

CHAPTER 6 – FACILITIES CONSTRUCTION, USE AND MANAGEMENT

BACKGROUND

Effective facilities use and management processes consider the educational program needs, type, age, and configuration of owned, leased, and operated facilities. Effective processes enable school districts to plan, finance, and implement changes. A comprehensive program of facilities, custodial, and energy management coordinates all physical resources within a school district. Such a program effectively integrates facilities planning with all other aspects of school planning. Facilities personnel are also involved in design and construction activities and they are knowledgeable about operations and maintenance activities.

To be effective, facilities managers must also be involved in a school district's strategic planning activities. In addition, effective facility departments operate under clearly defined policies, procedures, and activities that can be adapted to accommodate changes in resources and needs.

In December 1946, Rosenberg Independent School District and Richmond Independent School District were consolidated and the new school district was named "Lamar."

Lamar Consolidated Independent School District (LCISD) was formed in 1947, when three independent and nine common school districts began consolidating into one new district. In 1947, Rice Farm Common School District No. 2, Thompsons Common School District No. 8, Booth Common School District No. 9, George Common School District No. 23 and Pleak Common School District No. 30 all joined the new LCISD.

LCISD grew again before 1950 when Beasley Independent School District, Fulshear Common School District No. 11, Foster Common School District No. 12 and Brandt Common School District No. 14 merged. The Simonton Common School District No. 10 was added the latter part of 1950.

In 2009, the Texas Education Agency removed the accreditation for Kendleton Independent School District and it was absorbed by the Lamar Consolidated I.S.D. Today, the LCISD comprises an area of approximately 385 square miles and extends from Brazoria County on the southeast to Waller and Austin counties on the northwest. Wharton County is on the western boundary. The District contains 43 percent of the area of Fort Bend County.

The cities of Rosenberg and Richmond, with a combined population of approximately 42,000 (Census Bureau, 2016), form the center of the school district. Some of the other municipalities within the Lamar Consolidated I.S.D. are Beasley, Booth, Fulshear, Simonton and Thompsons.

Today, LCISD operates five high schools (9-12), five junior high schools (7-8), four middle schools (6), 23 elementary schools (PK-5), one early childhood center (Pre-K) pp six special sites, serving 30,829 students.

Exhibit 6-1 presents the organization chart for LCISD's facilities operations. The administrator of Operations heads the department. Facilities planning and construction functions are performed solely by the administrator of Operations with contract program management support provided by Vanier|Rice & Garder, program manager for

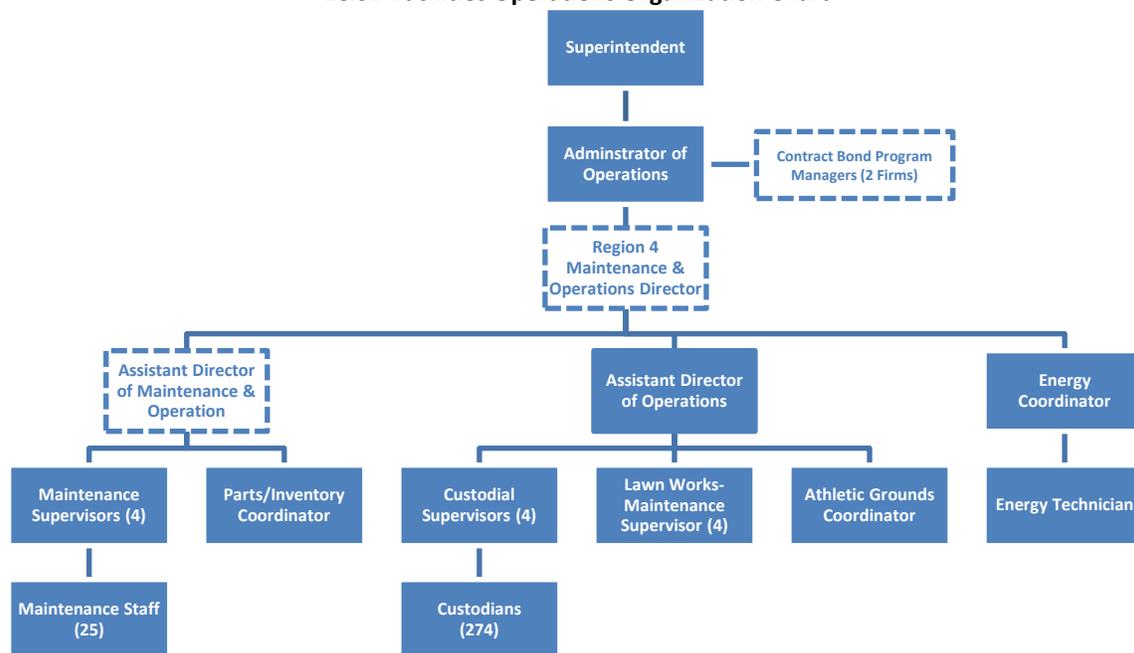
CHAPTER HIGHLIGHTS

- LCISD's Maintenance & Operations Department maximizes efficiency and cost-effectiveness by deploying staff labor using a geographic zone approach.
- LCISD has an in-house energy coordinator and has implemented the key components of an energy management program in order to conserve energy and control cost.
- LCISD could improve facilities planning functions by dedicating internal management resources.
- LCISD should develop an up-to-date long-range facilities master plan.
- To ensure a balance and optimized student enrollment, LCISD should maintain typical school utilization and inventory data.
- Optimize school facility utilization in all secondary tracks to better balance enrollment.

the school district’s 2014 bond, and Gilbane is the program manager for the 2011 Bond. Gilbane is near completion of the work associated with the 2011 Bond.

A director of Maintenance & Operations, an Education Service Center - Region 4 (ESC – Region 4) contract position, reports to the administrator of Operations. The director of Maintenance & Operations oversees all maintenance, custodial, lawn works/grounds keeping, athletic grounds maintenance, and energy management functions for the district. An assistant director of Maintenance & Operations (an additional ESC – Region 4 contract position) provides direct day-to-day supervision of maintenance supervisors and maintenance teams and material and supply inventory coordination. The assistant director of Maintenance & Operations also provides support for new construction and renovation projects. With the exception of the ESC - Region 4 director and assistant director of Maintenance & Operations, all other maintenance, custodial, lawns works (grounds), and energy management staff are direct employees of the district. In total, LCISD employs approximately 314 staff to support facilities operations at the district.

**Exhibit 6-1
LCISD Facilities Operations Organization Chart**



Source: LCISD Operations, January 2017.

Exhibit 6-2 shows LCISD’s budgeted operating expenses for the past three years (2014-2015 through 2016-2017) and the year-over-year budget increases.

**Exhibit 6-2
Maintenance and Operations Department**

Description	Budget 2014-2015	Budget 2015-2016	Budget 2016-2017
Salaries	\$ 2,928,850	\$ 3,227,896	\$ 3,380,696
Benefits	15,302	505,798	532,645
Group Life Insurance	-	-	-
Support Personnel – Extra Duty	303,000	303,000	203,000
RESC Services	205,000	215,000	215,000
Contract Maintenance & Repair	2,496,550	3,170,450	3,647,329
Utilities	518,263	531,000	571,500

Description	Budget 2014-2015	Budget 2015-2016	Budget 2016-2017
Rentals	107,100	117,100	117,429
Contracted Services	490,685	497,685	497,685
Supplies & Materials	1,063,000	1,341,030	1,376,030
Reading Materials – Other	3,208	3,208	3,208
Payments to SSA – Utilities	30,000	30,000	-
Travel & Subsistence – Employee	9,420	9,420	9,420
Miscellaneous	2,100	2,100	3,100
Fees and Dues	9,600	9,600	9,600
AI Technology Supplies	6,500	6,500	5,500
Vehicles	-	100,000	100,000
Total	\$ 8,188,578	\$ 10,069,787	\$ 10,672,142
Total Budget Increase	Not Applicable	23%	6%

Source: LCISD Business Office, January 2017. Note - Total of 950 Maintenance, 951 Laundry, 952 Energy Management, 953 Technical, 954 Operations Budget Fiscal Years 2015, 2016, 2017.

Exhibit 6-3 provides a historical overview of LCISD’s campus inventory.

**Exhibit 6-3
Campus Inventory Snapshot**

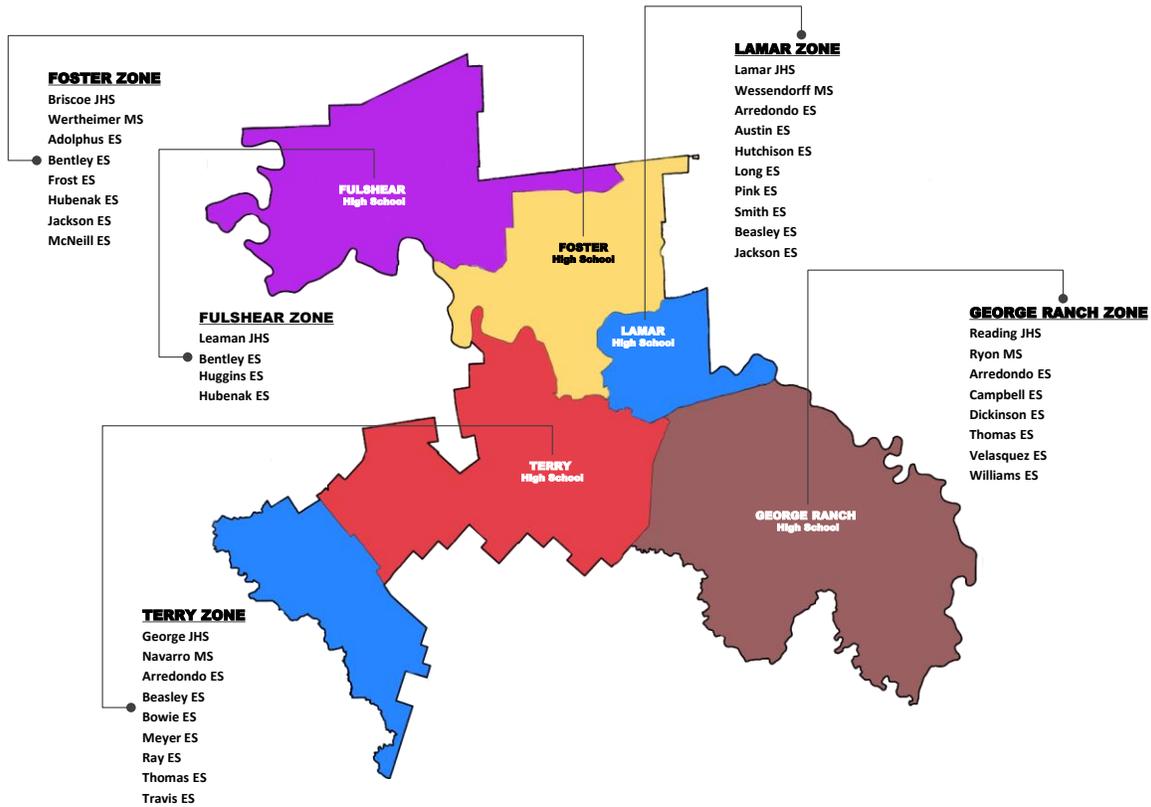
Data	Grades	2013-2014	2014-2015	2015-2016	2016-2017
Total Enrollment		27,024	28,252	29,692	30,829
Type/Number of Campuses		39	39	40	43
High Schools	9-12	4	4	4	5
Junior High Schools	7-8	4	4	4	5
Middle Schools	6	4	4	4	4
Elementary Schools	PK/K-5	21	21	22	23
Special School Sites	Pre-K	6	6	6	6

Source: LCISD Operations.

The district maintains 37 schools and six special school sites comprising more than four million square feet of space. A new elementary school (Lindsey Elementary) was opened in June 2017 bringing the total number of schools and special sites to 43. The district also maintains 10 other support buildings for a total of 53 facilities districtwide.

As shown in **Exhibit 6-4**, LCISD schools are geographically organized according to five feeder patterns, which the district calls secondary tracks. A “feeder pattern” is a group of elementary and middle schools that “feed” to a single high school in close proximity.

Exhibit 6-4
Lamar CISD High School Attendance Zones



Source: LCISD Operations Department.

Exhibits 6-5 and 6-6 provide a summary of the district facility inventory as of January 2017.

Exhibit 6-5
Total Facility Square Footage Inventory – Campuses

Campus	Original Building Date	Gross Square Footage Exc. Field Houses	No. Portables	Portables Sq. Ft. *	Total Sq. Ft.	Enrollment	Capacity	Utilization
Elementary School (23)								
Adolphus Elementary	2014	91,900			91,900	723	750	96%
Arredondo Elementary	2015	90,741			90,741	701	750	93%
Austin Elementary	1990	64,860			64,860	613	720	85%
Beasley Elementary	1985	42,800	8	10,752	53,552	364	370	98%
Bentley Elementary	2017	91,693			91,693	595	750	79%
Bowie Elementary	1961	73,564	10	11,520	85,084	649	640	101%
Campbell Elementary	2000	92,210	5	3,840	96,050	603	720	84%
Dickinson Elementary	1993	86,050			86,050	547	750	73%
Frost Elementary	2000	92,210			92,210	501	720	70%
Hubenak Elementary	2009	89,020	21	28,416	117,436	788	750	105%
Huggins Elementary	1979	58,200	12	16,128	74,328	926	650	142%
Hutchison Elementary	2005	95,000			95,000	681	750	91%

Campus	Original Building Date	Gross Square Footage Exc. Field Houses	No. Portables	Portables Sq. Ft. *	Total Sq. Ft.	Enrollment	Capacity	Utilization
Jackson Elementary	1947	65,860			65,860	396	520	76%
Jane Long Elementary	1949	80,176			80,176	621	750	83%
McNeill Elementary	2008	91,321	3	3,840	95,161	843	750	112%
Meyer Elementary	1985	69,500	4	3,840	73,340	710	750	95%
Pink Elementary	1997	92,210			92,210	602	720	84%
Smith Elementary	1966	80,965	5	4,608	85,573	436	600	73%
Taylor Ray Elementary	1979	67,160	6	4,608	71,768	645	640	101%
Thomas Elementary	2009	89,020	4	6,144	95,164	864	750	115%
Travis Elementary	1949	77,666	10	9,216	86,882	589	680	87%
Velasquez Elementary	2006	95,000			95,000	680	750	91%
Williams Elementary	1985	84,925	5	6,144	91,069	937	750	125%
<i>Middle School (4 plus Leaman Jr. High temporarily)</i>								
Navarro Middle	1987	85,678			85,678	504	600	84%
Polly Ryon Middle	2014	85,538			85,538	672	600	112%
Wertheimer Middle	2008	86,045			86,045	456	600	76%
Wessendorff Middle	1997	85,803			85,803	395	600	66%
<i>Junior High School (5)</i>								
Briscoe Jr. High	2001	193,298			193,298	899	1,200	75%
George Jr. High	1973	179,300			179,300	1,039	1,200	87%
Lamar Jr. High	1957	176,590			176,590	880	1,200	73%
Leaman Jr. High/ Middle School **	2016	193,919			193,919	754	1,200	63%
Reading Jr. High	2010	182,877			182,877	1,265	1,200	105%
<i>High School (5)</i>								
Foster High	2001	361,330			361,330	2,068	2,000	103%
Fulshear High	2016	334,982			334,982	398	2,000	20%
George Ranch High	2010	321,395			321,395	2,543	2,000	127%
Lamar High	1949	292,702			292,702	1,608	2,000	80%
Terry High	1980	281,629			281,629	1,956	2,050	95%
<i>Early Childhood Center</i>								
Seguin Early Childhood Center	1957	50,000	1	768	50,768	Not Provided	Not Provided	N/A
Total – 37 schools		4,773,137	94	109,824	4,882,961	***30,451	34,430	88%

Source: LCISD Operations, January 2017.

* Portables include single and double portables. A single portable is 768 square feet; double portable is 1,536 square feet.

