DATE: **JANUARY 26, 2018**

TO: **THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL**
THE HONORABLE RAMEE GENTRY, CHAIR, AND MEMBERS OF THE ALEXANDRIA CITY SCHOOL BOARD

CC: **MARK JINKS, CITY MANAGER**
DR. LOIS BERLIN, SUPERINTENDENT, ACPS

FROM: **JOINT CITY-SCHOOLS FACILITY INVESTMENT TASK FORCE**
Lynn Hampton, Chair, Mignon Anthony[1], Elliott Branch, Micheline Castan-Smith, Marshall Cook, Dwight Dunton, Amy Liu, Dave Millard, Eric Wagner

SUBJECT: **TASK FORCE FINAL REPORT** (DELIVERABLE 2 OF 2)

This second deliverable reflects the findings of the full effort and builds upon the first deliverable that focused on prioritizing existing projects within the Facilities Capital Improvement Plan ("FCIP"). Each Subcommittee's findings reflect opportunities for examining improved criteria, processes, and policies to ensure the best value is delivered to taxpayers and residents.

The Task Force believes this second deliverable provides an important framework to govern capital planning and decision making going forward. Its purpose is to provide recommendations that will give tools and resources to staff, leadership, and the community to work more effectively in the future.

This document is not meant to be a critique, but a set of recommendations to further empower key staff and leaders so they can continue to do their best to advance the goals of Alexandria. We commend the diligence and productiveness of staff during the course of Joint Task Force meetings, in addition to their day-to-day responsibilities. As we observed, their persistence and hard work has produced many notable accomplishments in our city. Our desire is that the recommendations laid out in this deliverable build upon our past successes and work toward advancing our future.

[1] Mignon Anthony served as Chair of the Alternative Project Delivery Methods Subcommittee until she accepted the position as Chief Operating Officer of Alexandria City Public Schools (ACPS) in late November 2017.

Our report is organized in the following manner:

- Executive Summary
- Table: Key Observations & Recommendations
- Chapter 1: Capital Planning & Implementation
- Chapter 2: Alternative Delivery Methods
- Chapter 3: Maintenance & Operations
- Chapter 4: Proposed Action Plan
- Exhibits

BACKGROUND

On Thursday, May 4, 2017, City Council adopted Resolution 2775 establishing the Ad Hoc Joint City-Schools Facility Investment Task Force ("Task Force") to oversee the development of a Joint City-Schools Facility Capital Improvement Plan and provide recommendations related to further capital project implementation.

The objective of this work is to provide guidance to City Council to help frame the City and Alexandria City Public Schools ("ACPS") Facilities Capital Improvement Program for FY 2019 - FY 2027 and beyond. The Task Force is charged with developing a report to include comments and recommendations that will:

1) Develop and recommend a long-range Joint City-Schools Facilities Capital Improvement Plan ("FCIP") with prioritization of 28 identified City and ACPS facility projects utilizing identified available funding for the period FY 2019 – FY 2027.
2) Through the work of related subcommittees:
    a. Determine opportunities for joint facility / site / co-location opportunities for City and ACPS programs;
    b. Review and recommend municipal facility planning and civic engagement principles, standards and practices;
    c. Review and recommend alternative capital project delivery methods and project management structures;
    d. Review and recommend governance of capital planning and project delivery; and
    e. Review and recommend asset management (i.e., facility maintenance) practices.

EXECUTIVE SUMMARY OF RECOMMENDATIONS

Following our work over the past four months, the Task Force has observed the realities that we face as a city:

- We are a community of growing needs operating in aging and overprescribed facilities;
- We operate in a competitive environment with limited local funds, an outlook of declining state and federal funding, and scarce land options;
- We are one community despite organizational structures, neighborhoods, or interests; and
- We need to collectively look to new ways of doing business and collaborating.

Alexandria has a large portfolio of existing facilities it must maintain with increasing deferred maintenance and growing demands for additional capacity and services. Thus, there is a significant pipeline of capital needs. We are not alone in these needs – many cities like Alexandria confront costly and ongoing infrastructure modernization needs that put pressure on local public resources. The region and nation face a similar infrastructure crisis.

Infrastructure is one local obligation that can attract private partners, which allows cities to diversify their revenue sources in this increasingly fiscally constrained environment. Indeed, not all infrastructure projects are ideal for public-private investments, but these partnerships are an increasingly common vehicle for financing public infrastructure. Alexandria must position itself wisely around these opportunities in ways that protect and advance the public interest.

As local public funds are stretched and federal infrastructure resources continue to decline, regional competition for private investment and partnerships will grow. The cities that stand out will be those that consistently know their needs and priorities and are well-organized to respond. Alexandria should – and can – be one of those cities. For these reasons, the Task Force recommends a comprehensive culture shift to improve the city's capacity to meet its ambitions, including through innovative partnerships, which will require a series of structural and behavior changes.

This urgent shift is required across all entities: elected bodies, leadership, staff, and community members. We must be smart and proactive about accommodating growth while delivering key services amid public resource constraints. We must be strong stewards of taxpayer funds while competitively positioning ourselves for private investors.

Doing nothing is not an option.

The following are key principles for enacting change and are vital to understanding the recommendations that follow.

- Future facility planning efforts must align with a broader, more cohesive vision for Alexandria. Alexandria – meaning both City and Schools - must define its 'targeted new reality,' a defined vision for the future which both celebrates Alexandria's history and its unique 'DNA' and embraces opportunities for innovation and growth.

- Leadership must proactively challenge traditional methods and practices for capital project and service delivery and seek opportunities for joint planning and delivery. No single solution will work.
- Leadership must lead and resist substituting leadership with engagement. This includes strong public education components within citizen engagement practices so Alexandria has a well-informed community that champions key local issues and relates back to the whole.
- Alexandria must conduct the necessary groundwork and establish processes for regular improvements to become an attractive owner, business partner, and employer and gain a competitive edge in the broader resource-constrained development environment.
- Resources for maintenance and operations need to be fully understood and rightsized to the extent possible as underinvesting is irresponsible and defers costs to more expensive capital projects.

#	Key Observations	Recommendations	Page #
Capital Planning and Implementation Subcommittee			
1	Alexandria lacks a unified and distilled vision for the future.	We recommend Alexandria define its "Targeted New Reality" to clarify priorities for decision making when considering how best to deliver capital projects and services.	Pg. 13
2	The City and ACPS have a tendency to jump to capital solutions rather than explore broader options to deliver services ("capabilities").	We recommend the City and ACPS jointly develop and implement a 'Capability Delivery Model' to assist City Council and the School Board with determining how best to deliver services to the residents of Alexandria.	Pg. 14
3	The CIP process lacks joint City and ACPS vision, collaboration, coordination, and execution.	We recommend that a Joint Capital Management Council be formed to oversee the operation of the Capability Delivery Model and capital allocation process.	Pg. 16
4	The CIP process provides a fragmented view of capital needs citywide.	We recommend the City and ACPS develop long-term Joint Facilities Master Plan to provide a comprehensive, integrated, citywide view of Alexandria's capital needs.	Pg. 17
5	The current budget cycle lacks sufficient time to deliberate on capital needs and proposed project solutions.	We recommend that the City and ACPS consider revising the budget calendar to decouple the annual operating and annual capital budgeting cycles in order to provide adequate time and resources to review, engage, and make capital decisions.	Pg. 19
6	The 10-year duration of the CIP makes it challenging to provide the same rigor of analysis for all projects, apply prioritization criteria equitably and clearly, and manage expectations cycle to cycle.	We recommend that City Council consider changing the way it reflects projects within the CIP. When a certain level of rigor is met, individual projects and their associated funding amounts should be identified. However, when project assumptions are more speculative, projects should be reflected within contingency accounts so that expectations can be more adequately managed.	Pg. 20
7	Implementation practices largely focus on the management of individual projects rather than as programs within a citywide portfolio, therefore limiting the yield of benefits that standardization and interconnectivity could provide.	We recommend the City and ACPS employ "best in class" project, program, and portfolio management practices to maximize the return on investments and meet strategic objectives.	Pg. 20
Alternative Delivery Methods Subcommittee			
8	Traditional practices, a 'business as usual' culture, and 'silos' within our city have stifled innovation, which we believe has resulted in missed opportunities for high-impact solutions for designing and delivering citywide capabilities and projects.	We recommend that leadership proactively challenge traditional practices and methods for capital project and service delivery by exploring new best practices to keep Alexandria competitive and attractive to potential partners and developers. This includes embracing opportunities such as public private partnerships, joint use, co-location, shared municipal services, adaptive reuse, and others as identified.	Pg. 28

#	Key Observations	Recommendations	Page #
9	Creative and innovative solutions that have occurred are a result of ad hoc and reactive efforts rather than a cohesive, replicable process.	We recommend a framework and process be developed so staff are empowered to pursue alternative delivery of projects in a consistent manner. In order to develop this new framework and process, initiate a pilot project to serve as a model that can be modified and expanded over time.	Pg. 29
10	Existing city and private resources have not been consistently or adequately leveraged, which has limited the return on investment of projects to date or the ability to effectively launch new efforts.	We recommend that adequate resources be identified to support and expand citywide technical expertise so that efforts can be coordinated, informed, and executed strategically. These resources include direction and commitment from leadership, leveraging existing groups such as Alexandria Economic Development Partnership, and new staff, systems, and access to specialized consultants.	Pg. 30
11	Civic engagement is critical, but should not be treated as a substitute for strong leadership by elected representatives.	We recommend leadership ensure that current civic engagement policies and practices focus on the public becoming well-informed champions of citywide issues while providing input on individual projects. Leadership must remain transparent in decision making and feel empowered to choose solutions that are best for all of Alexandria.	Pg. 32
Maintenance and Operations Subcommittee			
12	There is no standardization of capital asset data between the City and ACPS that would allow for a comparison of asset conditions.	We recommend the City and ACPS identify a common set of objectives and requirements for asset data for use in facilities planning, maintenance, and operations.	Pg. 40
13	DGS, ACPS, and AFD have three different work order tracking systems with varying and often limited capabilities for preventive maintenance scheduling, which creates inefficiencies and lacks standard performance outcomes.	We recommend DGS, ACPS, and AFD establish a common, cost-effective approach to track and manage preventive maintenance needs, either by enhancing an existing system(s) or selecting a new system that meets the collective needs.	Pg. 42
14	Existing staffing levels and other resources are strained and rely on vendors to inform and complete the majority of preventive maintenance work.	We recommend the City and ACPS identify optimal staffing levels, structures, and resources for maintenance and operation needs with strategies for how best to provide that capability. Seriously consider and adopt a plan to expedite deferred maintenance, similar to WMATA's SafeTrack program.	Pg. 43
15	There is inconsistency in the level of standards and specifications that inform project design and construction between City and ACPS, which in turn can impact maintenance and operations.	We recommend the City and ACPS develop, implement, and regularly update design guidelines and specifications and standard operating procedures that meet lifecycle goals and objectives.	Pg. 45
16	Procurement manages a broad and diverse workload, which creates challenges in focusing time and efforts on capital project and maintenance and operations actions.	We recommend the City and ACPS identify and implement ways to increase procurement resources and efficiencies, including the feedback loop between procurement and technical staff, expanding best value negotiation options, shared service agreement opportunities, and other new approaches for executing and coordinating procurements.	Pg. 47

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CHAPTER 1:

CAPITAL PLANNING & IMPLEMENTATION

BACKGROUND

The Capital Planning and Implementation Subcommittee ("CPI Subcommittee") was charged with development of recommendations for project management structures and reviewing and recommending changes in the governance of capital planning and project delivery for the City ("City", "DGS"), the Schools ("ACPS"), and our community as a whole ("Alexandria").

Subcommittee members included Elliott Branch, Chair, Marshall Cook, Member, and Eric Wagner, Member. The Subcommittee began meeting in August 2017 and met a total of six (6) times (a meeting list is provided in the exhibits). The meetings were held parallel to plenary Task Force meetings. While the broader meetings were primarily concerned with the development of the Joint City-Schools Facilities Capital Improvement Plan ("FCIP"), the work done by the Task Force as a whole provided the Subcommittee with an experiential opportunity from which many of the findings and recommendations discussed below resulted.

The iterative review of findings and discussion of key themes resulted in a set of broad and actionable recommendations that are provided herein.

The balance of this chapter is organized as follows:

1) Current State
2) Themes and Major Discussion Points
3) Actionable Recommendations

CURRENT STATE

The adoption of the CIP by the City Council is an indication of its support of both the capital projects that the City intends to pursue, and a plan for the anticipated levels of financing needed to fund these capital projects over the 10-year period.

The adoption of the 10-year CIP is neither a firm commitment to a particular project nor a limitation to a particular cost. As a basic tool for prioritizing and scheduling anticipated capital projects and capital financing, the CIP is a key element in planning and managing future debt service requirements. Only the first year of the CIP (FY 2018) represents a funding commitment for the project to proceed to the next stage, or to be implemented depending on the level of funding provided.

Currently a new 10-year CIP is developed each year through a process that brings both City and School capital projects to the table for funding decisions. The process currently used by each entity is described below.

City

The Department of General Services ("DGS") manages the planning, design, and construction of all city facilities. DGS develops the CIP budgets and project descriptions for inclusion and discussion in the CIP process outlined below:

Summer

- CIP Budget Kick-Off: Department heads develop and submit initial project requests
- Full project submissions are then developed and submitted by departments

Fall

- Office of Management and Budget ("OMB") reviews project submissions
- Peer Technical Review Committee[1] and CIP Steering Committee[2] begin meeting to craft a balanced CIP recommendation for the City Manager and to outline major policy issues facing the CIP

[1] The Peer Technical Review Committee consists of subject matter experts from the more capital project intensive departments in the City, and is chaired by the Director of the Department of Project Implementation. The committee discussed submitted projects, including cost estimates, implementation scheduling, and cross departmental coordination. The members of the Peer Technical Review Committee reported back insights and recommendations to the CIP Steering Committee.

[2] The CIP Steering Committee is the second body, and recommends the project composition and funding levels of the Proposed CIP to the City Manager. This committee consists of members of the City Manager's Office and the department heads of the most capital project intensive departments in the City. For the FY 2018 – 2027 CIP Development process, the committee included department heads from the Department of General Services; Recreation, Parks & Cultural Activities; the Department of Transportation & Environmental Services; the Department of Information Technology Services; and the Office of Planning & Zoning.

Winter

- CIP Steering Committee develops and presents recommendation to City Manager
- City Manager finalizes decisions on proposed CIP and presents CIP to City Council

Spring

- City Council and City staff hold budget work sessions
- BFAAC[3] and the Planning Commission provide recommendations and guidance
- City Council conducts add/delete process and adopts operating budget simultaneously

Quarterly

City staff compiles a Capital Projects Status Report each quarter to provide an update to City Council on active CIP projects

ACPS

ACPS manages the planning, design, and construction of all school facilities. ACPS develops the CIP budgets and project descriptions for inclusion and discussion in the CIP process outlined below:

Summer

- CIP Budget Kick-Off: Facilities staff begins initial project list using assessments and knowledge of facility needs and consideration for the previously approved 10-year CIP
- Projects are reviewed by additional staff and the Superintendent
- School Board holds a Public Hearing on the CIP
- School Board holds a series of work sessions and passes Budget Process Resolution, Budget Rules of Engagement, and School Board CIP Budget Priorities

Fall

- Superintendent's proposed CIP is finalized and presented to the School Board. Staff holds a Public Forum to receive additional community input
- School Board has a series of work sessions to discuss the CIP

[3] The Budget and Fiscal Affairs Advisory Committee (BFAAC) advises and supports the City Council by examining the City's budget procedures and processes; and recommends ways of improving that process, including participation by the public. The Committee typically meets on the third Tuesday of the month at 7 p.m. You can find the Committee's recent reports, resources provided to the committee by staff, as well as meeting agendas, schedules and minutes at the link below.

Winter

- School Board conducts add/delete process, holds a public hearing on the CIP, and adopts a final 10-year CIP
- City Manager finalizes decisions on proposed CIP and presents CIP to City Council (for both ACPS and the City)

Spring

- City Council and City staff hold budget work sessions
- City Council conducts add/delete process – adopts CIP budget, School Board goes through a series of add/deletes to accommodate the City Manager's approved budget. (Note: City Council approves a 10-year CIP and appropriates for the first year of the 10-year CIP.)

In accordance with Virginia Law, the School Board ultimately decides which projects to fund with appropriated funds each year and may adopt a final 10-year CIP that does not align with the approved budget in the second to tenth year of the City Council approved CIP.

Additionally, the ACPS Budget Advisory Committee ("BAC") advises and supports the School Board with regards to the budget. The BAC reviews financial policies and regulations and recommends updates as needed and promotes public participation in the budget process for greater transparency between the community and the School Board. The BAC prepares summary reports on numerous budget topics, which are determined each year by the committee.

Quarterly

ACPS staff compile a Quarterly CIP Report to provide an update to the School Board on active CIP projects.

As Needed

For the most significant construction projects, ACPS staff will often provide either standing or as-requested updates at School Board meetings.

CAPITAL PLANNING & IMPLEMENTATION SUBCOMMITTEE KEY OBSERVATIONS & RECOMMENDATIONS

The Capital Planning & Implementation Subcommittee deliberated and challenged existing practices for capital improvement planning and delivery.

Our Subcommittee process resulted in the following seven (7) observations / themes, which provided a platform for the associated recommendations. We envision that these recommendations will help alleviate the concerns in lack of 'jointness' and 'wholeness' – looking to infuse new structures and processes that will in turn impact behaviors and culture associated with planning and implementing projects.

Theme 1: Alexandria lacks a unified and distilled vision for the future.

During conversations with City and ACPS staff and after reviewing plans adopted by both entities, it became clear that Alexandria lacks a shared joint vision for the future. Each entity has its own strategic plans and vision but not a document that distills them together and that would support understanding priorities and tradeoffs. Without an understanding of the city's '***Targeted New Reality***,' decisions for capabilities, services, and capital projects cannot be made in a transparent manner.

'Targeted New Reality' is a well-defined, strategic vision for the future. Its purpose is to outline aspirations and strategic imperatives and express permanent ideals and values. It is not intended to change core values; rather, to better articulate them in order to guide planning and decision making. Establishing a 'Targeted New Reality' helps to ensure internal consistency among program priorities and frameworks. It should also be used as a source of innovation, a tool for resource allocation and trades, and a communication framework to stakeholders and the community.

This observation impacts nearly all other recommendations put forth by the Task Force and will be referenced throughout.

Recommendation 1: We recommend Alexandria define its "Targeted New Reality" to clarify priorities for decision making when considering how best to deliver capital projects and services.

Alexandria – encompassing both City and ACPS – must define a 'targeted new reality.' Although this new reality is aspirational in quality, it clarifies the factors of importance that Alexandria's rich history and DNA ascribe towards the future care and protections for its residents.

- Pursue (maximum) three strategic visioning sessions over the next year that connect existing strategic plans with recommendations from the Task Force. The sessions are not intended to modify the existing strategic plans, but instead provide a distilled and focused Alexandria vision.

- A third party should facilitate the sessions and both entities should be active participants. Consider utilizing the Alexandria Economic Development Partnership (AEDP) as the sponsoring entity for the third party facilitator.
- The strategic visioning effort should be performed in concert with the Task Force's recommended city-wide Facilities Master Plan in a transparent and comprehensive consensus-building process, which includes input from residents, elected officials, City and ACPS leaders, and interested stakeholders.
- The strategic vision should embody the concepts of the Capability Development and Delivery Framework as described in Recommendation 2 and answer questions such as:
    - What are the current / existing conditions in Alexandria?
    - What do we want the future Alexandria to be?
    - How do we position Alexandria to move forward to that future?

The synthesis of the strategic visioning session will identify gaps in existing conditions with the targeted new reality and will be used to help clarify priorities for decision-making when considering how best to deliver capital project capabilities and services.

<u>Theme 2:</u> The City and ACPS have a tendency to jump to capital solutions rather than explore broader options to deliver services ("capabilities" – see below).

Capital projects are not ends in themselves; they are part of the means through which the City and ACPS provide a ***capability***. A capability is the set of operational concepts, organizational structure, personnel, training, processes, and facilities required to deliver services or conduct the operations of general government.

For example, with respect to parking control and enforcement, the ability to regulate the amount of time a given vehicle can park at a designated location in the city is a capability. Parking ordinances, parking meters, signage, and parking enforcement personnel are a means to deliver that capability.

The existing planning process for capital projects does not align with this rationale and the Subcommittee feels that the City and ACPS must reorient the capital budgeting and planning process to focus on capabilities rather than projects.

A shift from looking at the capital budgeting process as a means of providing capabilities rather than capital projects being an end in themselves opens the possibility of innovative service delivery models such as outsourcing, privatization, private-public partnerships, and joint ventures between the City an7d ACPS.

<u>Recommendation 2</u>: Develop and implement a Capability Delivery Model.

The City and ACPS should jointly develop and implement a Capability Delivery Model to assist City Council and the School Board with determining how best to deliver services to the residents

of Alexandria. If the City and ACPS determine a capital project is required, the Model should be used to determine the project strategy, oversee project planning, and monitor and control project execution.

A Capability Delivery Model is a framework that assists decision-makers with deciding how best to deliver a capability that supports service delivery to a consumer or user. The framework consists of five (5) stages in which information is gathered that will assist leaders in deciding on the next course of action.

The five stages are:

1. Capability Need Validation
2. Demand Management
3. Project Strategy
4. Project Planning
5. Project Execution

1. '*Capability Need Validation*' helps decision-makers answer the question, "In order to sustain general government and deliver resident services, what capabilities must I have?" For example, do I need to plan for snow removal? The answer will be very different for a community in Florida versus one in Maine. Capability Need Validation drives decision-makers to state explicitly what they need to provide to make government work.

2. '*Demand Management*' answers the question, "How do I define and express the solution that will provide a capability." For example, ridesharing services such as Lyft and Uber, Dash, and Red Top cab all provide the same capability, but they do it in different ways. Demand management drives the decision-maker to conduct an analysis of alternative means to meet the need. The link of the capability to the organization's strategic plan is a powerful consideration during this stage because it is where constraints and necessary conditions arise. This stage is usually the beginning of stakeholder engagement. Funding for feasibility studies and further solution definition is usually required.

3. During the '*Project Strategy*' stage, the "who, what when, where, and how" of the project are being defined. Questions include whether the project is a traditional capital undertaking, an intergovernmental collaboration, or a public-private venture; where is the project sited; when will the project be undertaken; and who will operate it. This stage involves heavy stakeholder engagement. It is at this stage that the first significant amount of funding in the CIP is authorized.

4. During the '*Project Planning*' stage, outputs of the Project Strategy stage are integrated into a comprehensive project plan. The project gains increased definition in terms of cost, schedule, scope and quality. The Project Planning stage typically ends with a contract award.

5. The final stage is '*Project Execution*.' The project work scope is monitored and controlled and collateral work such as enabling projects are undertaken to deploy the desired capability.

   Capital projects fall roughly into three categories:

   - Life extension of existing assets
   - Modernization of existing assets
   - New construction

   Because of the varying scope and complexity of these three categories, not all projects must start at Capability Needs Validation. The appropriate stage of entry is project dependent. For example:

   - Replacing a roof on an asset is considered a life extension of that asset and would likely begin at the *Project Strategy* stage of the Model. The scale of the investment may not be large enough to warrant a pause to examine if the capabilities being provided within the building are being done optimally. Therefore, we would begin the project by defining how best to replace the roof. Who should be involved, what should the scope entail and strive to achieve, when should this work occur, etc.
   - Renovating or replacing an existing asset is a large investment and warrants a pause to better understand the capabilities being provided. These projects would start with *Capability Need Validation* and *Demand Management* to validate that the continued investment in that asset and its life extension is a sound pursuit. Alternatives for providing and/or housing those services would be explored before it is assumed that the asset is in fact needed in some new physical state.
   - A new construction project typically begins at the first stage, *Capability Needs Validation*, as the means to deliver a capability would be studied for any new or expanded capability.

   Development and deployment of a Capability Delivery Model that is consistent with the scope and complexity of the City and ACPS' capability needs will provide information at each stage of the model to help decision-makers determine whether a project is required, what the nature of that project should be, and the project's timing and location. Further, the rigor imposed by the Model should ensure that those projects which proceed through all the stages will be executed with a high degree of confidence that the project will be delivered at or below cost, on schedule, with the required scope.

<u>Theme 3:</u> The CIP process lacks joint City and ACPS vision, collaboration, coordination, and execution.

During conversations with City and ACPS to better understand the existing state of budget planning, it became clear that the existing CIP process brings together two entirely independent capital budgets to compete for limited funding. City Council, therefore, does not have the ability

to consider a truly integrated set of priorities and common vision for future capital spending across all capital needs.

The Subcommittee believes this lack of "jointness" leads to a suboptimal allocation of capital resources on behalf of the residents of Alexandria as it limits opportunities for jointly delivering projects. Projects are often developed in silos and come to the CIP negotiating table without much room for collaboration on alternative solutions for providing the project while meeting the timeline of the current CIP process. The timing of the CIP process also limits this cross collaboration. In effect, it becomes a zero-sum game with winners and losers.

Recommendation 3: Create a Joint Capital Management Council ("JCMC").

City and ACPS should create a Joint Capital Management Council ("JCMC") to oversee the operation of the Capability Delivery Model by:

- Elevating the membership of the City's Capital Improvement Program Steering Committee to the Deputy Manager/City Manager level.
- Expanding its membership to include equivalent levels of ACPS leadership.
- Giving the JCMC the authority to determine what projects are recommended to the City Council and School Board for inclusion in the CIP.

The Capability Delivery Model is most effective when the decision makers are credible and empowered to make determinations. The JCMC would work on a consensus basis under the overall leadership of the City Manager and the ACPS Superintendent. It is assumed that the JCMC would be co-chaired and meet on a regular basis.

