TOWN OF SOUTHBRIDGE

Municipal Facilities

Evaluation and Management Plan

Prepared by Financial Advisory Associates, Inc.
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June 6, 2016

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June 6, 2016

Ron San Angelo, Town Manager
City of Southbridge
41 Elm Street
Southbridge, MA 01550

Dear Mr. San Angelo:

Financial Advisory Associates, Inc. (FAA) is pleased to present our Municipal Facilities Evaluation Study findings to you and the Town of Southbridge.

We wish to acknowledge your leadership and the time and consideration of countless others employed within the various Town of Southbridge municipal departments. In particular, DPW Director Heather Blakeley's assistance has been tremendous.

Thank you very much for the opportunity to serve your community. Should you have any questions or comments, please feel free to contact us at your convenience.

Sincerely yours,

FINANCIAL ADVISORY ASSOCIATES, INC.

Michael Daley
President

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TOWN OF SOUTHBRIDGE
MUNICIPAL FACILITIES EVALUATION
AND MANAGEMENT PLAN

EXECUTIVE SUMMARY

INTRODUCTION

The Town of Southbridge's executive management had serious concerns regarding the maintenance, preservation, safety and security of the Town's present investments in municipal facilities. Given the genuine concerns of these local officials and the magnitude of an initial evaluation and planning effort, local leaders sought grant funds and professional assistance as they endeavored to better understand their fiduciary roles and responsibilities pertaining to these considerable public facility concerns.

This assessment of public buildings is a first phase. This report is designed to initiate public interest and debate around the all of the Town's current public facilities and their futures. Our report is based on physical observations, narratives from municipal users/occupants with very limited investigation of the properties.

This is not a complete architectural or engineering study. Based on the age of several buildings, some upgrades or repairs identified in this assessment may trigger compliance with current building codes that may not have been fully vetted via this early cursory assessment effort.

OVERVIEW

The Town's facilities are aging and in many cases the buildings are over 50 years old and have lasted beyond their original expected useful lives. Many of these buildings have original mechanical systems still in current use. If upgrades did occur, they were done as a repair or partial replacement to solve only the immediate needs

In many cases the structures are still functional; however, elements within the facilities such as roofs, building envelope, HVAC, plumbing, electrical, and handicap accessibility have exceeded their lifecycles and require planned capital repair expenditures.

We observed that at best the Town's current facilities management and capital planning exists more as a reactionary program. This results in an effort that never catches up or looks ahead. We also found that frequently the building occupants seem to be always competing for the funding necessary for their building's current system failure or emergency.

We do complement the Town for their current energy savings efforts. The current focus is towards the lighting changes underway currently. However, we found that other mechanical system or building envelope matters seem to continue to be deferred. A capital repair plan helps focus facility owners to anticipate maintenance and failure rates. Capital plans also help owners with multiple and diverse facilities to better prepare and manage their future operational budgets.

Also users and occupants generally agreed that the Town's capital outlays for facilities tend to be reactionary based. We find this management practice is present in many of the Commonwealth's communities regardless of size. We hold that this management style is based in the roots of the so-called Prop 2 ½ legislation of 1982. Deferral of proper facility maintenance has been practiced across our state now for 35 years. Unfortunately that management practice generally only addressed the facilities' failures issues and then only those of the highest priority. We are now 35 years into the Prop 2 ½ legislation's life cycle. Now as we move closer to four full decades since the law change, the challenges of facility ownership and the proper care of those facilities owned are now robustly coming to the forefront across our state.

We further note that the buildings that house staff or have access to some non tax based financial resource have managed the basic needs of the facility. In general the facilities tend to provide a level of comfort to the occupants or address critical needs. However, we rarely see municipal owners take a pro-active approach to regular or planned major systems replacement. In some instances the municipal staff inhabiting the facilities have adapted to working in less than desirable conditions. We see employees work around these conditions by installing make shift draft stops, use of extension cords, diverting plumbing into an alternate drain system and other "piece meal" approaches to system failure repairs. Sometimes the "band aid" approaches work until such time as funds permit correcting the problem. In other instances the building inhabitants accept these so-called "fixes" as a permanent repair.

This report was prepared to provide the Town with an independent evaluation of your public facilities. The report identifies the immediate repair needs, the lack of required equipment performance at each facility and provides a multi-year replacement plan that results in an annual maintenance program for each facility.

The Town is at a crossroads with respect to their facilities. Immediate repair needs exist in most facilities. This report helps Southbridge's executive leaders and residents recognize the urgency of investing in these facility repairs. With no action the town will inevitably face much larger facility concerns and costs in the future.

SCOPE OF SERVICES

This report is the output that resulted from a contract the Town of Southbridge sought and executed. The scope of the services provided included the following three phases.

Phase I – DATA COLLECTION:
FAA inspected eleven facilities identified by the Town. This included review of source documents provided by the Town, walk-throughs of each facility, interviews with building managers and/or maintenance staff and contact with current service providers to review condition of existing systems.

Phase II – EVALUATION:
FAA evaluated the data collected during Phase I and developed a maintenance plan, which includes recommended repairs and scheduled routine maintenance tasks. The organizational resources currently available to support the required routine facilities maintenance were documented. Finally, FAA provided recommendations for improvements.

Phase III – REPORT:
FAA prepared a draft and presented a final report. The document includes: 1) executive summary; 2) evaluation of each facility; 3) capital plan for major replacements or improvements; 4) recommended maintenance guidelines; and 5) findings and recommendations.

DETAILS

The age, size, and assessed valuations of the Town facilities included in this report are summarized below:

Year(s) Built	Facility	Land (Acres)	Building (Sq Feet)	Assessed Valuation
1888	Town Hall	1.00	38,306	$2,898,300
1997	Police Station	3.07	23,196	2,229,000
1899-1960	Fire Station	0.25	22,475	1,139,000
1985	Animal Shelter		800	
1974	DPW Facility (Acquired 2007)	9.37	64,743	1,207,100
1998/2008	Salt Sheds (2)		14,976	
1999	Water Treatment Facility	116.40	26,880	6,003,600
1986	Wastewater Treatment Plant	10.00	54,122	22,503,800
1959	Airport Diner (Acquired 1986)		1,144	123,500
1958	Airport Hanger (Acquired 1986)		4,000	
1914/66/99	Jacob Edwards Library	0.60	24,456	3,264,100
1960	Community Center (Acquired 2003)	2.90	15,559	468,100
1910	Train Station (RMV)	2.00	2,480	273,100
	TOTALS:	**145.59**	**293,137**	**$40,109,600**

The Town has approximately 300,000 square feet of facilities it is responsible for maintaining. The age of several buildings exceeds 50 years, while four (4) were built more than 100 years ago. The overall condition of the Town's municipal facilities ranges from Good to Fair. In a few cases we considered your facility to be in Poor condition.

The insured valuations of these facilities is also a useful "data point". This metric is used to illustrate the value of the Town's major capital investments in public buildings. Management has the responsibility for the care and custody of over $70,000,000 of buildings and another $5,500,000 of possessions in those buildings. It should be noted that today's facility replacement costs are likely higher than the insured values listed below.

Public Facility	Building Value	Personal Property Value
Town Hall	$ 10,386,590	$ 1,263,309
Police Station	5,358,056	575,145
Fire Station	2,826,725	357,375
Animal Shelter		
DPW Facility	7,359,988	1,082,648
Salt Shed (at DPW)	616,584	
Salt Shed (at WWTP)		
Water Treatment Facility	10,404,000	
Wastewater Treatment Plant:		
Sewage Disposal Plant	20,344,081	175,553
WWT Control & Offices	1,819,462	
WWT Millenium Filter	592,111	
WWT Sludge Composting	1,138,137	
	23,893,791	175,553
Airport:		
Terminal & Hanger	439,513	
Maintenance Building	274,660	
"AO" Hanger Building	89,938	
Restaurant Building	356,394	
Equipment Building	253,922	
Pole Hangers	372,107	
	1,786,534	
Jacob Edwards Library	5,571,625	1,780,608
Community Center	2,101,289	193,345
Train Station (RMV)	595,862	81,703
TOTALS:	**$ 70,901,044**	**$ 5,509,686**

An annual maintenance effort equivalent to 1.5% of the insured value of these facilities would suggest a repair/replacement budget $1,065,000 or approximately $3.55 per square foot. The Commonwealth of Massachusetts manages their facilities via the Division of Capital Asset Management (DCAM). This state agency's benchmark recommended budget is $4.00 per square foot.

The individual facility sections of this report are organized in a uniform manner. First we evaluate each component (site, building, building system, and code/operational concern). That section is followed by Table 1 which summarizes the immediate repair needs and costs found in the evaluation. Next are photographs illustrating existing conditions and repair needs. We then provide a suggested multi-year repair/replacement plan (Table 2) with estimated costs. Finally we provide a recommended annual maintenance plan, as a guide for management and staff.

Given the amount of deferred maintenance, we have identified significant immediate repair needs summarized as follows. You can review the individual facility sections of this report for the details.

Town Owned Facility	Section 2 Site	Section 3 Building	Section 4 Systems	Section 5 Concerns	Estimate
Town Hall	$ 131,250	$ 1,541,125	$ 311,250	$ 15,000	$ 1,995,625
Police Station	55,000	56,625	89,250	78,750	279,625
Fire Station	43,750	395,000	91,250	6,250	536,250
Animal Shelter					Replace
DPW Facility	-	180,000	38,750	48,750	267,500
Salt Sheds (2)	-	34,375	-	-	34,375
Water Treatment Facility	-	25,000	23,250	25,000	73,250
Wastewater Treatment	-	151,875	189,000	-	340,875
Airport Diner	625	13,875	20,000	-	34,500
Airport Hanger	4,375	221,375	53,250	-	279,000
Jacob Edwards Library	77,000	206,125	16,563	21,875	321,563
Community Center	4,000	282,875	31,500		318,375
Train Station (RMV)	16,750	42,475	18,750	-	77,975
TOTALS:	**$ 332,750**	**$ 3,150,725**	**$ 882,813**	**$ 195,625**	**$ 4,561,913**

These amounts include a 25% markup of estimated costs, to cover contractor overhead and profit. These initial estimates are based upon unit costs. Further study of specific repair needs may yield higher or lower estimated costs.

Looking ahead, over the next five-year period, we recommend a number of repair or replacement projects to the Town for consideration. We acknowledge that priorities and/or available funding may vary from year to year. However, the next exhibit provides a sense of the annual efforts required to address the Town's facility needs.

Table 2 Town Owned Facility	Year 1	Year 2	Year 3	Year 4	Year 5	Years 1-5 Subtotals
Town Hall	18,125	22,500	56,875	65,000	771,875	934,375
Police Station	16,250	32,500	51,875	44,375	211,250	361,250
Fire Station	937,500	3,356,250	3,282,500	-	-	7,576,250
DPW Facility	17,500	22,500	28,750	65,000	1,578,750	1,712,500
Salt Sheds (2)	-	26,250	500	17,500	5,625	49,875
Water Treatment	-	-	16,250	125,000	5,000	146,250
Wastewater Treatment	3,750	8,750	1,927,500	28,750	3,750	1,972,500
Airport	-	-	500	1,250	-	1,750
Jacob Edwards Library	52,500	7,500	222,500	38,750	238,750	560,000
Community Center	11,250	30,438	6,625	31,875	295,750	375,938
Train Station (RMV)	-	-	25,000	15,000	71,250	111,250
	1,056,875	3,506,688	5,623,875	432,500	3,182,000	13,801,938

Table 2 Town Owned Facility	Year 6	Year 7	Year 8	Year 9	Year 10	Years 6-10 Subtotals	10-year TOTALS
Town Hall	1,892,500	7,500	8,125	6,250	39,375	1,953,750	2,888,125
Police Station	15,000	18,750	18,750	16,250	28,750	97,500	458,750
Fire Station	-	-	-	-	-	-	7,576,250
DPW Facility	18,750	75,000	46,250	138,751	132,500	411,251	2,123,751
Salt Sheds (2)	6,250	6,250	9,375	20,500	84,375	126,750	176,625
Water Treatment	11,250	138,750	12,500	16,250	20,000	198,750	345,000
Wastewater Treatment	18,750	21,250	38,750	36,250	56,250	171,250	2,143,750
Airport	6,250	11,250	3,438	2,000	1,875	24,813	26,563
Jacob Edwards Library	6,250	35,000	85,000	51,250	543,750	721,250	1,281,250
Community Center	17,500	27,500	12,500	15,000	29,375	101,875	477,813
Train Station (RMV)	6,250	3,750	12,500	8,000	23,750	54,250	165,500
	1,998,750	345,000	247,188	310,501	960,000	3,861,439	17,663,377

FINDINGS/RECOMMENDATIONS

The individual facility sub-section reports offer a number of recommendations which we have summarized with estimated costs in Tables 1 & 2. We encourage the readers of this report to review all recommendations within this report. Presented below are the findings we believe to be of critical concern that management should consider pursuing further.

FINDING #1: Fire Station – Built in 1899 this historic structure requires extensive repairs and renovations. The cost of which likely exceeds the cost of a new, modern facility. It is clear that operational requirements of a 21st century fire, EMS and regional dispatch service cannot be met within the constraints of the historic facility. The Fire Headquarters section of this report offers detail and supporting photos of several challenges and concerns regarding this facility.

We recommend the Town pursue the design and construction of a new Fire Headquarters facility.

FINDING #2: Building Exterior Envelopes – Our site visits and subsequent evaluations disclosed a variety of repair and reconstruction needs. We noted that several buildings require improvements to the exterior envelope. For example, the Town Hall needs window, masonry, roof work. The Fire Station needs structural and masonry work. The Library needs integral roof and gutter work and windows. Finally, the DPW Facility needs roof and insulation work. All require some level of immediate repairs.

We recommend the Town retain an engineering firm to develop a corrective action plan for all facilities. A comprehensive high level engineering evaluation will best address these pressing needs. The town can then proceed with a uniform approach to consolidate projects to achieve an economy of scale and thereby contain overall construction costs.

FINDING #3: Animal Shelter Replacement – This building was constructed in 1985. It is in poor condition. There is visible rot, decay, bowing of the walls and sagging in the rafters. The current structure meets no health and sanitation standard and renovations would be costly to implement. We believe that the repair needs and code upgrade requirements are so significant it is cost-prohibitive to pursue the rehabilitation of this structure.

We recommend the Town demolish the existing structure and construct a new Animal Shelter to meet the town's service needs.

FINDING #4: Town Building Organization – After visiting each of the Town's municipal facilities, interviewing the building occupants, and reviewing current operations; we believe that the implementation of a system to provide a superior level of control over all facilities management within the Town of Southbridge should be commenced immediately.

Currently each building manager (i.e. Police Chief, Fire Chief, Library Director) is responsible for the management of the buildings under their control. These individuals are not all

experienced with building construction and building systems. They rely on themselves, staff, outsourced contractors, assistance from the Town building inspector and on occasion, the complete failure of a system to inform them of their building related capital problems.

We found that in general each Town department is charged with the independent care and custody of the particular facilities that they occupy or use. We also determined that the Town's facilities management program is more or less a factor of the various custodial and departmental managers' individual maintenance skills, interests and capabilities. We note that the Town currently has a broad range of management skills and interests involved in facilities maintenance.

A consolidated approach to managing, overseeing, budgeting and strategic planning for facilities maintenance should improve the overall condition of the Town's capital assets. A facilities manager can standardize and achieve economies of scale. They can do so via drafting and bidding various town-wide maintenance contracts, monitoring the performance of the contracted vendors and working with building occupants to assure the contractor services that they receive in their buildings are meeting reasonable expectations relative to the services contracted for. This individual would also evaluate and propose building upgrades to maximize energy efficiency and performance. These improvements should result in a substantial reduction in energy costs.

We recommend the Town establish a "Division" within the Department of Public Works (DPW) responsible for Facilities Maintenance. The structure of the Division should include a Division Head or Facilities Manager. On a long-term basis the Town may want to consider creating a separate Facilities Maintenance Department to include both Town and School facilities in order to achieve more economies of scale across the facilities management operation.

FINDING #5: Budgeting and Capital Planning – The Town has significant deferred maintenance needs and should begin proactively addressing these needs. A Town wide, consolidated facilities management budget would allow for flexibility to deal with (or re-prioritize) needs as they occur.

The Town has a better ability to clearly determine and understand the volume of capital projects anticipated over the next several years in order to at a minimum, gain control over the collective deferred maintenance projects that the current Town facilities require. The costs of these efforts and the logistical scheduling of the required projects are also vital to any cost effective comprehensive facilities management plan.

The Town properties do not have a comprehensive building capital replacement/repair plan established. In conversations with the various building occupants, they tend to reevaluate the building needs each year and determine the most significant issue to address. They then request a budget accordingly.

A pro-active approach to system replacements in buildings does not currently exist. As a whole, each building and its component systems are not analyzed in their entirety in order to provide the Town with a comprehensive capital plan and long term cost projection. As a result, the Town is not in a position to properly understand and fund its true capital needs on an annual basis.

While not a focus of this study, the town may need to re-evaluate uses of spaces within these town buildings. Re-organizations of uses and space needs within each building may result in better capital planning.

This report heads the Town down a path to develop a solid facilities maintenance capital planning model.

We recommend the Town consolidate its facilities maintenance budget into a single Town-wide budget. Further we encourage the Town to establish an annual Capital Repairs/Reserve account (or Article) to fund on-going facility repairs, system replacements, renovations, and related improvements.

FINDING #6: Records and Storage – During our site visits we observed several "storage areas" in less than ideal condition. As examples, the basements at the Town Hall and Fire Headquarters contained a variety of items no longer used or needed. It appears that much of this "dead storage" is limiting space available for records that need to be retained by the Town.

We recommend the Town develop a plan to purge unneeded materials in its storage areas. Further, an inventory of necessary records or items in storage should be maintained. Our long term recommendation would be to implement a program to make digitized copies of records to solve storage needs and space requirements.

TOWN HALL



LOCATION:	41 Elm Street	Assessors:	047/214/00001
Year Built	1888	Building area:	38,306 sq ft
Condition	Fair	Land Area :	1 acre

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Town Hall

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is generally flat with a slight grade pitch to the street and pitch to the rear. Lot is treed along the outer rear property line. Actual building site sit above the road elevation

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Site is paved to accommodate the use on the north and rear of the lot. Parking and access appears adequate.

The asphalt drive to the west and parking to the rear share an abutting joint parking lot with businesses

Condition and Observation:

Asphalt area in general looks acceptable but needs to be addressed in areas. Areas of wear, and asphalt degradation can be observed. There is a lot of area where the roof drains simply discharge water onto the asphalt lot. Under downspouts the asphalt has worn way or have significant damage,

The site drainage is focused toward the street. There was not enough catchbasins or drainage structures that can readily accept all roof drainage.

Concrete handicap access sidewalks exist on the rear of the structure to get access to the rear elevator doors.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Engineer and tie in all roof drains into a catchbasin drainage system as a method to control roof discharge and further damaged to the asphalt and remove water that makes the basement level moist. Table 2

Repair all concrete sidewalks that have been damaged by salts .Table 1

2.3 Landscaping

Description:

The front and south side of the lot is a lawn area. The front also has a large ornamental stair and walkway system. Little landscaping exist in the reminder of the site.

Condition and Observations:

As described in section 2.2 Topography the asphalt area of the building does not pitch away from the building. Water on the asphalt can migrate towards the building and enters the ground at the asphalt/foundation intersection.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

In lawn areas, run all downspouts to a drywells and away from the building. Table 1

Where asphalt pitches towards the building, regrade slope and asphalt away from the building.

Table 1

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Oil

   Oil

c. Electric

   National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

The substructure is a stone and cut granite mortared in place foundation. Basement has structural walls and piers of brick. A portion of the building has finished areas that support record storage, public offices of the Community Development offices, conference rooms, lunch room, mechanical spaces, and public

Town Hall

bathrooms. A large combined mechanical room (approximately 1200 sq ft Electrical and boiler room), elevator machine room (100 sq ft) and a unfinished basement (approximately 2000 sq ft) make up the remainder of the basement area.

Condition and Observation: FAIR to Poor

The basement area with a mortar and stone foundation is susceptible to moisture. Evidence of airborne moisture exists in the front storage area. Old wood floors in front basement area have active rot existing. Wood in area has some spot mold growth, and dirt floors have moisture in the soil. All wood walls should be evaluated and if not essential removed.

In areas that have been finished, the structure could not be observed. The front section of the building, the structure could be observed. The combination of fieldstone, granite and brick were used as the structural components. Areas were dated but appeared in structural sound shape.

On the front west side of the basement level, the area under the porch granite stair is open to the underside of the stair. This construction does not provide a weather tight seal and allow moisture to infiltrate the basement section.

Decommissioned bathroom was not fully taken off line. Sewer gasses from waste pipe permeate through the space. Several of the basement level rooms restrict air flow throughout the basement. This restriction allows spaces within the basement to retain excessive moisture, yet serve not structural or useful purpose. These areas promote moisture and make the space less than desirable or useable. Areas in the front have a dirt basement.

All windows have been boarded over. The space may be more desirable if windows are to be re-activated.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

In the front unfinished basement area, remove all small wood framed rooms, decommissioned toilet rooms, wood flooring and materials that wick water and promote mold conditions. Table 1

Replace all boarded over basement level windows to prevent weather and animals from entering the building. Table 1

Pour a new concrete floor in unfinished basement areas. Table 1

Re-evaluate all stored records and remove all records no longer required to be kept. Reorganize files on a rack storage system to promote air flow. See section 3.5 Basement Table 1

Seal off areas under the stair that have no weatherization capability to prevent moisture from entering basement. See section 3.5 Basement Table 1

Town Hall

3.2 Super Structure

Description:

The Town hall is constructed of heavy brick masonry (appeared three wythes thick) exterior façade, with heavy timber wood framing of floors and rafters. This heavy "archaic" construction, common for buildings constructed in this time frame, is supported by massive brownstone lintels and water tables. The stairs and porch structures were constructed from heavy granite cut block.

Condition and Observation:

Based on the overall appearance and observed general condition of the building, the superstructure appears to be sound and in good condition. There were no observable cracking in the plaster surfaces, which would indicate structural problems. Most of the interior structural elements could not be observed because finish materials.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

See section 3.3 Facades repointing Table 2

3.3 Facades

a) Description Facades: Brick

Condition: Good to Fair

The brick is generally in good shape, with areas showing signs of moisture infiltration, mortar wear. The brick and façade and the mortar joints appear in good condition on the front façade. As reported, this area was repaired approximately 10 years ago. All observed areas in the east , west and south side have areas show a weathering consistent with the age of the structure.

There are areas adjacent to gutter and downspouts that have dumped water along the brick face and prematurely have washed out the mortar joints. This condition also exists where air conditioning equipment discharges condensate at the wall washing out mortar joints as well.

There are spot areas that moisture has infiltrated the brick below the brownstone band. This excess water within the brick cavity is subject to freeze thaw cycles at the face. The freezing moisture has expanded and at the face of the brick spalled the face of the brick. At the brownstone/brick interface, the mortar joints are failing due to the different absorption rate and expansion rate of the materials. At various other locations mortar joints have fallen out and spot repair and repointing is required to assure longevity in the total brick wall facade.

Town Hall

Many of the caulked joints have dried out and are considered failed because the offer not barrier to water penetration.

The brick façade has a unique design in which internal to the wythes a “vent” chase has been incorporated from the usable basement area up the wall and into the attic. This vent was described as a way to create a natural chimney effect that would “pull” air out of the basement and exhausting this air into the attic thus cooling the basement level rooms and pull the heat out of the brick wall. This “vent” is illegal under current building codes. If a fire was to occur, this vent would accelerate the basement level fire and spread it to the attic quickly. The chases create significant air flow and heat loss to the building.

b) Description Windows and Doors:

Condition: Fair to Poor

Windows:

The building has several generations of windows and repairs. Consistency of the repairs and materials greatly vary. There are newer aluminum framed windows, vinyl clad replacement in the rear, existing wood windows, and decorative ornamental fixed glass windows.

The wood windows are operable double hung window with counter weights operation with a fixed light above (located above the ceiling). A majority of the fixed lights could not be observed from the interior because suspended ceilings where located at the top of the double hung. The wood windows are original to the building and are in various states of disrepair. Based on information from past repairs, the window glazing and caulking materials have been found to contain asbestos. Any repair work would require testing and appropriate removal process. In their current state, there is significant heat loss at the windows. This can be attributed to several observed problems:

The sash have dried out and gaps in the sash allow free air flow:

Glazing compound is missing at the glazing allowing no weather protection

Wood casework at the masonry has caulking that is missing or failed and needs replacement

Wood sills have rotted and gaps have opened to allow air access.

Basement level boarded in windows are all in some degree of disrepair.

Doors:

The original wood doors are in operational shape, but do require door hardware and weather stripping to be reviewed to provide for better energy efficiency and operation.

Other aluminum store front doors are showing wear due to age.

Town Hall

Exterior stairs:

The front stairs are granite treads and reported to have been upgrade during the most recent front exterior upgrade.

The north side parking lot stair is a poured in place concrete stair. This stair has been subject to excessive salt during the winter due to severe icing. The stairs have deteriorated and will require replacement.

The rear stair and handicap access ramp system are poured in place concrete. This entrance area is subject to weather and also is treated heavily with de-icing salts. The salts have penetrated the concrete surface and have spalled or broken down the concrete and it has destroyed its composition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Basement level boarded in windows (assuming that they are not going to be converted back to windows) Remove all rotted and damaged wood and replace with metal insulated panel unit. Table 1

Near term recommendation is to seek engineering services of an architectural envelope specialist to evaluate all masonry, doors and windows to perform a comprehensive energy and exterior façade survey and repair design. Table 1

The Town has to make a comprehensive decision as how it wants to treat windows. If it wants to keep and repair wood windows and install exterior storms (which is possible) it should also perform a comprehensive painting of all wood.

Immediate repair the concrete stair and the exterior ramp system to buy time to design and bid a new stair, platform, and possible a protective roof over this entrance. (see section 3.4 Roof) Table 1

Mortar in all brick wall vents to fire stop and prevent air infiltration on the interior spaces Table 1

3.4 Roofing

Description:

The roof is a green slate (appears to be mottled green). Per the Town the roof is approximately 15 years of age. Valleys, ridge caps, gutters and flashing are weathered copper.

Condition: Good

Town Hall

As described by the Town. The copper roof for town hall is approximately 15 years of age. A slate roof with copper metal work has a life span of 100 years. There are a couple of areas of the roof of concern that need to be addressed immediately as noted below:

Main Turret roof just below ridge cap flashing: The slate at the top of the turret are small wedge pieces and assumed to be fastened with roof cement and one nail. Slate are subject to freeze thaw and can crack and "shed". This area now allows water to regularly enter the building and cause moisture and rot problems with the roof.

Various missing slate: Missing slate can be expected because of the freeze thaw. However, the missing slate does not have the "double coverage" over the lower slate and can expose the joints to weather. All slate roofs should have yearly moneys budgeted for slate maintenance to prevent possible water penetrations.

North rear entry: The North rear entry is a natural pocket that snow and ice build up and affect the roof and public safety of the facility. The entrance location is at the base of a roof valley which focusses all snow from two roofs into this one location.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair needed is to replace missing slate from the top of the turret and random missing slate. Table 1

Near term seek engineering to install additional snow rails on the roof sections to hold snow in place to prevent overloading of snow in the valley which leads to excessive ice damming, Table 2

Near term design an roof structure over the egress stair to protect public from snow slide and icing of the egress stair. Table 2

3.5 Basements / Attics

Description:

The basement area houses several offices, conference rooms, public bathrooms, mechanical rooms and in the front portion of the building a large dead storage area.

In the front of the building, dead storage area has old materials stored, old decommissioned bathroom, small rooms and general junk stored. A room that exist under the old exterior concrete stair to the west side porch that is open to elements and has little to no insulation value.

Old basement window openings that have been sealed with wood panels. Some of these boarded openings have rotted or had the panel gnawed open by animals and the insulation removed. The openings allow for unimpeded air infiltration. See section 3.3 Facades Windows

Areas of this basement area used for record storage are not conditioned space. Records are stacked floor to ceiling with finance records, limiting the amount of air flow.

All office areas, lunch room and conference rooms are operational.

All ceiling areas appear to have 9-12 foot ceilings.

The useable office spaces are in operational condition.

Condition:

The condition of the front unfinished basement is in poor shape. The excessive storage of unwanted materials, wood framed walls that have no current purpose, wood floors that site directly on dirt floor and poor air flow are contributing to spot mold conditions, rotting wood if left un-abated could lead to termites and further decay

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term to stabilize the front dead storage area to prevent moisture damage, mold conditions, and further degradation to the structure, remove all wood walls, decommissioned bathroom, debris, and unwanted materials. Also remove and destroy all records allowed by the Secretary of state. This removal will enhance air flow and reduce moisture issues. Store records on a rack system to promote air flow. Table 1

Near term, seek design services to install a raised concrete floor, wall layout and masonry walls to better utilize this area for a better dead storage area Table 2

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition:

Town Hall

The building meets some basic Handicap accessibility, however falls short on meeting full compliance. Various rooms have small step ups or door width issues, door access, and door hardware amongst other issues that are non-code compliant. A full and comprehensive handicap access survey should be performed so the Town can develop a plan to seek variances, or develop a plan to correct all non-conformities. The building, being the most used and accessed for the operation of Town Government, is subject applicable requirements of ADA.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Perform a handicap access audit to determine and prioritize issues that are to be addressed. This may assist the town in prioritizing future renovations, and if a lawsuit is issued under ADA, the Town can present its report and program to correct violations. Table 1

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Walls	Ceiling
Basement Bathrooms	Tile	Tile/sheetrock	Acoustical tile
Basement offices	ATC/ VCT/Carpet	Paneling/exposed brick	Acoustical tile
First floor	Carpet/wood	Solid wood panel/plaster	Acoustical tile
Second floor	Carpet	Solid wood panel/plaster/4x8 paneling	Wood, plaster, Acoustical tile

Conditions: Good to Fair

The building interior finish is dated and in need for deep wood re-finishing/cleaning. All woodwork and trim around window has dried cracked and in need of paint and restoration. Carpets in several areas have worn spots/holes or has rippled due to heavy use.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement reserves should be considered for upgrades to address all worn and dated materials as part of an interior restoration and upgrade. Table 2

Town Hall

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. Piping looks in working condition. Much of the piping was hidden from view and assessment was limited.

Welded and threaded black iron pipe is used for gas piping within the subject property.

The building is services by an old galvanized steel water supply.

Condition:

The water service is an old galvanized steel service, that has a tapped off old standpipe fire line that has long been abandoned. Visible corrosion is observed at the shut off valves for both the main shut off and standpipe valve. This valve has long exceeded its lifecycle and is a potential hazard for failure.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term replacement of the water line feed to the building and new main shut-off. Table 1

Replace or plan to replace all equipment that will be effected by waterline service

upgrade.

4.2 HVAC

a. Heating Plant

Description:

The building is supplied by two main boilers on the basement level. The boilers are a 1960+/- HB Smith Boiler and a newer (1990's) HB Smith steam boilers. Controls are a pneumatic air system with a air compressor. Steam pipes within the boiler room appeared to be covered with asbestos impregnated pipe insulation and could its condition could not be observed. The boilers are vented into what appears to be an asbestos wrapped horizontal breach pipe tied into the buildings masonry chimney. The systems are maintained by an outsourced vendor on a maintenance plan.

Condition: Good to Fair

Town Hall

The new boiler is in good condition. The 1960"s boiler is reaching its effective life of 50years, and should be budgeted for replacement on a deferred maintenance plan. The pneumatic system, while operational, also appears to be nearing its lifecycle.

b. Distribution system (vav, FCU,, exhaust)

Description:

The first floor level is heated with convection steam radiators. Each space has a steam radiator unit which is locally controlled with pneumatic thermostat units that control a local steam valve. The upper Selectmen's Meeting room is supplied heat by a large Fan coil unit (FCU) (approximate install date 1960) housed in a small mechanical room in the rear of the building. This unit has an exterior damper intake air vent which draws air across the heated coil and vented into the large hall space.

Condition: Fair

All equipment is at or nearing its effective life cycle. The town should begin to plan for replacement of component parts (motors, blowers, pumps, etc.) as the equipment ages out and the parts fail.

The spaces are cooled with either window air conditioning units or fancoil units with exterior mounted condenser units. The concern with the continued use of window units is the damage to the window and window frames, or the improper discharge of moisture from the unit which has damaged exterior brick, or the exterior look of the building with a simple bracketed condenser install as needed to address the space.

Generally the spaces were not designed for contemporary air and heat distribution. The systems existing solve a small or finite spaces but are not effective with a "global" solution for the building needs

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Have the building and systems evaluated to develop a cost effective way of cooling operation spaces in lieu of a continued program of helter skelter installation of small package heating and cooling units. Table 1

Plan a replacement program for several package split units that have exceeded 15 year life cycle. Table 1

Plan replacement of unit components (blowers, pumps, actuators) for all hvac equipment. Most units are nearing the lifecycle replacement. Table 2

Patch and repair all required fire rated walls for mechanical rooms and chases. Table 1

Town Hall

4.3 Electric

Description:

The main service entry to the building is underground and is located in the Main mechanical space in the basement level. The service is a 400 amp service. The main service and basement mechanical room panels are of newer vintage. The sub panels throughout the building are older western electric or Federal Pacific panels. The electric panel manufacturer and circuit breaker style are no longer in production. All wiring is to the office area is limited. Many rooms do not have enough outlets in the space. Power strips are used to provide needed outlet capacity. The visible wiring in the basement is a combination of old Knob and Tube wiring, romex, and metal sheathed cable. Basement level lights were wired with vintage cloth cabled switched controlled light socket. At the time of observation, it was explained that several lights were not working due to "shorts" in the wire/socket. Employee operated the switched light socket with concern for a short. In various locations, un-mounted outlets, open junction boxes and unsupported/fastened wiring was observed.

Condition: Fair to Poor

The observed wiring in the basement was in poor condition. Knob and tub wiring and cloth covered light socket wiring is a major concern and should be addressed immediately. The various open junction boxes, basement lightings and loose junction boxes should be secured. All outlets serviced by old wiring is questionable whether they are grounded outlets. Sub-panels that were manufactured by Western Electric or Federal Pacific are filled to capacity and it appeared some breakers have been "piggybacked" and may have additional wiring tied to a single breaker. If this sub-panel looses a circuit breaker of the main sub breaker, parts may take several weeks to find or may not be found at all.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair of rewire all exposed basement knob and tube wiring, unsecured electric boxes and basement lighting. Table 1

Near term, replace all remote sub panels (Federal Pacific/Western Electric) with a new and larger capacity panel for future additional circuit/outlet installation,. Table 1

Near term, add additional outlets to all locations to provide additional capacity and to remove power strips/extension cords. This will also address the concern of ungrounded outlets. Table 1

Rehang, reinstall, and repair any observed electric violations. Table 1

Town Hall

4.4 Building Fire Suppression and Fire Alarm

Description:

No Fire suppression exists

Fire detection exists offer significant but not complete code required coverage.

Condition Fair

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement reserves upgrade the fire alarm system when electric upgrades/replacement is to occur. Table 2

5.0 CODE/OPERATIONAL CONCERNS

Description:

Emergency Lighting and exit signs

As described by staff, emergency lighting throughout the space appears to be lacking. All conference rooms serving more than 50, all halls and stairways on all floors, including basement, require both emergency lighting and exit signs. Table 1

Asbestos

Several areas have Asbestos containing tile (ACT) on floors. If any work is to occur in these spaces, removal may be required.

Exterior caulking, interior caulking, and some HVAC piping joints appear to have asbestos insulation on them. A full hazardous materials survey should be performed to understand what materials within the building are prohibited to be addressed. This will also help with understanding costs to upgrade the facility. Table 2

Town Hall

TABLE 1- IMMEDIATE REPAIR COSTS							TOWN HALL
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1	engineering	Engineer site drainage to address gutter and site drainage		20,000		20,000	Site and gutter run off discharges at base of building. Engineer a water solution
2.1	landscape	Regrade site and add catchbasins		60,000		60,000	install drainage soultions
2.2	Asphalt	Repair bad area	10,000	25	sq yd	25,000	repair/replace heavily damages asphalt.
BUILDING CONDITIONS							
3.1	basement	Demolish all rotted wood and decommissioned rooms		20,000		20,000	Remove all damaged and decommissioned rooms with no purpose to enhance air flow
	basement	Replace all sealed windows	8	300	unit	2,400	remove and reseal basement level boarded windows
3.3	Masonry	re-seal sealants and expansion joints	3,000	7	ln ft	21,000	Sealants are meeting lifecycle and cracks/seperations are occuring.
	Masonry	Repoint damaged areas of building	9,000	30	sq ft	270,000	Repoint damaged aras of structure
	Masonry	seal off internal brick vents	300	80	unit	24,000	Seal off brick internal vents and paint walls
	windows	Install storm panels wood window standard	200	200	unit	40,000	put storm panels over restored window
	windows	Restore windows	200	800	unit	160,000	Restore existing wood window
3.3	Windows ornamental	restore large ornamental window and install storm panel	6,000	100	sq ft	600,000	Repair, restore and install storm panels on ornamental large windows
3.4	Roofing	design work	1	20,000	unit	20,000	design work for new replacement of roof at side entrance
	Roofing	Repair slate at turret	1	18,000		18,000	Repair slate at turret
3.5	Roofing	Install addtitional snow fencing on slate roof	500	100	ln ft	50,000	Install snow fencing to prevent snow slide for safety
3.6	ADA	Complete ADA survey		4,000		4,000	Perform complete ADA survey to understand all needs to be compliants and to help plan
INTERIOR ELEMENTS							
3.7	flooring	Carpet replacement	1000	3.5	sq ft	3,500	replace damaged or trip hazard carpetted areas
BUILDING ELEMENTS							
4.1	plumbing	Replace water service entry		20,000		20,000	Water service is a priority need for replacement due to severe material decay
4.2	engineering	Engineering review of all HVAC components		20,000		20,000	Study of all HVAC components for long term planning
	Boiler	Replace older 1960 boiler	1	80,000		80,000	Replace older boiler due to end of life cycle
	HVAC controls	Plan for component replacement life cycle		3,000	unit	30,000	Replace components base on lifecycle replacement
	HVAC cooling	Replace several split units	4	5,000	unit	20,000	replace aging split units for air conditioning.
	HVAC rooms	Repair fire walls in HVAC rooms	5	1,000	day	5,000	
4.3	Electric	Replace 4 remote electric panels	4	8,000	panel	24,000	Test and inspect all electric circuit breakers for operational use.
	Electric	Remove and replace all knob and tube wiring basement, electric violations, unsafe wiring				50,000	Remove all electrical code violationsa and unsafe wiring through out the building.
4.4							
CODE COMPLIANCE							
5	Emergency lighting	install addtitonal emergency light and exit signs wall packs	8 units	500	unit	4,000	Add additional exit and safety lighting
5	Haz Mat Survey	Perform a Hazmat survey of the building to understand issues before addressing repairs.		8,000		8,000	Perform complete hazmat survey to understand all needs to be compliants and to help plan.
TOTALS						1,598,900	
1.25 MULTIPLIER						1,998,625	



3.1 Basement front storage spot mold on joist



Decommissioned basement bath. Waste not sealed sewer gas smell.



3.1 File storage basement



3.1 Rotted wood floor basement



3.3 Moisture getting into mortar joints from the brownstone above



3.2 Rear stair failing due to salt and extreme ice damming conditions from above

Town Hall





3.3 Various repointing needed. Wood panel not sealed, air movement in basement.



3.3 East side has significant amount of areas that require repointing.



3.3 Bad panel. Repointing in the corner where water from gutter and roof run off has affected joints



3.3 Front historic windows with “red” protective panel. All wood is in need of paint and caulking. Window glazing was not observed. Tremendous heat loss along the trim abutting the brick. The cause is presumably through failure of the caulking.

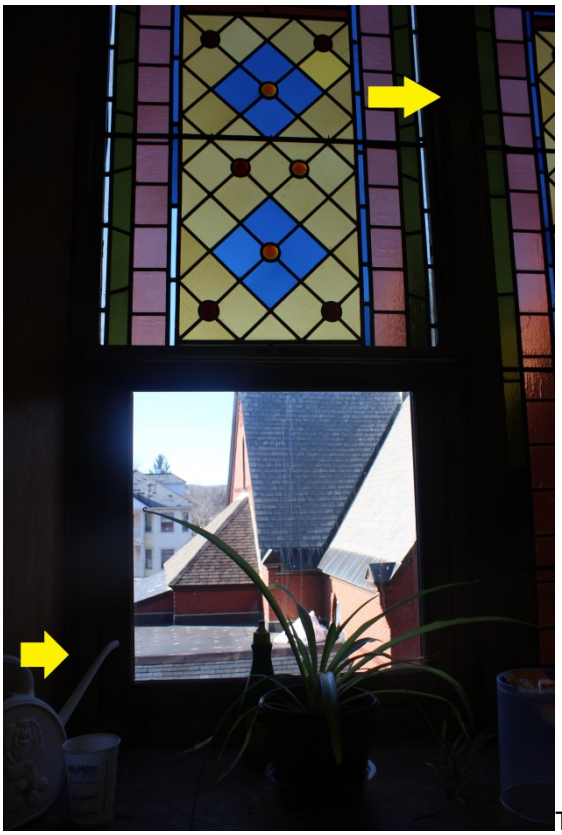


Typical transom above ceiling. Window in need of complete weatherization.

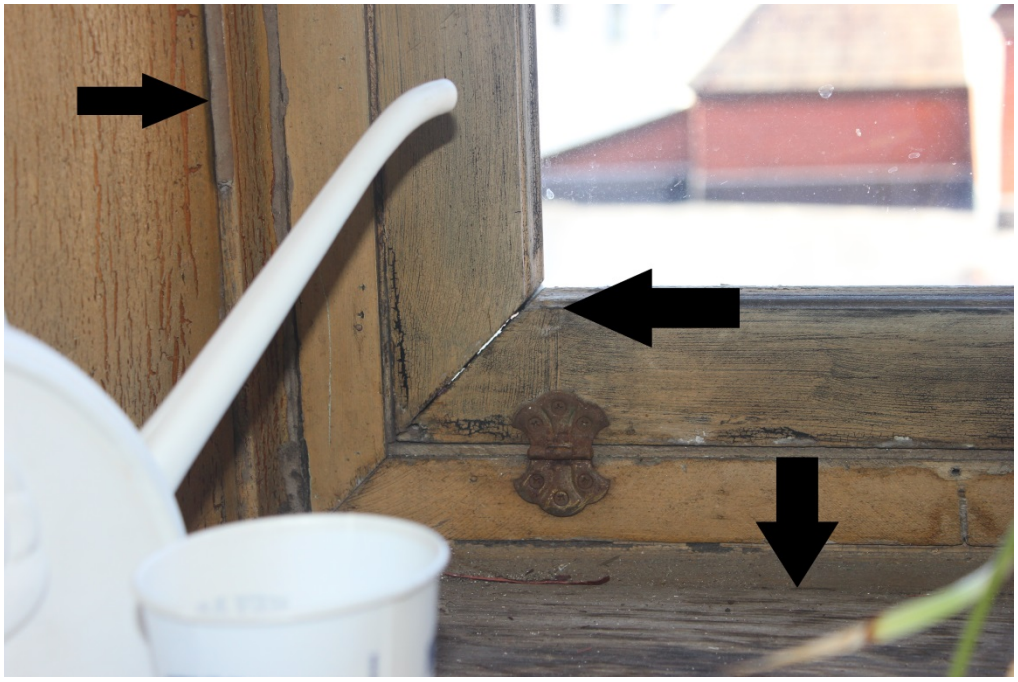
Town Hall



3.3 Typical historic window. Windows require paint, caulking, glazing, and wood repair.



Typical historic window requires caulking, weatherization, sill repair, and storm panel



3.3 Detail on sash. Sash is coming apart allowing air infiltration. Sill is damaged and in several areas rotted. Window stops and window need a weatherization program.

Town Hall



3.3 Historic windows require weatherization, storm panel and new glazing.



3.3 Window sill rotted due to water/air penetration through missing glazing causing excess moisture at sash.

Town Hall



3.3 Basement level conference room with brick wall :internal vents to attic space



3.4 Water damage to selectmen's room Ice damming.

Town Hall



3.3 Down arrow, shows exterior sill damaged due to water and lack of paint. Large down area indicates glazing falling out. Up arrow indicates areas where sash repair and paint required. Typical at all windows.



Typical window with storm window. Caulking has dried out and failed. Air is entering the building between the wood and brick with the failure of caulking.



3.3 Typical historic window. Windows require paint, caulking, glazing, and wood repair.



Lower windows have sill damage



3.3 Delamination of concrete at HP ramp.



3.3 Concrete failing at rear HP ramp stair.



3.4 Valley channels all water onto lower roof. Downspout capacity is in question. Location of significant ice damming



3.4 Arrows indicate additional location of snow fence to hold back snow so it doesn't overload lower snow fence/valley location and create additional ice damming problems.

Town Hall



3.4 Missing slate upper turret



3.4 Lower Turret slate are missing and broken

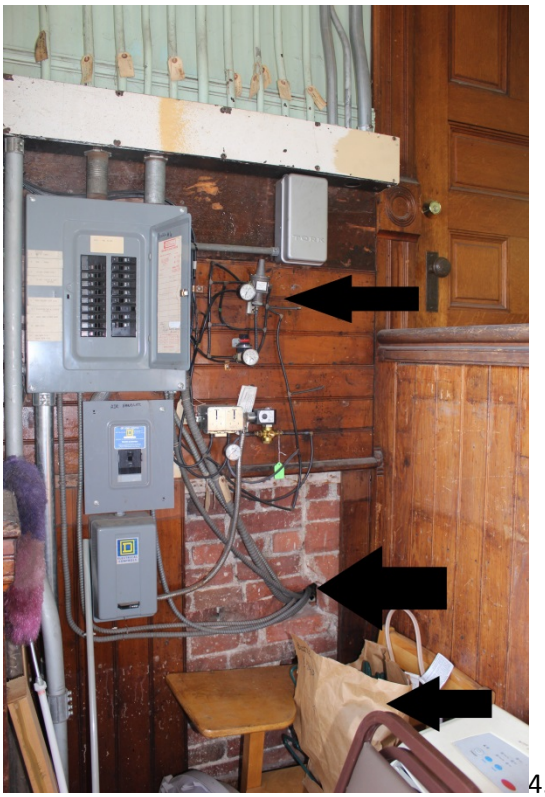
Town Hall



3.7 Upper level mechanical room with breaches in the rated ceilings.



Mechanical room equipment used as additional storage.



4.2 Second Fl mechanical room. Pneumatic controls, Penetrations through rated walls, and general storage in room that is not permitted.



4.1 Water entry service is galvanized pipe (low arrow) Significant rusting at the copper to galvanized hub, The upper valve prevents water from accessing standpipe system. The whole assembly needs replacement to prevent catastrophic failure.

Town Hall



4.2 Expansion tanks at end of lifecycle



4.2 Pneumatic HVAC controls

Town Hall



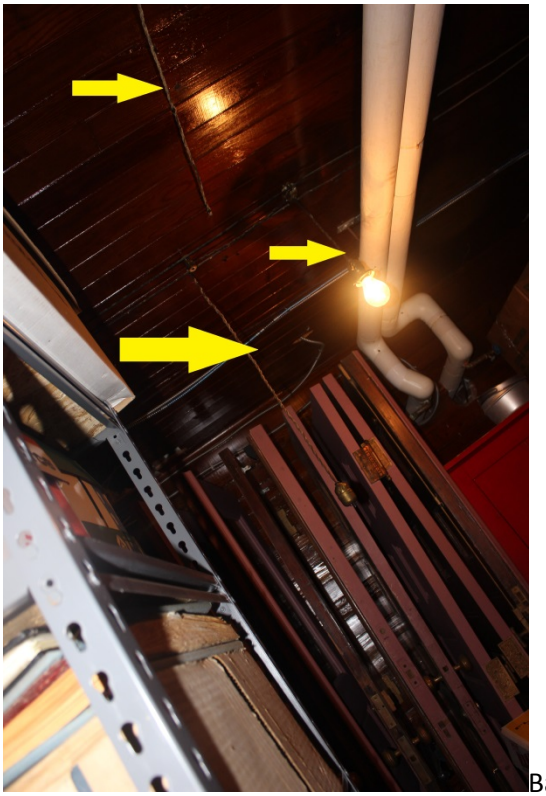
4.2 Older boiler at end of life cycle


4.2 Boiler pumps life cycle replacement

Town Hall



4.3 Main electric service. Limited organization of circuits.



Basement lights with turn of century cloth wired light. Several have shorted out.

Town Hall



Knob and tube wiring



4.3 Typical subpanels with Western Electric circuit breakers that parts are no longer available.

Town Hall

TABLE 2- REPAIRS/REPLACEMENT PLAN — TOWN HALL

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.2	site engineer	engineering work on site					15,000					15,000							15,000
2.2	Asphalt	repair/replace asphalt	20			10,000	25	sq yd					25,000						25,000
2.2	roof drain	tie drainage into catchbasin											20,000						20,000
2.3	Paving	regrade site and drainage					60,000						60,000						60,000
BUILDING CONDITIONS																			
3.1	Basement	Design					20,000					20,000							20,000
3.1	Basement	pour concrete					15,000						15,000						15,000
3.1	Basement	install walls					14,000							14,000					14,000
3.3	masonry	repoint remainder of the building	100			7,000	30	sq ft					210,000						210,000
3.4	roofing	Repair	100			100	45	sq ft	4,500		4,500		4,500			4,500		4,500	22,500
3.5	architect	Redesign of interiors and basement				1	150,000						150,000						150,000
3.5	interior renovations	upgrade use of basement and reconfiguration of space												1,500,000				20,000	1,520,000
3.6	ADA	Compliance											100,000						100,000
INTERIOR ELEMENTS																			
3.7	Paint	systematic painting of interior	7			20,000	2.5	sq ft	10,000	10,000	10,000	10,000	10,000						50,000
3.7	Carpets	systematic replacement	10			20,000	70	sq yd		6,000		6,000			6,000				18,000
BUILDING ELEMENTS																			
4.1	Plumbing	systematic replacement	15				1,000				1,000	1,000	1,000						3,000
4.2	thermostatic controls	replace pneumatic controls	30			1	30,000	unit			30,000								30,000
4.2	HVAC	replace blower motors	20				2,000	unit		2,000			2,000			2,000		2,000	8,000
4.2	HVAC	replace condensers	15														5,000	5,000	10,000
4.2																			-
CODE COMPLIANCE																			
5	asbestos	removal of floor tile lunch room and other materials				2,000	100	sq ft					20,000						20,000
5																			-
TOTALS									14,500	18,000	45,500	52,000	617,500	1,514,000	6,000	6,500	5,000	31,500	2,310,500
1.25 MULTIPLIER									18,125	22,500	56,875	65,000	771,875	1,892,500	7,500	8,125	6,250	39,375	2,888,125

POLICE HEADQUARTERS



Location:	1 Mechanic Street	Assessors:	036/179/A0001
Year Built	1997	Building area:	23,196 sq ft
Condition:	Good	Land area:	3.07 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Police Headquarters

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT	Acoustical Ceiling Tile	GFI	Ground Fault interrupt (circuit)
AHU	Air handling unit	GWB	Gypsum Wall Board
BTU	British Thermal unit (heat measurement)	HVAC	Heating, Ventilating, Air Conditioning
CMU	Concrete Masonry Unit	HWH	Hot Water Heater
EDPM	Rubber membrane roofing	MDP	Main electrical distribution panel
EUL	Expected Useful Life (life cycle)	PTAC	Package through wall A/C unit
FCU	Fan Coil Unit	RTU	Roof top Unit
FHA	Forced Hot Air	MSBC	Massachusetts State Building Code
IBC	International Building Code	VAV	Variable Air Volume box
ACM	Asbestos containing material	VCT	Vinyl Wall covering (floor tile)
ADA	Americans with Disabilities Act	MAAB	Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat and treed along the front. Actual building site sits below the road elevation

Condition and Observation:

Recommended Repairs: See 2.2

2.2 Pavement, Parking, and Drainage Structures

Description:

Site is largely paved to accommodate the use. Parking and access appears adequate.

Condition and Observation:

Asphalt area in general looks in poor shape in the year access on the mechanics bay side. Areas of wear and asphalt degradation can be observed in this area which will require a reconstruction. Other areas of the drive/parking require crack sealing and relining of pavement marking.

The site drainage is focused toward the rear east side of the building in the area of the ground mounted chiller. It has been reported the surface water ponds in the low area and has entered into the air intake well on this side.

See Section 5.0 Code for security issues.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

The side of the parking lot leading to the mechanics bay has failed and needs immediate replacement. Crack sealing of the entire lot is also required. Table 1

On the east side of the building near ground mounted chiller, regrade area to create swale to better direct surface water into site drainage and away from air intake. Table 1

2.3 Landscaping

Description:

Condition and Observations:

Recommended Repairs None

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas

   NationalGrid

c. Electric

   National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Poured concrete foundation walls and poured slab in salley port/mechanics bay. The foundation walls are assumed to have spread footing.

Condition and Observation:

Generally the foundation appears to be in good shape. No visible sign of cracking or movement were observed.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: None

3.2 Super Structure

Description:

The Building super structure is steel columns, beams, and steel roof trusses. The steel frame cavity wall structure supports the exterior brick façade.

Condition and observation:

The condition is in good shape.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: None

3.3 Facades

a) Description Facades: (Brick, metal, curtain wall, wood)

The brick façade has a decorative concrete water table located at both first floor and second floor window sill height.

Condition: GOOD

b) Description Windows and Doors:

The windows are double glazed energy efficient aluminum framed window typically found in commercial construction. Condition appears to be in Good condition.

Main entry is a double glazed aluminum commercial store front system typically found on commercial construction. Condition appears to be in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Life cycle of caulking and sealants needs to be inspected and evaluated. Replace as part of regular yearly maintenance. Table 1

3.4 Roofing

Description:

The main roof is a 25 year three tab shingle. The flat roof sections over the mechanics bay area is EDPM rubber.

Condition:

The appearance of the asphalt shingle give indication that this is nearing the end of its life cycle and is considered in good condition. The shingles stone granules appear to be thinning and the tabs are beginning to swell which indicate signs of shingle meeting its life cycle. Replacement should be considered a near term replacement. The flat roof installed at same time period of the shingled roof.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term replacement is recommended. While not in failure, the roof replacement should be scheduled in 8 years. Table 2

3.5 Basements / Attics

Description:

The full basement area houses several functions. The functions include boiler room/mechanical space, dry storage, E911 head end room/ IT head end equipment and police fitness area.

Condition:

The space is a dry and functional basement. Lighting in the basement area is basic for a basement space. The use and need for additional lighting in key areas to provide employees better safety.

The 911E/IT space is in need of upgrade. Currently IT switch gear is located outside the air conditioned communications room and in the unsecured. The 911E room as currently used does not meet the security needs recommended by the State of Massachusetts. The air conditioning of the space has enough capacity to supply conditioned air to an extended 911/IT room. Currently the server is exposed to the conditions of the basement, which dusty air could affect the server.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Re-evaluate the IT and 911E needs and expand the square footage of the fire rated room to accommodate the need to secure and better organize communication and IT wiring. Table 1

Upgrade lighting for areas used for fitness and employees activities. Table 1

Police Headquarters

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employees or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition:

The current building is compliant. It was noted that the Town runs functions on the abutting park. The Police have seen then need or the front doors and access to the public toilets to be on electronically operated openers to accommodate the handicap needs. Table 1

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Specialties Finishes (Cells):

Locations	**Floor**	**Walls**	**Ceilings**
Offices	Carpet	Painted sheetrock	Acoustical tile
Dispatch	Rubber floor	Painted sheetrock	Acoustical tile
Bathrooms	Tile	Painted sheetrock	Acoustical tile
Locker rooms	Carpet	Painted sheetrock	Acoustical tile
Rear stair tower	Concrete	Painted sheetrock	Painted sheetrock

Conditions:

Most areas are in fair condition. Carpeted areas are showing their age. Systematic replacement of the heavily wear areas (halls, main offices, locker room).

Police Headquarters

The rubber tile in the dispatch is in poor condition. The constant wear and tear of the dispatch floor has destroyed then flooring under the seated area.

As reported, the rear stair tower have a hardened concrete sealer on the floor. The surface does not provide the slip resistance desired for the operation.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair would be replace dispatch flooring. Areas directly under the dispatch desk should be replaced with a material that can easily be removed and replace every two years. Table 1

Near term repair install an epoxy floor paint with an abrasive grit to prevent slipping. Table 1

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The domestic service enters the building from the west side into the main water service/fire service area in the basement. The water service has a main backflow preventer and separate fire service valving. The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. The main boiler and water heater with water storage tank with circulating pumps supply domestic hot water. Welded and threaded black iron pipe is used for gas piping within the subject property.

Condition: Good (see comments on cell area)

There were no reported or observed problems with the plumbing size, operation or capabilities of the building in general. However, the cell area currently has two cells in non-conformance with the Massachusetts Department of Health because the water supply to the cells is out of order. The access to this restricted piping was poorly designed. There is a mechanical chase area that provides access to the rear of the cells to access plumbing valves. The last two cells cannot be accessed because of a poorly place HVAC duct. At the time of observation, it could not be determined what this duct work addresses.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Engineering to determine/design the relocation of HVAC duct in the cell plumbing access to allow for routine maintenance of cell plumbing. Table 1

Relocate the HVAC duct work in the cell plumbing chase Table 2

Police Headquarters

Repair cell plumbing to be in compliance with State Department of Health. Table 1

4.2 HVAC

a. Heating Plant

Description:

The building is serviced by a gas fired Hydrotherm package boiler plant in the basement mechanical room which supplies hot water to various AHU units to support the building and its compartmental zones. Hot water also is supplied to unit ventilators in salleyport and mechanics bay. The units were installed in the 1998 with the original construction. Equipment is being maintained under a town wide service maintenance contract. The main supply pumps are also located in the space.

Hot water tank is also original to the building and is located in the basement.

The main condensing/chiller unit is an exterior ground mounted unit.

The building is controlled with a ENESYS (Barber Coleman) building management system. The system is original with the installation and is 18 years of age. The current software and sub controllers can no longer be supported due to its age

Condition: Good

b. Distribution system (VAV, FCU,, exhaust)

Description:

The building is supplied with conditioned air through three air handling units that provide conditioned air in three zones. The communications/IT closet on the second floor requires year round air movement to cool the equipment.

Condition: good

The building distribution of the HVAC and hot water was also installed during the 1998 construction project. The building is a combination of heated air and a radiant baseboard wall wash as a supplemental heat source.

Mechanics bay is heated by a unit heater fed by the building hot water system. The mechanics bay also house the emergency generator. The air intake of the generator and the large doors in this space radiate cold air into space, limiting the effectiveness of the heat unit.

Police Headquarters

The communications/IT closet on the second floor does not have enough supply or exhaust air to cool the space. Ceiling tiles were removed from ceiling to allow hot air to leave the machine space

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

General comment - many of the components of the HVAC system are nearing the end of the lifecycle. Motors, pumps, BMS control software lifecycles are 10 to 15 years. The Police have experience some of these components failing due to age. A system component replacement budget needs to be implemented. Pumps, actuators, motors, condenser/contactors should be planned for replacement in the near term. Table 2

Immediate replacement/upgrade of the energy management system should be addressed. Upgrades of the system is required, and re-commissioning should be addressed during this upgrade to assure proper operation of the HVAC equipment. (Utility supplier may offer some rebates for this work upgrade/re-commissioning work) Table 1

Water heater has met its lifecycle and should be a near term repair before failure occurs. Table 1

In mechanics bay install a radiant gas unit heater. The radiant unit heater is heats objects and is a more efficient and effective way to heat this type of industrial space. Table 2

Seek engineering services to determine the best way to provide cooling and to exhaust heated air from second floor IT remote closet. Table 1

4.3 Electric

Description:

800 amp electric service with new sub panels installed in the 1998 construction project.

Emergency power is supplied by a diesel fueled emergency generator system located in the mechanics bay.

Condition:

All systems are in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term repair is to have a electrical specialist survey company inspect all circuit breakers or operation and effectiveness. The pro-active survey will determine if there are any circuit breaker concerns. Table 1

Police Headquarters

Near term repair would have a comprehensive inspection and review of the emergency generator system. This pro-active inspection will provide the town with a full survey of the generator and status. Table 2

4.4 Building Fire Suppression and Fire Alarm

Description:

The property is protected by a multi-zone Fire Alarm control panel, hard wired smoke and heat detectors, pull stations, illuminated exit lights, emergency battery lighting units, horn/light enunciators, fire extinguishers, and full coverage 4" wet sprinkler system with check valves and tamper/flow switches. The Fire department Siamese connections are located on the exterior of the building.. A fire hydrant is located on a municipal sidewalks adjacent to the property. The sprinkler system and Fire Alarm control panel is reportedly tested annually. It was reported that recent repairs to the attic dry system pneumatics and piping done.

Condition: GOOD

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: None

5.0 CODE/OPERATIONAL CONCERNS

Description:

Security:

The Police station has minimal security beyond the outer walls of the station. Security Cameras only cover the front of the building. The main parking for both public and officers is in the rear. The Salley port or prisoner entrance is also located on the rear west side of the building. Table 1

There is no secured area for police vehicles, vehicle evidence storage, or for staff parking. Reported incidents of vandalism to both private and police vehicles in this rear area of the building state the need for additional security. Table 1

Extend Fencing into rear parking lot to secure entire police parking needs. Table 2

Police Headquarters

TABLE 1- IMMEDIATE REPAIR COSTS							POLICE HEADQUARTERS
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1	landscape	Regrade site on side of building at air intake				10,000	Additional grading will prevent water from accessing air intake well.
2.2	Asphalt	Repair bad area				30,000	repair/replace heavily damages asphalt.
	crack sealing	remainder of lot repair				4,000	
BUILDING CONDITIONS							
3.3	Masonry	re-seal sealants and expansion joints	1,000	7	ln ft	7,000	Sealants are meeting lifecycle and cracks/seperations are occuring.
3.4	Roofing	design work	1	7,000	unit	7,000	design work for new replacement of roof
3.5	design	design additional rated 911/IT room	1	10,000		10,000	design to enclose all 911E equipment and IT equipment to meet State requirements and building codes.
INTERIOR ELEMENTS							
3.7	flooring	Replace dispatch floor	600	13.0	sq ft	7,800	replace flooring in dispatch every 5 years
		install epoxy flooring in the stairtower	1,000	13.5	sq ft	13,500	install epoxy skid resistant coating on stairs and landings
BUILDING ELEMENTS							
4.1	plumbing	replace water heater	1	600	unit	600	Water heater at end of life cycle.
		repair cell valves that are inaccessible	4	1,200	man day	4,800	temporarily remove duct work and repair valves
4.2	HVAC controls	Replace HVAC controls due to lifecycle		40,000	unit	40,000	Update antiquated software and controllers replacement every ten years
	engineering	engineer second floor to cool remote IT closet		4,000		4,000	Need to develop solutions to install needed cooling the the second floor IT remote closet
	HVAC cooling	install cooling in the IT closet	1	12,000	unit	12,000	Install cooling unit and remote condensing unit to solve overheating in the remote IT room
4.3	Electric	third party inspection of all electric panels	1	3,000	day	3,000	Test and inspect all electric circuit breakers for operational use.
ADA COMPLIANCE							
4.5	automatic door openers	install automatic openers on exterior doors	2	3,500	per door	7,000	Automatic openers at exterior doors will address access to station.
CODE COMPLIANCE							
5.0	Security	Add additional security cameras to better provide coverage of all sides	5	3,000	per camera	15,000	assuming software exists to allow additional cameras, coverage is neede on sides and rear of station.
	Security fencing	Install fencing on existing lot	1,200	40	ft	48,000	Install security fencing and electronic gate on existing lot
TOTALS						223,700	
1.25 MULTIPLIER						279,625	



2.1 Site drainage is sloping towards air intake well against building. Site drainage needs upgrades and landscape contours to prevent water infiltration.



Police Headquarters



2.2 Rear Police driveway asphalt has broken down and creating large puddling, other areas have cracking which allows water to enter and frost heaves, and temporary patching is being installed.





IT room

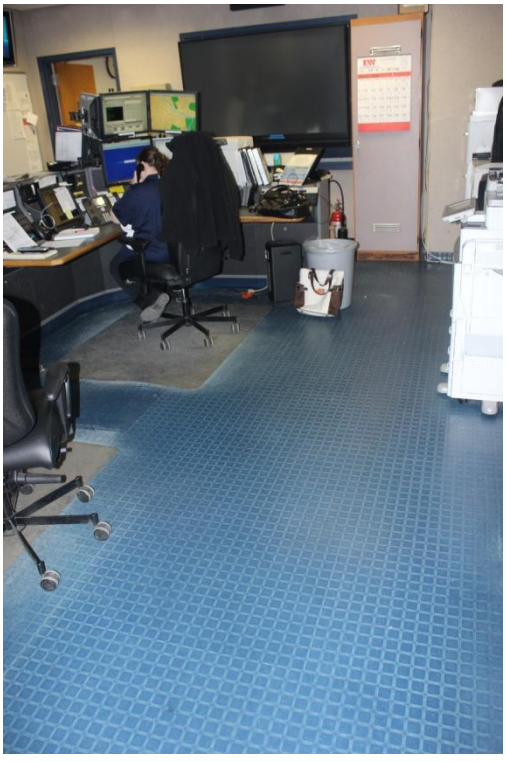

911E equipment outside of IT room. Equipment should be in secured climate controlled room.

Police Headquarters



3.7 Install Slip resistant surface over poured concrete slab



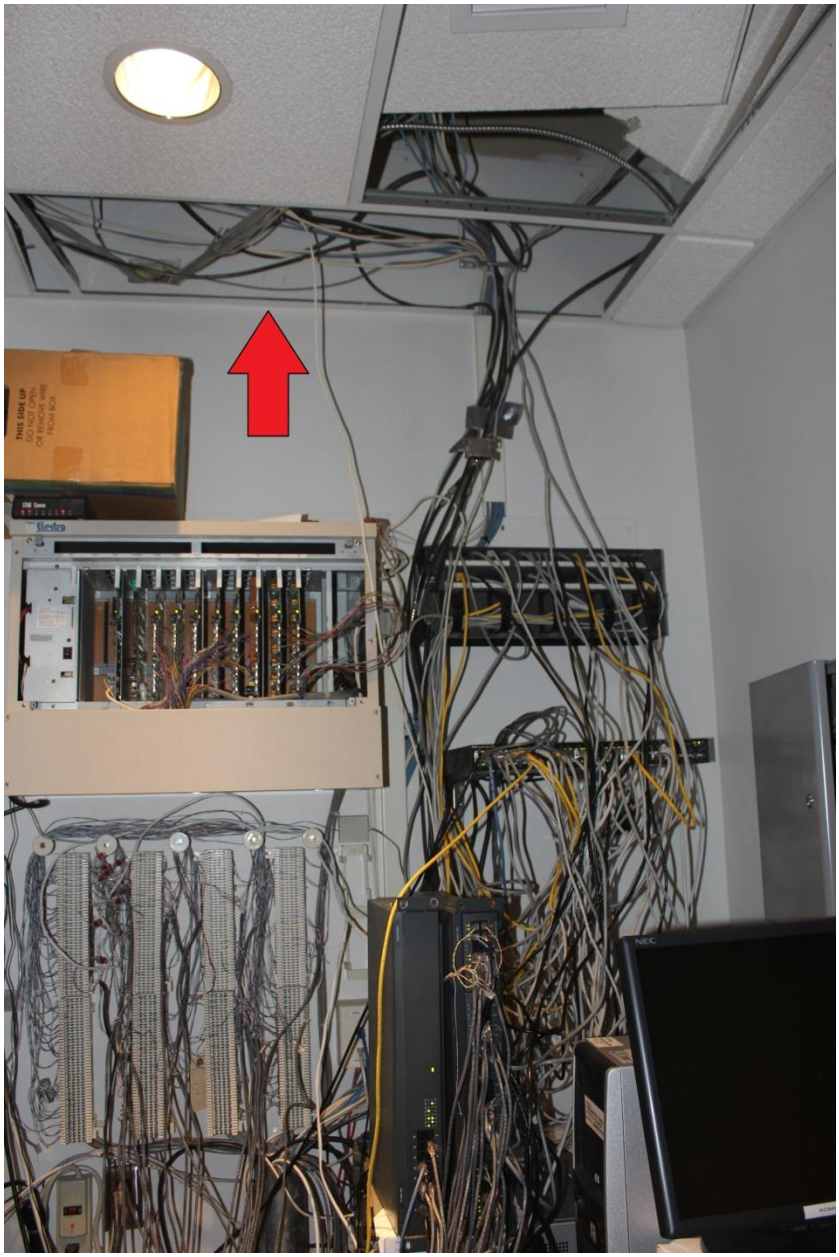


3.7 Replace Dispatch floor on a regular periodic basis

Police Headquarters



4.1 Plumbing Chase for cells. HVAC duct prevents access to fix two cells. Relocation of HVAC duct recommended.



4.2 Second floor IT room Ceiling tiles removed in effort to remove heat from room.



5.0 Unsecured and lack of camera monitoring of the Police drive and parking lot. No area to secure impounded vehicles. No security for Police vehicles. No security for employee vehicles.



Police Headquarters

TABLE 2- REPAIRS/REPLACEMENT PLAN — POLICE HEADQUARTERS

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1																			-
2.6																			-
BUILDING CONDITIONS																			
3.3	Facade	masonry	30															5,000	5,000
	Windows	caulking/waterproofing	15							10,000					10,000				20,000
	Doors	replacement	25													5,000			5,000
3.4	Roofing	replacement	25	20	5	9,000	9	sq ft					81,000						81,000
3.5	Basement	build fire rated 911E/IT room				10,000					10,000								10,000
INTERIOR ELEMENTS																			
3.7	Paint	systematic painting of interior	7			20,000	2.5	sq ft	10,000	10,000	10,000	10,000	10,000						50,000
	Paint	upgrade cells	20			20,000	2.5	sq ft						12,000					12,000
	Carpet	systematic carpet replacement	10			10,000	75	sq yd			2,500	2,500	5,000						10,000
	Elevator	systems upgrade	25													10,000			10,000
BUILDING ELEMENTS																			
4.2	radiant heat	install radiant heat in garage bay	30			1	12,000	unit				12,000							12,000
4.3	HVAC	Energy management controls software	10				10,000	component										10,000	10,000
		Chiller contactors/controls	20				10,000	component									10,000		10,000
		systematic component replacement	15				3,000	component	3,000	3,000	3,000	3,000	3,000		5,000			5,000	25,000
		Burner replacement Boilers	15				2,000	unit				8,000							8,000
		Replocate cell duct work in plumbing chase					20,000	unit			20,000								20,000
4.3	Emergency generator	thorough inspection and testing of emergency generator	30	20	10	1	3,000	unit		3,000							3,000	3,000	9,000
ADA COMPLIANCE																			
4.5																			-
CODE COMPLIANCE																			
5.0	security	install expanded security fencing				2,000	35	li ft					70,000						70,000
																			-
TOTALS									13,000	26,000	45,500	35,500	169,000	12,000	15,000	15,000	13,000	23,000	367,000
1.25 MULTIPLIER									16,250	32,500	56,875	44,375	211,250	15,000	18,750	18,750	16,250	28,750	458,750

FIRE HEADQUARTERS



Location:	24 Elm Street	Assessors:	047/ 159/ 00001
Date Constructed:	1899 (Additions 1938-1970)	Building area:	22,475 sq ft
Condition:	Poor	Land area:	0.25 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items consider significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Fire Headquarters

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography / Pavement, Parking, and Drainage Structures

Description:

Site is a flat, surrounded on three sides by municipal sidewalks and pavement. The fourth side abuts a lawn area in which the 2 bay garage addition is "built into" the existing grade which is approximately 2 feet higher than interior floor. Site has no internal drainage, and pitches on three sides of the building utilize street drainage. The rear paved area drops approximately 2 feet to the rear abutting lot. This drop off is held up with an original field stone retaining wall.

Condition and Observation:

Rear paved area, which services rear access doors and site generator and cell tower equipment shed is in poor condition. The paving is largely broken up into large pieces and barely held together with sublevel binder.

Fencing is largely rusted mesh and provides a visual barrier between the abutting lots. Evidence of damage most likely caused by plowing, is beyond the repair stage.

Rear retaining wall has signs of failure, and the shifting stone work has fallen or leaned out of plumb. This "blow out" of the retaining wall is most likely from rain water run off from the building undermining the soils and structure of the retaining wall.

Recommended Repairs:

The entire rear paved area needs to be reclaimed, retaining walls reconstructed and grading and drainage designed to collect large run off and dispose of it as not to affect the building or site. Table 1

New fencing would need to be incorporated to separate the abutters from the emergency generators and Fire Dept. area. Fencing would need to factor the limited space and potential damage a plowing operation would incur. Table 1

Site drainage would need to be incorporated into the town's drainage system because the site offers no retention capability. Table 2

2.2 Landscaping

Description:

Condition and Observations:

Recommended Repairs NONE

Fire Headquarters

2.3 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas

   Gas by: NationalGrid

c. Electric

   NStar

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Original building foundation (1899) is a poured in place concrete foundation with a shallow (7'-0" max head room height) basement. The size of the structure required several interior poured concrete walls and large poured in placed columns to support a structural slab for the apparatus bays, first floor firefighter's room and dispatch. The original building was designed for a full walk out basement in the rear and north side of the building. Evidence is seen with blocked up windows and full sized door that it currently exits into a well.

The 1940s/1950s two bay addition (bays 4 & 5) is a poured on grade concrete slab to support vehicles and concrete block wall. The kitchen area was added on to the north side of the building in 1938.

Condition and Observation:

The 1899 foundation and structural slab appear to be in fair condition. While no catastrophic problems are apparent, the structural slab has signs of cracking, water infiltration around drain pipes that has caused damage to the floor. Concerns of road salt coming off the trucks and penetrating the existing slab and deteriorating re-enforcement bar should be considered. Modern fire apparatus is significantly larger, heavier, and the bays are double stacked with vehicles.

Spalling of the slab surface in the apparatus bay indicates that water penetration has affected the slab.

The 1940 Slab is a poorly constructed addition. Stress cracking and slab settlement are readily observed.

Fire Headquarters

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Drain pipe penetration: Cut out and reinstall a boxed out drain and floor piping. Table 1

Have engineer evaluate the slab structure of the 1940 addition (See Section 3.2 Super Structure) Table 2

3.2 Super Structure

Description:

The original 1899 building is a heavy masonry structure with a wood framed interior structure and roof. The observation tower structure (approximately 5 stories) uses concrete cast columns to support an upper wood framed roof structure. The heavy masonry wall appears to be three wythes thick with no cavity.

The 1940s two bay garage addition (bays 5 & 6) is a light masonry block wall addition with a brick façade with a light steel bar joist roof structure. Bay 6 was originally a small garage offset to the street, later extended in 1950.

Condition and Observation:

The structure has two main areas in poor condition and in immediate need of repair, the tower and the 1940/1950 addition.

The tower has "emergency" heavy timber supports installed to support the tower roof. To use heavy wood framing to support structural masonry failure should be an extremely short term fix. The nature and capacity of wood is not adequate to support masonry which requires a much more rigid support. It has been reported that the wood support has been present for several years. It appears that the structure failure is at the upper cast concrete support columns at exposed beams. Evidence in the settling is readily seen at the cast in place beam. The beam has cracked over the column. The crack has been patched at least twice with epoxy filler and mortar. It was also observed that other column locations have these structural cracks occurring. The cast concrete beams also bear on the outer brick corner masonry. At these bearing locations, the beam appears only to rest on 1 wythe of brick. It was not visible to see if there was any other anchoring of this concrete beam into this brick masonry. These bearing locations also had mortar separation at the brick/concrete column. Much of the observation tower had significant mortar loss in the brick facade and under the concrete column. A concern is that the entire brick façade needs a complete repointing and spot repair of damaged brick. (See 3.3 Façade) The failure of most of the mortar joints may have created internal brick movement. This movement may have contributed to stress on upper brick coursing and movement that contributes to the overall structural integrity problems with this structure. It should be noted that the tower also has valuable radio equipment mounted on exterior (north side) that integrates with communications equipment on the first level.

Fire Headquarters

The 1940s two bay garage is a poorly constructed addition. As noted in the Sub Structure section. The foundation appears to have been on soils that where not structurally sound. Movement and cracking of the slab and foundation are readily observable. The movement has radiated through the 8 inch block wall. This wall shows no sign of having vertical or horizontal reinforcement bar. The lack of reinforcement could have contributed to step cracking in the block wall which is readily available. In the rear where the 1940s block wall meets the original structure brick wall, the wall has separated from the existing building. It is evident that the two structures are acting independently from each other and continued failure should be anticipated. The brick separation gap at the two additions is upwards of an inch. The internal massive brick column, which supports the addition roof structure, has a structural vertical crack from top to bottom. The exterior block wall at the garage door where it ties back into the heavy main building masonry has a large separation gap. The gap has continually been filled with caulking to help seal the gap and water infiltration. The exterior wall of the addition has step cracks in several of the masonry wall sections. All this cracking and masonry separation and movement is indicating major structural problems with the foundation and are not stabilize.

Metal Lintels over the bay doors have been exposed to weather and moisture and have significant rusting occurring. This rusting expands the metal on four sides and the ends of the lintel. This expansion of the rusting metal has led to the lintel deflecting downward and outward at the bearing ends. The outward expansion at the bearing ends has put lateral pressure on the mortar joint causing cracking and movement in the joint. This movement breaks the mortar bond of the brick and structurally weakening the supporting masonry. The downward deflection of the lintel will lead to brick mortar joints of the head brick cracking and failing.

Bay 4 in the 1899 building currently has an “added” steel beam installed to apparently support the existing corbelled structural arch. The steel beam has wood supports under each end of the steel to support it in place. Exposed Wood supports are temporary and subject to shrinking, and may not have the ability to support compressive loading of the steel and possibly the masonry load. This structural component is a concern that should be further investigated by a structural engineer.

The 1940s addition can only be categorized as a significant failure of the site preparation, design, and installation of the structure.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

There is an immediate need for a full and comprehensive structural review of the entire building. No repairs recommendation can be suggested until such time because the structural problems are so varied and so systemic within the superstructure. Table 2

All temporary shoring repairs are far beyond the useful life and need immediate inspection from an engineer. Table 2

Fire Headquarters

3.3 Facades

a) Description Facades: (Brick,)

The 1899 building is a brick façade with structural brick masonry arches. A precast concrete band separates the first floor, upper decorative tie band, window ledges, keystones, headers and is used as the observation tower "window" opening base. Precast columns are used as structural and decorative element to support the observation tower roof structure. The 1899 building brick wall on the rear and north side of the building currently below grade was once an exposed wall.

Condition and observation: Poor

This entire structural heavy masonry walls façade and mortar joints are in need of spot or partial replacement and a total repointing of all masonry joints. The brick and mortar failure is observed in all areas. The following descriptions are highlighting the most severe and prominent damage.

Along portions of the north and rear walls that were originally above grade and have been back filled and are now below grade. One can visually see a moisture line in the brick coursing with efflorescence leaching out of the brick due to the moisture in the earthen fill. This indicates that the brick has absorbed moisture from water run off and wicking of sub surface moisture. The brick in these lower courses has had the face "spall" off the brick and soften the brick component. The mortar joints in the lower sections have also been weakened by the constant moisture and can easily be raked out of the joint. At several building transitions where later additions were tied into the original 1899 structure, brick and mortar of a different structural consistency (harder brick) was used. The materials and buildings move and expand at different rates. This movement, along with questionable structural deficiencies has opened up large cracks and splits in the brick. These openings have not been sealed properly allowing more water to penetrate the brick masonry. This additional moisture from the roof leads to more structural deficiencies, additional expansion due to internal freezing and degradation of the internal wythes of brick. Age and water from leaking downspouts or improperly channeled water of the roof have washed down the face of the brick that needs upgrades as regular maintenance. Lastly, the addition was a poorly executed installation of a brick and block cavity wall. Expansion joints where not coordinated properly, brick façade was not installed with weep holes allowing moisture behind the brick to expand and create structure cracking. The brick shelf on the south side of the building was not properly flashed allowing moisture to enter behind the brick drip edge. This unregulated water entry creates excessive moisture which is subject to freeze thaw and is a cause for failure.

All areas where caulking is required, have missing caulking, or caulking that is dried and cracked offering little or no waterproofing.

Fire Headquarters

Brick at most garage doors are damage or chipped due to impact loads from trucks. Fire trucks barely fit into the bay. On one vehicle exiting out of the building had 4 inch clearance at top and 2 inch clearance at bottom on both sides on the wheel stops, and less than three inches from the truck roof to arch. This will continue to be a problem with these narrow doors.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

a) Thorough analysis of the structural deficiencies and problems is performed and corrected. Once this work is completed, a full brick repair, restoration, and re-pointing needs to be performed. Table 2

b) Description Windows and Doors:

Windows

As reported, the windows were approximately 20 plus years old. The aluminum framed double glazed windows appear in operational condition. The window has a fixed arch panel on the top to fill the brick arch shape and space. It was observed that many have moisture between panes.

c) Doors

The garage doors are insulated aluminum door installed to the interior face of the brick wall to give the appearance that the door is fitted to the arched opening. The exterior trim is painted wood with a rubber draft stop. All doors are operated with an electric drive door opener. The doors are reportedly 25 plus years of age.

Front man door is an aluminum framed door with a full glazed panel. The rear man doors appear to be the original wood door. The rear door out of the addition is a solid core door that was not original to the building. The basement below grade door is the original double wide barn door, originally used for the horses. The door sits in a well and has a wooden grate system to cover over the door well. Exterior attic level door is an original paneled wood door.

Condition and observations:

The windows are in poor or (in some cases) fair shape. Drafts have been reported at several window locations. While no obvious defect was observed, the poor mortar joints in the masonry walls may have areas of degradation that are allowing air leakage. The windows being 20 plus years old, may require the weather-stripping to be evaluated, and repaired/replaced as part on ongoing maintenance.

The front aluminum door is in good condition.

Fire Headquarters

All rear doors are in poor to failed condition. The wood doors are coming apart at all rails and stiles. Air gaps of up to ½ inch are observed providing no weatherization or energy efficiency. One rear door in apparatus bay is in such poor shape, that the door is considered unusable by firefighters. The attic level wood door is also original to the building, leading to the towers roof, and provides no weatherization and energy efficiency. Some dispatch communications equipment is installed in the attic, and storage access to this area is via a steel ladder; hoisting items by a rope and pulley system.

d) Ladders to tower

The steel vertical ladders to access the tower are simply made welded steel ladder mounted to the wall.

