United Independent School District

FACILITIES MANAGEMENT REVIEW

Conducted by SCRS, Inc. and Facility Engineering Associates, Inc. for the Legislative Budget Board

April 2009

LEGISLATIVE BUDGET BOARD

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April 14,2009

Mr. Roberto J. Santos
Superintendent
United Independent School District

Dear Mr. Santos:

The attached report reviews the management and performance of the United Independent School District's (UISD) facilities operations.

The report's recommendations will help UISD improve its overall performance as it provides services to students, staff, and community members.

The Legislative Budget Board engaged SCRS, Inc. and Facility Engineering Associates, Inc. to conduct and produce this review, with LBB staff working in a contract oversight role.

The report is available on the LBB website at http://www.lbb.state.tx.us.

Respectfully submitted,

John O'Brien
Director
Legislative Budget Board

cc: Ms. Pat Campos
Mr. Juan Molina, Jr.
Mr. Juan Roberto Ramirez
Mr. Ricardo Molina, Sr.
Mr. Ricardo Rodriguez
Mr. William B. Johnson
Mr. Judd Gilpin

UNITED INDEPENDENT SCHOOL DISTRICT FACILITIES MANAGEMENT

Texas school districts are challenged with providing instructional services in the most cost-effective and productive manner possible. Effective and efficient programs, and a well-designed instructional program determine how well a district meets its goal of educating children. In support of this goal, the facilities organization is tasked with developing effective facilities programs to provide safe, productive, and clean environments where students can learn.

United Independent School District (UISD) is located in Laredo, Texas, the fastest growing city in the state and the second fastest growing city in the United States. Known as the "Gateway to Mexico," Laredo is located on the north bank of the Rio Grande River. Local enrollment (38,887 students in 2007–08) has seen as much as an 11.3 percent growth in one year but averages approximately 5 percent growth annually. Due to the area's aggressive growth, the school district has quickly expanded to a district with four high schools, ten middle schools, and twenty-seven elementary schools that will quickly be looking at further expansion. A new high school is under construction and planned to open in August 2009. Demographic projections show that the high school will exceed capacity prior to opening. With continued growth and change comes an opportunity for improvement in operations and maintenance. Practices and processes that once were sufficient and even advanced for the setting could eventually over the years become inadequate for the needs of the district.

The facilities organization is responsible for a diverse set of facilities covering over 4.8 million square feet spread across 65 buildings and 191 portable buildings as outlined in **Exhibit 1**.

The facilities organization is led by a Director of Maintenance and Operations, who supervises a Facilities Manager. The Facilities Manager is responsible for the Facilities Officer and ten trade supervisors. Since the on-site visit, updated information submitted by UISD shows an overall staff that includes 101 maintenance staff, 7 construction trades staff, 3 warehouse staff, and 29 grounds staff in addition to supervisors. The overall maintenance staffing ratio per square foot is 1:44,837. The division of labor is shown in the organizational chart in **Exhibit 2**.

The following sections provide a summary of the findings and recommendations regarding facilities management opportunities for the United Independent School District. The information is based on the field visits, interviews, document review, and observations completed during the summer of 2008.

ACCOMPLISHMENTS

- Accomplishment #1 – Implemented a districtwide energy management program, including engaging the Texas State Energy Conservation Office for energy audit services, hiring an internal energy director, and implementing energy conservation incentive programs within the schools.
- Accomplishment #2 – Developed design guidelines for prototype schools with common equipment and construction elements. The process provides for improvement with user and maintainer input after construction to update design specification.
- Accomplishment #3 – Implemented effective internal cost and schedule controls for capital construction projects.
- Accomplishment #4 – Created an internal facility condition assessment process that utilized principals and administrators for initial assessment phases on an annual basis. The assessment process included a life-cycle analysis based on a comprehensive equipment inventory to project and forecast the next five years of capital replacements.

FINDINGS

- Finding #1 – Energy sub-meters are not installed at the major building systems' level not allowing for independent tracking of a specific area or building system to diagnose energy use and costs.
- Finding #2 – The current work order system is outdated; not fully optimized or compatible with any current, new, or more advanced operating system; and no longer on the market by the vendor, limiting UISD's ability to track performance and execute updates to the software.
- Finding #3 – UISD does not consider the use of various staffing standards available when determining the most effective or efficient use of maintenance staff.

EXHIBIT 1
UNITED ISD FACILITIES
DECEMBER 2008

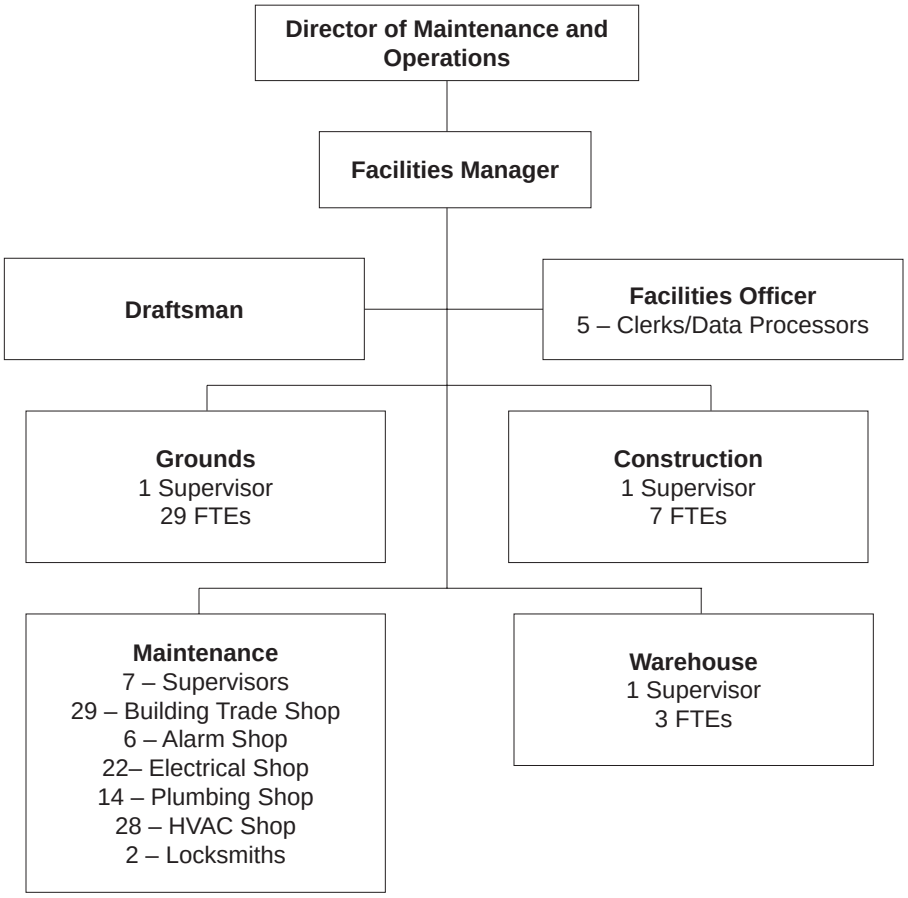
BUILDING	YEAR BUILT	PERMANENT BUILDING(S) SQUARE FEET	NUMBER OF PORTABLES (BUILDINGS AND RESTROOMS)	PORTABLES (BUILDINGS AND RESTROOMS) TOTAL SQUARE FEET
HIGH SCHOOL CAMPUSES				
John B. Alexander	1994	293,497	8	9,216
United	1984	232,686	36	52,416
United South	1989	309,611	3	4,608
Lyndon B. Johnson	2001	306,006	0	0
S.T.E.P. Academy		0	12	17,472
MIDDLE SCHOOL CAMPUSES				
Clark	1978	104,008	0	0
George Washington	1995	92,100	11	15,936
Los Obispos	1996	92,100	3	4,608
Salvador Garcia	1995	92,100	1	1,536
Trautmann	1996	92,100	4	6,144
Trautmann 6th	1971	66,300	0	0
United	1963	118,527	6	9,216
United South	1991	103,684	9	12,864
Antonio Gonzalez	2002	101,260	3	4,608
Lamar Bruni-Vergara	2006	97,177	0	0
ELEMENTARY SCHOOL CAMPUSES				
Alicia Ruiz	1992	77,393	0	0
Amparo Gutierrez	1992	76,460	1	1,536
Arndt	1998	90,481	10	14,400
Clark	1973	73,000	0	0
Cuellar	1998	90,481	0	0
United D.D. Hachar	1989	74,499	0	0
Finley	1988	70,828	0	0
Franklin Roosevelt	1996	84,080	3	4,608
Juarez-Lincoln	1993	72,856	0	0
Kazen	1993	67,450	4	6,144
Kennedy-Zapata	1995	68,348	4	6,144
Matias De Llano	1993	66,813	7	9,792
Muller	1998	90,481	1	1,536
Newman	1980	64,350	0	0
Nye	1965	104,376	0	0
Perez	1986	72,253	9	12,864
Prada	1994	89,355	1	1,536
Salinas	1976	61,372	13	18,048
Trautmann	1982	69,308	7	9,792
Charles Borchers	2002	92,880	0	0
Zaffirini	1998	90,481	9	12,864
B. L. Garcia	2004	92,880	9	12,864
R. Centeno	2004	92,880	0	0

