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CITY OF BATH

Bath, Maine

PROJECT #20394

October 15, 2020

Fire and Police Facility Study

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CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

EXECUTIVE SUMMARY

Introduction

The City of Bath, Maine hired Harriman to perform a facility assessment, space needs analysis and concept design of its Fire Department and Police Department in May 2020. The facility and space needs assessment was issued for City review on June 5, 2020. Harriman built upon this assessment in collaboration with the City to develop conceptual site and building layouts for a new free standing Fire Department building and new freestanding police department building. Findings and conceptual development are summarized below.

The Scope of Work is intended to inform the concurrent Morse High School Re-evaluation regarding potential public safety uses for the former Morse High School facility.

Project Background

The City of Bath is located in Sagadahoc County, Maine. The City currently provides Fire, EMS, and Police public safety first responder services, utilizing two facilities. Dispatching is not performed by the City: it uses the County dispatch to receive and distribute emergency calls for service.

Information below regarding building/facility area is referred to in two categories:

- Net square feet (NSF) which is limited to specific program area.
- Gross square feet (GSF) which includes a building/facility's entire footprint area.

Fire and EMS services are provided to the City from one Fire Station, occupying 10,755 GSF, located at 864 High Street. The building was constructed in 1958.

Police services are provided from one Police Station currently occupying 7,762 GSF, located at 250 Water Street. The building was constructed in 1988.

Fire and Police Departments currently use a separate facility for additional storage of support equipment and records.

Fire Department's Inspectional Services Division is housed at the City Hall facility and was not included in this study. Some permitting services are conducted at the Fire Station.

Findings

Fire Department

The Fire Department facility is too small to support its operations safely and professionally. The building and its infrastructure, built in 1958, have outlived their useful life and are in need of replacement as well as expansion. The current Fire Department occupies 9,360 NSF (net square feet) and 10,755 GSF (gross square feet). It occupies a 0.91 acre site. To meet current needs, the Fire Department requires 16,135 NSF and 20,514 GSF: occupying a minimum site size of over 2



CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

acres for a 2-story building. The existing site and building cannot support the expansion requirements. A new site is required but should ideally be nearby to the existing site.

Police Department

The Police Department facility is too small to support its operations safely and professionally. Portions of the building and its infrastructure, built in 1988, have outlived their useful life and are in need of replacement as well as expansion. However, the site and the building are not well suited to be added on to. Further, the existing building limits the much needed expansion of the police fleet parking area. The current Police Department occupies 6,046 NSF (net square feet) and 7,762 GSF (gross square feet). It occupies a 0.48 acre site with an adjacent 0.62 acre municipal parking lot. To meet current needs, the Police Department requires 13,708 NSF and 19,191 GSF: occupying a minimum site size of over 1 acre for a 2-story building. The existing site can support the expansion requirements although the existing building cannot.

Conceptual Development

Fire Department

The Fire Department program requires a new site but needs to be close to the existing site to maintain optimal response times. The design team reviewed several blocking scenarios on the Morse School site, one block from the existing station. The north end of the site, near Chestnut Street, can be utilized to house an adequately sized building, apron, and parking to support the Bath Fire Department's current and future needs. The 22,157 GSF building is 2-stories which reduces the overall footprint area required to house all program elements. The preferred concept site and building plans are located in Section 3. Alternate options and a 'hypothetical' site layout can be found in the Appendix.

Police Department

The existing site works very well for the Police Department although an ideal layout for the building is to have the public entrance facing the corner of Water and Elm Streets and utilizing the municipal lot to expand a secure police fleet parking area. The design team reviewed several blocking scenarios and determined that it is possible to design and construct a new facility in phases while occupying the existing facility. Phase 1 constructs a new 2-story building immediately to the south of the existing building while the existing facility remains in operation. Phase 2 moves the police into the new building and demolishes the existing, then constructs a 1-story addition on the existing building's footprint. The new building is 16,843 GSF plus a detached utility building of 1,623 GSF, creating a grand total project area of 18,466 GSF. The result improves public access and visibility and meets all program requirements. The preferred concept site and building plans are located in Section 3. Alternate options can be found in the Appendix.



CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

Conceptual Order of Magnitude Cost Estimate

Using the preferred concept options as a basis along with other recently completed estimates, an opinion of probable cost was generated. This order of magnitude (OoM) cost estimate includes construction cost, contingencies, escalation, fees, and other soft cost considerations to represent a total project cost. A table listing cost per square foot building construction cost and total project cost information is located in Section 4. Both projects assume a project start date of April 2022 and include a 10% cost escalation factor in anticipation of rising material and labor costs. The Fire Department OoM construction cost is \$11,372,360.00 with total project cost of \$14,090,328.00. The Police Department OoM construction cost is \$9,431,093.00 with total project cost of \$11,728,654.00.

Methodology and Process

The Planning Team

City of Bath staff leading the study included:

- Marc Meyers, Assistant City Manager
- Benjamin Averill, City Planner
- Lawrence Renaud, Fire Department Chief
- Christopher Cummings, Deputy Fire Chief
- Michael Field, Chief of Police
- Andrew Booth, Deputy Chief of Police

Consultant Team

The City commissioned Harriman to conduct the study and prepare this report.

Harriman is an integrated architecture, engineering, and planning firm with regional offices located throughout northern New England. With a legacy dating back to the firm's founding in 1870, Harriman has deep roots in New England's cities and towns, and today develops thoughtful solutions and inspiring environments for a diverse client base from four locations in Auburn, Boston, Portland, and Portsmouth. Proponents of sustainability, technology, research, and discovery, we apply a holistic approach, blending diverse perspectives to provide our clients with solutions that translate their distinct strategic goals and respond to the challenges of today's economy.

Space Needs Assessment

Documentation of space needs was prepared based on staff interviews, understanding of current facilities, desired operational/functional needs of each department, and the consultants' experience with similar size communities and Fire and Police Departments. Spreadsheets document the current and future staff, and the need for building space, parking, and other site needs at +5 and +20-year milestones. The building space and site area needs were reviewed by, understood, and agreed to by Fire Department and Police Department staff.



CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

Findings

This report highlights shortcomings of the existing facilities that limit the Departments' abilities to achieve optimized efficiency and effectiveness. Harriman staff performed a site and facility assessment of the Fire and Police Department.

Recommendations

The Space Needs, and Facility Assessments entail the recommendations of the Consultant Team for how the City may proceed to meet the current and future facility needs of the Fire and Police Departments. Study Findings include space and facility deficiencies identified by the Consultant Team. Study Recommendations include the proposed actions to correct the identified deficiencies. Recommendations include both 'bricks and mortar' facility improvements and spatial improvements to support operational needs.



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CITY OF BATH
FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT
Bath, Maine
PROJECT #20394

June 05, 2020

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CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

EXECUTIVE SUMMARY

Introduction

The City of Bath, Maine hired Harriman to perform a facility assessment and space needs analysis of its Fire Department and Police Department in May 2020. The facility assessment is a visual, non-invasive review of the current condition of each building and its site. The purpose, intent, and goals of the project are listed in italics below.

Purpose

To undertake an overall efficiency study on facility and space needs for all Fire and Police Department administration, operations, equipment, and training. Work will include evaluating two municipally owned buildings.

Intent

The primary intent is to conduct a Facility Needs Assessment Study to determine the physical condition and capacity of existing facilities. To assess whether existing facilities are adequate to provide a level of service within the City. Adequacy is intended to be in line with generally accepted standards and “best practices,” for modern day Fire and Police services. A desired outcome is to be consistent with benchmarks for safety used by comparable Fire and Police Departments in comparable communities.

The Scope of Work is intended to inform the concurrent Morse High School Re-evaluation regarding potential public safety uses for the former Morse High School facility.

Project Goals

The goals are to consolidate staff & operations to improve communication and operational efficiencies, to lower the operating costs of aging facilities, to provide facilities that support modern Fire and Police operations, and to identify synergies with BIW.

Project Background

The City of Bath is located in Sagadahoc County, Maine. The City currently provides Fire and Police public safety first responder services, utilizing two facilities. Information below regarding building/facility area is referred to in two categories:

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Fire and EMS services are provided to the City from one Fire Station, occupying 10,755 GSF, located at 864 High Street. The building was constructed in 1958.

Police services are provided from one Police Station currently occupying 7,762 GSF, located at 250 Water Street. The building was constructed in 1988.

CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

Fire and Police Departments currently use a separate facility for additional storage of support equipment and records.

Fire Department's Inspectional Services Division is housed at the City Hall facility and was not included in this study. Some permitting services are conducted at the Fire Station.

Methodology and Process

The Planning Team

City of Bath staff leading the study included:

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Space Needs Assessment

Documentation of space needs was prepared based on staff interviews, understanding of current facilities, desired operational/functional needs of each department, and the consultants' experience with similar size communities and Fire and Police Departments. Spreadsheets document the current and future staff, and the need for building space, parking, and other site needs at +5 and +20-year milestones. The building space and site area needs were reviewed by, understood, and agreed to by Fire Department and Police Department staff.

Findings

This report highlights shortcomings of the existing facilities that limit the Departments' abilities to achieve optimized efficiency and effectiveness. Harriman staff performed a site and facility assessment of the Fire and Police Department.

Recommendations

The Space Needs, and Facility Assessments entail the recommendations of the Consultant Team for how the City may proceed to meet the current and future facility needs of the Fire and

CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

Police Departments. Study Findings include space and facility deficiencies identified by the Consultant Team. Study Recommendations include the proposed actions to correct the identified deficiencies. Recommendations include both 'bricks and mortar' facility improvements and spatial improvements to support operational needs.

Study Findings

Fire Station: Shortcomings were identified for this building and site.

- The current site is well located to provide rapid emergency response service throughout the City. As a result, the Bath Fire Department has one of the fastest response times in the state.
- The current site is too small to support all the space needs of the Fire Department.
- Inadequate space in the apparatus bays to accommodate emergency response vehicles needing to be housed in this facility.
- Inadequate space for vehicle maintenance on FD vehicles to be performed efficiently.
- Inadequate capacity to accommodate mandated staff training.
- Inadequate office areas to accommodate current and future employees.
- Staff quarters create limitations to accommodate larger crews needed to respond to calls for service.
- Inadequate space to safely accommodate visitors.
- Building age will require major electrical, and HVAC upgrades to maintain operation, safety and efficiency in the near future.
- Life safety concerns include no fire alarm system and no sprinkler system.
- Building construction lacks the capacity to easily accommodate upgraded technology integration needs.
- Aging construction has led to problems such as cracking in walls and leaks in residential areas.
- Building systems such as single pane windows and masonry walls offer poor energy efficiency.
- Building and site does not accommodate public meetings.
- Inadequate parking capacity to accommodate current and future staff.
- Inadequate parking capacity to accommodate public visitors and training visitors.

Police Department - Shortcomings were identified for this building and site.

- The current site is physically constrained but is well located in downtown giving the public easy access to the Police Department.
- Inadequate space in the sallyport to accommodate more than one cruiser.
- Inadequate space in the sallyport and facility results in storage of objects in prisoner areas that can potentially endanger officers.
- Inadequate space in the booking area to handle large groups of protesters: a result of serving Bath Iron Works.
- Inadequate space to securely house vehicle evidence.
- Inadequate space for public access functions and large meetings.
- Inadequate capacity to accommodate mandated staff training.
- Inadequate office areas to accommodate current and future employees.

CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

- Inadequate space to safely process and store evidence.
- Inadequate ventilation systems to safely separate evidence areas from staff areas.
- Inadequate space to privately and discretely meet with victims.
- Building structural settlement resulted in significant cracking of walls and a 12 year monitoring process by professional engineers.
- Building and systems age requires immediate replacement of the emergency power generator and will call for electrical, HVAC, and plumbing upgrades to maintain operation in the near future.
- Building lacks the capacity to easily accommodate upgraded technology integration needs.
- Inadequate parking capacity to accommodate current and future staff.
- Inadequate parking capacity to accommodate public visitors.
- The existing site requires reconfiguration to potentially accommodate all the space needs of the Police Department.
- Current site contains challenges and restrictions such as tight urban compact, and retaining walls, and lack of secure staff areas.
- Wooden site retaining walls should be replaced.

General Findings

Both the Fire Department and Police Department facilities require additional space to support current and future building and site requirements. It is important to note that the City of Bath does not contain much available land to implement the space needs and facilities recommendations.

Study Recommendations

Based on our findings, we have developed the following recommendations solve current needs and plan for the future. These comprehensively address facility improvement needs, programmatic space needs, and operational efficiencies. The unique situation for Bath public safety is that it includes the 'city within a city' of Bath Iron Works. This results in proportionally large and specific emergency services needs compared to surrounding communities of similar size. The plan consists of a combination of improvements to existing facilities and new facilities. A description follows:

Fire Station – Due to the extensive facility limitations of the existing facility it is recommended that it be replaced in one of two ways.

- Option 1: Build a new replacement station on new property available for acquisition, to be determined.
- Option 2: 'Replace in place' build a new station on the current site and relocate some program spaces offsite.

The new station will enable increased efficiencies of operations and staff resulting in improved emergency response. It will accommodate the shortcomings identified by this study, as documented in the Space Needs, as efficiently and effectively as possible. In addition to accommodating the current and future needs of the Fire Station, the new station will include

CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

the following program areas.

- A large shared multi-purpose room to serve the City's EOC, Fire Department meeting/training, and public/municipal needs.
- A dedicated maintenance area to meet the service needs of the Fire Department fleet of apparatus.
- Separate spaces for Day Room, Training, Meeting, and Fitness.

Required program area equals 20,514 GSF (9,759 GSF more than the existing Station)
Estimated Project Cost TBD.

Police Department – Create a cost model feasibility study to understand the benefit of renovating the existing building vs building new. Given the structural and exterior envelope issues of the current building, renovation may be more expensive than replacing with a new facility.

- Option 1: Renovate and add to the existing facility on the current property at 250 Water Street. To accommodate required space needs, the Police Department would likely need to occupy the entire municipal parcel that contains the adjacent municipal parking lot.
- Option 2: Build a new facility on the existing site or on new property available for acquisition, to be determined.

The new station will accommodate current and future staff and will enable increased efficiencies of staff and improved police services to the City. The new station will accommodate the shortcomings identified by this study, as efficiently and effectively as possible. In addition to providing appropriate program square footage, the proposed facility will co-locate spaces with better proximity to one another and can include the following program areas.

- A large shared multi-purpose room to serve the City's EOC, Police Department meeting/training, DT, and public/municipal needs.
- Sufficient space for sallyport, vehicle evidence, booking, evidence processing/storage, fitness, and staff work areas.
- Improved site access and parking for staff and fleet.

Required program area:

All New Facility Option – equals 19,191 GSF (11,249 GSF more than the existing Station)

Note: To fit the current site location, a 2-story Police Department building is required to reduce the footprint area. Given the dense urban compact of downtown Bath, the 2-story scheme is likely the most viable.

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CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

SPACE NEEDS ASSESSMENT

Introduction

This section includes detailed space needs assessments for all program spaces for the City of Bath Fire and Police Departments.

The document begins with summary information for the stations and is then broken into distinct sections. Each section identifies a specific programmatic area in detail.

Documents in this section are formatted for a Landscape orientation.

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Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

	2020		2021				2026				2041				COMMENTS
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
I. Public Access Areas		0				1,900				720				0	
II. Administration		578				1,170				48				0	
III. Communications		0				0				0				0	
IV. Day Space Areas		1,073				1,427				168				0	
V. Staff Quarters & Support		695				1,060				0				0	
VI. Stationhouse Operations		668				1,404				74				74	
VII. Apparatus & Vehicles		4,188				6,330				0				0	
IIX Vehicle Maintenance		1,750				1,240				0				0	
IX. Training		0				140				0				0	Non-building area: exterior only
X. Facility Support		408				520				0				0	
Building Totals															Grand Total: Net Square Feet
(NSF) Sub Total All Areas:		9,360				15,051				1,010				74	16,135
Circulation and Walls:		1.15				1.26				1.40				1.40	Grand Total: Gross Square Feet
(GSF) Total Space Needs:		10,755				18,996				1,414				104	20,514
Building & Site Totals															Grand Total: Square Feet
(GSF) Total Site & Building Areas:		39,640				83,374				18,774				8,504	110,652
GSF to Acre: 1/43,560															Grand Total: Acres
(Acres) Total Site & Building:		0.91				1.91				0.43				0.20	2.54
XI. Site Requirements: One Story		39,640				62,860				17,360				8,400	

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

	2020		2021				2026				2041				COMMENTS
	Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	

XII. Site Requirements: Two Story

0

0

0

0

Building & Site Totals

(GSF) Total Site & Building Areas:

GSF to Acre: 1/43,560

(Acres) Total Site & Building:

39,640

0.91

17,014

79,874

1.83

17,360

0.40

8,504

0.20

Grand Total: Square Feet

105,738

Grand Total: Acres

2.43

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

I. Public Access Areas		2020		2021			2026				2041				COMMENTS	
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)
A. Public Entry Vestibule																
1.	Entry Vestibule		0		1	80	80		0		0		0		0	
2.	Intercom / Call Station		0		1	0	0		0		0		0		0	Doorbell
3.	Perscription Drug Drop Box		0		0	4	0		0		0		0		0	Only at PD
Sub-Total Area:			0				80				0				0	
B. Public Lobby																
1.	Public Waiting-Seating Area		0		1	140	140		1		0		1		0	Permitting done on premises-Accommodate 2-3 people
2.	Information Kiosk-Brochures		0		1	4	4		1		0		1		0	Space is needed
3.	Forms / Writing		0		0	20	0		1		0		1		0	Online or through Duty Officer
4.	FD History Display		0		1	24	24		1		0		1		0	Display cases needed-antique apparatus exist (see apparatus)
5.	Public Donations Area		0		1	8	8		1		0		1		0	Minor temporary area need 8 SF
6.	Public Counter FD		0		1	12	12		1		0		1		0	Administrator window to lobby-access control or ballistic rated
7.	Public Counter Inspections		0		0	12	0									Fire inspector is Deuty Chief-By Appt only-no need for counter
8.	Women's Restroom		0		1	56	56		1		0		1		0	No need
9.	Men's Restroom		0		1	56	56		1		0		1		0	No need
10.	Family Restroom		0		0	64	0		1		0		1		0	Would be nice but not required
11.	Vending/Water		0		0	6	0		1		0		1		0	Would be nice but not required
Sub-Total Area:			0				300				0				0	
C. First Aid Station																
1.	First Aid Room				1		0		1		0		1		0	Not needed
Sub-Total Area:			0				0				0				0	

Final Space Program

I. Public Access Areas		2020		2021				2026				2041				COMMENTS
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
D. Multi-Purpose/Training Rm/EOC																
1.	Multi-Purpose Room				30	36	1080		20	36	720				0	30 to 50 people-formal training room-OK to share with other civic organizations
2.	MP Room Equip. Storage				1	80	80				0				0	A/V support-backbone
3.	MP Room Training Storage				1	120	120				0				0	CPR-EMS training aids
4.	MP Room EOC Storage				1	80	80									FD Chief is EMA Director-EOC good in FD
5.	MP Room Toilet				2	56	112				0				0	
6.	MP Room Kitchenette				1	48	48				0				0	
Sub-Total:			0				1,520				720				0	
Sub Total Public Access Areas:			0				1,900				720				0	
Circulation and Walls:							1.40				1.40				1.40	
Total Public Access Areas:							2,660				1,008				0	

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

II. Administration		2020		2021				2026				2041				COMMENTS					
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)							
		FT	PT		FT	PT				FT	PT										
		FT	PT		FT	PT				FT	PT				FT	PT					
A. Administration Office Areas																					
1.	Fire Chief		1	137		1	1	140	140			0	0	0			0	0	0	meet w/ 1-2	
2.	Closet		0	0			1	8	8			0		0			0		0	Closet in each office	
3.	File Storage		0	0			1	6	6			0		0			0		0		
4.	Toilet		1	51			2	56	112			0		0			0		0	Gender specific toilets in Admin area	
5.	Shower		1	12			2	12	24			0		0			0		0		
6.	Deputy Chief		1	137		1	1	140	140			0		0			0		0	meet w/ 1-2	
7.	Battalion Chief/Captain		1	106		4	1	158	158			0		0			0		0	Shared office-1 workspace w/filing for 3 (add 6 SF per staff)	
8.	EMS Director		0	0		1		140	0			0		0			0		0	Shared office-3 workspaces	
9.	Flex Office/workstation		0	0			1	64	64			0		0			0		0		
Sub-Total Area:				443					652					0					0		
D. Administration Meeting Area																					
1.	Conference Room		0	0			8	24	192			2	24	48					0	8-10 people-use as study room	
	Library Shelves		0	0			1	12	12					0					0		
2.	Storage Closet		0	0			1	12	12					0					0	coat closet	
3.	Counter - Coffee Area		0	0			1	8	8					0					0		
Sub-Total:				0					224					48					0		

Final Space Program

II. Administration		2020			2021				2026				2041				COMMENTS
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		FT	PT		FT	PT				FT	PT						
		FT	PT		FT	PT					FT	PT					
E. Administration Support																	
1.	Recptionist		0	0			0	64	0			0				0	No need
2.	Admin. Assistant FT		1	135		1	1	120	120			0				0	meet w/ 1-2 + lockable walk-in closet for storage
3.	Admin. Assistant PT		0	0			0	80	0			0				0	No need
4.	Waiting - Reception		0	0			0	60	0			0				0	No need
5.	Training Officer Office		0	0			0	100	0			0				0	By Deputy & Captains
6.	Work-Copy Area		0	0			1	64	64			0				0	Multi-function room-accessible by all staff
7.	Scanner-Printer Area		0	0			1	12	12			0				0	See above
8.	Shredder Alcove		0	0			1	12	12			0				0	Yes, in above
9.	File Storage		0	0			1	50	50			0				0	Record storage-stored in FD and City Hall-should be all in FD or digitized
10.	Personnel File Storage		0	0			1	8	8			0				0	In Administrator's office
11.	Secure File Storage		0	0			1	8	8			0				0	In Administrator's office-closet
12.	Kitchenette-Coffee Area		0	0			1	20	20			0				0	
Sub-Total:				135					294							0	
Sub Total Administration Areas:				578					1,170							48	0
Circulation and Walls:									1.40							1.40	1.40
Total Administration Areas:									1,638							67	0

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

III. Communications		2020		Current Area	2021				2026				2041				COMMENTS
		Current Staff			Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
		FT	PT	FT													
A. Communications Staff Areas																	
1.	Communciations Supervisor			0													
2.	Dispatcher			0													
3.	Call Taker			0													
4.	Public Service Counter			0													
Sub-Total Area:				0				0								0	
B. Communications Storage																	
1.	Coat Storage			0				0					0				
2.	Equipment Storage			0													See Utility & Maintenance section for communications-related support spaces
3.	Chair Storage			0													
4.	Reference Material			0													
Sub-Total Area:				0				0					0				0
C. Staff Support																	
1.	Public Counter			0				0					0				
2.	Toilet			0													
3.	Coffee-Break Area			0													
4.	Lockers			0													
5.	Coat Storage			0													
6.	Equipment Storage			0													
Sub-Total Area:				0				0					0				0
Sub Total Communications Areas:				0				0					0				0
Circulation and Walls:								1.40					1.40				1.40
Total Communications Areas:								0					0				0

Space Needs Assessment

Bath, ME Fire Department

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IV. Day Space Areas		2020		Current Area	2021			2026				2041				COMMENTS				
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)						
		FT	PT	FT	PT	FT				PT	FT				PT		FT	PT	FT	PT
		FT	PT		FT	PT														
A. Kitchen Area																				
1.	Kitchen Cabinetry-Counter			292			1	40	40				0	0				0	0	Support 6-8 people - up to 50
2.	Prep Counter-Island			0			1	18	18					0					0	
3.	Hand Sink			0			0	10	0											Not needed
4.	3-Commartment Sink			0			1	24	24											
5.	Refrigerator-Freezer			0			1	24	24											Commercial size for all shifts, water, large gatherings
6.	Oven-Range-Hood			0			1	32	32											6 burner range with grill
7.	Microwave			0			2	6	12											2 microwaves
8.	Dishwasher			0			1	12	12											1 regular
9.	Ice Machine			0			1	12	12											Currently in Apparatus Bay
10.	Shift Pantry			0			4	12	48											4 pantries
11.	Appliances			0			5	1	5											Space and electrical to support small appliances
12.	Trash-Recycling			0			6	4	24											Trash 4 bin inside-dumpser outside& recycling-2 large bins adjacent to kitchen
13.	Utility Closet			0			1	6	6											Stroage for cleaners, trash bags, condiments
14.	Miscellaneous			0			1	4	4					0					0	
Sub-Total Area:				292					261					0					0	
B. Dining Area																				
1.	Dining Table-Chairs			0			6	24	144			4	24	96					0	Typical 6 sit down up to 10
2.	Server Counter			0			1	12	12											Good to have
3.	Display-TV			0			1	0	0											TV needed-2 monitors-wall mount
4.	Outdoor Patio Dining			0			1		0											6 to 10 people-See outside spaces
5.	Outdoor Patio-Grill			0			1		0					0					0	1 larger grill-See outside spaces
Sub-Total Area:				0					156					96					0	

Final Space Program

IV. Day Space Areas				2020		2021				2026				2041				COMMENTS					
				Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
				FT	PT		FT	PT				FT	PT				FT						PT
				FT	PT		FT	PT		FT	PT		FT	PT		FT	PT						
C. Day Room Area																							
1.	Reclining Chairs-Tables			781			6	36	216			2	36	72					0	6-8 recliners			
2.	Media Center-Cabinet			0			1	12	12											Yes			
3.	Computer Desk			0			0	16	0											Use Admin meeting room			
4.	Bookcase			0			1	12	12											Yes			
5.	FD History-Memorabilia			0			2	30	60											Wall hangings, other display items-cabinets			
6.	Other Seating			0			1	60	60											Union - Sofa - Pool table consideration			
Sub-Total Area:				781		360				72				0									
D. Fitness																							
1.	Treadmil			0			2	54	108					0					0	2			
2.	Elliptical Trainer			0			1	42	42											1			
3.	Stairmaster			0			1	36	36											1			
4.	Stationary Bike-Peleton			0			1	36	36											1			
5.	Rowing Machine			0			0	36	0											0			
6.	Smith Machine			0			0	48	0											0			
7.	Bench			0			1	48	48											1			
8.	Free weights-rack			0			1	12	12											1			
9.	Rope			0			2	12	24											2 - add open SF space			
10.	Speed Bag			0			1	24	24											1			
11.	Open Stretching space			0			6	48	288											for 6 people - floor mat storage			
12.	Cross Fit Area-200SF/Pers.			0			0	200	0											0			
13.	Media Shelf-Display			0			2	0	0											yes plus call wall monitor			
14.	Wall Clock			0			1	0	0											yes			
15.	AED			0			1	0	0											yes			
16.	Wall Mirrors			0			2	0	0											yes			
17.	Water-Bottle Filling Station			0			1	8	8			1		0			1		0	not needed			
Sub-Total Area:				0		626				0				0									
E. Day Space Support																							
1.	Family Toilet Room			0			0	64	0			1		0			1		0	not needed			
2.	General storage Room			0			1	24	24					0					0	floor mats, disinfectant station			
Sub-Total Area:				0		24				0				0									

Final Space Program

IV. Day Space Areas		2020		2021			2026				2041				COMMENTS	
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)		
		FT	PT		FT	PT				FT	PT					FT
		FT	PT		FT	PT	of Spaces	(sq. ft.)	Net Area (sq. ft.)	FT	PT	of Spaces	(sq. ft.)	Sub-Total (sq. ft.)		
Sub Total Day Space Areas:		1,073					1,427						168		0	
Circulation and Walls:							1.40						1.40		1.40	
Total Day Space Areas:							1,998						235		0	

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

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V. Staff Quarters & Support		2020		Current Area	2021			2026				2041				COMMENTS			
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)					
		FT	PT	FT	PT	FT				PT	FT				PT		FT	PT	FT
		FT	PT		FT	PT													
A. Firefighters Quarters																			
1.	Hot Bunk	20		414	21		5	120	600	23									5 bunk rooms Single bunk if possible
2.	Bed Stand								0										Included in area above
3.	Desk-Chair								0										Included in area above
4.	Cot						2	20	40										Store in extra closet: apply area to bunk rooms with cot
5.	Open Floor space						0		0										Accommodate cotts as needed
6.	Closet-Locker						0	16	0										4 shifts + 1 for a cot in 2 rooms- space for linens and uniforms: 5 per room
Sub-Total Area:				414					640					0				0	
B. Firefighter Bathrooms																			
1.	Vanity-Lavatory-Mirror Cab.			143			4	24	96					0				0	Provide 2 gender specific bathrooms per sex
2.	Water Closet-Toilet						3	24	72										
3.	Urinal						1	24	24										
4.	Shower						4	16	64										
5.	Storage Cabinet-Closet						4	6	24										
Sub-Total Area:				143					280					0				0	
C. Shift Commander Quarters																			
1.	Hot Bunk		1	138			1	140	140					0				0	Same as FF bunks but add communications w/ dispatch
2.	Bed Stand								0										
3.	Desk-Chair								0										
4.	Open Floor space						0		0										
5.	Closet-Locker						0	16	0										
6.	Vanity-Lavitory-Mirror Cab.						0	24	0										Share bathrooms with other staff
7.	Water Closet-Toilet						0	24	0										
8.	Urinal						0	24	0										
9.	Shower						0	16	0										
10.	Storage Cabinet-Closet						0	6	0										
Sub-Total Area:				138					140					0				0	

Final Space Program

V. Staff Quarters & Support		2020		2021				2026				2041				COMMENTS			
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)					
		FT	PT		FT	PT				FT	PT				FT		PT		
		FT	PT			FT	PT			FT	PT			FT	PT				
D. Staff Quarters Support																			
1.	Laundry Room			0				1	120	120						0			W/D for linen, uniforms
2.	Janitor Closet			0				1	24	24									yes
3.	Other Storage			0				1		0									
Sub-Total Area:				0						144						0			
Sub Total Staff Quarters Areas:				695						1,060						0			
Circulation and Walls:										1.40						1.40			
Total Staff Quarters Areas:										1,484						0			

Space Needs Assessment

Bath, ME Fire Department

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VI. Stationhouse Operations		2020		Current Area	2021			2026				2041				COMMENTS			
		Current Staff			Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)		
		FT	PT	FT														PT	FT
		FT	PT		FT	PT													
A. Operational Areas-If Separate From Administration																			
1.	Watch Room			0			0	90	0					0				0	Use Captian office
2.	Station Officer			0			0	120	0					0				0	Use Captian office
3.	Shift Commander			0			0	120	0					0				0	Use Captian office
4.	EMS Coordinator			0			0	100	0					0				0	Staff accounted for in Admin Area
5.	Shared Office			0			0	100	0					0				0	Not needed
6.	Flex Office			0			0	100	0					0				0	Not needed
7.	Union Office			0			0	100	0					0				0	Use Day Room
8.	Toilet Room			0			0	56	0					0				0	Not needed
Sub-Total Area:				0					0					0				0	
B. Apparatus Support																			
1.	Primary Turnout Lockers						26	8	208					0				0	26 needed include 2 spares-currently have 21 - not located on apparatus floor
	Secondary Gear						26	8	208					0				0	Could use boot drawer under turnout
2.	Reserve Gear						1	100	100					0				0	need 10x10 room for PPE
3.	Specialty Gear-Equipment						0	100	0					0				0	Use above
4.	PPE Tech-Maintenance						1	100	100					0				0	Add 10x10 space to Gear-Equip. Room
5.	SCBA						0	120	0					0				0	Stored on trucks-no spares
6.	Out of Service Equip. Stor.						0	100	0					0				0	Use above
7.	Hose Storage Racks						1	120	120					0				0	Keep 1 full compliment-1,00 feet of 5" 10 rows of 5", 20 rows of 2.5", 20 rows 1.75"
8.	Hose Tower			235			1		0					0				0	Use a stair tower for training-can use to hang hoses: See Training
9.	HAZMAT Storage			0			1	100	100					0				0	Need vented storage room 10'x10'
10.	Gross Decon Area			0			0	32	0					0				0	Bag on site-good method now and in future

Final Space Program

VI. Stationhouse Operations		2020			2021				2026				2041				COMMENTS			
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)						
		FT	PT		FT	PT				FT	PT									
		FT	PT		FT	PT														
11.	Gear Decon Room-Extractor-Drying Racks-Sink-Table			163			1	180	180					0				0	Need larger space- seperation table and extra space to sorting items-1 extractor and current drying unit is OK	
12.	FF Decon-Showers-Toilet-Changing Area			0			2	74	148			1	74	74			1	74	74	2 shower and changing areas minimum
13.	EMS Equipment-Supplies-Drug Storage			120			1	140	140					0				0	Currently within Repair Bay - Needs to be Secured and access controlled	
15.	First Aid Room			0			0	0	0					0				0	Not needed	
16.	Utility Room			150			1	60	60					0				0	O2 cyllindar storage-contracted-good to be accessed from outside	
17.	Air Compressor Room						1	40	40					0				0	2-Cascade system and 1 for Truck	
Sub-Total Area:				668					1,404					74				74		
Sub Total Stationhouse Ops Areas:				668					1,404					74				74		
Circulation and Walls:									1.40					1.40				1.40		
Total Stationhouse Ops Areas:									1,966					104				104		

Space Needs Assessment

Bath, ME Fire Department

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VII. Apparatus & Vehicles		2020		2021				2026				2041				COMMENTS
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
A. Apparatus Bay																
(5) 17'x74' Bays																
1.	Pumper Truck				1	700	700				0				0	E-One
2.	Ladder Truck				1	1000	1000				0				0	E-One
3.	Rescue Pumper Truck				1	700	700				0				0	E-One
4.	Type Three Ambulance				1	600	600				0				0	Horton
5.	Type Three Ambulance				1	600	600				0				0	Wheeled Coach
6.	Type Three Ambulance				1	600	600				0				0	Wheeled Coach
7.	Rescue/Bush Unit				1	200	200				0				0	UTV Off-road
8.	Ford Explorer				1	400	400				0				0	
9.	Toyota Tundra				1	400	400				0				0	
10.	Ford Pick Up				1	400	400				0				0	
11.	24' Safety Boat				1	280	280				0				0	Downeaster Center Console
12.	Circulation / Clearence				5	90	450				0				0	
13.							0				0				0	
Sub-Total Area:			4188				6,330				0				0	
B. Fleet Vehicle Parking Needs																
1.							0				0				0	
2.		1					0				0				0	
3.							0				0				0	
Sub-Total Area:			0				0				0				0	

Final Space Program

VII. Apparatus & Vehicles		2020		2021				2026				2041				COMMENTS
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
C. Other																
1.							0				0				0	
2.							0				0				0	
Sub-Total Area:							0				0				0	
Sub Total Apparatus Areas:			4,188				6,330				0				0	
Circulation and Walls:							1.10				1.10				1.10	
Total Public Apparatus Areas:							6,963				0				0	

Space Needs Assessment

Bath, ME Fire Department

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IIX Vehicle Maintenance		2020		2021			2026				2041				COMMENTS	
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)
A. Staff Areas																
1.	Mechanic Office		0		0	100				0				0		Use Bath Public Works
2.	Maintenance Storage		0		1	220	220				0				0	Fluids, bulbs, off-season tires, cleaning supplies-minimal tools
Sub-Total Area:			0				220				0				0	
B. Mechanic's workshop (1) 17'x60' Bay																
1.			1750		1	1020	1020				0				0	Asked about undercarriage washing capacity
2.							0				0				0	
3.							0				0				0	
4.							0				0				0	
5.							0				0				0	
6.							0				0				0	
Sub-Total Area:			1750				1,020				0				0	
Sub Total Maintenance Areas:			1,750				1,240				0				0	
Circulation and Walls:							1.10				1.10				1.10	
Total Maintenance Areas:							1,364				0				0	

