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# REVIEW OF FACILITIES MAINTENANCE

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Project # 20180201  
February 2018

**Texas Facilities Commission**

*Physical address: 1711 San Jacinto Blvd, Austin, Texas 78701*

*★ Planning and administering facilities in service to the State of Texas ★*

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# Executive Summary

## Overview

Overall, Texas Facilities Commission's (TFC) building maintenance processes include sufficient controls to provide reasonable assurance that compliance with state law, agency policies, and contract requirements is achieved. The facilities maintenance program (the program) utilizes contracts to ensure compliance with federal and state inspection requirements for boilers, elevators, generators, and fire control systems. However, the program has many challenges, including old, ill-maintained equipment, a severely underfunded preventive maintenance (PM) program, insufficient operational staff (i.e. "wrench-turners"), high overhead and insufficient planning. Thus, a number of significant improvements are needed for the program to achieve a higher level of effectiveness in a number of areas, including cost effectiveness, planning, cost accounting, organizational structure, human resources management, and the safeguarding of state assets.

It is not lost on the audit team that some of the recommendations in this report, if implemented, would result in a sea change on how the agency does business. The audit team applauds the leadership exhibited by the Interim Executive Director in providing management responses and helping move the audit to completion. However, the audit team recognizes the need to work with the new Executive Director when they are appointed to allow them to revise the management action plans, based on their own vision about how the agency should accomplish its facilities maintenance mission. In other words, the audit team acknowledges that the management responses may change based on the new Executive Director's preferred strategy on how to address the issues. As a strategic partner, the audit team will work collaboratively with the new Executive Director to provide objective insight and counsel to ensure the issues are addressed holistically and sustainably.

### *Inadequate Funding*

TFC's maintenance program has historically been significantly underfunded. The accelerated rate of building equipment deterioration due to an ill-funded PM program will only add to the extensive backlog of deferred maintenance (i.e. necessary repairs and renovations). This is not cost effective – (proactive) preventive maintenance is a lot more cost effective than deferred maintenance. A 2006 facility condition assessment identified a substantial backlog of repairs and renovations for the state-owned office buildings maintained by the agency. Based on the assessment, TFC proposed a 10-year deferred maintenance program in excess of \$400 million to substantially reduce the backlog that existed at that time to improve the overall condition of the buildings managed by the agency. The original funding request for the program was not fully appropriated. Even when one takes into account the 84<sup>th</sup> Legislative Session's significant funding, the deferred maintenance program is still not on track, and the condition of the buildings continues to deteriorate.

### *Cost Effectiveness*

Management has not developed a formal cost/benefit justification for its significant use of outsourcing/ contracts as its main operational strategy for accomplishing the agency's building maintenance mission. With only 7 HVAC technicians, 13 plant operators, 7 electricians, 2 elevator technicians, 2 plumbers, 11 building technicians (and \$6.8 million in contract expenditures), the agency mostly relies on contracts to accomplish the agency's building maintenance mission. Generally, the use of contractors is significantly more expensive than that of in-house staff. Contractor charge-out rates are significantly higher than agency's for comparable skill levels. Contractors also charge a service call fee, place markups of approximately 20% and 10% for materials and subcontracts, respectively, and require a fair amount of oversight from agency staff. The audit team appreciates that a certain level of contracting/ outsourcing is necessary (to supplement expertise and as a risk transfer strategy, etc.), however contracting at these high levels requires justification.

### *Supervisors' Span of Control*

The current level of overhead within the agency's facilities maintenance (including Property Management) function is not sustainable. After separating out Plant Operations, HVAC, Fire Controls, and Security Systems, the program has 13 supervisors overseeing 32 staff i.e. a staff/supervisor ratio of 2.5:1. Some of the excessive overhead is due to the current 1:1 staff/supervisor ratio within Property Management. The agency's facilities maintenance function will be more cost effective with more maintenance workers i.e. more people "turning wrenches" and less supervisors. While the number of staff a supervisor can effectively oversee will depend on many factors, including supervisor and staff experience, and job complexity, maintenance management agrees that a span of control of 10-15 staff would be more optimal for a maintenance operation.

### *The Cost of Maintenance Operations*

Facilities maintenance management processes do not capture the full cost of facilities maintenance work. The closest to this is the agency's performance measure of maintenance cost per square foot (of \$1.32) which does not include central administration costs. As a significant part of PREM (one of the agency's three program areas), the program's portion of the agency's central administration costs would be significant. Ideally, the cost of maintenance would include an appropriate proportion of central administration costs (including executive management, human resources, legal services, fiscal, and risk management). The program does not have a cost accounting system to assist with tracking all the relevant costs.

### *Accountability Framework*

The agency's maintenance processes lack an accountability framework to provide management with information for effective decision-making regarding resources, operations and the future. A strong accountability framework would provide clearly articulated **Specific, Measurable, Achievable, Relevant, and Time-related (SMART)** goals, key operational performance indicators, and reliable tools to assist management in maintaining and tracking key performance

data. The tools would also assist staff in synthesizing information from the key performance monitoring systems into periodic management reports and allowing for the development of smart management solutions. In addition, the current facilities maintenance organizational structure does not ensure accountability, as it makes a clear articulation of roles, responsibilities, and authorities difficult.

Program management understands that, because of the challenges highlighted above, many of the audit recommendations within this report will have to be implemented in phases, and is already taking steps to address some of the issues.

## **Background**

The facilities maintenance program is responsible for providing the general maintenance and upkeep of the building systems primarily in the Travis County TFC properties. The objective of the program is to provide all facets of maintenance (predictive, preventive and repairs) including envelope, climate control, power distribution, plumbing and other miscellaneous services to 63 buildings, 18 garages, 25 parking lots, including 40 boilers, 43 chillers, 38 generators, 175 elevators, and 2,591 fire extinguishers.

The program had 77 staff, including 2 directors, 2 managers, 18 supervisors (including 11 property managers), 13 plant operators, 4 building automation specialists, 7 HVAC technicians, 2 plumbers, 7 electricians, 2 elevator technicians, 4 fire control technicians, 3 security system technicians, 3 painters, 3 carpenters and 11 building technicians as of October 31, 2017.

## **Summary of Management's Response**

*Management appreciates the detail provided in the report, as it is an accurate reflection of where the Property Management Services (Maintenance) program currently stands and illustrates a strong need for improvement in funding, training, staffing, and insourcing versus outsourcing.*

*Management believes improvement should always start with people. Staffing, training, wage relevance, workload assignment, accountability, and performance measurement are immediate priority items. Some work has already begun to address these deficiencies such as creating a basic framework for supervisor training; providing merit pay increases to retain the best employees; and, improving the capabilities of existing staff through additional training, certification and licensure. Creating an accountability framework with SMART goals and key performance indicators will require more time and effort but management stands committed to begin the implementation of these improvements.*

*Over many years the agency has seen its maintenance program reduced to the point that its FTEs serve in a mostly reactive capacity and the program is forced to rely on outsourced contractors to address the ever-growing needs of an aging building inventory. A total of 77 FTE spread over 7 million square feet of inventory is simply unsustainable. The challenge of obtaining sufficient FTEs and funding to grow the maintenance program will require the compilation of facts and data, both internal and from industry standards. The Association of Physical Plant Administrators (APPA), a respected authority in the facility management industry, recommends staffing levels far greater than the agency's current FTE cap. Management is committed to creating a compelling argument to present to the 86<sup>th</sup> Legislative Session.*

## **Closing**

We would like to thank the Facilities Maintenance staff for the cooperation and assistance provided to the audit staff during this audit. For questions or additional information concerning this audit report, please contact Amanda Jenami at 512-463-1438.

# Detailed Issues with Management Responses

## 1. Cost Effectiveness

### 1.1 Cost Effectiveness – Outsourcing

With only 7 HVAC technicians, 13 plant operators, 7 electricians, 2 elevator technicians, 2 plumbers and 11 building technicians (and approximately \$6.8m per year in payments to maintenance contractors), management heavily relies on contracting to accomplish the agency's building maintenance mission. Without a formal cost/benefit justification of contracting, it is not clear if this level of contracting is the most cost effective strategy for the agency's service delivery. Generally, the use of contractors is significantly more expensive than that of in-house staff. Contractor charge-out rates are significantly higher than the agency's for comparable skill levels. Further, contractors typically not only charge a service call fee but also place markups of approximately 20% and 10% on materials and subcontractor costs, respectively.

