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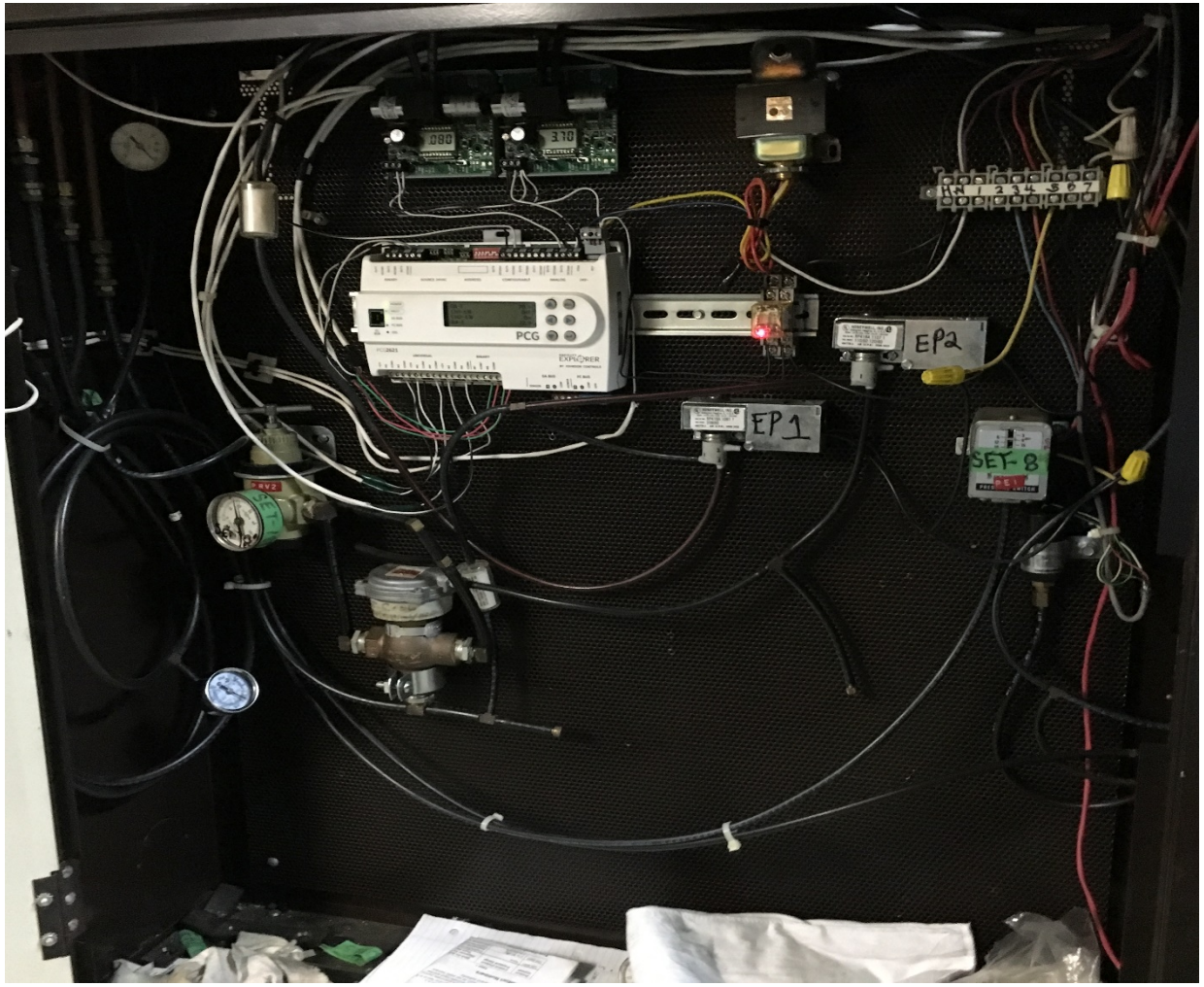
Finding # 6 Photo. The picture is an example of the old pneumatic controls used to operate the boiler room systems and the air handlers systems in the building.