Space Needs Assessment

Bath, ME Fire Department

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IX. Training		2020		2021			2026				2041				COMMENTS	
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)
A. Staff Areas																
1.	Training Room		0		1	0	0				0				0	Use multi-purpose room: See Public Access Areas
Sub-Total Area:			0				0				0				0	
B. Outdoor Support Spaces																
1.	Concrete Taining pad				1	3200	3200				0				0	Active hands on training-stair tower, hydrant, mockups
2.	Recirculation Pumping				1	600	600				0				0	Capture & recirculate water for pump training
3.	Training Props/Mockups				1	2500	2500				0				0	Flexible hands-on training space
4.	Stair Tower for training				1	400	400				0				0	Replaces hose tower
Sub-Total Area:			0				6,700	Area Incl. Section XI			0				0	
C. Storage																
1.	Training Equipment Storage		0		1	140	140				0				0	
Sub-Total Area:			0				140				0				0	
Sub Total Public Access Areas:			0				140				0				0	
Circulation and Walls:							1.40				1.40				1.40	
Total Public Access Areas:							196				0				0	

Space Needs Assessment

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Bath, ME Fire Department

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X. Facility Support		2020		2021			2026				2041				COMMENTS	
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)
A. Staff Areas																
1.	Office		0		0	100	0				0				0	Maintenance Staff
Sub-Total Area:			0				0				0				0	
B. Support Spaces																
1.	Mechanical Room				1	160	160				0				0	
2.	Boiler		270		1	40	40				0				0	
3.	Sprinkler Entrance				1	20	20				0				0	
4.	Electrical Room				1	120	120				0				0	Include Building-wide UPS
5.	Emergency Elec. Room				1	40	40				0				0	
6.	Tel/Data Room		29		1	20	20				0				0	
7.	2-way Communications		0		1	20	20				0				0	Central closet for communications backbone
8.	Fuel Storage		109		0	120	0				0				0	
9.	Other				0		0				0				0	
Sub-Total Area:			408				420				0				0	
C. Storage																
1.	General Storage				1	100	100		1		0		1		0	
D. Exterior Utilities																
1.	Emergency Generator				1		0				0				0	
2.	HVAC/Condensing Units						0				0				0	TBD
3.	Storage Container				0		0				0				0	
4.	Communications Tower				0		0				0				0	
Sub-Total Area:			0				0				0				0	
Sub Total Public Access Areas:			408				520				0				0	
Circulation and Walls:							1.40				1.40				1.40	
Total Public Access Areas:							728				0				0	

Space Needs Assessment

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Bath, ME Fire Department

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XI. Site & Parking		2020		2021				2026				2041				COMMENTS
		Current Staff	Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
A. Apparatus & Vehicles																
1.	Apparatus Apron-Front				5	1700	8500				0				0	17'x100' per bay
2.	Apparatus Apron-Rear				5	1700	8500				0				0	
3.	Maintenance Apron				1	1700	1700				0				0	
4.	Command Vehicle Parking				3	400	1200				0				0	
5.	Staff Parking				12	400	4800		8	400	3200				0	
6.	Visitor Parking				15	400	6000		5	400	2000		5	400	2000	
7.	Exterior Wash Area						0				0				0	Included in Apron
8.	Other				1	800	800				0				0	Antique apparatus and supporting area (currently offsite-could remain offsite)
Sub-Total Area:			0				31,500				5,200				2,000	
C. Training & Mockups																
1.	See Training Section				1	0	6,700		1		0		1		0	Total: 6,300 SF
Sub-Total Area:			0				13,400				7,200				4,000	
D. Exterior Utilities																
1.	Emergency Generator						0				0				0	
2.	HVAC/Condensing Units						0				0				0	
3.	Storage Container						0				0				0	
4.	Communications Tower						0				0				0	
5.	Stormwater Retention						0				0				0	Assume underground
Sub-Total Area:			0				0				0				0	
Sub Total Site Areas:			0				44,900				12,400				6,000	
Setbacks/Open Space Requirements							1.40				1.40				1.40	
Total Site Areas:			39,640				62,860				17,360				8,400	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

	2020			2021				2026				2041				COMMENTS			
	Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
	SW	NS		SW	NS				SW	NS				SW	NS				
I. Public Access Areas			523					2,252					200					0	
II. Administration			1,093					1,132					80					72	
III. Records & Traffic			383					504					64					0	
IV. Communications			0					0					0					0	
V. Patrol			1,438					3,294					0					0	
VI. Training			0					100					0					0	
VII. Investigations			851					874					0					0	
IIX Property & Evidence			338					788					0					0	
IX. Common Facilities			967					1,532					258					330	
X. Utility & Maintenance			453					2,228					0					0	
Building Totals																		Grand Total: Net Square Feet	
(NSF) Sub Total All Areas:																			13,708
Circulation and Walls:																			Grand Total: Gross Square Feet
(GSF) Total Space Needs:																			19,191
XI. Site Requirements: Single Story																			
Building & Site Totals																		Grand Total: Square Feet	
(GSF) Total Site & Building Areas:																			53,641
GSF to Acre: 1/43,560																			Grand Total: Acres
(Acres) Total Site & Building:																			1.23
Adjacent Parking Lot Total																			

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

	2020			2021					2026					2041					COMMENTS
	Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
	SW	NS		SW	NS				SW	NS				SW	NS				

XII. Site Requirements: Two Story

20,861

31,450

2,000

1,000

Building & Site Totals	5,242	Existing Footprint	10,000	2 Story Footprint															
(GSF) Total Site & Building Areas:	20,861		39,670		2,843									1,563					
GSF to Acre: 1/43,560																			
(Acres) Total Site & Building:	0.48		0.91		0.07									0.04					

Grand Total: Square Feet

44,076

Grand Total: Acres

1.01

Total Municipal Lot Area

0.99 Acres

Space Needs Assessment

Bath, ME Police Department

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1 June 2020

I. Public Access Areas		2020			2021				2026				2041				COMMENTS
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS				SW	NS						
A. Public Entry Vestibule																	
1.	Entry Vestibule			40			1	80	80			0		0			
2.	Intercom / Call Station			0			1		2			0		0			
3.	Perscription Drug Drop Box			0			1	4	4			0		0			Mailbox size
Sub-Total Area:				40					86				0			0	
B. Public Lobby																	
1.	Public Waiting-Seating Area			381			1	320	320			0		0			5 chairs and table for writing forms
2.	Information Kiosk-Brochures			0			1	12	12			0		0			Have currently
3.	Forms / Writing			0			1	12	12			0		0			
4.	PD History Display			0			1	18	18			0		0			counter height display case
5.	Public Donations Area			0			1	0	0			0		0			Ample space in current lobby
6.	Public Counter Area			0			1	6	6			0		0			Interface 8-3 w/ Reception/Clerk
7.	Women's Restroom			58			1	56	56			0		0			
8.	Men's Restroom			44			1	56	56			0		0			
9.	Family Restroom			0			1	0	0			0		0			
10.	Vending/Water			0			1	6	6			0		0			Water cooler
Sub-Total Area:				483					486				0			0	
C. Report / Interview Room																	
1.	Soft Interview Room			0			1	100	100			0		0			2 people - Use for custody swaps
2.	Meeting Room			0			0	120	0			0		0			
3.	ID / Public Fingerprint			0			1	20	20			0		0			Co-locate in soft interview room
Sub-Total Area:				0					120				0			0	
D. Community / Multi-Purpose / Training Room																	
1.	Multi-Purpose Room			0			30	40	1200			20	10	200			Seat 50 people-classroom setting
2.	MP Room Equip. Storage			0			1	80	80					0			For EOC activation
3.	MP Room Training Storage			0			1	120	120					0			Table and Chair / DT Mat - Equip
4.	MP Room Toilet			0			2	56	112					0			1 per gender
5.	MP Room Kitchenette			0			1	48	48					0			
Sub-Total:				0					1,560					200			0

Final Space Program

I. Public Access Areas	2020			2021				2026				2041				COMMENTS
	Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
	SW	NS		SW	NS				SW	NS				SW	NS	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

II. Administration		2020			2021				2026				2041				COMMENTS			
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)						
		SW	NS		SW	NS				SW	NS									
		SW	NS		SW	NS				SW	NS				SW	NS				
A. Chief of Police																				
1.	Office	1		204	1		1	180	180			0	80	0			0	80	0	Workspace & seating for 4 total
2.	Closet			10			1	12	2			0		0			0		0	Coat rod & file storage
3.	Toilet			0			0	56				0					0			Use shared toilet in Admin. Suite
4.	Shower			0			0	6	0			0		0			0		0	
Sub-Total Area:				214					182					0					0	
B. Deputy Chief of Police																				
1.	Office	1		131	1		1	160	160			0		0			0		0	Workspace & seating for 3 total
2.	Closet			10			1	12	12			0		0			0		0	Coat rod & file storage
Sub-Total Area:				141					172					0					0	
C. Administrative Command Staff																				
1.	Captain	0		0			0	160	0			0		0			0		0	
2.	Lieutenant	0		0			0	140	0			0		0			0		0	
Sub-Total Area:				0					0					0					0	
D. Administration Meeting Room																				
1.	Conference Room			371			6	36	216			0	24	0			2	36	72	Flexible seating
2.	Storage Closet			0			0	12	0			0		0			0		0	
3.	Counter - Coffee Area			0			1	12	12			0		0			0		0	Work counter
Sub-Total:				371					228					0					72	

Final Space Program

II. Administration		2020		2021				2026				2041				COMMENTS		
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)				
		SW	NS		SW	NS				SW	NS							
		SW	NS															
E. Administration Support																		
1.	Admin. Assistant FT		1	84		1	1	100	100			0	100	0			0	Needs office, not workstation
2.	Admin. Assistant PT		0	0		0	0	80	0		1	1	80	80			0	
3.	Waiting - Reception			0			4	30	120			0		0			0	3-4 chairs
4.	Training Officer Office			0			0		0			0		0			0	See Deputy-Use Prof. Standards office for add'l work area
5.	Training Off. Work-Copy			100			0		0			0		0			0	
6.	Prof. Standards Office		1	79		1	1	100	100			0		0			0	Accred. Mgr. works w/ Deputy-locate adjacent to Deputy office
7.	Prof. Std. Work-Copy			0			1	24	24			0		0			0	Locate in office
8.	File Storage			80			2	60	120			0		0			0	Room for active & archive storage
9.	Personnel File Storage			0			1	6	6			0		0			0	Keep in Chief's office
10.	IA File Storage			0			2	6	12			0		0			0	Cabinets in Chief & Deputy office
11.	Toilet			0			1	56	56			0		0			0	Shared by Administration Suite
12.	Kitchenette-Coffee Area			24			1	12	12			0		0			0	
Sub-Total:				367					550					80			0	
Sub Total Administration Areas:				1,093					1,132					80			72	
Circulation and Walls:									1.40					1.40			1.40	
Total Administration Areas:									1,585					112			101	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

III. Records & Traffic		2020		Current Area	2021			2026				2041				COMMENTS				
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)						
		SW	NS		SW	NS				SW	NS				SW		NS			
		SW	NS		SW	NS														
A. Records Staff Areas																				
1.	Records Supervisor		0	0			0	120	0					0						
2.	Records Clerk		1	140		1	1	120	120		2	1	64	64				0	Clerk is also receptionist - Add Part Time staff in future	
3.	Support Services Clerk		0	0			0		0					0				0	Same as Records clerk	
4.	Traffic Clerk		0	0			0		0					0				0		
5.	Public Service Counter			0			0		0					0				0		
6.	Public Service Counter-ADA			0			1	24	24					0				0		
7.	Voulnteer Station			0			1	0	0					0				0	No work station required	
8.	Microfiche Station			0			0		0					0				0		
9.	Money Drawer - Safe			0			1	4	4			1		0			1	0	Use a locked box	
Sub-Total Area:				140					148					64				0		
B. Records Storage																				
1.	Active Records Storage			65			1	80	80			1		0			1		0	
2.	Archive Records Storage			78			1	120	120					0					0	
3.	Form Storage			0				6	0					0					0	
4.	File Cab. at Public Counter			0			1	6	6			1		0			1		0	
Sub-Total Area:				143					206					0					0	
C. Staff Support																				
1.	Copy @ Public Counter			0			0	6	0			1		0			1		0	
2.	Copier-Scanner-Printer-Fax			0			1	80	80					0					0	Central shared copy aera
3.	Office Supply Storage			0			1	16	16					0					0	Shared by all
4.	Work Counter			100			1	30	30					0					0	Large counter and layout space
5.	Coffee-Break Area			0			0	10	0					0					0	
6.	Coat Storage			0			0	12	0					0					0	
7.	Officer's Counter-Window			0			1	12	12					0					0	Easy interface for Patrol
8.	Shredding Area			0			1	12	12			1		0			1		0	Central shredding alcove
Sub-Total Area:				100					150					0					0	
Sub Total Records Areas:				383					504					64					0	
Circulation and Walls:									1.40					1.40					1.40	
Total Records Areas:									706					90					0	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

IV. Communications		2020		2021				2026				2041				COMMENTS			
		Current Staff		Current Area	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)
		SW	NS						SW	NS				SW	NS				
A. Communications Staff Areas																			
1.	Communications Supervisor			0															
2.	Dispatcher			0															
3.	Call Taker			0															
4.	Public Service Counter			0															
Sub-Total Area:				0				0					0					0	
B. Communications Storage																			
1.	Coat Storage			0				0					0					0	
2.	Equipment Storage			0															
3.	Chair Storage			0															
4.	Reference Material			0															
5.	General Storage			0				0					0					0	
Sub-Total Area:				0				0					0					0	
C. Staff Support																			
1.	Public Counter			0				0					0					0	
2.	Toilet			0															
3.	Coffee-Break Area			0															
4.	Lockers			0															
5.	Coat Storage			0															
6.	Equipment Storage			0															
7.	General Storage			0															
Sub-Total Area:				0				0					0					0	
Sub Total Communications Areas:				0				0					0					0	
Circulation and Walls:								1.40					1.40					1.40	
Total Communications Areas:								0					0					0	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

V. Patrol		2020		Current Area	2021				2026				2041				COMMENTS
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS				SW	NS						
		SW	NS		SW	NS					SW	NS					
A. Staff Areas																	
1.	Captain Office			0			0	160	0					0			
2.	Captain Office Storage			0			0	12	0					0			
3.	Corporal	3		100	3		1	140	140					0		Want Corporal office-1 office-hot swap desk-size as a LT office	
4.	Sergeant Office			0			0	120	0					0		3 shifts, 13 total sworn	
5.	Shared Sergeant Office	3		0	3		1	160	160					0		3 shared office works now and in the future	
6.	OIC Office			0					0					0		Need enough space for 3 people	
7.	Squad-Roll Call Room			238			6	24	144					0		Up to 6	
8.	Roll Call Storage			0					0					0			
Sub-Total Area:				338	6				444	0				0	0	0	
B. Patrol Support																	
1.	Report Writing Area	7		130	7		7	24	168	1				0	1	Grow to 7 total spaces	
2.	Report Writing Print Area			0			1	12	12					0		Use Squad Room copy cobined space w/ report writing	
3.	Mailboxes			0			1	6	6					0		Central mail in Squad room-pass thru access from Records	
4.	Work-Copy Room			0			0		0					0		No Need	
5.	Gear Bag Storage			0			5	8	40					0		Near Squad Room-Patrol entry: 5 wide 3 tall; 2x2.5x1.5 bags	
6.	Patrol Equipment Storage			24			1	12	12					0		Prefer powered lockers	
7.	Quartermaster Storage			0			1	36	36					0		Nothing now, need a room	

Final Space Program

V. Patrol		2020			2021				2026				2041				COMMENTS
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS				SW	NS						
		SW	NS		SW	NS				SW	NS						
8.	Hand Gun Storage			0			1		0							Handguns stored in patrol lockers	
9.	Firearms Storage			16			1	24	24							Secure area off patrol: long guns, spare handguns, taser, ammunition	
10.	Animal control Officer			64			1	64	64						0	Workstation OK	
11.	Animal control Storage			25			1	400	400							Off Sallyport: accounts for 360 SF currently offsite & 4 cages	
12.	Traffic Safety Officer			64			1	64	64						0	Workstation OK	
13.	Harbormaster Storage			64			1	120	120						0	Officer uses other areas for workstation: storage closet required	
14.	Traffic Storage			0			1	120	120						0	Cones & Barriers	
15.	Traffic Garage			0			0		0						0	Split-most stored offsite	
Sub-Total Area:				387	7		1,066		1			0	1		0		
C. Booking																	
1.	Booking Area-Male			109			10	30	300						0	Space to hold up to 10 people	
2.	Booking Area-Female			0			10	30	300						0	Space to hold up to 10 people	
3.	Booking Area-Juvenile			0			0	100	0						0	Processed in another space in the station	
4.	Secure Toilet-not in cell			0			1	64	64						0	Shared and private toilet for prisoners	
5.	Holding Cells			181			0	80	0						0	Not needed	
6.	Property holding			0			1	100	100						0	Property holding	
7.	Sallyport			423			2	460	920						0	Drive thru preferred-2nd stall to be multi-use	
8.	Bail Commissioner			0			1	100	100						0	1 space is adequate	
Sub-Total Area:				713			1,784					0			0		
Sub Total Patrol Areas:				1,438			3,294					0			0		
Circulation and Walls:							1.40					1.40			1.40		
Total Patrol Areas:							4,612					0			0		

Space Needs Assessment

Bath, ME Police Department

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VI. Training		2020			2021				2026				2041				COMMENTS				
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
		SW	NS		SW	NS				SW	NS				SW	NS					
		SW	NS		SW	NS				SW	NS				SW	NS					
A. Staff Areas																					
1.	Training Officer			0			0	0	0				0					0	See Admin Section		
Sub-Total Area:				0					0					0					0		
B. Training Support																					
1.	Training Storage						1		0				0					0	See Admin Section		
2.	Training Room						1		0				0					0	See Public Access Section		
3.	Traing Room Support						1		0				0					0	See Public Access Section		
4.	Ammunition Storage						0	8	0				0					0			
5.	Weapons Cleaning						1	100	100				0					0			
Sub-Total Area:					0					100					0					0	
C. Firing Range																					
1.	Firing Range						0		0				0					0			
2.	Rangemaster Office						0		0				0					0			
3.	Target Storage						0		0				0					0			
4.	Weapons Storage						0		0				0					0			
5.	Mechanical Support						0		0				0					0			
6.	Range Storage						0		0				0					0			
Sub-Total Area:										0					0					0	
Sub Total Training Areas:					0					100					0					0	
Circulation and Walls:										1.40					1.40					1.40	
Total Training Areas:										140					0					0	

Space Needs Assessment

Bath, ME Police Department

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VII. Investigations		2020			2021				2026				2041				COMMENTS				
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	
		SW	NS		SW	NS				SW	NS				SW	NS					
		SW	NS		SW	NS				SW	NS				SW	NS					
A. Staff Areas																					
1.	Sergeant Office	1		108	1		1	140	140					0					0		
2.	Shared Office			0					0					0					0		
3.	Detective Office	2		203	2		2	120	240					0					0		
7.	SRO Work Area	1		64	1		1	64	64					0					0	Part of open work area	
8.	Administrator Office			0					0					0					0		
Sub-Total Area:				375					444					0					0		
B. Investigations Support																					
1.	Soft Interview Rooms			0			1	0	0					0			1		0	See Public Access Areas-Use for Juvenile and victim interviews	
2.	Hard Interview Rooms			81			1	100	100					0					0	Adjacent to Detective offices & open work area	
3.	Observation Room			0			0		0					0					0	Use Meeting Room	
4.	Polygraph Room			0			0		0					0					0		
5.	Child Abuse Interview Rm			0			0		0					0					0	Not done on site	
6.	Meeting Room			0			6	24	144					0					0	Flex space-use for interview observation	
7.	Open Work Area			335			1	120	120					0					0		
Sub-Total Area:				416					364					0					0		
C. Other																					
1.	Secured File Storage			0			1	6	6			1		0			1		0	Need a secure temporary locker for detectives Small closet for A/V equipment	
2.	Gun Lockers			0			1	24	24					0					0		
3.	Narcotics/Money Storage			0			0		0					0					0		
4.	A/V Equipment Closet			60			1	24	24					0					0		
5.	Equipment Storage Closet			0			1	12	12					0					0		
Sub-Total Area:				60					66					0					0		
Sub Total Investigations Areas:				851					874					0					0		
Circulation and Walls:									1.40					1.40					1.40		
Total Investigations Areas:									1,224					0					0		

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

VIII Property & Evidence		2020		Current Area	2021			2026				2041				COMMENTS	
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS				SW	NS						
		SW	NS		SW	NS					SW	NS					
A. Staff Areas																	
1.	Evidence Custodian Office			0			0										Detectives are Evidence Custodians
2.	Shared Office			0			0										
Sub-Total Area:				0			0										
B. Evidence Support-Storage																	
1.	Evidence Drop off			100			1	120	120			1					1 large counter with bags and boxes under
2.	Evidence Lockers			34			1	24	24								1 locker module mixed sizes
3.	Refrig. Evidence Lockers						1	6	6								1 refrigerator module: 4 lockers
4.	Evidence Processing			70			1	200	200								Workstation, counter, drying cabinet, sink, fuming hood, dusting shelf needed
5.	Gen. Stor./Bulk Evidence			134			1	120	120								
6.	Weapons Storage			0			1	120	120								
7.	Narcotics Storage			0			1	60	60								
8.	Cash & Valuables Storage			0			1	12	12								
9.	Freezer & Refrig. Storage			0			1	6	6								Half-size refrigerator-freezer
10.	Bicycle Storage			0			1	120	120								Bikes are currently outside-30 day hold- prefer indoor space.
11.	Vehicle Examination			0			1	0	0								Use flex 2nd bay in Sallyport
12.	Evidence Viewing			0			0	0	0								
13.	Evidence Return			0			0	0	0								
Sub-Total Area:				338					788								
Sub Total Evidence Areas:				338					788								
Circulation and Walls:									1.40								1.40
Total Evidence Areas:									1,103								0

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

IX. Common Facilities		2020			2021					2026					2041					COMMENTS		
		Current Staff		Current Area	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS				SW	NS				SW	NS						
		SW	NS		SW	NS				SW	NS				SW	NS						
A. Mens Locker Room																						
1.	Lockers	19	1	274	19	1	20	18	360	20	1	1	18	18	22	2	3	18	54	Additional total count to meet unknown future Gender split. Locker for all staff.		
2.	Benches			0			0	6	0			0		0			0		0	Benches included in lockers		
3.	Lavatory			36			2	24	48					0					0			
4.	Toilet-ADA			0			1	30	30					0					0			
5.	Toilet			24			1	16	16					0					0			
6.	Urinal			6			1	16	16					0					0			
7.	Shower			48			2	54	108					0					0			
8.	Day Lockers			0			0		0					0					0			
Sub-Total Area:				388						578						18						54
B. Womens Locker Room																						
1.	Lockers	1	4	128	1	4	5	36	180	4	5	4	36	144	6	5	2	36	72	Additional total count to meet unknown future Gender split. Locker for all staff.		
2.	Benches			0			0	6	0					0					0	Benches included in lockers		
3.	Lavatory			36			2	24	48					0					0			
4.	Toilet-ADA			30			1	30	30					0					0			
5.	Toilet						1	16	16					0					0			
6.	Shower			48			1	54	54					0					0			
7.	Day Lockers			0			0		0					0					0			
Sub-Total Area:				242						328						144						72

Final Space Program

IX. Common Facilities		2020		Current Area	2021			2026				2041				COMMENTS			
		Current Staff			Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)		Net Area Sub-Total (sq. ft.)		
		SW	NS															SW	NS
		SW	NS		SW	NS													

C. Fitness																				
1.	Treadmil						1	54	54					0			1	54	54	
2.	Elliptical Trainer						0	42	0					0			1	42	42	
3.	Stairmaster						0	36	0					0					0	
4.	Stationary Bike-Peleton						1	36	36					0			1	36	36	
5.	Rowing Machine						1	36	36					0					0	
6.	Smith Machine						1	48	48					0					0	
7.	Bench						1	48	48					0					0	
8.	Free weights-rack						1	12	12					0					0	
9.	Rope						0	12	0					0					0	
10.	Speed Bag						0	24	0					0					0	
11.	Open Stretching space						1	48	48			1	48	48			1	48	48	
12.	Cross Fit Area-200SF/Pers.						0	200	0					0					0	
13.	Media Shelf-Display						1	0	0											
14.	Wall Clock						1	0	0											
15.	AED						1	0	0											
16.	Wall Mirrors						1	0	0											
17.	Water-Bottle Filling Station						1	8	8					0					0	
Sub-Total Area:							188							48					180	

D. Common & Break Areas																				
1.	Kitchen			122			1	120	120					0					0	
2.	Lunch Room			0			8	24	192			2	24	48			1	24	24	Combined space w/ Kitchen
3.	Community Meeting Room			0			0		0					0					0	See M-Purpose Room in Public Access Areas
4.	Boot Shining Area			0			1	24	24					0					0	Locate near locker rooms
5.	Staff Toilet			27			0	56	0					0					0	Use Locker toilets & Admin Toilet
6.	Vending			0			0	24	0					0					0	
Sub-Total Area:				149					336					48					24	
Sub Total Common Areas:				967					1,532					258					330	
Circulation and Walls:									1.40					1.40					1.40	
Total Common Areas:									2,145					361					462	

Space Needs Assessment

Bath, ME Police Department

HARRIMAN

1 June 2020

IX. Utility & Maintenance		2020		Current Area	2021			2026				2041				COMMENTS	
		Current Staff			Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	Staffing Projections		Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS	SW	NS	SW				NS	SW				NS		
A. Staff Areas																	
1.	Office			0				0					0				Maintenance Staff
Sub-Total Area:				0				0					0				
B. Support Spaces																	
1.	Mechanical Room			145			1	140	140					0			
2.	Boiler			0			1	40	40					0			
3.	Sprinkler Entrance			0			1	20	20					0			
4.	Electrical Room			0			1	120	120					0			Include Building-wide UPS
5.	Emergency Elec. Room			0			1	40	40					0			
6.	Tel/Data Room			99			1	48	48					0			
7.	Server Room			0			1	120	120					0			
8.	Radio Room			0			0	80	0					0			Locate repeater in Tel-Data Room
9.	Garage Shop			160			1	120	120					0			
10.	Custodial Closet			49			2	40	80					0			
Sub-Total Area:				453				728					0				
C. Storage																	
1.	Fleet Equipment Storage			0			1	1400	1400					0			Indoor Storage for Trailers, Boat, Motorcycle, Etc.
2.	General Storage			0			1	100	100					0			
Sub-Total Area:				0				1,500					0				
D. Exterior Utilities																	
1.	Emergency Generator						1		0					0			See Site Requirements
2.	HVAC/Condensing Units								0					0			TBD
3.	Storage Container						0		0					0			
4.	Communications Tower						0		0					0			
Sub-Total Area:				0				0					0				
Sub Total Utility Areas:				453				2,228					0				0
Circulation and Walls:								1.40					1.40				1.40
Total Utility Areas:								3,119					0				0

Space Needs Assessment

Bath, ME Fire Department

HARRIMAN

1 June 2020

XI. Site & Parking		2020		Current Area	2021			Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area (sq. ft.)	2026				2041				COMMENTS	
		Current Staff			Staffing Projections		Staffing Projections				Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)	Staffing Projections	Total No. of Spaces	Area of Each Space (sq. ft.)	Net Area Sub-Total (sq. ft.)			
		SW	NS		SW	NS														
A. Vehicles & Fleet																				
1.	Chief's Vehicle	1			1		1	400	400					0					0	Parking stall
2.	Deputy's Vehicle	1			1		1	400	400					0					0	
3.	Patrol Supervisor	1			1		1	400	400					0					0	
4.	Patrol Sedan	1			1		1	400	400					0	1	1	400	400		
5.	Patrol SUV	2			2		2	400	800					0					0	
6.	Patrol K9	1			1		1	400	400					0					0	
7.	Animal Control	1			1		1	400	400					0					0	
8.	Parking Enforcement	1			1		1	400	400					0					0	Included in Apron
9.	CID	2			2		2	400	800					0					0	
10.	Motorcycle	1			1		1	200	200					0					0	
Sub-Total Area:		12		0	12			4,600						0				400		
B. Staff & Visitor Parking																				
1.	S-Standard Parking Spaces	8					8	400	3200		2	400	800						0	Designated in Municipal Lot
2.	V-Standard Parking Spaces						5	400	2000				0						0	Designated in Municipal Lot
3.	ADA Parking Spaces						1	600	600				0						0	Designated in Municipal Lot
Sub-Total Area:				0				5,800					800						0	
C. Equipment & Support (Can be reduced or removed if equipment is stored indoors)																				
1.	Habormaster Boat	1					1	280	280					0					0	
2.	Boat Trailer	1					1	300	300					0					0	
3.	Enclosed Trailer	1					1	300	300					0					0	
4.	Open Trailer-Transport Barriers	1					1	300	300					0					0	
5.	Radar Trailer	2					2	200	400					0					0	
6.	Speed Sign	1					1	200	200					0					0	
7.	Other	0					0		0					0					0	
Sub-Total Area:				0				1,780					0						0	
D. Exterior Utilities																				
1.	Emergency Generator						1	400	400					0					0	
2.	HVAC/Condensing Units								0					0					0	TBD
3.	Storage Container						0		0					0					0	
4.	Communications Tower						0							0					0	
5.	Stormwater Retention						0		0					0					0	Assume underground
Sub-Total Area:				0				400					0						0	
Sub Total Site Areas:		16,900			12,580			800		400										
Portion of adjacent site used by PD Circulation/Open Space Requirements		3,960			2.50			2.50		2.50										
Total Site Areas:		20,860			31,450			2,000		1,000										

CITY OF BATH, ME FIRE AND POLICE FACILITY SPACE NEEDS ASSESSMENT

FACILITY ASSESSMENT

Introduction

This section includes detailed site and building facility assessments for the City of Bath Fire and Police Departments.

The section begins with a summary table for each facility. Subsequent sections are more detailed narrative descriptions broken down by design discipline.

The summary table is formatted as 11x17 in Landscape orientation.

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Bath, ME Fire Department Existing Facilities Analysis																												Harriman		
BUILDING CONDITION SUMMARY TABLE																												Wednesday, June 3, 2020		
		Summary Information					Building Exterior							Life Safety				Interior									19 Total Review Categories		Overall Condition Rating	
BUILDING NAME	ADDRESS	YEAR CONSTRUCTED	CONSTRUCTION TYPE	BUILDING USE	BUILDING AREA (GSF)	TOTAL # OF FLOORS	Exposed Foundation	Brick / Masonry	Siding / Cladding	Windows	Doors	Canopies / Overhangs	Roof / Flashing	Fire Alarm / Strobes	CO / Smoke Detector	Life Safety: Exit Signs	Life Safety: Emergency Lighting	Condition of Walls	Base	Flooring	Ceiling	Stairs	Handrails	Doors	Glazing	Total Score	Building Average Rating			
Fire Department	864 High Street	1958	Masonry and steel	Office	10,755	1	2	2	2	2	2	2.5	3	0	1	0	0	2.5	3	2.5	2.5	NA	NA	3	3	33.0	1.83	Fair		
		Summary Information					Electrical		Lighting		Mechanical				Plumbing						Structure				38 Total Review Categories		Overall Condition Rating			
BUILDING NAME	ADDRESS	YEAR CONSTRUCTED		BUILDING USE	BUILDING AREA (GSF)	TOTAL # OF FLOORS	Service Entrance	Panel / Distribution	Emergency Power	Lighting	Lighting Controls	Boiler	Fuel	HVAC	Vented Decon Zone	Toilet Rooms	Kitchen	Domestic Water	Sprinkler Riser	Sprinkler Distribution	Showers	Wood Trusses	Observable Masonry	Headers / Lintels	Misc Metals / Stairs	Total Score		Building Average Rating		
Fire Department	864 High Street	1958	Masonry and steel	Office	10,755	1	1	1	3	1	1	3	2	2	1	3	4	3	NA	NA	3	NA	2	1	1.5	64.0	2.00	Fair		
Rating Index		1 Poor		2 Fair		3 Good		4 Very Good		5 Brand New		NA		Not Applicable																
Comments																														
Site: Small site size creates parking and vehicle maneuvering issues. The facility is surrounded by residential properties on 3 sides leaving no room for expansion.																														
Structural: Exterior walls on both sides of the apparatus bay were observed to have significant cracking and upper windows appeard to be out of plumb.																														
Architectural Exterior: Exposed concrete foundation damaged at several outside corners due to vehicle damage. Original copper single glazed windows at hose tower.																														
Architectural Interior: Original interior finishes require updating and replacement. Updated finishes in Day Spaces are in good-to-very good condition. The facility interior has been well maintained.																														
Plumbing: The restrooms should be renovated and redesigned to be ADA compliant. The water heating system should have a thermostatic mixing valve and reset controls.																														
Mechanical: 1. Boiler relaced in 2005. Steam distribution original to building. 2 zones total; one for apparatus bay and another for offices, bunks, kitchen/rec area. Asebestos pipe insulation removed and replaced with Fiberglass insulation. TRVs were installed at each radiator. Boiler feedwater system installed after 2005 to address issues with boiler running low on water. This may indicate the steam distrubution piping has significant leaks causing the boiler to run out of water. The feedwater sytem prevents cold water from being introduced directly into the boiler. 2. Fuel: Oil. There are (x2) 330 gallon storage tanks adjacent to the boiler room.. Tanks were replaced most likely in 2005 with the boiler and appear to be in decent shape. 3. HVAC: Air conditioning provided by (x10) window AC units installed throughout the bunks, offices and kitchen / rec room. There is no central ventilation system. The kicthen has an exhaust hood which was installed approximately 15 years ago. Airflow rate is unknown and it does not appear to have integrated fire suppression. The locker room has 2 exhaust vent fans installed however only 1 worked. The office bathroom has a single ventilation exhaust																														
Electrical: Electrical service entrance is old appears to be Trumbell manufactured disconnect switch with a varity of panelboards (trumbell, Square-D), there is a generator Kohler 60kw with one transfer switch located with the service entrance equipment in the maintance garage bay. lighting consists of 400watt metal halide high bay fixtures in the truck bays, fluorescent fixtures in office area and recreational areas, incandescent in some areas and a mixture of fluorescent and LED in storage rooms (medical storage has LED).																														
Life Safety:																														
Operational Notes: THIS FACILITY SHOULD BE CONSIDERED A CRITICAL OPERATIONS CENTER WHERE IT IS THE ONLY FIRE STATION IN THE CITY. THE EXISTING BUILDING IS NOT EQUIPPED FOR A CRITICAL OPERATIONS CENTER. A CRITICAL OPERATIONS CENTER IS VITAL FOR THE PUBLIC HEALTH AND SAFETY. STAFF MUST ENTER THE APARATUS BAY TO ACCESS VARIOUS PARTS OF THE BUILDING. THERE IS NOT SEPERATION OF TURNOUT FROM THE APPARATUS BAY.																														