In addition, the full cost of outsourcing work would have to include the agency's efforts in providing the contract oversight necessary to ensure the work is performed in accordance with the contract. This is especially notable for the agency because (due to the nature of the contracts) contract oversight requires a significant amount of staff time. For example, when the air filter replacement contract staff go through the buildings performing their work, they are accompanied (full-time) by a TFC employee. When a contractor performs repairs on a chiller or any other equipment, they are accompanied by a TFC employee. Program approval of purchase requisitions and payments to contractors typically requires sign-off from five different program individuals, irrespective of amount. For example, a \$203.76 purchase requisition for air filters had to be approved by the Preventive Maintenance (PM) supervisor, the Director of Facilities Operations, the Program Contract Specialist, the Director of Property Management Services, and the Deputy Executive Director for Planning & Real Estate Management (PREM). When all these other costs are taken into account, the cost of the contracting alternative invariably adds up to significantly more than the in-house alternative. Thus, management should perform a cost/benefit justification for the continued high utilization of maintenance contracts.

The audit team understands that there are other factors that management would have to take into consideration in its decision about whether to use a contract or in-house labor, including risk exposure (e.g. management may want to use contracts for high risk tasks, etc.). For example,

some of the agency's "necessary" contracts include preventive and remedial maintenance for boilers, chillers, and cooling towers, compliance testing of fire extinguishers and Legionella bacteria testing. However, a formal cost/benefit analysis is important to inform management's stewardship of public funds. In addition, the audit team understands that any significant move from outsourcing to insourcing would require a significant increase in maintenance staff (i.e. wrench-turners) and thus would be contingent on the program obtaining the necessary resources.

A cost effectiveness justification would assist in ensuring the agency's Strategic Plan goal # 2, which aims to "protect and *cost effectively* manage, operate, and maintain state facilities" is being met.

## **Recommendations**

Improve operational cost effectiveness by implementing a formal well-thought out strategy on when to outsource building maintenance work. The predetermined strategy should take into account cost and other factors (including management's risk tolerance levels, etc.)

Your implementation could include the following steps:

- (i) Analyze facilities maintenance performance and cost accounting data over the last three years to determine the cost of outsourcing versus insourcing.
- (ii) Identify areas that (due to their nature) must be outsourced.
- (iii) Identify areas that could reasonably be brought in-house with additional FTEs (funded by current contract expenditures).
- (iv) Develop a plan to gradually increase insourcing by investing in in-house maintenance knowledge, skills, and abilities (KSAs) within the agency's skilled trades.
- (v) Implement the cost effective maintenance plan.

## **Management Action Planned:**

*Management concurs with the audit finding that outsourcing is not a cost-effective strategy for the agency's facilities maintenance service delivery. It also concurs that the full cost of outsourcing requires the incorporation of all associated cost, from procurement, to oversight and fiscal management. Management believes there is no need for a cost/benefit justification for the continued high use of maintenance contracts but rather the opposite; a study to document the high costs and inefficiency of having to outsource due to a lack of staff. Management's action plan includes:*

- (i) *Performing a comparative FTE analysis and benchmark of agency maintenance FTEs against levels recommended by APPA and other similarly reputable organizations and*

*using the analysis in supporting a compelling argument to the legislature for the need to increase FTEs.*

- (ii) *Through the course of studying the historical use of requirement (maintenance) contracts;*
  - a. *Determining, to the best of management's ability and experience, the funds that can be diverted from contracts to in-house maintenance FTEs.*
  - b. *Analyzing KSAs of existing staff and potential replacement hires.*
  - c. *Assessing risk for various tasks performed in-house versus outsourced.*
- (iii) *Determining a pathway to improved compensation for existing staff to stabilize the maintenance workforce, including making the necessary salary equity adjustments to attract and retain the quality labor the agency needs to accomplish its maintenance mission.*

**Responsible Parties:**

*Director of Property Management Services, Director of Budget and Executive Director.*

**Estimated Completion Date:**

*August 31, 2018*

## **1.2 Cost Effectiveness – Cost of Maintenance Operations**

The audit was not able to benchmark the cost effectiveness of the agency's facilities maintenance function against peer institutions because the agency does not calculate the full cost (per square foot) of maintaining the buildings in its portfolio. The closest to this is one of the agency's performance measures, maintenance cost per square foot (of \$1.32/square foot), which does not include central administration costs (i.e. facilities maintenance's portion of the cost of the agency's support functions including executive management, legal services, fiscal management, information technology and risk management). As a significant part of PREM (one of the agency's three program areas, Facilities Maintenance's portion of central administrative costs would be significant. Without a cost accounting system, there is no easy way to calculate the full cost. Calculating the full cost of maintenance is important in providing management with accurate data regarding the full cost of providing the service of maintaining TFC-managed buildings. This information is important for decision making (including benchmarking).

## Recommendations

Improve operational cost effectiveness by:

- (i) Implementing a robust cost accounting system that ensures all relevant maintenance program costs are taken into account, including facilities maintenance's portion of the agency's central administration costs.
- (ii) Providing management with cost maintenance data periodically, to inform the decision-making process.
- (iii) Benchmarking the full cost of maintenance against peer institutions.

## Management Action Planned:

*Management concurs that a robust cost accounting system that incorporates all relevant costs, including central administration costs would be a valuable tool to inform the decision-making process. In the absence of such a system, the Director of Property Management Services will:*

- (i) *Work with the Director of Budget to determine a reasonable means to calculate the cost per square foot of maintenance operations, including overhead allocation for such support functions as Procurement, Fiscal, Human Resources, IT, and Legal.*
- (ii) *Design and generate periodic reports for spending/burn rates to gage expenditures over time and for what categories.*
- (iii) *Benchmark the costs calculated in (i) above against peer institutions, including state agencies and higher education institutions.*

## Responsible Parties:

- (i) *Director of Property Management Services, Director of Budget, and Executive Director.*
- (ii) *Director of Property Management Services, Director of Budget, and Executive Director.*
- (iii) *Director of Property Management Services and Executive Director.*

## **Estimated Completion Date:**

- (i) *August 31, 2018*
- (ii) *August 31, 2018*
- (iii) *September 30, 2018*

## **1.3 Cost Effectiveness – Level of Overhead**

The current program overhead rate (i.e. overhead cost as a % of total cost) within the agency's facilities maintenance (including property management) function is not sustainable. This is because the organizational structure is too hierarchical. After separating out Plant Operations, HVAC, Fire Controls, and Security Systems, the facilities maintenance function has 13 supervisors overseeing 32 employees i.e. a staff/supervisor ratio of 2.5:1. Some of the excessive overhead is due to the current 1:1 staff/supervisor ratio within the current property management function. The agency's facilities maintenance function would be more cost effective with more maintenance workers i.e. people "turning wrenches" and less supervisors.

Over time, management should gradually reduce the overhead rate by flattening the organizational structure into more of a matrix type organization. Because of the way TFC-managed facilities are spread out, a move to the zone concept could assist with customer responsiveness and accountability. With a zone system, a zone supervisor (with the responsibility and authority for accomplishing facilities maintenance goals in that zone) oversees a multi-skilled maintenance team, and is held accountable for the issues within the zone. The zone supervisor/manager would report to the Director of Property Management Services. In this matrix organizational structure, the knowledge, skill, or talent of an employee is shared between the functional team (the trades) and the zone. Should management decide on implementing zoning, having four zones would be ideal in addressing the way TFC facilities are spread out, as follows:

- (i) The North Campus (consisting of Health & Human Services Commission's (HHSC) and Department of Health's buildings on Lamar Boulevard) and Park 35 (consisting of Texas Commission for Environmental Quality Commission's Buildings A through E on Park 35 Circle).
- (ii) Texas School for the Blind and Visually Impaired (located at 1100 W 45<sup>th</sup> Street).
- (iii) Texas School for the Deaf (located at 1102 S. Congress Avenue), and,

- (iv) The Capitol Complex (consisting of TFC-managed buildings from Martin Luther King Jr. Boulevard to 10<sup>th</sup> Street).

The multi-disciplined zone teams would include building technicians that currently report to property managers. This would provide building technicians with ample on-the-job-training opportunities, thereby increasing their own skill levels.