The JCMC would be responsible for determining which projects should not be pursued based on the information available at each stage of the Capability Delivery Model, which projects need further development before proceeding, and which projects should proceed to the next stage. Their work would constitute a recommendation to City and ACPS on which projects hold the most promise in providing capabilities for delivery services to the residents of Alexandria and which projects have a high probability of delivering at cost, on schedule, and with the planned scope. It is anticipated that the JCMC will consult with appropriate departments and stakeholders such as housing, parks, public safety, and others.

This group can serve as the glue between each entity to develop a unified strategic vision and oversee development of the joint facilities master plan (see Recommendation 4).

Theme 4: The CIP process provides a fragmented view of capital needs citywide.

During development of the FCIP, the Task Force was limited to considering a specific subset of projects as well as a limited set of funding, including the funding Council plans to add as resources to the existing CIP. The Task Force questioned if this facilities list truly encompasses the full universe of facility needs. Additionally, the Task Force expressed concern that framing the prioritization exercise for facilities only was extremely limiting and that all capital projects

should be part of the prioritization conversation. This lack of "wholeness" presents issues to prioritization and making funding decisions.

The Task Force concluded that all of the projects it reviewed represented valid requirements for capabilities, which are needed for the operation of general government or to provide services to the community. We declined to recommend funding for some projects due to funding constraints and the timeframe given for the exercise, but the list of unfunded projects should not be considered as items that are not needed in some manner. The Task Force could not conclude whether these unfunded projects were more or less worthy than projects in the broader CIP, which was not within the Task Force's consideration.

In general, the unfunded list represented projects that appeared to be less ready for construction or presented an opportunity for alternative delivery analysis. Recognizing the need represented by each of the projects in our charge, we recommend that projects left unfunded in this FCIP process be considered for funding alongside all projects within the broader CIP for this CIP cycle.

The Task Force concludes that Council, assisted by the City Manager and the School Board, will have to continue to set priorities on an ad hoc basis until the City and ACPS develop a joint prioritization and governance process that results in proposing a unified, balanced CIP that represents the combined needs of the City and ACPS. The process must begin with both political bodies identifying the need to deliver capabilities and provide services until those capabilities are delivered through a capital project or other means. For context, the following represent the unfunded list from the FCIP:

- Gadsby's Tavern
- Fire Station 206
- Chinquapin Aquatics Center (50-meter pool)
- Indoor Firing Range (closed)
- New Pre-K Center
- New Elementary School
- The Task Force also recommended a reduced level of funding for the Health Department CFMP.
- The Task Force recommended consolidated funding for Swing Space and a New Middle School so that the swing space can be built out for immediate use as a temporary location for an elementary school and can transition in future years to a permanent use as either an elementary or middle school.

Recommendation 4: Develop a joint facilities master plan.

The City and ACPS should develop a joint facilities master plan that:

- Determines a facilities baseline for the City and ACPS;
- Reviews existing assumptions about the need for capital projects to support service delivery now and in the future;

- Develops a strategic vision for facilities development for the City and ACPS; and
- Synthesizes the facilities baseline, assumptions, and the strategic vision into a roadmap that addresses the City and ACPS' highest needs and biggest risks first, optimizes the use of swing space, and formulates a smart strategy for land acquisition and use.

A joint facilities master plan serves as the road map for reaching Alexandria's targeted new reality. The plan would identify opportunities for collaborative projects between the City and ACPS and allow both entities the ability to engage in smart project design and project planning. It would permit both entities to take advantage of opportunities to bundle projects for efficiency in execution, which was the rationale for the Task Force recommendation for the Witter / Wheeler campus.

A joint facilities master plan would provide ongoing context and guidance to the CIP. The typical duration of a master plan is longer (e.g., 20 to 30 years) than a funding plan to allow for the full universe of needs to be identified and addressed. It would allow for a better understanding of opportunity costs of prioritizing and sequencing projects ahead of others when balancing for known funding levels.

Finally, and perhaps most importantly, it would allow both the City and ACPS to maximize the use of one of Alexandria's scarcest resources: real estate.

Theme 5: The current budget cycle lacks sufficient time to deliberate on capital needs and proposed project solutions.

The Subcommittee concluded that while the City and ACPS have relatively well-defined processes for developing their capital budget, most of the discussions of needed capabilities and project strategies is relatively unstructured and ad hoc. Those discussions need the time, space, and structure to occur and be fruitful.

The quantity of projects and complexity of needs has grown over time, making discussions about capabilities even more critical. The CIP process itself has a limited window of time to include an in-depth discussion of capabilities and broader needs.

Recommendation 5: Revise the budget calendar to decouple the annual operating budgeting and annual capital budgeting cycles.

Governments by their nature work three budgets simultaneously – the current budget, next year's budget, and the budget after next. When the budget is split into an operating and a capital budget, six separate budgets are in various stages of execution, consideration, and development. This level of budget activity places a strain on staff, who must support all six. It also forces City Council and the School Board to consider matters of great consequence within a highly compressed timeframe.

Given the growing complexity of the CIP, the Task Force recommends that consideration of the CIP be decoupled from the annual operating budget. Given the long-term nature of the CIP and

the recommendations to institute a Capability Delivery Model and a governance structure, the CIP could be effectively decoupled from the operating budget, giving Council and School Board more time to deliberate over long-term priorities. This process can be enabled by Recommendation Six.

Theme 6: The 10-year duration of the CIP makes it challenging to provide the same rigor of analysis for all projects, apply prioritization criteria equitably and clearly, and manage expectations cycle to cycle.

Project plans are developed based on a set of assumptions. In order to properly study and explore project assumptions in more detail, planning or "seed" money must be allocated to the project. Each year the CIP reflects projects in later years that have highly speculative project assumptions. To community members or casual observers, the budget reflected in the CIP may be taken as a reliable cost estimate, which can lead to incorrect expectations despite qualifying statements within the body of the CIP document.

Currently, projects are placed in the CIP before a full analysis of alternatives can occur. Thus, if an analysis of project alternatives reveals that the capability should be delivered via a method other than the identified project, the community's expectations are misaligned.

Recommendation 6: **Consider changing the way projects are reflected in the CIP.**

The Task Force understands and appreciates the need for the City and ACPS to make a ten-year policy statement with respect to its capital priorities. In practice, the most concrete priorities exist in the first three years of the CIP, where project needs are reasonably well identified, there is a reasonable forecast of economic conditions (absent an unexpected and highly impactful event), and the necessary conditions for project execution are set. Years four through six are less certain; years seven through ten are highly speculative.

The Task Force recommends that the City and ACPS provide less specificity for capital project definition in years four through six and only an aggregate target for years seven through ten. As the Capability Delivery Model identifies those projects that are increasingly ready to proceed and whose cost and schedule estimates become firmer, City Council and the School Board can allocate the undistributed CIP to specific projects.

Theme 7: Implementation practices largely focus on the management of individual projects rather than as programs and a citywide portfolio, therefore limiting the yield of benefits that standardization and interconnectivity could provide.

The Subcommittee observed that capital projects have grown in complexity and scope in recent years. The process and quality of project delivery does not currently align across the City and ACPS. As a relatively small city, Alexandria could benefit from standardizing project management processes and introducing economies into the execution of projects via program and

portfolio management. In addition, standardization would allow for stakeholders to better engage throughout the process.

Recommendation 7: The City and ACPS must employ "best in class" project, program, and portfolio management practices.

Projects in the CIP have grown in scope and complexity over the past several years. To successfully manage the CIP effectively and optimize resources, the City and ACPS must employ "best in class" project, program, and portfolio management practices. This should start with identifying current capabilities and a means to close any gaps and align resources. This includes the way projects are directly managed and levels of oversight.

Immediate tasks that can be conducted include interviewing staff and plotting current implementation practices. There may be areas of collaboration or shared resources between DGS and ACPS implementation staff.

An example of an industry standard that could be followed is the Project Management Institute's Organizational Project Management Maturity Model ("OPM3"):

> … is a globally recognized best-practice standard for assessing and developing capabilities in executing strategy through projects via Portfolio Management, Program Management, and Project Management. It is published by the Project Management Institute (PMI). OPM3 provides a method for organizations to understand their Organizational Project Management processes and practices, and to make these processes capable of performing successfully, consistently, and predictably. *OPM3* helps organizations develop a roadmap that the company will follow to improve performance. The Second Edition (2008) was recognized by the American National Standards Institute (ANSI) as an American National Standard (ANSI/PMI 08-004-2008). The Third Edition was published in 2013.[4]

The OPM3 represents the industry standard for organizations for which project management must be a strategic competency. The OPM3 will assist the City and ACPS in determining whether they have the organizational structure, people, processes and technology to effectively manage a CIP of this scope and complexity, and if not it will assist City and ACPS in developing a roadmap to building a highly professional project management competency.

[4] Wikipedia, OPM3, https://en.wikipedia.org/wiki/OPM3, accessed December 10, 2017

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CHAPTER 2:

ALTERNATIVE DELIVERY METHODS

BACKGROUND

The Alternative Project Delivery Methods Subcommittee (the "Subcommittee") was charged to determine opportunities for joint facility/site/co-location and recommend alternative capital project delivery and operation strategies for the City ("City", "DGS"), the Schools ("ACPS"), and our community as a whole ("Alexandria").

Subcommittee members included Dwight Dunton and David Millard. Mignon Anthony served as Chair of the Subcommittee until she accepted the position as Chief Operating Officer of Alexandria City Public Schools (ACPS) in late November 2017. The Subcommittee met a total of seven (7) times (a meeting list is provided in the exhibits).

Each Subcommittee meeting explored themes and concepts, industry best practices, and examples of where successful joint facility/site/co-location efforts might be applicable to Alexandria's needs and growth projections. B&D facilitated meetings and provided technical support as needed to Subcommittee members and related stakeholders.

The balance of this chapter is organized as follows:

1) Defining Alternative Delivery
2) Current Statutory Environment
3) Key Observations & Recommendations

DEFINING ALTERNATIVE DELIVERY

A public building or property owner ("Owner") may identify several areas of risk when embarking on project delivery. As such, Alternative Delivery Methods are constantly evolving in the project space as the need for creative financing and risk transfer become necessary. In a sense, Alternative Delivery is when an Owner takes advantage of the natural strengths of a potential partner by transferring risk to deliver a mutually beneficial asset or service. Partners could be another public agency or department or a private sector entity such as a developer, program manager, construction manager, non-profit, or service provider.

Risks, generally identified in project delivery, include the following:

- Design and Construction Risks
  - Site
  - Design
  - Construction
  - Environmental and Social
- Operations Risk
  - Operating Costs
  - Maintenance
  - Performance

        - Financing and Project Budget
    - Political and Macro Risk
        - Macroeconomic
        - Regulatory
        - Political
        - Force Majeure

Public Private Partnerships ("P3" or "P3s") is the commonly used term to indicate an agreement between two or more entities to develop, build, finance, operate, and/or maintain an asset or provide a service. For example, strategies for P3s can include co-location, collaborative operations, and shared resources. The National Council for Public Private Partnerships currently recognizes as many as18 different variations of P3 structures.[1] In every scenario, the partnership structure is determined by the Owner's transfer of risk and control. Examples of commonly used P3s in the public sector include:

- O&M: Operations and Maintenance
- OMM: Operations, Maintenance, and Management
- DB: Design Build
- DBM: Design Build Maintain
- DBO: Design Build Operate
- DBOM: Design Build Operate Maintain
- Developer Finance
- DBFOM: Design Build Finance Operate Maintain

Other alternative deliveries relate more directly to how a construction project is procured. Alexandria, similar to most public owners has traditionally procured projects using the Design Bid Build model. This approach is referred to within the construction industry as "traditional." In this delivery model, the Owner hires a design team to produce a set of biddable construction documents. The Owner then invites general contractors to bid, selects a preferred contractor based upon Owner defined criteria (low bid, best value, etc.) and then contracts directly with the selected builder to construct the project.

This approach in the public sector was driven by goals to obtain the lowest price. In the mid-twentieth century it became law in nearly every state.[2] Over the last two decades, public procurement has seen an increased use of alternative delivery methods such as Construction Manager at Risk and Design Build. As of 2012, all 50 states and Washington, D.C. allow some form of alternative delivery, though the Design Bid Build is still the most widely used method.[3]

Construction Manager at Risk and Design Build differ from the Design Bid Build approach in that some risks are transferred to a Construction Manager or other third party. Construction Management at Risk introduces pre-construction expertise during the design process with earlier guarantees for cost and delivery. Design Build provides a single contract for both

[1] https://www.ncppp.org/ppp-basics/types-of-partnerships/
[2] http://americancityandcounty.com/contracts/growth-and-growing-pains-design-build-construction
[3] http://americancityandcounty.com/contracts/growth-and-growing-pains-design-build-construction

architectural/engineering design and construction. Both methods suggest an accelerated process whereby design and construction merge at earlier stages and project control must be more tightly managed to maximize results. Overall, owners evaluate each project's opportunities, challenges, and constraints to decide which approach best meets the needs of the project.

CURRENT STATUTORY ENVIRONMENT

Alternative Delivery Methods allow owners the flexibility to provide capabilities utilizing and leveraging non-public resources through partnerships with third parties. There are many forms of alternative delivery for consideration and it is important to understand the approaches a jurisdiction and the community have at their disposal. Our Subcommittee analyzed applicable precedent and legislative authority for use of alternative construction procurement and P3s in City and ACPS project efforts.

Alexandria is an independent city in the Commonwealth of Virginia and receives its governing authority from the Code of Virginia[4]. Similar to other local governments in Virginia, Alexandria has limited powers – powers that are specifically conferred on them by the Virginia General Assembly that are essential to the purposes of government.

In 2006, the Virginia Design Build / Construction Management Review Board certified Alexandria[5] to deliver construction projects utilizing both Construction Manager at Risk and Design Build methods. The board was subsequently abolished and now the Code of Virginia § 2.2-4382 states:

> *Design Build or construction management contracts for local public bodies authorized.*
>
> *A. Any local public body may enter into a contract for construction on a fixed price or not-to-exceed price construction management or Design Build basis, provided that the local public body (i) complies with the requirements of this article and (ii) has by ordinance or resolution implemented procedures consistent with the procedures adopted by the Secretary of Administration for utilizing construction management or Design Build contracts.*[6]

Alexandria utilizes these methods depending on the nature and constraints of a project. Construction of the DASH Operations and Maintenance Facility utilized a Design Build delivery method. Fire Station 210 at Eisenhower Avenue and Patrick Henry Elementary School and Recreation Center were delivered utilizing Construction Manager at Risk.

Regarding "P3s", Virginia's Public-Private Education Facilities and Infrastructure Act of 2002, amended in 2008[7], defined 'qualifying projects' for public entities to engage in Public Private Partnerships and stipulated, "While substantial private sector involvement is encouraged,

[4] https://law.lis.virginia.gov/vacode
[5] https://law.lis.virginia.gov/admincode/title1/agency17/preface/
[6] https://law.lis.virginia.gov/vacode/title2.2/chapter43.1/section2.2-4380/
[7] https://law.lis.virginia.gov/vacodepopularnames/the-public-private-education-facilities-and-infrastructure-act-of-2002/

qualifying facilities must be devoted primarily to public use, typically involving facilities critical to public health, safety and welfare."

Only a few examples of Public Private Partnerships have occurred to date in Alexandria. Most notable is The Station at Potomac Yard, a fire station constructed as part of a residential and commercial building that also included affordable housing. The City also uses longstanding partnerships to deliver affordable housing and other essential services including animal control.

Accordingly, we believe Alexandria has the ability and legal authority to implement the recommendations that are outlined below.

ALTERNATIVE DELIVERY METHODS SUBCOMMITTEE KEY OBSERVATIONS & RECOMMENDATIONS

The Alternative Delivery Methods Subcommittee explored and evaluated best practices and considerations for alternative delivery of projects and services. Initial meetings focused on using alternative delivery methods for discrete or particular combinations of ACPS and City projects. However, our Subcommittee concluded that in order to advance delivery methods, decision-making for future capital projects will require that the City, ACPS, civic leaders, elected officials, and community embrace and embody an evolved mindset valuing interdependency, risk-taking and innovative solutions.

Rather than provide recommendations for individual projects in the short-term, we recognize a holistic approach is necessary to ensure Alexandria continues to grow strategically. This will set the stage for sustainable success over the long-term.

Key to the recommendations in this section is the visioning process and Joint Facilities Master Plan and the resulting 'Targeted New Reality' for Alexandria, as recommended in Chapter 1 (see Themes 1 and 4 and associated recommendations). Many of the themes and recommendations presented here provide expanded guidance on what that vision should aim to achieve.

The following provides an overview of the key observations made during Subcommittee discussions and the related recommendations inclusive of related action items.

Theme 8: Traditional practices, a 'business as usual' culture, and 'silos' within our city have stifled innovation, which we believe has resulted in missed opportunities for high-impact solutions for designing and delivering citywide capabilities and projects.

It is often said, "Perfect is the enemy of good." It has been our observation that the City and ACPS often attempt to find the perfect solution rather than accept an optimal solution. We believe that staff are not emboldened to lift up creative ideas for both capital projects and ongoing repair and maintenance. In this regard, the Task Force observed that the City and ACPS often attempt to find the perfect solution or settle for short-term solutions to long-term problems due to financial constraints (capital and operating), timing constraints, staff/resource constraints, community pressures, and lack of political will to upset the status quo.

For example, our Subcommittee and the broader Joint Task Force had numerous discussions about swing space and the siting of schools. It became apparent that in some cases, the new Patrick Henry Elementary School and Recreation Center and Jefferson Houston School notwithstanding, the temporary use of City-owned fields and green space for swing or construction staging was avoided early on in project planning analysis due to short-term concerns about displacing the users of those spaces. However, there may be benefits realized in using that space temporarily, such as avoiding capital costs for elongated construction schedules

from phasing work on a smaller footprint or transporting students to a swing space. A full analysis should be completed to examine the full range of costs and benefits, including any existing programming that may be displaced.

As a result of this thinking and behavior, we feel that many opportunities for collaboration and projects with enhanced returns on investments are not realized and may impact Alexandria's competitive position in the market to potential partners and developers.

<u>Recommendation 8:</u> We recommend that leadership proactively challenge traditional practices and methods for capital project and service delivery by exploring new best practices to keep Alexandria competitive and attractive to potential partners and developers. This includes embracing opportunities such as public private partnerships, joint use, co-location, adaptable reuse, and others as identified.

At the core of challenging existing practices and embracing alternative methods is a systematic shift in thinking. Risk-taking should be rewarded and not stymied. We must take risks in order to reap the benefits of innovation, as innovating processes and procedures could greatly improve efficiency and outcomes.

We believe a systematic shift in thinking that challenges traditional methods and practices while seeking optimal solutions is needed. For example:

- We believe the city should reevaluate and actively take on any 'sacred cows' – facilities, processes, programs, and/or policies that no longer meet our needs.
- We believe the private sector should be leveraged more in developing public facilities and providing public services.
- Greater community accessibility to public services should be prioritized in a city with the transportation resources of Alexandria. We believe the land surrounding Metro stations in Alexandria is highly underutilized. The City and ACPS should centralize essential city services and functions at available sites near Metro stations wherever possible.
- We believe the short-term and temporary uses of space must be evaluated against our long-term goals.
- We believe innovative, out-of-the-box thinking should be encouraged and supported among staff.

To support implementing the new vision and this shift in thinking, we believe that staff should be encouraged to think creatively to lift up ideas that would promote collaborative facility efforts both with capital projects as well as ongoing repair and maintenance. For example: The City and ACPS should consider awards (annual if appropriate) to staff who exhibit creativity in approach to eliminating silos or identifying alternative delivery methods.

Overall this shift in thinking and related actions should help propel Alexandria into becoming an attractive and competitive partner to the private sector. The balance of recommendations provide specific actions to put this thinking into motion.

<u>Theme 9:</u> Creative and innovative solutions that have occurred are a result of ad hoc and reactive efforts rather than a cohesive, replicable process.

Current city-wide facility planning efforts are tailored to individual agency needs. This has caused silos and competition between agencies versus a more comprehensive approach to planning. While silos are necessary for government operations to some degree, there must be mechanisms in place and a process to transcend them so that individuals – elected officials, leaders, staff, and community members – can work to accomplish broader goals for the benefit of the entire city.

In addition to silos that inhibit collaboration, the lack of a structured process and framework makes it challenging for staff to elevate and pursue alternative delivery of projects, particularly with private partners. It may be perceived that there is not a means to advance projects of more complexity since there is not a process that allows for their complexity to be more easily understood and navigated. The few projects that have been successful may be deemed to have worked due to special circumstances. We believe the perceived 'easier' solutions are sought despite the return on investment and value a more complex project may ultimately provide.

<u>Recommendation 9:</u> We recommend a framework and process be developed so staff are empowered to pursue alternative delivery of projects in a consistent manner. In order to develop this new framework and process, initiate a pilot project to serve as a model that can be modified, adapted, and expanded over time.

Establishing a structured process to guide the use of alternative delivery will help accelerate it into a more prevalent solution. The established process should align with the broader capabilities framework outlined by the Capital Planning and Implementation Subcommittee. The associated planning and project decision rights and information flow should be transparent and clear to all stakeholders.

Suggested elements of the process are:

- Clearly define *'projects'* and their strategic objectives and goals for service delivery, including the transfer of risk across the design, build, finance, operate, maintain spectrum.
- Utilize a formal selection process for partners that seek responses that are in alignment with the strategic objectives as well as acknowledge how to review and process unsolicited proposals (e.g., Request for Qualifications or Request for Proposals).
- Support negotiations and engagement with partners for services and/or capabilities.
- Provide oversight of project initiation, construction, project management, and close out.

Note: *'Projects' in this case may not necessarily be the building of a capital asset but the mechanism to deliver a capability - for example, outsourcing an operation.*

To be successful, frameworks and processes must have the appropriate resources behind them. The topic of resources is more specifically discussed in Theme and Recommendation 10. We recommend that Alexandria seek external advice in how to properly set up this process.

We also recommend that a pilot project be utilized to develop, illustrate, and refine this process. We recommend that an appropriate pilot project be the Firing Range – due to its recent closure. Please see the end of this section for other alternative project ideas.

Overall, these steps will support the development and implementation of a transparent, sustainable, replicable, and collaborative process for exploring, selecting, negotiating, and executing projects with alternatives to the traditional planning and delivery of projects.

<u>Theme 10:</u> Existing city and private resources have not been consistently or adequately leveraged, which has limited the return on investment of projects to date or the ability to effectively launch new efforts.

In the same vein as the previous themes, it became our observation that the easiest way to pursue a project was often taken. One reason for this we believe is the perceived availability of, and access to, appropriate resources. Alternative projects are complex and require sophisticated support.

For example, one resource we believe that could be more regularly utilized by City and ACPS is the Alexandria Economic Development Partnership (AEDP). We view AEDP as the city's best link to the private sector and its resources.

Other resources that could be made available include supporting policies and guidelines, "champions" and technical experts, and a clear decision making process. "Champions" can play a significant role in implementing change and new processes and practices. The role was defined within a Project Management Institute article as:

> *A champion is a person within the organization who uses power entrepreneurially to enhance project success. This definition implies four characteristics of champions:*
>
> - *First, they have some personal or positional power in the organization.*
> - *Second, they are willing to use that power to benefit the project.*
> - *Third, they use their power somewhat non-traditionally or entrepreneurially.*
> - *Fourth, they do not have to do what they do to aid the project; they go well beyond their expected and traditional job responsibilities.*[8]

[8] https://www.pmi.org/learning/library/project-champion-key-implementation-success-2135

Overall, we believe staff have creative ideas, but they get stifled by the perception that they cannot find the means to further develop them from a technical perspective or gain enough traction and support for ideas to be advanced. Having appropriate resources can help these ideas be properly explored early in the process and advanced when appropriate.

Recommendation 10: We recommend that adequate resources be identified to support and expand citywide technical expertise so that efforts can be coordinated, informed, and executed strategically. This includes buy-in and direction from leadership for their use. These resources should include existing ones, such as the Alexandria Economic Development Partnership as well as new ones, including staff, systems, and access to specialized consultants.

The following categories of resources should be considered in supporting the alternative delivery process, particularly as one size does not fit all and transactions are often complex in nature:

- Policy audit and guidelines
- Decision making body and champion
- Internal and external experts
- Other written supporting materials

An initial review and refinement of related existing policies should be conducted so that they can be easily referenced and understood by staff and decision makers. These can inform the establishment of specific guidelines that condense the applicable information and readily support the established process. An example to consider is the City of Falls Church's adopted "Guidelines for Implementation of the Public-Private Education Facilities and Infrastructure Act of 2002."[9] Having this sound understanding will help inform which additional resources will be needed to support internal staff.

Establish who the applicable decision-making body should be and identify and empower an impartial champion with decision-making authority to lead this effort. This may mean creating a new entity or utilizing the JCMC recommended in Chapter 1 with appropriate supporting staff such as project planners as well as staff who can take on a leadership role for the effort. The individual champion should have credibility among elected bodies and be able to provide executive oversight and implement the strategic visioning.

Specific criteria for determining whether an opportunity exists for alternative delivery of a service or capital project should be developed, including key performance indicators that hold the City and ACPS accountable. The criteria should align with the Capability Development and Delivery Framework, outlined by the Capital Planning and Implementation Subcommittee and with the city's targeted new reality.