EXHIBIT 1 (CONTINUED)
UNITED ISD FACILITIES
DECEMBER 2008

BUILDING	YEAR BUILT	PERMANENT BUILDING(S) SQUARE FEET	NUMBER OF PORTABLES (BUILDINGS AND RESTROOMS)	PORTABLES (BUILDINGS AND RESTROOMS) TOTAL SQUARE FEET
Malakoff	2005	92,880	3	4,608
Col. Santos Benavides	2005	92,880	0	0
Barbara Fasken	2005	92,880	3	4,608
Killam	2008	92,880	0	0
Support Buildings (23 Buildings)	Various	259,516	11	16,896
Districtwide Totals		4,565,500	191	276,864
Total Square Feet (Permanent and Portable Buildings and Restrooms)			**4,842,364**	

SOURCE: United Independent School District, Facilities Department.

EXHIBIT 2
UNITED ISD ORGANIZATION
DECEMBER 2008



NOTE: FTEs = Full-time Equivalents.
SOURCE: United Independent School District, Facilities Department.

- Finding #4 – There is an excessive use of portables for classrooms that are frequently moved from school to school based on varying areas of growth.

RECOMMENDATIONS

- **Recommendation 1: Install energy sub-meters at the major building systems level.** Energy sub-meters should be installed down to the major building systems level, such as Heating, Ventilating, and Air Conditioning (HVAC) and lighting, in order to understand use patterns, cost, and consumption. Furthermore, data can be recorded showing the effects of improvements and identification of energy savings opportunities.

- **Recommendation 2: Develop and implement a strategic technology plan which includes determining the optimal computerized maintenance management system to support current and future facility management needs.** The district, with the assistance of a Technology Advisory Team, should identify business process needs and develop a strategic technology plan to best meet those needs. The plan should include a determination if the current computerized maintenance management system (CMMS) should be optimized or replaced with a more suitable system.

- **Recommendation 3: Continue to evaluate maintenance work processes and staff levels against available industry standards and benchmarks and assess staff skills and department processes, efficiencies, and organization to optimize staff utilization.** UISD should consider performing a detailed zero-based budget staffing analysis to confirm appropriate staffing levels. Once this evaluation and detailed analysis is complete, the district should consider alternatives and outline their own set of standards to benchmark themselves against in the future.

- **Recommendation 4: Study the cost to move and maintain the portable classrooms compared to the cost of redistricting in order to balance swings in student populations.** The analysis of redistricting cost should include both the administrative costs of implementation and the ongoing cost impact of transportation changes.

DETAILED ACCOMPLISHMENTS

IMPLEMENTED DISTRICTWIDE ENERGY MANAGEMENT PROGRAM

Accomplishment #1 – Implemented a districtwide energy management program, including engaging the Texas State Energy Conservation Office for energy audit services, hiring an internal energy director, and implementing energy conservation incentive programs within the schools.

The energy management program adopted by the district has the stated goal of operating the district "in a most cost effective, efficient manner while maintaining the best education program possible." The energy management plan was first developed in 1998, and revised in 2003 and 2008. The cornerstone of UISD's commitment is the appointment of a district Energy Director who has been delegated the responsibility and authority to develop, operate and maintain the energy management program. The position has been assigned at the director level within the organization and reports directly to the Assistant Superintendent of Facilities, Construction, and Student Services. This puts the position on the same level as the Director of Maintenance & Operations and the Director of Construction, reflecting the importance the district has placed on energy management. The superintendent has personally committed to the district's Energy Management Policy, a further indication of the district's commitment to and top-down support of the program.

In addition to providing the top-down commitment and organizational structure, UISD's energy management plan also educates the student body, staff, and public of its efforts in energy management. For example, an incentive program is in place whereby the individual schools get to participate in any energy cost savings above an agreed upon goal and convert a portion of those savings into dollars for their education budget. In the 2006–07 school year, $195,022 was saved with $97,501 of that going directly to the schools for their efforts. The district also has an energy efficiency program where schools compete with other schools in their category. The elementary, middle, and high school with the least kilowatt-hour per square foot (kwh per square foot) deemed the most efficient that year is presented with a banner attesting to its achievement.

Texas House Bill 3693, Section 44.902, enacted by the state of Texas on May 23, 2007 and issued by the Board on February 1, 2008 states the following:

> *GOAL TO REDUCE CONSUMPTION OF ELECTRIC ENERGY. The board of trustees of a school district shall establish a goal to reduce the school district's annual electric consumption by five percent*

each state fiscal year for six years beginning September 1, 2007.

The enactment of House Bill 3693 provides encouragement to school districts throughout Texas to become increasingly aggressive in their energy conservation efforts. Having a comprehensive Energy Management Plan with top-down support, stated goals, and incentive programs shows UISD's commitment to energy efficiency.

DEVELOPED DESIGN GUIDELINES FOR PROTOTYPE SCHOOLS

Accomplishment #2 – Developed design guidelines for prototype schools with common equipment and construction elements. The process provides for improvement with user and maintainer input after construction to update design specification.

United ISD developed prototype design guidelines which were first used in the 1998 Bond Construction Program. Upon completion of the construction program, feedback from the users and maintenance department was used to develop a follow-on prototype used for the 2003 Bond Construction Program. Standardization of equipment, where possible, has reduced the number of types of parts the maintenance department has to carry. An example of this would be plumbing fixtures. The maintenance supervisor for plumbing noted in an interview that the consistency of brand and type of flush valves has reduced the number of valve repair kits required to have on hand. The Assistant Superintendent of Facilities, Construction, and Student Services also indicated that the prototype school designs have reduced the time required to design and erect a new school building.

IMPLEMENTED EFFECTIVE INTERNAL COST AND SCHEDULE CONTROLS

Accomplishment #3 - Implemented effective internal cost and schedule controls for capital construction projects.

As part of these controls the district has created the position of Director of Construction who reports directly to the Assistant Superintendent of Facilities, Construction, and Student Services. The following documents have been published to guide their activities:

- construction management practices and procedures;
- UISD construction department building program guidelines; and
- construction document manual.

The Director of Construction reports the current status of all capital construction projects that are currently being executed on a regular basis to the Bond Oversight Committee, established by the school board. Additionally, specific procedures and approval authorities for the development and execution of change orders are included within the above documents.

CREATED AN INTERNAL FACILITY CONDITION ASSESSMENT PROCESS

Accomplishment #4 – Created an internal facility condition assessment process that utilized principals and administrators for initial assessment phases on an annual basis. The assessment process included a life-cycle analysis based on a comprehensive equipment inventory to project and forecast the next five years of capital replacements.

The district distributes a detailed questionnaire to each principal on an annual basis. Feedback from campus staff is collected in this questionnaire, which is then summarized in a spreadsheet. Equipment life cycles are also utilized to determine projected replacement timelines. The building deficiency items outlined in the spreadsheet are used as a basis for an on-site evaluation of each campus by architects and engineers. Deficiencies are verified and additional findings are noted. A list of corrective procedures is developed with associated costs.