### **Recommendation**

Improve operational cost effectiveness by restructuring the maintenance function to a flatter, matrix-type organization with a lot more maintenance workers and a lot less supervisors.

### **Management Action Planned:**

*Management concurs with the audit recommendation to create a flatter organization with more maintenance workers and notes that the current overhead issues are a result of inadequate maintenance workers. Management is committed to improving the supervisor/staff ratios. Management will explore methods of reorganization to address this issue.*

*Although not included in the recommendation, management also concurs with the concept of creating zone maintenance, although the current level of staffing prevents the program from implementing the concept. The process to move to a zone maintenance will be challenging and requires the undoing of a 15-year trend of consolidation, outsourcing, and reductions in FTEs. Using the zone maintenance approach carries many benefits including addressing the ratio of supervisors to workers, a reduction of transportation costs and associated lost time, and improvement in response time.*

### **Responsible Parties:**

*Director of Property Management Services, Director of Budget, and Executive Director.*

### **Estimated Completion Date:**

*August 31, 2018 - Submittal of Exceptional Item Request (seeking an increase in FTEs and funding for maintenance staffing) under the agency's Legislative Appropriations Request.*

## **1.4 Cost Effectiveness – Aligning Work Assigned with Skills**

The review found that the maintenance work assignments do not always ensure that technicians' skills are optimally aligned with their day-to-day duties. For example, discussions indicate that due to the shortage of Property Management's building technicians, much of the "basic"

maintenance work is being passed on to skilled tradesman or expensive contractors. This is not cost effective.

### **Recommendation**

Improve operational effectiveness by increasing the agency's building technicians' capability (both quantity and quality) to where they (building technicians) are able to address 90% of customer work requests.

### **Management Action Planned:**

*Management concurs with this audit finding. Training programs are being implemented to extend and expand the general knowledge base and use of Building Technicians, such as pest control training and licensure. Management will work with the Human Resources and Budget programs to fill the currently vacant positions with technicians that are generalists and able to address a variety of needs. Achieving a 90% rate of work orders addressed by Building Technicians will be the goal, but this may not be possible given the current ratio of technicians to buildings. Management also is developing initial staffing recommendations based on data reported by APPA (Association of Physical Plant Administrators), BOMA (Building Owners & Managers Association) and IFMA (International Facilities Management Association), and will set milestones to gauge progress toward appropriate staffing levels.*

### **Responsible Parties:**

*Director of Property Management Services, Director of Budget, and Director of Human Resources.*

### **Estimated Completion Date:**

*August 31, 2018*

## **2. Operational Effectiveness**

### **2.1 Operational Effectiveness – Preventive Maintenance**

The agency is not able to give preventive maintenance the prioritization it needs. The agency's "Preventive Maintenance" program significantly lacks resources. The program has not been provided with a sustained level of funding over the years. For example, the program was temporarily disbanded around 2012 to 2014, when its staff was assigned to other areas. The program was reinstated in 2014 and currently has only 5 positions (2 HVAC technicians, 2 electricians and a supervisor). The program is very limited and does not ensure agency

compliance with equipment manufacturer maintenance guidelines. With the available resources the in-house PM crew is only able to perform PM tasks (on HVAC equipment and light fixtures) annually, despite manufacturer recommendations of a more frequent maintenance schedule. For example, PM tasks that are recommended to be performed monthly and quarterly are all done annually or less often. This is significantly less than manufacturer recommendations and, thus, does not ensure optimal operation of the equipment. A PM staffing needs assessment performed (by the PM supervisor) in 2010 found that the agency needed 13 HVAC technicians and 5 plumbers to accomplish the HVAC and plumbing PM tasks associated with the buildings maintained by TFC (within Travis County) at that time. The audit team reviewed the staffing needs assessment and found it to be based on reasonable assumptions. The 2010 needs assessment shows that the PM program (for HVAC and plumbing) is significantly understaffed.

The preventive maintenance on elevators, air-filters, etc. is outsourced to contractors. However, other important building equipment is not receiving preventive maintenance at all, including plumbing, roofing, electrical equipment, and building access hardware. Failure to preventively maintain building equipment results in accelerated deterioration of current deficiencies, additional deficiencies and other issues, including shortened equipment lifespan, unplanned downtime, frequent repairs, and secondary-equipment damage like the type of issues the agency has experienced in recent years, all of which are costly. For example, unplanned downtime for a chiller at one of the buildings in the North Campus cost the agency \$174,460 in chiller rental costs from October 2014 to February 2016. In another example, in 2017, the agency had to replace water-damaged ceiling tile and drywall in several offices at the William P. Clements building caused by water intrusion from a deteriorated roof sealant at a cost of \$29,910. Discussions with staff indicate that regular roof preventive maintenance could have prevented the damage.

The agency has not been able to perform any preventive maintenance on electrical equipment that would require a complete electrical system shutdown. A shutdown would require the building to have two independent electrical systems that mirror each other, which (the audit team was informed) is cost prohibitive.

Preventive maintenance will generally run the equipment more efficiently and minimize equipment failures. Preventive maintenance is one of the most cost-effective methods for ensuring reliability, safety, energy efficiency, and tenants' satisfaction. However, the continued ill-funding of the PM program will only add to the extensive backlog of deferred maintenance (i.e. necessary repairs and renovations) identified by a facility condition assessment that was performed in 2006. Based on the assessment, management proposed a 10-year deferred maintenance program in excess of \$400 million to substantially reduce the backlog that existed at that time and to improve the overall condition of the building inventory managed by the agency. The original funding request for the program was not fully appropriated. Even when one takes into account the 84<sup>th</sup> Legislative Session's significant funding, the deferred maintenance program is still not on track, and the condition of the buildings continues to deteriorate.

## Recommendations

Improve operational effectiveness by:

- (i) Continuing to impress upon the Legislature the importance of prioritizing preventive maintenance over deferred maintenance.
- (ii) Developing and implementing a strong preventive maintenance program. A strong preventive maintenance program would include all major systems, including plumbing, roofing, and building access hardware.
- (iii) Performing a comprehensive PM needs assessment that includes all types of equipment, and increasing PM resources accordingly.
- (iv) Setting SMART goals to help focus the push for more preventive maintenance. Some of these goals could be filtered down to individual supervisor performance plans, to ensure accomplishment.

## Management Action Planned:

*Management strongly concurs with the audit finding and supports the growth of a robust preventative maintenance program as it would significantly reduce expenditures on contracts. Additionally, the state would yield returns over many decades in reduced cost of operation, energy savings, and early replacement of poorly maintained systems.*

- (i) *Management will continue to seek preventive maintenance funding supported by a comparative analysis of TFC's resources to best managed practices and other comparable institutions. Additionally, management will seek an increase in FTEs in the next legislative session since performing preventive maintenance in-house is more cost effective than outsourcing.*
- (ii) *Management strongly agrees with the need for a strong preventative maintenance program and will work toward that as a part of our long-term strategy.*
- (iii) *Management will determine the systems in need of preventive maintenance. Upon defining the systems in need of preventive maintenance, the resources needed to implement the program will be defined. Due to the lack of staff available to implement this recommendation, the plan will be necessarily generic and high level.*
- (iv) *A strong preventive maintenance program, by its nature, contains SMART goals. Those preventive maintenance tasks currently being performed and discussed under (ii), above, will be provided SMART goals to monitor and measure performance. To*

*the degree applicable, preventive maintenance performance will be made part of individual employee and supervisor performance plans.*

**Responsible Parties:**

*Director of Property Management Services, Director of Budget, and Executive Director.*

**Estimated Completion Date:**

- (i) August 31, 2019 - Submittal of Exceptional Item Request under the agency's Legislative Appropriations Request*
- (ii) August 31, 2020*
- (iii) August 31, 2018*
- (iv) August 31, 2018*

### **3. Accountability Framework**

The program does not have an accountability framework to provide management with information for effective decision-making regarding resources, operations and the future. The program is generally reactive rather than proactive, and addresses symptoms rather than root causes of problems. The review found a lack of accountability in a number of areas.

#### **3.1 Accountability Framework – Long Term Planning**

The facilities maintenance program lacks a strong proactive planning process that defines goals, priorities, and key risk mitigation strategies that can then be measured and monitored to ensure achievement of the mission. The review found opportunities for improvement in succession planning, goal-setting, key performance indicators, performance data analysis, and customer feedback.