[9] http://www.fallschurchva.gov/documentcenter/view/4578

The decision-making body and/or champion should refine and review existing standardized written agreements, develop new templates that support project strategy development and negotiations, and monitor compliance and adherence to those standards, which include:

- Facility design standards
- Physical parameters and guidelines for capabilities and services
- Co-location guidelines and agreements
- Financing strategies

The decision-making body and/or champion should identify the means and methods for regularly and consistently collaborating with other partners and existing and new resources, including but not limited to:

- Planning & Zoning (P&Z), Department of General Services (DGS), Office of Housing (OH), and Recreation, Parks & Cultural Activities (RPCA)
- Alexandria City Public Schools (ACPS
- Alexandria Economic Development Partnership (AEDP)
- Industrial Development Authority of Alexandria (IDA)
- Alexandria Chamber of Commerce
- City Budget and Fiscal Affairs Advisory Committee (BFAAC)
- ACPS Budget Advisory Committee (BAC)
- Peer and neighboring municipalities
- Legal counsel and other external experts and advisors

Utilizing these resources to execute the newly established process, the city can make timely, vision-aligned decisions regarding capital needs without the risk of projects getting stymied by political forces or being thought to be too complex to implement. Overall the resources needed to support the recommendations here as well as in Chapter 1 should be evaluated together, as both impact capital project planning and development.

Theme 11: Civic engagement is critical, but should not be treated as a substitute for strong leadership by elected representatives.

Civic engagement is important to having informed leadership. In our discussions about projects in the FCIP, we observed that options for projects are sometimes removed based solely on community feedback or political leadership rather than thoroughly analyzed in the ways in which they deliver the strategic vision. This theme was brought to light during our Subcommittee discussions due to its relationship to engaging around challenging traditional ways of doing business and delivery projects.

- Community members sometimes use engagement meetings to discuss their individual concerns, even if the matter falls outside of the meeting topic. This hinders useful feedback for staff analysis and decision-making.
- Community engagement practices heavily influence policies and decisions, often prioritizing political motivations over longer-term sustainable solutions.

Leaders must be careful to represent the greater community interest rather than let strong-minded individuals or tenacious groups drive decision-making. Leaders should carefully weigh the short- and long-term tradeoffs a project provides and understand the impact and cost of each option. Proactive, not reactive, leadership by elected officials will produce better long-term results.

Leadership should also consider the impact to staff. Our observation is that staff are overextended by the number of working meetings and community meetings in addition to their day-to-day responsibilities.

Recommendation 11: We recommend that leadership ensure that current civic engagement policies and practices resist the substitution of engagement alone for leadership. The public should be informed champions of what is important to all of Alexandria rather than advocates for individual projects.

Community engagement is critical in determining the future for Alexandria. However, it is important to distinguish that engagement should be used to inform policy decisions, but not to manipulate them.

- We recommend community engagement meetings have defined parameters for what will be discussed and the type of feedback that is desired. Expectations for success should be set along with other goals.
- We recommend leadership weigh the feedback provided during engagement and to support and empower staff to facilitate and provide expertise rather than appease stakeholders in decision-making.

Alexandria must ensure that its communication strategy is aligned with a comprehensive focus on the city's targeted new reality and finding the appropriate balance and rigor of community engagement, staff expertise, leadership, and elected bodies.

- This effort should educate all stakeholders about the need for a paradigm shift to be solutions-minded – 'business as usual' will no longer suffice.
- The champion identified for the decision-making body should lead and implement this comprehensive community-wide communication and engagement effort.
- Ongoing efforts may need to be right-sized and the engagement plan updated. Meetings, councils, and work groups across the City and Schools should be streamlined and their purpose clearly stated in order to be more efficient with staff time and effective with community engagement.

- Engagement should promote transparency through active outreach and manage expectations by informing community members of the levels and timing of participation.

Efforts and tasks supporting this paradigm shift should support innovation in the delivery of projects that strive for the best value to Alexandria residents.

CURRENT OPPORTUNITIES

Our Subcommittee believes the recommendations above set the stage for holistic change for how Alexandria approaches capital projects. In conjunction with the Capital Planning and Implementation Subcommittee, it is our desire that these observations and recommendations lead to long-term improvements and progress.

Throughout the course of our Subcommittee meetings, there was a great deal of discussion regarding potential opportunities with existing properties or assets throughout the city that may have been overlooked or assumed unapproachable, which could be capitalized on to address current needs. Some of these ideas are listed below for your consideration. They all warrant thorough analysis and engagement to determine their feasibility and implications for existing programming.

Swing Space and alternative sites for future school projects/use:

- Recognizing that school swing space is an immediate need, we believe that, wherever possible, permanent structures should be built for swing space that can be later transitioned to a permanent school.
- As stated earlier, where possible, the City and ACPS should consider/study the option of swing space on site – even though, for instance, it may require the temporary use of an adjacent park. As fellow residents, we understand the importance of parks and open space for Alexandria, but as a city we must balance the short-term and temporary uses of space against our long-term goals.
- We believe there are more sites available throughout the city that can house a school than realized, particularly on broader City- or ACPS-owned/controlled land.
    - While some of these sites may be appropriate for building new facilities, others may be repurposed to accommodate a critical need as identified by the City/ACPS (e.g., an early childhood education center).
    - Several smaller schools may be a better option than a few larger schools and may provide more flexibility, especially if designed for alternative uses in the future. As recommended in the Long Range Educational Facilities Plan, an urban school model is better suited to the land constraints of our city.

Alternative Sites for City Use:

Given the costly repairs needed in City Hall and that City staff is dispersed throughout Alexandria, an alternative could be to consolidate City and/or ACPS employees in other currently available and empty locations, such as the Victory Center or Carlyle area.

City-Owned Assets for Alternative Use:

We believe there is an opportunity for the City to re-examine current assets for alternative, enhanced, or shared uses to address funding issues. The recommended decision-making body

and/or champion for an alternative delivery process can investigate available revenue-generating avenues for these facilities.

Alternative Delivery Opportunities

As has been mentioned in the Task Force's first deliverable and this report, we believe that there is a great opportunity for alternative delivery of the following FCIP projects:

- The new Firing Range could be used as a pilot project for alternative project delivery (e.g., a public private partnership).
- Instead of constructing a new Burn Building solely for use by AFD, consider the opportunity for shared use with neighboring jurisdictions.
- The Witter-Wheeler Campus could combine City and ACPS services as well as incorporate the potential for privatizing some facilities.

Regulatory Framework

In order to accommodate urgent needs, the City should reconsider certain regulations, e.g., zoning and height requirements.

Opportunities with AEDP

As mentioned, we believe that the City and ACPS should take more advantage of AEDP as a resource. They are in the best position to offer support in the identification of private sector partners and/or sites, and can assist in determining opportunities to use the Industrial Development Authority.

Associated Exhibits:

- Subcommittee Meeting List
- AEDP Memo of October 31, 2017

CHAPTER 3:

MAINTENANCE & OPERATIONS

BACKGROUND

The Facility Maintenance and Operations ("M&O") Subcommittee was primarily charged to review and recommend improved policies and practices related to asset management (i.e.. facility maintenance).

Subcommittee members included Amy Liu, Chair, Micheline Castan-Smith, Member, and Lynn Hampton, Member. The Subcommittee began meeting in September 2017 and met a total of five times (a meeting list is provided in the exhibits).

The Subcommittee benefited from the continued facilitation and support of B&D with reinforcement by A2 Services ("A2"), a sub-consultant with expertise in the subject of maintenance and operations. A2 provided maintenance and operations best practices, examples, research, and analysis to inform Subcommittee discussions surrounding facility maintenance practices and standards that led to recommendations on process improvements.

A2 also performed an extensive review of existing City, Fire, and ACPS maintenance work order processes and preventive maintenance activities. This 'discovery phase' was unique to this Subcommittee.

The iterative review of findings and discussion of key themes resulted in a set of broad and actionable recommendations that are provided herein.

The balance of this chapter is organized as follows:

1) Discovery Phase:
    a. Overview
    b. Goals of the Subcommittee
    c. Work Plan
2) Key Observations & Recommendations
3) Exhibits:
    a. Facility Surveys
        i. City Hall (City, DGS)
        ii. City Public Safety Center (City, DGS)
        iii. Fire Station #208 (City, AFD)
        iv. Cora Kelly Elementary School (Schools, ACPS)
    b. Preventive Maintenance Full Time Equivalent Calculations

DISCOVERY PHASE

Overview

A2 Services provided support to this Subcommittee by conducting a Discovery Phase that included a high-level review of existing maintenance and operations practices across several city entities. This included reviews of practices related to work order management, preventive maintenance, and turnover activities following a capital project. As a rule, work orders are often reactive maintenance while repair activities and preventive maintenance are proactively scheduled activities.

In this role, A2 engaged with maintenance and facilities staff and reviewed related materials with three entities: City of Alexandria Department of General Services ("DGS"), Alexandria Fire Department ("AFD"), and Alexandria City Public Schools ("ACPS"). AFD was included since it maintains and operates the fire stations (DGS maintains and operates the other AFD facilities (non-stations)).

Goals of the Subcommittee

At the outset, our Subcommittee determined it would focus on recommendations that advance the following four (4) goals:

1) Extend the lifecycle of new, modernized facilities, such as those proposed in the CIP, by adopting new practices and technologies to manage the new portfolio.

2) Enhance the performance of existing buildings so that maintenance needs are not backlogged, reactive, or neglected.

3) Address cost-efficiencies and fiduciary responsibility for maintaining investments across city entities and in all processes, to maximize capital investments.

4) Create an aligned process in which anticipated needs from all entities inform future plans and budget cycles.

The industry broadly accepts that preventive maintenance can help prolong the life of facilities and their systems, lessens unplanned downtime caused by equipment failure, and reduces expensive repairs caused by unexpected equipment failure that must be fixed quickly. Overall, these goals recognize that underinvesting in maintenance and operations is irresponsible. Alexandria needs an urgent cultural and structural shift towards proactive planning and rightsizing of resources.

Work Plan

The Discovery Phase work plan was organized into three phases:

1) Staff interviews
2) Facility surveys
3) Additional data and document review and analysis (as available)

During the interviews, staff described their current maintenance policies and procedures, opportunities and constraints they face, and how they manage and perform maintenance including resources such as staff, vendors, and software tools.

Each entity selected a building(s) to be assessed ("facility survey") as part of the effort to collect facility data in support of the anecdotal evidence provided in discovery interviews with staff. The facility survey is intended to be representative of the broader maintenance and operational issues facing each entity and not a formal Facility Condition Assessment ("FCA").

The following building(s) were selected for operational and maintenance reviews:

- City Hall (City, DGS)
- City Public Safety Center (City, DGS)
- Fire Station #8 (City, AFD)
- Cora Kelly Elementary School (Schools, ACPS)

Findings from the facility survey highlight the accomplishments of preventive maintenance as well as areas where greater levels of support is needed. A report for each facility is located in Attachments 1 – 4.

In addition to the facility surveys and interviews, staff provided four (4) pieces of data and documentation for review by A2:

- Profiles of selected facilities
- A listing of mechanical, electrical, and plumbing equipment within selected facilities;
- A facility condition assessment ("FCA") report
- Ongoing preventive maintenance activities

Additionally, A2 performed a Work Breakdown Structure ("WBS") analysis on AFD's fire stations. AFD was selected for this supplementary analysis because the scale of data and equipment information was manageable during the Discovery Phase timeframe. The WBS organizes preventive maintenance work into a hierarchical structure by equipment and task. The output is a projection of person-hours required to support the manufacturer-recommended preventive maintenance on an ongoing basis. The WBS can be compared to budgeted resources, either for an internal and/or outsourced workforce.

The following sections summarize key themes from introductory and deep-dive interviews with staff, review and analysis of the data and documentation provided by staff, and the facility surveys conducted by A2. A more detailed summary of observations from each entity is provided in the exhibits.

The review performed by A2 was not conducted as a formal audit. As such, some findings are anecdotal in nature and should be further explored during any implementation. The observations and recommendations were developed collaboratively with staff and Task Force members.

MAINTENANCE & OPERATIONS SUBCOMMITTEE: KEY OBSERVATIONS & RECOMMENDATIONS

Alexandria is challenged with two distinct owners of property and assets (City and ACPS) and three distinct maintenance providers (City, ACPS, and AFD). The following describes key observations and major discussion points for each of these entities and provides a platform from which recommendations were formed.

In order to accomplish a comprehensive paradigm shift to advance Alexandria, our Subcommittee came to the conclusion that the following key principles are critical to enacting change:

- Maintenance and operations must be adequately resourced and rightsized as underinvesting is irresponsible and defers costs to more expensive capital projects.

- Groundwork and regular improvements must occur to ensure Alexandria is a strong asset manager and owner as well as an attractive business partner and employer.

Our Subcommittee's assessment and observations yielded five (5) actionable recommendations. It is envisioned that these recommendations will help inform future operating and capital budget planning decisions using asset data that considers the lifetime cost of ownership.

<u>Theme 12:</u> There is no standardization of capital asset data between City and ACPS that would allow for a comparison of asset conditions.

Capital asset data serve as a record of owned assets, their condition, and the investments needed to maintain and extend their lifespans. This data is important for two reasons:

- The data helps predict the remaining life and associated costs for replacing systems to inform capital funding and timing decisions.
- The data provides an objective means to compare one facility's condition to another, enabling leaders and staff to better plan and prioritize limited capital resources.

In the first phase of work developing the FCIP, the Joint Task Force observed a lack of comparable facility or maintenance data for projects under consideration such as a standard Facility Condition Indices of DGS and ACPS facilities. For example, DGS maintains asset data in a database and is able to run reports that provide an FCI score for each building as well as building system. ACPS did not have the ability to provide this information in a form to allow a comparison. This impeded the Subcommittee's ability to make prioritization decisions for a recommended FCIP.

The current state of asset data and systems for each entity is as follows:

- DGS (including all AFD facilities):

  - Facility Condition Assessments data are collected by a third party on a rolling basis for all assets.
  - The data are stored and managed within a software system called VFA, which allows reports to be readily run by building and building system.
  - As capital project work is completed (i.e., a major renovation), updated asset data are collected from the design and construction team to upload into VFA.
  - The VFA database does not integrate with the system used to manage maintenance work; thus, manual updates are needed when major system level work is completed that extends its lifespan.
- ACPS
  - Facility Condition Assessments were conducted by a vendor in 2014, but this information is not currently stored in a database.
  - Additional system-specific assessments have occurred and are provided within stand-alone reports.
  - Available ACPS asset data exist in different formats and have not been updated to provide a system-wide outlook of asset lifespans in one comprehensive location.

Furthermore, the City and ACPS need resources to ensure a process for quality assurance and quality control is performed on collected data, in addition to maintaining the data and database system. For example, reviews of FCA report drafts by staff can be time consuming, but are necessary to validate findings.

Recommendation 12: Identify a common set of objectives and requirements for asset data for use in facilities planning, maintenance, and operations.

As the process for developing a Joint City-Schools CIP is further defined, we recommend staff collect and curate asset data for use in a capital planning software. A means to integrate with a Computerized maintenance management system should be explored (See Recommendation 2). This data can then be utilized in evaluating and prioritizing projects in the CIP.

The following standardizations could be made for linking data to a capital improvement program:

- Establish and track regular cycles for asset data updates and protocols for updating the data when work is completed (e.g., DGS's rolling cycle of facility condition assessments).
- Establish and maintain metrics for use of the data in facilities master planning that align with strategic objectives (e.g., Facility Condition Index, net present value analysis, etc.).
- Establish database reporting requirements so that no matter the software system used, the same level of reports can be created.

To support this recommendation, resource needs should be identified (such as staff, software, funding) to support quality assurance measures and coordination.

Theme 13: DGS, ACPS, and AFD have three different work order tracking systems with varying and often limited capabilities for preventive maintenance scheduling, which creates inefficiencies and lacks standard performance outcomes.

Computerized maintenance management systems ("CMMS") are used to schedule and record operational and preventive maintenance activities associated with facilities and their equipment. The three entities use systems with varying capabilities. All three entities have the baseline capability of managing and tracking work orders as they arise within three different software systems. However, capabilities vary in regards to preventive maintenance. Preventive maintenance should be planned and scheduled according to manufacturer or industry recommendations for individual systems and equipment.

DGS utilizes Cityworks to manage and track both work orders and preventive maintenance activities for all City facilities and AFD facilities that are not fire stations. This CMMS package is based on work orders and does not readily plan and schedule the activities based upon asset data. That information must be manually entered and informed from other sources such as facility condition assessments. There is no integration between work order systems and the asset database.

ACPS and AFD (fire stations) utilize two discrete order request systems, SchoolDude and Alloy, respectively, to track work orders. These work orders are requested by building users and completed by employees. Preventive maintenance is identified, scheduled, and completed by outside vendors, which are typically trade-specific. For example, in the case of ACPS's HVAC preventive maintenance contractor, an assessment is conducted annually to determine the schedule for the year. Coordination meetings are held monthly to address issues and update preventive maintenance activities.

For ACPS and AFD, understanding the comprehensive preventive maintenance needs relies heavily on contractors and their assessments. While this information has historically been comprehensive and credible, without a database of asset data to compare to, there is some risk in preventive maintenance or other needs not being captured as well as challenges in integrating activities from multiple contractors.

Recommendation 13: **DGS, ACPS, and AFD should establish a common, cost-effective approach to track and manage preventive maintenance needs, either by enhancing an existing system(s) or selecting a new system that meets the collective needs.**

DGS, AFD, and ACPS have made great strides over the past few years in expanding the systems they use for maintenance and operations management. All recognize that there are opportunities for increasing the capabilities of what they currently use.

It is recommended that the three agencies move toward a common, cost-effective approach and/or set of systems for tracking repairs and preventive maintenance needs. Coupled with stronger asset data (as mentioned in Recommendation 1), such a system(s) could greatly improve

capital planning and maintenance and operations decisions. In addition, a common approach would help dissolve the silos created by having three discrete systems.

For example, a common CMMS system would provide the following abilities:

- Prioritization of maintenance tasks to inform staffing schedules in order to support calls and to perform periodic or planned equipment maintenance.
- Tracking information provided at completion of work, such as the date of work performed, supply and inventory, and person-hours expended, can be added to the database to support future planning, budgeting, and operating.
- Integration with asset data so that work can be planned according to life cycle information, which can be updated once work is complete to reflect a real-time depiction of the asset.
- Run reports that align with Key Performance Indicators
- Run reports that show deferred maintenance and capital renewals.
- Project resources and person-hours needed to maintain assets.

As a first step, DGS, AFD, and ACPS should identify the performance requirements for delivering an improved, common approach so that each entity can procure the appropriate new systems or add modules to existing systems to provide these capabilities.

Any preventive maintenance module implementation will most likely require additional staffing, including implementation and maintenance of the CMMS as well as training end users to ensure high quality data inputted. A quality assurance position and a regular training program is needed. Once a CMMS is implemented, new buildings should be addressed and recorded first.

<u>Theme 14:</u> Existing staffing levels and other resources are strained and rely on vendors to inform and complete the majority of preventive maintenance work.

Across the three agencies, there are a large number of buildings/facilities to monitor. As facilities age, there is more demand on staffing to monitor the repair and preventive needs across the facilities. In the absence of adequate data, systems, and staffing, the City, ACPS, and AFD experience more triage situations where reactive prioritization results in deferred maintenance and replacement as preferred solutions, which adds costs. In some cases, capital interventions such as replacement are the preferred solution. However, replacement of systems is sometimes left unfunded due to constraints on the capital budget or anticipation of a larger capital project slated for the coming years.

ACPS is experiencing added challenges: its schools and facilities are utilized more, due to increases in enrollment, placing demand on existing staff. For instance, school building engineers are often requested for operational support (e.g., moving furniture), which diverts their focus from building maintenance.

The current staffing for building maintenance for each entity is as follows:

- DGS utilizes a combination of in-house staff and contractors to perform preventive maintenance activities and work orders. Reports regularly run from CityWorks indicate that most but not all planned or requested activities are completed each month. These reports allow DGS to monitor deferred maintenance.
- AFD facilities maintenance staff is limited and handles only minor and simple repairs. Individual station staff performs very simple preventive maintenance activities. The majority of involved preventive maintenance and complex work order efforts are performed by contractors.
- Not all ACPS buildings have dedicated building engineers. Where present, building engineers report to the principals, not centralized facilities staff, which strains resources for completing and overseeing maintenance work.

Recommendation 14: **Identify optimal staffing levels, structures, and resources for maintenance and operation needs with strategies for how best to provide that capability.**

There are two typical ways to check if resources are adequate: forecasting and analyzing the Work Breakdown Structure[1] ("WBS") or comparing costs per square foot to identified benchmarks (other districts and municipalities). Both methods of analysis can help inform projected budgets and 'right size' them to more adequate levels. Both methods require data to be tracked and collected in a manner that supports the analysis. WBS analysis requires a dataset of building and related system and equipment information. The square foot analysis requires costs be accounted for by building and by activity.

This detailed resource analysis was not within the scope of the discovery effort, thus not performed in detail. AFD was selected for this supplementary analysis because the scale of data and equipment information was manageable during the Discovery Phase timeframe.

The preliminary results of the AFD Work Breakdown Structure analysis reflects that the required full time equivalents do not align with the current contract value for preventive maintenance. Work may still be completed, but the analysis suggests there is a strain on resources that may in turn lead to issues in quality, timeliness, staff retention, etc. Additional personnel are needed for oversight of the preventive maintenance portfolio.

The following additional actions should be taken using an outside expert to support Recommendation 14:

- Review overall staffing needs and assess what is best performed by internal staff versus external resources such as contractors.

[1] A Work Breakdown Structure ("WBS") organizes preventive maintenance work into a hierarchical structure by equipment and task. This allows for the projection of person-hours required to support the manufacturer's recommended preventive maintenance effort on an ongoing basis for comparison to budgeted resources, either for an internal and/or outsourced workforce.

- Review and identify oversight needs for external resources and the work performed.
- Review structure and organization of staff to ensure reporting structures meet maintenance needs.
- Review and identify tools needed to help inform decisions and work plans (i.e., expanded capabilities of current CMMS packages and asset data).

Additionally, a plan to expedite deferred maintenance, similar to WMATA's SafeTrack, should be seriously considered and adopted. SafeTrack is an accelerated work plan to rehabilitate the Metrorail system in Washington, D.C.

Theme 15: There is inconsistency in the level of standards and specifications that inform project design and construction between City and ACPS, which in turn can impact maintenance and operations.

DGS has a library of detailed design standards and specifications while ACPS lacks many of these documents. Design guidelines and specifications provide a clear, comprehensive document articulating the level of design quality and performance expected by design and engineering professionals, stakeholders, and others. They can be developed for different scales, including those specific to a project or overarching for an asset type or entire neighborhood. Developing them in advance ensures that there is consensus in what they intend for future operations and longevity of a building and its systems. They can also inform budgeting exercises as they provide a set of assumptions for planning purposes.

Regular updates to these guidelines and specifications ensure the asset owner maintains control of the outcomes of construction projects as well as future repairs, upgrades, or renovations. It also ensures that new technologies and lessons learned can be incorporated in a timely manner. Updates and tracking of detail can also support integration with maintenance and operation systems and preventive maintenance.

These standards and specifications should touch upon the needs of the project closeout process to ensure a seamless transition to operations and maintenance. Contract closeout formally ends the construction phase of a capital development project. During this final phase of construction, DGS and ACPS can request capital project documentation in specific formats to provide building-level information in a useable format. A standardized capital project closeout process will improve the efficiency and effectiveness of each entity in future maintenance and operations activities.

The current level of standards and specifications for each entity is as follows:

- DGS has standard procedures and design specifications that inform design, construction, and project closeout. These documents help link capital projects to maintenance and operation needs.

- DGS is in the process of adjusting their project closeout specifications so that at project closeout, an electronic listing of mechanical, electrical, and plumbing (MEP) equipment with product details (i.e. model #; serial #; voltage; etc.) is provided in a format that would allow it to be readily uploaded into the VFA software.
- ACPS does not have design standards or specifications for all buildings to guide the design and construction team and their associated contracts with the exception of Educational Specifications. This is an area of improvement.
- ACPS does have a contract closeout form to ensure warranty information, systems lists, etc. have been collected per the contract and a closeout signoff by school administrators at the completion of work to ensure satisfaction. Per ACPS, this requirement does not currently include 'as-built' drawings. This is an area of improvement.
- Interviews with DGS staff indicated a need for third party commissioning services for existing buildings, not simply related to major renovation or new construction activities as currently occur as part of LEED certification, but to serve as an ongoing asset management practice. For example, Existing Building Commissioning (EBCx) supports making building systems perform interactively to meet a facility's current requirements and provides the tools to support the continuous improvement of system performance over time.

There are opportunities to improve coordination between design and construction and maintenance and operations as it relates to these detailed standards and specifications. These documents relate directly to the buildings' future required maintenance and operations activities and lifecycle needs. Thus it is important that there is active coordination between design and construction and maintenance and operations staff so that the standards and specifications reflect the most current needs.

Recommendation 15: **Develop, implement, and regularly update design guidelines and specifications and standard operating procedures that meet lifecycle goals and objectives.**

Inventory and review existing standards and specifications across each entity and asset type in order to understand what currently exists and the gaps that need filled in relation to each. We recommended the following be considered when developing design guidelines and specifications:

- Establish clear goals and objectives for asset lifecycle costs and performance. For example, specifications and standards to achieve LEED certification or other metrics such as Energy Star.
- To the extent possible, standardize mechanical, electrical, and plumbing equipment types so that preventive maintenance tasks are streamlined.
- Establish a common Work Breakdown Structure, as appropriate, that defines frequency and annual scheduling for maintenance of equipment.
- Design standardizations should consider finishes, windows, roofs, and major systems.

- Explore opportunities to share design standards and specifications across each entity and asset type to streamline resources needed to develop and maintain them (i.e., between City and ACPS, with other regional entities performing similar work).