Condition and observations:

The ladders are in operational shape.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

All rear doors should be replaced immediately due to the poor condition and operation. Table 1

All garage doors and operational motors should be scheduled for a systematic replacement. Table 1

Windows should have all weather stripping upgraded and re-evaluate all caulked joints to assure weather tightness. Table 1

If the long term solution is to keep the station operational additional stabilization of the ladders, platforms, and safety equipment per an OSHA standard should be implemented. Table 2

3.4 Roofing

Description:

The building has several roof materials used on this building. The observation tower has an architectural asphalt shingle. The inner flat roof of the observation tower is a copper metal pan with a 2 inch floor drain that dumps water onto a lower roof gutter system. The front "hip" section of the 1899 building has the original slate roof with copper valleys and flashing. The side hip roofs are architectural shingle to match the slate. The flat roof of the second floor is a 50 asphalt rolled roof with glue sealed seamed. The north side flat roof over the kitchen is an EDPM rubber roof. The original station roof (bays 1-4) was replaced in 2009.

Several winters have had ice buildup, due to poor drainage, causing leaks noticeable through ceilings in the administration office area on the second level.

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Condition: Good to Fair

It was reported that a majority of the roof is 10-15 years of age. All asphalt shingles areas and slate roof section of the building appear in good condition. The copper pan roof of the observation tower is original to the building. Leak stains could be seen throughout the area directly below the pan. The roof of the tower drains into a down spout and dumps onto the copper pan, which in turn drains the rainwater through a 2 inch pipe to a lower gutter assembly. The second floor flat roof with the 50 lb asphalt roll roofing has areas where the gravel face of the rolled asphalt is wearing thin. Fiberglass reinforcing in several areas of the rolled roof were observed. EDPM membrane appeared in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

The Town should be planning for the near term to apply a surface coating over the rolled roof section of the roof. The thinning of the protective granules, and the exposed fiberglass reinforcement will begin to break down the base material if left unattended. Table 2

The copper pan in the tower section should be evaluated and re-solder all joints. A second overflow drain should be incorporated to lessen the chance of the drain failure which damages then Fire Department Offices. Table 1

3.5 Basements / Attics

Description:

Basement: The basement is a multi-use storage area for the Fire operation. A large percentage of the space is used as dead storage, portions of the space is used for cleaning and drying fire fighters equipment, several air tanks used for building operations and a small space houses alarm boxes and their maintenance.

The attic space of the main building houses AHU equipment. The attic spaces in the tower section house an air tank for the horn and dead storage for antiquated equipment

Condition:

Basement: the basement is in fair to poor condition. This below grade space has a moisture issues which appeared to be caused by several factors such as, leaking drain pipes, hose discharge from washing machines, water entering in from the below grade double door well, water entering the building though the brick façade and poor exterior site drainage. Floor drain in the basement floor had standing water in the drain.

The below grade brick wall had efflorescent on all areas and water staining was readily observed.

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There are decommissioned boilers, old decommissioned piping, decommissioned generator and other old unused equipment that have no purpose. There is a significant amount of old fire equipment, public decorations and other equipment that are stored, but serve no function to the operation.

Potential mold growth scenarios exist.

Attic: The attic space appeared in good condition. The Main building space does not have any specific function other than to house HVAC equipment. Active water staining was observed in the Chief's office below the tower attic. The tower attic has had past water damage due to failure of the copper pan to discharge excessive rain water off the roof system.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Remove all decommissioned equipment and all unused materials to provide better air flow throughout the basement space. Table 1

Address basement level door rot and gaps (see doors) Table 1

Install outside air to air exchangers in basement to move air and dry out sub basement conditions. Table 1

Fix all leaking pipes, drains and re-plumb as required. Table 1

Clean and camera all below grade drains to assure operation. Table 1

Make weathertight all doors and windows. Table 1

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition:

Other than the front door to dispatch, the building meets no MAAB codes or ADA compliance.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

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If the intent of the town is to renovate and upgrade the building, the significant moneys needed to repair this structure will require the building to upgrade all handicap compliance for employees and public use and access. This would include elevator, men's and women's handicap toilets, and locker facilities, and widening and replacement of all doors and hardware. Table 2

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Walls	Ceiling	Other
Apparatus bays	Poured concrete	Block or brick painted	Plaster painted	
Second floor offices	Hardwood linoleum Limited carpet	Plaster painted with wood wainscoting and wood plank walls	Acoustical tile/ main hall tin	
Stair towers	Wood stair	Plaster painted with wood wainscoting and wood plank walls	Plaster painted with wood wainscoting	
Attic Storage Tower	Wood boards	Unfinished brick	Unfinished wood deck	Access via vertical metal ladder

Conditions:

The general conditions of the interior finishes is fair to poor. The finishes are extremely dated. Plaster ceilings and acoustical tile have cracking, holes, water staining prevalent in most areas. Most materials are original to the construction or a 1950- 1960 update. Holes in plaster in the stair ways need repair.

Fire Headquarters

The kitchen's location directly abutting the apparatus bay is subject to fumes, dust, dirt, and moisture; potentially impacting sanitary conditions for staff.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Washing machine in the rear stairway and its operation may conflict with the emergency use of the stairway by the firefighters. Table 2

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The main water service appears to be in galvanized water service. The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim.

The electric water heater is a recent installation and reportedly serves the needs of the building. Piping looks in working condition.

Welded and threaded black iron pipe is used for gas piping within the subject property.

The toilet facilities were basic. No locker-room and a single shower unit exist for the occupants use. The toilet facilities do not have separate male or female toilet/locker facilities.

Washing machine is located in an egress stair and discharges into a basement floor drain.

Condition:

The entire plumbing system is in poor shape. There are no separate toilet facilities, no separate locker rooms or more than one shower stall in a facility that is in constant use 24/7 for the male and female creates potential Human Resource issues.

The floor drain waste piping in the basement has pinhole leaks which adds moisture to the basement area, limiting the usefulness of the basement. Some areas of waste piping also had bad leaded joints which allow effluent to leak into the basement space. A pvc waste pipe which may be non compliant with the code, has had the wye plumbed backward from actual flow. This pipe also had sags and pitches in the pipe that did not allow for proper discharge of waste. It was observed that piping from the washing machine was not operational, and waste water was deflected across the floor into the floor drain system. This is a violation of plumbing code. The age of the waste piping is old and several of the leaded pipe hubs has had the lead missing. The lack of tight seal allows for sewer gasses to enter into the space as well as showed signs of waste water leaking from the joint.

Fire Headquarters

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate need is to further investigate all waste and drain piping in the basement. Most waste piping will require removal and replacement. Table 1

Replace the bad section of the laundry waste piping to allow for the proper operation of the laundry waste. Relocation of washing machine out of the stair way per building code. Table 1

Remove all non code complaint pvc piping and replace with ductile iron or other metal piping. Table 1

Long term planning for separate male and female locker/shower rooms and toilet facilities. Table 2

Replace galvanized steel water feed to the building. Table 2

4.2 HVAC

a. Heating Plant

Description:

The building has a new (installed in 2014) gas fired Hydroair Furnaces in the attic space that address all second floor heating needs. These units also provide cooling with roof mounted condensing units. The apparatus floor is generally heated with Modine units.

Apparatus bays are vented with a combination of wall mounted fans and a plymovent system.

Condition:

The general condition for the system is good. The cavernous space and poor insulation and lack of energy conservation in the structure itself allow for significant heat loss. This significant heat loss not only incurs large operational expenses, but will premature fail the heating equipment trying to keep up with continual demand.

b. Distribution system (VAV, FCU,, exhaust)

Description:

The newer attic mounted package equipment provides the adequate heat and air flow needed for the facility. The Modine units in the apparatus bays are a common design to provide a minimal heat load in a large space.

Fire Headquarters

Condition:

The heating units are in good condition.

The exhaust air system is in fair to poor condition. The plymovent system addresses a majority of the truck exhaust air, but the depth of the station and the overcrowding of trucks create voids and areas which do not allow for adequate air flow to rid the bays of contaminated air. The apparatus bays have doors and windows that provide little of no air tightness which helps move air. This unintended consequence helps with air changes.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Engineer an automatic evacuation system that covers all apparatus bay areas with CO and NO sensors. Table 2

4.3 Electric

Description:

The electric service is a 200 Amp service that has had an upgraded circuit breaker panel and sub panels installed. The wiring is a mix of sheathed wiring (romex), metal clad (mc), fabric sheathed and concerns that knob and tube wiring exists in confined/concealed spaces. Communication and Cat 5 data wiring is visible in the basement area.

Condition:

The wiring for this type of facility is poor condition. The main panel and sub-panel are circuit breaker protected and are current technology and are in acceptable shape. The distribution of the wiring is in poor condition. Wires are not properly supported in the basement and are fastened or drape over gas piping. Wiring are often bundled through tight chases or through rough cut cores which do not meet code or manufacturer's standard. The electric and communications wiring use the plumbing waste stacks as chases. The electric and communications wiring come in contact with both waste and supply water piping creating the concern of electrical shorts damage due to water leak. Communications wiring is not separated from the electric wiring which most manufacturers feel that stray current from the electric wiring could interfere with the signal in the communications wiring rendering it in-effective.

Within the building spaces, the old wiring circuit layouts provided minimal outlet coverage within an office or a space. This minimal distribution of outlets creates the need for the use of extension cords and power strips to provide the needed power to the various office equipment.

The concern that knob and tubing wiring may exists within the walls and concealed spaces. This old wiring has far exceeded its life expectancy, and is considered a hazard in a commercial building. The age of the building and wiring observed, there is also a concern that many of the outlets are not grounded. , Ungrounded outlets and circuits can affected most new electronic equipment such as computers, communications equipment and monitors which rely on a grounded wiring.
Fire Headquarters

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

The immediate need is to re-evaluate all electrical distribution to correct all code violation for personal and equipment protection. Table 1

Add outlets in office and working spaces to eliminate extension cords and over used power strips. Table 2

Test all wiring for continuity, ground, and replace any knob and tube and fabric covered wiring. Table 2

Separate communication wiring from electrical wiring and from plumbing piping. Table 2

4.4 Building Fire Suppression and Fire alarm

Description:

No Fire suppression

Fire alarm exist

Condition:

The condition is considered poor. The fire alarm system should be a comprehensive system with horns and strobes with a combination of smoke and heat detection. The Fire Station also should have the carbon monoxide and NO detection tied into an engineered exhaust air system to assure fumes do not penetrate the working and living space of the station.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Upgrade all fire detection, notification, and carbon monoxide detectors to a current building code standard. Table 1

Fire Headquarters

5.0 CODE/OPERATIONAL CONCERNS

Description:

Dispatch area: During our walk through we observed that the dispatch/communications area is negatively impacted due to the building's limitations, including: 1) location abutting the apparatus bays allows for excessive noise, fumes, moisture, and dust all of which impacts the equipment and overall operations; 2) limited size and shape of the space does not allow for adequate workflow to better service the public and to maintain independence from other department operations; 3) industry standards require a secure environment, which this location does not provide; and 4) no option to expand to better service the regional operation.

Air Tanks for horn notification: As described there are three compressed air tanks, with an air compressor, to operate the horn notification system. Two tanks in the basement are newer (2013 models). The older tank in the tower attic has failed its psi testing requirements and is not compliant with the State's certification program. This inability to meet the rating is in violation of State regulations. Replacement is an immediate requirement for non-compliant equipment. Table 2

SCBA recharging station: This equipment is required to be in a separate room to allow the machine to refill firefighters air breathing equipment without concern of contamination. The SCBA system has a direct outside air source and quarterly testing to assure high quality air is going into the SCBA tanks. The existing equipment is located in the rear of the 1940s apparatus bay addition. This location is in direct conflict with the manufacturer's recommendations and National Fire Protection Associations (NFPA) regulations. The unit is exposed to garage bay climatic conditions, moisture and contaminated air. This unit's life span can be affected to these uncontrolled climatic/contaminated conditions. Table 2

Fire Fighters Gear storage: Currently stored within the garage space. The fire fighters gear is exposed to garage climatic conditions and contaminants from vehicle exhaust. NFPA advises against this type of storage to assure health and safety of the owner of the material. Table 2

TABLE 1- IMMEDIATE REPAIR COSTS						FIRE HEADQUARTERS	
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1	Asphalt	upgrade all asphalt				20,000	
2.1	Fencing	Replace damaged fence	125	40	lnft	5,000	
2.1	site drainage	add drainage				10,000	
BUILDING CONDITIONS							
3.1	drain pipe	clean/repair drain pipe				8,000	
3.2	see table 2						
3.3	Masonry	table 2					
3.3	Masonry repair		1,000	100	brick	100,000	
3.3	Structural repair	Unknown amount					
3.3	garage doors	replace life cycle	6,000	5	unit	30,000	
3.3	Man doors	replace not operable	1,500	2	unit	3,000	
3.3	sealant caulking	replace all sealant draft issues	10,000	15	lnft	150,000	
3.4	roofing	repair copper pan				8,000	
3.5	clean out basement	remove unused material in storage				4,000	
3.5	clean drains	clean all floor drains				7,000	
3.5	weather tight	Make all basement level penetrations weather tight	1	1000	I day	1,000	
3.5	replace basement door	replace old basement level garage door				5,000	
3.6	table 2						
INTERIOR ELEMENTS							
3.7	Table 2						
BUILDING ELEMENTS							
4.1	basement piping	replace damaged piping and other code items				35,000	
4.1	water service	replace galvanized water service				20,000	
4.1							
4.2							
4.3							
4.4	Fire alarm panel	install a code compliant system				18,000	
CODE COMPLIANCE							
5	Air tank	replace failed compressed air tank				5,000	
5	table 2						
TOTALS						429,000	
1.25 MULTIPLIER						536,250	



3.1 Bay 5 floor failure In corner failure radiates up brick wall



3.1 Bay 6 exterior wall stress crack through brick and block. Radiator is not in service



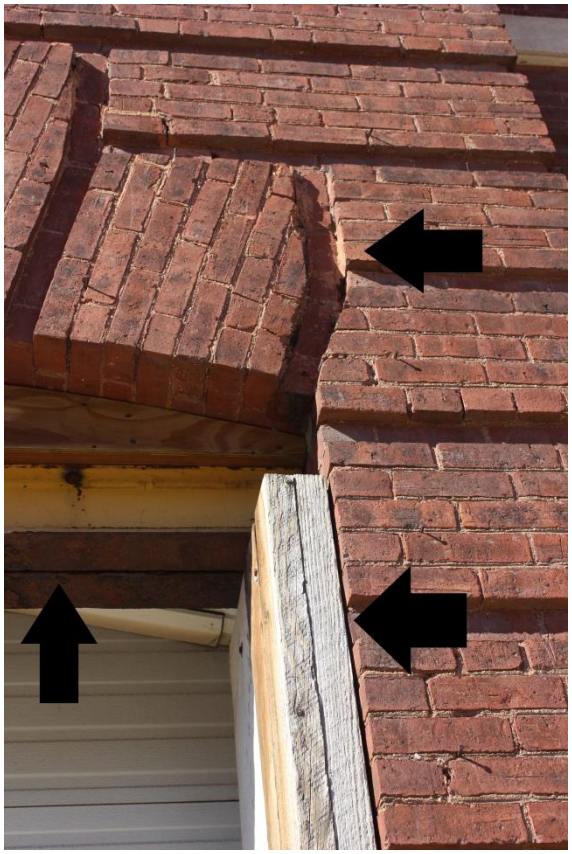
3.2 Interior beam at exterior addition wall pulling away from wall



3.2 Addition building stress cracking of brick at interior wall



3.2 Bay 5 garage door lintel and mortar failure due to deflection, rusting and movement.



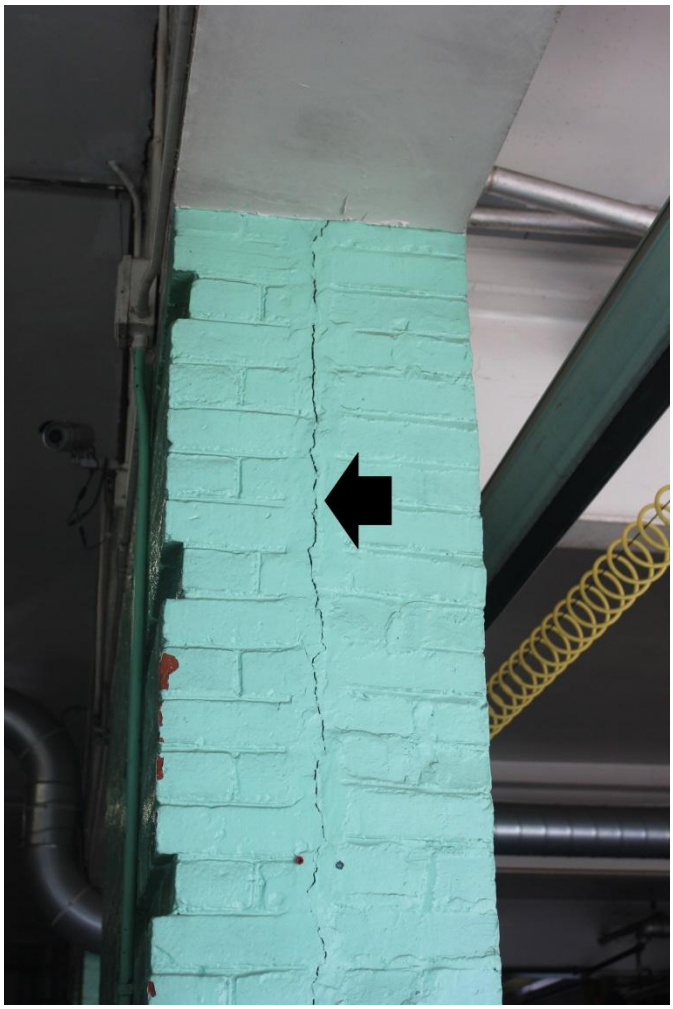
3.2 Added exposed lintel (rusting). Wood support not engineer to support masonry. Upper arrow indicates mortar joints opening up



3.2 Significant brick movement and failure at front façade. Arrow shows rusting lintel that appears to have deflected and expanded opening mortar joint that has been filled with mortar.



3.2 Interior wall of 1960 addition stress cracks at opening



3.2 Interior column at original building/1960 addition stress crack of support column



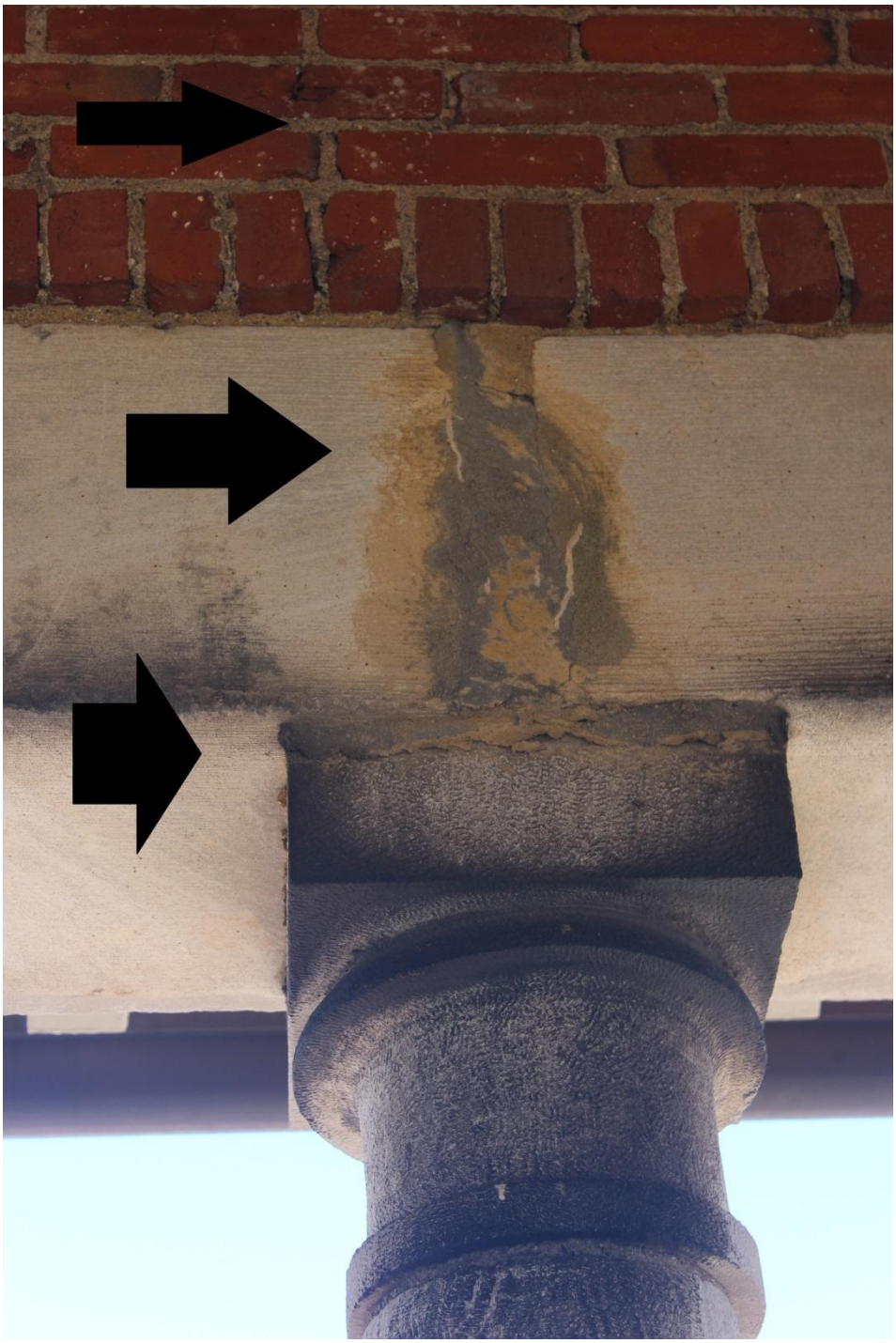
Main building basement floor lintel movement affecting brick



3.2 Significant brick movement main building at 1940s addition. Excessive water infiltration is occurring causing efflorescence and continual failure.



3.2 Tower column missing mortar



3.2 Upper area cracking in brick joints due to movement

Mid arrow cast lintel joint movement and several patches with epoxy and mortar

Lower arrow trying to seal lintel and column from water



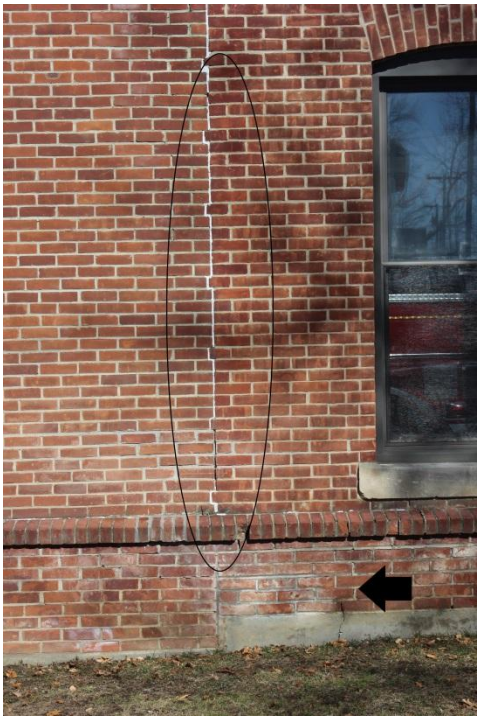
3.2 Wood Temporary support. Concrete lintel support area of concern. Brick and mortar damage (yellow) causing upper cast stone movement. Note: critical communications equipment on right



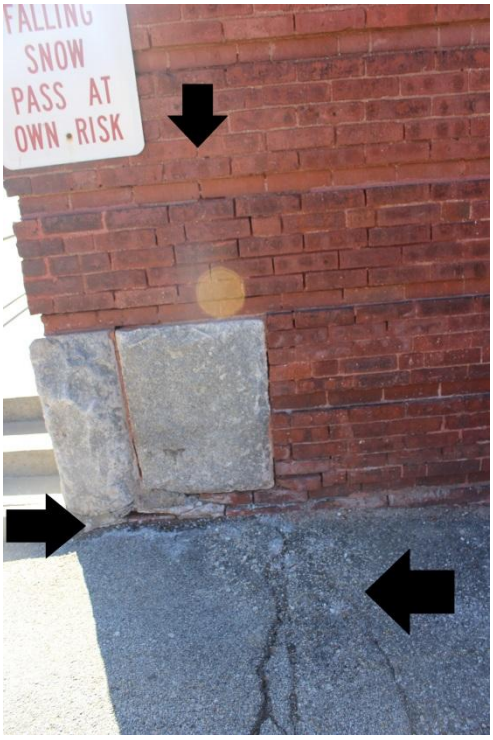
Arrow Upper cast lintel with minimal support patched Circle typical mortar failure.



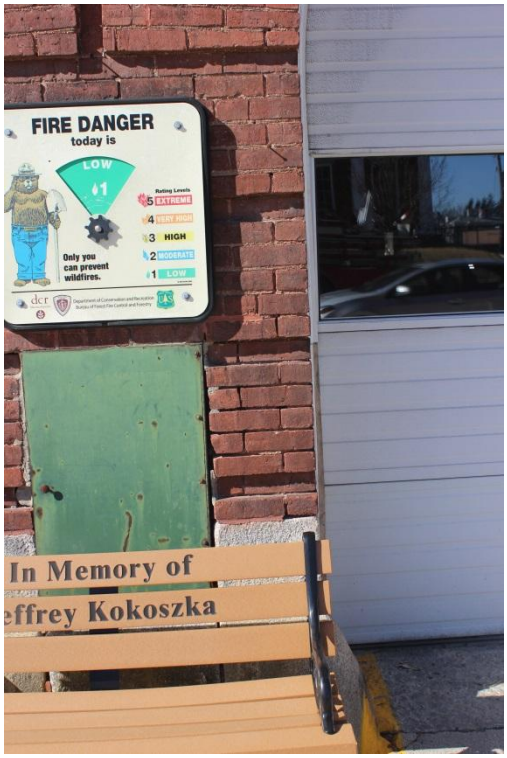
3.3 1960 Brick shelf improperly flashed and failing. Caulk joint (arrow) failed, but not a proper application



3.3 1960 addition Foundation cracking.(arrow) Brick wall joint failure.



3.3 Typical mortar failure. Cornerstone stress cracking and poor mortar repairs



3.3 Typical mortar failure around doors

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3.3 

Penetrations through rear façade allowing water and rodents.



3.3 Typical areas of significant missing grout





3.3 Door opening too small for operation

Door openings with less than 4 inches of clearance at top and 2 inches of clearance at bottom. Operationally impacts efficiency and creates vehicle damage

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3.3 Southbridge Fire Station Masonry

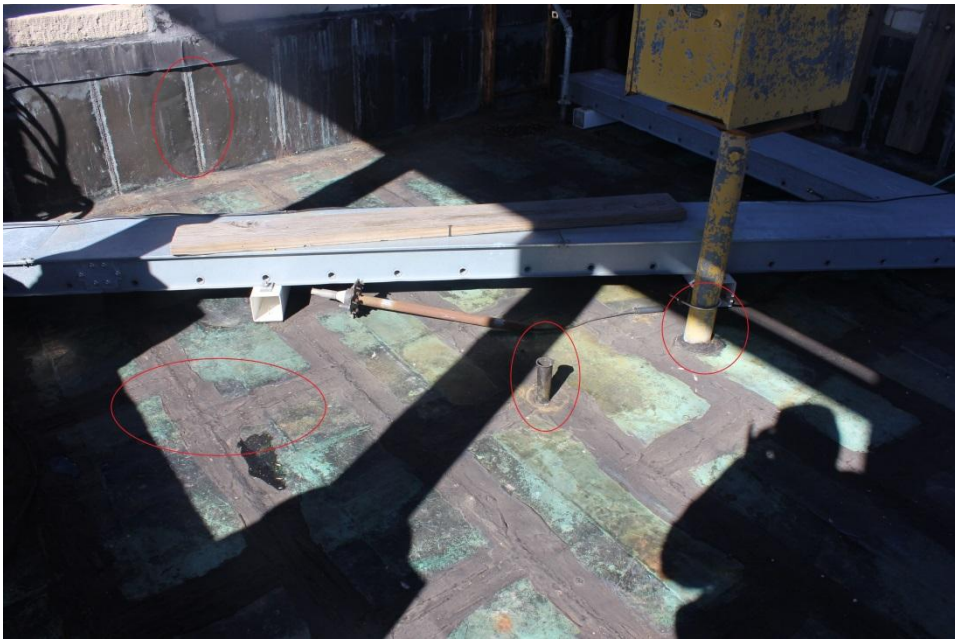
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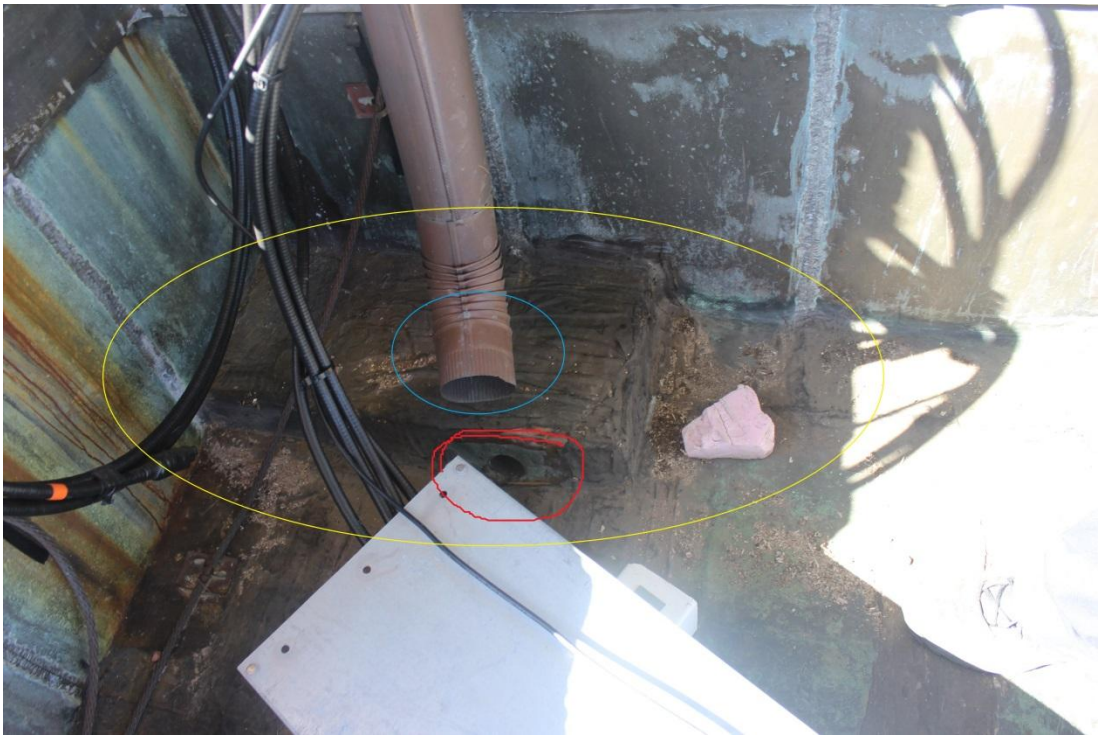
3.4 Apparatus bay roof. Roof granular stone facing is worn thin



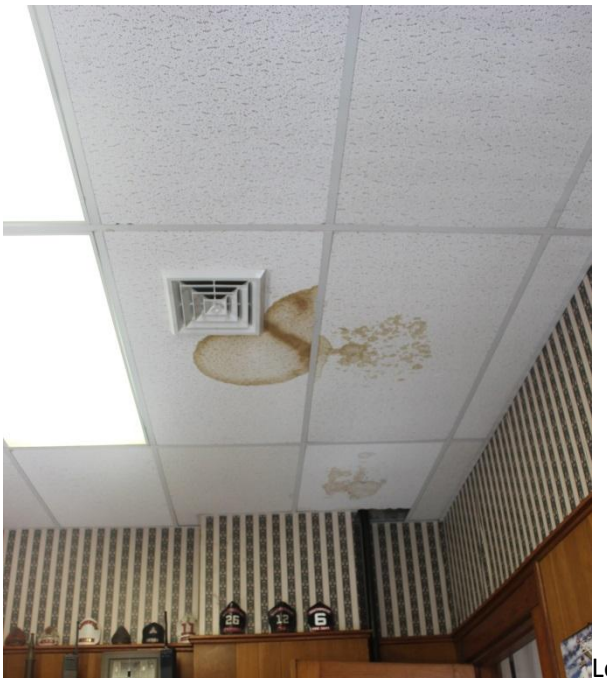
3.4 Detail of worn granular stone exposing fiberglass reinforcement.



3.4 Tower Copper pan roof. Copper seams failing, undersized emergency overflow, improper penetration flashing.

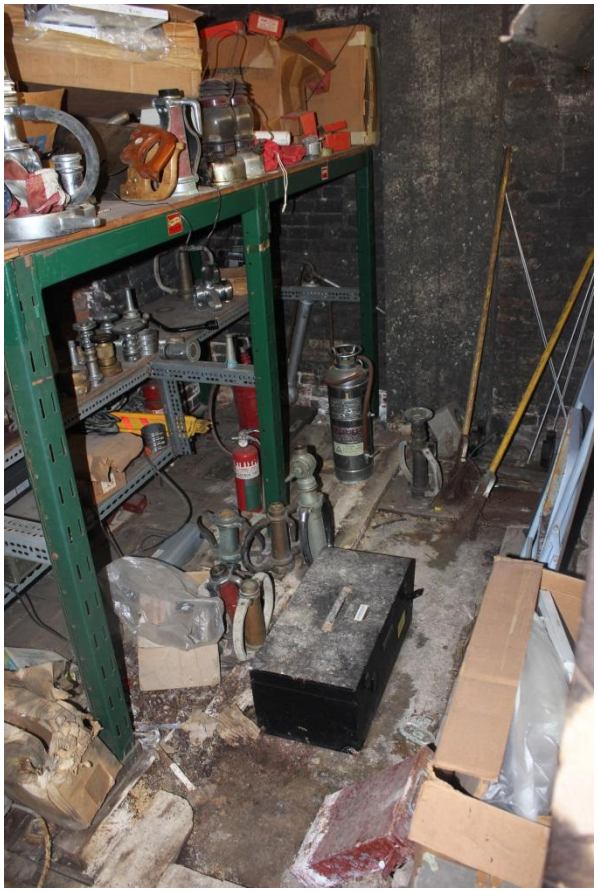


3.4 Tower roof drainage: Upper roof discharge (blue) overwhelms 1 ½ Inch roof drain (red). Corner blocking has mastic over copper to prevent leaking, improper fix.



Leak of upper tower pan leaking into Fire Chief's office

3.4 Roofing

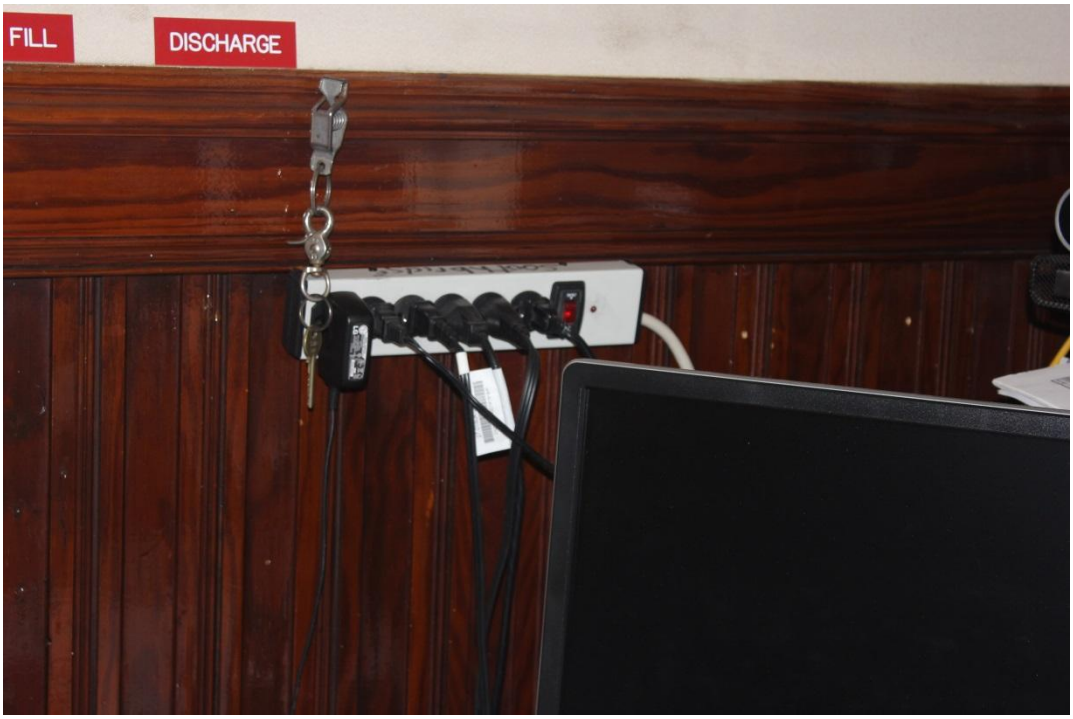


3.5 Basement storage affected by excessive moisture

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3.7 Second floor of fire station. Limited operational function



4.3 Typical electrical overloading of circuit due to lack of outlets.

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4.1 Leaking waste pipe joints and leaks in piping



4.1 Make shift washing machine drain using the floor drain system


Basement level door

3.5 Door offers no insulation and weatherization. Exterior moisture enters the building.

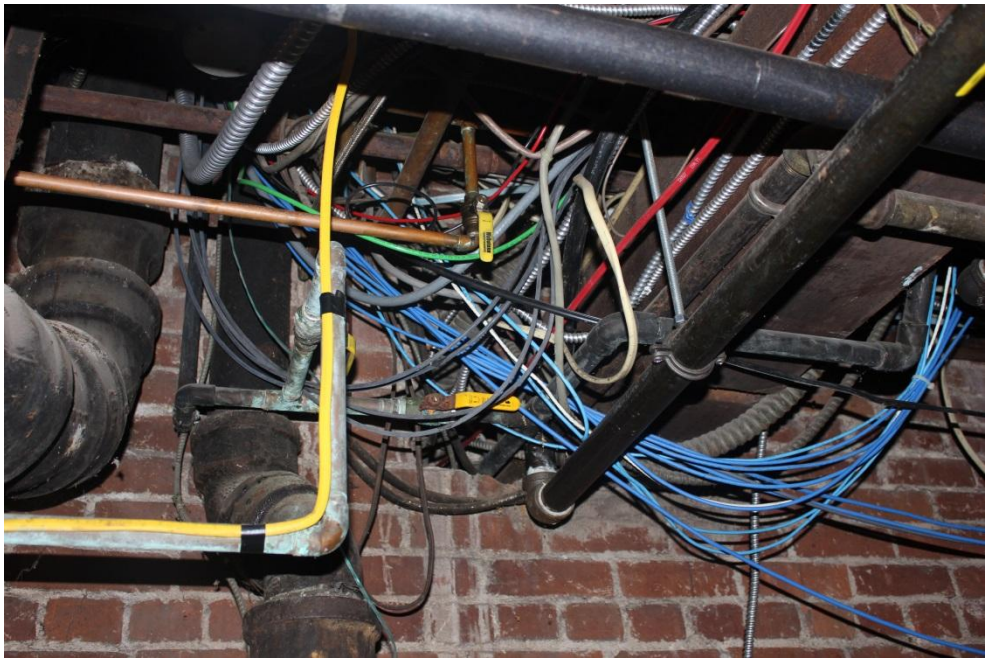


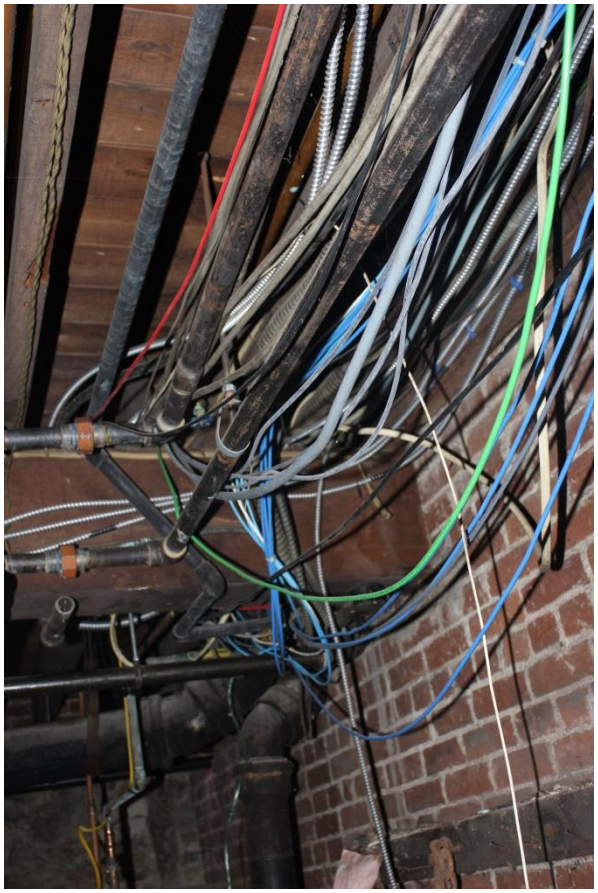
4.2 Added venting of apparatus bay due to excessive exhaust



5.0 Bad air tank (air horn system) not in compliance or approved by State of Massachusetts.

Fire Headquarters



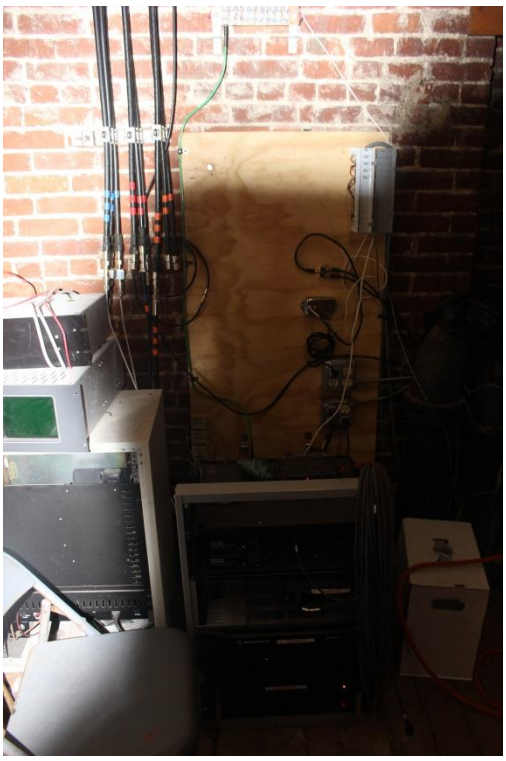


4.3 Electric and communication wiring improperly installed and in violation of electric codes and practices.

Fire Headquarters

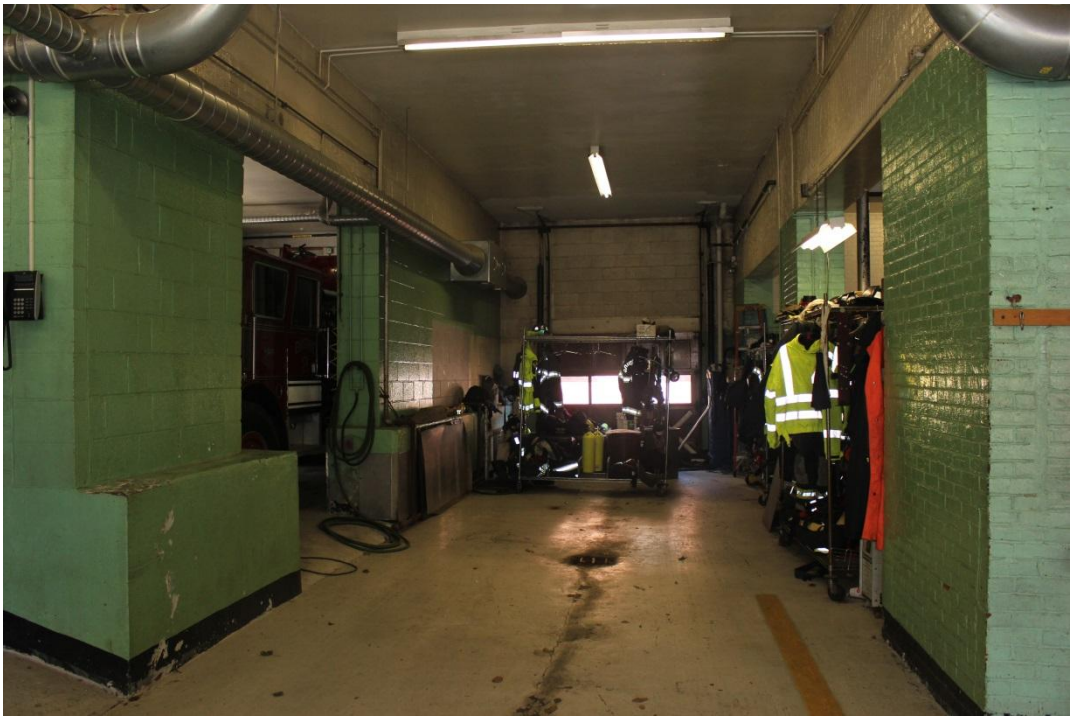


Operation air horn tank not in compliance with State of Massachusetts pressurized tank standards



4.3 Communication equipment in upper tower attic. Concern is questionable roof pan has leaked and could affect equipment

Fire Headquarters





5.0 Fire fighter gear stored in active apparatus bay and makeshift basement level equipment drying operation

Fire Headquarters



4.1 Washing machine in a means of egress stair



5.0 Scotts Pack filing machine located in the rear of the 1960 apparatus bay. No room separation as required per NFPA and Manufacturer.

Fire Headquarters





5.0 Typical lack of operational storage

TABLE 2- REPAIRS/REPLACEMENT PLAN — FIRE HEADQUARTERS

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	year 3	year 4	Year 5	Total over the term
SITE CONDITIONS														
2.1	site work	upgrades require to support a new renovated structure						estimate			150,000			150,000
2.2														-
BUILDING CONDITIONS														
3.1														-
3.1														-
3.2														-
3.2	Engineering	architectural/structural engineer to investigate and design repairs					750,000		750,000					750,000
														-
3.2	structure	install seismic bracing/repair lintels						estimate		1,500,000				1,500,000
3.3	Masonry	repoint/repairs				18,000	55	sq ft		1,000,000				1,000,000
3.3	Masonry	replace bricks				1,000	100	unit		100,000				100,000
3.4	Roofing	Replace flat roof				6,550	13	sq ft		85,000				85,000
3.6	ADA	Upgrades required due to construction (elevator/bathrooms)				200,000		estimate			200,000			200,000
INTERIOR ELEMENTS														
3.7	Renovation of interior	upgrade interiors				4,788	300	sq ft			1,436,000			1,436,000
BUILDING ELEMENTS														
4.1	Plumbing /HVAC	upgrade plumbing and hvac for code and need					12% of overall cost				480,000			480,000
4.3	Electric	upgrade for need					9% of overall cost				360,000			360,000
CODE COMPLIANCE														
5														-
5														-
TOTALS									750,000	2,685,000	2,626,000	-	-	6,061,000
1.25 MULTIPLIER														**7,576,250**

ANIMAL CONTROL



Location: 83 Dresser Hill Road

Year Built: ????

Condition: Poor

Assessors:

Building area: 1,100+/- sq ft

Land area: (located at WWTP)

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Animal Control

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT	Acoustical Ceiling Tile	GFI	Ground Fault interrupt (circuit)
AHU	Air handling unit	GWB	Gypsum Wall Board
BTU	British Thermal unit (heat measurement)	HVAC	Heating, Ventilating, Air Conditioning
CMU	Concrete Masonry Unit	HWH	Hot Water Heater
EDPM	Rubber membrane roofing	MDP	Main electrical distribution panel
EUL	Expected Useful Life (life cycle)	PTAC	Package through wall A/C unit
FCU	Fan Coil Unit	RTU	Roof top Unit
FHA	Forced Hot Air	MSBC	Massachusetts State Building Code
IBC	International Building Code	VAV	Variable Air Volume box
ACM	Asbestos containing material	VCT	Vinyl Wall covering (floor tile)
ADA	Americans with Disabilities Act	MAAB	Mass. Architectural Access Barriers

Animal Control

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat using the existing paved parking lots and drives that service the sewer treatment plant

Condition and Observation:

Recommended Repairs:

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely paved to accommodate the sewer treatment plant use. Parking and access appears adequate.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

2.3 Landscaping

Description: None

Condition and Observations:

Recommended Repairs

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas/Oil

   Oil

c. Electric

   National Grid

Animal Control

3.0 BUILDIND CONDITIONS

3.1 Sub Structure/Foundation

Description:

The foundation and slab on grade appear to be a monolithic poured concrete, consistent to a simple foundation for a utility type structure. The slab is a rough finished slab.

Condition and Observation:

Foundation appears to be in fair condition. The uses for this building have changed over its life. The current use an animal control/animal storage requires the slab to be sloped to be washed and drained on a daily basis. The slab and the drainage trough do not have the proper slopes to provide adequate drainage. The slab is a rough finished slab does not work to allow for easy cleaning. The roughness of the slab and lack of pitch do not allowing for proper sanitation.

Condition and Observation:

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Slab would need to be removed and re-poured to get a positive slope and drainage

3.2 Super Structure

Description:

The building is a wood framed storage building.

Condition and Observation: POOR

The building has long past its lifecycle and is in poor condition. The building has been used as a catch all out building with little maintenance over the rears. It appears several modifications have been performed in a make shift manner to adapt the new use to the space. Sags in the rafters and wall bowing are observed. Visible rot and decay at the bottom of the walls and it the wall floor plate that affected the structural integrity of the wall.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Due to the significant damage and condition of the structure, upgrades are so extensive that it will trigger several code standards if it was to be re-used . The upgrades will be cost prohibited, and recommendations would be to replace the structure that meets all department needs.

Animal Control

3.3 Facades

a) Description Facades:

The building is clad with a wood shingles/clapboards and Texture 1-11 siding.

Condition: POOR

All siding areas show significant weathering, decay, and failure in the materials. The Materials are "pulling" away from the walls and loosening all nailed connections.

b) Description Windows and Doors"

The windows and door are residential grade materials.

Condition:

The condition is in poor condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement of building is recommended due to cost effectiveness.

3.4 Roofing

Description:

Roof is an asphalt roll roof.

Condition: Poor

The roof material has exceeded it lifecycle. The roll roofing is cracking, damaged and swelling.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement of building is recommended.

3.5 Basements / Attics

Description:

Attic is an inaccessible, and minimal space.

Condition: Unknown

Animal Control

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: POOR

Building does not meet any handicap accessible requirements for access or office/bathrooms. If the town were to do substantial upgrades to the facility, full compliance is required.

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	**Floor**	**Wall**	**Ceiling**
Animal storage	Concrete	Plywood	Plywood
Office	Concrete	Sheetrock	Plywood.

Conditions: Poor

The building was not properly designed for its current use. The use of permeable materials such as wood and sheetrock in a minimally heated structure that has a lot of moisture has allowed for decay and premature failure of materials. Sheetrock and plywood has swelled in several locations and lifting from the wood structure. The space has far exceed its life cycle and has no value.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

There is no easy way to make the interior finishes moisture proof to serve the need as an animal shelter. Replacement of building is recommended.

Animal Control

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The domestic services enters up from under slab into the mechanical space . Observed supply piping is copper and waste line are cast iron. The plumbing fixtures are vitreous china in bathroom with several hose connections.

Electric hot Water heater has exceeded its life expectancy.

Condition: POOR

The plumbing was installed as a retrofit to the existing use. The waste water system does not fulfill any need in the animal storage area. The trough drain lacks proper pitch to lead into the cast iron waste drain. Venting of the drain system is in question.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

If building is to remain, upgrade plumbing and waste drainage to be code compliant and operational. Removal of existing slab to install needed plumbing

4.2 HVAC

a. Heating Plant

Description:

Oil fire forced hot air furnace.

Condition:

The unit has far exceeded its life expectancy.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

If building is to remain, replacement is required

4.3 Electric

Description:

Electric service is an underground supplied power feed of 100 amps.

Animal Control

Condition: Poor

System was retrofitted into the current use. Moist area has no GFCI protection.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Assuming building is to remain, new service and wiring distribution is recommended.

4.4 Building Fire Suppression, Fire alarm, and life safety

Description:

No Fire Suppression

No Fire alarm system

No life safety lighting or extinguishers were observed

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Assuming building is to remain a basic fire detection and co detection would need to be installed.

5.0 CODE/OPERATIONAL CONCERNS

Description:

The building is such poor shape for the intended use, and lacks any code compliant criteria, health standards. Repairs would far exceed the useable cost necessary to fulfill basic needs of the animal control officer for Health requirements for storing animals. This extensive repair would also trigger extensive code compliance upgrades to meet handicap, health and building codes, that make the renovation cost prohibited.

A “repair” would require a complete gut of all materials both interior and exterior. Concrete slabs would need to be cut out and re-poured to get the positive slab pitches to wash the stalls. Current heating and electrical systems require replacement.

Replacement of the entire structure would be more cost effective than repair. The design of a new building could to done with premanufactured buildings or in phases that could control costs but result in a more functional building.

A budget price for a replacement structure should be $270 square foot, not including land cost.

Animal Control





Animal Control

PUBLIC WORKS GARAGE & OFFICES



Location:	185 Guelphwood Road	Assessors:	014/001/00001
Year Built	1974 (Acquired 2007)	Building area:	64,743 sq ft
Condition	Good	Land area:	9.37 acres

1.0 PURPOSE and LIMITATIONS

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Public Works Garage & Offices

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat and treed along the outer periphery. Actual building site sit below the road elevation

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely paved to accommodate the use. Parking and access appears adequate. Area has no curbing.

Area adjacent to the fuel island is concrete

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed.

The site drainage is focused toward the rear of the lot and area catch basins

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Systematic replacement plan of areas in disrepair. Table 2

2.3 Landscaping

Description:

The site is predominantly asphalt. The outer area is wooded and houses dirt piles with contaminant. As reported, the contaminated soil is in process of classification and resolution. The wooded area has been left to grow wild.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Finalize all hazmat issue and resolution. Table 2

Public Works Garage & Offices

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas/Oil

   Oil

c. Electric

   NationalGrid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Poured concrete foundation and slab. The foundation walls are assumed to have spread footing

Condition and Observation:

Generally the foundation appears to be in good shape. No visible sign of cracking or movement were observed.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: None

3.2 Super Structure

Description:

The building is an engineered pre-manufactured steel frame building with metal roof and siding. As described, the construction was designed for a steel manufacturing and distribution company. The large columns and steel frame was designed to support an overhead crane system . The system has a heavy column and beam support with structural roof and wall girts that span the supports. Metal roof deck and metal wall panels are screwed into the girt system.

Condition and Observation:

Based on overall appearance and observed general conditions of the building, the superstructure appears to be sound and in good condition. There are areas in the structure where metal panel are in poor shape or have experienced wind loading and have damaged the panels. The exterior open air garage area has several areas where this uplift panel damage has occurred (see Section 3.3 Facade).

Public Works Garage & Offices

As reported, there is an operational need to replace the far north side garage egress door with a much larger truck door (approximately 16 foot tall door).

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Have a structural engineer inspect the exterior metal panel fasteners, and garage door opening for modification to a larger door. Table 1

3.3 Facades

a) *Description* Facades: metal panel

The façade is a typical metal panel for a pre-engineered building. Typically this façade has a 50-60 year life cycle. The panels overlap design is fastened with metal screws with washers to prevent moisture infiltration.

Condition: Good to Fair

The condition of the observed metal panels is generally good. There are areas that the fasteners/washer assembly is fatigued and should be addressed. As noted in Section 3.2 Super Structure, areas of damaged panels needs to be inspected. Light rusting on metal panels is beginning and should be addressed. Denting in the walls and pitting of the painted panel also show signs of weathering. At panels that are loose or have lifted need to have fasteners inspected and replaced.

b) *Description Windows and Doors*: Good

The windows are aluminum framed window typically found in commercial construction. Condition appears to be in Good condition. Energy efficiency is minimal.

Main entry is an aluminum commercial store front system typically found on commercial construction. Condition appears to be in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Have a structural engineer inspect the exterior metal panel fasteners. Table 1

Replace significantly damaged panels. Table 1

Powerwash entire building and spot paint panels that have rusted. Table 1

3.4 Roofing

Description:

Metal panel roof structure which is typical for a pre-manufactured pre-engineer steel building. The panels, much like the wall panels are overlapped and are fastened to the structural girt system with metal screws with washers. There are mechanical roof penetrations for plumbing stacks, roof top equipment and communication equipment.

Condition: Good to Fair

While a majority of the roof appears to be in fair condition is has been reported areas of the roof have developed some small leaking. Leaking on a metal roof is generally found at locations where the fasteners anchor the roof panel to the roof girt system. Failure occurs due to age/ acidic weather reacting to scratches or the fastener washers degraded begin to rust the panel and allow for water infiltration. All roof penetrations should be inspected thoroughly to assure there weather tightness. User reports of ice damming at key areas on the south side that also creates roof leaking issues. At the location where the middle roof section is at a different pitch from the abutting roofs, there is a small "cheek" wall that has experienced leaking on both end. From the ground, in a couple of areas daylight could be seen. To address ice damming, the re-evaluation of the interior insulation needs to be performed and missing or damage insulation replaced. (See Section 3.7 Interiors), Installation of snow guards to hold snow in place to prevent stacking of snow in areas and allow for a slow and even melting.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Have a structural engineer inspect the exterior metal panel fasteners and flashing details at the cheek walls. Table 1

Immediate repairs should focus on the full inspection and replacement of metal screw panel fasteners of the roof deck, roof penetration flashings, and caulking. Table 1

Perform a roof assessment and determine if the roof needs and emulsion roof coating to weatherproof and extend life. Table 1

Gutters need to be inspected and re-fastened to assure proper water flow and discharge. Table 1

Re-assess design and strength of Fire & Police Storage doors canopies. Snow slide of the main roof has impacted these canopy roofs and doors. Additional support and install of a protective portico roof will provide safety and deflect snow away from the doors. Table 1

3.5 **Basements / Attics**

Description: none

Public Works Garage & Offices

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed in order to meet the provisions of Title III of the ADA Act.

Condition:

A ull ADA audit should be performed to assure that public areas and offices are compliant or are made accessible for specific employees. Work or employee areas (garages/shops) are not public.

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Walls	Ceiling
Office		Sheetrock and paint	Sheetrock and paint
Garage Bays	Concrete	fabric faced insulation	Fabric faced insulation

Conditions:

In all garage bays the exposed fabric faced insulation, commonly found in metal buildings, exists on both the wall and ceiling. A majority of the space, the insulation is in fair shape. There are several areas on the walls where the fabric has been damaged and torn. Smaller area of damage can be repaired. The ceiling, in the mid-section of the structure, where there are two different roof heights and a cheek wall meet, has significant damage to insulation. It can be readily observed from the ground, insulation has detached from the structure, has fallen out of the bay, or has been compromised due to roof and cheek wall leaks. (see section 3.3 and 3.4) It should be noted, that reported ice damming areas on the roof occur below the areas of the described with the significant ceiling damaged insulation. The missing or loose insulation allows for heat to readily melt the snow on the roof. This melting is a large cause of the ice damming issue experienced by the DPW.

In all areas, the fabric insulation facing has been exposed to fumes, dirt and dust. The fabric needs to be cleaned.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Upon completion of all roof repair, replace all roof and cheek wall insulation in the mid bay area of the high pitch truss roof. Table 1

Spot repair or replace damaged insulation sections. Table 1

Clean (steam?) all insulation fabric. Table 1

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

A 6" water service enters the building at the main garage arwa. The system has backflows, shut off valves, and distribution for the fire suppression system.

Condition: Good

4.2 HVAC

a. Heating Plant

Description:

Large garage bay: Heating is supplied be two large floor mounted oil Fired AHU system. The system uses existing inside space air and heats air.

The garage repair shop has a supplemental waste oil heater forced hot air system (FHA) (Energy Logic)

Office space is heated by a multi boiler (4 unit Hydrotherm boiler) that supplies hot water to three AHU units (Mcquay, and 2 Lennox units). A Lennox RTU roof mounted unit supplies air to second floor offices.

Condition:

The large FHU units in the garage bay are nearing the end of its lifecycle. These large units, while providing general space heating, and inefficient, do not distribute heat effectively to the floor level, and Public Works Garage & Offices

rely on recycling existing garage air. The Burner on the unit is a vintage unit original to the equipment. While operational, this unit and the underground oil tank, should be scheduled for replacement.

The hydrotherm boiler units appear in operational shape.

b. Distribution system (vav, FCU,, exhaust)

The office area is heated through ahu units that distribute air to the office. At the offices a thermostatically controlled damper regulates heat and air flow.

The first floor office area is heated with heat pumps from the split system

Description:

The system is a basic and operational building air distribution system.

Condition:

The system operationally performs. The equipment is reaching its lifecycle and systematic replacement of pumps, blower motors, office control dampers should be expected and budgeted for.

The problem with air distribution described is the large front door atrium space allows the first floor heated air to instantly rise to the second floor. This chimney affect prevents the first floor workers from receiving heat down low at the seated desk level, the air movement across the open glass vestibule is always moving, making this area cold. The first floor, as described by staff, is heated with a heat pump system. This system cannot provide the BTU output in the extreme cold to meet the damage of the first floor.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

HVAC Engineer should evaluate the garage FHA system for longevity evaluate cost effectiveness of gas fired radiant heat in bays as an alternative to repair. Table 1

Engineer and Install a hot water fan coil unit in the atrium area to better heat the air to prevent large first floor heat loss. Also see if the second floor hot water loop can support an additional Fan coil unit on the first floor to assist the heat pump system. Table 2

Update a capital plan to address the aging HVAC equipment within the building due to most equipment nearing its lifecycle. Table 2

4.3 Electric

Description:

The overhead electric feeds a site transformer which delivers power underground to the electric room. The service and power distribution panels appear to be adequate.

Condition: Good

The power and electrical panels are in good condition. The distribution of the power and adequate outlets needs to be expanded for the current use. Some office areas need additional outlets to better distribute power within the space. The carpenters shop area needs the subpanel upgrade, and additional outlets to provide adequate Amperage to the motors of the equipment.

It was also reported that the office area requires more outlets on the emergency power. A full evaluation of power output of the generator is required. The existing emergency power panels do have capability/capacity to provide for additional circuits.

There were several random exterior and interior outlets that were broken, not properly mounted, or needed some repair work performed to be in compliance.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Have engineer determine total voltage and amperage output availability the generator and the panels. Table 1

Re-allocate existing outlets to the available circuit breakers on the emergency panels located in the office area. Table 1

Evaluate all wiring and outlets and repair/replace damage components. Table 1

4.4 Building Fire Suppression, Fire Alarm and Life Safety

Description:

The property is protected by a multi zone Fire Alarm Control panel, hard wired smoke and heat detectors, pull stations, illuminated exit lights, emergency battery lighting units, horn/strobe enunciators, fire extinguishers. A full coverage 6 inch Wet fire suppression sprinkler system with check valves, and tamper and flow switches exist. Exterior Fire Department Siamese connections are located on the exterior building. A fire hydrant is located at entrance gate.

Condition: Good

As reported these system undergo a yearly test and inspection.

Public Works Garage & Offices

5.0 CODE/OPERATIONAL CONCERNS

Description:

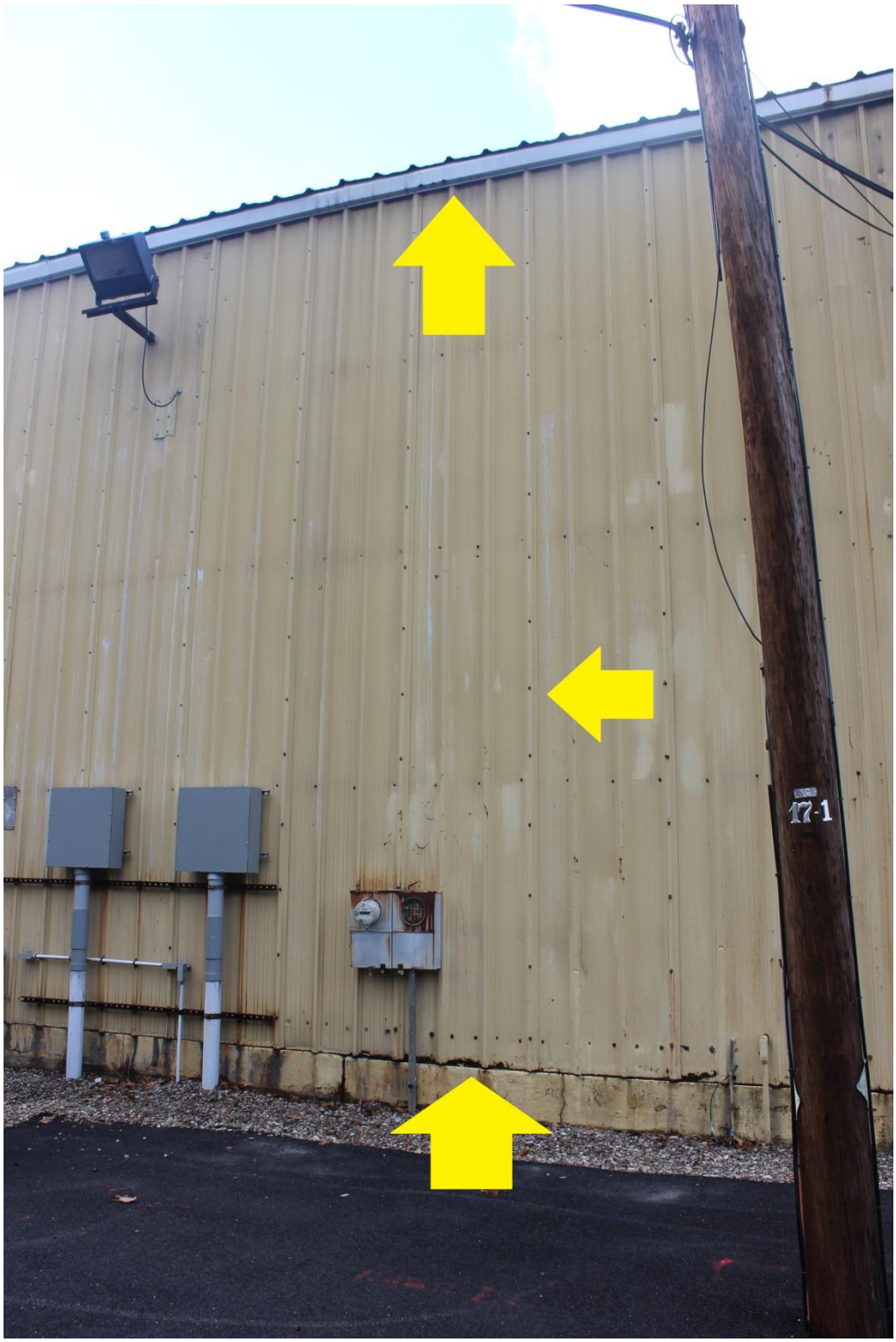
Gasboy fuel dispensing program/system: As reported, this system is at the end of its lifecycle. Like all software based systems, upgrades are needed when the software system can no longer be supported by the manufacturer and parts and components are changed. Table 1

Security:

The site and buildings are remote and house school busses and operational materials for the DPW. The current site has the one entry that has gate access. To create better traffic patterns and safety on site, and maintain security add a second control gate to the rear of the site. This second gate would allow for bus, town and DPW vehicle to enter and exit site without conflicts with public traffic. Table 1

Security cameras on site are focused on the main access of the site. Additional cameras located at key building doors and stock areas would provide better security on site. Table 1

TABLE 1- IMMEDIATE REPAIR COSTS							DPW FACILITY
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1							
BUILDING CONDITIONS							
3.1							
3.2	Engineering	survey metal panel façade		20,000		20,000	Full investigation of metal panel walls and roof
3.3	Metal panel repair	replace damaged metal panels and install fasteners		20,000		20,000	Replace known damages panels on wall and roof leak areas
	Garage door	Enlarge west end door		40,000		40,000	Enlarge west end door for truck access to meet safety and DPW operational needs
	Powerwash building	power wash building		20,000		20,000	cosmetic cleaning
3.4	Roof	refasten panel fasteners		12,000		12,000	Assume engineering discovers fastener breakdown
	Roof	gutter refastening repair	1,000	40	ln ft	40,000	Gutters have been damaged/need adjustment or new ones installed.
3.7	Insulation	reinsulate damaged areas	4,000	1	sq ft	4,000	Replace all damaged and falling insulation.
	Insulation	clean surface of insulation	20,000	0.5	sq ft	10,000	Steam clean surface to improve interior conditions
BUILDING ELEMENTS							
4.2	HVAC	engineering system study		30,000		30,000	Several large units in the bay areas are nearing life cycle. Engineer study to determine the most cost effective replacement system is reccomended. (Radiant heat)
4.3	Generator	engineering review to determine available power		6,000		6,000	DPW requires additional circuirts on Emergency power. Engineer determination on available power is needed.
	Electric	re-allocate power to emergency panel		5,000		5,000	Several office circuits can be relocated onto existing Emergency power panels
	Electric	install power to carpentry shop		15,000		15,000	Power to shop area needs better distribution due to amperage drops and safety
	Electric	evaluate and repair various outlets		5,000		5,000	several outlets/condiuts are in disrepair
4.4							
CODE COMPLIANCE							
5.0	Fuel system upgrade	upgrade software controls and reporting		15,000		15,000	DPW requires upgrades for operational needs
	Security	Add addtitional security cameras	4	3,000	unit	12,000	Security needs
	Security gates	Add a rear power actuated fence gate		20,000		20,000	DPW operational need
TOTALS						274,000	
1.25 MULTIPLIER						342,500	



3.3 North side mid building (High pitch roof) significant metal panel damage, screw fastener rusting, and ice damming area





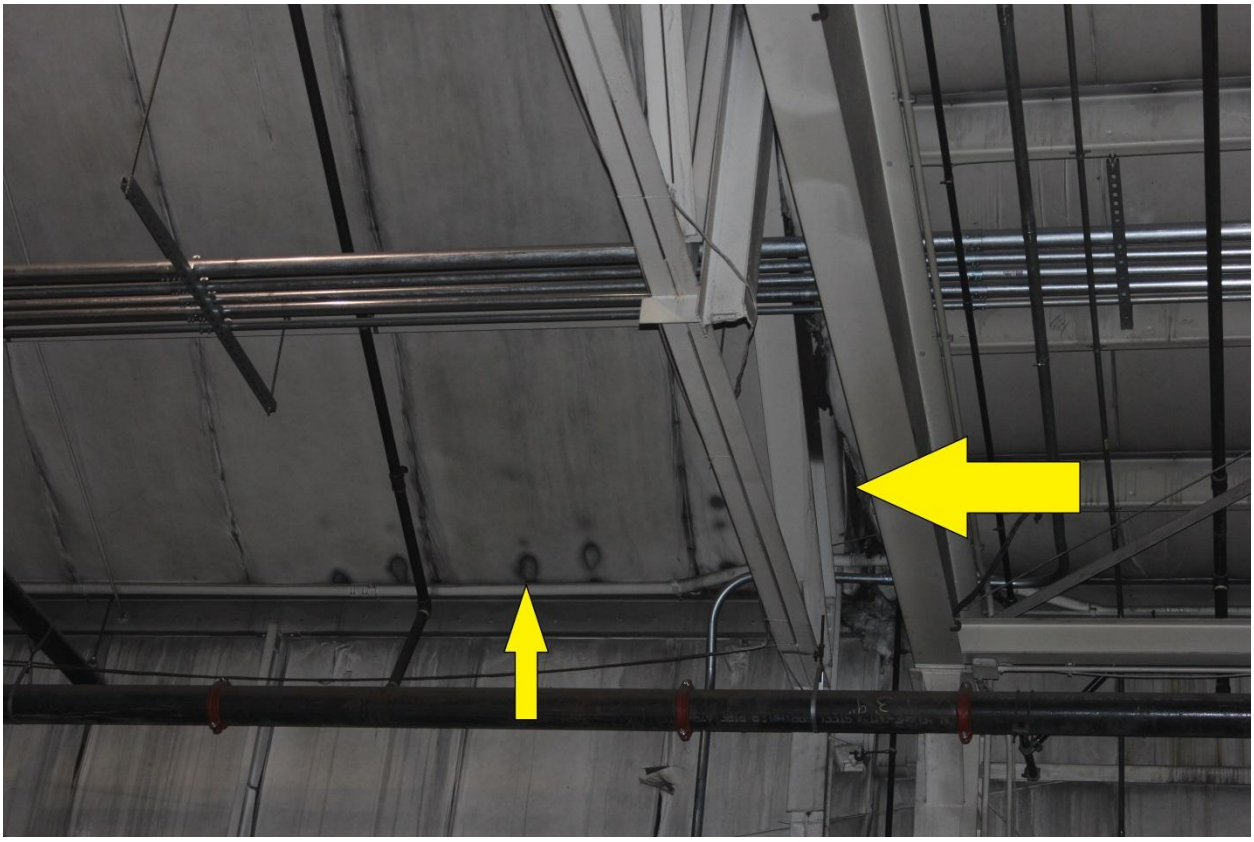
3.3 Open air garage. Concern is wind is pushing wall and roof panels out and loosening fasteners



3.4 Upper roof melting and snow (yellow) dumps and piles up on lower roof (red) creating ice damming.



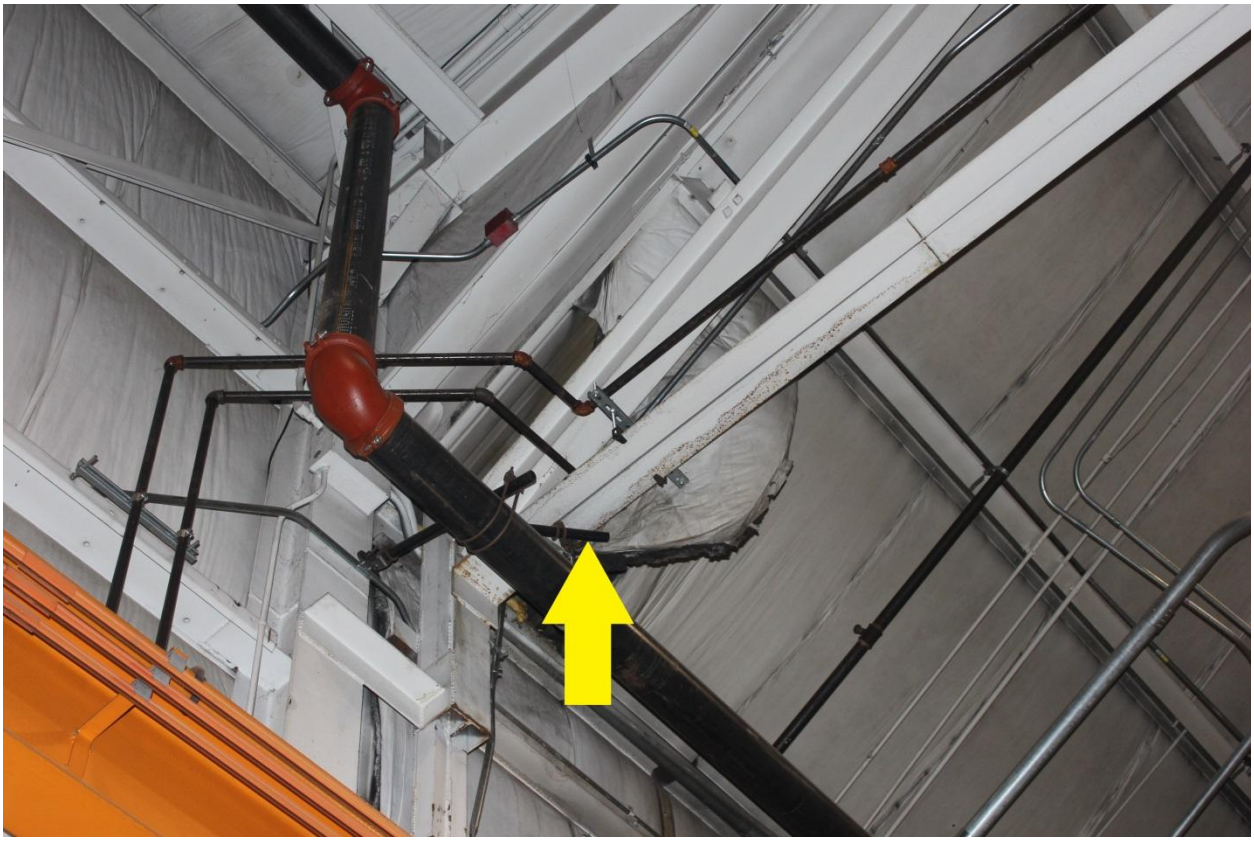
3.4 Gutter deflection not allowing proper drainage



3.4 Roof leak at the location where two roof pitches occur



3.4 Leak at gable end at high pitch meets lower pitch



3.7 Roof leak and damaged insulation



3.7 Damaged insulation due to ice damming



4.2 Floor oil fired furnace approaching end of life cycle



$.3 Various electrical repairs that need to be addressed



4.3 Carpentry shop Electric power. Lack of proper power distribution.





5.0 Need to enlarge vehicle access door to prevent tight turns in building

DPW Facility

TABLE 2- REPAIRS/REPLACEMENT PLAN																			DPW FACILITY
Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	year 3	year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1																			-
2.2	Asphalt	systematic replacemant				100,000	1.8	sq yd					180,000						180,000
2.3	Hazmat soil removal	see approved cleanup project documents																	-
BUILDING CONDITIONS																			
3.4	Roof	Install emulsion roof				60,000	13	sq ft					780,000						780,000
3.4	Wall	Replace panels													50,000			50,000	100,000
3.4	façade	Replace doors												5,000		5,000		5,000	15,000
INTERIOR ELEMENTS																			
3.7	Paint	Routine maintenance upgrade		7		10,000	2.5	sq ft				25,000						25,000	50,000
3.7	Carpet replacement	Routine maintenance upgrade		10		3,000	8	sq ft				24,000							24,000
3.7																			-
BUILDING SERVICES																			
4.1	Plumnbing	water heater		15													1,001		1,001
4.1	Plumbing	Back flow preventer		15										10,000					10,000
4.2	HVAC	Duct cleaning		10		6,000			6,000									6,000	12,000
4.2	HVAC	Life cycle component replacement				3,000			3,000	3,000	3,000	3,000	3,000			10,000		10,000	35,000
4.2	HVAC	provide heat distribution to the front entry foyer				5,000			5,000		5,000								10,000
4.2	HVAC	Replace garage hvac units					300,000	unit					300,000						300,000
4.2	HVAC	waste oil heater replacement		15												12,000			12,000
4.2	HVAC	replace condensing units		15		4									10,000	10,000	10,000	10,000	40,000
4.4	Electric	upgrade lighting															100,000		100,000
COMPLIANCE																			
5	fuel management	upgrade fuel management software		10			15,000	unit		15,000									15,000
5	security	install additional security cameras				5	3,000	unit			15,000								15,000
TOTALS									14,000	18,000	23,000	52,000	1,263,000	15,000	60,000	37,000	111,001	106,000	1,699,001
1.25 MULTIPLIER									17,500	22,500	28,750	65,000	1,578,750	18,750	75,000	46,250	138,751	132,500	2,123,751

SALT SHED (at DPW site)



LOCATION:	185 Guelphwood Road	Assessors:	014/001/00001
Year Built	2008	Building area:	7,488 sq ft
Condition	Fair	Land area:	?? acres

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The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Salt Shed at DPW

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat and treed along the outer periphery. Actual building site sit below the road elevation

Condition and Observation:

Recommended Repairs:

2.2 Pavement, Parking, and drainage structures

Description:

Paved access to shed

Condition and Observation:

Area in general looks acceptable for current use

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

2.3 Landscaping

Description:

Condition and Observations:

Recommended Repairs

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas/Oil

   National Grid

c. Electric

   National Grid

Salt Shed at DPW

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Poured in place concrete pier.

Condition and Observation:

Generally the foundation appears to be in good shape.

3.2 Super Structure

Description:

The building is an engineered pre-manufactured wood frame building with wood roof and siding.

Condition and Observation:

Based on overall appearance and observed general conditions of the building, the superstructure appears to be sound and in good condition.

On the side of the building that faces the road, it was observed that 2-3 bays or not level and appears to have "settled". It is not known if this building was built out of square or the mid column locations footings have settled into the ground. The nature of this building can take some small settlement, but this issue should be actively monitored to assure the Town that no further movement will take place.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Diligent monitoring of the foundation system to assure no further movement is occurring.

3.3 Facades

a) Description Facades: Pressure treated plywood

Condition:

The façade is a typical pressure treated (PT) wood plywood panel for a pre-engineered building. Typically this façade has a 10 year life cycle. The design is such that the PT panel is a sacrificial siding knowing that it will get damaged loading and unloading of road salts.

Salt Shed at DPW

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replace damaged interior PT plywood panels.

3.4 Roofing

Description:

Asphalt shingle roof structure which is typical for a pre-manufactured pre-engineer wood building. The shingle appears to be ½ way through is life cycle of thirty years. As noted in section 3.2 Superstructure, the area that is not level should be monitored. If the building does have settlement, the shingles will begin to tear. The settlement will pull the shingle from the nail connection and tear or loosen and fall out.

Condition: Good

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Vigilant inspections to confirm not settling is recommended.

3.5 Basements / Attics

Description: none

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: No access required

Salt Shed at DPW

3.7 Interior Finishes and Components

Descriptions:

The façade is a typical pressure treated (PT) wood plywood panel for a pre-engineered building. Typically this façade has a 10 year life cycle. The design is such that the PT panel is a sacrificial siding knowing that it will get damaged loading and unloading of road salts.

