Final Report

Operational and Organizational Assessment for Asset Management

Kenai Peninsula Borough, AK

Maintenance Department

October 22, 2021

FEA Project # R01.2021.009754

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October 22, 2021

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SUBJECT: Final Report of Operational and Organizational Assessment for Asset Management
Kenai Peninsula Borough
FEA Project No. R01.2021.009754

Dear Mr. Frey,

Facility Engineering Associates, P.C. (FEA) is honored to provide this final report of our Operational and Organizational Assessment for Asset Management. Our services have been provided in response to Kenai Peninsula Borough's Request for Proposal 21-009 issued March 15, 2021, and FEA's proposal dated April 20, 2021.

This report represents our findings and recommendations based on our interviews, site visit, meetings, and correspondence with Kenai Peninsula Borough leaders and staff from April through October 2021. We have incorporated feedback received from the Borough on our draft report dated October 11, 2021.

Please reach out to John Edwards should you have any questions or comments regarding this report. We look forward to continuing to work with the Kenai Peninsula Borough on future opportunities.

Respectfully,
FACILITY ENGINEERING ASSOCIATES, P.C.

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Executive Summary

Kenai Peninsula Borough is responsible for 90 facilities[1] including 45 schools or school-related buildings, fire stations, maintenance facilities, and municipal service buildings, comprising nearly 2.4 million square feet of space. The upkeep of those facilities is provided, to varying degrees, by the Maintenance Department of the borough. FEA reviewed provided data and interviewed numerous staff and stakeholders from across the borough. Our assessment included an evaluation of the current asset management strategies, organizational framework, facilities maintenance processes, and customer satisfaction.

Overall Assessment of Asset Management Maturity

The results of our data and document reviews, interviews, and analyses indicate that the facilities asset management function is generally performing at a maturity level of "Initial/Ad Hoc" (Level 1) on the scale shown in Figure 1. Some processes are generally understood but not well documented, while others are non-existent.

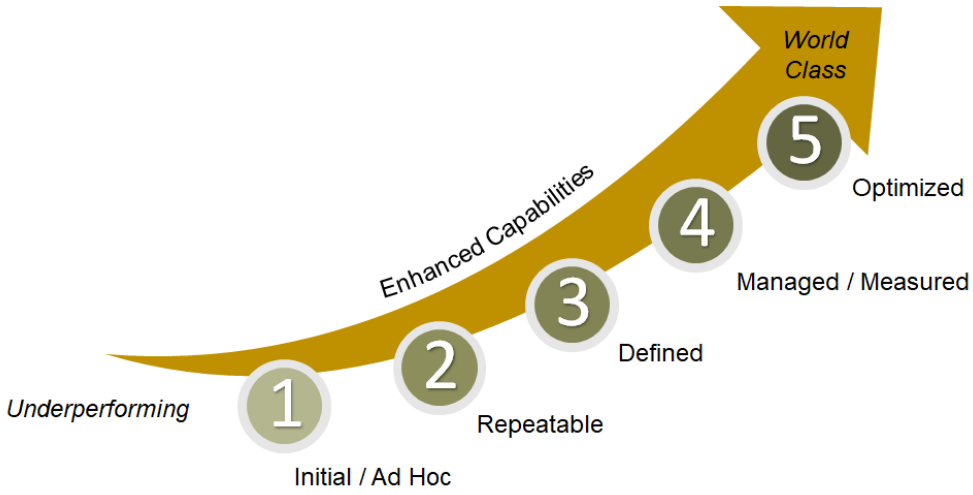

Figure 1 – Capability Maturity Model Levels

Amongst Borough leadership and especially within the Maintenance Department, there is a strong recognition of the need to think strategically about facilities from an asset management perspective, but there has been little facility-related strategic planning that has been documented. The evaluation of facilities asset management through this project reflects the Borough's desire to improve the long-term stewardship of its buildings.

Key Asset Management Recommendations

The recommendations in this report are based on an assessment of the six dimensions of a world class, optimized organization for delivering effective facilities asset management as shown in Figure 2.

[1] The scope of this review did not include the hospital service areas or their facilities. A list of the 90 facilities is provided in Appendix A.

Figure 2 – Dimensions Assessed for the Facilities Asset Management Function

Based on our assessment of the facilities asset management function, a priority recommendation is to increase maintenance staffing levels to be consistent with desired service level outcomes and to provide the capability to adequately maintain to all Borough facilities, not just schools. The addition of four to sixteen maintenance worker positions, depending on the desired service level, would improve service delivery and provide the needed capacity that would result in increased system reliability for all Borough facilities, a decreased backlog of needed repairs, and improved customer satisfaction. In addition, we recommend that the Borough create and hire a Facilities Director to oversee all aspects of facilities asset management, including maintenance, capital renewal, and outsourced custodial functions. These recommendations support the Borough's goal for a high quality capital and operational maintenance program that ensures the continued use and economic value of borough assets.

However, only adding a Facilities Director and more maintenance workers will not lead the Borough to achieve its desired future state of being more proactive in its approach to asset management, becoming more data-driven in its decision making, and improving the maturity of the maintenance organization. Key recommendations that will improve asset management, which are explained more fully in this report, include:

- **Establishing a facilities asset management strategy and goals.** This effort includes formally aligning asset management goals and strategies with those of the Borough as a whole and developing a multi-year building system renewal plan that considers both facility conditions and future use plans.
- **Developing customer service level agreements based on agreed, mutual expectations.** This effort includes soliciting customers to determine their needs, developing service standards tied to an accepted prioritization scheme, measuring performance against customer expectations, and conducting routine visits to verify customer expectations are being met.
- **Instilling a culture of accountability at all levels.** This effort includes recognizing and rewarding positive behaviors as well as setting performance standards, documenting behaviors inconsistent with expectations, and establishing performance improvement plans when needed.
- **Developing and documenting consistent maintenance processes and improving the use of facilities asset management technologies.** This effort includes updating existing work order and

preventive maintenance processes, implementing the mobile capabilities of the work management software, and establishing and enforcing documented processes for parts and material purchases.

- **Implementing a performance measurement approach for continuous improvement of asset management functions.** This effort includes defining and tracking facilities-related metrics and key performance indicators that are aligned with strategic objectives and using customer-focused metrics like response time and work order backlog to support decision making, justify staffing levels, and improve service level delivery.

This report also provides additional, more detailed recommendations related to specific aspects improving facilities asset management functions.

Benefits of Facilities Asset Management Improvements

Better-aligned and more proactive management of facilities assets generates several positive outcomes:

- Reduced risk of failure of critical systems,
- Decreases in emergency repairs, outages, and response requirements,
- Increased customer satisfaction, both internally and externally,
- More effective preventive and corrective maintenance programs,
- Reductions in life cycle costs.

Although cost savings from improving the facilities asset management function are not often immediate, the process of building a performance management system and a facility strategic plan will ultimately yield significant improvement in the delivery of services and the potential for life cycle cost savings. A continuous improvement approach to facilities asset management enables facilities that are safe, healthy, resilient, productive, and cost-effective.

Background

The Kenai Peninsula Borough is in the south central portion of the state of Alaska and is comprised of a geographic area of approximately 25,600 square miles, about the same size as the state of West Virginia. At the time of our site visit, the Maintenance Department was responsible for upkeep of the Borough's facilities under a Director of Maintenance who also served as the Director of Roads. Figure 3 shows the organization of the Maintenance Department at that time.

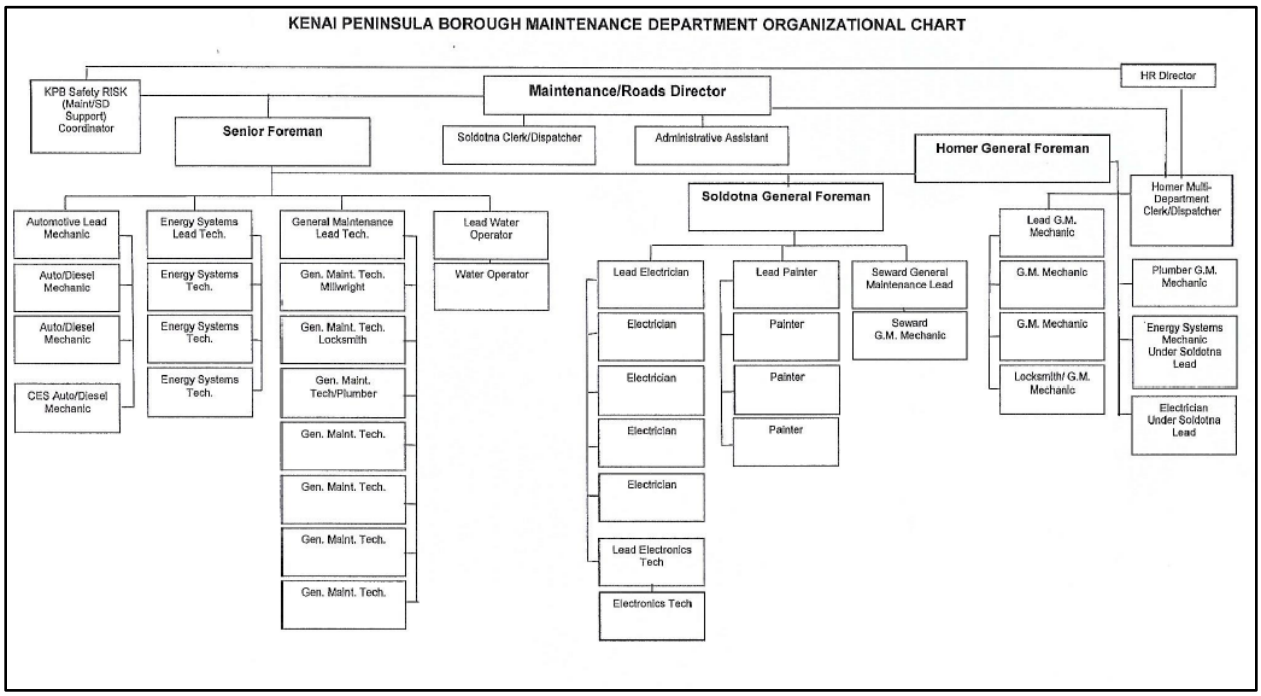

Figure 3 – Kenai Peninsula Borough Maintenance Department Organization (July 2021)

