USF | Muma Business Review
A publication of the Muma College of Business | University of South Florida

| Volume 1, Number 16 | Empircal Findings Article | 25 SEPTEMBER 2017 |
|---|---|---|

# Facilities Management: How is Public Leadership Responding to Crisis?

By
Rebecca Smith

History has been known to speak loudly and with accuracy relative to the expansion of public facilities and the challenge to maintain them. The challenges to keep pace with the growing population and the ever-changing requirements for contemporary designs are felt in every sector of our public facilities. Regardless, we, the public, trust that those responsible are managing these assets effectively and efficiently. Research indicates that this doesn't appear to be the case.

Included in this paper are the results of a study that focuses on the current practices of public facilities management programs. The intent is to identify elements that either support or detract from efficiently operated and effective facilities departments. Given the nature of this industry, both objective and subjective elements were addressed. Objectively, the organizational hierarchy and the associated communications pathways were identified. Subjectively, the lifecycle of the facilities mission was dissected and discussed through an interview process. Fifteen specific data points were addressed, which included accountability, effective communication, data driven program development, allocation of resources, documentation of work performed, continuous training and education, and the use of technology.

This study also serves as a measurement against the historical performance of public facilities management practice. There have been decades of growth in public assets. During that time, innovation within operational practice and technology offers new opportunities for organizations to address issues of efficiency that translate directly into a measure of effectiveness. Given the continued outcry for additional funding, it seems there are challenges that continue to exist despite the innovations offered. This study focuses on those challenges. Further analysis, based on successful models of public facilities management, provides insight as to what practices, if adopted, may drive the lesser achieving programs toward greater effectiveness.

**Facilities management has become increasingly challenging over the years. Given our history of catastrophic failures, why do public facilities continue expanding past our ability to responsibly maintain them?**

In order to reverse the declining momentum, we must first identify the most common areas that challenge facilities managers, and understand how they currently address those challenges. This research will address the following three questions:

- **RQ1:** What do facilities managers perceive to be the greatest obstacles to ensuring their facilities are properly maintained?
- **RQ2:** What factors do facilities managers perceive to be the greatest challenge in ensuring sufficient resources are allocated to current maintenance?
- **RQ3:** To what degree do facilities managers perceive that more effective communications would positively impact on the effectiveness of facilities management and maintenance?

**Keywords:** Lack of Funding, Growth Cycle, Productivity, Crisis, Asset, Facilities Management, Maintenance Budget, Priority, Communication, Knowledge, Strategic Plan, Outsource, Technology, Training

## Introduction

Imagine yourself as a land baron, the master of a multi-million-dollar property asset portfolio. As the proud owner of such, can you imagine allowing a facilities management program to exist that resulted in a higher cost of ownership, a higher exposure to liability, and a shorter useful life of your investments? It's unlikely that you would knowingly allow this to occur; but, in fact, you are. The public assets that you see all around you are most likely in a fight of their "useful life" to exist within the current climate of facilities management. Chances are your tax dollars, once invested in assets, are not being spent efficiently or effectively.

This is not a new trend. It began as far back as WWII. The war ended and the nation was starved for public services and the facilities required to house them. The economy recovered, the infrastructure boomed, babies were born, and public facilities were in demand. As described, this was not the problem. Money was available and the public needs were met with development. The problem surfaced years later as the priority for new construction continued while the responsibility to maintain the existing facilities fell to the back burner as deferred maintenance. Through the years, the "lag-time" for maintenance has grown as the asset portfolios continue to expand. Beyond the magnitude of simple growth, facilities maintenance is even more challenged as the tax-based funding has become increasingly volatile. At some point, this negative cycle will pass the point of no return.

A series of interviews conducted across this wide range of public organizations over the course of four months asked both organizational questions and operational questions. Fifteen specific points were covered with further discussion encouraged. These interviews were systematically mapped for data and subsequently collated within the group based on the topic. The objective data was also analyzed for comparison. Within this study, it is our challenge to identify those best practices that currently result in more effective and efficient facilities management. Further, we intend to identify those negative dynamics that contribute toward undermining success.

For the purpose of comparison and analysis, the complex issue of facilities management must be broken into individual components. It is also important to understand the hierarchical structure of the organization to gauge its impact on the program. With this information, the opportunity to create a more efficient and effective facilities management and maintenance program can be better understood.

## Review of Research

Through a literature review, six elements were identified as common areas of concern across the spectrum of public facilities that included: counties, cities, k-12 educational districts, universities, and colleges. While there are nuances that differ between the various sectors of public facilities owners, there are many shared obstacles to efficiency and effectiveness.

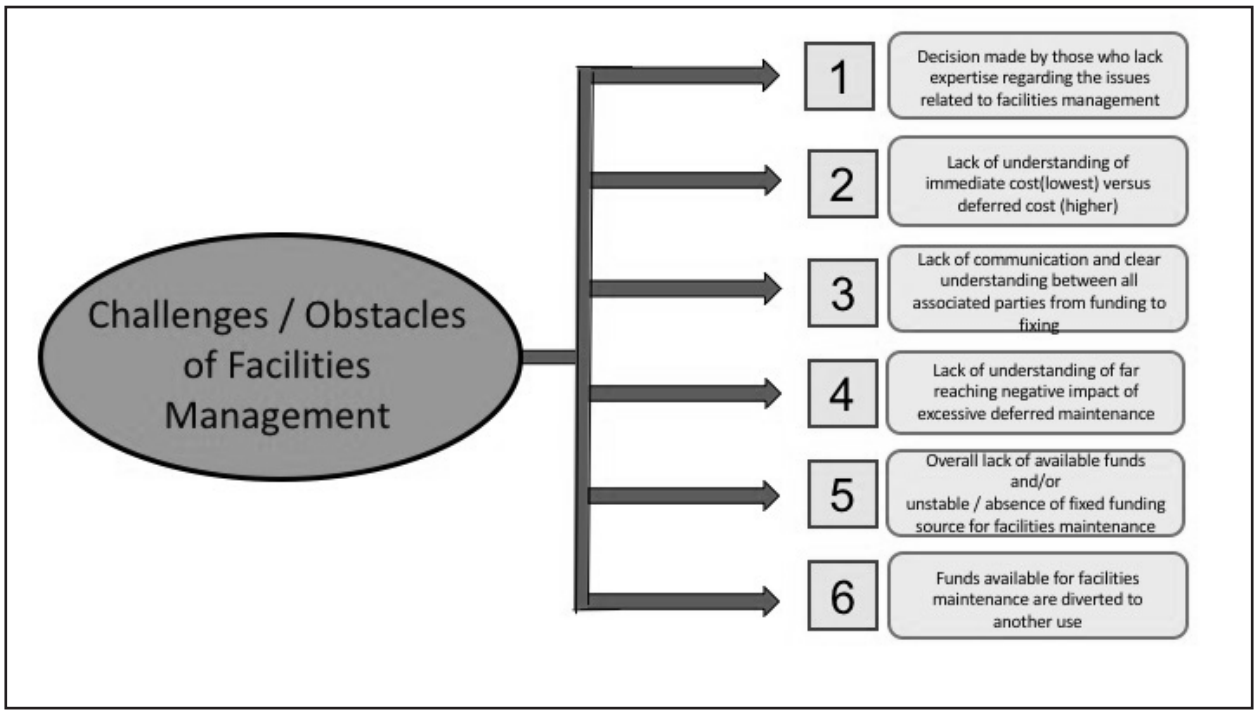


**Figure 1: Individual themes emerged as common contributors to significant obstacles & challenges.**

## Methodology

The subjective issues were discussed during face-to-face interviews that ranged from 60-90 minutes. Each interview was transcribed and mapped based on fifteen specific discussion points. Next, all interview opinions were captured and sorted based on each of the fifteen points. Discussion was encouraged. Following the analysis of each interview, the mapped data was combined from all sources based on each of the fifteen discussion points to distinguish similarities, differences, and trends toward success, or failure, to manage an efficient and effective facilities department.

## Most common obstacles to an efficient and effective facilities management program

As a result of studying the facilities management industry, individual themes emerged as common contributors to significant obstacles and challenges. These six issues are identified in Figure 1.

Each of these issues is widely discussed amongst the public-sector facilities management industry. To that end, some have reported positive impact to their facilities program as they address these issues, thus qualifying them for further investigation as to their cause and potential remedy. Figure 2 (following page) depicts these six issues noting a more detailed outline of contributing and related factors.