Conditions:

Fair. The PT panels should be inspected closely every time the bay is emptied of contents. Panels that are damaged due to machines hitting them should be repaired/replaced. All fasteners that hold the panels onto the girt support system should be inspected and new fasteners installed. This proactive maintenance will keep the building operational.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replace damaged PT panels

4.0 BUILDING SYSTEMS

4.1. Plumbing

NONE:

4.2 HVAC

None

4.3 Electric

None

4.4 Building Fire Suppression, Fire Alarm and Life Safety

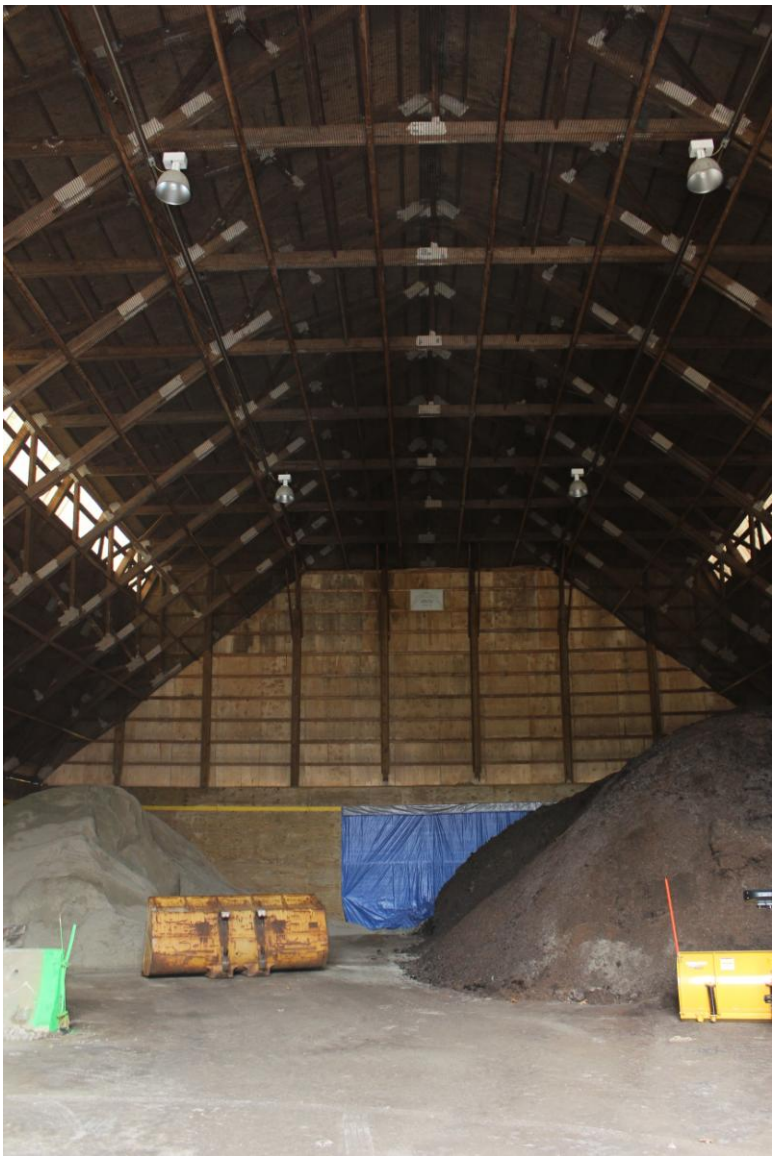
None

5.0 CODE/OPERATIONAL CONCERNS

Description: None

Salt Shed at DPW

SALT SHED (at WWTP)



LOCATION:	83 Dresser Hill Road	Assessors:	040/001/00001
Year Built	1998	Building area:	7,488 sq ft
Condition	Good	Land area:	?? acres

1.0 PURPOSE and LIMITATIONS

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1.1 Condition

FAA uses terms described conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

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Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Salt Shed at WWTP

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

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GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat and treed along the outer periphery. Actual building site sit below the road elevation

Condition and Observation:

2.2 Pavement, Parking, and drainage structures

Description:

The immediate drive is gravel based

Condition and Observation:

Gravel area in general looks acceptable for current use

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

2.3 Landscaping

Description:

Condition and Observations:

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas/Oil

c. Electric

   National Grid

Salt Shed at WWTP

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Poured in place concrete pier.

Condition and Observation:

Generally the foundation appears to be in good shape.

3.2 Super Structure

Description:

The building is an engineered pre-manufactured wood frame building with wood roof and siding.

Condition and Observation:

Based on overall appearance and observed general conditions of the building, the superstructure appears to be sound and in good condition.

3.3 Facades

a) Description Facades: Pressure treated plywood

Condition:

The façade is a typical pressure treated (PT) wood plywood panel for a pre-engineered building. Typically this façade has a 10 year life cycle. The design is such that the PT panel is a sacrificial siding knowing that it will get damaged loading and unloading of road salts. The Gable ends of the shed are T 1-11 siding. The T-1-11 in several areas has had the fasteners loosen allowing the T-1-11 to pull away from the supports. The siding paint is worn and thinning. To preserve the siding a paint application is recommended.

The area around the old office has been heavily weathered, and is aging more quickly than the remainder if the structure. The door frame is staring to rot and loosen from its connection to the building.

Salt Shed at WWTP

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Re-paint the structure

Replace/repair damaged siding and rot in the office area.

3.4 Roofing

Description:

Asphalt shingle roof structure which is typical for a pre-manufactured pre-engineer wood building. The shingle appears to be ½ way through is life cycle of thirty years. As noted in section 3.2 Superstructure, the area that is not level should be monitored. If the building does have settlement, the shingles will begin to tear. The settlement will pull the shingle from the nail connection and tear or loosen and fall out.

Condition: Good

3.5 Basements / Attics

Description: none

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: No access required

3.7 Interior Finishes and Components

Descriptions:

The façade is a typical pressure treated (PT) wood plywood panel for a pre-engineered building. Typically this façade has a 10 year life cycle. The design is such that the PT panel is a sacrificial siding knowing that it will get damaged loading and unloading of road salts.

Conditions:

Fair. The PT panels should be inspected closely every time the bay is emptied of contents. Panels that are damaged due to machines hitting them should be repaired/replaced. All fasteners that hold the

panels onto the girt support system should be inspected and new fasteners installed. This proactive maintenance will keep the building operational.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replace damaged PT interior panels

4.0 BUILDING SYSTEMS

4.1. Plumbing

NONE:

4.2 HVAC

None

4.3 Electric

None

4.4 Building Fire Suppression, Fire alarm and Life safety

None

5.0 CODE/OPERATIONAL CONCERNS

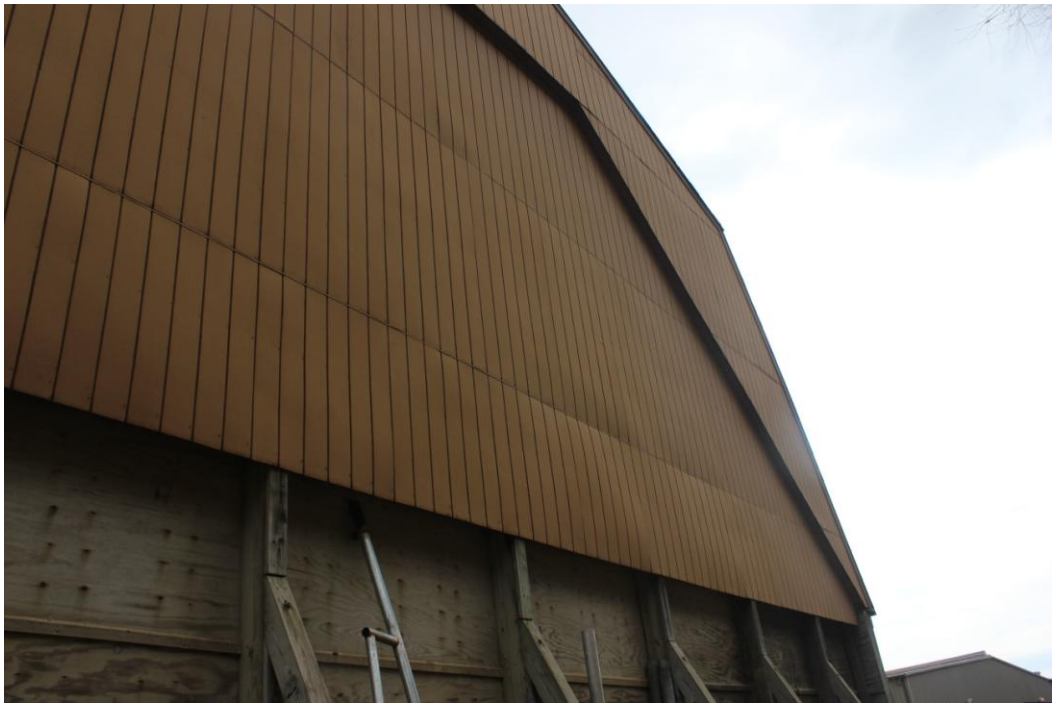
Description: None

Salt Shed at WWTP

TABLE 1- IMMEDIATE REPAIR COSTS							SALT SHEDS (DPW & WWTP)
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1							
2.6							
BUILDING CONDITIONS							
3.1	Foundation	DPW salt shed		10,000	unit	10,000	Engineer to evaluate cause of roof deflection
3.3	exterior wall	WWTP exterior wall repair	2,000	5	sq ft	10,000	Repair and replace exterior wall panels and rotted office areas
3.3	paint	WWTP exterior wall paint	2,000	2.5	sq ft	5,000	Repaint structure lifecycle
3.3							
INTERIOR ELEMENTS							
3.7	Interior wall	Periodic interior wall replacement due to damage both buildings	500	5	sq ft	2,500	Replace damage interior wall sections
3.7							
3.7							
BUILDING ELEMENTS							
4.4							
ADA COMPLIANCE							
4.5							
CODE COMPLIANCE							
5							
5							
TOTALS						27,500	
1.25 MULTIPLIER						34,375	



3.2 DPW salt shed Bow in roof



3.3 Exterior wall repair salt shed



3.7 Interior wall repair

Salt Sheds



3.4 Salt shed roof nearing life cycle



TABLE 2- REPAIRS/REPLACEMENT PLAN — SALT SHEDS

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1																			-
2.2	asphalt	upgrades age	30											5,000					5,000
BUILDING CONDITIONS																			
3.2	Superstructure	Monitoring foundation	50							1,000			1,000			1,000			3,000
3.2	Superstructure	Refasen/replace T1-11 boards	8				5sq ft			1,000			1,000			1,000			3,000
3.3	Facades	repair of windows doors	10							3,000						3,000			6,000
3.3	Facades	exterior painting	7			12,000	2.5			16,000		14,000					16,000		46,000
3.4	Roof	repair/replace roof	30			7,500 WWTP 7,500 DPW	9sq ft								5,000			67,500	72,500
3.5																			-
INTERIOR ELEMENTS																			
3.7	int walls	plywood damage	7			500	5						2,500			2,500			5,000
BUILDING ELEMENTS																			
4.3	Electric	GFI Outlet replacement	5								400						400		800
ADA COMPLIANCE																			
4.5																			-
CODE COMPLIANCE																			
5																			-
5																			-
TOTALS									-	21,000	400	14,000	4,500	5,000	5,000	7,500	16,400	67,500	141,300
1.25 MULTIPLIER									-	26,250	500	17,500	5,625	6,250	6,250	9,375	20,500	84,375	176,625

WATER TREATMENT FACILITY



LOCATION:	511 Breakneck Road	Assessors:	100/001/00001
Year Built	1999	Building area:	26,880 sq ft
Condition	Good	Land area:	116.4 acres

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Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Water Treatment Facility

1.2 Abbreviations

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CMU Concrete Masonry Unit

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PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Condition and Observation:

West side of the paved lot has deteriorated, and the main driveways are also showing signs of failure.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: NONE

Replacement and repairs needed in the near future.

2.3 Landscaping

Description:

Condition and Observations:

Recommended Repairs: NONE

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas

   Gas by: PROPANE

c. Electric

   National Grid

Water Treatment Facility

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Poured concrete foundation and slab. The foundation walls are assumed to have spread footing.

Condition and Observation:

Generally the foundation appears to be in good shape. No visible sign of cracking or movement were observed.

3.2 Super Structure

Description:

The Building is a light masonry framed structure with a super structure of steel columns, beams, and steel roof trusses. The steel frame cavity wall structure supports the exterior brick façade.

Condition and observation:

The condition is in good shape.

3.3 Facades

a) *Description Building Facades:*

The brick façade has a decorative concrete water table on the first three feet. Upper cheek walls is a metal panel system.

Condition:

The condition is in good shape. Areas which are susceptible to water damage and premature failure of mortar joints are the intersection where the lower cheek wall of the two story wing intersects with the lower masonry wall of the one story. The upper roof rain water discharges onto the lower roof. This concentration of water is focused on the first metal roof panel, which intern, washes off the lower roof concentrating the water onto this brick area. Have saturation was observed the day of the site inspection during a rain storm. This heavy saturation will prematurely wash out and weaken mortar joints, saturate the brick, and weaken the brick or exposed this to a freeze thaw condition. Installation of metal flashing at the roof wall transition and protective measures highlighted in Section 3.4 Roof will extend the life of this area and possible water infiltration through the wall.

Water Treatment Facility

b) Description Windows and Doors: Good

The windows are double glazed energy efficient aluminum framed window typically found in commercial construction. Condition appears to be in Good condition.

Main entry is a double glazed aluminum commercial store front system typically found on commercial construction. Condition appears to be in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

See section 3.4 Roof to address water run off issues

Evaluate brick at water run off areas and install flashing in brick to prevent water saturation.

Table 1

3.4 Roofing

Description:

Standing seam metal panel roof structure.

Condition: GOOD

While a majority of the roof appears to be in good condition, there are areas of the standing seam metal roof has suffered damage due to snow/ice sliding down roof. Areas of specific damage can be seen in all valleys and on the lower roof section. The standing metal seam which meets the valley have been "bent" over. This bending is caused by the build-up of snow and ice suddenly releases. This large mass of snow and ice slides downward with such force that when meets the valley standing seam, it bends the ends. While not an immediate issue, this continual avalanche effect will eventually fatigue the standing seam roof, cracking the metal at the bends and prematurely failing the roof. The standing seam metal roof provides a smooth surface that promotes shedding on snow, ice and rain. This design has create this avalanche affect which was not factored in the original design.

Areas where the upper roof dumps snow, ice and water on the lower roof, the lower roof section is susceptible to concentrated impacts. One can expect that this section of roof will prematurely fail several years earlier than the main roof. A most likely solution to resolve this avalanching affect is a series of snow fencing on all roofs. The installation of a series of snow fencing designed by a structural engineer, will create a ladder effect on the roof holding snow and ice in manageable square footage amounts. This hold back of snow in manageable amounts lessens the avalanche affect which impacts the standing seam roof.

It should also be noted that the cheek wall of the upper roof area is clad will metal panel. However, at the lower gable end of the 2 story section has an area where the metal panel butts a brick wall, At this Water Treatment Facility

location the brick sits proud of the metal panel a few inches creating a stop in the lower roof section. This "stop" becomes a natural pinch point that catches snow, ice, and water run-off. It was reported that these specific areas become major ice damming areas during the winter.

On the office roof valley, evidence of snow sliding off the roof and damaging the condenser unit created the need to build a protective shield for the condenser unit. Snow slide has come off roof and damaged condenser which is several feet away from the valley.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Seek input from a roofing engineer to install a snow guard system, and address flashing concerns. Table 1

Near term repairs would be to install a series of snow guards, creating a ladder affect, on both the upper and lower roofs. The installation of snow guards to create a ladder affect, will hold the snow in place in smaller isolated amounts to prevent avalanche affect that has created damage to the existing roof. Table 1

On the metal panels of the lower roof located at the cheek wall of the two story addition, introduce some type of deflector on the panel to push water away from then brick wall. Table 1

3.5 Basements / Attics

Description: None

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: Public area meets handicap access.

3.7 Interior Finishes and Components

Conditions: Good

Typical Interior finishes:

Location	Floor	Wall	Ceiling
Main office/control area	VCT	Sheet rock and paint	Acoustical dropped ceiling
Water processing area	Concrete with epoxy paint	Painter concrete block	Metal deck

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description: Good

The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. The water heater is original to the building. Piping looks in good working condition.

Welded and threaded black iron pipe is used for gas piping within the subject property.

Condition:

All plumbing is in good condition. The water heater is nearing its lifecycle.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Water heater is at end of lifecycle and should be considered a near term replacement. Table 1

4.2 HVAC

a. Heating Plant

Description:

Large filter room water processing area is heated with several systems. Gas fired tube radiant heaters, large gas fired air handling unit and radiant heaters are used to heat the processing area. The Office area is heated and cooled by air handling unit with the ground mounted condenser unit located in the rear of the office wing.

Condition:

The units are all in good condition. However, the age of the units are nearing a 15 to 20 year life cycle. Budget planning to replacement of blower motors, heat chambers, and condenser motors should be factored. The ground mounted condenser unit location is subject to snow sliding off roof and impacting unit. A protective shield was built to protect unit during winter, but relocation is would assure no damage would occur to the unit.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term repairs planning for lifecycle replacement of HVAC components needs to be factored.

Relocate condensing unit out of the path of the snow slide. Table 1

4.3 Electric

Description:

A new 800 Amp electrical service supply service with a propane fuel generator as emergency back up.

Condition: Good

The equipment is relatively new and in good shape. It has been reported that the plant has experienced power fluctuations during operations on normal power as well as generator power. As described, the fluctuations apparently related to the installation of energy saving Variable Frequency Drives (VFD) on the raw water pumps. The problem occurs when the water pumps are in operation, and other heavy electric drawing equipment (HVAC, Blower motors) turn on. This situation creates a problem where the electric draws of all the equipment compete for power simultaneously causing voltage drops. The VFD's are designed to run motors efficiently based on demand. When other equipment turn on and "pull" power away from the VFD, the VFD responds in turn by increasing power to the pumps, which presumably are the bigger power draw. This power fluctuation on all three phase electrical equipment is a significant concern because it can prematurely weaken all three phase motors and starters. Three phase motors must work within the acceptable voltage/amperage of the motor. Motors not working
Water Treatment Facility

within the acceptable voltage range overheat and prematurely fail. Electircal testing company would be needed to determine power draws at the service entry, sub-panels, and at the key electrical circuitry for the larger power draw equipment such as motors, blowers hvac ect.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term priority is have an electric engineer to evaluate current system, develop a testing and monitoring protocol for an electrical testing company to determine and isolate the power draws of the equipment, to better understand the problem and make recommendations as to better power distribution, sequencing of power draws, or if a larger power service is needed.

4.4 Building Fire Suppression, Fire alarm and Life safety

Description:

The property is protected by a multi zone Fire Alarm Control panel, hard wired smoke and heat detectors, pull stations, illuminated exit lights, emergency battery lighting units, horn/strobe enunciators, fire extinguishers. A full coverage 4 inch Wet fire suppression sprinkler system with check valves, and tamper and flow switches exist. Exterior Fire Department Siamese connections are located on the exterior building.

Condition: Good

As reported these system undergo a yearly test and inspection.

5.0 CODE/OPERATIONAL CONCERNS

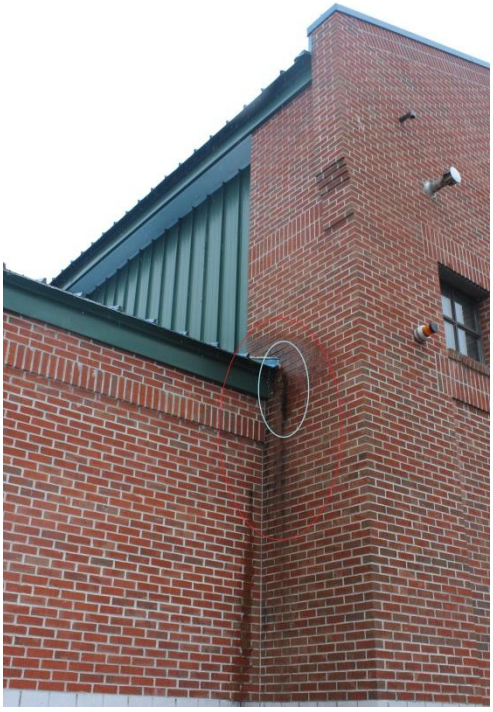
Description:

Security:

Heightened concerns with public safety and water supply are continually being recommended by State of Massachusetts. Due to the remoteness of the water building, security cameras covering the security gate and key areas of the building need to be reviewed and upgraded.

Table 1

TABLE 1- IMMEDIATE REPAIR COSTS							WATER TREATMENT FACILITY
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1							
2.2							
2.2							
2.2							
2.3							
2.3							
2.4							
2.5							
2.6							
BUILDING CONDITIONS							
3.1							
3.1							
3.2							
3.2							
3.3	Additional brick flashing	Install additional flashing at water infiltration points				4,000	
3.4	Additional snow guards	Install snow guards	600	20	In ft	12,000	
3.4	Roof	add roof deflectors				4,000	
3.6							
INTERIOR ELEMENTS							
3.7							
BUILDING ELEMENTS							
4.1	water heater	end of life cycle replacement		600		600	
4.2	Condenser unit	relocate condenser unit to prevent damage due to snow		2,000		2,000	
ADA COMPLIANCE							
4.5							
CODE COMPLIANCE							
5	security	Install cameras at facility				20,000	
5							
TOTALS						42,600	
1.25 MULTIPLIER						53,250	



3.4 North cheek wall Water from upper roof saturates the lower brick bump out. Water is saturating brick and exposing this to future damage.



3.4 Upper roof (yellow) snow sheds off onto lower valley (red) significant snow build up and ice damming.



3.4 Valley ice damming location Damaged standing seams



3.4 Location of major ice damming due to upper roof. Yellow indicates area where brick is impacted by water.



Typical HVAC units that have components meeting life cycle replacement. (blower motors, Burners, etc.)



4.2 Large AHU



Radiant tube heater



4.2 Relocate condenser unit from snow impact



3.3 Add weatherstripping to access door

TABLE 2- REPAIRS/REPLACEMENT PLAN — WATER TREATMENT FACILITY

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1																			-
2.2	Paving	Replace/repair										100,000			100,000				200,000
BUILDING CONDITIONS																			
3.3	Facades	Caulking/sealants	10								8,000							8,000	16,000
3.3	Doors	weatherstripping	10										4,000						4,000
3.3	Masonry	repointing	30													5,000			5,000
3.3																			-
3.4	Roof	Replace damage sections	40														10,000		10,000
EXTERIOR ELEMENTS																			
3.7			7																-
3.7	Paint										5,000							5,000	10,000
3.7																			-
BUILDING ELEMENTS																			
4.2	HVAC	blower motors AHU	25											3,000				3,000	6,000
4.2	HVAC	unit heaters	25													5,000			5,000
4.2	HVAC	Radiant heat burner	15												3,000		3,000		6,000
4.2	HVAC	Condenser unit AC	15											6,000					6,000
4.3	Electric	periodic service testing due to high voltage draw	7												8,000				8,000
4.4																			-
4.4																			-
4.4																			-
ADA COMPLIANCE																			
4.5																			-
CODE COMPLIANCE																			
5																			-
5																			-
TOTALS									-	-	13,000	100,000	4,000	9,000	111,000	10,000	13,000	16,000	276,000
1.25 MULTIPLIER									-	-	16,250	125,000	5,000	11,250	138,750	12,500	16,250	20,000	345,000

WASTEWATER TREATMENT PLANT



LOCATION:	83 Dresser Hill Road	Assessors:	040/001/00001
Year Built	1986	Admin/Process:	27,242 sq ft
		Compost Bldg:	26,880 sq ft
Condition	Good	Land area:	9.37 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Wastewater Treatment Plant

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat and most of it unimproved, actual building site sit below the road elevation

Condition and Observation:

Recommended Repairs: NONE

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely unimproved and gravel with an asphalt roadway system. Parking and access appears adequate. Area has no curbing.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:None

2.3 Landscaping

Description:

Condition and Observations: None

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Oil

c. Electric

   National Grid

Wastewater Treatment Plant

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Building 1: Office Administration Poured concrete foundation and slab. The foundation walls are assumed to have spread footing.

Building 2: Aerated Grit building Poured concrete foundation and slab. The foundation walls are assumed to have spread footing.

Building 3: Bio-towers Poured concrete foundation and slab. The foundation walls are assumed to have spread footing.

Building 4 Composting building Poured concrete foundation and slab. The foundation walls are assumed to have spread footing.

Condition and Observation:

Generally the foundation appears to be in good shape. No visible sign of cracking or movement were observed.

Building 2 Aerated Grit building exterior walkway and loading dock areas have concrete spall on the walking surfaces do to salt applications during winter ice conditions.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term perform spot repairs of all damaged concrete walks/loading docks Table 1

3.2 Super Structure

Description:

Building 1 Office is a heavy masonry structure with a steel super structure to support roof beams Exterior wall structure of split faced block with steel columns, beams, and steel roof trusses.

Building 2 Aerated Grit is a heavy masonry structure with a steel super structure to support roof beams Exterior wall structure of split faced block with steel columns, beams, and steel roof trusses. This design is to mimic the office building.

Building 3 Bio Tower is a steel framed enclosure with a metal facade.

The Building 4 Composting is an engineered pre-manufactured steel frame building with metal roof and siding. The large columns and steel frame was designed to support Z girt system which the metal

panels are fasten to with a screw and washer system. The building has several open wall bays to assist in its processing of solid waste components.

Condition and Observation:

Building 1: Based on overall appearance and observed general conditions of the building 1, the superstructure appears to be sound and in good condition.

Building 2: Based on overall appearance and observed general conditions of the building 2, the superstructure appears to be sound and in good condition.

Building 3: Access to the building is limited and observation was exterior only. Superstructure was not observed; however, metal siding is leaking and deteriorating the metal panels. Due to age and condition siding is to be replaced.

Building 4: Based on overall appearance and observed general conditions of the building 4, the superstructure appears to be sound and in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves: None

3.3 Facades

a) *Description Building 1 Office Facades:*

Building 1 Split Face block building was built in 1986. The split face and smooth faced block have vertical expansion joints approximately every 20 feet. The structure has metal framed window, metal doors and large garage bay doors, with a heavy steel lintel support integral to the masonry.

Condition:

The Split faced block façade is in good condition. All mortar joints appear good and tight with no cracking or missing mortar . Several expansion joints have "dried" up and appear to have lost there elasticity. Areas of the sealant have pulled away from the block surface and could allow moisture infiltration. At various window and door locations, the aging sealant no longer has the tight seal required.

b) *Description Building 2 Aerated Grit Facades:*

Building 2 Split Face block was reported to be constructed in 2000. This building looked in good condition. There was one area where a vehicle must have hit the building. The block in this area has chipped and broken exposing the hollow block core to the weather. Although small chips and hole in the block exposed the block to weather and other elements, which could accelerate the materials failure.

Condition: This building is in good condition. Repairs need to be made to damaged block to prevent further weathering.

c) *Description (Building 3 Bio Tower) Facades:*

Building 3 has metal panel façade. The metal panels are surfaced fastened into a metal Z girt system. The building has "wet" operation occurring within the building. This wet operation allows the processed effluent to come in contact with the metal panels. On at least two sides, it was observed that the metal panels have rusting and material failure occurring from the interior. Processed waste water was leaking at several fastener locations. The fasteners have broken down and the hole through the metal panel has rusted. This rust break down has accelerated the failure of the panel fastener.

Condition: A full evaluation is needed on the metal panel and z girt system within the Bio tower. From the exterior, there are several panels that have the rusting at the fasteners is bad that the panel stability has been compromised. The interlocking nature of the panel prevents is catastrophic failure, however immediate work should be performed to re-fasten panel until a review and replacement operation can be performed.

d) *Description*: *Building 4 Metal panel Facades*

The façade is a typical metal panel for a pre-engineered building. Typically this façade has a 50-60 year life cycle. This building is an open air warehouse type function. The metal panels are fastened to a z girt system.

Condition: The façade looked in good condition. On the rear drip edge on the south west corner, it was observed from grade that the edge coping has been damaged due to snow and wind. Approximately a 20 foot section and twisted and bent weakening the roof wall intersection connection. This should be considered an immediate repair

e) Description Windows and Doors: Good

The windows are metal framed window typically found in commercial construction. Condition appears to be in Good condition. Energy efficiency is minimal due to their single glazed construction.

Main entry to the office is a steel commercial store front system typically found on commercial construction. Condition appears to be in good condition.

Entry door to the Aerated grit building is a steel door.

Garage doors to the office building are an aluminum door that fits with a steel framed lintel and jamb. The metal jamb provides some structural support, but mainly designed to protect the block from accidental vehicle damage.

Wastewater Treatment Plant

Condition: The windows are in operational condition. The older sealant caulked joints in the office building appear to have met the life cycle. The caulk has dried and lost its elasticity which allows for water infiltration.

The doors are showing some rusting and fatigue at the door jabs. Garage doors rubber weather stripping gaskets are in need of replacement. The metal lintel and metal garage door surround jamb are in need of paint.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Building 1: Replace all caulk sealant at expansion joints, window, and door locations Table 1

Building 2 Repair and replace damaged split face block Table 1

Building 3 Perform a complete metal panel and z girt assessment to determine extent of metal panel damage. Table 1

Replace damaged metal wall panels as required.

Building 4 Replaced damaged edge coping of roof and assess all fasteners in the location. Table 1

3.4 Roofing

Description:

A. Building 1 Office Building is a flat roof with PVC roofing reported to have been installed in 2010.

B. Building 2 Aerated grit building is a flat roof with pvc roofing.

C. Building 3 Bio tower - no roof

D. Building 4 Metal panel roof structure which is typical for a pre-manufactured pre-engineer steel building.

Condition: Good

While a majority of the roof appears to be in good condition. The roof and roof monitoring should be on going. Building 4 as reported in section 3.2 Facades, there is a roof edge coping that was damaged by snow and wind that must be addressed immediately to prevent further damage. The roof area should be investigated to assure that the fasteners of the metal standing seam roof are fully engaged.

The Bio tower roof should also be investigated to see if the fasteners and standing seam roof are in good condition. The concern is the moisture issue seen attacking the wall panels are affecting the roof panel system.
Wastewater Treatment Plant

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair is to address the roof coping edge on Building 4 Composting. Table 1

A roof inspection on all roofs, specifically the building 3 bio tower building to address any internal moisture issues.

3.5 Basements / Attics

Description:

Building 1 basement area houses mechanical and process piping for the WWTP operation. Area appears in good working condition.

Building 3 basement area houses process piping operation. This building has an area were ground water is assessing through a week area in the foundation wall.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term investigate Building 3 water penetration and apply a water proofing injection through the foundation. Table 1

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: Only building 1 **Office building** will need handicap compliance. Front walks have a slight elevation is at the threshold that will need to be addressed. The door hardware, interior doors, public access office functions and toilet facilities will need upgrades if renovations take place. Table 1

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Wall	Ceiling
Office	VCT	Painted block and sheetrock	Acoustical ceiling
Office bathrooms	tile	Partial tile	Acoustical ceiling
Aerated Grit building	Concrete with epoxy paint	Painted block	Steel deck

Conditions:

The office building appears in good shape. The space requires normal paint and component upgrades done as routing maintenance.

The floor of the aerated grit building has had the epoxy paint lifting and the concrete finish beginning to wear due to the constant water discharge from the operational machinery. This constant and abrasive water discharge along with the constant working of equipment in this concentrated area has led to a worn surface that is slippery for the work force.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term, working with a concrete coatings specialist, replace the finish of the floor surface in this area. Table 1

As a routine maintenance expense, paint all office walls. Door frames and doors. Table 2

4.0 Building Systems

4.1. Plumbing

Description:

The water service has a main backflow preventer valving. The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. The main boiler and water heater with water storage tank with circulating pumps supply domestic hot water. Welded and threaded black iron pipe is used for gas piping within the subject property. The various buildings have hot water supplied by electric hot water heaters.

Hot water tank in aerated grit building appears to be leaking.

Condition: GOOD

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate replace leaking hot water tank in the aerate grit building Table 1

Hot water heaters to be scheduled for replacement on a 10 to 15 year cycle. Table 2

4.2 HVAC

a. Heating Plant

Description:

Building 1 Office has two large HB Smith boilers that provide hot water to a combination of AHU units, fan coils and radiant baseboard units. The main supply pump are controlled with Variable frequency drives (VFD).

Condition:

System is in good condition. Components may be nearing their lifecycle.

b. Distribution system

AHU units appear in working condition. Components such as blower motors/pumps may be nearing their lifecycle.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term develop a replacement component replacement schedule for pumps , motors, actuator valves. Table 2

Wastewater Treatment Plant

4.3 Electric

Description:

The entire plant is fed from a main distribution feed that splits

Condition: Fair

As reported, the WWTP power comes in from the street through a transformer and main switchgear/disconnects and power "divides" at this location to feed the various buildings on site. The emergency generator provides power at this main switch gear. All switch gear and various sub panels are Federal Pacific/Western Electric equipment. These manufacturers are no longer in business, and based on age and availability of parts this is a concern. All equipment, outlets, and wiring is "explosion proof" hazardous wiring. As noted by staff the generator for the WWTP is nearing 30 years of age. All existing equipment is well taken care of and is in good shape. However, the lifecycle off all the equipment and generator have met their lifecycle. The operational issues of a WWPT rely on a completely operational and functional electric and generator system. This lifecycle replacement is critical to assure operational stability.

It has also been reported that in power outages, the generator/switch gear transfer has had some problems where partial transfer or partial switch back to utility power has failed.

Operationally, this power supply/emergency generator set-up is a concern because it lacks the ability to quadrant off the various buildings and site in case of failure. It is the intent of the WWTP to have power enter the site to spate feeds controlled by separate generators. This minimizes exposure to the operation in case of a power/transformer failure.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

> Immediate need of electrical engineering review of the system, and a redesign of both the main electrical distribution and the emergency power operation is required. Table 1
>
> Near term, in phases or as a complete project, replace all electrical and emergency generation systems with new electric panel/control equipment. The new equipment will be able to have readily available replacement parts to address failure of a component. Table 2

4.4 Building Fire Suppression, Fire Alarm and Life Safety

Description:

The property is protected by a multi zone Fire Alarm Control panel, hard wired smoke and heat detectors, pull stations, illuminated exit lights, emergency battery lighting units, horn/strobe enunciators, fire extinguishers.

Condition: GOOD

As reported these system undergo a yearly test and inspection.

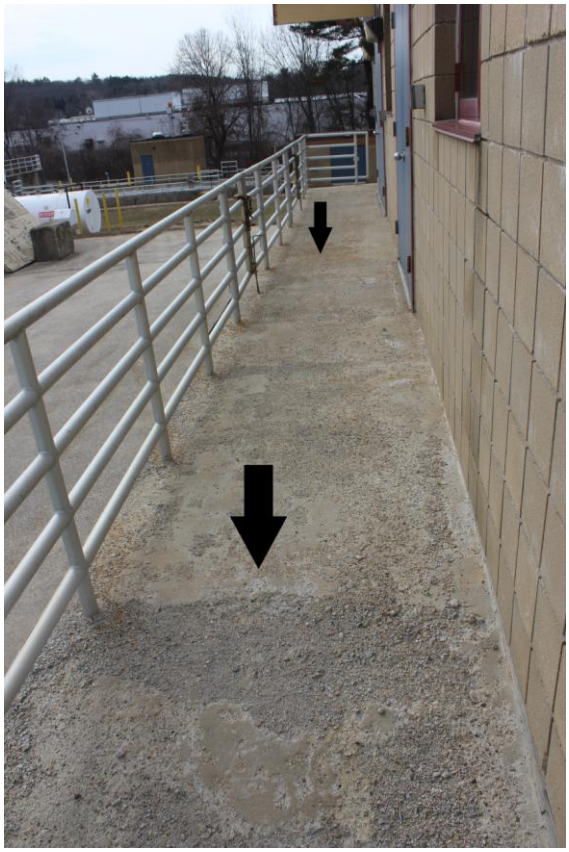
Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term, if the electrical system is upgraded, it may require an upgrade the fire alarm system to provide more complete coverage of the site. Table 2

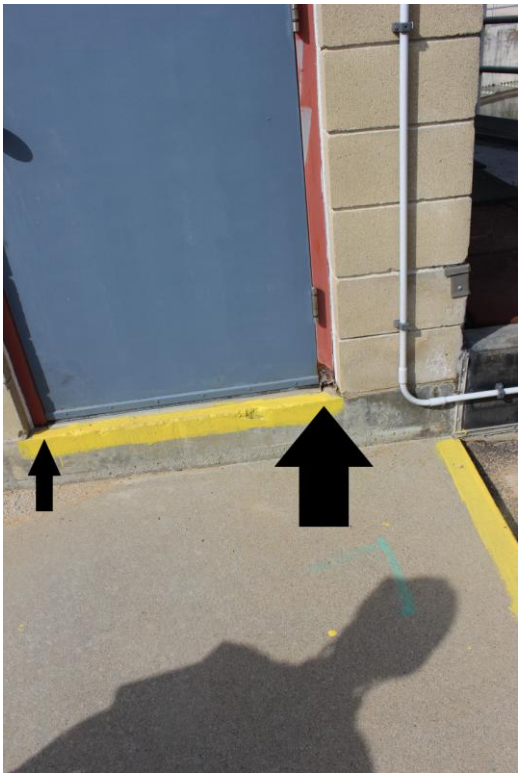
5.0 CODE/OPERATIONAL CONCERNS

Description: None

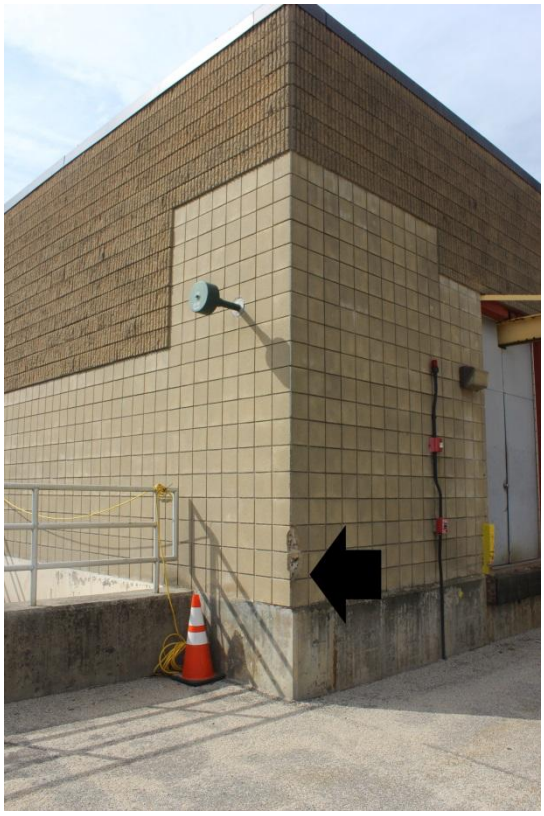
TABLE 1- IMMEDIATE REPAIR COSTS							WASTEWATER TREATMENT FACILITIES
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.5							
2.6							
BUILDING CONDITIONS							
3.1	Foundations	repair platforms and docks with spalling concrete	1,000	21	sq ft	21,000	
3.3	Façade block	repair damaged block		1	day	1,500	Repair varoius damage block
3.3	engineer	assess all metal panels		5,000			Engineer review and assessment
3.3	metal panels	replace damaged areas	2,000	18	sq ft	36,000	replace damage bio tower metal panels
3.3	Metal coping	Replace damaged section of metal roof/coping				8,000	
3.4							
3.5							
3.5	Foundation leak	install injected waterproofing				4,000	Building 3 water infiltration
3.6	Front entry walk	repair front entry walk for compliance				1,000	fix heave in sidewalk that does not meet complance at office door.
INTERIOR ELEMENTS							
3.7	Repair grit building floor	repair floor surface in wet area of grit building	500	100	sq ft	50,000	grind and epoxy concrete surface
BUILDING ELEMENTS							
4.1	Water heater	Replace hotwater tanks leaking	2	600	unit	1,200	end of life cycle replacement
4.2							
4.3	Electric	Engineering		150,000		150,000	engineering for complete electric upgrade estimated value $1.5 million
CODE COMPLIANCE							
5							
5							
TOTALS						272,700	
1.25 MULTIPLIER						340,875	



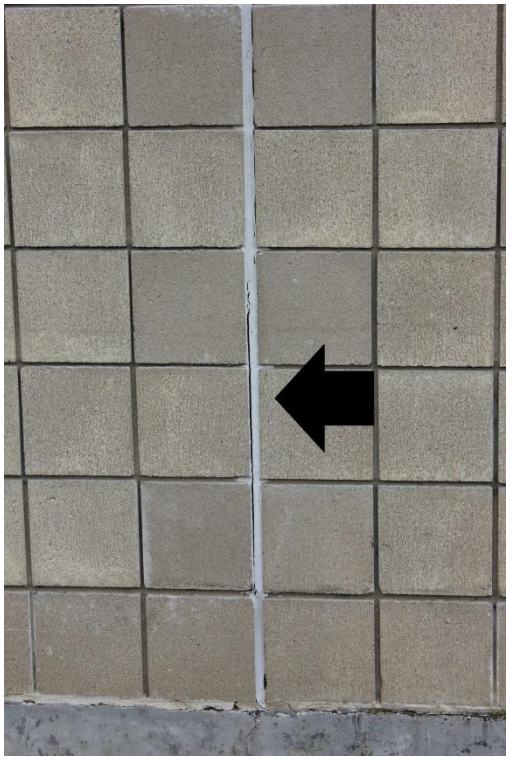
3.1 Grit Bld walk way



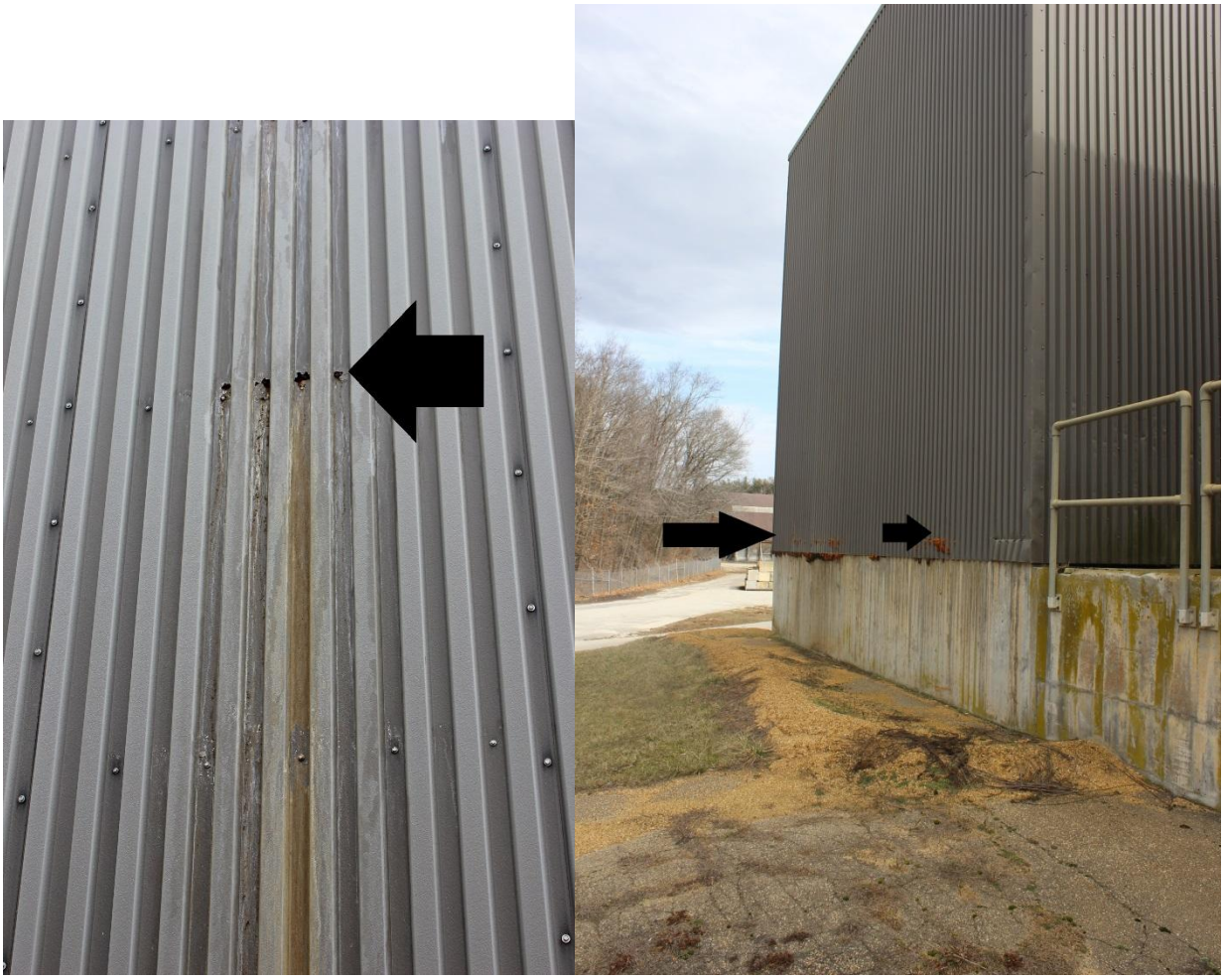
3.3 Door frame rotting



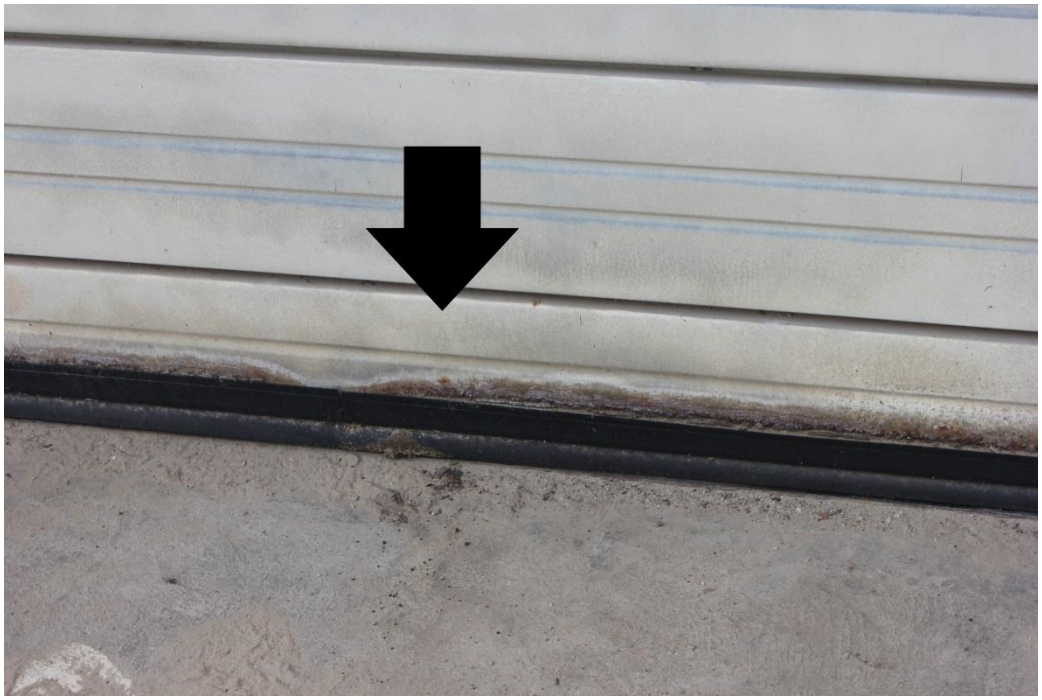
3.3 masonry repair



3.3 Expansion caulking failure



3.3 Metal panel rotted



3.3 Garage door weather striping replacement

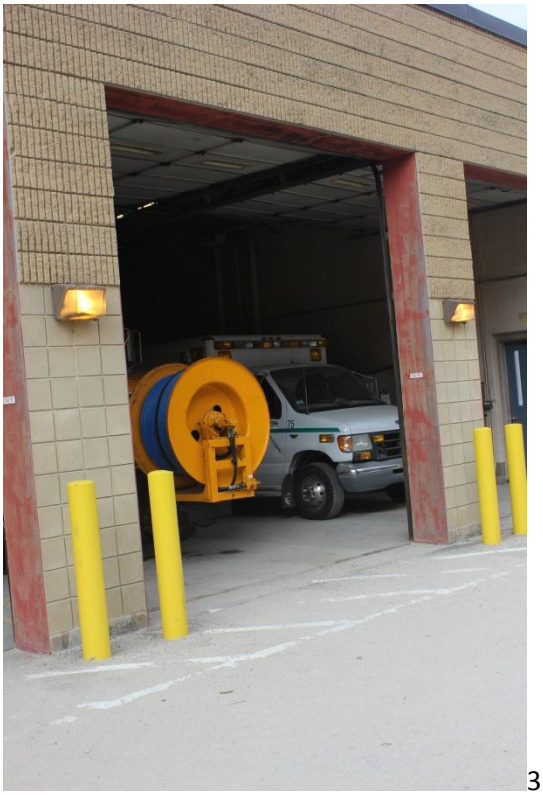


3.3 Weather striping missing Paint frame



3.4 Roof repair gutter damage





3.3 paint frames



3.6 Handicap access





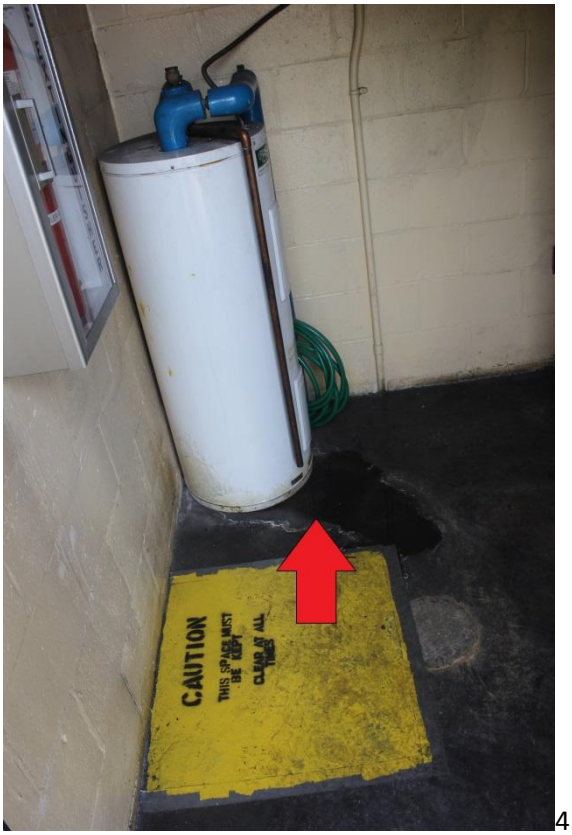
3.7 Grit Building below grade water leak issue



3.7 Grit building floor finish



3.5 Foundation leak below grade



4.1 Water heater Failure



Grit building oil Heat



4.2 AHU Component replacement life cycle





4.3 Older transformer



End of lifecycle electric and controls

TABLE 2- REPAIRS/REPLACEMENT PLAN																			WASTEWATER TREATMENT PLANT
Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1																			0
BUILDING CONDITIONS																			
3.3	façade	Door replacement garage	20				7,000								7,000				7,000
3.3	façade	Recaulking windows/expansion joints	10				7 lin ft					10,000			10,000		10,000		30,000
3.3	façade	Masonry repointing															15,000		15,000
3.4	roof	Spot evaluation and repair												5,000				5,000	10,000
3.5																			-
3.6																			-
INTERIOR ELEMENTS																			
3.7	Paint	Scheduled interior painting upgrades	7								10,000	10,000						20,000	40,000
3.7																			-
3.7																			-
BUILDING ELEMENTS																			
4.1	Plumbing	replace water hearter	15				6,000							6,000					6,000
4.1	Plumbing	Replace/repair backflow preventer	5				3,000				3,000					3,000			6,000
4.2	HVAC	Replace pumps	15				4,000			4,000				4,000			4,000		12,000
4.2	HVAC	End of life cycle component replacement					3,000		3,000	3,000	3,000	3,000	3,000			20,000		20,000	55,000
4.1	HVAC	Duct cleaning	5								8,000					8,000			16,000
4.1																			-
4.3	upgrade electric	upgrade electric and service into plant	30				1,000,000				1,000,000								1,000,000
4.3	Generator	replace generator	30				500,000				500,000								500,000
4.4	Fire alarm	upgrade fire alarm					18,000				18,000								18,000
4.4																			-
4.4																			-
4.4																			-
ADA COMPLIANCE																			
4.5																			-
CODE COMPLIANCE																			
5																			-
5																			-
TOTALS									3,000	7,000	1,542,000	23,000	3,000	15,000	17,000	31,000	29,000	45,000	1,715,000
1.25 MULTIPLIER									3,750	8,750	1,927,500	28,750	3,750	18,750	21,250	38,750	36,250	56,250	2,143,750

AIRPORT DINER



LOCATION:	220 Airport Access Road	Assessors:	007/001/A 00001
Year Built:	1959 diner car (addition 1986/2015)	Building area:	1,144 sq ft
Condition:	Fair	Land area:	(on airport property)

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

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Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

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FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

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Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended

Airport Diner

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat using the existing paved parking lots and drives that service the new administration building. Slope is minimal.

Condition and Observation: None

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely paved to accommodate the use and abutting uses for the airport. Parking and access appears adequate. Area has no curbing.

Adjacent area is under construction and existing site may be subject to construction equipment damage.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed at the parking area.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Sidewalks need to be addressed to meet handicap accessibility access to the restaurant ramp system

2.3 Landscaping

Description:

The lot is an open grassed area. The propane tanks, condenser units, waste receptacles, and other items are located to the rear of the building.

Condition and Observations: None

Recommended Repairs: None

2.4 Municipal Services and Utilities

a. Water and sewer

Southbridge has its own water and sewerage

b. Gas/Oil

Gas by: Propane

c. Electric

National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Existing concrete block foundation wall is approximately 9'-0" tall, with poured concrete basement floor. Sump pump well is located in rear corner with a continuous trench drain around entire slab. The basement area is actively used to house large walk in refrigerator and its refrigeration equipment for the restaurant operation, as well as a mechanical space.

Condition and Observation:

Foundation appears to be in good condition. Sump pump system is a basic residential type pump. Standing ground water was not observed in the sump area, but the area was damp. Concerns with current system is pump failure could jeopardize contents in the basement level refrigeration system.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Long term installation of a dual sump pump system is recommended. If heavy rain condition occurs water could affect/contaminate the walk in refrigerator and inventory.

3.2 Super Structure

Description:

The main structure is a pre-manufactured "Car Diner" structure. Steel superstructure that supports a wood framed floor and wall system. Areas observed appeared to be in good shape. The roof has a wood framed "stick built" overframe superstructure to prevent weather from affecting what is

presumably a metal clad diner car roof system and addition. Additions to the diner car are wood framed wall and roof system. The siding on the new wood framed additional and overframe is Texture 1-11 (T 1-11). A portion of the front deck porch is covered by a wood framed shed roof.

Recently constructed pressure treated wood framed exterior deck and handicap ramp system appear to meet Mass State building Code requirements, and supported by poured in place sonotube concrete 12" dia. piers.

The rear kitchen entrance deck older.

Condition and Observation:

The exterior deck and ramp are new and presumably inspected and approved by the building inspector and considered in good condition.

The rear addition section was reportedly remodeled and upgrades to meet MSBC/IBC codes in 2015.

The rear kitchen entrance deck is extremely weathered and nailed joints have loosened up making the deck less stable.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

The rear deck is in need of replacement or significant repair in the near term.

3.3 Facades

a) *Description Facades: Steel and wood*

Condition: Good

The newly renovated addition to the diner car work was performed under the control of a Building Permit. The new wood T 1-11 siding appears to be properly installed and in good condition. The Steel façade of the diner car is original and in good condition.

b) *Description Windows and Doors:*

Condition: Windows

Windows of the Diner Car are original double hung metal framed single glazed glass. While not energy efficient, the windows appear in working condition. The windows in the renovated wood addition are newer double hung, doubled glazed window are more energy efficient and appear in good operable shape.

Condition: Doors

The door to the Diner Car section is a simple metal storm door and is in poor condition. An original diner car most likely had a slide by pocket door. The existing replacement door offers no energy efficiency and is extremely light weight and would not hold up well to an active public use anticipated for a diner. Recommend replacement.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

To create a more energy efficient space and provide a better comfort level for patrons, replacement with energy efficient diner car windows and front door are recommended for replacement reserves.

Wood siding should be on a regular scheduled paint maintenance program.

3.4 Roofing

Description:

The newly renovated diner car restaurant and addition has a new 30 year architectural shingle covering the structure. The shed roof over the front porch is a double coverage roll roofing material due to is low pitch (1-2 pitch) The porch roof does not have gutters.

Condition:

Condition is good. This new roof has a life expectancy of thirty years. A recommendation would be to add a gutter along the low pitched porch roof. As designed, the porch roof drip line concentrates water along the edge of the main handicap accessible ramp and walk way system. In cold conditions, water will drip off the roof line and deposit water on the handrail and walkway of the ramp, creating a possible ice condition. For a main entry to have a constant ice condition creates a hazard for slip and falls as well as making the Ramp not handicap accessible.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Adding gutters and downspout system for the front porch roof for public safety concerns.

3.5 Basements / Attics

Description:

The basement provides for a limited storage area, and houses a full walk in commercial style refrigerator.

Airport Diner

Basement area has an open sump pump well and appears to have a more humid or moisture susceptible basement condition. Access stairs have a steeper rise run tread height.

Condition:

The basement appears in good shape.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

The following recommendations would be suggested to assure a more useable space:

1. Add basement dehumidification to remove excess moisture from the area which house restaurant food storage
2. Add a second sump pump and a moisture cover over the sump pump pit. Preventative measures to reduce moisture or a flooding condition in the basement to protect food storage.
3. Handrail protection with additional baluster rails on the open section of stairs. The code compliance issue could prevent possible industrial accident common with stair related trip and falls.

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: Good

The installation of an accessible ramp and access to the rear dining area greatly enhances the code compliance.

A code compliant unisex bathroom exists.

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Walls	Ceiling	
Diner Car	Linoleum	Stainless steel/tile	Plastic laminate	
Kitchen	tile	FRP	Sheetrock and formica	
Rear dining room	carpet	Sheetrock and paint wainscotting	Sheetrock and paint	
Bathrooms	VCT	Sheetrock and paint	Sheetrock and paint	

Conditions:

The tile floor on the kitchen side of the diner car has had several tile repairs.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

As a replacement reserves, replacement of the tile on the server side of counter will be a future concern

4.0 Building Systems

4.1. Plumbing

Description:

The domestic services enters the basement level. Observed supply piping is copper and waste line are cast iron. The plumbing fixtures are vitreous china, stainless steel restaurant grade sinks, and small diner car stainless steel dishwasher.

Gas piping is a threaded cast iron pipe which is tied to an external pad mounted propane tank.

Water heater is a new point of use on demand unit.

Condition:

It is reported that all copper feed piping and gas piping where recently installed, inspected and approved by town offices.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

4.2 HVAC

a. Heating Plant / Cooling

Description:

Propane gas fired forced hot air unit. The unit is a typical FHA unit, that takes its intake air from the room return air and reheats/redistributes back into the dining car and dining area. The unit was not operable the day we were on site.

The air conditioning condenser is reportedly 30 years of age. The unit has not been in operation for more than a year. The condensing unit supplies coolant to a coil exchanger within the existing Forced hot air unit.

Condition: Poor

The unit has reached its lifecycle. As reported, recent expenditures to keep the unit operable are mounting. The approximate age of the unit is 30 years. Replacement unit could readily adapt into the existing hvac duct configuration, and be a more energy efficient unit.

The air conditioning system is integral to the FHA unit with the exterior condensing unit has long passed its useful life. The condensing unit has been sitting in a decommissioned state and is questionable whether the unit can operate.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate capital replacement of the package FHA/ cooling unit and condensing unit should be replaced.

b. Distribution system (VAV, FCU,, exhaust)

Description:

The existing FHA unit has an integral blower motor. The existing duct metal work is installed in a workman like manner with crimped seams and sheetmetal screw fasteners.

Condition:

The condition is fair. The joints and seams of the ductwork, while installed correctly, are not sealed properly to maximize energy efficiency. The supply and return are not fully insulated to maximize energy efficiency to the "living space" of the building.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

To maximize energy efficiency, installation of metal duct sealing tape and duct work caulk/mastic over all joints and seams, along with the installation of metal foil insulation will eliminate heat loss.

4.3 Electric

Description:

Electric service is an underground supplied power feed of 200 amps. System has reportedly a newly installed electric service and runs to new outlet locations. System was installed and inspected installation by the Town.

Condition: Good

4.4 Building Fire Suppression, Fire alarm, and life safety

Description:

No complete building Fire Suppression

Kitchen equipment is services by an ansul system over the grill area.

Condition: Good

5.0 CODE/OPERATIONAL CONCERNS

Description: None

TABLE 1- IMMEDIATE REPAIR COSTS						AIRPORT DINER	
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.2	Sidewalks	Minor repairs to assure ADA complaince from parking to sidewalk				500	
BUILDING CONDITIONS							
3.1	table 2						
3.2	Deck	Replace rear deck at kitchen	100	30	sq ft	3,000	Deck is in poor shape
3.3	Table 2						
3.4	Gutters	Install gutter at porch roof				1,000	prevents water discharge on entry ramp
3.4	Paint	planned painting ext	1,000	2.5	sq ft	2,500	Planned painting five years
3.5	Carpentry	add handrails at cellar stairs				1,000	code violation
3.5							
3.6							
INTERIOR ELEMENTS							
3.7	flooring	replace tile server area	90	40		3,600	old and missing tile May be Board of Health issue
BUILDING ELEMENTS							
4.2	FHA Heat	replace FHA unit life cycle (heating and cooling)				15,000	unit at end of life cycle
4.2	HVAC duct work	Repair and insulate duct work				1,000	upgrade for energy efficiency
CODE COMPLIANCE							
5							
TOTALS						27,600	
1.25 MULTIPLIER						34,500	



3.4 Need to install gutter for water run off onto HP ramp

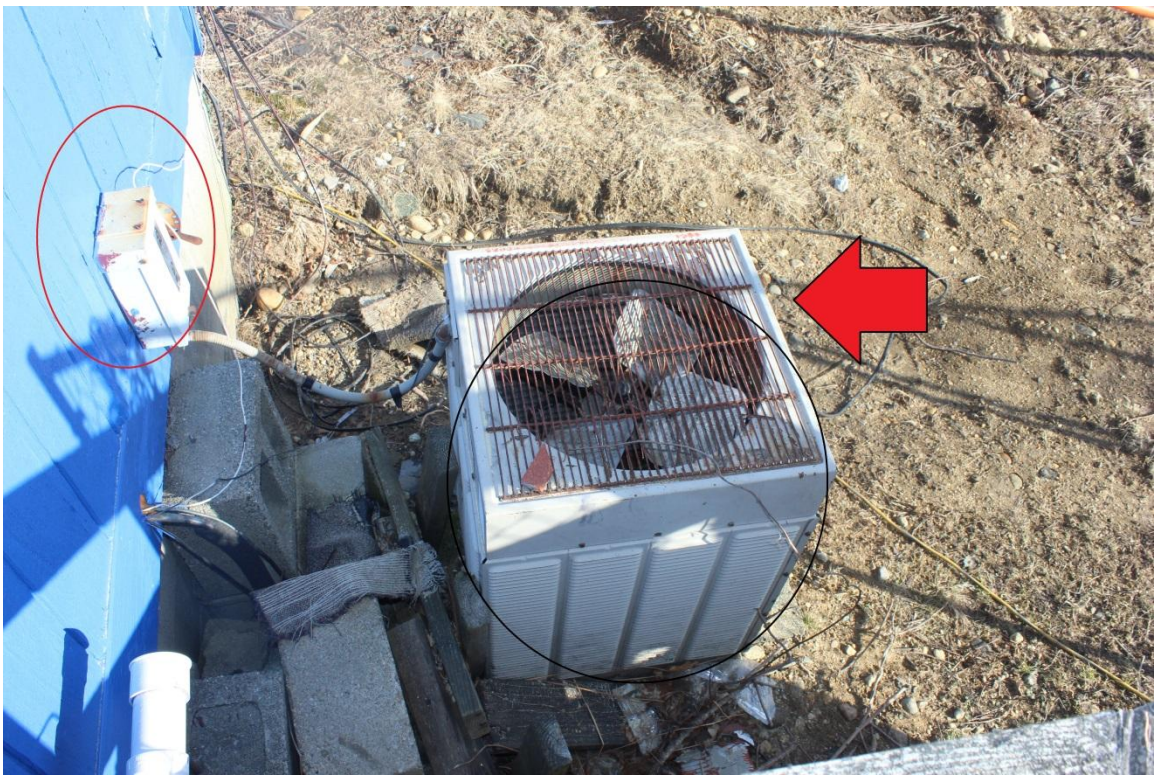




3.1 Basement sump and trench drain / Need to secure compressor motors / Insulation upgrades to HVAC supply



3.1 Basement drainage Moisture issues



4.2 Diner condenser replacment

Airport Diner

AIRPORT HANGAR BUILDINGS & MECHANIC GARAGE



Location:	220 Airport Access Road	Assessors:	007/001/A00001
Year Built:	1958 (acquired 1986)	Building area:	4,000+/- sq ft
Condition	Poor	Land area:	?? acres

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Airport Hangars

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MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat to accommodate planes.

Condition and Observation:

Recommended Repairs:

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely paved to accommodate the use.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt and concrete degradation can be observed at the hanger door transition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

A near term repair is to clean up and cracking and settling of the asphalt where it abuts the concrete apron.

2.3 Landscaping

Description:

There are no decorative landscaping, but on two sides of the mechanics hanger the area has been allowed to grow wild. On the east side of the building is an overgrown field with wild bushes and weed trees growing. The rear of the building has mature trees growing tight to the building. Some branches are touching the building.

Condition and Observations:

The area to the east and rear of the building is over gown. The poplar trees in the rear have grown too close to the building, with the branches hitting then building. Te over grown grass and trees to close to the building, does not allow the building to have free air flow around the site. This air flow is essential to keeping the building and site dry.

Airport Hangars

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term repair is to cut all over grown grass and brush to the east. Once removed a three times a year cutting should take place as a routine maintenance. On the rear cut all trees within 20 feet of the hanger as well as all underbrush. The intent should be to create a passable and easy to maintain cutting strip around the building.

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas/Oil

   Oil

c. Electric

   National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Poured concrete foundation and slab. The foundation walls are assumed to have spread footing

Condition and Observation:

Generally the foundation appears to be in good shape. No visible sign of cracking or movement were observed. The internal concrete slab appears in good shape. Slab has oil staining, but is in good condition.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

None

Airport Hangars

3.2 Super Structure

Description:

The building is an engineered pre-manufactured steel frame building with metal roof and siding. As described, the construction was designed for a steel manufacturing and distribution company. The large columns and steel frame are bolted and welded connections. The hanger door is on a large extended frame sliding door. The east side has an A frame structure to support the door rail system.

Condition and Observation:

Based on overall appearance and observed general conditions of the building, the superstructure appears to be sound and in fair to poor condition. The structure has had little maintenance over the years and its truss connections have been subject to large temperature swings which allows for expansion and contraction movement. Building exterior envelope is thoroughly rusted and could have moisture entered in the screwed fasteners connections. The structure cantilevered sliding door assembly appears to have sagged and racked. The Structural A frame that supports the door rail has been hit by a vehicle and has visible bend in the structural steel. The "Plane" door (section 3.3b) has been reported to be is disrepair. Before this door unit is replaced the support structure should be evaluated. Building has reached its life expectancy and should have all its connections inspected by an engineer.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair should be to have a structural engineer investigate all structural components, fastener connections, door support system. The building is an engineered product that relies on all of its components (structural steel, welds and bolts, roof deck and siding) to perform correctly. If water penetration or rusting have occurred, this expansion of steel can negatively affect the building as a whole. Table 1

Repair the "plane" door rail system. Table 1

3.3 Facades

a) Description Facades: metal panel

Condition: poor

The façade is a typical metal panel for a pre-engineered building. Typically this façade has a 50-60 year life cycle. The panels have a galvanic treatment to prevent moisture from attacking the metal panel causing rust. The panels are fastened by a metal screw with a washer to prevent water infiltration. A majority of the panels have extensive rust. Several panels observed have had the fastener locations rusted through, providing little or no fastener strength. In high wind conditions,

these panels may be subject to pre-mature failure. The metal panels have significant rust, indicating the protective galvanic paint has failed.

b) *Description Windows and Doors:* Poor

The windows are metal framed window is original to the structure. Condition appears to be in poor condition. The windows operation is compromised due to age and rust. Energy efficiency is minimal with the steel framed single glazed glass.

Main (man door) entry is a prehung metal door typically found on residential construction. Condition appears to be in poor condition. The wood trim has rot and swelled. The door does not operate smoothly and binds up.

The Plane door is in poor condition and described as non-operational for plane service. It was not operated the day of the inspection. Significant rusting has occurred on the door and the sliding track system. The Structural connection has also rusted and needs to be investigated as part of the Super Structure review (See Section 3.2) The door is out of the track system and "flops" to the side. The wind and weather blows through the system because it has no operational features in tack and working which provides no protection to the elements.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Immediate repair:

Engineering review of all exterior envelope to determine the structural capacity of the metal panels and the plane door assembly. Inspection of all fasteners is require. Table 1

Replace damaged metal panels that have been determined to by in failure Table 1

Re install all metal panel fasteners due to rusting Table 1

Assuming the exterior metal roof and wall panels are structurally sound and secure, sand and prepare all metal panels to receive a Direct to metal (DTM) paint preparation, primer, and paint system. Table 1

Replace man door with new insulated metal door. Table 1

Plane door needs to be replace Table 1

3.4 Roofing

Description:

Metal panel roof structure which is typical for a pre-manufactured pre-engineer steel building. Metal panel is overlapped and fastened to the structure metal girt with a metal screw with a washer to prevent water intrusion. The cap is a metal preformed component that covers the top ridge intersection.

Condition: Poor

A majority of the roof appears to be in poor condition is has been reported areas of the roof have developed some small leaking. Leaking on a metal roof is generally found at locations where the fasteners anchor the roof panel to the roof girt system. Failure occurs do to age/ acidic weather reacting to scratches or the fastener washers degraded begin to rust the panel and allow for water infiltration. (See Section 3.3 facades)

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Engineering review of all exterior envelope to determine the structural capacity of the metal panels and the plane door assembly. Table 1

Replace damaged metal panels that have been determined to by in failure Table 1

Re install all metal panel fasteners due to rusting Table 1

Repaint entire structure with a Direct to Metal paint Table 1

3.5 Basements / Attics

Description: none

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being “Public” facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: None

Airport Hangars

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Location	Floor	Walls	Ceiling
Main Repair Bay	Concrete slab	Foil faced insulation	Foiled faced insulation
Bathroom	Concrete	Paneling	Acoustical tile dropped ceiling
Tool storage	Concrete		
Office	Concrete	Paneling	Acoustical tile dropped ceiling

Conditions: Poor

The foil faced insulation materials in the hanger are original to the structure, have been minimally maintained. Areas are torn, hanging loose from the structure, have been subject to moisture and have been impregnated with motor fumes dust and dirt. The facility has reached is lifecycle and needs a systematic replacement of all its interior materials.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Re-evaluate all foil faced insulation materials and replace all damaged areas. Table 1

The lower 8 feet of the structure, the foiled faced insulation should be covered with a metal/fiberglass panel to protect the area that receives the most damage. Table 1

4.0 Building Systems

4.1. Plumbing

Description:

The plumbing at the time of the inspection was decommissioned and not operational. The bathroom was in a state of disrepair and evaluation was difficult. Electric Hot water heater was also decommissioned.

Airport Hangars

Condition:

The bathroom and water heater have been decommissioned and shut down. Based on the age of the bathroom facility and its current condition, all fixtures appear to need extensive work. The water heater has been decommissioned and its age has met its life cycle and will need replacement. Piping is exposed copper, and more likely will need to be re-plumbed.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replace/repair all copper plumbing feeds, valves and faucets and insulate Table 1

Replace hot water heater Table 1

4.2 HVAC

a. Heating Plant

Description:

Oil fired forced hot air system provides heat through a duct work to all office areas and the mechanics bay.

Large garage bay: It was reported that Supplemental Heating is supplied by a wall mounted gas Fired Modine system. The system exhaust piping exists.

Condition:

The condition of the heating system is non-operational and in poor/failed shape. This system is original to the building and has also been decommissioned. Replacement will also require upgrades to the mechanical room to meet building code requirements.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

New forced hot air system is an immediate requirement. Engineering would be suggested to install a more efficient and economical heating system that could separate the office/bathroom spaces from the main mechanics space to provide a more effective and efficient heat distribution. Table 1

4.3 Electric

Description:

The overhead electric feeds a site transformer which delivers power underground to the electric room. The service is a 200 service . Romex wiring was used to provide new circuits within the space. Original circuits were installed in EMT.

Condition: Poor

The Hanger building is considered a garage facility with an IBC code designation as a "hazardous use". Wiring within this facility should be distributed in emt tubing to GFCI outlets. The use of romex wiring in this commercial garage facility is a code violation.

The lack of outlets has created the situation that outlets were added without the benefit of code compliance installation.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Rewire the entire facility from the existing panel out to assure code conforming circuitry and power distribution is provided. Table 1

4.4 Building Fire Suppression, Fire alarm and Life safety

Description:

No Fire Suppression

No fire alarm or carbon monoxide detection exist.

Condition: Poor

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

As a leased space, a local fire detection and carbon monoxide detection should be installed to meet a minimum code standard. Table 1

5.0 CODE/OPERATIONAL CONCERNS

Description: None

TABLE 1- IMMEDIATE REPAIR COSTS						AIRPORT HANGAR	
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.2	Asphalt	Minor repairs at door				500	
2.3	Landscape	free and brush clearing				3,000	Brush ad tree clearing
BUILDING CONDITIONS							
3.2	Engineer	Inspect building and door rail system	8,000			8,000	Hanger door
3.2	Hanger door	Replace Hanger door and system	1,200	89	sq ft	106,800	
3.3	Metal panels	Replace and refasten metal panels					
3.3	man door	replace man door	1	1,000	unit	1,000	
3.3	Windows	Replace windows	3	500	unit	1,500	
3.3	Exterior paint	Repaint entire structure	3,000	2.5	sq ft	7,500	
3.4	roofing	emulsion coating	4,800	9	sq ft	43,500	
INTERIOR ELEMENTS							
3.7	Insulation	remove and replace damaged insulation	1,800	0.4	sq ft	1,000	
3.7	Workshop walls	Install walls on lower 8 ft	1,800	3	sqft	5,400	
3.7	Carpentry	repair offices	800	3	sqft	2,400	
BUILDING ELEMENTS							
4.1	Water heater	replace due to failure			600	600	
4.1	upgrade bathroom	Upgrade bathroom and fixtures				10,000	
4.2	Furnace replacement	Furnace is not operational				12,000	
4.3	Electrical	Rewire building				10,000	
4.4	Fire Alarm	install basic detection system				10,000	
CODE COMPLIANCE							
5							
TOTALS						223,200	
1.25 MULTIPLIER						279,000	



3.2 Bent Hanger Door support strut

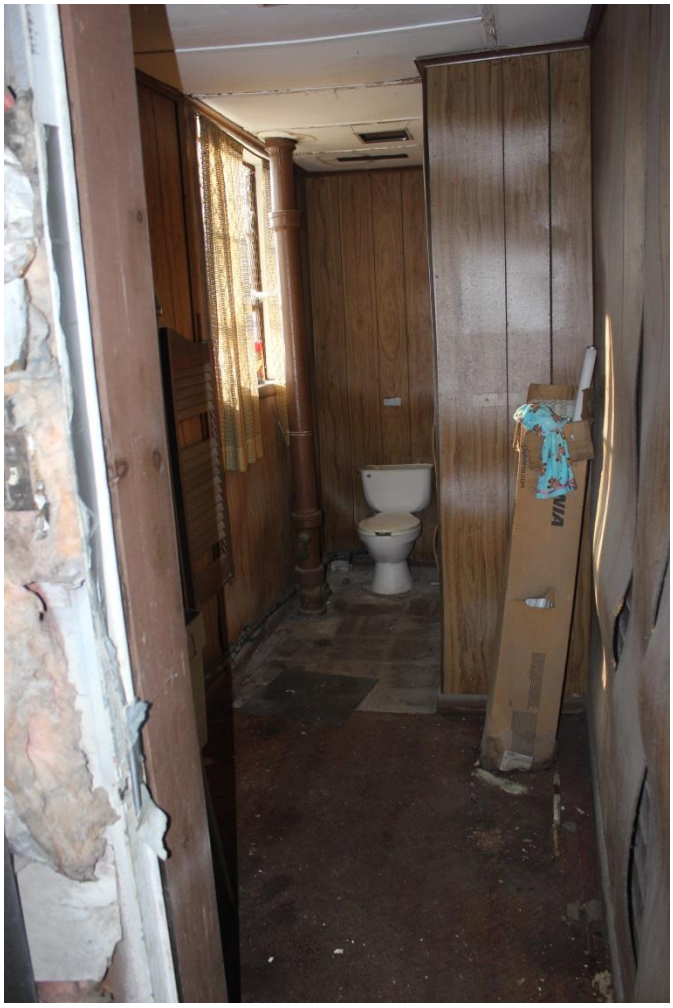


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3.3 Need for repaint Damaged metal siding/door



3.7 Interior of hanger Replace foil face insulation and install a lower wall protective board



3.7 Typical interior toilet and office finish Upgrade needed

Airport Hangar

TABLE 2- REPAIRS/REPLACEMENT PLAN — AIRPORT

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Year 1	Year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	Year 10	Total over the term
SITE CONDITIONS																		
2.1																		-
2.2	asphalt	upgrades age	30										5,000					5,000
BUILDING CONDITIONS																		
3.2	Superstructure	Refasen/replace deck boards	8												1,000			1,000
3.3	Facades	exterior painting	7			3,000	3							7,500				7,500
3.3	Facades	Deck sealant	3			500	1				500			500			500	1,500
3.5																		-
INTERIOR ELEMENTS																		
3.7	int paint	paint	7			500	3								1,250			1,250
BUILDING ELEMENTS																		
4.1	Plumbing	Backflow replacement	4				500				500				500			1,000
4.1	Plumbing	Replace sump pumps	10														1,000	1,000
4.2	HVAC	exhaust vent	10											1,000				1,000
4.3	Electric	GFI Outlet replacement	5							400						400		800
4.4	Safety	Replace anul tanks	7													1,200		1,200
ADA COMPLIANCE																		
4.5																		-
CODE COMPLIANCE																		
5																		-
5																		-
TOTALS								-	-	400	1,000	-	5,000	9,000	2,750	1,600	1,500	21,250
1.25 MULTIPLIER								-	-	500	1,250	-	6,250	11,250	3,438	2,000	1,875	26,563

JACOB EDWARDS LIBRARY



Location:	236 Main Street	Assessors:	036/001/00001
Year Built:	1914 (additions 1966, 1999)	Building area:	24,456 sq ft
Condition:	Good	Land area:	0.6 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items consider significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site has a sloping grade from front to back with a walk out level basement. Lot is treed along the outer periphery.

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Site in the rear is largely paved to accommodate the use. Parking and access appears adequate. However, it has been reported that on Tuesdays and special programs traffic congestion creates operational problems. Area has curbing.

The parking lot slopes to the rear with drainage focused to the rear (retaining wall side) and northeast corner.

Retaining wall in the rear of the lot is separating the library parking from the housing units below. Wall is approximately 12 inches thick and approximately 300 feet in length will a height differential ranging from 4 feet to 7 feet. Wall appears to have been poured in two sections at two different time periods.

At the rear service entry door the concrete sidewalk has a slight pitch backwards towards the building.

Condition and Observation:

The site drainage in the rear lot is focused toward the north east corner following the natural grade. There are minimal catch basin units in the lot that catch or lessen the surface water flow. The north side adjacent to the retaining wall and the north east corner are impacted the heaviest in a surface water run off.

The retaining wall (approximately 300 linear feet) had no weep holes observed and is rotating out of plumb. On the west side is an old tree stump with an exposed root system which “grew’ out of the foundation. This tree appears to have structurally undermined portions of the wall. At the area where the two separate pours occurred, the wall appears to have a separation and therefore a weakened area. A retaining wall relies on its continuity to assist in its overall strength. With sections of the wall that have been compromised by cracks, tree roots and excessive water build-up at the asphalt concrete intersection, the wall appears to be moving.

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed at the following locations:

The north side of lot near the retaining wall.

Major cracking (expansion?) at the mid span of the lot

Northeast corner where surface run off is focused.

The rear sidewalk at the rear service entry is pitched improperly creating a puddling situation at the door. This excessive water creates an ice situation which requires sand and salt treatment. This treatment is prematurely failing the concrete sidewalk and handicap ramp. Curbing may have shifted due to excessive freeze thaw.

Metal ornamental railings at the perimeter of the lot needs spot repair and paint as a result of age.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Crack sealing approximately 500 linear feet would prolong the life span of the asphalt area. Table 1

Approximately 1,000 square feet of asphalt replacement repair/re-surfacing is required along the north side of the lot due to excessive cracking. Table 2

Structural investigation of the retaining wall, to determine its stability and strength to continue to use. Table 2

Add additional catch basins to control water run off on site. Table 1

Remove damaged areas of the sidewalk re-pitch and re-pour to promote a positive slope away from the building. Table 1

Operationally it has been suggested that incorporating the two vacant lots on Wardwell Court could increase parking and create additional traffic access and discharge. This would require a land taking and redesign of site, to redesign the retaining wall and related landscaping for a new lot; to include retaining landscaping to address the slope. Table 2

2.3 Landscaping

Description:

The site has minimal landscaping. Small grassed area in front with mature trees. The rear of the site facing public parking, is a sloped grass area with mature trees and a planted hedge

Condition and Observations:

All species look healthy, but the maturity of the trees has the branches growing towards the structure. The branches and the height of the tree will begin to impact the structure. The hedge is approximately 4 ft in height, which matches the rail height.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Tree company that has an arborist should be brought in and structurally prune back all trees. Table 1

The hedge needs a structural pruning to prevent it from becoming "woody" and lose the shape and is leaf coverage. Table 1

2.4 Municipal Services and Utilities

a. Water and sewer

Southbridge has its own water and sewerage

b. Gas

Gas by: NationalGrid

c. Electric

National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description: Good

The existing building is a cut stone foundation and the newer addition foundation is a poured in place concrete foundation. There are no visible signs of cracking and movement in the exposed areas. Based on the visual survey the property, the substructure is adequate to support the interior and exterior load bearing walls. A majority of the basement, is used for the operation of the library which is a concrete slab.

Condition and Observation:

The substructure appears sound and in good condition. There are noted concerns that the below grade window wells are potential access points that require additional security. The west side on the building

has installed wire mesh safety guards to protect glazing from ice and snow falling of the roof. Spot areas of the foundation and staircase area require spot joint repointing.

Recommended Immediate Repairs, near term Repairs or Long Term repairs: None

3.2 Super Structure

Description: Good to Fair

The structure has a combination of heavy masonry walls, structural steel with steel truss system supporting a wood plank deck over the original front main section of the building. The newer rear section is a structural steel with steel deck and poured concrete deck. The exterior is a brick cavity wall construction.