The Borough has since followed through with its plans for reorganizing the Maintenance Department by realigning maintenance responsibilities of the forepersons: one foreperson for preventive maintenance, one foreperson for projects and contracts, and two forepersons (split by geography) to focus on corrective maintenance and other on-demand services. Also, the Borough filled the Maintenance Director position on a fulltime basis, which allowed the Roads Director to return to that primary role. Figure 4 shows the organization of the Maintenance Department as of October 2021.

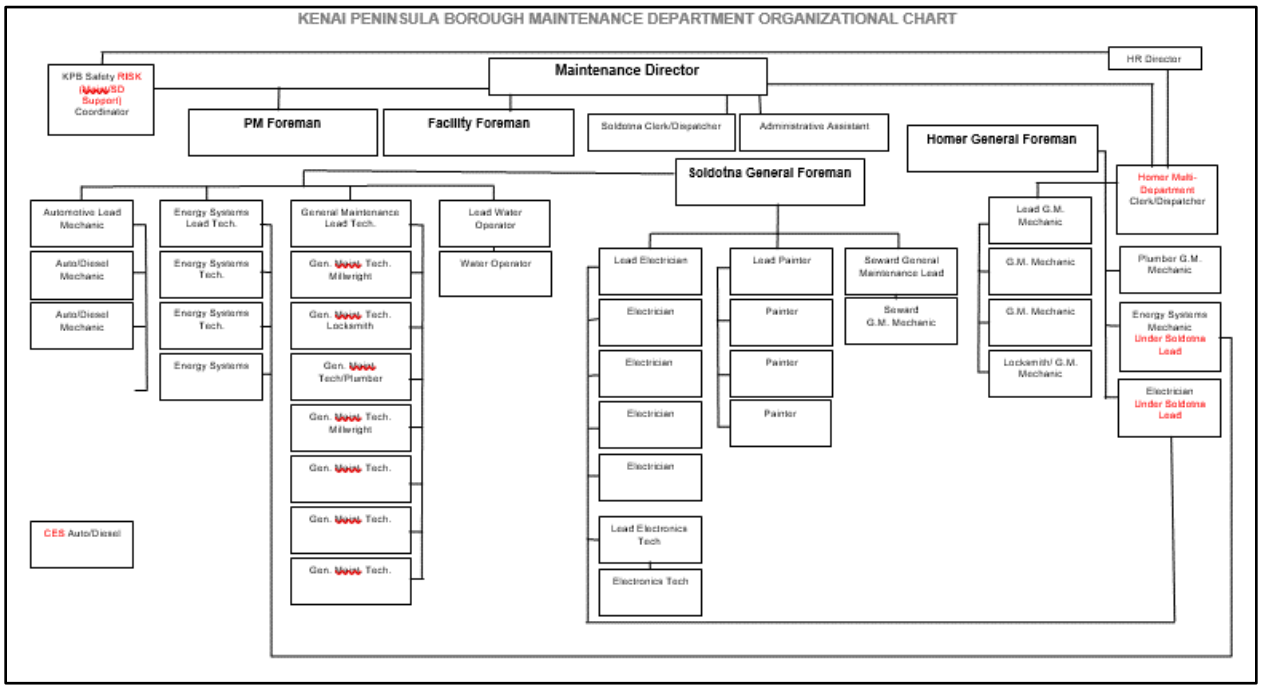

Figure 4 – Kenai Peninsula Borough Maintenance Department Organization (October 2021)

The Maintenance Department is primarily responsible for the maintenance of 45 schools or school-related buildings and another 45 municipal buildings such as fire stations, administrative buildings, and community centers, comprising a total of nearly 2.4 million square feet of space as listed in Appendix A. Funding for and delivery of facilities maintenance services varies depending on the department or service area that is utilizing the capital asset.

The Kenai Peninsula Borough engaged Facility Engineering Associates, P.C. (FEA) to perform an evaluation of its asset management alignment and processes. The purpose of the project was to evaluate current operations and quality of performance to develop recommended action items to improve capital planning, facilities maintenance, operating agreements, and information technology solutions.

Project Scope and Approach

FEA's scope of work for the Kenai Peninsula Borough was an evaluation of facilities asset management. Per the request for proposal, this included:

- Life safety assessment, compliance, and monitoring
- Preventive maintenance
- Capital improvement planning
- Major and minor maintenance
- Energy consumption
- Operational efficiencies and standardization
- Asset inventories and operating agreements

FEA's approach followed the process shown in Figure 5. The output of this assessment is the identification of gaps in the management of facilities assets and recommendations to optimize the

organization and processes so that the asset management function can best support the Borough's goals.

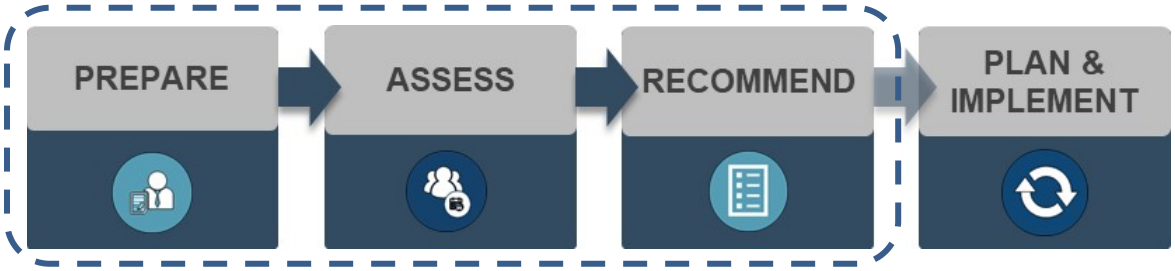

Figure 5 – FEA Project Approach

To assess the current state, we evaluated the facilities asset management function using evaluation tools and best practices such as a Capability Maturity Model (CMM) and industry benchmarks and resources from the International Facility Management Association (IFMA), APPA - Leadership in Educational Facilities, and international management standards such as those published by the International Standards Organization (ISO).

The most effective organizations are those that implement a process of continuous improvement. They are skilled at developing a strategy, implementing a plan to follow that strategy, operating with an effective performance management system, and continuously reassessing and adjusting their plan to meet a changing environment.

To assess the Maintenance Department's current state, we used the Capability Maturity Model (CMM) approach to organizational improvement developed at Carnegie Mellon University (Figure 6). The term "maturity" relates to the degree of formality and optimization of processes, from ad hoc practices to formally defined steps, to managed result metrics, to active optimization of the processes. This provides a multi-faceted understanding of the Borough's current facilities asset management program and establishes a base from which to move forward.

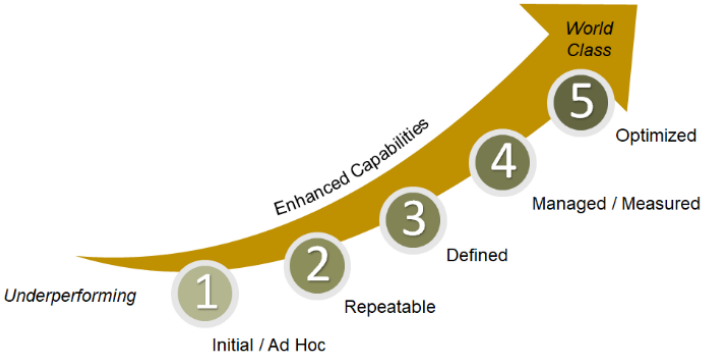

Figure 6 – Capability Maturity Model Levels

Using this approach provided a multi-faceted understanding of the current facilities asset management function and helped establish a roadmap to move forward. To determine the maturity level of the organization, we conducted interviews with key stakeholders considering the six dimensions shown in Figure 7.