##### *Succession Planning*

While Facilities Maintenance management staff has been fairly stable over the last 5 years, 50% (4 out of 8) of them are currently eligible to retire. Without a formal succession planning process in place to cross-train and transfer knowledge, the risk of a disruption in the continuity of operations in the event of turnover in key positions is real. For example,

the audit could not conduct re-performance testing on some of the program accounting processes (to check accuracy) due to a lack of detailed instructions/ procedures. In addition, the Facilities Maintenance employee responsible for the calculations in question could not provide the auditors with an explanation of the basis of the calculation and the thought process that went into the development of the formula and procedure, as they are not documented. The individual informed the auditors that they perform the calculation based on instructions “verbally” handed to them by a previous employee as they were leaving.

Having the experienced supervisory staff develop and maintain good formal procedures, including a list of key deadlines for their area is critical. The written procedures and deadline list would provide good guidance to the incoming supervisor in the event of staff turnover.

### *Goals*

Program management has not developed clearly articulated (SMART) goals. The maintenance function's “SMART” goals are not quantifiable and cannot be considered as SMART. A strong accountability framework would provide clearly articulated Specific, Measurable, Achievable, Relevant, and Time-related (SMART) goals. Goals are important because they help focus the program activities to what is important.

### *Key Performance Indicators (KPIs)*

A strong accountability framework would include key operational performance indicators. Program management has not set key performance indicators and targets for its key activities to provide important guideposts for the program in determining how well it meets the set goals. Good key performance indicators would provide the program with an actionable scorecard that keeps track of those activities as equipment downtime, responsiveness, and employee training would go a long way in assisting management in managing, controlling, and achieving desired results. In addition, key performance targets and indicators assist with ensuring employees are aware of management expectations and that they (the expectations) are met.

The agency’s performance measures (reported to the Legislative Budget Board (LBB)) include measures for how long it takes for staff to respond to tenant’s service requests, and how long it takes to complete a work order, etc. These are good high level aggregate measures at the strategic level, but they are not as useful for holding individual work units accountable. A more effective approach, at the operational level, would be to set completion targets based on the type of work order and prioritization and tracking performance against target by work unit and individual maintenance worker. Establishing a PM performance target of proactive work order man-hours as a percentage of total

maintenance man-hours would assist management in focusing supervisors on the importance of PM. In addition, keeping track of reactive maintenance work order man-hours would provide a useful comparison to the PM data.

### *Customer Feedback*

The program has not formally sought feedback from its customers on a regular basis. Customer satisfaction feedback should be a key performance indicator that helps staff focus on the importance of fulfilling customer expectations. A customer satisfaction survey program allows management to measure and monitor customer satisfaction consistently and regularly. Ideally, management should use both transactional and relationship-type surveys. A transactional survey is designed to investigate the experience the customer has had within a particular transaction (work order), while a relationship survey is designed to gain the customer's overall opinion of the agency from their experiences. Surveys provide hard data which, in turn, allows management to act on insight. Not having such a process increases the risk that TFC is not responsive to client needs, which, in turn, could elevate the agency's reputational risk.

### **Recommendations**

Improve operational effectiveness by implementing long term planning, as follows:

- (i) Developing a formal succession plan, to ensure employees are cross-trained in all key aspects of the maintenance operation for continuity of operations in the event of employee turnover.
- (ii) Requiring all supervisors to ensure that all key aspects of their work is formally documented.
- (iii) Requiring all supervisors to develop and maintain a formal (written) chart of key deadlines for their area.
- (iv) Developing SMART goals to focus key program activities and ensure accomplishment of the mission.
- (v) Developing a set of key operational performance indicators and targets to assist with keeping track of program and individual supervisor performance.
- (vi) Providing management with periodic reports showing variances between actual and target performance.

- (vii) Obtaining formal customer satisfaction feedback from customers to assist with meeting stakeholder expectations.

### **Management Action Planned:**

*Management concurs with the audit findings of this section but, as already established by findings in previous sections of this audit, the program is hampered by a significant shortage of staff, lack of funding and ongoing vacancies. Management has been working diligently to fill vacancies and increase pay to better compete with other employers in the Austin area but the challenge remains monumental. In August, 2017, management implemented certain changes to reduce turnover rates that have had significant impact. The next step is to improve wage relevance in the local market, and to the degree it can, implement the recommendations, as follows:*

- (i) *As part of employee performance plans, management will encourage and monitor cross training of its employees, as well as, skills advancement training. Management will outline employee training and development plans to be used as a guideline for employee development.*
- (ii) *Management will work with program supervisors to define key tasks that need to be performed in the course of their work overseeing their specific areas, including any pertinent deadlines or durations. Management envisions this process to be an ongoing effort beginning with basic, high level tasks and gradually becoming more detailed.*
- (iii) *Key deadlines and scheduled durations will be made a part of the preparation of key tasks defined under item (ii), above, and disseminated with staff.*
- (iv) *Management will work with program areas to create SMART goals for their specific departments. As with the summary of key tasks discussed in (ii), above, management envisions an ongoing effort, beginning with basic and high-level goals and evolving to greater granularity over time.*
- (v) *Management will work with supervisors to create KPI's for their specific departments. As with the summary of key tasks and SMART goals discussed above, management envisions an ongoing effort beginning with basic and high level KPIs to provide guideposts for performance monitoring.*
- (vi) *Management will work with supervisors to prepare periodic reports to gauge performance. Management will not specify a performance target until sufficient data is collected and trends established. The frequency of report preparation will be dictated by the number of staff available and time required to assemble the reports.*
- (vii) *Management will seek a method to obtain feedback from the tenant agencies that provides more accurate data.*

## Responsible Parties:

*Director of Property Management Services, Facilities Operations Director, and Property Management Manager.*

## Estimated Completion Date:

- (i) *August 31, 2018*
- (ii) *August 31, 2018*
- (iii) *August 31, 2018*
- (iv) *August 31, 2018*
- (v) *August 31, 2018*
- (vi) *August 31, 2018*
- (vii) *August 31, 2019*

### 3.1 Accountability Framework – Organizational Structure

The agency's current organizational structure does not ensure accountability. The separation of Facilities Maintenance from Property Management creates communication and collaboration challenges and makes a clear articulation of roles, responsibilities, and authorities difficult. In the long term, management should consider merging Property Management with the Maintenance function for a more customer-focused, responsive and adaptable approach to providing maintenance services to agency tenants. The agency's Fire Controls and Security Controls functions' reporting lines do not ensure that they are afforded the level of management attention appropriate for Life and Safety programs. A review of the current Facilities Maintenance Organizational Structure found a number of opportunities for improvement, as discussed below.

#### *Monitoring of Control Systems versus Maintenance*

The current organizational structure does not support a delineation of duties between managing plant operations and maintaining buildings and relevant systems. The Plant Operations and Building Automation teams monitor central plants that provide chilled water and steam to various buildings. The maintenance crews provide general maintenance and upkeep of the buildings. Both facilities maintenance and plant operations report to the Director of Facilities Operations. Discussions with staff indicate that the Director of Operations' focus is with the Plant Operations Group. With oversight of five different areas (Plant Operations, Building Automation, HVAC, Life & Safety Systems, Preventive Maintenance and General Maintenance), the Director of Facilities Operations is often a bottleneck in the decision making process. Thus, a more streamlined organization would separate maintenance from plant operations i.e. have all

the maintenance supervisors reporting to the maintenance manager, who would, in turn report to the Director of Property Management Services. Since the HVAC crew works very closely with Plant Operations and Building Automation, the crew could continue to report to the Director of Facilities Operations together with Plant Operations and Building Automation. The audit team has discussed some options and provided program management with suggestions for both transitional and long term organizational structures.

#### *Life & Safety Control Reporting Lines*

The current organizational chart has the two Life and Safety supervisors (Fire Controls and Security Systems) reporting to the maintenance manager. These two areas' day-to-day operations and missions are more in line with the agency's Safety and Security Division. Thus, having these areas within the agency's Safety and Security Division would not only help streamline their operations but also elevate them to the appropriate level within the agency's risk profile.