** Capacity at Leaman JH is temporarily divided into ~ 400 students for 6th grade and ~ 800 students for 7th-8th grades. When the 6th grade campus is built at the Leaman/Fulshear complex, then the full 1,200-student capacity at Leaman will be devoted to 7th-8th grade students.

*** Total enrollment equals average enrollment at individual schools throughout the school year.

**Exhibit 6-6
Total Facility Square Footage Inventory – Other Facilities**

Facility	Original Building Date	Total Square Footage
16-21	Leased Space	Leased Space
Administration Annex	1957 (main); 1990 (addition)	7,600
Ag Barn	1985	18,094
Ag Barn 2 (new)	06/2017	19,219
Alternative Learning Center (ALC)	1953 (bldg. #2); 1964 (bldg. #3)	37,442
Athletic Adm. Complex	2008	5,400
Brazos Crossing	1988 (district purchased)	46,900
Development Center	Unknown	13,900
Distribution and Food Service	1967	14,460
Lindsey Elementary (new school)	06/2017	91,693
Maintenance & Operations	1989	19,320
Natatorium	1982	14,370
Natatorium #2	2015	31,852
Special Needs Center	1958	22,185
Powell Point Elementary <i>(small school acquired from former Kendleton ISD)</i>	Pre-2010	40,000
Transportation	1989	24,500
Transportation Satellite	2013	33,485
Traylor Stadium	1959	6,390
Other Facilities Total	–	446,810
Schools square ft. including portables		4,882,961
Total (*Added to orig. total)		5,329,771

Source: LCISD Operations, January 2017. Note – excluded square footage for Common Threads, Community Center, Project Learn and Tameron Lakes.

As noted earlier, LCISD is categorized as a high growth district. Accordingly, the district has initiated two bond programs since 2011 and is in the process of preparing for another bond program in 2017. Exhibits 6-7 and 6-8, summarize the 2014 bond programs and the planned bond program initiative for 2017.

**Exhibit 6-7
2014 LCISD's Bond Program**

Student Growth	Bond Amount
Five Elementary Schools	\$121.9 million
Fulshear Middle School	\$22.3 million
Fulshear HS Shell Space	\$3.8 million
Land Sites	\$20 million
Transportation	\$5.1 million
High School Practice Pools	\$26.6 million
Satellite Ag Barn	\$3.8 million
Support Services Center	\$12.1 million
Technology	\$18.9 million

Facility Improvements	Bond Amount
Food Service Upgrades	\$473,000
HVAC Web-Based Controls	\$1.1 million
Foster HS Water Plant	\$990,000
Foster HS Baseball Scoreboard & Stands	\$40,000
Terry HS Baseball Complex Renovations	\$975,000
Lamar CHS & Terry HS Band Hall Expansion	\$1.4 million
Pink Elementary Foundation Repair	\$1.1 million

Source: 2015 Rice & Gardner Consultants, Inc.

Exhibit 6-8
LCISD Citizens Bond Advisory Committee Recommendations
June 2017

2017 CBAC Bond Proposal		
Schools and Land	71.99%	\$316,700,000
Technology	7.80%	\$34,326,000
Interior Improvements	6.60%	\$29,055,000
Athletics	5.55%	\$24,400,000
Fine Arts	2.91%	\$12,800,000
Exterior Improvements	2.59%	\$11,410,000
Transportation	1.80%	\$7,910,000
Food Service	0.76%	\$3,350,000
Total	100.00%	\$439,951,000

Source: Lamar Consolidated Independent School District, Bond Planning 2017.

BEST PRACTICES

Best practices are methods, techniques, or tools that have consistently shown positive results, and can be replicated by other organizations as a standard way of executing work-related activities and processes to create and sustain high performing organizations. When comparing best practices, similarity of entities or organizations is not as critical as it is with benchmarking. In fact, many best practices transcend organizational characteristics.

McConnell & Jones LLP (or the review team) identified 23 best practices against which to evaluate the Facilities Construction, Use, and Management component of LCISD. LCISD met 15 of these best practices. **Exhibit 6-9** provides a summary of these best practices. Best practices that LCISD does not meet result in observations, which we discuss in the body of the chapter. However, all observations included in this chapter are not necessarily related to a specific best practice.

Exhibit 6-9
Summary of Best Practices – Facilities Management

Best Practice Number	Description of Best Practice	Met	Not Met	Explanation
1.	The school district has an effective long-range facilities planning process in place. When developing the annual five-year facilities work plan, the school district evaluates alternatives to minimize the need for new construction and establishes budgetary plans and priorities.		X	LCISD's has many of the components completed for a long-range facilities master plan; however several components are incomplete. See Observation 6-2 .
2.	The school district has an appropriate organizational structure for the maintenance and operations program and minimizes administrative layers and assures adequate supervision.		X	The department lacks a second-in-command to assist with critical facility planning functions to prepare the district for current and future operations. See Observation 6-1 .
3.	The school district has established and implemented accountability mechanisms to ensure the performance, efficiency, and effectiveness of the construction program including post-occupancy evaluations of major construction projects.	X		LCISD uses Vanir Rice & Gardner as its program manager for the district's bond program. Vanir Rice & Gardner has completed two new elementary schools since 2015. These two schools were a repeat prototype design that the district had completed many times in the past. A post-occupancy tool was in place for those prototype designs. A new elementary school prototype design is under construction and a similar post-occupancy evaluation process/ tool will be applied.
4.	The school district has processes and procedures in place to ensure facilities are efficiently-utilized, based on geographical enrollment patterns.		X	LCISD is currently using 97 portables. Maintaining this number of portables may indicate the need to evaluate prototype building designs that allow for expansion wings, redrawing attendance zones more frequently and/or more aggressive renovation or construction of new schools in some areas. See Observation 6-3 .
5.	The school district uses a staff allocation model to ensure appropriate staffing levels.		X	The school district developed a staffing allocation model for both maintenance and custodial operations in 2009, but the staffing model has not been updated to meet the current needs of the district. See Observation 6-8 .

Best Practice Number	Description of Best Practice	Met	Not Met	Explanation
6.	The school district deploys its maintenance staff resources to geographic locations efficiently and cost effectively.	X		The school district has deployed its preventive maintenance and trade staff by geographic area/zone. Four maintenance teams are deployed to cover the district's five feeder patterns. See Accomplishment 6-A .
7.	Accurate and timely demographic projections are performed by the School System to support long-range facilities planning for schools.	X		The school district uses an external demographer to develop timely demographic projections to support long-range facilities plans. LCISD demographic projections have been completed through 2026.
8.	The school district ensures responsiveness to the community through open communication about the construction program and the five-year facilities work plan.	X		LCISD involves community members in attendance boundary changes as well as provides transparent management reports on its website regarding 2014 Bond projects and progress.
9.	The school district has an effective site selection process based on expected growth patterns.	X		LCISD has an adequate site selection process in place.
10.	The school district develops thorough descriptions and educational specifications for each construction project.	X		Educational specifications are developed and documented by the district's program managers with input from the administration and the community (as part of the community engagement process).
11.	The school district has effective management processes for construction projects.	X		LCISD uses Vanir Rice & Gardner to provide leadership for managing individual projects through architects, engineers and construction contractors during pre- construction phases to assist with project management and oversight.
12.	The school district retains appropriate professionals to assist in facility planning, design, and construction.	X		LCISD uses Vanir Rice & Gardner to augment internal staff. This practice has proven to be more cost-effective for the school district.
13.	The school district has established and implemented accountability mechanisms to ensure the performance and efficiency of the custodial operations.	X		The school district has established cleaning standards based on Association of Physical Plant Administrators (APPA) Level 2. Custodial supervisors were well aware of these standards and work closely with school principals to ensure performance, efficiency and satisfaction levels are maintained at schools. Custodial operations satisfaction levels were high based on LCISD School Climate Survey of parents and staff administered in December 2016.
14.	The school district has established and implemented accountability mechanisms to ensure the performance and efficiency of maintenance operations.		X	The school board receives a monthly report from Region 4 Maintenance & Operations Director summarizing the number of work order requests received and completed at schools and auxiliary buildings. While Maintenance satisfaction levels were high based on

Best Practice Number	Description of Best Practice	Met	Not Met	Explanation
				LCISD School Climate Survey of parents and staff administered in December 2016, reporting on performance and efficiency can be improved by better utilizing SchoolDude management reports. See Observation 6-6 .
15.	The department has an effective preventative maintenance program in place. The school district uses proactive maintenance practices to reduce maintenance costs.	X		Maintenance staff is organized into four geographic teams and each team is staffed with a preventative maintenance crew to ensure that routine maintenance is performed timely. See Accomplishment 6-A
16.	The department has an effective deferred maintenance program in place.		X	No specific documentation and/or budgets were provided for deferred maintenance projects. See Observation 6-5 .
17.	The department maintains educational and district support facilities in a condition that enhances student learning and facilitates employee productivity.	X		The review team toured X schools during the onsite visit and found all to be in generally good condition. Formal facilities condition studies are performed at individual campuses as needed.
18.	The school district provides a staff development program that includes appropriate training for maintenance and operations staff to enhance worker job satisfaction, efficiency, and safety.		X	The district has an opportunity to improve training/professional development particularly for Maintenance & Operations supervisory and line staff. See Observation 6-7 .
19.	The administration has developed an annual budget with spending limits that comply with funding for each category of facilities maintenance and operations.	X		Annual budgets with spending limits have been developed for the department.
20.	School district personnel review maintenance and operation's costs and services and evaluate the potential for outside contracting and privatization.		X	The district does not perform periodic analysis to determine if current operations can be performed more economically or efficiently by using contracted/outsourced services. See Observation 6-4 .
21.	A computerized control and tracking system is used to accurately track work orders.	X		The SchoolDude automated work order system is used to manage work order requests.
22.	The Maintenance & Operations Department has a system for prioritizing maintenance needs uniformly throughout the school district.	X		The SchoolDude automated work order system is used to facilitate prioritizing maintenance needs.
23.	The school district has a comprehensive energy management program in place to conserve energy and contain costs.	X		LCISD employs an energy coordinator (manager) and has developed a formal energy management program to conserve use and control cost. See Accomplishment 6-B .

Source: McConnell & Jones' Review Team.

ACCOMPLISHMENTS

Geographic Zone Approach to Deployment of Maintenance Staff

ACCOMPLISHMENT 6-A

LCISD’s Maintenance & Operations Department maximizes efficiency and cost-effectiveness by deploying staff labor using a geographic zone approach.

The district’s Maintenance & Operations Department reorganized in mid-2016 and implemented a “best practice” geographic zone approach to deploy multi-functional labor so that the skills needed to perform tasks are replicated on each of the four teams that were created. This management practice is particularly appropriate for a school district like LCISD, where the geographic boundaries are nearly 400 square miles. Another best practice under a geographic zone approach is to create a regular schedule for each school or administrative building to have all of its maintenance needs addressed (both routine work order requests and preventative) while the maintenance team is at the facility location. Previously, LCISD’s maintenance staff was deployed using a centralized approach and most often maintenance was dispatched to address a particular need, complete the assignment, and then move on the next location.

In order to prepare to implement the geographic zone approach, the Maintenance & Operations Department analyzed historical work orders that had been performed over a number of years along with staff skills and the number of staff available in the department. Optimally, the Maintenance & Operations Department would have had a fifth team and each of the five teams would have been aligned with the district’s five high school feeder patterns.

Based on the staff resources available, the Maintenance & Operations Department implemented the geographic zone approach with four teams as outlined in **Exhibit 6-10**.

TEAM 1 serves the Fulshear and Foster feeder patterns which comprises just more than 1.9 million square feet of space including portables.

TEAM 2 serves the Lamar feeder pattern which comprises approximately 1.2 million square feet of space.

TEAM 3 serves the Terry feeder pattern which comprises just over 1 million square feet of space.

TEAM 4 serves the George Ranch feeder pattern which comprises approximately 1.2 million square feet of space.

**Exhibit 6-10
LCISD Maintenance & Operations Department
Geographic Zone: TEAM 1, TEAM 2, TEAM 3 AND TEAM 4**

TEAM 1	Campus	Original Building Date	Square Footage including Portables
Supervisor (1)	Adolphus Elementary	2014	91,900
Planner/Scheduler (1)	Bentley Elementary	2017	91,693
Maintenance (3)	Frost Elementary	2000	92,210
PM Team (2)	Hubenak Elementary	2009	117,436
Locksmith (1)	Huggins Elementary	1979	74,328
Grounds Crew (6)	McNeill Elementary	2008	95,161
Heavy Equipment Operator (0.5)	Wertheimer Middle	2008	86,045
	Briscoe Jr. High	2001	193,298
	Leaman Jr. High/Middle School **	2016	193,919
	Fulshear High	2016	334,982
	Foster High	2001	361,330
	New MS	Not Yet Build	Not Applicable
	Satellite Trans	2013	33,485
	Traylor Stadium	1959	6,390
	Lindsey Elementary	06/2017	91,693
	Ag Barn 2	06/2017	19,219
Total Team 1 FTE - 14.5	Total Square Feet		1,883,089

TEAM 2		Campus	Original Building Date	Square Footage including Portables
Supervisor (1)		Austin Elementary	1990	64,860
Planner/Scheduler (1)		Hutchison Elementary	2005	95,000
Maintenance (3)		Jackson Elementary	1947	65,860
PM Team (2)		Jane Long Elementary	1949	80,176
Grounds Crew (4)		Pink Elementary	1997	92,210
Heavy Equipment Operator (0.5)		Smith Elementary	1966	85,573
		Wessendorff Middle	1997	85,803
		Lamar Jr. High	1957	176,590
		Lamar High	1949	292,702
		Special Needs	1958	22,185
		1621 Place	Leased space	
		AAC	2008	5,400
		ALC	1953 (bldg. #2), 1964 (bldg. #3)	37,442
		Seguin Early Childhood Center	1957	50,768
		Ag Barn/Band Rd	1985	18,094
Total Team 1 FTE - 11.5		Total Square Feet		1,172,663

TEAM 3		Campus	Original Building Date	Square Footage including Portables
Supervisor (1)		Beasley Elementary	1985	53,552
Planner/Scheduler (1)		Bowie Elementary	1961	85,084
Maintenance (3)		Meyer Elementary	1985	73,340
PM Team (2)		Taylor Ray Elementary	1979	71,768
Grounds Crew (5)		Travis Elementary	1949	86,882
Heavy Equipment Operator (0.5)		Navarro Middle	1987	85,678
		George Jr. High	1973	179,300
		Terry High	1980	281,629
		Powell Point Elementary (small school acquired from former Kendleton ISD)	Pre-2010	40,000
		Natorium Lamar	2015	31,852
		Natorium Terry	1982	14,370
		Transportation Rosenberg	1989	24,500
Total Team 1 FTE - 12.5		Total Square Feet		1,027,955

TEAM 4		Campus	Original Building Date	Square Footage including Portables
Supervisor (1)		Arredondo Elementary	2015	90,741
Planner/Scheduler (1)		Campbell Elementary	2000	96,050
Maintenance (3)		Dickinson Elementary	1993	86,050
PM Team (2)		Thomas Elementary	2009	95,164
Grounds Crew (5)		Velasquez Elementary	2006	95,000
Heavy Equipment Operator (0.5)		Williams Elementary	1985	91,069
		Polly Ryon Middle	2014	85,538
		Reading Jr. High	2010	182,877
		George Ranch High	2010	321,395
		Admin Annex	1957 (main), 1990 (addition)	7,600
		Brazos Crossing	1988	46,900
		Development Center	Unknown	13,900
		Maint./Distribution CTR	1989/1967	33,780
Total Team 1 FTE - 12.5		Total Square Feet		1,246,064

Source: LCISD Maintenance & Operations Department.

Some of the main advantages to implementing a geographic zone approach to deploying maintenance staff are noted below.