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Bath, ME Police Department Existing Facilities Analysis																												Harriman		
BUILDING CONDITION SUMMARY TABLE																												Wednesday, June 3, 2020		
		Summary Information					Building Exterior							Life Safety				Interior									19 Total Review Categories		Overall Condition Rating	
BUILDING NAME	ADDRESS	YEAR CONSTRUCTED	CONSTRUCTION TYPE	BUILDING USE	BUILDING AREA (GSF)	TOTAL # OF FLOORS	Exposed Foundation	Brick / Masonry	Siding / Cladding	Windows	Doors	Canopies / Overhangs	Roof / Flashing	Fire Alarm / Strobes	CO / Smoke Detector	Life Safety: Exit Signs	Life Safety: Emergency Lighting	Condition of Walls	Base	Flooring	Ceiling	Stairs	Handrails	Doors	Glazing	Total Score	Building Average Rating			
Police Department	250 Water Street	1988	Steel frame w/ masonry walls	Office	7,762	2	NA	2.5	2	2	3	1	3	1	1	2	0	2	2	3	2	2	2	2	2	3	35.5	1.97	Fair	
		Summary Information					Electrical			Lighting		Mechanical				Plumbing						Structure				38 Total Review Categories		Overall Condition Rating		
BUILDING NAME	ADDRESS	YEAR CONSTRUCTED		BUILDING USE	BUILDING AREA (GSF)	TOTAL # OF FLOORS	Service Entrance	Panel / Distribution	Emergency Power	Lighting	Lighting Controls	Boiler	Fuel	HVAC	Vented Police Area	Toilet Rooms	Kitchen	Domestic Water	Sprinkler Riser	Sprinkler Distribution	Showers	Wood Trusses	Observable Masonry	Headers / Lintels	Misc Metals / Stairs	Total Score	Building Average Rating			
Police Department	250 Water Street	1988	Steel frame w/ masonry walls	Office	7,762	2	2	2	2	2	1	3	2	2	1	2	3	3	NA	NA	1	NA	1	2	3	67.5	1.99	Fair		
Rating Index		1 Poor			2 Fair			3 Good			4 Very Good			5 Brand New			NA		Not Applicable											
Comments																														
Site: The building is in a zero setback zone and there is limited physical buffer between Water Street and the facility. Staff and fleet parking areas lack screening and security typical of a law enforcement facility.																														
Structural: Tube steel and wide flange frame, open web floor joists, composite floor deck, wide flange roof rafters and purlins, assume masonry walls provde lateral bracing. Cracking at the stairway exterior wall has been measured and documented in a previous structural report from 2000. Significant crakcing observed throughout the building interior. Minor to moderate corrosion was observed at most steel lintel locations.																														
Architectural Exterior: Building leaks were reported by staff at every rain storm. Windows were replaced to solve leak issue. Leaks remain and are likely due to lack of flashing at brick to precast concrete joints. Significant cracking and spalling was observed at the precast concrete banding on all sides of the building.																														
Architectural Interior: Recent upgrades to flooring: LVT and carpet. ACT system was in fair to poor condition: wet and sagging tiles from exterior leaking and many grid areas were in poor condition. Walls and base were generally in condition, rangig from poor to good depending on specific location.																														
Plumbing: The restrooms should be renovated and redesigned to be ADA compliant. The water heating system should have a thermostatic mixing valve and reset controls.																														
Mechanical: 1. Furnace: There are 4 hot air furnaces in the attic space. Original to the building. 2. Fuel: NG. Systems were converted from Propane to NG. 3. HVAC: (x4) Air conditioning condensers mounted above the parking lot on the rear of the building. R-22 refrigerant sytems. A Lossnay 600 CFM ERV was installed to address indoor air quality issues reported. System operates independently of the heating and air conditioning air handler however it does tap into the return side of the air handlers utilizing the supply duct work. Exhaust ductwork was installed independent of the existing return ductwork for the AHUs. The two lockerrooms on the second floor have exhaust ventilation fans installed and operated with a simple timer switch. The kitchen on the second floor does not have any mechanical venilation. 4. Vented Police Area: The evidence room, booking and holding cells do not have a separate ventilation system. The central ventilation system is servicing these areas. The booking room has its own exhaust ventilation fan operated by a typical wall switch.																														
Electrical: the generator overheats and cannot be run for long periods of time (it is cooled using city water). The generator is scheduled for replacement. The electrical service entrance and generator and transfer switches all share the same room along with a water heater. the lighting interior is fluorescent with some incandescent dimmable down lights. the exterior lighting is high intensity dischard (HID). the controls for room lighting is toggle switches (no occupancy sensors were observed. the service entrance was marked as 1 of 2 - it is unclear where the second entrance is unless it is the street lighting (there is a meter near the front entrance).																														
Life Safety: There is no life safety lighting in the building. Exit signage appears to predate LED exit signs the majority and not battery backed up. There was an exit sign in the lobby with battery backup this was a diffent model than the rest of the building.																														
Operational Notes: THIS FACILITY SHOULD BE CONSIDERED A CRITICAL OPERATIONS CENTER WHERE IT IS THE ONLY POLICE STATION IN THE CITY. THE EXISTING BUILDING IS NOT EQUIPPED FOR A CRITICAL OPERATIONS CENTER. A CRITICAL OPERATIONS CENTER IS VITAL FOR THE PUBLIC HEALTH AND SAFETY. BOOKING AREA AND SALLYPORT LAYOUTS NEED TO BE IMPROVED FOR SAFETY. EVIDENCE PROCESSING AND STORAGE SHOULD HAVE AN INDEPENDANT VENTILATION SYSTEM.																														

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BATH, MAINE FIRE STATION

SITE CIVIL – EVALUATION



Source: Google Maps

OVERVIEW/ INTRODUCTION

- Introduction – The following site observation were made during a site walk and discussions with Chief Renaud on May 21, 2020.
- Context/ Lot Size/ Zoning Provisions
Context – The fire station is strategically located on 864 High Street overlooking downtown and the water front allowing ready access to the city. The site is in the block bounded by Chestnut St. to the south; High Street to the east and Green Street to the north. The site is surrounded by residential buildings. The entire site is occupied by buildings with pavement along the property lines. There is limited buffer area for fences and shrubs. Snow plowing and storage is challenging requiring snow to be trucked off site.

The building is located well above High Street enhancing views but presenting challenges for vehicular movements, stormwater runoff and snow plowing/ storage.



BATH, MAINE FIRE STATION



The site is identified on Tax Map 26/Lot 7. as .91 Acres.

Zoning District – The site is located in R-1 District. Public Safety Facilities are a permitted use requiring Site Plan Review Approval.

Zoning Provisions – Space and Bulk Standards

Setbacks: Front: 10ft.; Side: 15 ft.; Rear: 15 ft.

Maximum Lot Coverage 40%

Maximum Building Ht. 45'

VEHICULAR AND PEDESTRIAN CIRCULATION

- Vehicular Access & Vehicular Circulation
All vehicle access is from High Street. Visitors and the Chief park in 5 diagonal spaces located to the left adjacent to the main entrance. All other staff vehicles park behind the building using the two-way driveway along the north side of the building. Fire trucks access the apparatus bays by backing up from High St. There are no through apparatus bays excepting for the service bay on the northside of the building.



BATH, MAINE FIRE STATION



- **Apparatus Apron**
The apron in front of the apparatus bays is asphalt and slope steeply down toward High St. (estimated 8%). The Chief noted that the steep angle of approach required the customization of the truck to gain clearance at the door.
- **Parking**
The Chief report that there is inadequate parking for visitors and when training meetings are conducted with surrounding communities. The visitor parking stalls are undersized and when a full-size vehicle uses the angled parking it partially blocks the left most apparatus door. Staff parking is in the rear to a dead-end parking lot. The access is tight along the north side of the building.
Parking needs range from 6 to as many as 20 for shift change and up to 40 for meetings. The rear parking lot accommodates about 20 vehicles – the lot is not striped. There are 3 visitor spaces adjacent to the Chief's parking space in front.
- **Pedestrian Circulation & Accessibility**
Pedestrian access to the site form High St. is along the apparatus apron area. Otherwise visitors park near the main entrance and access the entry along the parking area behind the parking spaces. There is no separate sidewalk or accessible route. Staff access is from the rear parking lot using paved sidewalks.





BATH, MAINE FIRE STATION

- Pavements

The site is comprised of two distinctly different pavement conditions. The front driveway and apron are asphalt that was last paved 20 years ago and is in poor condition. The pavement joints have settled and run the entire length of the drive from High St. to the apparatus bays. Exacerbating the situation is number of pavement joints created by the use of residential scale machinery to place the asphalt. There are pot holes near the building creating hazards to pedestrian. There is no concrete pavement for the apparatus or service bay aprons.



The driveway along the north side of the building accessing the service bays and rear parking lot was paved 4 years ago and is in good conditions.



- Summary of Recommendations

1. Replace all asphalt pavements in front of the building with full depth, heavy duty pavement and construct a concrete apron for the apparatus bays.
2. Replace or reset existing granite curbing along the north side of the driveway. Sloped curbing may be preferred to minimize damage to curbing from plowing.
3. Address the need for visitor parking and accessible parking.
4. Repave the main entrance under the existing canopy and replace concrete column bases and/ or metal posts to avoid tripping hazards. Provide concrete pads at the main entrance door.



BATH, MAINE FIRE STATION

5. Reconstruction of the pavement and curbing in front of the building should also include improved storm drainage/ storm water management as described below.

SITE DRAINAGE

- Surface Runoff/ SD System

All surface run off from the building to High St. is collected along the street to a single catch basin at the north side of the driveway. The paved surface is about 90 ft. wide across the front of the building and at the street and 98 ft. deep. All runoff sheet flows down the very steep driveway and during heavy rains stormwater overtops the catch basin and flows into and across High St.



The Chief pointed out that the stormwater and sanitary sewer are in a combined system and they are unable to wash vehicles inside.

The rear and side paved areas include storm drainage with catch basins and appear to be draining adequately. There is no stormwater detention or treatment.

- Drainage at Building Entrances

Most building entrances are at grade. There was no reported surface water draining toward the building, but most entrances have asphalt surfaces typically susceptible to frost movement/ settling. Concrete slabs on foundations are preferred.



BATH, MAINE FIRE STATION



- **Snow Storage and runoff**
The site pavement extends nearly to adjacent property lines. Snow clearing and especially snow storage is difficult. The front driveway is plowed to the north and all snow piled on a narrow lawn area adjacent to the abutting property. With repeated snowstorms, snow must be hauled off site. Melt water drains partially onto the lower-lying, abutting property in addition to sheet flowing onto the driveway area. Keeping the driveway ice-free and cleared of snow is critical due to the steep grade.





BATH, MAINE FIRE STATION



SUMMARY OF RECOMMENDATIONS

1. Separate stormwater and sanitary sewer.
2. Provide concrete slabs at doorways
3. Regrade snow storage areas to avoid meltwater runoff onto adjacent properties.

SITE UTILITIES

- Water Service
It is our understanding that water service is adequate for existing needs.
- Sanitary sewer
A sanitary sewer line crosses the rear parking lot and along the north side of the building excepting that it is partially routed under the building.



- Electrical and Gas – refer to the building report for discussion of service and needs.

SUMMARY OF RECOMMENDATIONS



BATH, MAINE FIRE STATION

1. Separate sanitary sewer and storm water.
2. If possible, add additional sanitary manholes and redirect the sanitary sewer main around the northeast area of the building.

LANDSCAPING

- Landscaping Description
The site is extensively developed excepting for a grass area along the northerly edge of the driveway from High St to the building and with a narrow band of shrubs and volunteer trees along the perimeter of the site near the building and around the rear parking lot. Much of the planting may be on abutting properties. The south side of the building at the main entrance is tight to the abutting property as is the visitor parking. Narrow lawn area along the southerly property line provide relief to the otherwise paved areas and in part are shared with or include adjacent lawn areas of abutting properties.
- Screening
As noted above, there is minimal screening. Fencing is primarily chain-link fence. Where evergreen shrubs are provided along the northerly property line, it was not clear of those are on the abutting properties.



- Grassed Courtyard
The rear of the building frames an open courtyard area comprised of asphalt walks and grass. Part of the lawn area was worn which may have resulted from store storage or foot traffic.
- Snow Storage Impact/ Repair
The lawn area on the north side of the driveway used for snow storage had been recently reseeded and mulched to repair damage from snow storage, compaction, and ice.



BATH, MAINE FIRE STATION



SUMMARY OF RECOMMENDATIONS

1. Review screening needs and where there is inadequate space for evergreen shrubs, provide secure, durable screen fencing.
2. Continue to repair damaged grass areas promptly.
3. Repair compacted area in the rear courtyard area and where necessary provide decorative paver or permeable paver surfacing for outdoor activities.
4. Continue maintenance of mature trees and removal of invasive trees such as Norway Maples.
5. If possible, investigate the use of permeable pavements and subsurface stormwater treatment to compensate in part for the lack of green space and impervious surfaces on-site.

MISCELLANEOUS

- Dumpster
A single dumpster is located at the northwest corner of the rear parking lot. It is not enclosed or screened.
- Generator
An emergency generator is located behind the building on the northerly side of the service bay doors. It is protected with bollards. The Chief noted that the noise from periodic scheduled cycling of the generator on and off will upset some abutters.



BATH, MAINE FIRE STATION



- Summary of Recommendations
 1. Screen the dumpster from abutting properties and provide a concrete pad and pipe bollards for protection.
 2. To the extent practicable, reduce noise levels from the generator and/ or provide additional screen planting to attenuate noise levels.



BATH, MAINE POLICE DEPARTMENT

SITE CIVIL – EVALUATION



Source: Google Maps

OVERVIEW/ INTRODUCTION

- Introduction – The following site observation were made during a site walk and discussions on May 21, 2020.
- Context/ Lot Size/ Zoning Provisions
Context – The police station is located at 250 Water Street at the corner of Elm Street and Water Street with immediate access to the City and water front via Water Street, Elm Street and Centre Street. The building is conveniently located adjacent to the municipal parking lot to the south which also provides parking for the department. The site is bounded to the west by a steep slope and wood-framed buildings, to the north and east by city streets and to the south by the large, municipal parking lot.



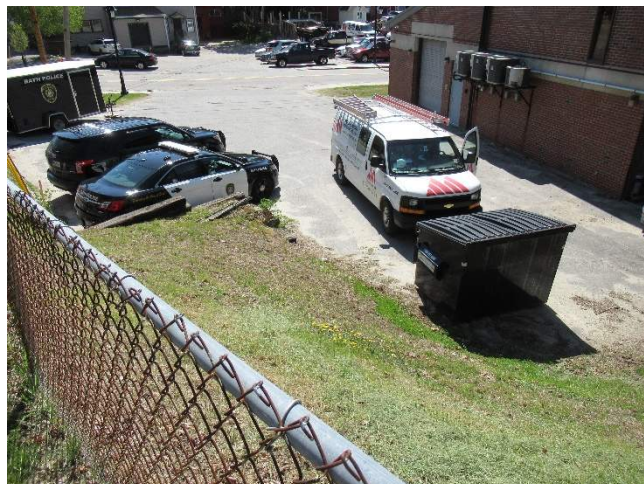


BATH, MAINE POLICE DEPARTMENT

- The site is identified on Tax Map 26 (Building) Lot 235/ 0.388 AC, Tax Map 27 (Municipal Parking) Lots 94 & 95/ 0.61 AC total.
- Zoning district – The site is located in the C-1 District. Public Safety Facilities are a permitted use requiring Site Plan Review Approval
- Zoning Provisions:
Setbacks: Front: 0 ft.; Side: 0 ft.; Rear: 0 ft.
Maximum Lot Coverage 100%
Maximum Building Ht. 35' (or none see Zoning Section 8.07, C. space and Bulk Regulations)

VEHICULAR AND PEDESTRIAN CIRCULATION

- Vehicular Access & Vehicular Circulation
All vehicle access is from Water street. Patrol vehicle parking is located on the north end of the building in a small paved lot at the base of Elm St. and Water Street. The parking lot also provides access to the sally port. Other staff and detectives' vehicles use reserved parking spaces along the north westerly side of the municipal parking lot south of the building and accessed from Water St. Vehicular access for the patrol vehicles is tight hard against a retaining wall at the base of the hill below Elm St. The parking lot is dead-end and the angled parking spaces require reverse maneuvers to align properly. This same area provides access to the sally port, mechanical room access door, and dumpster. The rear parking area is not secured. Parking in the municipal lot on the south end of the building is convenient for staff and visitors with multiple driveways to Water St. The staff parking area is not secured and requires staff to maneuver through the large public parking lot which provides reserved parking for the public and businesses.
- Parking
Patrol vehicle parking is not adequate – the total number of spaces needs to be determined however, there is not enough parking for both patrol vehicles (5-spaces) and personal vehicles or any additional vehicles in the rear parking lot. Parking for other staff and the public is only limited by the number of spaces available in the municipal parking lot. It would be preferable to have a separate parking area for staff.





BATH, MAINE POLICE DEPARTMENT

- **Pedestrian Circulation & Accessibility**
Access to the front of the building located on the south east corner and close to Water Street is convenient for the public and others using the municipal parking lot. The sidewalk to the building is accessible and paved with brick pavers. There is a narrow, paved and abruptly sloped separation between the sidewalk from Water St. to the building entrance and the municipal parking lot.



- **Pavements**
All parking lot pavement and driveways are asphalt. The rear parking lot is in fair condition; the municipal parking lot is in good condition. The brick sidewalk from Water St. to the main entrance is in fair condition with some uneven pavers.





BATH, MAINE POLICE DEPARTMENT

SUMMARY OF RECOMMENDATIONS

1. Repair and/ or repave the rear parking area.
2. Repair and reset the brick sidewalk.
3. Provide an accessible curb ramp to the municipal parking lot in lieu of the slope asphalt esplanade.

SITE DRAINAGE

- Surface Runoff/ SD System

The building site is generally flat except along the north and west boundaries which slope steeply up (2:1 or steeper). A wood retaining wall was constructed at the rear parking lot down grade from Elm St. The building has a sloped roof which slopes to the east and west. A crushed stone drip strip is provided on the east and west sides of the building. Stormwater runoff on the west side of the building is collected/ intercepted by a stone-lined drainage swale which drains to a catch basin at the southwesterly corner of the building. Stormwater along the northwesterly curb line of the municipal parking lot also discharges runoff to the same catch basin. A catch basin is located at the northwesterly corner of the building at the back of the parking lot. Although the site may appear low-lying, it was reported that flooding has not been an issue.





BATH, MAINE POLICE DEPARTMENT



- **Drainage at Building Entrance(s)**
The main building entrance area is under cover with concrete slab pavement which appears to have adequate surface drainage to the abutting lawn. Several other doorways either have asphalt pavement to them or step out onto the crushed stone drip edge.



- **Snow Storage and runoff**
Snow plowing in the rear parking area is difficult; the dead-end parking lot has a single driveway also serving the sally port. The dumpster blocks the rear of the lot where snow might be piled. The lot is tightly constrained by the building on the south side; a retaining wall on the north side and the dumpster area to the west. Snow clearing of the front walk and municipal parking lot would require normal maintenance practices only.



BATH, MAINE POLICE DEPARTMENT

SUMMARY OF RECOMMENDATIONS

1. Inspect and clean all stormwater structures.
2. Weed and repair stone drip edges and swales.

SITE UTILITIES

Note: Refer to building electrical, plumbing, gas and electrical summaries for existing conditions and needs.

- Water Service
A 2" water supply to the back/ west side of the building from water St. is shown on the site plan drawings dated July 1987.
- Sanitary sewer
A 6" sewer service connection is shown from the north side of the building to Water Street.
- Gas
Gas service is shown on the northwesterly side of the building. A 500 gal. LP gas tank is shown on the site plan also on the west side of the building.
- Electrical
UG service is provided. The meter is located on the south side of the building near the entrance walk and on the west side of the building at the northwest corner.





BATH, MAINE POLICE DEPARTMENT



SUMMARY OF RECOMMENDATIONS

1. Confirm adequacy of all utility services with building investigation
2. Review existing conditions with the respective utility companies.

LANDSCAPING

- Landscaping Description

The small building lot has limited landscaping; however, the Water St. sidewalk street scape includes brick sidewalks and street trees with tree wells, historic lighting and signage. The east side of the building has a narrow lawn area with shrubs and ornamental tree and river birch tree clump close to the building. The south side of the building includes a brick paved sidewalk along the parking lot with a narrow plant bed with perennials. The flag poles are also located along the brick walk close to the building.





BATH, MAINE POLICE DEPARTMENT

- Screening

The west side of the property includes some cedar stockade fencing and makeshift slat/handrail fencing appearing to belong to the abutter(s). There are several large trees and undergrowth on this side of the building that provide limited screening during warmer months. A chain-link fence is located along the Elm St. property line; it is rusting and in poor condition with bent/ leaning post. The fence is not intended to provide screening.



SUMMARY OF RECOMMENDATIONS

1. Weed all crushed stone drip edge areas
2. Prune trees and shrubs on the east side of the building. Remove limbs touching the building.
3. Maintain perennial beds and edges.
4. Verticut/ thatch and over-seed lawn area along the east side of the building.

MISCELLANEOUS

- Wood retaining wall

A wood retaining wall is located in the rear parking lot along Elm St. It is in very poor condition and should be replaced with a more substantial structure.



BATH, MAINE POLICE DEPARTMENT



- **Dumpster**
The dumpster is located behind the building at the end of the patrol vehicle parking lot. It is not screened from butters or from the Elm St. above.

SUMMARY OF RECOMMENDATIONS

1. Replace the wood retaining wall with a more substantial structure such as pour-in-place, reinforced concrete wall with architectural finish of a decorative, precast concrete block retaining wall system with architectural finish.
2. Provide screening at the dumpster or add plantings along the top of the embankment along Elm St.



BATH, MAINE POLICE DEPARTMENT

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BATH, MAINE FIRE STATION

ARCHITECTURAL SYSTEMS EVALUATION

The Fire Station occupies a site in a largely residential portion of High Street in Bath. The facility's exterior footprint is 10,755 GSF (gross square feet). It is a 1-story building with a footprint that is uniquely shaped to fit the site. The building was constructed in 1958.

Interior Systems Descriptions

Interior partitions are a mix of CMU (concrete masonry units) and drywall over stud framing. Interior finishes are generally in fair-to-good condition. The materials, especially the CMU, is durable enough to withstand the abuse of a 24/7 facility.

The building lacks spaces such as a lobby for visitors and direct connection from office to residential/day spaces without occupying the apparatus bay. In addition to physical safety and air quality concerns, interior finishes are prone to unnecessary abuse. Flooring, in particular, is subject to receiving dirt and grime tracked in off the apparatus bay floor.

Several areas have been recently improved with new tile flooring, carpet, new paint, cabinetry, and other minor upgrades. Overall the facility has benefitted from good stewardship by its occupants and by finishes upgrades over time. Improvements are needed for interior finishes in some areas including walls, ceilings, and flooring.



Office space with direct connection to apparatus bay



CMU partition and Turnout in apparatus bay



BATH, MAINE FIRE STATION



Hose Tower



Maintenance Bay



Apparatus Bay



Apparatus Bay



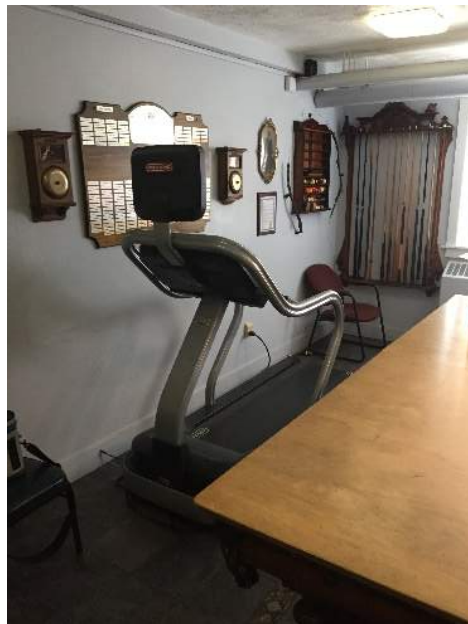
BATH, MAINE FIRE STATION



Day Room



Day Room



Day Room/Fitness



Kitchen



BATH, MAINE FIRE STATION

Exterior Systems Evaluation

The building was constructed with brick veneer over CMU (concrete masonry units) masonry exterior walls. Cracking was observed at several locations above window headers at the location of steel lintels. It is unclear if this condition or holes in the relatively new roof are responsible for ongoing water infiltration issues in the residential area of the building.



Building Exterior facing High Street



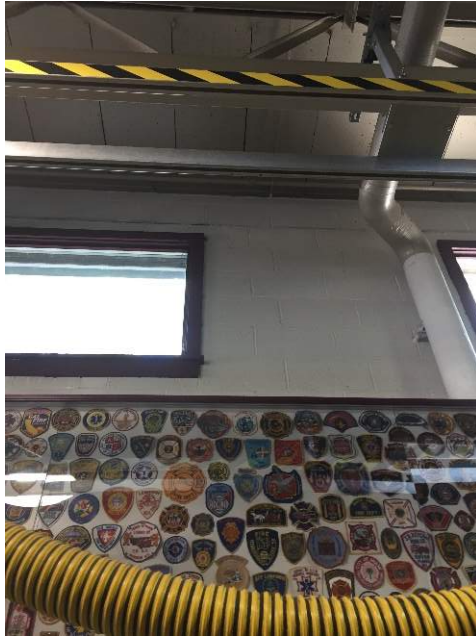
Rear Courtyard and Hose Tower



Rear side of building and staff parking



BATH, MAINE FIRE STATION



Crack above apparatus bay windows



Exterior: windows out of plumb



Original copper windows



Rear side of Maintenance Bay and generator



BATH, MAINE FIRE STATION



Canopy at main entry



Canopy at courtyard/residential area



BATH, MAINE FIRE STATION

Roof Evaluation

The existing roof is flat EPDM (rubber membrane) and has been recently replaced. It was observable and appeared to be in good condition although there are leaks in the residential area which may be attributed to the roofing. However the EPDM surface did not appear worn or brittle and pitching to drains was observed throughout.



Roof edge and metal coping



Roof edge and metal coping



Upper roof over Maintenance and Apparatus Bays



Roof over Day and Residential spaces



BATH, MAINE FIRE STATION

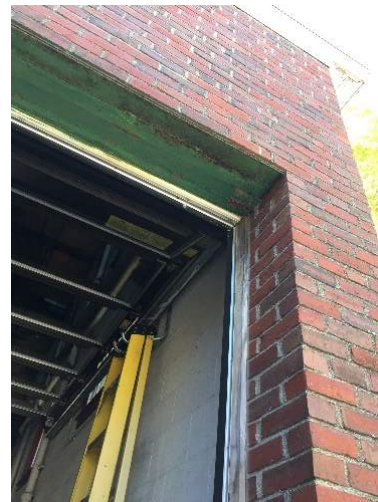
Structural Evaluation

Observable structure includes a concrete slab on grade, load bearing masonry walls, steel open web roof joists with concrete plank roof deck. CMU exterior and interior walls presumably provide lateral stiffness. Masonry over window and door openings is supported by steel lintels.

The observable building structure appeared in fair-to-good condition with the notable exception of the area above the upper windows. In these locations, grout at lintels was missing and extensive cracking was observed.



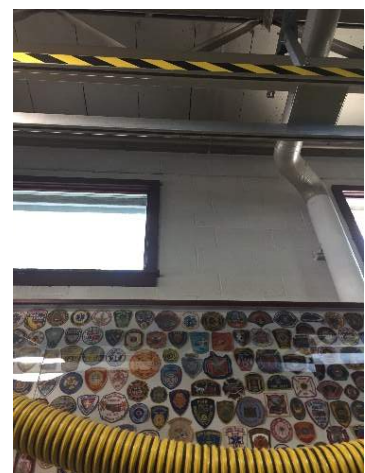
Steel roof framing



Steel lintel at opening



Cracking at lintel locations



Cracking: interior view



BATH, MAINE POLICE STATION

ARCHITECTURAL SYSTEMS EVALUATION

The Police Station occupies a municipal site on Water Street in downtown Bath. The facility's exterior footprint is 7,762 GSF (gross square feet). It is a 2-story building with a footprint of 5,242 SF and roughly 2,500 SF of occupied space on the second floor. The building was constructed in 1988.

Interior Systems Descriptions

Interior partitions are a mix of CMU (concrete masonry units) and drywall over stud framing. Interior finishes are generally in fair-to-good condition. The materials, especially the CMU, is durable enough to withstand the abuse of a 24/7 facility. An unfinished attic space on the Water Street side of the facility is filled with HVAC equipment and storage for records and supplies.

There is a lack of ballistic rated partitions to safely separate the public and secure staff areas. Several areas have been recently improved with new LVT (luxury vinyl tile) plank flooring, carpet, new paint, and other minor upgrades. Overall the facility has benefitted from finishes upgrades over time. Improvements are needed for interior finishes including walls, ceilings, and flooring.



Corridor at Squad Room to Booking area



Second floor Corridor



BATH, MAINE POLICE STATION



Shared Patrol (former CID) area



Records (former Dispatch) area



Interior water damage in conference room



Attic area: storage and HVAC



BATH, MAINE POLICE STATION

Exterior Systems Evaluation

The building was constructed with brick veneer and precast concrete over CMU (concrete masonry units) masonry exterior walls. Precast banding appears to occupy the entire depth of the exterior wall assembly with no break for insulation or air/vapor barrier. Cracking was observed at several locations where the precast concrete joins with brick veneer. It is likely that the ongoing water infiltration issues on both floors are a result of poor or degraded exterior flashing conditions combined with the lack of a drainage plane within the exterior wall cavity.



Building Exterior facing Municipal parking



Corner entrance to facility



Rear exterior: original wood framed windows



Exterior: replacement windows & precast banding



BATH, MAINE POLICE STATION



Cracking at precast concrete



Cracking at precast concrete



Building corner at main entry



Lintel rusting and spalling of precast concrete at main entry



BATH, MAINE POLICE STATION

Roof Evaluation

The existing roof is sloping metal and original to the building. It was observable from across Water Street and appeared to be in fair-to-good condition.



Metal roof



Roof eave and metal coping

Structural Evaluation

Observable structure includes a concrete slab on grade, steel building frame, steel open web floor joists with composite concrete floor slab, and steel roof rafters. CMU exterior and interior walls presumably provide lateral stiffness.

The building has settled over time resulting in cracking throughout the interior. A structural study of this issue was performed by Lincoln/Haney Engineering starting in 2001. Their first report is dated January 2002. Periodic analysis and measurements were taken in 2003, 2004, 2010, and 2015. The 2015 summary states that the building has apparently stopped settling but no permanent additional loads should be introduced without structural consultation. Measurement notes at crack locations were observed to be dated as recently as 2017. The report history is included in the Appendix of this report.



BATH, MAINE POLICE STATION



Steel roof framing



Supported slab framing



Detail of precast interior



Cracking at exterior wall corner



BATH, MAINE POLICE STATION



Monitoring measurements of cracking



Extensive cracking at stairwell



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CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

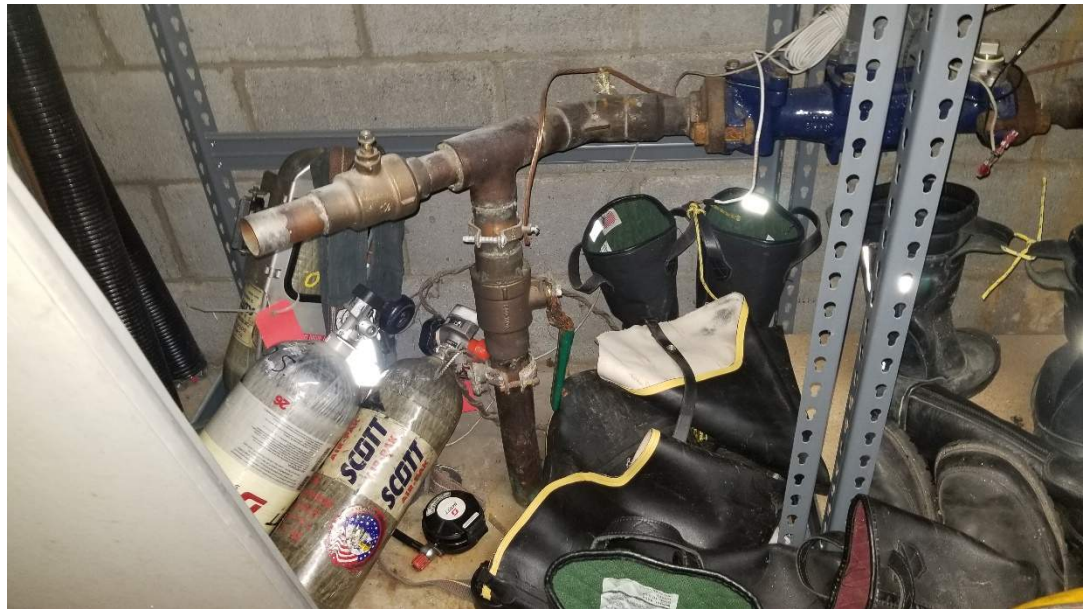
PLUMBING

General

The existing Bath Fire Station was constructed in the 1958. The building has not had major modifications to the plumbing systems. The building was constructed prior to the passing of ADA Americans with Disabilities Act.

Domestic Water Service

The water service enters through the floor in the storage below the mezzanine at the back of the station. A 2" copper water service is connected to a water meter and reduced pressure zone backflow preventer. The copper riser has a tee with a valved off cut pipe with no connection. Water to the building and fire truck fill piping is served from this location.



Water Entrance



Water Meter



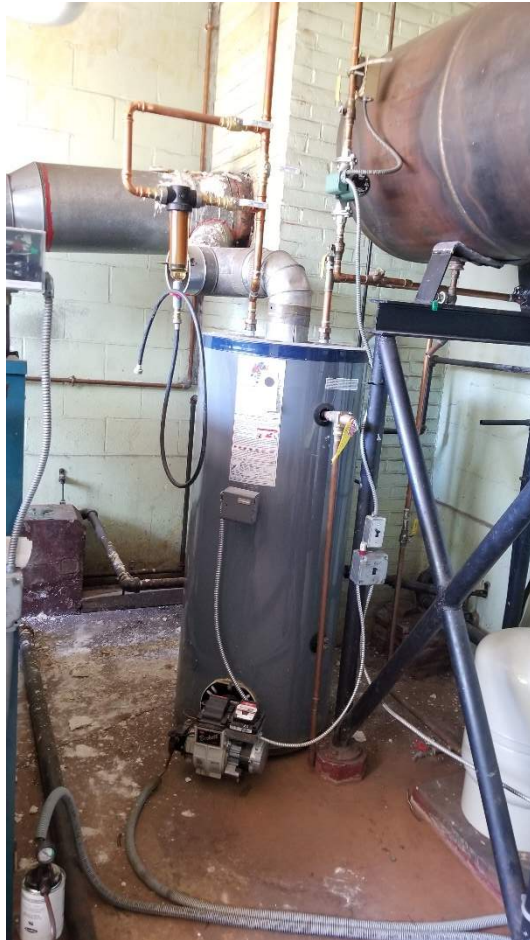
RPZ Backflow Preventer



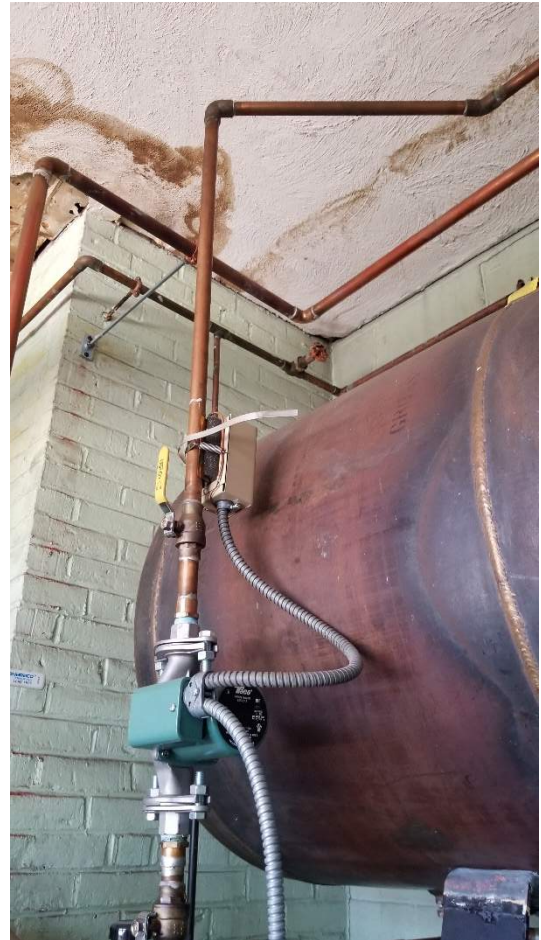
CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Domestic Hot Water

The domestic water heating consists of an oil fired 50 gallon water heater with 152,000 btuh input. The water heater was installed in 2012. The water heater utilizes atmospheric room combustion. The water heater is connected to the building without a thermostatic mixing valve. The water heater control is set to deliver the desired water to the building. The stored water temperature of the tank is unknown. It is estimated the water heater set to 125°F. A circulating pump connected to the hot water delivery piping maintains hot water in the pipes. The Aquastat controlling the circulating pump is only set to 85°F. Temperature should be maintained closer to 115°F. There is a water filter on the hot water outlet piping of the water heater. The filter reduces sediment from the tank to the plumbing fixtures.