Figure 7 – Dimensions Assessed for the Maintenance Organization

FEA utilizes this framework to develop a roadmap for continuous improvement. Using this framework allows for continuous monitoring of facility performance to achieve the operational results that lead to safer, healthier, more resilient, productive, and cost-effective facilities for all stakeholders. We assessed performance of the facilities asset management organization and made recommendations for improvement by:

- Evaluating key characteristics of how the organization functions,
- Evaluating the quantitative and quantitative measures currently in place,
- Comparing existing processes and practices to industry best practices,
- Identifying strengths and weaknesses,
- Outlining a process for continuous improvement.

Through this framework, we evaluated the current leadership and staffing structure and the functional responsibilities of each group with facilities asset management responsibilities. We assessed business needs and conducted a gap analysis to identify the steps, tools, and resources necessary for the Maintenance Department to create the right alignment with the Borough's strategic objectives. We are providing recommendations that detail specific and realistic ways the Maintenance Department can develop a facility strategy, align the strategy with broader strategic initiatives, improve business processes, optimize its structure, become more effective and efficient with its resources, and deliver on its organizational goals.

Benchmarking Analysis

Benchmarking can be an effective tool to identify practices within the organization that may be performing at a less than optimum level. FEA utilized the following industry sources to provide the Kenai Peninsula Borough with industry benchmarks on maintenance costs and staffing levels:

- International Facility Management Association's (IFMA) Operations and Maintenance Benchmarks, September 2017,
- APPA – Leadership in Educational Facilities Association (APPA) Operational Guidelines for Educational Facilities, Maintenance (2nd edition),
- APPA Facilities Performance Indicators Report (2019).

For our benchmark analysis, we used the following data based on analysis of information provided by the Borough:

Data Description	Quantity
Overall maintained square footage (sf) – Schools / Total	1,970,658 / 2,375,532
Building Maintenance Expenditures (3-Year Average)	$6,800,699
Building Maintenance Technician Staff	30 + 2 = 32

Maintenance Staffing and Level of Service

A detailed labor-needs analysis (which would describe the specific number of personnel needed by each trade category) was not within the scope of this organizational assessment, as it would require a consolidated staffing assignment matrix and detailed work order analysis for all facilities to perform the analysis. However, because staffing is always a top concern for facilities maintenance organizations, we performed a high-level comparison of current staffing to APPA benchmarks to gain a general sense of the Maintenance Department's staffing levels. Benchmarking is useful for making relative comparisons but should not be considered definitive for developing staffing levels.

The APPA methodology for determining aggregate Full Time Equivalent (FTE) staff calculates the total number of trades personnel normally required to deliver a defined level of service. It considers the size and type of each building, its age, the geographic distribution of buildings, and the expected average number of manhours available for productive work in a year. It does not calculate the FTEs needed for supervision, management, or support staff. We have found that the APPA methodology is a reliable, research-based modeling framework that can be applied to any facility environment. The advantage of looking at staffing through the lens of the APPA staffing model is that service level is considered, and staffing levels are linked to the service level desired or provided. For facilities maintenance, APPA defines five levels[2] of service (see also Appendix B):

[2] The five APPA levels of service for maintenance are not directly related to the five levels of organizational maturity described by the Capability Maturity Model, though one would expect a maintenance organization that is highly mature to be more likely to achieve a higher APPA level of maintenance service delivery (if it is properly resourced).

Level 1: Showpiece Facility

Maintenance activities appear highly focused. Typically, equipment and building components are fully functional and in excellent operating condition. Service and maintenance calls are responded to immediately. All regulatory submittals and requirements are met at or before submission dates. Buildings and equipment are regularly upgraded, keeping them current with modem standards and usage.

Level 2: Comprehensive Stewardship

Maintenance activities appear organized, with direction. Equipment and building components are usually functional and in operating condition. Service and maintenance calls are responded to in a timely manner. All regulatory submittals and requirements meet submission dates. Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 3: Managed Care

Maintenance activities appear to be somewhat organized but remain people-dependent. Equipment and building components are mostly functional but suffer occasional break- downs. Service and maintenance call response times are variable and sporadic without apparent cause. Regulatory submittals and requirements typically meet submission dates, with some occasional short delays. Buildings and equipment are periodically upgraded to current standards and use, but not enough to control the effects of normal usage and deterioration.

Level 4: Reactive Management

Maintenance activities appear somewhat chaotic and are people dependent. Equipment and building components are frequently broken and inoperative. Service and maintenance calls are typically not responded to in a timely manner. Regulatory submittals and requirements with the largest operational impact meet submission dates, but those that have less of an impact are typically late. Normal usage and deterioration continue unabated, making buildings and equipment inadequate to meet present use needs.

Level 5: Crisis Response

Maintenance activities appear chaotic and without direction. Equipment and building components are routinely broken and inoperative. Service and maintenance calls are never responded to in a timely mariner. Regulatory submittals and requirements with the largest operational impact typically submitted late, with other requirements ignored unless cited. Normal usage and deterioration continue unabated, making buildings and equipment inadequate to meet present use needs.

Data provided by the Borough showed that there are 32 full-time equivalent (FTE) maintenance technician positions that are identified as having primary responsibility for facilities maintenance functions. Of the 32 technician positions, two positions were vacant at the time of the assessment but efforts were underway to fill the vacancies. There were trade-specific technicians and general maintenance technicians, with the groups organized by geography and by trade. The Maintenance Department is supported by maintenance contractors, but FEA was not provided sufficient data on contractors to precisely calculate this potential maintenance FTE equivalence.

Figure 8 displays a comparison of the Maintenance Department's FTE staffing levels against APPA's service level model for maintenance staffing.

KPB Maintenance Department	Square Footage	FTE Staffing	Calculated APPA Staffing by Service				
			Level 1	Level 2	Level 3	Level 4	Level 5
Maintenance Technicians (Schools)	1,970,658	32	46.0	36.7	27.4	24.3	18.1
Maintenance Technicians (Other)	404,874	0	15.7	11.7	8.3	5.3	3.3
TOTAL	2,375,532	32	61.7	48.4	35.7	29.6	21.4

Figure 8 – APPA's service level model for maintenance staffing

A comparison to the APPA maintenance staffing benchmarks indicates that with the current staffing level of 32 technician positions, it would be expected that the Maintenance Department would be able to consistently deliver maintenance services at an APPA Level 3 (Managed Care) for schools but only an APPA Level 4 (Reactive Management) on a consistent basis across the Borough's total portfolio. This result is in keeping with our observations and feedback obtained from customers of the Maintenance Department, in that the schools are being maintained generally well but maintenance at other non-school buildings is more sporadic. Table 1 compares the APPA Level 3 and 4 service level descriptions, which are consistent with FEA's findings during the assessment for schools and most other Borough buildings, respectively.

APPA Level 3 (Managed Care) Maintenance Description	APPA Level 4 (Reactive Management) Maintenance Description
Maintenance activities appear to be somewhat organized but remain people-dependent. Equipment and building components are mostly functional but suffer occasional break-downs. Service and maintenance call response times are variable and sporadic without apparent cause. Regulatory submittals and requirements typically meet submission dates, with some occasional short delays. Buildings and equipment are periodically upgraded to current standards and use, but not enough to control the effects of normal usage and deterioration.	Maintenance activities appear somewhat chaotic and are people-dependent. Equipment and building components are frequently broken and inoperative. Service and maintenance calls are typically not responded to in a timely manner. Regulatory submittals and requirements with the largest operational impact meet submission dates, but those that have less of an impact are typically late. Normal usage and deterioration continue unabated, making buildings and equipment inadequate to meet present use needs.

Table 1 – Evaluation of Maintenance Level of Service

One exception to the current service level outcomes for non-school buildings is the Borough Administration Building (BAB). Our onsite observations, discussions with occupants of the facility, and feedback from the maintenance technicians themselves indicated that all recognize the importance of this high-profile facility and strive to achieve a higher level of appearance and functionality. While the processes for and organization of the maintenance activities for that building were no better than for the overall portfolio, the response times and other descriptors for Level 3 (Managed Care) service were mostly being achieved. In some respects, the focus on the BAB has a negative effect on other buildings because the allocation of resources to its appearance and maintenance inhibits the ability to respond to other work.

Spending Benchmarks

Cost of Facilities Maintenance was calculated using the three-year average of reported spending for FY-18 through FY-20, considering line items that were attributed to facilities maintenance. To be comparable to the industry benchmarks and their definitions, this calculation considered only facilities maintenance costs and specifically excluded items such as purchased utilities, janitorial, grounds maintenance, and other non-building costs. It also does not consider long-term capital costs for building system renewal and replacement. Figure 9 summarizes our analysis of expenditure data provided by the Maintenance Department and shows that, on a per square foot basis, the average annual spending on the facilities maintenance function was higher than a sampling of other organizations reviewed by FEA (Cities 1, 2, and 3) but between spending benchmarks published by APPA and IFMA.