- Maintenance staff is deployed to a more concentrated area within the school district’s geographic boundaries, which drastically reduces travel time and fuel usage.
- Staff productivity is increased because a higher number of work orders can be responded to and non-productive time is decreased because work orders are allowed to accumulate and be addressed with fewer overall trips to the school or building site.
- The overall number of maintenance vehicles needed is reduced and the life-cycle of vehicles increases.
- Faster response to routine and emergency work order requests is achieved and maintenance staff can better stay on task for handling preventative maintenance needs.

ACCOMPLISHMENT 6-B

Energy Management

LCISD has an in-house energy coordinator and has implemented the key components of an energy management program in order to conserve energy and control cost.

The district employs a dedicated coordinator to oversee its energy management program and to provide a central point of accountability for developing goals, strategies, and guidelines for conservation and use. The district’s - energy coordinator plans, regulates, and monitors energy use to improve energy efficiency by evaluating energy use and by implementing new policies and changes as necessary.

LCISD’s energy management program is aligned with the major program components suggested by the U.S. Department of Energy and the National School Boards Association as well as SchoolDude (national operations-based software that assists school districts with managing facility assets, improving workflow, maximizing efficiency and making data-driven decisions). **Exhibit 6-11** shows the major energy management program components and how LCISD measures up in terms of implementing them.

**Exhibit 6-11
LCISD Energy Management Program Components**

Major School District Energy Management Program Components Energy Management Plan Component	LCISD Compliant
1) Appoint and Energy Manager (Coordinator)	Yes
2) Develop a Plan/Establish an Energy Policy	Yes
3) Make the Plan Relevant	Yes
4) Determine Measureable Goals	Yes
5) Establish Benchmarks	Yes
6) Get Buy-in from the School Board/School Community	Yes
7) Focus on Behavioral Changes	Yes
8) Implement Quick Fixes	Yes
9) Plan for the Long-term	Yes

Source: U.S. Department of Energy and the National School Boards Association and SchoolDude.

Exhibit 6-12 presents LCISD’s detailed Energy Management Plan components.

Exhibit 6-12
LCISD Energy Management Plan Components

GOALS	STRATEGIES
<ol style="list-style-type: none"> 1. Reduce energy consumption at each District facility and review quarterly. 2. To reduce energy consumption district-wide by 5% each year. 3. Designate a District Energy Coordinator who will oversee and implement all programs and changes. 4. Develop and implement an Energy Education Awareness Program District-wide. The program will focus on educating students and staff regarding ways they can assist the District in reducing energy consumption. The program will include, but not limited to; quarterly newsletters, presentations and the formation of a District Energy Reduction Awareness Committee. 	<ol style="list-style-type: none"> 1. Track energy use and expenses. 2. Establish facility use guidelines for school staff and administrators. 3. Work with the District’s Energy Reduction Awareness Committee to identify possible areas of reducing energy usage in facilities. 4. Inspect facilities on a weekly basis according to a set schedule developed by the Energy Coordinator and make recommendations accordingly.

GUIDELINES
<ul style="list-style-type: none"> ➤ A temperature set point of 73° (+/- 1°) for cooling and 68° (+/- 1°) for heating shall be established and maintained in classrooms and office areas. ➤ The Energy Coordinator will develop and implement appropriate schedules for each facility to minimize energy usage. This will include summer and holidays. The Energy Coordinator will work with appropriate staff to discuss locations for summer schools and other district supported programs. ➤ Lights in classrooms shall be turned off if the space is to be unoccupied for more than ten minutes. Lighting in cafeterias, auditoriums, and gymnasiums shall be off or low mode when not occupied. ➤ Exterior lighting considered to be critical shall be controlled by timing devices. Unnecessary exterior lighting shall be eliminated. Parking lot lights shall be scheduled for events and security. ➤ All computing equipment power options will be set to turn off displays after 15 minutes of user inactivity and put into sleep mode after 2 hours of user inactivity. ➤ All computing equipment not in use by a staff or student or considered to be a server shall shut down at 6:00 PM daily. All computing equipment, electronic office equipment, and any other unnecessary appliance not in use shall shut down and powered off during the holidays and the summer period. ➤ The start-up of chillers for each building shall be staged at intervals and buildings shall be brought on line in a similar sequence so as to moderate peak load demand. ➤ Permits are required for an approved personal appliance within a District building. The permit fee is \$45. Approved Personal Appliance: Refrigerator – Maximum 2.7 cubic foot, Energy Star, UL listed. <i>Permit consideration is subject to approval by your school principal or the District Department Supervisor and the availability of electrical circuits. Employees must purchase a permit for a personal appliance used by an individual or shared. Permits can be purchased through the Energy Coordinator. A permit sticker will be issued to be applied to the appliance. Permits are valid for the current school year purchased. Permits must be renewed annually. Permit Applications may be obtained from the Maintenance Website or Campus. A personal appliance not listed for permit is subject to School Principal and District approval.</i> ➤ The District shall communicate with vending company providers for all facilities to remove machine lighting. Energy saving devices will be used to schedule proper shut-down and start-up of each machine. ➤ Each facility will choose one night per week where the facility will shut down and not hold any activities. The night chosen will remain the same throughout the school year. The night chosen will be declared by each facility and documented by the Energy Coordinator. ➤ Building use by school or non-school organizations require prior approval from the office of the Administrator of Operations. Building use for any school or non- school organization requires a Facility Request Form to be submitted to the location the activity is occurring. A Facility Request Form shall be completed and submitted ten business days prior to the use of the facility. It is the responsibility of the requestor to verify the facility request form has been received and approved. Activities held at a facility without prior approval are not guaranteed use of the facility and/or services to be provided. ➤ Every attempt should be made to group multiple meetings in one part of the building to minimize the use of equipment. ➤ An educational program will be developed and implemented by the Energy Coordinator. Staff and students will become aware of energy saving practices through training, materials, and hands-on exercises so they may participate in assisting the district in lowering energy consumption.

Source: LCISD Maintenance & Operations Department, Energy Coordinator.

Energy management is a vital tool to ensure the cost-effective operation of utilities in the school district’s campuses and administrative facilities. Energy audits and other sources of data are essential to controlling costs. LCISD’s management uses data gathered from energy audits to determine priorities, and to evaluate the success of a program. While the purpose of an energy management program is to minimize waste, the program should also ensure comfort in occupied spaces and encourage energy awareness across the district.

As a means of controlling cost (LCISD has metered each campus to facilitate monitoring energy usage) and keeping energy rates low, LCISD has entered into interlocal cooperation contracts with The Texas General Land Office and Energy for Schools. **Exhibit 6-13** shows that for the past four school years, LCISD energy rates for electricity, natural gas, and water and sewage have remained steady or declined. When all three energy categories are combined, the district received a 33 percent decrease in rates for the four year period between 2012-2013 and 2015-2016.

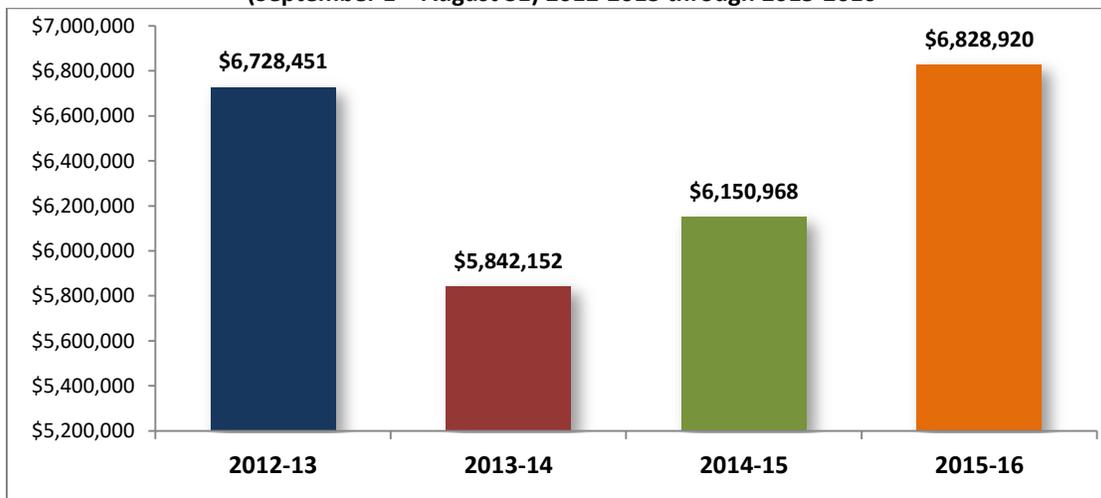
Exhibit 6-13
LCISD Unit Energy Cost by Energy Type

Utility Rate Cost	2012-2013	2013-2014	2014-2015	2015-2016
Electricity	\$0.10	\$0.09	\$0.09	\$0.09
Natural Gas (CCF)	\$1.48	\$1.47	\$1.18	\$0.97
Water and Sewage	\$0.03	\$0.02	\$0.01	\$0.01
Total	\$1.61	\$1.58	\$1.28	\$1.07
Percent Decrease 2012-2013 through 2015-2016				-33%

Source: LCISD Maintenance & Operations Department, Energy Coordinator.

Exhibit 6-14 presents the district’s total energy expenditures (electricity, natural gas, and water and sewage) for the same four year period, 2012-2013 through 2015-2016. For the purposes of this analysis, using 2012-2013 as the base year energy rates declined modestly (about \$.03 for all energy categories) yet overall energy expenditures decreased by \$886,299 in 2013-2014 suggesting that strong conservation practices were in place. In 2014-2015, energy rates declined more significantly, but energy expenditures increased by approximately \$308,816, of which about \$174,813 was attributed to increased footprint resulting from the (partial year) addition of Arrendondo Elementary and the (partial year) addition of the new LCISD Natatorium. The district’s energy coordinator said that conservation practices were still good, but a higher number of schools had increased usage because for special events and outside organizations using the buildings. In 2015-2016, energy rates declined again, but the district’s overall energy expenditures increased once again by \$677,952, largely due to Arrendondo Elementary and the new LCISD Natatorium being included in the district’s footprint for the entire year coupled with increased special event and outside organization usage.

Exhibit 6-14
LCISD Summary Total Energy Expenditures by School Year
(September 1 – August 31) 2012-2013 through 2015-2016



Source: LCISD Maintenance & Operations Department, Energy Coordinator.

LCISD has an ongoing energy management program designed to improve energy efficiency by evaluating energy use and implementing new energy management policies and changes where necessary.

DETAILED OBSERVATIONS

Organization and Management

OBSERVATION 6-1

LCISD has insufficient internal management resources that are dedicated to its facilities planning functions to support the anticipated growth of the district.

LCISD's Operations Department has primary oversight for three functions: (1) Facilities Planning and Construction, (2) Maintenance & Operations, and (3) Transportation (discussed in Chapter 9). The district's Operations Department is a lead by the administrator of Operations who splits time overseeing all three functional areas. Additionally, the review team has recommended that the oversight of the district's Food Services Department be assigned to the executive director of Operations Department (newly proposed title) where the other district student support departments reside rather than being assigned to the chief financial officer (See Chapter 1 - District Organization and Management). Assigning the Food Services Department to Operations will bring all of the student support services under one department, but at the same time it will likely further stretch the district's internal facilities planning services.

As do many school districts (small and large) LCISD contracts with an external demographer to prepare its rolling 10-year projections. LCISD also contracts with program managers (one for the 2011 Bond program which is winding down and one for the 2014 Bond program) to provide technical expertise for facilities planning and to oversee its construction project management services for both new construction and renovation projects. The contract program managers assist with developing plans and project master schedules as well as provide assistance with cost estimates, constructability reviews, specification sections, and technical evaluations. Many school districts with ongoing school construction projects (particularly with enrollment under 50,000 students) use program managers to assist with this function. Additionally, the Region 4 Education Service Center contract assistant director of Maintenance & Operations provides some construction management support related to the district's maintenance activity. However, this position's involvement would be limited to in adding addition technical skills to the facilities planning process.

The district's executive director of Operations Department (newly proposed title) is the only internal senior staff member with in-depth institutional knowledge about LCISD school facilities. LCISD no facilities "second in command" internal staff member in place and no succession planning has been conducted for when the administrator of Operations retires. **Exhibit 6-15** shows that LCISD dedicates the least amount of internal resources to facilities planning compared to peers of similar size.

Exhibit 6-15
Peer School District Survey
Contract Management Organization

Survey Question	Lamar CISD	Clear Creek	Spring ISD
<i>Enrollment 2016-2017</i>	30,829	41,896	36,698
<i>Do you use a contract program manager or internal staff for facilities planning and to oversee construction projects?</i>	Yes	No. CCISD does not use an outside program manager. We use internal project managers and staff to oversee construction projects.	Yes
<i>Approximate Number of Internal FTE Staff Assigned to Facilities Planning & Constructions</i>	.75	6	2

Source: LCISD, Clear Creek ISD and Spring ISD Facilities Departments. Note * The review team estimated .75 FTE equivalent of the administrator of Operations is spent on facilities planning based on onsite interviews.

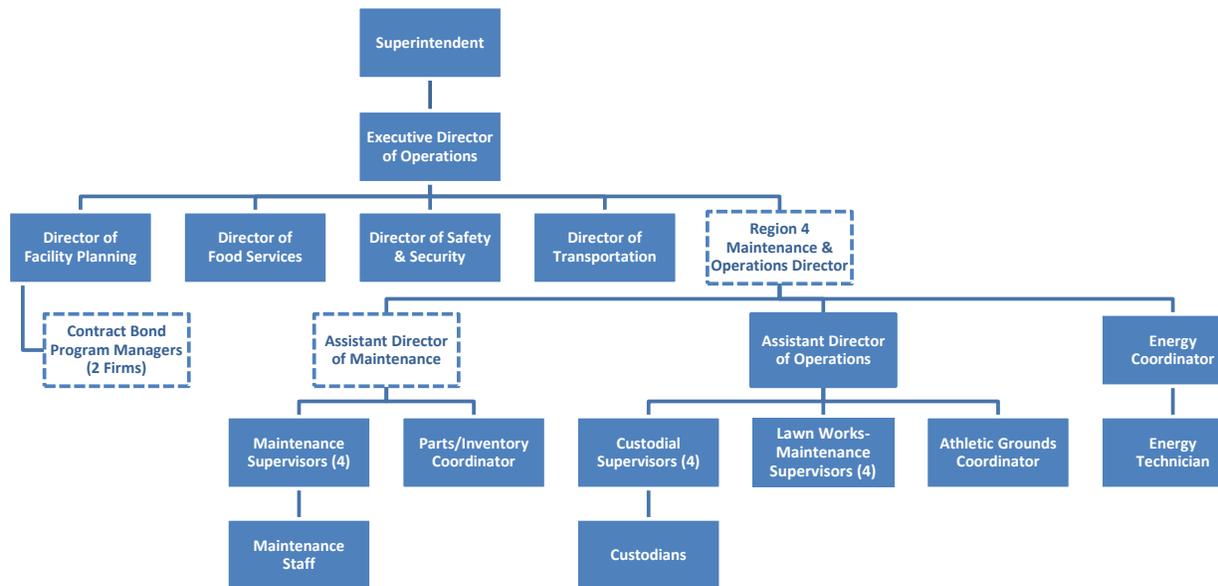
RECOMMENDATION 6-1

Add a director of facilities planning and assign the position to report to the newly created executive director of Operations within the Operations Department.

This proposed position will assist the newly created executive director of Operations with planning activities and overseeing the design of new facilities, major renovation projects, and building additions. The proposed position will direct design services contracts, conduct studies, perform facilities management functions, and oversee regular assessments of facilities.

Additionally, Food Service and Safety & Security will be moved to the Operations Department and the newly created executive director of Operations will oversee these functions. **Exhibit 6-16** shows the proposed organization chart and reporting structure for the position.

**Exhibit 6-16
LCISD Proposed Facilities Organizational Chart**



Source: McConnell & Jones' Review Team.

FISCAL IMPACT

The fiscal impact for the addition of this position is captured in Recommendation 1-8 that shows that LCISD's central office is understaffed. Approximately \$105,000 (excluding fringe benefits) was budgeted for this position.