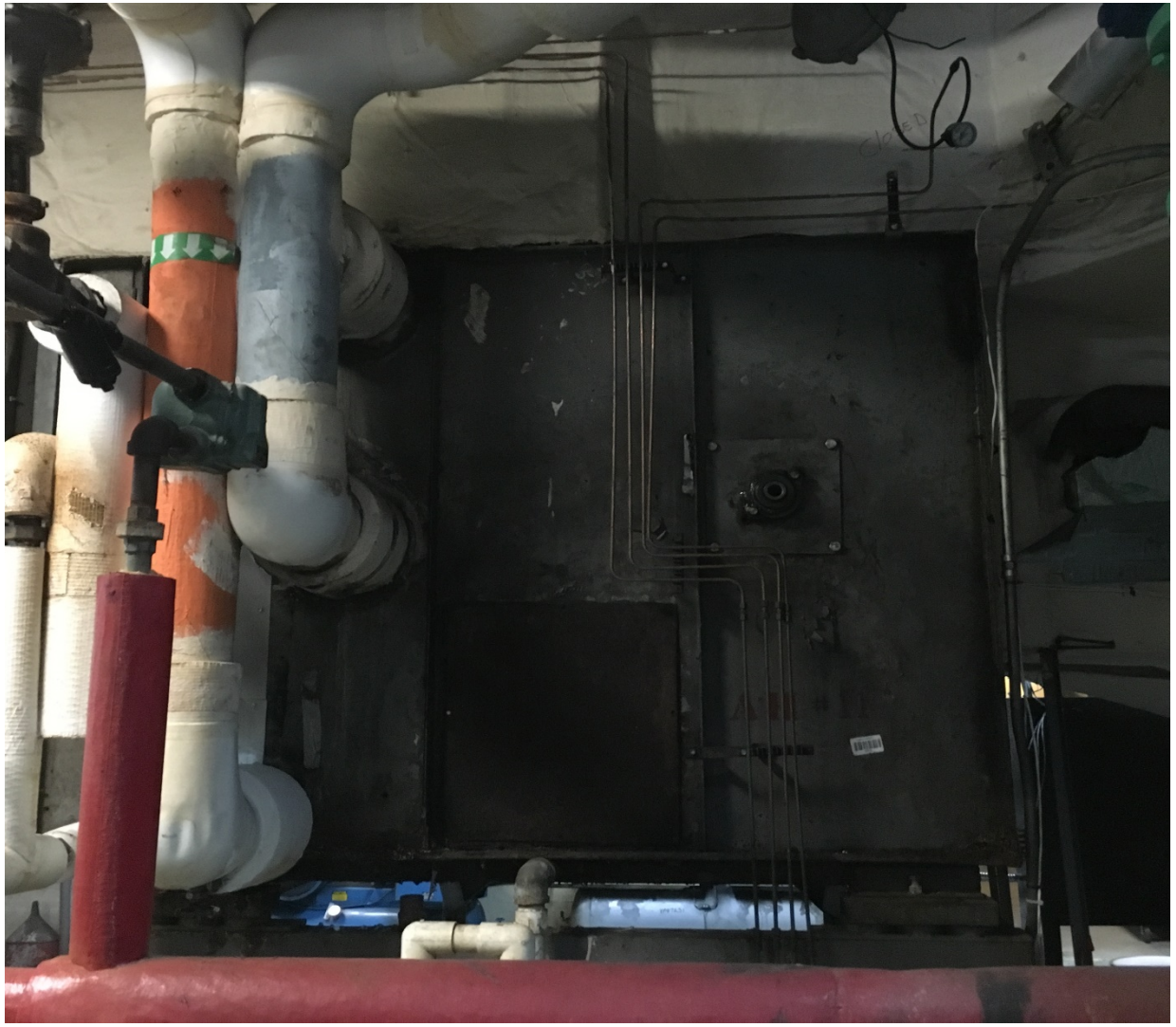


A2 Services, Inc.
Facility Survey of City of Alexandria - City Hall

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.

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

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.