#### *Building Technicians*

Maintenance management informed the auditors that it aims to have the building technicians (within Property Management) completing most (90%) of the work orders generated for their buildings. However, the current organizational structure does not support that strategy. Currently, building technicians are spread between at least two buildings each. As a result, the building technicians require a lot of assistance from the skilled trades (in many cases) for relatively mundane tasks, which is not cost effective.

#### *Property Managers*

The organizational structure does not ensure property managers are held accountable for how quickly the work orders generated for their buildings are completed. The property managers share the responsibility for ensuring work orders are addressed timely with the maintenance supervisors, who they have no authority over. The building technicians are expected to handle 90% of the work orders. However, because the building technicians are generalists and not skilled or licensed in a particular trade, the property managers have to refer a lot of the work orders to the skilled maintenance teams that do not report to them.

#### *Supervisor Overhead*

The agency's facilities maintenance function would be more cost effective with more maintenance workers i.e. more people "turning wrenches" and less supervisors. Over time, management should gradually merge Facilities Maintenance with Property Management and grow the maintenance worker ranks while reducing (through attrition) the supervisory positions.

Because TFC-managed buildings are spread out, once the maintenance function has grown its staffing levels to a point that provides sufficient depth in each of the trades, moving to a zone concept might assist with responsiveness and accountability. With zoning, a zone supervisor, with the responsibility and authority for accomplishing facilities maintenance goals in that zone, oversees a multi-disciplinary, collaborative maintenance team (including HVAC, plumbers, electricians, painters, carpenters, and building technicians) and is held accountable for the issues within the zone. The multi-disciplinary maintenance team environment would assist with on-the-job training for building technicians and maintenance crews' ability to self-identify maintenance issues before the tenant realizes a repair is needed. In addition, the zone concept provides the teams with "ownership" which brings pride to their work.

## Recommendations

- (i) In the long term, consider improving operational efficiency by streamlining facilities maintenance organizational structure by:
  - a. Merging Property Management with Facilities Maintenance.
  - b. Reducing the level of overhead by, through attrition in the supervisory levels, replacing some of the supervisory positions with skilled tradesman and building technicians.
  - c. Splitting the maintenance of TFC-managed buildings into 4 geographical zones as follows:
    - The North Campus and Park 35
    - Texas School for the Blind and Visually Impaired
    - Texas School for the Deaf
    - The Capitol Complex
  - d. Implementing zone-based multi-disciplinary, responsive, and adaptable maintenance teams at each of the five zones.
- (ii) In the short- to medium term, streamline the facilities maintenance function by implementing the following transitional moves:
  - a. Separating out Plant Operations and Building Automation functions by having all maintenance supervisors report to the maintenance manager instead of the Director of Facilities Operations.
  - b. Aligning the two Life and Safety areas within maintenance (i.e. Fire Controls and Security Systems) with the agency's Safety and Security division.

- c. Building up the agency’s building technicians’ capability (in both quantity and quality) for improved operational cost effectiveness.

### **Management Action Planned**

*Management concurs with some of the findings. There is wisdom and streamlining potential if certain maintenance functions are separated from plant operation functions. However, management does not agree that the Fire Control and Security Control functions should be placed under the Safety and Security Division. These programs were moved to Property Management Services approximately 3 years ago and it is noted that the Fire Control and Security Control functions performed under the program are limited to the “hardware” or equipment that these trades oversee. The “software” such as formal communications and policy setting with the State Fire Marshal’s Office, State Office of Risk Management, Department of Public Safety, and defining access levels and security thresholds remain with the Safety and Security division. It may be desirable to change the position titles to foremen or team lead, but the need for a single point of authority over a trade has proven itself to be necessary and beneficial.*

*As with many recommendations in this report, management’s ability to implement recommendations is predicated upon filling existing vacancies and obtaining additional FTEs and associated funding. Management responses are therefore made within these constraints.*

- (i) *Management concurs with all recommendation except those contained in (i) b, as discussed above. As previously discussed under item 1.3, management anticipates a much higher FTE count and associated funding is required to fulfill this recommendation.*
- (ii) *Program management will work with executive management to determine a more appropriate organizational structure. Changes will be implemented over a period of two years.*

### **Responsible Parties:**

*Director of Property Management Services, Director of Budget and Executive Director.*

### **Estimated Completion Date:**

- (i) *August 31, 2021*
- (ii) *August 31, 2019*

## **3.2 Accountability Framework – The Work Order System**

A strong accountability framework would provide reliable tools to assist management in maintaining and tracking key performance data. The tools would also assist staff in synthesizing

information from the key performance monitoring systems into periodic management reports and allowing for the development of smart management solutions. Other than the work order system, the facilities maintenance function does not have any other (reliable) tools to assist management on maintaining and tracking performance data.

The current work order management system is not being used in a way that ensures completeness, integrity, and accuracy of data. The manner in which PM work orders are generated does not provide adequate information for management to assess the true extent of the PM backlog. Programming the system so that all PM tasks of all building equipment are auto-generated per manufacturer recommended maintenance schedules would assist in demonstrating the true extent of the agency's PM backlog.

Currently, the agency does not periodically perform a reconciliation of actual building equipment with the inventory data within the work order system, thus, the data within the work order system cannot be relied on for completeness and accuracy. However, the portfolio wide Facility Condition Assessment should provide data to update the work order system.

The work order system is not being utilized in a way that allows for the efficient tracking of key milestones and other important work order information. For example, work orders are not always assigned a valid priority level, work orders are not always printed and assigned to staff in a timely manner. Supervisors are able to manipulate the due dates, which limits the usefulness of the overdue work order report.

Facilities Maintenance management does not routinely analyze the work order data to assist in solving such problems as uneven work distribution and employee productivity.

## **Recommendations**

Improve the completeness, integrity, and accuracy of the data in the work order system by:

- (i) Programming the system so that all PM tasks of all building equipment are auto-generated per manufacturer recommended maintenance schedules. The auto-generated work orders should include maintenance on equipment that is currently not included in the PM program.
- (ii) Periodically performing a reconciliation of actual building equipment with the inventory data within the work order system.
- (iii) Requiring supervisors to use the work order system to its full potential, including the functionalities for work order prioritization and sending auto-generated reminders re unassigned and overdue work orders.
- (iv) Providing facilities management with reports to assist in solving such problems as uneven work distribution and employee productivity.

## Management Action Planned

*The findings of this section are well recognized best practices of the industry and proven means to add value and generate savings to facility owners. They also require a significant investment in technology and manpower to implement, manage, and maintain. For the agency's new buildings, Building Information Modeling (BIM) is being used as the platform to achieve these best practices.*

*The findings accurately point to the fact that the current work order system has incomplete data and a lack of quality assurance and quality control. Taken as a whole, the agency's buildings contain tens of thousands of assets that qualify for monitoring and management under a preventive maintenance program. Many of these assets predate the age of computers and all predate BIM. This means that hundreds if not thousands of manpower hours would be required to properly identify the assets, tag them, research and define the manufacturer's or installers preventive maintenance requirements, and input the information into the work order system. Where possible, deferred maintenance projects are being used to harvest this data, however inputting into the work order system remains a manpower challenge.*

*As with other recommendations contained in this report, management plans to implement as many improvements as it can within the reality of current limitations and seek to make further improvements in the future.*

- (i) Management will work to integrate all new assets installed through the deferred maintenance program but will only make mission critical systems active in the work order system.*
- (ii) Management will work with supervisors to implement a quality control program wherein any employee working on an asset, via a work order, will confirm the information contained on the work order against the asset located in the field. Any discrepancies will be noted and provided to the Information Technology (IT) division for updating in the work order system.*
- (iii) Management will review the work order system to determine which functionalities can be implemented including work order prioritization, and auto-generated reminders for unassigned and overdue work orders.*
- (iv) Management will work with IT to determine what reports can be auto-generated within the work order system to better monitor employee productivity and uneven work distribution.*

## Responsible Parties:

*Director of Property Management Services, and Director of IT.*

### **Estimated Completion Date:**

- (i) *Ongoing effort.*
- (ii) *August 31, 2018*
- (iii) *August 31, 2018*
- (iv) *August 31, 2018*

### **3.3 Accountability Framework – Human Resources Management**

The human resources management processes within the facilities maintenance program do not ensure accountability and, in turn, operational effectiveness.