ANTICIPATING TOMORROW

As the district grows over the next 10 years, LCISD will want to prepare an additional senior-level staff member to become knowledgeable of the district's facilities needs in regard to planning and managing the implementation of various campuses' physical and spatial environment. As this position evolves, the district will also want the individual to learn the unique culture and characteristics of the district's staff, students, parents, and community stakeholders.

Once LCISD reaches the status of 50,000 student enrollment, the district can conduct a staff knowledge assessment and cost-benefit analysis regarding internal facilities planning expertise and decide whether to continue to contract program management services with outside vendors as both LCISD and Spring ISD do now or perform the services internally as does Clear Creek ISD.

Facilities Planning

OBSERVATION 6-2

LCISD does not have an up-to-date long-range facilities master plan.

The district’s last long-range facilities master plan was developed in February 2002 and it mainly addressed the district’s short- and long range needs in a high-level manner through 2011.

A facilities master plan is critical to the overall success of a school district’s operations and it is particularly important that LCISD have a comprehensive long-range facilities planning process in place since the district has recently initiated bond programs on average every three years since 2011. A facilities master plan assesses needs and facility deficiencies (including capital budgets), and coordinates educational programs with the availability of physical space and resources. A facilities master plan document includes the development of measureable objectives and goals and the identification of current and future needs of the district and incorporates this information into one “live document”. Ultimately, a long-range facilities master plan establishes a formal, written vision and road map for future facilities plans into one comprehensive document.

In the absence of an updated facilities master plan, LCISD contracts with a professional demographer that updates the district’s demographic projections on an annual basis. The demographic projections, which appear highly accurate, are prepared on a rolling 10-year schedule and take into consideration: future housing projections, economic trends, ratios of students per household, student enrollment projections by school and grade level and maps of district schools based on attendance boundaries. This comprehensive demographic report was used in preparation of the 2011 and 2014 bond programs and most recently was provided in preparation for LCISD’s Bond 2017 planning process.

Exhibit 6-17 provides a summary of the major processes performed and deliverables that are typically found in a comprehensive long-range facilities master plan and the progress LCISD has made toward completing those components. The completion of all of the planning components will provide additional data points and better position the district to make more cost-effective decisions.

**Exhibit 6-17
Model Facilities Planning Process Deliverables and
Lamar CISD Planning Process Components**

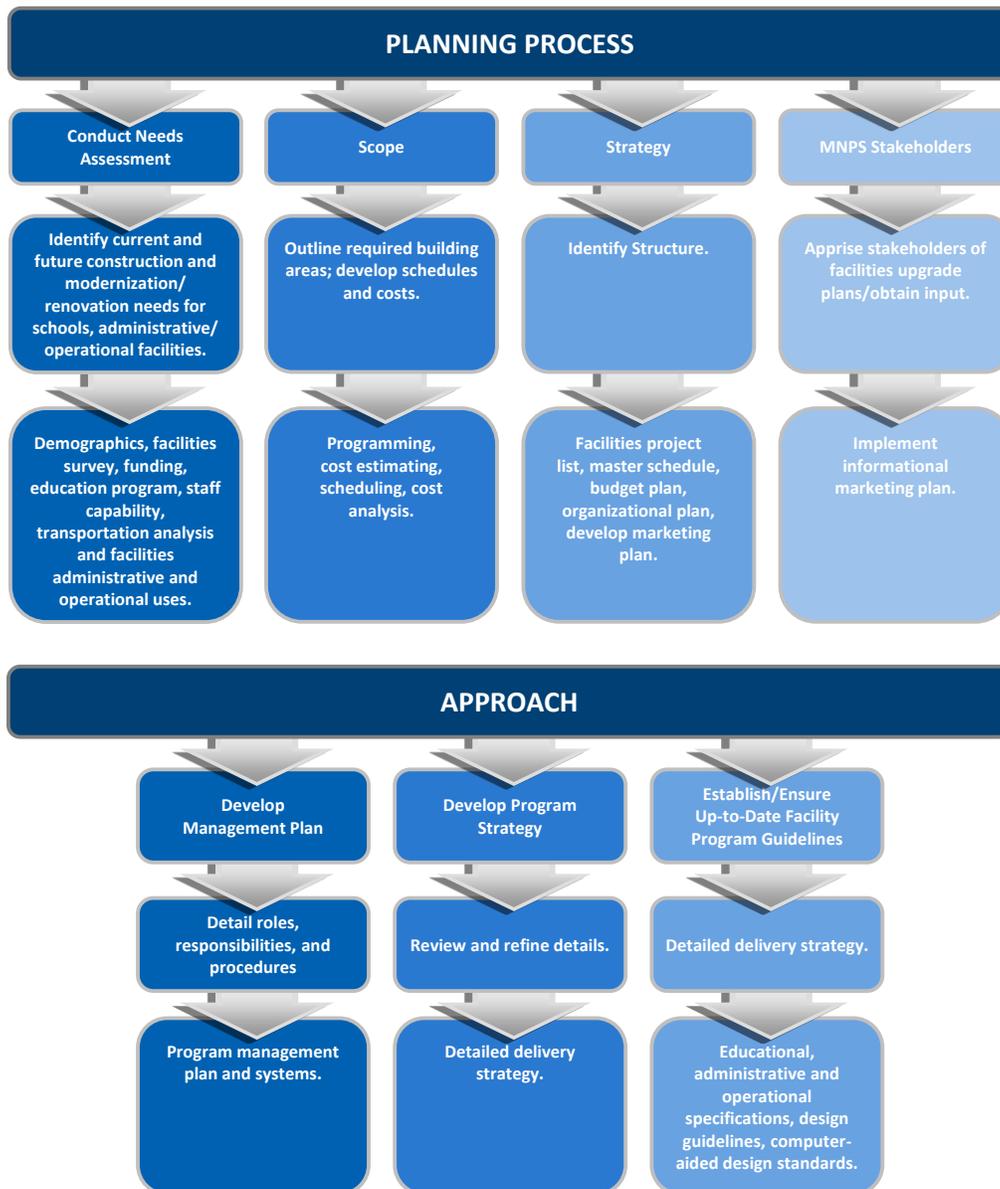
Deliverables	Components Included in LCISD Planning Process
<i>School and administrative facilities deficiencies and inefficiencies, including modernization, functionality, and spatial requirements at older schools and the school district’s administrative facilities.</i>	<i>This planning component has not been completed.</i> Comprehensive assessment that includes both current deficiencies and building system life cycles has been started, but not completed. Current life cycle investment for each campus based on identified needs has been started, but not completed.
<i>Functional equity, preservation, and upgrades to quality schools and administrative facilities.</i>	<i>This planning component is complete.</i> The district evaluates facilities and programs based on equity amongst their other schools by grade level. During the 2017 Bond planning process, requests for facility improvements were evaluated on the basis of creating/ensuring equity at all schools.
<i>Quality and worthiness of continued preservation of existing schools and administrative facilities (includes criteria for determining which facilities are obsolete and are too costly to upgrade).</i>	<i>This planning component has not been completed.</i> In the current planning process, no evidence that formal analysis has been completed that shows when schools will be slated for replacement instead of multiple, costly renovations. For example, Bond 2017 – Citizens Bond Advisory Committee Recommendations show \$10 million+ dollars designated for upgrades at Lamar Consolidated High School, the district’s flag ship school built in 1949. LCISD has six educational facilities that were built in prior to 1967, which means that these building are 50 years old or older.
<i>Optimal facility utilization within school clusters (secondary feeder patterns) and individual schools.</i>	<i>This planning component has not been completed.</i> Demographic projections show overcrowding and underutilization of individual schools and by school type, but not by secondary feeder pattern which is also important to optimizing enrollment and balancing school utilization.

Deliverables	Components Included in LCISD Planning Process
<i>Strategies to minimize portables for classroom and administrative use.</i>	<i>This planning component has not been completed.</i> LCISD has an excessive number of portables at some schools. Four LCISD schools have 10 portables or more. No evidence that formal analysis has been completed that shows cost comparison of designing schools so that wings can be expanded to add on additional classrooms vs. relocating portables, which tend to be more costly to operate over time.
<i>Standards and budgeting process to develop the scope of facility improvements.</i>	<i>This planning component has not been completed.</i> While not complete, this process is underway and began in 2016 as part of the Bond 2017 planning process.
<i>Lowering costs associated with small, functionally deficient schools.</i>	<i>This planning component has not been completed.</i> No evidence was available to show that the school district performs this type of analysis. Beasley Elementary built in 1985 is only 42,800 square feet. Small schools are typically more expensive to operate because of administrative staffing costs and older buildings are typically more expensive to operate because building design and energy management systems are not as efficient.
<i>Developing and evaluating design standards to lower construction cost and establish material specifications.</i>	<i>This planning component has been completed.</i> Vanir Rice & Gardner began developing design guidelines in 2016 for LCISD. Previously, PBK Architects and VLK Architects were the primary design firms for the district and had developed construction specifications per the district's preferred systems and products. Early drafts were reviewed with key Maintenance & Operations managers and Administrator of Operations and edits were made. Finalized guidelines were issued for use in March 2017.
<i>Strategies to maximize potential reductions in operation costs.</i>	<i>This planning component has been completed.</i> The design of new facilities at LCISD is evaluated by the district, program manager and architect throughout the design process to minimize district operating costs. Design review meetings with maintenance staff identify features to assist the district in maintaining and operating a proposed new facility. For example, access and number of custodial closets throughout the school are reviewed for the ability of a limited custodial staff to have close access to mops, supplies and equipment. Mowing strips are planned around a school building to allow the grass to be mowed with larger machines and minimize the need for weed edging. Mechanical and electrical equipment operating efficiencies were evaluated for the balance between first cost and life-cycle operating costs. The new 2015 IECC Energy Code now requires the use of higher efficiency mechanical equipment, which will save operating costs. The new code also limits electrical wattage per square foot which can be achieved by installing LED lighting throughout the building to save operating costs, as well as reduce the frequency of lamp changes.
<i>Identification of current and future needs of district facilities and education programs.</i>	<i>This planning component has been completed.</i> Design of new facilities at LCISD are evaluated by the district, program manager, and architect throughout the design process to minimize the district's operating cost.
<i>Development of measureable objectives and goals. Identification of current and future needs of district</i>	<i>This planning component has not been completed.</i> LCISD has not undertaken this exercise.
<i>Community input into the planning and decision-making process.</i>	<i>This planning component has been completed.</i> LCISD assembled a Citizens Bond Advisory Committee as part of its community engagement process for the Bond 2017 planning process. Similar community engagement committees have been assembled for all other bond planning activities.
<i>Criteria for optimum school sizes to reduce operating costs.</i>	<i>This planning component has been completed.</i> The LCISD board approved new school sizes in 2015 with the adoption of new prototype designs. Prior to the new designs school size specifications had not been evaluated or changed since 2003.
<i>Provide analyses of the long-term operating costs of equipment, maintenance, and energy compared to the quality of the facility.</i>	<i>This planning component has not been completed.</i> Sustainable design features that control cost are evaluated and analyzed during the design phase. For example, currently LCISD does not require Leadership in Energy and Environmental Design (LEED) Certification for its' new schools and major additions. According to district administration, new facilities are designed with LEED requirements, such as proper insulation, HVAC design, and sustainable building material in mind; however, the district does not require LEED certification thresholds to be met. No analysis was performed to show that the district's current energy management design will achieve comparable equipment and energy use cost control as compared to LEED.

Deliverables	Components Included in LCISD Planning Process
<i>Exploration of joint-use opportunities with public and private partnerships related to facilities.</i>	This planning component has not been completed. The district has not factored this process into its planning exercise.
Comprehensive facility plan document that summarizes many of the major planning processes and includes implementation strategies and timelines.	This planning component has not been completed. LCISD does not have a comprehensive master plan document that fully addresses all of the above components.

Source: McConnell & Jones LLP (based on data provided by LCISD).

A sample facilities planning process model is shown in **Exhibit 6-18**. This model is often used to assist school districts in developing a facilities master plan.



Source: The Texas Education Agency.

Exhibit 6-19 presents a model that is used to convert goals and objectives included in a comprehensive facilities master plan into measurable benchmarks.

**Exhibit 6-19
Master Plan Goals & Objectives Expressed as Measurable Benchmarks**

Area	Benchmark	Current Measure
<i>Facility Use</i>	Percent of utilization of permanent space – Cluster	%
	Percent utilization of permanent space – High	%
	Percent utilization of permanent space – Middle	%
	Percent utilization of permanent space – Elementary	%
	Percent Schools with utilization less than 85 percent – Cluster	%
	Amount/Percent Underutilized Space Converted to Useable Space	SFT / %
<i>Planning</i>	Portable space as a percentage of classroom space – Cluster	%
	Portable space as a percentage of classroom space – High	%
	Portable space as a percentage of classroom space – Middle	%
	Portable space as a percentage of classroom space – Elementary	%
	Gross Sq. Ft./Student – Cluster	SFT
	Gross Sq. Ft./Student – High	SFT
	Gross Sq. Ft./Student – Middle	SFT
	Gross Sq. Ft./Student – Elementary	SFT
	Deferred Maintenance Backlog – Cluster	\$
	Percent of Schools with Deficient Media Resource Centers & Cafeterias – Cluster (Elementary, Middle, and High School)	\$
<i>Accessibility & Safety</i>	Air Quality Levels	Readings
	Number and percent of Schools with Full Accessibility for Special Needs – Cluster (Elementary, Middle, and High Schools)	Number / %
<i>Delivery & Funding</i>	Design Services Costs as a Percentage of Construction Costs	%
	FF&E (including finance costs, if any) Costs/Student Served	\$
	Program Master Schedule/Duration	Months
	Program Investment Cost/Student	SFT
<i>Operations</i>	Facility Planning & Operations Cost/Sq. Ft.	\$
	Facility Planning & Operations Cost/Student	\$
	Energy Cost/Sq. Ft.	\$
	Custodial Operations Cost/Sq. Ft. (Outsourced)	\$
	Project Construction Costs/Student	\$
	Preventive Maintenance Program Budget	\$

Source: McConnell & Jones' Review Team.

RECOMMENDATION 6-2

Update all of the planning components necessary to complete a fully-integrated Facilities Master Plan.

The facilities master plan should integrate data already gathered by the district, as well as incorporate data (once available) from those components that have not been completed. The executive director of Operations (see District Organization and Management page 1-44), should lead this effort with support from the proposed director of Facilities Planning, the district's program manager (currently Vanir | Rice & Gardner) and the district's external demographer.

FISCAL IMPACT

LCISD's Facilities Master Plan can be updated through existing resources available to the district.

ANTICIPATING TOMORROW

As the district continues to grow over the next decade, it is imperative that the long-range facilities master plan be updated more regularly to address student enrollment patterns that result in both overcrowded and underutilized schools. More attention through the long-range facility master plan process will need to be focused on building deficiency and life cycle planning (e.g., when is the right time to discontinue making investments in older schools and replace them with a new facility that can accommodate more leading edge building layout, technology, etc.). More attention will need to be placed on attendance boundaries and optimizing enrollment within the district's five secondary tracks (feeder patterns). Consideration should be given to designing and locating new facilities so that they not only drive academic success, but also encourage enhanced business and civic partnerships from which students and building educators will benefit. The master plan is essential to enable the district to make an objective appraisal of the quality and capacity of existing and future school facilities and maintain a program of continuous comprehensive planning and financing of future school facilities.

School Utilization

OBSERVATION 6-3

LCISD does not maintain typical school utilization and inventory data to ensure student enrollment is balanced and optimized at each campus.

Overcrowding and underutilization of facilities is a challenge that many school districts face—particularly those in high-growth suburban areas, where ongoing economic development is impacting housing patterns and ultimately changing enrollment at individual campuses.