## Facilities management departmental structure within the organizations

To further understand facilities management, a general hierarchy of public organizations has been diagrammed. Based on the findings of the study, three options have been outlined that depict different relationships between facilities and maintenance. This includes immediate departmental organizations and immediate leadership up the chain of command.

The components that make up the facilities management division generally include the overall facility management department (operation, renovation, and expansion) and the maintenance department (scheduled and unscheduled maintenance work). It was observed that separate leadership for each of these departments was variable; however, appeared loosely aligned based on the size of the organization.

Figure 3 illustrates a completely separate facilities department from the maintenance department. Each director reports to a different supervisor, who then reports to the organizational leader, who ultimately answers to a governing board. This is the most independent organizational model.

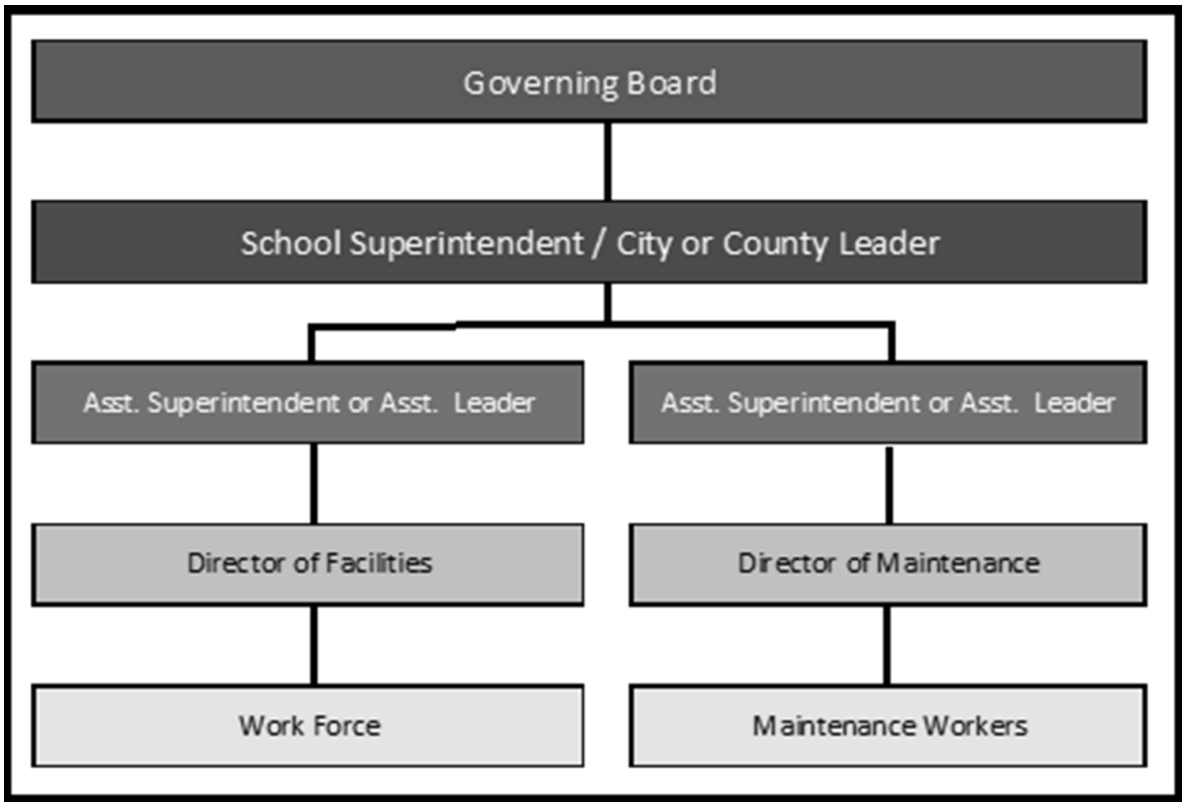


**Figure 3: Organization style 1 – Parallel with shared leader, once removed**

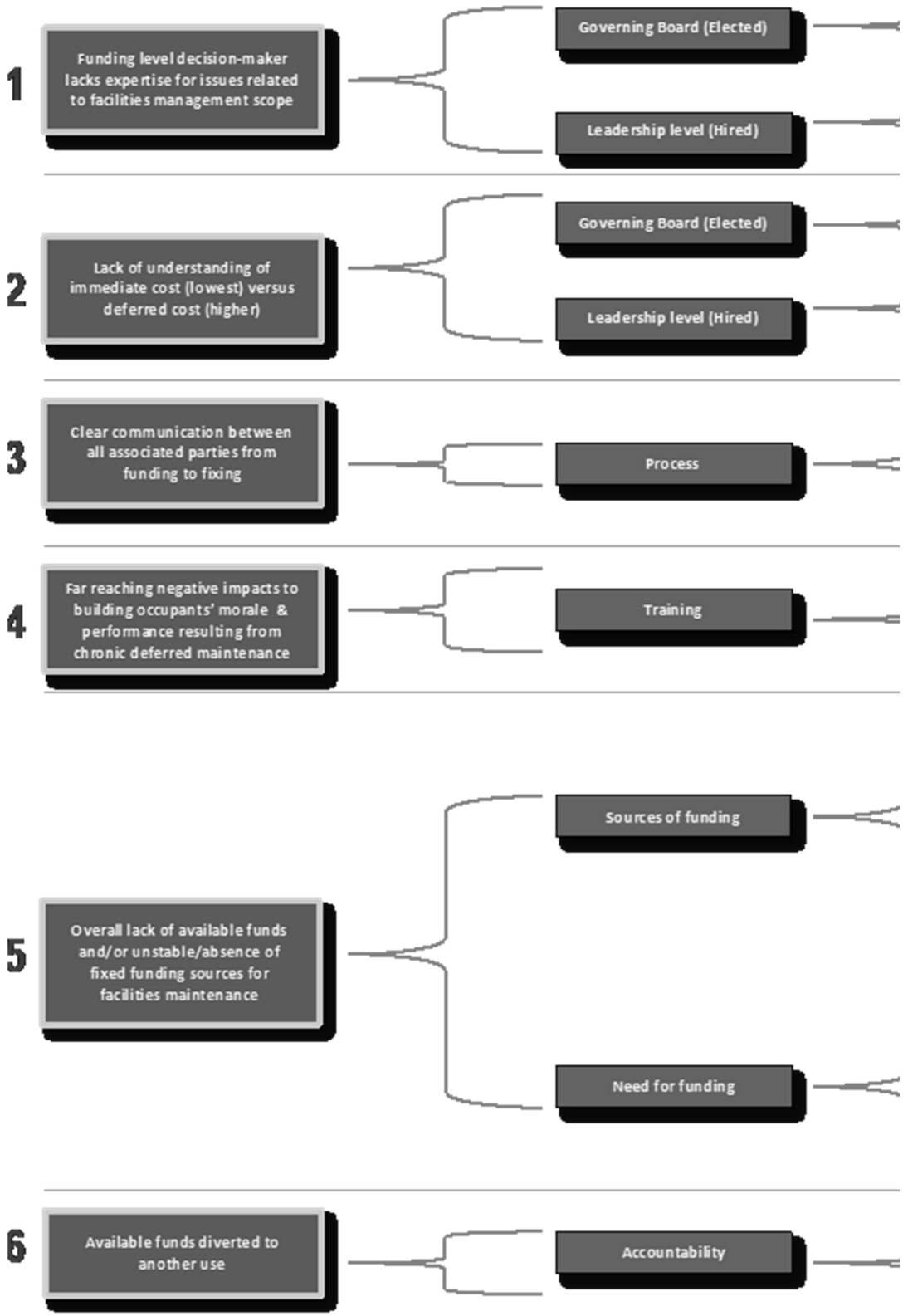