Condition and Observation:

Based on the overall appearance and general observed general condition of the building, the superstructure appears to be sound and in good condition. In the front southwest corner of the main building, there is prominent water damage. Water damage appears to be from the integral roof gutter (100 years of age) leaking allowing water to work its way through the heavy masonry wall and leach into the plaster and lathe. This influx of water into a heavy masonry wall will deteriorate the soft internal brick used in a heavy masonry wall. The water infiltration and moisture has begun to break down the plaster bond causing both plaster failure and paint failure. Immediate repairs are needed for the integral gutter system on the main roof. (see Roof Section 3.4 and Façade 3.3)

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Seek engineering services to inspect the integrity of the front brick facade (see section 3.3 Façade and 3.4 Roof) Table 1

3.3 Facades

a) *Description* Facades: Brick and cast concrete architectural elements, Wood gable end walls with wood fascia and dentil molding.

The Front Main building (1914) is the original brick façade with cast concrete lintels, water table and soffit. Based on wall thickness and period of construction this is a heavy full dimension masonry structural wall. The addition (rear section 1999) is a steel framed brick veneer wall that also has concrete elements to mimic the original design. The west side 1966, is a early style brick facade wall.

Condition: Good to Fair

The Front Main building (1914) is the original brick façade with cast concrete lintels, water table and soffit. The cast concrete soffit has numerous areas where the mortar joints are completely missing due to age and water infiltration. Staining of the cast concrete elements clearly show water from then gutter (green stain on the concrete) is leaching into the concrete features, which in turn infiltrate the brick façade. The water concentration is likely from the integral gutters leaking. The water sits on the top of the concrete soffit leaching out of the front of the soffit. See Section 3.4 Roof. In several areas in the front brick façade efflorescence is readily observed. This indicates that water has penetrated the brick surface and the internal mass of the brick and leaching salts and other elements out of the brick. Various areas of the front façade, the mortar joints have thinned or the sand aggregate loosely falls out of the joint. This loose or degrading mortar is due to age and excessive water infiltration. This concertation has also affected the granite base mortar joints.

The rear addition masonry is in good condition.

West side addition has wood fascia's with decorative dentil molding and wood gable end walls. See section 3.4 Roofing regarding gutter repair and water damage. The remainder of the wood facades and fascia are in good condition, but are in need of painting.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Seek engineering services to inspect the integrity of the front brick facade (see section 3.2 Super structure and 3.4 Roof) Table 1

The front façade mortar joints, specifically at the cast concrete soffit should be considered an immediate repair need. This work along with repair/replacement of the integral gutter (see section 3.4 roof) is needed to stop further degradation of the library front façade. Evidence of the extent of damaged is readily observed in the front reading room plaster. (See 3.7 Interior Finishes) The concern in a heavy masonry structural wall is the moisture will not only cause failure to the exterior mortar joints, but will begin to create and internal moisture problem with the structural brick and cause the internal brick wythes to disintegrate and or come apart in the freeze thaw that takes place with in this type if wall. If addressed immediately, it may lessen the amount of brick repair needed. This is a structural as well as a cosmetic concern that needs immediate attention. Table 2

All exterior facades that are wood require scraping and painting due to paint peeling. Table 2

b) Description Windows and Doors:

The original main library has wood double hung single glaze windows. The wood trim and a decorative wood brick mold sit inset to the masonry wall. These windows have an internal counterweight balance and wood trim in the interior. The exterior have been fitted with aluminum triple track storm windows.

The new addition has fixed double glazed aluminum framed units installed with a flexible caulk that seals the unit to the brick cavity wall façade. It has been described that the new windows on the north lower children's room area have moisture issues. Reasons for moisture can be excessive sweating of the

window due to air leakage at window or the exterior window sill may have a slight pitch inward backing water in to the aluminum framed window. Further investigation and a test on the window may better define the problem.

Basement level children's bathroom has an existing grade level window which is 7 feet above the finish floor.

Condition: Good to Fair

The rear addition windows are in good shape with a 50 year life cycle expected. Re-caulking the frame to the brick façade should be factored in ten years due to the material's life cycle.

The front facade original 1914 wood windows are in fair condition. Windows of this age should be regularly inspected and painted to assure longevity. The windows are in need of repair to address some damage due to weathering and to "tighten" the windows weather stripping. The wood windows could use a significant repair and weatherization program if the intent is to keep the window due to historic significant. Some sills were observed having moisture problems and may require sill repair/replacement. These windows have triple track aluminum storm windows.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Immediate repair is to address gutters (see Section 3.4 Roof and 3.2 Super Structure), and get engineering inspection of affected areas. Table 1

Repoint all cast fascia and all affected masonry of the original 1914 building. Table 2

Reseal all caulk joints at the wood/metal frames at the brick to prevent air infiltration and provide a better moisture barrier. Table 2

Repair and weatherize all wood windows. Table 2

Basement level children's room window should be replaced with an opaque double glazed energy efficient unit. Table 1

3.4 Roofing

Description: Slate, composite slate, EDPM

The roof is of multiple materials based on when the area was constructed. The original Main building is a medium pitched slate roof with an integral metal trough gutter system that drains through the cast concrete soffit at two exposed drain pipe system at two locations. The newer additions are a flat roof system with EDPM rubber membrane roofing material with internal drain pipe system. The sloped roofs of the newer section are 30 year asphalt architectural shingles. The north side entrance at the lower gable roof has reportedly been subject to ice damming and icicle build-up. The lower west side addition, north corner appears to be a snow catching area that gets no sun exposure at all.

Condition: Good to poor

Slate roof: Evidence of active roof/gutter leak were observed in the original main front building on the southwest corner. As described, the integral metal gutter system is original to the building. It can be assumed that the metal has reached its lifecycle (approximately 100years). Metal gutter failure can be a result of several factors such as: Metal welded seams fail due to expansion/contraction due to temperature, the metal fatigues due to age and weathering, failure to clean gutters on a regular basis which results in chemical reaction of the organics causing metal fatigue holes, only two -2 inch diameter (estimated) downspout openings for 140 feet of gutter location and lastly broken slate sliding down and punctures the metal gutter.

Metal copper Gutter west side addition: The east side addition has an exposed formed copper gutter with exterior downspouts. Several joints and specifically the internal corner 90 degree corner have discoloration and mineral build up indicating failure in the joint. The south facing internal corner gutter has a significant leak and is draining significant amount of water onto the wood fascia and dentil molding. Significant rot can be observed occurring in this isolated area.

EDPM: The HVAC roof well and other new addition flat areas have EDPM rubber roof and it generally appears to be in good condition. This roof is a new installation, but has been subject to failures at the elevator shaft and spot seams. Observed leaking around the elevator shaft/galvanized air ducts and a multi seam EDPM connection has water infiltration. It appears water run off of the slate roof focusses a concentrated flow of rain towards two roof curbs and elevator shaft and vent. This concentrated area has significant EDPM seaming. The run off from the slate roof is concentrating water into a seam or hole and introducing unacceptable water infiltration.

The “HVAC Roof Well” area is not an optimal design concept. While not unique, this design requires the building owner to be constantly vigilant in its maintenance and monitoring. Rain and snow melt rely on the roof drain system to be functional, operational, clean and constantly monitored for any problems that will lead to water infiltration. Build up of leaves in corners were observed, silt and dirt build up at the roof drains was beginning to fill the roof drain gutter. While not an immediate threat, but this buildup prevents the free flow of water, which will only build-up more dirt. A weekly inspection and cleaning program should be implemented.

Chimneys: The existing chimneys appear to be currently used as ornamental passive air duct shafts. (Further investigation needed to confirm no appliances are ducted into chimney. At the cap shelf, plants are growing out of the shelf and mortar joints. Removal of plants is required to prevent further damage to brick. I do not see the need for this passive air ducting. The chimneys create a natural unregulated draft that is creating a lot of air movement within the library space. This air movement is a large heat loss for the library. The other concern is that an unregulated chimney effect air movement creates a situation in which a fire was to occur in the structure, these chimneys would promote fire growth. Current building codes do not allow for passive unregulated air movement.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Short term clean and install rubber in the metal gutter system to stop water infiltration immediately, until a replacement occurs. Table 1

Seek engineer, and replace the integral metal gutter system and flashing and replace lower slate roof. Table 1

Repair/replace damaged exposed copper gutter on the west side addition and repair/replace water damaged Fascia. Table 1

Chimney: investigate the existing chimneys to assure they do not vent appliances. Assuming they are not required for venting, close off all internal chimney openings to prevent draft, and install a metal Cap on the top of the chimney to prevent water infiltration as well as exposure to weather. Remove plant growth from chimney cap shelf and repoint any open and damaged joints. Evaluate all metal flashing at roof line. Table 1

On EDPM roof, find leak at elevator and fix. I would recommend that the use of infra-red camera service could be used to help locate leak. Infra-red could detect moisture under the EDPM and locate the hole. Table 1

Institute a roof maintenance protocol program. Weekly inspection and roof cleaning, Inspections of key areas after each storm for leaks and gutter cleaning each November. Table 1

Install power outlet and heat tape system at the north facing gable and gutter down spout location to remove the ice damming/ice builds up. Table 2

3.5 Basements / Attics

Description:

The subject property has a full finish basement that houses active library functions, private offices and small mechanical space.

The attic has two distinct areas, the first level attic/storage, and the main attic over the 1914 section of the library. The first level attic is insulated space that sits under the hip section of the roof. The area has fire suppression (assumed to be dry system) and is used for limited storage and access to the 1914 main attic.

Interior walls separating “living” space from the attic were observed. Several interior walls were not insulated, and had the sheetrock missing or holes in the sheetrock which affect the fire separation of the spaces.

Condition: Good

Basement: The basement level appears in good condition. An isolated closet in the front (south) wall under main 1914 library sits under the main stair vestibule. The minimally insulated space radiates the extreme cold radiating in from the masonry vestibule.

Attic: The lower walls have sheetrock, the sloped or hip section has exposed insulation in the rafter bay. Although area is insulated, air infiltration in the space could be felt. The door to the main attic area was operational but did not automatically close. It would be recommended that this door be closed at all times to limit air flow to the attic as a fire/draft stop and save energy.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Long term repair would be to install sheetrock over the exposed insulation in the first level access. The sheetrock would cover the paper faced insulation that is required to be covered under the MSBC code, and provide an additional barrier to prevent air infiltration, making the space warmer and more available for storage. Table 2

Install a door closure on the main 1914 attic door to assure it closes to promote the loss of heat and fire draft stopping. Table 1

Install insulation and sheetrock in all attic walls that separate living space from attic space as an energy saving and fire protection measure. Table 2

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed in order to meet the provisions of Title III of the ADA Act.

Condition:

With the new addition, it appears most if not all the ADA and MAAB codes for accessibility have been met.

3.7 Interior Finishes and Components

Descriptions:

Typical Interior finishes:

Area	Flooring	Walls	Ceiling	Trim
Main Reading Area	Carpet	Painted plaster on lath	Painted plaster on lath	Painted wood
Basement level children's and office area	Carpet	painted Painted plaster on lath	Painted plaster on lath and Suspended acoustical tile	
Second floor	Carpet	Painted plaster on lath	Painted sheetrock and Suspended acoustical tile	
Office area	Carpet	Plaster on lath	Suspended acoustical ceiling	
Bathroom	Tile	Sheetrock painted	Painted plaster on lath and Suspended acoustical tile	

Conditions: Fair to Poor

The rooms appear to be in fair to poor condition. There are multiple areas where the paint is peeling from the plaster and sheetrock walls and ceilings. The Main Building Reading room, which has both the south facing ceiling and wall is in poor condition. This south facing wall and ceiling have areas where the plaster is failing. The cause is due to the integral gutter failing as highlighted in Section 3.4 Roofs. It has been reported that paint and plaster failure in other locations has been investigated by the paint manufacturer. The peeling and paint cracking (or alligatoring) appears to be a result of excessive moisture within the space. The excessive moisture prevents full adhesion of the paint to the surface. During the winter, or "dry" exterior climate conditions, the moisture is removed from the space shrinking the saturated paint and "cracking" its surface. Test area repairs have been performed by the manufacturer's representative and a repair protocol has been recommended. Painting the walls and trim is recommended on a regular basis as part of routine maintenance. Replacement Reserves are recommended for interior refurbishment, carpet replacement, plaster repairs painting, etc. Investigation of possible water infiltration (see roofing) and repair of the plaster is recommended as an Immediate Repair.

Carpet in areas of the building and stairs are showing wear due to age. A schedule replacement program will need to be implemented.

Water leaking around the elevator doors (see 3.4 roofs) has caused damage to the existing sheetrock and paint finish. Day of the walk through, moisture was felt in this area. Partial removal of damaged sheetrock areas may need to occur due to damage to the material.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Assuming exterior/roof repairs are complete, remove all damaged plaster and lathe in the main reading room and replace. Table 2

Scrape all loose paint, prime and repaint (including 3 entrance areas) Table 2

Test for and monitor moisture levels in the space to prevent further peeling. Table 1

Due to life cycle and wear carpeted areas should be budgeted for systematic replacement. Table 2

Engineer study to determine cause and resolution to excessive moisture infiltration within the structure. This could be incorporated into the exterior envelope engineering. Table1

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The domestic service enters the building from the west side into the main water service/fire service room. The water service has a main backflow preventer and separate fire service valving. The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. The main boiler and water heater with water storage tank with circulating pumps supply domestic hot water. Welded and threaded black iron pipe is used for gas piping within the subject property.

Condition: GOOD

There were no reported or observed problems with the plumbing size, operation or capabilities. The utilities appear to be configured and operated in a manner consistent with its intended use. Main adult bathrooms are heavily used and do not have floor drains. Several reported toilet overflows have sent water into the main carpeted reading and office area affecting operations.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

All main level adult bathrooms should have floor drains installed to address periodic toilet back-ups and overflows. Table 1

4.2 HVAC

a. Heating Plant

Description:

The building is serviced by multiple gas fired AHU units to support the building and its compartmental zones. The units were installed/upgraded in the 1999 addition/renovation project. Equipment is being maintained under a town wide service maintenance contract. Boiler plant, located in the basement, are two gas fired units that supply hot water to several unit heaters, baseboard units and air handlers though out the building.

Condition: Good

The boiler plant and all roof top AHU units are at their 16 year of a 20-30 year life cycle. The systems are good and operational but near term budgeting for replacement pump motors, blower motors, and actuator valves should be planned for as the units meet the life cycle replacement as a preventative maintenance. As reported, the Library has performed bi-annual preventive maintenance and addresses recommended repairs.

b. Distribution system (VAV, FCU,, exhaust)

Description:

Condition: Good

The building distribution of the HVAC and hot water was also installed during the 1999 addition/renovation project. The building is a combination of heated air and a radiant baseboard wall-wash as a supplemental heat source.

In the basement level, the radiant baseboard which supplement the air distribution system travel along the exterior wall to provide a heat wash on the exterior wall. It has been reported that in a few select areas under the large exterior windows portions of this radiant heat has frozen presumably to the cold radiating from the glass or possible poor insulation installation at the window. Library reports work has been done to prevent future concerns.

History Room on the first floor HVAC unit is a Carnes humidification/dehumidification unit. The unit is specific to the records storage is to provide document quality air conditions. The unit was reported to be problematic, and never functioned properly. This specialized unit has not been able to be addressed

by local HVAC contractors. Manufacturer's representative is required to evaluate the installation and controls to make then unit operable.

At the north lower rear parking lot entrance, the exterior vestibule doors are equipped with handicap accessible door openers. The use of the door openers has a code-required timing operation to prevent the door from closing onto the person entering the door vestibule. However, this timing operation does allow cold air to enter into the building creating a "wind tunnel" affect. This wind tunnel affect overwhelms the space cooling the lower level, and making the space uncomfortable. A supplemental heat source or heated air curtain is recommended to offset this cold air wind tunnel.

Thermostats: The library spaces are on open design concept. The areas rely on the strategically located thermostat locations. In some areas the thermostats are remote and are easily accessed by patrons. This uncoordinated and unregulated use creates significant heat loss and over cooling of the spaces.

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Spot areas that radiant baseboard is subject to freezing, inspect glass and window insulation for air leakage (see section 3.3 Facades sub section B doors and windows) Table 2

Re assess engineering of the space to see if there is enough radiation coming from the baseboard to prevent freezing, and possibly add a unit ventilator to the outside wall heat loop. Table 2

Add supplemental heat or air curtain in the lower north vestibule to offset excess cold entering the building do to the handicap accessible door operation.

In the History Room, the record storage "Carnes" unit requires the manufacturer or its representative to come out to investigate and make operational. Table 1

Install lockable heat/thermostat covers on all publicly accessible thermostat locations. Table 1

4.3 Electric

Description:

1000 amp electric service with new sub panels and what appears to be new electrical distribution wiring done as part of the 1999 addition/renovation project. Emergency lighting is a centrally located battery back station that feeds a low voltage egress lighting throughout the building

Condition: Excellent

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

The end user has had problems with the centrally located battery backup emergency light system. Battery replacement, monitoring and maintenance cost are thought of excessive. Table 2

4.4 Building Fire Suppression and Fire Alarm

Description:

The property is protected by a multi-zone Fire Alarm Control panel, hard wired smoke and heat detectors, pull stations, illuminated exit lights, emergency battery lighting units, horn/light enunciators, fire extinguishers, and full coverage 4" wet sprinkler system with check valves and tamper/flow switches. The Fire department Siamese connections are located on the exterior of the building.. A fire hydrant is located on a municipal sidewalks adjacent to the property. The sprinkler system and Fire alarm control panel is reportedly tested annually.

Condition: Good

Recommended Immediate Repairs, near term Repairs or Long Term repairs:

Based on lifecycle, the sprinkler dry system pumps, backflow preventer valves and general fire suppression status should undergo a thorough inspection. Table 2

5.0 CODE / OPERATIONAL CONCERNS

Description:

Energy: The building envelope is a combination of construction types, from the 1914 heavy masonry walls with no insulation, the 1966 addition with presumably minimal insulation, to the 1999 addition/renovation which met the insulation requirements of the building code. Without major renovations, these areas will not be addressed. The areas to evaluate should be all doors, windows, roof and wall penetrations, attic spaces. The low technology solutions on weather stripping doors, window upgrades, caulking/sealing of all wall and roof penetrations, draft stopping voids in solid walls, insulating walls in attic and sealing all passive air flow chases needs to be evaluated.

Utility companies may provide some assistance in engineering, but building envelope should be the focus of the Library building. This specialized building envelope energy management is done by envelope consultants.

Security: As reported, the Library is seeking funding for security cameras for upgrade. Security cameras at other library locations have been focused on entrances and all public internet stations with time stamping to help with monitoring safety concerns and identification of users. Table 1

Elevator: The Library has experienced excessive amounts of service calls on the elevator. As reported, the service maintenance elevator contractor noted that the elevator is no longer manufactured. Note that US Elevator Ascension 2000 has been taken over by ThyssennKrupp Elevator. While researching this matter, industry web sites indicate that this machine has been plagued with problems with software issues quite similar to those experienced by the Jacob Edwards Library. The concern is that excessive service calls are impacting operational budgets. The Library may have to call in a ThyssenKrupp vendor to provide the software upgrades needed to make the system operate better; however, this may not guarantee a long-term fix. The Town may need to retain the services of an engineer conversant with elevators, or a service provider, to explore what alternate manufacturer can be used to replace controls and equipment for a more reliable unit. This would likely be a costly replacement, but may be the only alternative to address a long-term solution.

TABLE 1- IMMEDIATE REPAIR COSTS						JACOB EDWARDS LIBRARY	
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.2	Engineer	retaining wall and additional catchbasins		10,000		10,000	Investigate existing retaining wall and determine options/repairs.
2.2	sidewalk repair	repair sidewalk at rear service entrance	200	5.5	sq ft	1,100	remove and replace damaged sidewalk sections
2.2	asphalt repair	crack seal 500 lin ft	500	5	ln ft	2,500	Crack seal asphalt areas to prevent further damage
2.2	catchbasins	add catchbasins top control on site water run off affecting retaining walls	3	15,000	unit	45,000	Add additional catchbasins, piping
2.3	Pruning	structural pruning of trees		2,000	job	2,000	structurally prune existing trees on site
2.3	landscaping	prune and shape all site shrubs		1,000	job	1,000	Prune all low growth shrubs
BUILDING CONDITIONS							
3.2	Building envelope engineering	Investigate roof and masonry wall water damage		30,000	job	30,000	Building envelope engineering needed to solve water infiltration and structural damage
3.3	gutters	Replace front gutters on 1919 building	240	500	ln ft	120,000	Replacement of the existing intergral gutter
3.3	window	childrens bathroom	1	400	unit	400	replace with opaque double glazed window
3.4	roof	Cap chimneys	2	1,000	unit	2,000	Cap to close off free movement of air
3.4	Chimney	Chimney repointing	2	40	sq ft	1,000	repoint chimneys
3.4	roof	Infrared inspection of roof	3,000	1	sq ft	3,000	Infra-red inspection on flat roofs to solve moisture infiltration.
3.5	Attic	install door closers and weatherization on attic door	1	500	unit	500	Install closers and weatherrstrip to prevent heated air into attic space.
INTERIOR ELEMENTS							
3.7	Engineering	investigate moisture issues in the building		8,000		8,000	Building spaces appear to have excess moisture Investigate to hresolve issues
BUILDING ELEMENTS							
4.1	Plumbing	Install floor drains in 2 bathrooms		10,000	unit	10,000	Install floor drains on 1st floor bathrooms to address repeated damge due to water overflows.
4.2	HVAC	Lockable thermostats	5	50	unit	250	install lockable thermostat covers to prevent access
4.2	HVAC	Repair carnes unit		3,000		3,000	Repair Carnes unit
4.3	Electric						
ADA COMPLIANCE							
4.5							
CODE COMPLIANCE							
5	security	Add additional cameras	5	3,500	unit	17,500	Add additional cameras for security
5							
TOTALS						257,250	
1.25 MULTIPLIER						321,563	



2.2 Sidewalk pitches towards the building and puddles



2.2 Handicap sidewalk failing concrete



3.3 1960 roof gutters sagging and damaged causing water infiltration and rot in wood trim



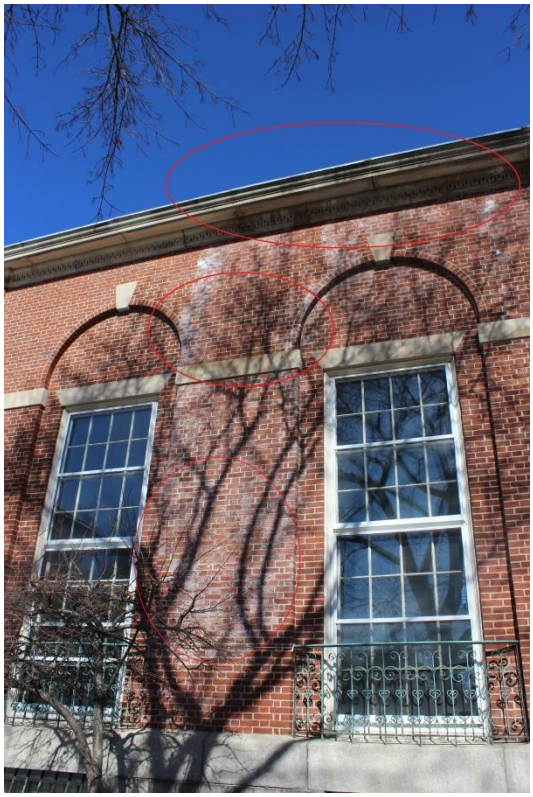
3.3 Integral gutter and evidence of water leaking into cast soffit and brick efflorescent.



3.3 Exterior chimney cap Remove plant growth and repoint and install metal cap



3.4 Interior attic chimney passive vent system Seal air flow



3.3 Integral gutter failure allows water to enter brick wall. Moisture has penetrated wall and excessive efflorescence in brick.



3.3 & 3.7 Interior wall opposite of the exterior wall noted above.



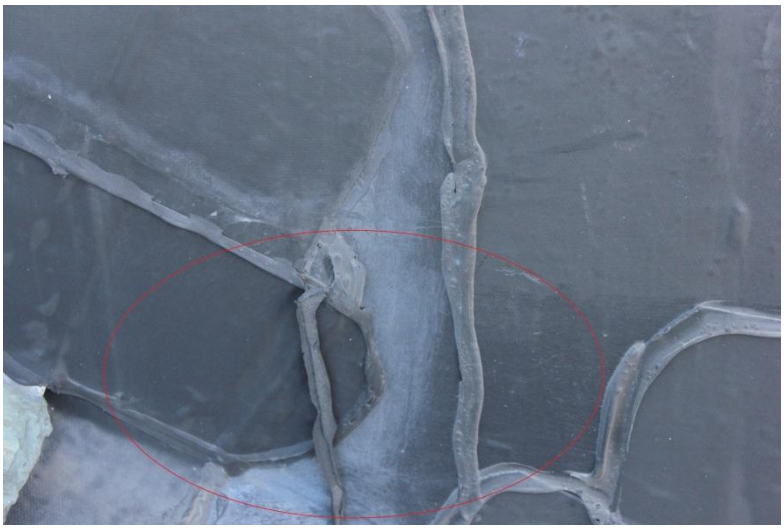
3.3 Existing wood window require upgrades to better fit and weather strip. Replacement could be considered



3.3 General note that all exterior doors require weatherization



3.4 Problem roof patches at elevator



3.4 Patches and seaming of roof at elevator



3.5 Attic interior wall missing insulation and fire separation has been removed



3.5 Attic eave new addition, cover exposed vapor barrier which provides better thermal barrier.



3.7 Example of paint failure throughout building on vault ceiling



3.7 Water leak at elevator shaft at roof line rusting support lintel



3.4 Clean roof debris on regular basement



4.2 HVAC roof top equipment Plan for component replacement (motors, burners,.compressors) based on life cycle age of components.

Jacob Edwards Library

TABLE 2- REPAIRS/REPLACEMENT PLAN — JACOB EDWARDS LIBRARY

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.2	Paving	Redesign retaining wall, increase parking				350	300	cy					105,000						105,000
2.2	Paving	eminent domain taking and road work																400,000	400,000
BUILDING CONDITIONS																			
3.3	Masonry	repair and repoint damaged front wall brick	50			100,000	34	sq ft			100,000							10,000	110,000
3.3	caulking	Remove bad sealant and recaulk joints	10			3,000	15	ln ft			45,000						10,000		55,000
3.3	windows	weatherize/repaint wood windows	50			30	600	unit			18,000								18,000
3.3	Façade	Exterior paint	7			10,000	3.4	unit	34,000							34,000	8,000		76,000
3.3	Façade	Exterior Caulking/waterproofing	10													34,000			34,000
3.4	Roof	roof repair	30												5,000		5,000	5,000	15,000
3.5	sheetrock	install sheetrock over attic eave area				4,000	2.6	sq ft					10,000						10,000
INTERIOR ELEMENTS																			
3.7	paint	scrape and paint all interiors				28,000	2.5	sq ft					70,000						70,000
3.7	carpet	replacement	12			15,000	2.5	sq ft							20,000			20,000	40,000
BUILDING SYSTEMS																			
4.2	HVAC	life cycle component replacement	15			15 motors	2,000	unit	6,000	6,000	6,000	6,000	6,000						30,000
4.2	HVAC	Temperature controls	15												3,000				3,000
4.2	HVAC	Duct cleaning	7				2	ln ft			9,000						9,000		18,000
4.2	HVAC	Air curtain north entrance	15			25,000						25,000					9,000		34,000
4.3	Electric	outsoured panel testing	10											5,000					5,000
4.4	fire suppression	lifecycle inspection of all components	15				2,000	unit	2,000										2,000
ADA COMPLIANCE																			
4.5																			-
CODE COMPLIANCE																			
5																			-
5																			-
TOTALS									42,000	6,000	178,000	31,000	191,000	5,000	28,000	68,000	41,000	435,000	1,025,000
1.25 MULTIPLIER									52,500	7,500	222,500	38,750	238,750	6,250	35,000	85,000	51,250	543,750	1,281,250

COMMUNITY CENTER



LOCATION:	153 Chestnut Street	Assessors:	046/082/00001
Year Built:	1960 (acquired 2003)	Building area:	15,559 sq ft
Condition:	Fair	Land area:	2.9 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

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1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat surrounded by a large parking lot and access road. Site abuts recreational playing fields and residential neighborhood

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Drive and parking area appear in good shape. The area has three a drainage structures that appear to be in working order. Asphalt appears to be in good working condition. There are small pocket areas were pot holes patched over trench cut and cracking have occurred that require maintenance.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observe there are small pocket areas were pot holes or excessive cracking have occurred that require maintenance.

Trench cut in asphalt at the front is settling and holding water.

The site drainage is focused toward a rear catch basin that addresses run off from then playing fields as well as the parking lot.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Crack sealing approximately 500 linear feet would prolong the life span of the asphalt area. Table 1

Approximately 300 square feet of asphalt replacement repair/re-surfacing is required at a trench cut in the front of the building that is settling and will cause degradation to the abutting asphalt. Table 1

2.3 Landscaping

Description:

There is a small grassed area abutting the front of the building.

Condition and Observations:

Community Center

Recommended Repairs: None

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Gas

   Gas by: NationalGrid

c. Electric

   National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

Building has a poured concrete foundation and slab with no basement. No defects or observable problems were seen.

At corners of the building which abut the paved areas, it is evident that plow vehicles have hit the foundation wall causing pieces of the foundation to break off.

Condition and Observation: Condition is good

3.2 Super Structure

Description:

The building is a full brick/block cavity wall exterior walls. The roof structure is supported by a Wood glue laminate structural beam that is supported by a block pilaster column. The roof deck superstructure that supports a heavy wood decking. The lower flat roof system is supported by a poured in place reinforced masonry deck.

Condition and Observation:

Community Center

All observed areas appear in good condition with no stress cracks or building movement. Structure appears to be in solid and sound condition. Regular maintenance will insure building longevity.

3.3 Facades

a) *Description Facades:* (Brick)

The facades are designed in a traditional utilitarian US government armory building. Readily available , heavy endurance type materials such as brick, block, and Metal store front window wall construction that give the structure a clean and low maintenance look..

Exterior red brick is the majority of the façade. The fascia is a cast concrete panel system. Punched out metal store front window system make up the remaining portion of the wall in the office areas. Large operational garage doors are located on the south gable side of the building, which were formally used as access for armory equipment.

Condition:

The brick and façade and the mortar joints appear in fair condition with spot areas in poor shape. All observed areas where show a weathering consistent with the age of the structure. The rear of the building (east) and the north (firing range side) has areas where water penetration of the stepped brick course below the cast fascia are damaging the mortar joint. The rear section, where the brick façade steps out one brick with beyond the fascia all the interior corner brick returns below the cast window sills have split the brick. The split is affecting the stability of the wall and now is allowing further water penetration. The concern is this brick ledge which protrudes ½ a brick width forward from the fascia plane is allowing water penetration through the mortar joints and saturated the brick. This excess water within the brick cavity is subject to freeze thaw cycles at the face. The freezing moisture has expanded and at the face of the brick and “snapped” the brick at the brick set back joint or has broken the mortar joint bond at this top course. There were no signs that the exterior brick failure has affected the interior CMU wall. This situation is not as prevalent at the south and west side, where winter sun helps dry the moist brick condition. At various other locations mortar joints have fallen out and spot repair and repointing is required to assure longevity in the total brick wall facade.

Due to the severity of portions of the brick façade failure in the rear of the building and the significant and expanding mortar failure of the top course of brick in the north side of the building, re-flashing and mortar repointing is an immediate concern. The areas are readily accepting moisture, and left unabated will exponentially create further damage to the façade. The readily observable mortar joints failing, brick spalling and loose and large structural cracks indicate that the moisture has entered the brick fade and has expanded casing failure. The known damaged areas will allow for more moisture infiltration increasing the rate of more brick failure. The design of this exposed brick ledge may be easily addressed by installing a top cap

flashing over the brick, assuring water will no penetrate the brick and mortar. An exterior envelope engineer is recommended to investigate the water penetration and the severe brick cracking in the rear of the building.

Caulking joint have reached or exceeded its life expectancy and should be considered in fair to poor condition. Caulking joints at material transitions such as windows, doors and expansion joints appeared to have dried out. The caulking material has lost its ability to expand and contract. Theses cracks or separation from it abutting material allow for water infiltration.

b) *Description Windows and Doors*:

Aside from normal wear, the windows appear to be in good to fair condition.

Windows in the office areas and front are aluminum framed insulated glass panel. These windows are reported to be three years of age. The upper auditorium window, and rear windows are the original steel framed single glazed window. These windows have minimal thermal rating, are operational and functional but need to be replaced as they have exceeded its lifecycle. These windows reportedly have an asbestos caulking in the glazing and sealant. The steel frames are rusting and are beginning to expand causing damage to the brick and original caulk joints. The windows may also be contributing to water entering the brick façade in the rear of the building at the brick bumpout which has suffered major cracking at each of these locations.

The aluminum framed doors appear to be in fair to poor condition. Doors have little or no weather stripping or thermal rating. Use and wear are showing up in the worn hinges, binding of the doors due to heavy use and threshold damage. Beyond the energy in-efficiency, the doors are not sitting properly within the frame because of worn hinging, worn or damaged thresholds, or the door is simply “wracked” because of use over the years.

The large south side garage door is operational, but was unable to observe its operation. The door has minimal energy efficiency. The Town may consider if this door is part of its operational needs, or if a smaller multipurpose door system could replace this overly large and energy inefficient door. A newer door system would increase the energy efficiency of the building.

Condition:

The overall condition of the materials is good to fair condition. Replacement of the original steel framed windows and metal store front door system are not energy efficient and are worn.

Community Center

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Masonry:

Exterior envelope engineer is recommended to investigate the water penetration and the severe brick cracking in the rear of the building. Table 1

Repair or re-flash brick shelf failure Table 2

Repair cracked northside brick Table 2

Spot repaint areas where mortar has fallen out. Table 2

Replace all caulking joints with new sealant. Table 2

Windows:

While not an immediate need, all rear windows should be scheduled for replacement. Replacement to increase energy efficiency is suggested. Table 2

Doors:

The door replacement is recommended because the inability of the existing doors to operate smoothly and effectively are a result of the doors exceeding their life cycle. Table 2

3.4 Roofing

Description:

Do to access, the roof system was observed from the ground. The upper roof is a three tab asphalt shingle with a low slope pitch (4 pitch) with a metal gutter along the roof edge. The lower level flat roof is an EDPM rubber roof. Metal flashing and coping outline roof edges.

Condition:

The appearance of the asphalt shingle give indication that this is nearing the end of its life cycle and is considered in poor condition. The shingles stone granules appear to be thinning and the tabs are beginning to swell and curl which indicate signs of failure. There was evidence of water staining in the wood roof deck as a result of water infiltration. If left unattended, continuous weather could result in further water penetration issues that could affect the sub structure. Replacement should be considered a near term replacement. The upper roof gutter appears to be original with the building and has areas that appeared to have “settled” and not have the required positive pitch. Flat membrane roof was unable to be observed. The flat roof was reported that the roof was more than likely installed at same time period of the shingled roof. At flat roof edge flashing, all joints had a black sealant at the

joints. The sealant appears to have been applied as an after the installation fix to prevent water infiltration. Replacement is recommended due to the materials age and lifecycle.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Near term replacement is recommended. While not in failure, the shingles are susceptible to heavy or windy condition. The flat roof could safely be assumed was installed at the same time as the main roof and should be considered for replacement as well. Table 1

Gutters need to be evaluated due to its age and life cycle as well as to re-pitch gutter and add additional support to assure a positive pitch. Table 1

3.5 Basements / Attics

Description: NONE

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition: Meets basic needs, but if upgrades or change of use of the facility is to occur a separate toilet facility and door hardware would need to be modified. There are some interior doors that may need to be widened or have door openers installed. Table 2

3.7 Interior Finishes and Components

Typical Interior Finishes			
Area or room	**Floor**	**Walls**	**Ceiling**
Auditorium	Wood parquet	Block painted	Wood deck
Offices	ACT tile	Sheetrock/plaster	Suspended acoustical tile
Bathrooms	Ceramic tile	Ceramic tile	Suspended acoustical tile

Conditions:

All rooms appear to be in good to fair condition. All areas show normal wear for a building of this age.

Painting of walls and trim is recommended on a regular basis as part of routine maintenance. Replacement Reserves are recommended for interior refurbishment.

Interior doors appear in good condition. Handicap accessible hardware should be installed to meet handicap compliance.

Flooring was observed to be in good to fair condition. However, it should be acknowledged that ATC (asbestos containing tile) in the offices has met its life expectancy. Any work/replacement of floors should be done with the knowledge of this material exists.

Suspended acoustical ceiling has suffered due to age, change of use, and some old water damage. Replacement of tiles would aesthetically improve the general look of the space.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement of acoustical tiles would aesthetically improve the general look of the space. Table 2

Replacement reserves for removal and replacement of ATC (asbestos) floor tiles. Table 2

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

The observed supply piping is copper, and the waste lines are cast iron. The plumbing fixtures are vitreous china with chrome trim. The AO Smith water heater is a recent installation and reportedly serves the needs of the building. Piping looks in good working condition.

Welded and threaded black iron pipe is used for gas piping within the subject property.

The original building was designed as a male dominant armory. The amount of Female facilities is not equal to the amount of men's facilities.

Condition:

Water heater condition is good to fair. Replacement should be budgeted within the next ten years. Life span for water heaters is generally 15 years.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement reserves for replacement of water heater Table 2

4.2 HVAC

a. Heating Plant

Description:

System is a gas fired Burnham Boiler that supplies hot water to a hot water heating loop. The loop feeds two large AHU units in the auditorium (one unit is off line) and a fan coil unit (off line), an air handler unit in the old range/storage area (off line), several smaller unit heaters, and radiant baseboard in the small office areas.

Condition: good

As reported the Burnham Boiler is less than 10 years old and is regularly serviced under a maintenance contract. A 30 year life cycle for a boiler is industry standard. The hot water pumps are new units with a matching spare unit in reserve. There is some concern that the under slab piping which services the office baseboard units has heavy rusting and control valves that do not properly control heat distribution.

Community Center

b. Distribution system (VAV, FCU, exhaust)

Auditorium “Kenard” AHU units are original to the building. One unit is not operational due to an expensive actuator valve failure. The operational unit is large and appears oversized for the current use. The concern is the actuator on the operational unit is an old style unit and not readily available. A retrofit actuator valve adapted to operate on this system should be installed. The decommissioned unit can be removed and in its place a much smaller ahu unit be installed as a supplemental/back up ahu.

The fancoil unit over the door has been decommissioned due to component failure. Removal of the unit and piping is recommended to lessen the chance of water leaking out of the shut off valves that isolate the fancoil.

Smaller Kenard AHU in range/storage is currently non-operational due to the failure of the actuator. This unit is oversized for the space because it was used for range ventilation, which requires significant air changes. This unit could be removed and a smaller much simpler air handling unit or fancoil unit could be used to provide heat to this currently unheated space. This lack of heat in this north side room could also be contributing to the exterior brick failure on this façade as highlighted in section 3.3.

The Webster and Herman Nelson unit heaters that service the locker rooms and back educational room have exceeded their life cycle. They are currently operational, but budget planning for replacement should be factored.

Hot water piping generally appears in good condition. There are several ahu units that are currently off line and assumable have been drained. The concern is several units are simply valved off. Several valves have mineral build-up which may indicate slight leakage. The concern is deactivated valves gasketing could dry up leaving the valve inoperable. Decommissioned piping could be rusting on the inner walls, affecting the condition and future use of the piping. Several areas at elbows and joints appear to have asbestos pipe insulation. While the state of the insulation appears intact, future work may require removal of this insulation.

Description:

Hot Water supply pumps: The main boiler room pumps are newer units and in good condition. The outlying pumps in the office side of the building appear to be older units.

Radiant Base Board: Remainder of the smaller spaces is heated with radiant baseboard convection which is locally controlled through a thermostatically active flow valve.

Mitsubishi Split System: The COA, office area section of the building, is serviced by a Mitsubishi split system unit that provides cooling. These units have a life cycle of 15 to 20 years.

Other classroom areas are serviced by window mounted air conditioning units that appear old.

Community Center

Temperature control system replacement that helps control intake air on the AHU is recommended to allow for better control and energy efficiency. Intake air controlled by CO2 detector will maximize the use of recycled air making the entire building more energy efficient. As described, the use of the auditorium space, rarely meets the need for significant air changes as per its original design, and energy saving in this large space would be significant. Engineering may show that a smaller more efficient ahu replacement may be more economical than repairing the large original AHU unit.

Condition:

The boiler plant and main distribution pumps are in good condition.

AHU 1 is in fair condition. The age of the unit (46 years) dictates that a thorough investigation be a mechanical contractor take place. The heating coil may show signs of the copper walls thinning and require replacement. Motor (assuming it has not been replaced), has long past is life cycle of 20 years. Flow and actuator valves are also past its life cycle. This failure currently exist with the AHU 2 unit. This unit, as reported, has had the actuator fail and was removed at the time of inspection. Due to age of the equipment a replacement part has not been found.

Based on the space, and the change of use to a town facility and not an armory, the town may be better served, re-engineering the AHU system. A replacement unit will be more energy efficient and the new use may allow for a smaller unit with better energy management controls to better serve the building. Al the units have met or exceeded their lifecycle.

Mitsubishi Spilt system condition is in good to fair condition. Long term replacement planning should be implemented.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Engineering review of the building is strongly recommended to better recommend current use heating distribution equipment. Table 1

Based on the space, and the change of use to a town facility and not an armory, the town may be better served, re-engineering the AHU system. A replacement unit will be more energy efficient and the new use may allow for a smaller unit with better energy management controls to better serve the building. Table 2

Replacement of failed actuator valve is an immediate repair to assure operation during the winter. Table 1

The AHU unit in the old gun range should be replaced with a new smaller more economical ahu unit or a fan coil. Table 1

Replace temperature controls. Table 1

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4.3 Electric

Description:

The 400 amp Western Electric Company electric service is original to the Building. The building has had little renovation or upgrades and therefore appears to be adequate for the building. All observed subpanels, outlets and power feeds appear to be in adequate shape.

A semi portable trailer mounted diesel fuel emergency generator exists in the rear of the building. The unit has power feeds tied into a internal automatic transfer switch that provides power to key building circuits such as heat and lights for the emergency use function.

Condition: Fair

The main electric panel and subpanels all have Western Electric Company breakers. This company went out of business in the late 1960"s. Replacement parts are extremely hard to find. This old circuit breaker system is prone to mechanical failure as it ages. The mechanical failure is the circuit breaker exceeds its amperage limit, does not trip out as a safety and overheats creating a potential fire risk.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

> Replacement Reserves should be planned for to replace main circuit breakers and several subpanels because Western Electric parts are difficult to find or be readily available if a failure occurs. Replacement of electric panels is recommended. Table 2
>
> If the panel is not replaced, an immediate need is to have the panels and circuit breakers tested by a professional testing agency to assure the proper operation.

4.4 Building Fire Suppression, Fire Alarm and Life Safety

Description:

No Fire Suppression exists

Fire alarm system is a basic multiple zone Fire alarm control panel, hardwired smoke and heat detectors and pull stations.

Life safety items such as battery backup exit lights and emergency lights exist throughout the structure. Fire extinguishers are strategically located around the facility.

Condition:

If the Town has plans to significantly upgrade the facility and use, then replacement of the fire detection system per MSBC/IBC with additional coverage would be required.

Community Center

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replacement Reserves should be planned for to replace main fire alarm panel and components. Table 2

5.0 CODE/OPERATIONAL CONCERNS

Description:

Asbestos: Based on age floor tiles (9x9) are commonly considered to be Asbestos containing material. (ACM) The town should also assume ACM materials exist in the glue which bonds the tile to the floor. Table 2

Window caulking/ expansion joint materials in buildings constructed in this time frame should also suspect as ACM materials. Based on the amount of hazardous material found in the window replacement done three years prior, it could safely be assumed that this material exists in the remainder of the windows and doors. Table 2

Energy consumption: The construction of building for an armory use in 1960 had little thought for energy conservation. It could be safely assumed by the large truck size door and the size of the dual AHU in the auditorium space, anticipated that trucks were driven into this space. The large AHU units were designed to remove large amounts of air when trucks access the space for air quality as well as heating needs. Based on its age, construction materials, and design, major cost efficiency measures could be implemented if the town upgrades the facility to meet town uses instead of armory uses. Table 2

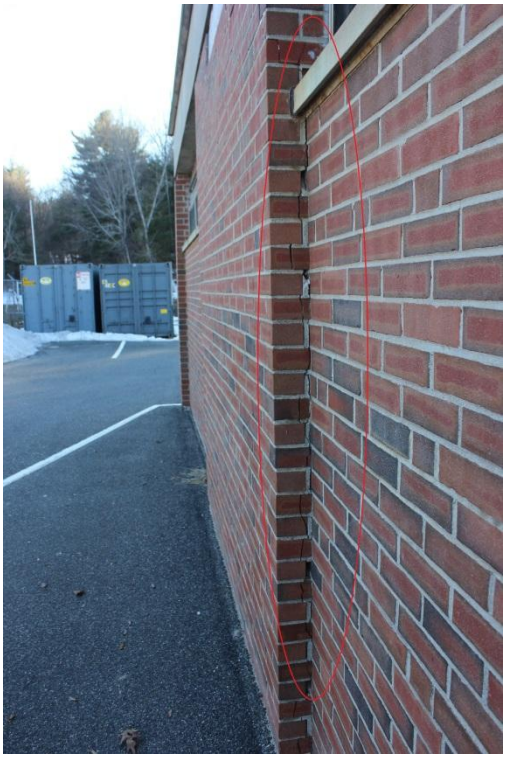
TABLE 1- IMMEDIATE REPAIR COSTS							COMMUNITY CENTER
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1	none						
2.2	Pavement	crack sealing asphalt	500	4	ln ft	2,000	Prevent damage and extend life of asphalt
2.2	Pavement	repair asphalt trench	400	4	sq ft	1,200	Trench is sinking and holding water
BUILDING CONDITIONS							
3.1	none						
3.2	none						
3.3	Masonry	Engineering services				10,000	Assess damaged/cracked brick and flashing
3.3	Windows/ doors	Engineering services				3,000	review flashing and replace old windows/doors Table 2
3.4	Roofing	strip and replace asphalt	6,500	11	sq ft	71,500	end of life
3.4	Roofing	remove and replace EDPM	10,265	12.5	sq ft	128,300	end of life additional insulation
3.4	gutter	repair existing	180	75	ln ft	13,500	repair existing
3.5	none						
3.6	Table 2						
INTERIOR ELEMENTS							
3.7	Table 2						
BUILDING ELEMENTS							
4.1	None						
4.2	HVAC	Engineering services				8,000	Evaluate all equipment and design a cost effective replacement plan to meet needs
4.2	AHU 2	Valve replacement	1	4,000	ea	4,000	system is not operational
4.2	gun range AHU	replace unit	1	8,000	ea	8,000	unit not operational, space has limited function
4.2	Temperature controls	upgrade controls to all units	1	5,200	ea	5,200	Controls are limited, and provided limited control. Energy saving measure
4.3	Table 2						
4.4	Table 2						
ADA COMPLIANCE							
3.6	Table 2						
CODE COMPLIANCE							
5	Table 2						
TOTALS						254,700	
1.25 MULTIPLIER						318,375	



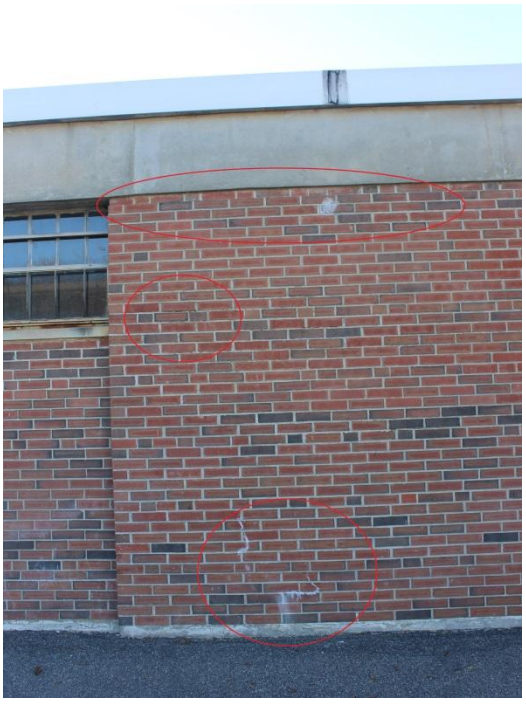
3.3 Typical exterior door at the end of lifecycle. Poor operation and lacking weather stripping



3.3 Main auditorium existing metal frame single pane window. Failing frames and minimal energy efficiency.



3.3 Rear wall bump out structural failure at bump out due to moisture



3.3 North wall Top of wall is brick ledge with damaged brick. Mid wall brick mortar joints failing. Bottom of wall is efflorescent indicating moisture in internal wall of brick

Community Center



3.3 Recreation rear window Failing caulking joint and water infiltration Old metal windows rusting through



Brick ledge at cast soffit Structural cracks indicating moisture entering at brick shelf

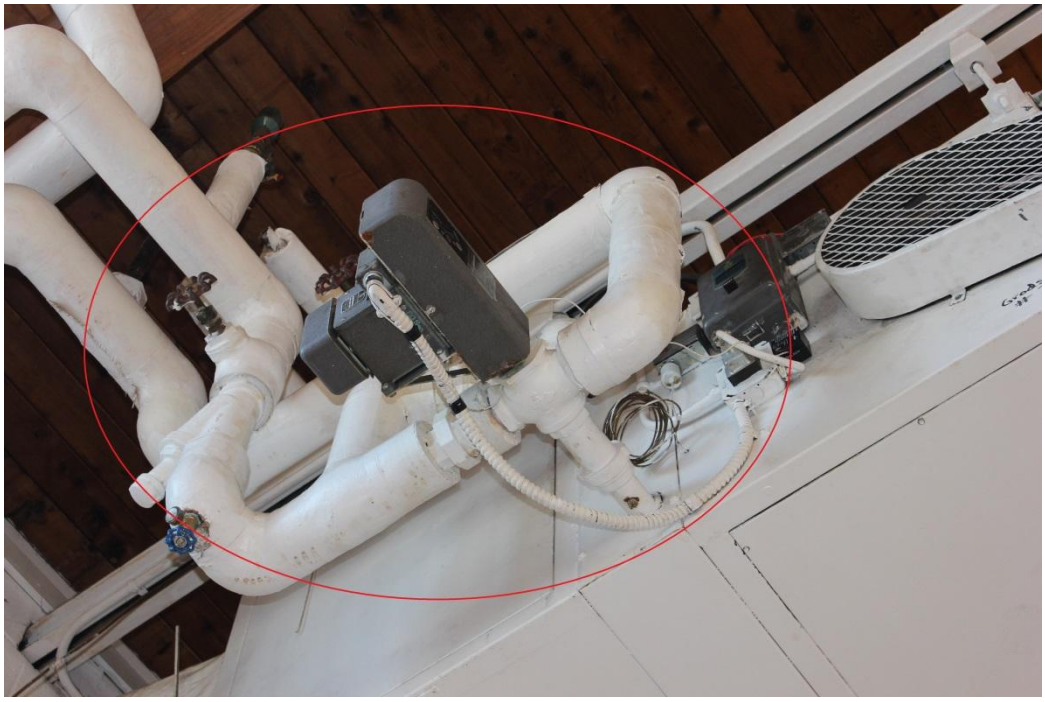
Community Center



3.4 Recreation Gutter sag Need for paint on exposed wood Lower roof coping seams have temporary patches



3.4 Main roof shingles raised and worn



4.2 Main AHU actuator and controls of working unit



4.2 Hot water heating distribution requiring better control of flow and asbestos insulation joints

TABLE 2- REPAIRS/REPLACEMENT PLAN — COMMUNITY CENTER

Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1	none																		-
2.2	Pavement	seal and stripe	7 years	5 years	2 years	1,400	0.25	sq ft		350							3,000		3,350
2.3	none																		-
BUILDING CONDITIONS																			
3.1	none																		-
3.3	Façade	painting	7												10,000				10,000
3.3	Masonry	Repair/replace/repointing		50 years		3,000	22	sq ft					66,000					10,000	76,000
3.3	windows	replace original		50 years		1,000	60	sq ft					60,000						60,000
3.3	doors	replace original		25 years		10	2000	ea		10,000						10,000			20,000
3.3	Flashing	replace original		50 years		100	140	ln ft					14,000						14,000
3.3	Caulking	replace original		10 years		3,000	7	ln ft					21,000						21,000
3.4	see table 1																		-
3.5	none																		-
ADA COMPLIANCE																			
3.6	architectural	assessment				1	4000						4,000						4,000
INTERIOR ELEMENTS																			
3.7	Paint	periodic paint		7		3,000	2.5	sq ft				7,500						7,500	15,000
3.7	Paint	Refinish gym floor	4			5,000		sq ft	9,000				9,000				9,000		27,000
3.7								sq ft											-
BUILDING SYSTEMS																			
4.1	Water heater	replace	15 years	5	10	1	600	ea					600						600
4.2	HVAC	clean ductwork	5					ea		8,000					8,000				16,000
4.2	HVAC	circulation pump	10			3	2000	ea		2,000				2,000				2,000	6,000
4.2	HVAC	blower motor replacement	20			3	4000	ea		4,000					4,000			4,000	12,000
4.2	Locker rm univent	replace	30	56		2	1500	ea			3,000								3,000
4.3	split ac unit	replace	15 years				2300	ea			2,300								2,300
4.3	Lighting	replace/upgrade	20									5,000		12,000					17,000
4.3	Electric service	replace				1	5000	per panel				5,000							5,000
4.4	Fire alarm	upgrade				1	8000					8,000							8,000
CODE COMPLIANCE																			
5	asbestos flooring	remove				4,000	15	remove and replace with new floor					60,000						60,000
5	asbestos caulking	remove				1,000	2						2,000						2,000
TOTALS									9,000	24,350	5,300	25,500	236,600	14,000	22,000	10,000	12,000	23,500	300,750
1.25 MULTIPLIER									11,250	30,438	6,625	31,875	295,750	17,500	27,500	12,500	15,000	29,375	477,813

TRAIN STATION (RMV BUILDING)



Location:	6 Larochelle Way	Assessors:	035/043/00001
Year Built:	1910	Building area:	2,480 sq ft
Condition	Fair	Land area:	2 acres

1.0 PURPOSE and LIMITATIONS

The purpose of this Property and Conditions Report (the Report) is to assist the Town of Southbridge to assess the general physical condition and maintenance status of the property and to recommend repair and maintenance items considered significant for the property to continue its current operations.

The information reported was obtained through sources deemed reliable, a visual site survey of areas readily observable, access through building "owners" and information presented by the Town. Findings, conclusions, and recommendations in this Report are based on the methods described above, industry standards, and general observations of the equipment and its visible condition.

The report is focused on existing conditions, lifecycle of existing materials, and non-code compliant conditions. Recommendations will include items needed to bring the space/component to a safe, code compliant, and generally accepted facilities condition. The Report does not anticipate change of use, reconfiguration of space, or change in current program.

Estimated Costs are based on professional judgment and the probable or actual extent of the observed defect inclusive of the cost of design, procure, construction and manage corrections.

1.1 Condition

FAA uses terms describing conditions of the various site, building and system components. The terms used are defined below. It should be noted that a term applied to an overall system does not preclude that a part, component, and section of the system may be in a different condition.

Excellent	The component or system is in new or like new condition, and little or no deferred maintenance is recommended, or the scheduled maintenance can be accomplished with routine maintenance.
Good	The component or system is in sound and performing its function. It may show signs of normal aging or wear and tear, and some remedial and routine maintenance or rehabilitation work may be necessary.
Fair	The component or system is performing adequately at this time but is obsolete or is approaching the end of its useful life. The component or system may exhibit Deferred Maintenance, evidence of a previous repair, workmanship not in compliance with common accepted practices. Significant repair or replacement may be recommended to prevent further deterioration, prevent premature failure, or to prolong its useful life.
Poor	The component or system has either failed or cannot be relied upon for continued use performing its original function, excessive Deferred Maintenance or state of disrepair. Repair or replacement is recommended.

Train Station (RMV)

1.2 Abbreviations

FAA may use abbreviations to describe various site, building, or system components of legal descriptions.

ACT Acoustical Ceiling Tile

AHU Air handling unit

BTU British Thermal unit (heat measurement)

CMU Concrete Masonry Unit

EDPM Rubber membrane roofing

EUL Expected Useful Life (life cycle)

FCU Fan Coil Unit

FHA Forced Hot Air

IBC International Building Code

ACM Asbestos containing material

ADA Americans with Disabilities Act

GFI Ground Fault interrupt (circuit)

GWB Gypsum Wall Board

HVAC Heating, Ventilating, Air Conditioning

HWH Hot Water Heater

MDP Main electrical distribution panel

PTAC Package through wall A/C unit

RTU Roof top Unit

MSBC Massachusetts State Building Code

VAV Variable Air Volume box

VCT Vinyl Wall covering (floor tile)

MAAB Mass. Architectural Access Barriers

2.0 SITE CONDITIONS

2.1 Topography

Description:

Site is a flat Urban setting. Abuts a commercial parking lot and three streets. Site pitches towards the front of the building.

Condition and Observation:

Recommended Repairs: None

2.2 Pavement, Parking, and drainage structures

Description:

Site is largely paved to accommodate the use. Parking and access appears adequate.

Condition and Observation:

Asphalt area in general looks acceptable. Areas of wear, and asphalt degradation can be observed abutting the main parking lot and in the parking lot.

The Building to the front, east, and rear have a poured in place concrete sidewalk. The rear sidewalk is elevated above the former track area, with a small concrete retaining wall supporting the walk system. Several sections of the retaining wall have broken and are shifting forward. Several concrete sidewalk panels are cracked and are spalling .

The site drainage is focused toward the front of the building. A trench drain was installed, but appears to be full of material and does not drain properly. The trench drain appears to have settled. The abutting concrete walk way to the trench drain has significant deterioration. The area is at a crosswalk and is a tripping hazard do to the degradation of the drain and sidewalk.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Remove damaged areas of the concrete walk and re-pour. Table 1

Replace the trench drain. Table 1

Retaining wall to the rear needs to be reviewed and repaired. Table 2

Train Station (RMV)

2.3 Landscaping

Description:

Minimal landscaping exists. The large oak tree to the west side.

Condition and Observations:

The rear of the structure at the entrance to the RMV and on the opposite side of the connector wing, create an alcove that collects leaves, moisture and moss. The oak tree has questionable branches, and branches that are extending over the building.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

Immediate need is to selectively prune the tree and remove branches that are impeding on the building. Table 1

Clean all leaf debris, remove moss growing against the building, and remove all weed growth around the retaining wall and rail car. Table 1

2.4 Municipal Services and Utilities

a. Water and sewer

   Southbridge has its own water and sewerage

b. Oil

   Heating system is fuel oil

c. Electric

   National Grid

3.0 BUILDING CONDITIONS

3.1 Sub Structure/Foundation

Description:

The structure is a poured in place concrete foundation and slab structure on the main body of the building. The attached railroad car sits on the old rail bed.

Exterior foundation wall is poured concrete and assumed supported by a spread footing. Floor is a poured concrete terrazzo floor. A small poured in place "basement area" is used for mechanical space for the oiled fired forced hot air furnace.

Rear addition which ties the RR car to the main building (bridge section) is supported by the original concrete sidewalk/retaining wall. As described, the wood additional was built by local trade school using pressure treated lumber laid directly on grade. The fact that RR Car and Building are sitting on two totally different foundation systems there is evidence of movement in the wall system with minor expansion cracks.

The Railroad car sits on an old rail bed and rail system.

Condition and Observation:

The substructure of the main original building appears sound and in good condition. There was no visible signs of cracking or damage to the foundation. There were a couple of "cut" openings done to modify the structure in the past to meet the needs of the various past uses that have been patched.

The rear wood framed "bridge" addition which acts as the main entrance was built directly on top of the railroad platform/sidewalk system. The platform sidewalk system that supports the wood structure has the ability to support this light weight structure, but is not a desired method for sub-structure support because of is susceptible to frost heaving, and does not meet current building code standards.

The rail car sitting on the old rail bed, does not offer long term structural stability to be considered permanent.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

Based on visual survey and review, the defects that could be seen that could affect the long term stability of the building are:

Rail car sitting on the old rail bed can gradually begin to settle and pull from the wood framed bridge addition. Table 2

The wood framed addition built directly on the platform is partially sitting on the small platform retaining wall. This retaining wall is beginning to "pitch" out of square and plumb. Long term redesign and replacement of the connector. Table 2

Train Station (RMV)

3.2 Super Structure

Description:

Structure is a masonry walls with a wood roof structure. The superstructure components where obscured from view by the finish material (plaster and lathe). The lower wall is a poured in place concrete wall designed and painted to look like brownstone/heavy terracotta. The upper part of the masonry wall is a brick with a stucco finish applied to give it a Spanish façade look. Roof appears to be supported by heavy full dimensional 2x lumber materials.

The rear wood bridge addition is a standard 2x4 framed walls with a wood clapboard painted siding.

The Railroad car is typical railroad steel construction.

Condition and Observation:

Based on the overall appearance and observed general condition of the building, the superstructure appears to be sound and in good condition. In the main building, there were no observable cracking in the plaster surfaces, which would indicate structural problems. The height and access to the attic space in the existing building was not available to observe this space.

Some differential settlement between the main structure and the "connector" to the railroad car exist. The "connector" was not addressed with expansion joint, and the movement created its own "expansion joint". This movement will need to be investigated to assure the nail connections have not "loosened" up. The wood framed entry addition was built directly on grade. The lumber was described as pressure treated, but could not be viewed as "ground contact" lumber. Areas of the exterior clapboards siding has wicked moisture and are soft and showing signs of decay.

Exterior structural wood rafter tails ends are showing signs of weathering and dry rot. The rafter tails require work to stop the degradation of the rafter tail, and add an historic type flashing at the exposed end to prevent weathering. Suggested repairs are removal of bad materials, and install a high grade epoxy injected materials to stabilize the wood and provide structural integrity. An historic copper end flashing on the rafter tail will prevent future weathering and help stabilize this portion of the structure.

Pigeon/Bird proofing was rudimentary formed wire guards. Birds have gained access to areas and have built nests and have left bird droppings on wood supports. This highly corrosive bird waste often prematurely fails the strength of the wood and structural members.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

Seal all openings in ceiling/ floor assemblies with approved fire sealant or foam Table 1

Seal cracks or expansion areas with latex sealant Table 1

Carpentry repairs and epoxy treatment/flashing installation on exterior rafter tails

Train Station (RMV)

Remove all bird nesting areas, power wash of all bird droppings from exterior areas affected, and reinstall bird proofing. Table 1

Remove all moisture damaged clapboards and investigate if the wood substructure is showing signs of failure. Table 1

3.3 Facades

a) *Description* Facades: (Brick, cast in place concrete, stucco, clapboards)

The facades are a Spanish influenced with a stucco finish with poured in place concrete water table at the first 3'-0" ground level was designed to look like brownstone. The poured concrete was also used to surround door and window openings and corner decorative coins. Fixed and operable aluminum windows appear in fair shape. The large roof overhang has structural and decorative wood rafter (see 3.2 Superstructure) with wood roof deck exposed. The rear main public entry is located in the rear connector addition that ties the rear storage building and the Railroad car (RR) structure. This rear "connector" section is a wood framed with painted clapboard siding. The" connector" section provides the entry and the means to connect the main building to the railroad car.

Condition:

Stucco: The stucco is in good condition. The large overhang has assisted in preventing weather from affecting the surface material.

Masonry: The cast in place concrete appears in good condition. Mortar joints in general appear in good condition.

Wood clapboard siding: The wood clapboard siding on the rear addition appears in good to fair condition. The areas touching the grade (concrete railroad platform) are wet and have signs of moisture penetration and beginning to fail. Paint on the clapboards is to a point where paint is wearing and wood is being exposed.

Wood rafter and exposed wood overhang: The overhang has exposed rafters and wood decking exposed as an architectural element. See section 3.2 Superstructure on discussion of the exposed rafters. The wood decking appears in good condition. Although exposed, and some checking and splitting do to its age, it is generally in good condition. A regular cleaning and wood treatment of a penetrating wood water seal would help increase the longevity of the exposed material.

RR Car Steel:

Paint: The structure should have a regular 6-7 years scrape and painting program as part of regularly scheduled maintenance. A regular paint schedule assures that the exterior sheathed materials are protected for weathering, addresses any spot failure of materials, and provides the aesthetics that enhance the look and performance of the building.

Train Station (RMV)

b) Description Windows and Doors:

Aluminum windows are upgrades to the original window. The windows have been protected from the weather with the large overhang. Rear addition windows are vinyl replacement windows. The "front" door has been replaced with an aluminum frame storefront type unit. The store front door

is not used for access. Its operation could not be tested. The public entry door (Rear wood framed section) is an aluminum frame door with handicap access opener installed.

Condition:

Windows: Aside from normal wear, the windows are in good to fair condition. The aluminum framed window caulking is beginning to breakdown and show signs of failure. The rear addition windows vinyl replacement windows appear to be in good and operable shape.

Doors: The doors appear to be in good to fair condition.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

Remove and replace caul sealant at door and window frames at the concrete intersection

Table 1

Power wash area of excessive bird droppings. Table 1

On all exposed rafter tails, remove rotted and damaged rafter ends and install a two part epoxy wood restoring compound. Install a penetrating wood sealer on all exposed wood, and install a copper flashing in the rafter ends to prevent wood from further exposure to the elements. Table 1

Removed damaged clapboards and wood that has suffered water damage and replace with a synthetic wood product as a water table to keep wood away from the grade. Table 2

Paint all exposed wood siding, trim around main roof dormer and metal railroad car. Table 2

3.4 Roofing

Description:

The Main building roof material is a terra cotta clay tile. The valley/flashing material is made of what appears to be copper. The rear addition roof is red asphalt three tab shingle. The decorative but functional (dog house) dormer roof vents have metal louvered vent inset in the gable roof.

Condition:

Train Station (RMV)

The roof is assumed to be original to the structure appears in good condition. No visible indication of roof leaks exist. Roof materials and metal flashing are at their expected life span and should be thoroughly inspected. The tile is in good shape, but metal flashing should be addressed as a proactive repair because if it's significant and critical location in the valley. Failure will cause swift and extensive damage if it occurs.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

A thorough investigation of the roof should be performed by a specialist. Specifically, the metal valleys are past their accepted life span and are in areas that will receive concentrated rain runoff.

Replacement of metal valleys should be a near term replacement. Table 2

3.5 Basements / Attics

Description:

NONE

3.6 ADA Compliance

The Americans with disabilities Act (ADA) and the State of Massachusetts Accessibility Code governs public accommodations and commercial properties. This report will only look at accommodations and access to public facilities that are equal or similar to those available to the general public. This report will identify areas of non-compliance, or will be in compliance if upgrades and renovations are made to the facility that trigger mandatory resolutions. However this report is not a full ADA or Accessibility Code assessment. Being "Public" facilities, upgrades to allow for employee or the general public need to be addressed to meet the provisions of Title III of the ADA Act.

Condition:

The building has some functional handicap accessibility. The main entry does not have the code compliant landing dimensions. Access to the rear addition, employee lunch room and rail car is are not MAAB compliant.

Recommended Immediate Repairs, near Term Repairs or long term repairs:

If a renovation is to occur on site upgrades will be required. Table 2

Train Station (RMV)

3.7 Interior Finishes and Components

Descriptions:

The interior areas are finished with materials consistent with the original structure illustrated below.

Room/area	Flooring	Walls	Ceiling
Main Hall	terrazzo	Plaster on lath; painted wood trim and molding	Suspended ceiling
Office	VCT tile	Plaster on lath; painted wood trim and molding	Suspended ceiling
Bathrooms		Plaster on lath; Painted	Suspended ceiling
Rear Storage/IT	plywood	plywood	plywood
RR Car	steel	steel	steel

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Painting the walls and trim on a regular basis a part of regular maintenance is recommended. Some finishes were worn, damaged or broken. Table 2

Immediate Repairs are recommended repairs and patching of damaged plaster cracks or holes. Table 2

4.0 BUILDING SYSTEMS

4.1. Plumbing

Description:

Plumbing is very basic for this structure. The domestic water supply enters the main building from main described in *Section 2.4*. Water supplies two bathrooms and a water fountain from the observed copper feed lines. The waste piping appears to be in cast iron. The plumbing fixtures are vitreous china bathroom fixtures. The hot water is supplied from a 40 gallon electric hot water heater with an approximate age of 10 years.

Condition: Good to Fair

Train Station (RMV)

Plumbing is functional and operable. Other than planned upgrades to the facility and toilet facilities, there is no observable problems that would require need for work.

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Water heater has a life cycle of 10-15 years and replacement could be planned. Table 2

4.2 HVAC

a. Heating Plant

Description:

The space is heated with a residential style Forced Hot Air (FHA) oil fired heater. The age of the unit is approximately 40 years. The oil supply tank is an exterior mounted single wall unit.

The supply air from this system is a basic delivering heat to the main lobby space and offices. Heat distribution was not planned for in its current use. Main public entry in the "bridge" area and the rear storage area and the railroad car did not have a supply heat duct. This area only get residual heat that is supplied to the main lobby and an electric baseboard unit. For a modern business use, this is not a desired design to evenly supply air to the facility or users.

The rail car and IT room are heated with an electric fan assisted unit heater.

A heat pump split system provides cooling to the main lobby area. The wall hung unit is located in the main lobby, and the condenser is an exterior ground mounted unit in the rear of the facility. The age of this unit is estimated to be 30 years

Condition:

The FHA unit has passed its life cycle. It was reported by staff that the unit has undergone several repairs and replacement has been recommended by service vendor. Heavy oil smell exists in the mechanical room. Immediate replacement is recommended for this unit do to its age and reported continual repairs. It was reported that this replacement was in process. The HVAC system does not meet the needs for a modern office complex. The inadequate air distribution, lack of MSBC/IBC code air changes could affect possible future tenants of this space. The oil tank was also reported to be part of the system replacement.

The current heat pump split system provides an inefficient cooling system for this building. The limited supply distribution at the end wall unit location, which does not have the capability to distribute cooling evenly. The Split System unit is undersized for the area and size of the space it is trying to cool. This split system most likely runs constantly during the day and putting a large load on the condenser, which

will shorten the life span of the unit. It was reported that this condenser and cooling pump was also scheduled for replacement

b. Distribution system (VAV, FCU,, exhaust)

Description: NONE

Recommended Immediate Repairs, Near Term Repairs, or Replacement Reserves:

Replace HVAC system (Heat and cooling) and oil tank Table 1

4.3 Electric

Description:

The 200 amp system. Most wiring is concealed and could not be observed.

Condition:

The electric service appears to be in fair condition, The building appears to have minimal outlets.

4.4 Building Fire Suppression and Fire alarm & life Safety

Description:

No Fire Suppression exists.

The building is not protected by a fire alarm system.

Fire extinguishers and battery backed exit signs and emergency lighting exist.

Condition: Fair

5.0 CODE/OPERATIONAL CONCERNS

Description:

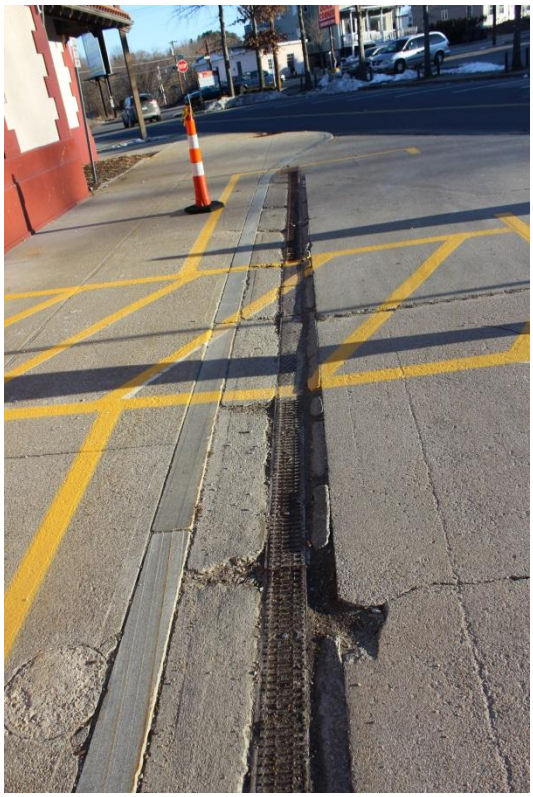
The building is not protected by a fire alarm system. Table 2

Train Station (RMV)

TABLE 1- IMMEDIATE REPAIR COSTS							RMV TRAIN STATION
Section Number	Section Name	Recommended Work	Quantity	Unit Cost	Unit Description	Immediate Repair Cost	Comments or Additional Description
SITE CONDITIONS							
2.1	none						
2.2	Sidewalks	Repair broken walks	400	25	Sq ft	10,000	Prevent damage and extend life of asphalt
2.2	Trench drain	Repair replace trench drain	80	30	ln ft	2,400	Trench drain settled and broken
2.3	Prune trees	prune branches away from building	1	1,000	ea	1,000	1 time pruning
BUILDING CONDITIONS							
3.1	Table 2						
3.2	none						
3.3	Façade sealant	seal holes windows doors	500	7	ln ft	3,500	Weatherization upgrade
3.3	carpentry	repair and restore rafter tails	90	200	ea	18,000	Repair rafter tails and add copper flashing
3.4	Roofing	replace flashing on roof	24	20	ln ft	480	end of life
3.4	Roofing	remove clay tiles to access flashing	60	50	sq ft	3,000	
3.4	Roofing	Bird Proofing	1 unit	4,000	unit	4,000	upgrades to clean appearance and deter birds
3.4	gutter	repair existing	40	75	ln ft	3,000	repair existing
3.5	none						
ADA COMPLIANCE							
3.6	Table 2						
INTERIOR ELEMENTS							
3.7	plaster	repair damaged and cracked areas	random	1,000	DAY	2,000	Repair various areas 1 man two days
BUILDING ELEMENTS							
4.1	None						
4.2	HVAC	Replace FHA, oil tank, condenser	1	15,000	unit	15,000	System reportedly failing and scheduled for replacement
4.3	Table 2						
4.4	Table 2						
CODE COMPLIANCE							
5	Table 2						
TOTALS						62,380	
1.25 MULTIPLIER						77,975	



3.4 RMV Rotted rafter tile



2.1 Trench drain failure



3.4 RMV Building Dormer repair and paint / Rafter tail repair / Location of trench drain repair

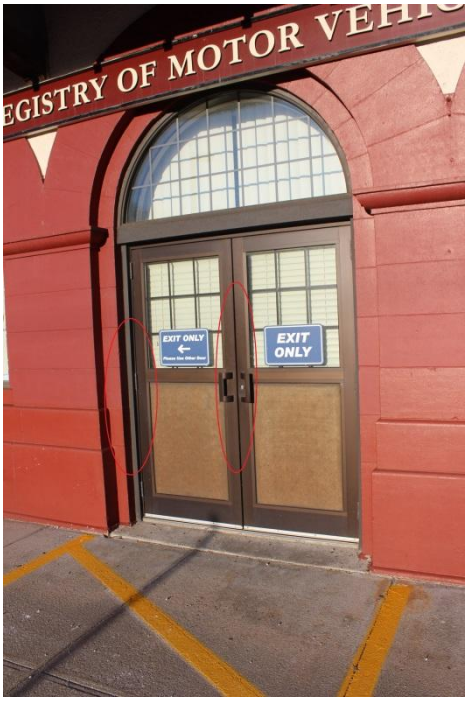


3.3 RMV Handicap entrance not code compliant

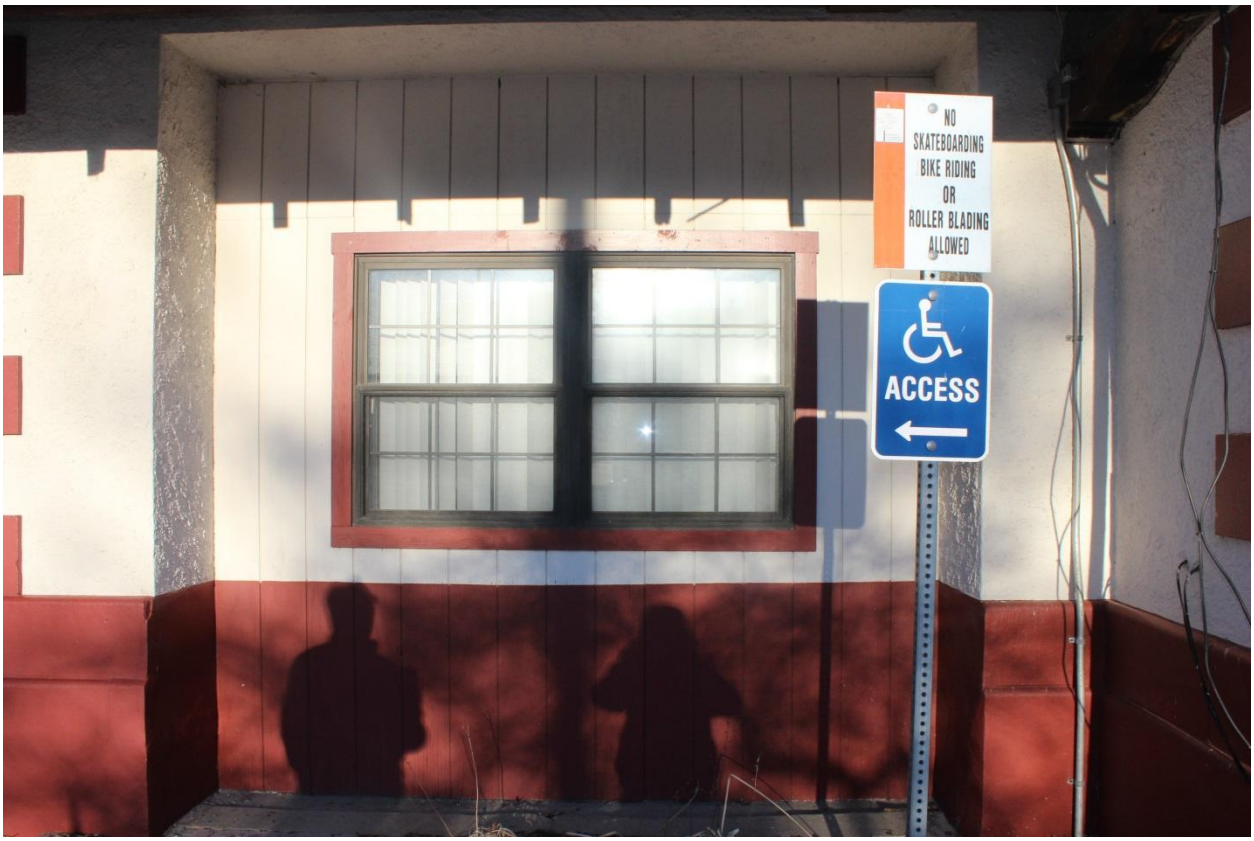
Moisture/rot problem at base of wall

Retaining wall along tracks is shifting and unstable

Train Station (RMV)



3.3 Typical weather stripping and re-caulking of sealant



3.3 Wood infill area weather tightness to be addressed and re-caulking of sealant

Train Station (RMV)



RMV heating plant to be replaced



RMV condenser unit to be replaced

TABLE 2- REPAIRS/REPLACEMENT PLAN																			TRAIN STATION (RMV)
Section Number	Section Name	Recommended Work	Average life cycle years	Effective age	Remaining usefull life	Quantity	Unit Cost	Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total over the term
SITE CONDITIONS																			
2.1	none																		-
2.2	Sidewalk	Continuous repair			5 years	1000	25	sq ft				5,000	5,000	5,000		10,000			25,000
																			-
BUILDING CONDITIONS																			
3.1	Engineering	investigate long term foundation at addition and retaining wall	1	12000	5 years								25,000						25,000
3.2	Carpentry rear addition	Remove rotted claboard	20	7	3	100	1000	day			1,000								1,000
3.3	paint	ongoing maintenance	7	5	5	6000	3.17	sq ft			19,000							19,000	38,000
ADA COMPLIANCE																			
3.6	architectural	assessment				1	4000						4,000						4,000
INTERIOR ELEMENTS																			
3.7	Paint	Ongoing scheduled maintenance	5		3	2000	3.17	sq ft				6,400					6,400		12,800
BUILDING SERVICES																			
4.1	Water heater	replace	15 years	12	3	1	600	ea				600							600
4.2	HVAC	replace electric heaters	10												3,000				-
4.3	Electric service	replace update distribution				1	15000	per panel					15,000						15,000
4.4	Fire alarm	upgrade				1	8000						8,000						8,000
CODE COMPLIANCE																			
5																			-
TOTALS									-	-	20,000	12,000	57,000	5,000	3,000	10,000	6,400	19,000	129,400
1.25 MULTIPLIER									-	-	25,000	15,000	71,250	6,250	3,750	12,500	8,000	23,750	165,500

RECOMMENDED MAINTENANCE

PLUMBING MAINTENANCE

The intent of maintenance is to pro-actively resolve problems before catastrophic failure occurs.

On a regular basis, custodians and staff should monitor bathrooms, shower rooms and faucets to make sure they are not leaking or running without a purpose. A broken flushometer or a toilet will run at a rate of 7 gallons a minute and if unchecked or not addressed can easily waste several thousand gallons of water overnight.

Fixture	Frequency of Inspection	Test performed	Action	Maintenance
Toilet and Urinal Flushometer	Daily during cleaning	Flush unit and observe action	If the unit does not stop flushing or the period of water discharge is excessive, shut off unit. Replace diaphragm	Do not use abrasive cleaner on chrome (including bleach) this destroys finish and could work its way into flush valve thru stem.
Battery Powered Flush Valve	Daily during cleaning	Flush unit and observe action	If unit does not operate, replace batteries first.	Every other year or as required replace batteries on unit. (unit may have a red light for low battery)
Faucet	Daily during cleaning	Inspect fixtures to look for leaks in valves and other areas	Replace leaking valve stems or washers as per fixture	Test handles and verify water is not leaking and proper water flow exist.
Self Metering Faucets	Daily during cleaning	Inspect fixtures to look for leaks in valves and valve automatically shuts off.	If faucet runs to long or does not shut off, adjust timing per manufacture. If failed replace valve stem.	Test daily during cleaning. If handles are loose immediately tighten.
Under Counter - Remote Shut Offs	Twice a year	Exercise valve and shut off and test	If water leaks by shut off, report and get repaired.	Simple valve exercise keeps unit from freezing up and prepares for an emergency situation.