We recommend the following be developed to support an improved capital project closeout process:

- At substantial completion, require submission of the mechanical, electrical, and plumbing equipment lists in an appropriate format that can be easily uploaded into a CMMS alongside preventive maintenance requirements.
- Perform post-occupancy reviews of newly constructed or renovated buildings at regular intervals. Findings from these reviews should be used to:
    - Inform updates to design specifications and standards.
    - Ensure maintenance and operations activities are occurring as intended.

<u>Theme 16:</u> Procurement manages a broad and diverse workload, which creates challenges in focusing time and efforts on capital project and maintenance and operations actions.

Procurement departments aspire to maintain expertise in both the required contracting practices of a public entity as well as the best practices and strategies related specifically to asset management and design and construction. Much of what happens to an asset over its lifespan is not self-performed by a public entity but by outside vendors. Thus the contracting vehicles that purchase these services must be well-informed with well-written requirements that can adequately address the nuances and complexities of Alexandria's diverse portfolio of buildings and services.

Areas of improvement for the procurement of contractors for both preventive maintenance as well as other needs such as capital projects are related to a few factors: the volume of procurements and contracts, communication and coordination with program staff, and data availability to inform scopes of work.

The procurement departments for both City and ACPS experience large, varied volumes of procurement activities. Technical program guidance is provided by the respective facility and construction departments to procurement staff. Both sets of staff have limitations on their time, which can strain the transfer of knowledge and timely development and completion of procurement actions. Overall, this appears to result in procurement strategies that lean towards the fastest and/or simplest approach. For example:

- DGS makes use of several regional contract vehicle riders, which allows them to be responsive to the City's needs but sometimes impose limitations as the scopes were not directly developed for DGS facilities. DGS often makes use of contracts from Fairfax County, an entity known for the quality and quantity of their procurements. However, these contracts are written specifically for the needs of Fairfax County and not Alexandria.

- ACPS currently has shared services agreements with the City in the form of Memorandums of Understanding (MOU).
- DGS and ACPS have jointly procured construction insurance. Depending on the case, the City or ACPS will take the lead in posting. This has been successful for both parties in sharing in the selection process and the resulting contract.

Procurements also can be limited by the funding value they are trying to meet. For example:

- In many instances, contracts are negotiated in comparison to available budget versus projected need.
- Independent government estimates ("IGE") act as a benchmark for budgeting funds and informing procurements. For building maintenance needs, there are challenges in estimating needs due to the level of data available. Stronger asset data and supporting systems can improve this.
- Some staff expressed a preference for best value approach to contract award over low-cost bidding to help ensure more responses as some vendors may be dissuaded from low-cost procurements. Due to the volume of procurements, best value can be challenging to coordinate while meeting schedule needs.
- ACPS often uses a best value approach when issuing an RFP, They include quality and performance information as part of the review, especially for operation and maintenance contracts. These scope negotiations are done in comparison with budgeted values, thus the scope's adequacy relies on budgets to be informed by actual costs.

Recommendation 16: **The City and ACPS should identify and implement ways to increase procurement resources and efficiencies, including the feedback loop between procurement and technical staff, expanding best value negotiation options, shared service agreement opportunities, and other new approaches for executing and coordinating procurements**

To align with the culture shift towards planning and exploring non-traditional methods, the current strains between procurement and project staff in capturing the latest and greatest lessons learned and innovative practices must be combatted. Improved standards and specifications will support, as they serve as contract attachments as well as deliberate work sessions to capture and transfer technical expertise and lessons learned.

New approaches for executing and coordinating procurements should also be explored that improve timelines and volume such as:

- Identify opportunities for pre-qualifying vendors and establishing IDIQ (indefinite duration, indefinite quantity) contract vehicles.
- Build upon existing efforts to develop an annual procurement plan and scan for opportunities for improved coordination between procurement and program staff.

Another opportunity is to expand upon shared service agreements to eliminate redundancy among agencies, reduce risk to purchasers, and leverage buying power to deliver administrative

services while creating a more effective government. Procurement departments play a critical role in delivering shared savings across the government.

We recommend the following considerations when exploring new opportunities for shared service agreements and innovative procurement practices:

- Establish feedback loops between project and procurement staff to ensure the sharing of lessons learned, new technical knowledge, and ideas for innovation.
- Increase collaboration between ACPS and DGS procurement departments through sharing of best practices and exploration of new procurement methods.
- Consider past performance of contracts to determine if awarding to the best value is an optimal approach. The best value contract procurement process is used to choose the bid that is most advantageous to a department or agency.
- Improve Statement of Work (SOW) requirements to ensure that work is being performed according to specifications and expectations.
- Improve Independent Government Estimate (IGE) process to serve as objective basis for budgeting and reserving funds for future needs.

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CHAPTER 4:

PROPOSED ACTION PLAN

The following organizes a summary of recommendations from across the three Subcommittees into timeframes to help support implementation. These are subject to further review for feasibility, but provide the City and ACPS a starting point for discussion.

The suggested timeframes are as follows:

- Immediate (February to May 2018): This timeframe focuses on the three steps we believe to be the most important to initiating this urgent shift in our city. Actions recommended in this timeframe should begin immediately.
- Short term (June to December 2018): This timeframe focuses on absorbing the recommendations in full and performing due diligence to successfully implement the remainder of the recommendations. This includes reviewing and outlining existing resources, implementing pilot projects, and establishing objectives for future actions.
- Intermediate Term (January to June 2019): Actions within this timeframe focus on developing plans and protocols and establishing processes to launch all recommendations.
- Long term (June 2019 and beyond): During this timeframe, all recommendations and proposed actions should be underway.

The order within each timeframe does not reflect priority. Items are generally in order by topic and recommendation number. The precise months associated with each timeframe can be reevaluated.

IMMEDIATE (February – May 2018)

1. Create a Joint Capital Management Council (CP&I)
2. Identify a champion for alternative delivery and engage with internal and external resources to obtain advice on drafting a process that can be replicated and criteria for identifying applicable projects (ADM)
3. Determine shared objectives and requirements for asset data and supporting computerized maintenance management systems and procure as appropriate (M&O)

Additionally, we recommend City Council and School Board initiate visioning sessions for a joint "targeted new reality." As discussed in Chapter 1, these sessions should result in a well-defined, strategic vision for the future of Alexandria – both City and Schools – and should be facilitated by a third party.

SHORT TERM (June – December 2018)

1. Develop first draft of Capability Delivery Model framework (CP&I)
2. Identify scope and resources needed for Joint Facilities Master Plan and initiate procurement (CP&I)
3. Identify steps necessary to adjust the CIP process and budget calendar and implement as recommended (decouple from operating budget and redefine how projects are shown) (CP&I)

4. Interview staff and review current practices for project, program, and portfolio management (CP&I)
5. Implement a pilot project (e.g. Firing Range) as a means to test and refine the process to employ for future alternative delivery (ADM)
6. Outline and review existing resources for alternative delivery (e.g. existing policies, experts, case studies) (ADM)
7. Determine if a separate decision making body for alternative delivery is needed or if that capability can be provided from existing resources by redefining responsibilities (ADM)
8. Audit current engagement meetings that staff are required to attend (ADM)
9. Develop a communications strategy to inform the community of Task Force findings and build momentum to shift thinking towards challenging traditional methods, innovation, and risk-taking (ADM)
10. Identify scope needed and procure a third-party expert to determine optimal staffing and resource levels for maintenance and operations of buildings (M&O)
11. Establish objectives of design guidelines and specification document for buildings, including level of documentation needed readily available and performance and lifecycle goals of specifications (M&O)
12. Identify opportunities for pre-qualifying vendors and establishing IDIQ (indefinite duration, indefinite quantity) contract vehicles (M&O)
13. Build upon existing efforts to develop an annual procurement plan and scan for opportunities for improved coordination between procurement and program staff (M&O)

INTERMEDIATE TERM (January – June 2019)

1. Refine Capability Delivery Model framework through JCMC (CP&I)
2. Kick off Joint Facilities Master Plan effort, including the collection of asset data to inform it (CP&I)
3. Identify means to improve current project, program, and portfolio management practices towards “best in class” (CP&I)
4. Establish alternative delivery process and set up initial resources such as guidelines, agreements, written documentation, etc. (ADM)
5. Set up a means to obtain additional resources needed to support advancement of alternative delivery of projects, such as AEDP (ADM)
6. Review draft project ideas presented by Task Force (ADM)
7. Review and refine current civic engagement policies and practices to develop a new plan that streamlines meetings and ensures the new strategy is embraced (ADM)
8. Review existing design guidelines and specification document for buildings against set objectives and gaps that need to be filled and start process to close gaps (M&O)
9. Initiate post-occupancy review of new buildings and renovations and retro commissioning protocols for existing buildings (M&O)
10. Develop a formal feedback loop process between project and procurement staff as well as across City and ACPS to share lessons learned, new technical information, and discuss new innovative approaches (M&O)

LONG TERM (June 2019 and beyond)

1. Deploy Capability Delivery Model framework (CP&I)
2. Complete Joint Facilities Master Plan effort and set up process for a regular cycle of updates (CP&I)
3. Continued deployment of revised budget calendar (CP&I)
4. Deploy new "best in class" project, program, and portfolio management practices (CP&I)
5. Continue culture shift towards challenging traditional methods and embracing alternative methods and opportunities (ADM)
6. Deploy new engagement strategy towards community becoming informed champions of Alexandria's targeted new reality (ADM)
7. Maintain asset data and supporting computerized maintenance management systems, including continued training of staff (M&O)
8. Take measures to provide optimal staffing and resource levels for maintenance and operations of buildings as identified (M&O)
9. Develop and maintain design guidelines and specification documents (M&O)

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EXHIBITS

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EXHIBIT 1:

JOINT TASK FORCE & SUBCOMMITTEE MEETINGS

BACKGROUND

A citywide call for nominations to the Task Force was issued for highly-qualified individuals who would provide expertise in fields related to the Task Force mission including Architecture, Engineering, Urban Planning Education, Facilities Planning, Asset Management, Construction, Finance, Business, Real Estate Development and Legal. The City Manager conducted the review of submissions as specified in the Resolution, and with input from ACPS regarding its three (3) nominees, appointed the following members:

- Lynn Hampton (Chair), Consultant; former CEO, Metropolitan Washington Airports Authority
- Mignon Anthony*, Executive Director, 21st Century Buildings Program, Baltimore City Public Schools
- Elliott Branch, Deputy Assistant Secretary of the Navy for Acquisition and Procurement
- Micheline Castan-Smith, Senior Project Manager, Paradigm Development Company
- Marshall Cook*, Former President, Education Association of Alexandria
- Dwight Dunton, Founder and President, Bonaventure Realty Group, LLC
- Amy Liu*, Vice President and Director of the Metropolitan Policy Program and Adeline M. and Alfred I. Johnson Chair of Urban and Metropolitan Policy, The Brookings Institution
- Dave Millard, Principal, Avison Young; Treasurer, AEDP Board; Board Member and Former Chair, Campagna Center
- Eric Wagner, Executive Vice President for Insurance and Diversified Operations, MedStar Health; former Chair, Alexandria Planning Commission

*ACPS appointees

Subcommittees

Upon engagement, the following subcommittees were formed:

1. Capital Planning and Implementation (management and governance of capital project planning and delivery)
    a. Chair: Elliott Branch
    b. Members: Marshall Cook and Eric Wagner
2. Alternative Project Delivery Methods (public private partnerships, historic preservation tax credits, etc.)
    a. Chair: Mignon Anthony
    b. Members: Dwight Dunton and David Millard
3. Facility Maintenance and Operations (facility maintenance practices and standards)
    a. Chair: Amy Liu
    b. Members: Micheline Castan-Smith and Lynn Hampton

The Joint Task Force began meeting in June 2017. During introductory meetings, three Subcommittees were formed, each with three members. Subcommittees began meeting in late August 2017 and early September 2017. The following details the entirety of meetings held by the Joint Task Force and each Subcommittee.

Meeting List

Joint Task Force

- June 27, 2017: Joint Task Force Meeting #1
- July 13, 2017: Joint Task Force Meeting #2
- August 10, 2017: Joint Task Force Tour of City Facility Projects
- August 14, 2017: Joint Task Force Tour of ACPS Facility Projects
- September 7, 2017: Joint Task Force Meeting #3
- September 21, 2017: Joint Task Force Meeting #4
- October 5, 2017: Joint Task Force Meeting #5
- October 19, 2017: Joint Task Force Meeting #6
- November 2, 2017: Joint Task Force Meeting #7
- November 4, 2017: Joint Task Force Presentation to City Council (Deliverable 1)
- November 9, 2017: Joint Task Force Presentation to School Board (Deliverable 1)
- November 16, 2017: Joint Task Force Meeting #8
- November 30, 2017: Joint Task Force Meeting #9
- December 14, 2017: Joint Task Force Meeting #10
- January 24, 2018: Joint Task Force Meeting #11
- January 30, 2018: Joint Task Force Presentation to City Council and School Board (Deliverable 2)

Capital Planning and Implementation Subcommittee

- August 29, 2017: Meeting #1
- September 25, 2017: Meeting #2
- October 11, 2017: Meeting #3
- October 23, 2017: Meeting #4
- November 6, 2017: Meeting #5
- November 20, 2017: Meeting #6

Alternative Delivery Methods Subcommittee

- September 1, 2017: Meeting #1
- September 14, 2017: Meeting #2
- October 5, 2017: Meeting #3
- October 19, 2017: Meeting #4
- November 2, 2017: Meeting #5
- November 16, 2017: Meeting #6
- November 30, 2017: Meeting #7

Maintenance and Operations Subcommittee

- September 18, 2017: Meeting #1
- October 16, 2017: Meeting #2
- October 30, 2017: Meeting #3
- November 13, 2017: Meeting #4
- November 27, 2017: Meeting #5

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EXHIBIT 2:

MEMO FROM ALEXANDRIA ECONOMIC DEVELOPMENT PARTNERSHIP

Alexandria Economic Development Partnership led discussion at the October 19, 2017 meeting of the Alternative Delivery Methods Subcommittee. The following memo is in response to information requested by the Subcommittee.

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DATE: October 31, 2017

TO: Joint City-Schools Task Force, Alternative Project Delivery Methods Subcommittee

FROM: AEDP Staff

RE: Status report and information requested

In response to your request, please find below additional information on projects you have identified for which alternative delivery method might be of interest or recommended. We have grouped them into themes, providing information about each site (likely not new information) and general comments on status or market intelligence, where applicable.

We have also provided a list of projects tracked in Virginia by McGuire Woods consulting that have used or been proposed under the Public-Private Education and Infrastructure Act of 2002, and identified examples from other jurisdictions that may prove instructive to review.

- **Privatization, Redevelopment or Transfer of City/School-owned assets to a different entity:**

  - ***Torpedo Factory*** **-** building & land owned by the City of Alexandria;
    - managed by a combination of City Departments- Parks, Recreation & Cultural Activities and General Services
    - City took over management effective 7/1/16
    - Previously managed (programming, tenants, rental for special events, etc.) by a City-appointed Board
    - Prior to that, managed (all of the above activities) by an Artists' Association

    Maintenance needs- June 2017 update: The Torpedo Factory Art Center was included in the FY 2015 Building Assessment. The Building was rated a Grade "C" and the assessment identified a total of $13M in capital replacements that will be required over the next ten years with approximately $690,000 of them required over the next two years including window replacements, water heater replacement and wiring replacements. Due to funding constraints, the only source included in the FY 2017 – 2026 proposed CIP for the Torpedo Factory Repairs project is the remaining project balance of $290,000 at the end of FY 2016 2nd Quarter to partially address these capital replacement requirements as well as any unanticipated capital repair needs at the facility.

  - **Subcommittee questions raised at October 19, 2017 meeting:**
    - Is the use of the Torpedo Factory legislated?
      Historic use of building appears to be the backbone for current use- not legislation
      - *The City of Alexandria bought the buildings from the Federal Government in 1969- after which they sat vacant until 1974 when the Torpedo Factory Artists' Association (TFAA), a group of artist volunteers, worked with City staff to remove debris, erect studio wall, reconnect electricity and plumbing, and repaint the exterior of the building- all part of an adopted art center plan. The center opened to the public on September 15, 1974.*

  - *The building underwent a major renovation from 1982 to 1983 as part of the City's waterfront development plan- the factory was gutted entirely, including all pipes, electrical units, windows, and flooring, the second floor was constructed to include stairwells and HVAC was installed.*
  - *In 2007, following City Council's adoption of the Mayor's Economic Sustainability Work Group recommendations, an operational assessment of the Torpedo Factory building was produced by the TFAA (who had been running the building since 1974) that resulted in the creation, by City Council, of a mixed artist/non-artist Board called the Torpedo Factory Art Center Board (TFACB). More background is available here.*
  - *TFACB ran the Factory from 2010 until they disbanded in 2016- the City of Alexandria then took over running the building. In February 2017 the City began an engagement process to develop a set of goals and strategies for the TFAC which will help determine the appropriate governance structure for successful continued operation and long-term sustainability. This robust community process includes internal and external stakeholders as well as the broader Alexandria community. That process is still ongoing.*

- Is there any debt associated with the asset?
  - *No – it is owned out right.*

- From an operational standpoint, do the rents collected pay all of the bills? Is it a 'money winner' or 'money loser' for the City?
  - *General Services reports that the asset is operating net neutral and that there is no capital reserve built into the rental rates. The rent collected pays for basic maintenance of the facility. According to the January, 2016 Business Analysis & Recommendations report, average rent paid by artist tenants is $15/SF with an annual escalation of 3%.*

- Where do the artists come from?
  - *Some are local, some are regional. A full census of artists should be available through the City's Office of the Arts.*

- The Torpedo Factory is the single most valuable piece of property the City owns – opportunity cost - there is underfunding for critical projects. Has the City ever issued an RFP to the general development community to provide thoughts/ideas for this space?
  - *No, In February 2017 the City began an engagement process to develop a set of goals and strategies for the TFAC which will help determine the appropriate governance structure for successful continued operation and long-term sustainability. This robust community process includes internal and external stakeholders as well as the broader Alexandria community. That process is still ongoing- background information here.*
  - *This process was promised when the City assumed operations back in July 2016, as an interim measure, and was intended to calm fears that the building may not remain an art center. The City Manager promised that within a 3-year timeframe, the best model for operating the facility would be determined.*

- *Now is an appropriate time for the Joint Facilities Task Force to recommend that the City investigate alternative models.*

- Has the City ever received any unsolicited offers?
  - *No. In 2016, there were a few interested parties preparing unsolicited offers, but feedback received from City staff was that unless it was an offer to operate the building as an art center, any new offer would be considered inconsistent with current policy and would not be taken forward to City Council for consideration.*

- ***Fitzgerald Square-*** The City's Waterfront Plan calls for a new public plaza at the foot of King Street called Fitzgerald Square. The plaza encompasses the City owned properties of 1 & 2 King Street (Old Dominion Boat Club-ODBC building and parking lot), and the existing King Street Park, totaling about one acre of land. When the ODBC moves to Prince Street, the City plans to create an "interim" public space to enjoy until construction begins on the permanent park. Cost estimates for the permanent state are $14M.
  - Programming of park space- Department of RPCA
  - Management of on-park vendors (water sports, ice rink, food, etc.)- TBD

- **Subcommittee questions raised at October 19, 2017 meeting:**
  - Are there resources to program or make the park active?
    - *No. Currently the City budget includes funding for demolition, design and construction of the interim park, but does not include operating or programming resources.*

- ***Gadsby's Tavern-*** building & land owned by the City of Alexandria
  - managed by a combination of City Departments- Office of Historic Alexandria and General Services
  - The City was granted the buildings from the American Legion Post #24, which preserved the buildings from demolition in 1929; American Legion remains a tenant
  - The two historic buildings operate as a museum with restaurant space located in a portion of the 1792 building.
  - The City leases the restaurant to an "experienced contractor to operate a Federal-era themed restaurant;" RFI sent out earlier this year- there are very few operators who focus on this kind of experience.

- **Subcommittee questions raised at October 19, 2017 meeting:**
  - Does Gadsby's make money?
    - *General Services reports that they operate net positive. Part of the funds in CIP would be put toward making the banquet hall ADA compliant and could potentially provide more appeal from an operating standpoint.*
  - Based on the deed from the American Legion, if in perpetuity, can we change use? Are there limitations on the entire building?
    - *Need to follow up with the Office of Historic Alexandria.*

- Has the City ever applied for a grant to do work on building?
  - *No. The Office of Historic Alexandria would be the appropriate department to lead that proposal.*

- **City Hall-** building, land and parking garage owned by the City of Alexandria

➢ **Subcommittee questions raised at October 19, 2017 meeting:**
- Changing use of City Hall is controversial, but have there been discussions/ideas about use or changing the mandate of how the property is used?
  - *Historically, the first floor was used as part of a larger open air market. That use would be of interest- combined with an every-day farmers market on Market Square creating an activity and commerce on a regular basis. Council chambers and the symbolic seat of government could remain on the second floor and upper floor uses could be reevaluated.*
- Has a formal RFI ever been solicited?
  - *No. A potential comparable is Manassas Park. They issued an RFI to do a swap. An alternative location for City Hall was identified and the existing City Hall was leased as private office space.*

- **Shooting Range**- deferred maintenance looming, opportunity for regional solution
- **Impound lot**- not highest and best use within ¼ mile of Metro station
- **George Washington Middle School athletic fields**- not highest and best use of property adjacent to Metro station

➢ **Subcommittee questions raised at October 19, 2017 meeting:**
- Arlington did a 'Christmas tree' development so the highest buildings are around metro stations. Alexandria did not do that, resulting in missed opportunity for density at Metro stations.

- **Cameron Run Regional Park**- ground lease is expiring, alternative uses under consideration

- **<u>Creation of New Public Assets</u>**
  - **New parking garages in Old Town or other parts of the city**- Other jurisdictions in Virginia have utilized
    - *See examples from Culpeper, Fredericksburg, Harrisonburg, Town of Vienna, Roanoke (McGuire Woods chart) and the Ballston Mall example in Arlington*

- **<u>Intervention or Acceleration of Privately-owned Projects</u>**
  - **Robinson North, East parcel**- planned for hotel, retail and significant public and active open space; current owners have the property listed for sale, pricing + public benefits required make for challenging economics
    - *See JMU/City of Harrisonburg Downtown Hotel & Conference Center example*
    - *See Virginia Beach Arena example*

- **GenOn power plant-** decommissioned coal-fired power plant in Old Town North; desired to be an anchor and catalyst, with an arts focus

➢ **Subcommittee questions raised at October 19, 2017 meeting:**

- How bad are environmental issues on this site?
  - *Unsure, but do not believe the site is more contaminated than others along the waterfront and in Old Town North. Any potential purchaser of that land will look at the entire waterfront for a signal of City's desire to attract creative and flexible projects. The site totals 25 acres, though 5.7 acres have been subdivided for continued use as a power substation, leaving just over 19 usable acres on the waterfront for redevelopment. There is an opportunity to also consider the construction of marinas as part of redevelopment of both the Robinson Terminal North and GenOn properties. A P3 structure could be an opportunity to encourage the private sector to invest in marina activity.*

- **Landmark Mall-** closed regional mall, controlled by a large mixed-use developer; complicated real estate easements and agreements have created years of delay
  - Opportunity to use TIF or similar tool to assist with project and inject public uses

➢ **Subcommittee questions/comments raised at October 19, 2017 meeting:**

- One like example to consider is Fairfax County's use of a TIF district at the Mosaic. How soon will this development happen?
  - *Redevelopment will not begin before 2020- now that the entire site is under single ownership/control (with a joint venture pending for the remaining 1/3 of the site), development looks more promising. A revised plan that is no longer restricted by phased development and the need to protect existing uses will take shape with the community over the next two years.*
- Are there uses we want to see on the West End that we want to include in a revised plan? We have to give to get. The City hasn't been willing to give on things. If we won't put skin in the game to help these projects along, these sites will continue to sit. Historic usage in the past is not necessarily the future.
- ACPS should talk to Howard Hughes about the potential of putting a school on this site.

- **Victory Center-** vacant office building within ½ mile of Metro station, currently responding to a Federal procurement
  - Opportunity to consider alternative uses in advance of sale of asset (if federal procurement is unsuccessful)

➢ **Subcommittee questions/comments raised at October 19, 2017 meeting:**

- What is the timing of the current procurement?
  - *Expected to come to a conclusion by December 2017. If Victory Center is not awarded the lease, it is likely that the ownership structure of the building will change. If we have an interest in this site, now is the time to be thinking about it and talking with the existing building ownership.*

- What about using it for consolidating City facilities?
  - *It may not meet the needs of existing consolidation efforts- the building is too large (600,000 sf) for the City's office needs and would require creative thinking about other City real estate needs.*

EXHIBIT 3

MAINTENANCE AND OPERATIONS

DISCOVERY PHASE ADDITIONAL MATERIALS

Introduction

As mentioned in Chapter 2, A2 Services provided support to the Facility Maintenance and Operations Subcommittee by conducting a Discovery Phase that included a high-level review of existing maintenance and operations practices across several city entities. This included reviews of practices related to work order management, preventive maintenance, and turnover activities following a capital project.

In this role, A2 engaged with maintenance and facilities staff and reviewed related materials with three entities: City of Alexandria Department of General Services ("DGS"), Alexandria Fire Department ("AFD"), and Alexandria City Public Schools ("ACPS"). AFD was included since it maintains and operates the fire stations (DGS maintains and operates the other AFD facilities (non-stations).

The Discovery Phase work plan was organized into three phases:

1) Staff interviews
2) Facility surveys
3) Additional data and document review and analysis (as available)

The observations and recommendations provided in Chapter 3 were developed collaboratively with staff and Task Force members based on the outcomes and resulting discussion points from these activities.

During the interviews, staff described their current maintenance policies and procedures, opportunities and constraints they face, and how they manage and perform preventive maintenance including resources such as staff, vendors, and software tools.