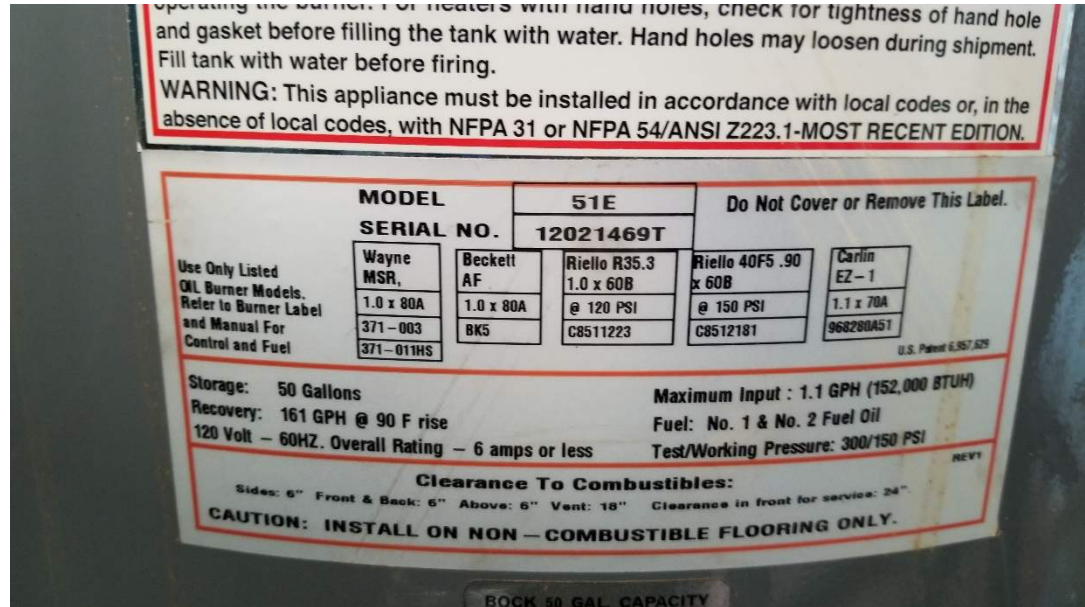
Oil Fired Water Heater



Domestic Hot Water Circulating Pump



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Water Heater Nameplate



Water Heater Exhaust Flue



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Circulating Pump Nameplate



Aquastat Setting

Sanitary and Storm Drainage

There is a single 8" sanitary drain which runs from the custodial closet to the front right corner of the station. There is a manhole in the lot in front.

The Captain indicated the line is susceptible to clogging mainly because of the garage drains passing sand. The size of the pipe and the slope of the pipe below the garage floor are not known.

The roof water is collected through roof drains. It is assumed the storm drainage connects to the 8" sanitary line under the garage floor. If the city has a separate storm drainage system in the street, the roof drain piping should be separated from the sanitary drainage.

Liquid Propane Gas

The six-burner gas range with oven in the kitchen is served by one 420 pound (100 gallon) propane tank maintained by M.W. Sewall & Co. The tank is located outside the water kitchen. The total connected load from the gas range is 102,000 btuh.



Propane Tank



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Garage Bays

The back bay has a vertical air compressor, wash sink and laundry equipment. The wash sink has a faucet with attached eyewash spout. The eyewash does not meet ANSI standard Z358.1 due to the lack of water tempering to the eyewash.

A HYPRESS compressed breathing air cabinet is located near the house air compressor charges backpack tanks. The house air compressor is located under the stairs to the mezzanine. Compressed house air is piped around the garage bays through threaded steel pipe to serve the trucks. Pressure is maintained between 115 psi and 120 psi. Steel piping can cause sediment from scaling to interfere with clean air discharge. An aluminum piping system offers no scaling inside the pipe. The equipment and piping appear to be in good working condition.



Air Compressor and Breathing Air Compressor with Oxygen Storage (green) Cylinders.



Wash Sink and General Laundry Equipment



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Heavy Duty Gear Washer and Gear Dryer (Note: Un-insulated piping over washer)

Each garage truck bay has a single centered oil and sand separator floor drain with integral cleanout. The drain line still experiences a fair amount of debris which causes problems with drainage.



Garage Floor Drains



Main Three Garage Bays with Overhead compressed air and Water Fill Piping



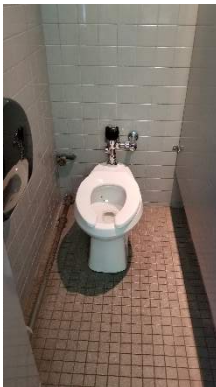
CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Restrooms

There are two restrooms with a shower in the building. One restroom is in the Captain's office and the other co-ed restroom is next to the bedrooms. The Captain's restroom has a water closet, lavatory and shower. The co-ed restroom has a shower, single counter lavatory, urinal and two water closet stalls. The restrooms do not meet ADA requirements.



Captain's Restroom and Shower



Co-ed restroom and Shower

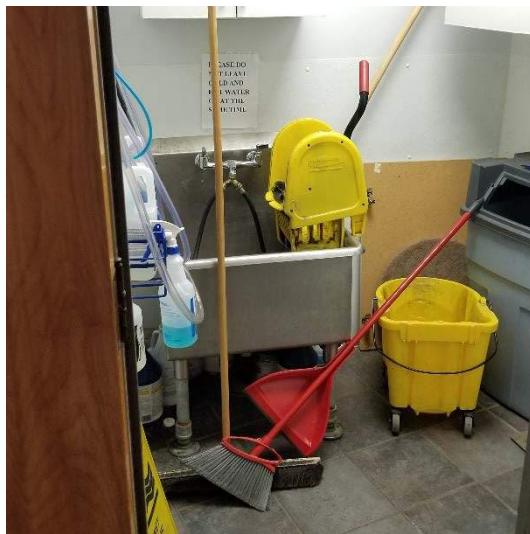


CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Custodial Closet

There is a custodial closet located next to the general rest room with a stainless-steel service sink.

Service sinks are not as user friendly as a mop basin due to lifting the wash bucket to empty. The faucet is connected to the chemical dispenser with a splitter. The faucet is not rated for constant pressure and should be replaced with a faucet rated for constant pressure. The faucet does not have integral check valves or check valves in the piping to prevent backflow of hot and cold water as indicated by the posted sign.



Service Sink

Kitchen

The kitchen was remodeled in 2012. There is a large single bowl undercounter mounted stainless steel sink with disposal, single handle faucet with side spray. A dishwasher is located next to the sink and connected to the disposal under the sink. The gas range is connected to the L.P. piping and tank. Water piping is connected to the coffee maker on the counter.



Kitchen Sink



Disposal below Sink



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Recommendations

- Replace the restrooms with ADA compliant fixtures.
- Provide hands-free faucets and flush valves.
- Provide ADA compliant showers with adjustable hose spray, seat and low threshold.
- Clean the underfloor drainage line.
- Investigate the oil/sand floor drains to ensure they are still viable.
- Provide an ANSI compliant eyewash station and remove eyewash unit from wash sink faucet.
- Insulate all of the exposed domestic water piping in the building.
- Replace the custodial sink with a mop basin with constant pressure faucet and check valves in the supply piping.
- Remove the abandoned horizontal hot water storage tank in the boiler room.
- Provide a thermostatic mixing valve for the building hot water supply and set it to deliver 120°F.
- Set the water heater to maintain 140°F to prevent Legionella growth.
- Provide thermostatic mixing valves under each lavatory to limit the hot water to 110°F.
- Set the hot water recirculation control Aquastat to maintain 115°F.



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CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

PLUMBING

General

The existing Bath Police Station was constructed in 1988. The building has not had major modifications to the plumbing systems. The building was constructed prior to the passing of ADA Americans with Disabilities Act.

Domestic Water Service

The water service enters the emergency generator room. A 2" copper rises up through the slab near the outside wall. The service has a water meter and reduced pressure zone backflow preventer. The piping is copper and grounded. There is a floor drain nearby. A small water line is connected to the emergency generator for cooling. The generator is slated to be replaced.



Water Entrance



Water Meter



RPZ Backflow Preventer



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Domestic Hot Water

The domestic water heating consists of a natural gas fired 75 gallon water heater with 72,000 btuh input. The water heater was installed in 2013. The water heater is a sealed combustion unit providing high efficiency. The water heater is connected to the building without a thermostatic mixing valve. The water heater control is set to deliver the desired water to the building. The stored water temperature of the tank is unknown. It is estimated the water heater set to 125°F. based on the setting of the Honeywell controller. A circulating pump connected to the hot water delivery piping maintains hot water in the pipes. The Aquastat controlling the pump was set to 65°F. It is unknown how and when the circulating pump operates. The flue for the water heater is CPVC but has one PVC elbow before transitioning back to CPVC outside. The PVC elbow should be replaced with CPVC.



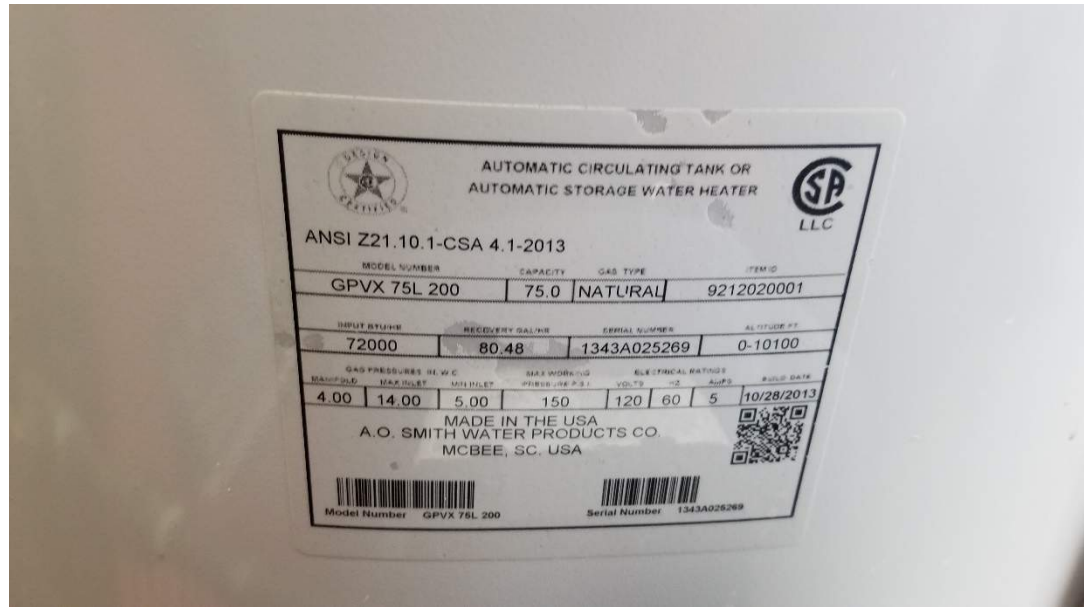
Gas Fired Water Heater



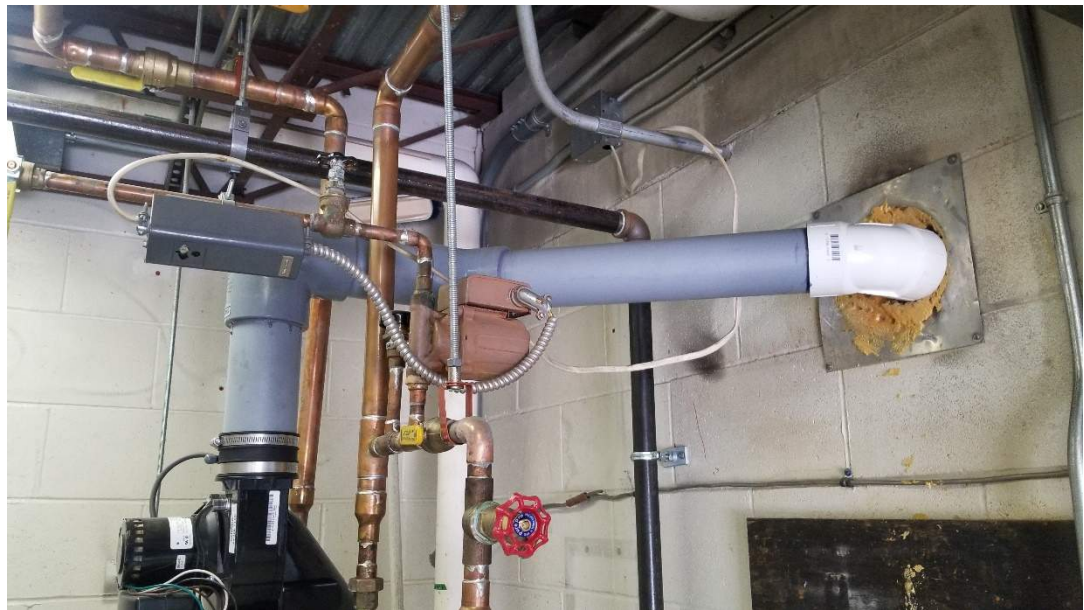
Abandoned Water Heater



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Water Heater Nameplate



Water Heater Exhaust Flue



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Aquastat for Domestic Hot Water Return



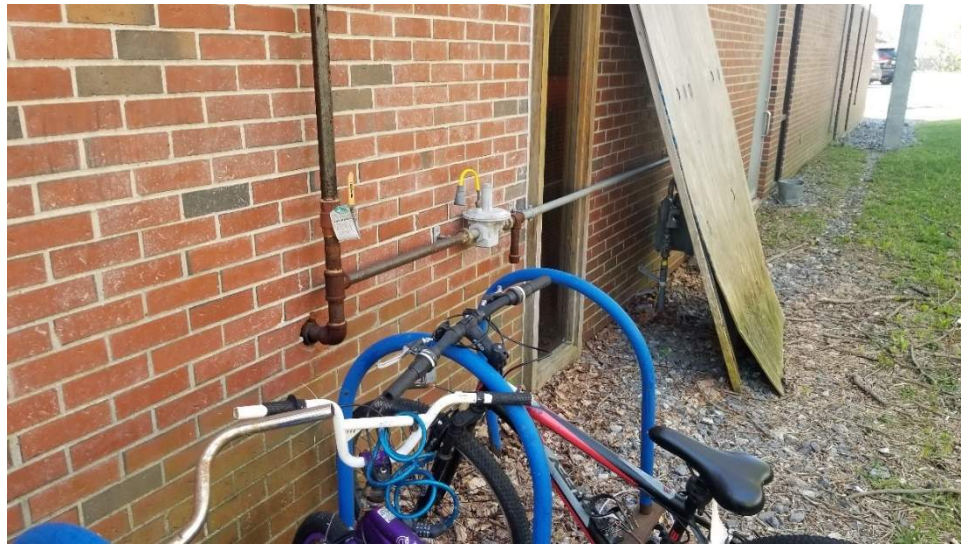
Circulating Pump Nameplate for Domestic Hot Water Return



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Natural Gas

The building is served by Maine Natural Gas. The gas service is located outside the water heater room. The gas service enters the building at a 7" water column. Piping to the attic air handing equipment is exposed around the exterior of the building. The exposed piping is not painted to protect from corrosion. An odor of gas was found in the water heater room during the survey. A contractor was called and inspected the system the same day. It is assumed the gas leak was repaired. There is an abandoned liquid propane pipe mounted on the wall above the gas meter. This line has no purpose and should be removed from the building.



Natural Gas Service Entrance and meter



Exposed Gas Pipe at Top of Concrete Band



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

- Gas Meter: The meter is an Elster/American Meter AC-630. The meter operates and delivers 2 PSI pressure downstream of the pressure regulator to the building.
- Water Heater: 72 CFH/MBH
- Emergency Generator: 1,200 to 1,700 CFH/MBH (New future generator specs not known)
- Air Handling Units: 4 @ 120 CFH/MBH
- Total Connected Gas Load: 2,252 CFH/MBH or 2.25 Million BTUH

Garage

The garage has a portable air compressor in the workbench cabinet. The air compressor serves to add air to tires of the police vehicle fleet. There is no distribution piping from the air compressor. A hose reel is hung on the wall above the compressor.



Air Compressor and Hose Reel

There is one floor drain in the garage with a damaged grate. The floor drain collects vehicle wash water which can contain sand. An oil/sand separator is not present to capture sand or oil.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Floor Drain with Service Sink, Condensate Drain from Air Handlers

Booking Room and Holding Cells

The Booking room has a small sink in the counter. The fixtures are in good working order. There is no floor drain in the booking room.

The two holding cells each have a stainless-steel combination water closet and lavatory. There is no floor drain in each cell. A floor drain is located in the corridor centered outside the cells.



Booking Room Sink



Combination Fixture



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Break Room/Kitchen

The break room has a small sink in the counter. There is a larger sink next to the electric range with a faucet and sprayer. Both fixtures are in good working order. There is an instant-hot faucet on the right side of the kitchen sink for making hot tea.



Break Room Sink



Kitchen Sink with Sprayer and Hot Water Dispenser

First Floor Restrooms

There is one staff restroom in the office area and two public restrooms off the main lobby. The staff restroom has a floor mounted tank type water closet and lavatory with manual two handle faucet. There is no floor drain in the staff restroom.

The two public restrooms have wall mounted water closets with commercial flush valves. The lavatories have manually operated metering faucets that turn off after 20 seconds. Each of the public restrooms have a floor drain. The fixture heights of the water closets and lavatories meet ADA although this plumbing report does not evaluate whether the room dimensions and door meet ADA requirements.



Staff Restroom



Public Restroom 1



Public Restroom 2



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Second Floor Restrooms

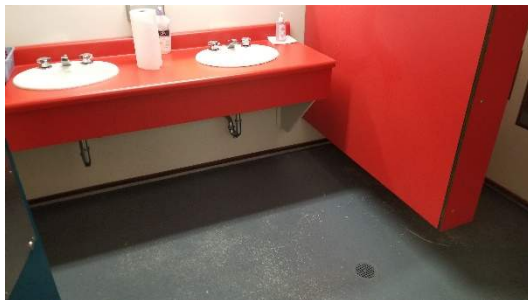
There are two locker rooms for Men and Women. The Men's Room has two lavatories, one wall mounted water closet and one wall mounted urinal and a shower. The Women's Room has one wall mounted water closet, two lavatories and one shower. There is one floor drain in each restroom.

All of the fixtures are in working order.

The Men's shower needs repair or replacement.



Men's Locker Room



Women's Locker Room



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Darkroom

There is a darkroom sink on the second floor. The sink is operational but is no longer used for darkroom operations.



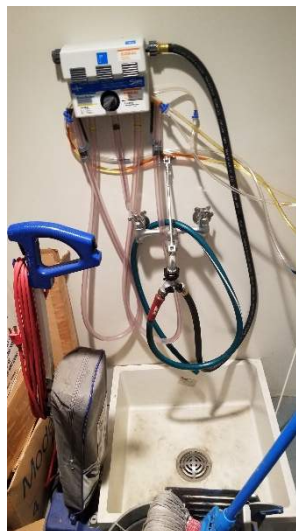
Darkroom Sink

Custodial Closets

There is a custodial closet located on each floor. The 24" x 24" molded stone mop basin with mop basin service faucet above. The faucet on the second floor on has a splitter to supply water to the sink and to the chemical dispenser. The faucet has an atmospheric vacuum breaker and is not suited for constant pressure. The mop basin does not have splash guards on the wall above the basin and the basin is not caulked to the wall.



First Floor Mop Basin



Second Floor Mop Basin

Water Coolers

There is a water cooler on each floor. The water coolers have a bubbler spout and a glass filling spout. The water coolers do not meet ADA requirements. The water coolers are in good working order.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



First Floor Water Cooler



Second Floor Water Cooler

Attic Air Handling Equipment

There are four units in the attic which are gas fired. The natural gas pipe on the exterior of the building enters the garage and runs along the wall of the attic. Each unit is connected with a flexible stainless-steel supply line. There was no odor witness in the attic. Each unit also has two condensate connections. One drain is from the exhaust flue and the other is from the drain pan within the unit. The PVC condensate drain runs across the floor with very little slope and discharges to the service sink in the garage via an air-break. The PVC intakes and flues connect to a concentric fitting which exits the building through one separated pipe within a pipe. There are no leaks on the condensate drainage piping.



Attic Air Handling Equipment



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Gas Piping in Attic



Concentric Fitting at Exterior Wall

Recommendations

- Replace the PVC elbow at the gas water heater with CPVC.
- Remove the abandoned L.P. gas piping on the exterior of the back wall.
- Paint the exterior gas piping a color chosen by the owner to prevent further corrosion of the exposed steel gas piping.
- Replace the floor drain in the garage with a combination sand/oil separator with a larger 12" x 12" square heavy duty grate.
- Demolish the holding cell fixtures as they are no longer needed.
- Replace the faucets on the public restrooms with battery operated hand-free faucets and flush valves.
- Renovate the lockers rooms and provide hands-free faucets and flush valves.
- Replace the showers, shower valve and shower head.
- Provide ADA compliant showers with adjustable hose spray, seat and low threshold.
- Provide thermostatic mixing valves under each lavatory to limit the hot water to 110°F.
- Replace the mop basin faucets with pressure rated vacuum breaker faucets.
- Remove the darkroom sink as it is no longer needed.
- Provide a separate mop basin style faucet in the garage with a pressure rate vacuum breaker connected to the wash down hose.
- Provide a thermostatic mixing valve for the building hot water supply and set it to deliver 120°F.
- Set the water heater to maintain 140°F to prevent Legionella growth.
- Set the hot water recirculation control Aquastat to maintain 115°F.
- If water is required to the generator a separate reduced pressure zone backflow preventer shall be installed.



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

MECHANICAL

General

The existing Fire Department facility in Bath, ME consists of a building that was originally constructed in the late 1950s. The boiler system was replaced in 2005 when the original system failed. The steam distribution system remains mostly original with minor modifications completed during the boiler replacement. A direct oil-fired domestic hot water heater was also installed and replaced the hot water storage tank which remains abandoned in place.

The basic mechanical systems that were reviewed consisted of:

- Boiler plant
- Oil storage
- Heating distribution and temperature control
- Ventilation/exhaust systems
- Air conditioning components

Boiler Plant

The primary heating system was installed in 2005 after the original boiler failed of unknown causes. The cast-iron, sectional steam boiler is manufactured by Burnham Commercial with a Becket burner, and is in the boiler room adjacent to the hose tower and rear garage bay. The gross output rating of the boiler is 1,528MBH. It was reported that after the initial installation, issues arose with the boiler running low on water. A feedwater system was added later with approximately 50 gallons of storage to resolve the issue. The condensate pump is manufactured by Hoffman Watchman and is rated for 12 GPM at 21 PSI. The condensate piping is uninsulated and appears to be modified. A separate direct oil-fired domestic water heater was installed presumably in 2005. The 50-gallon storage tank is manufactured by Bock and has a Becket Burner.

The boiler and water heater share the same flu, which are connected using a wye fitting before entering the chimney stack. Combustion air is provided to the boiler room through a wall louver. The boiler does not have a separate barometric damper from the water heater.



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Existing Burnham boiler



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Feedwater tank and controller



Feedwater pump on back of feedwater tank



Condensate pump



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Boiler room

Oil Storage

The boiler and domestic water heater are supplied with No. 2 fuel oil from (x2) 330-gallon storage tanks. They appear to be in good condition from the exterior and were probably replaced in 2005 with the rest of the system.



Oil Storage tank room



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Heating Distribution and Temperature Control

The existing steam distribution remains mostly original and consists of five unit heaters in the ceiling throughout the apparatus bays and steam radiators throughout the rest of the building. There is a single unit heater in the hose tower. It is unknown if that unit heater is operational and department personal reported that the unit has not been used in quite some time. The hose tower is no longer heated and is used as unconditioned storage space. The heating distribution is controlled by two zone control valves located in the boiler room, which are connected to two thermostats. One thermostat is in the rear garage and controls heat in the apparatus bays and rear garage bay. The second thermostat is in the kitchen/recreation room and controls the kitchen/recreation room, the 4 bedrooms, the main bathroom and the 4 offices.

Original asbestos insulation covering the steam distribution piping was abated and replaced with fiberglass insulation. The only other modification to the steam distribution piping was the addition of thermostatic radiator valves (TRVs) at each radiator.

It was reported that temperature control throughout the building is poor. During the shoulder season, the temperature fluctuates dramatically from too cold to too hot. During low ambient temperatures, the indoor temperatures fluctuate less since the boiler runs continuously.



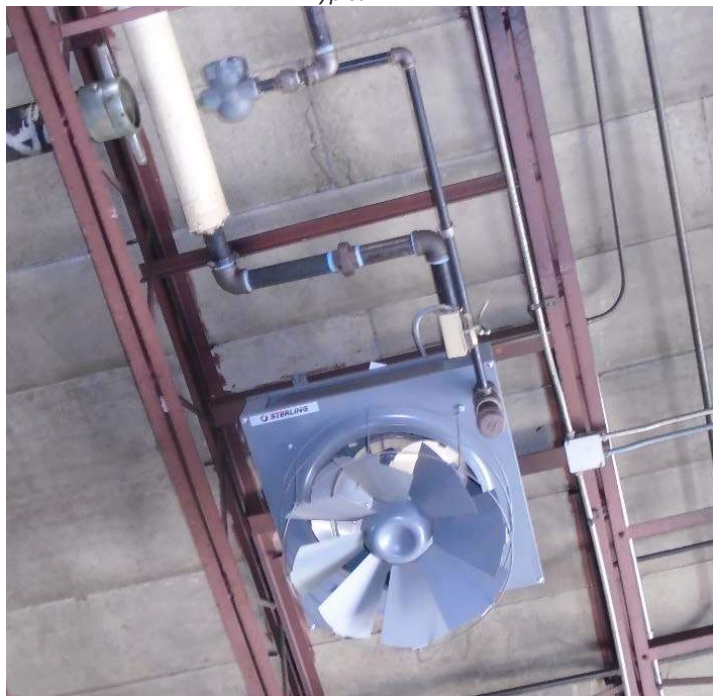
Typical Steam Radiator



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS



Typical TRV



Typical ceiling unit heater in apparatus bays



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Ventilation/Exhaust Systems

The main apparatus bays are ventilated with a Plymovent system for five vehicles. There is a sixth emergency vehicle that does not have an exhaust hose connection to the Plymovent system. According to the Chief, adding an additional connection for that vehicle has been discussed and would be required.



Plymovent system in main apparatus bay



Vehicle exhaust collection ductwork



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Six large industrial ceiling fans are throughout the main apparatus bay and two more are in the rear garage bays.



The main bathroom adjacent to the bedrooms has a single light and exhaust fan combination unit in the ceiling. The same combination light and exhaust fan is also installed in the bathroom adjacent to the dispatch office.



Light fixture with integrated exhaust fan and grill



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Approximately 15 years ago the kitchen was renovated. At that point an exhaust hood was installed above the range. The kitchen hood does not appear to have integrated fire suppression.



Kitchen Range Hood

Air Conditioning

Air conditioning is provided by ten window units installed throughout the building. The largest of the units is 12,500 BTU/hour, another unit is 9,000 BTU/hour and the remaining eight are 6,000 BTU/hour. The units are installed in the horizontal sliding windows with a section of plexiglass above to hold in place and provides minimal air barrier to the outside.



Window AC installed in the hallway outside of the bedrooms



CITY OF BATH PUBLIC SAFETY – FIRE DEPARTMENT FACILITY ANALYSIS

Mechanical HVAC Systems – Future Recommendations

The oil-fired, steam heating system while functioning has needed major repair over the years. The steam distribution piping is most likely all original and may have significant leaks which has caused the system to run low on water. Replacing all steam distribution with a hot water system is recommended. The boiler and controls may be suitable for a hot water conversion. The steam radiators may also be suitable to convert to hot water distribution though it is unlikely. A heating analysis must be performed on the building and the radiators to confirm the existing radiators have capacity to adequately heat the space using lower temperature water instead of steam. If a system conversion to hot water was considered replacing the existing radiators with more efficient radiators may be prudent. The benefits to a hot water system conversion would be increased system efficiency resulting in lower maintenance and operational costs and improved temperature control.

The addition of adequate ventilation systems for the Kitchen/recreation room, offices and bedrooms is also recommended. Adding an energy recovery ventilator would provide the necessary fresh air for those spaces improving indoor air quality with the highest efficiency. The apparatus bay itself does not have separate ventilation aside from the Plymovent exhaust unit. The apparatus bay also contains firefighter gear storage lockers. Segregating gear storage from the apparatus bay would be recommended and providing separate ventilation to those areas should also be evaluated.

A new air conditioning strategy should be evaluated to eliminate the use of window air conditioners. Installing higher efficiency cooling systems for kitchen/recreation room, bedrooms and offices will improve comfort and lower operational costs. It will also eliminate the need to install and remove the window air conditioners each year and free storage space during the non-cooling season. Increasing building performance through envelope upgrades will also lower heating and air conditioning costs.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

MECHANICAL

General

The existing Police Department facility in Bath, ME consists of a building originally constructed in 1986. Heating and air conditioning is provided by four combination gas furnace and split system air conditioning systems. Each system is controlled independently as a separate zone. A single direct-vet, gas-fired unit heater is installed in the cruiser garage. As a result of the 2014 Indoor Environmental Air Quality Assessment report, a Lossnay 600 CFM energy recovery ventilator was installed in the attic to provide additional ventilation to the building.

The basic mechanical systems that were reviewed consisted of:

- Air handling units and natural gas furnaces
- Unit heater in cruiser garage
- Heating and cooling distribution and temperature control
- Ventilation/exhaust systems
- Air conditioning components

Air Handling Units and Natural Gas Furnaces

There are four air handling units manufactured by Kelvinator installed in the attic. Three units are model number G5RC 120C-20C with heating capacity rating of 120,000 BTU/hr and 1710 CFM airflow on High fan speed at maximum external static pressure of 0.8 in. W.G. One unit is model number G6RC 080C-16B with heating capacity rating of 80,000 BTU/hr and 1290 CFM airflow on High fan speed at maximum external static pressure of 0.8 in. W.G. It was reported that the systems were installed sometime prior to 2005. The systems seem generally in good condition except for the condensate drain on one of the units. The drain was installed poorly and without the use of proper fittings. The installation does not have a negative effect on system performance, however.

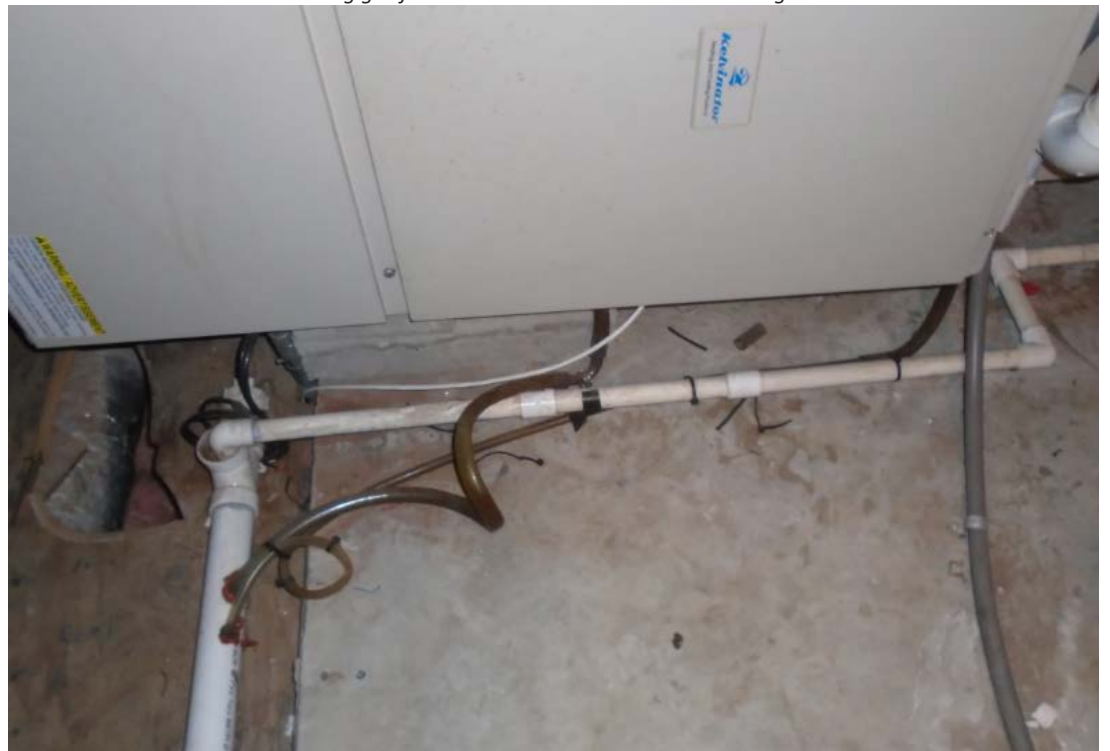
Coaxial exhaust and combustion air intake vents are installed. Three on the south-facing wall and one on the north facing wall. Condensate drains for the air conditioning coil, and the furnace exhaust are collected from each system and drained to a sink in the cruiser garage.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Existing gas furnace air handler and air conditioning coil



Example of poor condensate piping installation



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Exhaust and combustion air penetrations on side of building



Coaxial exhaust and combustion air fittings on exterior of building



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Condensate drain from attic to sink in cruiser garage

Direct-vent, Natural Gas-fired Unit Heater in Cruiser Garage

A single, direct-vented, natural gas-fired unit heater provides heat to the cruiser garage. It is operated independently of the central systems.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Unit heater in cruiser garage



Exhaust vent on exterior of cruiser garage



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Heating and Cooling Distribution and Temperature Control

Heating and cooling is distributed throughout the building through ductwork. Ductwork is mostly insulated in the attic but there are some sections where modifications to the ductwork was conducted and insulation was not replaced. There are three zones for the first floor and the second floor is the fourth zone. Honeywell programmable thermostats are installed throughout.



Examples of ductwork in attic



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Example of uninsulated ductwork after modifications

Ventilation/Exhaust Systems

In 2015 the Police Department installed an energy recovery ventilator after recommendation was provided in an Indoor Environmental Quality Assessment report dated August 2014. The Lossnay model LGH-FH600RX5-E1 Energy Recovery Ventilator (ERV) can provide up to 600 CFM airflow. Exhaust ductwork was installed throughout the building to remove stale air. Fresh air is supplied to the return plenums of each air handling unit for distribution through supply ductwork of the heating and air conditioning systems. The controls for this ventilation unit seem independent of the existing air handlers. Outdoor air intake is ducted to the rear of the building above the cruiser garage door and exhaust air is ducted to the front of the building. Both through existing louvers.

The second-floor bathroom / locker rooms have exhaust vents installed and controlled by typical push-button, timer switches. The booking room also has an exhaust fan installed and controlled by a simple on-off switch. The bathrooms on the first floor, the evidence room, the 2 holding cells and the rest of the building appear to be ventilated using the Lossnay ERV. The evidence room, kitchenette, and gym do not have discrete ventilation systems.



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Lossnay Unit



Lossnay main controller installed on unit in attic



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS



Example of Lossnay fresh air supply to return side of air handler

Air Conditioning Components

Four air conditioning compressors are mounted on the rear of the building. These R-22 refrigerant systems were manufactured by Gibson. Three of the units are model number JS3BA-06KB and have 5-ton cooling capacity. The fourth unit is physically smaller but the specification sticker was not visible so capacity cannot be reported at this time. The units appear to be installed too close together and most likely do not comply with manufacturer minimum clearances for proper airflow. The mounting bracket also looks to be weathered and in poor condition and the structural integrity should be evaluated for the carrying load.



AC compressors installed on rear of building



CITY OF BATH PUBLIC SAFETY – POLICE DEPARTMENT FACILITY ANALYSIS

Mechanical HVAC Systems – Future Recommendations

The HVAC systems at the Police Department generally seem in good condition. Reports from personal was that prior to installation of the ERV, condensation would form on the ceiling tiles and the air conditioners generally did not maintain comfortable temps. After the ERV was installed, comfort and indoor air quality have improved however on hot days the air conditioners are less effective.

Discrete ventilation of the evidence room is non-existent. The kitchenette also does not have an exhaust hood for the kitchen range. The gym, which is a repurposed storage closet also does not receive adequate ventilation. Adding ventilation to these areas would be recommended.

At a minimum, the R-22 condenser units should be replaced. Duct work should be evaluated and improvements like sealing and re-insulating should also be considered.

It was reported that the Lossnay system requires a manual reset whenever power is lost. It also seems that the Lossnay controller is not interlocked with the air handler units. Evaluating the controls for the Lossnay would be recommended. Providing an accessible main controller to the police station as well as interlocking the air handling units to run on low fan speed whenever the Lossnay is operational is also recommended.



BATH, MAINE FIRE STATION

ELECTRICAL

Introduction:

The following report provides an overview of the existing conditions of the Fire Station by visual observation. The report was developed by Harriman Architects and Engineers.



Front Entrance to the Fire Station

The Fire Station Building was built in the 50's on the old Central School site. The building is a brick façade.

Critical Operation Areas:

The building is not set up as a vital Infrastructure facility.