A2 Services, Inc.
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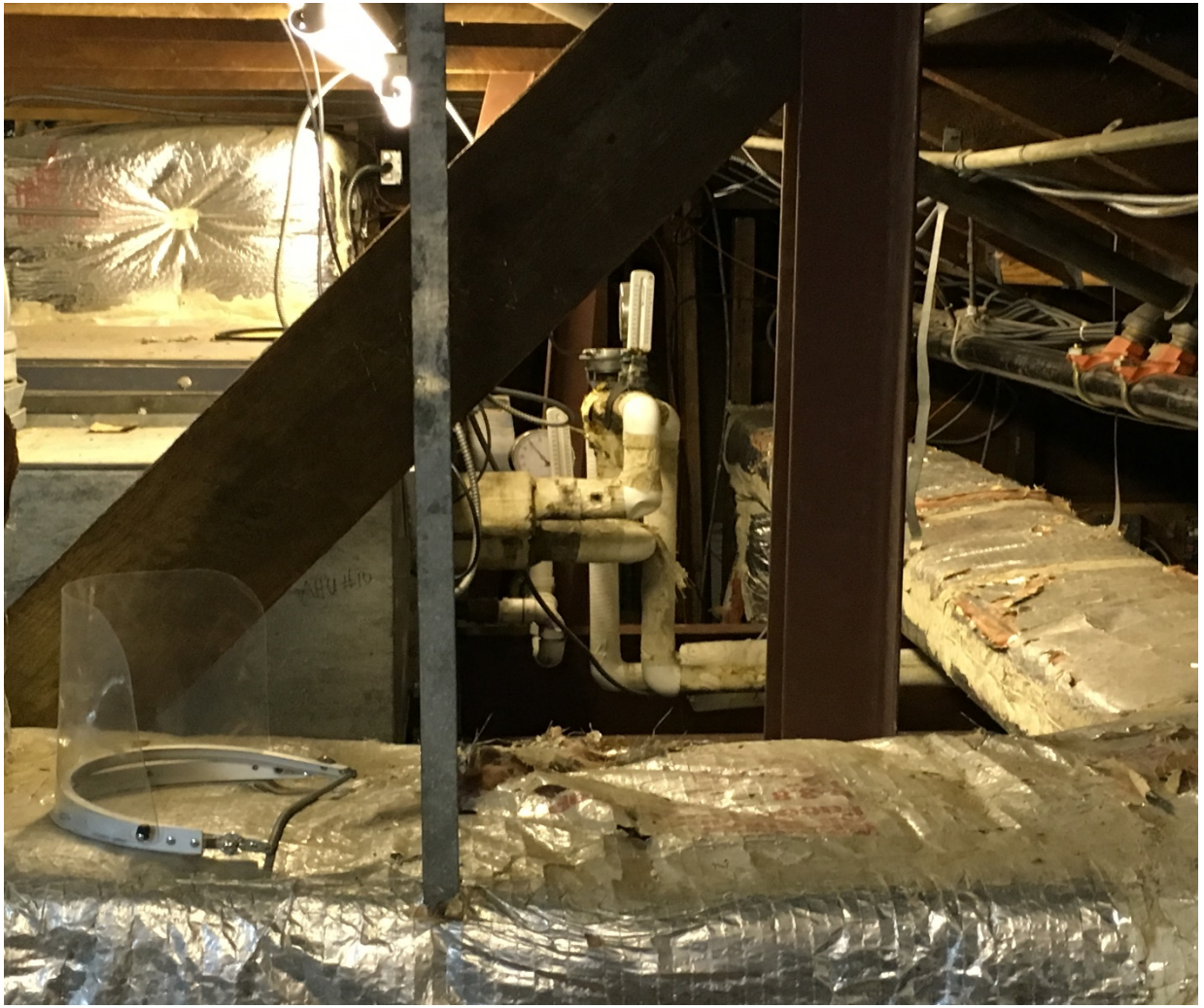
Finding # 10 Photo. This picture is of the air handler in the print shop which the fan bearings have failed. It is very hard to access.

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

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.

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

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

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

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

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

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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Facility Survey of City of Alexandria - City Hall

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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Facility Survey of City of Alexandria - City Hall

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

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

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

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

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

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

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

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

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

A2 Services, Inc.
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.

A2 Services, Inc.
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.

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

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

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

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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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.

A2 Services, Inc.
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.

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

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.