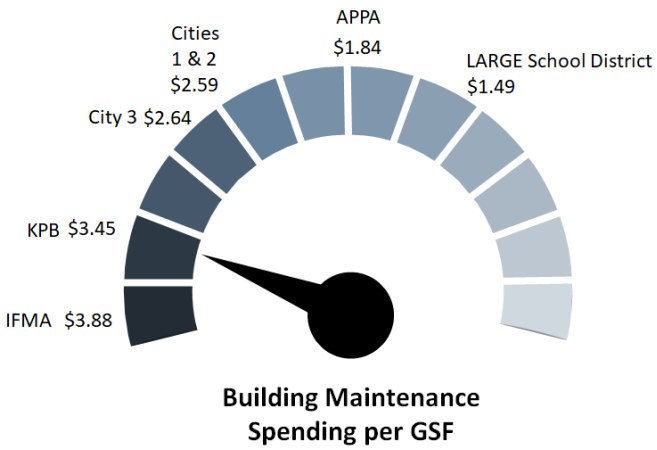

Figure 9 – Maintenance Spending Per Square Foot Comparisons

However, it was noted during our visit that facilities costs in Alaska are not comparable to costs in the lower 48 states. Using a cost adjustment factor of 1.16 (from the R.S. Means City Cost Index for Anchorage), the spending benchmark for the Borough moves closer those of other municipalities, though it is still higher. Figure 10 shows the adjusted benchmark comparison.

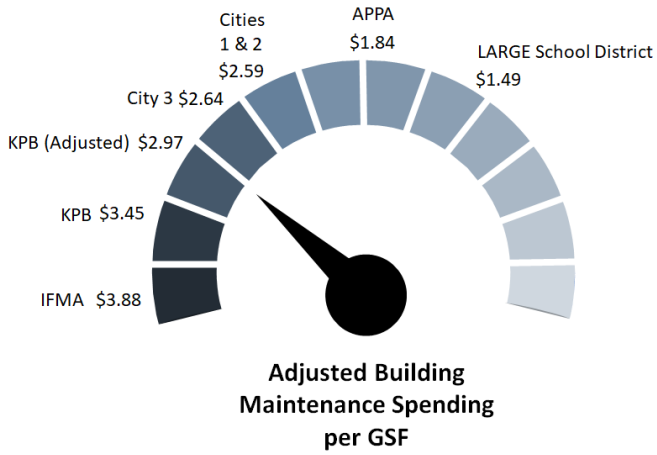

Figure 10 – Adjusted Maintenance Spending Per Square Foot Comparisons

While having a level of maintenance spending that is somewhat comparable to other cities may be viewed by some as commendable, it ignores the service level being achieved in those cities. In the three cases cited, two of the cities were achieving Level 4 (Reactive Management) maintenance service and one was achieving Level 3 (Managed Care) maintenance service. In all cases, those cities desired to achieve Level 2 (Comprehensive Stewardship) service and were pursuing additional maintenance staffing (and the associated budget increases) to achieve the higher service level.

Recommendation from Benchmarking Analyses

Given these findings related to staffing and spending, we recommend an increase of a minimum of four maintenance positions to facilitate a move to achieving Level 3 (Managed Care) service for all Borough facilities, with up to 12 more positions being added over time (for a total of up to 16 new positions). Borough stakeholders expressed a desire to have facilities maintenance services that were efficiently organized, timely in their response, provided functional and reliable building systems, and which allowed for systems being regularly upgraded before failure or significant degradation. These goals are consistent with Level 2 (Comprehensive Stewardship) service, which is not being achieved at the schools nor across the portfolio with the current staffing and processes.

When combined with other improvements recommended throughout this report, we would expect the Maintenance Department to be able to transition to service delivery that reflects consistent Level 3 (Managed Care) service with elements of Level 2 (Comprehensive Stewardship) being progressively achieved as process improvements take effect and positions are added. As was noted at the start of the benchmarking section, an APPA staffing analysis is informative but not definitive of the workforce size needed. The final staffing required to consistently achieve Comprehensive Stewardship of Kenai Peninsula Borough facilities should be reevaluated over time and adjusted based on measured service delivery outcomes. Recommendations in the following section on Leadership provide additional detail and context for the addition of maintenance technician positions.

Performance Assessment Categories Summary

On the scale shown earlier, our assessment is that the Maintenance Department is functioning at an organizational maturity level of "Initial/Ad Hoc" (Level 1). Some processes are generally understood but not well documented, while others are non-existent.

It is important to note that maturity level is not intended to be an evaluation of the quality of work performed, dedication to the mission, or the capabilities of any individual in the organization. Rather, the maturity model shows a facility management organization a path towards performance excellence, which can help the organization align resources, improve communication, productivity, and effectiveness, and achieve strategic goals.

The following sections describe the results of the Operational and Organizational Assessment for Asset Management for each of the six dimensions we assessed, highlight commendable practices that we identified, and provide recommendations that are designed to help the Borough's facilities asset management function mature.

Leadership

Effective leadership ensures that the facilities organization is motivated and directed to accomplish the goals and objectives of the Borough, and that maintenance functions are organized for productive and efficient delivery of services. Through position, example, direction, and influence, leadership guides others' actions.

Leadership Commendations

Long term stewardship of the Borough's buildings and a desire to be more data driven in its decision making are priorities for the Maintenance Department, and the drive to provide an excellent facilities environment is evident. The thoughtful, ongoing effort to improve facilities asset management functions is commendable and should continue through full implementation.

Leadership Findings

The structure of the facilities organization is not aligned with the needs of the Kenai Peninsula Borough. The Borough lacks the depth and breadth of expertise in facilities asset management needed to integrate short-term preventive and corrective maintenance execution with long-term system renewal and replacement strategies. Split responsibilities among Soldotna forepersons that was in effect at the time of our site visit was causing confusion and inefficiency in the reception, assignment, and execution of preventive and corrective maintenance work. Maintenance of non-school facilities was ad hoc, with some maintenance being performed by tenants or contractors they hired, some by the Maintenance Department on an "as available" basis when not maintaining schools, and some maintenance left undone.

However, one of the greatest challenges facing the facilities service area is a culture of inconsistent accountability, which will have to be addressed for any of the improvements recommended by this report to be successful. All levels of staff we interviewed during this assessment commented on the lack of consistent enforcement of policies and procedures and an overall history of not squarely tackling personnel performance issues. Morale within the workforce morale was described by many we interviewed as low, and a common view expressed was, "They don't trust us" (meaning management).

Leadership Recommendations

L1. Rename the Borough Maintenance Department to be the Borough Facilities Management Department. Create a position and hire a Facilities Director to oversee facilities asset management for all Borough facilities. Align all building and vehicle maintenance, capital renewal, and building operations functions under this role. The position should require the incumbent to have the knowledge, skills, abilities, and requisite experience to plan, organize, direct, and improve all matters of facilities maintenance and operations, capital renewal, and energy management. The person who is hired into this role should be given the authority and responsibility necessary to implement the recommendations of this Operational and Organizational Assessment for Asset Management and should be accountable for doing so. An example position description for the Facilities Director role will be provided to the Borough by separate correspondence.

L2. Finalize the plans to align the three forepersons along the lines of functional duties for preventive maintenance (PM), maintenance work orders (scheduled and unscheduled), and maintenance-level projects/contracts. Realign the workforce to support these functions, including the addition of positions noted in the Benchmarking section of this report. A notional organizational chart that combines recommendations L1 and L2 is shown in Figure 11 on the following page.