Once the inspections are completed, an existing facilities report is developed and potential projects/maintenance are prioritized. The report includes a facilities improvement plan that outlines needed and anticipated campus improvements. Items typically address the following issues:

- compliance with federal, state, and local building codes;
- compliance with the Americans with Disabilities Act (ADA);
- identification of needed campus renovations;
- identification of major repairs needed and material replacements; and
- identification of needed campus improvements to accommodate the proliferation of technology in the classroom.

UISD's process for completing annual facility condition assessments provides accurate projections of campus needs. Employing the assistance of the principals and campus staff to identify initial needs has reduced the time and effort required by the facilities staff to collect the data.

DETAILED FINDINGS

ENERGY SUB-METERS

Finding #1 – Energy sub-meters are not installed at the major building systems' level not allowing for independent tracking of a specific area or building system to diagnose energy use and costs.

Recommendation 1: Install energy sub-meters at the major building systems' level. Energy sub-meters should be installed down to the major building systems' level, such as Heating, Ventilating, and Air Conditioning (HVAC) and lighting, in order to understand use patterns, cost, and consumption. Furthermore, data can be recorded showing the effects of improvements and identification of energy savings opportunities.

The segregation and analysis of energy use by system type is unable to be performed due to energy sub-meters not being installed on major building systems. Without the ability to measure, verify, and analyze energy use at the building systems level, energy savings and equipment optimization opportunities may be missed. As a result, excessive use of energy by a building system due to a system deficiency may go undiagnosed.

An energy audit by the Texas State Energy Conservation Office, dated May 2007, states that the annual energy cost, as of August 2006, for UISD was $1.36 per square foot or $2,363,405 for the 1,743,260 square feet included in the facilities audit. It reported that the UISD schools compared favorably with regards to Energy Use Index (EUI) with other peer schools in Texas. The report noted that in addition to these favorable comparisons, the EUI and Energy Cost Index (ECI) indicated the potential for additional savings. Each percentage point in costs savings, according to the energy costs above, is worth approximately $23,635. With the continuous rise in energy costs, having the best tools to identify these opportunities is critical.

The Energy Director indicated that existing meters are installed either at the building level or in some cases at the campus level. Electric consumption is tracked and reported to both the administration and users on trends and costs, providing valuable feedback.

However, based on the review team's analysis, additional oversight is warranted with the use of sub-meters. Sub-meters allow energy use and costs to be isolated so that a specific area or building system can be tracked independently, which is useful for dividing actual utility costs between users or when conducting diagnostics. Sub-meters also help facility staff to manage energy use through load scheduling (operating energy-intensive equipment during off-peak hours) or demand-side management load control (reducing the operation of energy-intensive equipment during peak hours). Installing two electric sub-meters at each school, one to measure the building load and the second for the HVAC systems load, allows comparison of the total load versus utility invoicing, the HVAC load and characteristics, and the lighting and plug loads as the result of the difference between the HVAC and building loads. This allows an appropriate amount of tracking and analysis with the minimum number of meters installed.

UISD, with its Energy Director and Energy Management Plan in place, should take the next step of installing electrical sub-meters on their building and HVAC loads in the middle school and high school buildings in order to track, analyze, and identify energy savings opportunities and diagnose systems' issues. Moreover, the purchase of software and systems that can download the data over the district's existing information technology (IT) infrastructure and provide analysis tools should be procured. The first buildings to install meters should be those that have the more complex systems and the highest EUI and ECI, since they have the greatest potential to create savings.

According to the U.S. Environmental Protection Agency's Energy Star program's resource document, "Sub-Metering Energy Use in Colleges and Universities: Incentives and Challenges," dated December 2002, the costs associated with installing the sub-meters and associated systems is represented in **Exhibit 3**. Based on the detailed information provided in **Exhibit 3**, the cost to meter three buildings with two meters each is approximately $13,653 per building.

Adjusting this amount for 2 sub-meters installed at a total of 13 schools, including 9 middle schools and 4 high schools, yields an estimated cost, with inflation, of $297,665, as shown in **Exhibit 4.**

Based on the exhibit's figures, the average installation cost to meter an additional 13 buildings with 2 sub-meters with data acquisition software each is approximately $15,974 per building for a total one-time cost of $207,665.

FACILITY MANAGEMENT INFORMATION TECHNOLOGY

Finding #2 – The current work order system is outdated; not fully optimized or compatible with any current, new, or more advanced operating system; and no longer on the market by the vendor, limiting UISD's ability to track performance and execute updates to the software.

Recommendation 2: Develop and implement a strategic technology plan which includes determining the optimal computerized maintenance management system to support current and future facility management needs. The district, with the assistance of a Technology Advisory

EXHIBIT 3
COST ESTIMATE FOR ELECTRICITY SUB-METER INSTALLATION ON A COLLEGE CAMPUS
SIX SUB-METERS IN THREE SEPARATE LOCATIONS ON CAMPUS

ITEM DESCRIPTION	QUANTITY	UNIT MATERIAL COST	UNIT LABOR COST	TOTAL COST
Electricity sub-meter with demand display and pulse device	6	$1,200	$450	$9,900
Current transducers	18	$300	$320	$11,160
16 point PLC reading board	3	$1,400	$600	$6,000
Terminal Interrogation Module with modem	3	$2,400	$500	$8,700
Windows-based meter reading software	1	$3,500	$200	$3,700
Supervision of installation and set-up	1		$1,500	$1,500
TOTAL COST				**$40,960**

SOURCE: Kapadia Energy Services.

EXHIBIT 4
COST ESTIMATE FOR ELECTRICITY SUB-METER INSTALLATION AT UNITED ISD'S MIDDLE AND HIGH SCHOOLS
TWENTY-SIX SUB-METERS IN THIRTEEN SEPARATE LOCATIONS ON CAMPUS

ITEM DESCRIPTION	QUANTITY	UNIT MATERIAL COST*	UNIT LABOR COST*	TOTAL COST*
Electricity sub-meter with demand display and pulse device	26	$1,450*	$550*	$52,000*
Current transducers	78	$360*	$390*	$58,500*
16 point PLC reading board	13	$1,690*	$725*	$31,395*
Terminal Interrogation Module with modem	13	$2,900*	$610*	$45,630*
Windows-based meter reading software	1	$4,300*	$240*	$4,540*
Supervision of installation and set-up	1		$15,600*	$15,600*
TOTAL COST				**$207,665***

*Includes projections for inflation.
SOURCE: Review Team based on Kapadia Energy Services Data.

Team (TAT), should identify business process needs and develop a strategic technology plan to best meet those needs. The plan should include a determination of the old computerized maintenance management system (CMMS) as a comparison, taking into account areas that can be more efficient when using the new system prior to purchasing.

The Assistant Superintendant for Facilities, Construction, and Student Services reported to the review team that the district will be purchasing a new software system. During fieldwork, the review team observed UISD using facility management information technology to create and track work orders and preventive maintenance. The system is used by district dispatchers, data processors, and the Facility Officer on a daily basis. Supervisors and tradesmen, however, do not use the work order system. Once work orders are created, a paper ticket is processed and distributed to supervisors and tradesmen. All scheduling and review of work orders are performed manually with the paper tickets. In addition, the system generates limited weekly and monthly reports creating a need to produce various other reports in Microsoft (MS) Word and Excel from supplemental data and data retrieved from the system.

Since the fieldwork, the district has indicated to the review team that administration has selected another CMMS software version to replace the outdated system and is in the process of "visiting other school districts to obtain references and first-hand information on the system's performance." As early as April 2008, the department began requesting funds to replace the old system, and in August 2008, the Board of Trustees approved the department's $50,000 request to purchase the software.

While the Facilities Department has been proactive in requesting funding for their new CMMS software and is looking at the performance of the system prior to purchasing, the department should develop a strategic technology plan and set a goal of how to best optimize its new CMMS for reporting, scheduling, and tracking work. The strategic technology plan should provide the long-term focus needed to successfully implement the system being purchased by UISD and ensure that it supports business processes.