The Fire Station uses county dispatch for 911 but is the only fire station in the City. As such if there is an issue at this building it could cause a disruption to the public health or safety. The National Electrical Code (NEC) list Power Systems requirements for Critical Operation Areas i.e. Critical Operations Power Systems (COPS) including but not limited to the following:

- Wiring shall be protected from Physical damage. This is important to maintain the integrity of the cable for both accidental damage of the cable or an active event.
- Feeders shall have a 2-hour fire rating. This is important to a COPS to maintain the function of the power system in the event of a fire in the building.



BATH, MAINE FIRE STATION

- Receptacles shall be identified with a distinctive color or marking so as to be readily identifiable. If the receptacles are readily identifiable the critical equipment will have power and not be accidentally plugged into the wrong (normal power) receptacle.
- Feeder distribution equipment shall be located in a space with a 2-hour fire resistance rating. This is important to a COPS to maintain the function of the power system in the event of a fire in the building.
- Surge protection is required at all voltage levels. Electronic equipment is sensitive to power surges installing surge protection adds a level of protection in the event of lighting strike, a car accident taking down a utility pole or similar incident.
- Where the COPS is supplied by a single generator a means to connect a portable shall be provided.
- When the generator is being worked on a portable generator should be available to connect to the building to maintain the power to the critical systems in the event of a loss of utility power.
- The alternate power shall be capable of operating the COPS for 72 hours.
- 72 hour fuel storage will give the community time to provide for the relocation of the Critical operations or at the very least the resupply of the fuel to operate the generator.

The existing facility does not meet the above requirements with the possible exception of the operating time of the generator.

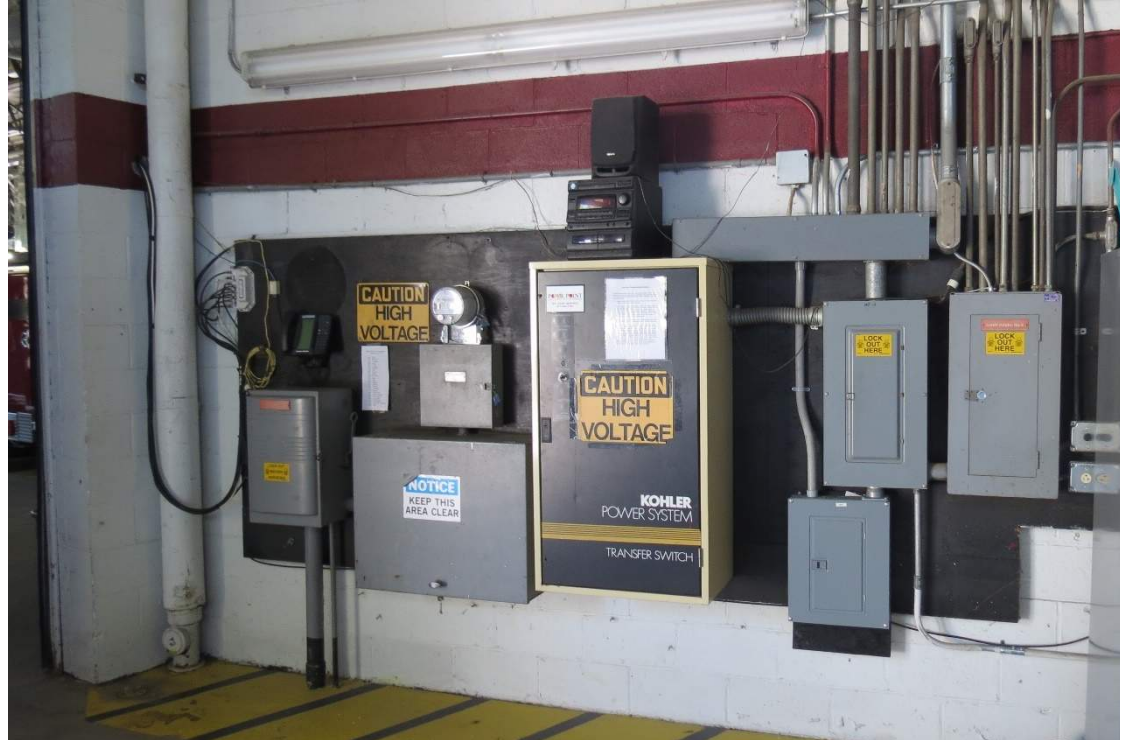
Service Entrance:

The electrical service entrance comes in underground from a pole mounted transformer to the repair bay terminating in what appears to be a 200amp disconnect switch. The disconnect switch is the main for the building. The disconnect switch feeds a Kohler 208v/3phase, 225amp, three pole ATS (automatic transfer switch) which feeds panelboards (the panelboards are mixture of Trumbull and Square-D. There is an existing exterior generator feeding the automatic transfer switch supplying backup power to the entire building. This is very beneficial to the building but limits the generator run time based on the fuel storage of the generator. The utility meter a GE #52 078 790 is located in the building with the CT (current transformers). Because the CT's are within the building when the utility calibrates the CT's access to the building is required. The utility pole serving the building is pole number 149 ½ (NET&T co).

The electrical service does not meet NEC 708 Critical Operations Power Systems (COPS). This building should have the power system upgraded to conform to the NEC 708 where this facility is a critical operation for the City.



BATH, MAINE FIRE STATION



Service entrance disconnect switch—CT cabinet with utility meter above- automatic transfer switch - electrical distribution (three panelboards)



60kw Diesel Generator – Kohler Power Systems



BATH, MAINE FIRE STATION

Lighting:

The building lighting consists of Metal Halide, fluorescent, Incandescent and LED lamp sources. The vehicle bays are lit with 400watt Metal Halide high bay fixtures. The flagpole light appears to be building mounted flood light. There are high intensity discharge (HID) wall packs and floods mounted on the building for security and parking lot lighting. Fluorescent vapor tight fixture were observed in the building in the maintenance bay (along with HID high bay fixtures). Storage rooms are lit with fluorescent with the exception the medical storage room which has the only LED fixtures observed the building. Living areas are a mixture of incandescent and fluorescent fixtures. There are a variety of light sources on site requiring maintenance. LED light sources are longer life and more energy efficient requiring less maintenance. There were no occupancy sensors observed in the building. Lighting control is via manual switches.

Exit signs and Emergency Lighting:

The exit signs are the non illuminating type. There are no emergency battery units in the building.



Non-Illuminating Exit Sign

**Small Power:**

There are receptacles located throughout the building. In the bay area the power wiring is installed in conduit. Wire mold was observed in the building to add additional receptacles.

**Fire Alarm:**

There is no fire alarm panel. The bedrooms and bedroom corridor have single/multi station smoke alarms.

Clock system:

Not applicable.

Technology:

The telephone/data demarcation is in a closet within the bedroom wing. Other electronic equipment is in a closet in the office wing of the building. The building has a radio tower on the roof of the building. This building being built in the 1950's was not designed for today's technology. The equipment has been retrofitted into the building in closets that are too small based on today's standards.



Office Wing Electronic Equipment

There is no MDF room

Security:
None observed



BATH, MAINE POLICE STATION

ELECTRICAL

Introduction:

The following report provides an overview of the existing conditions of the Police station by visual observation. The report was developed by Harriman Architects and Engineers.



Front Entrance to the Police Station

The Police Station Building was built in the 1980's on Water Street on what was river bed. The building is a brick façade.



BATH, MAINE POLICE STATION

Critical Operation Areas:

The building is not set up as a vital Infrastructure facility.

The Police Station uses county dispatch for 911 but is the only Police station in the City. As such if there is an issue at this building it could cause a disruption to the public health or safety. The National Electrical Code (NEC) list Power Systems requirements for Critical Operation Areas i.e. Critical Operations Power Systems (COPS) including but not limited to the following:

Wiring shall be protected from Physical damage. This is important to maintain the integrity of the cable for both accidental damage of the cable or an active event.

Feeders shall have a 2-hour fire rating. This is important to a COPS to maintain the function of the power system in the event of a fire in the building.

Receptacles shall be identified with a distinctive color or marking so as to be readily identifiable. If the receptacles are readily identifiable the critical equipment will have power and not be accidentally plugged into the wrong (normal power) receptacle.

Feeder distribution equipment shall be located in a space with a 2-hour fire resistance rating. This is important to a COPS to maintain the function of the power system in the event of a fire in the building.

Surge protection is required at all voltage levels. Electronic equipment is sensitive to power surges installing surge protection adds a level of protection in the event of lightning strike, a car accident taking down a utility pole or similar incident.

Where the COPS is supplied by a single generator a means to connect a portable shall be provided. When the generator is being worked on a portable generator should be available to connect to the building to maintain the power to the critical systems in the event of a loss of utility power.

The alternate power shall be capable of operating the COPS for 72 hours.

72 hour fuel storage will give the community time to provide for the relocation of the Critical operations or at the very least the resupply of the fuel to operate the generator (generator at the police station uses a propane gas as a fuel source).

The existing facility does not meet the above requirements with the possible exception of the operating time of the generator.



BATH, MAINE POLICE STATION

Service Entrance:

The electrical service entrance comes in underground from a pole mounted transformer on Elm Street to a meter enclosure on the exterior of the building and then into the main distribution panel located in the Generator room. The MDP is marked 1 of 2, there is a meter and panel at the front of the building for what was reported as street lighting it is assumed this is the second electrical entrance. The electrical service is 120/240volt single phase, there was no marking observed on the main circuit breaker. The MDP feeds two transfer switches a Kohler ATS (automatic transfer switch) and an Onan ATS. The existing exterior generator is an Onan city water cooled propane generator that is scheduled to be replaced due to overheating issues. It was reported that with the additions of the second ATS (the Kohler) the entire building is supplied by backup power. The utility meter a Landis+Gyr #116 237 148 is located on the exterior of the building in the back. The utility pole serving the building is on Elm Street.

The electrical service does not meet NEC 708 Critical Operations Power Systems (COPS). This building should have the power system upgraded to conform to the NEC 708 where this facility is a critical operation for the City.



Service entrance meter



BATH, MAINE POLICE STATION



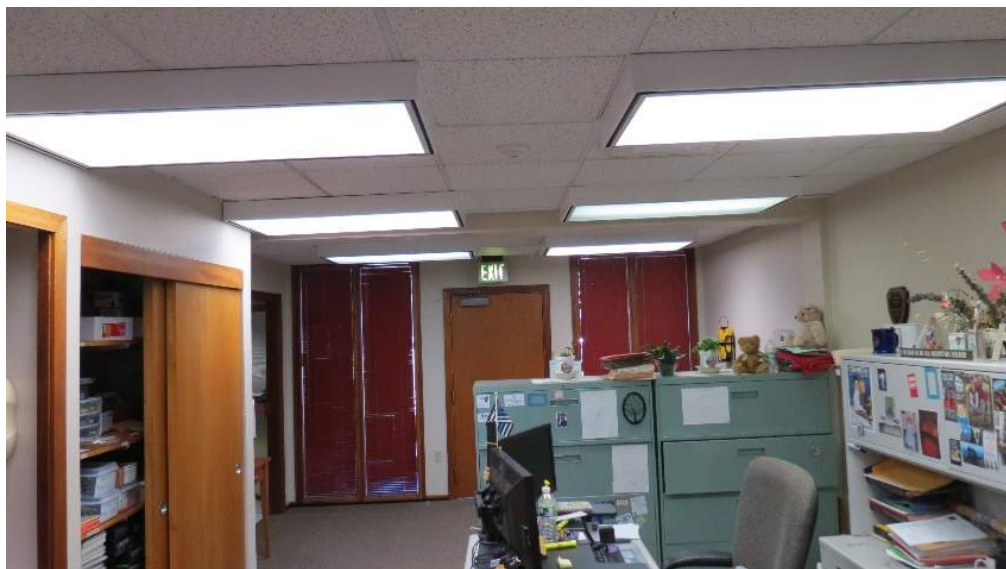
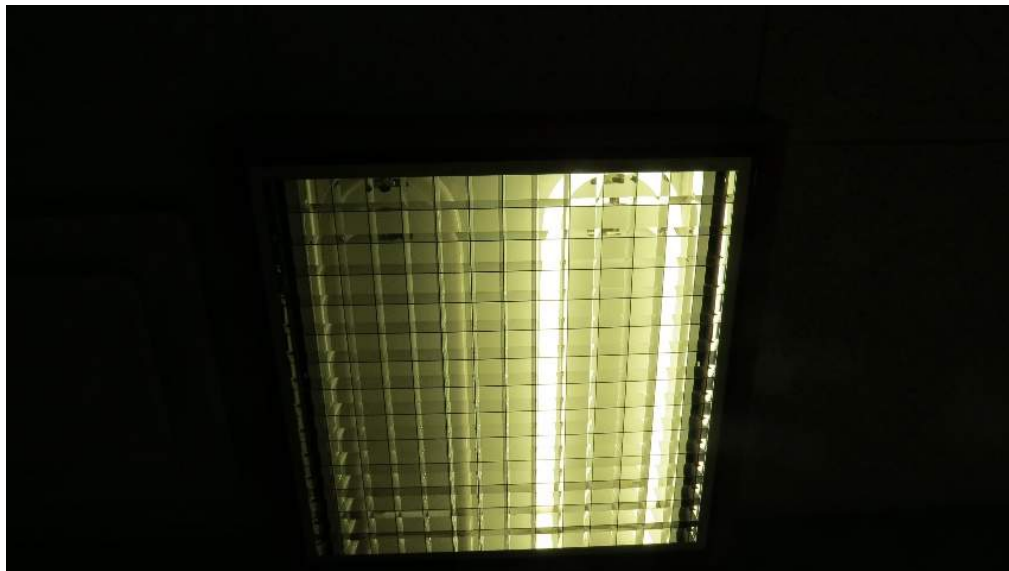
60kw diesel generator – Onan



BATH, MAINE POLICE STATION

Lighting:

The building lighting consists of HID fixtures on the exterior of the building and fluorescent for the majority of the interior. There are some Incandescent downlights in what was the old dispatch room. The vehicle bay is lit with fluorescent vapor tight fixtures. The flagpole light appears to be building mounted flood light. LED light sources are longer life and more energy efficient requiring less maintenance. There were no occupancy sensors observed in the building. Lighting control is via manual switches.

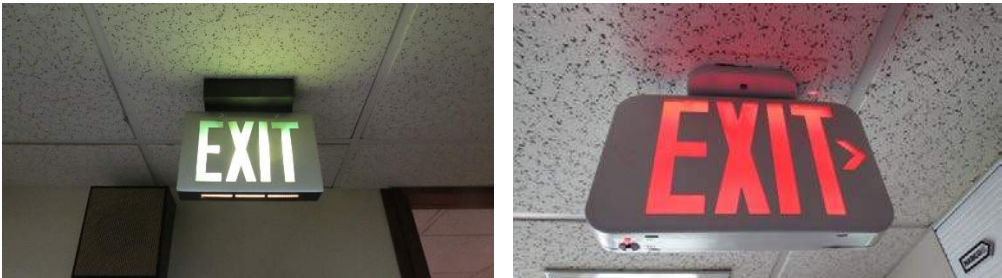




BATH, MAINE POLICE STATION

Exit signs and Emergency Lighting:

The exit signs are the illuminating type. There are no emergency battery units in the building. The building has been reported as going dark if the generator does not start.



Illuminating exit signs (the red-letter sign is in the lobby and appears to be the only one with battery backup)

Small Power:

There are receptacles located throughout the building.

Fire Alarm:

There is a conventional 8 zone Simplex fire alarm panel. The notification appliances (horn/lights) do not meet ADA. There are pullstations in the building.





BATH, MAINE POLICE STATION

Clock system:
Not applicable.

Technology:
The electronic equipment is in a closet on the second floor of the building. This is also the telephone demarcation point. The building has the radio equipment in the room.





BATH, MAINE POLICE STATION



Security:
None observed



ENVIRONMENTAL SAFETY & HYGIENE ASSOCIATES, INC.

- Indoor Air Quality
- OSHA Compliance
- Asbestos Consulting
- Training
- Lead Consulting
- Industrial Hygiene

Indoor Environmental Quality Assessment Report

*Bath Police Station
Bath, Maine*

Prepared for

**Mrs. Shelly Merrill & Mr. Michael Peabody
City of Bath
55 Front Street
Bath, Maine 04530**

Prepared by

**Mark P. Coleman, CIE, CMR
Environmental Safety & Hygiene Associates, Inc.**

Project # 15-157

Final Report: August 6th, 2015

Table of Contents

Section	Description
1.0	Executive Summary (Findings & Recommendations)
2.0	Microbial Analytical Tables
3.0	Worldwide Exposure Standards for Bacteria and Mold

1.0 Background and Summary

Environmental Safety & Hygiene Associates, Inc. (ESHA) was retained by the City of Bath to conduct a follow-up Indoor Environmental Quality (IEQ) assessment of specific areas within the Bath Police Station, 250 Water Street, Bath, Maine. The assessment was conducted by Mr. Mark Coleman, a board Certified Indoor Environmentalist (CIE), Certified Mold Remediator (CMR), and Building Systems Technologist on July 22nd, 2015.

The assessment was conducted to re-evaluate the indoor air quality following the completion of response actions as recommended in an initial IEQ assessment conducted on August 21st, 2014.

During this evaluation ESHA utilized several types of microbial sampling methodologies (tools) and included testing for;

- Airborne fungi spores (Table 1)
- Airborne culturable bacteria (Table 2)

General Findings

The following summary of general findings outlines the conditions observed during the visual, physical, and air quality assessment.

Visual Assessment

A visual assessment of readily accessible areas within the structure was conducted to determine if there were any conditions that could have a negative effect on the overall indoor air quality, a summary of our observations are as follows;

- The interior of the structure was in generally good condition and no readily visible indications of significant water damaged building materials or microbial acidity were observed at the time of the assessment
- The HVAC system supply diffusers and associated ducting was visibly clean and no significant conditions of concern were observed at the time of the assessment.

Air Quality Assessment

The indoor air quality and microbial reservoirs assessment was conducted within specific areas of the Police Station to evaluate general and typical conditions. A summary of findings for each type of testing is as follows;

Airborne Fungi Spore Sampling (See Table 1)

Airborne fungi spore sampling was conducted to assess specific areas of the Police Station for airborne fungi spores, particulate, and mycelial fragments (See enclosed floor plans for sampling locations). In addition to the indoor air samples, an outdoor air sample was collected for statistical comparison purposes.

When comparing the indoor air samples to the outdoor statistical comparison sample and current guidelines, the airborne fungi spore sampling did not identify any significant elevations of airborne fungal spores at the time of the assessment

Airborne Fungi Spore Recommended Levels

The spore levels between 1,000 and 10,000 ct/m³ may be acceptable to the average healthy person indoors, but extremely sensitive individuals may experience symptoms below 4,225 ct/m³.

Airborne Culturable Bacteria Sampling (See Table 2)

Airborne culturable bacteria sampling was conducted in the same areas as the airborne fungi spore sampling to determine the presence of active airborne bacteria in the same locations as the fungi testing. Bacteria does not typically become airborne as easily as mold as most bacteria do not generate spores. When compared to the outdoor comparison sample and current guidelines the airborne culturable bacteria testing did not identify any significant elevations of airborne culturable bacteria at the time of the assessment.

HVAC Swab Sampling (See Table 3)

HVAC swab samples were collected from the supply side air ducting in the four air handling units in the attic of the Police Station. Based on the data and current guidelines all four AHU's did not have any significant concentrations of culturable bacteria and/or fungi

Dry Dust Samples - Recommended Ceiling Levels

At present, current general guidelines for dry dust samples area: (a) colony counts of <10,000 CFU/g are commonly found, (b) 100,000 – 1,000,000 are borderline, and (c) microbial fungus or bacteria levels more than >1,000,000 CFU/g have the potential of significantly contributing to airborne microbial populations

Discussion

Based on the findings and testing methodologies used for this follow-up assessment, it is evident that completion of the response actions as recommended in an initial IEQ assessment dated August 21st, 2014 were successful at mitigating conditions of concern. No significant elevations of airborne fungi spores, airborne culturable bacteria, microbial contamination in the HVAC system were identified by this assessment.

Mr. Michael Peabody
City of Bath
Page Three

Recommendations

Based on the findings of this assessment and our professional experience ESHA offers the following recommends, they are as follows;

- Have the HVAC system ducting and air handling units routinely and professional cleaned and sanitized in accordance with NADCA guidelines and procedures.
- In the event there is water damage or a flooding event remove any water damaged building materials within 48 to 72 hours of the event to prevent the possibility for microbial growth. If water damaged building materials are not addressed immediately, develop a plan that addresses any water damage, water infiltration, and proper removal of any impacted building material(s) in accordance with the most current and stringent guidelines, IICRC S520 Standard and Reference Guide for Professional Mold Remediation.

The testing, analytical, and remediation protocols for this assessment were based on information and methodologies prescribed by American Society of Heating, Refrigeration, and Air conditioning Engineers (ASHRAE), the American Conference of Governmental Industrial Hygienist (ACGIH), the United States Environmental Protection Agency (USEPA), Occupational Safety & Health Administration (OSHA), Worldwide Exposure Standards for Mold and Bacteria, and our professional experience.

ESHA appreciates the opportunity to assist you with your Indoor Air Quality needs. Should there be any questions and/or concerns feel free to contact us at 207.854.2711.

Sincerely,

Mark P. Coleman, CIE, CMR
President

ASSESSMENT LIMITATIONS

The observations, conclusions and recommendations described in this assessment report were made under the conditions stated herein, and were arrived at in accordance with generally accepted standards related to indoor air quality investigations and good industrial hygiene practice. The conclusions presented in the report were based solely upon the services described herein, and not on scientific tasks or procedures beyond the scope of described services, time and any budgetary constraints.

The purpose of this survey was to evaluate the potential presence of microbial contamination in the targeted study areas and do not represent other conditions outside our scope of work. Observations were made of the structure as indicated within the report and samples were collected only on the day of the survey at represent a finite period of time.

Where such quantitative laboratory analyses have been conducted by an outside laboratory, ESHA has relied upon the data provided, and has not conducted an independent evaluation of the reliability of the data. These data have been reviewed and interpretations made as presented in the report.

Moreover, it should be noted that variations in the types and concentrations of contaminants including mold, and variations in their distribution may occur due to life cycle, uncontrolled or incidental disturbance, and ambient conditions. Should additional data become available in the future, this data should be reviewed by ESHA, and the conclusions and recommendations presented therein modified accordingly.

The report has been prepared for the exclusive use of the **City of Bath** in accordance with generally accepted indoor air quality and industrial hygiene practice. No other warranty, expressed or implied, is made.

SECTION 2.0

ANALYTICAL TABLES & REPORTS

Bath Police Department
 250 Water St.
 Bath, ME 04530
 Project # 15-157

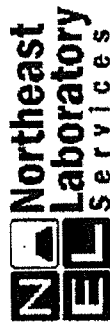
Table 1
Airborne Fungi Spore Sampling
 Testing Date: 07/22/2015

250 Water St. Bath			
Sample Id	Location	Mold Count Total Ct./m3	Species of Interest/Count
OD-1	Outdoors	1,800	Ascospores - 2,100 Basidiospores - 15,000 Cladosporium - 480 Curvularia - 160 Epicoccum - 430 Unknown Spores - 320
S-1	See Floor Plan	53	Unknown Spores - 53
S-2	See Floor Plan	420	Basidiospores - 160 Cladosporium - 210 Curvularia - 53
S-3	See Floor Plan	160	Curvularia - 110 Unknown Spores - 53
S-4	See Floor Plan	110	Cladosporium - 110
S-5	See Floor Plan	320	Basidiospores - 110 Cladosporium - 53 Unknown Spores - 160
S-6	See Floor Plan	110	Basidiospores - 110
S-7	See Floor Plan	210	Basidiospores - 160 Cladosporium - 53
S-8	See Floor Plan	<53	None Detected
S-9	See Floor Plan	<53	None Detected

Fungi Spore Trap Sampling (ct./m3)

1,000 ct/m³ - 10,000 ct/m³

The spore levels between 1,000 and 10,000 ct/m³ may be acceptable to the average healthy person indoors, but extremely sensitive individuals may experience symptoms below 4,225 ct/m³.



Client: Environmental Safety & H Date Sampled: 7/22/2015
Date Received: 7/23/2015
Date Reported: 7/27/2015
Address: 17 Patrick Drive Bath Police
Westbrook ME 04092 Station
Project: Station
Maine 04901
www.NelLabServices.com

Sample Type:		Analysis Report-Spore Trap Direct Exam											
Category	Volume Sampled (L): Sample Description Sample Condition Lab Number	75		75		75		75		75		75	
		OD-1		S-1		S-2		S-3		S-4		S-5	
		Raw Cl	CL/m3	Raw Cl	CL/m3	Raw Cl	CL/m3	Raw Cl	CL/m3	Raw Cl	CL/m3	Raw Cl	CL/m3
Total Mold Spores & Fragments		341	18,000	1	53	8	420	3	160	2	110	6	320
Asco-spores		40	2,100	-	-	-	-	-	-	-	-	-	-
Basidiospores		275	15,000	-	-	3	160	-	-	-	-	2	110
Cladospo-rium		9	480	-	-	4	210	-	-	2	110	1	53
Curvularia		3	160	-	-	1	53	2	110	-	-	-	-
Epicoccum		8	430	-	-	-	-	-	-	-	-	-	-
Unknown Spores		6	320	1	53	-	-	1	53	-	-	3	160
Background Debris rating (0-5) (1)		3		2		3		3		2		2	
Comments													

ND - Non Detect

(1) Debris Rating Scale: 0 = No trace visible, 5 = Contiguous debris. Background debris levels greater than 3 indicate poor visibility for the analyst reading the slide, which can result in under-counting of small spores such as those from members of the Aspergillus/Penicillium-like group.

Note: Values may not appear to be additive due to rounding of numbers. 100% of Sample Trace examined for anomalies, spore clusters and Stachybotrys / Memnoniella spores.

Reporting limits vary depending on amount of air sampled. 30L- 133 counts/m³, 75L- 53 counts/m³, 150L- 27 counts/m³.
No discernable field blank was submitted with these samples.

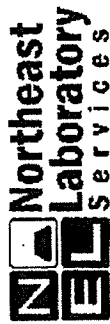
Brett Goodrich

Report Reviewed By:

Brett Goodrich, Manager, Environmental Microbiology Dept.

Samples Analyzed By: Tom Cheetham, PhD, Mycologist, Environmental Microbiology Department

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1-207-873-7022 FAX
227 China Rd., Winslow,
Maine 04901
www.NelabServices.com

Client: Environmental Safety & H Date Sampled: 7/22/2015
Date Received: 7/23/2015
Address: 17 Patrick Drive Date Reported: 7/27/2015
Westbrook ME 04092 Bath Police
Project: Station

4.3.24

Sample Type:	Allergenco	Analysis Report- Spore Trap Direct Exam									
Volume Sampled (L): Sample Description	75	75	75	75	75	75	75	75	75	75	75
	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	S-14	S-15	S-16
Sample Condition Lab Number	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
	MP07274	MP07275	MP07276	MP07277	MP07278	MP07279	MP07280	MP07281	MP07282	MP07283	MP07284
Category	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.	Raw Ct.
	2	4	0	0	0	0	0	0	0	0	0
Total Mold Spores & Fragments	110	210	<53	<53	<53	<53	<53	<53	<53	<53	<53
Ascomycetes	-	-	-	-	-	-	-	-	-	-	-
Basidiomycetes	2	3	-	-	-	-	-	-	-	-	-
Cladosporeum	-	1	-	-	-	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-	-	-
Epicoecium	-	-	-	-	-	-	-	-	-	-	-
Unknown Spores	-	-	-	-	-	-	-	-	-	-	-
Background Debris rating (0-5) (1)	3	2	1	2	1	1	1	1	1	1	1
Comments											

ND - Non Detect

(1) Debris Rating Scale: 0 = No trace visible; 5 = Contiguous debris. Background debris levels greater than 3 indicate poor visibility for the analyst reading the slide, which can result in under-counting of small spores such as those from members of the Aspergillus/Penicillium-like group.

Note: Values may not appear to be additive due to rounding of numbers. 100% of Sample Trace examined for anomalies, spore clusters and Stachybotrys / Memmonella spores.

Reporting limits vary depending on amount of air sampled. 30L- 133 counts/m³, 75L- 53 counts/m³, 150L- 27 counts/m³.
No discernable field blank was submitted with these samples.

Brett Goodrich

Report Reviewed By:

Brett Goodrich, Manager, Environmental Microbiology Dept.

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Samples Analyzed By: Tom Cheetham, PhD, Mycologist, Environmental Microbiology Department

Bath Police Department
 250 Water St.
 Bath, ME 04530
 Project # 15-157

Table 2
Airborne Culturable Bacteria
 Testing Date: 07/22/2015

250 Water St. Bath			
Sample Id	Location	Bacteria Count CFU/M3	Species of Interest/Count
OD-1	Outdoors	<20	Gram Negative Bacteria - <20
S-1	See Floor Plan	<20	Gram Negative Bacteria - <20
S-2	See Floor Plan	<20	Gram Negative Bacteria - <20
S-3	See Floor Plan	<20	Gram Negative Bacteria - <20
S-4	See Floor Plan	<20	Gram Negative Bacteria - <20
S-5	See Floor Plan	20	Gram Negative Bacteria - 20
S-6	See Floor Plan	<20	Gram Negative Bacteria - <20
S-6	See Floor Plan	<20	Gram Negative Bacteria - <20
S-7	See Floor Plan	<20	Gram Negative Bacteria - <20
S-8	See Floor Plan	<20	Gram Negative Bacteria - <20
S-9	See Floor Plan	<20	Gram Negative Bacteria - <20

ACTION LEVEL Airborne Culturable Bacteria

< 1,000 cfu/m³ Gram-negative rod Bacteria is considered normal and not elevated.



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 Winslow Maine 04901
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Environmental Safety & Hygiene Assoc.
 17 Patrick Drive
 Westbrook, ME 04092

Received: 7/23/15
 Reported: 8/3/15
 Project No: Bath Police Station

Microbiological Analysis - Air (Bioaerosol)

Lab Number	MP 07282	MP 07283	MP 07284
Sample Description	OD-1 Outdoors	S-1	S-2
Sample Type	Andersen N6	Andersen N6	Andersen N6
Volume Sampled (Liters)	56.6	56.6	56.6
Parameter	CFU per Plate CFU per cubic M	CFU per Plate CFU per cubic M	CFU per Plate CFU per cubic M
Gram Negative Bacteria (MacConkey Agar)	0 <20	0 <20	0 <20

Note: Values may not appear to be additive due to rounding of calculations.

Comments:

Brett Goodrich

Reviewed by:

Brett Goodrich, Manager, Environmental Microbiology Division

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Received: 7/23/15
 Reported: 8/3/15
 Project No: Bath Police Station

Microbiological Analysis - Air (Bioaerosol)

Lab Number	MP 07285		MP 07286		MP 07287	
Sample Description	S-3		S-4		S-5	
Sample Type	Andersen N6		Andersen N6		Andersen N6	
Volume Sampled (Liters)	56.6		56.6		56.6	
Parameter	CFU per Plate	CFU per cubic M	CFU per Plate	CFU per cubic M	CFU per Plate	CFU per cubic M
Gram Negative Bacteria (MacConkey Agar)	0	<20	0	<20	1	20

Note: Values may not appear to be additive due to rounding of calculations.

Comments:

Brett Goodrich

Reviewed by:

Brett Goodrich, Manager, Environmental Microbiology Division

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17 Patrick Drive

Westbrook, ME 04092

Received: 7/23/15
Reported: 8/3/15
Project No: Bath Police Station

Microbiological Analysis - Air (Bioaerosol)

Lab Number	MP 07288	MP 07289	MP 07290
Sample Description	S-6	S-7	S-8
Sample Type	Andersen N6	Andersen N6	Andersen N6
Volume Sampled (Liters)	56.6	56.6	56.6
Gram Negative Bacteria (MacConkey Agar)	0 <20	0 <20	0 <20

Note: Values may not appear to be additive due to rounding of calculations.

Comments:

Brett Goodrich

Reviewed by:

Brett Goodrich, Manager, Environmental Microbiology Division

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17 Patrick Drive
Westbrook, ME 04092

Received: 7/23/15
Reported: 8/3/15
Project No: Bath Police Station

Microbiological Analysis - Air (Bioaerosol)

Lab Number	MP 07291		
Sample Description	S-9		
Sample Type	Andersen N6		
Volume Sampled (Liters)	56.6		
Parameter	CFU per Plate	CFU per cubic M	
Gram Negative Bacteria (MacConkey Agar)	0	<20	

Note: Values may not appear to be additive due to rounding of calculations.

Comments:

Brett Goodrich

Reviewed by:

Brett Goodrich, Manager, Environmental Microbiology Division

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Bath Police Department
250 Water St.
Bath, ME 04530
Project # 15-157

Table 3
HVAC Surface Swab Samples
Testing Date: 07/23/2015

250 Water St. Bath					
Sample Id	Description	Total Count	Species of Interest Bacteria	Total Count	Species of Interest Fungi
SW-1		<100	Gram Negative Bacteria - <100	100	Penicillium sp. - 100
SW-2		<100	Gram Negative Bacteria - <100	<100	N.D.
SW-3		<100	Gram Negative Bacteria - <100	<100	N.D.
SW-4		<100	Gram Negative Bacteria - <100	<100	N.D.



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ESH
17 Patrick Drive
Westbrook ME 04092

Received: 7/23/2015
Reported: 8/3/2015
Project No: Bath Police Sta.

Microbiological Analysis - Bulk Samples

Lab Number	MP 07278			MP 07279			MP 07280		
Sample Description	Swabs not labeled (AHU 1 or AHU 2 or AHU 3 or AHU 4)			Swabs not labeled (AHU 1 or AHU 2 or AHU 3 or AHU 4)			Swabs not labeled (AHU 1 or AHU 2 or AHU 3 or AHU 4)		
Sample Type	Swab			Swab			Swab		
Parameter	CFU per Plate	Dilution	CFU per Unit*	CFU per Plate	Dilution	CFU per Unit*	CFU per Plate	Dilution	CFU per Unit*
Gram negative bacteria (MacConkey Agar)	0	100	<100	0	100	<100	0	100	<100
Total Fungi (MEA)			100	0	100	<100	0	100	<100
Penicillium sp.	1	100	100						

Note: Values may not appear to be additive due to rounding of calculations.

*Unit is per swab for swab samples, per wipe for sponge wipe samples and per gram for all bulk material samples.

Comments:

Reviewed By:

Brett Goodrich

Brett Goodrich, Manager, Environmental Microbiology Department

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www.NeLabServices.com

ESH
17 Patrick Drive
Westbrook ME 04092

Received: 7/23/2015
Reported: 8/3/2015
Project No: Bath Police Sta.

Microbiological Analysis - Bulk Samples

Lab Number	MP 07281		
Sample Description	Swabs not labeled (AHU 1 or AHU 2 or AHU 3 or AHU 4)		
Sample Type	Swab		
Parameter	CFU per Plate Dilution	CFU per Unit*	
Gram negative bacteria (MacConkey Agar)	0 100	<100	
Total Fungi (MEA)	0 100	<100	

Note: Values may not appear to be additive due to rounding of calculations.

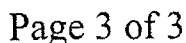
*Unit is per swab for swab samples, per wipe for sponge wipe samples and per gram for all bulk material samples.