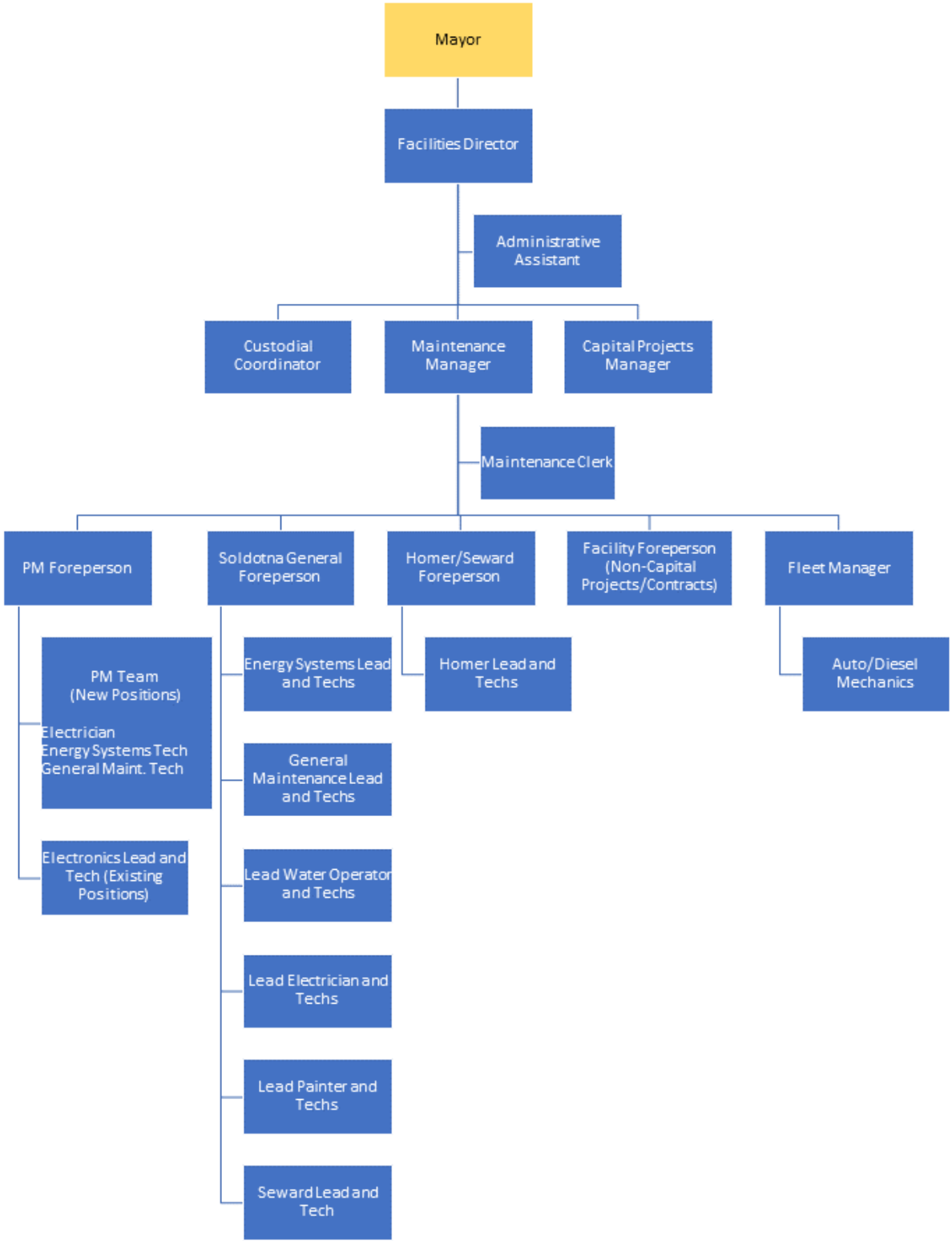

Figure 11 – Notional Kenai Peninsula Borough Facilities Management Department Organization (Proposed)

In this configuration, the Facilities Director would be responsible for planning and execution of facilities operations, maintenance, and capital renewal functions:

- The custodial function for non-school facilities that is currently overseen by the Human Resources Department should be realigned to the new Facilities Director. The integration of cleaning and maintenance under the same department is common to most facilities organizations we have assessed. It allows for a more seamless customer experience (in dealing with one entity that handles all facilities matters) and it offers the opportunity to train the custodians to be an additional set of "eyes and ears" for proactively discovering potential maintenance issues to be addressed by others. The school cleaning function should remain with school-based custodians and not be part of this realignment.
- Facilities maintenance would continue under a Maintenance Manager much as it is organized today, with the redistribution and addition of maintenance technicians to increase the capacity to perform maintenance on ALL Borough facilities not just the schools. Reliable data was not available to determine the specific trades that should be added with these new positions, but the organization chart at Figure 11 suggests where some of these new and redistributed positions might most benefit the delivery of facilities maintenance. The creation of a preventive maintenance team would bring focus to this crucial area of life-cycle maintenance and provide the option to perform these tasks as a group as a second shift, which would reduce disruptions for schools and non-school customers. As was noted earlier, the final number, type, and alignment of all maintenance technicians across the maintenance group should be continually reviewed and adjusted based on Facilities Management goals and measured outcomes.
- The capital renewal function that is currently overseen by the Procurement Department should be realigned to the new Facilities Director. Having the responsibility for short-term and long-term facilities planning within the same organization is quite common, as it allows for better integration of maintenance and capital renewal planning. Procurement would still handle all matters of advertising, awarding, and overseeing facilities capital renewal projects, but the responsibility to identify, prioritize, and budget for Borough projects would be a responsibility of the Facilities Director and Capital Projects Manager. We would expect that the Facilities Director would work closely with the KPB School District's Director of Planning and Operations for school-related capital renewal projects.
- Realignment of support positions as shown in Figure 11 would facilitate these proposed organizational changes.

L3. Use existing programs and tools to directly address performance issues that, when left to continue, contribute to a lack of accountability. This approach should include elements of recognizing and rewarding positive behaviors as well as setting performance standards, documenting behaviors inconsistent with expectations, establishing performance improvement plans when needed, and following through with consequences if performance does not improve. While this recommendation may seem simplistic, it is a fundamental responsibility of leadership at all levels to set the tone and establish the culture they desire for the organization. This culture need not be one of fear or retribution, but rather one in which all employees are recognized for the positive things that contribute to organizational

goals and morale is improved because employees know everyone is pulling their own weight.

Strategic Planning

Strategic plans outline the Maintenance Department's direction by defining plans, methods, and actions that will be put into action. The goal of facilities strategic planning is to set clear objectives that align with the Borough's goals that are the foundation for tactical facilities plans. Strategic planning is performed periodically but has daily impacts on maintenance and operations activities.

Strategic Planning Commendations

The Kenai Peninsula Borough School District has documented processes, completes regular facility condition inspections, and uses that information to guide work order and project development. These assessments and the projects stemming from them are normally longer-term efforts that can serve as a contributing element to broader Borough facilities strategic plans.

Strategic Planning Findings

Lack of facilities asset management goals or plans leads to a high degree of reactive behavior and inefficient performance. Facilities asset management is viewed on a transactional basis rather than a stewardship basis. The Borough recognizes the importance of planning for renewal of building systems, but the current approach is not well-connected to the maintenance function nor is it comprehensive in its view.

Strategic Planning Recommendations

SP1. Develop a Strategic Plan for facilities asset management. The plan need not be lengthy, but should address, at a minimum:
- Mission, Vision, and Values for facilities asset management
- Goals that are SMART (Specific, Measurable, Achievable, Relevant, Time-Bound)
- Roles and responsibilities for implementing the plan
- A defined process for regularly reviewing and updating the plan

SP2. Develop a multi-year building system renewal plan (capital improvement plan (CIP)) that considers both facility conditions and future use plans. Routinely update condition data based on information from completed projects and maintenance software data. Tie the CIP to goals in the Strategic Plan and the Borough's broader initiatives.

Customer Focus

A customer focus emphasis helps to develop a superior service attitude with proactive processes designed to establish strong relationships and high levels of trust between Maintenance Department staff and key stakeholders.

Customer Focus Commendations

Customers noted that when maintenance technicians were onsite, they were courteous and caring and the quality of their work was generally good.

Customer Service Findings

The Maintenance Department has not solicited its customers as to what their specific service level expectations are, nor has the division communicated its capabilities based on staffing and funding constraints. The Maintenance Department lacks a methodology for assigning work and creating delivery expectations, nor have any priority levels been discretely defined. The Borough uses an internal accounting "chargeback" system, but maintenance service levels are not tied to the rates. An attempt to reach mutual agreement between customer expectations versus the realities of workload and resources may help temper "unreasonable" expectations that customers have, improve the perception of maintenance services, and reduce the number of questions about what is being delivered through funds provided to the Maintenance Department. Memorializing these discussions in a service level agreement would help each party remain accountable.

Automated work order updates that are available through the computerized maintenance management system are not used, so forepersons routinely spend time reacting to frequent customer inquiries about work status. Very little customer communication is proactive.

Customer Focus Recommendations

CF1. Solicit customer needs and expectations, develop service level agreements tied to accepted prioritization definitions such as the example shown in Table 2, measure performance against customer expectations, and conduct routine visits to verify customer expectations are being met. (An example of how to prepare a service level agreement will be provided by separate correspondence to the Maintenance Department).

Response Priority	Descripton	Time	Examples
Emergency	Imminent threat to life, property, security or the environment. Warrants immediate response and mitigation, but not necessarily a permanent fix.	Immediate, Now	Gas leak, water leak, electrical sparks, smoke, toilets overflowing, water outages, person trapped in elevator, HVAC for temperature sensitive research.
Urgent	Potential threat to life, property, security or the environment. Needs attention, warrants expedited action within 24 hours to mitigate the situation before conditions escalate or worsen.	24 Hours	Broken glass, all lights out, HVAC temperature adjustments, toilets/urinals running constantly, toilets stopped up, elevator repairs, roof leaks
High	Maintenance or service items that have a greater impact on facilities use; may be mission critical, or high profile in nature. Warrants expedited response before Routine Items.	Up to 5 Working days	Service calls for classrooms, student rooms, or high profile areas, code inspector or safety findings, condition that reflects poorly on the University
Routine	Normal maintenance or service items that do not pose an immediate risk to facilities, systems, equipment or components. Warrants a scheduled or First In /First Out action.	1 Day to 2 Weeks	Service calls, painting, cracked glass replacement, lights out(where there is sufficient light), broken furniture, hanging artwork & banners, key requests, PM Filter & belt changes
Time Sensitive	Work that is planned, scheduled or needs to be completed by a certain date or time.	Due Date	Events, Set-ups, PM Inspections, Scheduled Moves

Table 2 – Example Work Prioritization Definitions

CF2. Develop a customer-facing communication strategy and make this part of relevant job descriptions. A requirement for personal contact by onsite technicians should be a cornerstone of this communications strategy, as well as routine, proactive communications from forepersons to Maintenance Department customers.