**Figure 2: Contributing factors to obstacles and challenges**

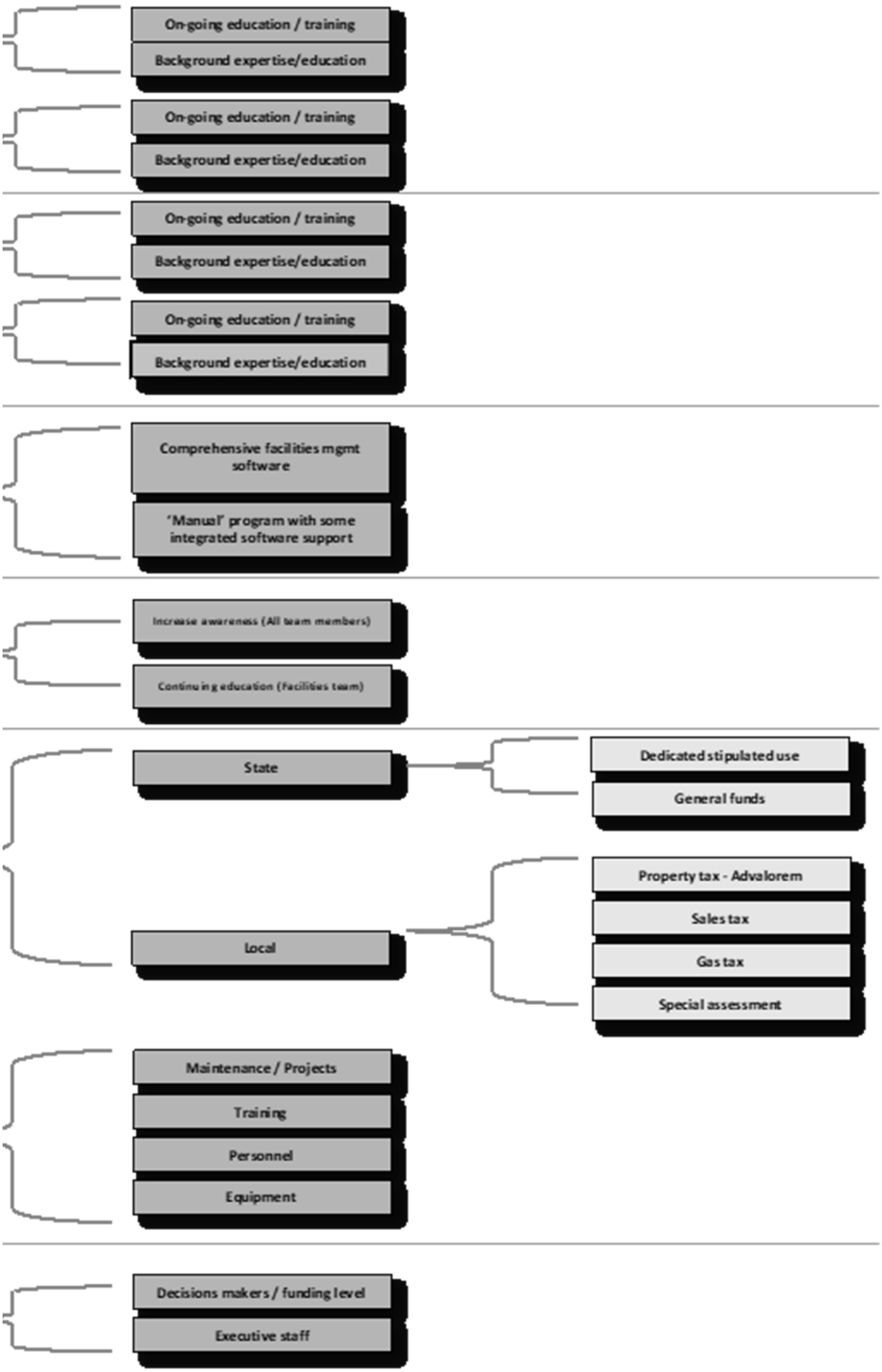


**Figure 2 (Continued): Contributing factors to obstacles and challenges**

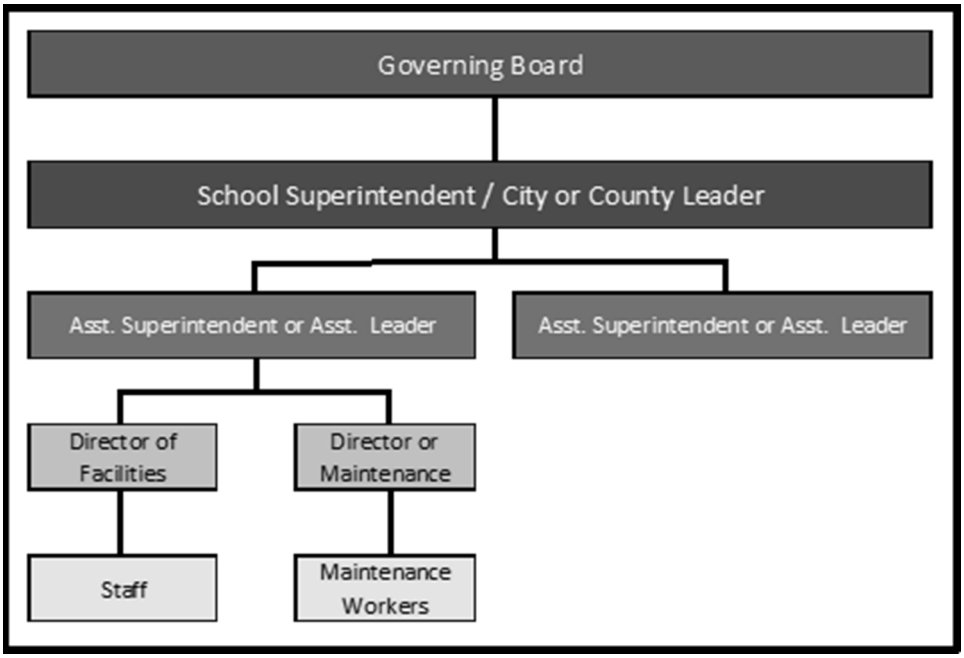


**Figure 4: Organization style 2 – Parallel with shared leader**

Figure 4 illustrates a completely separate facilities department from the maintenance department (as in diagram 1); however, each director reports to the same supervisor, who then reports to the organizational leader, who ultimately answers to a governing board. This organizational model represents some consolidation of leadership.

Figure 5 illustrates a facilities department whose director oversees the maintenance department. As a result, there is a single point of command for the facilities and maintenance activities. This organizational model achieves the most stream-lined hierarchy through the facilities and maintenance organization.

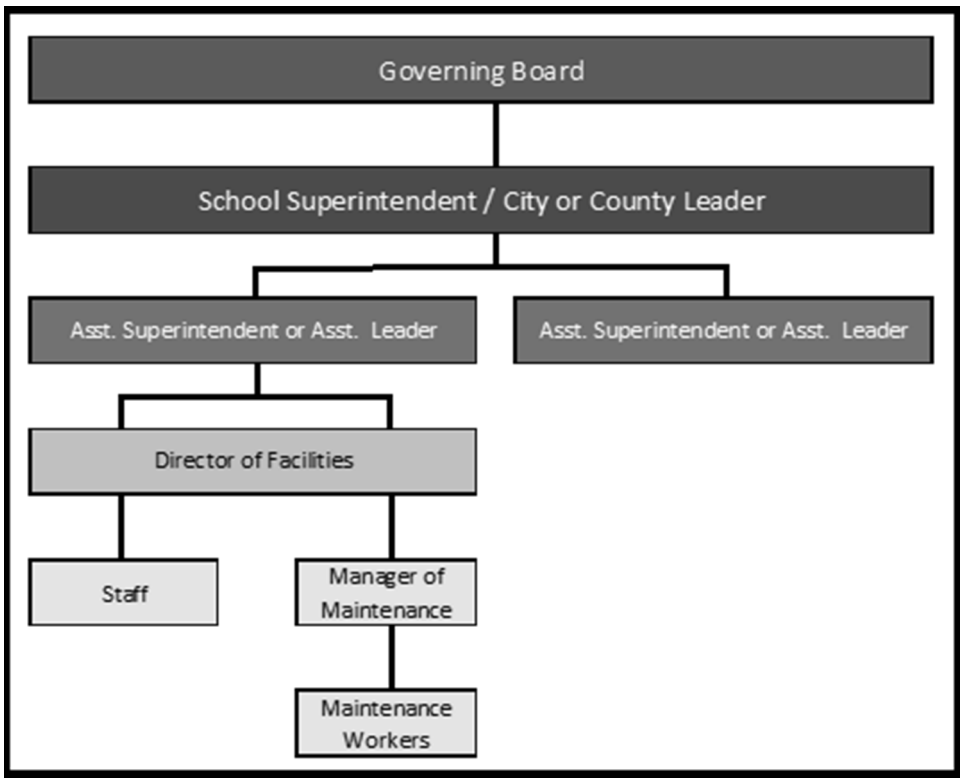


**Figure 5: Organization style 3 - Streamlined**

The study revealed that organizational hierarchy played a role in the facilities' programs relative to their operational agility, quality of communication, and efficiency. This will be further discussed throughout the findings.