#### *Employee Turnover*

One of the maintenance areas reviewed had an employee turnover rate of 57% (4 out of 7) over the last two years. Such a high turnover rate is costly and not sustainable. The loss of institutional knowledge, the cost of finding and training suitable replacements, and the damaged morale among the remaining employees are all part of the cost of employee turnover. While the agency's uncompetitive wage rates are an issue, discussions with some of the employees who have left the agency indicate that other factors influenced their decision to leave, which elevates the agency's reputational risk, which in turn makes it difficult for the program to recruit good people. A review of supervisors' performance plans found that they are not held accountable for high employee turnover. Ideally, management should set performance targets regarding employee turnover and include those in each supervisor's performance plan as one of their performance goals. This would also assist with ensuring supervisors not only make good hiring decisions but also ensure that, once hired, the employees are provided with adequate training.

#### *Filling Maintenance Technician Vacancies*

Facilities maintenance management processes do not ensure maintenance technician vacancies are filled in a timely manner. The review found that management has taken an average of 5.4 months (162 days) to fill vacancies. In addition, the facilities maintenance area lost 55% (5 out of its 9) vacancies to attrition. Supervisors' performance plans do not include filling vacancies in a timely manner as a performance goal. This would require supervisors to proactively recruit people to fill the vacancies. Requiring supervisors to actively recruit employees may, in fact, result in them actively working to keep their staff, which would, in turn, reduce turnover.

### *Employee Performance Management*

Facilities maintenance management processes do not ensure employees are provided with performance evaluations annually, as required by agency policy. A review of Human Resources' tracking tool for performance evaluations found high levels of noncompliance as of October 31, 2017, as follows:

- (i) Seventy-seven percent (77%) (24 out of 31) of property management employees had not been provided with a performance evaluation.
- (ii) All of the maintenance workers at the School for the Deaf and Visually Impaired had not received an evaluation in 2017.
- (iii) At least three Property Management employees had not received an evaluation in more than five years.
- (iv) Sixty-four percent (42 out of 66) of the maintenance employees had not received an evaluation in 2017.
- (v) Forty-seven percent (31 out of 66) of the maintenance employees did not have a performance plan. However, a closer look at the "plans" reviewed showed that they are an exact copy of the evaluation.
- (vi) Four maintenance supervisors have not received an evaluation in more than five years.

A review of the supervisor performance plans found that they do not ensure management performance expectations are clearly articulated, including quantifiable performance targets. Ideally, facilities maintenance supervisor performance plans should serve as a way to assign goals and KPIs to individuals to ensure the overall facilities maintenance goals are met. For example, a good maintenance supervisor performance plan could include specific targets for employee safety (and related training), timeliness of completion of customer service requests, quality checks on employee work and/or level of callback, compliance with agency policy regarding employee performance evaluations, and compliance with Continuing Professional Education (CPE) requirements for professional licensees.

### *Employee Safety Training*

Facilities maintenance management processes do not ensure employees are provided with the safety training they need. The TFC Safety Manual requires maintenance supervisors to provide their employees with safety training, including annual blood borne pathogen training.

Maintenance workers are more likely to come into contact with hazards such as: blood borne pathogens, chemicals, asbestos, dust, solvents, bacteria, molds, and fungi than office workers and

should receive appropriate training to help mitigate these risks. Maintenance supervisors agreed that asbestos and other hazardous materials, including perchloric acid hoods, sulfuric acid hoods, acid waste drains, and A 600 biological hoods present real risks to maintenance staff.

Supervisor performance plans do not include performance targets on employee safety training.

### *Time Management*

Facilities maintenance supervisors informed the audit the recent significant increase in deferred maintenance projects is adversely affecting the time their teams spend on addressing tenant service requests, as they have to send representatives to many of Facilities Design & Construction's (FDC) deferred maintenance project meetings. One supervisor informed the audit that he spends 40% of his time in project meetings. The audit did confirm the significant (325%) increase in deferred maintenance appropriation from the 2014/15 to 2016/17 biennium and found evidence of maintenance staff's attendance at FDC project meetings. However, the audit also found a number of instances where maintenance teams were represented by more than one individual. For example, the audit found several instances where all three elevator technician staff had attended the meetings. This is an issue, especially when one takes into account that the meetings, which last approximately 1.5 hours, occur every other week and that there're generally several TFC teams represented at each of these. While they're always exceptions (like training) where having several individuals represent a maintenance team makes sense, the opportunity cost of doing so as the normal course of business is unsustainable.

### *Supervisory Training*

Agency management has not provided facilities maintenance supervisors with supervisory training to ensure the facilities maintenance mission is accomplished effectively and in a way that attracts and retains good quality maintenance workers. Supervisors are in the forefront of the action and could, if not trained, create a lot of risk for the agency or, if trained, develop and nurture very productive teams. Effective supervision requires such skills as coaching, counseling, caring, and building credibility with the staff by showing both functional expertise and relational competence. All of these do not come naturally – they are learned and developed.

None of the supervisors have been trained on topics such as:

- i. Performance Management/ Accountability
- ii. Change Management
- iii. Time Management
- iv. Teamwork
- v. Employee Motivation
- vi. Coaching and Mentoring

vii. Effective Communication

## Recommendations

Improve facilities maintenance's operational effectiveness by improving human resources management, as follows:

- (i) Improve employee retention by developing performance targets aimed at reducing employee turnover, and including them in supervisor performance plans.
- (ii) Improve the timeliness in filling the program's vacancies by developing relevant performance targets for supervisors' performance plan.
- (iii) Improve compliance with the agency's policy on employee evaluations by including compliance with the policy as part of the supervisor's performance plan.
- (iv) Develop robust performance plans (for supervisors) that capture supervisor key performance indicators e.g. employee safety, performance evaluations, timeliness of work order completion, and customer satisfaction ratings.
- (v) Provide maintenance employees with safety training on:
  - a. Blood borne Pathogens
  - b. Hazardous Materials
  - c. Asbestos Awareness
  - d. Electrical Safety
  - e. Roof Access Safety
  - f. Lead Awareness
- (vi) Require that only one individual represent a maintenance team at the deferred maintenance project meetings, unless otherwise justified.
- (vii) Provide supervisors with supervisory training, including, emotional intelligence, relational competence, coaching, mentoring and effective communication.

## Management Action Planned

*Management concurs with the findings and will work diligently to improve human resources management. Good employees form the bedrock of this program and management is committed to implementing the recommendations to the greatest degree possible. Management notes that it is aware the agency's human resources division is exploring updates to personnel evaluations and the current use of performance plans which may ultimately impact the action plans below.*

- (i) *Management is currently working with supervisory staff to develop achievable performance targets aimed at reducing employee turnover and will include these in their performance plans. Management has already seen some decrease in voluntary turnover rates given changes in supervisory techniques and believes this trend will continue.*
- (ii) *Management will work with Human Resources, and supervisors, to improve the timeliness of filling vacancies and develop relevant performance targets to incorporate into performance plans. These performance targets will recognize that each hiring effort is unique and driven by many factors which staff do not control. Only those factors which staff control will be used to measure performance.*
- (iii) *Management will work with supervisory staff to develop performance targets aimed at confirming annual employee evaluations are performed, and include these requirements in their performance plans.*
- (iv) *Management will work with managers and supervisors to improve performance plans to incorporate key performance indicators for which they have responsibility of or control. Certain employee training identified in the report lies outside of their responsibility and will be incorporated into the performance plan for the Director of Property Management Services.*
- (v) *Management will work with trade supervisors, the Safety and Security division, and Human Resources to implement six safety training programs named in the recommendation. If possible, management will provide the training on an annual basis and make it mandatory for all employees. Responsibility for maintaining the training program will be incorporated into the performance plan for the Director of Property Management Services.*
- (vi) *Management will give guidance that only one individual for a given trade is present at deferred maintenance project meetings, unless otherwise justified. Preferably, the representative is a manager, supervisor, or senior employee of that trade group. In addition, management will identify a chain of priority for attendance.*
- (vii) *Management will work with the Human Resources division to implement a supervisory training program, as recommended. If possible, management will provide the training on an annual basis and make it mandatory for all managers and supervisors. Responsibility for maintaining the training program will be incorporated into the performance plan for the Director of Property Management Services.*

## **Responsible Parties**

*Director of Property Management Services, Director of Human Resources, and Director of Safety and Security.*

## **Estimated Completion Date**

- (i) August 31, 2018*
- (ii) August 31, 2018*
- (iii) August 31, 2018*
- (iv) August 31, 2018*
- (v) August 31, 2018*
- (vi) August 31, 2018*
- (vii) August 31, 2018*

## **4. Regulatory Compliance**

Overall, the agency's building maintenance processes include sufficient controls to provide reasonable assurance that compliance with federal and state requirements is achieved. The review found opportunities for improvement in the agency's compliance with annual backflow preventer testing and monthly fire extinguisher testing requirements.

