation of a Guaranteed Maximum Price (GMP) with the district's CMaR firms at 60-70% design, however HISD will face both market-driven and logistical challenges if it elects to implement such a requirement at this point in the bond program. Management recognizes and agrees that outside of the K-12 construction industry, the typical practice is to obtain a GMP from a CMaR at 60—70% design. In a market where this is standard practice, there is a potential for cost savings. Unfortunately, however, virtually all K-12 school districts in the Gulf Coast area utilize the same practice as HISD, which is to negotiate the GMP at 100% design, and after the procurement of subcontractors. As a result of this prevailing practice in the K-12 construction industry, the pool of CMaR firms that serve Texas K-12 school districts area are highly – and collectively - resistant to proposing a GMP earlier in the design phase and prior to the solicitation of subcontractor bids. It has been reported by representatives for other Texas school districts that, when forced to do so at earlier stages of design, CMaRs typically offer inflated GMPs to protect themselves from the risk and uncertainty of remaining design activities and subcontractor bidding results. If one of HISD's CMaR refuses to negotiate a GMP earlier in design phase, or fails to offer an acceptable GMP, HISD will have only two options: either (1) agree to accept a higher GMP and hope that the eventual actual costs of construction will be lower than the negotiated GMP, or (2) if HISD is unable to negotiate an earlier and reasonable GMP with the a CMaR, terminate the CMaR's contract and rebid the project under the Competitive Sealed Proposal method. Should the Board direct the Administration to implement the practice recommended by KPMG, Management is willing to do so, and will have to the weigh the risk of project delays (and any additional cost resulting therefrom) against the potential cost savings to be realized by terminating a CMaR and rebidding the project as a CSP to obtain a new general contractor.

Management agrees with the recommendations contained in 4b. above, concerning the need for additional oversight into the Construction Manager's subcontractor bidding process in certain areas. HISD is in the process of completing development of its Standard Operating Procedures, which will include procedural requirements for all CMaR firms in connection with the subcontractor bidding process. HISD does, in its construction contracts, require its CMaRs to comply with all statutory requirements associated with the subcontractor bidding process and the performance of self-performed work by the CMaR. Additionally, HISD does, in practice, require CMaRs to provide advance written notice to HISD of its intent to self-perform work. However, Management agrees that additional oversight and uniform procedural requirements relating to such activities could minimize cost variances resulting from each CMaR's potentially varying approach to subcontractor procurement solicitation and evaluation. HISD will work to develop such policies in a manner that requires more oversight and uniformity in the process, while not unlawfully infringing on the CMaR's statutory right and obligation to conduct the subcontractor procurement process itself.

Action Item: HISD will await direction from the Board of Education as it relates to the implementation of a practice to require GMPs earlier in the project design phase, and is willing to engage in further discussions with the BOE regarding the pros and cons of implementing such practice for any future bond CMaR contracts. HISD will identify the list of SOP sections needed to satisfy the above audit recommendations within 45 days.

5. The program is not conducting sufficient project cost estimating, variance analysis, contingency management or reporting activities.

In an effort to increase the visibility, minimize surprises and improve the project delivery process, leading school districts and agencies develop delivery and status reporting requirements for their bond projects to closely monitor budget, scope and schedule. All agencies are expected to deliver their projects within the time frames and budgets provided in the delivery requirements.

Leading practices specify a number of reporting metrics, which can be used to identify potential budget overruns and schedule slippage early on, if used correctly and reported on a regular basis.

The most comprehensive HISD program status reports are the Bond Oversight Committee (BOC) reports, which are issued quarterly.

Condition: The HISD bond program does not have a formal project or program status reporting process documented. The bond management office communicates regularly with Construction Managers and Program Managers. However, reports required by Program Manager and Construction Manager contracts are not produced on a regular basis.

HISD's existing project status reporting process result can be improved to facilitate more effective internal and external communication. Additionally, the information included with the current BOC status reports can be expanded to include additional key metrics, which will allow HISD make timely informed decisions and build trust and public confidence.

Estimated costs to complete

HISD currently does not have a process in place to develop estimated total costs at completion (EAC) throughout the project delivery process. Estimate at completion is the forecasted cost of the project at completion time, reported as the project progresses. There are a number of different ways to determine the EAC. The most common way to determine EAC is a "bottoms-up" formula where the actual costs (AC) are added to the forecasted remaining spending – the estimate to complete (ETC). By comparing EAC to the initial budget, variances can be calculated and analyzed. Additionally, by comparing EAC to the budgeted amount on a line item basis, trends and overruns can be identified early and mitigating measures put in place. Currently, the estimate to complete is calculated and reported by HISD as the mathematical difference between the approved budget and costs incurred to date. The district uses the Guaranteed Maximum Prices (GMP) in their CMaR agreements and the fixed fee in the other service provider agreements to estimate its maximum cost exposure on a project. (This may be a valid calculation, however there is also a chance that there are variances, which is why it is a leading practice to give the project budget a "fresh look" every month.).