## Typical activity life-cycle within the facilities management and maintenance department

A basic understanding of the maintenance process and the "forces" that act upon it will assist in the overall understanding of the complexities that facilities managers face. Figure 6 depicts the life-cycle of work activities that pass through facilities management and maintenance departments, along with the objective and subjective forces that act upon them. There are five steps beginning with the identification of the work item (issue). From there, funds must be captured (funding request), a decision made to allocate monies for the work item from within the overall budget (budget allocation), and then the work is assigned (assign work) and finally resolved (issue resolved). The process is somewhat basic. It is linear, progressive, and repetitive. The complexities are noted in the surrounding text and include the myriad of forces that are the source of the challenges and obstacles to efficient and effective facilities management and maintenance.

# Findings

During the study, current practices of facilities management programs across the public sector were identified. Interestingly, each program was individualized in nature; however, the research focused on reports regarding the above six challenges during the interviews. General conversation was encouraged; as other information was shared that offered further insights into their facilities management programs.

## Decisions are being made by those who lack expertise regarding the overall issues related to facilities management.

Overall, there was broad discussion regarding a lack of understanding relative to the challenges within the facilities department. Absent this expertise, the situation leaves a void where informed votes are essential.

### *Governing Level*

Unfortunately, for those elected officials who make up the governing boards, the requirement for facilities management expertise cannot be mandated. Considering the importance of their greatest asset, their properties, it would be helpful and highly recommended that they be "schooled" in the overall issue of facilities management as they assume their position on the board. A general understanding of the fiscal value, the challenges, and the negative im-

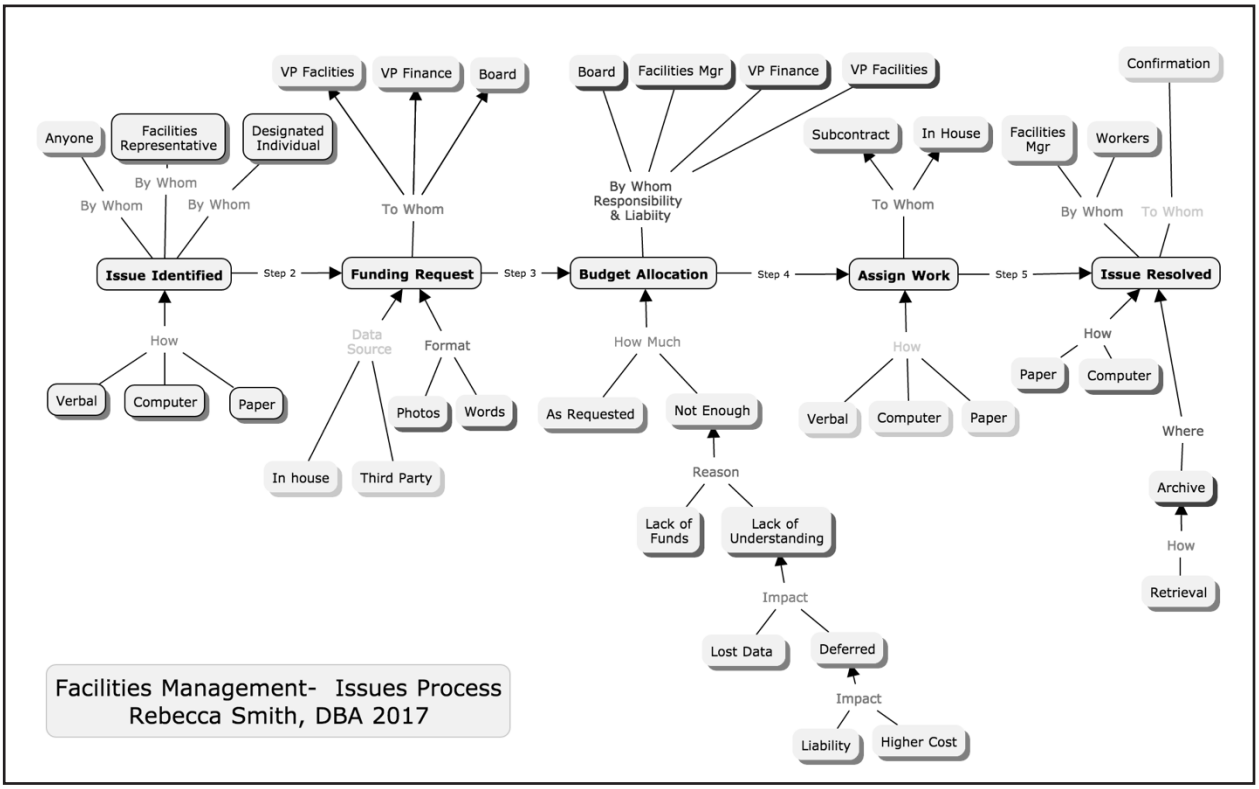


**Figure 6: Life-cycle of work activities that pass through facilities management and maintenance departments**

pacts associated with owning public facilities would be helpful in supporting judicious funding decisions. To further their understanding, expert presentations and supporting documentation should accompany each voting action.

Over 60% of those interviewed expressed concern for a lack of expertise in the decision-making process. The most successful facilities programs include a close relationship between the manager, their supervisors, and their governing boards. One of the more successful facilities managers pointed out that data-driven requests forced objective decisions as they matriculate to the governing level. Therefore, subjectivity is reduced, if not removed, from the execution of an effective facilities management plan.

***Leadership Level***

In some cases, it was reported that funding decisions at the board level rely heavily on the data submitted in the budget request prepared by the director of facilities, the director of maintenance, and most probably compiled and reviewed by their supervisor(s). Therefore, it is possible that the lack of expertise regarding the overall issues related to facilities management and maintenance could occur at the leadership level.

Further down in the organization, the practitioner level (directors and supervisors), a lack of expertise was also reported. Based on this study, it was not uncommon for these positions to be filled through internal promotion. For those more successful facilities programs, it was observed that past experience in similar managerial positions provided a better foundation to meet the challenges of managing a large facilities portfolio. In comparison, based on the interview data, those managers who lacked previous high level managerial experience reported greater frustration that appeared to represent a lack of confidence to comfortably control the issues.

In addition to basing their program on data driven requests, and regardless of the level in which it exists, the remedy for a lack of understanding is continuing education for those who currently occupy the positions.

## There is a lack of understanding of the negative impact to the overall facilities program between immediate cost (lowest) versus the deferred cost (higher).

Chronic deferred maintenance exemplifies the "snowball effect." Broad consensus amongst those interviewed agreed that the longer required maintenance "rolls" from one year to the next, the larger the issue, and the related cost, becomes. The costs compound rapidly and add to the struggles felt from limited budgets. Add to this the volatile income levels from year to year, and these mounting costs can have devastating impacts. There has been mention that the cost of repairing a system not properly maintained is five times more expensive. Emergency repairs are even more costly. Given the exponential impact to the budget, it is hard to imagine that this would be an acceptable practice at any level, let alone, facilities valued at hundreds of millions of dollars.

In one case, the deferred maintenance had become such a problem that reportedly, during the annual evaluation of the facilities, the facilities manager started the meeting with, "What school is failing the worst? Okay, let's start there and do what we can."

With regard to the adage "pay me now or pay me later," it seems that "pay me now or pay me *more* later," is more the case for facilities maintenance (Payton-Jones, 2014). The argument to operate a pro-active maintenance program is strong. Previous research identified the industry standard to be 70-80% pro-active maintenance (based on cost) with 20-30% reactive maintenance. Two-thirds of those interviewed indicate a high percentage of reactive maintenance and, therefore, less pro-active maintenance.

> In one case, it was reported that a single roof replacement cost was $1,000,000...the low bidder was not the same for each phase, the warranty on early roofs were negated due to conflicts, the quality of work was inconsistent, and there was no accountability moving forward.

In one case, it was reported that a single roof replacement cost was $1,000,000. The work was broken into phases over a period of years to align with the available funds. The result was disastrous--the low bidder was not the same for each phase, the warranty on early roofs were negated due to conflicts, the quality of work was inconsistent, and there was no accountability moving forward.