A2 Services, Inc.
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.

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.

A2 Services, Inc.
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.

A2 Services, Inc.

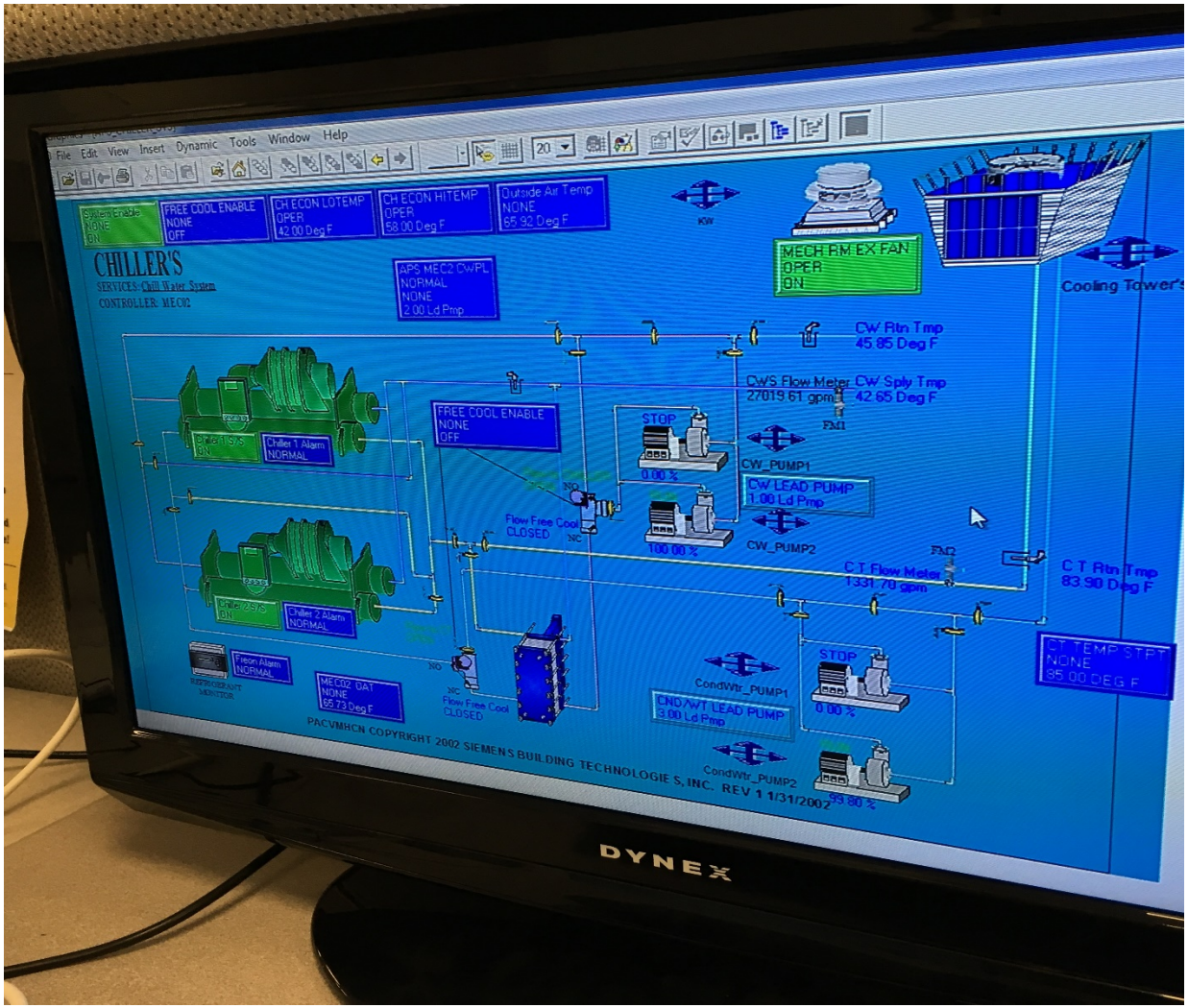
Facility Survey of the City of Alexandria – Public Safety Center

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.

A2 Services, Inc.

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.