Fixture	Frequency of Inspection	Test performed	Action	Maintenance
Water Bubbler	Daily during cleaning	Test and observe water stream. Test water temperature if unit has a cooling unit.	Adjust unit so water stream is proper.	Clean mineral deposits that may occur at orifice. Lightly use a pipe cleaner to clean orifice. Do not use abrasive cleaner or bleach, it will destroy surface.
Hot Water Heater	Weekly	Visually inspect water heater for signs of water leakage	If water is leaking out of unit, (not piping) contact plumber immediately possible failure issue.	Clean dust off unit.
Hot Water Heater Anode Rod	Yearly	Inspect anode rod yearly and flush tank	If anode is breaking down, replace with new one.	Annual anode rod inspection/replacement and flush helps extend the life of the water heater
Hot Water Heater Burner	Yearly	Tune up burner yearly		Good practice and more energy efficient if burner is maintained.
Backflow Preventer	Yearly	Testing company should due a pressure test to verify operation	Rebuild unit as required	
Eyewash / Emergency Shower	Yearly	Test operation of the unit	Verify unit operates and drains	Inspect shut offs, emergency valves, drains for compliance.

BOILER-FURNACE MAINTENANCE

DUTIES	DAILY	WEEKLY	MONTHLY	QUARTERLY	AS REQUIRED
Check burner operation	X				
Check gauge readings	X				
Check for leaks	X				
Blow down low water cut-offs * (steam)	X				
Blow down water columns * (steam)	X				
Test glass gauges *	X				
Blow down boilers * (steam)	X				
Test safety valves *		X			
Test relief valves (observe for leaking)			X		
Service oil burners # Vendor					X
Stick fuel oil storage tank	X				
Clean fuel oil strainers Vendor					X
Test emergency switch				X	
Check fresh air louvers		X			
Lubricate motors & equipment					X
Tighten bolts, screws, etc.			X		X
Clean boilers (fire side) @ Vendor yearly					X
Sweep boiler room floor		X			
Dust tops of boilers and pipes			X		
Clean boiler room equipment			X		
Clean dial faces, glass gauges			X		
Remove trash, rags, etc.	X				
Clean boiler room (thoroughly)			X		
Replace burned out light bulbs					X
Clean up spilled oil					X
Check air compressor operation	X				
Drain air compressor tank		X			
Drain filter bowls and separator		X			
Check oil level in compressor		X			
Test compressor relief valve		X			
Check dryer operation	X				
Clean/replace air intake filter			X		X
Check circulator pumps	X				
Check condensate receivers *	X				
Check automatic water feeders	X				

DUTIES	DAILY	WEEKLY	MONTHLY	QUARTERLY	AS REQUIRED
Check water heater		X			
Test water heater relief valve				X	
Check sump pumps		X			
Check fuel oil pumps	X				
Check belt condition / tension		X			
Replace guards / covers	X				X
Exercise gate valves				X	
Check for damaged insulation			X		
Check boiler alarm		X			
Check AHUs and unit ventilators		X			
Service AHUs and unit ventilators					X
Check filters – replace			X	X	X
Check thermostats and controls				X	X
Check A/C chillers		X			
Check A/C cooling towers		X			
Read A/C gauges and record on log		X			X
Maintain tools and equipment	X			X	

Steam boilers * Rotary cup burners +
Heavy oil burners #

HVAC MAINTENANCE

On a regular basis, custodians and staff should oversee HVAC operations. Properly operating HVAC prevents freeze-ups, air quality for occupants and efficient operation equipment that translates to energy savings

The intent of maintenance is to pro-actively resolve problems before catastrophic failure occurs.

Equipment	Frequency of Work	Service Required	Maintenance	Other Information
High Efficiency Boilers Gas	Yearly	Tune up and cleaning burner, replace electrodes, clean filters, check safeties.	Monthly inspection of unit to clean excessive dust, clean air intake filters.	
Boiler Oil Fired	Yearly	Tune up and cleaning burner, replace electrodes, replace oil filter every six months, check safeties.	Monthly inspection of unit to clean excessive dust. Clean exhaust piping as required.	
Fuel Oil Storage	Yearly	Test underground oil tanks and interstitial safety chamber.	Inspect oil access port for weather tightness during oil delivery.	Dip tank to verify gauges are accurate.
Roof Top Gas Fired Units	Seasonally	Tune-up gas fired burner. Check gas shut off valve.	Change air filters a minimum of twice a season. Inspect damper operations Inspect bearings on blower motors.	
Roof Top Unit Cooling	Seasonally	Wash cooling & heating coils. Test all safeties, freeze stats, and damper operations	Change air filters a minimum of twice a season. Inspect damper operations. Inspect bearings on blower motors.	Inspect any exposed duct insulation and coolant piping and repair as needed. Clean fan blades
Waste Oil Furnace	Seasonally	Tune up boiler 2 times a season or as required based on fuel.	Change air filters a minimum of twice a season.	Inspect blower motors. Clean fan blades.

Equipment	Frequency of Work	Service Required	Maintenance	Other Information
Hot Air Furnace	Yearly	Tune-up gas fired burner. Check gas shut off valve.	Change air filters a minimum of twice a season	Inspect blower motors and clean fan blades
Centrifugal Roof Exhaust Fans	Quarterly	Inspect belts and tightness. Adjust and replace as required.	Clean housing and fan blades as required.	Some units require oil/grease at bearings
Bathroom Exhaust Fans	Semi Annually	Inspect unit for operation. Clean as required	Replace motor at failure.	
Heat Pumps	Quarterly	Yearly charge unit with refrigerant. Wash condenser coil and condenser at beginning of the year	Change filters/wash filters as required.	Condensate pan should be cleaned and pump flushed to assure operation.
In-line Distribution Pumps	Quarterly	If leaking get serviced	.Oil/grease bearings	Clean units. Feel if unit is overheating.
Radiant Heating Tube Heater	Yearly	Replace igniters	Inspect exhaust to assure operations	
Chiller Plant	Seasonally	Wash down all coils and comb fans to assure heat transfer Clean condensers Inspect Contactors and starters Charge units with refrigerant.	Inspect and periodically clean units	
Air Compressors	Quarterly	Check pressure Check and replace belts Change oil yearly	Replace air filter Check air dryer Drain Tank of water	If excessive operation, an air line must be leaking and investigation must take place.

ELECTRICAL MAINTENANCE

Preventive maintenance for electrical is an observation task that needs to be performed to assure safety to occupants and employees. Hazards that are encountered need to be isolated, and addressed immediately to prevent an electrical hazard.

Building users should be instructed to report any electrical anomaly, outage, noticeable power fluctuation, or light outage to custodial staff immediately.

System	Frequency of Inspection	Test Performed	Action
Switch Gear (Main Panel)	Weekly	Clean electric rooms. Remove any dust and dirt from top of panel and from any air intake screens.	
Switch Gear	Monthly	With open palm of hand, feel the surface of the circuit breakers to determine if any feel excessively hot.	If breaker feels excessively hot, indication of trouble with breaker or circuit. Electrician should investigate.
Switch Gear and Panels Circuit Trip or Short	As required	Visually inspect panel for signs of a "burn".	Electrician should investigate if any burn or odor is detected.
Switch Gear	Every 5-8 years	Thermal testing of panel by outsourced vendor.	Address any findings.
Outlets	Weekly General Observation	Visually inspect outlets for overloading of circuit, any burn marks or loose outlets.	Address as needed, report if electrician is needed.
Lighting	Weekly General Observation	Replace any burnt out bulbs. Replace ballast as needed. Inspect switches.	Replace Bulbs as needed. Replace Ballast as needed Replace loose or poor response switches.
Emergency Lighting	Weekly	Test all emergency light test switches to see lights/batteries operate properly.	Replace bulbs or batteries as required. Lights on generator backup, inspect during outage or during yearly generator inspection.
Time Clock Controls Lights	Monthly and at Change of Daylight Savings Time	Inspect clock timer to see that it is accurate and lights turn on.	Adjust time on clock according to season. Winter exterior lights on 4 PM - off by 8 AM. Summer lights on at 8 PM and off by 6 AM. Modify per use of building.

GENERATOR MAINTENANCE

Service Agreement Specification

Scope: Contractor will provide a Three Year (3) Service Maintenance Contract (three One year contracts) The service will consist of two (2) visits a year, a "Major" and "Minor" preventive maintenance inspection. (Spacing of service shall a minimum of 4 months but not to exceed 10 months) A maintenance year shall be July 1- June 30. Contractor will provide 24 hour emergency service, 365 days a year and report to public safety buildings/Senior Housing (Police, Fire, DPW, Brook School Apartments) within **ONE** hour of an emergency service call, all other buildings 2 hour response.

Emergency work coordination

The Maintenance Contractor is expected to coordinate with all manufacturers to repair in an emergency situation, assuming work cannot be addressed by the maintenance contractor. All work coordinated with other vendors shall be invoiced to the contractor, and cost will be passed onto the owner with a 15% mark-up.

Major Preventive Maintenance (Annual):

1. Replace Lube Oil
2. Replace Lube Oil Filter(s)
3. Replace Fuel Filter(s)
4. Replace Coolant Filter(s)
5. Natural gas fired equipment requires replacement of spark plugs, ignition points, condenser, distributor cap and rotor

Minor Preventive Maintenance (Varies):

1. Service and clean air filter(s)
2. Perform air inlet restriction test (diesel)
3. Check coolant level, condition of coolant, freeze protection rating and perform pressure test
4. Inspect hoses, belts and oil levels
5. Check engine heater operation
6. Inspect fuel supply system including piping, solenoid valve and transfer tank where applicable
7. Inspect exhaust system and drain condensation if system has drain provisions
8. Remove carbon deposits from generator
9. Check battery charger operation and charge rate
10. Check battery electrolyte levels and specific gravity, clean terminals as needed, spray terminals with corrosion proof solvents

11. Check all engine shutdown and alarm systems as applicable
12. Adjust output voltage and frequency as required
13. Confirm proper operation of all engine gauges and AC metering
14. Inspect transfer switch main contacts if possible
15. After notifying the occupants, operate transfer switch(s) and confirm the operation of all timers and accessories
16. Visually inspect all hoses, connections and clamps for fluid leaks
17. Clean engine compartment of debris, leaves and excessive dirt and dust
18. Prepare Service report of each service visit and recommendations to the owner

Weekly Inspections

There is a need for the Town staff to inspect generators regularly. Generators may not operate due to low fluid issues. Generator starts and block heaters within the machine "boil off" some of the coolant which leads to low coolant. Inspecting the generator to prepare for a future power outage is a critical life safety issue and must be done without fail.

The following is a required generator inspection that is to be done once a week:

1. Inspect the security fence to make sure it is in good repair. Remove any weeds, shrubs, leaves and debris that could interfere with repairs.
2. Make sure the gate and latch are oiled and operational.
3. Generally clean surfaces and areas in preparation for an emergency call.

Check Generator once a week or after the generator has run for an extended period of time due to a power failure.

1. Check oil levels
2. Check coolant levels
3. Verify fuel levels
4. Generally observe the machine and look for frayed wires, any trouble lights or warnings.
5. Train your staff to do the visual review of equipment and the machine's operation.

Problems:

If you find a problem, you are to notify Generator Service Company immediately.

ROOF MAINTENANCE

Sloped Roof: (Slate and Asphalt Shingle)

Following each rain, snow, wind or heavy weather event:

Inspect all attic spaces and ceilings for any signs of water infiltration.

Inspect gutters and downspouts for standing water leaking. Remove debris.

Check all downspout discharge to verify water is exiting freely and that the water is directed away from the foundation. Remove blockages.

Inspect roof to verify no shingles or slates have come off of roof.

Routine Inspections:

Every June, late October and mid-November, clean all gutters and downspouts of leaves and debris that will prevent proper operation.

Inspect gutters to make sure proper positive pitch exist on gutters, downspouts align with gutter discharge and all downspouts are interlocked and secured to building.

Every June, late October and mid-November, inspect all shingle and slate courses with binoculars to look for loose or damaged roofing.

Repair all damaged roof materials as required to prevent water infiltration.

Flat Roofs (EDPM, TPO, etc)

Following each rain, snow, wind or heavy weather event:

Inspect all roof drains, scuppers and wall coping. Clean all areas as required.

Walk roof and remove all debris and materials that could puncture the roof membrane fabric.

Inspect all seams for excessive cracking, separation or material lifting. Repair as needed.

Walk roof and look for fasteners that have lifted membrane and potential puncture hazards.

Inspect all roof flashings, termination strips, sealant and edge coping for damage or cracking.

Routine Inspections:

Every June, late October and mid-November, clean all roof drains and protective covers, gutters and downspouts of leaves and debris that will prevent proper operation.

Inspect all curbs, exposed piping and roof penetrations for cracking, loose clamps and caulking sealant at terminations bars to assure tight and firm connections.

Every June, October and November inspect all seams, patches, roof coping and membrane surfaces for damaged, lifting, cracking and separation.

Remove leaves, debris and dirt from the flat roof to prevent build up of debris. (Specifically target the months of October and November.)

Repair all damaged roof materials as required to prevent water infiltration.

Locate and identify low spots where water "puddles".

Reporting defects (All Roofs):

Upon investigation and determining that a problem exists, do the following:

1. Map the roof surface and locate the defect on the plan to supply information to the contractor for repair.
2. If possible, photograph defect and weather condition that existed creating the problem. For example: note if condition was "strong wind from the north with heavy rain". This information helps the contractor to determine the problem on hard to determine locations.
3. If allowed, use a wax pencil to circle or draw an arrow to the problem.
4. If problem is difficult to locate, use a thermal imaging camera or consultant to locate the problem.
5. Problems need to be addressed immediately. Leaks never repair themselves.

OUTDOOR AND GROUNDS MAINTENANCE

Keeping grounds clear of trash, glass, leaves and other debris. Sweeping sidewalks, parking lots and paved play areas. Hosing down sidewalks, steps and outside entrance areas at the end of the snow and ice season. Maintaining the lawn in a presentable condition and mowing grass. Trimming around the building, sidewalks, fence lines, etc. Pulling weeds and trimming shrubbery as necessary. Removing snow and ice from sidewalks, entrances, unloading areas, oil fill pipe and stick lines, fire hydrants and sanding icy areas as required.

DUTIES	DAILY	WEEKLY	MONTHLY	QUARTERLY	ANNUALLY	AS REQUIRED
Pick up trash and debris	X					
Sweep entrances and sidewalks	X					
Sweep parking lots and driveway		X				X
Remove graffiti	X					X
Rake grounds						X
Remove leaves						X
Clean storm drain grating		X				X
Clean roof drains			X			X
Inspect gutters and downspouts		X				X
Mow lawn (in season)		X				X
Trim around building and walks		X				X
Trim along fence lines		X				X
Pull weeds						X
Trim shrubbery						X
Remove ice and snow						X
Wash concrete stairs and sidewalks after winter season to remove salt						X
Sand icy areas						X
Replace burnt out light bulbs						X
Sweep play are pavement		X				
Check playground equipment	X					
Tree maintenance. (Cut back branches away from buildings)					X	X
Inspect outdoor structures (Fencing, Shed, etc) and report problems			X			

APPENDIX

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ADMINISTRATION AND FINANCE

Division of Capital Asset Management and Maintenance

DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE

FACILITIES MANAGEMENT & MAINTENANCE STANDARDS

March 1, 2016

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We could not have crafted Standards of this quality without your knowledge and commitment.

Sincerely,

Ken Lortie
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Purpose and Scope

The Facilities Management and Maintenance Standards (FMMS) are subject to periodic reviews to ensure that the standards remain current. As such, this March 1st 2016 revision supersedes the previous July 2014 edition.

In this newest revision, the Division of Capital Asset Management and Maintenance (DCAMM) is renewing its focus on asset management and stewardship of Commonwealth facilities. The standards reflect the universal approach to the maintenance and care of Commonwealth facilities. In addition, the standards provide consistency in service delivery and serve as a method for measuring performance over time. The FMMS are available to all Commonwealth agencies for buildings to meet a base level of quality standards, and to enhance and build upon high quality stewardship of Commonwealth assets, along with promoting the uniform care of buildings.

As per the original purpose and scope, specialized facilities like hospitals and correctional institutions which must comply with specific requirements of the Joint Commission and other comparable standards-based organizations will be addressed in facility-specific supplements to the FMMS. FMMS are to be used in conjunction with governing standards that are referenced in this document as well as any specific additional requirements for each type of facility.

Acronyms and Abbreviations	
A&F	Executive Office for Administration and Finance
ADA	Americans with Disabilities Act
AEC	Architectural, Engineering and Construction
AEP	Accelerated Energy Program
ANSI	American National Standards Institute
APPA	Association of Physical Plant Administrators.
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BDL	Massachusetts Bottle Deposit Law
BIM	Building Information Modeling
BOMA	Building Owners and Managers Association
CAD	Computer Aided Design
CAMIS	Capital Asset Management Information System
CEMP	Comprehensive Emergency Management Plan
CFAC	Commonwealth Facilities Advisory Council
CIMS-GB	International Sanitary Supply Association's (ISSA) Cleaning Industry Management Standard - Green Building (CIMS-GB)
CMMS	Computerized Maintenance Management System
CMR	Construction Management at Risk
CMR	Code of Massachusetts Regulations
COBie	Construction Operations Building Information Exchange
D/B	Design-Build
DBB	Design-Bid-Build
DCAMM	Division of Capital Asset Management and Maintenance
DCR	Department of Conservation and Recreation
DHS	Department of Homeland Security
DM	Deferred Maintenance
DOER	MA Department of Energy Resources
DR	Demand Response
E. O.	Executive Order
EAM	Enterprise Asset Management
EEMS	Enterprise Energy Management System
EMAP	Emergency Management Accreditation Program
EMI	Emergency Management Institute
EMP	Energy Master Plan
EMT	Executive Management Team
EPA	US Environmental Protection Agency
EPP	Environmentally Preferable Product
FCA	Facility Condition Assessment
FCI	Facility Condition Index
FEMA	US Federal Emergency Management Agency

Acronyms and Abbreviations	
FM	Facilities Management
FMMS	Facility Management and Maintenance Standards
FOMP	Facility Operations and Maintenance Plan
FSA	Facility Security Assessment
GIS	Geographic Information Systems
HVAC	Heating, Ventilation and Air Conditioning
IAQ	Indoor Air Quality
I-BEAM	IAQ-Building Education and Assessment Model
IMT	Incident Management Team
IP	Department of Homeland Security Office of Infrastructure Protection
IPM	Integrated Pest Management
ISC	Interagency Security Committee
ISSA	International Sanitary Supply Association
JOC	Job Order Contracting
LBE	Leading by Example
LCCA	Life Cycle Cost Analysis
LEED	Leadership in Energy and Environmental Design
LEED EB: O&M	Leadership in Energy and Environmental Design for Existing Buildings: Operation and Maintenance
LEED ID+C	Leadership in Energy and Environmental Design for Interior Design and Construction
LEP	Limited English Proficiency
LOP	Level of Protection
M. G. L.	Massachusetts General Law
MAAB	Massachusetts Architectural Access Board
MAFMA	Massachusetts Facilities Managers Association
DEP	MA Department of Environmental Protection
MDPH	MA Department of Public Health
MEMA	Massachusetts Emergency Management Agency
MOD	Massachusetts Office on Disability
MSDS	Material Safety Data Sheets
NBIMS	National BIM Standard
NDRF	National Disaster Recovery Framework
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NPG	National Preparedness Goal
NRF	National Response Framework
OCCS	OmniClass Construction Classification System
OEP	Occupant Emergency Plan
OFMM	Office of Facilities Management and Maintenance

Acronyms and Abbreviations	
OHS	Office of Homeland security
OSD	Operational Services Division
OSHA	Occupational Safety and Health Ad ministration
PCB	Polychlorinated Biphenyl
PMAS	Project Management Accounting System
PMP	Preventive Maintenance Plan
RFR	Request for Responses
SDS	Safety Data Sheets
SF	Square Feet
SITES™	Sustainable Sites Initiative
SLA	Service Level Agreement
SLM	Service Level Matrix
SST	Strategic Sourcing Team
ST	Department of Homeland Security Science and Technology Directorate
UD	Universal Design
VOC	Volatile Organic Compound

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Title	Standard No./Revision Name	Date
Security	FMMS 01 / REV. 1	March 1st, 2016

Purpose and Scope

This Security Standard establishes baseline requirements for the protection of people and property at all **Commonwealth facilities**.

The scope of this **Standard** includes:

- **Physical security** for the exterior, perimeter, and public spaces at all facilities
- **Operational security** for all DCAMM activities related to such facilities
- Requirements for access control, intrusion detection, video surveillance, and security communication
- Coordination of emergency response personnel

This Security Standard is based on the **Interagency Security Committee (ISC)** standards and tools developed in conjunction with the **Department of Homeland Security (DHS) Office of Infrastructure Protection (IP) Science and Technology Directorate (ST)**, which is designed for use in every facility in the federal government portfolio regardless of agency or purpose.

Security services shall be consistent across **Commonwealth facilities** of similar type and coordinated with the specific program needs and regulatory requirements of the **User Agency**.

The **Service Delivery and Performance Objectives** document that supports this Standard shall detail the activities necessary for successful implementation of the Security Standard at the facility, as well as the performance goals for ensuring these activities meet the anticipated level of service. The related **Service Level Matrix (SLM)** shall detail the specific service levels available to the **User Agency** and their associated costs.

Implementation of all activities under this Standard shall ensure, and when appropriate, enhance accessibility for facility **occupants**.

The specific regulatory requirements of specialized facilities such as hospitals and correctional institutions are addressed in facility-specific supplements to the Facility Maintenance and Management Standards (FMMS).

Specialized security requirements within **User Agency** spaces shall be the responsibility of the User Agency. Maintenance of special security requirements shall be coordinated with the security work of DCAMM staff and contractors.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the **User Agency.**

Related Standards

The following FMMS also include references and/or requirements related to this Security Standard:

FMMS 09	Emergency Management
FMMS 15	Accessibility
FMMS 16	Fire Safety
FMMS 17	Wayfinding

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Training

5.0 Communication

6.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a **User Agency** may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated **Service Level Matrix (SLM).** This standard applies to leased buildings as well as Commonwealth owned.

Controlling Agency: A state agency with the "legal control or jurisdiction" of the property as provided by M.G.L. Chapter 7C, Section 41, which carries with it the right to "occupy, or make expenditure for the maintenance of, any land, buildings or other state-owned or state-occupied facilities." Control and jurisdiction does not mean that a state agency is the owner of the property since the Commonwealth owns all state property.

DCAMM Security Manager: This position reports to the Deputy Commissioner of Facilities Management and works closely with the DCAMM Office of Facilities Management and Maintenance to implement standards and integrate security into **Commonwealth facilities**.

DCAMM Security Technology Standards: Series of technology specifications for equipment installed at **Commonwealth facilities**. These specifications identify acceptable security equipment and technology to be used to provide the **Level of Protection (LOP)** specified from the Facility Security Assessment (FSA). The Security Technology Standards include information on access control software, cards and readers, video cameras, storage systems, management software, screening equipment and turnstiles, site protection systems (bollards, fencing, gates), and other related systems.

Department of Homeland Security (DHS): Responsible for protecting the United States and its territories (including protectorates) from and responding to terrorist attacks, man-made accidents, and natural disasters.

DHS Office of Infrastructure Protection (IP): This agency is responsible for leading the national effort to protect critical infrastructure from all hazards by managing risk and enhancing resilience through collaboration with the critical infrastructure community. The office conducts and facilitates vulnerability and consequence assessments to help critical infrastructure owners and operators and State, local, tribal, and territorial partners understand and address risks. IP provides information on emerging threats and hazards so that appropriate actions can be taken. The office also offers tools and training to partners to help them manage the risks to their assets, systems, and networks.

DHS Science and Technology Directorate (ST): The primary research and development arm of the **Department of Homeland Security** which manages science and technology research from development through transition for the Department's operational components and first responders.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Interagency Security Committee (ISC): Created under U.S. Executive Order 12977 to address continuing government-wide security for Federal facilities. The ISC's mandate is to enhance the quality and effectiveness of physical security in, and the protection of buildings and nonmilitary Federal facilities in the United States. The ISC standards apply to all nonmilitary Federal facilities in the United States - whether government-owned, leased or managed; to be constructed or modernized; or to be purchased.

Level of Protection (LOP): A set of protective measures that may be customized to address site-specific threat conditions.

Licensee: Individual or entity that is not a state agency or state employee but occupies the space of a **User Agency** as part of a service contract or other arrangement with the User Agency to further the User Agency's mission, or that occupies space as part of a contract with DCAMM to further DCAMM's services. For example, a private consulting firm hired by an agency might be provided with offices inside the agency's space. The consulting firm would be a licensee.

Massachusetts Emergency Management Agency (MEMA): MEMA is the state agency

charged with ensuring the state is prepared to withstand, respond to, and recover from all types of emergencies and disasters including natural hazards, accidents, deliberate attacks, and technological and infrastructure failures.

Occupant(s): The individuals or entities that occupy space in a **Commonwealth facility** by virtue of their status as a **Controlling Agency, User Agency,** or because they are permitted to use the space as a Licensee of the User Agency.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of **Commonwealth facilities**.

Operational Security: A component of the facility/building security program/plan focused on people. This includes the provision of staff to support the security protocol, education, and training of employees, and the procedures for managing contractors, vendors, and visitors.

Physical Security: The type of security that addresses actions one can take to protect buildings, property, and assets against intruders. When designing a physical security program, the three levels one needs to protect are the outer perimeter, the inner perimeter and the interior. Examples of physical security measures include barriers, fences, gates, walls, outside perimeter lighting, signage, locks, and access control points.

Security Supervisor: The individual responsible for implementing and managing the security program at a facility in cooperation with the facility manager.

Security Staff: In-house security presence that perform a range of security roles. May be cross-trained for duties such as control center monitoring, incident investigation, and emergency preparedness support.

Service Delivery and Performance Objectives: The supplemental document for each Standard that details the activities necessary for successful implementation of the Standard at **Commonwealth facilities**, as well as the performance goals for ensuring these activities meet the anticipated level of service. This document shall also align with the activities listed within the **Service Level Matrix (SLM).**

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a **User Agency** of a **Commonwealth facility** and any that may be retained by the User Agency or **Occupant**. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

Service Providers: The parties responsible for completing all maintenance and management activities governed by this standard. Service providers at the facility are internal facility staff, external contracted providers, or both.

Technological Security: A component of the facility security program that involves the management of technical data and systems, alarm systems for intrusion detection, video monitoring systems, building automation systems that control HVAC and lighting, fire alarm systems, communication systems such as radios and emergency call boxes, and access control of spaces.

User Agency: A state agency that has the legal right to use and occupy all or a portion of any building, facility, improvement, or property owned by the Commonwealth for its agency mission and purposes. A User Agency may have the exclusive use of an entire building, or in a multi-occupancy facility, it may have the exclusive use of part of the building and the right to use common areas with other users. A User Agency is also an "**Occupant**" as defined herein.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Security Standard and its requirements at **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** shall work with the **User Agency** to identify their specific security needs at the facility, and coordinate these needs with those of the entire facility including, but not limited to, providing the proper physical, operational, and technical security.

1.3 The **OFMM Director of Operations and Maintenance** shall oversee the completion of all activities under this Standard during both normal operations and actual disaster/emergency incidents and shall determine the individuals responsible for providing these services at the facility. These individuals include, but are not limited to the following:

a. **DCAMM Director of Security**

b. **Security Manager**

c. **Security Staff**

d. **Facility Manager**

e. **Facility Staff**

f. Contracted Service Providers

g. Internal and external subject matter experts

h. External First Responders

i. Massachusetts State Police

2.0 Implementation

The **OFMM Director of Operations and Maintenance** shall ensure the following security service activities occur in **Commonwealth facilities**. The OFMM Director of Operations and Maintenance shall determine the individuals responsible for carrying out each activity listed below on a case-by-case basis depending on the specific facility.

2.1 Ensure an agreement between the **User Agency** and the **OFMM Director of Operations and Maintenance** to establish the actual level of security necessary at the

facility.

2.2 Execute, at a minimum, the base level services included in the **Service Level Matrix (SLM)**, which will include but shall not be limited to the following:

a. Physical security for the exterior, perimeter, and public spaces.

b. Operational security for carrying out all security practices on a day-to-day basis and for managing all facility occupants during and after an actual disaster/emergency event.

c. Technological security for access control, intrusion detection, video surveillance, and security communication.

d. Coordination of emergency response personnel.

2.3 Establish a **Security Management Program** at the facility, and review the program on a regular basis to ensure compliance with current requirements.

2.4 Complete a **Facility Security Assessment (FSA)** to determine the **Level of Protection (LOP)** required for the facility and the specific measures necessary to achieve this **LOP**.

2.5 Document the results of the **FSA** and the recommendations for achieving the **LOP** in a report that shall be made available to all facility occupants and regulatory agencies involved with security at the facility.

2.6 Coordinate with all relevant authorities having jurisdiction (specifically the Massachusetts State Police station of jurisdiction and if applicable, local law enforcement) to ensure they are aware of on-site activities involving security.

2.7 Provide guidance during all phases of security operations to assist with providing the proper physical, operational, and technical security.

2.8 Ensure **physical security** measures are in place:

a. Coordinate security measures with the existing infrastructure to provide physical security of the site, building exterior, and public areas.

b. Where current security measures in place do not achieve the **LOP** identified during the FSA, document what elements are missing, lacking, or do not meet the **DCAMM security technology standards** and submit the list of needed measures to the **OFMM Director of Operations and Maintenance** and obtain guidance on interim security measures for the site and an acknowledgement of risk acceptance.

2.9 **User Agency** security measures that are above and beyond the baseline services included in the **SLA** shall be managed by the User Agency occupying the facility and coordinated with the **facility manager** and the **security supervisor.**

2.10 Implement security planning activities, including, but not limited to the following:

a. Plan and coordinate DCAMM OFMM response to incidents including coordination with first responders and authorities having jurisdiction specifically the Massachusetts State Police and if applicable, local law enforcement.

b. Record and report daily information on routine procedures, emergency situations, and unusual incidents.

3.0 Materials and Equipment

This section identifies high-level regulations, requirements, and categories related to materials and equipment for providing security services and shall not serve as an all-inclusive inventory.

3.1 **Physical security measures** (i.e., materials, products, equipment, and tools) shall be considered for installation at the facility based on the findings of the FSA. These measures include, but are not limited to the following:

a. Access control points

b. Barriers and walls

c. Fences

d. Gates

e. Outside perimeter lighting

f. Signage

g. Locks

3.2 **Physical security measures** installed at the facility shall meet all federal, state and DCAMM rules, regulations, and requirements in place at the time of purchase.

3.3 Protection of building systems shall be provided as appropriate.

3.4 Control of security systems shall be established and centralized at each facility or at an off-site designated control center. The **DCAMM Security Manager** will specify when the control needs to be established on-site or off-site.

a. Access control systems shall be integrated with other security systems in place at the facility.

b. Intrusion detection systems shall be designed and installed to operate in coordination with other building systems.

4.0 Training

The below training requirements are high-level and not all-inclusive. The **OFMM Director of Operations and Maintenance** shall approve and oversee training content and requirements, and ensure that all security providers have proper training in compliance with the requirements under their specific contracts.

4.1 An ongoing training program shall be in place for all security **service providers** and **User Agency** representatives to ensure compliance with all security-related requirements, procedures, processes, and products.

4.2 Training content shall follow applicable industry standards for security procedures, including, but not limited to the following:

a. Security management of the facility/building

b. Communication skills necessary for dealing with **occupants**, **service providers**, local jurisdictions, and visitors

c. The Occupant Emergency Plan (OEP) for each facility. These plans include, but are not limited to the following activities:

- Facility/building evacuation, including evacuating persons with disabilities
- Fire safety planning
- Emergency management planning

4.3 **Occupants** shall be trained in proper Security and OEP procedures. Training of occupants shall be the responsibility of the **User Agency** and shall be coordinated with the security manager.

4.4 In addition to the above training programs, security **service providers** shall comply with any other training requirements their contracts require.

5.0 Communication

The below information is an overview of requirements related to communication related to this Standard. The **OFMM Director of Operations and Maintenance** shall ensure specific and appropriate communication across staff, service providers, and facility occupants for the successful and transparent implementation of all standards.

5.1 **Service providers** shall not communicate directly with facility **occupants**. All communication with facility occupants shall only occur through the **OFMM Director of Operations and Maintenance**, the **facility manager**, or a designated representative.

5.2 Provide security staff with accurate and updated contact information for key facility personnel and services (e.g., **facility manager**, facility staff, alarm service, etc.).

5.3 Coordinate the communication process with the **User Agency** and their individual security requirements.

5.4 Ensure communication of the following by the appropriate people and through the designated processes:

a. Pertinent advisories transmitted from **Massachusetts Emergency Management Agency (MEMA), Federal Emergency Management Agency (FEMA),** the Massachusetts State Police, and other appropriate authorities.

b. Any impending emergency management hazards

c. Any changes to the physical security of the facility

d. Regular updates to **occupants** on security planning and procedures.

e. Security reports

f. Information about routine security procedures

g. Information about emergency situations and unusual incidents

6.0 Recordskeeping

The **OFMM Director of Operations and Maintenance** shall ensure the following recordskeeping activities occur in **Commonwealth facilities**. The OFMM Director of Operations and Maintenance shall determine the individuals responsible for tracking and collecting the below information on a case-by-case basis depending on the specific facility.

6.1 Best practices and lessons learned from other **Commonwealth facilities**.

6.2 Incorporate required changes into the physical, operational, and technical security programs.

6.3 Collect and update security data for the facility, including:

a. Visitor processing statistics

b. Alarm activation and response

c. Documentation of conditions and incidents

6.4 Security activity and incident tracking log

Tools and Resources

All tools and resources are also in an appendix to the complete FMMS.

- Cotts, Roper, & Payant."The Facility Management Handbook." 3rd Edition
- DHS Interagency Security Committee's Standard, Facility Security Level Determinations, March 2008 1st Edition
- Interagency Security Committee Standard, Physical Security Criteria for Federal Facilities, April 2010 1st Edition
- Interagency Security Committee Report, Design-Basis Threat, March 2013 7th Edition

Related Metrics

- The process for security plan development and implementation for each **Commonwealth facility** is provided by the **ISC** and Integrated Rapid Visual Screening Series (IRVS); tools from **DHS ST**. Once this process is complete, a determination can be made that will identify if the facility meets the Standard.
- If the building, facility, and site meets the **LOP** for the identified FSL, no mitigation actions of security systems/solutions are needed. However, the security program will still need to coordinate with active security initiatives with the enterprise security system and it is maintaining the security program at the facility.
- If a facility or site (or portion thereof) is determined not to meet the Standard, a list of areas that need mitigation will be identified by the assessment process and documented in the Tool (and its database).

- Input/Process Metrics
    a. Have new facilities been added to the DCAMM OFMM building inventory? Have they been assigned a FSL? Have the FSAs been performed?
    b. Have the inventory of deployed technology assets for **Commonwealth facilities** been updated for new buildings added to the inventory?
    c. Are resources being tracked for the security program? Are staff/contractors available to perform the assessments for the upcoming year? Is there adequate staff/contractors for maintaining the security program (and if not, have resources been requested)?
- Output Metrics
    a. Has the building, facility, or site been evaluated to identify the FSL? How many need to be assessed/have been assessed?
    b. Has a full FSA been performed using the **DHS ST ISC** Tool (modified for use in the Commonwealth)? How many need to be assessed/have been assessed?
    c. Have a list of necessary mitigation actions been developed for security program elements (staffing, plans, policies and procedures, etc.) appropriate for the identified FSL and **LOP**?
    d. Have a list of necessary mitigation actions been developed for security technology solutions (access control, CCTV, intrusion detection, etc.) appropriate for the identified FSL and **LOP**?
    e. Establish a plan/schedule to implement the needed security measures. Has a security improvement plan been developed for the facility to address the identified mitigation actions to meet the desired **LOP**? Has the plan been submitted to the DCAMM Security Manager?
    f. For measures in place, have they been tested to meet the **LOP** performance requirements? If not, when is the test scheduled?
    g. Is the facility security system connected to the Control Center?
    h. For FSL III and IV facilities, are interim plans in place to provide weapons screening for all visitors until mitigation actions are permanently installed at the facilities?
    i. Establish and track the incident response time for various scenarios at the building, facility, or site. Schedule trainings and exercises for security and emergency response.
    j. Have training and development courses for OFMM **Security Staff** been provided? for Customers/Occupants?
    k. Survey Customers/Occupants as to quality and delivery of Security Program.
- Outcome Metrics
    a. Annual review of security program needs. Review deferred security program needs

(Staffing, training, etc.). Review deferred security mitigation projects needs to provide desired LOP and reduce accepted risk.

b. Review program Strategic Goals with respect to Security Posture, Risk Acceptance, Customer/Occupant needs and requests, and Training (for both DCAMM security staff and Customer/Occupants needs.

c. Develop and maintain the Security Program Efficiency Goals. Track risk reduction, Customer/Occupant needs, etc. to provide security planning metrics for budget development.

Title	Standard No./Revision No.	Date
Grounds and Landscape Maintenance	FMMS 02 / REV. 1	March 1st, 2016

Purpose and Scope

The Grounds and Landscape Maintenance Standard establishes the minimum requirements for exterior site work at all **Commonwealth facilities**. This Standard identifies the parties responsible for grounds and landscape maintenance services at facilities, as well as the requirements for carrying out these services.

All grounds and landscape maintenance services should reflect the actual conditions at the facility and the specific needs of the occupant agency; therefore, only high level and summary requirements are included within this document. The actual scope of services will be determined by the facility manager and when applicable, a designated representative for the occupant agency.

Grounds and landscape maintenance plans shall incorporate site-specific vegetation, environmental, and cultural requirements at each site. Furthermore, grounds and landscape maintenance plans shall conform to applicable strategies established through certification programs (i.e. **LEED** or the **Sustainable Sites Initiative**).

Detailed information explaining the specific requirements for grounds and landscape maintenance required to implement this standard is included in the related Service Delivery documents.

Activities included within the scope of this standard shall be carried out in a manner that complies with all regulatory industry requirements. Specialized requirements for facilities occupied by the Massachusetts Department of Conservation and Recreation (DCR) and other agencies are addressed in facility-specific supplements to the FMMS.

Specific requirements and responsibilities can be reasonably varied in the **Service Level Matrix (SLM)** agreed upon by DCAMM and the user agency.

Related Standards

The following DCAMM Standards set forth requirements related to Grounds and Landscape Maintenance:

- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 05 Routine Maintenance
- FMMS 06 Preventive and Scheduled Maintenance

- FMMS 07 Integrated Pest Management
- FMMS 08 Health and Safety
- FMMS 10 Energy Management and Sustainability
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility
- FMMS 17 Wayfinding

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a **User Agency** may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated S**ervice Level Matrix (SLM).** This standard applies to leased buildings as well as Commonwealth owned.

Environmentally Preferable Product (EPP) refers to a product or service that has a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. EPPs include, practices that minimize waste, conserve energy or water, reduce the amount of toxins either disposed or consumed, and products with recycled content.

Executive Order 515 (E.O. 515) "Establishing an Environmental Purchasing Policy" - E.O. 515 requires all janitorial service companies providing services to Executive Branch Agencies to use **Environmentally Preferable Products (EPPs)** as specified in Commonwealth statewide contracts.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Green Grounds and Landscape Maintenance is a planned and organized approach to grounds and landscape maintenance that uses products and processes to reduce negative impacts on human health and the environment.

Impervious Surfaces refer to paved, developed, or naturally occurring surfaces that do not allow precipitation (rainwater, storm water, hose water, etc.) to pass through to subsequent soil layers. Examples of impervious surfaces include roofs, paved roads, parking areas, sidewalks, and some hard soils that have been compacted either by design or by use.

Invasive (Non-Native) Plant Species are plants that grow in an environment outside their natural habitat range by being introduced (planted) to the area either deliberately or accidentally. Invasive plants can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural predators in introduced habitats often lead to outbreak populations.

Leadership in Energy and Environmental Design for Existing Buildings (LEED EB: O&M) A rating system established through the U.S. Green Building Council (USGBC) that encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings, while addressing the major aspects of ongoing building operations.

Native Plant Species are plant types that grow naturally in a particular region, ecosystem, or habitat without direct or indirect human actions (Federal Native Plant Conservation Committee, 1994). Existing plant species prior to European settlement in eastern North America are considered native to eastern United States.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a **User Agency** of a **Commonwealth facility** and any that may be retained by the User Agency or **Occupant**. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

Sustainable Sites Initiative (SITES™) A program to promote sustainable land development and management practices that can apply to sites with and without buildings. The SITES program will provide tools for those who influence land development and management practices and can address increasingly urgent global concerns such as climate change, loss of biodiversity, and resource depletion.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities**.

1.2 The **OFMM Director or Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

- **Facility Manager**
- **Facility Staff**
- Contracted Service Providers

1.3 These Standards apply to the performance of all grounds and landscape maintenance services for all buildings under the care and control of DCAMM, and apply to both facility maintenance staff and contracted cleaning service providers.

1.4 **Facility Manager**

a. Work with the building occupants to identify any special needs related to grounds and landscape maintenance. Because this service serves the entire building rather than individual occupants, the Facility Manager and DCAMM shall be responsible for establishing scope of service unless an occupant has a specific need.

b. Work with the Operational Services Division (OSD) and DCAMM to establish contracts for grounds and landscape maintenance services in compliance with the following:

- Executive Order 515 “Establishing an Environmental Purchasing Policy”
- OSD FAC71: Lawns and Grounds, Equipment, Parts and Services Statewide Contract
- OSD FAC77: Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services
- OSD FAC79: Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Products
- OSD FAC67: Janitorial Services, Environmentally Preferable Statewide Contract

1.5 Contracted Service Providers

a. Perform all grounds and landscape maintenance operations to achieve the following goals:

- Benefit human health, native species and the environment
- Prevent pollution
- Preserve and protect native plants and wildlife habitats
- Reduce potable water use
- Infiltrate water into the ground

b. Meet minimum qualification requirements to perform grounds and landscape maintenance services, including all applicable certifications and training.

- A Certified Arborist shall be responsible for all tree trimming or removal. Certification must be through the International Society of Arboriculture (ISA) or the Massachusetts Certified Arborist Program (MCA).
- A contracted service provider that is a "Certified Horticulturalist" under the Massachusetts Nursery and Landscape Association shall manage landscaping activities.

c. Ensure appropriate training in all tasks under this standard, including, but not limited to the following:

- Landscape management
- Irrigation design
- Plant science
- Soil testing

2.0 Implementation

2.1 The scope of grounds and landscape maintenance services at **Commonwealth facilities** includes, but is not limited to the following:

a. Landscaping

- Tree trimming and removal
- Invasive plant control
- Fertilization
- Watering and irrigation

b. Cleaning

- Building exterior (including windows), pavement, and impervious surfaces
- Catch basin

c. Grounds keeping and general site maintenance

- Turf and Landscape Integrated Pest Management (refer to FMMS 04)
- Landscape Erosion and Sedimentation Control

- Composting
- Snow related services (i.e. snow removal – shoveling and plowing, application of deicers, pretreatment of roadways, parking lots and walkways, etc.)

Water conservation– implement a landscaping program which focuses on low flow season, human demands and promotes potable water conservation, including the planting of native species which do not need regular irrigation.

The Service Delivery documents include tables that detail the following, which will serve as a master service menu for services and the costs associated with those services at each space/building.

d. Itemized Task List

e. Frequency of Service

f. Documentation:

- Procedures
- Controls
- Quality Assurance
- Training
- Safety

g. Performance Tracking

3.0 Materials and Equipment

3.1 Meet applicable Federal, State, and local requirements for safety and quality.

3.2 Comply with **E.O. 515** Massachusetts "Environmentally Preferable Product" Procurement Program (**EPP Program)** "green" products guidelines.

3.3 Procure materials and services under this Standard that meet Environmental preferable standards through the following: (refer to FMMS 14 "Procurement")

a. FAC71 Lawn and Grounds Equipment, Parts and Services

b. FAC79 Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Specialty Environmentally Preferable Products

c. FAC59 Green Cleaning Products, Programs, Equipment and Supplies

3.4 Use equipment that reduces impact on the environment wherever possible, including, but not limited to the following.

a. Equipment operated with alternative fuel (e.g. electricity compressed natural gas).

b. Implement practices for reduced fossil fuel usage and reduce carbon emissions.

c. Reduce use of potable water for irrigation.

d. Where irrigation is necessary implement practices and installs watering equipment to reduce water consumption as outlined in the Massachusetts Water Conservation

Standards.

e. Use drought resistant, native plants, wherever possible, that do not need irrigation (If this is a requirement then many of the other elements are not appropriate).

f. Work with regulatory agencies and the Massachusetts Water Resources Commission to investigate opportunities for water conservation for irrigation practices.

3.5 Cleaning products used for exterior cleaning operations shall also comply with regulations under FMMS 03 Cleaning.

4.0 Regulatory Compliance

4.1 Reduce or eliminate the use of cleaning chemicals wherever possible.

4.2 Where cleaning chemicals are necessary, ensure they are environmentally preferable and minimize impact to human health, animal life and the environment.

4.3 Adopt the Massachusetts Water Conservation Standards for lawn and landscape water use.

4.4 Avoid outdoor water use between the hours of 9:00 am and 5:00 pm.

4.5 Minimize watering of lawns and landscapes by limiting number of watering days per week, and using stored rain water.

4.6 Irrigate efficiently i.e. only as necessary.

4.7 Implement safety procedures for the following:

a. Handling and tracking of chemicals (fertilizers, weed control products, snow removal products, etc.).

b. Operation and maintenance of equipment.

c. Establish a communications plan to inform building occupants of cleaning practices and chemical use.

4.8 Personnel shall have completed all applicable health and safety training related to the services they provide and the products they use on a regular or infrequent basis

a. Comply with Massachusetts Division of Occupational Safety and OSHA requirements.

b. Provide current documentation of training and certification for personnel.

4.9 Contracted Services Providers shall develop an Environmental Plan to incorporate sustainable practices throughout their business operations.

5.0 Training

5.1 DCAMM will review and approve training requirements for all grounds and landscape maintenance providers. Contracted service providers shall submit the following

information for its employees, for review by the **Facility Manager**:

a. Training scope

b. Training service provider

c. Certification

5.2 Training for cleaning, and grounds and landscape maintenance personnel shall comply with applicable industry standards and manufacturers' specifications for all products and equipment.

5.3 Service providers are responsible for meeting all additional training requirements pertaining to cleaning (refer to FMMS 03).

6.0 Communication

6.1 Ensure procedures are communicated to all staff for chemical handling and tracking, and equipment maintenance and operation procedures.

6.2 Establish a communications plan to inform building occupants of cleaning practices and chemical use. This communications plan is important for targeting building occupants that are more sensitive to chemical use due to illness or allergies.

6.3 Contracted Services Providers shall develop an Environmental Plan to incorporate sustainable practices throughout their business operations.

7.0 Recordskeeping

7.1 Provide documentation of compliance with **EPP Program** requirements related to the services of this Standard.

7.2 Contract vendors are responsible for identifying and meeting all tracking requirements in place at the time they execute a contract for services.

7.3 As required under **LEED** for Existing Buildings: Operations and Maintenance, DCAMM will identify a representative to conduct an annual audit in accordance with APPA Leadership in Educational Facilities' Custodial Staffing Guidelines to determine the appearance level of the facility.

7.4 To ensure services are carried out in a manner consistent with the appropriate service level established for the facility, DCAMM will conduct regular building assessments of the appearance level and cleanliness of the site.

Tools and Resources

All tools and resources are also in an appendix to the complete FMMS.

- APPA. Operational Guidelines for Educational Facilities: Custodial. Third Edition.
- *Chapter 123 of the Acts of 2006* directs the State Purchasing Agent to grant a preference to products of agriculture grown or produced using locally grown products. These products include any agricultural, aquacultural, floricultural or horticultural commodities, the growing and harvesting of forest products, the raising of livestock, including horses, raising of domesticated animals, bees, fur-bearing animals and any forestry or lumbering operations.
- Commonwealth of Massachusetts Executive Order 515 "*Establishing an Environmental Purchasing Policy*"
- Green Seal's Environmental Standard for Commercial Cleaning Services (GS-42): greenseal.org/GreenBusiness/Standards.aspx
- GSA Solicitation GS-09P-10-KS-0118, Custodial and Related Services, issued July 9, 2010
- International Sanitary Supply Association (ISSA) Cleaning Industry Management Standard (CIMS) Standard
- International Sanitary Supply Association (ISSA) Cleaning Industry Management Standard for Green Buildings (CIMS-GB): issa.com/
- International Society of Arboriculture: http://www.isa-arbor.com/home.aspx
- Leadership in Energy and Environmental Design (LEED), Existing Buildings: Operations and Maintenance Rating System v2009.
- Leadership in Energy and Environmental Design (LEED), Existing Buildings: Operations and Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Massachusetts Certified Arborist Program (MCA): http://www.massarbor.org
- Massachusetts Nursery and Landscape Association http://www.mnla.com/
- *Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Massachusetts Water Conservation Standards, Massachusetts Water Resources Commission: http://www.mass.gov/eea/docs/dcr/watersupply/intbasin/waterconservationstandards.pdf
- Operational Services Division (OSD) FAC59: *Green Cleaning Products, Programs, Equipment and Supplies Pricing for all Awarded Statewide Contract Vendors*
- Operational Services Division (OSD) FAC67: *Janitorial Services, Environmentally Preferable Statewide Contract*
- Operational Services Division (OSD) FAC71: *Lawns and Grounds, Equipment, Parts*

and Services Statewide Contract

- Operational Services Division (OSD) FAC77: *Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services*
- Operational Services Division (OSD) FAC79: *Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Products*
- *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts.* Updated September 2012. Massachusetts Statewide Contracts, Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program

Related Metrics

- Grounds and Landscape Maintenance equipment, chemicals, products, and materials soaps will be measured based on the cost of the goods. The cost of the items purchased that have the desired sustainable qualities will be measured against the total cost of items purchased.
- All maintenance equipment will be measured based on quantity. The quantity of equipment that has the desired sustainable qualities will be measured against the total quantity of equipment.
- See FMMS 03 for all additional metrics related to cleaning services.

Title	Standard No./Revision Name	Date
Cleaning	FMMS 03 / REV.1	March 1st, 2016

Purpose and Scope

The Cleaning Standard establishes baseline requirements for routine cleaning services performed in **Commonwealth facilities** to provide a clean working environment and protect the health of building occupants. The Cleaning Standard establishes and defines cleaning tasks (such as mopping floors, dusting furniture, vacuuming carpeting, etc.), products, equipment, roles and responsibilities, and performance measurements. This Standard applies to facility staff and cleaning **service providers.**

The Cleaning Standard is intended to meet the following requirements:

Executive Order 515 establishing an Environmental Purchasing Policy (E.O. 515) which requires all Executive Branch Agencies and service providers to use Environmentally Preferable Products (**EPPs**) including environmentally preferable (green) cleaning products and equipment.

Certification through the **International Sanitary Supply Association's (ISSA) Cleaning Industry Management Standard - Green Building (CIMS-GB)** which establishes the procedures and principles cleaning organizations shall follow to deliver efficient, quality service management and environmentally preferable cleaning programs.

Cleaning services shall be consistent across **Commonwealth facilities** of similar type and coordinated with the specific program needs and regulatory requirements of the **User Agency**. The specific regulatory requirements of specialized facilities such as hospitals and correctional institutions are addressed in facility-specific supplements to the Facility Maintenance and Management Standards (FMMS). Implementation of all activities under this Standard shall ensure, and when appropriate, enhance accessibility for facility **occupants**.

The **Cleaning Service Delivery and Performance Objectives** that support this Standard detail the activities required for successful implementation of the Cleaning Standard as well as the specific performance objectives.

A **Service Level Matrix (SLM)** between DCAMM and the User Agency shall be established to detail specific cleaning tasks and the service level at each facility.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The following FMMS also include references and/or requirements related to this Cleaning Standard:

FMMS 02	Grounds and Landscape Maintenance
FMMS 04	Solid Waste Management
FMMS 05	Routine Maintenance
FMMS 06	Preventive and Scheduled Maintenance
FMMS 07	Integrated Pest Management
FMMS 08	Health and Safety
FMMS 14	Procurement of Equipment, Material and Building Services
FMMS 15	Accessibility

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials & Equipment

4.0 Training

5.0 Communication

6.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

APPA An international association providing leadership in physical plant management in the education sector through research and publications, professional development, and credentialing. Formerly known as the Association of Physical Plant Administrators.

Approved Green Products List for FAC59 (or any successor contract for these products)**:** A list of green cleaning products, equipment, and supplies approved for use under statewide contract FAC59: Green Cleaning Products, Programs, Equipment and Supplies.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a **User Agency** may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated **Service Level Matrix (SLM)**. This standard applies to leased buildings as well as commonwealth owned.

Controlling Agency: A state agency with the “legal control or jurisdiction” of the property as

provided by M.G.L. Chapter 7C, Section 41, which carries with it the right to "occupy, or make expenditure for the maintenance of, any land, buildings or other state-owned or state-occupied facilities." Control and jurisdiction does not mean that a state agency is the owner of the property since the Commonwealth owns all state property.

Environmentally Preferable Product (EPP) refers to a product or service that has a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. EPPs include practices that minimize waste, conserve energy or water, reduce the amount of toxins either disposed or consumed, and products with recycled content.

Executive Order 515 (E.O. 515) "Establishing an Environmental Purchasing Policy" - E.O. 515 requires all janitorial service companies providing services to Executive Branch Agencies to use **Environmentally Preferable Products (EPPs)** as specified in Commonwealth statewide contracts.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Green Cleaning: The use of cleaning products and practices that have lower environmental impacts than conventional products and practices.

Green Seal: A non-profit organization that develops life cycle-based sustainability standards for products, services, and companies in addition to offering ~~s~~ third-party certifications.

International Sanitary Supply Association's (ISSA) Cleaning Industry Management Standard - Green Building (CIMS-GB): Procedures and principles cleaning organizations shall follow to deliver efficient, quality service management and environmentally preferable cleaning programs. CIMS and CIMS-GB certification demonstrates an organization is prepared to deliver quality, customer-focused services and ensures an organization is capable of delivering a comprehensive green cleaning program based on **LEED: EB O&M** green-cleaning criteria.

Leadership in Energy and Environmental Design for Existing Buildings: Operations and Maintenance (LEED EB: O&M): A rating system established through the U.S. Green Building Council (USGBC) that encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings, while addressing the major aspects of ongoing building operations.

Licensee: Individual or entity that is not a state agency or state employee but occupies the space of a **User Agency** as part of a service contract or other arrangement with the User Agency to further the User Agency's mission, or that occupies space as part of a contract with DCAMM to further DCAMM's services. For example, a private consulting firm hired by an agency might be provided with offices inside the agency's space. The consulting firm would be a licensee.

Occupant(s): The individuals or entities that occupy space in a Commonwealth facility by virtue of their status of a Controlling Agency, **User Agency**, or because they are permitted to use the

space as a **Licensee** of the User Agency.

Occupational Safety and Health Administration (OSHA): The federal agency responsible for ensuring safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education, and assistance.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of facilities.

Service Delivery and Performance Objectives: The supplemental document for each Standard that details the activities necessary for successful implementation of the Standard at **Commonwealth facilities**, as well as the performance goals for ensuring these activities meet the anticipated level of service. This document shall also align with the activities listed within the Service Level Matrix.

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a **User Agency** of a **Commonwealth facility** and any that may be retained by the User Agency or **Occupant**. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

Service Providers: The parties responsible for completing all maintenance and management activities governed by this standard. Service providers at the facility are internal facility staff, external contracted providers, or both.

User Agency: A state agency that has the legal right to use and occupy all or a portion of any building, facility, improvement, or property owned by the Commonwealth for its agency mission and purposes. A User Agency may have the exclusive use of an entire building, or in a multi-occupancy facility, it may have the exclusive use of part of the building and the right to use common areas with other users. A User Agency is also an “Occupant” as defined herein.

Requirements

1. Roles and Responsibilities

1.1 **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Cleaning Standard and its requirements at all **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** shall work with the **User Agency** to identify the specific scope of cleaning services at the facility, including but not limited to level of cleanliness, frequency of individual cleaning tasks, regulations, and statutory requirements related both to the cleaning services and to the User Agency type.

1.3 The **OFMM Director of Operations and Maintenance** shall oversee the completion of all activities under this Standard and shall determine the individuals responsible for providing these services at the facility. These individuals include, but are not limited to

the following:

a. Facility Manager

b. Facility Staff

c. Contracted Service Providers

d. Internal and external subject matter experts

1.4 All contracted cleaning service providers at **Commonwealth facilities** shall ensure **ISSA CIMS-GB** certification and maintain this certification for the life of the cleaning services contract.

2.0 Implementation

The **OFMM Director of Operations and Maintenance** shall ensure the following cleaning service activities occur at all **Commonwealth facilities**. The OFMM Director of Operations and Maintenance shall determine the individuals responsible for carrying out each activity listed below on a case-by-case basis depending on the specific facility.

2.1 Ensure an agreement between the **User Agency** and the **OFMM Director of Operations and Maintenance** to establish the actual level of cleaning services at the facility.

2.2 Execute, at a minimum, the base level services included in the **Service Level Matrix (SLM)**, which shall include but shall not be limited to specific itemized tasks related to the following:

a. Cleaning and restocking bathrooms.

b. Floor cleaning, servicing, and maintenance for attached carpeting, hard surfaces, and walk-off mats at all facility entrances (e.g., vacuuming, washing, sweeping, stripping, waxing, buffing) on a schedule consistent with recommendations from the IICRC (Institute of Inspection Cleaning and Restoration Certification) S100 Carpet Cleaning guideline.

c. Cleaning of furniture, fixtures, and interior building surfaces (e.g., dusting, washing, and periodic steam cleaning) on a schedule consistent with recommendations from the IICRC S300 Upholstery Cleaning guideline.

d. All related activities under the other FMMS, such as Solid Waste Management and Integrated Pest Services.

e. All other applicable cleaning services as defined in the cleaning **service provider** contract for the specific facility.

2.3 Use **green cleaning** procedures and practices in compliance with all applicable standards including but not limited to the following:

a. **ISSA CIMS-GB**

b. **APPA**

c. **Green Seal**'s Environmental Standard for Commercial Cleaning Services (GS-42)

d. Leadership in Energy and Environmental Design (LEED), Existing Buildings: Operations and Maintenance Rating System (EB: O&M) Approved Green Products List for Statewide Contract FAC59 (or the successor contract)

2.4 Comply with applicable legal requirements relating to cleaning, chemical handling and tracking, and equipment maintenance and operation.

2.5 Define all required cleaning services at the facility by means of a **SLM**, which shall list each task and indicate the frequency and procedures of tasks.

a. Tasks and procedures shall reflect the requirements specific to all laws guiding the facility and the **User Agency**, the particular facility, the User Agency's use of the facility, and the User Agency's desired level of cleanliness.

2.6 Provide opportunity for **occupants** to self-identify chemical sensitivities, which may influence the cleaning products acceptable for use at the facility and in the **User Agency** space.

3.0 Materials and Equipment

This section identifies high-level regulations, requirements, and categories related to materials and equipment for providing cleaning services and shall not serve as an all-inclusive inventory.

3.1 Cleaning products and equipment shall comply with the **Environmentally Preferable Products (EPP)** Guide to Massachusetts Statewide Contracts and the requirements of **E.O. 515**. All acceptable products are listed on the Approved Green Products List for FAC59 (or any successor contract for these products).

3.2 **Green cleaning** products and equipment shall be used when available. Detailed information on acceptable products and materials is included in the **Service Delivery and Performance Objectives** document related to this Standard.

3.3 Cleaning services and products shall comply with all applicable health and safety requirements (e.g., **OSHA**).

3.4 Requests to utilize non-green cleaning products (whether in response to a specific condition or incident) must be submitted by DCAMM for review by OSD and TURI (Toxics Use Reduction Institute) to determine if alternative green cleaning equivalent products are available.

3.5 Cleaning products that fall within the scope of this standard include, but are not limited to the following:

a. General-purpose, bathroom, glass, carpet and hard floor cleaners

b. Sanitizers and disinfectants

c. Specialized cleaners

d. Disposable paper products and trash bags

e. Hand soaps and cleaners

f. Equipment (e.g., floor buffers, vacuums, carpet steam cleaners)

3.6 Cleaning chemicals in use at the facility shall require regular evaluation to identify opportunities to reduce or eliminate their use while still meeting the cleaning service requirements of DCAMM OFMM, the facility, and the **User Agency**.

4.0 Training

The below training requirements are high-level and not all-inclusive. **The OFMM Director of Operations and Maintenance,** or approved designee shall approve and oversee training content and requirements, and ensure that all cleaning service providers have proper training in compliance with the requirements under their specific contracts.

4.1 An ongoing training program shall be in place for all cleaning **service providers** and **User Agency** representatives to ensure compliance with all cleaning-related requirements, procedures, processes, and products. required by DCAMM OFMM.

4.2 Training content shall follow applicable industry standards for cleaning procedures, as well as the manufacturers' specifications for cleaning products and equipment.

4.3 Training shall include but not be limited to use and safe handling of appropriate cleaning products and equipment and proper procedures and frequency for completing all cleaning tasks.

4.4 Training for all cleaning **service providers** shall include the approximate six-month training process required for **CIMS-GB** Certification, as well as any training programs offered through **Green Seal**'s GS-42 Standard for Commercial Cleaning Services Program.

4.5 In addition to the above training programs, cleaning **service providers** shall comply with any other training requirements their contracts require (e.g. training regarding use, proper ventilation, and product MSDSs).

5.0 Communication

The below information is an overview of communication requirements pertaining to this Standard. The **OFMM Director of Operations and Maintenance** shall ensure specific and appropriate communication actions across staff, service providers, and facility occupants for the successful and transparent implementation of all standards.

5.1 **Service providers** shall not communicate directly with facility **occupants**. All communication with facility occupants shall only occur through the **OFMM Director of Operations and Maintenance,** the **facility manager**, or a designated representative.

5.2 The facility manager shall clearly communicate procedures to the proper parties for chemical handling and tracking, and equipment maintenance and operation.

5.3 Service providers shall follow the **Service Level Matrix (SLM)** and inform the **facility manager** of cleaning practices and chemical use. The communications plan is important for targeting facility occupants that are unusually sensitive to chemicals due to illness or allergies.

6.0 Recordskeeping

The **OFMM Director of Operations and Maintenance** shall ensure the following recordskeeping activities occur at all **Commonwealth facilities**. The OFMM Director of Operations and Maintenance shall determine the individuals responsible for tracking and collecting the below information on a case-by-case basis depending on the specific facility.

6.1 Conduct at minimum annual facility assessments of the appearance level and cleanliness of the facility to the extent required to meet all program certification requirements (e.g., **LEED**, **APPA**, **CIMS**, **and OSHA**) and to ensure that cleaning services meet the **User Agency**'s agreed-upon service level.

6.2 Comply with all recordskeeping requirements of the **EPP Program**, applicable laws, and the cleaning **service provider's** contract.

6.3 Designate a cleaning services representative for the facility to collect and maintain the following:

a. A list of all approved cleaning products in addition to Material Safety Data Sheets (MSDS) for all cleaning products, which shall be kept in a location that is easily accessible by all facility occupants.

b. Product specification sheets from the manufacturer verifying that cleaning products and equipment meet the **green cleaning** requirements.

c. Cleaning equipment maintenance logs which shall include equipment purchase date, purchasing entity, and details of repairs and preventive maintenance.

d. Inventory of cleaning equipment and sustainable criteria for all powered equipment.

e. Maintenance logs for all hard floor care, which include maintenance task, date, number of coats of finish applied, and length of time between stripping and refinishing activities.

6.4 Cleaning service providers shall track the training of all staff members to document staff attendance and to identify any gaps in the training program.

Tools and Resources

All tools and resources related to the Cleaning Standard are included in both an appendix to the complete FMMS.

- International Sanitary Supply Association*. CIMS: Cleaning Industry Management Standard*
- Commonwealth of Massachusetts Executive Order 511: Employee Safety *"Establishing a Massachusetts Health and Safety Advisory Committee"*
- Operational Services Division FAC 59: Statewide contract for Green Cleaning Products
- Operational Services Division *FAC81: Janitorial Services, Environmentally Preferable*

Related Metrics

- Cost of all **cleaning chemicals**, products, materials, and equipment purchased for use at the facility.
- Total cost of **environmentally preferable** cleaning chemicals, products, materials, and equipment as a percentage of total products purchased.
- Total quantity of cleaning equipment and percentage of total quantity that is environmentally preferable.
- Results of the annual cleanliness audit of the facility to determine the appearance level of the facility and ensure service providers are meeting the agreed-upon level of service between the User Agency Audit is in line with requirements of LEED EB: O&M and in accordance with **APPA** Leadership in Educational Facilities' Custodial Staffing Guidelines.
- Custodial staffing is in accordance with **APPA**'s "Custodial Staffing Guidelines."
- **Occupant** feedback based on an annual survey.

Title	Standard No./Revision No.	Date
Solid Waste Management	FMMS 04 / REV.1	March 1st, 2016

Purpose and Scope

This Standard establishes baseline requirements for solid waste and recycling services at **Commonwealth facilities**.

The Solid Waste Management Standard not only identifies the people responsible for waste disposal and recycling related services, but also includes guidelines for implementing the solid waste management plans that meet all State and Federal laws, with the ability to customize solid waste and recycling programs to address specific occupant needs at each **Commonwealth facility**. The actual scope of services for occupant spaces will be determined by the facility manager and a designated representative for the occupant agency.

Specific language in this standard should also be utilized in requesting quotes for service as well as inclusion in the contract itself.

State regulations and policies that guide solid waste management in the Commonwealth include, but are not limited to the following:

Executive Order 350 (Clean State Program)

Massachusetts Solid Waste Management Regulations: Waste Bans (310 CMR 19.017) In 1990, the Massachusetts Department of Environmental Protection (MassDEP) introduced its first bans on landfilling and combustion of easy-to-recycle and toxic materials. Additional "waste bans" have been phased in over time.

The Massachusetts 2010-2020 Solid Waste Master Plan: Pathway to Zero Waste outlines the vision of solid waste reduction and management in the Commonwealth, and sets the 2020 goal of reducing annual solid waste disposal 30 percent below the 2008 statewide total.

Hazardous and medical waste producing facilities must comply with specific legal requirements and will be addressed in more detail through facility-specific supplements to the FMMS that are not part of these baseline standards. For example, when providing service to any Department of Corrections facility contractors must meet all DOC rules and regulations.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The following DCAMM Standards set forth requirements related to Refuse & Recycling:

- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 05 Routine Maintenance
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility

Summary

The following topics and their related requirements are included in the Solid Waste Management Standard and detailed under the "Requirements" section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Baseline Service Level Audit contains, but is not limited to the following components:

- Characterization of the type of waste generated by the facility (e.g. paper, plastic, bottles, cans, etc.)
- Types of collection containers in the facility (for trash, recycling, pallets, cardboard, etc.)
- How materials get to their final destination
- Approximate amounts and weights of waste generated during collection period.

Landfills are waste disposal sites for solid waste from human activities.

Occupants: The individuals or entities that occupy space in a Commonwealth facility by virtue of their status as a Controlling Agency, User Agency, or because they are permitted to use the

space as a Licensee of the User Agency**.**

Recycling: The collection, reprocessing, marketing and use of materials that were diverted or recovered from the solid waste stream.

A **recycling collection** area is located in regularly occupied space in a building for the collection of occupants' recyclables. A building may have numerous collection areas from which recyclable materials are typically removed to a central collection and storage area.

Reuse returns materials to active use in the same or a related capacity as their original use, thus extending the lifetime of materials that would otherwise be discarded.

Source reduction reduces the amount of unnecessary material brought into a building. One example is purchasing products with less packaging.

Tipping fees are charged by a landfill for the disposal of waste, typically quoted per ton.

Waste comprises all materials that flow from the building to final disposal. Examples include paper, grass trimmings, food scraps, and plastics. Waste refers to all materials that are capable of being diverted from the building's waste stream through waste reduction.

Waste disposal eliminates waste by means of burial in a landfill, combustion in an incinerator, dumping at sea, or any other way that is not recycling or reuse.

Waste diversion is a management activity that disposes of waste other than through incineration or the use of landfills. Examples include reuse and recycling.

Waste reduction includes both source reduction and waste diversion through reuse or recycling.

Waste stream is the overall flow of waste from the building to a landfill, incinerator, or other disposal site

Requirements[1]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

[1] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

c. Contracted **Service Providers**

1.3 The Solid Waste Management Standards apply to the performance of all **waste disposal** and **recycling** services establishing a baseline for all **Commonwealth facilities**, and require the involvement of Facility Managers, Facility Maintenance Staff, Contracted Service Providers, and the building **occupants**.

1.4 Facility Managers

a. Work with DCAMM and the building **occupants** to develop a solid **waste** management policy that establishes hierarchy for management of waste within the facility.

b. Work with DCAMM and building occupants to identify a solid **waste** management plan that outlines service levels, locations, equipment and staff responsibility.

c. Conduct a baseline service level audit identifying **waste** flows through the facility and identifying responsible parties for oversight/management of each identified waste flow.

d. Work with DCAMM and appointed representative to create a cleaning services contract for occupants based on their identified needs and level of service. This contract will clearly define all cleaning related tasks and requirements, as well as costs to the occupants.

e. Work with the Operational Services Division (OSD) to obtain a Solid **Waste** and Recycling Services provider (either combined or separate for waste disposal and recycling) for the facility in compliance with FAC33: Statewide Contract for Solid Waste Collection Services (haulers and waste facilities)

f. Adhere to municipal by-laws, and comply with the **waste** bans.

g. Ensure all facility staff, solid waste service providers, janitorial service providers and building occupants are aware of the solid **waste** management requirements for the facility, as well as materials regulated under the Massachusetts Waste Bans.

h. Ensure that banned materials collected do not go for disposal at landfills, municipal **waste** combustion facilities, or transfer stations. Implement recycling collection programs with haulers that ensure collection and management of all restricted materials in a way that prevents disposal.

i. Use **waste** ban requirements to improve recycling by occupants and hold haulers responsible for recycling services.

j. Designate someone in the facility to act as the recycling coordinator.

1.5 Contracted **Waste** Service Providers

a. Collect refuse and **recycled waste** at a facility or group of facilities on a regular schedule as identified in the contract between the service provider and the Facility Manager/DCAMM (i.e. frequency, process, procedures, notifications, etc.).

b. Assist in the development of a recycling program that works and is cost-effective, including specific suggestions on the types of materials to recycle and the

collection and storage system that would work best for the facility.

c. Comply with all occupant specific regulations and statutory requirements (i.e. hospitals, detention centers, schools, childcare, etc.).

d. Comply with FAC33: Statewide Contract for Solid **Waste** Collection Services (haulers and waste facilities)

e. Comply with Executive Order 515 “Establishing an Environmental Purchasing Policy”.

f. Responsible for leaving the area surrounding the container(s) in the same condition it was in prior to the pick-up.

1.6 Janitorial Service Providers

a. Empty trash & **recycling** bins and bring to collection/storage area for **waste** and recyclables, (i.e. loading dock) where contracted waste hauler will pick-up waste and recycling for transport to processing facility.

b. Ensure that separated **recyclables** and trash are kept separate and placed in the proper container when bringing them to the collection/storage area.

1.7 Building Occupants

a. Building occupants are responsible for understanding the solid **waste** and recycling policies for the building.

b. Building occupants are responsible for minimizing the materials they dispose into garbage cans, and placing waste materials to the appropriate end-use location (i.e. **recycling** bin, **reuse**, hazardous waste bin, etc.).

2.0 Implementation

2.1 Implement an environmentally preferable solid **waste** management policy that addresses **reuse, recycling**, or composting of products used during regular operations of the building, as well as non-regular building activities (i.e. renovations) Products include, but are not limited to the following:

a. Ongoing waste

- Standard, daily use items i.e. paper, cardboard, plastics, packaging, etc.
- Food

b. Durable goods waste

- Office equipment, appliances, and audiovisual equipment
- Electric powered equipment
- Furniture

c. Hazardous waste

- Mercury containing materials (i.e. batteries and lamps)

- Medical Waste
- Construction waste
- Laboratory and chemical wastes

2.2 Facility Managers shall identify, if possible, what **recyclable** items are generated in large quantities and ensure they are a focus of the recycling program.

2.3 Facility Managers shall retain flexibility with the contracted solid **waste** service provider to alter the recycling program to change or add materials during the agreement period.

2.4 Facility Managers shall ask contractors to provide credits for **recyclable** materials that are uncontaminated and have a market value.

2.5 Collection and Storage Procedures include, but are not limited to the following:

a. Designate and visibly mark easily accessible central collection and storage locations for **recyclable** materials, including mixed paper, corrugated cardboard, glass, plastics, and metals.

b. Establish **recycling** collection points within common areas, such as classrooms, break rooms, open offices, and any location where occupants may need to recycle. Recycling areas should include signage to discourage contamination, protection from the elements, and security for high-value materials to discourage illegal disposal.

c. The central collection and storage area should provide easy access for both maintenance staff and collection vehicles.

d. Consider how **recycling** activities might affect a building's indoor environmental quality. Activities that create odors, noise, and air contaminants should be isolated or performed when the building is not occupied.

e. For sites with multiple buildings it may be possible to create a central collection area that is outside a building's footprint. In this case, establish a continuing strategy for transporting **recyclable** materials to the separate collection area.

f. For sites with landscaping, consider designating an area for collecting plant debris.

g. Establish safe storage areas for hazardous **waste** materials (i.e. batteries, mercury-containing lamps, waste oil and other automotive fluids, HVAC lubrication, etc.).

h. Determine collection frequency for both internal processes and pick-up by the contracted service provider.

i. Contractors must collect all **waste** and **recyclable** materials in accordance with the Massachusetts Waste Ban Regulations and inform Building Managers of any incidences of non-compliance.

j. Collection points must be left in clean and sanitary condition. Tops and access doors on containers and dumpsters must be closed after each pick up and materials frozen in containers must be removed or container replaced.

k. All contractors must agree to reduce collection frequency or change the size of collection containers at any time during the agreement period should a facility request such a reduction as a result of greater **recycling** and/or **waste** prevention activities. Such reductions in collections should result in associated reductions in price.

3.0 Materials and Equipment

3.1 Facility Managers shall work with DCAMM and contracted service providers to determine the appropriate collection bins for the facility. (i.e. under desk bins, common area bins, collection area dumpsters, etc.)

3.2 For all appropriate services, contracted service providers must provide containers which are fully enclosed, leak proof, fire retardant, labeled, and in good condition (for all outdoor containers).

3.3 Contractors shall clean containers on a schedule to be agreed upon by the contractor and the Building Manager.

3.4 Comply with all requirements established by the "Environmentally Preferable Product" Procurement Program (EPP Program), established under EO 515.

4.0 Regulatory Compliance

4.1 Ensure procedures are in place and clearly communicated for the proper disposal of hazardous **wastes** and medical wastes.

4.2 Establish a communications plan to inform building occupants of both commonly used materials that contain hazardous materials not permitted in traditional **waste** streams, as well as proper disposal of hazardous materials.

4.3 Ensure all service providers are current on all applicable health and safety training related to the services they provide and the products they use on a regular or infrequent basis. (i.e. OSHA, blood borne pathogens, sharps, etc.)

4.4 Adhere to all **Waste** Material Regulations, including, but not limited to the following.

a. **310 CMR 19.000: Waste Bans**. The following materials and items are prohibited from disposal and/or transfer for disposal in Massachusetts:

- Asphalt pavement, brick & concrete (ABC Waste)
- Cathode ray tubes
- Clean gypsum wallboard Commercial organic material (food material, only from facilities that dispose of one ton or more per week) (effective October 1, 2014)
- Ferrous & non-ferrous metals
- Glass & metal containers
- Lead acid batteries
- Leaves & yard waste

- Recyclable paper, cardboard & paperboard
- Single resin narrow-necked plastics
- Treated & untreated wood & wood waste (banned from landfills only)
- White goods (large appliances)
- Whole tires (banned from landfills only; shredded tires acceptable)

b. **Mercury Management Act**, which was passed in 2008 and prohibits the disposal of any product that contains mercury.

c. **Massachusetts Bottle Deposit Law** (BDL) places a five cent deposit on all carbonated soft drinks, beer, malt beverages and sparkling water sold in Massachusetts with the assurance that consumers can redeem their empty beverage containers for cash.

5.0 Training

5.1 Implement an ongoing training program for all facility maintenance staff and contracted **waste** service providers to ensure compliance with all waste management related requirements, procedures, and processes approved by the Commonwealth. Training content will follow all applicable industry standards for waste management.

5.2 Following an agreement to provide waste and/or recycling services to a facility, contractors must provide, at no cost, the following training, assessment, and educational services to explain the recycling program, the associated benefits and any specific procedures that need to be followed. .

5.3 Facility Managers shall work with the contracted service provider to provide education to all departmental employees (contractors may charge for this training or Eligible Entities may choose other recycling trainers from the Statewide Training Contract).

5.4 In addition to the above training, assessment, and educational requirements, contractors are responsible for identifying and meeting all training requirements in place at the time they enter into a contract with the Commonwealth for waste management services.

6.0 Communication

6.1 Include janitorial staff when discussing **waste** management options; ask contractors to propose training/educational activities to promote **recycling**.

6.2 Get top management support for the **recycling** program through a memo, email or other department-wide communication.

6.3 Facility Managers shall teach **occupants**, maintenance personnel and other building users about activities to reduce and reuse materials instead of recycling, which will reduce the volume of recyclables.

6.4 Facilities shall have appropriate signage to inform all building occupants about the solid waste and recycling programs in place at the facility.

6.5 Facilities shall have appropriate signage by garbage and **recycling** bins to ensure proper solid **waste** disposal by building occupants. Signage shall include at a minimum the types of materials and products that should and should not be disposed of in each bin.

6.6 Facilities shall have signage that identifies how and where to dispose of materials and products not allowed in the trash or **recycling** bins (i.e. batteries, electronics, light bulbs, etc.)

7.0 Recordskeeping

7.1 A solid **waste**/trash stream audit is necessary for all buildings owned and managed by the Commonwealth to identify the following solid **waste** related issues for the facility.

a. Determine the profile (amount and composition) of the solid waste/trash stream;

b. Identify efficient methods for the collection, storage, and transfer of wastes for disposal recycling, and composting;

c. Determine the right service level for solid waste/trash collection and removal to minimize waste shipments.

7.2 **Recycling** and **Waste** Reports: Collect monthly hauler reports for all buildings owned and operated by the Commonwealth. The recycling and waste hauling reports above shall contain sufficient data to calculate waste diversion and waste removal costs. Information to be tracked on a regular basis includes, but is not limited to the following:

a. Records by material category (i.e. wood, paper, plastic, etc.) for type, quantity, and weight of each material category that is salvaged, reused, recycled, treated, or disposed.

b. Total quantity of waste recycled as a percentage of total waste.

c. Records of Sales of salvageable materials sold or donated to individuals and organizations.

d. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable materials by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices. Include documentation for back-charge fees, if any, for improperly segregated materials.

e. Disposal Records: Indicate receipt and acceptance of waste by landfills, municipal waste combustion facilities, and transfer stations licensed to accept waste materials. Include manifests, weight tickets, receipts, and invoices.

f. Records that document proper handling and disposal of all hazardous wastes.

Tools and Resources

All tools and resources are also in an appendix to the complete FMMS.

- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Massachusetts Executive Order No. 484: Leading by Example – Clean Energy and Efficient Buildings, dated April 18, 2007.
- Massachusetts Executive Order No. 515: Establishing an Environmental Purchasing Policy, dated October 27, 2009.
- Massachusetts Solid Waste Master Plan
- Massachusetts Toxics Use Reduction Reform Act of 2006
- Massachusetts Zero Mercury Strategy
- MA Department of Environmental Protection (DEP): *Waste Wise Program*
- Municipal Compliance Fact Sheet: Waste Bans (http://www.mass.gov/eea/agencies/massdep/recycle/regulations/waste-bans.html)
- Operational Services Division (OSD) FAC33: How to Use the Solid Waste and Recycling Services Statewide Contract
- Operational Services Division (OSD) FAC82: Hazardous/Universal, Medical, and Electronic Waste Disposal and Emergency Response.
- Recycling Works MA. RecyclingWorks

Related Metrics

A record by material category (i.e. wood, paper, plastic, etc.) of the type and quantity, by weight, of each material category salvaged, reused, recycled, treated, or disposed.

Total quantity of waste recycled as a percentage of total waste.

Title	Standard No./Revision No.	Date
Routine Maintenance	FMMS 05 / REV.1	March 1st, 2016

Purpose and Scope

The Routine Maintenance Standard establishes the minimum requirements for carrying out day-to-day maintenance needs and responding to unplanned work order requests in all **Commonwealth facilities**.

Routine maintenance activities involve **facility managers**, **custodians**, **grounds workers**, **general maintenance crews**, and as necessary, specialized **contracted service providers**.

All **routine maintenance** services should reflect the actual systems and equipment at the facility and the specific needs of the occupant agency; therefore, only high level and summary requirements are included within this document. The actual scope of services will be determined by the facility manager and, when applicable, a designated representative for the occupant agency.

The goals of the Routine Maintenance Standard are to:

- Maintain a safe, healthy, and comfortable environment for occupants
- Maintain, or restore the facility and all related elements (i.e. finishes, structure, landscape, equipment and systems) to ensure they serve their intended purpose
- Provide a timely and effective response to work-order requests
- Maximize the productive lifespan of the building and equipment
- Maximize building efficiency
- Lower overall operating costs
- Protect the Commonwealth's capital investments
- Promote Environmental Sustainability

Childcare centers, hospitals, correctional facilities and any other specialized facilities must comply with specific requirements set forth in regulatory standards, and addressed in facility-specific supplements to the FMMS.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The following DCAMM Standards set forth requirements related to Routine Maintenance:

- FMMS 02 Grounds and Landscape Maintenance

- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 06 Preventive and Scheduled Maintenance
- FMMS 07 Integrated Pest Management
- FMMS 08 Health and Safety
- FMMS 09 Emergency Management
- FMMS 10 Energy Sustainability Management
- FMMS 14 Procurement of Equipment, Material & Building Services
- FMMS 15 Accessibility

Summary

The following topics and their related requirements are included in the Routine Maintenance Standard and detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Custodial Maintenance is the cleaning and upkeep of the facility and includes the routine (daily, monthly, and semi-annual) tasks and capital investments for cleaning equipment and supplies).

Emergency Maintenance consists of situations requiring immediate attention due to a failure in or around the facility that can cause significant damage to the building, building systems, and/or equipment. Such emergencies can create an unmanageable situation and/or unsafe physical conditions which require immediate attention.

Landscape Maintenance consists of the upkeep of the landscape, flower beds, trees and shrubs, water gardens and hardscape areas such as parks, parking lots and walkways around the building. This not only includes the maintenance of the landscape and hardscape areas but also seasonal tasks such as snow removal, leaf clean-up and removal and winter preparation of the landscape and water gardens.