This finding mirrors that noted in a recent research review, which included a diagram that depicts the exponential increase in cost that results from deferred maintenance (shown in Figure 7). As is evident, the impact to a limited budget can result in potentially devastating consequences. One of the most successful facilities managers interviewed was clear on this issue when reporting his number one priority is serving the tax paying community by maintaining their facilities, period. Other issues within the organization that affected expense were a distant second in his consideration for spending. Unless and until he had met all of the requirements of the facilities, he refused to defer work.

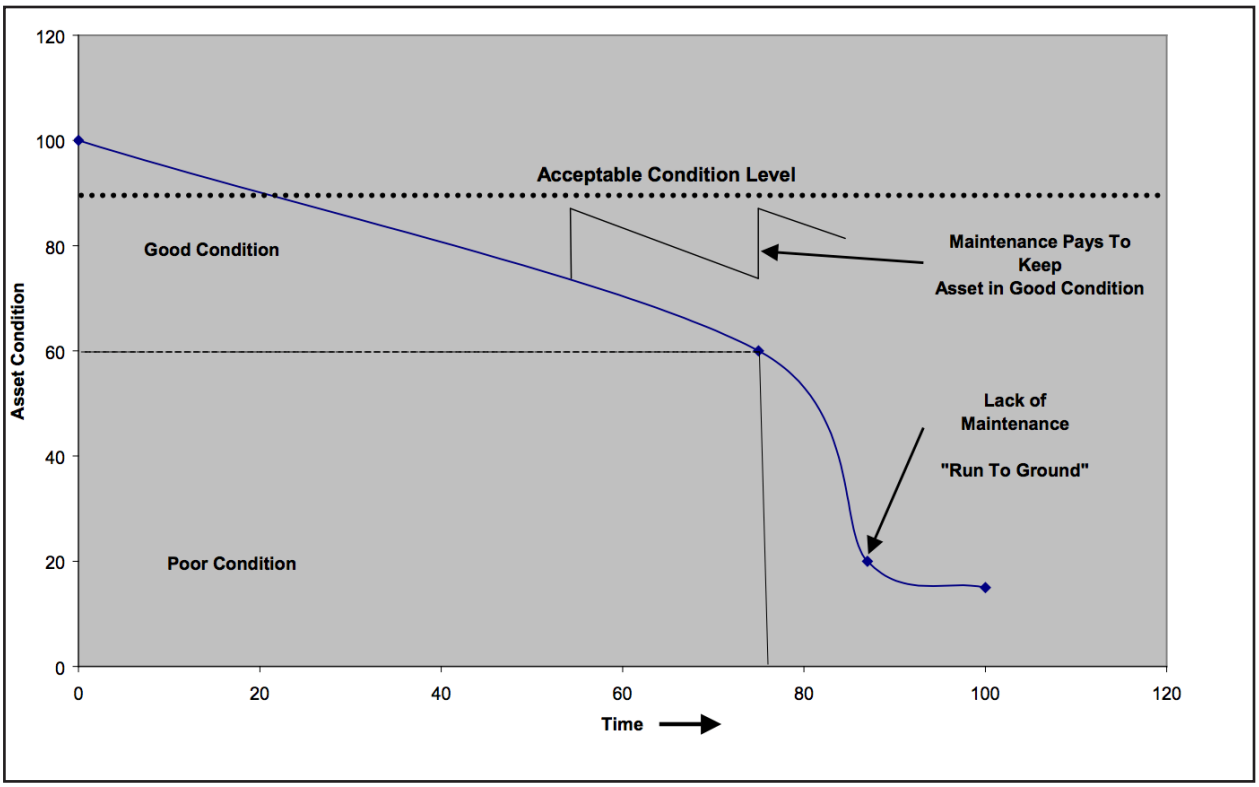


**Figure 7: Condition vs. Age Curve for General Assets (Source: Based on Roberta Reese's GASB Reporting Model from July 13, 2006 ASCE/USACE Workshop on Condition Assessment)**

With the organizational hierarchy in mind, this and other issues matriculate from the facilities leadership through other leaders until it is presented to the governing board for final decision. It is, therefore, important to address each of the levels to reflect the information gathered in the study. The potential for misguided decisions can occur at any level. We have identified in general terms, the "governing board" and "leadership level" (a person of higher authority than the facilities manager).

***Governing Board***

Again, as an elected board, it is not a condition of election that members have acute knowledge of facilities management and maintenance; however, they certainly should be expected to grow their understanding once elected. As a public leader, the study reflects it is imperative that they can identify high-cost, high liability issues and become effective stewards of the asset portfolio. Conducting workshops, meeting with the organization's "experts" and their risk managers, would have an immediate impact on their understanding of the negative impacts of fostering chronic deferred maintenance as it grows more expensive and offers greater liability over time. There is no escape, there is only greater risk and expense.

In one case, it was reported that the conversation with the Board ultimately ended with an ultimatum that requested funding for an immediate roof repair that had already been patched for years against continued delay and an ultimate demolition of the school due to the compounding negative impacts of a leaking roof.

***Leadership Level***

The leadership levels referred to here are those within the organizational hierarchy above the facilities manager. Generally speaking, the leadership level responsible for meeting the budget was found to be most sensitive to the impact of chronic deferred maintenance. The facilities managers reported a clear understanding; however, those in higher leadership positions were split regarding their expression of concern. Those leaders who worked more closely with the facilities managers expressed a greater understanding of the impact. Reported experience confirmed that as the number of emergencies grows, the dollars are shifted and the anticipated "scheduled" work loses funding. Thus, there was a premium cost to reactive maintenance drawn from their budget at a higher rate that starves funding from the currently required pro-active maintenance activities, which then pushes them toward deferral as well. This domino effect resulted in a stated sense of futility. Clearly, based on the data of both increased cost and decreased motivation within the facilities department, this downward spiral has to be avoided.

For all members in the facilities' hierarchy, it is incumbent that they understand how vital a healthy facilities program is to their overall success and existence. Therefore, establishing a goal that follows a best practice of no more than 20-30% reactive maintenance becomes critical. The negative impacts are far too great not to develop a level of expertise that supports such a goal.

While the majority of facilities managers were sensitive to the increased cost of emergency maintenance and could identify the associated negative impacts to their maintenance program, the study revealed a general knowledge of the best practice standard of no more than 20-30%. For the most part, each interview discussed their plan to improve, but did not cite their existing performance level, nor did they refer to a measurable goal.

## There is a lack of communication and clear understanding between all associated parties from "funding-to-fixing" the facilities.

The most successful facilities managers described a system that featured the use of clear communication based on a data-driven strategic program. Further, the data serves as the basis for the necessary credibility required to defend the needs of the facilities. Therefore, it seems that many of the failing programs would benefit by the implementation of this practice.

> The implementation of a comprehensive facilities software program meets with resistance. The most prevalent reasoning involves the wide range of technical skills.

Two components were identified as necessary to achieve clear communication. First, the plan has to be based on facts; existing conditions, historic activities, and future expected outcomes. Second, the means of communication must be clear. The data can be accurate, but if the message isn't conveyed clearly, then the needs of the facilities program may go unmet.

A common theme among those interviewed was that clear communication expressing the facilities' needs was critical to successful facilities programs. It was mostly agreed that without a complete understanding of the issues, both governing boards and leadership may unknowingly make wrong decisions as they prioritize their budget allocations. This research confirms that the resulting lack of funds for maintenance may be attributable to a lack of clear communication that doesn't convey the needs to those making the funding decisions.

The "vehicle" of communication found in the more successful programs was achieved through the use of a technology solution. It can be a system developed and reported using "old fashioned" spreadsheets and narratives, or it can be a simple oral presentation with supporting documentation. In any case, if the needs are clearly understood, it can be deemed successful communication.

The challenge mounts against the effective use of "old fashioned" spread sheets and simple oral presentations as a means of communication as many decades have passed since WWII. Reportedly, asset portfolios have grown to meet the increased needs of the population, and the lack of accurate records and data make the task of establishing a new beginning very challenging. Again citing the more successful programs, effective impact within their facilities is based on the integrated use of technology that is part of a comprehensive solution. Technology offers expedited data-sorting, record-keeping, and task management. In order to move toward an efficient and effective facilities program, it is likely that some level of technology must be incorporated.