The most successful CMMS implementations are those where the facility manager has a sound strategic technology plan, automates broadly, emphasizes training, does not try to

over-populate the system, has good internal electronic communication in place, has a dedicated automation manager, has buy-in from top to bottom of the organization, understands all costs, and maintains good administrative procedures.

The critical success factors in creating a strategic technology plan include the answers to the following questions:

- Who needs to participate on the planning team?
- Who needs to commit to the objectives of the plan?
- What are the roles of vendors and consultants in preparing a plan?
- What are the predictable do's and don'ts?
- What should be included in the plan?
- Have we set up implementation expectations in the strategic plan?

Implementation of a strategic technology plan should begin with the creation of a formal Technology Advisory Team for this project. The team should consist of an integrated team of facility representatives from the district. Each individual on the team has an opportunity to provide input regarding his/her specific area of expertise or requirements of the selected system the district will be purchasing. The team will be responsible for designating a leader and overseeing implementation and data integrity and application stewardship, adjudicating resource allocation, evaluating, and recommending future needs and requirements. The team is also responsible for maintaining the data and data standards. The team must "own" the technology vision and be the vehicle for maintaining momentum.

UISD should consider a team consisting of:

- maintenance director;
- information technology (IT) managers;
- maintenance supervisors;
- stockroom/warehouse supervisor;
- training program manager;
- finance managers; and
- school administrators.

The following are issues that the Technology Advisory Team will need to understand:

- Who are the customers?
- Who needs to commit to the objectives of the plan?
- What are the roles of staff, vendors and/or consultants in preparing a plan?
- Have we set up the right expectations in the strategic plan?
- How do we make our IT work for us?
- How do we gain commitment?
- Is our Facilities Information Technology (IT) Management Department savvy?
- What are the true costs?
- Who owns the database?
- Who is responsible for standards?

The team that does the planning should also lead the implementation and ongoing management of the technology initiative. Typically, the team that selects the strategic goals will be smaller than the one that follows through with the implementation. If the team is too big, it becomes unwieldy when trying to decide goals.

While it is not essential for every interested stakeholder to participate on the planning team, it is essential for all of them to commit to the goals and desired outcomes. Team members will only do so if they know their interests have been taken into account in the decision-making process.

Once established, the team must take a look at what the strategic objectives of the organization are and then mirror them with the technology it is trying to implement. A close evaluation of the existing service level should be made to establish a baseline and benchmark with other organizations. Next, a determination must be made as to the service level the organization would like to operate at. Finally, the team must link the organization's technology goals to help achieve the desired service level.

Typical Facilities Management (FM) technology projects incur problems, such as too much reliance on vendor claims or a sense of urgency that shortcuts methodical implementation. The following lists common steps to be taken and avoided to ensure the desired benefits from FM technology while maintaining cost control:

- Go through the discipline of identifying detailed functionality from FM technology that would benefit both Plant Operations' clients and staff.
- Emphasize training.
- Understand all costs.
- Ask inappropriate questions about how things are done.
- Test applications yourself; do not just watch demonstrations.
- Try prototypes and get feedback from users.

- Start by fixing small problems to win support.
- Structure a big project so there are payoffs along the way.
- Select your best employees for implementation.
- Settle for 80 percent solutions.
- Agree on realistic goals.

Make sure you do not:

- over-populate the database;
- try to use a large project to cover costs;
- set vague objectives such as "improve productivity;"
- structure the implementation to avoid conflict;
- select a technical implementation leader unskilled in negotiation;
- assume that interviewing users reveals exactly what they need; and
- emphasize incremental improvement if what you really need is fundamental change.

As district officials visit other school districts prior to purchasing the new system to get a sense of how the CMMS performs, the district should consider the following suggestions:

- have vendors demo at the facility; and
- provide incentives for value engineering.

Supervisors, at a minimum, should be trained in the use of the new system and should redesign the current work order process to automate the scheduling and tracking of all work orders. Finally, reports that are being created in MS Word and MS Excel should be developed with the new system providing easy generation of all work orders and the elimination of duplicated efforts.

MAINTENANCE STAFFING

Finding #3 – UISD does not consider the use of various staffing standards available when determining the most effective or efficient use of maintenance staff. Staffing standards are provided by many entities such as, the Association of Physical Plant Administrators (APPA), the American School and University Maintenance and Operations (M&O) Cost study, or the International Facility Management Association (IFMA) to name a few. These standards serve to provide a district with a guide and do not always match a district's total needs.

Recommendation 3: Continue to evaluate maintenance work processes and staff levels against available industry standards and benchmarks, assess staff skills and department processes, efficiencies, and organization to optimize staff utilization. UISD should consider performing a detailed zero-based budget staffing analysis to confirm appropriate staffing levels or identify inefficiencies. Once this evaluation and detailed analysis is complete, the district should consider alternatives and outline their own set of standards to benchmark themselves against in the future.

The district uses historical data to perform manpower analysis. The district has developed a large database from which it performs annual manpower analysis based on work schedules and historical work load, and the amount of additional square feet of new buildings built every year as a result of its rapid growth. The manpower analysis has been performed every year as part of the annual budget process necessary to open new schools in the district.

According to documentation provided by the district in December 2008, the district maintains over 4.8 million square feet of facilities with 108 full-time-equivalent (FTE) maintenance positions, including supervisors. Since the review team's fieldwork, the district indicated that their preferred choice of staffing standard (APPA) was that used by two other districts and that use of this guideline indicated their maintenance department was not overstaffed. However, exact comparisons between districts using the APPA standard are difficult to make when each district staffs their department according to their needs. For example, one district UISD compared themselves to, included grounds keepers and painters among maintenance staff, while the other district included construction staff, welders, intercom, warehouse staff, mechanics, and ground keepers as part of their maintenance personnel. Although UISD listed these positions in their facilities department they were not considered part of the maintenance personnel list.

Furthermore, the district also stated that using a standard like that of the American School and University Maintenance and Operations Cost study provides a very general source based on a limited survey of 100 school districts nationwide and that the participants of this particular survey were very different in size and enrollment, climate, demographics, and number of campuses from that of UISD. Conversely, while one of the districts UISD has used as a comparison does come closer in size and demographic composition, the other does not, having only 18 campuses compared to the district's 41 campuses excluding alternative centers or other facilities and a different demographic composition.

Several industry standards have been developed to assist and offer guidelines to school districts with their maintenance and operations (M&O) costs. Three respected facilities management standards are published by American School

and University (AS&U), the International Facility Management Association (IFMA), and the Association of Physical Plant Administrators (APPA). As per data provided by UISD since on-site fieldwork was conducted, the district's ratio of maintenance staff per square foot is 1:44,837, while the standards published in the *American School & University M&O Cost Study* (April 2008) is 1:107,439.

However, the review team notes that benchmark numbers can vary significantly due to age and overall condition of buildings, the labor market of the area in question, climate, job titles and duties, organizational structure, etc. As a result, direct comparisons between districts are difficult to make. Finally, benchmarks do not represent "Best Practices," and should only be used as a point of reference for further investigation if the district's FTEs seem to be out of line with industry averages.

Exhibit 5 outlines staffing guidelines provided by the American School and University Maintenance and Operations Cost study showing the district exceeding this standard by 66 FTEs in the maintenance personnel area. UISD should perform a detailed zero-based budget staffing analysis to confirm appropriate staffing levels and efficiencies. Once this evaluation and detailed analysis is complete, the district should consider various maintenance industry staffing standards available and outline the standard that can best serve the district, benchmarking themselves against that standard for future staffing needs.

In addition, during the on-site visit, it was reported that the Maintenance Department deploys maintenance technicians in teams, typically one master-equivalent and one helper and spends approximately 50 percent of their time responding to work orders, and 50 percent on preventive maintenance. The Director of Maintenance and Operations reports an average of 65 percent productive time, which is in line with industry standards. However, at the time of the review, it was reported by the district that travel time, including time to return to the warehouse to pick up parts, was included in the time to complete a work order and was considered productive time. Yet due to the excessive amount of travel time necessary to perform this task, travel time should not be included when comparing productivity to industry standards.