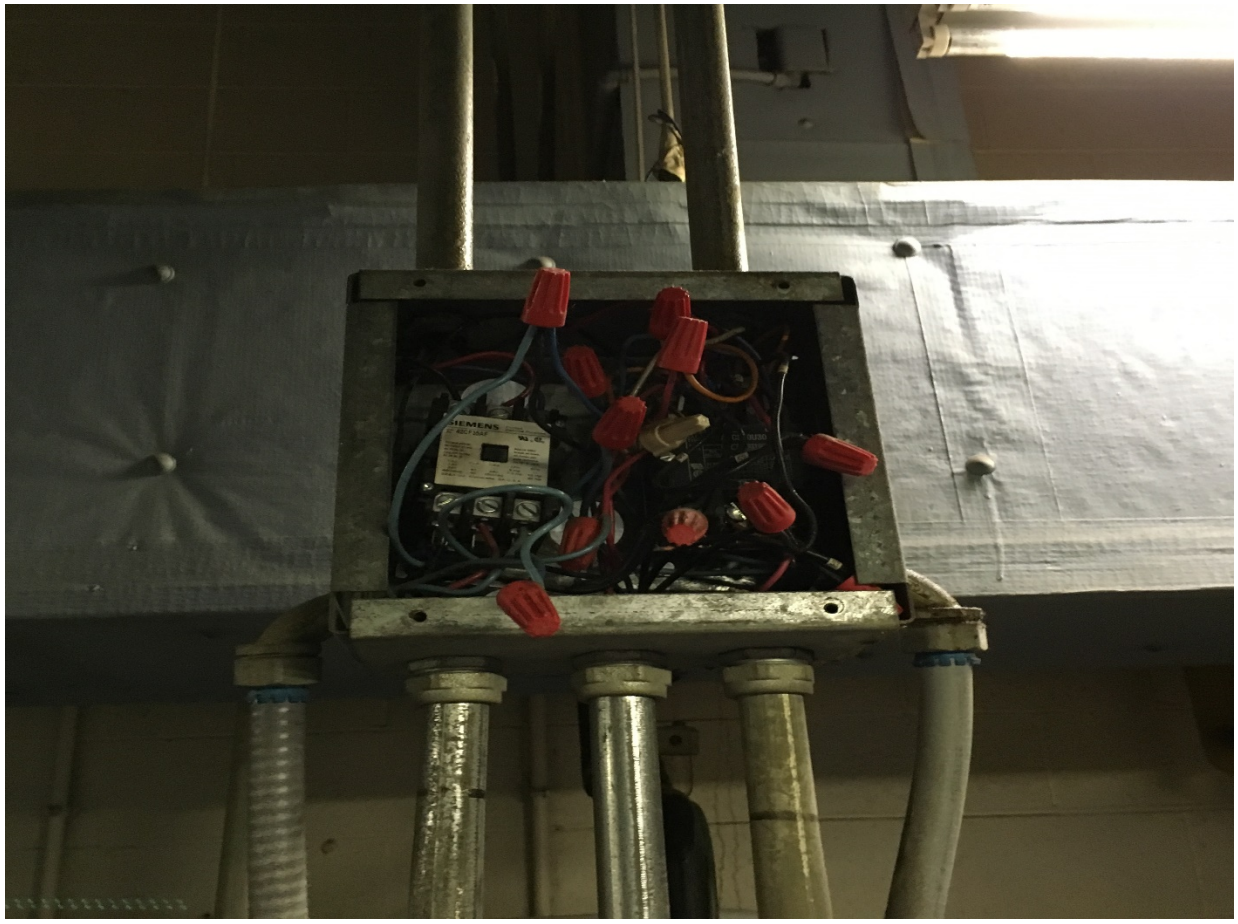
A2 Services, Inc.
Facility Survey of the City of Alexandria – Public Safety Center

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

A2 Services, Inc.

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).