Comments:

Reviewed By: Brett Goodrich

Brett Goodrich, Manager, Environmental Microbiology Department

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Ship samples to:

Phone: 1(800) 244-8378

227 China Road
Winslow, Maine 04901

Email: info@nelabservices.com
Website: www.nelabservices.com



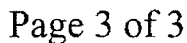
Chain of Custody Record Environmental Microbiology Analysis

Client: ESH Assoc.		Lab Use Only			
Address: 17 Patrick Drive					
City, State, Zip: Westbrook ME 04092					
Contact: Mark Coleman					
Phone: 207-756-9429					
Email: markc@biosenv.com		Project #:	Project Name: <i>Biath Police Station</i>		
Sampled by:		Report by:	Fax Email Regular Mail only		
Turnaround*: 5-Day		Next Day RUSH - Same Day (surcharge applies)			
Sample Type Codes					
AC = Air Culture Plate	BS = Bulk Solid	RCS = RCS Air Strip	ST = Spore Trap		
AND = Anderson Plate	BURK = Burkard/Allergenco Slide	SAS = SAS Plate	T = Tape Lift		
AOC = Air-O-Cell Cassette	D = Dust	S = Surface Swab	W = Water		
			WC = Wall Cavity (air)		
			WP = Wipe		
			O = Other (describe)		
Sample Information					
Lab No	Sample Identification	Type	Date/Time	Volume/Area	Analysis Requested**
<i>MPD 7282</i>	<i>00-1 outdoors</i>	<i>Air P</i>	<i>7/23</i>	<i>56.6</i>	<i>BACTERIA</i>
<i>83</i>	<i>S-1 See Floor Plan</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>84</i>	<i>S-2</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>85</i>	<i>S-3</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>86</i>	<i>S-4</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>87</i>	<i>S-5</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>88</i>	<i>S-6</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>89</i>	<i>S-7</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>90</i>	<i>S-8</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
<i>91</i>	<i>S-9</i>	<i> </i>	<i> </i>	<i> </i>	<i> </i>
Spore Traps - Brand & Type (e.g. Cyclex slide, AirO-Cell Cassette, Laro-100, etc.):					
Air Culture Plates - Sampler & Type (e.g. Anderson N6, SAS-100, etc.):					
Special sample information, testing or reporting instructions:					

Custody Record			
Date	Time	Samples relinquished by:	Samples received by:
<i>7/23/15</i>		<i>[Signature]</i>	<i>7/23/15 14:10</i>
			<i>7/23/15 15:15</i>
Comments			

*Turnaround times are for Direct-Exam analysis only and are contingent on daily workload; culture sample turnaround is 5-6 business days. Please contact NEL prior to submitting samples for same-day turnaround.

**Analysis Requested. Please describe or use NEL Analysis Code.



NORTHEAST LABORATORY SERVICES
SAMPLE RECEIPT CONDITION REPORT

Standard Operating Procedure for Sample Receipt and Log-In of Analytical Samples
Rev. 07/24/14

Client: ESH Assoc

Date/Time Received: 7/23/15 15:45 Initials: [Signature]

Project: Bath Police

Rush? Yes No TAT

NEL Sample Numbers: MP07268-91

Delivered by: Portland

Tracking Number: N/A

FOOD AND WATER

Yes No

1. Are custody seals present? ☐ ☐
2. Is the COC properly filled out? ☐ ☐
3. Do sample labels match the COC? ☐ ☐
4. Are samples within the analytical hold time? ☐ ☐
5. Is there sufficient volume to perform tests? ☐ ☐
6. Are samples in good condition? ☐ ☐
7. Is temperature between 4 +/- (2) C° ☐ ☐

TEMP

Comments: _____

INDOOR AIR QUALITY

Yes No

1. Is the COC properly filled out? ☒ ☐
2. Do sample labels match the COC? ☒ ☐
3. Are samples in good condition? ☒ ☐

Comments: _____

CONTROLLED

SECTION 3.0

WORLDWIDE EXPOSURE STANDARDS

Summary of Worldwide Standards for Exposures to Bacteria and Mold

PERMISSIBLE / ACCEPTABLE LEVELS

Airborne Fungi Sampling

Culture Plate Analysis (CFU's/m³)

> 200 cfu/m³ ¹

> 500 cfu/m³ (if 50% is Cladosporium or Alternaria)

This is considered "acceptable" in the indoor environment. It is better if the number comprises of more than one species and does not include any potentially pathogenic (able to cause disease) species.

Fungi Spore Trap Sampling (ct./m³)

1,000 ct/m³ - 10,000 ct/m³²

Airborne fungi spore levels indoors between 1,000 and 10,000 ct/m³ may be acceptable to the average healthy persons, but extremely sensitive individuals may experience symptoms below 4,225 ct/m³.

ACTION LEVEL

Airborne Fungi Sampling

Culture Plate Analysis (CFU's/m³)

> 200 cfu/m³ - *all types of mold*

OR

> 50 cfu/m³ - *single non-pathogenic species*

Urgency and amount of action required and the potential for mold contamination increases as this level increases. At 1,000 cfu/m³, a large mold contamination problem is likely to be present. At 2,000 cfu/m³, health complaints should be expected.

Fungi Spore Trap Sampling (ct./m³)

> 4,250 ct/m³ - *total spore levels*

This would warrant some investigation and possible action to lower exposure levels in the environment. This would especially be true in commercial environments where better air filtration efficiency is usually present.

¹ Colony forming units per cubic meter of air

² Spores per cubic meter of air

CEILING LIMIT / UNACCEPTABLE Airborne Fungi Sampling

Fungi Spore Trap Sampling (ct./m³)

> 10,000 ct/m³ - *all types of mold*

Building occupants whose health conditions may be affected by viable mold spore exposure, such as immuno-compromised individuals, the "evacuation" level may have to be significantly less.

> 25,000 ct/m³ - *total spore levels*

Total mold spore levels in excess of 25,000 ct/m³ can produce allergic symptoms in a considerable percentage of the population. Extremely sensitive people could have severe, health symptoms.

CLEARANCE TESTING / POST REMEDIATION Airborne Fungi Sampling

< 2,000 ct/m³

(1/3 Cladosporium, 1/3 Aspergillus/Penicillium, 1/3 other genera and ≤ 22 ct/m³ Stachybotrys). Visual clearance should also be conducted. Culturable testing is also recommended if indoor versus outdoor comparisons are being utilized as a clearance criteria.

CEILING LIMITS FOR HOSPITALS AND OTHER SUSCEPTIBLE OCCUPANT ENVIRONMENTS

> 1 cfu/m³ - *Aspergillus spp.*

> 200 cfu/m³ - *mixed mold species*

Hospitals are a much larger population of immuno-compromised occupants than in most residential or commercial buildings.

BACTERIA LEVELS

> 1,000 cfu/m³ - *Gram-negative*

OR

> 500 cfu/m³ - *pathogenic*

50 EU/m³³ - *Upper Level of Endotoxin Testing; used as a more comprehensive assessment to detect bacteria remnants.*

³ Endotoxin units per cubic meter of air

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ENVIRONMENTAL SAFETY & HYGIENE ASSOCIATES, INC.

- Indoor Air Quality Testing
- Asbestos Testing & Consulting
- Lead Testing & Consulting
- Mold Testing
- Industrial Hygiene
- Training
- OSHA Compliance

Indoor Environmental Quality Assessment Report

*Bath Police Station
Bath, Maine*

Prepared for

Mrs. Shelly Merrill & Mr. Michael Peabody
City of Bath
55 Front Street
Bath, Maine 04530

Prepared by

Mark P. Coleman, CIE, CMR
Environmental Safety & Hygiene Associates, Inc.

Project # 18-139

Final Report: April 24th, 2018

www.airqualitymaine.com

91 Larrabee Rd., Suite 102 ~ Westbrook, Maine 04092 ~ Phone: 207-854-2711

Table of Contents

Section	Description
1.0	Executive Summary (Findings & Recommendations)
2.0	Microbial Analytical Tables
3.0	Worldwide Exposure Standards for Bacteria and Mold

1.0 Background and Summary

Environmental Safety & Hygiene Associates, Inc. (ESHA) was retained by the City of Bath to conduct a follow-up Indoor Environmental Quality (IEQ) assessment of specific areas within the Bath Police Station, 250 Water Street, Bath, Maine. The assessment was conducted by Mr. Mark Coleman, a board Certified Indoor Environmentalist (CIE) and Building Systems Technologist on April 24th, 2018.

The assessment was conducted to re-evaluate the indoor air quality following the completion of response actions as recommended in an initial IEQ assessment conducted on August 21st, 2014 and to address concerns as it relates to the health of the Police Chief.

During this evaluation ESHA utilized several types of microbial sampling methodologies (tools) and included testing for;

- Airborne fungi spores (Table 1)
- Airborne culturable bacteria (Table 2)
- HVAC dust sampling for culturable bacteria & fungi enumerations (Table 3)

General Findings

The following summary of general findings outlines the conditions observed during the visual, physical, and air quality assessment.

Visual Assessment

A visual assessment of readily accessible areas within the structure was conducted to determine if there were any conditions that could have a negative effect on the overall indoor air quality, a summary of our observations are as follows;

- The interior of the structure was in generally good condition and no readily visible indications of significant water damaged building materials or microbial activity were observed at the time of the assessment. However, a number of water damaged ceiling tiles were observed in the Police Chiefs office and areas of water infiltration.
- The HVAC system supply diffusers and associated ducting were visibly clean and no significant conditions of concern were observed at the time of the assessment.

IEQ & HVAC Assessment

ESHA conducted Indoor Environmental Quality (IEQ) testing in multiple locations within the structure (See attached floor plan for locations) and included testing for airborne fungal spores, airborne culturable bacteria, and culturable fungi/bacteria in HVAC dust. A summary of findings for each type of testing follows:

Airborne Fungal Spore Testing (See Table 1)

Airborne fungal spore testing was conducted to assess the air quality in multiple locations within the structure for airborne fungi spores, particulate, and mycelial fragments. In addition to the indoor air samples an outdoor air sample was collected for comparison purposes.

When comparing the outdoor testing data (1290 Ct./m³) to the indoor air testing data (274 Ct./m³ to 1840 Ct./m³) and current guidelines the airborne fungi spore testing did not detect any significant elevations of airborne fungal spores at the time of the assessment.

However, the assessment identified elevations of airborne fungal spores in the form of *Aspergillus* / *penicillium* in the Men's Locker Room. The elevations of airborne fungal spores in the form of *Aspergillus* and *Penicillium* detected in the Men's Locker Room are likely a result of humidity and possible fungal growth on contents.

Airborne Fungi Spore Recommended Levels

The spore levels between 1,000 and 10,000 ct/m³ may be acceptable to the average healthy person indoors, but extremely sensitive individuals may experience symptoms below 4,225 ct/m³.

Airborne Culturable Bacteria Sampling (See Table 2)

Airborne culturable bacteria testing was conducted in the same areas as the airborne fungi testing. In addition to the indoor air samples an outdoor air sample was collected for comparison purposes.

When comparing the outdoor comparison testing data (180 CFU's/m³) to the indoor testing data (18 CFU's/m³ to 216 CFU's/m³) and current guidelines the airborne culturable bacteria testing did not detect elevations of airborne culturable bacteria in any of the areas tested.

HVAC Dust Sampling (See Table 3)

HVAC dust samples were collected from the supply side air ducting in the Chiefs Office and Squad Office. Based on the data and current guidelines all four AHU's did not have any significant concentrations of culturable bacteria and/or fungi

Dry Dust Samples - Recommended Ceiling Levels

At present, current general guidelines for dry dust samples area; (a) colony counts of <10,000 CFU/g are commonly found, (b) 100,000 – 1,000,000 are borderline, and (c) microbial fungus or bacteria levels more than >1,000,000 CFU/g have the potential of significantly contributing to airborne microbial populations

Discussion

This assessment was conducted to address complaints related to the perception of poor indoor air quality by occupants that work in the area. In addition, the assessment was conducted to establish baseline indoor air quality data, microbial reservoirs data, and document if certain conditions could have a negative effect on the overall indoor air quality, human health, and environment.

Based on the visual assessment, the structure was in generally good condition at the time of the assessment, no signs of significant water damage, microbial growth, or other conditions that could have a negative effect on the indoor air quality were observed. However, several water damaged ceiling tiles were observed in the Police Chiefs office and areas of water infiltration.

When comparing the airborne fungal spore, airborne culturable bacteria, and culturable fungi/bacteria in HVAC dust testing data to current guidelines the testing did not identify any significant elevations of airborne bioaerosols. However, the assessment identified elevations of airborne fungal spores in the form of *Aspergillus/penicillium* in the Men's Locker Room. The elevations of airborne fungal spores in the form of *Aspergillus* and *Penicillium* detected in the Men's Locker Room are likely a result of humidity and possible fungal growth on contents.

Recommendations

Management and maintenance of buildings is important in order to prevent conditions that could possibly compromise the overall indoor air quality. Based on the findings of this assessment and our professional experience ESHA offers the following recommendations to assure good indoor air quality, they are as follows;

- Remove and replace the water damaged ceiling tiles within the facility as soon as feasible and replace ceiling tiles in the future within 24 to 48 hours after showing signs of water damage.
- Have the Men's Locker Room thoroughly cleaned to include all surfaces, lockers, clothing, and contents.

Methodology

The testing and analytical protocols for this assessment were based on information and methodologies prescribed by American Society of Heating, Refrigeration, and Air conditioning Engineers (ASHRAE), the American Conference of Governmental Industrial Hygienist (ACGIH), the United States Environmental Protection Agency (USEPA), Occupational Safety & Health Administration (OSHA), the World-Wide Standards for Exposures to Bacteria and Mold, and our professional experience.

ESHA appreciates the opportunity to assist you with your Indoor Air Quality needs. Should you have any questions or additional needs feel free to contact us at 207.845.2711.

Sincerely,


Mark P. Coleman, CIE, CMR
President

ASSESSMENT LIMITATIONS

The observations, conclusions and recommendations described in this assessment report were made under the conditions stated herein, and were arrived at in accordance with generally accepted standards related to indoor air quality investigations and good industrial hygiene practice. The conclusions presented in the report were based solely upon the services described herein, and not on scientific tasks or procedures beyond the scope of described services.

The purpose of this survey was to evaluate the potential presence of microbial contamination in the targeted study areas and do not represent other conditions outside our scope of work. Observations were made of the structure as indicated within the report and samples were collected only on the day of the survey at represent a finite period of time.

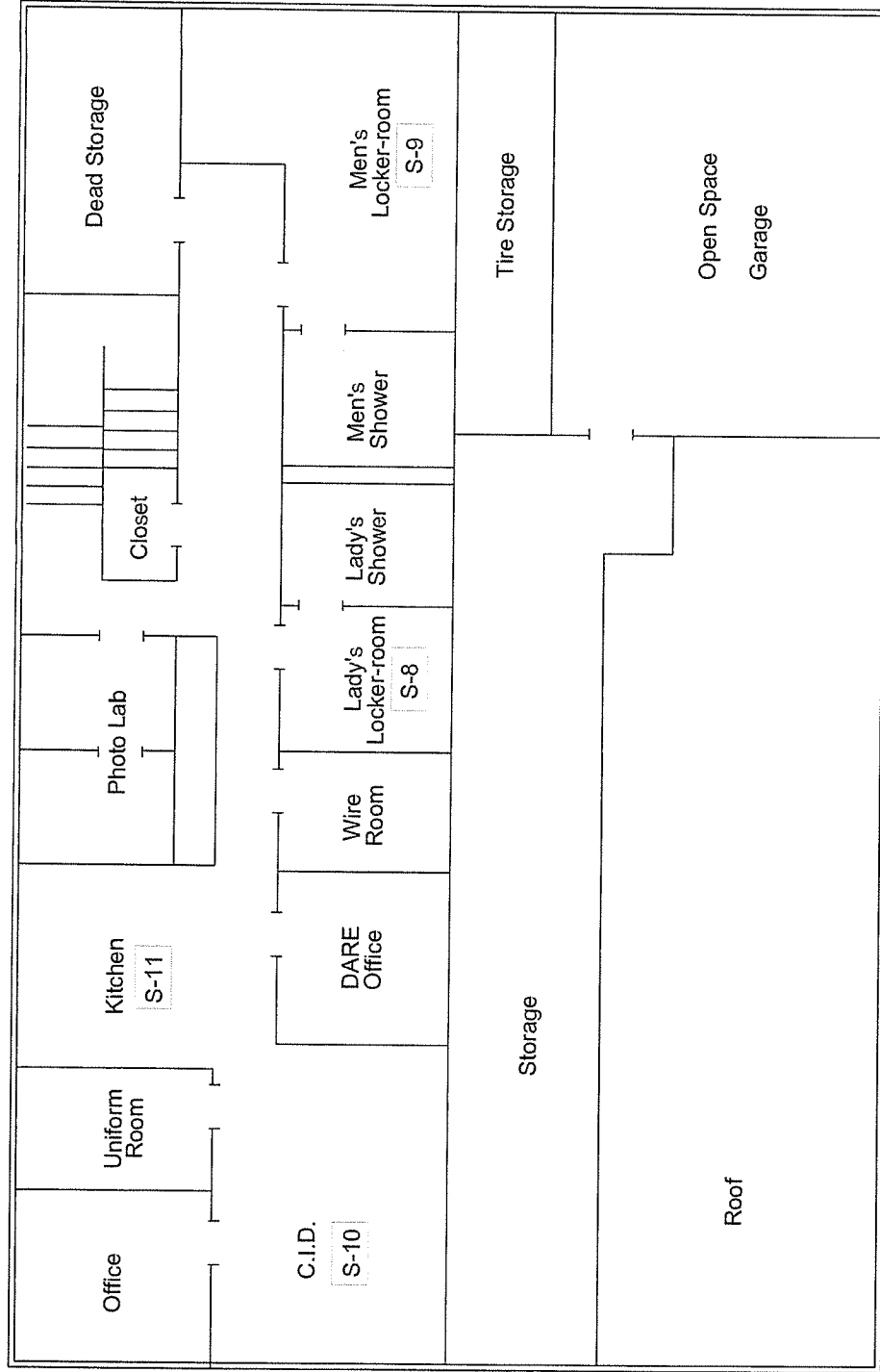
Where such quantitative laboratory analyses have been conducted by an outside laboratory, ESHA has relied upon the data provided, and has not conducted an independent evaluation of the reliability of the data. These data have been reviewed and interpretations made as presented in the report.

Moreover, it should be noted that variations in the types and concentrations of contaminants including mold, and variations in their distribution may occur due to life cycle, uncontrolled or incidental disturbance, and ambient conditions. Should additional data become available in the future, this data should be reviewed by ESHA, and the conclusions and recommendations presented therein modified accordingly.

The report has been prepared for the exclusive use of the **City of Bath** in accordance with generally accepted indoor air quality and industrial hygiene practice. No other warranty, expressed or implied, is made.

SECTION 2.0

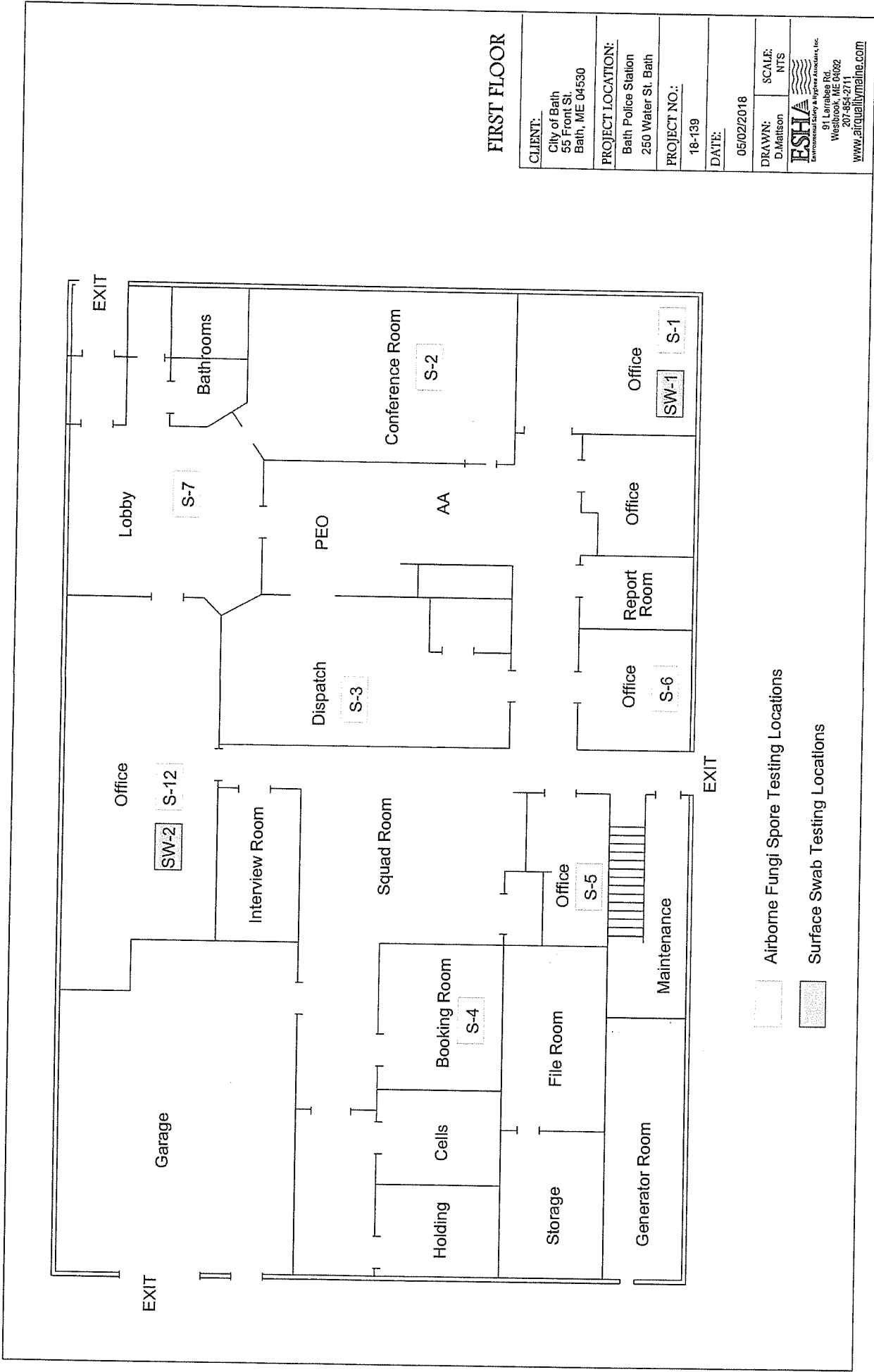
ANALYTICAL TABLES & REPORTS



□ Airborne Fungi Spore Testing Locations

SECOND FLOOR

CLIENT:		City of Bath 55 Front St. Bath, ME 04530
PROJECT LOCATION:		Bath Police Department 250 Water St. Bath
PROJECT NO.:		18-139
DATE:		05/02/2018
DRAWN:	SCALE:	NTS
D. Mallison	NTS	
 ESHA Environmental Safety & Hygiene Associates, Inc. 91 Larrabee Rd. Westbrook, ME 04092 207-654-2711 www.airqualitymaine.com		



FIRST FLOOR

CLIENT:	City of Bath 55 Front St. Bath, ME 04530
PROJECT LOCATION:	Bath Police Station 250 Water St. Bath
PROJECT NO.:	18-139
DATE:	05/02/2018
DRAWN:	D. Mattison
SCALE:	NTS
ESHA	Environmental Safety & Hygiene Associates, Inc. 91 Leirrabeg Rd. Westbrook, ME 04092 207-454-2711 www.airqualitymaine.com

Airborne Fungi Spore Testing Summary

Table 1
Page 1 of 2

Client: City of Bath
55 Front Street
Bath, Maine 04530
Project # 18-139

Testing Date: April 24, 2018
Testing Location: Bath Police Station
250 Water St. Bath

Sample Id	Location/Description	Total Fungi <i>Ct./m3</i>	Species Identification <i>(spore types)</i>	Fungi Count <i>per Species</i>
OD-1	Outdoors	1,290	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Myxomycetes	100 20 950 200 20
S-1	See Floor Plan <i>Chief</i>	590	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Ganoderma Myxomycetes	40 100 390 20 20 20
S-2	See Floor Plan <i>Conference Rm</i>	720	Ascospores Aspergillus/Penicillium Basidiospores Chaetomium Cladosporium	20 60 580 20 40
S-3	See Floor Plan <i>Dispatch</i>	570	Ascospores Basidiospores Cladosporium Myxomycetes	60 450 40 20
S-4	See Floor Plan <i>Booking</i>	360	Basidiospores Cladosporium Myxomycetes	300 40 20
S-5	See Floor Plan <i>Shelby</i>	274	Aspergillus/Penicillium Basidiospores Curvularia Stachybotrys/Memnoniella	20 240 7 7
S-6	See Floor Plan <i>Sgt</i>	367	Aspergillus/Penicillium Basidiospores Epicoccum Myxomycetes Pithomyces	100 200 7 40 20
S-7	See Floor Plan <i>Lobby</i>	1,720	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium	60 20 1,300 340

Results continued on page (2)

Airborne Fungi Spore Testing Summary

Table 1
Page 2 of 2

Client: City of Bath
55 Front Street
Bath, Maine 04530
Project # 18-139

Testing Date: April 24, 2018

Testing Location: Bath Police Station
250 Water St. Bath

Sample Id	Location/Description	Total Fungi <i>Ct./m3</i>	Species Identification <i>(spore types)</i>	Fungi Count <i>per Species</i>
S-8	See Floor Plan <i>Lady's locker</i>	517	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Epicoccum	20 40 410 40 7
S-9	See Floor Plan <i>Mens locker</i>	1,840	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Curvularia Epicoccum Ganoderma Myxomycetes Pithomyces	40 1,100 200 300 20 40 20 100 20
S-10	See Floor Plan <i>CI D</i>	947	Aspergillus/Penicillium Basidiospores Cladosporium Myxomycetes Pithomyces Unidentifiable Spores	240 640 20 20 7 20
S-11	See Floor Plan <i>Kitchen</i>	1,037	Alternaria (Ulocladium) Aspergillus/Penicillium Basidiospores Cladosporium Myxomycetes Pithomyces Rust	20 260 620 90 7 20 20
S-12	See Floor Plan <i>Patrol</i>	947	Alternaria (Ulocladium) Ascospores Aspergillus/Penicillium Basidiospores Bipolaris Cladosporium Curvularia Myxomycetes Pithomyces Unidentifiable Spores	7 20 200 520 20 100 20 20 20 20

End of Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
<http://www.EMSL.com> / cinnmicrolab@emsl.com

Order ID: 371807047
Customer ID: ESH50
Customer PO:
Project ID:

Attn: Mark Coleman
Environmental Safety & Hygiene Assoc.
91 Larrabee Rd
Westbrook, ME 04092

Phone: (207) 756-9429
Fax:
Collected: 04/24/2018
Received: 04/25/2018
Analyzed: 05/01/2018

Proj: 18-133 Bath Police Sta.

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	371807047-0001			371807047-0002			371807047-0003		
Client Sample ID:	OD-1			S-1			S-2		
Volume (L):	150			150			150		
Sample Location:	Outdoors			See Floor Plan			See Floor Plan		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	6	100	7.8	2	40	6.8	1	20	2.8
Aspergillus/Penicillium	1	20	1.6	5	100	16.9	3	60	8.3
Basidiospores	44	950	73.6	18	390	66.1	27	580	80.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	1	20	2.8
Cladosporium	7	200	15.5	1	20	3.4	2	40	5.6
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	1	20	3.4	-	-	-
Myxomycetes++	1	20	1.6	1	20	3.4	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	59	1290	100	28	590	100	34	720	100
Hyphal Fragment	1	20	-	1	20	-	-	-	-
Insect Fragment	-	-	-	-	-	-	-	-	-
Pollen	13	280	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. *** Denotes particles found at 300X. *-* denotes not detected. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 05/02/2018 10:17:12

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
<http://www.EMSL.com> / cinnmicrolab@emsl.com

Order ID: 371807047
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Attn: Mark Coleman
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Phone: (207) 756-9429
Fax:
Collected: 04/24/2018
Received: 04/25/2018
Analyzed: 05/01/2018

Proj: 18-133 Bath Police Sta.

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	371807047-0004			371807047-0005			371807047-0006		
Client Sample ID:	S-3			S-4			S-5		
Volume (L):	150			150			150		
Sample Location:	See Floor Plan			See Floor Plan			See Floor Plan		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	3	60	10.5	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-	1	20	7.3
Basidiospores	21	450	78.9	14	300	83.3	11	240	87.6
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	2	40	7	2	40	11.1	-	-	-
Curvularia	-	-	-	-	-	-	1*	7*	2.6
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	1	20	3.5	1	20	5.6	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	1*	7*	2.6
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	27	570	100	17	360	100	14	274	100
Hyphal Fragment	1	20	-	2	40	-	1	20	-
Insect Fragment	1*	7*	-	-	-	-	-	-	-
Pollen	-	-	-	1	20	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 05/02/2018 10:17:12

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com



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Customer ID: ESH50
Customer PO:
Project ID:

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Environmental Safety & Hygiene Assoc.
91 Larrabee Rd
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Phone: (207) 756-9429
Fax:
Collected: 04/24/2018
Received: 04/25/2018
Analyzed: 05/01/2018

Proj: 18-133 Bath Police Sta.

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Appendix A: Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)									
Lab Sample Number:	371807047-0007			371807047-0008			371807047-0009		
Client Sample ID:	S-6			S-7			S-8		
Volume (L):	150			150			150		
Sample Location:	See Floor Plan			See Floor Plan			See Floor Plan		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-
Ascospores	-	-	-	3	60	3.5	1	20	3.9
Aspergillus/Penicillium	6	100	27.2	1	20	1.2	2	40	7.7
Basidiospores	9	200	54.5	60	1300	75.6	19	410	79.3
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	-	-	-	16	340	19.8	2	40	7.7
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	1*	7*	1.9	-	-	-	1*	7*	1.4
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	2	40	10.9	-	-	-	-	-	-
Pithomyces++	1	20	5.4	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	19	367	100	80	1720	100	25	517	100
Hyphal Fragment	4	90	-	-	-	-	1	20	-
Insect Fragment	-	-	-	-	-	-	1*	7*	-
Pollen	-	-	-	1	20	-	1	20	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	2	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	3	-	-	2	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

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Phone: (207) 756-9429
Fax:
Collected: 04/24/2018
Received: 04/25/2018
Analyzed: 05/01/2018

Proj: 18-133 Bath Police Sta.

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)									
Lab Sample Number:	371807047-0010			371807047-0011			371807047-0012		
Client Sample ID:	S-9			S-10			S-11		
Volume (L):	150			150			150		
Sample Location:	See Floor Plan			See Floor Plan			See Floor Plan		
Spore Types	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total	Raw Count	Count/m³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	-	1	20	1.9
Ascospores	2	40	2.2	-	-	-	-	-	-
Aspergillus/Penicillium	49	1100	59.8	11	240	25.3	12	260	25.1
Basidiospores	8	200	10.9	30	640	67.6	29	620	59.8
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	14	300	16.3	1	20	2.1	4	90	8.7
Curvularia	1	20	1.1	-	-	-	-	-	-
Epicoccum	2	40	2.2	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1	20	1.1	-	-	-	-	-	-
Myxomycetes++	6	100	5.4	1	20	2.1	1*	7*	0.7
Pithomyces++	1	20	1.1	1*	7*	0.7	1	20	1.9
Rust	-	-	-	-	-	-	1	20	1.9
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	1	20	2.1	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	84	1840	100	45	947	100	49	1037	100
Hyphal Fragment	6	100	-	4	90	-	2	40	-
Insect Fragment	1	20	-	-	-	-	-	-	-
Pollen	2	40	-	2	40	-	-	-	-
Analyt. Sensitivity 600x	-	21	-	-	21	-	-	21	-
Analyt. Sensitivity 300x	-	7*	-	-	7*	-	-	7*	-
Skin Fragments (1-4)	-	3	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	4	-	-	3	-	-	2	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

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Attn: Mark Coleman
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91 Larrabee Rd
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Phone: (207) 756-9429
Fax:
Collected: 04/24/2018
Received: 04/25/2018
Analyzed: 05/01/2018

Proj: 18-133 Bath Police Sta.

Test Report: Allergenco-D(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number:	371807047-0013		
Client Sample ID:	S-12		
Volume (L):	150		
Sample Location:	See Floor Plan		
Spore Types	Raw Count	Count/m ³	% of Total
Alternaria (Ulocladium)	1*	7*	0.7
Ascospores	1	20	2.1
Aspergillus/Penicillium	7	200	21.1
Basidiospores	24	520	54.9
Bipolaris++	1	20	2.1
Chaetomium	-	-	-
Cladosporium	5	100	10.6
Curvularia	1	20	2.1
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	1	20	2.1
Pithomyces++	1	20	2.1
Rust	-	-	-
Scopulariopsis/Microascus	-	-	-
Stachybotrys/Memnoniella	-	-	-
Unidentifiable Spores	1	20	2.1
Zygomycetes	-	-	-
Total Fungi	43	947	100
Hyphal Fragment	2	40	-
Insect Fragment	-	-	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	21	-
Analyt. Sensitivity 300x	-	7*	-
Skin Fragments (1-4)	-	2	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	3	-

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or Other Approved Signatory

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Initial report from: 05/02/2018 10:17:12

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Culturable Bacteria (TSA) Testing Summary

Table 2
Page 1 of 1

Client: City of Bath
55 Front Street
Bath, Maine 04530
Project # 18-139

Testing Date: April 24, 2018
Testing Location: Bath Police Station
250 Water St. Bath

Sample Id	Location/Description	Total Bacteria CFU/m ³	Species Identification (spore types)	Bacteria Count per Species
OD-1	Outdoors	180	Gram positive cocci Gram positive rod	72 108
S-1	See Floor Plan <i>Club</i>	36	Gram negative rod Gram positive cocci	18 18
S-2	See Floor Plan <i>Conference Rm</i>	108	Gram positive cocci Gram positive rod	90 18
S-3	See Floor Plan <i>Dispatch</i>	180	Gram positive cocci Gram positive rod	162 18
S-4	See Floor Plan <i>Bookings</i>	90	Gram positive cocci	90
S-5	See Floor Plan <i>Shelby</i>	180	Gram positive cocci Gram positive rod	126 54
S-6	See Floor Plan <i>Sgt</i>	18	Gram positive rod	18
S-7	See Floor Plan <i>Lobby</i>	18	Gram positive cocci	18
S-8	See Floor Plan <i>hobby locker</i>	72	Gram positive cocci	72
S-9	See Floor Plan <i>mens locker</i>	504	Gram positive cocci Gram positive rod	342 162
S-10	See Floor Plan <i>CITD</i>	72	Gram positive cocci	72
S-11	See Floor Plan <i>Kitchen</i>	72	Gram positive cocci Gram positive rod	54 18
S-12	See Floor Plan <i>Patrol</i>	216	Gram negative rod Gram positive cocci Gram positive rod	18 126 72

End of Results

**EMSL Analytical, Inc.**

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ProjectID:

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Phone: (207) 756-9429
Fax:
Received: 04/25/18 10:25 AM
Analysis Date: 5/1/2018
Collected: 4/24/2018

Project: 18-133 Bath Police Sta.

**Test Report: Identification and Enumeration of Culturable Bacteria by Air (Gram Stain
(EMSL Method MICRO-SOP-132))**

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m ³)	Bacteria Identification	Colony Count	CFU/m ³
OD-1 371807049-0001 Background	Outdoors	56.6	TSA	35	18	Gram positive cocci Gram positive rod Total	4 6 10	72 108 180
S-1 371807049-0002	See Floor Plan	56.6	TSA	35	18	Gram negative rod Gram positive cocci Total	1 1 2	18 18 36
S-2 371807049-0003	See Floor Plan	56.6	TSA	35	18	Gram positive cocci Gram positive rod Total	5 1 6	90 18 108
S-3 371807049-0004	See Floor Plan	56.6	TSA	35	18	Gram positive cocci Gram positive rod Total	9 1 10	162 18 180
S-4 371807049-0005	See Floor Plan	56.6	TSA	35	18	Gram positive cocci Total	5 5	90 90
S-5 371807049-0006	See Floor Plan	56.6	TSA	35	18	Gram positive cocci Gram positive rod Total	7 3 10	126 54 180
S-6 371807049-0007	See Floor Plan	56.6	TSA	35	18	Gram positive rod Total	1 1	18 18

Analyst(s)

Michael Ross (13)

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

Positive hole correction factors have not been applied to the reported data. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation of the data contained in this report is the responsibility of the client. Samples received in good condition unless otherwise noted.

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Initial report from 05/01/2018 12:31:15

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Phone: (207) 756-9429
Fax:
Received: 04/25/18 10:25 AM
Analysis Date: 5/1/2018
Collected: 4/24/2018

Project: 18-133 Bath Police Sta.