Variance and status reporting – Budget and scheduling – Accountability in reporting

HISD does not have formal policies and procedures around project cost variance analysis and reporting. HISD's current cost management practices consists of tracking actual project expenditures. The BOC reports shows the original budgets approved for the projects on a one-line item basis and compares this to actual expenditures. This is not a good measure of the overall financial health of a project as it leaves out many other reporting metrics commonly used in industry, which serve as better indicators.

Similarly, HISD's reporting on schedule is limited and shows the most current high level target schedule. A better measure of progress should include the original baseline schedule compared to the most current schedule.

The bond management office works closely with the Office of Bond Fund Accounting in monitoring and tracking project costs but there are no formal processes to produce periodic reports on project cost variances. The Office of Bond Fund Accounting produces ad-hoc reports on an as requested basis for the bond management office.

Contingency management

There are currently no HISD policies and procedures on contingency management with the exception of a draft policy *Contingency Allowance Expenditure 1.09.08* which discusses utilizing a portion of the contingency included in the general contractor (GC) or CMaR contracts. Project policies and procedures documents should address the different kinds of contingencies, how they are established and valued, the need for allowances, who controls them, and what should happen to them if they are not expended. They should also include precise and consistent definitions for terminology. The term "contingency" in particular needs a consistent definition, as it often means different things to different people.

Criteria

- HISD Standard Operating Procedures
- AACE International promulgated *Recommended Practices*
- Construction Industry Institute (CII) promulgated *Best Practices*
- Project Management Institute of America (PMI)
- Elements of budgeting practices for a variety of agencies and school districts previously reviewed by KPMG
- Construction Management Association of America, *Construction Management Standards of Practice*

Cause: As previously mentioned, HISD experienced high turnover at the senior management level which resulted in construction management practices changing with the changes in personnel and the SOPs not being continually updated and refined. Since several of the key SOPs were not implemented until 2014, it was not possible for CFS team members to follow them until this time. At present time, the current CFS leadership do not have time or resources to accomplish this task.

Effect: Without a process in place to adequately consider and estimate the costs to complete (ETC), the financial health of individual projects and thereby the entire bond program may be incorrectly represented and unfavorable trends and budget overruns may not be identified in a timely manner.

A robust policies and procedures around the district's forecasting processes such as variance reporting and cost forecasting will allow the bond management office to evaluate savings and needs on a project by project basis allowing them to reallocate funds, as needed, to maintain the overall program budget. As provided in the guidance in SOP 2.04.01, identified savings "*should be returned to the bond program, not the individual facility."*

Without leading practices in place for project cost estimating, variance analysis, contingency management and reporting, HISD is risking:

- Inconsistent application of existing district practices by the different parties involved in the program.
- Limited visibility into estimated costs at completion limiting management's ability to implement mitigating strategies in a timely manner.

— Stakeholder distrust when project variances or program adjustments are communicated without previous communication or visibility into the project or program issues.

Recommendations

5a. HISD and the BOC should consider expanding the BOC reports to include initial budget, revised budget, current costs, commitments, and EAC. These metrics should be reported by project, by budget category (construction, contingency, design, program costs, furniture fixtures and equipment (FFE) and technology equipment). Any variances and changes from previous reporting period (preferably each month) should be discussed, explained and thoroughly justified in the report.

5b. HISD and BOC should also consider including the original baseline schedule compared to the most current schedule in the reports presented to the constituents. Any variances and changes from previous reporting period should be discussed, explained and thoroughly justified in the report.

5c. As part of enhancing its policies and procedures, HISD should consider developing and implementing policies and procedures for cost estimating, cost variance analysis, contingency management and reporting.

5d. HISD should consider developing standardized project reporting template that all project managers must use to report on project related matters including a standard schedule for the project status reporting to the bond management office.

Management Response

Management agrees with the above recommendations and is in the process of implementing more effective forecasting tools and templates that will enable HISD to prepare more detailed, frequent and expanded reporting, as appropriate, between various parties and stakeholders.

Action Item: Management intends to have the additional reporting capabilities and templates available by the October 2016 BOC meeting.