Exhibit: Facility Surveys

Each entity selected a building(s) to be assessed as part of the effort to collect facility data in support of the anecdotal evidence provided in discovery interviews with staff. The facility survey is intended to be representative of the broader maintenance and operational issues facing each entity and not a formal Facility Condition Assessment ("FCA").

The following building(s) were selected by each Department for operational and maintenance reviews:

- City Hall (City, DGS)
- City Public Safety Center (City, DGS)
- Fire Station #208 (City, AFD)
- Cora Kelly Elementary School (Schools, ACPS)

The facility surveys that follow this introduction highlight the challenges and accomplishments of preventive maintenance as well as areas where greater levels of support is needed. They are intended to be representative of the broader maintenance and operational issues facing each entity

The facility survey was performed and developed by A2 Services, Inc. (A2). DGS, ACPS, and/or AFD staff were available at each site visit and escorted A2 throughout to explain components of each facility and identify areas of concern within both the site and facility.

The facility review performed by A2 was not conducted as a formal audit. As such, some findings are anecdotal in nature and should be further explored. Each Department was provided the opportunity to comment and amend findings in each survey.

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Facility Survey of City of Alexandria - City Hall

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A2 Services (A2) toured the Alexandria City Hall facility on October 12, 2017. City Hall is an historic building in Old Town Alexandria and is located at 301 King Street, Alexandria VA 22314. A2 arrived on site at 0700AM and met Mr. Marvin Rodriguez, the Chief Engineer for the site. It was noted that Mr. Rodriguez is also responsible for several other nearby sites including several parking garages and parts of the Torpedo Factory while managing two maintenance staff.

The building is heated and cooled by an older style 2-pipe hydronic system. This system requires a complete changeover of equipment to go from cooling to heat and vice versa. This changeover takes most of a day to complete. Heating is provided by two 1940's era brick set fire tube boilers and two newer chillers. The boilers are very old and will need to be considered for replacement. The lower water wall on #1 boiler has failed twice and has had new metal welded into place to keep it operational, however the condition of the pressure vessel is extremely poor. This repair is not permanent, and as such could fail in the near future. This failure to one of these boilers could produce a water wall or tube blow out causing a rapid loss of 240 degree water (Steam explosion). This is a very hazardous condition and requires immediate attention.

The boilers are low pressure steam units which supply steam to one steam to water heat exchanger, sometimes called a hot water convertor. This convertor takes the heat from the steam and makes the hot water used to heat the facility in winter. Two old McQuay R-22 centrifugal chillers produce the chilled water for cooling in summer and reject their heat to one BAC forced draft cooling tower. A2 observed one chiller operating as intended. One significant concern with the chillers is the refrigerant utilized (R-22). R-22 has been taken off the market. The EPA Clean Air Act in 1990 identified R-22 as an HCFC refrigerant which is an ozone depleting product. R-22 is still available, however it's is becoming much more expensive and hard to obtain. The chilled or hot water produced in the central plant is pumped throughout the facility to approximately 20 ceiling hung air handlers. These units are very hard to access for maintenance. There are also several air handlers in the building attic which are also difficult to access. The building perimeter areas are heated and cooled by 180 fan coil units which office staff have in many cases blocked with furniture so the units cannot operate correctly and again are hard to access for maintenance.

Another significant item identified is the lack of fresh air ventilation for the building and staff. There is one outside air fan that filters, heats or cools the outside air and dumps it into one corridor in the center of the building. The ceiling air handlers do not seem to have any outside air being induced for the office areas. The perimeter fan coils appear not to have outside air intakes.

Finally, the historic windows are in poor condition as shown later. They are also single pane glass which allow excessive heat loss and gain through the fenestration areas of the facility depending on the season.

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Facility Survey of City of Alexandria - City Hall

The following concerns were identified during the course of the site inspection and correspond with Attachment 1 of the Report:

Mechanical Findings:

Finding # - 1. As discussed above the two low pressure steam boilers are in poor condition. These should be considered for replacement soon. Actually the entire heating and cooling system is reaching the end of its useful life. The City of Alexandria should consider a complete heating and cooling system replacement. The City Hall facility would be a good candidate for new variable refrigerant flow heating and cooling system. Roof top dedicated outside air units with heat recovery could provide ventilation. These units would allow the site to meet the ASHRAE 62.1 and 62.2 standards for indoor air quality. This type of system would be the most efficient system available and would be the least expensive and disruptive to fit into this historic building.

Finding # - 2. The hydronic system expansion tanks are flooded and are out of service. This allows the system water pressure to increase and decrease with the system temperature changes. This condition can cause the system pressure to exceed the design pressure during heating season. This will cause the system relief valves open to relieve the pressure wasting chemicals and possibly causing leaks on the heating coils in the building.

Finding # - 3. A2 noted that at least two hydronic system manual valves which were have broken handles. **REVISION - While the valves are operable through the use of wrench rather than the designed turning knob, it is recommended that the valves be replaced.**

Finding # - 4. The cooling tower fill is damaged and has been temporarily repaired with some sheet metal to stop the tower water from blowing onto the roof. The fill should be replaced.

Finding # - 5. The McQuay R-22 chillers provide chilled water for the site in summer. These machines are operating well but are inefficient and use R-22 which has been taken off the market. As stated earlier, R-22 is an HCFC which was identified in 1990 by the clean air act to be an ozone depleting compound, thus has been taken out of production. R-22 is still available at increasing cost. There are compliant refrigerants that can replace the R-22 but these will decrease the system efficiency on already inefficient machines.

Finding # - 6. The central plant and air handler controls are pneumatic. The controls are operating but will eventually need to be replaced. There is at least one actuator which should be replaced now. The steam control valve and actuator for the hot water convertor are in poor shape. If this device fails during the winter, the facility will not have heat.

Finding # - 7. The steam heat exchanger head is leaking. The unit's tube bundle should be pulled cleaned and closed with new gaskets.

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Finding # - 8. The main outside air fan for the building is small and only dumps conditioned outside air into the central corridor of the building. It appears that the fan coils do not have outside air vents and the ceiling hung air handlers do not have outside air fed to them either. This should be further investigated to make sure this finding is correct. The concern is a possibility that the office areas in the building may not be getting good fresh air ventilation.

Finding # - 9. There is a second outside air fan which dumps unconditioned outside air into the building. This fan only operates when the outside air temperature is between 30 and 50 degrees. Pumping 30 to 50 degree outside into the building must be causing cold complaints in areas where is enters the building.

Finding # - 10. There are 20 ceiling hung air handlers which heat and cool the office spaces on the floors. These units are very hard to access for maintenance. There is one unit in the print shop which failed a few years ago and hasn't been repaired because of the problem accessing it. **REVISION – Per DGS the unit has been serviced. Please provide a copy of the work order. That said, as documented by the picture (no belts) the unit remains inoperable.**

Finding # - 11. There are also 5 air handlers in the building attic. These units do pull outside air through the perimeter wall near the fans. One problem with these units is the condition of the duct work insulation which has failed. This condition will cause condensate leaks into the areas below in summer.

Finding # – 12. Two old dry coolers have been abandoned in place on the roof. This equipment should be removed and the roof penetrations patched and sealed over. This condition may start to cause leaks into the site.

Finding # - 13. There are 24 split system heat pumps which are placed around the building to handle extra heating and cooling requirements in the building. Many of these units are very hard to access for repairs or service.

Finding # - 14. There are 180 fan coil units which are located under windows in offices and in areas around the building perimeter. These units need to be serviced and flushed regularly to eliminate condensate leaks. In many offices the staff have furniture in front of this equipment or covered so they cannot operate properly. This condition adds a lot of preparation time to get these units open for service. This equipment also causes condensate leaks in summer. The unit's condensate pans and drains should be flushed 2 to 3 times throughout the summer to eliminate the leaks.

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Electrical Findings:

Finding # – 15. The main electrical panels and breakers panels at the site do not look as if they are being tested and serviced. All electrical systems should be thermally scanned with an infra-red camera to identify any overheating components or loose connections. This testing will identify such issues before t a failure of the electrical system occurs. A2 recommends that all electrical gear be opened, thermally scanned then cleaned and all terminations checked of tightness every 2 to 3 years at a minimum. This an important risk management task that should be implemented. This maintenance is a code requirement. **REVISION – Per DGS an extensive survey of the electrical gear was performed in 2013-2014. A2 requests a copy of the report. Additionally, per DGS the gear is inspected by the DGS Master Electrician. There is no evidence of these inspections. In the future, A2 recommends that inspections stickers be affixed to the gear to denote the review. Finally, please see the attached electrical maintenance code requirements. The City of Alexandria is required to be in compliance with NFPA 70B.**

Finding # - 16. The buildings emergency generator starts weekly on a timer and runs with no load for 30 minutes. About one month ago the generator was full load tested, however the building emergency transfer switches are not being tested and transferred from normal power to emergency. This testing is very important to make sure that emergency power will be transferred to the required systems in the building on loss of outside power. This work should be implemented.

Plumbing Findings:

Finding # - 17. The outside air shaft drain outside the boiler room is plugged up allowing water to enter the boiler room through a window. This drain should be snaked or repaired.

Finding # - 18. The cold water makeup line feeding the domestic hot water heater in the boiler room should be repaired before it fails. This line was installed using dissimilar metals allowing electrolysis to occur. The fittings will need to be replaced with die-electric components to eliminate this dissimilar metal corrosion.

Finding # - 19. Two new sump pumps were recently installed in the upper garage ground water sump. These two pumps are not the correct pump for the application. These two new pumps are standard well pumps with foot valves instead of the correct submersible type pump. The problem is when the foot valve sticks and these pumps loose suction these units will stop pumping.

Finding # - 20. There is another set of old shaft driven sump pumps in the lower garage pit which are still operational. It would be wise to consider replacing these pumps. They should be replaced with submersible style pumps which will provide twenty years of service with little maintenance. The ground water sump pumps in the garage are critical and are the only way to get water out of the garage.

Finding # - 21. The building Fire Pump is located in the boiler room. NFPA code requires that this pump be tested weekly with no flow. An annual flow test to the street is also required. No test tags are shown on the pump showing that this PM was being done. **REVISION - Per DGS an annual inspection had been completed. A2 requests a copy of the report. A2 recommends that the annual test tags be installed to signify the inspection.**

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Structural Findings:

Finding # - 22. Ground water is entering the boiler room through the floor slab at the boilers causing problems. This should be investigated and corrected. This type of water infiltration will damage the building matt slab.

Finding # - 23. The courtyard planter drains are leaking into the garage causing concrete damage.

Finding # - 24. There are numerous structural cracks and leaks allowing water to damage the garage walls, floors and ceiling slabs. These issues should be repaired before they create more damage.

Finding # - 25. The courtyard brick work has a few areas where it looks as if water is also getting into the garage. The water leaks into the garage are causing noticeable damage.

Finding # - 26. There is a roof leak into the building outside room 3230 and is damaging the drywall bulkhead at the glass doors. **REVISION - Per DGS the leak is in the Market Square Garage. A2 affirms that the water leak is outside room 3230 of the City Hall building.**

Finding # - 27. Stairwell #1 has a water leak through the wall from outside and will need to be repaired. **REVISION - Per DGS the leak is in the Market Square Garage. A2 affirms that the water leak is the Stairwell #1 in the City Hall building.**

Finding # - 28. The boiler chimney is structurally damaged. Metal clamps have been installed to help compensate but the damage is pretty severe. **REVISION – Per DGS, there is a structural study noting that the chimney is structural sound. A2 requests a copy of the report, and comment should be disregarded.**

Architectural Findings:

Finding # - 29. There is one wooden louver in the east side slate roof which is deteriorating and needs to be replaced.

Finding # - 30. The historic single pane windows are in extremely poor condition. These old windows are allowing water infiltration into the perimeter walls and are very inefficient. **REVISION – Per DGS there is no knowledge of water leakage. That said, the cracks in paint and between the wood window and brick should be corrected to avoid any possible water infiltration.**

Finding # 31. It was noted that there has been leaking at the skylights on the 5th floor. **REVISION – Per DGS there is no knowledge of water leakage as repairs have previously been completed.**

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Attachment # - 1: Pictures associated with each finding.

Finding # 1 Photo. This picture is of one of the old brick set fire tube boilers. These units are in poor condition.

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Finding # 2 Photo. The 3 tanks shown in this picture are the closed system expansion tanks. These need to be repaired and the proper air cushion established to allow the systems water to expand and contact without changing the system pressure.

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Finding # 3 Photo. This picture is an example of one valve which needs to be replaced.

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Finding # 4 Photo. This picture notes the temporary sheet metal repair to the cooling tower fill.

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Finding # 5 Photo. This picture notes one of the R-22 centrifugal chillers.

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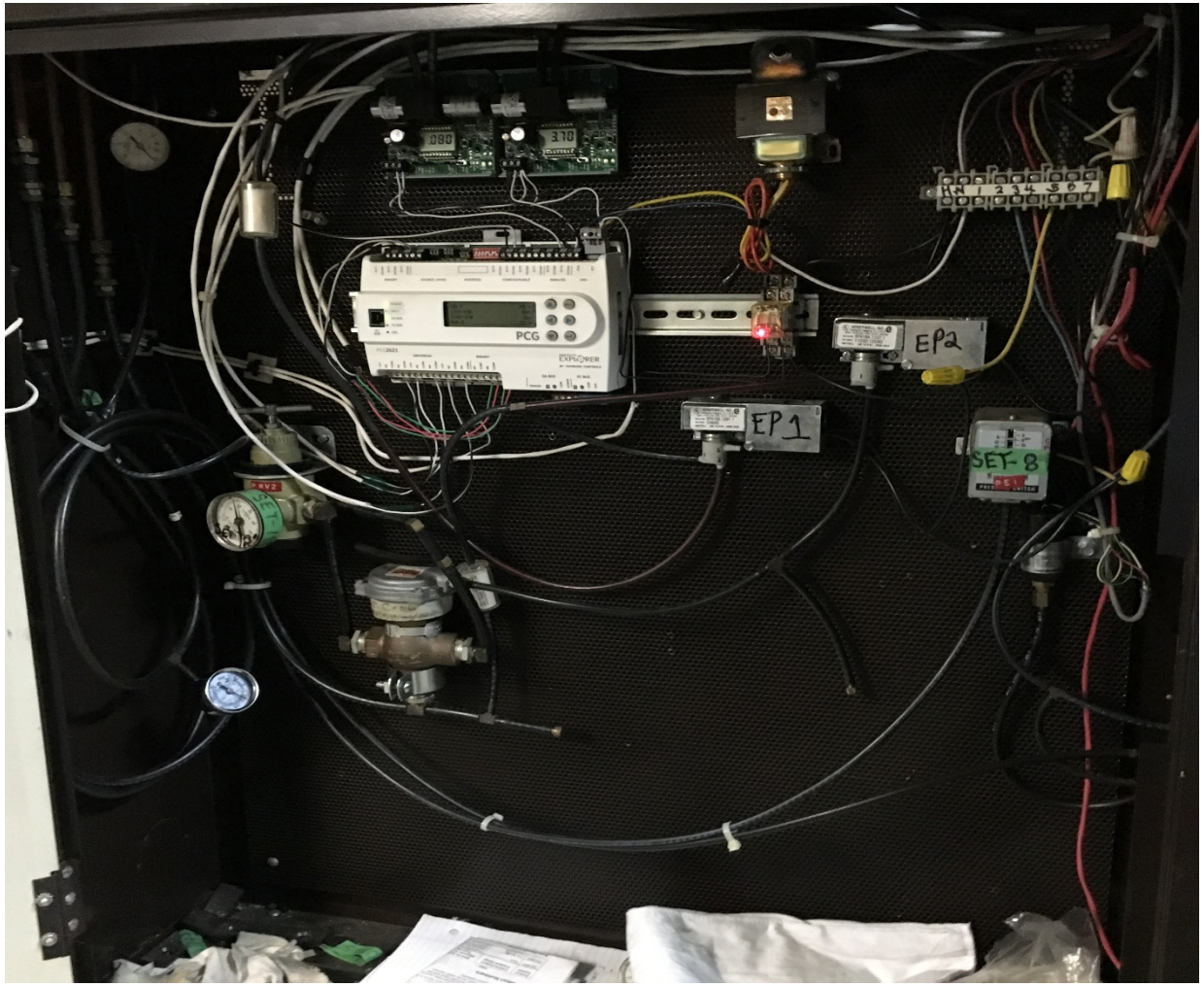
Finding # 6 Photo. The picture is an example of the old pneumatic controls used to operate the boiler room systems and the air handlers systems in the building.



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Finding # 7 Photo. This picture is of the heat exchanger which heats the whole building. The head is leaking while in operation and should be repaired.

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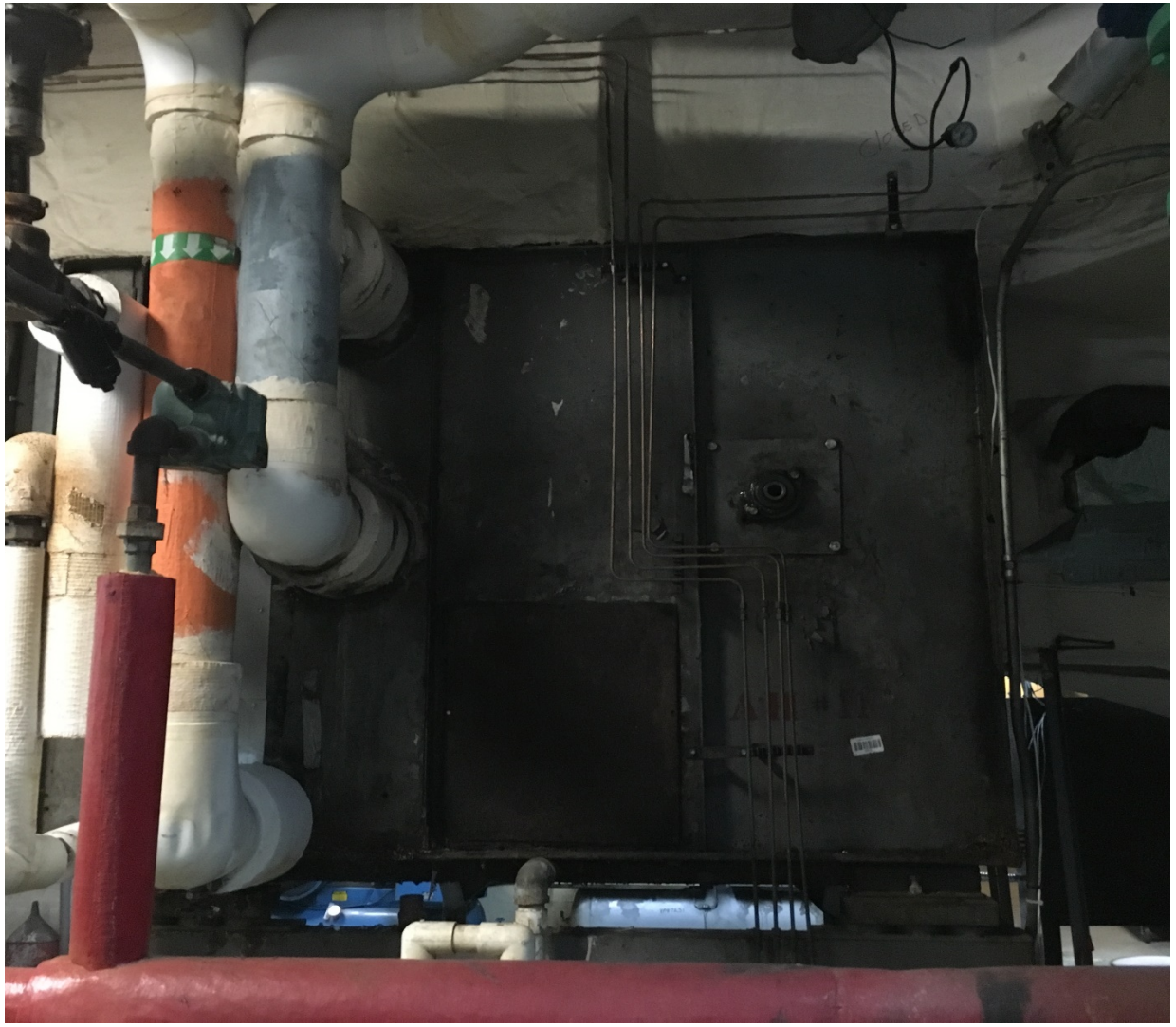
Finding # 8 Photo. This picture is of the main outside air fan which filters, heats or cools the incoming air for building ventilation.



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Finding # 9 Photo. This picture is of the second OA fan which most likely causes more issues. It simply dumps unfiltered cold air into the building.

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Finding # 10 Photo. This picture is of the air handler in the print shop which the fan bearings have failed. It is very hard to access.

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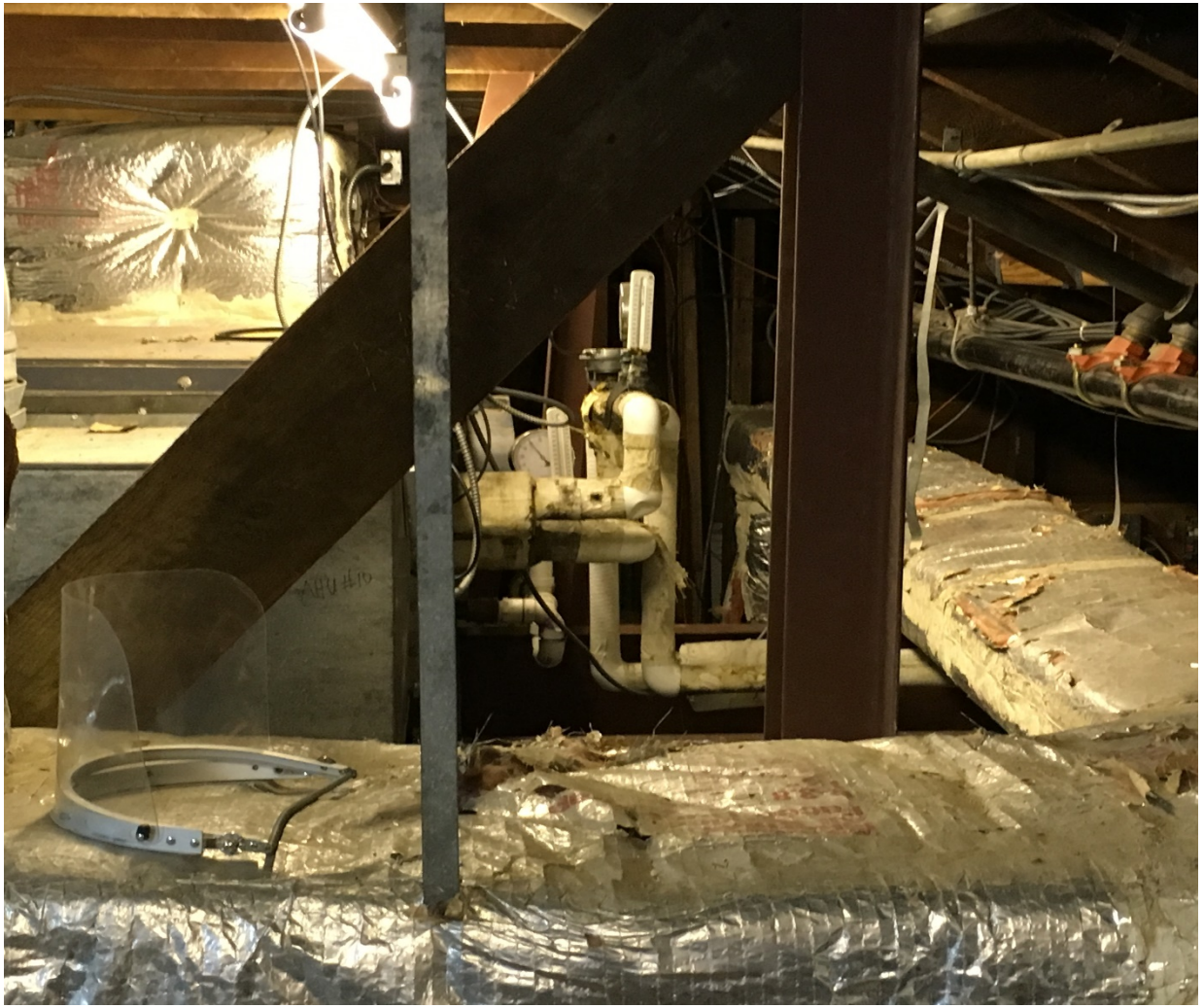
Finding # 11 Photo. This picture is of one of the attic air handlers with damaged duct work insulation. This will cause condensate leaks in summer.



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Finding # 12 Photo. This picture notes the old dry cooler equipment abandoned in place.

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Finding # 13 Photo. This picture notes the difficult access to the HVAC units.

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Finding # 14 Photo. This picture is an example of one perimeter fan coil unit. This one is in an entrance way off the courtyard.

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Finding # 15 Photo. This picture is an example of one main switch gear which does not look like it has been shut down for cleaning and tighten-up work. Infra-Red testing should also be implemented.

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Finding # 16 Photo. A2 recommends that the emergency generator transfer switches be transferred and tested under load at least every 2 months. This picture is of the emergency generator.

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Finding # 16 Photos Continued. This picture is of one of the emergency transfer switches which should be tested.

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Finding # 17 Photo. This picture notes the window where water is entering the boiler room from the outside air shaft.

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Finding # 18 Photo. This picture notes the corroded inlet water fittings to the domestic water heater in the boiler room.

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Finding # 19 Photo. This picture notes the two new pumps being used at the upper garage sump pit. These should have been submersibles.

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Finding # 20 Photo. This picture notes the old shaft driven sump pumps which are noisy. If they fail the garage could flood.

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Facility Survey of City of Alexandria - City Hall

Finding # 21 Photo. This picture notes the fire pump in the boiler room. The pump needs to be tested weekly with no flow and once a year with full flow to the street. This is required to make sure the pump will operate correctly in an actual fire event.