**Test Report: Identification and Enumeration of Culturable Bacteria by Air (Gram Stain
(EMSL Method MICRO-SOP-132))**

Sample Description	Location	Volume (L)	Media	Incubation Temp (C)	Sensitivity (CFU/m ³)	Bacteria Identification	Colony Count	CFU/m ³
S-7 371807049-0008	See Floor Plan	56.6	TSA	35	18	<i>Gram positive cocci</i>	1	18
						Total	1	18
S-8 371807049-0009	See Floor Plan	56.6	TSA	35	18	<i>Gram positive cocci</i>	4	72
						Total	4	72
S-9 371807049-0010	See Floor Plan	56.6	TSA	35	18	<i>Gram positive cocci</i>	19	342
						<i>Gram positive rod</i>	9	162
						Total	28	504
S-10 371807049-0011	See Floor Plan	56.6	TSA	35	18	<i>Gram positive cocci</i>	4	72
						Total	4	72
S-11 371807049-0012	See Floor Plan	56.6	TSA	35	18	<i>Gram positive cocci</i>	3	54
						<i>Gram positive rod</i>	1	18
						Total	4	72
S-12 371807049-0013	See Floor Plan	56.6	TSA	35	18	<i>Gram negative rod</i>	1	18
						<i>Gram positive cocci</i>	7	126
						<i>Gram positive rod</i>	4	72
						Total	12	216

No discernable blank was submitted with this group of samples.

Analyst(s)

Michael Ross (13)

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Accredited #100194

Initial report from 05/01/2018 12:31:15

Surface Swab Bacteria & Fungi Testing Summary

Table 3
Page 1 of 1

Client: City of Bath
55 Front Street
Bath, Maine 04530
Project # 18-139

Testing Date: April 24, 2018

Testing Location: Bath Police Station
250 Water St. Bath

Sample Id	Location/Description	Bacteria (TSAB)				Fungi (MEA)	
		Total CFU/in2	Identification/ Ct. per species		Total CFU/in2	Identification/ Ct. per species	
SW-1	Chief's Office	200	Gram positive cocci	200	100	Cladosporium sp.	100
SW-2	Office	100	Gram positive cocci	100	200	Alternaria chartarum	100
						Curvularia sp.	100

End of results

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91 Larrabee Rd
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Phone: (207) 756-9429

Fax:

Received: 04/25/18 10:25 AM

Analysis Date: 5/1/2018

Collected: 4/24/2018

Project: 18-133 Bath Police Sta.

Test Report: Identification and Enumeration of Culturable Bacteria by Swab
(Gram Stain (EMSL Method MICRO-SOP-132))

Sample Description	Location	Media	Temp (C)	Sample Measure (in ²)	Analytical Sensitivity (CFU/in ²)	Dilution	Bacteria Identification	Colony Count	CFUs (CFU/in ²)
SW-1	Chief's Office	TSA	35	1	100	100	Gram positive cocci	2	200
Total								2	200
371807048-0001									
SW-2	Office	TSAB	35	1	100	100	Gram positive cocci	1	100
Total								1	100
371807048-0002									

No discernable blank was submitted with this group of samples

Analyst(s)

Michael Ross (2)

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

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Initial report from 05/02/2018 14:06:44

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Environmental Safety & Hygiene Assoc.
91 Larrabee Rd
Westbrook, ME 04092

Phone: (207) 756-9429

Fax:

Received: 04/25/18 10:25 AM

Analysis Date: 5/4/2018

Collected: 4/24/2018

Project: 18-133 Bath Police Sta.

Test Report: Identification and Enumeration of Culturable Fungi by Swab
(Genus Level ID (EMSL Method MICRO-SOP-202))

Sample Description	Sample Location	Temp (C)	Sample Measure (in ²)	Analytical Sensitivity (CFU/in ²)	Dilution	Fungal Identification	Colony Count	CFUs (CFU/in ²)	Percent of Total
SW-1	Chief's Office	25	1	100	100	<i>Cladosporium sp.</i>	1	100	100.0
371807048-0001	Media: MEA,CELL					Total	1	100	
Customer Sample									
SW-2	Office	25	1	100	100	<i>Alternaria chartarum</i>	1	100	50.0
371807048-0002	Media: MEA,CELL			100	100	<i>Curvularia sp.</i>	1	100	50.0
						Total	2	200	
Customer Sample									

No discernable blank was submitted with this group of samples

Analyst(s)

Zeljko Jurjevic (2)

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

The level of detection is equal to 1 CFU per plate of sample analyzed. CFU = colony forming unit. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation of the data contained in this report is the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Accredited #100194

Initial report from 05/04/2018 15:19:46

Test Report CullFung_7.35.9 Printed: 5/4/2018 3:19:46 PM

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SECTION 3.0

WORLDWIDE EXPOSURE STANDARDS

CEILING LIMIT / UNACCEPTABLE Airborne Fungi Sampling

Fungi Spore Trap Sampling (ct./m³)

> 10,000 ct/m³ - *all types of mold*

Building occupants whose health conditions may be affected by viable mold spore exposure, such as immuno-compromised individuals, the “evacuation” level may have to be significantly less.

> 25,000 ct/m³ - *total spore levels*

Total mold spore levels in excess of 25,000 ct/m³ can produce allergic symptoms in a considerable percentage of the population. Extremely sensitive people could have severe, health symptoms.

CLEARANCE TESTING / POST REMEDIATION Airborne Fungi Sampling

< 2,000 ct/m³

(1/3 Cladosporium, 1/3 Aspergillus/Penicillium, 1/3 other genera and ≤ 22 ct/m³ Stachybotrys). Visual clearance should also be conducted. Culturable testing is also recommended if indoor versus outdoor comparisons are being utilized as a clearance criteria.

CEILING LIMITS FOR HOSPITALS AND OTHER SUSCEPTIBLE OCCUPANT ENVIRONMENTS

> 1 cfu/m³ - *Aspergillus spp.*

> 200 cfu/m³ - *mixed mold species*

Hospitals are a much larger population of immuno-compromised occupants than in most residential or commercial buildings.

BACTERIA LEVELS

> 1,000 cfu/m³ - *Gram-negative*

OR

> 500 cfu/m³ - *pathogenic*

50 EU/m³ - *Upper Level of Endotoxin Testing; used as a more comprehensive assessment to detect bacteria remnants.*

³ Endotoxin units per cubic meter of air

Summary of Worldwide Standards for Mold Exposures

PERMISSIBLE / ACCEPTABLE LEVELS **Airborne Fungi Sampling**

Fungi Spore Trap Sampling (ct./m³)

1,000 ct/m³ - 10,000 ct/m³¹

The spore levels between 1,000 and 10,000 ct/m³ may be acceptable to the average healthy person indoors, but extremely sensitive individuals may experience symptoms below 4,225 ct/m³.

ACTION LEVEL **Airborne Fungi Sampling**

> 4,250 ct/m³ - *total spore levels*

This would warrant some investigation and possible action to lower exposure levels in the environment. This would especially be true in commercial environments where better air filtration efficiency is usually present.

CEILING LIMIT / UNACCEPTABLE **Airborne Fungi Sampling**

≥ 10,000 ct/m³ - *all types of mold*

Building occupants whose health conditions may be affected by viable mold spore exposure, such as immuno-compromised individuals, the “evacuation” level may have to be significantly less.

> 25,000 ct/m³ - *total spore levels*

Total mold spore levels in excess of 25,000 ct/m³ can produce allergic symptoms in a considerable percentage of the population. Extremely sensitive people could have severe, life-threatening symptoms.

CLEARANCE TESTING / POST REMEDIATION **Airborne Fungi Sampling**

<2,000 ct/m³

(1/3 Cladosporium, 1/3 Aspergillus/Penicillium, 1/3 other genera and ≤ 22 ct/m³ Stachybotrys). Visual clearance should also be conducted. Culturable testing is also recommended if indoor versus outdoor comparisons are being utilized as a clearance criteria.

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Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Peter L. Lincoln, P.E.
William D. Haney, P.E.
Donald A. Bragdon (1945-93)

FILE

March 13, 2000

Chief Peter Lizanecz
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: Proposal for engineering design services related to structural evaluation of the Bath Police Department

Dear Chief Lizanecz:

At your request Lincoln/Haney Engineering Associates is submitting this proposal for engineering services to evaluate conditions at the Bath Police Department with respect to observed building movements. Specifically, the objective of the evaluation will be to:

1. determine the cause of the movements
2. determine whether movement is likely to continue and approximately how much
3. determine what steps could be taken to prevent or minimize additional movement and to estimate the associated costs
4. assess whether the movement represents any potential danger (near term or in the future)

Our work will involve conducting on-site observations of existing conditions. We will also perform field measurements to determine the magnitude of building movements and the location of the most significant movement.

Assisting us on this project will be the geotechnical engineering firm of R.W. Gillespie Associates. They will be responsible for evaluating existing soil conditions by means of several test borings to be drilled around the building and possibly within the sallyport. Information gained from the borings will help to determine if additional building movement is likely and, if so, how much. This information will also help us to determine how additional movement could be prevented or minimized.

Upon completion of our field work we will submit a report that will present the results of our evaluation. We anticipate that our report would be completed within 90 days after receiving authorization to proceed.

The proposed not-to-exceed fee for the engineering evaluation, including the services of R.W. Gillespie Associates, is \$6,500. Actual charges would be based on hourly rates and reimbursable expenses.

If this proposal satisfactorily sets forth your understanding of the agreement between us, we ask that both the original and the enclosed copy be signed and dated in the spaces provided. The original is for your records. Please return the copy to us. If acceptance of this proposal is delayed beyond a period of 120 days from the date of this proposal, we would request an opportunity to review the proposed fees before entering into a signed agreement. If you have any questions please let me know.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.

A handwritten signature in cursive script, appearing to read "Peter L. Lincoln".

Peter L. Lincoln, P.E.

Signature

Date

C:\My Documents\Administration\Proposals\Municipal\Bath Police Dept.

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Project 2001.113

January 11, 2002

Peter L. Lincoln, P.E.
William D. Haney, P.E.
Donald A. Bragdon (1945-93)

Chief Pete Lizanecz
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: Building settlement survey

Dear Chief Lizanecz:

In July 2001 a two-man survey crew from Lincoln/Haney conducted a settlement survey of your Water Street facility for the purpose of determining if and how much the building may have settled since our initial survey in June 2000. In December 2001 our survey crew returned again to confirm several readings from the July 2001 survey that appeared to be inconsistent with results from our initial survey in 2000. We suspect that these inconsistencies are related to the fact that our readings at the exterior perimeter of the building have been taken at the underside of the concrete band that "wraps" around the building. In several places this beam has no defined edge upon which to hold our survey rod. Consequently, from survey to survey there may be sight inconsistencies in where we hold the rod which could cause readings to be off by $\frac{1}{8}$ " or so. Although this could make it difficult to detect slight movements from survey to survey, cumulative movement over time will certainly be detectable.

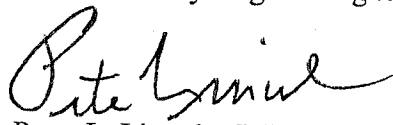
The 2001 survey indicates that since the survey in 2000 the east (front) wall of the building has settled, on the average, approximately $\frac{1}{4}$ " and that there has been negligible settlement at the west (rear) wall of the building. Survey results from within the building indicate that the steel beam line at the second floor has settled from $\frac{3}{8}$ " to $\frac{5}{8}$ ".

The fact that the settlement at the perimeter of the building since June 2000 has been small whereas settlement within the building during the same period has been somewhat greater is not a total surprise. This is due to the fact that footing soil pressures are significantly less at the perimeter of the building while footing pressures at interior building columns are substantially greater.

The results of the 2001 survey are consistent with conclusions reached in our original report that "additional settlements ranging from 1" to 3" are likely to occur within the next 5 to 10 years." Furthermore, we continue to suggest that annual surveys be conducted in order to gain additional information with regard to the magnitude and rate of settlement.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.



Peter L. Lincoln, P.E.

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Peter L. Lincoln, P.E.
William D. Haney, P.E.
Donald A. Bragdon (1945-93)

Project 2001.113

February 6, 2002

Chief Peter Lizanecz
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: Settlement survey at Bath Police Department

Dear Chief Lizanecz:

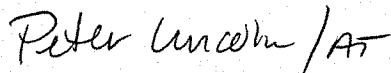
The enclosed invoice reflects hours spent to conduct our July settlement survey of the Police Department headquarters, additional time to interpret the results of the survey and prepare a letter to discuss the survey results. As I explained yesterday during our telephone conversation, we did spend additional time on site and in our office in early December to "re-check" and rationalize several measurements that seemed inconsistent. This time, which amounts to approximately \$700, is not included in this invoice since we attribute it to a "glitch" in our survey and, as such, feel that it is an inappropriate expense that should not be passed on to you.

Based on our current billing rates I anticipate the cost of future surveys to be in the range of \$800 to \$900. Consequently, if we continue to conduct annual surveys for at least the next few years, I suggest doing so for a cost not-to-exceed fee of \$900 with the actual invoice calculated on the basis of time spent and hourly billing rates.

I will touch base with you in the spring to confirm whether or not you want us to conduct another survey. In the meantime if you have any questions, comments, etc., please let me know.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.



Peter L. Lincoln, P.E.

enclosure

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Peter L. Lincoln, P.E.
William D. Haney, P.E.
Donald A. Bragdon (1945-93)

Project 2003.160

November 21, 2003

Chief Pete Lizanecz
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: 2003 settlement survey of Bath Police Station

Dear Chief Lizanecz:

On October 31, 2003 we conducted a settlement survey of Bath Police Station, approximately eleven months after our last survey. As we have done in previous surveys conducted since 2000, we determined the elevation of specific points at the exterior perimeter of the building and at an interior steel beam line that supports the second floor.

This year's survey around the exterior of the building indicates that the east (front) wall of the building has settled approximately 1/4" as compared to approximately 1/8" last year. At the west (rear) wall of the building the survey found that the building has settled approximately 1/8" as compared to negligible settlement during the previous two years. It is not clear why there would be greater settlement this year as compared to last year except for the fact that the exterior survey was conducted closer to a low tide than last year's survey. We have suspected that the building might be influenced by tidal action and this year's survey suggests that this might be the case. Nevertheless, the year-to-year changes continue to be small and gradual.

Relative to a high tide, the interior survey was conducted at a comparable time to last year's survey. Consequently, the fact that this year's survey detected negligible settlement along the interior steel beam line suggests that there truly was negligible movement within the past year. Since our initial survey in 2000 measurements along the steel beam line have consistently shown that the relative difference between the high and low points has been approximately 3 1/2". The fact that there has been no differential settlement along the steel beam line since 2000 is a good sign since differential movement between the individual beams would cause stress in the beams and their connections.

Observations of wall cracks within the building found instances where several of the cracks had increased in width by approximately 1/16". No dramatic changes were observed. From within the attic storage area we observed the steel roof beams and saw no signs of structural distress.

The results of this year's survey, like those of previous surveys, are consistent with conclusions reached in our report that was presented in 2000. At that time we stated that "additional settlements ranging from 1" to 3" are likely to occur within the next 5 to 10 years." If settlement

continues at a similar rate to what has been observed in the past three years, the total settlement after 10 years is likely to be between 1½" and 2".

The important questions are how long will it take for settlement to cease, how much settlement will have occurred by that time and what affect will additional settlement have on the structure. The fact that settlements in the past three years have been relatively small and uniform throughout the building lead me to be cautiously optimistic that settlement within the next five or six years will continue to be uniform and at a decreasing rate and that the building structure will be able to withstand the additional movement without experiencing serious structural problems. Continued annual surveys are essential to insure that there are no negative changes in the settlement pattern of the past three years and to hopefully verify that the rate of settlement is, as predicted, decreasing.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.

A handwritten signature in dark ink, appearing to read "Peter L. Lincoln". The signature is fluid and cursive, with the first name "Peter" and last name "Lincoln" clearly distinguishable.

Peter L. Lincoln, P.E.

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Project 2004.198

December 9, 2004

Peter L. Lincoln, P.E.

William D. Haney, P.E.

Donald A. Bragdon (1945-93)

Chief Pete Lizanecz
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: 2004 settlement survey of Bath Police Station

Dear Chief Lizanecz:

On October 26, 2004 we conducted a settlement survey of Bath Police Station, approximately one year after our last survey. As we have done in previous surveys conducted since 2000, we determined the elevation of specific points at the exterior perimeter of the building and at an interior steel beam line within the building that supports the second floor. We later returned on November 24 to observe exterior and interior conditions.

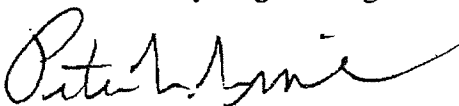
Previous surveys have led us to suspect that the building is affected by tidal movement of the soils upon which it is built. This year's survey, which was conducted approximately two hours after a high tide as compared to last year's survey that was conducted close to a low tide, found the various points around the exterior of the building to be slightly higher than last year's survey. In general this year's readings were in the range of 0" to 1/8" higher than last year.

This year's survey within the building found that elevations along the steel beam were also slightly higher than last year. We assume that this, too, is related to tidal movement of the building. A comparison of elevations along the beam indicates that there has been no significant relative change from point to point. The relative difference between the high and low points continues to be approximately 3 1/2" - unchanged since our initial survey in 2000. This is a good sign and suggests that, even if the building is continuing to settle very slowly, it is settling as a unit.

The question continues to be, as we stated in last year's report, "how long will it take for settlement to cease, how much settlement will have occurred by that time and what affect will additional settlement have on the structure." Based on survey results since 2001 that have shown settlements to be relatively small and uniform throughout the building, I remain cautiously optimistic that settlement within the next four or five years will continue to be uniform and at a decreasing rate and that the building structure will be able to withstand the additional movement without experiencing serious structural problems. Although I see no reason to suspect that conditions will change dramatically, I believe annual surveys are advisable as a means of monitoring the building.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.



Peter L. Lincoln, P.E.

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Peter L. Lincoln, P.E.
William D. Haney, P.E.
Donald A. Bragdon (1945-93)

Project 2009.129

June 2, 2010

Chief Michael W. Field
Bath Police Department
250 Water Street
Bath, ME 04530

Subject: 2009 settlement survey of the Bath Police Station at 250 Water Street in Bath, ME

Dear Chief Field:

On August 26, 2009 Lincoln/Haney Engineering conducted a settlement survey of the Bath Police Station. This was the seventh settlement survey that we've conducted since the initial survey on June 13, 2000. From 2000 to 2005 we basically conducted annual surveys except in 2001 when we conducted two surveys. No surveys were conducted from 2006 to 2008.

The surveys have typically determined the elevations of specific points at the exterior perimeter of the building and at an interior steel beam line within the building that provided support for the second floor structure.

The November 1, 2005 survey found that specific points at the exterior perimeter of the building had settled between 0" and 1/8" since the October 26, 2004 survey. This survey found that the steel beam line within the building was basically unchanged in terms of average settlement.

The 2009 survey found that the seven points along the steel beam within the building have settled an average of 1/4" since the 2005 survey, an average of approximately 1/16" per year. Similarly, at the exterior of the building settlements ranging from 0" to 1/4" have occurred since the 2005 survey. Observations from within the building found conditions related to cracked walls, etc. virtually unchanged.

As reported in 2004, the relative difference between the high and low points along the steel beam line was 3 1/2". The 2005 and 2009 surveys yielded similar results, indicating that there has been no increase in differential settlement within the building.

The relatively small settlements that were measured during the 2005 and 2009 surveys and the fact that the relative settlement along the steel beam line is virtually unchanged are positive signs suggesting that settlement continues to be small and at a uniform, slightly decreasing rate. Therefore, we continue to be optimistic that dramatic changes in the building are unlikely.

We recommend that another survey be conducted later this summer and, provided that no significant changes are detected, we suggest that future surveys be conducted every two years.

If you have any questions or need any additional information please do not hesitate to contact us.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.

Peter Lincoln/ADD

Peter L. Lincoln, P.E.

Lincoln/Haney Engineering Associates, Inc.

Structural Engineering Consultants

Michael A. Cunningham, P.E., LEED AP

September 14, 2015

Chief Michael Field
Bath Police Department
250 Water Street
Bath, Maine 04530

Re: 2015 settlement survey of the Bath Police Station at 250 Water Street

Dear Mr. Field:

On September 1, 2015 Lincoln/Haney Engineering conducted a settlement survey at the above referenced site. This was the eighth settlement survey since the initial survey conducted on June 13, 2000. Between 2000 and 2005 the surveys were conducted annually. From 2005 to 2008 no surveys were conducted. A survey was done in 2009, which was the most recent survey. Measurements taken for the current survey are compared to the 2009 measurements to determine if further movement has occurred.

As with previous surveys, exterior measurements were taken at corners and at 8 intermediate points along the west wall, 9 points along the east wall, and one point along the north and south walls. The point of measurement was the bottom of the perimeter concrete beam at the second floor level. Within the building, the point of measurement taken was the top of the structural steel beams, which extends north to south at the center of the building. Specific interior measurements were taken adjacent to each of the 7 columns.

Our findings indicate that the settlement has arrested. Along the east and west walls, discrepancies between the most recent study and the 2009 study are 1/8" to 1/4" at a few, random locations, typically with the current survey showing higher elevations. This would indicate that the current points of measurement were not precisely located at the exact location as the 2009 measurements. Since the concrete beam surfaces are somewhat irregular, a 1/4" discrepancy cannot be assumed to represent settlement unless it is part of a consistent series or it accompanies a crack. Within the building, all measurements were found to accurately match the 2009 readings.

The basic issue that the west wall slopes 1-5/16" from south to north and the north and south walls slope 3" and 4-13/16", respectively from west to east, remains as a concern for the building. This means that the east wall is approximately 5" below the southwest corner, which is believed to have negligible settlement. Within the building, the measurements concur with the exterior measurements with a south-to-north slope of approximately 2".

I believe that the foundation-soils interaction has reached a point of equilibrium, where the soils have compressed to the point that the consolidated soils are adequate to support the existing loads. For the current occupancy, sustained loading is primarily caused by the structure dead load. Soils do not typically respond to transient load changes, such as may occur from a short-term occupancy load. However, any substantial increase in loading with a duration longer than a few days, may initiate further settlements. Such loadings as a substantial storage load or an installation of new equipment may warrant a resumption of monitoring. Likewise, if a snow accumulation that approaches the design snow load remains on the roof for some weeks, this could cause further compression of the soils. Last, the tentative nature of the soils could be affected by peripheral activities. Therefore any nearby construction operations involving

ledge removal or soil compaction should be accompanied by monitoring. Barring any significant loading increase or disruption of the soils, I do not believe that regular monitoring is justified. Perhaps a repeat survey in another 6 to 8 years may be beneficial for reassurance.

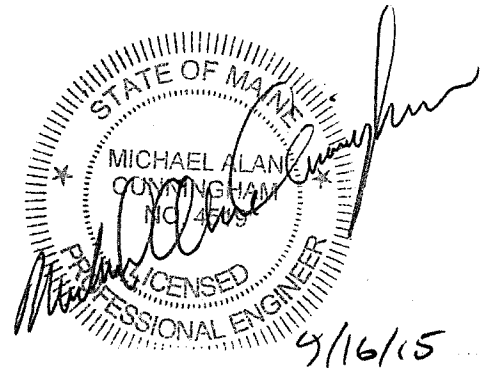
I trust that this report fulfills your current needs regarding this matter. If there are unanswered questions or if statements require further clarification, please call or email.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.



Michael A. Cunningham, P.E., LEED AP
President



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CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

CONCEPT DESIGN LAYOUTS

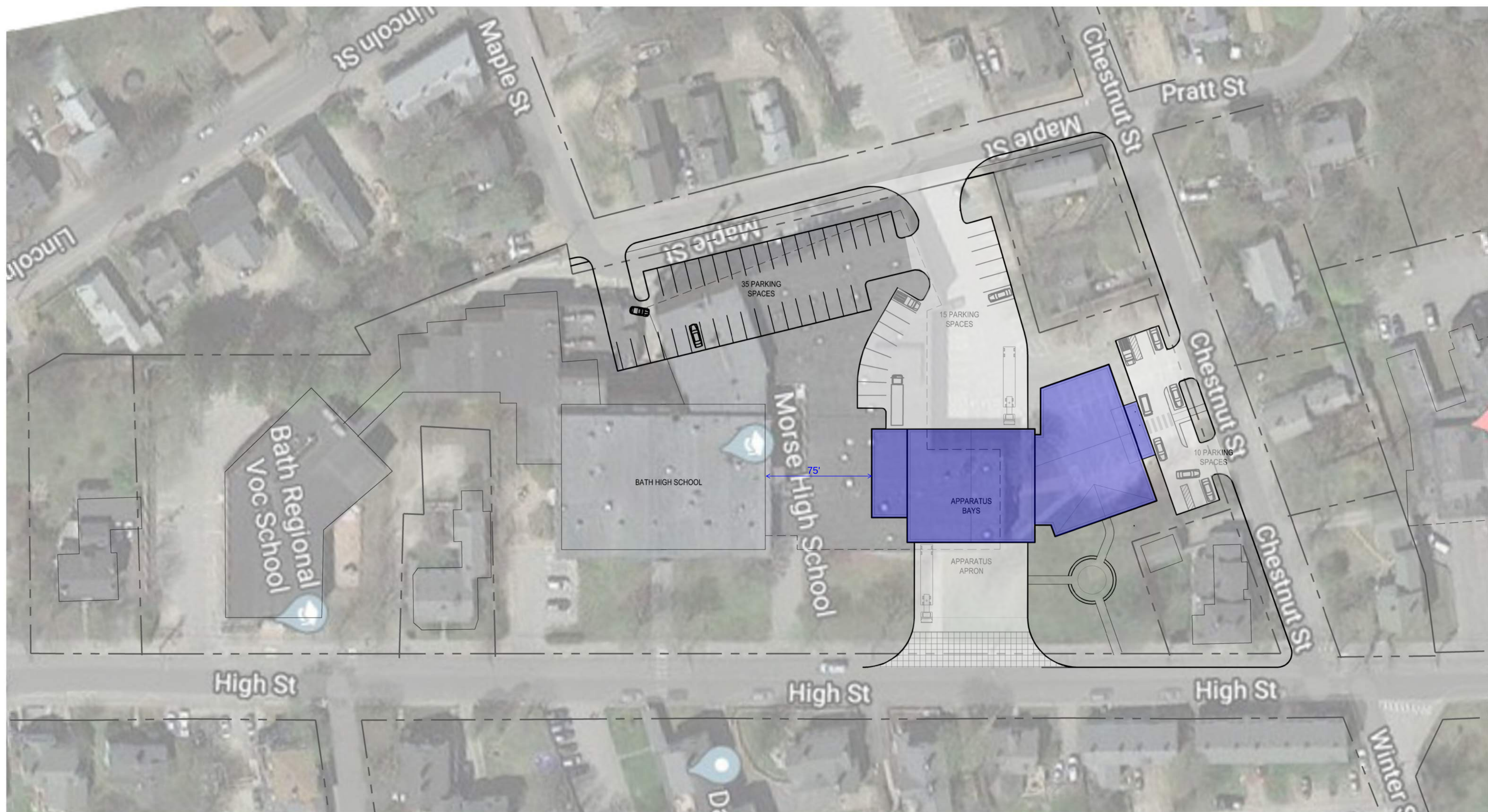
Fire Department Concepts Introduction

The graphics that follow represent the preferred concept site plan and building layout plans for a new Fire Department located on the former Morse High School site. The development scope includes a 22,157 GSF steel framed building with masonry veneer. The design intent is to develop an aesthetic that fits into the neighborhood context of High Street and complements the iconic original Morse High School building. Fire Department scope assumes roughly 2.2 acres of site development on the north portion of the site. The 58,200 GSF 1964 addition of Morse High School would be demolished to make space for this project. The building is two stories and has a footprint of 15,970 GSF with an additional 6,177 GSF occupying the second floor.

Program areas are identified by color. The main public entrance is off Chestnut Street. For increased safety, parking for visitors is separated from the aprons where fire apparatuses move in and out of the building. It is assumed that utility connections will be made off of High Street.



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Department Legend

- ADMINISTRATION
- APPARATUS
- CIRCULATION
- DAY SPACES
- FACILITY SUPPORT
- PUBLIC ACCESS AREAS
- STAFF QUARTERS
- STATIONHOUSE OPERATIONS
- VEHICLE MAINTENANCE



CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

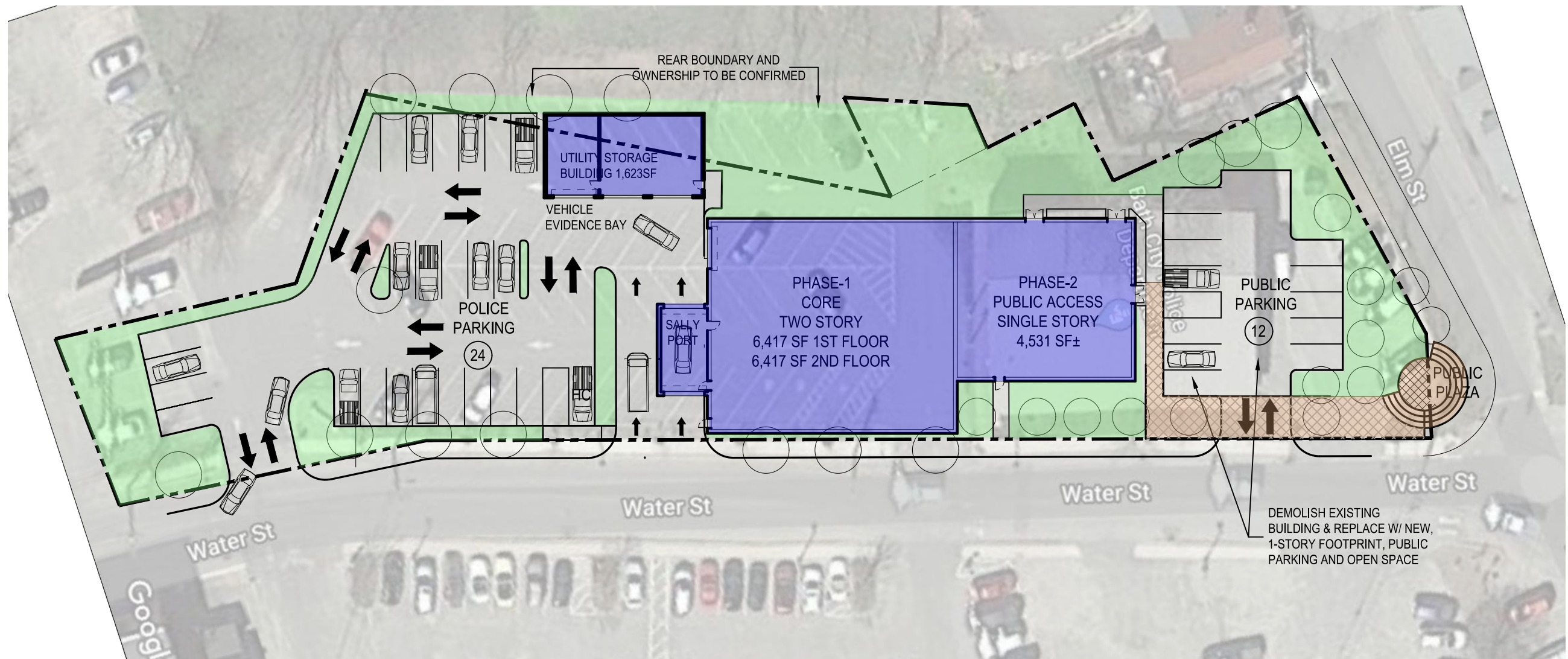
POLICE DEPARTMENT CONCEPTS INTRODUCTION

The graphics that follow represent the preferred concept site plan and building layout plans for a new Police Department located on the current Water Street site. The development scope includes a 16,843 GSF steel framed building with masonry veneer and a 1,623 GSF wood framed utility building. The design intent is to develop an aesthetic that fits into the downtown context of Water Street and creates a stronger pedestrian connection to Front Street via Elm Street. Police Department scope assumes roughly 1.0 acre of site development and would take all the existing police department site as well as the adjacent municipal lot. The western property boundary will need to be resurveyed and verified prior to commencing additional design work. The existing building would be demolished in a second phase of construction to make space for this project. The building is two stories and has a footprint of 10,426 GSF with an additional 6,417 GSF occupying the second floor.

Program areas are identified by color. The main public entrance is off Elm Street on the north end of the property. Public and staff/fleet parking are separated for safety and security. It is assumed that existing utility connections can be reused from Water Street. Additional site and building cost considerations were given to address the poor soils and building movement issues that currently affect the existing Police Department Building.