LEED for Existing Buildings: Operations and Maintenance (LEED EB: O&M) is a rating system established through the U.S. Green Building Council (USGBC) that encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings, while addressing the major aspects of ongoing building operations. All buildings (as defined by standard building codes) are eligible for certification under LEED EB: O&M. It is targeted at single buildings, whether owner occupied, multi-occupant, or multiple-building campus projects. The prescriptive and performance strategies of LEED EB: O&M are intended to provide operational benefits throughout the life of the building. If these strategies are continued, a building can maintain and even improve its performance over time. Projects that certify under any version of LEED for Existing Buildings must recertify at least once every five years in order to keep their certification current.

Routine Maintenance refers to simple small-scale activities and specific work-order requests associated with general upkeep and continued operation of a building, site, equipment, machine, plant, or system against normal wear and tear. Typically, Routine Maintenance includes activities that are completed by the facility management staff and regularly contracted facility service providers rather than specialized professionals. Routine maintenance is done within a specific period of time e.g. daily, weekly, monthly, etc.

Massachusetts Facilities Managers Association (MAFMA) is a network of state facilities managers that meet periodically to discuss specific topics of interest with the aim toward increased information sharing and problem solving.

Operational Efficiency represents the life-cycle, cost-effective mix **of preventive, predictive**, and reliability-centered maintenance technologies, coupled with equipment calibration, tracking, and computerized maintenance management capabilities all targeting reliability, safety, occupant comfort, and system efficiency.

Preventive (Predictive) Maintenance is proactive work performed by various trades personnel based on scheduled inspections, scheduled testing, and minor element replacements. Preventive Maintenance consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance, planned versus corrective for improving equipment life and to avoid any unplanned maintenance activity/minimize equipment breakdowns.[2] Predictive Maintenance also involves the use of electronic monitoring equipment to warn of problems/conditions before they affect equipment performance.

Reactive (Corrective) Maintenance is unplanned repair or adjustment of equipment or

[1] Glenn Hunt, Peripheral Systems, Inc., *Comprehensive Facility Operation & Maintenance Manual*. Last updated: 10-04-2013. Accessed on 10/20/2013 via http://www.wbdg.org/om/om_manual.php

components.

Subcontracted Maintenance is maintenance that is typically performed by outside contractors or by facility staff outside of their usual job description.

Operational Efficiency represents the life-cycle, cost-effective mix of **preventive, predictive**, and reliability-centered maintenance technologies, coupled with equipment calibration, tracking, and computerized maintenance management capabilities all targeting reliability, safety, occupant comfort, and system efficiency.

Work Order is a written (or electronic) request for a task or project to be completed. The order can be sent from an occupant to a facility manager, from a customer to a contractor, or internally from one company department to another. Work orders can range in scope from small (i.e. fixing a leak), to large (i.e. replacing old plumbing).

Requirements[3]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance**, or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 The Routine Maintenance Standard applies to the baseline performance of all related services at facilities under **Commonwealth facilities** and requires the involvement of Facility Managers, Facility Maintenance Staff, Contracted Service Providers, and the building occupants.

1.4 Facility Managers

a. Develop and implement a **Routine Maintenance** Plan (RMP) when DCAMM assumes responsibility for the care and control of a facility.

b. Review, revise, and adjust the RMP either as conditions warrant, or annually at a minimum.

c. Collect and prioritize work-order requests.

d. Create daily and weekly maintenance plans to coordinate activities and priorities of

[3] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

all facilities maintenance staff and contracted service providers.

e. Track **routine maintenance** activities in the Commonwealth's Capital Asset Management Information System (CAMIS) database program.

f. Work with the Operational Services Division (OSD) and DCAMM to contract for routine maintenance services under a statewide contract as applicable.

g. Ensure all routine maintenance service providers have the appropriate licensing and certifications.

h. Ensure that all routine maintenance performed at the facility complies with the appropriate rules and regulations.

1.5 On-site Facility Staff and Contracted Service Providers

a. Most daily tasks fall under the scope of routine maintenance and are completed by the on-site facility staff. Contracted service providers can also provide these services if there is insufficient capacity within the on-site facility staff.

b. Specific staffing needs include, but is not limited to, the following:

- General Maintenance Crews
- Custodians (various levels)
- Grounds Workers and Landscapers
- Electricians
- Plumbers/Pipefitters
- HVAC/Controls Mechanics
- Carpenters
- Painters
- Trade Workers
- Locksmiths

c. Assist the Facility Manager with the creation and implementation of a RMP.

d. Identify routine maintenance needs and report them to the Facility Manager.

e. Work under the direction of the Facility Manager to carry out day-to-day maintenance needs and respond to unplanned work order requests.

f. Comply with all requirements, rules, and regulations applicable to the **routine maintenance** services provided.

g. Comply with all occupant specific regulations and statutory requirements (i.e. hospitals, detention centers, schools, childcare, etc.).

1.6 Occupants

a. Submit work order requests using CAMIS, which is the established building

notification system.

2.0 Implementation

2.1 The scope of services included within the *Routine Maintenance Standard*, includes, but is not limited to the following:

a. Custodial Maintenance

b. **Landscape Maintenance**

c. **Reactive (Corrective) Maintenance** (i.e. work order requests, etc.)

d. **Emergency Maintenance** (i.e. system failure, floods, etc.)

2.2 Typical **routine maintenance** tasks include, but are not limited to responding to the following requests:

a. HVAC - space temperature is not within acceptable limits

b. Plumbing - dripping faucet, clogged toilet, leaking pipe

c. Electrical - power malfunction or burned out light fixture

d. Finishes - walls are scratched or faded, floor tiles are broken

e. Carpentry - broken door, ceiling tile replacement

2.3 A **Routine Maintenance** Plan (RMP) shall be created to identify the activities and processes involved in providing routine maintenance services specific to the needs of the facility and its occupants.

2.4 The RMP shall contain the following:

a. Overview of potential routine maintenance activities

b. Staffing:

- List of on-site maintenance staff and contracted service providers
- Tasks the staff can perform
- Contract tasks
- Schedules
- Training and certification needs

c. Equipment list and parts inventory

d. A list of **routine maintenance** activities and the associated procedures, practices, and performance level

e. Prioritization standard (Process for receiving and prioritizing **work-order** requests)

f. The computerized system in place to record, manage and communicate routine maintenance activities and requests

2.5 The RMP will determine the actual extent of services necessary at each facility, including:

a. Facility use / occupancy

b. Occupants' desired service level

c. Prioritization thresholds

d. Identified level of need

e. Detailed task and procedure lists

f. Schedule and frequency of services

2.6 All **routine maintenance** services undertaken in **Commonwealth facilities** must maintain a minimum *Facility Maintenance Standard* of "Level 4: Comprehensive Maintenance." [4]

3.0 Materials and Equipment

3.1 Sustainable methods and applications shall be employed whenever possible for all products within the scope of this standard, in accordance with EO 515: Environmentally Preferable Products.

3.2 Products shall conform to all Federal, State, and local standards for quality and safety requirements.

3.3 The Facility Manager and contracted service professionals shall make available at all times the product-specific information for products used to **perform routine maintenance**, including, but not limited to the following:

a. Product name and manufacturer

b. Product label

c. Product cut sheet, or specification

d. Material Safety Data Sheets (MSDS)

4.0 Regulatory Compliance

4.1 All work shall comply with the applicable requirements of 29 CFR §1910, Federal, State, municipal safety, environmental and health requirements where applicable. Where there is a conflict between applicable regulations, the most stringent shall apply.

5.0 Training

5.1 Facility Managers will provide training opportunities for all to facility staff, contracted service providers, and facility occupants, including, but not limited to the following.

a. Systems and equipment training

b. Work request processing and prioritization levels

[4] Commonwealth of Massachusetts, *Standards for Building Maintenance: Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf

c. Maintenance procedures and practices (by level of service provision)

d. CAMIS training

e. OSHA/Safety training

5.2 DCAMM will review and approve training content and requirements for all service providers. Training content will follow all applicable industry standards, as well as the manufacturer's specifications for all products and equipment.

5.3 The **Massachusetts Facilities Managers Association (MAFMA**) is a network of state facilities managers and facility staff that:

a. Meet periodically to discuss specific topics of interest.

b. Disseminate information on training opportunities and new technologies.

c. Inform facilities personnel of proposed regulatory or statutory changes.

d. Maintain working committees to address issues of interest to facilities operators and managers.

6.0 Communication

6.1 Provide information (signage, occupant handbook, etc.) to the occupants identifying the process for submitting **work order** requests.

6.2 Provide notice to occupants if any **routine maintenance** needs or corrective actions will have an impact on their daily operations (i.e. lavatory out of order, system shut-down, spill in common area, etc.). Communication shall include description of activity, impact to occupants, any applicable safety information, and duration of maintenance activity.

7.0 Recordskeeping

7.1 Capital Asset Management Information System (CAMIS) program, which is a database inventory of state facility infrastructure – both major (i.e. elevators, HVAC and its major related components) and minor (fire extinguishers by location), as well as tasks (i.e. cleaning windows, cleaning carpets, etc.).

7.2 CAMIS enterprise asset management (EAM) and maintenance software program used at all facilities owned and operated by the Commonwealth to help automate all aspects of maintenance operations, including equipment history, scheduling, preventive maintenance, work orders, labor and expense tracking, procurement and reporting.

7.3 The Facility Manager shall track routine maintenance and work-order request activities and indicators in an effort to generate useful metrics that inform future decisions by the Facilities Manager and DCAMM about the routine maintenance program and the service providers. (See "Related Metrics" section below for a list of information that shall be tracked at all facilities owned and operated by DCAMM).

Tools and Resources

- *ASHRAE Guidelines 4-2008 Preparation of Operating and Maintenance Documentation for Building Systems*
- *CAMIS Standard Operating Procedures*. Developed by DCAMM and accessed via http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/camis/standard-operating-proc/
- Commonwealth of Massachusetts, Standards for Building Maintenance: *Status Chart and Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf
- Division of Capital Asset Management and Maintenance, Office of Facilities Management and Maintenance. *Facilities O&M Manual for Beginners: "What you need to think about when maintaining your facilities!"* Accessed via: http://www.mass.gov/anf/docs/dcam/mafma/manuals/dcam-fm-manual-11-7-6.pdf
- Hunt, Glenn. *Comprehensive Facility Operation & Maintenance Manual.* Peripheral Systems, Inc. Last updated: 10-04-2013. Accessed via Whole Building Design Guide (WBDG) http://www.wbdg.org/om/om_manual.php
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4. (released November 2013)
- Massachusetts Statewide Contracts for Healthier Schools*: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Operational Services Division (OSD): *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts*. Updated September 2012. Massachusetts Statewide Contracts, Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Sebesta Blomberg and Associates, Inc., *Facility Operation & Maintenance Plan, UMASS Amherst - New Life Science Building.* Project No. 700796.00. August 2, 2013.

Related Metrics

It is important to track the following metrics to create a comprehensive view of activities and purchasing that is occurring at facilities under the care and control of DCAMM:

- Capacity factor (actual operation vs. full-utilization operation)
- Work orders generated vs. closed out
- Backlog of corrective maintenance (number of requests and duration)
- Safety record (number of loss-of-time incidents, or total number of reportable incidents)

- Energy use
- Inventory control
- Pieces of equipment in Maximo
- Overtime worked
- Maintenance Spending
- Emergency Maintenance vs. Total Maintenance
- Environmental record
- Absentee rate
- Staff turnover
- Purchases (equipment, products and materials) Water usage

Title	Standard No./Revision No.	Date
Preventive and Scheduled Maintenance	FMMS 06 / REV. 1	March 1st, 2016

Purpose and Scope

The Preventive and Scheduled Maintenance Standard establishes minimum requirements to carry out preventive and scheduled maintenance services in **Commonwealth facilities**.

All **preventive** and scheduled maintenance services should reflect the actual systems and equipment at the facility and the specific needs of the occupant agency; therefore, only high level and summary requirements are included within this document. The actual scope of services will be determined by the facility manager and, when necessary, a designated representative for the occupant agency.

The goal of the Preventive and Scheduled Maintenance Standard is to effectively and efficiently support the life cycle of the facility by eliminating unplanned shutdowns and realizing life-cycle cost savings. This high-level goal will be achieved by accomplishing the following:

- Maintenance of a safe, healthy, and comfortable environment for occupants.
- Replacement of system components at the appropriate time to ensure cost-effective, reliable plant operation.
- Prolong equipment life and maximize the productive lifespan of the building.
- Maximize building efficiency.
- Optimize inventory control.
- Lower operating costs and control large spending spikes by avoiding a deferred maintenance approach and incorporating a planned budget approach.
- Protect the Commonwealth's capital investments.

Childcare centers, hospitals, correctional facilities and any other specialized facilities must comply with specific requirements set forth in regulatory standards, and addressed in facility-specific supplements to the FMMS.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The following DCAMM Standards set forth requirements related to Preventive and Scheduled Maintenance:

- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 06 Routine Maintenance
- FMMS 07 Integrated Pest Management
- FMMS 08 Health and Safety
- FMMS 10 Energy Management and Sustainability
- FMMS 13 Facilities Information Management
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility

Summary

The following topics and their related requirements are included in the Preventive and Scheduled Maintenance Standards and detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Capital Asset Management Information System (CAMIS) program is a database inventory of

state facility infrastructure – both major (i.e. elevators, HVAC and its major related components) and minor (fire extinguishers by location), as well as tasks (i.e. cleaning windows, cleaning carpets, etc.). CAMIS includes an enterprise asset management (EAM) and maintenance software program used at all facilities owned and operated by the Commonwealth to help automate all aspects of maintenance operations, including equipment history, scheduling, preventive maintenance, work orders, labor and expense tracking, procurement and reporting.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as commonwealth owned.

A **Computerized Maintenance Management System (CMMS)** is a utility that maintains a computer database of information about an organization's maintenance operations to assist facility maintenance staff in maximizing their effectiveness. A CMMS achieves this goal by tracking work orders, monitoring system reliability and repair/maintenance costs, and providing **preventive maintenance** tools.

Custodial Maintenance is the cleaning and upkeep of the facility and includes the routine (daily) tasks and capital investments for cleaning equipment and supplies.

Emergency Maintenance consists of situations requiring immediate attention because of a failure in or around the facility that would cause significant damage to the building, building systems, and/or equipment. Such emergencies can create an unmanageable situation and/or unsafe conditions and needs to be rectified immediately.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Operations and Maintenance Plan (FOMP) Provides the facility owners, operators, and occupants with detailed information on the building systems and operations as well as a foundation for training and system analysis. The FOMP also provides a means to reduce operating costs through a comprehensive maintenance assessment and implementation plan that looks at all maintenance at a facility and identifies best practices to save time and money, while increasing efficiency and the productive life of equipment.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Landscape Maintenance consists of the upkeep of the landscape, flowerbeds, trees & shrubs, water gardens, and hardscape areas such as parks, parking lots, and walkways around the building. This not only includes the maintenance of landscape and hardscape areas but also seasonal tasks such as snow removal, leaf clean-up & removal, and winter preparation of the landscape and water gardens.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of **Commonwealth facilities**.

Operational Efficiency represents the life-cycle, cost-effective mix of **preventive**, **predictive,** and reliability-centered maintenance technologies, coupled with equipment calibration, tracking,

and computerized maintenance management capabilities all targeting reliability, safety, occupant comfort, and system efficiency.

Preventive (Predictive) Maintenance is proactive work performed by various trades personnel based on scheduled inspections, scheduled testing, and minor element replacements. Preventive Maintenance consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance, planned versus corrective for improving equipment life and to avoid any unplanned maintenance activity/minimize equipment breakdowns.[5] Predictive Maintenance also involves the use of electronic monitoring equipment to warn of problems/conditions before they affect equipment performance.

A **Preventive Maintenance Plan (PMP)** will typically identify Preventive Maintenance task descriptions and schedules, troubleshooting, replacement parts, service providers, operating quantity and unique storage requirements for spare parts. The Plan also lays out a regularly scheduled inspection of building interior and exterior equipment and systems for signs of wear and tear that will require routine and/or corrective maintenance. This inspection process is performed by building facilities staff as well as contracted service providers.

Subcontracted Maintenance is maintenance that is typically performed by outside contractors or by facility staff outside of their usual job description.

Requirements[6]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 **Facility Managers**

a. Develop a Facility Operations and Maintenance Plan (FOMP) and a **Preventive Maintenance** Plan (PMP) when DCAMM assumes responsibility for the care and

[5] Glenn Hunt, Peripheral Systems, Inc., *Comprehensive Facility Operation & Maintenance Manual*. Last updated: 10-04-2013. Accessed on 10/20/2013 via http://www.wbdg.org/om/om_manual.php

[6] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

control of a facility.

b. Review, renew, and adjust the FOMP and the PMP, either as conditions warrant, or annually at a minimum.

c. Create the timeline and schedule for all preventive maintenance activities.

d. Work with the Operational Services Division (OSD) and DCAMM to contract for **preventive maintenance** services under a statewide contract as applicable. Preventative maintenance services estimated at more than $10,000 dollars shall be bid under the auspices of Chapter CH.149.

e. Coordinate activities of all facilities maintenance staff and contracted service providers.

f. Track all facility equipment in the **Commonwealth's Capital Asset Management Information System (CAMIS)** database program. This includes the entry, updating & management of facility equipment and their associated preventive maintenance procedures.

g. Update and manage major capital equipment and the associated preventive maintenance entered into **CAMIS** by DCAMM.

1.4 Contracted Service Providers

a. Assist the **Facility Manager** with the creation and implementation of the FOMP and the PMP as applicable.

b. Comply with all requirements rules and regulations applicable to the services provided.

c. Comply with all occupant specific regulations and statutory requirements (i.e. hospitals, detention centers, schools, childcare, etc.).

d. **Preventive Maintenance** service providers include crafts specializing in:

- Painting
- Carpentry
- Locksmithing
- Plumbing
- Metal fabrication
- HVAC
- Controls
- Electrical
- Commissioning

e. Independent, third party commissioning agents shall provide commissioning services (commissioning, continuous commissioning, or retro-commissioning) for Commonwealth facilities.

2.0 Implementation

2.1 The general scope of services included within the **Preventive** and Scheduled Maintenance Standard includes, but is not limited to the following services:

a. Inspection and servicing of:

- HVAC
- Lighting and electrical
- Plumbing
- Process equipment
- Elevators
- Roofs
- Fire safety/protection and alarms
- Cleaning and landscape/grounds equipment (i.e. floor buffers, lawn mowers, etc.)

b. Cleaning and lubricating of all equipment and systems

c. Monthly pest inspections to identify potential areas for pest infestation (See FMMS 07 Integrated Pest Management)

2.2 All **preventive maintenance** services at **Commonwealth facilities** must maintain a minimum *Facility Maintenance Standard* of "Level 4: Comprehensive Maintenance." [7]

2.3 The Facility Operations and Maintenance Plan (FOMP) shall be in place prior to start-up and, if applicable, commissioning of the facility's equipment.

2.4 The FOMP shall contain the following sections:

a. Introduction and overview of the building and systems

- Space use(s)
- Occupancy type(s),
- Occupancy schedule
- Sequence of operations
- Building system overview

b. Potential safety hazards (identification and prevention)

c. Utility systems and service providers

d. Building interior and exterior maintenance procedures

[7] Commonwealth of Massachusetts, *Standards for Building Maintenance: Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf

e. The computerized system in place (**CAMIS**) to record, manage and communicate **preventive maintenance** activities and the procedures, equipment and staff to ensure successful completion.

f. Minimum outside air requirements and indoor air/environmental quality

g. Reporting, record-keeping and inspections

h. Maintenance budgets and life-cycle costing analysis

i. Staffing plan and competencies

2.5 The **Preventive Maintenance Plan (PMP)** will supplement the FOMP by establishing system and equipment specific maintenance procedures to extend their useful life, as well as the processes in place to carry out these procedures.

2.6 At a minimum, the **PMP** shall include the following equipment and system specific information:

a. Individual systems and equipment at the facility

b. System/equipment description (operating criteria, set points, etc.)

c. Start-up and shut-down procedures

d. Operating schedules (controls, occupied hours, off-hour operation, etc.)

e. Maintenance tasks/procedures

f. Maintenance schedule (daily, weekly, monthly, quarterly, seasonal, annual, etc.)

g. Maintenance staff and service providers (equipment specific) and the **Preventive maintenance** activities they are responsible for completing as scheduled.

h. Tracking and reporting

i. Troubleshooting: Identifying potential problems and solutions

j. Replacement parts

k. Building equipment tag information

l. Manufacturer's literature and warranties

m. Figures and illustrations

2.7 **Facility Managers** shall work with a contracted commissioning service provider to prepare and implement a commissioning plan for carrying out the testing of all building systems to verify that they are working according to the specifications of the building operation plan.

a. Repair or upgrade all systems components that are found to be not working according to the specifications of the building operation plan.

b. Re-test all building components that require repairs or upgrades to verify that they are working according to the specifications of the building operation plan.

2.8 Facilities shall implement an Indoor Air Quality Protocol for continuous tracking and optimization of systems that regulate ventilation, indoor comfort and the conditions

(temperature, humidity and CO2) delivered in occupied spaces.

a. IAQ related preventive maintenance procedures include, but are not limited to cleaning coils and outdoor air intakes, inspecting and maintaining proper internal insulation, cleaning and ensuring drainage of condensate pans, and cleaning and replacing filtration media.

2.9 All facilities shall have in place a comprehensive Best Practices Equipment **Preventive Maintenance** Program that provides in-house resources or contracted services to deliver post-warranty maintenance.

3.0 Materials and Equipment

3.1 Sustainable methods and applications shall be employed whenever possible for all products within the scope of this standard, in accordance with *EO 515: Environmentally Preferable Products*.

3.2 Products shall conform to all Federal, State, and local standards for quality and safety requirements.

3.3 The **Facility Manager** and contracted service professionals shall make available at all times the product-specific information for products used to perform routine maintenance.

a. Product name and manufacturer

b. Product label

c. Product cut sheet, or specification.

d. Safety Data Sheets (SDS)

4.0 Regulatory Compliance

4.1 All work shall comply with the applicable requirements of 29 CFR §1910 and State and municipal safety and health requirements. Where there is a conflict between applicable regulations, the most stringent shall apply.

4.2 Facilities shall have an IAQ Protocol that meets applicable department standards in place to direct building operators to use practices to prevent contamination, maintain good air quality, and identify and quickly resolve IAQ issues that do arise.

5.0 Training

5.1 DCAMM will review and approve training content and requirements for all service providers. Training content will follow all applicable industry standards, as well as the manufacturer's specifications for all products and equipment.

5.2 DCAMM and **Facility Managers** will provide training opportunities to all facility staff, contracted service providers, and facility occupants. Training topics include, but are not limited to the following:

a. Systems and equipment training

b. Maintenance procedures and practices (by level of service provision)

c. Training in the use of the building/space management utility (**CAMIS** is currently in use by DCAMM)

d. Training in the use of the CMMS

e. OSHA/Safety training

f. Program specific orientation and maintenance issues

5.3 **Facility managers** will establish a building operations and maintenance staff education program that provides each staff person primarily working on building maintenance with at least 24 hours of education each year. The education program should provide information on building and building systems operation, maintenance, and achieving sustainable building performance.

6.0 Communication

6.1 The **Facility Manager** shall provide notice to building occupants if any **preventive** or scheduled maintenance activities will have an impact on their daily operations. Communication shall include description of activity, impact to occupants, any applicable safety information, and duration of maintenance activity.

6.2 The **Massachusetts Facilities Managers Association (MAFMA)** is a network of state facilities managers that:

a. Meet periodically to discuss specific topics of interest.

b. Disseminate information on training opportunities and new technologies.

c. Inform facilities personnel of proposed regulatory or statutory changes.

d. Maintain working committees to address issues of interest to facilities operators and managers.

7.0 Recordskeeping

7.1 Capital Asset Management Information System **(CAMIS)**

a. A database inventory of state facility infrastructure – both major (i.e. elevators, HVAC and its major related components), and minor (fire extinguishers by location), as well as tasks (i.e. cleaning windows, cleaning carpets, etc.).

b. **CAMIS** includes an enterprise asset management (EAM) and maintenance software program used at all facilities owned and operated by the Commonwealth to help automate all aspects of maintenance operations, including equipment history, scheduling, **preventive maintenance,** work orders, labor and expense tracking, procurement and reporting.

7.2 All new Equipment shall be entered into the tracking system before the facility is brought online.

a. The **Facility Manager** is responsible for the entry of new equipment and the creation of the PM program for that equipment.

b. DCAMM (Commissioning Agent) is responsible on capital projects for the entry of new major capital equipment and the associated preventive maintenance program

for the equipment.

7.3 The **Facility Manager** shall track preventive and scheduled maintenance activities and indicators in an effort to generate useful metrics that inform future decisions on the preventive maintenance program and the service providers. (See "Related Metrics" section below for a list of information that shall be tracked at all facilities).

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) *Standard 62.1: Ventilation for Acceptable Indoor Air Quality*.
- ASHRAE Guidelines 4-2008 Preparation of Operating and Maintenance Documentation for Building Systems
- CAMIS Standard Operating Procedures. Developed by DCAMM and accessed via http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/camis/standard-operating-proc/
- Commonwealth of Massachusetts, *Standards for Building Maintenance: Status Chart and Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf
- Commonwealth of Massachusetts: *Human Resources Division Class Specification Maintenance Worker Series.* Accessed via http://www.mass.edu/shared/documents/classificationspecs/specspers/Maintenance%20Worker.doc
- Division of Capital Asset Management and Maintenance, Office of Facilities Maintenance. *Facilities O&M Manual for Beginners: "What you need to think about when maintaining your facilities!"* Accessed via: http://www.mass.gov/anf/docs/dcam/mafma/manuals/dcam-fm-manual-11-7-6.pdf
- Division of Capital Asset Management & Maintenance *Preventive Maintenance Guidelines for Roofs.* Accessed via http://www.mass.gov/anf/docs/dcam/mafma/tutorials/mafma-tutorial-roof-maint.pdf
- Hunt, Glenn. *Comprehensive Facility Operation & Maintenance Manual.* Peripheral Systems, Inc. Last updated: 10-04-2013. Accessed via Whole Building Design Guide (WBDG) http://www.wbdg.org/om/om_manual.php
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Operational Services Division (OSD). *Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools.*

Massachusetts Environmentally Preferable Products (EPP) Procurement Program

- Operational Services Division (OSD) *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts*. Updated September 2012. Massachusetts Statewide Contracts. Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Sebesta Blomberg and Associates, Inc. *Facility Operation & Maintenance Plan, UMASS Amherst - New Life Science Building.* Project No. 700796.00. August 2, 2013.
- State of Minnesota Office of the Legislative Auditor. Preventive Maintenance for Local Government Buildings. http://www.mass.gov/anf/docs/dcam/mafma/manuals/o-andm-pm-for-local-govt-buildings.pdf
- U.S. EPA "*Building Air Quality: A Guide for Building Owners and Facility Managers*". Accessed via http://www.epa.gov/iaq/largebldgs/baq_page.htm)

Related Metrics

It is important to track the following metrics to create a comprehensive view of activities and purchasing within **Commonwealth facilities**:

- Capacity factor (actual operation vs. full-utilization operation)
- Safety record (number of loss-of-time incidents, or total number of reportable incidents)
- Energy use
- Inventory control
- Pieces of equipment in Maximo
- Overtime worked
- Maintenance Spending
- Emergency Maintenance vs. Total Maintenance
- Environmental record
- Absentee rate
- Staff turnover
- Purchases (equipment, products and materials)

Title	Standard No./Revision No.	Date
Integrated Pest Management	FMMS 07/ REV.1	March 1st, 2016

Purpose & Scope

The Integrated Pest Management (IPM) Standard establishes minimum requirements for pest management services provided for **Commonwealth facilities**.

The IPM Standard identifies the parties responsible for pest management services at facilities owned and operated by DCAMM, as well as all requirements related to carrying out these services. All IPM services should be consistent to the specific needs of the occupant agency; therefore, only high level and summary IPM requirements are included within this document. The actual scope of services will be determined by the facility manager and, when necessary, a designated representative for the occupant agency.

State regulations and policies that guide pest management in the Commonwealth include, but are not limited to, the following.

- **Executive Order 403, Integrated Pest Management for Massachusetts State Agencies (E.O. 403)**, issued by Governor Cellucci in 1998, requires the use of IPM in all state buildings and facilities.
- **Massachusetts Pesticide Control Act Chapter 132B: Section 6** (General Law of Massachusetts, ND, Ch. 132B:6), which makes it illegal to do any of the following:
  - Distribute purchase or use a pesticide that is not registered
  - Alter or misbrand any pesticide
  - Distribute any pesticide that is open or unsealed
  - Distribute any pesticide container that is unsafe or damaged
  - Destroy or detach any pesticide label
- **Children Protection Act of 2000 and the Executive Order of 2003** (Mas.Gov, 2003, p. 1) makes it mandatory for parents, staff, and children of any school or daycare to receive notification whenever pesticide applications are being made on the property.

Childcare centers, hospitals, correctional facilities and any other specialized facilities must comply with specific requirements set forth in regulatory standards addressed in facility-specific supplements to the FMMS.

Certain pests, including birds; mosquitoes, bed bugs, snakes, bats, vertebrates that are not commensal rodents, and termites and other wood-destroying organisms have specialized requirements for prevention and extermination that are addressed in pest-specific supplements to the FMMS.

Specific requirements and responsibilities can be reasonably varied in the Service Level Matrix (SLM) agreed upon by DCAMM and the **user agency**.

Related Standards

The following Standards also include requirements related to Integrated Pest Management:

- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 05 Routine Maintenance
- FMMS 06 Preventive and Scheduled Maintenance
- FMMS 08 Health and Safety
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility

Summary

This Standard addresses the following items, which are detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a **User Agency** may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated **Service Level Matrix (SLM).** This standard applies to leased buildings as well as Commonwealth owned.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Integrated Pest Management (IPM) is a process for achieving long term, environmentally sound pest control using a wide variety of management practices. An IPM program shall include a combination of pest monitoring, good sanitation practices, education, appropriate solid waste management, building maintenance, cultural pest control measures, mechanical pest control measures, and biological pest controls. Chemical pesticides will be used only when the use of these measures is warranted and when used as part of an integrated pest management plan (IPM Plan).

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of **Commonwealth facilities**.

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a **User Agency** of a **Commonwealth facility** and any that may be retained by the User Agency or **Occupant**. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

User Agency: A state agency that has the legal right to use and occupy all or a portion of any building, facility, improvement, or property owned by the Commonwealth for its agency mission and purposes. A User Agency may have the exclusive use of an entire building, or in a multi-occupancy facility, it may have the exclusive use of part of the building and the right to use common areas with other users. A User Agency is also an "**Occupant**" as defined herein.

Requirements[8]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements throughout **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted Service Providers

1.3 The Integrated Pest Management (IPM) Standards establish baseline requirements and apply to the performance of all pest management services for **Commonwealth facilities**, and require the involvement of **Facility Managers**, **Facility Maintenance Staff**, Contracted Service Providers, and the building occupants.

1.4 Facility Managers

a. Identify potential and actual pest infestation at the facility and work with internal staff or contract with pest management professionals and specialists as necessary.

b. Work with DCAMM and appointed representative to create an IPM services contract for occupants based on their identified needs and level of service. This contract will clearly define all related tasks and requirements, as well as costs to the occupants.

c. Work with the Operational Services Division (OSD) to obtain an IPM Services provider for the facility in compliance with FAC74: Integrated Pest Management (IPM) Statewide Contract.

d. Implement a preventive maintenance program that identifies and corrects conditions that contribute to pest infestation.

e. Work with an IPM professional to review, renew and adjust (either as conditions warrant, or at a minimum annually) the IPM Plan.

f. Ensure that all pest management, service providers have the appropriate licensing and certifications.

g. Ensure all pest management services performed at the facility comply with the appropriate rules and regulations.

1.5 Contracted IPM Service Providers

[8] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

a. Work with Facility Manager, staff and building occupants to create an IPM Plan for the facility.

b. Comply with all occupant specific regulations and statutory requirements (i.e. hospitals, detention centers, schools, childcare, etc.).

c. Comply with IPM Statewide Contract

1.6 Janitorial Service Providers shall ensure trash, especially food waste and crumbs do not accumulate at the facility and promote pest infestation.

1.7 Building Occupants (or designated representative)

a. Are responsible for understanding the IPM policies for the building.

b. Are responsible for notifying the Facility Manager of pest infestations or areas that may cause a potential infestation.

2.0 Implementation

2.1 Establish an **Integrated Pest Management (IPM)** Plan for the facility. The IPM Plan shall establish the management, preventive maintenance and treatment procedures for achieving long term, environmentally sound pest control. The IPM Plan shall include:

a. IPM Team identification

b. Provisions for utilizing environmentally friendly products as a 1st resort before using fertilizers, pesticides, or other potentially harmful products.

c. Company and employee qualifications/certifications to perform Pest Management night inspections

d. On-line and paper-based Pest Logging and Reporting procedures

e. Training of facility staff, contractors, and occupants

f. Frequency of technician visits and activities performed

g. Pest Management planners and quality assurance

2.2 IPM Base Services

a. Perform and document initial **IPM** Assessment

b. Develop and implement IPM Plan

c. Prevent pest infestations: Identify and correct conditions and activities that have the potential to cause pest infestation

d. Eliminate pest infestations: Monitoring, trapping, pesticide application, and pest removal

e. Turf and Landscape Integrated Pest Management (see FMMS 02)

2.3 The IPM Facility Assessment and Plan will determine the actual extent of services necessary at each facility.

2.4 All species found within the structure of the building shall be covered within the scope

of the IPM program.

2.5 Pest populations that are located immediately outside of the buildings and pose a possible infestation hazard or threat are included within the scope of this standard.

2.6 Treatment of pests damaging to landscaping elements, including treatments prior to infestation problems, is within the scope of this standard.

3.0 Materials and Equipment

3.1 Products within the scope of this standard include, but are not limited to the following:

a. Portable vacuums with HEPA or MICRO filtration

b. Trapping devices

c. Chemical Pesticide Products

d. Bait stations and bait formulations of types other than sprays.

3.2 Sustainable methods and applications shall be employed whenever possible for all products within the scope of this standard, in accordance with *EO 515: Environmentally Preferable Products*.

3.3 Products shall conform to all Federal, State, and local standards for quality and safety requirements.

3.4 The Facility Manager and contracted service professionals shall make available at all times the product-specific information for products used in the prevention and management of pest infestation.

a. Product name and manufacturer

b. Product label

c. Material Safety Data Sheets (MSDS)

4.0 Regulatory Compliance

4.1 Ensure procedures are in place and clearly communicated for the proper disposal of hazardous wastes.

4.2 All work shall comply with the applicable requirements of 29 CFR §1910 and State and municipal safety and health requirements. Where there is a conflict between applicable regulations, the most stringent shall apply.

5.0 Training

5.1 DCAMM will review and approve training content and requirements for all service providers. Training content will follow all applicable industry standards for pest management, as well as the manufacturer's specifications for all products and equipment.

5.2 Contracted service providers shall provide one training session per year to facility staff, contractors and facility occupants. The contractor will also be responsible for providing

additional training sessions as necessary for a mutually agreed upon additional cost.

5.3 In addition to the above training, assessment, and educational requirements, contractors are responsible for identifying and meeting all training requirements in place at the time they enter into a contract with the Commonwealth for waste management services.

6.0 Communication

6.1 Signs, placards, literature, or other information shall be used to inform building occupants of the nature of the pest application.

6.2 Notification shall be given to building occupants no less than 72 hours prior to the use of pesticides.

6.3 Notification shall be given to building occupants no more than 24 hours after application of a pesticide in the event of an emergency.

7.0 Recordskeeping

7.1 Service providers shall provide secure online capabilities to accomplish one or more of the following tasks:

a. Pest logging for facility staff

b. Contractor service reports

c. Contractor financial reports

d. Contractor reports of pesticide applications

7.2 The Facilities Manager is responsible for maintaining a pest control logbook, or file for each building or site. The monitoring and documentation of pest locations and actions taken is to prevent recurring infestations.

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- Environmental Protection Agency (EPA). *Integrated Pest Management in Buildings*. This reference guide defines IPM, describes proper IPM implementation in buildings, and outlines the roles and responsibilities necessary for success. http://www.epa.gov/pesp/publications/ipm/ipm_in_buildings.pdf
- The Federal Insecticide, Fungicide and Rodenticide Act
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Massachusetts General Law (ND). 333 CMR *"MGL 132B Massachusetts Pesticide*

Control Act". Commonwealth of Massachusetts

- Massachusetts Executive Order No. 403, Integrated Pest Management for Massachusetts State Agencies
- MASS.Gov. (2003) "The Act Protecting Children and Families from Harmful Pesticides of 2000"
- MA Department of Fish and Wildlife (MassWildlife) Regulations
- Massachusetts Department of Agricultural Resources (DAR).
- Massachusetts Executive Order 515 "Establishing an Environmental Purchasing Policy"
- Operational Services Division (OSD) FAC74: Integrated Pest Management (IPM) Statewide Contract
- Operational Services Division (OSD) *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts*. Updated September 2012. Massachusetts Statewide Contracts. Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Operational Services Division (OSD). Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools. Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Radcliffe, E.B., Hutchison, W. D., & R. E. Cancelado [eds.], Radcliffe's IPM World Textbook, URL: http://ipmworld.umn.edu, University of Minnesota, St. Paul, MN.
- San Francisco's Department of the Environment (SF Environment) explains the listing criteria and process and has an updated 2007 reduced-risk pesticide list for screened pesticide active ingredients. http://www.sfenvironment.org/ipmchecklist

Related Metrics

It is important to track the following metrics to create a comprehensive view of activities and purchasing that is occurring in **Commonwealth facilities**

Set up an electronic spreadsheet tracking tool for the following items:

Pest name

Monitoring method

Monitoring schedule

Responsible party

Pest prevention

Prevention measures

Threshold for action

Product applied (name)

Toxicity of product (least?)
Date and time of product application
Date and time of occupant notification
Emergency application? (If so, explain emergency)

Title	Standard No./Revision No.	Date
Health and Safety	FMMS 08 / REV. 1	March 1st, 2016

Purpose and Scope

The Health and Safety Standard establishes minimum requirements to maintain a safe and healthy environment in **Commonwealth facilities** by reducing the potential for injury, illness, and other hazards to facility occupants and visitors. The benefit to the Commonwealth is a reduction in costs due to unscheduled medical leave, medical care, and disability.

The scope of this Standard includes requirements for the assessment of health and safety risks at each building, development of a plan to manage specific risks, and implementation of the facility-specific plan in the operation of the facility.

Executive Order No. 511 "Establishing the Massachusetts Employee Safety and Health Advisory Committee" requires that all state agencies shall maintain, track and report data related to occupational injuries, illnesses, and deaths in the workplace, and manage and perform training under the guidance of DCAMM's Health and Safety Coordinator.

Health and safety activities within this Standard shall also comply with regulations promulgated under the ***Occupational Safety Act***, as set forth in ***29 CFR Part 1904, "Recording and Reporting Occupational Injuries and Illnesses"***.

Specific requirements and responsibilities can be reasonably varied in the Service Level Matrix (SLM) agreed upon by DCAMM and the user agency.

Related Standards

The Health and Safety Standard includes selected topics and requirements that are also found within other Facility Maintenance and Management Standards (FMMS). The following Standards are referenced within the Health and Safety Standard:

- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 06 Preventative and Schedule Maintenance
- FMMS 07 Integrated Pest Management
- FMMS 11 Space Management
- FMMS 12 OFMM Project Management
- FMMS 13 Facility Information Management
- FMMS 14 Procurement of Equipment, Material and Building Services

- FMMS 15 Accessibility

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Asbestos is a naturally occurring silicate mineral used commercially for its desired physical properties. Asbestos (Chrysotile) became increasingly popular among manufacturers and builders in the late 19th century because of its sound absorption, tensile strength, resistance to damage (fire, heat, electrical and chemical), and affordability. It was used in such applications as electrical insulation for hotplate wiring and in building insulation. When asbestos is used for its resistance to fire or heat the fibers are often mixed with cement (resulting in fiber cement) or woven into fabric or mats. In the mid 1980's asbestos became a health concern for respiratory diseases. Although it has not been banned in the US it is regulated by the US EPA under OSHA 29 CFR 1926.

Combustible materials include building materials such as wood and paper products, fuels (oil, gas, kerosene, and coal), and flammable products that may be stored in buildings (e.g. solvents, paper, etc.)

Confined space is an area whose configuration hinders activities of any employees who must enter into, perform work in, and exit from it. Confined spaces have limited or restricted means of access, are large enough to permit access for the performance of necessary work, and are not designed for continuous occupancy.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as Commonwealth owned.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Hazardous materials are substances that workers may be exposed to during building maintenance/repair; these materials include, but are not limited to, sewerage, sewer gases, radiation, asbestos, lead, fibrous glass (e.g. insulation), pesticides, or polychlorinated biphenyl (PCB) containing materials. Other hazards include chemicals used in cleaning products.

Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. IAQ can be affected by indoor environmental contaminants, adequacy of fresh air, temperature, and relative humidity. Source control, filtration and use of ventilation to dilute contaminants are the primary methods for improving indoor air quality in most buildings.

IAQ-Building Education and Assessment Model (I-BEAM) is a US EPA guidance tool

designed for use by building professionals and others interested in maximizing indoor air quality in facilities/buildings. Implement I- BEAM with assistance from the MDPH/IAQ-Program.

Massachusetts Right-To-Know Law, or hazard communication standard, regulates how information about workplace chemical hazards is communicated to occupants, employees and visitors.

Material Safety Data Sheets (MSDSs) are documents that provide information regarding the product, manufacturer contact information, chemical ingredients, physical and health hazards associated with the chemical(s), protective equipment, and safe work practices, pursuant to the Occupational Safety and Health Administration Hazardous Communication Standard (29 CFR 1910.1200) or Hazardous Substance Disclosure by Employers (Massachusetts Right-To-Know Law, M.G.L. c. 111F).

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Polychlorinated Biphenyls (PCB's) were widely used as dielectric and coolant fluids in transformers, capacitors, and electric motors. They were also used in construction materials like caulking as a plasticizer to improve a product's resistance to degradation. They are known to cause cancer in animals and thought to do so in humans. They were banned in the US in 1979.

Radon is an invisible, radioactive gas that results from the decay of radium, which may be found in rock formations beneath buildings or in certain building materials themselves.

Radioactive Materials that produce ionizing and non-ionizing radiation form through specific radioactive sources such as x-ray technology and nuclear medicine.

Raw Sewage may contaminate building materials following toilet overflow, sewer backup, or flooding from certain sources of water. Sewage can contain pathogens or disease-causing agents. Proper cleanup of the materials that have come into direct contact with the contaminated waters is required to limit health impacts.

Total Worker Health integrates occupational safety and health protection with health promotion to prevent worker injury and illness and improve health and wellbeing.

Volatile Organic Compounds (VOCs) are organic chemicals that have a high vapor pressure at ordinary, room-temperature conditions. Common VOCs such as formaldehyde and other hydrocarbons create indoor air quality hazards and/or are potential groundwater contaminants.

Summary

Each **Facility Manager** shall prepare and implement a health and safety program that includes (but is not limited to) the following elements and requirements:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Requirements

1. Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted Service Providers

1.3 Facility Manager

a. Eliminate or reduce hazards in the work place to achieve the following:

- Prevent conditions that may result in pedestrian hazards (e.g. tripping hazards, slip-and-fall hazards, etc.)
- Work to reduce exposure to **VOCs** and eliminate exposure to, lead, **asbestos**, **PCBs** and other hazardous or regulated materials in the facility
- Promote the use of personal protective equipment (PPE) where needed

b. Develop and maintain a current Health and Safety Policy for the facility.

c. Collect and track information on health and safety-related incidents and complaints that affect operation and all building occupants. Information shall be maintained in CAMIS database (refer to FMMS 13).

d. Verify that all contracted service providers adhere to the Health and Safety policy.

e. Maintain building systems to provide acceptable **indoor air quality (IAQ)** and adequate ventilation.

1.4 Occupant Agency

a. Adhere to the Health and Safety Policy.

b. Maintain a healthy environment in their work areas.

c. Manage the collection and tracking of data related to health and safety incidents within their leased spaces.

2.0 Implementation

2.1 Perform a Health and Safety Risk Assessment for each facility. The facility Health and Safety Risk assessment shall contain the following elements:

a. Assessment scope and methodology.

b. Documentation of existing conditions.

c. Identification of actual or potential Health and Safety hazards including the presents of hazardous and regulated materials.

d. Identification of facility/building users at risk.

e. Develop and implement a Health and Safety Policy, based on the findings from the Health and Safety Risk Assessment. The Health and Safety Policy shall address the following Health and Safety Hazard Prevention elements (as needed):

f. Occupant health and safety practices

g. Emergency action planning

h. Hazard communication or compliance including right to know requirement

i. Occupant and visitor first aid

j. Occupant personal equipment

k. Personal protective equipment

l. Where hazards are identified evaluate for safer alternatives

m. Implementation of an incident and complaint, reporting and tracking system

2.2 Review Health and Safety assessment and policy at least annually and in response to any major event or incident.

3.0 Materials and Equipment

3.1 The approved Health and Safety Policy for each facility shall address specific hazards at that particular facility, which may include (but are not limited to):

a. Building materials and furnishings containing **volatile organic compounds (VOCs**)

b. Equipment and supplies containing hazardous or regulated materials

c. **Indoor air quality (IAQ)**

d. Low lighting levels in corridors and other areas of public travel

e. Occupational noise exposure

f. Confined spaces

g. Improper, inadequately maintained or malfunctioning equipment

h. Lead paint (in older and/or child occupied buildings)

i. Deteriorated **asbestos** insulation (in older buildings)

j. **Polychlorinated Biphenyls (PCBs)** (in older buildings) e.g. caulking, electrical transformer and floor finishing

k. Material exposed to conditions that may cause it to become wet or damp, presenting a host environment for mold and mildew growth.

l. Electrical energize equipment

4.0 Regulatory Compliance

4.1 Comply with 29 CFR Part 1904 and Executive Order No. 511

a. Maintain, track and report data related to occupational injuries, illnesses, and deaths in the workplace.

b. Manage and perform training in accordance with the requirements established by the DCAMM Health and Safety Coordinator.

4.2 M.G.L c.11F compliance

a. Comply with M.G.L. c.111F and acquire **Material Safety Data Sheets (MSDSs)** for hazardous material-containing products

5.0 Training

5.1 Facility occupant agency shall be trained on hazard communication system.

5.2 Facility occupant agency shall be trained on emergency action plan.

5.3 Facility occupant agency shall be trained on how to identify potential hazards.

a. Individual sources of pollution

b. Hazardous and regulated materials

c. Sources of potential combustion (e.g. unprotected combustible building materials, oil, gas, kerosene, coal, wood, solvents, etc.)

d. Unsafe and unhealthy activities by occupant agency.

e. Maintenance and housekeeping practices.

f. Occupant health symptoms (e.g. symptom relief after leaving the facility/building).

g. As appropriate, train in proper use of chemicals, including appropriate ventilation

methods

5.4 Procurement personnel shall trained the Order of Executive 515

6.0 Communication

6.1 **Facility Manager** communications responsibilities include:

a. Creating and maintaining a list of identified stakeholder contacts

b. Making key contact information readily available to facility occupants and visitors

c. Informing occupants of upcoming pest management applications

d. Advising occupants of planned equipment maintenance (e.g. HVAC system)

e. Notifying occupants of upcoming unusual cleaning activities

f. Notifying occupants of renovations, equipment replacements, and other capital projects that may affect occupant health and safety

g. Involving occupants in safer alternatives planning

6.2 Occupant agency communications responsibilities include:

a. Making key contact information readily available to facility manager

b. Reporting all health and safety incidents and relevant complaint taking place in or as a result of conditions in program spaces, and/or conditions of building systems and elements

c. Alerting the facility manager to potential health and safety hazards observed in the facility

d. Note: MSDSs are available upon request per M.G.L.c.111F.

7.0 Recordskeeping

7.1 Document **Indoor Air Quality (IAQ)** testing on a regular basis

a. **Indoor Air Quality (IAQ)** assessment shall be performed using **I-BEAM** every five (5) years in all facilities with occupied spaces in consultation with the MDPH's IAQ Program.

7.2 Document Preventive Maintenance of items affecting health and safety including but not limited to:

a. Walking surfaces

b. Fall protection systems

c. HVAC systems

d. Electrical power and lighting systems

7.3 Periodically update the facility/building Health and Safety Risk Assessment.

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- American Society Testing Materials International, *Standard Practice for Visual Inspection of Asbestos Abatement Projects,* West Conshohocken, PA, ASTM E1368
- American Society Testing Materials International, *Standard Practice for Maintenance, Renovation, and Repair of Installed Asbestos Cement Products,* West Conshohocken, PA, ASTM E2394
- Massachusetts Department of Public Health. *Indoor Air Quality Program.* http://mass.gov/dph/iaq
- National Institute of Occupational Safety and Health, US EPA, June 1998, *Building Air Quality Action Plan*, DHHS Publication No. 98-123
- US Environmental Protection Agency, *An Introduction to Indoor Air Quality (IAQ) – Improving Indoor Air Quality*, US EPA, Washington, DC, http://www.epa.gov/iaq/is-imprv.html
- US Environmental Protection Agency, *An Introduction to Indoor Air Quality (IAQ) – Do you suspect your office has an indoor air problem*, US EPA, Washington, DC, http://www.epa.gov/iaq/is-build2.html
- US Environmental Protection Agency, 2002, *IAQ (Indoor Air Quality)Building Education and Assessment Model (I-BEAM)*, US EPA, Washington, DC, Only available on-line
- US Environmental Protection Agency, October 1997, *An Office Building Occupant's Guide to Indoor Air Quality*, US EPA, Washington, DC, EPA-402-K-97-003
- US Government Printing Office, December 1991, *Building Air Quality, A Guide for Building Owners and Facility Managers*, SSOP, Washington DC, ISBN 0-16-035919-8
- US Occupational Safety & Health Administration, February 1979, *Code of Federal Regulations for Construction,* OSHA, Washington DC, 29 CFR Part 1926 Subpart D

Related Metrics

- Current Health and Safety Risk Assessment
- Current Facility Health and Safety Plan
- Current and accurate data: workplace injuries, illnesses and deaths
- Current test documentation: IAQ, electrical preventive maintenance, fall protection equipment inspection

Title	Standard No./Revision No.	Date
Emergency Management	FMMS 09 / REV. 1	March 1st, 2016

Purpose and Scope

This Emergency Management Standard establishes standardized approaches for disaster/emergency management planning and business continuity in addition to facility-specific mitigation planning to minimize the impacts of a disaster while protecting life and property. Events to which this standard is applicable to includes, but is not limited to:

- Weather related natural disasters, including blizzards, hurricanes, tornados, and floods
- Human-caused events such as work stoppage, acts of terrorism, attacks, and other acts of workplace violence
- Technology related events including unforeseen failures of structural, architectural, mechanical, or electrical systems

This standard describes the relationship and interface requirements with the **Massachusetts Emergency Management Agency (MEMA)** as the state agency with primary responsibility for the state's disaster response. MEMA ensures the Commonwealth's ability to rapidly recover from disasters by assessing and mitigating hazards, enhancing preparedness, ensuring effective response, and building the capacity to recover.

Executive Order 469 Designation of the National Incident Management System as the Commonwealth's Incident Management Standard requires Massachusetts to incorporate the National Incident Management System (NIMS) into its Emergency Operations Plan as a prerequisite for receiving Federal funding. NIMS specifies standardized terminology, unified command structures, consolidated action plans, uniform standards for personnel qualification, planning and training, comprehensive resource management, and designated incident facilities during emergencies or disasters.

Commonwealth of Massachusetts Comprehensive Emergency Management Plan (CEMP) (Base Plan and ESF Annexes) dated July 2013. This plan supersedes the previously issued CEMP dated 2011 and provides a flexible framework for emergency operations in the Commonwealth. The CEMP describes the system that will be used by the Commonwealth to prevent, prepare for, respond to, and recover from an emergency or disaster. The CEMP is an all hazards plan and was drafted in accordance with relevant federal and state laws, and conforms to federal guidance, including the Comprehensive Preparedness Guide (CPG-101), National Response Framework (NRF), and **National Incident Management System (NIMS).** The CEMP also complies with the Emergency Management Standard published by the Emergency Management Accreditation Program (EMAP).

Specific requirements and responsibilities can be reasonably varied in the Service Level Matrix (SLM) agreed upon by DCAMM and the user agency.

Related Standards

The Emergency Management Standard includes requirements that are addressed within other Standards included within the overall Facility Maintenance and Management Standards (FMMS). The following is a list of referenced Standards:

- FMMS 01 Security
- FMMS 15 Accessibility
- FMMS 16 Fire Safety
- FMMS 17 Wayfinding

Summary

The following topics and their related requirements are included in the Emergency Management Standard and detailed under the "Requirements" section of this document:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Business Continuity is the continuing of operations and services under adverse conditions due to threatened or actual natural disasters and human-caused or technology-related events.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as Commonwealth owned.

Disaster/Emergency Management is an ongoing process to mitigate, prepare for, respond to, maintain continuity during and recover from an incident that threatens life, property, operations, or the environment. Emergency Management, in order to lessen the impact, must be

comprehensive, progressive, risk-driven, integrated, collaborative, coordinated, flexible, and professional.

The **Emergency Management Institute (EMI)** a component of FEMA directly supports the implementation of the National Incident Management System (NIMS), the National Response Framework (NRF), the National Disaster Recovery Framework (NDRF), and the National Preparedness Goal (NPG) by conveying necessary knowledge and skills to improve the nation's capability.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

The **Federal Emergency Management Agency (FEMA)**, as part of the U. S Department of Homeland Security, coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all Federal disasters, whether natural or man-made, including acts of terror. FEMA provides expertise and resources to support local and regional governments in emergency planning, preparation, response and recovery.

An **Incident Management Team (IMT)** is a group of representatives from public safety departments (i.e. fire, law enforcement, EMS, et al.) trained to serve in Command and General Staff positions during the initial hours following an emergency. An IMT can respond to a wide range of emergencies including fires, floods, earthquakes, hurricanes, tornadoes, tsunamis, riots, spilling of hazardous materials, and other natural or human-caused incidents.

The **Massachusetts Emergency Management Agency (MEMA)** is the state agency charged with ensuring the state is prepared to withstand, respond to, and recover from all types of emergencies and disasters.

Mitigation refers to the structural and non-structural actions taken to lessen the impact of a hazard to the building through the review of possible risks.

National Incident Management System (NIMS) is administered by the US Department of Homeland Security and is referenced in FEMA Publication P-501. This publication provides a consistent nationwide template to enable Federal, State, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Preparedness - refers to ongoing activities, tasks, and systems to develop, implement, and maintain program capabilities. This is completed by a cycle of planning, organizing, training, equipping, exercising, evaluating, and improving.

Prevention refers to preventing hazards to humans, primarily from potential natural disasters, accidents, or human acts of violence.

Recovery is the process of bringing the affected building and its operations back to business continuity and some degree of normalcy.

Response is the effort to mitigate the impact of an incident on the public and the environment.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Accessibility Standard and its requirements throughout **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** shall work with the User Agency ADA Coordinators to identify their specific accessibility needs and concerns at the facility, including, but not limited to, security procedures, maintenance schedules, housekeeping, and signage

1.3 The **OFMM Director of Operations and Maintenance** shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

d. DCAMM ADA Coordinator

e. User Agency ADA Coordinators and/or on-site managers

1.4 DCAMM designee responsibilities shall include the following tasks:

a. Verification with the **Facility Manager** and **Incident Management Team** that the plan meets the requirements of Executive Order 469

b. Review of the Emergency Management Plan with the Facility Manager and Incident Management Team to ensure that it functions as intended

c. Verification that the plan is consistent with all applicable Commonwealth statutes, regulations, polices, and procedures

d. Provision of assistance to the Incident Management Team and Facility Manager during the execution of all phases of the emergency management plan

1.5 The **Facility Manager** is responsible for the following tasks:

a. Verification (with the **Incident Management Team**) that the Emergency Management Plan meets the requirements of Executive Order 469

b. Assisting the Incident Management Team in executing the plan

c. Testing and improving the plan in collaboration with the Incident Management Team

d. Assisting the Incident Management team during an emergency

1.6 The Incident Management Team is responsible for the following tasks:

a. Establishing a facility-specific Emergency Management Plan in accordance with the CEMP including coordination emergency first responses, notification/reposition requirements

b. Verifying (with the Facility Manager and DCAMM) that the plan meets the requirements of the CEMP

c. Communicating the plan to the occupant agency liaison

d. Executing the Emergency Management Plan

e. Testing and improving the plan with critical personnel

f. Managing the Plan continuously and during all emergencies

g. Distribution of DCAMM's Emergency Response Guide

h. Evaluating, assessing, and reporting following each incident

1.7 It is the responsibility of the occupant agency occupants, suppliers, and visitors to adhere to the emergency plan during testing and during an actual disaster/emergency.

2.0 Implementation

2.1 Disaster prevention activities shall focus on:

a. Preventing injury to building occupants and visitors to the property

b. Providing permanent protection from disasters

c. Preparing and implementing a facility-specific Disaster Management Program that includes the following elements:

- Identification of goals and objectives for the Disaster Management Program
- Identification of the present condition of the facility and repairs and upgrades that are needed to meet Program requirements
- Identification of all functions performed in the building operation to determine the minimum deliverable Program requirements
- Establishment of minimum deliverable requirements and responsibilities for the Program

d. Performing a comprehensive Hazard Identification and Risk Assessment to identify risks of natural disasters and human-caused events, as well as the potential effects of such disasters including:

- The vulnerability of occupant agency occupants and visitors
- The vulnerability of the facility/building

- The potential risks to the environment if a disaster/emergency affects a facility/building
- Operations within the facility/building that could be disrupted by a disaster

e. Performing an annual review of the Hazard Identification and Risk Assessment

f. The following are general requirements for multiple facility types; it is the responsibility of the Facility Manager, however, to ensure that all facilities maintenance staff and contracted service providers follow all current rules, regulations, policies, and procedures relevant to the specific operational/programming requirements of occupant agencies in the facility.

2.2 Mitigation activities shall focus on:

a. Assessing all potential non-preventable risks at the facility/building

b. Designing and implementing procedures to minimize identified risks

c. Training facility/building occupant agency occupants on proper emergency procedures

2.3 Preparedness activities shall focus on:

a. Preparing emergency equipment and procedures for use when a disaster occurs, including:

- Sources and locations for temporary shelter within the facility /building that do not put occupant agency occupants at risk
- A 24/7 communication system for the facility/building that can be utilized immediately in the event of an emergency
- Back-up utility services that can support critical facility/building functions
- Simulated evacuation drills from the facility/building, with required participation by the Facility Manager and occupant agency occupants

b. Preparing a 24/7 Emergency Preparedness Plan that addresses the following areas:

- Resource management
- Emergency response
- Communications
- Business continuity
- Information technology
- Employee assistance
- Incident management

c. Preparing a test plan for the 24/7 Emergency Preparedness Plan that addresses the following elements:

- The continuing ability of the plan to meet minimum requirements
- Definition of the different types of exercises required to fully test the plan
- Exercises that include all critical functions required to operate the facility/building that are consistent and are conducted on a regular basis

Results from the tests are used to evaluate plan effectiveness

2.4 Response activities shall focus on:

a. Determining and prioritizing the requirements for evacuation of the facility/building

b. Recording and retaining the requirements for shelter-in-place at the facility/building

c. Determining and prioritizing the requirements for lock-down of the facility/building

d. Coordinating all disaster response with first responders and **MEMA**

2.5 Recovery activities shall focus on:

a. An orderly transition from the response phase

b. Identification and reporting of all potential ~~of~~ off-site temporary recovery locations

c. Restoration of normal facility operations by performing the following tasks:

- A complete and accurate damage assessment by the facility manager
- Removal of debris to an offsite location
- Restoration of facility/building utility services as quickly as possible
- Restoration of access and transportation to the facility/building as quickly as possible

d. Ensuring Effective Business Continuity so that critical functions are available to occupant agencies, suppliers, and others

3.0 Materials and Equipment

3.1 At a minimum, the facility/building shall have the following safety equipment readily available:

a. Fire extinguishers

b. Automated External Defibrillator (AED) (facility appropriate)

c. Displayed emergency contact information

d. Displayed Emergency exit plan

e. Signs highlighting emergency exits

f. Emergency lighting

g. First aid kits

h. Emergency communication equipment

3.2 For the comfort of facility occupants and visitors; in case of a hazard, the following

shall be kept on hand:

a. Fresh (bottled) water
b. Blankets
c. Flashlights
d. AM/FM Radio
e. Extra batteries
f. Personal sanitation items

4.0 Regulatory Compliance

4.1 In case of facility evacuation, ensure that the emergency evacuation plan is in place and clearly displayed.

4.2 In case of emergency, the incident management team shall inform facility/building occupants and visitors of the proper response.

4.3 After evacuation the incident management team shall account for all occupants and visitors at designated staging areas.

4.4 In case of emergency, establish communications between the **Incident Management Team**, the **Facility Manager**, local emergency authorities, and **MEMA**.

5.0 Training

5.1 Personnel who perform critical functions before, during, and after inclement weather or a disaster shall be designated to receive Incident Management Team training. Training will follow all applicable industry standards for emergency management.

a. Identify any DCAMM individuals that perform critical functions
b. Identify occupant agency facility/building liaison for interface with DCAMM and facility manager as well as emergency reporting, notification requirements
c. Identify backup replacements for critical functions
d. Personnel are to be trained according to **NIMS** standards
e. Periodically perform refresher training on a consistent basis
f. Receive training in DCAMM's Emergency Response Guide

5.2 The emergency preparedness plan will be managed and communicated to the occupant agency liaison by the facility manager and the Incident Management Team

6.0 Communication

6.1 DCAMM is responsible for communicating the following information to the facility manager:

a. Any changes at the occupant agency
b. Any Memorandum of Understanding or Agreement (MOU or MOA) with the

occupant agency or other involved agency

c. Any changes in training and requirements for the facility manager, Incident Management Team, and occupant agency liaison generated by **MEMA** or **FEMA**

6.2 The **Facility Manager** is responsible for communicating the following information to DCAMM and the Incident Management Team:

a. Any changes in the condition of the facility/building that could affect emergency management

b. Any changes in training requirements for the Incident Management Team and the occupant agency

c. Any changes for Hazard Identification and Risk Assessment as generated from the annual review

6.3 DCAMM's Incident Management Team shall report to the relevant Secretariat leadership (as well as to DCAMM, the **Facility Manager**, and **MEMA**).

a. Any changes to the emergency management plan as a result of plan reviews

b. The occurrence of a disaster/emergency at the facility to DCAMM, the Facility Manager, and MEMA

c. The status of an ongoing disaster/emergency until (or if) First Responders arrives at the scene

d. Any additional requirements to DCAMM and the Facility Manager as a result of the disaster/emergency

e. The status of the recovery operation to the Occupant Agency Liaison, the Facility Manager, and DCAMM

6.4 The Occupant Agency liaison is responsible for the following communication to the **Facility Manager** and Incident Management Team:

a. Any potential hazards

b. Any problematic issues with emergency exits

c. Any missing, damaged, or expired safety equipment

7.0 Recordskeeping

7.1 DCAMM shall review the Emergency Preparedness Plan with the Incident Management Team and Occupant Agency Liaison on a regular basis

7.2 Methods shall be defined to evaluate the Emergency Response Guide

7.3 The review of the Plan shall be used to make necessary changes and plan improvements

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- Bringing the Plan to Life, Implementing the Hazard Mitigation Plan, August 2003, FEMA Publication FEMA 386-4;
- Commonwealth of Massachusetts Comprehensive Emergency Management Plan (CEMP) dated July 2013
- Developing the Mitigation Plan, Identifying Mitigation Actions and Implementing Strategies, April 2003, FEMA Publication FEMA 386-3;
- Getting Started, Building Support for Mitigation Planning, September 2002, FEMA, FEMA Publication FEMA 386-1;
- Handbook for Rapid Visual Screening of Buildings to Evaluate Terrorism Risks, March 2009, FEMA Publication FEMA 455;
- Incremental Protection for Existing Commercial Buildings from Terrorist Attack, April 2008, FEMA Publication FEMA 459;
- Integrating Historic Property and Cultural Resource Considerations Into Mitigation Planning, State and Local Mitigation Planning How-To Guide, May 2005, FEMA Publication FEMA 386-6;
- Integrating Human-Caused Hazards Into Mitigation Planning, September 2002, FEMA Publication FEMA 386-7;
- Multi-Jurisdictional Mitigation Planning, State and Local Mitigation Planning, August 2006, FEMA Publication FEMA 386-8;
- National Fire Protection Association 1600, Standard on Disaster/Emergency Management and Business Continuity Programs. NFPA 1600;
- National Incident Management System, U.S. Department of Homeland Security (www.fema.gov/nims)
- National Incident Management System, December 2008, U.S. Department of Homeland Security, FEMA Publication P-501;
- National Response Framework, January 2008, Homeland Security, FEMA Publication P-682;
- Reference Manual to Mitigation Potential Terrorist Attacks Against Buildings, December 2003, FEMA Publication FEMA 426;
- Risk Assessment, A How-to Guide to Mitigate Potential Terrorist Attacks Against Buildings, January 2005, FEMA Publication FEMA 452;
- Threat and Hazard Identification and Risk Assessment Guide, Comprehensive Preparedness Guide (CPG) 201, Second Edition, August 2013;
- Understanding Your Risks, Identifying Hazards and Estimating Losses, August 2001,

FEMA, FEMA Publication FEMA 386-2;

- Using Benefit-Cost Review in Mitigation Planning, State and Local Mitigation Planning, May 2007, FEMA Publication FEMA 386-5;
- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects, State and Local Mitigation Planning How-to Guide, August 2008, FEMA Publication FEMA 386-9;

Related Metrics

- A current Disaster Management Program shall be kept for the facility at a location that is easily accessible by the facility manager and authorized personnel.
- A current Emergency Preparedness Plan for the facility shall be maintained.
- Emergency Preparedness of a building will be measured outside of an incident on improved training, effectiveness, and plan improvements.
- Emergency Preparedness of a building will be measured overall as to how critical functions perform during a hazard as well as the business and technical recovery performance.

Title	Standard No./Revision No.	Date
Energy Management and Sustainability	FMMS 10/ REV. 1	March 1st, 2016

Purpose and Scope

The Energy Management and Sustainability Standard establishes baseline requirements to ensure that all **Commonwealth facilities** are operating efficiently and minimizing energy use and costs in addition to reducing greenhouse gas emissions.

Energy Management and Sustainability is an important part of facility maintenance and management to reduce energy use from daily activities and operations and to reduce wear and tear on equipment. This standard applies to existing buildings (new or old) and all renovations at these facilities; however, it does not dictate requirements for new building construction activities, which are covered by other non FMMS standards.

The basis of this Standard is **Executive Order 484 - Leading By Example: Clean Energy and Efficient Buildings** (E.O. 484), which aims to reduce environmental impacts of state agencies.

E.O. 484 establishes specific high-level environmental goals for all Commonwealth agencies. The specific high-level targets that directly relate to the operations and maintenance of facilities are:

2020 Targets

- 40% reduction in greenhouse gas emissions from 2002 levels
- 35% reduction in energy consumption per square foot from 2004 levels
- 30% of annual electricity consumption from renewable sources (either through purchase of renewable energy or through installation of on-site resources)
- 15% reduction in potable water use from 2006 levels

2050 Targets

- 80% reduction in greenhouse gas emissions from 2002 levels

Specific requirements and responsibilities can be reasonably varied in the Service Level Matrix (SLM) agreed upon by DCAMM and the user agency.

Related Standards

The following DCAMM Standards set forth requirements related to Energy Management and Sustainability:

- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management

- FMMS 05 Routine Maintenance
- FMMS 06 Preventive and Scheduled Maintenance
- FMMS 07 Integrated Pest Management
- FMMS 08 Health and Safety
- FMMS 12 OFMM Project Management
- FMMS 13 Facility Information Management
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility

Summary

The following topics and their related requirements are included in the Energy Management and Sustainability Standards and detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix SLM. This standard applies to leased buildings as well as commonwealth owned.

Commissioning is a quality-focused process for enhancing the delivery of a project. The process focuses upon verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner's Project Requirements.

Continuous Commissioning refers to the process that involves facility staff in regular periodic reviews of equipment performance and calibration.

Demand Response (DR) is a voluntary temporary reduction, or shift in a facility's electricity use, in response to a request from the utility company in order to reduce electrical use during periods when the electrical grid experiences peak demand (e.g. hot summer days). This shift in energy usage is accomplished by several means including switching to on-site emergency generators, and load curtailment (temporarily turning off non-essential equipment).

Energy Master Plan (EMP) refers to a document that establishes a long-term plan for a building or facility's energy systems that steadily moves them toward a sustainable, high performance future (i.e. less energy use, more use of renewable energy, etc.).

ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect the environment through superior energy efficiency.

ENERGY STAR Portfolio Manager is a free online tool that **Facility Managers** can use to measure and track energy and water consumption as well as greenhouse gas emissions. It is used to benchmark the performance of one building or a whole portfolio of buildings.

E-Team Efficiency and Sustainable Buildings Group ("E-Team") is the business unit in DCAMM's Office of Facilities Management and Maintenance charged with reducing energy consumption, utility costs, and greenhouse gas emissions. The team also works to ensure that new construction and major renovation projects meet energy and water efficiency targets.

Enterprise Energy Management System (EEMS) refers to a metering system installed at several State facilities that allows Facility Managers to view energy performance on a real-time basis.

Environmentally Preferable Product (EPP) refers to a product or service that has a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. EPPs include practices that minimize waste, conserve energy or water, reduce the amount of toxins either disposed or consumed, and products with recycled content.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Leadership in Energy and Environmental Design for Interior Design and Construction (LEED ID+C) is a rating system established through the U.S. Green Building Council (USGBC) for certifying "high-performance green occupant spaces that are healthy, productive places to work; are less costly to operate and maintain; and have a reduced environmental footprint. It gives occupants and designers, who do not always have control over whole building operations, the power to make sustainable choices."

Leadership in Energy and Environmental Design for Existing Buildings: Operations and Maintenance (LEED EB: O+M) is a rating system established through the U.S. Green Building

Council (USGBC) that "encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings, while addressing the major aspects of ongoing building operations. All buildings (as defined by standard building codes) are eligible for certification under LEED EB: O&M. It is targeted at single buildings, whether owner occupied, multi-occupant, or multiple-building campus projects. The prescriptive and performance strategies of LEED EB: O&M are intended to provide operational benefits throughout the life of the building. If these strategies are continued, a building can maintain and even improve its performance over time. Projects that certify under any version of LEED for Existing Buildings must recertify at least once every five years in order to keep their certification current."

Leading by Example (LBE) is a State program established via Executive Order 484 that includes energy reduction and renewable energy use targets.

Life Cycle Cost Analysis (LCCA) estimates the true cost of a building or its components over its anticipated lifetime. LCCA includes not only the initial capital cost, but also reflects any available (utility) rebates in addition to operation and maintenance costs calculated in present value.

Mass. Department of Energy Resources (DOER) is the Commonwealth's energy policy office which oversees efforts to ensure deployment of cost-effective energy efficiency measures including the development of clean energy resources, the ensurance of reliable energy supplies, the minimization of clean energy relative costs, in addition to supporting Massachusetts' clean energy initiatives. The DOER Leading by Example Program works with DCAMM and many other agencies to develop strategies and programs to support clean energy and sustainability efforts across state government.

Mass. Department of Environmental Protection (MassDEP) is responsible for ensuring clean air and water, the safe management of toxics and hazards, the recycling of solid and hazardous wastes, the timely cleanup of hazardous waste sites and spills, and the preservation of wetlands and coastal resources throughout the Commonwealth. Through its participation in the Clean Energy Results Program, MassDEP advances environmental protection by promoting the development of renewable energy and energy efficiency projects in Massachusetts through its efforts to reduce barriers to clean and-energy efficient development across the state.

Mass LEED Plus is part of the standards included in EO 484 and applies to all new construction and major renovation projects over 20,000 square feet. This standard includes:

- Certification by the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) program
- Energy Performance 20% better than the Massachusetts Energy Code
- Independent 3rd party commissioning
- Reduction of outdoor water consumption by 50% and indoor water consumption by 20% relative to standard baseline projections
- Conformance with at least 1 of 4 identified smart growth criteria

MassSave® Incentive Program is an initiative sponsored by Massachusetts' gas and electric utilities and energy efficiency service providers, including Columbia Gas of Massachusetts, The Berkshire Gas Company, Cape Light Compact, National Grid, Liberty Utilities, Northeast

Utilities/NSTAR, Unitil, and Western Massachusetts Electric Company. The Sponsors of Mass Save work closely with the Massachusetts Department of Energy Resources to provide a wide range of services, incentives, trainings, and information promoting energy efficiency that help residents and businesses manage energy use and related costs.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Owner's Project Requirements refers to a written document that details the functional requirements of a project and the expectations of how it will be used and operated. These include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

Retrocommissioning Is the application of commissioning an existing facility, to improve the facility's performance by identifying opportunities for operational improvement increase occupant comfort and save energy.

Water Best Management Practices are implemented by facility staff to reduce water consumption by both building interior and exterior uses. These include but are not limited to: landscaping with native (and/or drought resistant) plants, capturing rainwater, using soil amendments, encouraging use of water filling stations, aerators on sinks, dual flush valves, etc.

Requirements[9]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements throughout **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 This Standard applies to activities that affect energy use and sustainability at all existing facilities under the care and control of DCAMM, and shall be followed by **facility managers**, **facility maintenance staff**, and contracted service providers.

1.4 Facility Managers and Staff

a. Carry out facility operation and maintenance activities to optimize energy efficiency,

[9] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

including managing operations and load.

b. Establish facility-specific processes and procedures to reduce energy use.

c. Ensure that the facility supports all applicable statewide goals established for sustainability, energy, and water use.

d. Ensure that the operation of the facility is in compliance with environmental rules and regulations.

e. Work with the **E-Team** to carry out Energy Projects.

f. Conduct periodic energy system assessments and report findings to E-Team.

g. Comply with all requirements for tracking and reporting of energy and water use data.

h. Work with DCAMM and/or contracted service provider to ensure all energy and water projects apply for and receive maximum utility incentives.

i. Provide information and education to staff, service providers, and occupants to reduce energy and water use in the building.

j. Participate in Demand Response programs.

1.5 General Contracted Service Providers (i.e. janitorial, landscape, etc.)

a. Comply with any processes and procedures in place at the facility for reducing energy and water use related to the specific type of contracted service.

b. Comply with all energy and sustainability related requirements included in the statewide service contract in place for the services being provided (i.e. creation of an Environmental Plan and Environmentally Preferable Purchasing).

1.6 DCAMM and the **Energy Efficiency and Sustainable Buildings Group (E-Team**)

a. In collaboration with Leading by Example develop and implement a state government wide policy that encourages employees and service providers to reduce energy use.

b. Ensure that facilities support established statewide sustainability goals, rules, and regulations.

c. Oversee the implementation of energy projects and programs including, but not limited to, the **Accelerated Energy Program (AEP).**

d. Manage and administer energy and water projects under Chapter 25A, Section 11C, and Section 14.

e. Coordinate agency participation in **MassSave®** incentive programs.

f. Develop renewable energy projects.

g. Implement and manage financing programs necessary to fund energy and water conservation projects.

h. Provide advice and assistance to DCAMM staff (including **Facility Managers**) on incorporating sustainable design and energy efficiency in major renovation projects

and assist with **Life Cycle Costing Analysis** of proposed projects.

i. Manage and participate in electricity grid initiatives such as, Alternative Portfolio Standards, Renewable Energy Credits, Demand Response, and Forward Capacity Market programs.

j. Manage **LEED** registration and certification (LEED for Existing Buildings: Operations and Maintenance, and LEED for Interior Design and Construction).

k. Provide technical assistance on energy efficiency, pollution prevention, technology developments, and program opportunities.

l. Coordinate with DOER and **Leading by Example** on state facilities program development, grant applications and reporting.

2.0 Implementation

2.1 Utilize all available tools (i.e. equipment, operational processes and procedures, energy information, utility incentives, education, etc.) to reduce energy use at the facility.

a. Energy reduction shall not negatively interfere with, or prevent, the day-to-day activities of the building occupants.

2.2 Identify opportunities to implement innovative and cost-effective measures for energy use reduction at the facility.

2.3 Develop and implement a continuous commissioning program at appropriate **Commonwealth facilities**.

2.4 Daily Energy Management Activities:

a. Implement energy management practices for activities that are part of the day-to-day use of the facility and daily task related equipment (not including Mechanical, Electrical or Plumbing systems).

b. Ensure that all equipment and appliances for use at the facility comply with the Commonwealth's **ENERGY STAR** requirements and all relevant state procurement guidelines at time of purchase and during operation

c. Where real-time energy data is available, review and utilize such data on a regular basis to identify buildings that are not performing at an acceptable standard and make changes to schedules, equipment and/or building systems to bring buildings into acceptable energy use parameters.

2.5 Energy Contracts

a. Contract for services to implement projects that lead to a reduction in energy and water use at the facility.

b. Work with DCAMM **E-Team** to identify the appropriate contract type, develop procurement documents, review proposals, and coordinate implementation.

2.6 Demand Response

a. Work with DCAMM to enroll in, and meet the requirements for participation of the facility in the ISO New England (ISO-NE) Demand Response Program.

b. Contracted service providers shall provide support services for facilities enrolled by the Commonwealth in the Forward Capacity Market.

2.7 Work with the **E-Team** and contracted service providers to complete a Life Cycle Costing Analysis of any major energy projects proposed for the facility.

2.8 Facility Manager and contracted service providers will participate in major renovation projects to ensure that the project meets all Mass **LEED Plus** goals.

2.9 Encourage environmentally preferable transportation options.

a. Provide opportunities for all building users to access alternative transportation to access the building at facilities where alternative transportation is available.

b. Provide preferred and/or discounted parking to facility occupants commuting to the facility in ways that reduce fuel use and greenhouse gas emissions.

3.0 Materials and Equipment

3.1 Energy Performance Contracting Program

a. Enables the state facility to upgrade energy and water related equipment with little or no up-front investments.

b. Enables the state to take advantage of innovative products and financing.

3.2 The procurement of all materials and equipment by a facility manager, facilities' staff, and/or contracted service providers shall comply with *E.O. 515: Environmentally Preferable Products*.

3.3 Products shall conform to all Federal, State, and local standards for quality and safety requirements.

3.4 The Facility Manager shall work with facility staff, DCAMM, and contracted service providers to ensure that all equipment specified and procured for the facility is high-efficiency and appropriate for the specific application.

3.5 Ensure all purchases of materials and equipment meet utility incentive requirements for energy and water use reduction and maximize utility incentives opportunities.

3.6 As per EO484 and EO515, replace all incandescent lighting with LED or Fluorescent lamps unless prevented by special circumstances resulting from legal and/or safety requirements for the specific facility and fixture location/type.

3.7 Maintain a list of all materials and equipment purchased for the facility and enter all information into CAMIS when appropriate.

4.0 Regulatory Compliance

4.1 Ensure compliance with the most current version (unless otherwise stated) of all applicable codes, laws and regulations.

4.2 Ensure all service providers are current on all applicable health and safety training

related to the services they provide and the products they use on a regular or infrequent basis. (i.e. OSHA, Massachusetts Right to Know Laws)

5.0 Training

5.1 Specific training requirements under each contract for procured services are based on the actual type of facility and service required. All training shall be consistent with the specific operational/programming requirements of the occupant agencies in the facility.

5.2 **Facility Managers**, staff, and contracted service providers shall provide and receive ongoing training not only on new equipment at the facility, but also on innovative new technologies that can reduce energy and water use.

5.3 Service providers must include training and/or education and outreach for facility managers, facility staff, and occupants as part of their contracted services.

5.4 A training program will be established to ensure that facility staff has appropriate skills to operate equipment and systems efficiently.

6.0 Communication

6.1 Work with occupants to reduce energy use through their daily activities.

6.2 Ensure regular communication with DCAMM **E-Team** and DOER on energy and water savings projects.

6.3 Inform occupants on the status of projects implemented at the facility to reduce energy and water use.

6.4 Provide information to occupants on building energy and water performance.

7.0 Tracking

7.1 All facilities will track and report on energy use to meet DOER and Leading by Example requirements.

a. Facility Managers shall ensure annual reporting to DOER

b. Facility managers or other appropriate staff shall provide updates to DOER on any changes to utility accounts

7.2 All facilities that have real-time energy metering in place shall conduct regular energy performance reviews at least weekly to ensure energy performance is being maintained and that equipment, systems, and schedules are performing as designed.

7.3 All projects shall have a Life Cycle Costing Analysis completed with the assistance of the E-Team and contracted service providers as applicable by law.

7.4 Consider the use of Energy Star Portfolio Manager to benchmark facility performance against other similar facilities.

7.5 All service providers must provide annual **EPP** purchasing data typically within 90 days of the close of each fiscal year

7.6 All service providers awarded statewide contracts will need to provide demonstrated

energy savings (cost and use), including but not limited to limited time special pricing, efficient products, energy efficiency rebates and others.

Tools and Resources

All tools and resources related to the Security Standard are included in an appendix to the complete FMMS.

- Commonwealth of Massachusetts Leading by Example (LBE) Program: http://www.mass.gov/eea/leadingbyexample
- DCAMM Energy and Sustainability: http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/energy-and-sustainability/
- DCAMM Energy and Sustainability Services. http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/energy-and-sustainability/other-services/
- DCAMM Life Cycle Cost Analysis Requirements: http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/energy-and-sustainability/other-services/life-cycle-cost-analysis.html
- Demand Response and the Forward Capacity Market (FCM): http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/energy-and-sustainability/other-services/demand-response-and-forward-capacity-market-fcm.html
- The Federal Energy Management Program (FEMP):
- International Organization for Standards. *ISO 50001 International Energy Management System Standard*
- Leadership in Energy and Environmental Design (LEED), Existing Buildings: Operations and Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Leadership in Energy and Environmental Design (LEED), Existing Buildings: Operations and Maintenance Rating System v2009.
- Massachusetts Executive Order 515, Establishing an Environmental Purchasing Policy
- Operational Services Division (OSD) FAC56: Request for Response (RFR) , Demand Response Services

Related Metrics
• Energy Use • Energy costs for DCAMM facilities • List of Incentives received and dollars awarded • Energy Conservation Measures implemented and payback • Life Cycle Cost Analysis of all Energy Conservation Measures, when applicable. • Leading by Example program tracking metrics, including energy use per sq. ft., greenhouse gas emissions, water use, and percent renewable energy. • Energy Star Portfolio Rating

Title	Standard No. /Revision No.	Date
Space Management	FMMS 11/ REV. 1	March 1st, 2016

Purpose and Scope

The **Space Management** Standard establishes baseline requirements for allocating and managing space in **Commonwealth facilities** at the building level to ensure the appropriate assignment of space. The Space Management Standard focuses on the maintenance of accurate building occupancy information and consistent space management parameters to assist DCAMM and **facility managers** in meeting the needs of each **User Agency.**

Space management practices in **Commonwealth facilities** shall:

- Establish consistent methodology to measure space (floor areas such as usable and common space) and calculate the operation and management costs for each facility.
- Ensure the efficient use of existing space.
- Accurately report and track current space use to forecast future requirements. Ensure that if design occupancy is exceeded, commensurate modifications related to heating, ventilation, and air-conditioning are implemented.