Appendices

Appendix A – Supplemental Bond Funding

Proposed Supplemental Funding — 2012 Bond Program

Appendix A

	A	B	C	D	E	F
		CONSTRUCTION				
	Original Total Project Budget	Original Construction Budget	Inflation and Reserves allocated to Original Construction Budget	Proportional Funding Distribution Based on Original Construction Budget	Proposed Revised Construction Budget (Column B + Column C + Column D)	Proposed Revised Total Project Budget (Column A + Column D)
Group 1 Bond Projects						
Debakey High School	**64,512,000**	41,483,501	5,581,920	8,863,862	55,929,283	**73,375,862**
Delmar-Tusa Fieldhouse	**16,225,000**	9,447,498	1,787,432	2,018,666	13,253,596	**18,243,666**
Furr High School	**55,100,000**	29,792,812	9,448,811	6,365,889	45,607,512	**61,465,889**
Grady Middle School	**14,825,000**	8,816,000	1,394,635	1,883,732	12,094,367	**16,708,732**
HSPVA	**80,178,000**	48,397,050	10,585,997	10,341,093	69,324,140	**90,519,093**
Lee High School	**73,801,000**	43,626,429	9,194,086	9,321,745	62,142,260	**83,122,745**
Mandarin Chinese	**32,161,000**	19,138,988	3,563,640	4,089,465	26,792,093	**36,250,465**
Mark White Elementary	**23,417,000**	13,920,000	2,758,814	2,974,314	19,653,128	**26,391,314**
Mickey Leland	**28,675,000**	16,328,160	3,342,402	3,488,870	23,159,432	**32,163,870**
Milby High school	**68,810,000**	40,162,694	8,069,639	8,581,642	56,813,975	**77,391,642**
North Early College	**13,500,000**	7,200,000	1,549,221	1,538,438	10,287,659	**15,038,438**
Sharpstown High School	**54,944,000**	34,166,925	5,350,098	7,300,515	46,817,538	**62,244,515**
South Early College	**13,500,000**	7,200,000	1,549,221	1,538,438	10,287,659	**15,038,438**
Sterling High School	**72,304,000**	41,198,668	10,373,184	8,803,001	60,374,853	**81,107,001**
Waltrip High School	**30,115,000**	18,116,239	3,022,485	3,870,933	25,009,657	**33,985,933**
Washington High School	**51,732,000**	29,975,845	6,767,706	6,404,998	43,148,549	**58,136,998**
Worthing High School	**30,180,000**	16,773,441	3,602,248	3,584,014	23,959,703	**33,764,014**
Group 2 Bond Projects						
Bellaire High School	**106,724,000**	64,708,764	11,885,555	13,826,450	90,420,769	**120,550,450**
Davis High School	**46,764,000**	26,600,884	5,449,507	5,683,864	37,734,255	**52,447,864**
Dowling Middle School	**59,125,000**	35,294,856	6,556,900	7,541,522	49,393,278	**66,666,522**
Eastwood Academy	**10,875,000**	4,940,000	2,377,600	1,055,540	8,373,140	**11,930,540**
Lamar High School	**107,974,000**	64,418,950	11,972,378	13,764,525	90,155,853	**121,738,525**
Parker Elementary School	**29,485,000**	17,525,453	3,266,070	3,744,698	24,536,221	**33,229,698**
Yates High School	**59,481,000**	34,614,584	7,788,880	7,396,167	49,799,631	**66,877,167**
Group 3 Bond Projects						
Askew Elementary School	**26,632,000**	15,755,841	2,946,350	3,366,582	22,068,773	**29,998,582**
Jordan High School	**36,693,000**	21,461,136	4,305,360	4,585,643	30,352,139	**41,278,643**
Sam Houston	**101,428,000**	60,649,140	11,253,326	12,959,022	84,861,488	**114,387,022**
Young Women's College Prep	**27,159,000**	17,419,606	2,740,908	3,722,082	23,882,596	**30,881,082**
Group 4 Bond Projects						
Austin High School	**68,429,000**	39,899,550	7,541,235	8,525,416	55,966,201	**76,954,416**
Garden Oaks Montessori K-8	**26,678,000**	15,183,862	2,921,479	3,244,366	21,349,707	**29,922,366**
Jones High School	**1,125,000**	706,893	126,527	151,043	984,463	**1,276,043**
Kashmere High School	**17,000,000**	10,167,706	1,886,257	2,172,554	14,226,517	**19,172,554**
Madison High School	**82,736,000**	47,765,288	11,196,861	10,206,104	69,168,253	**92,942,104**
Pilgrim Academy K-8	**7,989,000**	3,840,000	839,519	820,500	5,500,019	**8,809,500**
Scarborough High School	**12,566,000**	7,354,863	1,369,967	1,571,528	10,296,358	**14,137,528**
Sharpstown International High Scho	**6,125,000**	3,866,127	689,745	826,083	5,381,955	**6,951,083**
Westbury High School	**40,006,000**	22,686,890	4,376,882	4,847,553	31,911,325	**44,853,553**
Barnet Fieldhouse	**14,225,000**	8,187,500	1,562,500	1,749,439	11,499,439	**15,974,439**
Bulter Fieldhouse	**14,225,000**	8,187,500	1,562,329	1,749,439	11,499,268	**15,974,439**
Wharton Dual Language School	**35,603,000**	18,928,600	5,251,047	4,044,511	28,224,158	**39,647,511**
Wilson Montessori K-8	**18,914,000**	12,522,720	61,992	2,675,754	15,260,466	**21,589,754**
Totals	**1,681,940,000**	**988,430,963**	**197,870,713**	**211,200,000**	**1,397,501,676**	**1,893,140,000**
District-Wide Projects	**208,060,000**					**208,060,000**
Bond Program Total	**1,890,000,000**					**2,101,200,000**

September 2015

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