For purposes of this analysis, the review team analyzed existing school facility data such as building square footage, number of portables, enrollment trends, and utilization rates based on 2016-17 enrollment. From the analysis, the review team established sample use rate categories to assess the district's facility utilization effectiveness by secondary track and individual campuses. Definitions for the sample use rate categories include the following:

- Overcrowded – utilization rate of 111 percent or higher;
- Targeted utilization – utilization rate of 80 to 110 percent (ideal use rate 85 to 95 percent); and,
- Underutilization and candidate for co-location of programs – utilization rate of 55 to 79 percent.

The district's overall secondary track utilization rate ranges from 107 percent to 65 percent (which includes the fact that six schools are counted in multiple secondary tracks. LCISD developed plans to address future overcrowding in all secondary tracks, but not necessarily where schools are underutilized.

Additionally, LCISD has not developed consistent documented standards for determining ranges for effective school facility utilization by use category. This is important because overcrowded schools may negatively impact students' learning environments and underutilized schools are far more costly to operate on a per student basis.

As illustrated in **Exhibit 6-20**, the George Ranch secondary track has the highest utilization rate (using the review team's standards) in the district at 107 percent. Within the George Ranch secondary track, four schools are overcrowded; George Ranch High, Williams Elementary, Thomas Elementary, and Polly Ryon Middle have utilization rates at 127 percent, 125 percent, 115 percent, and 112 percent, respectively. All of the remaining schools in the George Ranch secondary track have a utilization rate in the targeted range of 80 percent to 110 percent with the exception of Dickenson Elementary, which is underutilized. Additionally, the George Ranch secondary track is operating with only 14 portables, the lowest number of portables within the 5 secondary tracks. However, Williams Elementary is operating at the highest attendance among all of the elementary schools and also using five portables. Portables can be used to provide additional classroom and administrative space; however, this analysis suggest the need to review and adjust attendance boundaries and zoning for this secondary track, particularly within the elementary schools.

**Exhibit 6-20
George Ranch Secondary Track and Utilization Rate**

Campus	Original Building Date	Gross Square Footage	No. Portables	Portables Sq. Ft.	Total Sq. Ft.	Enrollment	Capacity	Utilization
George Ranch Secondary Track								
George Ranch High	2010	321,395	0	0	321,395	2,543	2,000	127%
Williams Elementary	1985	84,925	5	6,144	91,069	937	750	125%
Thomas Elementary*	2009	89,020	4	6,144	95,164	864	750	115%
Polly Ryon Middle	2014	85,538	0	0	85,538	672	600	112%
Reading Jr. High	2010	182,877	0	0	182,877	1,265	1,200	105%
Arredondo Elementary*	2015	90,741	0	0	90,741	701	750	93%
Velasquez Elementary	2006	95,000	0	0	95,000	680	750	91%
Campbell Elementary	2000	92,210	5	3,840	96,050	603	720	84%
Dickinson Elementary	1993	86,050	0	0	86,050	547	750	73%
Total	12	1,127,756	14	16,128	1,143,884	8,812	8,270	107%

Source: LCISD Schools by Secondary Track List. * School is included in two or more tracks per LCISD.

Exhibit 6-21 shows the Terry High School secondary track has an overall utilization rate of 95 percent. Within this secondary track, only Thomas Elementary at a utilization rate of 115 percent, is considered overcrowded. The remaining elementary schools within the Terry secondary track are within the targeted utilization range of 80-110 percent. It is important to note that Terry High School secondary track uses 42 portable buildings; the highest number of portables used within any of Lamar CISD’s secondary tracks.

Overall, the Terry High School secondary track is the most balanced in terms of utilization among schools. The utilization within this secondary track here should serve as a model for LCISD’s other secondary tracks.

**Exhibit 6-21
Terry High School Secondary Track and Utilization Rate**

Campus	Original Building Date	Gross Square Footage	No. Portables	Portables Sq. Ft.	Total Sq. Ft.	Enrollment	Capacity	Utilization
Terry High School Secondary Track								
Thomas Elementary*	2009	89,020	4	6,144	95,164	864	750	115%
Bowie Elementary	1961	73,564	10	11,520	85,084	649	640	101%
Taylor Ray Elementary	1979	67,160	6	4,608	71,768	645	640	101%
Beasley Elementary*	1985	42,800	8	10,752	53,552	364	370	98%
Terry High	1980	281,629	0	0	281,629	1,956	2,050	95%
Meyer Elementary	1985	69,500	4	3,840	73,340	710	750	95%
Arredondo Elementary*	2015	90,741	0	0	90,741	701	750	93%
Travis Elementary	1949	77,666	10	9,216	86,882	589	680	87%
George Jr. High	1973	179,300	0	0	179,300	1,039	1,200	87%
Navarro Middle	1987	85,678	0	0	85,678	504	600	84%
Total	35	1,057,058	42	46,080	1,103,138	8,021	8,430	95%

Source: LCISD Schools by Secondary Track List. * School is included in two or more tracks per LCISD.

Note: The district reported that number of portables at Terry High had increased to five (10 classrooms) as of September 2017.

Exhibit 6-22 details the Foster secondary track and shows an overall utilization of 90 percent. Of the nine schools within the Foster secondary track, only McNeill Elementary is operating at over utilization with a rate of 112 percent. Three campuses are operating in the targeted range of 80-110 percent; Hubenak Elementary at 105 percent, Foster High School at 103 percent, and Adolphus Elementary at 96 percent. The remaining five schools within this secondary track are operating below targeted range and are considered underutilized – utilization rate

of 70 to 79 percent. These campuses are strong candidates for co-location of programs and should also be considered in any future boundary or zoning changes.

Exhibit 6-22
Foster Secondary Track Summary and Utilization Rate

Campus	Original Building Date	Gross Square Footage	No. Portables	Portables Sq. Ft.	Total Sq. Ft.	Enrollment	Capacity	Utilization
Foster Secondary Track								
McNeill Elementary	2008	91,321	3	3,840	95,161	843	750	112%
Hubenak Elementary*	2009	89,020	21	28,416	117,436	788	750	105%
Foster High	2001	361,330	0	0	361,330	2,068	2,000	103%
Adolphus Elementary	2014	91,900	0	0	91,900	723	750	96%
Bentley Elementary*	2017	91,693	0	0	91,693	595	750	79%
Jackson Elementary*	1947	65,860	0	0	65,860	396	520	76%
Wertheimer Middle	2008	86,045	0	0	86,045	456	600	76%
Briscoe Jr. High	2001	193,298	0	0	193,298	899	1,200	75%
Frost Elementary	2000	92,210	0	0	92,210	501	720	70%
Total	16	1,162,677	24	3,2256	1,194,933	7,269	8,040	90%

Source: LCISD Schools by Secondary Track List. * School is included in two or more tracks per LCISD.

Exhibit 6-23 shows the Lamar Consolidated secondary track with an 81 percent utilization rate overall. In the Lamar Consolidated secondary track, seven out of 11 schools are in the targeted utilization rate of 80-110 percent. In contrast, Jackson Elementary, Lamar Jr. High, Smith Elementary, and Wessendorff Middle Schools all operate at a utilization rate below 79 percent; and are candidates for co-location of programs or attendance boundaries and zoning changes.

Exhibit 6-23
Lamar Consolidated Secondary Track and Utilization Rate

Campus	Original Building Date	Gross Square Footage	No. Portables	Portables Sq. Ft.	Total Sq. Ft.	Enrollment	Capacity	Utilization
Lamar Consolidated Secondary Track								
Beasley Elementary*	1985	42,800	8	10,752	53,552	364	370	98%
Arredondo Elementary*	2015	90,741	0	0	90,741	701	750	93%
Hutchison Elementary	2005	95,000	0	0	95,000	681	750	91%
Austin Elementary	1990	64,860	0	0	64,860	613	720	85%
Pink Elementary	1997	92,210	0	0	92,210	602	720	84%
Jane Long Elementary	1949	80,176	0	0	80,176	621	750	83%
Lamar High	1949	292,702	0	0	292,702	1,608	2,000	80%
Jackson Elementary*	1947	65,860	0	0	65,860	396	520	76%
Lamar Jr. High	1957	176,590	0	0	176,590	880	1,200	73%
Smith Elementary	1966	80,965	5	4,608	85,573	436	600	73%
Wessendorff Middle	1997	85,803	0	0	85,803	395	600	66%
Total	39	1,167,707	13	15,360	1,183,067	7,297	8,980	81%

Source: LCISD Schools by Secondary Track List. * School is included in two or more tracks per LCISD.

As shown in **Exhibit 6-24**, Fulshear secondary track has an overall utilization rate of 65 percent, the lowest of all secondary tracks in the district. Fulshear High School opened in 2016 and school enrollment for that campus has not fully populated. In contrast, within this same secondary track, Huggins Elementary currently operates with a utilization rate of 142 percent and is considered significantly overcrowded based on the review team’s utilization categories. Hubenak Elementary is operating at 105 percent which is within the target utilization range, but is

utilizing 21 portables and approaching overcrowding. Bentley Elementary is operating at 79 percent – just outside the targeted utilization range of 80 to 110 percent. Utilization rates for the elementary schools in this secondary track vary widely suggesting the need to review attendance boundaries and zoning changes. Additionally, it is important to note that the Fulshear secondary track operates with the second highest number of portables at 33— which are used for classroom and administrative use, accentuating the overcrowded conditions at some of its schools. Reviewing elementary school attendance boundaries and zoning changes may provide some opportunities to eliminate the high number of portables in this secondary track. Leaman Jr. High/Middle School which is a new school and has not reached its full capacity.

Exhibit 6-24
Fulshear Secondary Track and Utilization Rate

Campus	Original Building Date	Gross Square Footage	No. Portables	Portables Sq. Ft.	Total Sq. Ft.	Enrollment	Capacity	Utilization
Fulshear Secondary Track								
Huggins Elementary	1979	58,200	12	16,128	74,328	926	650	142%
Hubenak Elementary*	2009	89,020	21	28,416	117,436	788	750	105%
Bentley Elementary*	2017	91,693	0	0	91,693	595	750	79%
Leaman Jr. High/Middle School**	2016	193,919	0	0	193,919	754	1,200	63%
Fulshear High	2016	334,982	0	0	334,982	398	2,000	20%
Total	10	767,814	33	44,544	812,358	3,461	5,350	65%

Source: LCISD Schools by Secondary Track List. * School is included in two or more tracks per LCISD.

Note: The district reported that number of portables at Hubenak Elementary had reduced to 10 as of September 2017.

RECOMMENDATION 6-3

Optimize school facility utilization in all secondary tracks to better balance enrollment.

LCISD should develop a rolling three-year plan that is designed to optimize facility use. The plan should focus on opportunities for preventing overcrowded and remediating underutilized schools by redrawing both secondary tracks and school zone boundaries. Identification and delivery of the most attractive instructional programs in the most cost-effective manner possible should also be a key component of the plan. This process should become a key component of the district’s long-range facilities master plan.

To accomplish this goal, LCISD will need to perform the following activities:

- Develop and implement a transparent, proactive community engagement process.
 - communicate changes in student enrollment trends to parents and stakeholders so that they are aware of the impact of overcrowding and underutilization of schools on an ongoing basis.
 - identify parent and stakeholder preferences and involve them in the decision-making process as to which schools may be impacted when changes are made.
- Analyze utilization data and redraw some secondary tracks and school zone boundaries in order to develop strategies to balance enrollment and alleviate underutilized and overcrowded schools.
 - explore consolidating secondary track boundaries and rezoning students in cases where the elementary schools are underutilized in the same cluster (e.g., Lamar and Foster secondary tracks).
- Explore opportunities to expand permanent classroom space at overcrowded schools in the George Ranch, Fulshear, and Terry secondary tracks.
- Explore the feasibility of renovating and expanding permanent classroom wings in overcrowded schools and reduce reliance on portables. Portables are often more expensive to operate and maintain than permanent structures, on a square footage basis.

- Compile and maintain comparative operational and administrative data related to overcrowded and underutilized schools to better inform the decision-making process. In addition to utilization data, LCISD should consider collecting cost data related to school utilization as well. For example, administrative, operational, and utility costs are proportionately higher for smaller and underutilized schools, when compared to schools that are functioning at full capacity or higher.

FISCAL IMPACT

This recommendation can be implemented with existing resources.

Anticipating Tomorrow

As the district expands over the next decade, the review team noted that significant focus tended to be placed on demographic projections/utilization data as it related to overcrowded schools. The district should continue to use demographic projections/utilization data to inform the placement of new schools or programs in both over-crowded and underutilized buildings. However, school utilization data is not only about the capacity of a school building and the number of students that are assigned, this type of data is important to other operational decisions such as if a school is underutilized and an entire wing could be shut down, could potentially a custodian and food service staff member be assigned elsewhere to save costs.

Maintenance Management

OBSERVATION 6-4

Lamar CISD outsources the key Maintenance & Operations Department management roles, which are comprised of the director and assistant director positions to Region 4 – ESC and no formal evaluation has been performed to determine if outsourcing these roles is still the most operationally effective arrangement for the district.

Exhibit 6-25 presents the major responsibilities for the each of the key outsourced positions.

**Exhibit 6-25
Education Service Center – Region 4
Maintenance Management Outsource Model Roles and Responsibilities**

Director of Maintenance & Operations	Assistant Director of Operations
<ul style="list-style-type: none"> • Provide direction and leadership to the overall daily operations and management functions of LCISD's M&O department as per LCISO's stated and approved "Policies and Procedures". • Provide continuous Energy Management Program oversight and assist with the implementation and continued improvement of the LCISO's Energy Administrative Regulation. • Assist in the annual budget preparation of the department. • Provide weekly and monthly department status reports as requested by LCISD. • Monitor the Maintenance & Operations staff development and employee training program conducive to the districts M&O functions. • Personnel Management: <ul style="list-style-type: none"> – Provide a written reprimand for those actions requiring disciplinary action – Approve of time sheets and absence 	<ul style="list-style-type: none"> • Perform coordination functions as directed by the Director of Maintenance & Operations. • Create, submit, track, and document completion/non-completion of all construction and renovation Warranty Adjustments for the district. • Assist with reviewing and prioritizing daily work requests as needed. • Provide professional maintenance, operations, and design/construction sustainability commissioning consulting support as needed and requested and provide assistance, when requested by LCISD's Administrator of Operations, to the District's current and future "Capital Improvement Bond Construction Programs" and coordinate/facilitate all design phase plan reviews with district M&O trade specialist representing the district's M&O interest. • Work with the purchasing department to produce quality Requests for Proposals (RFP) that will provide quality service, materials, and supplies needed by the maintenance and operations department. • Internal Construction Management. • Assist in the review of construction documents and plans for new construction and renovation projects and provide feedback and recommendations from a maintenance and operations viewpoint. • Attend construction/renovation design and review meetings as a

Director of Maintenance & Operations	Assistant Director of Operations
from duty requests <ul style="list-style-type: none"> – Conduct annual employee evaluations – Continue to evaluate all current job descriptions, classifications, duties, work schedules, and assign and reassign employees as necessary 	liaison for the Maintenance and Operations Department. <ul style="list-style-type: none"> • Assist in coordinating the owner training required to be provided by the general contractor for maintenance and operations functions at the end of each project. Provide contract administration for the contracts held by the maintenance and operations department. • Provide environmental training in the areas of asbestos and hazardous communications as needed.

Source: Region 4 - Education Service Center Interlocal Agreement.

The maintenance management outsource agreement covers a two-year period with the most recent agreement being executed in September 2016. The total contract value of the current agreement is \$215,004 per year, which includes salary and fringe benefits for the two positions. The current contract value is likely about the same cost that LCISD would have to pay if the services were performed internally.

The review team used the district’s most recent annual Climate Survey results to determine broad perceptions of how parents, school staff, and students view overall maintenance and custodial operations in schools. While students tended to rate services lower, in all categories at a percentage rate of 89 or higher parents and school staff were satisfied or very satisfied with the cleanliness of schools and the maintenance of school buildings.

Exhibit 6-26 provides a summary of opinions regarding school maintenance from LCISD’s Climate Survey.