Space management shall be consistent across all **Commonwealth facilities** and coordinated with the specific program needs and regulatory requirements of both the facility type and **User Agency**. The specific regulatory requirements of specialized facilities such as hospitals and correctional institutions are addressed in facility-specific supplements to the Facility Maintenance and Management Standards (FMMS). Implementation of all activities under this Standard shall ensure, and when appropriate, enhance accessibility for facility **occupants.**

The **Space Management Service Delivery and Performance Objectives** that support this Standard detail the activities required for successful implementation of the Space Management Standard as well as the specific performance objectives.

A **Service Level Matrix (SLM)** between DCAMM and the User Agency shall be established to detail specific space management tasks and their service level at each facility.

Specific requirements and responsibilities can be reasonably varied in the **SLM** agreed upon by DCAMM and the user agency.

Related Standards

The following FMMS also include references and/or requirements related to this Space Management Standard:

- FMMS 05 Routine Maintenance
- FMMS 06 Preventative Maintenance
- FMMS 13 Facilities Information Management

- FMMS 12 OFMM Project Management
- FMMS 15 Accessibility
- FMMS 17 Wayfinding

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Training

5.0 Communication

6.0 Recordskeeping

Definitions

All terms defined below are also identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is provided as an appendix to the FMMS.

AutoCAD: A computer-aided design (CAD) program used for 2-D and 3-D design and drafting. AutoCAD allows users to design a building and structure and its components in 3-D, annotate the model with 2-D drafting elements, and access building information from the building's model database.

Building Amenity Areas: Areas within a building or building complex that house services which are helpful to the building **occupants** and whose presence is a convenience. Examples include food facilities, copying services, express mail collection, fitness centers or child care centers.

Building Code: A defined body of rules that govern and constrain the design, construction, alteration, and repair of buildings. Such codes are based on requirements for the safety, health, and quality of life of building **occupants** and neighbors, and vary from city to city.

Building Information Modeling (BIM): The development and use of a computer software model that serves as a digital representation of physical and functional characteristics of a facility to simulate its construction and operation. The resulting BIM is digital representation of the facility from which data may be extracted and analyzed to make decisions and improve the maintenance and operation of the facility.

Building Rentable Area: The actual square-unit of a building that may be leased or rented to **occupants**, and upon which lease or rental payments are computed. It usually excludes common areas, elevator shafts, stairways, and space devoted to cooling, heating, or other

equipment.

Building Service Area: Areas that serve building maintenance and operation. This type of space generally includes janitor's closets, receiving areas, loading platforms, trash rooms, and building storage areas.

Building Usable Area: Measured to predominant inside of exterior wall (Predominant face of wall is the inside finished surface that constitutes 50% or more of the vertical dimension between the finished floor and finished ceiling) and mid-point of occupant to occupant wall, and outside of common space wall – no deductions for interior structural elements.

Circulation spaces: The primary means of moving from one space to another within a building or in or out of the building itself. Circulation spaces include hallways, vestibules, corridors and lobbies.

Common Areas: These areas provide space for floor service, floor amenity, building service, and building amenity areas.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the **User Agency** and the negotiated **Service Level Matrix (SLM)**. This standard applies to leased buildings as well as commonwealth owned.

Facility Manager: The person responsible for the maintenance and operation of a facility, which includes oversight of all internal and external service providers.

Facility Staff: Internal service providers reporting to the **facility manager** for maintenance and the operation of a facility.

Finish Surface: The wall or ceiling surface, but excluding the thickness of special finishes applied by the occupant.

Floor Amenity Area: The space on a floor that provides convenience to more than one occupant.

Floor Rentable Area: The gross measured area minus the area of vertical penetrations.

Floor Rentable to Usable Ratio: The Floor Rentable Area divided by the Floor Usage Area. It is used to calculate the portion of use of the common area to the office area.

Floor Service Area: An area of a floor that provides the services necessary for occupancy on that floor, including elevator lobby, janitor closets, utility rooms, toilet rooms, and common corridors.

Floor Usable Area: The gross measured area less the floor service and floor amenity areas less the vertical penetrations.

Gross Areas of a Building: Standard Methods of Measurement (ANSI/BOMA Z65.3-2009) - Provides a uniform basis which is used to compute, communicate and compare the measurement of buildings by gross building area and other floor area measurements.

Gross Building Area: The total constructed area of the building. It is the area used for appraisals, tax assessments, and parking tabulations. It is not to be used as the rentable area

of the building since it includes exterior walls and shafts.

Gross Measured Area: The area measured to the dominant portion of exterior walls, finished common area walls, and the centerline of walls that separate different occupants within the building. The measured area excludes major vertical penetrations.

OFMM Director of Operations and Maintenance Responsible for managing customer needs of user agency personnel.

Major Vertical Penetrations: Building elements such as stairs, elevator shafts, chases, chimneys and duct shafts, including their enclosing walls.

Net Floor Area: The type of floor area available to the occupant for a specific purpose that is used for rent calculations.

Occupants: Individuals that occupy space either because they are employed by the **User Agency** or by a Licensee of the User Agency.

Occupant Area: The same as Office Area; it is the area of a building occupied by an occupant that houses personnel, equipment, fixtures, furniture, and supplies.

Office Area: The lease space occupied by and for the exclusive use of the **occupant.**

Office Buildings: Standard Methods of Measurement (ANSI/BOMA Z65.1-2010) - This BOMA standard provides guidelines for measuring useable space in both existing and new sites by taking a building wide approach to floor area measurement. It identifies and assists in measuring both occupant space as well as the space that benefits all occupants.

Omni Class: A classification table that is used to name building spaces on floor plan documentation.

Portfolio: A financial term for a collection of investments.

Revit®: Software specifically built for **Building Information Modeling (BIM),** empowering design and construction professionals to bring ideas from concept to construction with a coordinated and consistent model-based approach. Revit is a single application that includes features for architectural design, MEP and structural engineering, and construction.

Service Level Matrix (SLM): The agreement between the **User Agency** and the **Facility Manager**/DCAMM that combines information on the scheduling of all contracted services and their expected delivery period(s). It clearly states metrics, responsibilities and expectations and ensures that both parties have equal understanding of service requirements.

Space Information Management: Spatial information taken directly from drawings or **BIM** models.

Space Management: A comprehensive system for centralizing and storing real-time information about building(s), space under management and occupants.

Space Management Plan: Development and maintenance of a facility space inventory that assists in the analysis of capital outlay budget requests for new construction, renovation and other space-related factors.

Space Management Services Providers: The parties responsible for completing all space management-related activities for the facility. The space management service providers at the

facility are internal facility staff, external contracted providers, or both.

Space Utilization: The application and use of building/facility floor space.

User Agency: The state agency that has the legal right to occupy and use a space for its agency mission. A User Agency may have the exclusive use of an entire building, or in a multi-agency building it may have the exclusive use of a part of a building coupled with the right to use common areas jointly with others.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 DCAMM shall:

a. Support the efficient space management of **Commonwealth facilities** including:

- Determination of facility/building rentable areas
- Development and implementation of a space management plan.
- Review of overall expenses to determine how to reduce occupancy costs.
- Production of accurate charge back reports
- Management of space inventory
- Publication of space and occupancy information

1.4 The **Facility Manager** shall:

a. Measure and update facility/building areas.

b. Translate facility/building measurements to **BIM.**

c. Collect operational and maintenance costs of the building/facility.

d. Conduct space audits and report to DCAMM annually or as warranted by changes in space needs. Communicate with HR departments to maintain current occupant data.

e. Collaborate with each user agency to maintain occupancy data.

f. Conduct regular reviews of the **space management plan** to adjust for changes.

1.5 All Service Providers shall:

a. Provide space management services specific to both the **User Agency** space(s) and to the facility common spaces as identified in the space management services provider contract.

b. Comply with all legal requirements applicable to **space management** and the specific User Agency as outlined in the **SLM.**

1.6 The **User Agency** shall:

a. Implement strategic planning processes for space utilization that aligns space to support the user agency's strategic goals and maximizes the efficient use of space through consolidation.

b. Coordinate **User Agency** strategic plan information with DCAMM **space utilization** standards

c. Provide accurate updates of **User Agency** occupancy information to the **Facility Manager**.

2.0 Implementation

2.1 Measure and document the site's gross and net area including the following measurements:

a. **Floor Usable Area** for each occupied floor level

b. **Floor Service Area** for each occupied floor level

c. **Floor Rentable Area** for each occupied floor level

d. **Ratio of Rentable to Usable Floor Area**

e. **Building Amenity Area**

f. **Rentable Area** (office area plus allocated common areas)

2.2 Develop a **space management plan** using the following information:

a. Different types of spaces

b. Space standards

c. **Building codes**

2.3 Determine ways to reduce occupancy costs by identifying and reducing vacancy and managing output density.

2.4 In collaboration with **User Agency**, plan for making the most of existing space by re-purposing vacant space and avoiding new leases and construction.

2.5 Produce accurate charge back reports.

2.6 Manage space inventory

2.7 Allocate space to the **User Agency:**

a. Access shared spaces and circulation

b. Assign chargeback rates by actual building operating cost

2.8 Manage occupancy

2.9 Publish space and occupancy information

2.10 Create an inventory showing all spaces within the portfolio and key attributes such as the type of space, size, and design characteristics. Maintain the inventory in **CAMIS** by documenting changes through integrations, refurbishments, acquisitions, or dispositions.

2.11 Allocate space to various **User Agencies**.

2.12 Provide the data necessary for cost recovery of operating expenses through space chargebacks.

2.13 Manage requests for additional space by identifying underutilized space or procuring new space via lease or property acquisition.

2.14 Annually maintain accurate drawings that reflect up-to-date depictions of occupancy for a given property.

2.15 Complete on-going data quality audits to ensure that space inventory is up to-date and all allocated space is being used as agreed by **User Agencies.**

2.16 Ensure floor plans are up-to-date for **Commonwealth facilities** based on availability of drawings through the following electronic methods: (refer to FMMS 13).

a. Use **BIM** to document floor plans for facilities without existing **AutoCAD** or BIM drawings.

b. Maintain distinct data sets for documenting the facility's floor plans with separate layers derived from **Auto CAD** or **BIM** files for facilities currently documented in AutoCAD or BIM.

2.17 Maintain current information on space occupancy and space utilization including:

a. **User Agency**

b. Number of personnel

c. Individuals assigned to work spaces

d. Functional space type using **Omni Class** Table 13

2.18 Identify areas within the facility that are not in compliance with DCAMM **space utilization** standards and document the resolution of any deviations.

2.19 Develop and maintain accurate calculations of management and operations costs to be borne by the **User Agency**, based on **rentable area** calculations.

2.20 Review costs periodically to verify that allocations are accurate and that all costs associated with the operation and management of the facility are fully accounted for in

the cost allocation specified for each occupant.

2.21 Prepare charge-back reports for each **User Agency**.

2.22 All **Space Utilization** services shall use procedures and practices in compliance with all applicable standards including:

a. Assignment of space in compliance with DCAMM guidelines and standards

b. Review space allocation and utilization in each facility.

- Prepare a Space Allocation and Utilization Report for the facility, identifying all **user agencies** and the respective floor areas they occupy as a percentage of the total net rentable area.
- Review spaces by type (**Omni Class 13**) in each facility (e.g. training rooms, meeting rooms) to identify areas where space utilization efficiency can be increased.

3.0 Materials and Equipment

3.1 **AutoCAD** software package

3.2 **Revit** software package

3.3 **BIM** software package

4.0 Training

4.1 Select **DCAMM staff** shall be trained to access and enter data into the DCAMM **AutoCAD and Revit** programs.

4.2 Select **DCAMM staff** shall be trained to access and input into the DCAMM **BIM** program.

5.0 Communication

5.1 DCAMM is responsible for communicating the following:

a. All published space and occupancy information about the facility.

b. Space Allocation and Utilization Report for the facility.

5.2 The **Facility Manager** is responsible for communicating the following:

a. Accurate updates of **User Agency** occupancy information to DCAMM Office of Interior Planning, Design and Management.

b. Updates to the **User Agency** of any new occupancy information.

c. Operational and maintenance costs collected at the facility/building.

d. Updates to DCAMM of any changes initiated by the **User Agency**.

6.0 Recordskeeping

6.1 Regularly updated **CAD** and **BIM** drawings and databases.

6.2 Database of all gross, rentable, usable, and assignable areas by space and floor.

6.3 Different space types within the facility.

6.4 Preparation of accurate charge back reports.

Tools and Resources

All tools and resources related to the **Space Management Standard** are included in both an appendix to the complete FMMS and in the service level matrix for the Standard.

- ANSI/BOMA Z65.1-2010: Standard Methods of Measurement (Office Space)
- ANSI/BOMA Z65.3-2009: Standard Methods of Measurement (Voids)
- Division of Capital Asset Management and Maintenance (DCAMM) Leasing: Current Area Calculation Methodology.
- Division of Capital Asset Management and Maintenance (DCAMM): Space Office Planning Standards
- National Business Space Assignment Policy GSA Public Buildings Service Office of Real Property Asset Management. Feb 13

Related Metrics

- Maximization of assigned space metrics
- Occupancy costs reduction metrics
- New construction and leases for the Commonwealth of Massachusetts.

Title	Standard No./Revision No.	Date
OFMM Project Management	FMMS 12 / REV. 1	March 1st, 2016

Purpose and Scope

The purpose of the OFMM Project Management Standard is to provide consistent guidelines for the efficient planning and execution of qualified capital projects at **Commonwealth facilities**, including minor capital improvements, construction, renovations, and/or capital repairs and replacements.

The OFMM Project Management Standard specifies procedures for planning, contracting, and managing projects that meet the qualifications set forth by DCAMM and are completed under the administration of the **facilities manager**.

Alternative project delivery methods shall be approved by DCAMM and implemented in accordance with DCAMM's standard procedures for each delivery method.

The following are general requirements for multiple facility types; however, it is the responsibility of the facility manager to ensure that all facilities maintenance staff and contracted service providers follow all current rules, regulations, policies, and procedures relevant to the specific operational/programming requirements of occupant agencies in the facility. More detailed requirements and additional resources are included in the Service Delivery document for this Standard.

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The OFMM Project Management Standard includes some topics and requirements that are also found within other Standards included within the overall Facility Maintenance and Management Standards (FMMS). The following is a list of Standards referenced within the OFMM Project Management Standard:

- FMMS 05 Routine Maintenance
- FMMS 06 Preventative and Scheduled Maintenance
- FMMS 08 Facilities Information Management
- FMMS 15 Accessibility
- FMMS 16 Fire Safety

Summary

The following topics and their related requirements are included in the Project Management Standard and detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials & Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as Commonwealth owned.

Construction Management at Risk (CMR) Is defined as when a contractor is contractually obligated to provide leadership in the construction process through a series of services provided to the owner including design review, scheduling, cost control, value engineering, construction coordination, etc. After providing these pre-construction services, the contractor takes on the financial obligation to carry out the construction under a specified cost agreement.

Design-Bid-Build (DBB) contracting is the current project delivery method approved by DCAMM for all projects to be done in compliance with this Standard. Under the DBB delivery method, the project scope and documents are prepared by an architect/engineer, and the lowest qualified bidder is awarded the contract to complete the project.

Design-Build (D/B) is a project delivery system in which the design and construction services are contracted by a single entity known as the design–builder or design–build contractor. Design–build relies on a single point of responsibility contract. The design-build project delivery system is used to minimize risks for the project owner and to reduce the delivery schedule by overlapping the design phase and construction phase of a project.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and

operation of a facility.

Job Order Contracting (JOC) is a contracting method used by DCAMM in which a competitively procured contract covers multiple small projects initiated through Work Orders that utilize unit price books as the basis of cost. JOC works by pre-selecting contractors on qualifications and performance at best value pricing. Under JOC, DCAMM will qualify and select a number of contractors from whom a facility manager will be able to secure the contractor best qualified to complete a given project.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Project management is the discipline of planning, organizing, motivating, and controlling resources to achieve specific goals. A project is a temporary endeavor designed to produce a unique product, service, or result with a defined beginning and end (usually time-constrained, and often constrained by funding or deliverables), undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business operations, which are repetitive, permanent, or semi-permanent functional activities to produce products or services.

Requirements[10]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted Service Providers

1.3 **Facility Managers**

a. Obtain and document in CAMIS a copy of the engineering evaluation or other approved study verifying the project need.

b. Prepare documentation of project scope and cost for review and approval by DCAMM.

[10] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

c. Prepare Project Plan for review and approval by DCAMM.

d. File all project documentation in accordance with the requirements of Standard 13 "Facility Information Management" within 90 days of final completion of the project.

1.4 DCAMM

a. Review the proposed project for applicability to and execution under this Standard.

b. Provide timely reviews and approval or rejection of project documentation:

Documentation of project need

Project scope and cost information

Project Plan

c. Provide a pre-qualified list of contractors from whom the facility manager may select an appropriate contractor for the approved project.

d. Provide Service Delivery Guidelines for the selected project delivery method.

2.0 Implementation

2.1 An engineering evaluation or other study of existing conditions prepared by a qualified professional and documenting the project need, is required for all qualifying projects under this Standard.

2.2 Generally define the project scope and verify the applicability of this Standard to the proposed project.

a. Refer to applicable sections of Massachusetts General Laws Chapter 149.

b. Refer to applicable sections of Massachusetts General Laws Chapter 30, §39M.

c. Refer to DCAMM Guidelines for procurement of building maintenance and repair projects costing up to $100,000.

2.3 Prepare a detailed scope of work for the project based on the engineering evaluation and include:

a. Items of required work categorized according to trade

b. Preliminary statement of probable cost

c. Preliminary project schedule

2.4 Prepare a Project Plan to address the following:

a. Scope of Work

b. Estimated Project Cost

c. Project Schedule

d. Project Delivery Method

e. Project Team

f. Project Documentation

g. Project Communication Plan

h. Project Safety Plan

2.5 Project procurement shall conform to DCAMM "Guidelines for procurement of building maintenance and repair projects costing up to $100,000".

2.6 Comply with DCAMM requirements applicable to the selected project delivery method. Alternative project delivery methods include:

a. **Job Order Contracting (JOC)** for a narrow-scope project such as paving repair, roofing system replacement, or in-kind equipment replacement.

b. **Design-Build (D/B)** contracting for schedule-sensitive projects or remedial construction to repair damage from disasters

c. **Design-Bid-Build (DBB)** contracting approved by DCAMM for all projects that qualify for completion under this Standard

2.7 Professional Project Services

a. Service Providers: Professional services required to perform an engineering evaluation and/or to prepare construction documents for a qualifying project under this Standard may be provided under a "House Doctor" contract.

b. Engineering Evaluations: Evaluations and studies documenting the need for the project shall comply with DCAMM "Guidelines for the Preparation of Studies for Building Projects".

c. Project Documents: Construction documents prepared by project architectural and engineering firms shall comply with DCAMM "Designers Procedures Manual".

2.8 Project Document Management

a. The following facility information shall be managed in CAMIS in compliance with Standard 13 "Facility Information Management":

Existing floor plans (all disciplines), elevations, equipment schedules, etc. in digital format (i.e. CAD or BIM files)

Existing inspection reports, analysis reports and other evaluations documenting the project need.

Current facility condition assessment with capital plan in consultation with the MDPH/IAQ Program

3.0 Materials and Equipment

3.1 Comply with the Massachusetts "Environmentally Preferable Product" Procurement Program (EPP Program), established under EO 515, for materials, products and equipment required for projects completed under this Standard.

4.0 Regulatory Compliance

4.1 Comply with MGL 30 Section 39 and related Sections.

4.2 Comply with MGL Chapter 149 Section 44A and related Sections.

4.3 Projects shall conform to DCAMM Standard Specifications

4.4 The Project shall follow the Commonwealth of Massachusetts Building Codes 527 CMR and 780 CMR.

5.0 Training

5.1 Child care centers, hospitals, correctional facilities, and other specialized occupancies may have program requirements that affect the implementation of **project management** functions. DCAMM in conjunction with the occupant agency shall provide training to facility management personnel and outside vendors as needed to acquaint them with specific program requirements of the occupant agencies and the related requirements of operations and management functions.

5.2 Provide **Project Management** training to facility management personnel identified as project managers for any project completed under this standard.

6.0 Communication

6.1 Establish a communications plan to inform building occupants of project-related activities which affect the normal use and occupancy of the facility.

6.2 Provide monthly project status reports which, at a minimum, address:

a. Status - summary narrative

b. Schedule – proposed v. actual

c. Budget – estimated v. actual

d. Jobsite safety – inspections, training, claims, lost workdays

e. Critical issues

7.0 Recordskeeping

7.1 Monthly project reports shall be used to track actual project performance against planned performance.

7.2 Track contractor performance across all projects completed for DCAMM, to verify contractor compliance with contract requirements.

Tools and Resources

All tools and resources related to the Project Management Standard are included in an appendix to the complete FMMS.

- Division of Capital Asset Management and Maintenance (DCAMM):*"CAD Standards"*
- Division of Capital Asset Management and Maintenance (DCAMM):*" "Designers Procedures Manual"*

- Division of Capital Asset Management and Maintenance (DCAMM): *"Guidelines for Procurement of Building Maintenance and Repair Projects Costing up to $100,000"*
- Division of Capital Asset Management and Maintenance (DCAMM): *"Guidelines for the Preparation of Studies for Building Projects"*
- Division of Capital Asset Management and Maintenance (DCAMM): *"Standard Specifications for Design-Bid-Build Projects"*
- Massachusetts General Laws Chapter 7C: *Capital Asset Management and Maintenance*
- Massachusetts General Laws Chapter 30: General Provisions Relative to State Departments, Commissions, Officers and Employees. *Section 39M: Contracts for Construction and Materials; Manner of Awarding*
- Massachusetts General Laws Chapter 149 Labor and Industries, Section 44A: *"Definitions; Competitive Bids; Award; Bonds; Extreme Emergency Situations; Records Contracts not Subjected to Competitive Bid Process"*

Related Metrics

- Project document review:
  - Performance vs. budget
  - Performance vs. schedule
  - Change Orders
- Project expense auditing
- Safety records

Title	Standard No./Revision No.	Date
Facility Information Management	FMMS 13 / REV.1	March 1st, 2016

Purpose and Scope

This Standard supports the strategic vision for DCAMM OFMM by utilizing software mediums and management strategies to provide facilities information over the entire life-cycle of a physical asset.

DCAMM intends to use and manage facility information to create greater operating efficiencies. This standard will improve facilities management statewide in the following ways:

- Normalize standards and eliminate data discrepancies and redundancy

  Allow DCAMM to optimize space use reporting and management

  Maximize equipment service lives by optimizing maintenance management

  Efficiently plan and fund capital modernization and improvements

- Reduce energy consumption

This standard provides guidelines to the facility manager for information management related to design, procurement, construction, condition assessment, repair, renovation, adaptation, utilization, capital planning and budgeting, life safety, security, and sustainability of existing buildings/facilities owned by the Commonwealth of Massachusetts.

DCAMM facility information management strategies including **Building Information Modeling (BIM), Geographic Information Systems (GIS),** in addition to web-based management systems as tools for developing, maintaining, accessing and using facility-related information. The scope of this Standard includes the basic goals and objectives associated with the use of BIM and related facility technologies.

Specific requirements and responsibilities can be reasonably varied in the Service Level Matrix (SLM) agreed upon by DCAMM and the user agency.

Related Reference Standards

- FMMS 01 Security
- FMMS 05 Routine Maintenance
- FMMS 06 Preventative Maintenance
- FMMS 09 Emergency Management
- FMMS 10 Energy Management and Sustainability
- FMMS 11 Space Management
- FMMS 12 OFMM Project Management

- FMMS 15 Accessibility

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Asset management is the linking of data in a record model to a database of building assets to assist in efficiently maintaining and operating the facility.

Building information modeling (BIM) refers to the generation and management of digital representations of a facility. Building information models contain "object-intelligent information" including physical and functional characteristics of building systems, components and furnishings. When managed as complete sources of facility information, BIMs are shared knowledge resources that support decision-making about a facility from design and construction, through its operational life.

Capital Asset Management Information System (CAMIS) is the facility information management system implemented by DCAMM in response to an initiative authorized in 1999 by the Massachusetts legislature. CAMIS has been implemented to manage the State's capital assets and capital equipment. CAMIS is utilized to manage data and assist facilities in their daily maintenance activities.

Construction Operations Building Information Exchange (COBie), as referenced in this Standard, is a format through which data reported/exported from a Building Information Model may be read/imported into a CMMS/IWMS system such as **CAMIS**. COBie is recognized as a part of the National **BIM** Standard (NBIMS), and is a defined BIM Use Case and contracted deliverable in the DCAMM BIM Guide.

Commissioning is the process of verifying that a new building or facility's subsystems (for example: building envelope, plumbing, electrical and lighting, HVAC, life safety, wastewater controls, and security) achieve the project requirements as intended by the building owner and as designed by the building architects and engineers. Specific asset information developed and verified during this process may be collected using COBie spreadsheet data.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as Commonwealth owned.

Decommissioning is the process of closing down and demolishing a facility at the end of its useful life-cycle.

Facility life-cycle is the view of a facility over the course of its entire life taking into account the design, construction, commissioning, operation, and decommissioning phases.

Facility information management is an integration of process and technology to enable the

efficient life-cycle management of facilities. A key ingredient of facility information management is the use of building information modeling.

Facility systems analysis is measuring how a facility's performance compares to the design model predictions to ensure that the facility is operating to specified design and sustainable standards. It typically focuses on how a facility's mechanical system operates and how much energy a facility uses.

Geographic Information Systems (GIS) is the collection, management, and use of facility digital data accurately referenced to a precise location on the earth's surface. **BIM** data can be integrated with GIS to create a seamless re-use and re-purposing of facility data for additional Commonwealth of Massachusetts requirements. GIS tools enable users to access and manipulate GIS data.

Routine Maintenance refers to simple, small-scale activities and specific work-order requests associated with general upkeep and continued operation of a building, site, equipment, machine, plant, or system against normal wear and tear. Typically, it includes activities that are completed by the facility management staff and regularly contracted facility service providers, rather than specialized professionals. Routine maintenance is done within a specific period of time (e.g. daily, weekly, monthly, etc.).

Maintenance History is the documentation of all actions (work orders, routine, replacement and preventative maintenance) and observations relevant to the operation and performance of an asset. This history is maintained in the DCAMM **CAMIS** application.

OmniClass Construction Classification System (OCCS) is a means of organizing and retrieving information specifically designed for the construction industry. It is designed to provide a standardized basis for classifying information created and used by the North American architectural, engineering and construction (AEC) industry, throughout the full facility life cycle from conception to demolition or reuse.

Predictive (Preventive) Maintenance is proactive work performed by various trades personnel based on scheduled inspections, scheduled testing, and minor element replacements. Preventive Maintenance consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance, planned versus corrective for the purpose of improving equipment life and to avoid any unplanned maintenance activity/minimize equipment breakdowns.

Programming is the identification of the spatial, functional, and operational requirements for a facility (uses, areas, required adjacencies, etc.) to meet the projected needs and goals of the facility or partial facility. Program Validation assesses the accuracy, efficiency and effectiveness of a design in meeting those requirements.

Project life-cycle is a time based view of a facility project over the course of the planning, design, construction, and commissioning and handover processes. This view focuses on activities during a project's active design, construction, and delivery phases. It is a subset of the building life-cycle and excludes operating and maintenance activities that commence after a building is commissioned. The project lifecycle uses OmniClass Table 31 for phase definitions.

Project parameters are parameters that are defined and then added to multiple categories of

elements in a project. They are specific to the project and cannot be shared with other projects. You can use shared parameters to define project parameters and then associate these project parameters with specific categories of elements within a project.

Record model is an accurate digital representation of the physical conditions, environment, and assets of a facility **BIM** model.

Retrocommissioning Is the process of commissioning to an existing facility to improve the facility's performance by identifying opportunities for operational improvement that will increase occupant comfort and save energy.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 These Standards apply to all existing facilities and new facilities that are planned and constructed for initial occupancy after the date of this document.

1.4 Facility Managers

a. Maintain current documentation of facility operational plans including:

- Facility Security Plan, including security infrastructure
- Facility Health and Safety Plan
- Emergency Management Plan

b. Maintain current maintenance management documentation

- Contracts for services (e.g. grounds and landscape maintenance, cleaning, solid waste management, integrated pest management, etc.)
- Procedures and policies for maintenance functions

c. Maintain operational information throughout the occupancy of the facility

- Routine Maintenance, including work orders (see FMMS 05)
- Preventive and scheduled maintenance (see FMMS 06)
- Space utilization (see FMMS 11)

- Systems performance (BAS-generated data) including energy consumption

d. Ensure training is provided to facility management staff

1.5 DCAMM Office of Planning, Design and Construction

a. Representational and functional facility data will be documented using BIM during the design, engineering, and construction of new facilities, and major renovations of existing facilities.

b. As as-built **BIM** will be provided to the **Facility Manager** upon final completion and initial occupancy of the new or renovated facility

1.6 **Service Providers**

a. Contracted maintenance service providers shall furnish all contract documents in the digital format specified by DCAMM.

2.0 Implementation

2.1 **Building Information Modeling (BIM)** will be used to develop and maintain an accurate digital representation of the physical and functional characteristics of a facility.

a. BIM will be used to document existing and new facilities' representational, functional, and space information.

b. With continuous updating, the record model will serve as a "living document" that contains an accurate, current record of the facility.

c. Record models will include links to relevant facility information when BIM is determined as the authoritative source for the information.

2.2 Data Collection

a. Facility data will be documented using **BIM** for new facilities and major renovations of existing facilities.

b. For existing facilities, data currently maintained on paper or in other legacy formats will be converted to BIM files as authorized by DCAMM. New or updated information related to the facility will be documented in BIM and saved in the digital format approved by DCAMM.

c. Data will be saved and distributed in the format approved by DCAMM.

d. Facility information shall include documentation of commissioning and retro-commissioning activities.

2.3 Data Maintenance

a. Collect and maintain facility information throughout the occupancy phase of the building life cycle.

b. Document changes to facility design, engineering, and construction as a result of updates and renovations.

c. Document changes to service contractors, equipment suppliers, system details, quantities and replacement equipment, to provide for accurate **preventive**

maintenance planning.

d. Locations and access to facility equipment as it is replaced shall be updated as appropriate, to aid in planned maintenance and emergency management.

2.4 Space management will be done using **BIM** as the means to analyze the existing space utilization, evaluate proposed changes, and effectively plan for future needs.

a. Maintain current and accurate information concerning changes to space utilization and occupancy.

b. Changes in occupant agency floor plans shall be promptly and accurately recorded.

2.5 **Geographic Information Management (GIS)**

a. It is DCAMM's goal to maintain geographically referenced facility information statewide in a digital format, using ~~a~~ Geographic Information Systems (GIS).

b. Use **GIS** tools to maintain current and accurate information and provide support for:

- Facility mapping
- Real estate site selection for agencies
- Maintenance and service route management
- Emergency and evacuation planning
- Data analysis

2.6 Maintenance Management

a. Document maintenance activities through the use of **CAMIS**.

b. Comply with CAMIS Standard Operating Procedures published by DCAMM.

c. Manage and provide access to facility record documents through CAMIS.

2.7 Building Automation Systems data documentation shall include the following:

a. Operation of system controllers such as PLC's, system network, and terminal units.

b. Interior environmental conditions for occupants such as ambient temperature, humidity, etc.

c. Central plant function.

d. Alarms and security equipment testing

2.8 Capital Planning information

a. Facility Condition Assessments (FCAs) on the type and condition of major systems and components shall be provided for each facility.

b. Data obtained in the FCA will be tabulated in the format specified by DCAMM for integration into **CAMIS**.

3.0 Materials and Equipment

3.1 Building Information Modeling software

3.2 **CAMIS** data entry application

3.3 Reports and other documents

4.0 Regulatory Compliance

4.1 **BIM** Standards

a. Building Information Models shall be created and maintained in accordance with DCAMM's BIM Standards.

b. Comply with applicable provisions of the National BIM Standard – United States (NBIMS), published by the National Institute of Building Sciences.

4.2 OmniClass Construction Classification System

a. OmniClass shall be used across DCAMM applications and processes to normalize facility, operational, and service data.

5.0 Training

5.1 **CAMIS** training

a. General: Training shall be scheduled and administered to facility management personnel in the use of CAMIS, as needed to assure the complete and accurate maintenance of facility information.

b. Service Requests: Provide training for creating and managing maintenance requests and work orders.

c. Buildings and Equipment: Provide training in equipment inventory and location management.

d. **Preventive Maintenance**: Provide training in preventive maintenance management.

e. **Project Management**: Provide training in creating and managing projects within the Facility Manager's scope of project management (see FMMS 12).

f. Data Analysis and Reporting: Provide training in navigation within the CAMIS database, accessing and sorting data, and creating reports.

6.0 Communication

6.1 Ensure that facility information management procedures are communicated to all staff responsible for accessing, using, updating and/or managing facility-related information.

6.2 The **BIM** Execution Plan for each new DCAMM facility should specify a representative of the facility management team, for the purpose of including facilities management in the design, construction and commissioning/start-up phases of the project.

7.0 Recordskeeping

7.1 Provide documentation of compliance with the requirements of this standard on a periodic basis as required by DCAMM's CAMIS Standard Operating Procedures.

7.2 Provide energy account information to DCAMM and the Leading By Example (LBE) program to allow for utility energy consumption tracking. If energy account numbers change, provide DCAMM and LBE with an updated list of all utility accounts and providers.

Tools and Resources

- Cholakis, Peter (2011),White Paper - *BIM for FM/BIMF: Change on the Horizon*, Colorado Springs, CO: 4Clicks Solutions
- Commonwealth of Massachusetts Executive Office for Administration and Finance, "**Building Information modeling (BIM)** List of Design and Preconstruction Services", September 16, 2013
- Division of Capital Asset Management and Maintenance (DCAMM): *CAD Standards*, February 2, 2013
- Eastman, Chuck, Teicholz, Paul, Sacks, Rafael, Listom, Kathleen (2008):*BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors,* Hoboken, NJ: John Wiley & Sons, ISBN-13:978-0-470-18528-5
- Hardin, Brad (2009), *BIM and Construction Management: Proven Tools, Methods, and Workflows*, Indianapolis, IN: Sybex, ISBN-13: 978-0-470-40235-1
- Jernigan, Finith (2007), *BIG BIM little bim: The Practical Approach to Building Information Modeling*, Washington, DC:4Site Press, ISBN-13: 978-0-9795699-0-6

Related Metrics

- Optimum performance in facility information management will result in improved space management, streamlined maintenance, efficient energy use, economical renovations, and enhanced life-cycle management for a net reduction in costs for the Commonwealth of Massachusetts.
- Complete as-built BIMs for facilities in the DCAMM portfolio
- Completed Facility Condition Assessments for DCAMM properties
- Long-term Capital Improvement Planning
- Facility Condition Indexes (FCI) for DCAMM assets

Title	Standard No./Revision No.	Date
Procurement of Equipment, Material, and Building Services	FMMS 14 / Rev.1	March 1st, 2016

Purpose and Scope

The Procurement of Equipment, Material and Building Services Standard establishes minimum requirements for the procurement of commodities and services related to the operations and maintenance of all **Commonwealth facilities**. Regulations and policies that guide all procurement activities for facilities in the Commonwealth include, but are not limited to, the following:

801 CMR 21.00, Procurement of Commodities and Services, Including Human and Social Services empowers departments to procure commodities and services at the "best value" for both the department and the Commonwealth using the best value philosophy and standard guidelines, including an evaluation process and performance measures. All Executive Branch departments must follow ***801 CMR 21.00*** for the acquisition of commodities and services.

Executive Order 515, Establishing an Environmental Purchasing Policy (E.O. 515), requires companies providing services to Executive Branch Agencies to use environmentally preferable (green) practices as specified in Commonwealth statewide contracts.

Executive Order 523, Small Business Purchasing Program (E.O. 523), supports small businesses by providing them special consideration within the Commonwealth's procurement process for goods and services required by state agencies. E.O. 523 applies to all small businesses in Massachusetts that meet the Program's eligibility requirements.

Executive Order 524, Supplier Diversity Program (E.O. 524), promotes the award of state contracts in a manner that develops and strengthens Minority-owned and Women-owned Business Enterprises (M/WBEs).

Executive Order 533, Enhancing the Efficiency and Effectiveness of Executive Department Procurements and Establishing a Municipal Procurement Program (E.O. 533), supports improved coordination, centralization, and implementation of best practices at the secretariat-level of state agency procurements and the oversight and aggregation by the Operational Services Division of all procurements. E.O. 533 aims to achieve significant cost-savings, while receiving goods and services equal or better than those presently purchased.

Non-Executive Branch departments are not required to follow *801 CMR 21.00* for the procurement of commodities and services; however, they are strongly encouraged to use it on a voluntary basis.

The following commodities and services are not covered by 801 CMR 21.00.

- Horizontal Construction (MDOT)
- Vertical Construction (DCAMM)
- Real Property Sales and Leasing (DCAMM)

- Interdepartmental Service Agreements and Chargebacks (Office of the Comptroller)
- Grants and Subsidies (Office of the Comptroller)

Specific requirements and responsibilities can be reasonably varied in the SLM agreed upon by DCAMM and the user agency.

Related Standards

The Procurement Standard includes some topics and requirements within the scope of other Standards included within the overall Facility Maintenance and Management Standards (FMMS). The following is a list of related Standards.

- FMMS 01 Security
- FMMS 02 Grounds and Landscape Maintenance
- FMMS 03 Cleaning
- FMMS 04 Solid Waste Management
- FMMS 05 Routine Maintenance
- FMMS 06 Preventative and Scheduled Maintenance
- FMMS 07 Integrated Pest Management
- FMMS 08 Health and Safety
- FMMS 09 Emergency Management
- FMMS 10 Energy Management and Sustainability
- FMMS 11 Space Management
- FMMS 12 OFMM Project Management
- FMMS 13 Facility Information Management
- FMMS 14 Procurement of Equipment, Material and Building Services
- FMMS 15 Accessibility
- FMMS 16 Fire Safety
- FMMS 17 Wayfinding

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commodities are products that can be bought and sold.

"Commodities and Services" is the phrase used by the Massachusetts "Procurement Information Center" when describing the procurement of anything (goods, products, equipment, services, etc.) by all Executive departments and any Non-Executive departments that have elected to follow 801 CMR 21.00.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated **Service Level Matrix (SLM).** This standard applies to leased buildings and Commonwealth owned.

Durable Goods or "hard goods" are items that are used over an extended period time and are not consumed or destroyed in short-term use. Durable goods typically have a higher cost per unit and multiple-year periods between purchases (i.e. electronic equipment, furniture, appliances, machinery, lawn equipment, etc.).

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the **Facility Manager** for maintenance and operation of a facility.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Incidental Purchases are one-time, unanticipated, non-recurring purchases of goods or services that are not available from a Statewide Contract. Incidental purchases do not require a competitive procurement or contract. Incidental purchases are authorized under object codes governed by M.G.L. Chapter 7, Section 22.

Large Procurements are purchases of goods or services with a value greater than $150,000, or as otherwise established by the Commonwealth of Massachusetts Office of the Comptroller.

Ongoing Consumables refers to low-cost-per-unit materials that are regularly used and replaced through daily operations. (i.e. printing and copying paper, notebooks, envelopes, business cards, sticky notes, paper clips, ink and toner cartridges, binders, batteries, etc.)

Procurement refers to the act of obtaining or buying goods and services. The process includes preparation and processing of a demand as well as the end receipt and approval of payment.

Request for Responses (RFR) (also known as: "**solicitation**" or "**procurement**") is the method for communicating the contract performance specifications to potential bidders. The goal of an RFR is to obtain best value commodities and services and to define the expected outcomes. Requirements and procedures for the individual RFRs will vary based on the

particular need, the complexity, and the total value of the contract.

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a User Agency of a **Commonwealth facility** and any that may be retained by the User Agency or Occupant. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

Services include but are not limited to the furnishing of time, labor, effort, and specialized skills of a contractor including operational, professional, consultant, maintenance and repair, non-professional, and human and social services (i.e. janitorial services, landscaping services, architectural services, engineering services, environmental consulting services, etc.).

Small Procurements are defined as purchases of goods or services with a value between $10,000 and $150,000, or as otherwise established by the Commonwealth of Massachusetts Office of the Comptroller.

Statewide Contracts are established using the requirements of 801 CMR 21.00 by the Operational Services Division's (OSD) Procurement Management Teams on behalf of the Commonwealth. Departments that follow 801 CMR 21.00 are required to use Statewide Contracts, regardless of the dollar amount of the purchase.

Strategic Sourcing Team (SST) is responsible for the continuous evaluation and improvement of purchasing activities related to a specific service or commodity. The SST is responsible for identifying and verifying the need, sources and timing of purchases. A SST is composed of program area experts and procurement staff from the purchasing department, with a Team Leader to guide the team throughout the procurement process. Department SSTs must monitor contractor performance and customer satisfaction at the department level. Thus, the SST is maintained for the term of the contract.

Requirements[11]

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of this Standard and its requirements throughout **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

[11] All documents referenced under the "Requirements" section are included in the supplemental "Service Delivery" package.

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 The Facilities Manager is responsible for the following duties:

a. Identify a procurement need at the facility

b. Determine the "**Procurement** Type"

c. Contact the DCAMM procurement specialist for assistance with the procurement process.

d. Comply with applicable Commonwealth statutes, regulations, policies, and procedures.

e. Oversight and tracking of all contracted service providers carrying out work at the facility under the procurement contract

f. Utilize COMMBUYS to track provider performance throughout the life of the contract.

1.4 DCAMM Procurement Specialist responsibilities include the following:

a. Work with the **Facility Manager** to verify the **procurement** need and determine the "Procurement Type".

b. Conduct all procurements for commodities and services for the department consistent with all applicable Commonwealth statutes, regulations, policies, and procedures.

c. Create a Departmental **SST**.

d. Contact **OSD** for assistance with the procurement process and to create an OSD SST, when applicable.

e. Utilize established OSD statewide contracts for the purchase of commodities and services at the facility, when available.

f. Utilize COMMBUYS to identify existing statewide contracts and complete the procurement process for the specific commodity or service needed at the facility.

g. Maintain a procurement file for all solicitations conducted by the department.

h. Maintain updated RFR and contract information on COMMBUYS.

1.5 **Strategic Sourcing Teams (SST)**

a. Teams are created at both the **OSD** level and individual department level depending on the contract type, but both teams follow the same structure, function, and process and include members with expertise in both procurement and the contract subject matter.

b. Manage the procurement throughout the life of the contract.

1.6 The **Operational Services Division (OSD)**

a. Establishes statewide contracts on behalf of Commonwealth public purchasers

b. Provides technical assistance to departments in their procurement process

c. Ensures that departments conduct the procurement process in compliance with all related statutes, regulations, and policies

1.7 The Office of the Comptroller (CTR)

a. Serves as an oversight department responsible for the Commonwealth's fiscal operations

b. Provides financial, legal, and technical assistance to all departments regarding the state finance law issues involved in the procurement process.

c. Establishes specific guidelines on committing funds and payments for procurement through the Massachusetts Management Accounting and Reporting System (MMARS)

1.8 Contracted Vendors

a. Meet all requirements and regulations identified in the Contract entered into at the time the contract was awarded.

b. Meet specific requirements for contracted service providers at facilities under the **Commonwealth facilities**, as identified within each individual FMMS Standard and their associated Service Level Matrices

c. vice Delivery Documents.

d. Work with **OSD** and the SST to develop and implement an Environmental Plan, which shall be in place for the life of the Contract.

1.9 Specific requirements for commodities procured at facilities under **Commonwealth facilities** are identified within individual FMMS Standards and the associated Service Delivery Documents.

2.0 Strategies and Services

2.1 Three types of procurement under 801 CMR 21.00

a. Incidental Purchase, under $10,000

b. Small Procurement, $10,000 to $150,000

c. Large Procurement, $150,000 and above

2.2 **Facility Managers** shall determine the procurement type required to meet the specific need by answering the following questions:

a. What is the specific procurement need and why is it necessary?

b. Is the specific need a commodity, a service, or both?

c. What is the total cost of commodities and/or services to address the specific need?

2.3 A summary of current requirements for each procurement type is included in the Procurement Service Delivery document - "Quick Reference Chart: Procurement of Goods and Services under 801 CMR 21.00."

2.4 The minimum and maximum contract (dollar) amounts for each type of procurement are updated on a periodic basis. The **Facility Manager** shall contact the Operational Services Division's Procurement Information Center to verify current cost thresholds (minimum and maximum limits) and associated requirements for each type of procurement.

2.5 **Procurement** Process Overview

a. Initiate Procurement

b. Designate a **SST** and a Team Leader

c. Create a procurement time line

d. Develop Request for Response (RFR)

e. Solicit Bids from Service Providers

f. Evaluate bids

g. Award the service contract

h. Review contract requirements and ensure service provider can meet them at the start of the contract

i. Monitor contract performance and level of customer satisfaction

3.0 Materials and Equipment

3.1 The **procurement** of all materials and equipment by a facility manager, facilities' staff and/or contracted service providers shall comply with *E.O. 515 Environmentally Preferable Products*.

3.2 Products shall conform to all Federal, State, and local standards for quality and safety requirements.

3.3 The **Facility Manager** and contracted service professionals shall maintain a list of all materials and equipment purchased for the facility.

4.0 Health and Safety

4.1 All work shall comply with the applicable requirements of 29 CFR §1910 and State and municipal safety and health requirements. Where there is a conflict between applicable regulations, the more stringent shall apply.

4.2 All **procurement** managers shall ensure management and safeguarding of security-sensitive information during the procurement of goods and services through the Commonwealth's Procurement Access and Solicitation System (COMMBUYS) and other public bidding and contracting processes.

5.0 Training and Communication

5.1 Specific training requirements under each contract for procured services are based on the actual type of facility and service required. All training shall be consistent with the specific operational/programming requirements of the occupant agencies in the facility.

5.2 Service providers must include training and/or education and outreach for facility managers, facilities staff, and occupants as part of their contracted services.

5.3 General **procurement** training includes, but is not limited to the following.

a. Procurement process

b. COMMBUYS System

5.4 MASS*buys*: OSD's annual marketing and training trade show is held to educate public purchasers and contract end-users on the following:

a. Commodities and services available on statewide contracts

b. Innovative environmentally preferable (green) products

c. Marketing and networking opportunities to the business community.

6.0 Recordskeeping

6.1 All procurement contracts must be entered into COMMBUYS, which is a database inventory of all open and closed statewide contracts and their associated requirements and forms.

6.2 All service providers must provide annual EPP purchasing data typically within 90 days of the close of each fiscal year

6.3 All commodities (goods, products, equipment, etc.) purchased for use at the facility must be tracked and recorded with purchase date, cost, and in the appropriate tracking system for that commodity type, including, but not limited to the following.

a. Ongoing Consumables

b. Durable Goods

6.4 All vendors providers awarded **Statewide Contracts** will have their performance tracked and evaluated on an ongoing basis, for use in determining whether to extend or terminate the contract. User departments will be surveyed for their satisfaction with the contractor's performance under the contract. Contractor performance will be evaluated based on the following:

a. Level of sales / number of customers

b. Demonstrated savings by Eligible Entities, including but not limited to limited-time special pricing, efficient products, energy efficiency rebates, and others

c. The number and nature of complaints received from user departments

d. Timeliness of deliveries

e. Instances of sale of excluded items

f. Success in promoting EPPs to Eligible Entities

g. Quality of customer service

h. Compliance with reporting requirements

i. Performance during emergency situations

j. Other relevant factors

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Massachusetts Office of the Comptroller: *Expenditure Classification Handbook*
- Operational Services Division (OSD): *Procurement Information Center* http://www.mass.gov/anf/budget-taxes-and-procurement/procurement-info-and-res/conduct-a-procurement/procurement-information-center.html
- Operational Services Division (OSD): *Statutory Authority, Regulations and Executive Orders* http://www.mass.gov/anf/budget-taxes-and-procurement/oversight-agencies/osd/osd-statutory-authority-regulations-and-executive-orders.html
- Operational Services Division (OSD): *"Quick Reference Chart: Procurement of Goods and Services under 801 CMR 21.00* Accessed via http://www.mass.gov/anf/budget-taxes-and-procurement/procurement-info-and-res/conduct-a-procurement/procurement-information-center.html
- Operational Services Division: (OSD): *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts*. Updated September 2012. Massachusetts Statewide Contracts. Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Operational Services Division: (OSD): *Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- The most recent Policy Updates related to Commonwealth procurement policy are accessed here: http://www.mass.gov/anf/budget-taxes-and-procurement/procurement-info-and-res/conduct-a-procurement/osd-policies-regs/osd-policy.html

Related Metrics
Track the following metrics to create a comprehensive view of activities and purchasing that is occurring at facilities under the Commonwealth facilities: • Vendors and reviews • Environmental record • MBE/WBE/Small Business participation • Purchases (equipment, products and materials) • Conformance to project and delivery schedules • Conformance to project budgets

Title	Standard No./Revision Name	Date
Accessibility	FMMS 15 / REV.1	March 1st, 2016

Purpose and Scope

This Accessibility Standard establishes baseline requirements for operating and maintaining **Commonwealth facilities** in compliance with state and federal accessibility regulations and for carrying out accessibility improvements so that when viewed in their entirety, the programs, services, and activities that occur at these facilities, are accessible to, and usable by persons with disabilities

The Commonwealth of Massachusetts is committed to providing buildings and facilities that are usable by all persons.

In addition to the requirements of this Standard, all **Commonwealth facilities** must ensure compliance with all state and federal disability-related, non-discrimination laws and regulations including:

- **The Americans with Disabilities Act (ADA)**
- **Rules and Regulations of the Massachusetts Architectural Access Board (MAAB) found at 521 Code of Massachusetts Regulations (CMR)**
- **The 2010 ADA Standards for Accessible Design**

Although accessibility measures at **Commonwealth facilities** shall be consistent with state and federal laws for all facility common spaces, additional measures may be necessary and further tailored to the specific program needs and regulatory requirements of the User Agency. Detailed implementation strategies shall be included, as applicable in the related **Service Level Matrix (SLM)**.

The **Service Delivery and Performance Objectives** document that supports this Standard shall detail the activities necessary for successful implementation of the Accessibility Standard at the facility, as well as the performance goals for ensuring accessibility measures meet program needs and requirements. As applicable, the related **Service Level Matrix (SLM)** shall detail the specific service levels available to the **User Agency** and their associated costs.

The specific regulatory requirements of specialized facilities such as hospitals and correctional institutions are addressed in facility-specific supplements to the Facility Maintenance and Management Standards (FMMS).

Specific requirements and responsibilities can be reasonably varied in the **SLM** agreed upon by DCAMM and the user agency.

Related Standards

The following FMMS also include references and/or requirements related to this Accessibility Standard:

FMMS 01	Security
FMMS 02	Grounds and Landscape Maintenance
FMMS 03	Cleaning
FMMS 04	Solid Waste Management
FMMS 05	Routine Maintenance
FMMS 06	Preventive and Scheduled Maintenance
FMMS 07	Integrated Pest Management
FMMS 08	Health and Safety
FMMS 09	Emergency Management
FMMS 10	Energy Management and Sustainability
FMMS 11	Space Management
FMMS 12	OFMM Project Management
FMMS 13	Facility Information Management
FMMS 14	Procurement of Equipment, Material & Building Services
FMMS 15	Accessibility
FMMS 16	Fire Safety
FMMS 17	Wayfinding

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Training

5.0 Communication

6.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

2010 ADA Standards for Accessible Design: Guidelines issued by the U.S. Access Board establishing minimum requirements – both scoping and technical -- for new construction and alteration of state and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities. This Standard, which became effective March 15, 2011, supersedes the ADAAG, the American with Disabilities Architectural Guidelines, issued in 1991.

521 CMR "Architectural Access Board Rules and Regulations": The regulations promulgated by the Architectural Access Board pursuant to M.G.L. c. 22, s. 13(a), which is the statute of the Commonwealth that requires public buildings and facilities to be accessible to, functional for, and safe for use by persons with disabilities. It is the intent of 521 CMR to provide persons with disabilities full, free, and safe use of all buildings and facilities so that all such persons may have the educational, living, and recreational opportunities necessary to be as self-sufficient as possible and to assume full responsibilities as citizens.

Accessible Means of Egress: A continuous and unobstructed way of egress travel from any point in a building or facility that provides an accessible route to an area of refuge or area of rescue assistance, a horizontal exit, or a public way.

Accessible Route: A continuous, unobstructed path connecting all *accessible* elements and spaces within or between *buildings* or *facilities*. Interior *accessible routes* may include corridors, floors, *ramps*, elevators, lifts, and *clear floor space* at fixtures. Exterior *accessible routes* may include parking, *access aisles*, *curb cuts*, and crosswalks at vehicular ways, *walks*, *ramps*, and lifts.

Accessibility: The ability to approach, enter, operate, participate in, and/or use safely a site, facility, work environment, or service, by a person with a disability.

Accessibility Audit: A comprehensive assessment of a facility to determine non-compliant accessibility elements, conducted by DCAMM's Accessibility Consultants or others using a systematic checklist and reporting format approved by DCAMM.

ADA Strategic Compliance Assessment: An analysis of an agency's level of compliance with the ADA, completed by DCAMM's Accessibility Consultants, and serving as an updated ADA Self Evaluation. The report identifies high priority ADA issues that need immediate mitigation, accessibility projects that may require capital funding, changes needed to policies and procedures, and accessibility improvements that can be undertaken by facility staff.

ADA Implementation Plan: An agency's response to the ADA Strategic Compliance Assessment, identifying the actions that will be taken to achieve compliance with the ADA. In conformance with the requirements of the ADA Transition Plan, it will include a completion date and a responsible party. The Implementation Plan will be updated on an annual basis.

Administrative Bulletin ANF 19, "Enhancing Coordination and Integration to Promote Accessibility": Published by the Commonwealth's Executive Office of Administration and

Finance, this bulletin became effective on April 1, 2011. It outlines and establishes the policy and programmatic framework through which the Commonwealth will proactively act to remove physical and programmatic barriers that limit equal participation in state programs, activities and services. ANF 19 also establishes the Universal Access Committee (UAC), which makes recommendations to the Office of Administration and Finance including defining, overseeing and coordinating implementation of the actions necessary to achieve the purpose and policy of Administrative Bulletin 19.

Americans with Disabilities Act (ADA): The federal statute enacted on July 26, 1990 and amended in 2008 that defines anti-discrimination protections ensuring the civil rights of people with disabilities, similar to the anti-discrimination protections under the Civil Rights Act of 1964 based on race and gender. The ADA broadly defines the rights of individuals with disabilities to equal opportunity in employment, access to state and local government services, private sector places of public accommodation, transportation, and other important areas of American life.

ADA Coordinator: The ADA requires that entities of state and local government designate ADA Coordinators to ensure compliance with all disability rights-related federal and Massachusetts laws, regulations, policies and procedures, including but not limited to the Americans with Disabilities Act of 1990 (ADA), ADAAA 2008, the Federal Rehabilitation Act (1973) as amended, Executive Order 526, the Governor's Model Employer Program, and Administration and Finance Administrative Bulletin #19. This designated individual advises the Agency Head on promoting access and equal opportunity for people with disabilities in programs, activities and services of state government, including employment, and is responsible for overseeing compliance-related actions and assisting with disability-based discrimination complaints at the Agency and its facilities.

ADA Title I: The section of the ADA that prohibits private employers, State and local governments, employment agencies and labor unions from discriminating against qualified individuals with disabilities in job application procedures, hiring, firing, advancement, compensation, job training, and other terms, conditions, and privileges of employment and requires an employer to provide reasonable accommodation to qualified individuals with disabilities who are employees or applicants for employment, unless to do so would cause undue hardship. Reasonable accommodations may include modifications to a building or facility designed to address the specific needs of an employee needing accommodation.

ADA Title II: The section of the ADA applies to State and local government entities, and protects qualified individuals with disabilities from discrimination on the basis of disability in services, programs, and activities provided by State and local government entities. Title II extends the prohibition on discrimination established by section 504 of the Rehabilitation Act of 1973, as amended, to all activities of State and local governments regardless of whether these entities receive Federal financial assistance. Title II establishes 5 administration requirements: designating a qualified individual as an ADA Coordinator, posting notice of non-discrimination based on ADA, establishing an ADA grievance procedure, conducting an ADA self-evaluation survey, and creating an ADA transition plan.

Area of Refuge or Area of Rescue Assistance: An area which has direct access to an exit where people who are unable to use stairs or unable to travel more than 100 feet to a public

way may remain temporarily in safety to await further instructions or assistance during an emergency evacuation. Areas of refuge are required by the International Building Code in most newly constructed public buildings and additions, unless they are fully sprinklered.

Capital Asset Management Information System (CAMIS) is the facility information management system implemented by DCAMM in response to an initiative authorized in 1999 by the Massachusetts legislature. CAMIS has been implemented to manage the State's capital assets and capital equipment. CAMIS is utilized to manage data and assist facilities in their daily maintenance activities.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as commonwealth owned.

Controlling Agency: A state agency with the "legal control or jurisdiction" of the property as provided by M.G.L. Chapter 7C, Section 41, which carries with it the right to "occupy, or make expenditure for the maintenance of, any land, buildings or other state-owned or state-occupied facilities." Control and jurisdiction does not mean that a state agency is the owner of the property since the Commonwealth owns all state property.

Disability: Defined by the ADA as "a physical or mental impairment that substantially limits a major life activity, a history or record of such impairment, or being regarded as having such an impairment".

DCAMM ADA Coordinator: This designated individual advises DCAMM's Commissioner on promoting access and equal opportunity for people with disabilities in programs, activities and services of state government, including employment, and is responsible for overseeing compliance-related actions and assisting with disability-based discrimination complaints at DCAMM and its facilities,

DCAMM Security Manager: This position reports to the Deputy Commissioner of Facilities Management and will work closely with the DCAMM Office of Facilities Management and Maintenance to implement standards and integrate security into the shared services model for Commonwealth facilities.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

OFMM Director of Operations and Maintenance: Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.

Licensee: Individual or entity that is not a state agency or state employee but occupies space of a User Agency as part of a service contract or other arrangement with the User Agency to further the User Agency's mission, or that occupies space as part of a contract with DCAMM to further DCAMM's services. For example, a private consulting firm hired by an agency might be

provided with offices inside the agency's space. The consulting firm would be a licensee.

Massachusetts Architectural Access Board (MAAB): The regulatory agency within the Massachusetts Executive Office of Public Safety that develops and enforces regulations designed to make public facilities accessible, functional, and safe for use by persons with disabilities. MAAB regulations are -- found in Section 521 of the Code of Massachusetts Regulations. The Board receives and adjudicates complaints of non-compliance, provides advisory opinions on its regulations, and may grant variances if compliance can be demonstrated: 1) to be technologically unfeasible or, 2) to result in excessive and unreasonable costs without any substantial benefit to persons with disabilities.

Massachusetts Office on Disability (MOD): The agency within the Executive Branch designated as its ADA Coordinator to oversee and administer the Commonwealth's compliance with the Americans with Disabilities Act (ADA). MOD's mission is to ensure the full and equal participation of all people with disabilities in all aspects of life by working to advance legal rights, maximum opportunities, supportive services, accommodations and accessibility in a manner that fosters dignity and self-determination.

Occupant(s): The individuals or entities that occupy space in a Commonwealth facility by virtue of their status of a Controlling Agency, **User Agency**, or because they are permitted to use the space as a Licensee of the User Agency.

Program Accessibility: A public entity may not deny the benefits of its programs, activities, and services to individuals with disabilities because its facilities are inaccessible. A public entity's services, programs, or activities, when viewed in their entirety, must be readily accessible to and usable by individuals with **disabilities** in a time-frame and setting equivalent to people without disabilities. This standard applies to all existing facilities owned or occupied by the Commonwealth. Public entities, however, are not necessarily required to make each of their existing facilities accessible if program accessibility can be achieved through administrative and operational, non-structural solutions, such as scheduling a program in a comparable, accessible space, as long as the alternative is of the same quality as the original. Government entities are not required to take actions that would result in a fundamental alteration to the nature of the service, program, or activity in question or that would result in undue financial or an administrative burden. This determination can only be made by the head of the public entity and must be accompanied by a written statement of the reasons for reaching that conclusion. The determination that undue burden would result must be based on all resources available for use in a program. If an action would result in such an alteration or such burdens, the entity must take any other action that it can to ensure that people with disabilities receive the benefits and services of the program or activity.

Security Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Service Delivery and Performance Objectives: The supplemental document for each Standard that details the activities necessary for successful implementation of the Standard at **Commonwealth facilities**, as well as the performance goals for ensuring these activities meet the anticipated level of service. This document shall also align with the activities listed within the **Service Level Matrix (SLM).**

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a User Agency of a Commonwealth facility and any that may be retained by the User Agency or Occupant. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement or other similar agreement between OFMM and an Occupant.

Service Providers: The parties responsible for completing all maintenance and management activities under this standard. Service providers at the facility are internal facility staff, external contracted providers, or both.

Universal Design (UD): A conceptual framework for the design of places, products, information, communication and policy to be usable by the widest range of people operating in the widest range of situations without special or separate design. Most simply, Universal Design is human-centered design of everything with everyone in mind.

User Agency: A state agency that has the legal right to use and occupy all or a portion of any building, facility, improvement, or property owned by the Commonwealth for its agency mission and purposes. A User Agency may have the exclusive use of an entire building, or in a multi-occupancy facility, it may have the exclusive use of part of the building and the right to use common areas with other users. A User Agency is also an "Occupant" as defined herein.

Requirements

1. Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance,** or an appointed designee, shall ensure implementation of this Accessibility Standard and its requirements throughout **Commonwealth facilities**

1.2 The **OFMM Director of Operations and Maintenance** shall work with the **User Agency ADA Coordinators** to identify and resolve their specific accessibility needs and concerns at the facility, including, but not limited to, security procedures, maintenance schedules, housekeeping, and signage

1.3 The **OFMM Director of Operations and Maintenance** shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

d. **DCAMM ADA Coordinator**

e. **User Agency ADA Coordinators and/or on-site managers**

1.4 The **OFMM Director of Operations and Maintenance** and **Facility Manager** shall utilize resources for technical assistance and training, including, but not limited to the

following:

a. **Massachusetts Office on Disability (MOD)**

b. **Massachusetts Architectural Access Board (MAAB)**

c. Internal and external subject matter experts

1.5 Each **User Agency** shall have a designated **ADA Coordinator** to handle employee Title I requests and accommodation requests by the public to programs, services and activities within its space

2.0 Implementation

The **OFMM Director of Operations and Maintenance** shall ensure the following accessibility measures are in place, as applicable, throughout **Commonwealth facilities**. The **OFMM Director of Operations and Maintenance** shall determine the individuals responsible for carrying out each measure listed below on a case-by-case basis depending on the specific facility.

2.1 Work with the **User Agency** to identify its specific accessibility needs for both the site and facility common spaces, and the space(s) it occupies within the facility.

2.2 Ensure the facility complies with all **accessibility** regulations as identified in the **ADA Strategic Compliance Assessment and Implementation Plan** and or the **Accessibility Audit** report.

2.3 Work with the User Agency to ensure accessibility to the programs, services and activities and employee work areas within the **User Agency** space.

2.4 Maintain in fully working condition those features of facilities and equipment that are required to be readily accessible to and usable by persons with disabilities.

2.5 Ensure accessibility measures are in place and operational to allow access and movement into and around the site and facility, including, but not limited to the following:

a. Provide and maintain interior and exterior accessible routes.

b. Test all operable accessible elements (i.e., door pressure and closing speed, automatic door openers, lifts).

c. Maintain essential communication systems and signage.

2.6. Ensure facility alterations, repairs or replacement of any element are in compliance with the requirements of **Title II of the ADA**, the **2010 ADA Standards for Accessible Design,** and the **Massachusetts Architectural Access Board (MAAB)** regulations (521 C.M.R.).

a. Identify the accessibility requirements in ADA and 521 CMR for any element that may be touched as part of a project.

b. Determine whether the cost of the work performed triggers additional MAAB accessibility compliance for building elements such as entrances and toilet rooms .A variance must be requested from the MAAB prior to any repair or alteration for any

required element that cannot be brought into compliance.

c. Determine if any work being performed on a primary function area requires accessibility improvements to the existing path of travel between the facility entrance and the primary function area.

d. Review the work performed by in-house service providers, contractors, and state vendors to ensure it is in compliance with accessibility regulations.

e. Ensure facility alterations and repairs occur with the least amount of disruption possible for people with disabilities.

f. Ensure arrangements for continuity of service in the event of isolated or temporary interruptions in services due to maintenance or repairs. Comply with **MAAB** requirements for temporary accessible routes during construction.

2.6 Update Capital Improvement Plans for inclusion of accessibility improvements identified in the **ADA Implementation Plan** and/or **Accessibility Audit**.

2.7 Plan the mitigation of high priority accessibility issues identified in the **ADA Implementation Plan** and/or **Accessibility Audit** by identifying funding and scheduling renovations or repairs in accordance with the schedule established in those documents.

2.8 Maintain written policies and procedures to ensure program accessibility when barriers have not been mitigated. Train all **facility staff** and **User Agencies** to be knowledgeable about how equal access is provided in the facility.

2.9 Ensure security and emergency management policies and procedures at the facility are inclusive of and responsive to the needs of persons with disabilities, including effective communication, by reviewing the facility's security and emergency management policies and procedures on a regular basis with the facility's **Security Manager,** the **DCAMM ADA Coordinator**, and **MOD.**

2.10 Maintain effective communication in the building including fixed signage, electronic information systems, audio visual equipment, assistive listening systems, visual emergency alarms, and two-way communication systems in areas of refuge

2.11 Maintain building information and signage in compliance with both **MAAB** and **ADA** requirements as well as FMMS 17 Wayfinding

a. Maintain an accessible facility web page of essential building information such as hours of operation, accessible parking, accessible entrances, and the contact information for the **ADA Coordinator.**

b. Provide accessibility information when physical elements of the facility are altered, temporarily out of service, or when temporary or permanent changes affect the usability of equipment, spaces or accessible routes

c. Update signage as necessary to reflect changes at the facility (e.g., room changes, egress routes, etc.).

2.12 Maintain up-to-date information in the Commonwealth's **Capital Asset Management**

Information System (CAMIS) database program including, but not limited to updates to the **ADA Implementation Plan**, including changes in priorities and timetables, and recording accessibility improvements made to the facility.

3.0 Materials and Equipment

This section identifies high level regulations, requirements, and categories related to materials and equipment for ensuring accessibility throughout **Commonwealth facilities** and shall not serve as an all-inclusive inventory.

3.1 Include **ADA** compliance language in all contracts and purchase orders (i.e., non-discrimination, design, installation, operation) and monitor compliance.

3.2 Ensure that maintenance purchasing policies & procedures do not discriminate against people with disabilities.

4.0 Training

The **OFMM Director of Operations and Maintenance** shall approve and oversee training content and requirements, and ensure that all service providers have proper training in compliance with the accessibility requirements under their specific contracts

An ongoing accessibility training program shall be in place for all service providers and User Agency representatives to ensure compliance with all accessibility-related requirements, procedures, processes, and products required by OFMM facilities maintenance procedures.

4.1 **Facility managers** must receive technical assistance and training resources on accessibility so that they can manage and operate facilities in compliance with state and federal accessibility laws.

4.2 In addition to the above training programs, **service providers** shall comply with any other training requirements their contracts require.

5.0 Communication

The **OFMM Director of Operations and Maintenance** shall ensure specific and appropriate communication across staff, service providers, and facility occupants for the successful and transparent implementation of all standards.

5.1 **Service providers** shall not communicate directly with facility **occupants**. All communication with facility occupants shall only occur through the **OFMM Director of Operations and Maintenance,** the **facility manager**, or a designated representative.

5.2 Ensure that communications with persons with disabilities are as effective as communications with others**.**

5.3 Provide signage at all inaccessible elements in the facility, directing users to an accessible element, including paths of travel, entrances, toilet rooms, and drinking fountains, and maintain signage required by the **ADA or MAAB.** Signs shall also be provided indicating how to contact the **ADA Coordinator.**

5.4 Ensure that persons with visual, auditory and cognitive disabilities, can access information regarding the availability and location of accessible services, activities, and

facilities as well as emergency notifications and egress.

5.5 Provide appropriate auxiliary aids and services where necessary to afford an individual with a disability an equal opportunity to participate in, and enjoy the benefits of, a service, program, or activity conducted by facility **occupants**.

6.0 Recordskeeping

The **OFMM Director of Operations and Maintenance** shall ensure the following recordskeeping activities occur throughout **Commonwealth facilities**. The **OFMM Director of Operations and Maintenance** shall determine the individuals responsible for tracking and collecting the below information on a case-by-case basis depending on the specific facility.

6.1 Steps taken to address non-compliance identified in the **ADA Implementation Plan** and/or Accessibility Audit report.

6.2 Access improvements that are to be addressed in the coming fiscal year

Tools and Resources

All tools and resources related to the Accessibility Standard are included in an appendix to the complete FMMS

- Commonwealth of Massachusetts 521 CMR *"Architectural Access Board Rules and Regulations"*
- Massachusetts Administrative Bulletin 19, *"Enhancing Coordination and Integration to Promote Accessibility at State Facilities or to State Programs, Services and Activities"*
- U.S. Department of Justice. American with Disabilities Act (ADA):*Title II Part A* (2010).
- U.S. Department of Justice. American with Disabilities Act (ADA): *ADA Standards for Accessible Design* (2010).

Related Metrics

- Maintain the **ADA Implementation Plan** and/or **Accessibility Audit** report with updates on accessibility improvements completed. It will be reviewed on a regular basis, and also anytime modifications to the facility are planned. It will document in writing any policies and procedures instituted to provide program access.
- The effectiveness of accessibility will be measured by how **occupants** with disabilities can navigate the facility, based on grievances and complaints made to the **Facility Staff**, **OFMM Director of Operations and Maintenance**, and **MOD**.
- Updated information in **CAMIS**.

Title	Standard No./Revision No.	Date
Fire Safety	FMMS 16 / REV.1	March 1st, 2016

Purpose and Scope

The purpose of this Fire Safety Standard is to protect lives and **Commonwealth facilities** in conjunction with state, municipal building, and fire protection agencies, and to collaborate with such agencies in the prevention of fire and the advancement of fire safety education programs. This Standard establishes the minimum fire safety requirements for Commonwealth facilities, in order to achieve the following goals:

- Operate and maintain fire protection and life safety systems that effectively detect, notify occupants, contain, and control or extinguish a fire event in the early stages
- Improve overall building safety to protect human life, reduce potential loss, and control the environmental impact from fire and products of combustion
- Protect the real and personal property of the Commonwealth of Massachusetts

The requirements for each building or facility are to be reviewed to establish a detailed standard for that building's specific fire safety needs. The review will result in a building-specific standard that includes a fire safety policy and a Fire Safety Plan. All Fire Safety Plans shall conform to all code requirements which may require local authority approval. Additionally, all Fire Safety Plans shall conform to state code requirements which require approval by the State Fire Marshal for the Commonwealth. All Massachusetts state buildings must conform to all fire safety regulations prescribed by 780 CMR (The State Building Code) and related standards.

Buildings with advanced functional requirements such as data centers, laboratories and hospitals may require mission-specific level standards.

Specific requirements and responsibilities can be reasonably varied and the Service Level Matrix (SLM) agreed upon by DCAMM and the user agency.

Related Reference Standards

The Fire Safety Standard includes requirements that impact and are referenced within other FMMS Standards. The following is a list of Standards referenced within the Fire Safety Standard:

- FMMS 01 Security
- FMMS 06 Preventative Maintenance
- FMMS 09 Emergency Management
- FMMS 15 Accessibility

- FMMS 17 Wayfinding

Summary

The following topics and their related requirements are included in the Fire Safety Standard and detailed under the “Requirements” section of this document.

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Regulatory Compliance

5.0 Training

6.0 Communication

7.0 Recordskeeping

Definitions

All terms defined below are identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is an appendix to the FMMS.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as commonwealth owned.

Facility Manager: Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers.

Facility Staff: Internal service providers reporting to the facility manager for maintenance and operation of a facility.

Fire Safety Code (*527 CMR: Board of Fire Prevention Regulations*) is a model code adopted by the state and enforced by fire prevention officers within municipal fire departments. It is a set of rules prescribing minimum requirements to prevent fire and explosion hazards arising from storage, handling, or use of dangerous materials, or from other specific hazardous conditions. It complements the building code. The fire code is aimed primarily at preventing fires, ensuring that necessary training and equipment will be on hand, and that the original design basis of the building, including the basic plan set out by the architect, is not compromised. The fire code also addresses inspection and maintenance requirements for various types of fire protection equipment in order to maintain optimal active fire protection and passive fire protection measures.

Fire Safety Coordinator is a person responsible for facility/building personnel training and fire drills. The Fire Safety Coordinator will usually be a member of the Incident Management Team (for emergency management).

Fire Safety Plan is a document that specifies a set of facility/building-specific safety measures and action items in the event of fire. The plan includes key contact information, the location of utility services, access issues, the locations of dangerous stored materials, the locations of people with special needs, the locations for sprinkler system connections, a layout/drawing/site plan of the facility/building, maintenance schedules for all life safety systems, and personnel training/fire drill procedures. A current approved Fire Safety Plan is required in all **Commonwealth facilities**, and is to be made available to the local fire authority.

Incident Management Team (IMT) is a team of individuals including, but not limited to the Facility Manager, Security Director, Life Safety Coordinator, key agency personnel identified by the stakeholder that manage the logistical, fiscal, planning, operational, safety and community issues related to an incident, emergency or other sentinel event.

Life Safety Code (*NFPA 101*) is the most widely used source for strategies to protect people based on building construction, protection, and occupancy features that minimize the effects of fire and related hazards. It applies to existing structures as well as new structures. (NFPA is a reference standard that may assist with determining a solution to an issue, but is not a CMR.)

Local Fire Authority is the chief Fire Official (or authority having jurisdiction) or their designated representative for the city/town in which the facility/building is physically located.

NFPA Code 13 is the **National Fire Protection Association** standard for the installation of automatic sprinkler systems. **NFPA 25** is the baseline for inspection, testing, and maintenance of water-based fire protection systems. Compliance helps maximize system integrity to avoid failure and ensure fast, effective response in a fire emergency.

NFPA 72 provides the latest safety provisions to meet society's changing fire detection, signaling, and emergency communications demands. In addition to the core focus on fire alarm systems, the Code includes requirements for mass notification systems used for weather emergencies; terrorist events; biological, chemical, and nuclear emergencies; and other threats.

OFMM Director of Operations and Maintenance: Responsible for managing user agency customer needs.

State Building Code (*780 CMR: Massachusetts State Building Code*) is a set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and non-building structures. The main purpose of building codes is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment, and to provide safety to fire fighters and emergency responders during emergency operations.

Requirements

The following are requirements for multiple facility types. It is the responsibility of the facility manager to ensure that all facilities maintenance staff and contracted service providers follow all current rules, regulations, policies, and procedures relevant to the specific operational and programming requirements of occupant agencies in the facility. The following topics and their related requirements are included in the Fire Safety Standard and detailed under the "Requirements" section of this document.

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance,** or an appointed designee, shall ensure implementation of this Standard and its requirements at all **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance,** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

c. Contracted **Service Providers**

1.3 DCAMM Support responsibilities include the following:

a. Work with the **facilities manager** and Incident management team to verify that the plan meets the requirements of **527 CMR 10 (Code of Massachusetts Regulation)**

b. Work with the facilities manager and Incident management team to review the Fire Safety plan to ensure it functions as intended

c. Verify through the Department of Fire Services that the plan is consistent with all applicable Commonwealth statutes, regulations, polices, and procedures

d. Assist the Incident Management team and facility manager during all phases of the fire safety plan

e. Ensure that any renovation, change of use and\or construction that may take place is appropriately designed, constructed, permitted and inspected in accordance with provisions of **780 CMR (The State Building Code)**

1.4 Facilities Manager is responsible for the following duties:

a. Work with the Incident Management team to verify that the plan meets the requirements of **527 CMR 10 (Code of Massachusetts Regulation)**

b. Assist the Incident Management team in executing the plan

c. Work collaboratively with Incident Management team to test and improve the plan

d. Assist the Incident Management team during an emergency

1.5 Incident Management Team responsibilities include the following:

a. Establish a facility specific Emergency Management plan as per **527 CMR 10**

b. Work with the facilities manager and DCAMM to verify that the plan meets the requirements of 527 CMR 10

c. Communicate the plan to the local fire authority and occupant agency liaison

d. Carry out the plan

e. Work with critical personnel to test and improve the plan

f. Administer the plan continuously and at all times during an emergency

1.6 It is the responsibility of the occupant agency occupants, suppliers and visitors to adhere to the fire safety plan both during testing and actual fire emergency.

1.7 Fire Department Responsibility: The local Fire Department will assume command and control of a fire emergency at any facility at which a fire emergency occurs.

2.0 Implementation

2.1 Fire Risk Assessment

a. Assure that the facility has a current Fire Risk Assessment, performed annually by a qualified professional with expertise in regulatory requirements related to fire protection in buildings.

b. The facility Fire Risk Assessment shall report the following:

- Identify Fire Hazards
- Identify Facility Users at Risk
- Evaluate specific risks
- Document findings

2.2 Fire Safety Policy

a. Assure that the facility has a Fire Safety Policy in place, based on the findings from the most current Fire Risk Assessment.

b. The facility Fire Safety Policy shall address the following, as appropriate as established by **780 CMR (The State Building Code):**

c. Structural fire protection: Building construction classification, fire resistance rating requirements, fire doors, etc.

d. Means of Egress, including required signs, illumination and maintenance of exitways

e. Firefighting equipment: extinguishers, hose connections

f. Maximum occupant load

g. Occupant responsibilities

2.3 The approved Fire Safety Policy shall address specific hazards in the facility, which may include but are not limited to the following:

a. Kitchen areas
b. Electrical systems and equipment
c. Batteries and battery systems
d. Flammable and/or hazardous liquids, aerosols, and other combustible products
e. Equipment that generates heat, flame, or sparks
f. Equipment that generates heat and utilizes combustible materials
g. Heating appliances – fireplaces, wood burning stoves, furnaces, boilers, portable heaters

2.4 **Fire Safety Code**

a. Certification for servicing, placement, and inspecting fire extinguishing equipment
b. General storage and handling of flammable and/or hazardous liquids, solids, and gases
c. Limits on locations and quantities of flammables
d. Emergency exits
e. Maintenance of clear exitways
f. Firefighter use/access to exit ways (These are established by **780 CMR**.)
g. Removal of hazardous materials
h. National Electric Code requirements
i. Fuel Gas Code requirements

2.5 Approved Fire Safety Plan

a. Key contact information
b. Utility Services (including shut-offs for water, gas, and electric)
c. Access issues
d. Dangerous stored materials
e. Location of people with special needs
f. Connections to sprinkler system, (where applicable)
g. Layout, drawing, and site plan of building/facility
h. Maintenance and testing schedule for Life Safety systems

3.0 Materials and Equipment

3.1 The Facility/building shall have the necessary fire safety equipment as required on hand and maintained per NFPA Standards, applicable regulatory standards, and

manufacturers recommendations.

a. A current Approved **Fire Safety Plan**
b. Fire extinguishers
c. Displayed emergency contact information
d. Displayed emergency exit plan
e. Illuminated emergency exit signs
f. Emergency lighting
g. First aid kits
h. Emergency communication equipment
i. Fire suppression system (where applicable) each are established by 780 CMR.

4.0 Regulatory Compliance

4.1 In case of facility evacuation ensure that the emergency evacuation plan is in place and clearly displayed

4.2 In case of fire, the incident management team shall inform facility/building occupants and visitors of the proper response.

4.3 After evacuation the incident management team shall account for all occupants and visitors at the designated staging areas

4.4 Establish emergency communications between the incident management team, the **facility manager,** and the local fire authority

5.0 Training

5.1 Provide training to facility management personnel in the following areas:

a. Preventing fires
b. Emergency Communications
c. Fire Extinguishers
    - Appropriate extinguisher types for combustible materials
    - Locations of fire extinguishers
d. Fire Evacuation
    - Evacuation coordinator
    - Evacuation routing
    - Evacuation assembly areas
e. Bi-annual fire evacuation drills

6.0 Communication

6.1 DCAMM is responsible for communicating the following:

a. Any changes with the occupant agency to the **facility manager**

b. DCAMM shall make available to the facility manager any MOU or MOA with the occupant agency or other involved agency

c. Any changes in training and requirements for the Facility Manager, Incident management team, and occupant agency liaison as generated by **527 CMR 10** Pertinent advisories transmitted from the Department of Fire Services

6.2 **Facility Manager** is responsible for communicating the following:

a. Any changes with the condition of the facility/building to DCAMM and **Incident Management team** that could affect fire safety

b. Any changes with training requirements for the Incident management team and the occupant agency

c. Any changes to DCAMM for Fire Risk Assessment, based on the annual review

6.3 **Incident Management team** is responsible for communication of:

a. Any changes to the **Fire Safety plan** as a result of plan reviews

b. The occurrence of a fire incident at the facility to DCAMM, the facility manager, and the local fire authority

c. The status of an ongoing fire incident until the local fire authority arrives at the scene

d. Any additional requirements to DCAMM and the facility manager as a result of the fire incident

e. The status of the recovery operation to the occupant agency liaison, the facility manager, and DCAMM

6.4 Occupant Agency liaison is responsible for the following communication to the facility manager and Incident Management team:

a. Any potential hazards

b. Any problematic issues with emergency exits

c. Any missing, damaged, or expired safety equipment

7.0 Recordskeeping

7.1 DCAMM shall review the Fire Safety Policy with the incident management team and occupant agency liaison on a regular basis.

7.2 Methods shall be defined to evaluate the fire safety policy.

7.3 The review of the policy shall be used to make necessary changes and plan improvements for the fire safety plan.

Tools and Resources

All tools and resources are also in an appendix to the complete **FMMS**.