Workforce Development

Effective workforce development planning includes understanding the knowledge, skills, and abilities required to accomplish the work and developing a training plan that will satisfy or enhance those competencies.

Workforce Development Commendations

Longevity in the department increases the payback for training investments.

Workforce Development Findings

The Maintenance Department does not have a documented training plan for its staff. Maintenance training tends to be sporadic rather than a deliberate part of planned career development. Training for new building technologies or types of equipment has not kept pace with modern equipment being installed.

Workforce Development Recommendation

WD1. Prepare and implement a workforce development program. This process focuses on identifying what knowledge and skills are needed for each position, assessing skill level of personnel, and identifying training that will best fill any competency gaps. This approach will be especially important as new maintenance positions are added and leadership roles are redefined. Key principles in identifying appropriate training should include focusing on in-person and hands-on instruction versus on-line and taking advantage of opportunities with contracted services and new equipment demonstrations. There are resources on facilities maintenance and operations competencies, including the Federal Buildings Personnel Training Act competency model (www.sftool.gov/train), that help maintenance organizations identify and measure competencies. An effective process to optimize workforce development includes the key steps shown in Figure 12: Alignment, Assessment, and Building of a Roadmap. These steps can take several months to a year or longer to complete, but once completed they provide clear direction for the organization in developing its most valuable resource, its people.

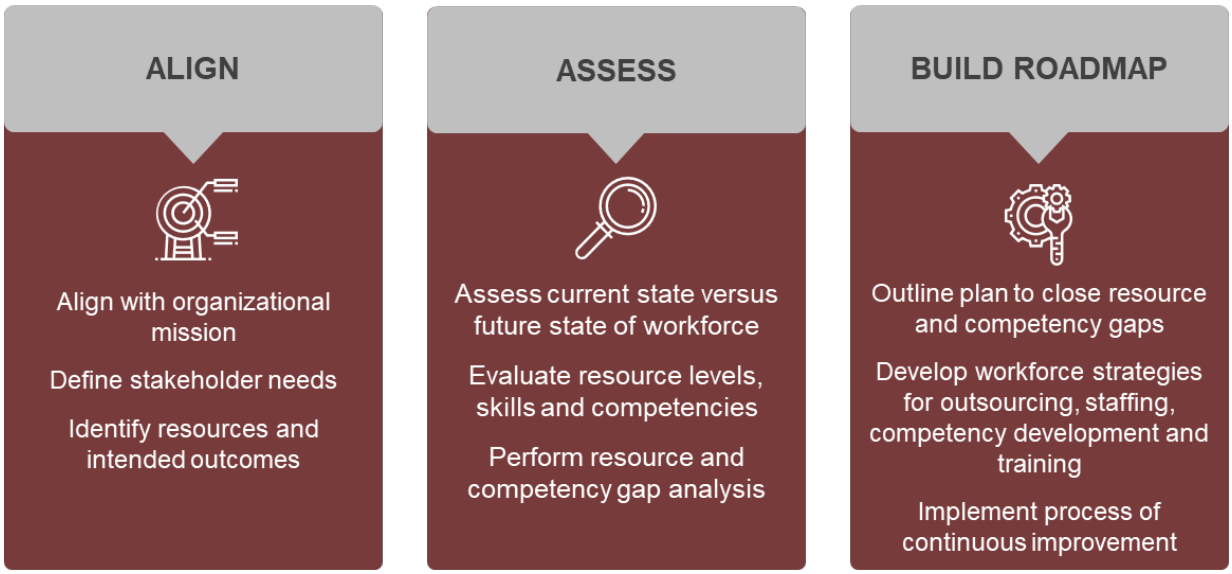

Figure 12 – Steps in the Preparation of a Workforce Development Plan

Operations & Maintenance Process Management

Operations and maintenance are core facility management functions. Operations ensure that the facility's space usage, cleaning, and services provide a satisfactory environment that allows the occupants to effectively use the building as required. Maintenance ensures that all elements of building infrastructure are maintained to operate effectively and provide safe, healthy, and comfortable conditions. For this category, the organizational assessment was focused on the people, processes, and technology for facilities asset management through building maintenance.

Maintenance Commendations

The Borough has embraced the importance of preventive maintenance (PM) and desires to have all

building systems reach their full expected useful life. The most robust records are reported to be for electrical system PM inspections.

The Maintenance Department has used a computerized maintenance management system (Dude Solutions' Maintenance Essentials) for asset tracking and work order management for several years. Schools normally use the software to submit their requests.

Maintenance Findings

For preventive, corrective, and service work order management, there are no documented processes for work reception, task prioritization, work assignment and execution, and job close out, which leads to inconsistencies, inefficiencies, and poor customer service. The Maintenance Department uses Dude Solutions (Maintenance Essentials) for work requests, but much of the workflow is managed using paper tickets, manual handoffs, or not at all. Technicians do not have access to the mobile version of the Dude Solutions software, which is an available capability and a common practice in the maintenance industry.

Most non-school customers use email or phone calls to various parties within the Maintenance Department to report building issues, which requires rerouting to the work order reception staff. The accuracy and completeness of work requests and subsequent work orders vary greatly, which results in inefficiencies in planning for and executing work tasks.

It was reported that the initial implementation of Maintenance Essentials included an upload of the building components that require a periodic preventive maintenance inspection, but the PM module of the new software is underutilized. Most PM and corrective work orders are not associated to the assets that are stored in the system, which limits the ability of management to develop maintenance histories for assets.

Functions that are currently outsourced are logical and consistent with most maintenance organizations: tasks that are low volume and require specialized skills or equipment (elevators, pest management, crane services, environmental testing, etc.) and tasks that are not highly skilled and can be competitively sourced (janitorial, septic pumping, snow plowing, etc.). We did not have any recommendations for altering current outsourcing practices.

Obtaining parts and materials for work orders and projects is largely uncontrolled. Technicians have the ability to get items from an unmanned Borough materials warehouse, from commercial suppliers with whom the Borough has purchasing agreements, and by using purchase cards. Lack of maintenance and project planning leads to purchases often being urgently made from the quickest source rather than the most cost-effective source. There is little accountability in this area, other than financial reconciliation after the fact.

The size and configuration of the vehicle fleet managed by the Maintenance Department was adequate and not viewed as a hinderance to effective operations. The fleet management software "Extra Fleet" was reported as obsolete and should be replaced to help with managing vehicle assets.

Maintenance Recommendations

OM1. Prepare, document, and implement standard operating procedures for key processes such as corrective maintenance, preventive (planned) maintenance, and asset data updates. Train the Maintenance Department staff in how to use the new prioritization scheme (Recommendation CF1) to properly classify work. Identify the touch points where the Dude Solutions software should be used to automate

workflows and preserve work histories. Include customer feedback steps in processes, where appropriate. FEA will provide, by separate correspondence, example standard operating procedures for modification by the Borough as it defines and documents its processes.

OM2. Fully implement the Dude Solutions software platform. Upgrade the existing software to its newest version and train key staff (such as the work order clerk, forepersons, and trade leaders) on the new version. Many FEA clients use this software and have found that it meets their needs if properly implemented and staff are trained. There is no value for the Borough to go through the expense and time of changing software platforms at this time. Update customer work order processes to emphasize higher quality requestor data input. Train customers in how to use the online system for input and provide them a "quick reference guide" to refer to for completing routine work requests. Train the Maintenance Department staff in how to politely redirect customer phone calls and emails for work requests to the Dude Solutions online work input feature.

OM3. Incorporate the mobile capabilities of the Dude Solutions software. Train all maintenance staff in how to use the mobile devices for work assignment, the capabilities of the new software, and why their notes for what they discovered, what work they performed, and what work might be due soon is critical to a proactive approach to maintenance.

OM4. Validate that maintainable assets (those requiring at least an annual PM inspection) are incorporated in the Dude Solutions software. Create and implement a plan to improve the effectiveness of updating asset and equipment records. In addition, add vehicle assets to the Dude Solutions platform as an asset type for maintenance scheduling and tracking. This approach would be less costly than obtaining a stand-alone fleet management software, which is unnecessary for a fleet of the size being managed by the Borough. Train the fleet management staff using Dude Solutions' training resources.

OM5. Establish and enforce documented parts and material purchasing processes that promote planning, financial responsibility, and accountability.

Measurement & Analysis

The foundation for performance management for facilities asset management lies in the organization's ability to consistently measure, analyze, and report data on facility and workforce performance.

Measurement & Analysis Commendations

The Borough has goals and objectives (published in the 2022 annual budget) which could be used to tie facilities outcomes to broader Borough objectives. This alignment can help with the measurement, analysis, and reporting of metrics and key performance indicators identified to track Maintenance Department goals.