Exhibit 6-26
LCISD Climate Survey Results – Maintenance & Operations

Question: <i>My school is kept clean.</i>		Percentage Responses		
Survey Group	TOTAL	Strongly Agree or Agree	Disagree or Strongly Disagree	Do Not Know
Parents	5,820	89%	8%	3%
Students	10,957	68%	24%	8%
School Staff	2,154	93%	7%	1%
Question: <i>This school is well-maintained, with working air conditioning and heat, adequate lighting and well-kept grounds.</i>		Percentage Responses		
Survey Group	TOTAL	Strongly Agree or Agree	Disagree or Strongly Disagree	Do Not Know
Parents	5,825	90%	8%	3%
Students	10,965	79%	15%	7%
School Staff	2,152	92%	8%	0%

Source: LCISD Climate Survey conducted by K12 Insights, December 2016.
Note: Total percentages may be 1% more or less than 100% due to rounding.

As shown in **Exhibit 6-27**, LCISD is the only district among its peers (Clear Creek ISD and Spring ISD) that outsources maintenance management functions. Clear Creek ISD outsources landscape services for schools and large field areas and Spring ISD outsources preventive and other maintenance services that internal maintenance staff do not necessarily have the time or skill to perform.

Exhibit 6-27
LCISD and Peer Schools Outsourcing

Survey Question	Lamar CISD	Clear Creek ISD	Spring ISD
<i>Enrollment – 2016-2017</i>	30,829	41,896	36,698
<i>Are any facilities/maintenance and</i>	Yes	The only outsourced	Yes (See below)

Survey Question	Lamar CISD	Clear Creek ISD	Spring ISD
<i>operations functions outsourced?</i>		operations are landscape contractors for schools and large open areas	
<i>If so, which functions?</i>	Maintenance Supervision: Director and Assistant Director of Maintenance & Operations	CCISD uses internal landscape crews to manage all athletic fields. CCISD has used outsourced contract services for schools and large open fields for many years	<p>Third Party Outsourced Functions:</p> <ul style="list-style-type: none"> • Fire alarm inspections • Fire suppressions systems inspections in kitchens • Fire sprinkler system inspections • Fire extinguisher inspections • Boiler inspections • Elevator repairs and inspections • Retention pond inspections <p>Other Outsourced Functions:</p> <ul style="list-style-type: none"> • Landscaping • Swimming pool chemical treatment • Swimming pool maintenance • Aerobic wastewater systems service • Cooling tower and closed loop water treatment • Waste water removal • Well water service • Forestry mulching • Plumbing projects • Energy management – hardware and software <p>Other Outsourced Functions as Needed:</p> <ul style="list-style-type: none"> • Parking lot striping • Playground safe fall material • Stadium lights repair • Large tree removal • Major fencing projects • Major glass and mirror replacement • Major carpentry • Major painting projects

Source: Region 4 - Education Service Center Interlocal Agreement.

Typical advantages of outsourcing facilities/maintenance operations services include:

- Improve Quality of Service
 - Expanded services without hiring
 - Allows in-house management to make better use of time/expertise
 - Greater access to skilled personnel
 - Peak demand flexibility
 - Higher productivity
 - Access to new technologies
 - Strength of competitive market
- Save Money
 - Reduce cost (anticipated reduction of overhead, salaries and benefits, administrative and accounting costs, etc.)
 - Reduce capital investment (equipment, supplies)

The disadvantage of outsourcing facilities/maintenance operations services include:

- Reasons Not to Outsource
 - Concern about cost increases
 - Possibility of service level declines
 - Possibility of having to bring functions back in-house after disposing of equipment and institutional knowledge
 - Stable workforce
 - Loyalty and dedication to employees
 - Flexibility to use employees for other work activities

RECOMMENDATION 6-4

Conduct service level and cost-benefit analysis for outsourcing key Maintenance & Operations management positions and other maintenance-related services at least every two years to identify the most operationally effective arrangements for the district.

Best practices for facilities management suggest that school district administrators should consider opportunities for contracted (outsourced) services, weighing the potential advantages and disadvantages of using internal (in-house) resources against alternative service delivery methods. In some instances outsourcing may be more cost-effective and allow the district to reduce, reassign, or make better use of in-house staff.

While the quality of Region 4 ESC services performed are satisfactory and the cost appear reasonable, LCISD has the capability of identifying comparable staff and performing these roles internally (permanent staff members would have to be hired). LCISD management will need to ask itself three questions:

1. Why are the positions outsourced?
2. What are the main advantages of continuing to outsource the key maintenance management positions?
3. What would be the advantage of hiring two quality staff members that are direct employees of the district?

In addition to evaluating the maintenance management outsourced positions, the district should also evaluate outsourcing opportunities for those functions that Clear Creek ISD and Spring ISD procure as a means of lowering cost and improving service levels, where possible (See **Exhibit 6-28**).

In order to keep facilities and maintenance operations cost as low as possible, Request for Proposals (RFPs) will have to be developed and formally evaluated. These evaluations should be in writing and available to the school board and the public for review.

If a service is contracted or outsourced, periodic written follow-up analyses should be made to confirm the effectiveness of the service and to verify that any anticipated cost savings were actually experienced. Criteria that may support outsourcing services include opportunities to save money and management time, the opportunity to add specialized skills or training not available in-house, difficulty in hiring qualified employees, and the opportunity to improve the overall quality of the maintenance and operations function.

FISCAL IMPACT

This recommendation can be implemented with existing resources.

ANTICIPATING TOMORROW

As the district continues to grow, and if no internal employees are groomed to advance in the Maintenance & Operations Department, this could present another succession planning issue for facilities and maintenance-related functions. This could result in LCISD not developing the internal talent that may be needed when the district reaches 40,000 and 50,000 students, respectively.

OBSERVATION 6-5

A deferred maintenance plan has not been developed for the district.

While LCISD does not have a formal deferred maintenance plan, as part of the initial planning process for the proposed 2017 Bond, LCISD has begun to identify current needs to be considered for facility improvements. Over 300 items have been identified and documented on a spreadsheet and a process for prioritizing these items to be considered for funding was initiated in early 2017. Some items were carried forward for bond planning, while others were identified for general fund expenditures.

**Exhibit 6-28
Deferred Maintenance Rating Scale**

ACTION	FREQUENCY (YEARS)
Replace chiller, water cooled, 5 ton	20
Replace multi-zone rooftop unit, 25 ton	15
Total roof replacement	20
Replace carpet	8
Replace acoustic tile ceiling, fire-rated	15
Replace 3-foot-by-4-foot aluminum windows, first floor	30
Replace lavatory	20

Source: SchoolConstructionNews.com – “Deferred School Maintenance: Pay Now or Pay More Later”, August 2016.

**Exhibit 6-29
LCISD Deferred Maintenance Summary**

SCHOOL	YEAR BUILT	CATEGORY	DETAIL	PRELIMINARY COST	PRIORITY RATING
Austin	1990	Kitchen	Replace walk-in cooler and freezer	\$ 27,039	1.1
Austin	1990	Roof	Conventional built up roof	1,500,000	1.3
Beasley	1985	Floors	Investigate and repair floors in the gym and restrooms	–	1.1
Bowie	1961	HVAC	Address any HVAC issues	–	1.1
Campbell	2010	Carpet	Replace carpet	225,000	1.8
George	2010	Carpet	Replace	375,000	1.6
Lamar	1949	HVAC	Renovate HVAC system to remove unit ventilators from the classrooms	–	1.4
Navarro	1987	Roof	Conventional built up roof	1,500,000	1.3
Williams	1985	Roof	Conventional built up roof	1,500,000	1.4

Source: Lamar Consolidated Independent School District, 2017 Bond Referendum Project List.

A deferred maintenance plan systematically accounts for and addresses all possible major maintenance requirements for the next several years, rather than reacting to problems as they arise. Deferred maintenance is maintenance that was not performed when it should have been or was scheduled to be, and was delayed to a future period. Such situations generally arise because of shortages of funds, personnel, or specific management practices. Some educational institutions require inspection programs and systems to identify and track deferred maintenance and capital renewal needs. The purpose of a facility audit and inspection program is to identify, quantify (provide budget estimates), and prioritize deferred maintenance projects and capital renewal and replacement projects, according to the urgency of need and significance to the institution's mission.

Some school districts develop deferred maintenance using a living maintenance backlog and tracking system. Other school districts maintain a 10-year maintenance plan including deferred maintenance which is partially

based on repeat work orders. Outlined below is a process that LCISD can follow to document deferred maintenance needs and budget.

1. Facility Audit and Inspection

Maintenance departments physically inspect facilities to identify deferred maintenance and capital renewal needs and/or projects.

2. Prioritization

Identified projects are prioritized based on the following criteria:

Priority 1: Currently Critical. These are needs and/or projects which significantly impact the mission of the institution and require immediate action to return a facility to normal operation, stop accelerated deterioration, or correct a cited safety hazard—especially those conditions that potentially impact an entire campus, or pose a significant risk to health and safety. Examples of such conditions would include the following:

- *campus impact: A Campus-wide chilled water system is in imminent danger of failing. Failure would make all buildings non-functional, essentially negatively impacting the entire campus.*
- *health and safety Impact: Previously undiscovered dry rot has compromised structural beams. The building cannot be safely occupied without immediate repair.*

Priority 2: Potentially Critical. These are needs and/or projects that will become critical within a year if not corrected expeditiously. Situations in this category include intermittent interruptions, rapid deterioration, and potential safety hazards. The significance of these conditions to the mission of the institution should be a factor.

Priority 3: Necessary, Not Yet Critical. These are needs and/or projects that include conditions requiring reasonably prompt attention to preclude predictable deterioration or potential downtime, and the associated damage or higher costs, if deferred further. Conditions not significantly impacting the mission of the institution should be placed in this category.

3. Further Project Categorization

Upon completing the two-step Facility Audit and Inspection Program procedure, categorize projects as deferred maintenance or capital renewal and replacement.

4. Deferred Maintenance Projects

As a general rule, the scope of deferred maintenance projects should be limited to a specific work item, or set of integrally-related work items, in a:

1. single building or group of buildings.
2. clearly identifiable component of a grounds area.
3. utilities system.

The project should be accomplished under a single contract or work order.

For administrative simplification, no deferred maintenance project should be smaller than \$5,000. Projects under \$5,000 should be funded from regular maintenance funds. For planning, budgeting, and implementing purposes, similar work items of small value may be aggregated to make a reasonably-sized project, if the items are of equal priority and if they are intended to be accomplished within the fiscal year. Major work items, however, in individual buildings—separately identifiable grounds areas, or utilities systems—are considered separate projects and are not to be aggregated.

RECOMMENDATION 6-5

Develop and maintain a formal deferred maintenance plan.

The Maintenance & Operations Department should inspect, track, prioritize, and estimate the cost of deferred maintenance projects annually. As funding becomes available, the district’s chief financial officer should issue instructions for submitting a prioritized list of deferred maintenance projects for completion in a given year.

FISCAL IMPACT

Development of the deferred maintenance plan can be done with existing resources.

ANTICIPATING TOMORROW

As the district expands over the next decade, a deferred maintenance plan that projects maintenance needs at least 10 years out will need to be developed. As a fast-growth district, LCISD will need to look further down the road regarding deferred maintenance needs rather than planning from one bond program to the next. Determining infrastructure needs in existing buildings tends to be more challenging, particularly in recently-built buildings where systems are still relatively new. The deferred maintenance plan should include an operating fund balance to pay for high cost maintenance surprises in instances of unexpected equipment breakdowns.

OBSERVATION 6-6

The Maintenance & Operations Department is not fully using its computerized work order management system to produce management reports that show the true productivity of the department.

LCISD uses SchoolDude Maintenance Direct software as its computerized work order management system. The SchoolDude software allows the department to manage the maintenance work order process for schools and administrative facilities from “request through completion.” According to a description of the features and functionality outlined on SchoolDude’s website, the system features include the following:

- allows administrators in schools and administrative facilities to submit work requests from their respective sites;
- routes, prioritizes, and ranks work order requests in real time by project, location, budget, and available inventory;
- enables maintenance staff to receive requests in the field, via mobile device, and notifies end-users about the status of their requests; and
- tracks all work orders submitted, and generates customizable reports to calculate budget and staffing needs.

A review of the district’s work orders for a six month period showed the following:

There were 32 completed emergency work orders during the six-month period from October 2016 through March 2017. The average completion time was 0.53 days, which is good and demonstrates that emergency work orders are addressed timely. However, this statistic seems exceptionally low for a six-month period for a district the size of LCISD, indicating that all work orders may not be categorized properly. **Exhibit 6-30** shows the number of emergency work orders completed and the average timeframe for completion.

Exhibit 6-30
Summary of Completion Days for Emergency Work Orders
October 2016 through March 2017

Work Order Priority	Number of Work Orders	Average Days for Completion
Total Emergency Priority	32	0.53

Source: LCISD’s SchoolDude System Report.

There were 320 completed high priority work orders during the six-month period from October 2016 through March 2017. The average completion period for 267 or 83 percent of the work orders was about three days.

Exhibit 6-31
Summary of Completion Days for High Priority Work Orders
October 2016 through March 2017

Work Order Priority	Number of Work Orders	Average Days for Completion
High	267	2.99
High	18	22.80
High	14	39.28
High	21	98.19
Total High Priority	320	11.94

Source: LCISD's SchoolDude System Report.

There were 183 open work orders between October 2016 and March 2017 and the average number of open days until completion was just over 68 days. This statistic seems exceptionally high.

Exhibit 6-32
Summary of Open Work Orders Submitted Since October 2016
As of March 31, 2017

Work Order Status	Number of Work Orders	% of Total	Average Days Open
New request & Work in Progress	26	14%	5.37
New request & Work in Progress	14	8%	23.12
New request & Work in Progress	51	28%	44.42
New request & Work in Progress	92	50%	106.35
Total	183	100%	68.38

Source: LCISD's SchoolDude System Report New Request and Work in progress. Note: The SchoolDude System Report includes 112 work orders over 6 months old since April 2013. Those work orders are excluded from this analysis as it is unknown if these are valid open work orders. LCISD provided the link to SchoolDude instead of the actual work order reports.

The following is a sample excerpt from the Maintenance & Operations Department report from the month of August 2016 that is provided as part of the Board Agenda each month that summarizes departmental actions that have taken place since the last regular board meeting.

Work Request Summary for August, 2016:

- The Department completed a total 1,579 work order requests

Maintenance:

- Repairing a drinking fountain at Campbell Elementary
- Repairing a sink faucet in the kitchen at Briscoe Jr. High
- Restoring the electrical power to the computers in a portable building at Beasley Elementary
- Repairing a panic bar on the door in the field house at Foster High
- Removing a broken key from a door and replacing the key at Foster High

Custodial, Integrated Pest Control and Lawn Works:

- Setting up chairs in the cafeteria and gym for orientation at Hubenak Elementary

- Cleaning the bleachers, locker rooms, press box and restrooms before and after the football games at Traylor Stadium
- Relocating furniture from the school to the portable buildings at Pink Elementary, Smith Elementary, and Lamar Jr. High
- Cleaning after the tournament held at Foster High

Energy Management:

- Continuing with the installation of the JCI controls upgrade
- Reviewing and approving events for the school year
- Providing portable coolers to assist the rooftop units at Navarro Middle
- Continuing to track cost and usage of utilities district wide
- Meeting with Siemens to review our current HVAC control system

SchoolDude has a variety of standard and customizable management reports that that are not being used (with the exception of Energy Management) that will allow the Maintenance & Operations Department to improve the overall productivity of the department. **Exhibit 6-33** presents a sample of the top standard and customizable reports included in SchoolDude’s Maintenance Direct work order management system.