### **4.1 Annual Backflow Preventer Testing**

Facilities maintenance does not have processes in place to ensure annual backflow preventer testing is performed as required by Texas Administrative Code. Fifty percent (6 out of 12) of the backflow preventers reviewed had not been tested in more than a year. Texas Administrative Code, Title 30, Part 1, Chapter 290, Subchapter D, Rule § 290.44 requires backflow preventers to be tested annually.

### **Recommendation**

Improve regulatory compliance by including annual backflow preventer testing as part of the Director of Facilities Property Management Services' chart of key deadlines.

## **Management Action Planned**

*Management will integrate all backflow prevention assemblies into the work order system and provide for auto-generated work orders to be issued 11 months following the last test. Responsibility for ensuring the tests are performed will be placed on the Director of Facilities Operations.*

## **Responsible Parties**

*Director of Facilities Operations and Director of Property Management Services*

## **Estimated Completion Date**

*March 31, 2018*

## **4.2 Fire Extinguisher Compliance**

Overall, Facilities Maintenance has processes in place to provide reasonable assurance that the agency complies with the National Fire Protection Association Codes and Standards. Testing for compliance with *annual* fire extinguisher inspection requirements found the agency to be fully compliant. However, 13% (13 out of 100) of the fire extinguishers tested did not comply with the monthly inspection requirement. Management indicated the monthly inspection requirement is relatively new, effective July 2016.

## **Recommendation**

Improve the agency's compliance with the National Fire Protection Association Codes and Standards by implementing a system that sends auto-generated reminders to Fire Controls staff as a way to assist in compliance.

## **Management Action Planned**

*Management concurs with the recommendation. Management believes monthly inspections will be best accomplished by Building Technicians, and can be integrated into other monthly tasks requiring a full building walk-through and sign-off checklists. In lieu of using the work-order system, it may be more efficient to place a calendar reminder for each technician and compliance to be ensured by supervision of the Property Manager. However, compliance tracking should reside with fire controls.*

## **Responsible Parties**

*Property Management Manager, Fire Controls Supervisor, and Director of Property Management Services*

## **Estimated Completion Date**

*May 1, 2018*

## **4.3 HVAC Certification Requirement**

Facilities maintenance program managers and supervisors do not track their staff's license and certification status. The review found that 13 % (1 out of 8) of the HVAC technicians tested is not certified by the US Environmental Protection Agency (EPA), thus not complying with EPA's 40CFR, Part 82, Sub Part F, Section 608 of the Clean Air Act. This federal law requires technicians who maintain, service, repair, or dispose of equipment that could release ozone depleting refrigerants into the atmosphere to be certified. Starting on January 1, 2018, this requirement also applies to appliances containing most substitute refrigerants, including Hydrogen, Florine, and Carbon (HFCs).

Facilities maintenance program supervisors do not track their staff's required continuing professional education (CPE) training to ensure they continue to fulfill license requirements.

## **Recommendations**

Improve the agency's compliance with federal requirements by:

- (i) Ensuring that individuals hired for HVAC technician positions meet the EPA certification requirement at the time of hire.
- (ii) Requiring supervisors to track their staff's compliance with required training and certification.

## **Management Action Planned**

*Management notes that it is aware the agency's Human Resources division is exploring updates to personnel evaluations and the current use of performance plans which may ultimately impact the action plans below.*

- (i) *Management concurs that staff should meet the minimum qualifications required by their positions and if certification and/or licensure is a requirement, then it is incumbent on the individual to maintain this licensure. Performance plans for*

*employees requiring the maintenance of certification and/or licensure will include this requirement.*

- (ii) *To confirm compliance with required certification and/or licensure, management will require supervisors or managers to track their respective staff status. Performance plans for supervisors and staff will include this requirement.*

## **Responsible Parties**

*Director of Property Management Services and Director of Human Resources*

## **Estimated Completion Date**

*August 31, 2018*

# **5. Safeguarding State Assets**

## **5.1 Safety of Equipment**

The review found an opportunity for improvement in ensuring state assets are safeguarded. Facilities maintenance procedures do not ensure high-value maintenance equipment is securely stored. The electrician and elevator maintenance team does not have a designated work space (i.e. a workshop). The technicians are currently based at Central Services Building (CSB), office #140, an office setting with cubicles. The team keeps its tools (some of which are expensive) locked up in their assigned TFC vehicles, and stores its supplies at the agency warehouse (which is located across the street from CSB). The team does not have a centralized maintenance shop (conducive to the type of work it performs) to store any work-in-progress and expensive tools and equipment. The audit found expensive electrical equipment that was not secured within the team's office space.

### **Recommendation**

Safeguard state assets by providing the electricians' team with a more secure work space (i.e. a maintenance shop).

### **Management Action Planned**

*Management concurs that a safe, secure, and functional workshop, or multiple such spaces would greatly enhance the effectiveness of the maintenance functions of the agency. As funding permits, the agency is continuing its plans towards the creation of a workshop in Parking Garage R, adjacent to the warehouse, where the current breakroom is located. In order for this space to*

*be converted, a replacement breakroom will be created in the Central Services Building (CSB), at the northeast corner of the ground floor. This space is presently vacant and requires relatively little work in order to be renovated. Nevertheless, any renovation requires funding and the program will need to wait until the end of the fiscal year to determine if it has sufficient funds remaining to complete the work. Part of the plan for this area is the creation of additional storage and/or work spaces. However, any work space located in CSB must be solely for activities that do not make loud noise or emit odors. The sign shop may be a good candidate for this location.*

**Responsible Parties**

*Director of Property Management Services, Budget Director, Deputy Executive Director of Facilities Design and Construction, and Executive Director.*

**Estimated Completion Date**

*April 30, 2019 – if sufficient funds are available in fiscal year 2018*

# Objectives and Conclusions

The overall objective of this audit was to determine the extent to which agency processes ensure facilities maintenance goals are accomplished efficiently and effectively, in compliance with relevant regulations, inter-agency agreements and procedures, and in a manner that provides a comfortable, safe, and healthy environment.

The audit focused primarily on the activities of the HVAC technicians, electricians, elevator technicians, plumbers, painters, carpenters, the PM crew and building technicians (under Property Management) primarily servicing the TFC-managed buildings in the Travis County (excluding the School for the Deaf and the School for the Blind) from September 1, 2015 to August 31, 2017. Fieldwork was conducted in October 2017 through November 2017. The detailed audit objectives and conclusions are described next.

## Objective 1 – Operational Effectiveness

### **1.1 Determine the extent to which the agency’s maintenance function has processes in place to ensure goals are accomplished in an effective manner.**

Program management has not developed clearly articulated (SMART) goals. The maintenance function's “SMART” goals are not quantifiable and cannot be considered as SMART.

### **1.2 Determine the extent to which Facilities Maintenance has accountability systems in place including performance measures and employee evaluations to track performance of individual units and staff.**

Program management has not set key performance indicators and targets for its key activities to provide important guideposts for the program in determining how well it meets the set goals. Facilities maintenance management processes do not ensure employees are provided with performance evaluations annually, as required by agency policy.

### **1.3 Determine the extent to which facilities maintenance personnel provide good service to their customers.**

The program has not formally sought feedback from customers on a regular basis. Customer satisfaction feedback should be a key performance indicator that helps staff focus on the importance of fulfilling stakeholder expectations.

**1.4 Determine the extent to which facilities maintenance succession planning adequately ensures continuity of operations in case of turnover.**

Fifty percent (4 out of 8) of supervisory staff is eligible to retire. Without a formal succession planning process in place to cross-train and transfer knowledge, the risk of a disruption in the continuity of operations in the event of turnover is real.