- Massachusetts Department of Fire Services: Provides advisories, training, and public information services related to fire safety in buildings and facilities.
- Massachusetts Department of Public Safety (DPS): provides assistance with building code matters, issues permits for and performs inspections on existing and new construction. DPS inspectors must be consulted prior to performing any renovation, change of use and\or construction to ensure that the work is appropriately designed, constructed, permitted and inspected in accordance with provisions of 780 CMR (The State Building Code).
- **Massachusetts General Laws 527 CMR:** *Board of Fire Prevention Regulations*
- **Massachusetts General Laws 530 CMR**: *Fire Safety Commission Regulations*
- **Massachusetts General Laws 780 CMR**: *The State Building Code*
- National Institute of Building Sciences: *Whole Building Design Guide*
- National Fire Protection Association*:* ***NFPA 72***: *National Fire Alarm Code*. Quincy, Massachusetts
- National Fire Protection Association: ***NFPA 70****: National Electric Code.* Quincy, Massachusetts
- National Fire Protection Association*:* ***NFPA 101***: *Life Safety Code*. Quincy, Massachusetts
- Smith, P., et al. 2001. *Facilities Engineering and Management Handbook.*
- U.S. General Services Administration: *Standards for the Public Buildings Service*

Related Metrics
• Fire Safety of a building or facility will be measured outside of an incident on improved training, effectiveness, and plan improvements. • Fire safety of a building or facility will be measured overall as to how people and property are protected during an actual fire. • Fire Safety Training should be assessed to track and document evacuation times and compliance with Fire Safety Plan requirements (e.g. use of approved exitways, use of established meeting areas, etc.) • Fire emergency response times should be tracked to assess the implementation of the Fire Safety Plan.

Title	Standard No./Revision No.	Date
Wayfinding	FMMS 17 / REV.1	March 1st, 2016

Purpose and Scope

This Wayfinding Standard establishes baseline requirements necessary to ensure that all **occupants** and visitors are able to access programs and services and navigate within **Commonwealth facilities** as efficiently, safely, and independently as possible.

This Standard shall be used to:

- Identify, clarify, and define straightforward and intuitive routes to all destinations on the interior and exterior of **facilities**.
- Communicate navigational and instructional information effectively to all users.
- Establish consistent, recognizable, and distinctive identities for visual and non-verbal **wayfinding** strategies.
- Establish patterns that are consistent and easy to recognize for all language, visual, tactile, audible, installation and dimensional requirements.
- Provide systems and components that are flexible and adaptable to change.
- Provide a user-friendly and positive user experience.

Wayfinding strategies throughout **Commonwealth facilities** shall be consistent and coordinated with the specific program needs and regulatory requirements of the **User Agency**. Detailed implementation strategies shall be included in the related **Service Level Matrix (SLM)**.

The **SLM** shall further define the scope of the wayfinding strategies at the facility; however, wherever the health and safety of the **occupants** is at risk DCAMM and/or the **facility manager** shall override the occupant's scope.

The specific regulatory requirements of specialized facilities such as hospitals and correctional institutions are addressed in facility-specific supplements to the Facility Maintenance and Management Standards (FMMS).

Please note that wayfinding requirements apply to leased as well as Commonwealth-owned facilities.

Related Standards

The following FMMS also include references and/or requirements related to this Wayfinding Standard:

FMMS 01	Security
FMMS 02	Grounds and Landscape Maintenance
FMMS 03	Cleaning
FMMS 04	Solid Waste Management
FMMS 05	Routine Maintenance
FMMS 06	Preventive and Scheduled Maintenance
FMMS 07	Integrated Pest Management
FMMS 08	Health and Safety
FMMS 09	Emergency Management
FMMS 10	Energy Management and Sustainability
FMMS 11	Space Management
FMMS 12	OFMM Project Management
FMMS 13	Facility Information Management
FMMS 14	Procurement of Equipment, Material and Building Services
FMMS 15	Accessibility
FMMS 16	Fire Safety

Summary

This Standard addresses the following items:

1.0 Roles and Responsibilities

2.0 Implementation

3.0 Materials and Equipment

4.0 Training

5.0 Communication

6.0 Recordskeeping

Definitions

All terms defined below are also identified in bold throughout this Standard. If a term appears more than once in the same paragraph, only the first instance will be bolded. All defined terms are also included in the FMMS Glossary, which is provided as an appendix to the FMMS.

Accessibility: The ability to approach, enter, operate, participate in, and/or use safely a site, facility, work environment, or service by a person with a disability.

Accessible Website: A website that people with disabilities can perceive, understand, navigate, and interact with. Websites must comply at a minimum with the Massachusetts Enterprise Web Accessibility Standards. Most recently Web Accessibility Initiative WCAG 2.0 is the standard used to provide accessibility. See http://www.w3.org/WAI/intro/accessibility.php

Alternative Formats: Under Title II of the **Americans with Disabilities Act** and Section 504 of the Rehabilitation Act of 1973, federally conducted and assisted programs along with programs of state and local government are required to make their programs accessible to people with disabilities as well as provide effective communication. Effective communication means to communicate with people with disabilities as effectively as communicating with others. A legal requirement to ensure effective written communication. Alternative formats are auxiliary aids used to effectively communicate printed information to people who are unable to use standard print. Alternative formats may include Braille, large print, audio, and computer disk~~.~~

Americans with Disabilities Act (ADA): Americans with Disabilities Act (ADA): The federal statute enacted on July 26, 1990 and amended in 2008, that defines anti-discrimination protections ensuring the civil rights of people with disabilities, similar to the anti-discrimination protections under the Civil Rights Act of 1964 based on race and gender. The ADA broadly defines the rights of individuals with disabilities to equal opportunity in employment, access to state and local government services, private sector places of public accommodation, transportation, and other important areas of American life **Assistive Technology**: Devices used by people with disabilities, including physical, sensory, or cognitive limitations, in order to perform functions that might otherwise be difficult or impossible. Assistive technology can include mobility devices such as walkers and wheelchairs, as well as hardware, software, and peripherals that assist people to increase, maintain, or improve functional capacities.

Audio Description: Audio Description can be used to communicate visual wayfinding cues, such as views: directional identification, and information signs; elevator panels and You-Are-Here maps. Audio Description can let users know where they are, what's nearby and how to proceed in order to reach various destinations.

Braille: A system of touch reading and writing for blind persons, in which raised dots represent the letters of the alphabet. Type II contracted Braille is the only type of Braille ~~one~~ that is compliant with ADA 2010 Standards for dimensional requirements

DCAMM ADA Coordinator: This designated individual advises DCAMM's Commissioner on promoting access and equal opportunity for people with disabilities in programs, activities and services of state government, including employment, and is responsible for overseeing compliance-related actions and assisting with disability-based discrimination complaints at DCAMM and its facilities.

Commonwealth facilities: The buildings for which DCAMM has assumed maintenance and management responsibilities. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as commonwealth owned.

Facility Manager: The person responsible for the maintenance and operation of a facility, which includes oversight of all internal and external service providers.

OFMM Director of Operations and Maintenance: Responsible for managing user agency customer facilities needs.

Limited English Proficiency (LEP): A Limited English Proficient ("LEP") person is someone who is not able to speak, read, write or understand the English language at a level that allows him/her to interact effectively with Agency staff. Consistent with Federal Executive Order 13166 and ANF Administrative Bulletin #16, state and local government agencies and recipients of federal funds must take reasonable steps to ensure meaningful access to their programs and activities by LEP persons.

Occupants: Individuals that occupy space either because they are employed by the User Agency or by a Licensee of the User Agency.

Pictogram: A symbol that represents an object or concept, e.g. a picture of an envelope used to represent an e-mail message. Pictograms are common in everyday life, e.g., signs in public places or roads, whereas the term "icon" is specific to interfaces on computers or other electronic devices.

Tactile Signage: Incorporates raised text, Braille, or symbols to enable touch reading by people who are blind, and touch enhancement of visual perception for people who are vision impaired. Tactile elements cannot be sharp to the touch and needs to be located within reach ranges.

Signage: Signage is the visual, tactile, and verbal communication component of wayfinding. Where a building layout is not obvious and intuitive, signage is required to communicate what the architecture cannot. Too much or too little signage causes confusion. For effective wayfinding, signage must provide the correct information at the correct time.

Service Level Matrix (SLM): A document that details each of the specific facility maintenance and management services that DCAMM OFMM will provide to a **User Agency** of a **Commonwealth facility** and any that may be retained by the User Agency or **Occupant**. This document is negotiated between OFMM and the User Agency or Occupant and forms part of the Facilities Management Agreement, Occupancy Agreement, or other similar agreement between DCAMM OFMM and an Occupant.

User Agency: A state agency that has the legal right to use and occupy all or a portion of any building, facility, improvement, or property owned by the Commonwealth for its agency mission and purposes. A User Agency may have the exclusive use of an entire building, or in a multi-occupancy facility, it may have the exclusive use of part of the building and the right to use common areas with other users. A User Agency is also an "Occupant" as defined herein.

Wayfinding: A dynamic strategy that allows people to find where to go and how to get there and back. Wayfinding is not a synonym for signage. Along with a variety of exterior and interior

environmental elements and features such as paths, routes, landmarks, canopies, thresholds, sightlines, finishes, color, acoustics, lighting, maps, electronic devices, space naming and numbering and websites, signage is used as a tool for clarifying and communicating information further.

Accurate and timely information must be provided when and where a user needs it. Placement of environmental cues and selection are critical to maximizing the communication. Often this cannot be achieved using only one method; redundancy and overlap of information is helpful but only if used consistently throughout a facility.

Requirements

1.0 Roles and Responsibilities

1.1 The **OFMM Director of Operations and Maintenance** or an appointed designee, shall ensure implementation of the Wayfinding Standard and its requirements throughout **Commonwealth facilities.**

1.2 The **OFMM Director of Operations and Maintenance** and client agency representative (where applicable) shall oversee the completion of all measures under this Standard and shall determine the individuals responsible for ensuring accessibility at the facility. These individuals include, but are not limited to the following:

a. **Facility Manager**

b. **Facility Staff**

2.0 DCAMM ADA Coordinator

a. Contracted **Service Providers**

2.2 DCAMM shall:

a. Develop interior and exterior **wayfinding** standards based on pertinent codes, and good design practices for each type of facility that are common across the Commonwealth's portfolio.

b. Provide the **facility manager** with the technical assistance necessary to ensure that appropriate **wayfinding** strategies are in place at the facility and are consistent with the established standards.

2.3 The **Facility Manager** shall:

a. Work with DCAMM to implement and maintain interior and exterior **wayfinding** strategies throughout the facility that are consistent with DCAMM standards, and allow people to find the location of their intended destination (e.g., specific office, location to receive services, accessible entrances and restrooms, etc.), and to determine how to get there and back.

b. Work with the **User Agency** to identify their specific **wayfinding** and signage needs, and coordinate these needs with the wayfinding strategies in place at the

facility.

c. Establish a **Service Level Matrix (SLM**) with the User Agency.

d. Work with DCAMM to procure and manage service contracts with **service providers** to identify appropriate wayfinding strategies, design and install **wayfinding** measures in compliance with state and federal accessibility requirements.

e. Conduct periodic inspections of **wayfinding** measures in place at the facility to ensure information is up-to-date and sufficiently informative, and identify maintenance and cleaning needs.

3.0 Implementation

3.1 Ensure exterior and interior **wayfinding** measures and signage are in place and consistent with DCAMM standards and all applicable regulations and statutory requirements.

3.2 Provide alternative multilingual information at the facility in accordance with **Limited English Proficiency (LEP)**, as applicable depending on the demographics of the **occupants** and visitors.

3.3 Exterior wayfinding measures and signage at the facility, shall include, but are not limited to the following:

a. Exterior **signage** shall be legible from a distance that provides enough advanced warning so that a pedestrian or a driver can make a timely directional decision and shall indicate routes to **occupant** and visitor parking, service docks, drop-off areas, and facility entrance(s).

b. Exterior building identification **signage** shall have full address.

c. **Accessibility signage** shall comply with all applicable regulations and statutory requirements (see FMMS 15 Accessibility for additional detail) and shall identify accessible parking and accessible routes to the building and site accessible entrances and restrooms, if not all are accessible.

d. **Signage** on multi-building sites shall indicate walkways between parking and the buildings, between different buildings, and at walkway intersections.

e. Routes shall have clear, contrasting walkway edges and sufficient site lighting to aid in **wayfinding** and safety along routes, ramps, and steps.

3.4 Interior **wayfinding** strategies and **signage** in entrances, reception areas, and lobbies at the facility, shall include, but are not limited to the following:

a. The entrance shall be easy to describe and distinctive and the name of the building shall be legible.

b. **Signage** shall comply with the **Americans with Disabilities Act (ADA) and MAAB 521 CCMR**.

c. Reception/information desks shall have accessible counters for front approach.

d. Reception areas with glass security screens shall have measures in place to prevent glare and effective communication,

e. Facilities that have a staffed information desk in the lobby shall ensure that the staff are capable of providing directions and are present during business hours.

f. Building directories shall list all agencies, public meeting rooms, public restrooms, and other public amenities.

g. Optimize sightlines to ensure **signage** and destination elements are discernable upon entering and navigating through the building.

3.5 Interior wayfinding strategies and signage for paths through the facility, shall include, but are not limited to the following:

a. Directional **signage** for **User Agencies**, restrooms, and elevators at key path intersections.

b. Clear information if elevators serve only some portions of the facility.

c. Lighting with sufficient quantity and quality to easily read signs and minimize glare.

3.6 Install multiple types of signage at the facility, including, but not limited to the following:

a. Directories and “You-Are-Here’” maps shall be at key decision “hotspots” such as main entrance lobbies and elevator lobbies to provide clarity and ease of wayfinding. Directories and “You-Are-Here” maps shall show a simplified building plan (key plan), identify department names, staff names (if appropriate), room numbers, floor level and location of essential building facilities (e.g., restrooms, elevators) and be oriented correctly for each location

b. Directional signs shall be at major decision points such as areas where there are two or more routes or paths. For clarity and ease of **wayfinding**, directional signs shall show a list of department names and/or room numbers, floor level, and essential building facilities, and accessible facilities if not all are accessible. Identification signs (a.k.a. designation signs) shall meetmeet2010 ADA Standards and MAAB requirements **for tactile signage,** wherever there is a conflict the requirement that provides greater accessibility will be used. This type of signage labels every permanent room and space in the facility that will not change over time and includes restrooms, stairs, room numbers, and destination spaces such as classrooms, courtrooms, assembly areas, and public transaction areas. Identification signs shall include room number, **pictogram** if appropriate (e.g., restroom), **Braille** and **tactile** lettering, with interchangeable slots for paper inserts with staff names or office names if applicable.

c. Informational signs shall meet 2010 ADA Standards and MAAB requirements for visual signage, and wherever there is a conflict, the **requirement** that provides greater accessibility will be used**.** Install the signs where occupants need information for instructional or safety reasons (e.g., “No smoking signs”, “take a ticket and wait”, paying instructions for parking). These signs shall be clear and concise with **plain language** and short sentences at eighth grade reading level.

d. A sign shall be posted at the primary accessible entrance with the contact

information of **DCAMM ADA Coordinator**.

e. Regulatory and Safety signs shall identify all fire and facility safety elements. The **facility manager** shall coordinate signage specifications and locations with Mechanical and Fire Protection Engineers, the Building Inspector, and the Fire Marshall. Install Regulatory and Safety signs that are distinct and easily distinguishable from any other signage system in elevators, interior and exterior stairwells, emergency egress routes and exits - especially where accessible routes differ from the general public, and areas where warnings are required. For clarity and ease of delivering the message as quickly as possible use **pictograms, plain language,** visual tactile and audible warnings, such as luminescent treads and hand rail markers on stairs.

f. Overhead signage may be used in areas where it is not feasible to add a wall sign, due to location, building material or sightlines however, placement must not result in it becoming a protruding object as defined in the ADA or 521 CMR.

3.7 Maintain an **accessible website** for the facility that allows **occupants** and visitors to familiarize themselves with the facility prior to arrival. The website shall contain current and accurate information, including, but not limited to the following:

a. Facility name and address (and photo of facility).

b. Maps, site plan, and floor plans, if appropriate.

c. Downloadable audio navigation/wayfinding information (e.g., digital/GPS maps).

d. Regular hours of operation for facility.

e. Special scheduling information or calendar for **User Agency** specific events.

f. List of **User Agencies**, programs, services, and public amenities (e.g., cafeteria, exercise facility, daycare).

g. Accessibility for persons with disabilities (e.g., parking, routes to buildings, building entrances, and closest public transit stop with accessibility status).

h. Notifications of temporary conditions (e.g., changes in routes, elevator repairs, facility closures due to weather).

4.0 Materials and Equipment

4.1 Implement policies and procedures for ordering and procuring **signage** and **wayfinding** elements, including, but not limited to the following:

a. Order ‘blanks” for temporary signage.

b. Standardize materials, language, space, and level names and terms.

c. Remove old signage or replace with correct information when installing new signage.

4.2 Install and maintain **wayfinding** technologies when available and appropriate for the facility type. Wayfinding technologies include, but are not limited to the following:

a. Website

b. Building information kiosks at entrances that are accessible and include audible or **alternative format** information.

c. Audio navigational devices, using Indoor Positioning System (IPS).

d. Electronic sign boards and schedule announcements.

e. Interactive digital media.

5.0 Training

5.1 Implement an ongoing training program for all facility maintenance staff, authorized **signage** coordinators and contracted service providers to ensure compliance with all **wayfinding** related requirements, policies, procedures, processes, and products.

5.2 DCAMM shall approve and oversee training content and requirements.

5.3 Ensure staff at the information desk in the facility lobby receive training on providing directions to **occupants** and visitors not familiar with the location of all spaces in the facility and/or accessible routes and spaces.

5.4 Ensure facility staff receives training on the policies and procedures for hanging signage in the facility.

6.0 Communication

6.1 Inform **User Agency liaisons** of all **wayfinding** strategies, and signage policies and procedures in the facility.

6.2 Ensure User Agencies alert the **facility manager** of all changes and updates to facility signage specific to the space(s) they occupy within the facility.

6.3 Provide policies and procedures for **User Agencies** on posting temporary signage and the use of notice boards.

6.4 Provide notice boards in visible places to consolidate temporary notices.

7.0 Recordskeeping

7.1 Conduct an annual building assessment of all wayfinding elements to ensure effectiveness coordinating information across:

a. Website

b. Site Circulation

c. Buildings

7.2 Review building-wide signage for continued accuracy of information and review informal signs to understand gaps in wayfinding needs.

7.3 Engage user/experts to review continuing effectiveness and opportunity for improvements for all building occupants.

7.4 Implement a reporting process that is relatively easy for contracted service providers to

comply with while simultaneously addressing the wayfinding needs of the facility, **occupants**, and visitors.

7.5 Contracted service providers are responsible for identifying and meeting all recordskeeping requirements in place at the time they enter into a contract with the Commonwealth.

7.6 Track all orders of new signage as a measure of wayfinding effectiveness.

7.7 Track training for all staff and contractors involved in providing wayfinding design services because it will allow for the understanding of any gaps in the training program, or lapses in staff attendance.

Tools and Resources

All tools and resources related to the Wayfinding Standard are included in both an appendix to the complete FMMS and in the service delivery agreement for the Standard.

- Commonwealth of Massachusetts: *Administrative Bulletin 19: "Enhancing Coordination and Integration to Promote Accessibility at State Facilities or to State Programs, Services, and Activities."*
- Commonwealth of Massachusetts General Laws 521 CMR: *Architectural Access Board Rules and Regulations.*
- U.S. Department of Justice. American With Disabilities Act (ADA): *Title II Part A*
- U.S. Department of Justice. Americans with Disabilities Act (ADA): 2010 Standards for Accessible Design

Related Metrics

- All wayfinding elements shall be tested by a diverse group of user experts having different physical, sensory, cognitive abilities and of different cultures this will include but is not limited to website, routes, and sensory features such as tactile or auditory elements.
- Conduct an annual building assessment of all wayfinding elements to ensure effectiveness coordinating information across the following:
  -Site Circulation
  -Buildings
  -Website

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Appendix A: Tools and Resources

The following tables provide a list of the tools and resources referenced and/or used in the preparation of the FMMS Standards.

FMMS 1: Security

- Cotts, Roper, & Payant."*The Facility Management Handbook."* 3rd Edition
- Department of Homeland Security. *Interagency Security Committee's Standard: Facility Security Level Determinations*, March 2008 1st Edition
- Interagency Security Committee Standard *Physical Security Criteria for Federal Facilities*, April 2010 1st Edition
- Interagency Security Committee Report: *Design-Basis Threat*, March 2013 7th Edition

FMMS 2: Grounds and Landscape Maintenance

- APPA. Operational Guidelines for Educational Facilities: Custodial. Third Edition.
- *Chapter 123 of the Acts of 2006* directs the State Purchasing Agent to grant a preference to products of agriculture grown or produced using locally grown products. These products include any agricultural, aquacultural, floricultural or horticultural commodities, the growing and harvesting of forest products, the raising of livestock, including horses, raising of domesticated animals, bees, fur-bearing animals and any forestry or lumbering operations.
- Commonwealth of Massachusetts Executive Order 515 "*Establishing an Environmental Purchasing Policy*"
- Green Seal's Environmental Standard for Commercial Cleaning Services (GS-42): greenseal.org/GreenBusiness/Standards.aspx
- GSA Solicitation GS-09P-10-KS-0118, Custodial and Related Services, issued July 9, 2010
- International Sanitary Supply Association (ISSA) *Cleaning Industry Management Standard (CIMS) Standard*
- International Sanitary Supply Association (ISSA) *Cleaning Industry Management Standard for Green Buildings* (CIMS-GB): issa.com/
- International Society of Arboriculture: http://www.isa-arbor.com/home.aspx
- Leadership in Energy and Environmental Design (LEED), *Existing Buildings: Operations and Maintenance Rating System* v2009.
- Leadership in Energy and Environmental Design (LEED), *Existing Buildings: Operations and Maintenance Rating System* v4 Draft (Beta) Standards. 0213.

FMMS 2: Grounds and Landscape Maintenance (continued)

- Massachusetts Certified Arborist Program (MCA): http://www.massarbor.org
- Massachusetts Nursery and Landscape Association http://www.mnla.com/
- *Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Massachusetts Water Conservation Standards, Massachusetts Water Resources Commission: http://www.mass.gov/eea/docs/dcr/watersupply/intbasin/waterconservationstandards.pdf
- Operational Services Division (OSD) FAC59: *Green Cleaning Products, Programs, Equipment and Supplies Pricing for all Awarded Statewide Contract Vendors*
- Operational Services Division (OSD) FAC67: *Janitorial Services, Environmentally Preferable Statewide Contract*
- Operational Services Division (OSD) FAC71: *Lawns and Grounds, Equipment, Parts and Services Statewide Contract*
- Operational Services Division (OSD) FAC77: *Landscaping Services, Tree Trimming, Catch Basin Cleaning, Snow Removal and Related Services*
- Operational Services Division (OSD) FAC79: *Landscaping and Green Roof Products, Playground Equipment, Site Amenities and Related Products*
- Operational Services Division (OSD) *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts.* Updated September 2012. Massachusetts Statewide Contracts, Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program

FMMS 3 Cleaning

- International Sanitary Supply Association. CIMS: Cleaning Industry Management Standard
- Commonwealth of Massachusetts Executive Order 511: Employee Safety *"Establishing a Massachusetts Health and Safety Advisory Committee*
- Operational Services Division (OSD) FAC 59: Statewide contract for Green Cleaning Products
- Operational Services Division (OSD) FAC81: Janitorial Services, Environmentally Preferable

FMMS 4 Solid Waste Management

- Leadership in Energy & Environmental Design (LEED*), Existing Buildings: Operations & Maintenance Rating System* v4 Draft (Beta) Standards. 2013.
- Leadership in Energy & Environmental Design (LEED), *Existing Buildings: Operations & Maintenance Rating System* v2009.
- Massachusetts Executive Order No. 484: *Leading by Example – Clean Energy and Efficient Buildings,* dated April 18, 2007.
- Massachusetts Executive Order No. 515: *Establishing an Environmental Purchasing Policy,* dated October 27, 2009.
- Massachusetts Solid Waste Master Plan
- Massachusetts Toxics Use Reduction Reform Act of 2006
- Massachusetts Zero Mercury Strategy
- MA Department of Environmental Protection (DEP): *Waste Wise Program* Municipal Compliance Fact Sheet: Waste Bans (http://www.mass.gov/eea/agencies/massdep/recycle/regulations/waste-bans.html)
- Operational Services Division (OSD) FAC33: *How to Use the Solid Waste and Recycling Services Statewide Contract*
- Operational Services Division (OSD) *FAC82: Hazardous/Universal, Medical, and Electronic Waste Disposal and Emergency Response.*
- Recycling Works MA. RecyclingWorks

FMMS 5 Routine Maintenance

- ASHRAE Guidelines 4-2008 Preparation of Operating and Maintenance Documentation for Building Systems
- *CAMIS Standard Operating Procedures*. Developed by DCAMM and accessed via http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/camis/standard-operating-proc/
- Commonwealth of Massachusetts, Standards for Building Maintenance: *Status Chart and Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf
- Division of Capital Asset Management and Maintenance, Office of Facilities Management and Maintenance. *Facilities O&M Manual for Beginners: "What you need to think about when maintaining your facilities!"* Accessed via: http://www.mass.gov/anf/docs/dcam/mafma/manuals/dcam-fm-manual-11-7-6.pdf
- Hunt, Glenn. *Comprehensive Facility Operation & Maintenance Manual.* Peripheral Systems, Inc. Last updated: 10-04-2013. Accessed via Whole Building Design Guide (WBDG) http://www.wbdg.org/om/om_manual.php
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4. (released November 2013)
- Massachusetts Statewide Contracts for Healthier Schools*: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Operational Services Division: Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Operational Services Division (OSD): *Recycled and Environmentally Preferable Products Guide to Massachusetts Statewide Contracts*. Updated September 2012. Massachusetts Statewide Contracts, Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Sebesta Blomberg and Associates, Inc., *Facility Operation & Maintenance Plan, UMASS Amherst - New Life Science Building.* Project No. 700796.00. August 2, 2013.

FMMS 6 Preventive and Scheduled Maintenance

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) *Standard 62.1: Ventilation for Acceptable Indoor Air Quality*.
- ASHRAE Guidelines 4-2008 *Preparation of Operating and Maintenance Documentation for Building Systems*
- CAMIS Standard Operating Procedures. Developed by DCAMM and accessed via http://www.mass.gov/anf/property-mgmt-and-construction/facilities-mgmt-and-maintenance/camis/standard-operating-proc/
- Commonwealth of Massachusetts, *Standards for Building Maintenance: Status Chart and Guidance for Indicator Levels.* Developed by DCAMM and accessed via http://www.mass.gov/anf/docs/dcam/ofm/maint-st-letter-2010-2011.pdf
- Commonwealth of Massachusetts: *Human Resources Division Class Specification Maintenance Worker Series.* Accessed via http://www.mass.edu/shared/documents/classificationspecs/specspers/Maintenance%20Worker.doc
- Division of Capital Asset Management and Maintenance, Office of Facilities Maintenance. *Facilities O&M Manual for Beginners: "What you need to think about when maintaining your facilities!"* Accessed via: http://www.mass.gov/anf/docs/dcam/mafma/manuals/dcam-fm-manual-11-7-6.pdf
- Division of Capital Asset Management & Maintenance *Preventive Maintenance Guidelines for Roofs.* Accessed via http://www.mass.gov/anf/docs/dcam/mafma/tutorials/mafma-tutorial-roof-maint.pdf
- Hunt, Glenn. *Comprehensive Facility Operation & Maintenance Manual.* Peripheral Systems, Inc. Last updated: 10-04-2013. Accessed via Whole Building Design Guide (WBDG) http://www.wbdg.org/om/om_manual.php
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v2009.
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
- Operational Services Division (OSD). *Massachusetts Statewide Contracts for Healthier Schools: How to Use Massachusetts Contracts for Pollution Prevention in Schools.* Massachusetts Environmentally Preferable Products (EPP) Procurement Program

FMMS 6 Preventive and Scheduled Maintenance (continued)

- Operational Services Division (OSD) *Recycled and Environmentally Preferable Products* Guide to Massachusetts Statewide Contracts. Updated September 2012. Massachusetts Statewide Contracts. Massachusetts Environmentally Preferable Products (EPP) Procurement Program
- Sebesta Blomberg and Associates, Inc. *Facility Operation & Maintenance Plan*, UMASS Amherst - New Life Science Building. Project No. 700796.00. August 2, 2013.
- State of Minnesota Office of the Legislative Auditor. *Preventive Maintenance for Local Government Buildings.* http://www.mass.gov/anf/docs/dcam/mafma/manuals/o-andm-pm-for-local-govt-buildings.pdf
- U.S. EPA "*Building Air Quality: A Guide for Building Owners and Facility Managers*". Accessed via http://www.epa.gov/iaq/largebldgs/baq_page.htm)

FMMS 7 Integrated Pest Management

- Environmental Protection Agency (EPA). *Integrated Pest Management in Buildings*. This reference guide defines IPM, describes proper IPM implementation in buildings, and outlines the roles and responsibilities necessary for success. http://www.epa.gov/pesp/publications/ipm/ipm_in_buildings.pdf
- The Federal Insecticide, Fungicide and Rodenticide Act
- Leadership in Energy & Environmental Design (LEED), Existing Buildings: Operations & Maintenance Rating System v4 Draft (Beta) Standards. 2013.
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- Massachusetts Administrative Bulletin 19, "Enhancing Coordination and Integration to Promote Accessibility at State Facilities or to State Programs, Services and Activities"

FMMS 16 Fire Safety

- Massachusetts Department of Fire Services: Provides advisories, training, and public information services related to fire safety in buildings and facilities.
- Massachusetts Department of Public Safety (DPS): provides assistance with building code matters, issues permits for and performs inspections on existing and new construction. DPS inspectors must be consulted prior to performing any renovation, change of use and\or construction to ensure that the work is appropriately designed, constructed, permitted and inspected in accordance with provisions of 780 CMR (The State Building Code).
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- Massachusetts General Laws 530 CMR: *Fire Safety Commission Regulations*
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FMMS 17 Wayfinding

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Appendix B: Definitions

Term	Definition	FMMS
2010 ADA Standards for Accessible Design	Guidelines issued by the U.S. Access Board establishing minimum requirements for new construction and alteration of state and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities. This Standard, which became effective March 15, 2011, supersedes the ADAAG, the American with Disabilities Architectural Guidelines, issued in 1991.	FMMS 15
521 CMR "Architectural Access Board Rules and Regulations":	The regulations promulgated by the Architectural Access Board pursuant to M.G.L. c. 22, s. 13(a), which is the statute of the Commonwealth that requires public buildings and facilities to be accessible to, functional for, and safe for use by persons with disabilities. It is the intent of 521 CMR to provide persons with disabilities full, free and safe use of all buildings and facilities so that all such persons may have the educational, living and recreational opportunities necessary to be as self-sufficient as possible and to assume full responsibilities as citizens.	FMMS 15

Appendix B: Definitions

Term	Definition	FMMS
780 CMR: Massachusetts State Building Code	State Building Code (*780 CMR Massachusetts State Building Code*) is a set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and non-building structures. The main purpose of building codes are to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. A building code's principal goal is structural integrity; it is also coordinated with the Life Safety Code, which is adopted as regulation.	FMMS 16
Accessibility	The ability to approach, enter, operate, participate in, and/or use safely a site, facility, work environment, or service, by a person with a disability	FMMS 15 FMMS 17
Accessibility Audit	A comprehensive assessment of the non-compliant accessibility elements in a facility, conducted by DCAMM's Accessibility Consultants or others using a systematic checklist and reporting format approved by DCAMM.	FMMS 15
Accessible Means of Egress	A continuous and unobstructed way of egress travel from any point in a building or facility that provides an accessible route to an area of refuge or area of rescue assistance, a horizontal exit, or a public way	FMMS 15

Appendix B: Definitions

Term	Definition	FMMS
Accessible Route	A continuous, unobstructed path connecting connecting all accessible elements and spaces within or between buildings or facilities. Interior accessible routes may include corridors, floors, ramps, elevators, lifts, and clear floor space at fixtures. Exterior accessible routes may include parking, access aisles, curb cuts, and crosswalks at vehicular ways, walks, ramps, and lifts.	FMMS 15
ADA Coordinator	Responsible for coordination of Commonwealth programs and responsibilities to assure compliance with the Americans with Disabilities Act (ADA) Sections 503 and 504 of the Rehabilitation Act of 1973 and other federal and state laws and regulations pertaining to persons with disabilities.	FMMS 15
ADA Implementation Plan	An agency's response to the ADA Strategic Compliance Assessment, identifying the actions that will be taken to achieve compliance with the ADA. In conformance with the requirements of the ADA Transition Plan, it will include a completion date and a responsible party. The Implementation Plan will be updated on an annual basis.	FMMS1 5

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Term	Definition	FMMS
ADA Strategic Compliance Assessment	An analysis of an agency's level of compliance with the ADA, completed by DCAMM's Accessibility Consultants, and serving as an updated ADA Self Evaluation. The report identifies high priority ADA issues that need immediate mitigation, accessibility projects that may require capital funding, changes needed to policies and procedures, and accessibility improvements that can be undertaken by facility staff.	FMMS 15
ADA Title I	The section of the ADA that prohibits employers from discriminating against qualified individuals with disabilities and addresses the obligation of employers to provide accommodations to employees with disabilities, some of which may require modifications to a building or facility.	FMMS 15

Term	Definition	FMMS
ADA Title II	The section of the ADA that applies to state and local government entities, protecting qualified individuals with disabilities from being denied equal opportunity to participate in, or benefit from, a program, service or activity because a building or facility is not accessible and usable. Title II requires that state entities conduct a Self-Evaluation to review operating policies and procedures for non-discrimination and adopt and implement a Transition Plan for removal of architectural and structural communication barriers that limit participation in programs, services and activities. Buildings and facilities constructed prior to the effective date of Title II regulation do not have to be brought up to standard of accessibility for new construction but barriers must be removed by structural or non-structural means to the extent necessary to ensure that programs are accessible and usable when viewed in their entirety.	FMMS 15

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Term	Definition	FMMS
Administrative Bulletin ANF 19, "Enhancing Coordination and Integration to Promote Accessibility"	Published by the Commonwealth's Executive Office of Administration and Finance, this bulletin became effective on April 1, 2011. It outlines and establishes the policy and programmatic framework through which the Commonwealth will proactively act to remove physical and programmatic barriers that limit equal participation in state programs, activities and services. ANF 19 also establishes the Universal Access Committee (UAC), which makes recommendations to the Office of Administration and Finance including defining, overseeing and coordinating implementation of the actions necessary to achieve the purpose and policy of Administrative Bulletin 19.	FMMS 15
Alternative Formats	A legal requirement to ensure effective written communication. It requires providing information or audio recordings to people unable to use standard print. These include but are not limited to Braille, large print text, digital files, audio recordings, or accessible emails to effectively inform those who are blind or have low vision, and people with other disabilities unable to use typical print material.	FMMS 17

Term	Definition	FMMS
Americans with Disabilities Act (ADA)	A federal statute that became a law on July 26, 1990 and was later amended with changes effective January 1, 2009. The ADA is a wide-ranging civil rights law that prohibits under certain circumstances discrimination based on disability. It gives Americans with disabilities protections against discrimination that are similar to those given to other groups by the Civil Rights Act of 1964. The ADA requires that "entities" of state and local government designate ADA Coordinators to oversee efforts to comply with the law and to handle disability based discrimination complaints. The ADA broadly protects the rights of individuals with disabilities in employment, access to state and local government services, places of public accommodation, transportation, and other important areas of American life. Title II of the ADA is the section that applies to state and local government entities, protects qualified individuals with disabilities from discrimination in programs, services, and activities of state government.	FMMS 15 FMMS 17
APPA	An international association providing leadership in educational facilities through research, publications, professional development, and credentialing, known as the Association of Physical Plant Administrators.	FMMS 03

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Term	Definition	FMMS
Area of Refuge or Area of Rescue Assistance	An area which has direct access to an exit where people, who are unable to use stairs or unable to travel more than 100 feet to a public way, may remain temporarily in safety to await further instructions or assistance during emergency evacuation. Areas of refuge are required by the International Building Code in most newly constructed public buildings and additions, unless they are fully sprinklered.	FMMS 15
Asbestos	A naturally occurring silicate mineral used commercially for its desired physical properties. Asbestos (Chrysotile) became increasingly popular among manufacturers and builders in the late 19th century because of its sound absorption, tensile strength, resistance to damage (fire, heat, electrical and chemical), and affordability. It was used in such applications as electrical insulation for hotplate wiring and in building insulation. When asbestos is used for its resistance to fire or heat the fibers are often mixed with cement (resulting in fiber cement) or woven into fabric or mats. In the mid 1980's asbestos became a health concern for respiratory diseases. Although it has not been banned in the US it is regulated by the US EPA under OSHA 29 CFR 1926.	FMMS 08
Asset Management	The linking of data in a record model to a database of building assets to assist in efficiently maintaining and operating the facility.	FMMS 13

Appendix B: Definitions

Term	Definition	FMMS
Assistive Technology	Devices used by people with disabilities, including physical, sensory, or cognitive limitations, in order to perform functions that might otherwise be difficult or impossible. Assistive technology can include mobility devices such as walkers and wheelchairs, as well as hardware, software, and peripherals that assist people to increase, maintain, or improve functional capacities.	FMMS 17
Audio Description	Used to communicate visual wayfinding cues, such as views: directional identification, and information signs; elevator panels and You-Are-Here maps. Audio Description can let users know where they are, what's nearby and how to proceed in order to reach various destinations. Ideally, users will be able to customize the audio description for: • Desired amount of detail (e.g. "Always tell me what floor I'm on.") • Particular destinations (e.g. "Lead me to an accessible women's restroom.") • Preferred types of information (e.g. "Always describe the text on elevator buttons.")	FMMS 17

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Term	Definition	FMMS
AutoCAD	A computer-aided design (CAD) program used for 2-D and 3-D design and drafting. AutoCAD allows users to design a building and structure and its components in 3-D, annotate the model with 2-D drafting elements and access building information from the building's model database.	FMMS 11
Braille	A system of touch reading and writing for blind persons, in which raised dots represent the letters of the alphabet. Braille also contains equivalents for punctuation marks and provides symbols to show letter groupings. There are many types of Braille; however, Type II contracted Braille is the only one that is compliant with ADA 2010 Standards for dimensional requirements	FMMS 17
Building Amenity Areas	Areas within a building or building complex that house services which are helpful to the building occupants and whose presence is a convenience. Examples include food facilities, copying services, express mail collection, fitness centers or child care centers.	FMMS 11
Building Code	A defined body of rules that govern and constrain the design, construction, alteration, and repair of buildings. Such codes are based on requirements for the safety, health, and quality of life of building occupants and neighbors, and vary from city to city.	FMMS 11

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Term	Definition	FMMS
Building Information Modeling (BIM)	The generation and management of digital representations of a facility. Building information models contain "object-intelligent information" including physical and functional characteristics of building systems, components and furnishings. When managed as complete sources of facility information, BIMs are shared knowledge resources that support decision-making about a facility from design and construction, through its operational life.	FMMS 11 FMMS 13
Building Rentable Area	The actual square-unit of a building that may be leased or rented to tenants, and upon which lease or rental payments are computed. It usually excludes common areas, elevator shafts, stairways, and space devoted to cooling, heating, or other equipment.	FMMS 11
Building Service Area	Areas that serve building maintenance and operation. This type of space generally includes janitor's closets, receiving areas, loading platforms, trash rooms, and building storage areas.	FMMS 11
Building Usable Area	Measured to predominant inside of exterior wall (Predominant face of wall is the inside finished surface that constitutes 50% or more of the vertical dimension between the finished floor and finished ceiling) and mid-point of occupant to occupant wall, and outside of common space wall – no deductions for interior structural elements.	FMMS 11

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Term	Definition	FMMS
Business Continuity	The continuing of operations and services under adverse conditions due to threatened or actual natural disasters and human-caused or technology-related events.	FMMS 09
Capital Asset Management Information System (CAMIS)	A database inventory of state facility infrastructure – both major (i.e. elevators, HVAC and its major related components) and minor (fire extinguishers by location), as well as tasks (i.e. cleaning windows, cleaning carpets, etc.). CAMIS includes an enterprise asset management (EAM) and maintenance software program used at all facilities owned and operated by the Commonwealth to help automate all aspects of maintenance operations, including equipment history, scheduling, preventive maintenance, work orders, labor and expense tracking, procurement and reporting.	FMMS 06 FMMS 13 FMMS 15
Circulation spaces	The primary means of moving from one space to another within a building or in or out of the building itself. Circulation spaces include hallways, vestibules, corridors and lobbies.	FMMS 11
Combustible materials	Building materials such as wood and paper products, fuels (oil, gas, kerosene, and coal), and flammable products that may be stored in buildings (e.g. solvents, paper, etc.)	FMMS 08

Appendix B: Definitions

Term	Definition	FMMS
Commissioning	The process of verifying that a new building or facility's subsystems (for example: building envelope, plumbing, electrical and lighting, HVAC, life safety, wastewater controls, and security) achieve the project requirements as intended by the building owner and as designed by the building architects and engineers. Specific asset information developed and verified during this process may be collected using COBie spreadsheet data.	FMMS 13
Commodities	Products that can be bought and sold.	FMMS 14
"Commodities and Services"	The phrase used by the Massachusetts "Procurement Information Center" when describing the procurement of anything (goods, products, equipment, services, etc.) by all Executive departments and any Non-Executive departments that have elected to follow 801 CMR 21.00.	FMMS 14
Common Areas	These areas provide space for floor service, floor amenity, building service, and building amenity areas.	FMMS 11

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Term	Definition	FMMS
Commonwealth Facilities	The buildings for which DCAMM has assumed maintenance and management. The extent of these services to be provided by DCAMM for a User Agency may differ from agency to agency, depending on the User Agency Agreement between DCAMM and the User Agency and the negotiated Service Level Matrix (SLM). This standard applies to leased buildings as well as Commonwealth owned.	ALL FMMS
Computerized Maintenance Management System (CMMS)	A utility that maintains a computer database of information about an organization's maintenance operations to assist facility maintenance staff in maximizing their effectiveness. A CMMS achieves this goal by tracking work orders, monitoring system reliability and repair/maintenance costs, and providing preventive maintenance tools.	FMMS 06
Confined Space	An area whose configuration hinders activities of any employees who must enter into, perform work in, and exit from it. Confined spaces have limited or restricted means of access, are large enough to permit access for the performance of necessary work, and are not designed for continuous occupancy.	FMMS 08

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Term	Definition	FMMS
Construction Management at Risk (CMR)	The procurement process where the contractor is contractually obligated to provide leadership in the construction process through a series of services provided to the owner, including design review, scheduling, cost control, value engineering, construction coordination, etc. After providing these pre-construction services, the contractor takes on the financial obligation to carry out the construction under a specified cost agreement.	FMMS 12
Construction Operations Building Information Exchange (COBie)	A format through which data reported/exported from a Building Information Model may be read/imported into a CMMS/IWMS system such as CAMIS or New CAMIS. COBie is recognized as a part of the National BIM Standard (NBIMS), and is a defined BIM Use Case and contracted deliverable in the DCAMM BIM Guide.	FMMS 13
Continuous Commissioning	The process that involves facility staff in regular periodic reviews of equipment performance and calibration.	FMMS 10
Controlling Agency	A state agency with the "legal control or jurisdiction" of the property as provided by M.G.L. Chapter 7C, Section 41, which carries with it the right to "occupy, or make expenditure for the maintenance of, any land, buildings or other state-owned or state-occupied facilities." Control and jurisdiction does not mean that a state agency is the owner of the property since the Commonwealth owns all state property.	FMMS 01 FMMS 03 FMMS 15

Term	Definition	FMMS
Custodial Maintenance	The cleaning and upkeep of the facility and includes the routine (daily) tasks and capital investments for cleaning equipment and supplies.	FMMS 05 FMMS 06
DCAMM ADA Coordinator	The person responsible for working with Massachusetts Office on Disability (MOD) and ensuring compliance with all ADA requirements, not only related to DCAMM's daily operations, but also at all Commonwealth facilities. Established in accordance with Executive Order 526 (E.O. 526), each Executive Branch Entity shall appoint an ADA/504 Coordinator who shall report directly to the Executive Branch. The Entity Head works with the Massachusetts Office on Disability (MOD) concerning issues involving persons with disabilities, and where state employee matters are involved with the Office of Diversity and Equal Opportunity. The ADA Coordinator is responsible for coordinating activities necessary to ensure compliance with all disability rights related federal and Massachusetts laws, regulations, policies and procedures, including but not limited to the Americans with Disabilities Act of 1990 (ADA), ADAAA 2008, the Federal Rehabilitation Act (1973) as amended, Executive Order 526, the Governor's Model Employer Program, and Administration and Finance Administrative Bulletin #19.	FMMS 15 FMMS 17

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Term	Definition	FMMS
DCAMM Security Manager	This position reports to the Deputy Commissioner of Facilities Management and will work closely with the DCAMM Office of Facilities Management and Maintenance to implement standards and integrate security into the shared services model for Commonwealth facilities.	FMMS 01 FMMS 15
DCAMM Security Technology Standards	Series of technology specifications for equipment installed at Commonwealth facilities. These specifications identify acceptable security equipment and technology to be used to provide the Level of Protection (LOP) specified from the Facility Security Assessment (FSA). The Security Technology Standards include information on access control software, cards and readers, video cameras, storage systems, management software, screening equipment and turnstiles, site protection systems (bollards, fencing, gates), and other related systems.	FMMS 01
Decommissioning	The process of closing down and demolishing a facility at the end of its' useful life-cycle.	FMMS 13
Demand Response (DR)	A voluntary temporary reduction, or shift in a facility's electricity use, in response to a request from the utility company in order to reduce electrical use during periods when the electrical grid experiences peak demand (e.g. hot summer days). This shift in energy usage is accomplished by several means including switching to on-site emergency generators, and load curtailment (temporarily turning off non-essential equipment).	FMMS 10

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Term	Definition	FMMS
Department of Homeland Security (DHS)	Responsible for protecting the United States and its territories (including protectorates) from and responding to terrorist attacks, man-made accidents, and natural disasters.	FMMS 01
Design-Bid-Build (DBB)	The current project delivery method approved by DCAMM for all projects to be done in compliance with this Standard. Under the DBB delivery method, the project scope and documents are prepared by an architect/engineer, and the lowest qualified bidder is awarded the contract to complete the project.	FMMS 12
Design-Build (D/B)	A project delivery system in which the design and construction services are contracted by a single entity known as the design–builder or design–build contractor. Design–build relies on a single point of responsibility contract. The design-build project delivery system is used to minimize risks for the project owner and to reduce the delivery schedule by overlapping the design phase and construction phase of a project.	FMMS 12

Term	Definition	FMMS
DHS Office of Infrastructure Protection (IP)	This agency is responsible for leading the national effort to protect critical infrastructure from all hazards by managing risk and enhancing resilience through collaboration with the critical infrastructure community. The office conducts and facilitates vulnerability and consequence assessments to help critical infrastructure owners and operators and State, local, tribal, and territorial partners understand and address risks. IP provides information on emerging threats and hazards so that appropriate actions can be taken. The office also offers tools and training to partners to help them manage the risks to their assets, systems, and networks.	FMMS 01
DHS Science and Technology Directorate (ST)	The primary research and development arm of the Department of Homeland Security which manages science and technology research, from development through transition, for the Department's operational components and first responders to protect the homeland.	FMMS 01
Disability	Defined by the ADA as a physical or mental impairment that substantially limits a major life activity. The determination of whether any particular condition is considered a disability is made on a case-by-case basis.	FMMS 15

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Term	Definition	FMMS
Disaster/Emergency Management	An ongoing process to mitigate, prepare for, respond to, maintain continuity during and recover from an incident that threatens life, property, operations, or the environment. Emergency Management, in order to lessen the impact, must be comprehensive, progressive, risk-driven, integrated, collaborative, coordinated, flexible, and professional.	FMMS 09
Durable Goods	(or "hard goods") Items that are used over an extended period time and are not consumed or destroyed in short-term use. Durable goods typically have a higher cost per unit and multiple-year periods between purchases. (i.e. electronic equipment, furniture, appliances, machinery, lawn equipment, etc.)	FMMS 14
Emergency Maintenance	Situations requiring immediate attention because of a failure in or around the facility that would cause significant damage to the building, building systems, and/or equipment. Such emergencies can create an unmanageable situation and/or unsafe conditions and needs to be rectified immediately.	FMMS 06
Emergency Management Institute (EMI)	A component of FEMA directly supports the implementation of the National Incident Management System (NIMS), the National Response Framework (NRF), the National Disaster Recovery Framework (NDRF), and the National Preparedness Goal (NPG) by conveying necessary knowledge and skills to improve the nation's capability.	FMMS 09

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Term	Definition	FMMS
ENERGY STAR	A U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect the environment through superior energy efficiency.	FMMS 10
ENERGY STAR Portfolio Manager	A free online tool that Facility Managers can use to measure and track energy and water consumption, as well as greenhouse gas emissions. It is used to benchmark the performance of one building or a whole portfolio of buildings, all in a secure online environment.	FMMS 10
Enterprise Energy Management System (EEMS)	A metering system installed at several State facilities that allows Facility Managers to view energy performance on a real-time basis.	FMMS 10
Environmentally Preferable Product (EPP)	Refers to a product or service that has a reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. EPPs include practices that minimize waste, conserve energy or water, reduce the amount of toxins either disposed or consumed, and products with recycled content.	FMMS 02 FMMS 03 FMMS 10
E-Team Efficiency and Sustainable Buildings Group ("E-Team")	The business unit in DCAMM's Office of Facilities Management and Maintenance charged with reducing energy consumption, utility costs, and greenhouse gas emissions. The team also works to ensure that new construction and major renovation projects meet energy and water efficiency targets.	FMMS 10

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Term	Definition	FMMS
Executive Order 403	E.O. 403 Integrated Pest Management	FMMS 07
Executive Order 515 (E.O. 515) "Establishing an Environmental Purchasing Policy"	Requires all janitorial service companies providing services to Executive Branch Agencies to use Environmentally Preferable (green) cleaning as specified in Commonwealth statewide contracts.	FMMS 02 FMMS 03
Facility Information Management	An integration of process and technology to enable the efficient life-cycle management of facilities. A key ingredient of facility information management is the use of building information modeling.	FMMS 13
Facility Life-Cycle	Facility life-cycle is a view of a facility over the course of its' entire life, viewing it not just an operational building, but also taking into account the design, construction, commissioning, operation and decommissioning phases.	FMMS 13
Facility Manager	Responsible for the maintenance and operation of a facility, which includes oversight of all in-house and external/contract service providers	ALL FMMS

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Term	Definition	FMMS
Facility Operations and Maintenance Plan (FOMP)	Provides the facility owners, operators, and occupants with detailed information on the building systems and operations as well as a foundation for training and system analysis. The FOMP also provides a means to reduce operating costs through a comprehensive maintenance assessment and implementation plan that looks at all maintenance at a facility and identifies best practices to save time and money, while increasing efficiency and the productive life of equipment.	FMMS 06
Facility Staff	Internal service providers reporting to the facility manager for maintenance and operation of a facility.	All FMMS
Facility Systems Analysis	Measuring how a facility's performance compares to the design model predictions to ensure that the facility is operating to specified design and sustainable standards. It typically focuses on how a facility's mechanical system operates and how much energy a facility uses.	FMMS 13

Term	Definition	FMMS
Federal Emergency Management Agency (FEMA)	Part of the U. S Department of Homeland Security, coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all Federal disasters, whether natural or man-made, including acts of terror. FEMA provides expertise and resources to support local and regional governments in emergency planning, preparation, response and recovery.	FMMS 09
Fire Safety Code (*527 CMR: Board of Fire Prevention Regulations*)	A model code adopted by the state or local jurisdiction and enforced by fire prevention officers within municipal fire departments. It is a set of rules prescribing minimum requirements to prevent fire and explosion hazards arising from storage, handling, or use of dangerous materials, or from other specific hazardous conditions. It complements the building code. The fire code is aimed primarily at preventing fires, ensuring that necessary training and equipment will be on hand, and that the original design basis of the building, including the basic plan set out by the architect, is not compromised. The fire code also addresses inspection and maintenance requirements for various types of fire protection equipment in order to maintain optimal active fire protection and passive fire protection measures.	FMMS 16
Fire Safety Coordinator	A person responsible for facility/building personnel training and fire drills. The Fire Safety Coordinator will usually be a member of the Incident Management Team (for emergency management).	FMMS 16

Term	Definition	FMMS
Fire Safety Plan	A document that specifies a set of facility/building-specific safety measures and action items in the event of fire. The plan includes key contact information, the location of utility services, access issues, the locations of dangerous stored materials, the locations of people with special needs, the locations for sprinkler system connections, a layout/drawing/site plan of the facility/building, maintenance schedules for all life safety systems, and personnel training/fire drill procedures. A current approved Fire Safety Plan is required by Commonwealth law, and is to be made available to the local fire authority.	FMMS 16
Floor Amenity Area	The space on a floor that provides convenience to more than one occupant.	FMMS 11
Floor Rentable Area	The gross measured area minus the area of vertical penetrations.	FMMS 11
Floor Rentable to Usable Ratio	The Floor Rentable Area divided by the Floor Usage Area. It is used to calculate the portion of use of the common area to the office area.	FMMS 11
Floor Service Area	An area of a floor that provides the services necessary for occupancy on that floor, including elevator lobby, janitor closets, utility rooms, toilet rooms, and common corridors.	FMMS 11
Floor Usable Area	The gross measured area less the floor service and floor amenity areas less the vertical penetrations.	FMMS 11

Term	Definition	FMMS
Geographic Information System (GIS)	The collection, management and use of facility digital data accurately referenced to a precise location on the earth's surface. BIM data can be integrated with GIS to create a seamless re-use and re-purposing of facility data. GIS tools enable users to access and manipulate GIS data.	FMMS 13
Green Cleaning	The use of cleaning products and practices that have lower environmental impacts than conventional products and practices.	FMMS 03
Green Grounds and Landscape Maintenance	A planned and organized approach to grounds and landscape maintenance that uses products and processes to reduce negative impacts on human health and the environment.	FMMS 02
Green Seal	A non-profit organization that develops life cycle-based sustainability standards for products, services, and companies in addition to offering third-party certifications.	FMMS 03
Gross Areas of a Building: Standard Methods of Measurement *(ANSI/BOMA Z65.3-2009)*	Provides a uniform basis which is used to compute, communicate and compare the measurement of buildings by gross building area and other floor area measurements.	FMMS 11
Gross Building Area	The total constructed area of the building. It is the area used for appraisals, tax assessments, and parking tabulations. It is not to be used as the rentable area of the building since it includes exterior walls and shafts.	FMMS 11

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Term	Definition	FMMS
Gross Measured Area	The area measured to the dominant portion of exterior walls, finished common area walls, and the centerline of walls that separate different tenants within the building. The measured area excludes major vertical penetrations.	FMMS 11
IAQ-Building Education and Assessment Model (I-BEAM)	A US EPA guidance tool designed for use by building professionals and others interested in maximizing indoor air quality in facilities/buildings. Implement I-BEAM with assistance from the MDPH/IAQ-Program.	FMMS 08
OFMM Director of Operations and Maintenance	Responsible for overseeing the operations, budgets, and occupant needs of Commonwealth facilities.	All FMMS
Impervious Surfaces	Refer to paved, developed, or naturally occurring surfaces that do not allow precipitation (rainwater, storm water, hose water, etc.) to pass through to subsequent soil layers. Examples of impervious surfaces include roofs, paved roads, parking areas, sidewalks, and some hard soils that have been compacted either by design or by use.	FMMS 02

Term	Definition	FMMS
Incident Management Team (IMT)	A group of representatives from public safety departments (i.e. fire, law enforcement, EMS, et al.) trained to serve in Command and General Staff positions during the initial hours following an emergency. The IMT includes, but is not limited to the Facility Manager, Security Director, Life Safety Coordinator, key agency personnel identified by the stakeholder that manage the logistical, fiscal, planning, operational, safety and community issues related to an incident, emergency or other sentinel event. An IMT can respond to a wide range of emergencies, including fires, floods, earthquakes, hurricanes, tornadoes, tsunami, riots, spilling of hazardous materials, and other natural or human-caused incidents.	FMMS 09 FMMS 16
Incidental Purchases	One-time, unanticipated, non-recurring purchases of goods or services that are not Available from a Statewide Contract. Incidental purchases do not require a competitive procurement or contract. Incidental purchases are authorized under object codes governed by M.G.L. Chapter 7, Section 22.	FMMS 14

Term	Definition	FMMS
Indoor Air Quality (IAQ)	The air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. IAQ can be affected by indoor environmental contaminants, adequacy of fresh air, temperature, and relative humidity. Source control, filtration and use of ventilation to dilute contaminants are the primary methods for improving indoor air quality in most buildings.	FMMS 08

Term	Definition	FMMS
Integrated Pest Management (IPM)	A process for achieving long term, environmentally sound pest control using a wide variety of management practices. An IPM program shall include a combination of pest monitoring, good sanitation practices, education, appropriate solid waste management, building maintenance, cultural pest control measures, mechanical pest control measures, and biological pest controls. Chemical pesticides will be used only when the use of these measures is warranted and when used as part of an integrated pest management plan (IPM Plan).	FMMS 07
Interagency Security Committee (ISC)	Created under U.S. Executive Order 12977 to address continuing government-wide security for Federal facilities. The ISC's mandate is to enhance the quality and effectiveness of physical security in, and the protection of buildings and nonmilitary Federal facilities in the United States. The ISC standards apply to all nonmilitary Federal facilities in the United States - whether government-owned, leased or managed; to be constructed or modernized; or to be purchased.	FMMS 01

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International Sanitary Supply Association's (ISSA) Cleaning Industry Management Standard - Green Building (CIMS-GB)	Procedures and principles cleaning organizations shall follow to deliver efficient, quality service management and environmentally preferable cleaning programs. CIMS and CIMS-GB certification demonstrates an organization is prepared to deliver quality, customer-focused services and ensures an organization is capable of delivering a comprehensive green cleaning program based on LEED: EB O&M green-cleaning criteria.	FMMS 03
Invasive (Non-Native) Plant Species	Plants that grow in an environment outside their natural habitat range by being introduced (planted) to the area either deliberately or accidentally. Invasive plants can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural predators in introduced habitats often lead to outbreak populations.	FMMS 02
Job Order Contracting (JOC)	A contracting method under limited use by DCAMM, in which a competitively procured contract covers multiple small projects initiated through Work Orders that utilize unit price books as the basis of cost. JOC works by pre-selecting contractors on qualifications and performance at best value pricing. Under JOC, DCAMM will qualify and select a number of contractors from whom a facility manager will be able to secure the contractor best qualified to complete a given project.	FMMS 12

Term	Definition	FMMS
Landfills	Waste disposal sites for solid waste from human activities.	FMMS 04
Landscape Maintenance	The upkeep of the landscape, flower beds, trees and shrubs, water gardens and hardscape areas such as parks, parking lots and walkways around the building. This not only includes the maintenance of the landscape and hardscape areas but also seasonal tasks such as snow removal, leaf clean-up and removal and winter preparation of the landscape and water gardens.	FMMS 05 FMMS 06
Large Procurements	Purchases of goods or services with a value greater than $150,000, or as otherwise established by the Commonwealth of Massachusetts Office of the Comptroller.	FMMS 14

Term	Definition	FMMS
Leadership in Energy and Environmental Design for Existing Buildings: Operations and Maintenance (LEED EB: O+M)	A rating system established through the U.S. Green Building Council (USGBC) that "encourages owners and operators of existing buildings to implement sustainable practices and reduce the environmental impacts of their buildings, while addressing the major aspects of ongoing building operations. All buildings (as defined by standard building codes) are eligible for certification under LEED EB: O&M. It is targeted at single buildings, whether owner occupied, multitenant, or multiple-building campus projects. The prescriptive and performance strategies of LEED EB: O&M are intended to provide operational benefits throughout the life of the building. If these strategies are continued, a building can maintain and even improve its performance over time. Projects that certify under any version of LEED for Existing Buildings must recertify at least once every five years in order to keep their certification current."	FMMS 02 FMMS 03 FMMS 05 FMMS 10
Leadership in Energy and Environmental Design for Interior Design and Construction (LEED ID+C)	A rating system established through the U.S. Green Building Council (USGBC) for certifying "high-performance green tenant spaces that are healthy, productive places to work; are less costly to operate and maintain; and have a reduced environmental footprint. It gives tenants and designers, who do not always have control over whole building operations, the power to make sustainable choices."	FMMS 10
Leading by Example (LBE)	A State program established via Executive Order 484 that includes energy reduction and renewable energy use targets.	FMMS 10

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Term	Definition	FMMS
Level of Protection (LOP):	A set of protective measures that may be customized to address site-specific threat conditions.	FMMS 01
Licensee	Individual or entity that is not a state agency or state employee but that occupies space of a User Agency as part of a service contract or other arrangement with the User Agency to further the User Agency's mission, or that occupies space as part of a contract with DCAMM to further DCAMM's services. For example, a private consulting firm hired by an agency might be provided with offices inside the agency's space. The consulting firm would be a licensee.	FMMS 01 FMMS 03 FMMS 15
Life Cycle Cost Analysis (LCCA)	Estimates the true cost of a building, or its components over its anticipated lifetime. LCCA includes not only the initial capital cost, but also reflects any available (utility) rebates and operation and maintenance costs calculated in present value.	FMMS 10
Life Safety Code (*NFPA 101*)	The most widely used source for strategies to protect people based on building construction, protection, and occupancy features that minimize the effects of fire and related hazards. It applies to existing structures as well as new structures.	FMMS 16
Limited English Proficiency (LEP)	Federal regulations about English Language Proficiency that apply to courthouses requiring that signage be provided in three languages, determined by demographics of location.	FMMS 17

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Term	Definition	FMMS
Local Fire Authority	The chief Fire Official (or authority having jurisdiction) or their designated representative for the city/town in which the facility/building is physically located.	FMMS 16
Maintenance History	The documentation of all actions (work orders, routine, replacement and preventative maintenance) and observations relevant to the operation and performance of an asset. This history is maintained in the DCAMM CAMIS application.	FMMS 13
Major Vertical Penetrations	Building elements such as stairs, elevator shafts, chases, chimneys and duct shafts, including their enclosing walls.	FMMS 11
Mass LEED Plus	Part of the standards included in EO 484. Applies to all new construction and major renovation projects over 20,000 square feet. This standard includes: • Certification by the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) program • Energy Performance 20% better than the Massachusetts Energy Code • Independent 3rd party commissioning • Reduction of outdoor water consumption by 50% and indoor water consumption by 20% relative to standard baseline projections Conformance with at least 1 of 4 identified smart growth criteria	FMMS 10

Term	Definition	FMMS
Massachusetts Department of Environmental Protection (MassDEP)	Responsible for ensuring clean air and water, the safe management of toxics and hazards, the recycling of solid and hazardous wastes, the timely cleanup of hazardous waste sites and spills, and the preservation of wetlands and coastal resources. Through its participation in the Clean Energy Results Program, MassDEP advances environmental protection by promoting the development of renewable energy and energy efficiency projects in Massachusetts through its efforts to reduce regulatory and other barriers to clean and energy efficient development across the state.	FMMS 10
Massachusetts Architectural Access Board (MAAB)	The regulatory agency within the Massachusetts Executive Office of Public Safety that develops and enforces regulations designed to make public facilities accessible, functional, and safe for use by persons with disabilities. MAAB regulations are found in Section 521 of the Code of Massachusetts Regulations. The Board receives and adjudicates complaints of non-compliance, provides advisory opinions on its regulations, and grants variances where compliance would be technologically unfeasible or compliance would result in excessive and unreasonable costs without any substantial benefit to persons with disabilities.	FMMS 15

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Term	Definition	FMMS
Massachusetts Department of Energy Resources (DOER)	The Commonwealth's energy policy office and oversees efforts to ensure deployment of all cost-effective energy efficiency measures, maximize the development of clean energy resources, ensure reliable energy supplies, minimize the relative cost of clean energy, and support Massachusetts' clean energy companies and employment. The DOER Leading by Example Program works with DCAMM and many other agencies to develop strategies and programs to support clean energy and sustainability efforts across state government.	FMMS 10
Massachusetts Emergency Management Agency (MEMA)	The state agency charged with ensuring the state is prepared to withstand, respond to, and recover from all types of emergencies and disasters, including natural hazards, accidents, deliberate attacks, and technological and infrastructure failures.	FMMS 01 FMMS 09
Massachusetts Facilities Managers Association (MAFMA)	A network of state facilities managers that meets periodically to discuss specific topics of interest with the aim toward increased information sharing and problem solving.	FMMS 05
Massachusetts Office on Disability (MOD)	The designated agency to oversee and administer the Commonwealth's compliance with the Americans with Disabilities Act (ADAMOD's mission is to ensure the full and equal participation of all people with disabilities in all aspects of life by working to advance legal rights, maximum opportunities, supportive services, accommodations and accessibility in a manner that fosters dignity and self-determination.	FMMS 15

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Term	Definition	FMMS
MassSave® Incentive Programs	An initiative sponsored by Massachusetts' gas and electric utilities and energy efficiency service providers. The sponsors of MassSave® work closely with the Massachusetts Department of Energy Resources to provide a wide range of services, incentives, trainings, and information promoting energy efficiency that help residents and businesses manage energy use and related costs. MassSave® offers training, incentives, and educational resources to contractors, building managers and facilities teams so they can recommend, install and maintain the latest generation of energy-efficient equipment- and help customers achieve their energy goals.	FMMS 10
Mitigation	The structural and non-structural actions taken to lessen the impact of a hazard to the building through the review of possible risks.	FMMS 09
National Incident Management System (NIMS)	Administered by the US Department of Homeland Security and referenced in FEMA Publication P-501. This publication provides a consistent nationwide template to enable Federal, State, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity.	FMMS 09

Term	Definition	FMMS
Native Plant Species	Plant types that grow naturally in a particular region, ecosystem, or habitat without direct or indirect human actions (Federal Native Plant Conservation Committee, 1994). The plants growing before Europeans settled in North America are considered native to the eastern United States. Native plants include all kinds of plants from mosses and ferns to wildflowers, shrubs, and trees.	FMMS 02
Net Floor Area	The type of floor area available to the tenant for a specific purpose that is used for rent calculations.	FMMS 11
NFPA Code 13	The National Fire Protection Association Standard for the Installation of Automatic Sprinkler Systems.	FMMS 16
Occupant Area	The same as Office Area; it is the area of a building occupied by a tenant that houses personnel, equipment, fixtures, furniture, and supplies.	FMMS 11
Occupant(s)	The individuals or entities that occupy space in a Commonwealth facility by virtue of their status as a Controlling Agency, User Agency, or because they are permitted to use the space as a Licensee of the User Agency	ALL FMMS

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Term	Definition	FMMS
Occupational Safety and Health Administration (OSHA)	A federal agency responsible for ensuring safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.	FMMS 03
Office Area	The lease space occupied by and for the exclusive use of the tenant.	FMMS 11
Office Buildings: Standard Methods of Measurement *(ANSI/BOMA Z65.1-2010)*	This BOMA standard provides guidelines for measuring useable space in both existing and new sites by taking a building wide approach to floor area measurement. It identifies and assists in measuring both occupant space as well as the space that benefits all occupants.	FMMS 11
Omni Class	A classification table that is used to name building spaces on floor plan documentation.	FMMS 11
OmniClass Construction Classification System (OCCS)	A means of organizing and retrieving information specifically designed for the construction industry. It is designed to provide a standardized basis for classifying information created and used by the North American architectural, engineering and construction (AEC) industry, throughout the full facility life cycle from conception to demolition or reuse.	FMMS 13

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Term	Definition	FMMS
Ongoing Consumables	Low-cost-per-unit materials that are regularly used and replaced through daily operations. (i.e. printing and copying operations. (i.e. printing and copying paper, notebooks, envelopes, business cards, sticky notes, paper clips, ink and toner cartridges, binders, batteries, etc.)	FMMS 14
Operational Efficiency	Represents the life-cycle, cost-effective mix of preventive, predictive, and reliability-centered maintenance technologies, coupled with equipment calibration, tracking, and computerized maintenance management capabilities all targeting reliability, safety, occupant comfort, and system efficiency.	FMMS 05 FMMS 06
Operational Security	A component of the facility/building security program/plan focused on people. This component includes the provision of staff to support the security protocol, the education, and training of employees, and the procedures for managing contractors, vendors, and visitors.	FMMS 01
Owner's Project Requirements	A written document that details the functional requirements of a project and the expectations of how it will be used and operated. These include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.	FMMS 10

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Term	Definition	FMMS
Physical Security	The type of security that addresses actions one can take to protect buildings, property, and assets against intruders. When designing a physical security program, the three levels one needs to protect are the outer perimeter, the inner perimeter, and the interior. Examples of physical security measures include barriers, fences, gates, walls, outside perimeter lighting, signage, locks, and access control points.	FMMS 01
Pictogram	A symbol which is a picture that represents an object or concept, e.g. a picture of an envelope used to represent an e-mail message. Pictograms are common in everyday life, e.g., signs in public places or roads, whereas the term “icon" is specific to interfaces on computers or other electronic devices.	FMMS 17
Polychlorinated Biphenyls (PCB’s)	Were widely used as dielectric and coolant fluids in transformers, capacitors, and electric motors. They were also used in construction materials like caulking as a plasticizer to improve a products resistance to degradation. They are known to cause cancer in animals and thought to do so in humans. They were banned in the US in 1979.	FMMS 08
Portfolio	A financial term for a collection of investments.	FMMS 11

Term	Definition	FMMS
Preparedness	Ongoing activities, tasks, and systems to develop, implement, and maintain the program capabilities. This is completed by a cycle of planning, organizing, training, equipping, exercising, evaluating, and improving.	FMMS 09
Prevention	Preventing the human hazard, primarily from potential natural disasters, accidents, or human acts of violence.	FMMS 09
Preventive Maintenance	Proactive work performed by various trades personnel based on scheduled inspections, scheduled testing, and minor element replacements. Preventive Maintenance consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance, planned versus corrective for improving equipment life and to avoid any unplanned maintenance activity/minimize equipment breakdowns. Predictive Maintenance also involves the use of electronic monitoring equipment to warn of problems/conditions before they affect equipment performance. Glenn Hunt, Peripheral Systems, Inc., *Comprehensive Facility Operation & Maintenance Manual*. Last updated: 10-04-2013. Accessed on 10/20/2013 via http://www.wbdg.org/om/om_manual.php	FMMS 06 FMMS 13

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Term	Definition	FMMS
Preventive Maintenance Plan (PMP)	Will typically identify Preventive Maintenance task descriptions and schedules, troubleshooting, replacement parts, service providers, operating quantity and unique storage requirements for spare parts. The Plan also lays out a regularly scheduled inspection of building interior and exterior equipment and systems for signs of wear and tear that will require routine and/or corrective maintenance. This inspection process is performed by building facilities staff as well as contracted service providers.	FMMS 06
Procurement	The act of obtaining or buying goods and services. The process includes preparation and processing of a demand as well as the end receipt and approval of payment.	FMMS 14

Term	Definition	FMMS
Program Access	A standard in Title II of the ADA requires that a person with a disability shall have an equal opportunity to participate in, or benefit from, programs, services, and activities, when viewed in their entirety in a time-frame and setting equivalent to people without disabilities. Program access is intended to remove physical barriers to services, programs, and activities, but it generally does not require that each facility, or each part of a facility, be fully accessible if program accessibility can be achieved through administrative and operational means. In providing program access, entities are not required to take any action that would result in a fundamental alteration to the nature of the service, program, or activity in question or that would result in undue financial and administrative burdens. This determination can only be made by the head of the public entity or a designee and must be accompanied by a written statement of the reasons for reaching that conclusion. The determination that undue burden would result must be based on all resources available for use in a program. If an action would result in such an alteration or such burdens, the entity must take any other action that it can to ensure that people with disabilities receive the benefits and services of the program or activity.	FMMS 15

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Term	Definition	FMMS
Programming	Identification of the spatial, functional, and operational requirements for a facility (uses, areas, required adjacencies, etc.) to meet the projected needs and goals of the facility or partial facility. Program Validation assesses the accuracy, efficiency and effectiveness of a design in meeting those requirements.	FMMS 13
Project Life-Cycle	Is a time based view of a facility project over the course of the planning, design, construction, and commissioning and handover processes. This view focuses on activities during a project's active design, construction, and delivery phases. It is a subset of the building life-cycle and excludes operating and maintenance activities that commence after a building is commissioned. The project lifecycle uses OmniClass Table 31 for phase definitions.	FMMS 13
Project Management	The discipline of planning, organizing, motivating, and controlling resources to achieve specific goals. A project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end (usually time-constrained, and often constrained by funding or deliverables), undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business operations, which are repetitive, permanent, or semi-permanent functional activities to produce products or services.	FMMS 12

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Term	Definition	FMMS
Project Parameters	Parameters that are defined and then added to multiple categories of elements in a project. They are specific to the project and cannot be shared with other projects. You can use shared parameters to define project parameters and then associate these project parameters with specific categories of elements within a project.	FMMS 13
Radon	An invisible, radioactive gas that results from the decay of radium, which may be found in rock formations beneath buildings or in certain building materials themselves.	FMMS 08
Reactive (Corrective) Maintenance	Unplanned repair or adjustment of equipment or components.	FMMS 05
Record model	An accurate digital representation of the physical conditions, environment, and assets of a facility BIM model.	FMMS 13
Recovery	The process of bringing the affected building and its operations back to business continuity and some degree of normalcy.	FMMS 09
Recycling	The collection, reprocessing, marketing and use of materials that were diverted or recovered from the solid waste stream.	FMMS 04
Recycling Collection Area	Area located in regularly occupied space in a building for the collection of occupants' recyclables. A building may have numerous collection areas from which recyclable materials are typically removed to a central collection and storage area.	FMMS 04

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Term	Definition	FMMS
Reuse	The return of materials to active use in the same or a related capacity as their original use, thus extending the lifetime of materials that would otherwise be discarded.	FMMS 04
Request for Responses (RFR)	(also known as: “solicitation” or "procurement") The method for communicating the contract performance specifications to potential bidders. The goal of an RFR is to obtain best value commodities and services and to define the expected outcomes. Requirements and procedures for the individual RFRs will vary based on the particular need, the complexity, and the total value of the contract.	FMMS 14
Response	The effort to mitigate the impact of an incident on the public and the environment.	FMMS 09
Retro-commissioning	The application of the commissioning to an existing facility, to improve the facility’s performance by identifying opportunities for operational improvement that will increase occupant comfort and save energy.	FMMS 10 FMMS 13
Revit®	Software specifically built for Building Information Modeling (BIM), empowering design and construction professionals to bring ideas from concept to construction with a coordinated and consistent model-based approach. Revit is a single application that includes features for architectural design, MEP and structural engineering, and construction.	FMMS 11

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Term	Definition	FMMS
Routine Maintenance	Simple, small-scale activities and specific work-order requests associated with general upkeep and continued operation of a building, site, equipment, machine, plant, or system against normal wear and tear. Typically, it includes activities that are completed by the facility management staff and regularly contracted facility service providers, rather than specialized professionals. Routine maintenance is done within a specific period of time e.g. daily weekly monthly etc.	FMMS 05 FMMS 13
Security Supervisor	The individual responsible for implementing and managing the security program at a facility in cooperation with the facility manager.	FMMS 01 FMMS 15
Security Staff	In-house security presence that can perform a range of security roles. May be cross-trained for duties such as control center monitoring, incident investigation, quick deployment to address incidents, and emergency preparedness support	FMMS 01
Service Delivery and Performance Objectives	The supplemental document for each Standard that details the activities necessary for successful implementation of the Standard at Commonwealth facilities, as well as the performance goals for ensuring these activities meet the anticipated level of service. This document shall also align with the activities listed within the Service Level Matrix.	FMMS 01 FMMS 03

Appendix B: Definitions

Term	Definition	FMMS
Service Level Matrix (SLM)	The agreement between a User Agency and the Facility Manager/DCAMM that details information on the scheduling of all contracted services and their expected delivery period(s). It clearly states metrics, responsibilities, and expectations and ensures that both parties have understanding of service requirements	ALL FMMS
Service Providers	The parties responsible for completing all maintenance and management activities governed by this standard. Service providers at the facility are internal facility staff, external contracted providers, or both.	FMMS 01 FMMS 03 FMMS 15
Services	Include but are not limited to furnishing of time, labor, effort, specialized skills by a contractor including operational, professional, maintenance, consultant, maintenance and repair, non-professional, and human and social services (i.e. janitorial services, landscaping services, architectural services, engineering services, environmental consulting services, etc.).	FMMS 14

Appendix B: Definitions

Term	Definition	FMMS
Signage	The visual, tactile, and verbal communication component of wayfinding. For easy wayfinding, architecture must be obvious and intuitive. If it isn't, signage is required to communicate what the architecture cannot. Too much or too little signage causes confusion. For effective wayfinding, it is critical that when signage is used it must provide the correct information at the correct time. Braille cannot be sharp to the touch.	FMMS 17
Source reduction:	The reduction of the amount of unnecessary material brought into a building. One example is purchasing products with less packaging.	FMMS 4
Small Procurements	Purchases of goods or services with a value between $10,000 and $150,000, or as otherwise established by the Commonwealth of Massachusetts Office of the Comptroller.	FMMS 14
Space Information Management	Spatial information taken directly from drawings or BIM models.	FMMS 11
Space Management	A comprehensive system for centralizing and storing real-time information about building(s), space under management and occupants.	FMMS 11
Space Management Plan	Development and maintenance of a facility space inventory that assists in the analysis of capital outlay budget requests for new construction, renovation and other space-related factors.	FMMS 11

Appendix B: Definitions

Term	Definition	FMMS
Space Management Services Providers	The parties responsible for completing all space management-related activities for the facility. The space management service providers at the facility are internal facility staff, external contracted providers, or both.	FMMS 11
Space Utilization	The application and use of building/facility floor space.	FMMS 11
Statewide Contracts	Established using the requirements of 801 CMR 21.00 by the Operational Services Division's (OSD) Procurement Management Teams on behalf of the Commonwealth. Departments that follow 801 CMR 21.00 are required to use Statewide Contracts, regardless of the dollar amount of the purchase.	FMMS 14
Strategic Sourcing Team (SST)	Responsible for the continuous evaluation and improvement of purchasing activities related to a specific service or commodity. The SST is responsible for identifying and verifying the need, sources and timing of purchases. A SST is composed of program area experts and procurement staff from the purchasing department, with a Team Leader to guide the team throughout the procurement process. Department SSTs must monitor contractor performance and customer satisfaction at the department level. Thus, the SST is maintained for the term of the contract.	FMMS 14
Subcontracted Maintenance	Maintenance that is typically performed by outside contractors or by facility staff outside of their usual job description.	FMMS 05 FMMS 06

Appendix B: Definitions

Term	Definition	FMMS
Sustainable Sites Initiative (SITES™)	A program to promote sustainable land development and management practices that can apply to sites with and without buildings. The SITES program will provide tools for those who influence land development and management practices and can address increasingly urgent global concerns such as climate change, loss of biodiversity, and resource depletion.	FMMS 02
Tactile Signage	Incorporates raised text or symbols to enable touch reading by people who are blind, and touch enhancement of visual perception for people who are vision impaired.	FMMS 17
Technological Security	A component of the facility security program that involves the management of technical data and systems, alarm systems for intrusion detection, video monitoring systems, building automation systems that control HVAC and lighting, fire alarm systems, communication systems such as radios and emergency call boxes, and access control of spaces.	FMMS 01
Tipping Fees	Fees charged by a landfill for disposal of waste, typically quoted per ton.	FMMS 04
Total Worker Health	Integrates occupational safety and health protection with health promotion to prevent worker injury and illness and improve health and wellbeing.	FMMS 08

Appendix B: Definitions

Term	Definition	FMMS
Universal Design (UD)	A conceptual framework for the design of places, products, information, communication and policy to be usable by the widest range of people operating in the widest range of situations without special or separate design. Most simply, Universal Design is human-centered design of everything with everyone in mind.	FMMS 15
User Agency	The state agency that has the legal right to occupy and use a space for its mission. A User Agency may have the exclusive use of an entire building, or space in a multi-agency building with the right to use common areas jointly with others	ALL FMMS
Volatile Organic Compounds (VOCs)	Organic chemicals that have a high vapor pressure at ordinary, room-temperature conditions. Common VOCs such as formaldehyde and other hydrocarbons create indoor air quality hazards and/or are potential groundwater contaminants.	FMMS 08
Waste	All materials that flow from the building to final disposal. Examples include paper, grass trimmings, food scraps and plastics. Waste refers to all materials that are capable of being diverted from the building's waste stream through waste reduction.	FMMS 04

Appendix B: Definitions

Term	Definition	FMMS
Waste Disposal	Elimination of waste by means of burial in a landfill, combustion in an incinerator, dumping at sea, or any other way that is not recycling or reuse.	FMMS 04
Waste Diversion	A management activity that disposes of waste other than through incineration or the use of landfills. Examples include reuse and recycling.	FMMS 04
Waste Reduction	Includes both source reduction and waste diversion through reuse or recycling.	FMMS 04
Waste Stream	The overall flow of waste from the building to a landfill, incinerator, or other disposal site.	FMMS 04
Water Best Management Practices	Implemented by facility staff to reduce water consumption by both building interior and exterior uses. These include but are not limited to: landscaping with native (and/or drought resistant) plants, capturing rainwater, using soil amendments, encouraging use of water filling stations, aerators on sinks, dual flush valves, etc.	FMMS 10

Appendix B: Definitions

Term	Definition	FMMS
Wayfinding	A dynamic strategy that allows people to find where to go and how to get there and back. Wayfinding is not a synonym for signage. Along with a variety of exterior and interior environmental elements and features such as canopies, thresholds, sightlines, lighting, maps, and electronic devices, signage is used as a tool for clarifying and communicating information further. Effective wayfinding strategies are inclusive and draw on senses and cognitive abilities to support decision making and navigational processes. Accurate and timely information must be provided when and where a user needs it. Placement of environmental cues and selection are critical to maximizing the communication. Often this cannot be achieved using only one method; redundancy and overlap of information can be helpful if used consistently.	FMMS 17
Work Order	A written (or electronic) request for a task or project to be completed. The order can be sent from a tenant to a facility manager, from a customer to a contractor, or internally from one company department to another. Work orders can range in scope from small (i.e. fixing a leak), to large (i.e. replacing old plumbing).	FMMS 05 FMMS 06