Exhibit 6-33
Sample Work Order Management Reports in SchoolDude Maintenance Direct

Report Description	Functionality
<p>Work Order Summary:</p> <ul style="list-style-type: none"> • Report includes the work order status, the current “assigned to”, requester, day’s aged, total costs, and more. • It can be grouped by location, craft, purpose, and “assigned to,” and provide a total for each group as well as a grand total. 	<ul style="list-style-type: none"> • High level all-encompassing summary report. • Shows date work order created, target completion date, actual completion date, days aged, labor hours, and costs. • Helps maintenance managers keep abreast of what is going on in the organization.
<p>Location Summary:</p> <ul style="list-style-type: none"> • Report provides a roll-up for each location, including total labor hours and labor costs, material costs, total cost by facility. 	<ul style="list-style-type: none"> • Breakdown of how resources were allocated to each location. • Tracks labor hours and costs, materials costs, sales tax, total costs, cost per student, and cost per square foot by location.
<p>Craft Summary:</p> <ul style="list-style-type: none"> • Report includes the number of hours dedicated to each craft, the number of work orders per craft, and the cost for labor and materials. • Includes total percentage of work each craft accounts for. 	<ul style="list-style-type: none"> • Breakdown of where resources were spent in relation to the “type” of work being done. • Tracks labor hours and costs, materials costs, sales tax, the number of work orders closed and in progress, average hours per work order, and average cost per work order by craft and location.
<p>Purpose Summary:</p> <ul style="list-style-type: none"> • Report breaks down the number of work orders dedicated to each purpose code— such as preventive maintenance, reactive maintenance, tornado damage, capital request, etc. • Includes total labor hours, labor and material costs, average hours, and average cost per work order. 	<ul style="list-style-type: none"> • Tracks and reports how resources were allocated based on the reason “why” requests were entered into the system.
<p>Detail Employee Cost Report:</p> <ul style="list-style-type: none"> • Report provides a breakdown of each employee and the total number of hours they have tracked for a given reporting period. • Includes the average number of hours each employee 	<ul style="list-style-type: none"> • Tracks and manages the work load of each maintenance employee. • Can generate report for a single employee, a team of employees, or all employees.

Report Description	Functionality
enters per work order, the average number of days it takes them to complete a work order, and the total number of work orders they worked on during the time period selected.	
<p>Transaction Detail (To Excel):</p> <ul style="list-style-type: none"> • Reports transaction type, description, quantity, cost, etc., as well as the work order description, location, craft, purpose code, etc. 	<ul style="list-style-type: none"> • Can open report with Excel to create meaningful and powerful charts and tables to illustrate employee’s workload, total costs allocated to various vendors and suppliers, etc.
<p>Budget Report:</p> <ul style="list-style-type: none"> • Report shows year-to-date costs from all work orders marked with a specific budget code, beginning budget amount, percent of budget spent, and remaining fiscal year amounts. 	<ul style="list-style-type: none"> • Tracks budget status by budget code.
<p>Emergency Work Order Report:</p> <ul style="list-style-type: none"> • Report shows work order description, location, labor hours, labor cost, inventory cost, and total cost. 	<ul style="list-style-type: none"> • Tracks and manages emergency work orders.

Source: Description SchoolDude Management Reports, July 2017.

RECOMMENDATION 6-6

Train staff to use the full reporting and analytical capabilities of the SchoolDude work order software in order to determine department productivity levels and make improvements where necessary and generate and provide monthly management reports that better summarize activity and production levels.

Once the training has been completed, the Maintenance & Operations Department should establish performance standards to define and document the time required to complete various maintenance activities, expected levels of responsiveness, expected quality levels, and the cost-effectiveness of completing specific maintenance jobs.

Sample performance standards that the Maintenance & Operations Department might want to consider include the following:

Maintenance:

- Total work orders generated (e.g., including a breakdown of emergency, regular - priority assignments, preventive maintenance, backlog, etc.)
- Overall maintenance cost per student
- Average number of maintenance FTEs per trade/discipline (e.g., painters, carpenters, general services/general maintenance, HVAC, electricians, plumbers) per sq. ft. of buildings maintained
- Average maintenance cost per labor hour by trade/discipline
- Average cost per job by trade/discipline
- Average number of days to complete emergency work orders by trade/discipline
- Average number of days to complete regular/routine/preventive maintenance work orders by trade/discipline
- Average number of days between preventive maintenance function
- Service satisfaction level for maintenance performed
- Number of training days or hours for each staff member
- Total overtime time spent on jobs (if applicable)

Custodial:

- Overall custodial cost per student
- Custodial cost as a percentage of general fund expenditures
- Service satisfaction level for maintenance performed

Grounds (Athletic Fields):

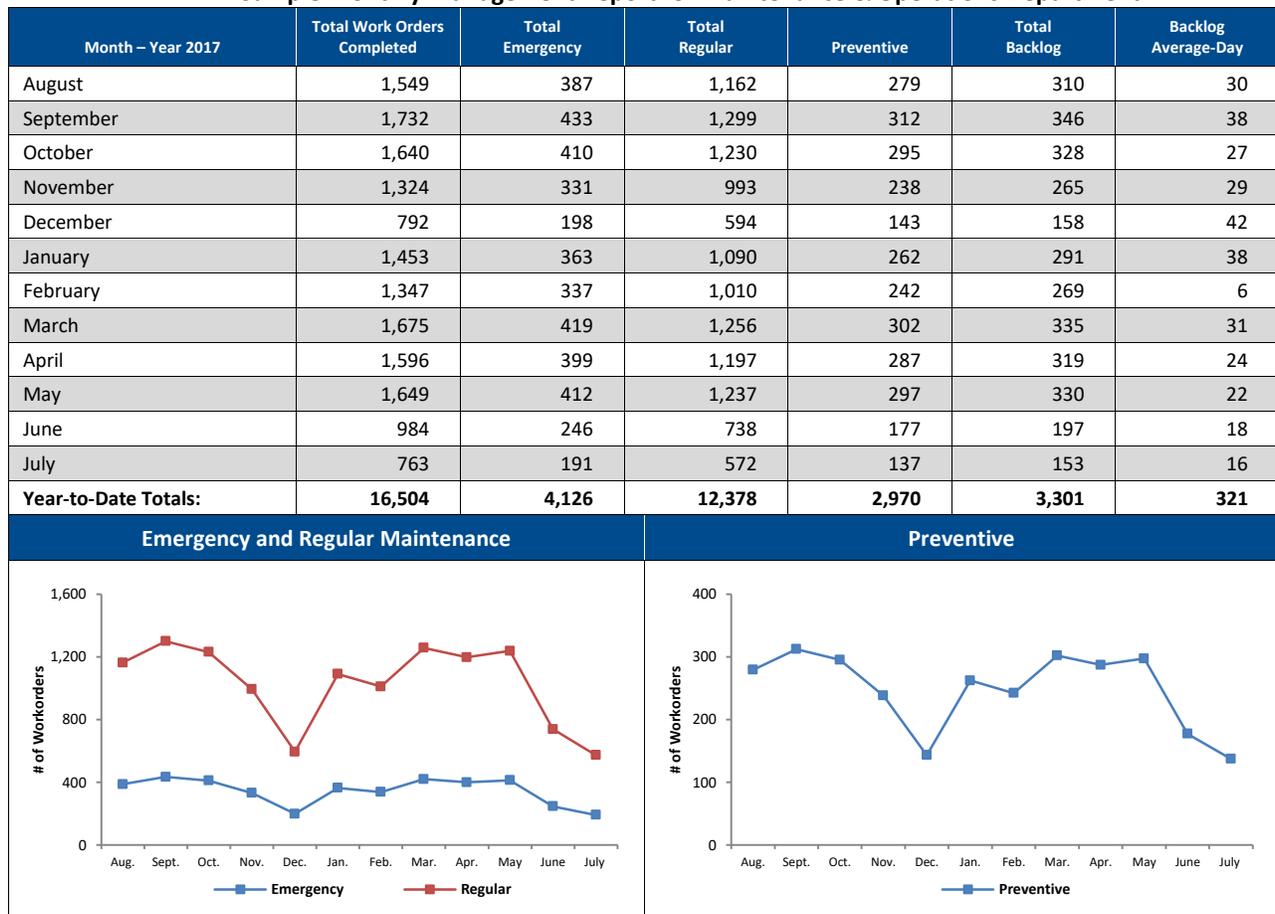
- Average acreage maintained per grounds FTE employee
- Service satisfaction level

Energy Management:

- Average number of sq. ft. per energy management FTE
- Average usage/cost of electricity per sq. ft.
- Average usage/cost for gas per sq. ft.
- Average usage/cost for water per sq. ft.

Once the work order software training has been completed and performance standards have been established, summary productivity reports can be generated that better illustrate the department's actual performance as shown in the sample report in **Exhibit 6-34**.

Exhibit 6-34
Sample Monthly Management Report for Maintenance & Operations Department



FISCAL IMPACT

The school district can implement this recommendation with existing resources. SchoolDude technical assistance is available through an online format and telephone support. Any additional training required is provided at the cost agreed upon with the vendor.

ANTICIPATING TOMORROW

As the district expands over the next 10 years, more focus will need to be concentrated on using data from the maintenance work order software to drive deployment of maintenance staff, monitor workflow and project completion, and track productivity, efficiency, and cost-effectiveness. In order to get the full benefits from the work order software, staff will need to be fully trained to view, complete and analyze work order data and access reports and statistics on completed and in-progress work orders.

Training

OBSERVATION 6-7

LCISD lacks a comprehensive training plan for Maintenance & Operations staff.

The district maintains a four-year training tracker for facilities-related positions. It was noted that most of the training was geared toward upper level management and lesser to supervisory and line staff positions, which are typically more in need of training.

During focus groups with Maintenance & Operations team leaders and custodial supervisors, the review team was told that additional training for both managers/supervisors and line staff could greatly improve the department’s operating efficiency. Focus group participants stated that most job-related training is provided at time of hire with little training being provided during the school year. It was reported by management that annually the district provides HAZCOM training, Blood Born Pathogens and Asbestos AHERA training for Maintenance & Operations Department staff at the orientation before school starts.

Additional training for maintenance staff is especially important since the district has adopted a geographic zone/team approach to maintenance. The zone/teams will be more productive if they are sufficiently cross-trained to respond to the majority of needs that they will encounter at schools and administrative buildings/operations sites.

Exhibit 6-35 presents the type of training recommended for staff in order to make them more efficient at providing their day-to-day jobs. Adequate training ensures that the school district employees understand the scope of their responsibilities and performance expectations, and serves to update skills and knowledge necessary for employees to effectively and efficiently perform their duties.

**Exhibit 6-35
Facilities Management 2016**

Facilities Management	
<i>General Training</i>	<ul style="list-style-type: none"> • Time management, including how workers can prioritize their tasks so they can accomplish them efficiently and effectively. • Ergonomics, including how to properly lift to avoid back injury and information about new cleaning tools and products that can minimize back strain. • Hazardous chemicals, including extensive training in the use of cleaning chemicals to reduce injuries. • Hazardous equipment, including how to operate all machinery. • Bloodborne pathogen training, including the potential risks of blood and human waste cleanups. This should include information about the Bloodborne Pathogen Standard drafted by the U.S. Occupational Safety and Health Administration. • Asbestos training, including information about state and federal regulations pertaining to the handling and removal of such material.

Facilities Management	
<i>Maintenance</i>	<p><u>General Maintenance</u></p> <ul style="list-style-type: none"> • Teach Preparatory Mathematics which includes the essential features, operation, and use of a calculator. • Teach the technician a working knowledge of how a computer works and how to do word processing and spreadsheets in a Windows environment. • Provide OSHA Construction Safety Course. • Teach basic carpentry, plumbing, and commercial wiring. <p><u>Carpentry</u></p> <ul style="list-style-type: none"> • Basic mathematics, algebra, geometry, and trigonometry. • The application of basic concepts in construction and maintenance and how to read drawings. • Wood and material classifications, along with framing methods. • Roof and stair building techniques. • Wood selection for cabinetry, millwork and moldings. • The National Building Code and requirements for conceptual design, construction and renovation. <p><u>Plumbing</u></p> <ul style="list-style-type: none"> • Discuss the types and the use of the common hand and power tools, metals and measuring instruments used by plumbers and pipefitters. • Describe the basic maintenance techniques for tanks, pumps and plumbing fixtures. • Describe the procedures for lying out, supporting, and testing piping systems. • Identify the equipment and techniques used in gas and arc welding and cutting. <p><u>Electrical</u></p> <ul style="list-style-type: none"> • Recognize the basic electrical symbols used on electrical schematics and wiring plans. • Describe how to bend and install conduit. • Explain the operation and construction of motors, generators, and transformers. • Use the National Electrical Code handbook effectively. • Select the correct type of lamp needed for a given application. • Size and select conductors for a given installation. • Calculate electrical equipment ratings based on electrical loads. Test for opens, shorts, and grounds. <p><u>HVAC</u></p> <ul style="list-style-type: none"> • Discuss the fundamentals of refrigeration and identify refrigeration tools and materials. • Describe the installation and servicing of the components for different types of refrigeration and air conditioning systems. • Explain basic ventilation requirements, and air distribution and cleaning techniques. • Identify and describe the servicing of refrigerant controls and air conditioning controls, circuits, and instruments. • Understand heat transmission and measurement. • Describe the procedures for laying out, supporting, and testing piping systems. <p><u>Painters</u></p> <ul style="list-style-type: none"> • Job site and surface preparation (e.g. cleaning, plastering, caulking, sealing). • Proper primer application. • Deriving colors and textures, as well as decorative and faux finishes. • Aesthetic enhancement through stippling, sponging, distressing, and color blocking. <p><u>Locksmith</u></p> <ul style="list-style-type: none"> • Duplicating keys by hand and machine. • Installing, troubleshooting, and maintaining door locks, auto locks and security devices, safes and vaults, and panic hardware. • Methods of opening locks without keys. • Electronic security and how to design and program an alarm system.
<i>Custodian</i>	<ul style="list-style-type: none"> • Give the new employee a tour explaining the operation, the processes, and all equipment. • Explain any hazards that could lead to injury and the safety precautions to prevent injury. • Discuss the district's safety policy and dedication to providing a safe and healthful work environment. • Provide the employee with a copy of safety rules and procedures and discuss any questions or particular items of interest with the employee (accident reporting, hazard reporting, etc.). • Discuss your Accident Prevention Plan with the employee and provide training on any specific hazard(s) of the employee's job. • Include briefings, videos, discussions, informal talks, etc., on topics that affect their safety and health. • Have employee sign training completion form to document that they have completed training.

Facilities Management	
<i>Grounds Keeping</i>	<ul style="list-style-type: none"> • Back Safety for Custodial, Maintenance & Landscape Workers. • Landscape Power Tools. • Riding Mower Safety. • Landscape plants. • Basic botany. • Landscaping equipment. • Irrigation and drainage. • Landscape contracting. • Grounds and turf maintenance.

Source: Texas Association of School Boards, National Education Association, & Vista Maintenance Training.

Appropriate training must address maintenance, specialized trades, grounds keeping, and be tailored to meet the needs of the specific function. In addition, training in maintenance-related activities such as operating procedures, use of tools, proper lifting techniques, workplace safety, hazardous materials handling, and emergency procedures is a necessity for all employees. A district can use a variety of training sources—including vendors and manufacturers of their supplies and equipment, contract trainers, and professional association meetings.

RECOMMENDATION 6-7

Conduct a training needs assessment and develop an annual training plan to improve the overall technical skills and efficiency of Maintenance & Operations staff.

Based on the training needs assessment, Maintenance & Operations Department management and staff should explore a combination of cost-effective in-house and external training programs that provide information on topical areas such as new techniques related to operating procedures for equipment for crafts and grounds personnel. Existing vendors that provide the district with products and/or equipment can be an excellent source of low cost training that can be provided to update staff on training needs such as application techniques for materials or supplies or installation techniques for new equipment.

Administrative staff should seek training for data management and effective management report preparation. In-house or external training programs should be evaluated for consideration, based on cost and training content. The concept of training a small number of employees and requiring them to share information with other departmental staff should also be considered. An evaluation component should be included in all training so that employee feedback can be used to improve future training.

Once the needs assessment is complete, the district should target providing each Maintenance & Operations staff member with at least 12 hours of training annually.