**1.5 Determine the extent to which facilities maintenance retains employees to ensure continuity of operations.**

Overall, facilities maintenance has processes in place to retain employees. However, one of the maintenance areas reviewed had an employee turnover rate of 57% (4 out of 7) over the last two years. Such a high turnover rate is costly and unsustainable. While the agency's uncompetitive wage rates are an issue, discussions with some of the employees who have left the agency indicate that other factors influenced their decision to leave, which elevates the agency's reputational risk, which in turn makes it difficult for the program to recruit good people.

**1.6 Determine the extent to which the agency provides sufficient oversight to facilities maintenance contractors to ensure deliverables are met in accordance with the contract and that the agency only pays for work performed.**

Overall, the agency has processes in place to ensure deliverables are met in accordance with the contract. However, the agency relies on contracts for its main operational strategy for providing maintenance services. A formal cost/benefit justification of contracting costs, including the cost of contract oversight, the cost effectiveness of extensive outsourcing is needed.

**1.7 Determine the extent to which the agency's maintenance functions are organized (organization structure) in a way that ensures accountability.**

The agency's current facilities maintenance organizational structure is too hierarchical and does not ensure accountability. The separation of Facilities Maintenance from Property Management creates communication and collaboration challenges and makes a clear articulation of roles, responsibilities, and authorities difficult. The agency's Fire Controls and Security Controls functions' reporting lines do not ensure that they are afforded the level of management attention appropriate for Life and Safety programs.

**1.8 Determine the extent to which the agency's maintenance staffing levels are adequate to ensure state buildings are maintained in a manner that provides a safe and healthy environment.**

This PM program is significantly understaffed and underfunded. The maintenance program heavily relies on third-party contracts. Management indicated this is due to

insufficient staff. However, without a cost/benefit justification for the use of contracts, the audit could not determine if outsourcing is a cost effective alternative.

**1.9 Determine the extent to which the current facilities maintenance staff has been provided with adequate training to ensure safety.**

Facilities maintenance management does not have processes in place to ensure that employees receive the safety training they need. Maintenance supervisors confirmed the presence of hazardous materials including asbestos, perchloric acid hoods, sulfuric acid hoods, and acid waste drains that their employees have not had safety training on how to work with and around these materials.

**1.10 Determine the extent to which the agency's preventive maintenance program ensures state building systems and/or equipment are maintained in accordance with manufacturer recommendations.**

The agency's severely underfunded PM program does not ensure agency compliance with equipment manufacturer preventive maintenance guidelines. With the available resources, the in-house PM crew is only able to perform PM tasks (on HVAC equipment and light fixtures) annually, despite manufacturer recommendations of a more frequent maintenance schedule. The preventive maintenance on elevators, air-filters, etc. is outsourced to contractors. However, other important building equipment is not receiving preventive maintenance at all, including plumbing, roofing, electrical equipment, and building access hardware.

**1.11 Determine the extent to which the agency's maintenance function has processes in place to ensure that the information within its work order system is accurate and complete.**

The way the agency's work order management system is being used does not ensure completeness, integrity, and accuracy of data. In addition, the agency does not perform a periodic inventory verification of the equipment in the work order system.

**1.12 Determine the extent to which the agency's facilities maintenance functions' processes ensure state assets are safeguarded.**

Facilities maintenance procedures do not ensure state assets are safeguarded. Because the electricians' team does not have a base (i.e. maintenance shop), it is not able to store its high-value maintenance equipment and tools securely.

**1.13 Determine the extent to which Facilities Maintenance Management is filling its vacancies in a timely manner.**

Facilities maintenance management processes do not ensure maintenance technician vacancies are filled in a timely manner. The review found that management has taken an average of 5.4 months (162 days) to fill vacancies.

**1.14 Determine the extent to which the agency's maintenance supervisors have been provided with supervisory training**

Agency management has not provided facilities maintenance supervisors with supervisory training to ensure the facilities maintenance mission is accomplished effectively and in a way that attracts and retains good quality maintenance workers.

**1.15 Determine the extent to which facilities maintenance management's use of outsourcing/contracts is cost effective.**

Management has not developed a formal cost/benefit justification for its significant level of outsourcing to ensure it is the most cost effective strategy for service delivery.

**1.16 Determine the extent to which facilities maintenance's management processes work assignments are optimally aligned with employee skill levels.**

TFC employee skill levels are not always optimally aligned with the work they perform. For example, one of the agency's two master electricians is regularly utilized to change light bulbs.

## **Objective 2 – Regulatory Compliance**

**2.1 Determine the extent to which the agency complies with license requirements.**

Facilities maintenance program managers and supervisors do not track their staff's license and certification status. The review found that 13 % (1 out of 8) of the HVAC technicians tested is not certified by the US Environmental Protection Agency (EPA), thus not complying with EPA's 40CFR, Part 82, Sub Part F, Section 608 of the Clean Air Act. The individual employee has been working at the agency since October 2014.

Facilities maintenance program managers and supervisors do not track their staff's required continuing professional education (CPE) training to ensure they continue to fulfill license requirements.

**2.2 Determine the extent to which facilities maintenance processes ensure compliance with Texas Department of Licensing and Regulations requirements.**

Overall, Texas Facilities Commission's (TFC) (the agency) building maintenance processes include sufficient controls to provide reasonable assurance that compliance with federal and state requirements is achieved. The review tested 12 generator inspections for compliance with Austin Code 3.2.10 and found no exceptions. The review tested 100 fire extinguisher inspections for compliance with National Fire Protection Association Codes and Standards, and found 13 exceptions. A test of 12 boilers for compliance with Texas Health & Safety Code, Section 755.025 found no exceptions. However, 50% (6 out of 12) of the backflows reviewed had not been tested in more than a year. Texas Administrative Code, Title 30, Part 1, Chapter 290, Subchapter D, Rule § 290.44 requires backflows to be tested annually.

**2.3 Determine the extent to which facilities maintenance has processes in place to ensure that generators, fire controls, elevators, and boilers are inspected, as required.**

Overall the agency has processes in place to ensure compliance with inspection requirements for generators, fire controls, elevators, and boilers. Facilities maintenance utilizes contracts to ensure compliance with the Texas Department of Licensing and Regulations' inspection requirements for boilers, elevators, generators, and fire control systems.

**2.4 Determine the extent to which agency's facilities maintenance contract oversight processes ensure compliance with state contract reporting requirements.**

Facilities Maintenance has sufficient contract oversight controls in place to provide reasonable assurance that service delivery is performed in accordance with contract requirements. The agency relies on contracts for a significant part of the maintenance mission. All of Facilities Maintenance's contract managers have the CTCM designation, as required by the Texas Gov't Code, § 2252.908.

# Scope and Methodology

The overall objective of this audit was to determine the extent to which agency processes ensure facilities maintenance goals are accomplished efficiently and effectively, in compliance with relevant regulations, inter-agency agreements and procedures, and in a manner that provides a comfortable, safe, and healthy environment.

The audit focused primarily on the activities of the HVAC technicians, electricians, elevator technicians, plumbers, painters, carpenters, the PM crew and building technicians (under Property Management) primarily servicing the TFC-managed buildings in the Travis County (excluding the School for the Deaf and the School for the Blind and Visually Impaired) from September 1, 2015 to August 31, 2017. Fieldwork was conducted in October 2017 through November 2017.

The audit was based upon standards as set forth in Texas Government Codes, agency policies and other sound administrative practices. The audit was performed in compliance with the Institute of Internal Auditors' "International Standards for Professional Practice of Internal Auditing."

Additionally, we conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our evidence-gathering methods included the following:

- We reviewed applicable laws, rules, and established procedures.
- We reviewed the agency's Strategic Plan for fiscal years 2015 – 2019.
- We reviewed reports regarding inspections performed by external entities.
- We conducted interviews with staff.
- We reviewed and observed some Facilities Maintenance procedures.
- We benchmarked processes against a comparable peer organization.

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## **TFC Mission Statement**

The Texas Facilities Commission (TFC) mission is to support state government through strategic planning, asset management, design, construction, maintenance, and leasing of state facilities and the reallocation and/or disposal of state and federal surplus.

## **Office of Internal Audit's Mission Statement**

Our mission is to enhance and protect organizational value by providing risk-based and objective assurance, advice, and insight.

## **Project Team**

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