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

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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Facility Survey of the City of Alexandria – Public Safety Center

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

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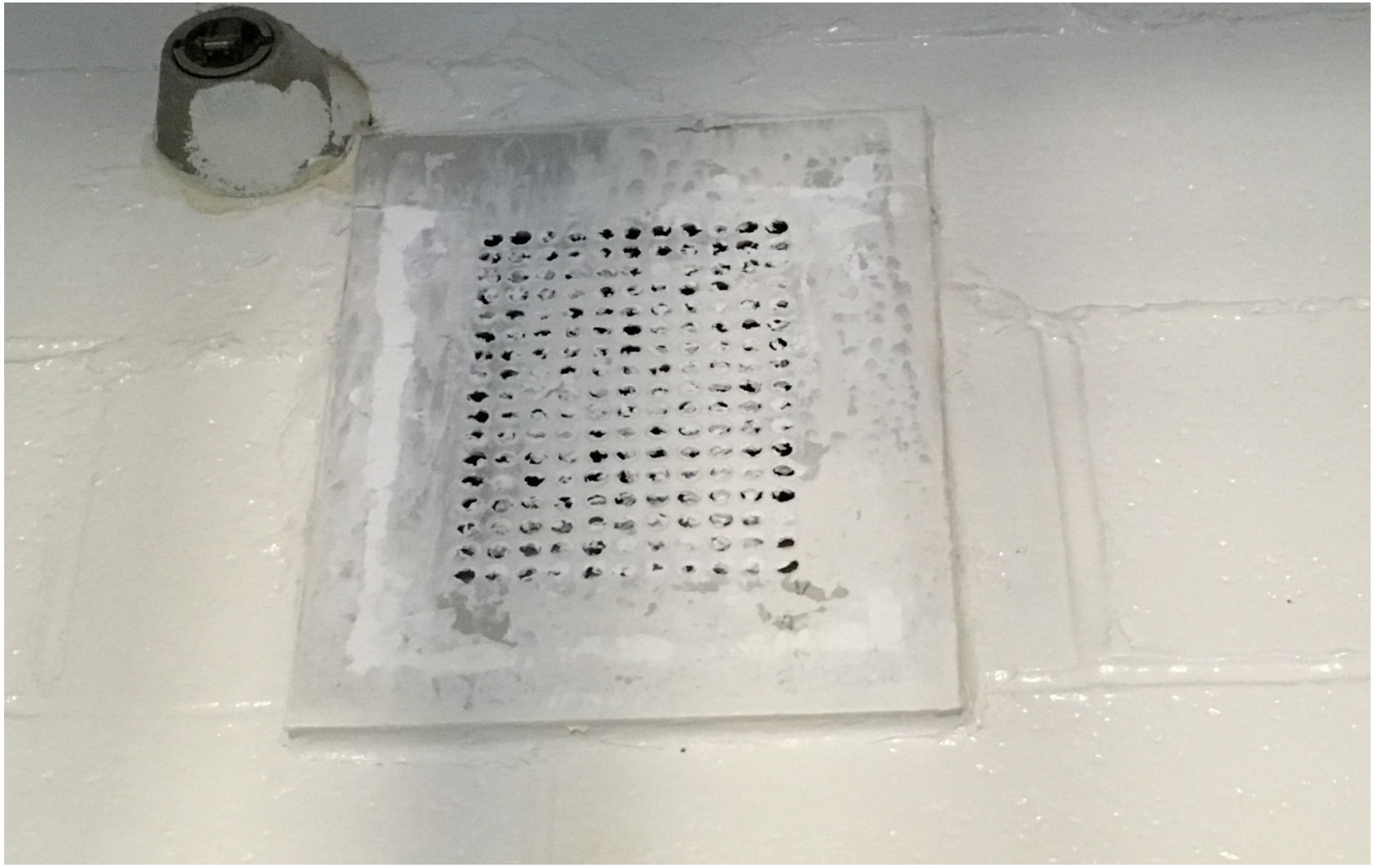
Finding # - 11 Numerous exhaust grills in the jails housing area shower stalls should be replaced.

A2 Services, Inc.
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.



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

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

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

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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.

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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.

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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.
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.

A2 Services, Inc.

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.

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

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

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Facility Survey of the City of Alexandria Fire Station #208

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

A2 Services, Inc.
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.

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

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

A2 Services, Inc.
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.