The question becomes, how much technology does it take? Should there be a complete adoption of a comprehensive facilities software program, or will simple integration of supporting technology be sufficient? These questions become complex as you consider the skill set range of the affected user group.

### *Comprehensive Facilities Software Programs*

A comprehensive facilities software program offers automation that drives greater efficiency. Technology provides internal tracking, data sorting, and historical record keeping, and relieves these needs from staff, thus allowing them time to perform other non-technical duties. It also supports the full life-cycle of facilities management from data capture to managing the execution of activities and, finally, using automation toward a more pro-active alert system focused on preventative maintenance.

Based on the information gathered in this study, the implementation of a comprehensive facilities software program meets with resistance. The most prevalent reasoning involves the wide range of technical skills held within the facilities and maintenance staffs. Often discussed was the disparity in age within the maintenance staff. The average age of the workers appears to be mid-to late 40's to early 60's. While this group possesses a very high skill level regarding maintenance work, they are less comfortable with technology; some even threaten to quit when pressed to learn basic skills. Conversely, the younger population is more likely to have technology skills; however, they are not proficient with the construction skills of the older generation. Further, it was

widely reported that hiring within that age group was difficult due to the lack of interest in facilities maintenance work. Many contributing factors were discussed including low wages. The public sector has historically been able to overcome lower wages by offering higher benefits; however, this is no longer the case and therefore, the hiring pool has greatly diminished.

Regardless of the contributing considerations, the most effective and efficient facilities management programs resulted, in part, from a comprehensive technology plan. Each had worked over time to educate their existing workforce, through training programs, to bring their technology skills and comfort level to an effective level of performance.

***Manual Programs with Some Integrated Software Support***

The majority of the subjects interviewed reported that some technology was interspersed within their manual facilities operations. It appears technology was included, but was limited to the functions where the staff was willing and able to utilize it. For example, simple Excel spreadsheets for data reporting or work order task management programs were incorporated. Interestingly, at the level of the administrator, the work order program management was automated; however, in many cases, the process was converted to a manual operation for interface with the work staff as work orders were printed to paper.

The result of this simple integrated approach was reported to have some positive impact to the facilities and maintenance operation; however, it was agreed there is room for improvement. Again, much of the conversation centered around the work force and their reluctance to use technology. The leadership expressed continued concern for the incoming work force or, more importantly, the lack thereof. To many, trading a lack efficiency for possessing the capabilities in the field was the better choice.

## There is a lack of understanding that there can be far-reaching negative impacts to building occupants' performance and morale due to chronic deferred maintenance.

Within a failing facilities management program there were many levels of the operation found to be affected. Certainly, the basic building quality becomes diminished, but beyond the accelerated decline of the asset's useful life, there were other measurable negative impacts. For example, increased liability can become a costly result as lawsuits are filed for personal injuries that may be attributed to a poorly maintained facility and its surroundings. Not only was the cost of litigation and settlement claim un-budgeted, the exponentially higher cost of the emergency repair resulting from the incident is also not factored into the budget. The entire unscheduled expense takes precedent, thus creating a domino effect that draws money from other budgeted line items, leaving previously funded work deferred. Reportedly, this vicious cycle, once started, is difficult to turn around.

Further, there is the emotional and psychological impact failing facilities create. The impact on educational facilities has been studied. Take public school facilities, for example. It has been reported that reduced air quality and breakdowns in the infrastructure and operating systems create an overall condition of poorly maintained facilities. To confirm our findings, recent studies have shown that these conditions have an effect on the building occupants in both their academic performance and their morale (Lawrence, 2003).

The most frequently reported of these negative effects were:

a) Absenteeism
b) Reduced levels of effort
c) Lowered effectiveness in the classroom
d) Lower morale
e) Reduced job satisfaction

This study revealed a heightened attention to the exterior building appearance at the time of public events and media attention, so as not to convey the appearance of a diminished maintenance program.

This study revealed a heightened attention to the exterior building appearance at the time of public events and media attention, so as not to convey the appearance of a diminished maintenance program. So in addition to the direct correlation between the condition and cleanliness of the school and grades, attitudes, and absenteeism, there also exists an awareness to repair or refresh those areas most seen by the public, even at the expense of more pressing building conditions that may be band-aided or worse yet, concealed.

In this study, this issue seemed to be more prevalent in the k-12 educational arena. It was reported that as a result of the legislation to give public schools a grade, principals were held accountable for their students' performance. The backlash to the accountability began to include reasons of property condition, indoor air quality, noise interruption during maintenance activities, and even the quality of the furnishings and equipment; all issues that pressed against the already strained budgets. The contention was that accountability could not be sole-sourced to the principal if the school district was not able to provide an "appropriate learning environment."

| Descriptions / Organizations | State Funds | | | Local Funds | | | |
|---|---|---|---|---|---|---|---|
| | General Funds | Stipulated Funds | | Can be both general and stipulated funds | | | |
| | General Funds | PECO | Sum of the Digits | Advelorem Tax | Gas Tax | Sales Tax | Special Assessment |
| Cities | RECEIVES A PORTION | | | | | | |
| Counties | RECEIVES A PORTION | | | Can levy | Can levy with voter approval | Can levy with voter approval | Can levy with voter approval |
| k-12 School Districts | | RECEIVES A PORTION | RECEIVES A PORTION | RECEIVES A PORTION | CAN RECEIVE A PORTION | CAN RECEIVE A PORTION | CAN RECEIVE A PORTION |
| Colleges | | RECEIVES A PORTION | RECEIVES A PORTION | | | | |
| Universities | | RECEIVES A PORTION | RECEIVES A PORTION | | | | |

**Figure 8: Sources of funding by sector**

Once again, heightened awareness of these far reaching negative impacts must be part of any successful facilities program. This can be achieved at all levels within the organization from the governing boards to the maintenance workers with clear, data-based communication. This approach was reported in the most successful programs to prioritize appropriate resources to remedy the problems and eliminate the negative impacts.

## Overall lack of funds and/or unstable/ absence of fixed funding source for facilities maintenance

One-hundred percent of those interviewed expressed the need for additional funds; however, a small percentage of well-run programs wanted to fund their wish list more than their basic responsibilities. Ground zero for 85% was lack of funds, unstable funding, and an absence of fixed funding. The exceptional facilities operations, approximately 15%, felt more comfortable with their budgets. Their shared commonalities included: outsourcing, a well-trained staff supported by continuing education programs, and strong management leadership who developed data-driven programs, and clearly communicated to their leadership and governing boards

One hundred percent reported heavy reliance on tax based revenue, and all of the sectors experienced some level of negative impact based on funding. The Figure 8 chart depicts a summary of the reported potential sources for funding in each sector. As described, not all potential funding sources are producing revenue. Additionally, some others require regional referendums approved by the tax payers.

Reportedly, the most hard-hit sector in this study, relative to a lack of funding, was educational--mostly k-12 districts with colleges right behind them. The k-12 sector relies on state funding supplemented by county taxes, which, as noted above, vary based on the local voters.

The educational sector has long relied on the PECO (public education capital outlay) fund for a steady stream of revenue to maintain and renovate their facilities. The available state funding source has been hard hit by the fluctuating economy, the increased demand resulting from growth, and the near loss of the stable funding source known as PECO funds. PECO was the dedicated fund that supported the maintenance and renovation of facilities. These funds are derived from two fixed utility sources, taxes on the land-line communication telephone system and taxes on electricity. Unfortunately, land line telephones have become somewhat obsolete over the past years, and electric consumption has decreased due to operating efficiencies. While each changing dynamic offers some benefit to our society, there is an unintended and devastating negative funding impact to the PECO fund. To date, no other fixed funding source has been identified to replace those dollars.

To further complicate the facilities management challenge, research revealed the distribution of PECO funds, in part, relies on the "growth" of the district. For smaller districts that are not reporting growth, the result is devastating. In 75% of this sector, it was reported that PECO funds dropped exponentially over the past five years. In one case funding went from a couple of million dollars down to zero, leaving the district struggling for a means to maintain their facilities. This dramatic revenue impact was also reported by others interviewed. The result--mounting deferred maintenance. In some cases, it was noted that the state had abandoned their responsibilities and left the districts to seek other sources of funding on their own. This in light of the fact that the k-12 districts have no power to tax or raise additional funds outside of working with their county governments.