Measurement & Analysis Findings

There is no indication that metrics are consistently and comprehensively utilized to understand and improve facilities asset management performance. Metrics related to outcomes, like response time and work order backlog, are only sporadically used to support decision making or measure customer satisfaction.

Measurement & Analysis Recommendations

MA1. Implement a performance management system with consistent facilities related metrics and key performance indicators (KPIs) tied to Kenai Peninsula Borough goals. Once maintenance processes are well documented, the Maintenance Department can more accurately measure the effectiveness of the facilities asset management function. The performance management system is part of an overall strategic planning and process improvement process and should be tied to facilities goals and objectives. A balanced scorecard or other framework can be helpful to align metrics to strategic objectives of the Maintenance Department and the Kenai Peninsula Borough as a whole.

Effective performance management systems allow for measurement of the appropriate metrics and development of KPIs that reflect the Borough's strategies. Figure 13 is a representation of three types of metrics commonly measured in a performance management system. Categorizing metrics in this manner allows for alignment between what is measured on a day-to-day basis for managing processes and the KPIs that are most important to the Borough's success.

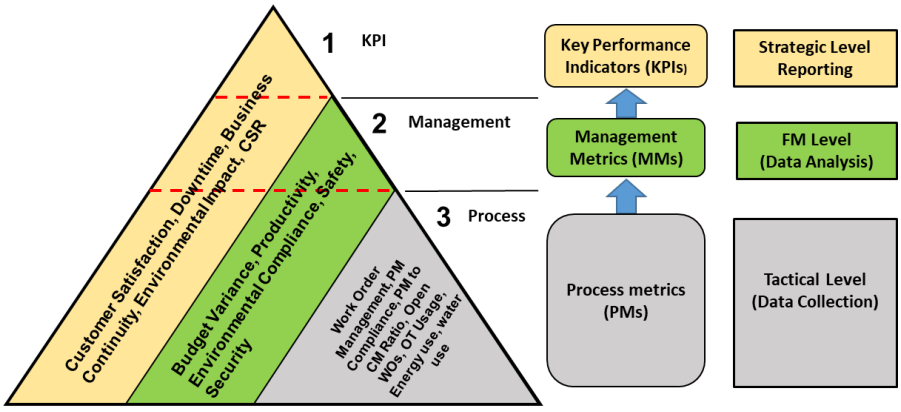

Figure 13 – Levels of Metrics and KPIs

Building a performance management system allows managers to collect the right data, formulate that data into business information, and consider that business information in determining the efficiency and effectiveness of the facilities asset management function. Knowing the efficiency and effectiveness allows for closer alignment with the mission and creates a vehicle for continuous improvement that keeps the organization focused on critical success factors.

A Balanced Scorecard (BSC) is a useful framework that integrates the performance management system of metrics with the organization's drivers and creates an environment for reporting progress in a continuous improvement cycle. A typical BSC includes four key perspectives as shown in Figure 14: Customer (or Stakeholder), Process, Workforce Learning & Growth, and Financial.

Figure 14 - BSC Perspectives

The initiatives developed in a BSC are developed in alignment with the organization's strategies and drivers. Performance metrics that are formulated in the performance management system are used to derive KPIs that demonstrate support of the organization's mission.

The example in Figure 15 shows the Process perspective of a typical BSC. The Process perspective typically includes monitoring of key metrics and KPIs for work management processes, workforce labor needs, and facility technology outputs.

	Strategic Goal	Facility Strategy	Desired Outcome	Measurement	Target		
Process Perspective	Create Financial Sustainability	Continually improve responsiveness and effectiveness in the delivery of facilities and services that meet consistent standard.	Efficient workflow and productivity	**Completion Time Compliance**	>90% avg. on time (by priority)	90-75% avg. on time (by priority)	<75% avg. on time (by priority)
				Work Order Aging Trend	Decreasing	Steady	Increasing
			Optimized Equipment Performance (Output and Life Cycle)	**Preventive Maintenance Completion Rate**	>= 95% of critical equipment PMs	95% < x < 85% of critical equipment PMs	<= 85% of critical equipment PMs
				Planned Maintenance Ratio		Benchmark one year, then set targets to improve	
			Optimized Project Delivery	**Percent of Capital Projects on Schedule**	>95%	85-95%	<85%

Figure 15 – Example Process Perspective of a Balanced Scorecard

Roadmap for Implementation

To implement the initiatives outlined in this report, FEA has prepared a suggested roadmap to sequence the recommendations (Figure 16). While the exact timing and dependencies may change as recommendations are implemented, and all can be started immediately to some degree, we suggest the following timeframes as targeted milestones for implementation:

- Short Term: 6 to 12 Months
- Mid-Term: 1 to 2 years
- Long-Term: 2 years and beyond

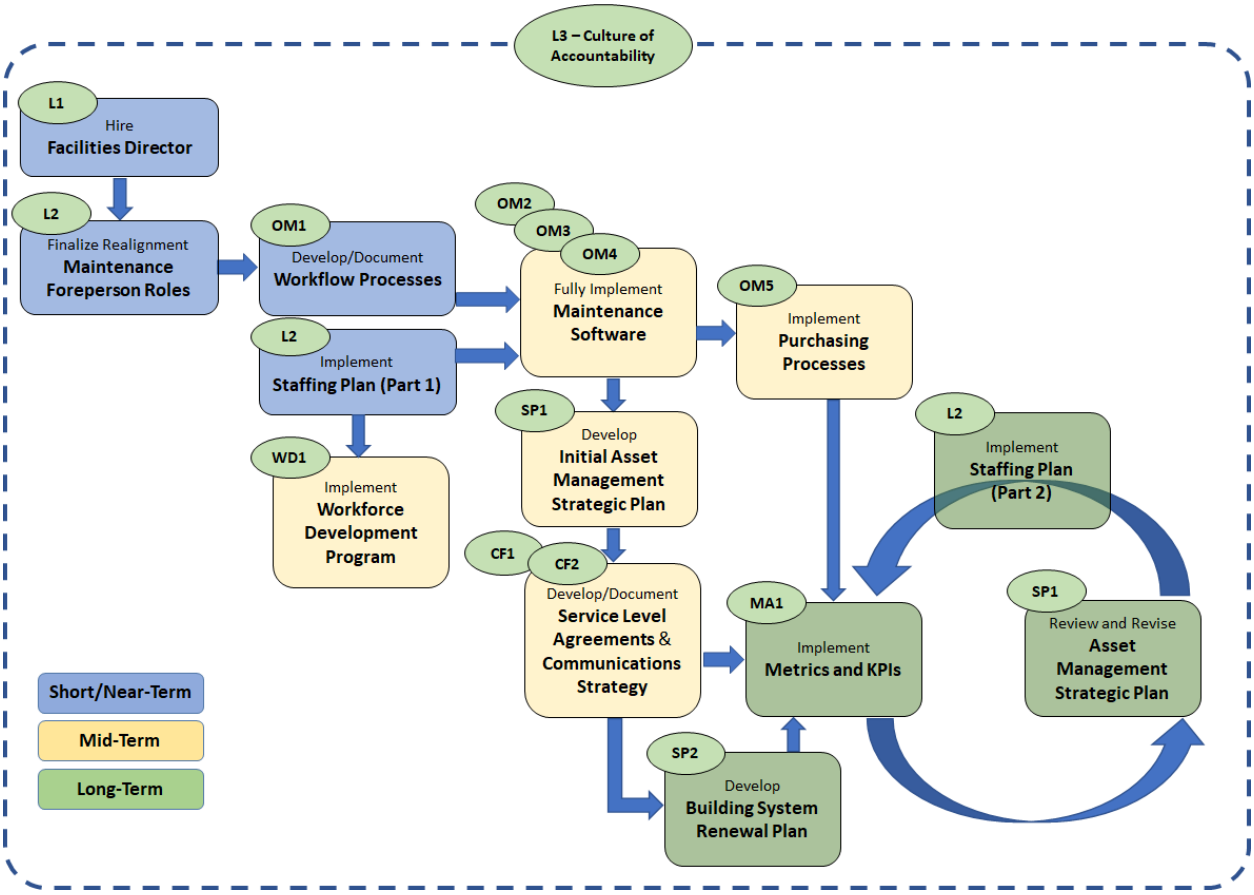

Figure 16 – Roadmap for Implementation of Recommendations

Additional Resources

FEA has and will continue to provide the Kenai Peninsula Borough with additional resources to aid in implementation of the recommendations, such as service level agreement templates and example standard operating procedures that may be useful as the asset management program matures.