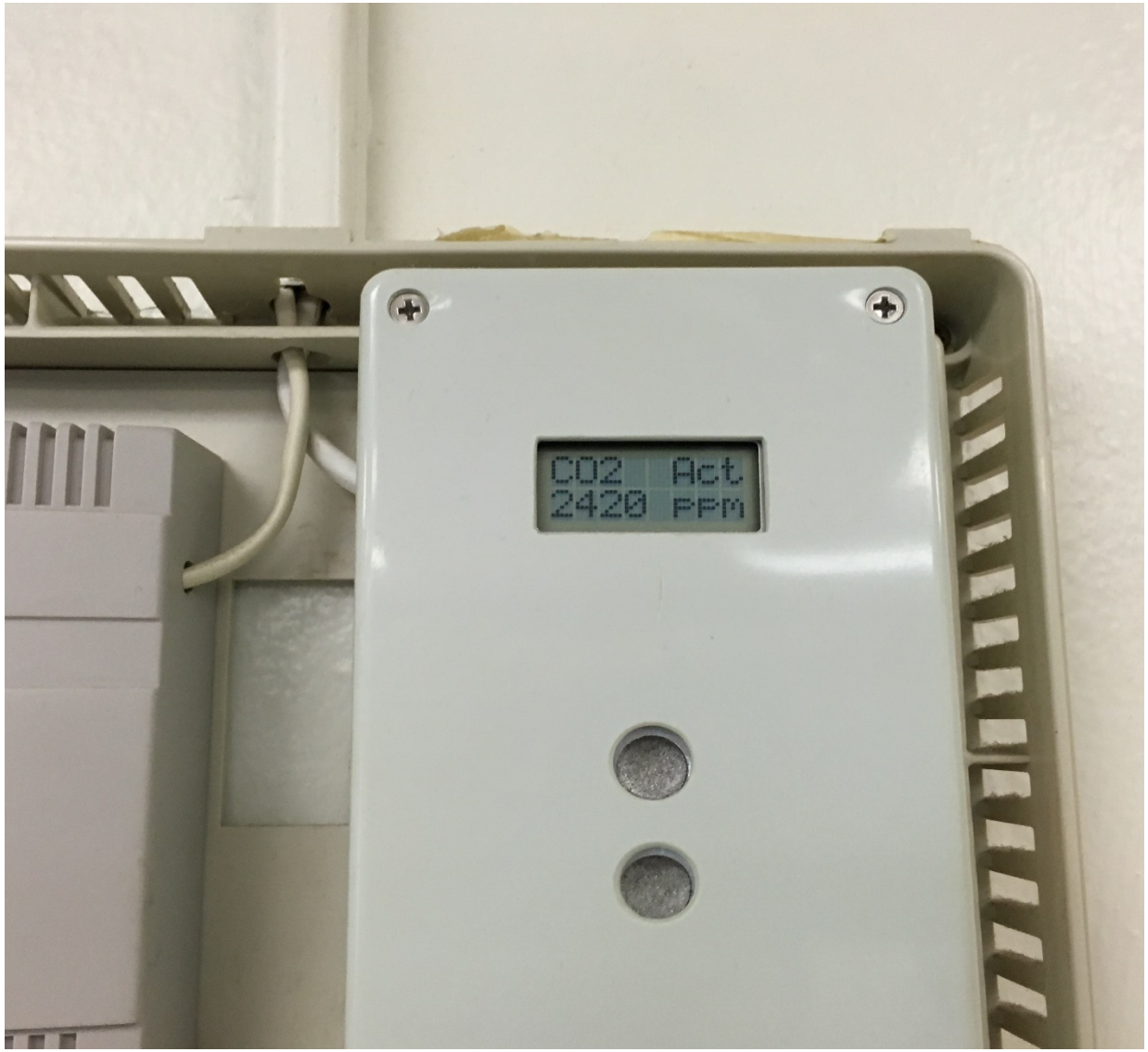
A2 Services, Inc.
Facility Survey of ACPS - Cora Kelly Elementary School

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.



A2 Services, Inc.
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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Finding # - 4 & 5. This picture is another example of the roof top units damaged duct work.

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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.

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

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

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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.

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

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

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

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

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

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

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

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

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

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

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

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

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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