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Facility Survey of City of Alexandria - City Hall

Finding # 22 Photo. This picture notes the water on the boiler room floor which is coming in through the floor slab.

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Finding # 23 Photo. This picture is of one planter drain which is leaking into the garage.

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Finding # 24 Photo. This picture is one example of structural damage in the garage from water infiltration.

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Finding # 24 Photos Continued. This picture is another example of structural damage in the garage.

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Facility Survey of City of Alexandria - City Hall

Finding # 25 Photo. This picture notes a section of the brick work on the courtyard deck which looks to be adding to the water issues in the garage.

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Facility Survey of City of Alexandria - City Hall

Finding # 26 Photo. This picture notes the water damaged dry wall bulk head outside room 3230. This is from a roof leak.

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Finding # 27 Photo. This picture notes the crack between the block and the brick walls where water is entering stairway #1.

A2 Services, Inc.
Facility Survey of City of Alexandria - City Hall

Finding # 28 Photo. This picture notes the structural damage to the brick chimney.

A2 Services, Inc.
Facility Survey of City of Alexandria - City Hall

Finding # 29 Photo. The picture notes the rotten wooden louver which will need to be replaced.

A2 Services, Inc.
Facility Survey of City of Alexandria - City Hall

Finding # 30 Photo. This picture is an example of the damaged windows wood work.

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Facility Survey of City of Alexandria - City Hall

Finding # 31 Photo. This picture is one of the leaking skylights on the 5th floor.

Issues / Deficiencies List

Name of Facility:		Alexandria City Hall	
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
MECHANICAL	1	The two steam boilers are in very poor condition. They are also very inefficient, it would be cost effective to modernize the central plant.	Boiler room
	2	The heating and cooling systems expansion tanks are flooded and will not let the system water expand and contract as required.	Boiler room
	3	The heating and cooiling system is a two - pipe design. Numerous manual valves have frozen up and can't be operated properly to change from heat to cooling. These valve need to be replaced.	Throughout the facility
	4	The cooling tower fill is damaged. The tower itsself is also showing its age.	Roof
	5	The centrifugal chillers which provide chilled water to the site for cooling are old and inefficient. They also use refrigerant R-22 which is no longer produced as part of the Clean Air Act.	Boiler room
	6	The central plant and building controls are still pneumatic and some actuators are failing. Recommend converting to DDC controls.	Boiler room
	7	The steam system heat exchanger head is leaking and should be rebuilt.	Boiler room
	8	The main building outside air fan is inadequite to provide proper fresh air ventilation to the site. From what I see the OA is only fed to one corridor in the building. None is being fed to the office spaces.	Boiler room
	9	A second outside air fan dumps unconditioned, unfiltered air into the building and only runs between 30 to 50 degrees outside. This quite strange?	Outdoor mechanical courtyard
	10	There are 20 building air handlers which are basically inaccessible for maintenance due to their locations. One in the print shop has failed and connot be accessed for repair without completely removing the ceiling and support beams.	Throughout the facility
	11	The air handlers in the attic are in poor condition but operational. Duct work insulation should be replaced to prevent condensate leaks into the spaces below.	Attic
	12	Two dry coolers have been abandoned in place on the roof.	Roof
	13	There are 24 split system heat pumps that have been added to handle new heating and cooling needs. Many of these units are hard to access for service.	Throughout the facility
	14	There are 180 perimeter fan coil units which have problems with condensate leaks in summer.	

Issues / Deficiencies List

Photo	#	Description of Deficiency/Issues	Location - Floor/Room
ELECTRICAL	15	It does not look as if the high voltage switch gear maintenance is being done	Boiler room
	16	Verify the building emergency generator is being properly tested and maintained.	Garage
Photo	#	Description of Deficiency/Issues	Location - Floor/Room
PLUMBING	17	Outside air pit to the boiler room. Drain is plugged and water in the pit overflows into the	Boiler room
	18	The cold water makeup line to the domestic hot water heater in the central plant needs to be repiped.	Boiler room
	19	Two new garage sump pumps have been installed. The pumps that were installed are not correct for the application.	Upper level of garage
	20	Another set of shaft driven sump pumps in the garage are in poor condition.	Lower level of the garage
	21	Verify all code required testing is being done with the fire pump	Boiler room
Photo	#	Description of Deficiency/Issues	Location - Floor/Room
STRUCTURAL	22	Boiler room floor ground water infiltration	Boiler room
	23	There are leaks from the courtyard planters into the garage causing damage.	Garage upper level
	24	There are numerous structural leaks through the concrete slabs into the garage which is causing conctere failure	Garage, both levels
	25	The courtyard brick work has several bad areas which look to be part of the water issues in the garage.	Courtyard
	26	There is a roof leak outside room 3230 which is damaging a drywall bulkhead at the glass doors.	3rd floor
	27	Stairwell # 1 has a wall leak from outside.	Stair # 1, 4th floor
	28	The boiler brick chimney is badly cracked. Metal clamps have been added to stabilize the structure.	Outside at the roof

Issues / Deficiencies List

Photo	#	Description of Deficiency/Issues	Location - Floor/Room
ARCHITECTURAL	29	A wooden louver on the east slate roof is in poor condition and needs to be replaced.	
	30	The historic wooden multi-pane windows are in very poor condition and need to be repaired. These windows are single pane.	
	31	Skylights in the fifth floor lunch area leak and need to be repaired.	

The following are the A2 Services response to the A2 Services DGS City Hall request for comments/edits by Ms. Donna Poillucci of DGS on November 17, 2017.

DGS Request for Comment/Edits	A2 Response
Page 2, 1st paragraph, last line – Marvin and the other two staff actually are responsible for more than three other buildings. They also maintain other parking garages owned by the City and the common area by the Torpedo Factory, not to include HVAC units in our IT spaces in leased space throughout Tavern Square.	A2 has updated the language in that section to reflect the comment.
Page 3, Finding #3 – the broken valve handles are operable. Please make that change.	A2 has modified the language to note that the valve is operable. The operability is achieved by using a wrench which is not per its' design and will not provide an accurate measurement of positioning. A2 stands by its recommendation that valve needs to be replaced.
Page 4, Fining #10 – Last sentence is incorrect. The ceiling unit was repaired and is operable. It was a difficult and time consuming however it was repaired prior to your visit.	A2 does not agree with the DGS response. As the picture highlights the unit is not operable (no belts attached). If the unit has been repaired please provide a copy of the completed work ticket.
Page 5, Finding #15 – The comment is subjective and not factual. City Hall had an expansive review of its 46+ panel boards in 2013-2014 which included thermal imaging and checking all termination at breakers. Annual visual inspection are performed by our Master electrician, if he finds any issues or uncovers any heat issues then thermal imaging is performed. There is no code requirement for maintenance of electrical panels.	Please see the attached electrical testing standard for consideration. The City of Alexandria should be following the NFPA 70B guidelines, which notes that all switch gear over 1,000 amps needs to be shut down for a full cleaning and re-torque of all connections every 5 years. At the time of inspection there was no visual inspection sticker. Please forward the electrical report to A2. Finally, A2 recommends that an annual inspection sticker be placed on the main electrical gear each year at the time of inspection.
Finding #21 – The fire pump test is completed annually and is due in October. Not sure how the tag went missing but this pump was inspected right after your visit.	The items was identified as there were no markings, test tags or inspection labels visible. A2 requests a copy of the test report and that test tags be installed.
Page 6, Finding #26 – This leak is in Market Square garage outside the parking office. There is no roof but a plaza above this space. Please refer to the building as a garage and remove a roof leak please.	A2 does not agree with the comment. Picture No. 26 is in the stairwell #1 of the City Hall building.
Finding #27 – Please note that this is also located in Market Square Garage.	A2 does not agree with the comment. Picture No. 27 is in the City Hall building outside room 3230.

Finding #28 – The boiler chimney has had a structural assessment performed and found to be structurally safe. The City has a monitoring device installed in order to track any changes of movement. This chimney will be demolished in the City Hall renovation.	A2 requests a copy of the structural report. Item can be discarded.
Finding #30 – We have no knowledge of any current leaks through the perimeter walls. Please restate or remove the words pertaining to water infiltration.	A2 does not agree with the comment. The picture shows cracks and areas wherein water infiltration is possible.
Finding #31 – To our knowledge there is no current leaks through the skylights. There have been in the past but they were repaired.	A2 noted this item in the report as it was reported by the DGS Building Engineer. If a repair has been made please provide a copy of the work order.

County	Requirements	NFPA	Local Code
Anne Arundel	Per BOCA Code which references NFPA	70B	
Arlington	Arlington County Ordinance states that it shall be the responsibility of the owner, or his responsible agent, to have a master electrician disconnect all services of 1000 amperes or larger once every 5 years or less and have preventative maintenance performed on them per the county's preventative maintenance program.	70B	**Arlington County Ordinance Section 7-7**
Baltimore	No requirements. Industrial buildings are required to have a master on site that keeps a log of work done at building. They use to do spot checks but they no longer do that due to manpower shortages.	70B	
Calvert	Per BOCA Code which references NFPA	70B	
Carroll	Per BOCA Code which references NFPA	70B	
Charles	Per BOCA Code which references NFPA	70B	
City of Alexandria	Per BOCA Code which references NFPA	70B	
City of Annapolis	Switchboards having a capacity of 1000 amperes or larger shall receive periodic cleaning and preventative maintenance minimum ever 3 years to minimize the possibility of fire or catastrophic failure. Cleaning and maintenance schedule includes coordination of shut down with the utility company.	70B	**Section 408.59 as adopted in Section 17.16.015**
City of Baltimore	No requirements.	70B	
City of Fairfax	No requirements.	70B	
City of Falls Church	No requirements.	70B	
City of Gaithersburg	No requirements.	70B	
City of Rockville	No requirements. They suggest following Manufacturer's suggested maintenance	70B	
District of Columbia	**Switchboards of 1000 Amperes or Larger; "It shall be the responsibility of the owner of a switchboard having a capacity of 1000 amperes or larger, or his responsible agent to have a licensed master electrician disconnect said equipment once ever 3 years or less to perform prescribed preventative maintenance."**	70B	**DC Supplement Section 408.23**
Fairfax	No requirements.	70B	
Frederick	No requirements.	70B	
Howard	No requirements.	70B	
Loudon	No requirements.	70B	
Montgomery	No requirements.	70B	
Prince Georges	Switchboards of 1000 Amperes or Larger with aluminum feeders or aluminum bars.	70B	**PG County Subtitle 9 Section 9-108.01**
Prince William	No requirements.	70B	
St. Mary's	No requirements.	70B	
Town of Herndon	No requirements.	70B	
Washington	No requirements.	70B	

Notes:

1. NECA Article 230-95. Ground-Fault Protection of Equipment.
Ground fault protection of equipment shall be provided for solidly grounded wye electrical services of more than 150 volts to ground, but not exceeding 600 volts phase-to-phase for each service disconnect rated 1000 amperes or more. The rating of the service disconnect shall be considered to be the rating of the largest fuse that can be installed or the highest continuous current trip setting for which the actual over current device installed in a circuit breaker is rated or can be adjusted.
2. NEMA Standards Publication PB 2.1-1996. Section 9 - Maintenance
Maintenance on switchboards of all Manufacturers should be performed as per specifications.

Generator	Thermographic Analysis
Maintenance Interval - Semi Annually Exercise Requirements - Weekly Air Filters Replacement - As needed Coolant Replacement - Annually Oil Filter Replacement - Annually Oil Replacement - Annually Fuel Filter Replacement - Annually Load Bank Test - Every 1-3 Years Oil/Coolant Analysis - Annually	There are no existing require publications. Industry standards suggest Thermographic Analysis be performed annually.

A2 Services, Inc.

Facility Survey of the City of Alexandria – Public Safety Center

A2 Services, Inc.

Facility Survey of the City of Alexandria – Public Safety Center

A2 Services (A2) toured the City of Alexandria Public Safety Center which includes the Detention Center and the Sheriff's Department's office on October 19, 2017. Both facilities are located at 2001-2003 Mill Road in Alexandria, VA 22305. The Detention Center was built in 1984 and opened for service in 1987. The Sheriff's Department's office is physically attached to the detention center. The overall building structure is reinforced concrete construction with a brick façade.

Upon arriving at the site at 0700, A2 met with Mrs. Patrice McAuliffe who is the DGS Project Manager for the site and Mr. Joshua Pearson who is the Project Superintendent/Building Manager.

Mr. Pearson explained that the site's HVAC basis of design uses a 4 pipe hydronic heating and cooling system for both the detention center and the Sheriff's office. Two York screw chillers provide chilled water to the building for cooling while 4 Fulton water tube boilers produce the heating water. The boilers also generate the domestic hot water for the detention center through a plate and frame heat exchanger and one large storage tank. Other electric and gas fire domestic water heaters are also utilized. A second plate and frame heat exchanger is also available for use as a water side economizer or free cooler. This unit allows the mechanical cooling to be shut down when the outdoor temperature is cold enough to produce the chilled water using the cooling tower. This mechanical configuration can substantially reduce electrical costs during the winter season. The 4-pipe air handlers in the detention center section of the facility were replaced two years ago and are designed to provide 100% outside air to the PODs or Cell Blocks. When the air handlers were replaced energy recovery wheels were added to pre-condition the outside air using building exhaust air. This design should also reduce energy costs throughout the year.

Mrs. McAuliffe explained that the building's built-up membrane roof system was also replaced two years ago. The new roof membrane is white which will reduce the heat island effect and is in sound condition. Additionally, the facilities fire alarm system has been scheduled for an upgraded and replacement. Finally, Mrs. McAuliffe explained that there is a need to have a building window survey performed. This survey should include developing a scope for the replacement work and budgetary pricing. As noted later in this report, there are numerous areas where the window systems are failing and should be replaced.

On the maintenance side of the facility. Mr. Pearson explained that there are three engineers who maintain the building systems such as lights, doors and locks, electrical, plumbing and HVAC operations and maintenance. It was noted that productivity of the O&M staff was limited in the detention center portion of the facility and restriction was due to the nature of the security requirements of the facility. Any maintenance request or repair can potentially take 3 times longer than in a normal facility as escorts are required and locations have access concerns. Another noted maintenance concern in the detention center portion of the facility is that many areas are extremely hard to access due to high ceilings. Simply changing lights, cleaning diffusers and changing stained ceiling tile becomes quite difficult and time consuming. In some cases the ceiling areas can only be accessed by setting up specialized scaffolding equipment, as a genie lift cannot be used.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

For the electrical equipment and systems, it was noted that Mr. Pearson has started to purchase LED bulbs for these hard to access areas which have a much longer life and will decrease how often they need to be changed. Another noted concern was the current installation of specialized light fixtures within the cells. Many of the cell light fixtures should be replaced but as these fixture are no longer available a full re-lamping project should be considered. Finally, regarding the exterior light poles and other hard to reach outdoor electrical systems and building components require that an outside contractor be brought in to complete typically with a bucket truck. The City of Alexandria should consider purchasing a lift similar to a used Genie S-60.

On the plumbing system, the facility sanitary mains and risers are regularly plugged up by materials being flushed or stuffed into the drains. The site's cafeteria creates a substantial amount of grease which carries over from the grease traps into the sanitary mains. A2 Services recommends that a quarterly or semi-annual contract be set up with a local plumbing firm to hydro-jet all the buildings horizontal sanitary mains. Finally, as similar to the light fixture item noted above, there are currently installed singular toilet and sink units wherein parts are no longer readily available.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Mechanical Findings:

1. Overall the staffing level appears to be low for operating and maintaining this complex site. Two additional trained engineers with multi-trade capability (able to perform HVAC, Electrical and Plumbing repairs) would allow a reduction in outside contractors and increase the quality of work. It is our experience that In-house staff will the performance of the work compared to a subcontractor. There is no picture attached for this finding.

2. The building design and security requirements severely hamper operations, maintenance and repair work, therein lowering the productivity of the engineering staff. One specific element of the building security is that Escorts are required. One of the engineers are required to be with any subcontractor until they leave the site. This removes building engineering staff from attending the O&M requirements of the building. As noted above, additional staff or a revised escort policy could resolve this drain on O&M staffing. There is no picture attached for this finding.

3. As new equipment is installed numerous pieces of the existing equipment has been left abandoned in place, most likely to reduce cost. Some of this roof top equipment has deteriorated and maybe causing leaks at the penetrations through the roof. Other equipment such as wall mounted exhaust fans should be removed and the walls closed to stop cold air from entering the building.

4. The air handler supply diffusers in the jail facility are dirty and look to be almost closed in many areas. This condition is due to the height and configuration of the space being conditioned. In some cases the ceilings are at least 20 feet high and inaccessible by a genie lift or normal ladders. As such the only way to access the diffusers is to build specialized scaffolding.

5. The new air handlers in the penthouse machine room (R-3) do not have good chilled water flow. This appears to be partially due to the overall system pressure being low and possibly the chilled water pumps not having the necessary capacity. This requires further investigated.

6. Another part of the chilled water flow concerns is no differential pressure control for the chilled water pumps on the BAS for heating water or chilled water. The pumps were running at 100% and showed low flow at the penthouse. This requires additional investigation and possibly rebalancing of the water side system.

7. In mechanical room R-2, the air handlers in this area should probably be scheduled for replacement along with the addition of a heat wheel. This will mirror the system configuration in the R-3 mechanical room. The air handlers are still operational but it was noted that components such as coils, dampers control valves and actuators could fail at any time.

8. The refrigeration condensing unit in R-2 serves the cafeteria coolers. This unit appears to be improperly maintained by the cafeteria contractor. The system installation is poor as the unit is not mounted properly, and wires and junction boxes have been left open, etc.

9. The kitchen hood exhaust fan belt needs to be replaced. The belts slips such that the fan cannot reach full speed. This will negatively impact the operation of the kitchen hood system.

10. One exhaust fan for the jail is located on a lower roof section and cannot be properly accessed. A safety ladder should be installed.

11. Numerous exhaust air grills in the jails housing area shower stalls have rusted badly and should be replaced.

12. Numerous supply air grills in the jail cells should be replaced, as the inmates have damaged them.

13. One roof top exhaust fan has failed and should be repaired and put back into service.

Electrical Findings:

14. The installed specialized light fixtures in the Cells are outdated. Parts and bulbs are becoming unavailable. Retro-fitting these fixtures to use T-5 fluorescent bulbs that meet the security requirements should be investigated.

15. It appears that the electrical system maintenance has not being completed as no inspection stickers are evident. It has been noted on a previous Facility Survey that DGS has completed electrical maintenance. An inspection sticker should be affixed to the main gear as evidence of that work.

16. The light fixtures are not properly accessible in many areas of the jail. Similarly to the ceiling diffusers, the lights and ceiling tiles cannot be accessed without specialized scaffolding.

17. Electrical systems that serve the parking area lights under the beltway access ramp are rusting away from the road salt and exposure to the weather. These electrical feeds and junction boxes should be in consideration for replacement. This work will require a bucket truck to complete.

18. One building vent damper assembly on the roof requires repair. The electrical conduit has rusted and broken in half exposing the hard wired connection.

19. Many areas outside the building and on the grounds such as pole lights that cannot be accessed for repairs or re-lamping without an outside contractor using a bucket truck.

20. Lights in the sheriff's office stairwells cannot be accessed to change the bulbs or repair the fixtures. A2 recommends new fixtures be added at the stairwell walls and the old units be taken out of service.

Plumbing Comments:

21. The sink toilet combination used in the jail cells are outdated and parts are no longer available. Replacement or retro-fit to install new faucet and flush assemblies should be investigated.

22. The building sanitary horizontal main drains should be hydro-jetted at least twice per year to help reduce backups to the system mains.

23. A water fountain at level 3 of the jail needs to be repaired. It appears that the block wall must be cut out to allow this repair.

24. Consider installing VFDs on the domestic water booster pumps. This will reduce energy usage and give better pressure control than the pressure reducing valves now being used.

Structural Findings:

25. Parking lot and driveways are in need of asphalt repair or replacement in many areas. This condition will continue to deteriorate over the course of the winter as water penetrates the asphalt and freezes causing the road surface to break up further.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

26. Area 3CF housing has a ceiling leak from the roof through the concrete slab into the space. This needs to be investigated further because of the damage this water can do while penetrating the slab.

27. The heavy gates and security fencing at the entrances and around the facility need repairs. Parts cannot be purchased and must be fabricated. A2 provided a vendor contact (Service Machine Shop) to the DGS staff.

28. There are a few areas in the sheriff's office building where the concrete floor slabs are not level. There is concern that these sections may be improperly settling. A2 recommends that a structural engineer review the condition and provide an assessment.

Architectural Findings:

29. The jail and sheriff's office windows are in poor condition is many areas. A window survey should be considered. This survey should include a scope of work and budgetary pricing. New more thermally efficient windows will also reduce energy usage.

30. One section of windows at the north side of the sheriff's office needs to be caulked to stop water infiltration.

31. Areas of the brick façade on the north side of the sheriffs need to be tuck-pointed. This is at the same location as the window area discussed above.

32. The epoxy /coating used in the shower stall areas floors needs to be repaired or replaced. This condition is allowing water to get under the coating causing it to fail and will also allow water to start and leak through the concrete slab into areas below.

33. The sheriff's office stairwell skylights are showing signs of leaking. These should be pulled and resealed.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Attachment – 1 Deficiency Photos:

Finding # - 3 Equipment abandoned in place. This picture is of an abandoned in place cooling tower on the roof.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 3 Equipment abandoned in place continued. This picture is a wall mounted exhaust fans left in place. There is also a damper assembly related to this fan.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 4 This picture is an example of how hard the ceiling diffusers, ceiling tile and light fixtures are to reach.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 5 This picture notes the chilled water flow problems at the jail penthouse air handlers. Section R-3. The picture while blurred indicates that the pressure gauges are reading 5 PSIG and less. This should be reading up around 20 PSIG.

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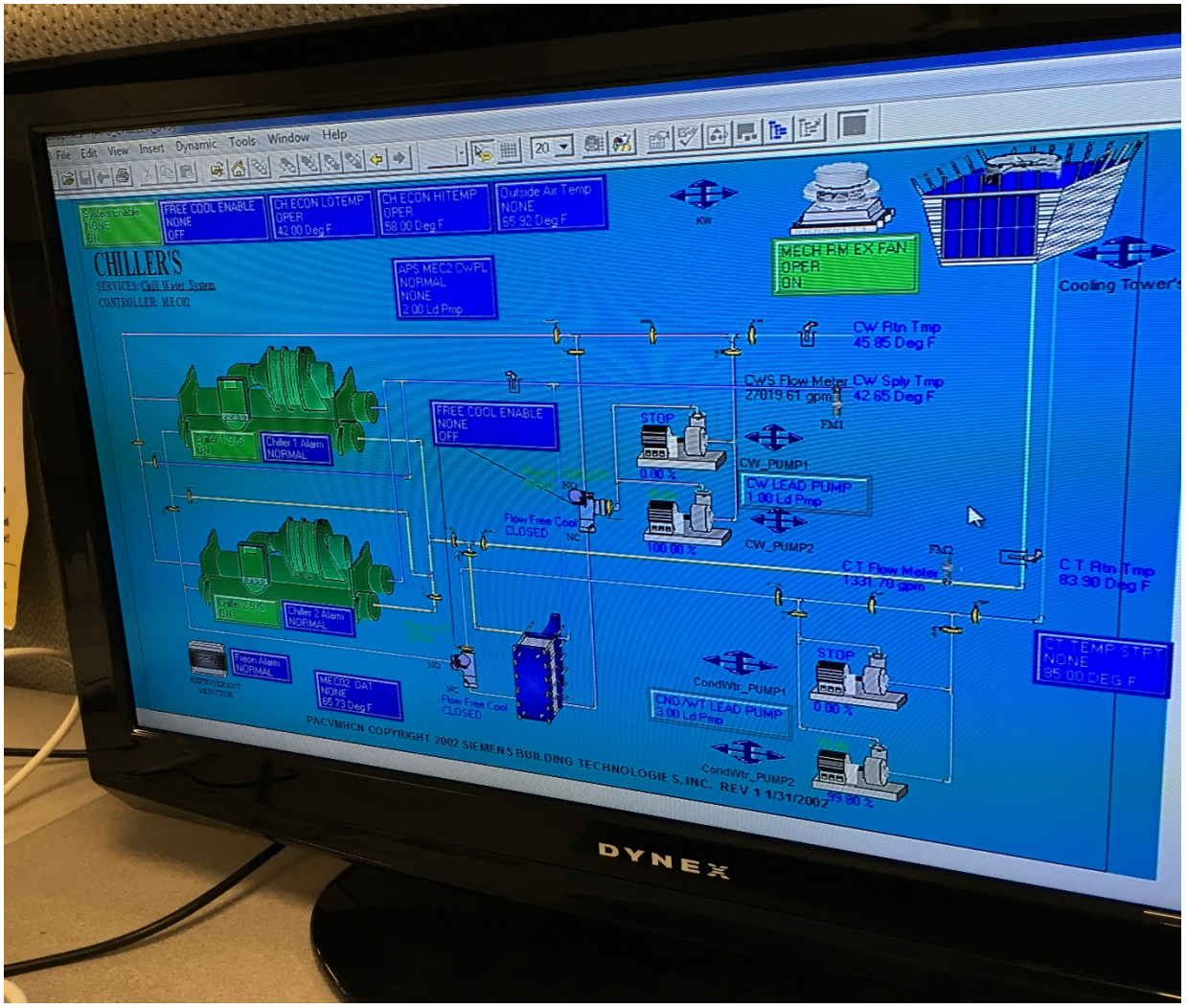
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 6 This picture notes the chilled water and heating systems differential control via the BAS system. There is no control point for differential pressure. However because the pumps are at 100% speed it appears that there may be a concern with the pump sizing.