Since the on-site visit, the district relayed that the reported average of 65 percent productive time did not include travel time since campuses were very far apart and it required a greater amount of time to travel to each school. Had the district included travel time between campuses, it would have resulted in a net of 90 percent productivity. Furthermore, UISD reported that travel time to the warehouse to pick up parts was already being minimized due to parts runners from the warehouse and trade helpers being assigned to each team of technicians providing that function when necessary. Finally, travel time was also being minimized since the district requires each supervisor to ensure technicians have requested all necessary parts to complete their morning work order assignments at the various campuses before they leave the Service Center.

The district, however, should adopt a zone maintenance approach that utilizes "teams" that perform corrective and preventive maintenance to limit the amount of travel time tradesmen expend returning to the warehouse and/or delaying work due to the lack of necessary parts. Each "team" should consist of at least one FTE from each trade and should be assigned to five to six campuses, depending on size, within a geographic area. With these measures in place, parts runners would be assigned primarily to be responsible for staging the necessary parts for work orders each day and delivering additional parts as necessary throughout the day.

In addition to staffing guidelines, desired level of service should also be taken into account. The Association of Higher Education Facilities Officers (APPA) has published Service Level Guides that provide a benchmark standard for service and performance (APPA, 2002). This standard is used extensively in the public sector as a guide for comparing facility condition with the level of effort needed to maintain a desired level of service. A modified approach to this measure is often more useful because it allows customers to determine the desired service level for a given facility and then match their expenditures and level of effort to the desired outcome. This approach recognizes that not all facilities need to be maintained to the highest level. It allows the maintenance leadership to evaluate its portfolio and assign variable service levels as customer needs, capital funds availability, and operating budgets dictate.

EXHIBIT 5
UNITED ISD'S COMPARISON OF MAINTENANCE STAFF PER DESIRED LEVEL OF SERVICE BASED ON AMERICAN SCHOOL AND UNIVERSITY M&O COST STUDY

SQUARE FEET UNITED ISD	CURRENT STAFF	CURRENT LEVEL OF SERVICE	STAFF FOR CURRENT LEVEL OF SERVICE	DESIRED LEVEL OF SERVICE	RECOMMENDED STAFFING	DIFFERENCE ACTUAL VS. RECOMMENDED
4,842,364	108 FTEs	Levels 2–3	31–42 FTEs	Level 2	42 FTEs	(66) FTEs

NOTE: FTEs = Full-time Equivalents.
SOURCE: United ISD, School Review Surveys, June 2008.

Based on the analysis of the review team, the maintenance at UISD is currently being performed between Level 2 – *Comprehensive Stewardship*, and Level 3 – *Managed Care* as shown in **Exhibit 6**. The bolded portions of the table provide the evaluation team's interpretation of the level of service by performance area, based on experience, brief observations, interviews, and documents provided prior to and during the site visit. Experience has shown that achieving a level of service of 1 or 2 is more difficult to attain and more costly than a level 3; the majority of facility departments are performing at a level 3/4.

Upon a general walk-through of the facilities, a comfortable climate and atmosphere was found. Because of the varying ages of the facilities, finish and equipment condition at facilities range from "like new" to "fair." Most capital equipment reported and observed does not display visual

EXHIBIT 6
UNITED ISD CURRENT MAINTENANCE LEVEL OF SERVICE

LEVEL	1	2	3	4	5
DESCRIPTION	SHOWPIECE FACILITY	COMPREHENSIVE STEWARDSHIP	MANAGED CARE	REACTIVE MANAGEMENT	CRISIS RESPONSE
Customer Service and Response Time	Able to respond to virtually any type of service, immediate response.	**Response to most service needs, including non-maintenance activities, is typically in a week or less.**	Services available only by reducing maintenance, with response times of one month or less.	Services available only by reducing maintenance, with response times of one year or less.	Services not available unless directed from top administration; none provided except emergencies.
Customer Satisfaction	Proud of facilities, have a high level of trust for the facilities organization.	**Satisfied with facilities related services, usually complimentary of facilities staff.**	Accustomed to basic level of facilities care. Generally able to perform mission duties. Lack of pride in physical environment.	Generally critical of cost, responsiveness, and quality of facilities services.	Consistent customer ridicule, mistrust of facilities services.
Preventive Maintenance	All recommended preventive maintenance (PM) is scheduled and performed on time.	**A well-developed PM program. Occasional emergencies.**	Reactive maintenance predominates due to systems failing to perform.	Limited PM program.	No PM performed.
Maintenance Mix	All recommended preventive maintenance (PM) is scheduled and performed on time. Emergencies (e.g. storms or power outages) are very infrequent and are handled efficiently.	**A well-developed PM program: most required PM is done at a frequency slightly less than per defined schedule. Occasional emergencies caused by pump failures, cooling system failures, etc.**	Reactive maintenance predominates due to systems failing to perform, especially during harsh seasonal peaks. The high number of emergencies causes reports to upper administration.	Worn-out systems require staff to be scheduled to react to systems that are performing poorly or not at all. PM work possible consists of simple tasks and is done inconsistently.	No PM performed due to more pressing problems. Reactive maintenance is a necessity due to worn-out systems. Good emergency response because of skills gained in reacting to frequent system failures.
Aesthetics, Interior	"Like-new" finishes	Clean/crisp finishes	**Average finishes**	Dingy finishes	Neglected finishes
Aesthetics, Exterior	Windows, doors, trim, exterior walls are "like new."	**Watertight, good appearance of exterior cleaners.**	Minor leaks and blemishes, average exterior appearance.	Somewhat drafty and leaky, rough-looking exterior, extra painting necessary.	Inoperable windows, leaky windows, unpainted, cracked panes, significant air and water penetration, poor appearance overall.
Aesthetics, Lighting	Bright and clean, attractive lighting.	**Bright and clean, attractive lighting.**	Small percentage of lights out, generally well lit and clean.	Numerous lights out, some missing diffusers, secondary areas dark.	Dark, lots of shadows, bulbs and diffusers missing, cave-like, damaged, hardware is missing.

EXHIBIT 6 (CONTINUED)
UNITED ISD CURRENT MAINTENANCE LEVEL OF SERVICE

LEVEL	1	2	3	4	5
DESCRIPTION	SHOWPIECE FACILITY	COMPREHENSIVE STEWARDSHIP	MANAGED CARE	REACTIVE MANAGEMENT	CRISIS RESPONSE
Service Efficiency	Maintenance activities appear highly organized and focused. Service and maintenance calls are responded to immediately.	Maintenance activities appear organized with direction. Service and maintenance calls are responded to in a timely manner.	**Maintenance activities appear to be somewhat organized, but remain people-dependent. Service and maintenance calls are variable and sporadic, without apparent cause.**	Maintenance activities appear somewhat chaotic and are people-dependant. Service and maintenance call are typically not responded to in a timely manner.	Maintenance activities appear chaotic and without direction. Equipment and building components are routinely broken and inoperable. Service and maintenance calls are never responded to in a timely manner.
Building Systems' Reliability	Breakdown maintenance is rare and limited to vandalism and abuse repairs.	Breakdown maintenance is limited to system components short of mean time between failures (MTBF).	**Building and systems components periodically or often fail.**	Many systems are unreliable. Constant need for repair. Backlog of repair exceeds resources.	Many systems are non-functional. Repair instituted only for life safety issues.

SOURCE: Maintenance Staffing Guidelines for Educational Facilities, Association of Higher Education Facilities Officers, 2002.

signs of deterioration. Therefore, most capital expenditures over the next five years are related to life-cycle renewal.

The optimal level of service for a curriculum-based facility, according to the APPA model, should be a Level 2 – *Comprehensive Stewardship* as shown in **Exhibit 6**. At current staffing levels, the district has the necessary resources to achieve a service level of 2. It should be noted that the APPA model only takes into account staffing numbers and not skill levels. However, staffing skill levels were observed to be satisfactory in regards to the current level of service.

Exhibit 7 lists UISD's total area of square feet and compares the five maintenance levels of service with the number of FTEs needed to maintain those levels. UISD should evaluate staff levels against industry standards and assess staff skills and department processes, efficiencies, and organization to optimize staff utilization and level of service.