Unlike the other sectors studied, the k-12 sector is bound to respond to its population growth. It is mandated by the Florida state law through maximum classroom size standards. Another consideration is the age of the facilities' users. Colleges and universities host adult populations who have flexible schedules with classes being held from 8 a.m. to 10

p.m. They also have the opportunity to limit admissions, which can control growth. But still, they have a fixed asset portfolio that requires maintenance, and the costs increase from year to year as the facilities age. The loss of PECO funds has resulted in similar negative impacts; however, colleges and universities have more flexibility from other funding sources, including private donations, as well as autonomous decision power on how and when to use their facilities.

It was noted that cities and counties have the greatest flexibility regarding the expansion of their facilities portfolio. While there is need to maintain their facilities, there are many opportunities to utilize their existing space more efficiently before making the decision to build additional space. However, regardless of this flexibility, they work from tax-based revenue and, as stated previously, the amount of funding relies on the fluctuating economy. It is important to mention that municipalities have other dynamics that affect their budgetary spending on their building facilities. They are responsible for infrastructure, such as roads and utilities, as well as providing for public safety. These responsibilities are vulnerable to the communities' growth.

The result often times is special assessments to the taxpayers such as street light assessments, storm water assessments, fire assessments, etc., indicating the desperation of communities to keep pace with their expanded responsibilities and asset portfolios. When the overall budget is faced with increased demand to serve these needs, the impact is felt in the facilities maintenance operation. It was reported that elected officials lean toward prioritizing their municipalities' services, such as fire, transportation, and utilities. Some members of the facilities management community cited the concern for re-election as the basis of decision, noting that the voters don't necessarily have or share an opinion of performance based on the condition of municipal buildings. As a result, it becomes incumbent on those in facilities management to fight for resources to meet the demands of their asset portfolios.

Another option reported for municipalities is to issue bonds based on future income and anticipated growth. This provides cash flow to address current responsibilities, but the monies will be repaid with interest in the future. Given the possibility that the economy doesn't grow as anticipated, this approach can be risky. However, with the immediate challenges met, this practice is adopted as a routine solution to the challenges faced. In some cases, the bonded money was directed to provide additional revenue to the k-12 community. As a note, bonds do not require support from the tax payers.

Municipalities also have the opportunities to levy additional sales taxes, ad valorem taxes, gas taxes, etc.; however, the tax payers must vote to adopt them. Like bonded revenue, sales tax revenue can be directed to support the k-12 funding needs.

Given these facts, there is no surprise to the finding that funding sources across all sectors are not sufficient. To date, the fixed sources of funding are not yielding the funds necessary in education, and both local and state tax based revenue is not able to meet the demand. Special tax assessments have been approved regionally, responding to the outcry from their governing leaders; however, facilities management continues to move toward crisis conditions in many areas. Understandably and based on simple logic, as our communities grow, we add facilities to meet the needs, which results in an expanded portfolio that requires maintenance whose costs increase with aging.

On the other hand, it has been said that maybe there is a spending problem, not a revenue problem. If true, many dynamics come into question including, and most of all, measures of efficiency in operations and critical planning based on data driven information that establishes priorities.

The desire to build a new facility and celebrate its completion clearly outweighs the motivation to fix an un-glamourous underground sewer.

## Funds that are available for facilities maintenance are diverted to another use.

It was not uncommon to hear that deferred maintenance is the result of diverted funds. In many cases, those who are responsible to allocate funding for the facilities management program are often elected to office, and feel compelled to act in the interest of politics rather than in the interest of their facilities.

As explained, the attraction to divert facilities maintenance funds is clearly understood. The desire to build a new facility and celebrate its completion clearly outweighs the motivation to fix an un-glamourous underground sewer. This also holds true for those who are donating to institutions.

In some cases, not all of the funds are diverted, instead an abbreviated scope of work is funded for less cost, while the remaining funds are redirected. This simply delays the inevitable need which becomes more critical as time passes.

There were reported cases when deferred maintenance was used to balance a budget against other-high priority needs. The temporary repair was justified; however, when this approach is used for other lower level priority work, it can lead to a fa-

cilities program in crisis. If this practice becomes standard operating procedure, the potential to work under emergency-funding circumstances exists, and the result can be a domino effect moving toward failure.

In this study, the influence of elected officials serving their personal interests was cited, but not widely discussed at the level of being high on the list of challenges to the facilities managers. It appeared that misappropriation of funds may have resulted more from a lack of communication and understanding from the facilities managers and leaders up to the governing boards.

In either case, the decision to divert funds can occur at both the governing board level and in the leadership level depending on the level of empowerment which is unique to each organization. Regardless of what level directs the diversion of funds, it is vitally important that there is accountability. As stated, in some cases, diverting funds is warranted, and those should be substantiated and documented with full accountability assigned to whom made that decision. By implementation of this practice, there is potential to curtail politically driven decisions that serve individual agendas, not that of the organization or the facilities department.

## Discussion

To begin, the focus group of this study was public owners that held large asset portfolios including: cities, counties, colleges, universities, and k-12 districts. They were reviewed based on the commonality of a tax funded revenue, control by a public governing board, and subject to public activity.

This study revealed a number of clear messages regarding facilities management and challenges faced by the managers as they pursue their responsibility to efficiently and effectively maintain the assets to maximize their intended useful life.

First, in response to the research questions, the study presented the following information.

**RQ1:** What do facilities managers perceive to be the greatest obstacles to ensuring that their facilities are properly maintained?

In this study, an obstacle was defined as an issue the facilities management team felt they couldn't change. Without question, funding was the number one stated obstacle. Eighty-five percent of those interviewed spoke at length regarding the lack of funds, and how much of an impact it made on their facilities management and maintenance program. The others mentioned a desire for additional funding, but, unlike the 85% noted, their reasoning was to enhance already successful operations.

The following is a list of the most common effects resulting from the lack of funding:

- Building maintenance activities couldn't be completed to meet the expected level of quality or completeness, which resulted in a general sense of failure leaving all parties with feelings of frustration.
- Lack of the required skilled personnel due to limited wages offered.
- Lack of training programs and continuing education that were available within their organization.
- Lack of systems such as management technology including software solutions along with the hardware to support it.
- Inability to purchase and maintain necessary equipment to perform their jobs.

**RQ2:** What factors do facilities managers perceive to be the greatest challenge in ensuring that sufficient resources are allocated to current maintenance?

In this study, a challenge was defined as an issue the facilities management felt they could change with the necessary support and authority. The challenges most often identified included:

- Gaining a complete understanding of what their facilities truly required regarding maintenance (a comprehensive facilities' assessment) to ensure the content of their plan was based on accurate data.
- They felt they lacked the ability to forecast a long-range facilities management plan that was meaningful.
- They felt they lacked autonomy over the priority of maintenance work and projects to provide the necessary flexibility to respond to unscheduled maintenance work (reactive maintenance).
- In some cases, based on the organizational structure, the facilities managers felt frustration from the lack of control they held regarding maintenance activities and the resources required.

**RQ3:** To what degree do facilities managers perceive that more effective communications would positively impact on the effectiveness of facilities management and maintenance?

One hundred percent of those interviewed perceive communication as having a strong positive impact to the success of their facilities management and maintenance program. Responses that included "essential," "critical," and "number one priority" were

One hundred percent of those interviewed perceive communication as having a strong positive impact to the success of their facilities management and maintenance program.

among many others that expressed a true commitment to the need for clear communication. In one case, communication was defined as one of the three C's of a successful program: communication, collaboration and cooperation.

Each had a varying degree of commitment to technology--with some who felt most comfortable having personal conversations. Regardless of the form, every interview included many references to the need for communication.

As it appears, communication is the common denominator to many functions within a successful facilities management program. Successful communication was noted to impact efficiency at all levels of the operation as follows:

- Funding
- Accountability
- Shared expectations for a common goal
- As a basis of inspiration to improve staff skills
- Creation of a cohesive team that collectively feels empowered to achieve the impossible

## Additional Distinguishing Observations

These challenges are not new. Based on a recent study, facilities management has repeated this roller coaster throughout history. Over time, however the peaks are lower and the valleys are deeper. This is attributable to growth, but coupled with a lack of funding for many reasons.

> The most successful management programs were data-driven and based on a comprehensive understanding of the facilities' portfolio and its needs.