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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 7 Section R-2 air handlers which are in poor condition.

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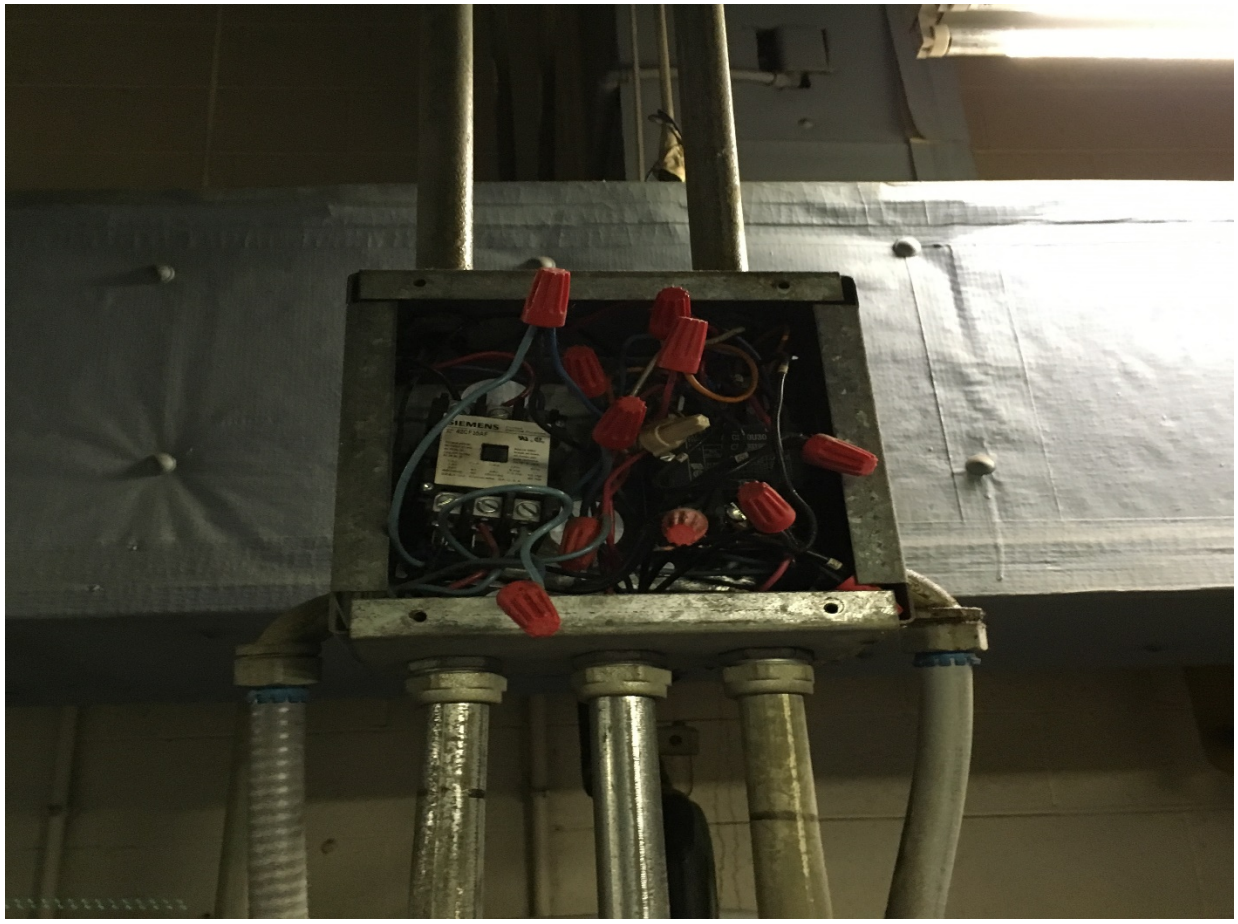
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 8 This picture is one example of the poor repair work being completed by the contractor maintaining this equipment, (i.e. no landing or mount in the control box).



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Finding # - 9 This picture is of exhaust fan that serves the kitchen hood system. The belt is loose and needs to be repaired.

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Finding # - 10 This exhaust should have an OSHA approved safety ladder installed to allow safe access to service the fan.

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Finding # - 11 Numerous exhaust grills in the jails housing area shower stalls should be replaced.

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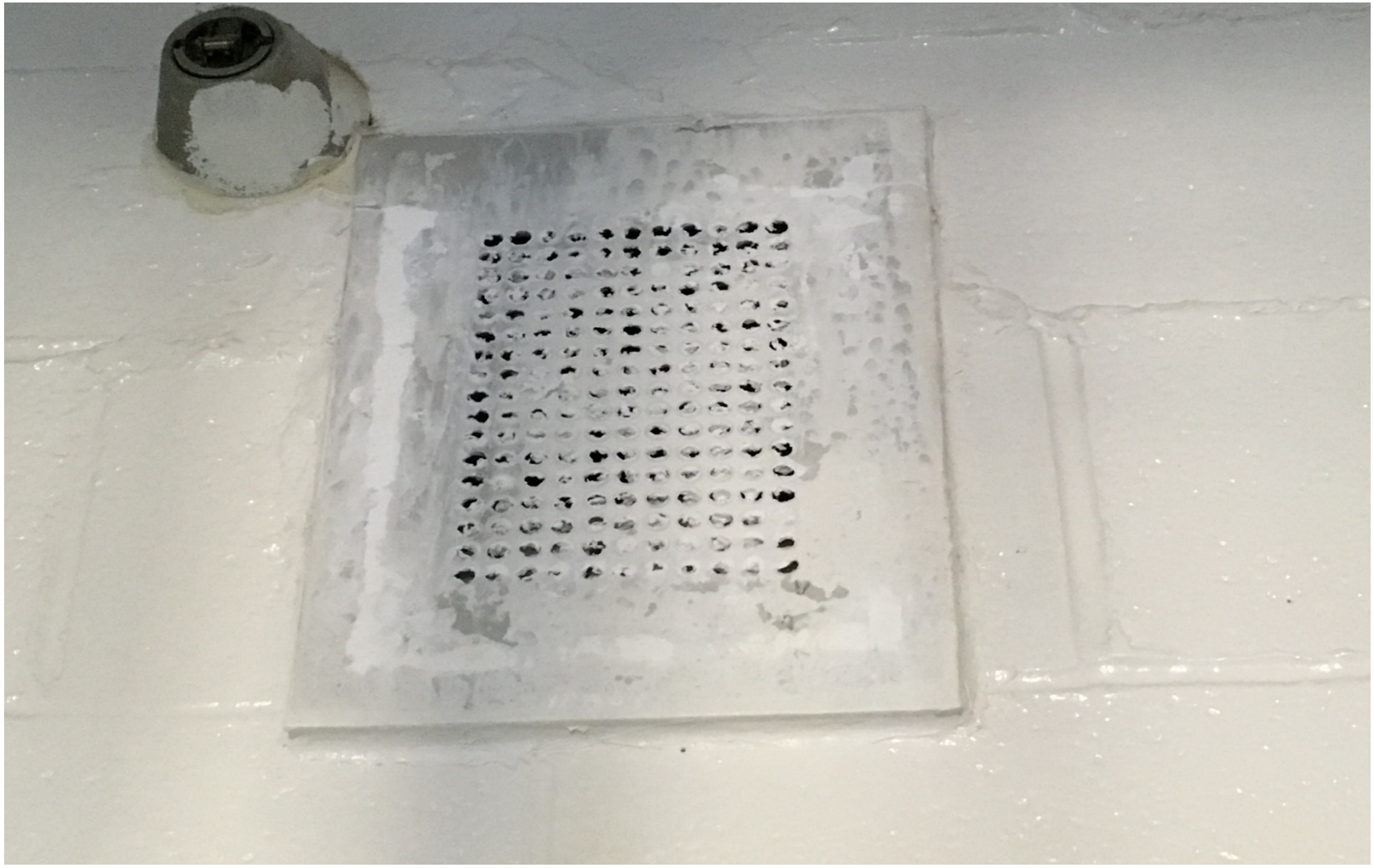
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 12 Numerous supply grills in the jail cells need to be replaced with the inmates have damaged them.



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Finding # - 13 One roof top exhaust fan has failed. It should be repaired then put back into service.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 14 The specialized light fixtures in the Cells are outdated. Parts and bulbs are becoming unavailable.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 15 There is no inspection stickers noting that the electrical system maintenance has been completed.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 16 This picture is an example of ceiling access to light fixtures, ceiling tile and diffusers. This is in a stairwell.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # – 17 This picture shows the rusted away electrical piping and junction boxes which are rusting away. This electrical service feeds the parking area lights under the beltway access ramp and will require a bucket truck.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 18 This picture is of the building vent dampers where the power wiring and conduit should be repaired.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 18 continued. This picture is of the damager power wiring and conduit to the damper assembly.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 19 This picture is of one the exterior pole light which cannot be accessed for repairs or re-lamping without an outside contractor using a bucket truck.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 20 This picture is of one of the lights in the sheriff's office stairwell which cannot be accessed to change the bulbs or repair the fixtures.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 21 This picture is of the toilet sink combination used in the jail cells. It may be possible to retro-fit these with faucets and flush valves that would be off the shelf items.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 23 This picture is of the water fountain in the jail which will need the block wall cut away for repairs.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # 24 A2 recommends consideration of installing VFDs on the domestic water booster pumps.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 25 This picture is one example of asphalt damage in the parking areas and driveways. There are many areas with damage similar to this condition.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 26 This picture denotes water damaged on the concrete slab in 3CF which appears to be caused by a leak from the roof or areas above.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 27 The heavy gates and security fencing at the entrances and around the facility are in need of repairs.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 28 This picture is of one area in the sheriff's office building where the concrete floor slabs appear not to be level.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 29 The jail and sheriff's office windows are in poor condition is several areas.

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Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 30 This picture notes one section of windows at the north side of the sheriff's office which needs to be caulked to stop water infiltration.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 31 This picture is of an area of the brick façade on the north side of the sheriff's building which should be tuck-pointed. This area is just below the window shown above.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 32 This picture is of the epoxy /coating used in the shower stall areas floors which is in need of repair or replacement.

A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

Finding # - 33 This picture is of sheriff's office stairwell skylights which show signs of leaking.

Issues/Deficiencies List

Name of Facility:		City of Alexandria - Public Safety Center	
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
MECHANICAL	1	Limited Staff requires that more outside contractors be used to handle maintenance and repair problems.	Entire facility
	2	Security and building design severly hamper oerations, maintenance and repair work	Entire facility
	3	Numerous pieces of equipment have been left abandoned in place	Roof and mechanical rooms
	4	Air handler supply linear diffusers can't be accessed for cleaning due to building design	Jail
	5	The chilled water system is having flow / capacity problems	Upper floors of the Jail
	6	There is no differential pressure control point shown on the BAS for heating water and chilled water pump control. The pumps were running at 100% and showed low flow at the penthouse. This needs to be investigated.	BAS / Central Plant
	7	Mechanical room R-2. The air handlers in this area need to be replaced and heat wheel added as in the R-3 mechanical room	Mechanical room R-2
	8	The refrigeration condensing unit in R-2 serves the cafeteria walkin box. This unit is being improperly maintained by the cafeteria contractor.	Mechanical room R-2
	9	The kitchen hood exhaust fan belt needs to be replaced. The belt slips so badly the fan cannot reach full speed.	Roof
	10	One exhaust fan for the jail is located on a lower roof section and cannot be properly accessed. A safety laldder needs to be installed.	East side lower roof
	11	Numerous exhaust grills in the jails housing area shower stalls need to be replaced.	Shower stalls
	12	Various supply grills in the jail cells need to be replaced, as inmates have damaged them.	Inmate cells
	13	One roof top exhaust fan has failed and should be repaired then put back into service.	Roof
Photo	#	**Description of Deficiency/Issues**	**Location - Floor/Room**
ELECTRICAL	14	Specialized light fixtures in the Cells are outdated. Parts and bulbs are becoming unavailable. Retro-fitting these fixtures should be investigated	Jail Cells
	15	Electrical system maintenance is not being done and needs to scheduled.	Entire facility
	16	Light fixtures are not properly accessible in many areas.	Entire facility
	17	Electrical systems under the beltway access ramp are rusting away from the road salt and exposure to the weather. These electrical feeds and junction boxes need replacement.	Beltway access ramp
	18	One building vent damper assembly on the roof needs to be repaired. The electrical connection to the fire system could fail.	Roof
	19	The exterior pole lights cannot be accessed for repairs or re-lamping without an outside contractor using a bucket truck.	Building exterior
	20	Lights in the sheriffs office stairwell which cannot be accessed to change the bulbs or repair the fixtures. Recommend new fixtures be added at the stairwell walls and take the old units out of service	Sheriffs office stairwells

Issues/Deficiencies List

Name of Facility:		City of Alexandria - Public Safety Center	
Photo	#	**Description of Deficiency/Issues**	**Location - Floor/Room**
PLUMBING	21	The sink toilet combination used in the jail cells are outdated and parts are no longer avaiable. Replacement or retro-fit to install new faucet and flush assemblies should be investigated	Jail Cells
	22	The building sanitary horizontal main drains should be hydro-jetted at least twice per year to help reduce main backups. No photo for this finding / comment.	Entire facility
	23	A water fountain at level 3 of the jail needs to be repaired. The block wall must be cut out to allow this repair.	Jail level 3
	24	Consider installing VFD's on the domestic water booster pumps. This will reduce energy usage and give better pressure control than the pressure reducing valves now being used	Central Plant
Photo	#	**Description of Deficiency/Issues**	**Location - Floor/Room**
STRUCTURAL	25	Parking lot and driveways are in need of repair or replacement	Building exterior
	26	Area 3CF housing has a ceiling leak from the roof through the concrete slab into the space	3CF
	27	The heavy gates and security fencing at the entrances and around the facility need repairs. Parts cannot be purchased and must be fabricated. Gave Mr. Pearson the contact info for Service Machine Shop who can easily do this work.	Building exterior
	28	There are a few areas in the sheriffs office building where the concrete floor slabs are not level. There is concern that these sections may be improperly settling and unsafe. Recommend that a structural engineer take a look at these areas to make sure they are ok.	Sheriffs office
Photo	#	**Description of Deficiency/Issues**	**Location - Floor/Room**
ARCHITECTURAL	29	The jail and sheriffs office windows are in poor condition is several areas. A window survey should be considered. This survey should include a scope of work for pricing.	Entire Facility
	30	One section of windows at the north side of the sheriffs office needs to be caulked to stop water infiltration.	North side of Sheriffs office
	31	Areas of the brick façade on the north side of the sheriffs need to be tuck-pointed.	North side of Sheriffs office
	32	The epoxy /coating used in the shower stall areas floors needs to be repaired or replaced	Shower area floors
	33	The sherrifs office stairwell skylights are showing signs of leaking. These should be pulled and resealed.	Sheriffs office stairwells

A2 Services, Inc.

Facility Survey of the City of Alexandria Fire Station #208

A2 Services, Inc.

Facility Survey of the City of Alexandria Fire Station #208

A2 Services (A2) toured City of Alexandria Fire Station #208 on September 27, 2017. The station is located at 175 North Paxton Street in Alexandria VA. Upon arriving at 0700AM A2 met Captain Lynn and Lieutenant Europe who explained the site concerns related to the facility. Following the initial discussions, Fireman Bobby Kennedy escorted A2 throughout the site.

This Fire Station was built in 1976 and has had no other additions to it except a new wet pipe sprinkler system which was installed in 2002. This facility is in good condition as compared to some other jurisdictions A2 has surveyed. The following were the facility concerns identified during the visit and correspond with Attachment 1 of the Report:

Mechanical Findings:

1. Fire Department Engine Bays have Truck Exhaust Systems. The purpose of this system is to remove the engine exhaust from the Engine Bay area while the trucks are running and warming up. In theory this system should be able to allow the bay doors to be closed while the trucks are running on cold days or in bad weather while also maintaining acceptable indoor air quality for the firemen. The system being used is a small wall mounted exhaust fan and a set of fresh air dampers at the rear of the bay. The concern is that this system isn't sized to move enough air to actually accomplish its purpose. Because of this the doors are being opened to keep the engine bay clear of fumes. On very cold days this allows the bay area to also become quite cold. Other Fire Departments use air vacuum systems which have hoses suspended from the ceiling and hook up to the truck exhaust pipes. The truck exhaust is then removed to the outside through a fan system. This system would be a better approach than the one in use at this time.

2. The Engine Bay Heating System uses ceiling hung electric unit heaters. These electric units can maintain a good temperature within the bay while the doors are closed but cannot keep up with the doors open. The installation of 3 new gas fired infra-red heating units would make it much more comfortable for the firemen when the doors have to be open in very cold weather. The installation of a new Engine Exhaust Air Vacuum system for the trucks would possibly eliminate this issue allowing the doors to stay closed more often.

3. The other areas of the fire station are heated and cooled by several separate systems. There are variable refrigerant flow split systems, and several package split systems. These units all have air cooled refrigerant condensing coils on the outdoor units which require good air flow to maintain their efficiency. After inspection of these coils we found that they need to be properly cleaned. This should be done at least once a year with a non corrosive coil cleaner and then rinsed down with clean water.

A2 Services, Inc.
Facility Survey of the City of Alexandria Fire Station #208

4. The mechanical room on the lower level and at the rear of the building houses one of the main heating and cooling indoor air handling units, the domestic hot water heater and the emergency generator. A wall mounted exhaust fan is used to cool this room in summer. The backdraft damper for this fan is coming apart and will fail. This damper closes when the fan shuts down and stops windblown rain or cold air from entering the room from outside. This dampers assembly needs to be replaced soon.

5. The outdoor refrigerant piping insulation on the variable refrigerant flow systems is damaged. Good insulation is critical to allow these systems transfer heat back and forth between the indoor and outdoor units. The damaged insulation also increases the energy usage required to condition the space. The Armor-flex insulation is a good product but it does not stand up well to outdoor weather conditions and should have been wrapped with a protective vinyl cover. This damaged insulation should be replaced and the entire run of outdoor refrigerant pipe then covered with a proper vinyl protective wrap.

6. The weight room indoor heating and cooling unit is controlled by a thermostat on the wall by the door into the storage area next to the weight room. This t-stat also controls another unit in the store room next door. The storage area next to the weight room has 3 different heating and cooling systems which tend to fight each other. A2 recommends that one new thermostat be installed on the storage room unit that is controlled by the t-stat in the weight room. This would allow better control of the space temperature in the storage areas next door.

Electrical Findings:

7. The site has a small natural gas fired emergency generator which handles lights and critical equipment only. The generator battery charger is unplugged and may have failed. This should be investigated to make sure the battery has sufficient power to start the generator in an emergency.

8. All the Fire Stations that A2 has surveyed in the past are considered and designed to be a fully functional mission critical facility. This basically means that when to utility power goes down, the fire station is still fully functional and includes all heating, cooling, lights, wall outlets, and all critical communications equipment. Everything still operates as if the utility power was still on. A2 recommends that Alexandria City consider upgrading their emergency power systems to allow this.

A2 Services, Inc.
Facility Survey of the City of Alexandria Fire Station #208

9. The emergency generator and its emergency transfer switches are not being tested under load. This is normally done in critical facilities on a monthly basis to identify any problems before an actual emergency event occurs. A2 recommends that these testing procedures be put into place.

10. The main electrical panel and breakers panels at the site do not appear as if they are being tested and serviced. All electrical systems, especially in critical facilities should be thermally scanned with an infra-red camera to identify any overheating components or loose connections. This testing will identify such issues before they cause a failure of the electrical system. A2 recommends that all electrical gear be opened, thermally scanned then cleaned and all terminations checked of tightness on an annual basis. This an important risk management task that should be implemented.

Structural Findings:

11. The engine bay roof is leaking onto the trucks. This issue has already been identified by the fire department staff. A2 was told that the roof repairs are being scheduled for repair.

12. The main firemen's gear room is located just off the rear of the engine bay. The skylight in the ceiling is leaking onto the equipment and gear. We recommend that the skylight be repaired.

13. The stairwell at the rear of the engine bay also has a skylight which is leaking. This one is not as bad as in the gear room but should also be repaired in unison with the gear room repair to save costs.

14. The main concrete driveway into the engine bay has one bad broken area on the right as you drive out. This should be repaired before rain or water gets under the damage and freezes causing the damage to increase.

15. The asphalt parking lot and driveway areas at the side and rear of the building are in poor condition and cracked up badly. This is another situation where water getting into the cracks will freeze and increase damage. A2 recommends that this be at least liquid sealed before the damage increases.

A2 Services, Inc.
Facility Survey of the City of Alexandria Fire Station #208

Attachment – 1 – Photos of each finding

Photo # - 1. This picture is of the wall mounted engine exhaust fan which removes the truck exhaust fumes from the engine bay.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 2. This picture is of one of the main electric unit heaters which heat the engine bay area.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 3. This picture is of one of the VRF condensing coils which needs to be cleaned. Clean coils on an air cooled split system is critical to efficient heating and cooling.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 4. This picture is of the mechanical room exhaust fans backdraft damper which is falling apart.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 5. This picture notes the refrigerant piping where the thermal insulation has failed. The white sections need to be replaced and then all the all the outdoor piping needs to be wrapped in vinyl.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 6. This picture is of the thermostat for the weight room which also controls the unit next door in the storage area. Installing one new t-stat on the unit next door will help control temperatures in both areas.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 7. This picture is of the power disconnected from the emergency generator battery charger.

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Facility Survey of the City of Alexandria Fire Station #208

Photo – 8 and 9. This picture is of the gas fired emergency generator. This is not sized to handle the whole facility and has not been tested under load.

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Facility Survey of the City of Alexandria Fire Station #208

Photo # - 10. This picture is an example of one electric panel which should be thermally scanned, cleaned and tightened up annually.

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Photo # - 11. This picture is of the engine bay ceiling area where the roof is leaking.

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Photo – 12. This picture is of the firemen's equipment and gear room skylight which is leaking on the equipment.

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Facility Survey of the City of Alexandria Fire Station #208

Photo – 13. This picture notes the second skylight in the stairwell which is also leaking.

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Facility Survey of the City of Alexandria Fire Station #208

Photo – 14. This picture notes the concrete driveway damage which will need repair.

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Facility Survey of the City of Alexandria Fire Station #208

Photo – 15. This picture is an example of the cracked and damaged asphalt at the parking lot area.

Issues / Deficiencies List

Name of Facility:		Alexandria Fire Station # 8	
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
MECHANICAL	1	The engine bay exhaust system used is simply a wall mounted exhaust fan and a fresh air damper to ventilate the truck engine exhaust fumes. They do not have the standard Air Vacuum exhaust removal systems to reduce C02 in the bay. This is an operational and IAQ concern.	Engine bay
	2	The engine bay heating system uses ceiling hung electric unit heaters. These probubly keep the bay warm with all the doors closed but not with the doors open. Recommend ceiling hung gas fired infra-red heating units like they have in the back of the bay. This would heat much better and be more efficient than the electric.	Engine bay
	3	The outdoor condensing units should have their coils cleaned. They are fairly dirty at this time.	Rear and side of building
	4	The mechanical room exhaust fan backdraft damper is coming apart and should be replaced.	Rear of building
	5	The variable refrigerant flow units piping insulation is damaged and will need to be replaced.	Side of building
	6	The thermostat in the weight room controls the weight room unit and the one next door in the storage area. This causes the other systems in the storage area to fight each other. Recommend that the storage room have a separate new T-stat installed and the stat in the weight room would only control that area.	Weight room
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
ELECTRICAL	7	Emergency generator battery charger is not operating. This should be corrected to make sure the battery has the power needed to start the unit on loss of utility power.	Mechanical room
	8	The emergency generator doesn't have the capacity to operate the entire facility on loss of power. Most of the fire departments I have surveyed are considered Mission Critical and all the internal building systems function as if they never lost power	Mechanical room
	9	The emergency generator system is not being tested under load. This should be done on a regular basis to verify the power transfers to the generator on loss of ulility power.	Mechanical room
	10	It doesn't look as if proper electrical maintenance is being performed. Annual Infra-red testing, cleaning and tightening of electrical terminations should ongoing.	Mechanical room

Issues / Deficiencies List

Photo	#	Description of Deficiency/Issues	Location - Floor/Room
PLUMBING			
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
STRUCTURAL	11	The engine bay roof leaks. I am told that it is scheduled for replacement.	Engine bay
	12	The gear room skylite leaks down onto the firemans gear below. The skylight need to be reasealed.	Gear room
	13	The stairwell skylite at the rear of the engine bay also leakes and will need to be repaired.	Front Driveway
	14	The main engine bay concrete driveway has a bad cracked and broken area on the north side near the sidewalk. Once water and ice get under this damage it will worse the repair costs.	Next to engine bay
	15	The parking lot and other paved areas in the rear of the building are cracked up badly and should be repaved.	Rear and side of building
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
ARCHITECTURAL			

A2 Services, Inc.

Facility Survey of ACPS - Cora Kelly Elementary School

A2 Services, Inc.

Facility Survey of ACPS - Cora Kelly Elementary School

A2 Services (A2) conduct an inspection of the Cora Kelly Elementary School on October 11 2017. The Cora Kelly Elementary School is located at 3600 Commonwealth Avenue, in Alexandria, VA 22305. The building appears to be reinforced concrete construction with a brick façade. A2 arrived on site at 0700AM and met Mr. David Stallings a member of the senior staff of the Facilities Department for Alexandria City Public Schools.

Mr. Stallings described that the existing HVAC basis of design uses 17 constant volume, direct expansion and gas fired roof top units. These units condition the entire facility at this time. There are also electric unit and cabinet heaters which provide heat for freeze protection and 3 power ventilation fans which exhaust air in areas to control odor.