REALIGNING SCHOOL BOUNDARIES

Finding #4 – There is an excessive use of portables for classrooms that are frequently moved from school to school based on varying areas of student population growth.

Recommendation 4: Study the cost to move and maintain the portable classrooms compared to the cost of redistricting in order to balance swings in student populations. The analysis of redistricting cost should include both the administrative costs of implementation and the ongoing cost impact of transportation changes.

The frequent moving of portable classrooms from school to school due to varying areas of growth is completed utilizing maintenance personnel. This results in maintenance personnel losing focus on their normal maintenance duties to include preventive maintenance, which can have a negative impact on the condition of the schools and increase the need for reactive maintenance. Furthermore, costs are incurred to disconnect the units, transport over public roads,

EXHIBIT 7
UNITED ISD CURRENT MAINTENANCE LEVEL OF SERVICE AND MATCHING STAFFING CRITERIA
DECEMBER 2008

	1	2	3	4	5
SQUARE FEET UNITED ISD	SHOWPIECE FACILITY	COMPREHENSIVE STEWARDSHIP	MANAGED CARE	REACTIVE MANAGEMENT	CRISIS RESPONSE
4,842,364	57 FTEs	42 FTEs	31 FTEs	22 FTEs	15 FTEs

NOTE: FTEs = Full-time Equivalents.
Source: United ISD, School Review Surveys, June 2008.

infrastructure at the destination school, and rehabilitation of the units due to wear and tear from the move process.

In 2008, UISD utilized 191 portable buildings, as shown in **Exhibit 1**. These portable units are moved as necessary to cover capacity issues due to swings in student population. For example, 11 of the 26 elementary schools have declining populations with the other 15 having increasing populations. As student populations decline and the others rise, these portables will most likely be moved creating cost and wear-and-tear issues. The actual cost per portable classroom move was not available.

FISCAL IMPACT

RECOMMENDATION	2009–10	2010–11	2011–12	2012–13	2013–14	5–YEAR (COSTS) OR SAVINGS	ONE-TIME (COSTS) OR SAVINGS
1. Install energy sub-meters in the district's middle and high schools.	$0	$0	$0	$0	$0	$0	($207,665)
2. Develop and implement a strategic technology plan to include a new computerized maintenance management system.	$0	$0	$0	$0	$0	$0	$0
3. Continue to evaluate maintenance work processes and staff levels against available industry standards and benchmarks.	$0	$0	$0	$0	$0	$0	$0
4. Study the cost to move and maintain portable classrooms.	$0	$0	$0	$0	$0	$0	$0
TOTAL	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**($207,665)**

UNITED INDEPENDENT SCHOOL DISTRICT INSTRUCTIONAL FACILITIES ALLOTMENT

Effective facilities management ensures that a school district has enough facilities designed and built in a way that enhances the district's educational programs; complies with state, local and federal regulations; and minimizes the district's utility and maintenance costs. In addition to building the public's trust and confidence in district management, having functional and cost-effective facilities is essential to providing an environment that is conducive to student learning.

The United Independent School District (UISD) surrounds the city of Laredo, Texas in Webb County on the USA-Mexico border. In 1961, trustees from three tiny common school districts in Webb County met to consolidate into one district. The three common districts were Cactus—located 28 miles north of Laredo on the Callaghan Ranch, Johnson—located in south Laredo on the Zapata Highway, and Nye—originally located on the south end of Santa Maria Avenue that later became Del Mar Boulevard in 1959. Hence, UISD was founded in 1961–62, serving an enrollment of 341 students in grades 1 through 9. During the many years that followed its inception, UISD opened numerous schools to accommodate student growth. The district now encompasses an area of 2,454.9 square miles, provides educational services to students in grades pre-kindergarten through 12, and has experienced significant growth over the years with 2007–08 enrollment reported at 38,887.

For the period from 1994–95 to 2003–04, enrollment at UISD increased nearly 74 percent, with an average annual growth of 1,524 students. For the period from 2003–04 through 2007–08, UISD student enrollment grew by 6,625 students, an increase of 20.5 percent and an annual average increase of 1,656 students. During the same period, taxable values grew by $3,261,805,526, or 63.1percent. **Exhibit 8** presents the enrollment and property tax values for UISD from 2003–04 through 2007–08.

UISD master planning figures indicate that during the period 2003–2007, there were 8,879 housing units added to the UISD boundaries yielding a growth in student population of 6,786 students. Projections for the period 2008–2012 indicate an additional 10,350 housing units, which could result in 6,444 more students. A recent enrollment forecast indicates the district's growth will continue with student enrollment projected to increase to a total of 42,541 students by 2010–11. Webb County, the city of Laredo, and UISD have all experienced rapid growth since 2000, and projections indicate the trend will continue. As shown in **Exhibit 9**, UISD's growth is projected to exceed the rate of growth expected in both Webb County and the city of Laredo.

EXHIBIT 8
UNITED ISD ENROLLMENT AND TAXABLE VALUES
2003–04 THROUGH 2007–08

DESCRIPTION	2003–04	2004–05	2005–06	2006–07	2007–08
Enrollment	32,262	33,955	35,697	37,807	38,887
Taxable Value	$5,172,801,055	$5,822,096,903	$6,541,623,400	$7,983,965,899	$8,434,606,581

SOURCE: Texas Education Agency, Comptroller's Property Tax Division (CPTD) Tax Final and Student Enrollment, 2003–04 through 2007–08.

EXHIBIT 9
WEBB COUNTY, CITY OF LAREDO, AND UNITED ISD AREA POPULATION AND HOUSING UNIT CHANGES
2000 THROUGH 2012

ENTITY	CENSUS 2000	CENSUS 2007	PROJECTED 2012	CHANGE 2000–2007	AVERAGE ANNUAL GROWTH 2000–2007	PROJECTED CHANGE 2008–2012	AVERAGE ANNUAL CHANGE 2008–2012
			AREA POPULATION				
Webb County	193,117	242,898	280,284	49,781	4.0%	37,386	2.6%
City of Laredo	176,576	225,486	258,288	48,910	4.3%	32,802	2.4%
United ISD	83,050	139,010	172,400	55,960	10.4%	33,390	4.0%
			HOUSING UNITS				
Webb County	55,206	70,676	80,335	15,470	4.3%	9,659	2.3%
City of Laredo	50,319	61,786	69,976	11,467	3.5%	8,190	2.2%
United ISD	26,625	35,677	46,027	9,052	5.2%	10,350	4.8%

SOURCE: United ISD, Housing Analysis and Enrollment Projection prepared by S.A. Research Corporation, January 2008.

Due to the district's continual growth over the past two decades, UISD has undertaken several capital improvements funded by bonded indebtedness to meet the educational needs of its growing student population. Bond elections in 1987, 1989, 1993, 1998, and 2003 provided a cumulative $386.6 million in authorized bonds. In 1987, voters passed a $15 million bond proposition to fund the construction of a new elementary school and a new high school in addition to numerous new classrooms and renovations throughout the district. In 1989, voters passed a $39.6 million bond proposition, and in 1993, UISD voters passed a $75 million bond proposition to fund the construction of new schools and additions and renovations to existing schools. In June 1998, voters passed a $115 million bond proposition to construct seven new schools and provide renovations and traffic improvements, upgrades to instructional technology, and a new student activity complex.

Faced with the challenge of providing a quality education for its increasing numbers of students, the UISD Board of Trustees invited community members to explore options for dealing with this growth. A 65-member Blue Ribbon Committee, composed of parents, district patrons, and community members, was appointed in June 2001. The committee visited all the schools and other buildings to determine the needs of the district with regard to new facility construction and renovations or additions to existing schools. The committee was subdivided into subcommittees formed specifically to investigate the needs for:

- new construction/land acquisition/technology;
- additions/renovations/student support areas; and
- finance.

The committee recommended a bond election to the board, and in November 2003, UISD voters approved a bond package for $142 million to construct six new elementary schools, one new middle school, and one new high school. The funds were also used for additions and renovations to existing schools and upgrades to computer technology throughout the district. **Exhibit 10** presents the projects proposed by the 2003 bond.