Appendix A: Facility Lists

School Facilities

Description	Square Footage
Chapman Elementary	25,348
Cooper Landing School	8,324
District Portable & Storage	960
District Warehouse	21,517
District Warehouse Annex	4,000
Homer Flex School	5,390
Homer High School	228,887
Homer Middle School	64,356
Hope School	13,500
Kaleidoscope School of Arts & Science	35,440
K-Beach Elementary	46,935
Kenai Alternative School / Aurora Borealis Charter School	45,567
Kenai Central High School	136,498
Kenai Central High School - Office Building	500
Kenai Central High School - Vocational Building	16,598
Kenai Middle School	74,839
McNeil Canyon Elementary	32,750
Moose Pass Elementary	8,829
Mountain View Elementary	50,000
Nanwalek School	14,832
Nanwalek School - Duplex	2,723
Nanwalek School - Teacherage #1	1,008
Nanwalek School - Teacherage #2	1,044
Nikiski Middle/High School	124,196
Nikiski North Star Elementary	50,000
Nikolaevsk School	25,475
Ninilchik School	53,360
Paul Banks Elementary	33,414
Port Graham School	11,666
Port Graham School - Teacherage	2,573
Redoubt Elementary	46,639
Seward Elementary	52,199
Seward High School	74,941
Seward Middle School	37,500
Skyview Middle School	117,101
Soldotna Elementary	54,405
Soldotna High School	154,637
Soldotna Prep School	82,620
Sterling Elementary	36,000
Susan B. English	35,578

Susan B. English - Vocational Building		11,500
Tebughna School		25,345
Tebughna School - Duplex		2,576
Tustamena Elementary		46,588
West Homer Elementary		52,500
	School-Related Facilities	**1,970,658**

Non-School Facilities

Description	Square Footage
Anchor Point Fire Service Area - Station #1	5,120
Anchor Point Fire Service Area - Station #2	3,120
Bear Creek Fire Service Area	14,264
Borough Administration Building	42,269
Central Emergency Services - Station #1 (Soldotna)	10,644
Central Emergency Services - Station #2 (Mackey Lake)	2,304
Central Emergency Services - Station #8 (Fill Site/Pump House)	1,152
Central Emergency Services - Station #3 (Sterling)	5,328
Central Emergency Services - Station #4 (K-Beach)	6,192
Central Emergency Services - Station #5 (Crew Quarters)	1,152
Central Emergency Services - Station #5 (Fill Site/Pump House)	468
Central Emergency Services - Station #5 (Funny River)	6,400
Central Emergency Services - Station #6 (Fill Site/Pump House)	5,999
Central Emergency Services - Station #6 (Kasilof)	6,120
Central Emergency Services - Station #7 (Fill Site/Pump House)	1,152
Central Peninsula Landfill - Baler Building	31,064
Central Peninsula Landfill - Generator Building	600
Central Peninsula Landfill - Leachate Evaporator Building	1,408
Central Peninsula Landfill - Maintenance Building	864
Central Peninsula Landfill - Multi-Purpose Building	4,560
Central Peninsula Landfill - Old Warehouse (Orange Building)	4,320
Donald E. Gilman River Center	7,164
Emergency Operations Center (OEM)	9,388
Homer Maintenance Shop	5,684
Homer Transfer Facility	16,226
Homer Transfer Facility - Baler	9,296
Homer Transfer Facility - Maintenance Building	2,100
Kachemak Emergency Service Area - Station #1	5,760
Kachemak Emergency Service Area - Station #2	3,082
Kenai Transfer Facility	1,200
Maintenance Hazmat Storage Building	2,734
Maintenance Shop/Public Works/Road Maintenance	27,598
Nikiski Community Recreation Center	37,670
Nikiski Fire Service Area - Station #1	13,944
Nikiski Fire Service Area - Station #2	37,670

Nikiski Fire Service Area - Station #2 (Boathouse)		1,040
Nikiski Ice Rink		22,119
Nikiski Transfer Facility		1,200
North Peninsula Recreation Service Area		24,986
Quonset Hut Storage		2,600
Records Storage		5,200
Sea Otter Community Center		2,318
Seward Maintenance		3,484
Seward Transfer Facility		6,711
Sterling Transfer Facility		1,200
	Non-School Facilities	**404,874**
		Grand Total
		2,375,532

Appendix B: APPA Levels of Service

Maintenance

Level	1	2	3	4	5
Description	Showpiece Facility	Comprehensive Stewardship	Managed Care	Reactive Management	Crisis Response
Customer Service & Response Time	Able to respond to virtually any type of service, immediate response.	Response to most service needs, including non-maintenance activities, is typically in a week or less.	Services available only by reducing maintenance, with response times of one month or less.	Services available only by reducing maintenance, with response times of one year or less.	Services not available unless directed from top administration, none provided except emergencies
Customer Satisfaction	Proud of facilities, have a high level of trust for the facilities organization.	Satisfied with facilities related services, usually complimentary of facilities staff.	Accustomed to basic level of facilities care. Generally able to perform mission duties. Lack of pride in physical environment.	Generally critical of cost, responsiveness, and quality of facilities services.	Consistent customer ridicule, mistrust of facilities services.
Preventive Maintenance vs. Corrective Maintenance	100%	75-100%	50-75%	25-50%	<25%
Maintenance Mix	All recommend preventive maintenance (PM) is scheduled and performed on time. Emergencies (e.g. storms or power outages) are very infrequent and are handled efficiently.	A well-developed PM program: most required PM is done at a frequency slightly less than per defined schedule. Occasional emergencies caused by pump failures, cooling system failures etc.	Reactive maintenance predominates due to systems failing to perform, especially during harsh seasonal peaks. The high number of emergencies causes reports to upper administration.	Worn-out systems require staff to be scheduled to react to systems that are performing poorly or not at all. PM work possible consists of simple tasks and is done inconsistently.	No PM performed due to more pressing problems. Reactive maintenance is a necessity due to worn-out systems. Good emergency response because of skills gained in reacting to frequent system failures.
Aesthetics, Interior	Like-new finishes.	Clean/ crisp finishes.	Average finishes.	Dingy finishes.	Neglected finishes.
Aesthetics, Exterior	Windows, doors, trim, exterior walls are like new.	Watertight, good appearance of exterior cleaners.	Minor leaks and blemishes, average exterior appearance.	Somewhat drafty and leaky, rough-looking exterior, extra painting necessary.	Inoperable windows, leaky windows, unpainted, cracked panes, significant air and water penetration, poor appearance overall.
Aesthetics, Lighting	Bright and clean, attractive lighting.	Bright and clean, attractive lighting.	Small percentage of lights out, generally well lit and clean.	Numerous lights out, some missing diffusers, secondary areas dark.	Dark, lots of shadows, bulbs and diffusers missing, cave-like, damaged, hardware missing.
Service Efficiency	Maintenance activities appear highly organized and focused. Service and maintenance calls are responded to immediately.	Maintenance activities appear organized with direction. Service and maintenance calls are responded to in a timely manner.	Maintenance activities appear to be somewhat organized, but remain people-dependant. Service and maintenance calls are variable and sporadic, without apparent cause.	Maintenance activities appear somewhat chaotic and are people-dependant. Service and maintenance call are typically not responded to in a timely manner.	Maintenance activities appear chaotic and without direction. Equipment and building components are routinely broken and inoperable. Service and maintenance calls are never responded to in a timely manner.
Building Systems' Reliability	Breakdown maintenance is rare and limited to vandalism and abuse repairs.	Breakdown maintenance is limited to system components short of mean time between failures (MTBF).	Building and systems components periodically or often fail.	Many systems are unreliable. Constant need for repair. Backlog of repair needs exceeds resources.	Many systems are non-functional. Repair instituted only for life safety issues.
Facility Maintenance Operating Budget as % of CRV	>4.0	3.5-4.0	3.0-3.5	2.5-3.0	<2.5
Campus Average FCI	<0.05	0.05-0.15	0.15-0.29	0.30-0.49	>0.50

Level 1: Showpiece Facility

Maintenance activities appear highly focused. Typically, equipment and building components are fully functional and in excellent operating condition. Service and maintenance calls are responded to immediately. All regulatory submittals and requirements are met at or before sub- mission dates. Buildings and equipment are regularly upgraded, keeping them current with modem standards and usage.

Level 2: Comprehensive Stewardship

Maintenance activities appear organized, with direction. Equipment and building components are usually functional and in operating condition. Service and maintenance calls are responded to in a timely

manner. All regulatory submittals and requirements meet submission dates. Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 3: Managed Care

Maintenance activities appear to be somewhat organized but remain people-dependent. Equipment and building components are mostly functional but suffer occasional break- downs. Service and maintenance call response times are variable and sporadic without apparent cause. Regulatory submittals and requirements typically meet submission dates, with some occasional short delays. Buildings and equipment are periodically upgraded to current standards and use, but not enough to control the effects of normal usage and deterioration.

Level 4: Reactive Management

Maintenance activities appear somewhat chaotic and are people dependent. Equipment and building components are frequently broken and inoperative. Service and maintenance calls are typically not responded to in a timely manner. Regulatory submittals and requirements with the largest operational impact meet submission dates, but those that have less of an impact are typically late. Normal usage and deterioration continue unabated, making buildings and equipment inadequate to meet present use needs.

Level 5: Crisis Response

Maintenance activities appear chaotic and without direction. Equipment and building components are routinely broken and inoperative. Service and maintenance calls are never responded to in a timely mariner. Regulatory submittals and requirements with the largest operational impact typically submitted late, with other requirements ignored unless cited. Normal usage and deterioration continue unabated, making buildings and equipment inadequate to meet present use needs.