Based on this study, there were observations in common to both successful and failing facilities management programs. Consider the following regarding the more successful facilities management programs and from that, the less effective programs can be described.

***Strong management***

The most successful facilities programs were led by strong managers. They were schooled, experienced in facilities, and had proven skills as managers. They brought vision to their departments and held responsibility to deliver success. They were focused on the bottom line and realized that trained personnel was a priority and therefore, invested in a strong continuing education program.

***Comprehensive asset evaluation basis for data driven decisions***

The most successful management programs were data-driven and based on a comprehensive understanding of the facilities' portfolio and its needs. It was noted by one of the managers that Peter Drucker, tagged the founder of modern management, is credited as the originator of the quote, "You can't manage what you can't measure."

***Clear communication***

Once a successful data-driven plan had been formulated, successful managers made it their focus to establish clear communications in all directions. That included their supervisors, the governing boards and their working staff. Time was devoted and consensus was the goal, even if modified. A unified plan was more likely to have the funding support. With funding clearly in place, even if deficient, the manager went to work to direct his staff on the final decision. At the end of the fiscal year, there was more support for the accomplishments as everyone had buy-in and shared expectations.

***Stream-lined organization***

The more stream-lined the organization, the greater the efficiency and effectiveness of the facilities program. Due to the close relationship between the facilities expansion, renovation, and building maintenance, it appears to be most effective if the relationship is linear, not parallel. Figure 3 depicts a linear organizational structure. This promotes a clear chain of command which allows for accountability. There is no conflict within the facilities related activities and no competition for resources.

***Accountability***

It was critical that roles and responsibilities of each part of the team were clearly defined and absolutely honored. In the most successful organizations, the governing board was deemed the decision makers of the plan; however, they delegated full authority to their leaders and facilities managers to deliver the plan successfully. They did not micromanage. As a result of establishing accountability, authority was transferred to the most knowledgeable person to execute the plan. This approach minimized confusion, the opportunity for "personal indulgences" and helped to maximize the efficiency of the facilities operation.

***Technology***

Based on the findings of this study, technology plays a strong role in both efficiency and effectiveness. While computers will never replace the need for the facilities staff and maintenance personnel, they will automatically expedite activity, record information, assist in coordination, and document a number of important data points. Those facilities programs that have incorporated technology into their operations are clearly more efficient. There wasn't a single solution that was identified, instead each used their own combination of available technology. While the

approach to technology resulted in unique systems, they all incorporated their full staff's participation with little exception. Again, training was made available to ensure their ability to use the technology assigned to them.

A further reference to technology was noted as a means by which to record historical knowledge. Buildings are expected to have an average useful life of 50 years and some far exceed that. This requires decades of maintenance and therefore generations of workers. The facilities' history, if not well documented, has presented challenges to efficiency of the operation and the cost of maintenance with impact that threatens its intended useful life.

Currently, there is concern for the aging work force in facilities and the fear that their knowledge of the assets will retire with them. Technology offers an effective means to maintain that history for future reference.

***Outsourcing***

The concept of outsourcing was strong among the more successful facilities management programs. In one case, the facilities manager completely redirected the department by training all of the maintenance personnel to become supervisors and then outsourced all of the maintenance. Not only was the cost controlled, the liability for in house personnel was greatly diminished. The cost was controlled to follow the needs of the facilities. The higher the need, the greater the demand for outsourced service. Conversely, when there was less or no need for the service, the organization was not responsible to carrying the salary expense of direct personnel. This independence from an extended workforce provided the organization the agility to respond to the variable funding source without the result of chronic maintenance deferment. Further, the directly employed workforce is reported to be very pro-active in both their attitude and performance.

The concept of outsourcing was strong among the more successful facilities management programs.

***Energy management systems***

Most all of the interviews reported the incorporation of energy management systems and identified the cost savings as a means to increase their spendable budget. The cost was repaid through initial savings (return on investment). Not all additional savings were earmarked and held within the facilities management department, but regardless, the savings contributed to the overall operating budget which provided an increased opportunity for funding.

***Motivation***

Each of the interviews included a parting question that simply asked them to suppose they were king for a day and unchallenged to make necessary changes in their facilities program that would increase its efficiency and effectiveness. The following were their top mentions from most to least prevalent:

- Additional funding
- Change/improve their existing facilities program
- Perform a comprehensive facilities assessment
- Additional manpower

This data is interesting in that the first thought for most managers was to simply have more money; however, right behind that was an indication that the facilities management process needed to be improved, which indicates there is room for improving the efficiency and effectiveness outside of simply increasing the budget. The third most prevalent was to perform a comprehensive facilities assessment, which again, speaks to the identification of potential of internal improvements outside of additional funding.

Given the acknowledgement by those interviewed that there is "room for improvement" based on some internal modifications, there is hope. The improvements, as noted above, are not all expense related. For example: strong management, a stream-lined organization, clear communication, accountability, and outsourcing are organizational or behavioral. The expectation must be set from the top positions, facilitated, and continuously reinforced. The study offered examples of this approach that when applied resulted in the most effective and efficient facilities management programs. The impact was dynamic, motivational, controlled, and absent of excessive deferred maintenance.

There are improvements that do have some related expense; technology and the development of a comprehensive asset evaluation. Each offers an immediate return on investment while supporting greater organizational efficiency and a greater understanding of the facilities' needs. Each supports the critical component of clear communication based on data driven requests.

Within the study, coupled with the expressed need for both technology and the development of a comprehensive asset evaluation, was the expressed frustration for the lack of funding. Interestingly, the logic required to "find the funding" for these improvements is no different that the logic used to fund energy management systems. 100% of those interviewed had incorporated some level of energy management systems within their facilities. They proudly reported that in addition to the environmental im-

pact, the immediate return on investment was the catalyst for their board's support during tough budget years. They further boasted increased efficiency and greater effectiveness.

Given this existing practice of investing in operational improvements and supported by the same logic, it is difficult to argue against appropriating the funds to invest in both technology and the development of a comprehensive asset evaluation reports as these offer the same results for increased efficiency and effectiveness to the facilities management and maintenance programs that energy management systems do.

## Conclusions

According to those interviewed, the simple explanation for the lack of effective facilities management is the claim that there isn't adequate funding to meet the growing needs of maintenance. However, there are those who argue that funding isn't the problem, it is the facilities management program and its procedures that have failed.

This study has identified a number of areas within the facilities operation that demand attention. Whether the challenge is the organizational structure, communication, data driven planning, training, or experienced leadership, these issues must be addressed and resolved to meet the industry best practices for efficiency. Within the study, there were facilities managers interviewed whose programs were based on these principles who operated efficiently and effectively. While they welcomed additional funds, it was for the purpose of furthering their success not rescuing their programs. Until efficiency within the facilities management operations becomes a primary focus, the question of appropriate funding cannot be addressed.

To continue to increase funding to perpetuate an inefficient facilities program that lacks effectiveness is simply a waste of tax payer money. The demand for efficiency should be met as a normal course of public spending, and facilities management is no different. To compare, private sector business is forced to efficiency based on their accountability for bottom line performance. Likewise, accountability for performance must be a mandate in public spending as well. Until this is the case, there will be continued perpetuation of chronically deferred maintenance and various levels of failing public facilities programs.

## References

Lawrence, B. K. (2003). Save a penny, lose a school: The real cost of deferred maintenance. *Rural Trust Policy Brief Series on Rural Education.*

Payton-Jones, K. (2014). A matter of time: Perspectives on deferred maintenance. *American School and University.* Retrieved from: http://www.asumag.com/deferred-maintenance/matter-time-perspectives-deferred-maintenance

Smith, R. (2017). Public facilities management: Moving toward crisis. *Muma Business Review, 1(14)*, 171-188.

## Review

This article was accepted under the ***constructive peer review*** option. For futher details, see the descriptions at:

http://mumabusinessreview.org/peer-review-options/

## Author

**Rebecca Smith** is president and founder of A.D. Morgan, a construction management and general contracting firm with offices in Tampa, Bradenton, and Lakeland, Fla. Smith and the company received the Ernst & Young Entrepreneur of the Year Award for the State of Florida for the category of construction and real estate (1998). That same year, it received the Tampa Chamber of Commerce Small Business of the Year award. Smith earned a bachelor's degree in design architecture and a master's degree focusing on building construction from the University of Florida in Gainesville, Fla. She holds a Class A General Contractor's license.