Again in October 2006, the UISD Board of Trustees invited members of the community to explore options for dealing with the district's rapid growth. The Blue Ribbon Committee (BRC) was re-assembled consisting of parents, district patrons, and community members. Some members appointed to the committee had previously served as members of the 2003 Bond Oversight Committee. The committee visited UISD campuses and other buildings to observe and determine needs of the district. After four months of study, the BRC recommended that the Board consider a bond election with prioritized needs totaling $399.6 million, with the majority of the proposed expenditures designated for new construction and additions/renovations to existing schools and support facilities. The May 2007 bond election proposed expenditures are shown in **Exhibit 11**.

EXHIBIT 10
UNITED ISD BOND PROJECTS
2003 BOND ELECTION

PROJECT	PROPOSED BOND EXPENDITURE
B. L. Garcia Elementary School	$7,000,000
R. Centeno Elementary School	7,000,000
Malakoff Elementary School	7,105,000
Col. Santos Benavides Elementary School	7,105,000
Barbara Fasken Elementary School	7,266,500
Killam Elementary School	7,266,500
Lamar Bruni-Vergara Middle School	8,075,000
New United High School	28,710,000
Fees, Furniture, and Equipment	12,415,000
Site Purchases	6,000,000
Additions and Renovations	39,057,000
Technology	5,000,000
TOTAL	**$142,000,000**

SOURCE: United ISD, 2004–08 Facilities Master Plan, Summary of Proposed Bond Expenditures, January 29, 2004.

EXHIBIT 11
UNITED ISD PROPOSED BOND PROJECTS
2007 BOND ELECTION

PROJECT	PROPOSED BOND EXPENDITURE
Eight New Elementary Schools (two to replace existing elementary schools)	$108,380,615
Two New Middle Schools	47,734,800
Four Ninth Grade Campuses	109,119,769
One Alternative Education/PEP Campus	8,032,848
Additions/Renovations to Existing Campuses	53,082,629
Educational Support Facilities/Technology	61,799,339
Land Purchases	11,450,000
TOTAL	**$399,600,000**

SOURCE: United ISD, 2007 Bond Election Presentation, June 2008.

The May 2007 bond election at UISD failed. District administrators and comments reported during the post-election town hall meeting indicate the public did not feel engaged as part of the bond development process. Residents felt they were not adequately informed regarding the need

for such a large bond election and how the figures were developed. Administrators stated that in the next bond election, the district would do a better job of listening to what its constituents want and explaining the reasons behind certain projects. UISD administrators also indicated that before preparing for the next bond election, the Blue Ribbon Committee's participation will be expanded to include the involvement of teachers, taxpayer advocates, businessmen, and other members of the UISD community.

Following the failure of the May 2007 bond election, the Blue Ribbon Committee was reconvened in December 2007 to revamp the district's priorities in calling forth a future bond election. Based on student enrollment projections, the committee estimated that a total of six elementary schools, two middle schools, and one new high school campus will be needed in the near future. Construction of new facilities and the district's need for renovations at existing campuses are estimated to cost approximately $250 million. In addition, district officials indicate the need to address a growing list of deferred maintenance issues across the district, currently estimated at $100 million in repairs. **Exhibit 12** summarizes the recommendations by the UISD Blue Ribbon Committee regarding a proposed bond construction program. The Board has yet to determine when the bond election will take place.

Facility planning at UISD consists of planning for new campuses with a capacity of 900 students for elementary and middle schools using a capacity of 1,800–3,000 students for high schools. Currently at UISD, there are a large number of portable classrooms located at many campuses to facilitate overcrowding. Some campuses such as the S.T.E.P. Academy

EXHIBIT 12
COST SUMMARY OF UNITED ISD PROPOSED BOND CONSTRUCTION PROGRAM
MARCH 2008

COMPONENT	CAMPUS	ESTIMATED COST	COMPONENT TOTAL
New Construction	Six Elementary Schools	$75,132,214	
	Two Middle Schools	$34,840,000	
	One High School	$50,220,000	$160,192,214
Furniture and Equipment for New Schools	Elementary Schools	$8,264,544	
	Middle Schools	$3,832,400	
	High School	$7,533,000	$19,629,944
Technology for New Schools	Elementary Schools	$5,034,000	
	Middle Schools	$2,078,000	
	High School	$2,990,000	$10,102,000
Architect/Engineer Design Fees	Elementary Schools	$2,453,850	
	Middle Schools	$1,567,800	
	High School	$3,013,200	$7,034,850
Land Purchase	Undeveloped Land	$1,020,000	
	Land Development	$3,900,000	$4,920,000
Construction Related Costs	City, State, and Utilities Fees	$703,099	
	Testing, Engineering, Surveys	$2,611,509	
	Administrative and Legal	$500,000	
	Bond Issue Fees and Expenses	$600,000	$4,414,608
School Additions and Renovations	Elementary Schools	$17,310,700	
	Middle Schools	$9,009,560	
	High Schools	$11,537,900	
	Technology District-Wide	$2,834,944	$40,693,104
Contingency	(1.5% of Construction Costs)		$3,013,280
	TOTAL BOND PROGRAM COST		**$250,000,000**

SOURCE: United ISD, 2009–12 Facilities Master Plan, 2008 Proposed Bond Construction Program Cost Summary, March 25, 2008.

consist solely of portable classrooms. **Exhibit 13** presents a summary of all UISD schools, including the total number of square feet for permanent building(s) and portable classroom building(s), number of portable classrooms, and occupancy versus capacity. With the use of 251,904 square feet in portable classroom space, the district's occupancy is at approximately 89.2 percent of its overall facility capacity. Without the use of these portable classrooms, the district would approach full capacity of all current educational space.

Construction costs have increased significantly in recent years due to demand for a variety of products used in the construction of buildings. To combat inflation for its 2003 bond projects, UISD purchased a large portion of building materials for the six prototype elementary schools at 2003 prices and stored them until needed during the projected five-year construction period. As a result, the district was able to construct the new buildings at approximately the same cost per square foot. In addition, the UISD Board appointed a seven-member Bond Oversight Committee (BOC) that would ensure the integrity of the district and its commitment to UISD constituents that the projects would be completed on budget and on time. The BOC held monthly meetings to analyze construction progress and to formulate recommendations to the Board regarding necessary changes. **Exhibit 14** compares the proposed cost and actual cost for construction of new facilities with 2003 bond funds. As of July 2008, the district's new United High School was still under construction and slated for completion in April 2009.

Exhibit 15 presents the statewide average construction cost for schools as compared to the regional and UISD averages projected costs through January 2009. Figures shown also compare with UISD's actual cost per square foot for construction projects from 2003 through 2008 and reflect the average cost per square foot to build schools comparably sized to those built at UISD. Elementary schools meet enrollment capacities of 800 to 1,000 students; middle schools meet enrollment of 1,200 students; and high schools meet enrollment capacities of 2,000 to 3,000 students. As

EXHIBIT 13
UNITED ISD PERMANENT AND PORTABLE CLASSROOM BUILDING(S)
DECEMBER 2008

GRADE LEVEL CAMPUSES	PERMANENT BUILDING(S) SQUARE FEET	PORTABLE CLASSROOM BUILDING(S) SQUARE FEET	OCCUPANCY	CAPACITY	NUMBER OF PORTABLE CLASSROOMS
Elementary Schools	2,204,825	116,736	20,271	23,144	76
Middle Schools	959,356	53,760	8,654	9,984	35
High Schools	1,141,800	81,408	10,126	10,670	53
TOTALS	**4,305,981**	**251,904**	**39,051**	**43,798**	**164**

SOURCE: United ISD, Facilities General Information Sheet, 2008.