Copies of training records should be retained as documentation by the department. Maintenance & Operations should maintain copies of the attendance sheets for in-house training with all of the participant’s signatures. Participation in outside training events should be documented through either certificate of completion or attendance sheets.

FISCAL IMPACT

The training assessment can be completed with existing resources. The cost of training cannot be determined until the training plan is completed.

ANTICIPATING TOMORROW

As the district grows over the next 10 years, it is important to develop a comprehensive training plan for Maintenance & Operations Department staff so that they stay abreast of changing work techniques (both administrative and technical). When staff are fully trained, productivity will increase and proper training will

reduce operational costs. The life cycle cost of a building will help staff deal with limited resources by identifying facilities priorities proactively rather than reactively and extend the useful life of buildings.

Staffing Allocations

OBSERVATION 6-8

The district has not updated its staffing allocation formula for maintenance operations to determine the appropriate level of manpower resources required to deliver services in the most efficient, cost-effective manner.

As noted in **Observation 6-1**, the district’s Maintenance & Operations Director leads the department and is a contract staff member from the Region 4 - Education Service Center (Region 4 - ESC). In addition to providing the director-level staff member (Maintenance & Operations Director) to run the day-to-day maintenance operations, Region 4 - ESC provides technical support to the department as needed.

In 2009, Region 4 - ESC developed a staffing allocation formula for LCISD’s Maintenance & Operations Department that the district still currently uses. The staffing formula is based on data published in April 2008 by American School & University (AS&U) Magazine, a source used by many school districts across the country.

When the maintenance staffing allocation formula was developed in 2009, LCISD had approximately 3,370,105 square feet of school space to maintain. Based on the AS&U maintenance staffing allocation formula which suggested a guideline of 107,439 square feet of space be maintained by each full-time equivalent (FTE) employee, LCISD’s Maintenance & Operations Department was understaffed by approximately 10 FTEs. Prior to implementing that staffing allocation formula, the Region 4 - ESC Maintenance Director reorganized the department to make it more efficient by deploying labor through the form of two teams: (1) System Maintenance and Repair Team (SMART), and (2) Mechanical, Electrical, and Plumbing (MEP) team, which consists of those qualified personnel to perform those trades. After analyzing the work that the two teams were performing, Region 4 - ESC developed a modified staff allocation standard of 125,000 square feet, which resulted in the Maintenance & Operations Department being potentially understaffed by approximately six FTEs as opposed to the 10 FTEs if the AS&U staffing allocation formula was applied.

Exhibit 6-36 illustrates how the staffing allocation formula was applied in 2009 using both the AS&U staffing allocation guideline solely and using the adjusted Region 4 - ESC staffing allocation guideline after reorganizing the department to obtain better productivity through more efficient work trade teams.

Exhibit 6-36
LCISD Maintenance & Operations Staffing Allocation Formula Comparisons
2008-2009

	# of Staff	*Square Feet	Current Square Feet per FTE	AS&U Standard Square Feet per FTE	Proposed LCISD Standard Square Feet per FTE	Recommend Staffing per ASU (rounded)	Region 4 - ESC Recommended Staffing	Variance above or (below) Standard per FTE
Total	21.0	3,370,105	160,481	107,439	125,000	31.0	27.0	(6.0)

Source: LCISD Maintenance & Operations Department. Note: Square footage includes portables. Total number of staff excludes custodians and lawn/grounds workers.*

The Maintenance & Operations Department reorganized again in mid-2016 to gain further operating efficiency in the department. As noted in **Accomplishment 6-1**, **the Maintenance & Operations Department implemented a geographic zone approach to deploy multi-functional (trade) labor, which is replicated on each of the four geographic zone teams that were created, as follows:**

- **Team 1 serves the Fulshear and Foster high school secondary track – 1,883,089 square feet**

- **Team 2 serves the Lamar** high school secondary track – 1,172,663 square feet
- **Team 3 serves the Terry** high school secondary track – 1,027,955 square feet
- **Team 4 serves the George Ranch** high school secondary track – 1,246,064 square feet

At the time of the onsite visit in February 2017, LCISD had significantly increased the amount of school space maintained to approximately 5,329,771 square feet from the 3,370,105 square feet maintained in 2009.

Exhibit 6-37 shows the impact of both the AS&U staffing allocation formula and the adjusted Region 4 - ESC staffing formula when it is applied to the district’s current facility square footage. The Region 4 - ESC staffing formula does not take into consideration any productivity efficiencies derived from the deployment of maintenance labor based on geographic zones.

Exhibit 6-37
LCISD Maintenance & Operations Staffing Allocation Formula
2016-2017

	# of Staff	*Square Feet	Current Square Feet per FTE	AS&U Standard Square Feet per FTE	Proposed LCISD Standard Square Feet per FTE	Recommend Staffing per ASU (rounded)	Region 4 - ESC Recommended Staffing	Variance above or (below) Standard per FTE
Total	31.0	5,329,771	153,972	107,439	125,000	44.0	38.0	(7.0)

Source: LCISD Maintenance & Operations Department. Note: Square footage includes portables. Total number of staff excludes custodians and lawn/grounds workers.*

Custodial Operations

In 2009, Region 4 - ESC developed a staffing allocation formula for custodial operations which also reports through the Maintenance & Operations Department. Custodial staffing guidelines were based on the Association of Physical Plant Administrators (APPA) standards for custodial cleanliness Level 2. **Exhibit 6-38** shows the APPA custodial cleanliness. **Exhibit 6-38** summarizes these cleaning standards.

Exhibit 6-38
American Plant and Physical Plant Administrators (APPA) Standards for Custodial Cleanliness

LEVEL 1 – Orderly Spotlessness
<ul style="list-style-type: none"> • Floors and base moldings shine and /or are bright and clean; colors are fresh. There is no buildup in corners or along walls. • All vertical and horizontal surfaces have a freshly cleaned or polished appearance and have no accumulation of dust, dirt, marks, streaks, smudges, or fingerprints. Lights all work and fixtures are clean. • Washrooms and shower fixtures and tile gleam and are odor-free. Supplies are adequate. • Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.
LEVEL 2 – Orderly Tidiness
<ul style="list-style-type: none"> • Floors and base moldings shine and/or are bright and clean. There is no buildup in corners or along walls. But there can be up to two days worth of dust, dirt, stains or streaks. • All vertical and horizontal surfaces are clean, but marks, dust smudges and fingerprints are noticeable upon close observation. Lights all work and fixtures are clean. • Washrooms and shower fixtures and tile gleam and are odor-free. Supplies are adequate. • Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

LEVEL 3 – Causal Inattention

- Floors are swept or vacuumed clean, but upon close observation there can be stains. A buildup of dirt and/or floor finish in corners and along walls can be seen.
- There are dull spots and/or matted carpet in walking lanes. There are streaks or splashes on base molding.
- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges, and fingerprints. Lamps all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

LCISD custodians were given specific areas to clean each day/night and these tasks were categorized into daily, weekly, and monthly assignments to ensure their areas were cleaned properly. The result of this analysis initially showed that custodian’s productivity aligned with the AS&U national industry standard of 26,786 square feet per FTE. As shown in **Exhibit 6-39**, after monitoring how the custodians continued to perform against the AS&U 26,786 staff allocation standard, it was determined that a lower standard of 24,500 square feet of space was more appropriate because of all the additional activities performed such as preparing facilities for church groups, PTO meetings, sports activities, and various school functions and activities throughout the year.

Exhibit 6-39
Summarizes Cleaning Standards Set Forth by APPA

	Number of Custodians	Square Footage (including Portables)	AS&U Standard per FTE	ESC Region 4 Recommended Staffing per FTE	ESC Region 4' Recommended Staffing	Variance above or (below) ESC Region 4 Standard per FTE
Custodians	151	3,370,105	26,786	24,500	138	13

Source: Region 4 - ESC Study, 2009.

Based on the recommendations in the Region 4 - ESC study, LCISD hired 83 additional FTEs (151 + 83 = 234 new custodians in schools) but now has additional square footage. The additional facility space has a mix of uses; from athletic facilities to specialized learning center, each with different requirements for the custodial staffing model.

Based on the addition of square footage and the additional custodians hired, **Exhibit 6-40** shows district custodians are currently only cleaning 19,595 square feet of space on average – down from the 24,500 square feet of space that was being cleaned previously.

Exhibit 6-40
Summary of LCISD Custodial Staff Assignments

Total District Square Footage	Total Number of Custodians	Average Square Feet of Space Cleaned
5,329,771	272	19,595

Exhibit 6-41 provides the number of custodians LCISD has within each custodial assignments.

Exhibit 6-41
Summary of LCISD Custodial Staff Assignments

Custodial Assignments	Number of Custodians	% of Custodians
School campuses	234	86.0
Floor crew	9	3.3
Field houses	9	3.3
Supervisors	4	1.5

Custodial Assignments	Number of Custodians	% of Custodians
Laundry	4	1.5
Brazos Crossing Administration Building	4	1.5
Alternative Learning Center	2	0.7
Natatorium	2	0.7
Maintenance	1	0.4
Transportation	1	0.4
Special Needs	1	0.3
Powell Point Elementary <i>(small inactive school primarily used by HeadStart program)</i>	1	0.4
Total Custodians	272	100.00

Source: LCISD Maintenance & Operations Department.

Lawn Works (Grounds)

This district’s Lawn Works unit currently maintains all common and athletic grounds. This includes mowing, trimming, edging, and blowing the grass. Other assignments that lawn works performs includes setting-up for sporting events, fence repair, parking lot repair, striping fields, cleaning the stadium, irrigation systems, and moving furniture and fixtures for various schools and departments. All of these assignments add additional time and require man hours and careful scheduling so all assignments are completed.

Region 4 - ESC compared LCISD staffing to industry standards and showed that LCISD employed one more FTE than industry standards. LCISD staff average was 42 acres per lawn works employee. Although the formula shows one more FTE than industry standards, lawn works is being stretched to capacity with the other assignments and does need additional personnel. Since the formula showed one more FTE than industry standard, it was determined at that time the need could be reduced by one FTE, which could be used to maintain the irrigation systems.

Exhibit 6-42 illustrates sample performance standards and work load drivers for Grounds Operations.

Exhibit 6-42
LCISD Custodial Staff Allocation Compared to Industry Standards – School Campuses
School Year 2016-2017

	Number of LCISD Staff	Total LCISD Acres	Current Acres per FTE	AS&U Standard (acres)	Region 4 - ESC Recommended Staffing	Variance above or (below) Standard
Grounds Department	16	675	42	45	15	1

Source: Region 4 - ESC Study, 2008.

RECOMMENDATION 6-8

Update staffing allocation formulas annually for maintenance, custodial, and lawn works to ensure they maximize staff productivity.

Staffing allocation formulas can be developed through the use of a variety of criteria such as work activity, square footage, per number of buildings, or per student. The Maintenance & Operations Department can also use other information such as payroll dollars spent per student in maintenance, custodial operations, and lawn works (grounds) to compare the efficiency and cost-effectiveness of the department’s maintenance activities.

Maintenance

Prior to considering the need for additional maintenance staff, the LCISD should consider updating its maintenance staffing allocation formula again to reflect the productivity changes made by moving to deploying staff by geographic zones using four teams (see **Accomplishment 6-1**). The staffing allocation formulas should also reflect the skill disciplines assigned to each team. The Internal Facility Management Association (IFMA) uses multiple craft disciplines to determine the overall square footage required for maintenance operations as shown in **Exhibit 6-43**.

Exhibit 6-43
LCISD Maintenance & Operations Staffing Allocation Formula

Craft Skillset	Staff Allocation Guideline
Generalist	129,000 Square Feet per FTE
HVAC and Central Plant Operators	200,000 Square Feet per FTE
Electricians	308,000 Square Feet per FTE
Plumbers	380,000 Square Feet per FTE
Carpenters	400,000 Square Feet per FTE
Painters	438,000 Square Feet per FTE
Locksmiths	821,000 Square Feet per FTE

Source: International Facility Maintenance Association, 2009.

For example, by using work order data from each geographic team over a three month period, the Maintenance & Operations Department could take the square footage of several schools and factor the skill disciplines required to complete the work order and update the district’s maintenance staffing allocation formula.

As the district grows, the staffing allocation formula should be further modified to the specific needs of the district’s schools and administrative facilities using considerations such as age of building, special events, work orders data to determine the most appropriate guideline for the district.

Custodial

Based on this information, the current number of custodians are cleaning at a standard of 19,595 square feet of space as opposed to the 24,500 square feet per FTE was determined to be adequate for future needs. However, as time and circumstances change, it will be necessary to periodically review and revise these standards. The standard of 24,500 square feet per FTE was agreed to be used for calculating the future staffing needs for opening new facilities. The existing assignments and square footage will be evaluated and adjusted accordingly to become more aligned with the new staffing model.

Lawn Works

Exhibit 6-44 shows another more detailed sample staffing formula/guideline for lawn works that LCISD can use to gauge staff productivity in addition to the one guideline the district currently uses, which is 42 acres per FTE.

**Exhibit 6-44
Sample Performance Standards and Workload Drivers**

<u>DAILY WORK PERFORMANCE STANDARD</u>			
-- <u>Sites Per Crew</u>			
A.	1 middle school & 1 elementary school		
	<i>or</i>		
B.	1 high school & 1 elementary school		
	<i>or</i>		
C.	3 elementary schools		
-- <u>Average Work Measurement Standards</u>			
		<u>Time Requirement (To be determined)</u>	
	Mow/Cut School Site:	1 acre per hour	
	Mow/Cut/Pick Up Vacant Lots:	2 acres per hour	
	Blower/Clean Up Site:	1 hour per site	
<u>KEY WORKLOAD DRIVERS</u>			
-- <u>Service Level</u>			
	Schools and Admin Buildings:	10-day cycle/26 times per year per site	
	Vacant Lots:	15-day cycle/24 times per year per site	
-- <u>Site Size</u>			
	<u>School</u>	<u>Avg. Total Acres</u>	<u>Avg. Grounds Care Acres</u>
	High	15.52	7.760
	Middle	15.39	7.695
	Elementary	<u>11.21</u>	<u>5.605</u>
	<u>Average</u>	<u>14.04</u>	<u>7.020</u>

Source: McConnell & Jones LLP.

FISCAL IMPACT

This recommendation can be implemented with existing resources.

ANTICIPATING TOMORROW – STAFF ALLOCATION MODEL

As the district expands over the next decade and more school buildings are continuously added, staff allocation models will ensure effective management and oversight of the district’s organization, operations and facilities to maximize the use of staff resources.

FISCAL IMPACT

RECOMMENDATION		2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	TOTAL 5-YEAR (COSTS) OR SAVINGS	ONE TIME (COSTS) OR SAVINGS
CHAPTER 6: FACILITIES MANAGEMENT								
6-1	Add a director of facilities planning and assign the position to report to the newly created executive director of Operations within the Operations Department.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-2	Update all of the planning components necessary to complete a fully-integrated Facilities Master Plan.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-3	Optimize school facility utilization in all secondary tracks to better balance enrollment.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-4	Conduct service level and cost-benefit analysis for outsourcing key Maintenance & Operations management positions and other maintenance-related services at least every two years to identify the most operationally effective arrangements for the district.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-5	Develop and maintain a formal deferred maintenance plan.	\$0	\$0	\$0	\$0	\$0	\$0	\$0

RECOMMENDATION		2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	TOTAL 5-YEAR (COSTS) OR SAVINGS	ONE TIME (COSTS) OR SAVINGS
6-6	Train staff to use the full reporting and analytical capabilities of the SchoolDude work order software in order to determine department productivity levels and make improvements where necessary and generate and provide monthly management reports that better summarize activity and production levels.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-7	Conduct a training needs assessment and develop an annual training plan to improve the overall technical skills and efficiency of Maintenance & Operations staff.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6-8	Update staffing allocation formulas annually for maintenance, custodial, and lawn works to ensure they maximize staff productivity.	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTALS – CHAPTER 6 WITH IMPLEMENTATION OF REVIEW TEAM RECOMMENDATIONS								\$0