The main building was built in 1955. At some point (approximately) in the 1960's the cafeteria was added and then in the 1980's the modular section of classes were added as a temporary addition but are still in used. Recently a new recreation facility was built and connected to the school. A common gymnasium connects the two sites. As such this condition creates fire code issues as when a primary alarm is triggered, two separate (school and recreation center) emergency fire alarm dialers call for the City of Alexandria Fire Department for emergency response. Because the two sites are physically connected, they must be protected by one common fire alarm system that covers both sites. Mr. Stallings is aware of this issue and is working to resolve it.

The center section of the building is two stories high while the remainder of the facility is all on one level. The roof is a flat insulated roof system covered with a white membrane. No ballast is used. However the modular section of the site does have a built-up membrane roof system with stone ballast. The roof systems are in poor condition and require attention greater than simple patching. Water infiltration from the roof and the failing mechanical penetrations have reached the point that not just water damage is occurring but also there are visible signs of Micro-Biological Growth in the walls and ceilings.

The original windows were changed out to thermal pane windows at some point. The window caulking is failing badly as shown in later photos causing more water penetration into the perimeter walls. Finally, Mr. Stallings explained that Cora Kelly ES was slated for modernization in 2024. The following were the facility concerns identified during the visit and correspond with Attachment 1 of the Report:

<u>Mechanical Findings:</u>

1. The stairs to the second floor have a large fold down handicapped stair lift designed to carry a wheel chair up and down the stairs. This lift system has failed and will need to be replaced. The principal noted that if a new HP Student were to attend the school and required access to the second floor, a reshuffling of teachers and classrooms to accommodate that need would be

required. A secondary issue is that the existing stair lift when open is too wide and creates a fire code egress violation. There are many newer style stair lifts that could replace this one which can eliminate the egress concern.

2. The 1st floor Art room was very cold. Evidently the Art room is getting more air flow than the other rooms fed by RTU 13. A2 recommends that RTU 13 be air balanced or investigated further to help this area out. The children were all sitting in winter coats.

3. The CO2 sensor in the Art room is reading 2420 PPM (this reading is most likely incorrect). Measuring CO2 in an occupied space tells us if there is enough fresh air being delivered to properly accommodate the amount of people in that space. As you know, we breathe in oxygen and breathe out CO2 so when the CO2 reading is high like this, it tells us there is not enough fresh air being delivered to the room. The ASHRAE 62.1 and 62.2 ventilation standard for indoor air quality states that the CO2 level should not exceed 700 PPM above outside air. In most facilities the maximum allowable level is 1,000 PPM or less. This could possibly be the cause of the cold temperature in the Art room. CO2 controllers sometimes control air flow and will increase air flow to an area when the CO2 reading is high. This condition requires further investigation.

4. The building's roof top units are in poor condition but seem to be operating properly. The building indoor temperatures were quite comfortable when A2 toured the site. The supply air duct work is in very bad condition. The thermal insulation which covers the duct work has failed and in many cases has completely fallen off leaving the metal duct exposed to the weather and outdoor conditions. This does two things. First, it drastically reduces the energy efficiency of the unit while it tries to heat and cool the space. Second, it allows rain to get between the insulation and the duct where it then can enter the building below.

5. The roof top unit condensate drains were poorly installed. The PVC pipe was not properly supported and the lines were not piped to the nearest roof drain. In most cases they simply dump their water onto the roof increasing the ponding issues. Ponding of water on Cora Kelly's roof is a big problem which will be discussed in the structural section of this report.

6. The condensate drain on RTU # 12 is broken in half and will need to be repaired.

7. One concern A2 noted while touring the roof was related to the quality of work being done for the school by contractors. One issue previously addressed above was with the condensate drains. It was noted that repair parts such as burnt out fan motors

and fan blades left on the roof by the contractor who repaired one of the RTUs. A2 recommends that Alexandria Public City Schools strive to better manage their contractors and make sure the work is completed in a satisfactory manner.

Electrical Findings:

8. The breaker panels in the cafeteria need to be modified to allow for new equipment. Mr. Stallings is handling this work.

9. The fire alarm system in the new Recreation facility is not interfaced with the school system. Two emergency dialers are causing extra fire trucks to be dispatched. This is also a fire code issue, because the recreation center was physically attached to the school, a single fire alarm system is required as the system provides protection to both facilities. Mr. Stallings is aware of this issue and is working to resolve it.

10. The roof top units are fed power through water tight flexible conduits. Several of these electrical feeds have failed and can allow water to get inside the electrical conduit. This is a problem because depending on how the conduit is piped across the ceiling below, water can reach junction boxes and leak out or cause a short circuit and failure of the equipment. A2 recommends that these be repaired.

11. The main electrical panel and breakers panels at the site do not look as if they are being tested and serviced. All electrical systems should be thermally scanned with an infra-red camera to identify any overheating components or loose connections. This testing will identify such issues before they cause a failure of the electrical system. A2 recommends that all electrical gear be opened, thermally scanned then cleaned and all terminations checked of tightness on an annual basis. This an important risk management task that should be implemented.

Plumbing Findings:

12. The buildings domestic hot water is generated by one 91 gallon capacity gas fired hot water heater. This system also has a 250 gallon hot water storage tank. There are two circulation pumps, one circulates hot water to all the restrooms and sinks in the building while the other circulates water from the heater to the storage tank. Neither of these pumps were running during our inspection. This condition will cause loss of hot water to the buildings hot water fixtures.

A2 Services, Inc.
Facility Survey of ACPS - Cora Kelly Elementary School

Structural Findings:

13. Cora Kelly ES has a built-up membrane roof system. As with any large flat roof the water doesn't always get to the roof drains and creates ponds. At Cora Kelly this condition is worse than most. Anytime water is allowed to pond on a roof leakage below will occur. The main roof is in poor condition and because of the ponding and the duct work penetrations there are leaks and water entering the building. In touring the building interior, one can note wet ceiling tiles.

14. Two skylights in the roof near the baseball field are cracked and broken. The students are hitting foul balls which hit the roof and the skylights. Mr. Stallings is looking into having the angled section of fence on top of the back stop modified to help stop this issue.

15. There is a screen wall on top of the modular section of classrooms. The steel supports for this wall are causing leaks into the hallway and classes below. It was noted that there is ongoing roof repairs and patches. The entire roof should be replaced.

16. The building envelope appears to be a brick over block construction. The brick tuck-pointing condition is good and several sections can be identified as being repaired. A set of casement window systems were installed or inserted in the perimeter walls around the facility and are caulked at the walls. The condition of the window caulk is poor and in some spots the exterior of the building is visible for inside. At this time, perimeter window caulking is needed at this time before increased damage occurs.

17. The main school entrance roof is damaged where a truck or other vehicle hit and bent the metal covering. This is not causing any water infiltration but is simply aesthetic concern.

18. The parking lots and asphalt areas around the building were recently restriped. However the asphalt lots themselves are in poor condition and should have at least been liquid sealed before they were striped. The asphalt is spalling and cracked. As rain water gets under the asphalt and freezes it will cause pot holes, also when snow plows hit these areas this winter the asphalt may ripped up requiring larger repairs. Hopefully the lots will make it through this winter season and can be sealed or replaced next summer.

A2 Services, Inc.
Facility Survey of ACPS - Cora Kelly Elementary School

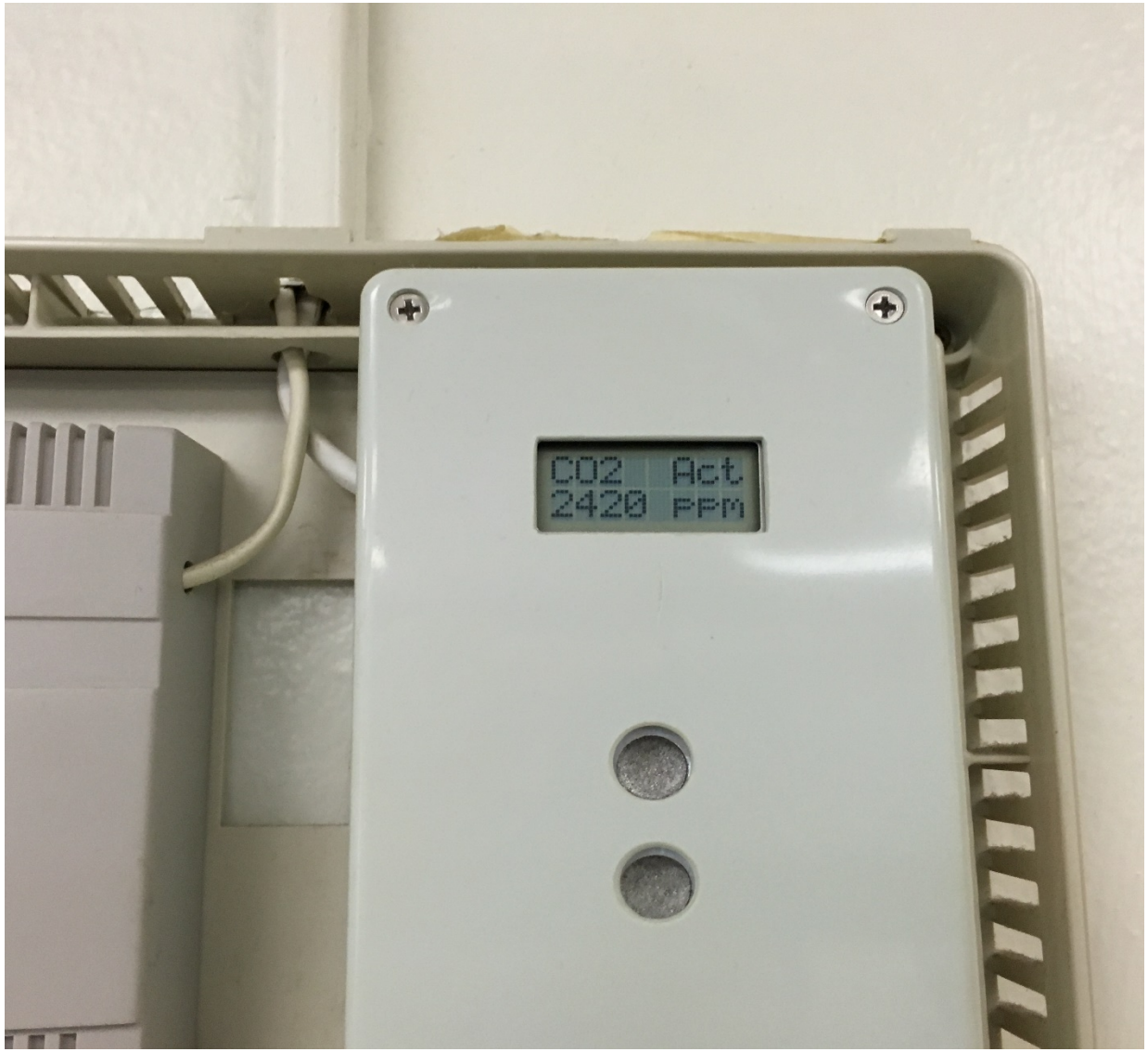
Attachment – 1 – Deficiency Photos

Finding # - 1. This picture shows the failed stair lift which will need to be replaced.

A2 Services, Inc.

Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 3. This picture shows the CO2 monitor in the 1st floor Art Class.



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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 4. This picture is an example of the roof top units at Cora Kelly ES.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 4 & 5. This picture is an example of the roof top units damaged duct work.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 4 & 5. This picture is another example of the roof top units damaged duct work.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 6. This picture notes one condensate drain (the white PVC pipe) simply draining onto the roof. These lines should be run to the nearest roof drain. This would help eliminate water on the roof.

A2 Services, Inc.

Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 7. This picture is of a broken condensate line on RTU #-12.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 9. This picture is of one of the breaker panels in the cafeteria.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 10. This picture is of the fire alarm systems in Cora Kelly E.S. This systems will need to be tied into the new recreation facilities system.

A2 Services, Inc.

Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 11. This picture is of one of the failed water tight electrical feeds to a roof top unit.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 12. This picture is of some of the main electrical gear.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 13. This picture is of the domestic hot water heater for the site with its storage tank and pumps.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding – 14 – This picture of an example of possible micro-biological growth within the walls from water infiltration.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 15 & 16. The next set of pictures note the roof condition at Cora Kelly E.S.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 15 & 16 continued. This is another view of the roof.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 15 & 16 continued. The following is another view of the roof.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 17. This picture notes one of the broken skylights which are being hit by baseballs.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 17. This picture is of roof top unit duct work insulation being hit by a baseball.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 18. This picture notes the screen wall on the modular section of the building with ongoing roof repairs.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 19. This picture is an example of water damaged ceiling tiles.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 20 & 21. This picture is an example of the missing window caulk allowing water entry into the walls.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 22. This picture is of the damaged metal at the schools main entrance.

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Facility Survey of ACPS - Cora Kelly Elementary School

Finding # - 23 & 24. This picture is an example of the asphalt parking lot condition.

Issues / Deficiencies List

Name of Facility:		Cora Kelly Elementary School	
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
MECHANICAL	1	Handicaped stair lift has failed.	Stairwell
	2	Art room air balancing needs to be checked, this room is much colder than others off the same unit.	Art Room
	3	The Art room CO2 sensor needs to be checked. It is raeding 2420 PPM.	Art Room
	4	Roof top duct work insulation has failed in many areas.	Roof
	5	The Roof top HVAC equipment is in poor condition.	Roof
	6	The condensate drains on many of the RTU's are poorly installed. Need to be piped to open site drains.	Roof
	7	RTU 12 condensate drain is broken.	Roof
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
ELECTRICAL	9	Power panels in cafeteria need upgrade to accomidate load requirements.	Cafeteria
	10	The fire alarm sytems in the new Recreation facility is not interfaced with the school system. Two emergency dailers are causing extra fire trucks to be dispatched.	Whole facility
	11	Water tight electrical whips feeding RTU's have failed causing leaks.	Roof
	12	No electrical maintenance is being done. IR testing and torque and cleaning needs to be done.	Electrical systems throughout
Photo	**#**	**Description of Deficiency/Issues**	**Location - Floor/Room**
PLUMBING	13	The domestic hot water recirculation pumps are not working.	Electric / Mechanical room

Issues / Deficiencies List

Photo	#	Description of Deficiency/Issues	Location - Floor/Room
STRUCTURAL	14	Water infiltration from the roof and through the walls and around the windows is causing micro-biological growth as shown in this photo.	1st floor janitors closet
	15	Many roof areas where water ponds and cannot drain.	Roof
	16	The main roof is poor condition. Ponding of water and roof penitrations are allowing leaks.	Roof
	17	.Skylights are broken in the 1st floor north corridor	Roof
	18	The screen wall on top of the modular building section is causing leaks into the building.	Roof
	19	Many areas in the building have stained ceiling tile. However you would expect worse conditions after seeing the roof.	Inside the building
	20	Perimeter envelope water infiltration problems.	Perimeter of building
	21	Window caulking has failed in many areas.	Perimeter of building
	22	The Front entrance roof has been damaged.	Front of building
	23	Asphalt damage at the drive ways and parking lots.	Front of building
	24	Parking lot asphalt damage.	Parking areas

Photo	#	Description of Deficiency/Issues	Location - Floor/Room
ARCHITECTURAL			

EXHIBIT 4

MAINTENANCE AND OPERATIONS

Exhibit: Preventive Maintenance Full Time Equivalent Calculations

The Full Time Equivalent (FTE) Calculations provide a data point of potential staffing and resources required to provide Preventive Maintenance (PM) services to a particular locations and/or agency. The calculations highlight where greater levels of support is needed either via in-house staff or by contractors.

The City of Alexandria Fire Stations (AFD) were included in the effort due to the relatively small scale of the building inventory, allowing it to be performed during the timeframe of the Task Force. The scope of the exercise was limited to the mechanical, electrical and plumbing (MEP) equipment and systems. This process can be standardized and utilized by all of the City of Alexandria agencies to define basic staffing resources for their portfolio.

The PM FTE calculation was developed by A2 Services, Inc. (A2). It is a basic work breakdown structure (WBS), wherein the MEP equipment and systems for each of the AFD locations (fire stations) has been identified. A corresponding set of functional tasks are associated with each piece of equipment along with the associated hours to complete those functional tasks. Frequency for performing these tasks is also identified.

The calculation provides the total number of hours required to complete the PM at each particular location. Administrative hours are added to the total (calculated at 65% of total PM hours). The final element of the overall FTE calculation process is to divide the overall total PM hours by an annual productive work PM man-hour calculation. For this effort the total annual productive work PM man hour calculation is 990 hours per year.

This information can be used by AFD as context for analyzing existing resources, whether internal or external. A2 did not have the access to information on existing hours being spent in order to compare actual hours being spent to the calculation results.

City of Alexandria - Fire Department

Alexandria - Fire Station 201	Total Hours for PM	135.5
Alexandria - Fire Station 202	Total Hours for PM	167.5
Alexandria - Fire Station 204	Total Hours for PM	287.5
Alexandria - Fire Station 205	Total Hours for PM	267.0
Alexandria - Fire Station 206	Total Hours for PM	98.0
Alexandria - Fire Station 207	Total Hours for PM	94.0
Alexandria - Fire Station 208	Total Hours for PM	138.0
Alexandria - Fire Station 209	Total Hours for PM	348.0

OVERALL TOTAL HOURS FOR PM TASKS: 1535.5

OVERALL ADMIN HOURS ON PM TASKS: 2533.6

DGS - PM Manhour Calculations

Total Annual Hours for one Full Time Equivalent (FTE)	2,080
Less - Holiday Time (10 days = 80 Hours)	80
Less - Vacation Time (25 days = 200 Hours)	200
Total Annual Hours available for Productive Work	1,800
Less - Non-Productive Factor of 45%	810
Total Annual Hours of Productive Work for PM Tasks	990

AFD PM PERSONNEL REQUIREMENT (FTE): 2.6

Alexandria - Fire Station 201

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	4.00	3	12
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	3	24
AC PKG UNIT-YR	1	HVAC MECH	8.00	3	24
BOILER GAS-QTR	1	HVAC MECH	12.00	2	24
BOILER GAS-YR	1	HVAC MECH	16.00	2	32
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
FAN COIL-QTR	1	HVAC MECH	1.50	3	4.5
FAN COIL-YR	1	HVAC MECH	2.00	3	6
WATER HT-QTR	1	HVAC MECH	2.00	1	2
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
			Total Hours for PM		135.5

Alexandria - Fire Station 202

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	4.00	6	24
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	6	48
AC PKG UNIT-YR	1	HVAC MECH	8.00	6	48
BOILER GAS-QTR	1	HVAC MECH	12.00	1	12
BOILER GAS-YR	1	HVAC MECH	16.00	1	16
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
FAN COIL-QTR	1	HVAC MECH	1.50	3	4.5
FAN COIL-YR	1	HVAC MECH	2.00	3	6
WATER HT-QTR	1	HVAC MECH	2.00	1	2
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
			Total Hours for PM		167.5

Alexandria - Fire Station 204

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	4.00	3	12
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	3	24
AC PKG UNIT-YR	1	HVAC MECH	8.00	3	24
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
FAN COIL-QTR	1	HVAC MECH	1.50	3	4.5
FAN COIL-YR	1	HVAC MECH	2.00	3	6
WATER HT-QTR	1	HVAC MECH	2.00	1	2
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
GASRTU-A/C- OTR	1	HVAC MECH	4.00	5	20
GASRTU-A/C- YR	1	HVAC MECH	6.00	5	30
ACSS-ACC-QTR	1	HVAC MECH	3.00	8	24
ACSS-ACC-SEMI	1	HVAC MECH	2.00	8	16
ACSS-ACC-YR	1	HVAC MECH	3.00	8	24
ACSS-EVAP-QTR	1	HVAC MECH	2.00	8	16
ACSS-EVAP-SEMI	1	HVAC MECH	2.00	8	16
ACSS-EVAP-YEAR	1	HVAC MECH	2.50	8	20
EXHT FAN-QTR	1	HVAC MECH	1.50	6	9
UNIT HT-YR	1	HVAC MECH	2.00	1	2
MAKEUP AIR -YR	1	HVAC MECH	3.00	1	3
MAKEUP AIR-QTR	1	HVAC MECH	4.00	1	4
EXH FAN-YR	1	HVAC MECH	4.00	6	24
			Total Hours for PM		287.5

Alexandria - Fire Station 205

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	2.00	1	2
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	1	8
AC PKG UNIT-YR	1	HVAC MECH	8.00	1	8
ACSS-ACC-QTR	1	HVAC MECH	1.50	24	36
ACSS-ACC-YR	1	HVAC MECH	3.00	24	72
ACSS-EVAP-QTR	1	HVAC MECH	1.00	24	24
ACSS-EVAP-YEAR	1	HVAC MECH	2.50	24	60
UNIT HT-YR	1	HVAC MECH	2.00	1	2
FAN COIL-QTR	1	HVAC MECH	1.50	2	3
FAN COIL-YR	1	HVAC MECH	2.00	2	4
BOILER GAS-QTR	1	HVAC MECH	4.00	2	8
BOILER GAS-YR	1	HVAC MECH	16.00	2	32
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
WATER HT-QTR	1	HVAC MECH	1.00	1	1
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
			Total Hours for PM		267

Alexandria - Fire Station 206

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	4.00	1	4
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	1	8
AC PKG UNIT-YR	1	HVAC MECH	8.00	1	8
BOILER GAS-QTR	1	HVAC MECH	12.00	2	24
BOILER GAS-YR	1	HVAC MECH	16.00	2	32
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
UNIT HT-YR	1	HVAC MECH	2.00	2	4
WATER HT-QTR	1	HVAC MECH	2.00	2	4
WATER HT-SEMI	1	HVAC MECH	3.00	2	6
WATER HT-YR	1	HVAC MECH	4.00	2	8
			Total Hours for PM		98

Alexandria - Fire Station 207

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
AC PKG UNIT-QTR	1	HVAC MECH	2.00	3	6
AC PKG UNIT-SEMI	1	HVAC MECH	8.00	3	24
AC PKG UNIT-YR	1	HVAC MECH	8.00	3	24
ACSS-ACC-QTR	1	HVAC MECH	1.50	2	3
ACSS-ACC-YR	1	HVAC MECH	3.00	2	6
ACSS-EVAP-QTR	1	HVAC MECH	1.00	2	2
ACSS-EVAP-YEAR	1	HVAC MECH	2.50	2	5
EXHT FAN-QTR	1	HVAC MECH	6.00	2	12
UNIT HT-YR	1	HVAC MECH	2.00	2	4
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
WATER HT-QTR	1	HVAC MECH	1.00	1	1
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
			Total Hours for PM		94

Alexandria - Fire Station 208

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
FAN COIL-QTR	1	HVAC MECH	1.50	3	4.5
FAN COIL-YR	1	HVAC MECH	2.00	3	6
WATER HT-QTR	1	HVAC MECH	2.00	1	2
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
GASRTU-A/C- OTR	1	HVAC MECH	4.00	1	4
GASRTU-A/C- YR	1	HVAC MECH	6.00	1	6
ACSS-ACC-QTR	1	HVAC MECH	3.00	3	9
ACSS-ACC-SEMI	1	HVAC MECH	2.00	3	6
ACSS-ACC-YR	1	HVAC MECH	3.00	3	9
ACSS-EVAP-QTR	1	HVAC MECH	2.00	3	6
ACSS-EVAP-SEMI	1	HVAC MECH	2.00	3	6
ACSS-EVAP-YEAR	1	HVAC MECH	2.50	3	7.5
EXHT FAN-QTR	1	HVAC MECH	1.50	6	9
UNIT HT-YR	1	HVAC MECH	2.00	8	16
EXH FAN-YR	1	HVAC MECH	4.00	6	24
MAKEUP AIR -YR	1	HVAC MECH	3.00	1	3
MAKEUP AIR-QTR	1	HVAC MECH	4.00	1	4
PUMP SUMP - QTR	1	HVAC MECH	1.50	2	3
PUMP SUMP - YR	1	HVAC MECH	3.00	2	6
			Total Hours for PM		138

Alexandria - Fire Station 209

Select valid Procedure from PM Procedures tab	Enter Valid Step Code from PM Procedure Steps tab	Select valid Trade code from Trades tab	Enter Hours with 2 decimals		
PM Procedure Code	**PM Step Code**	**Trade Code**	**Hours Required**	#	Total Hours
EMER GEN-MTHLY	1	CONTRACT SERVICE	2.00	1	C
EMER GEN-YR	1	CONTRACT SERVICE	6.00	1	C
BOILER GAS-QTR	1	HVAC MECH	12.00	3	36
BOILER GAS-YR	1	HVAC MECH	16.00	3	48
WATER HT-QTR	1	HVAC MECH	2.00	1	2
WATER HT-SEMI	1	HVAC MECH	3.00	1	3
WATER HT-YR	1	HVAC MECH	4.00	1	4
GASRTU-A/C- OTR	1	HVAC MECH	4.00	6	24
GASRTU-A/C- YR	1	HVAC MECH	6.00	6	36
ACSS-ACC-QTR	1	HVAC MECH	3.00	7	21
ACSS-ACC-SEMI	1	HVAC MECH	2.00	7	14
ACSS-ACC-YR	1	HVAC MECH	3.00	7	21
ACSS-EVAP-QTR	1	HVAC MECH	2.00	7	14
ACSS-EVAP-SEMI	1	HVAC MECH	2.00	7	14
ACSS-EVAP-YEAR	1	HVAC MECH	2.50	7	17.5
EXHT FAN-QTR	1	HVAC MECH	1.50	11	16.5
EXH FAN-YR	1	HVAC MECH	4.00	11	44
UNIT HT-YR	1	HVAC MECH	2.00	13	26
MAKEUP AIR -YR	1	HVAC MECH	3.00	1	3
MAKEUP AIR-QTR	1	HVAC MECH	4.00	1	4
			Total Hours for PM		348