EXHIBIT 14
UNITED ISD CONSTRUCTION COSTS
2003 BOND PROJECTS

PROJECT	PROPOSED BOND EXPENDITURE	ACTUAL COST	SQUARE FEET	ACTUAL COST PER SQUARE FOOT
B. L. Garcia Elementary School	$7,000,000	$6,927,550	92,880	$74.59
R. Centeno Elementary School	7,000,000	$6,966,449	92,880	$75.00
Malakoff Elementary School	7,105,000	$6,953,369	92,880	$74.86
Col. Santos Benavides Elementary School	7,105,000	$7,037,962	92,880	$75.77
Barbara Fasken Elementary School	7,266,500	$6,716,333	92,880	$72.31
Killam Elementary	7,266,500	$6,777,294	92,880	$72.97
Lamar Bruni-Vergara Middle School	8,075,000	$8,758,133	97,177	$90.13
(New) United High School	28,710,000	*	437,249	*
TOTAL	**$79,528,000**	**	**1,091,706**	**

*Actual costs and square footage for (new) United High School are not available due to the building being under construction.
**Not applicable.
SOURCE: United ISD Finance Department, Business Committee Meeting notes, October 9, 2007.

EXHIBIT 15
UNITED ISD, REGIONAL, AND STATEWIDE AVERAGE CONSTRUCTION COSTS PER SQUARE FOOT
2007

MEAN	ELEMENTARY SCHOOLS	MIDDLE SCHOOLS	HIGH SCHOOLS
Texas	$149.00	$155.00	$163.00
Central Texas Region	$160.00	$166.00	$176.00
Rio Grande Valley Region	$134.00	$140.00	$147.00
United ISD	$74.25	$90.18	TBD

NOTE: TBD = To Be Determined.
SOURCE: United ISD, 2007 Statewide Projected Average Cost of Schools, Pfluger & Associates Architects, June 2008.

shown, UISD cost per square foot for each grade level of school constructed is less than both the region and state averages.

UISD uses the Design/Build method to construct buildings for the district. With this method, a single entity is contracted by UISD to provide both design and construction. The Design-Build team consists of a contractor, architect, and engineer. The Design-Builder contracts directly with subcontractors and suppliers and is responsible for delivery of the total project. Advantages to this method of construction include the following:

- faster schedule delivery, as construction can begin before design is completed and saves time;
- Guaranteed Maximum Price (GMP) eliminates owner concern with cost overruns;
- fewer change orders and surprises due to omissions or design errors;
- single point of contact for all design and construction;
- reduced overall cost for architect design fees; and
- owner has the flexibility to define and negotiate the size and scope of projects and end the contract at any time.

For the six elementary schools built with 2003 bond funds, the original budget for construction and design costs was $44,239,005. The proposed GMP from the selected Design/Build team was a total of $41,218,000, for a savings to the district of $3,021,005. With this savings, the district opted for enhancements totaling $410,000. The enhancements increased parking spaces, added air conditioning to a technology equipment room, added a security surveillance system, and added a staff restroom. The final GMP after the enhancements still resulted in savings to the district of $2,611,005 for construction of the six new elementary schools.

One construction management concept used by UISD in its construction program has been the use of "prototype" architectural school designs for elementary and middle schools. This concept is based on principles of standardization and value engineering. The results of this concept have been a substantial increase in the quality, durability, and efficiency of district building in addition to reduced initial expenditures and decreased maintenance and operating costs. Value engineering implemented by UISD identifies opportunities to remove unnecessary costs while assuring that quality, reliability, and performance standards are met. The district's prototype school designs have proven to be a simple but extremely functional, efficient, and high-quality building design. The use of prototypes also allowed UISD to reduce repetitive payments for professional architectural and engineering fees as the same basic plan was used to construct several different campuses.

Texas school districts have three major funding sources to repay bond funds used for facilities construction: revenues from local taxes, the existing debt allotment (EDA), and the instructional facilities allotment (IFA). Local interest and sinking (I&S) taxes are levied based on the amount required to fund the district's debt service payments after any funding received from EDA or IFA.

State revenues consist of three tiers. The first two Foundation Program Tiers, I and II, are for operating expenses and go in a district's General Fund. The Tier III allotment, or EDA, was introduced in 1999–2000 and provides financial assistance for certain outstanding debt issued by school districts to produce a guaranteed yield of $35 in revenue per student in average daily attendance (ADA) per penny of tax effort. By providing a guaranteed yield on I&S taxes levied to pay the principal and interest on eligible bonds, the program guarantees a specific amount of state and local funds per student for each cent of tax effort per $100 of assessed valuation. The EDA program operates without applications, has no award cycles, and is available only to repay bonded debt.

The IFA program became effective in September 1997 and provides assistance to school districts in making debt service payments on eligible bond obligations issued to construct, acquire, renovate, or improve instructional facilities. In order to receive IFA funding, a district must apply to the Commissioner of Education before issuing bonds to be paid with state assistance. The IFA program operates with applications, has award cycles, and has selection criteria based primarily on a district's property wealth per student.

UISD levied a $0.154860 I&S fund tax rate per $100 valuation in 2007–08 to pay the district's debt service payments. In 2007–08, the district received $8,252,233 in

EDA funding and $1,564,920 in IFA funding to assist in making the district's debt service payments. The IFA funding received by UISD is from the Round 3 (June 1998) and Round 5 (June 2000) application cycles. The district applied for, but did not receive, funding from Round 7 (June 2004) of $2,436,744 and Round 8 (June 2006) of $2,178,288. **Exhibit 16** presents the I&S fund tax rate, taxable values, and a calculated tax levy for UISD from 2003–04 through 2007–08.

Exhibit 17 presents the district's debt service fund expenditures and local revenue from I&S tax collections for 2003–04 through 2007–08.

IMPACT

UISD leadership reported that not receiving the IFA had no direct impact on the capital improvement plan because the district did not structure the bond contingent on receiving IFA funding. UISD only planned for local revenues and EDA funding in developing its latest bond proposal. Although UISD did not anticipate receiving IFA funding, if they had, the district's I&S tax rate would have been reduced by $0.028. This I&S tax rate reduction is based on 2006–07 property values of $7,983,965,899 and IFA funding of $2,233,171: $2,233,171/[($7,983,965,899 /100) X .01] = 2.8 cents. The estimated anticipated IFA funding for 2006–07 is outlined in **Exhibit 18**.

EXHIBIT 16
UNITED ISD INTEREST & SINKING (I & S) TAX RATE, TAXABLE VALUES, AND I&S TAX LEVY
2003–04 THROUGH 2007–08

DESCRIPTION	2003–04	2004–05	2005–06	2006–07	2007–08
Tax Rate	$0.146938	$0.146926	$0.226926	$0.210758	$0.154860
Taxable Values	$5,172,801,055	$5,822,096,903	$6,541,623,400	**$7,983,965,899**	$8,434,606,581
Tax Levy	$7,600,810	$8,554,174	$14,844,644	$16,740,829	$13,061,832

SOURCE: United ISD, Tax Rate Resolution, CPTD Taxable Values, calculation by consultant, July 2008.

EXHIBIT 17
UNITED ISD DEBT SERVICE FUND
2003–04 THROUGH 2007–08

DESCRIPTION	2003–04	2004–05	2005–06	2006–07	2007–08
Debt Payments	$15,732,560	$21,305,779	$23,105,974	$24,413,642	$26,348,476
State Revenue	$8,681,650	$7,935,071	$15,023,715	$8,686,668	$10,019,771
Local Revenue	$7,546,002	$9,003,605	$8,986,474	$17,671,441	$12,375,576

SOURCE: United ISD and Texas Education Agency, Annual Audit Reports and Summary of Finance, 2003–04 through 2007–08.

EXHIBIT 18
UNITED ISD ESTIMATED ANTICIPATED INSTRUCTIONAL FACILITIES ALLOTMENT FUNDING
2006–07

DISTRICT NAME	INITIAL WEALTH PER AVERAGE DAILY ATTENDANCE	REDUCE FOR ZERO OUT DEBT	REDUCE FOR ENROLLMENT INCREASE	VALUE AFTER REDUCED FOR ZERO DEBT AND ENROLLMENT INCREASE	REDUCE IF ISSUED UNFUNDED IN PREVIOUS CYCLE	ESTIMATED STATE SHARE
United ISD	$184,826	0%	10%	$166,343	10%	$2,233,171

SOURCE: United ISD, Assistant Superintendent of Business and Finance, 2008.