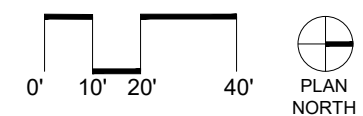


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BATH PUBLIC SAFETY FACILITY STUDY

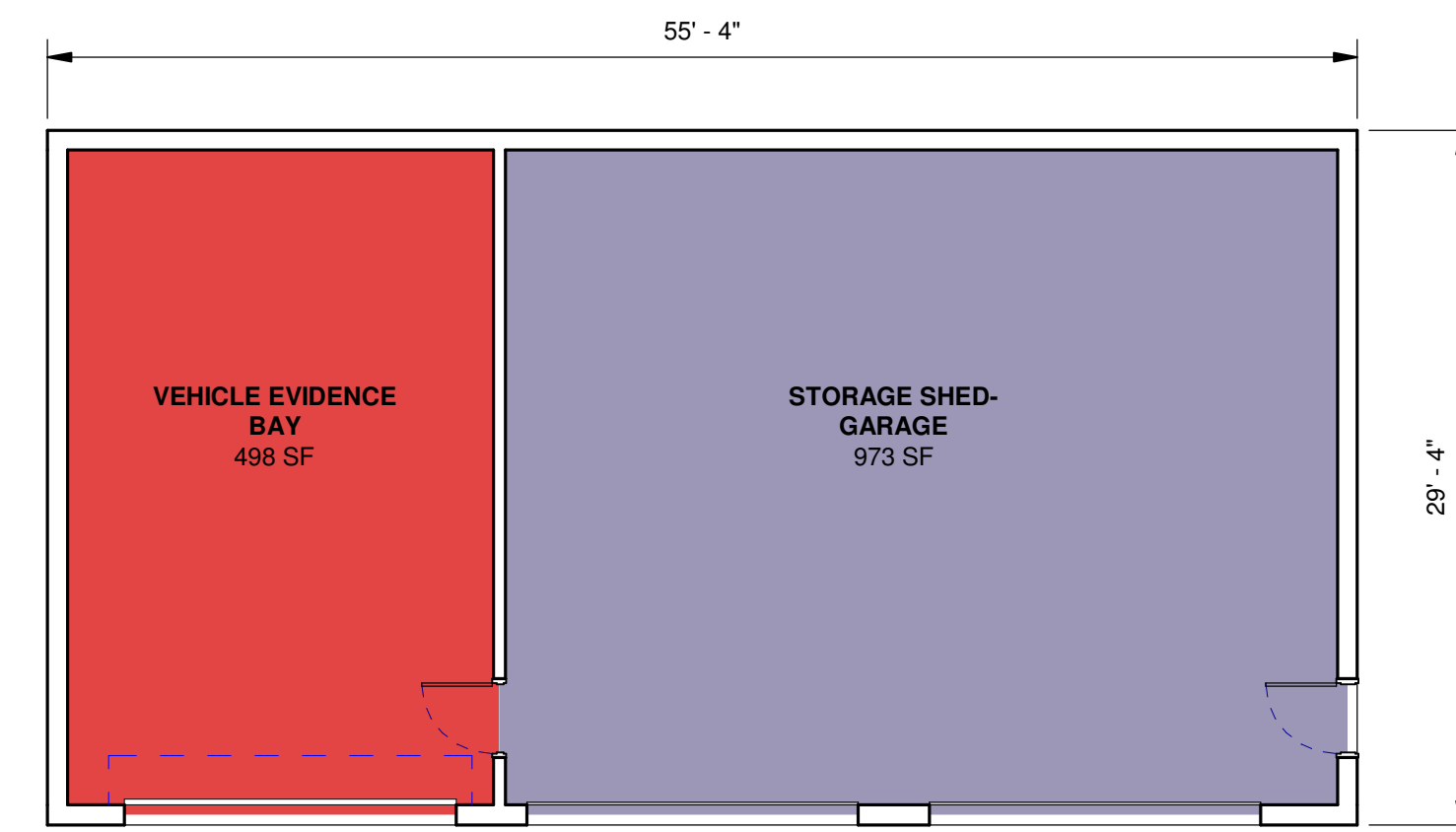
BATH, ME
HA: 20394



CONCEPT SITE PLAN BPD PREFERRED OPTION

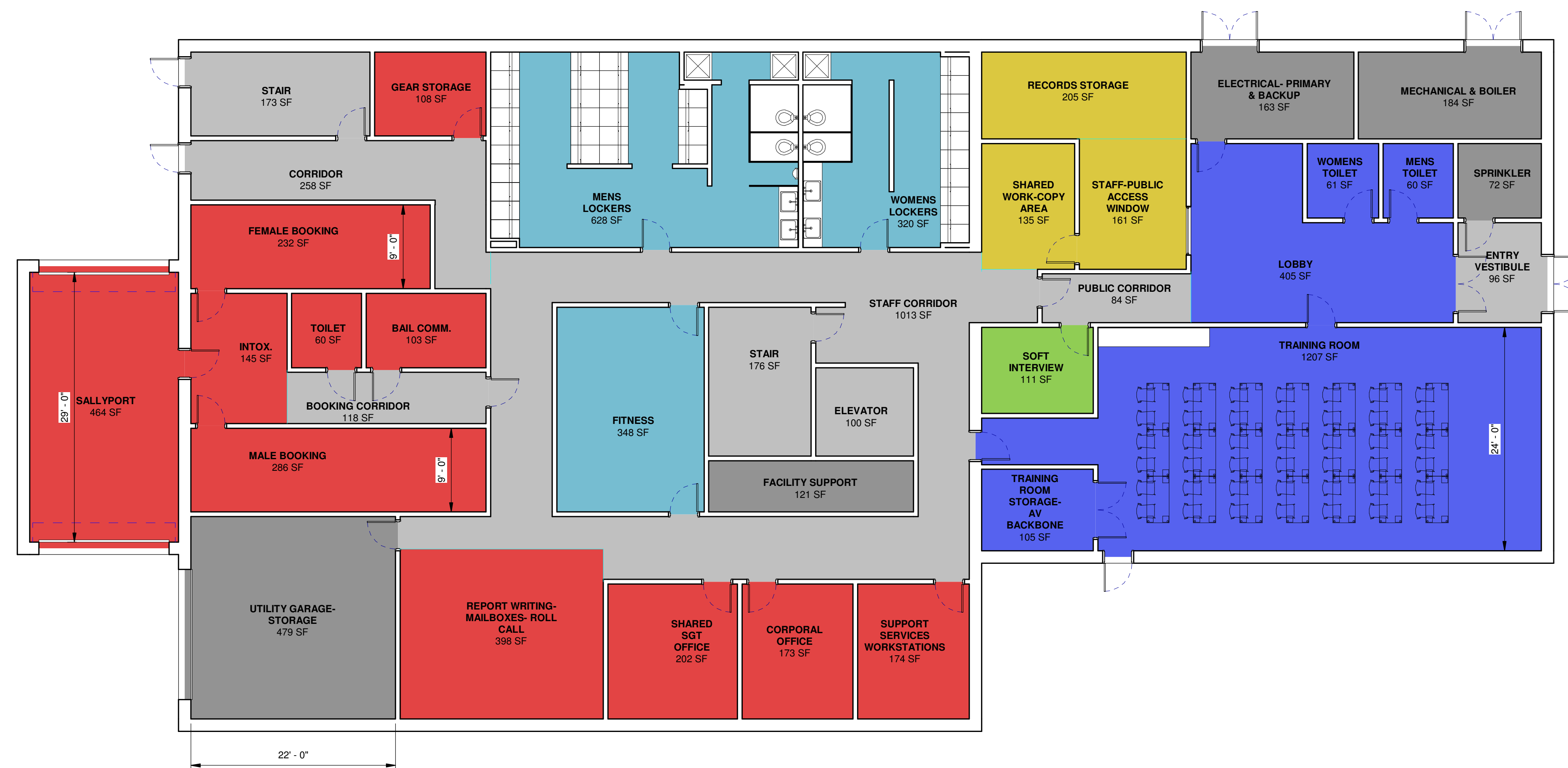
HARRIMAN 20394 OCTOBER 14, 2020

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UTILITY STORAGE BUILDING FLOOR PLAN

1,623 GSF



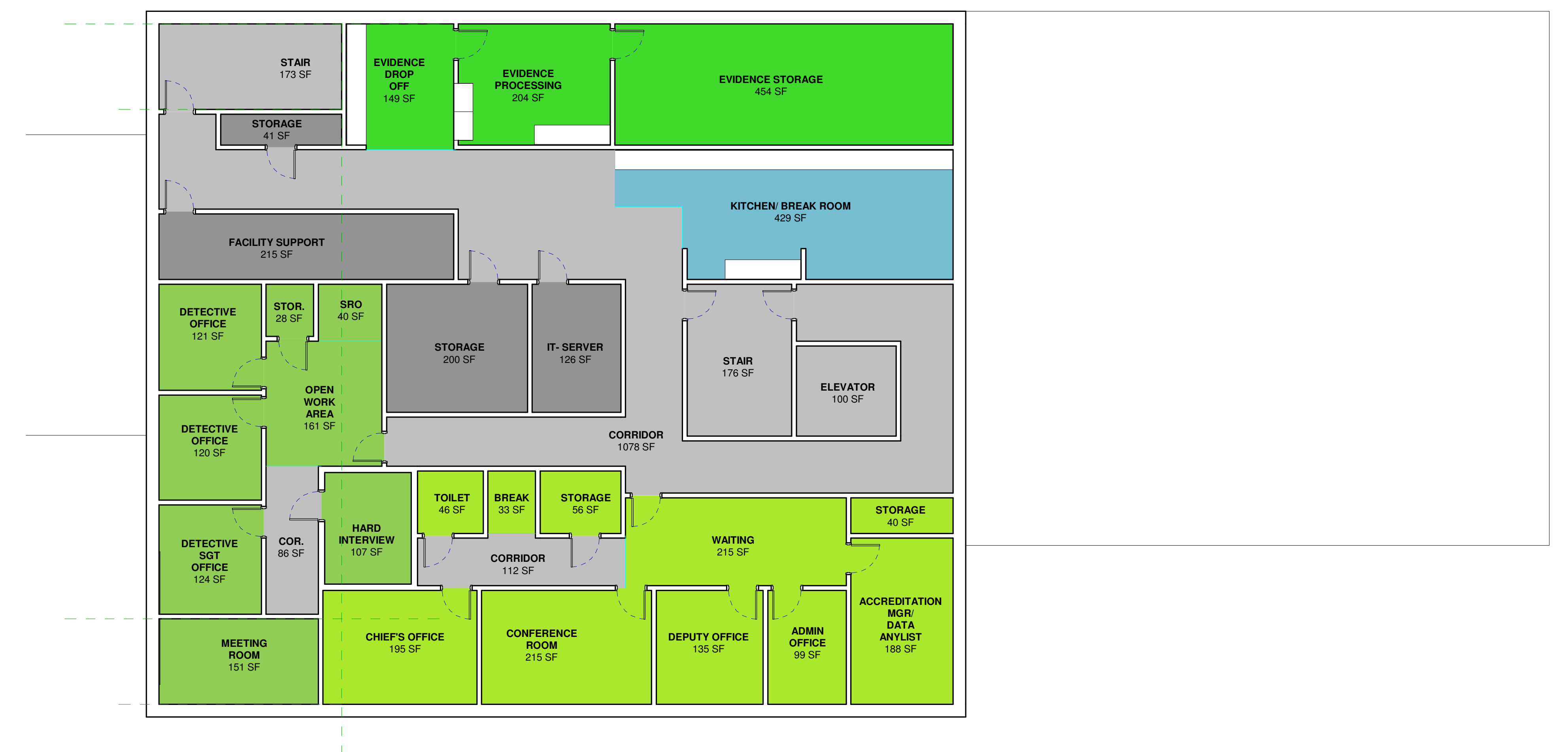
GROUND FLOOR PLAN

10,426 GSF



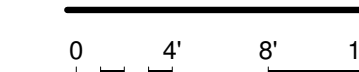
Department Legend

- ADMINISTRATION
- CIRCULATION
- COMMON FACILITIES
- FACILITY SUPPORT
- FLEET
- INVESTIGATIONS
- PARTROL
- PUBLIC ACCESS AREAS
- RECORDS



SECOND FLOOR PLAN

6,417 GSF



Department Legend

- ADMINISTRATION
- CIRCULATION
- COMMON FACILITIES
- FACILITY SUPPORT
- INVESTIGATIONS
- PROPERTY & EVIDENCE



CITY OF BATH, MAINE, FIRE AND POLICE FACILITY STUDY

ORDER OF MAGNITUDE COST ESTIMATE

The worksheet outlining costs for new Fire Department and Police Department buildings in this section is intended as a preliminary planning guide. The information used to base the cost estimate on is conceptual in nature. Since the concept phase only outlines general project parameters estimating requires significant contingencies and assumptions to be made to compensate for lack of detailed design information.

The preferred concept options were used as a basis for the estimate. This order of magnitude (OoM) cost estimate includes construction cost, contingencies, escalation, fees, and other soft cost considerations to represent a total project cost. Some of these soft cost rows should be reviewed, revised, or removed depending on actual decisions for project start time and project delivery. Cost escalation for materials and labor typically average between 6% and 8% annually. Assuming a project start date of April, 2022, the estimates include a 10% cost escalation factor.

The Fire Department OoM construction cost is \$11,372,360.00 with total project cost of \$14,090,328.00. The Police Department OoM construction cost is \$9,431,093.00 with total project cost of \$11,728,654.00.



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I. Construction	<u>Fire Department</u>			<u>Police Department</u>		
	<u>Preferred Concept Option</u>			<u>Preferred Concept Option</u>		
	22,157 sf			18,466 sf		
	Area	Cost/SF	Cost	Area	Cost/SF	Cost
Construction Cost						
Demolition				7,762	\$ 8.50	65,977
Demolition of Existing North Wing of Morse HS	58,200	\$ 8.50	494,700			
New Vehicle Shed	0	\$ -		1,623	\$ 200	324,600
New Construction	22,157	\$ 330	7,311,810	16,843	\$ 350	5,895,050
Phasing Costs			0			0
Site	22,157	\$ 40	886,280	18,466	\$ 50	923,300
<i>Total Revised Project Construction Subtotal</i>			8,692,790			7,208,927
Design Contingency (10%)			869,279			720,893
<i>Building Construction Subtotal</i>			9,562,069			7,929,820
Overhead and Profit (6%)			573,724			475,789
<i>Building Construction Subtotal</i>			10,135,793			8,405,609
Bond and Insurance (2%)			202,716			168,112
<i>Building Construction Subtotal</i>			10,338,509			8,573,721
April 2022 Construction Start: Escalation 10%			1,033,851			857,372
TOTAL CONSTRUCTION			11,372,360			9,431,093
II. Administrative Cost & Reserve						
Land			0			0
FF&E (budget)			80,000			70,000
Infrastructure Technology (budget)			40,000			30,000
Advertising/Printing			5,000			5,000
Insurance/Legal			5,000			5,000
Bid Contingency (7.5%)			852,927			707,332
Construction Contingency (5%)			568,618			471,555
TOTAL			\$1,551,545			\$1,288,887
III. Fees & Services						
A/E Fee (8%)			978,023			811,074
FF&E Fee (budget)			6,400			5,600
TEL / Data Design			12,000			15,000
Fee for Planning Board Permitting			15,000			15,000
Reimbursable			22,000			26,000
Survey/Soils/Borings			6,000			6,000
Clerk Fee (budget)			50,000			50,000
Special Inspections			12,000			15,000
Cost Estimating			10,000			10,000
Commissioning			10,000			10,000
Misc Fees and Expenses			20,000			20,000
Testing and Balancing			25,000			25,000
TOTAL			\$1,166,423			\$1,008,674
Project Cost			\$14,090,328			\$11,728,654

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864 high street



MORSE HIGH SCHOOL REUSE STUDY



FIRE DEPARTMENT



Exposed Structure



Boiler



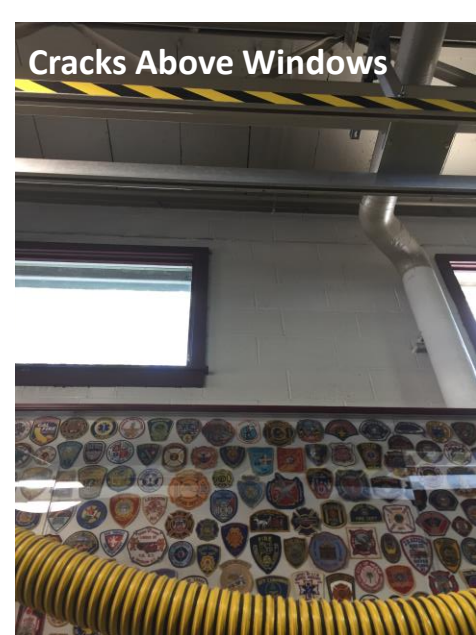
Electrical Service



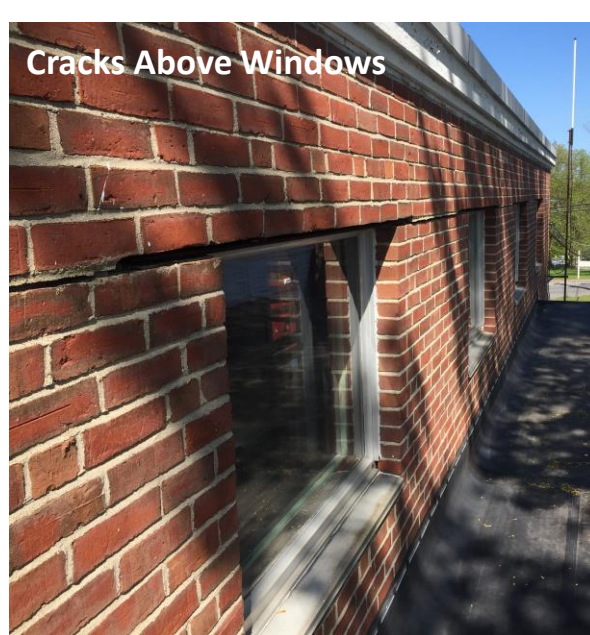
Back of Site



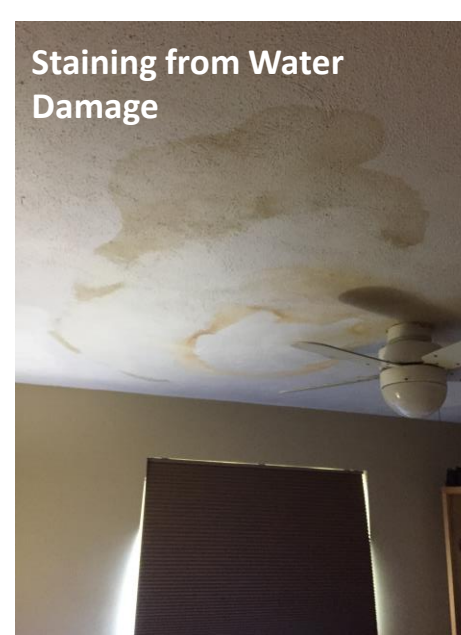
facility assessment



Cracks Above Windows



Cracks Above Windows



Staining from Water Damage



Single Pane Windows



Lack of Clear Headroom



Older Electrical Service



Damaged Pipe Insulation



Older Heating System

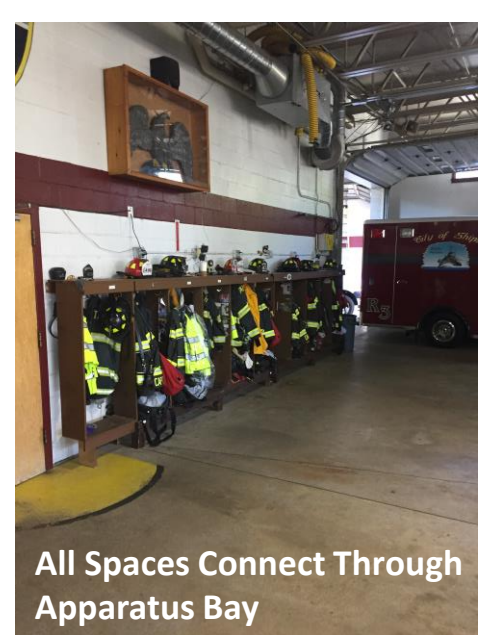
facility deficiencies



MORSE HIGH SCHOOL REUSE STUDY



FIRE DEPARTMENT



All Spaces Connect Through Apparatus Bay



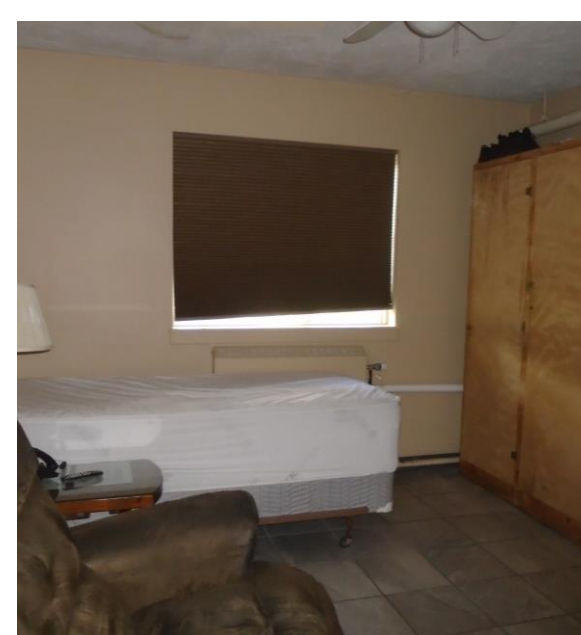
Ladder Modified to Fit



Ladder Modified to Fit



Fitness Located in Day Room



Public Access Directly to Apparatus Bays



Office opens on Bay



PPE Stored with Apparatus

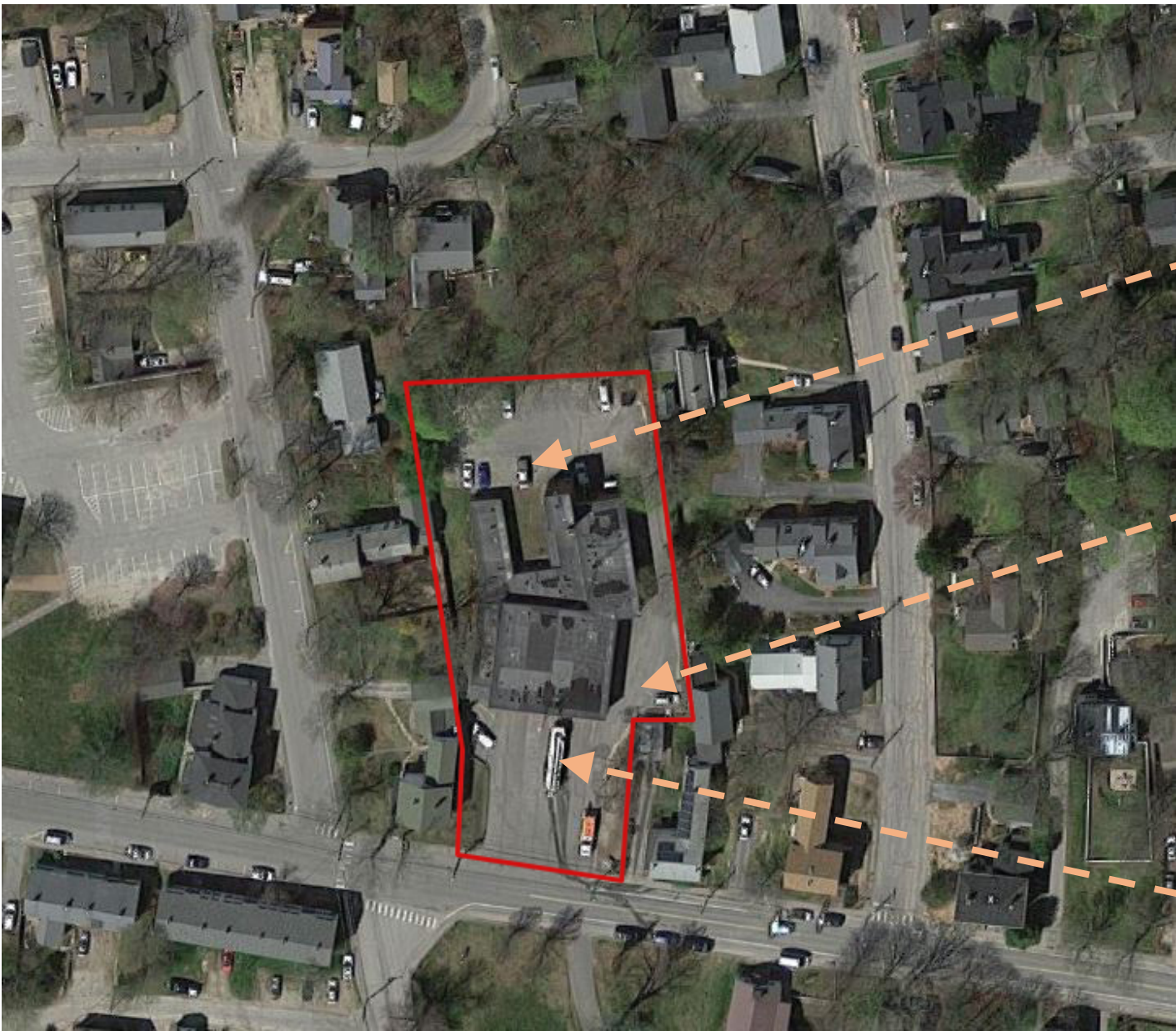
facility conditions



MORSE HIGH SCHOOL REUSE STUDY



FIRE DEPARTMENT



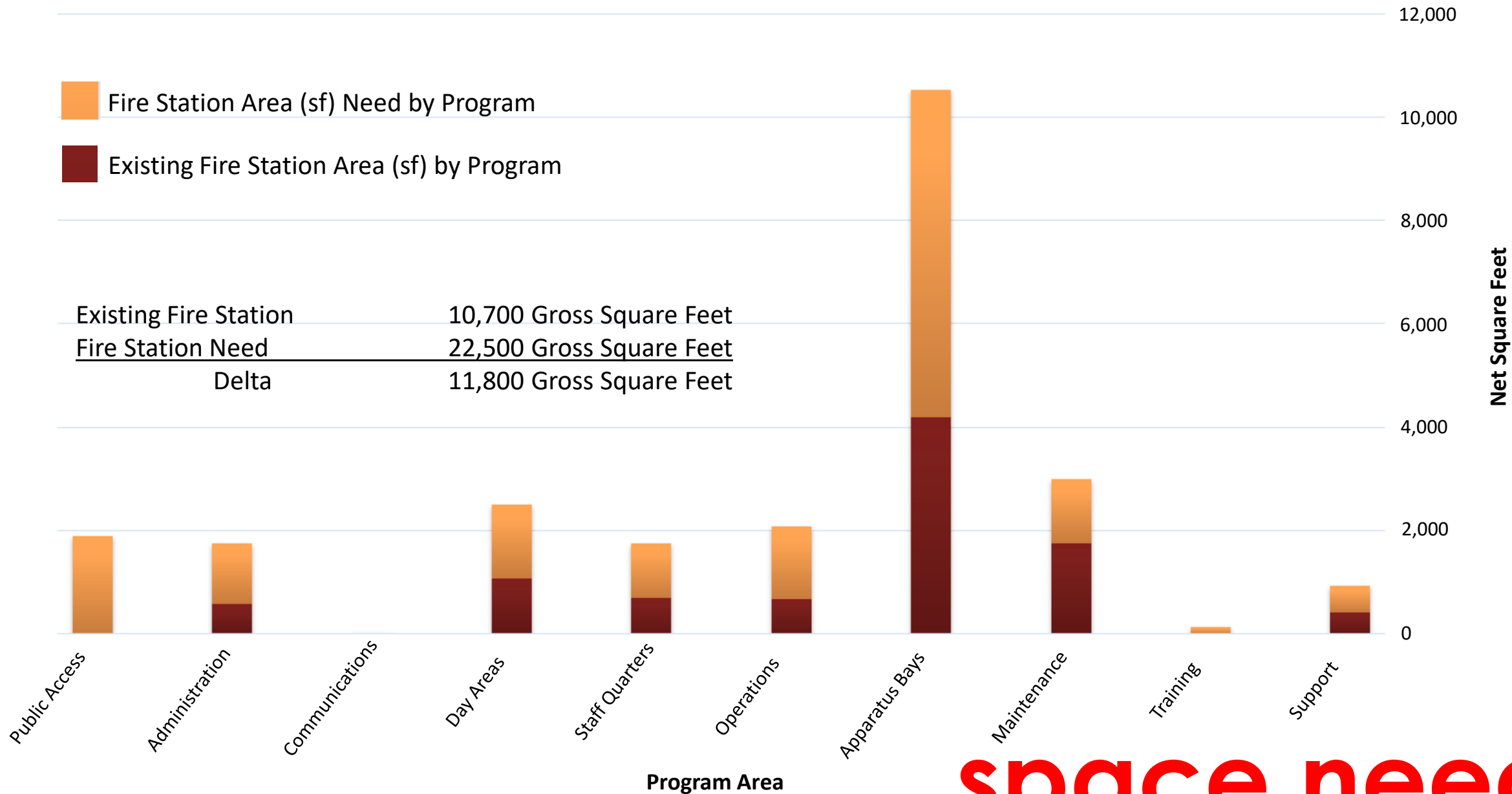
site constraints



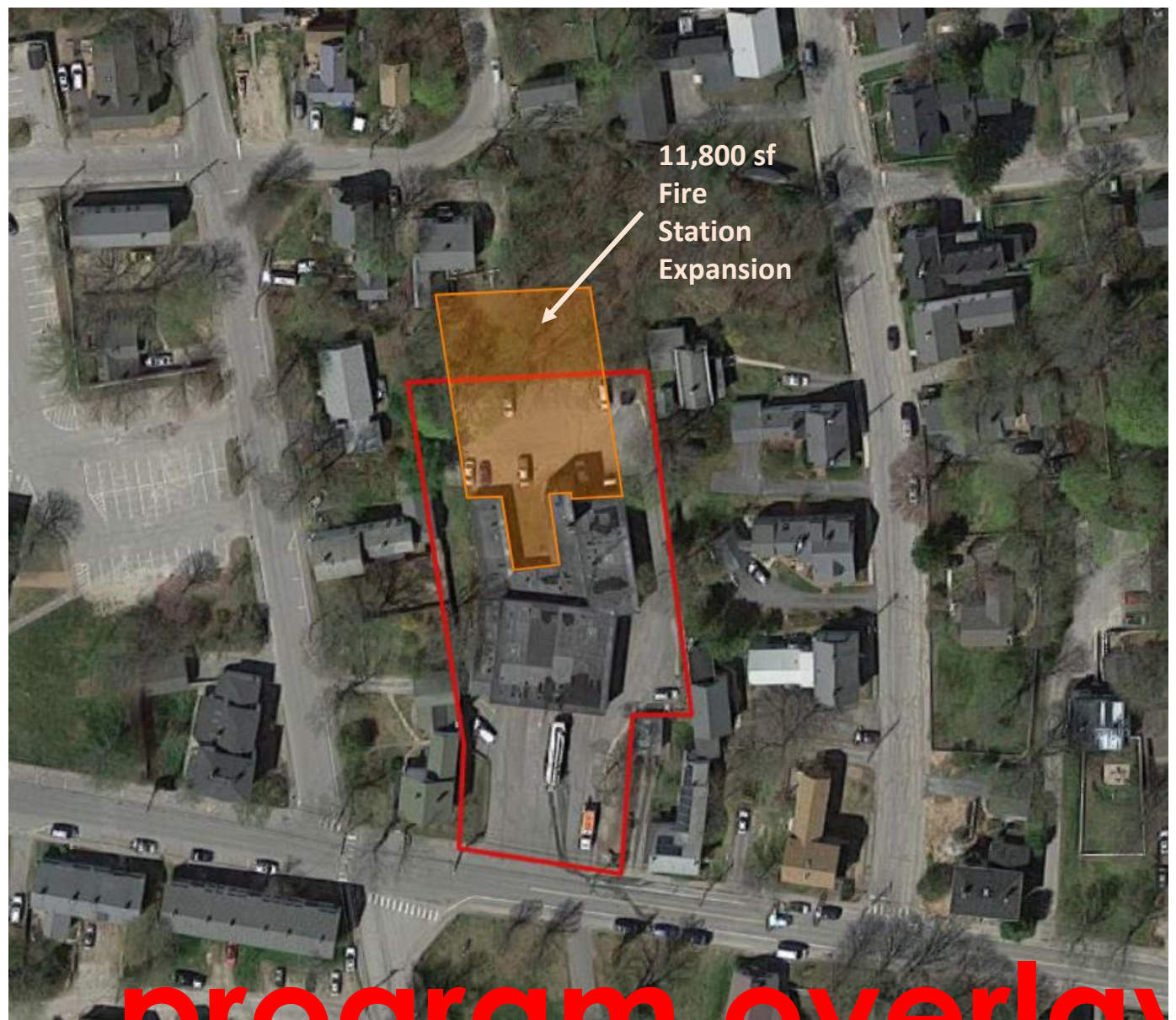
MORSE HIGH SCHOOL REUSE STUDY



FIRE DEPARTMENT



space needs



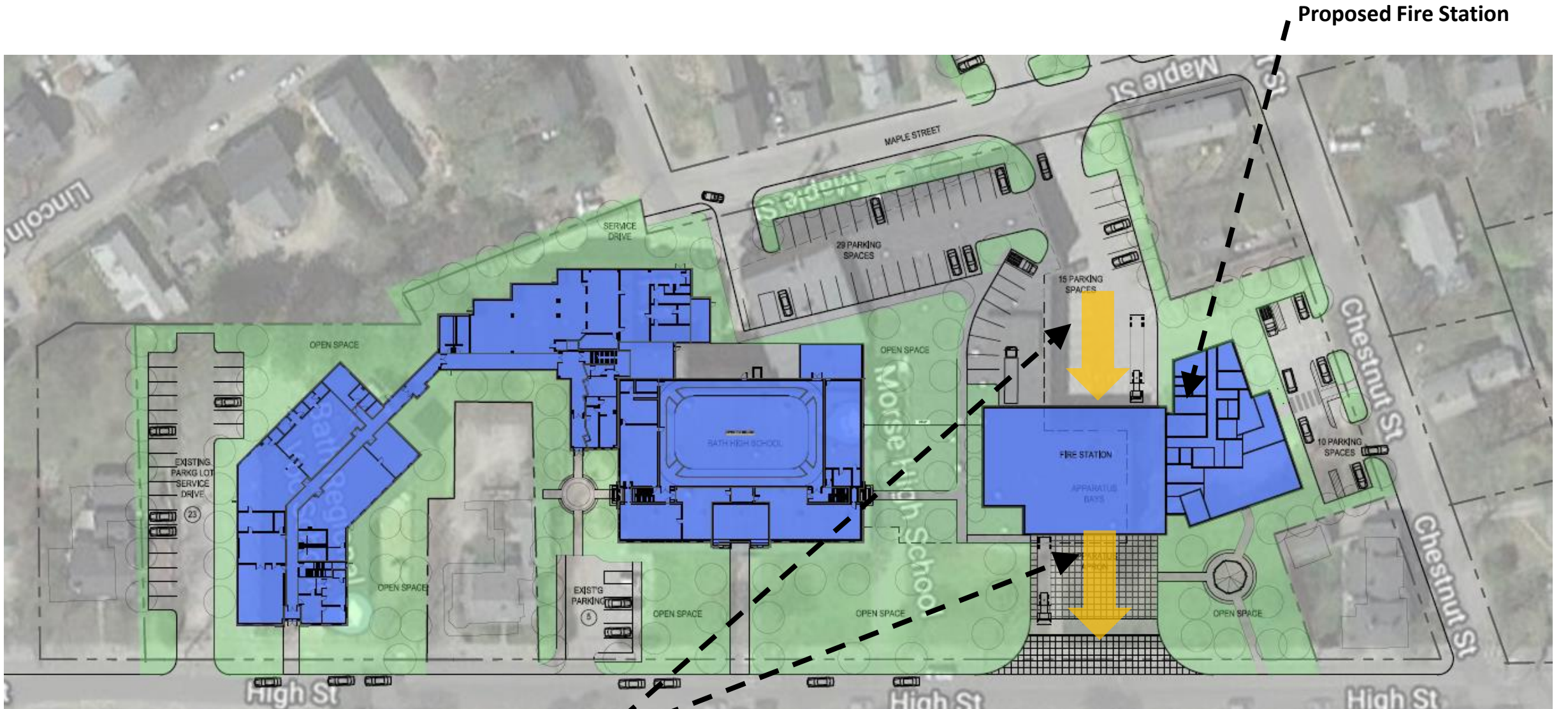
program overlay



MORSE HIGH SCHOOL REUSE STUDY



FIRE DEPARTMENT



Proposed Fire Station

Drive Thru Apparatus Bay

site plan



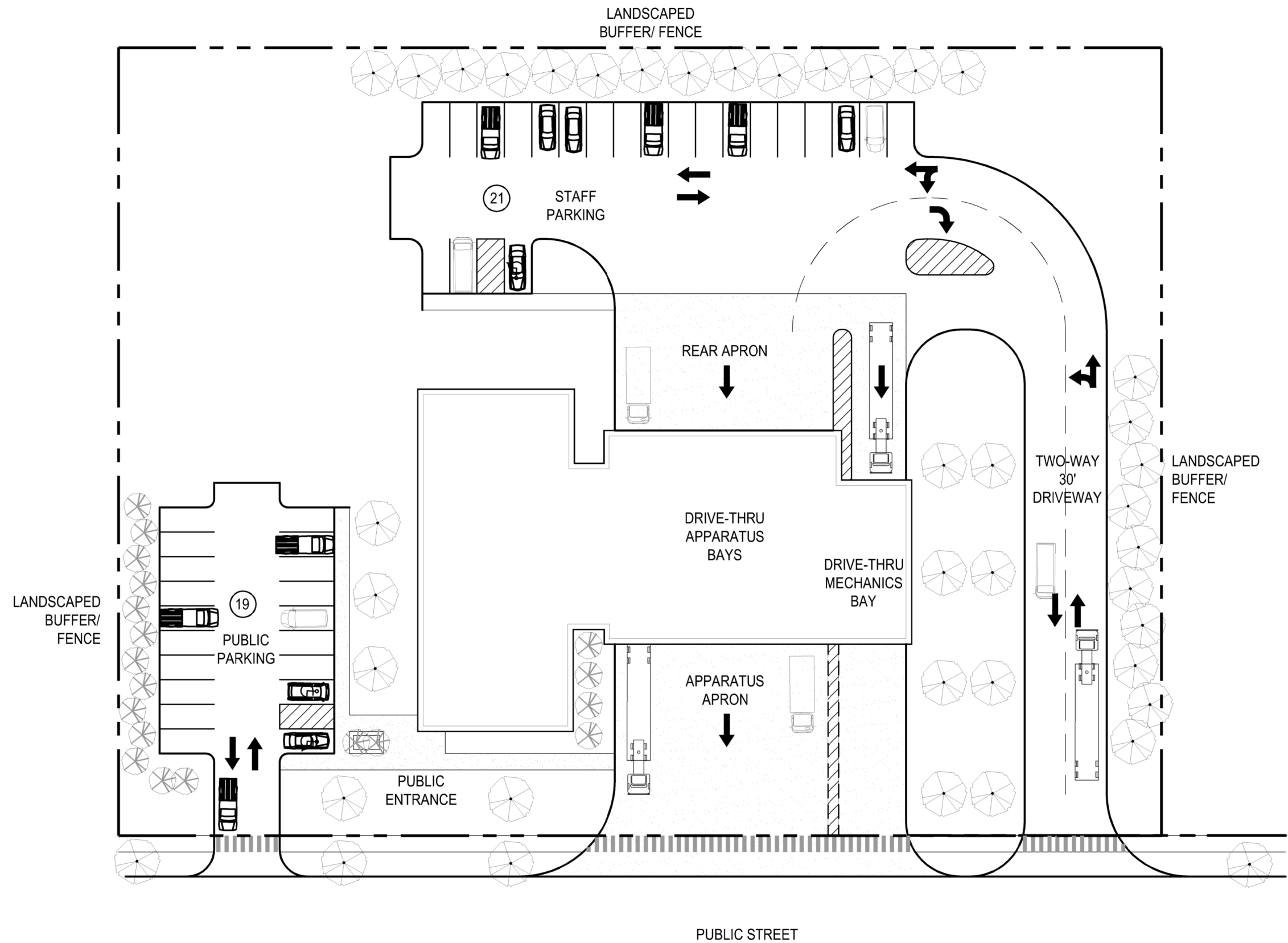
FIRE DEPARTMENT



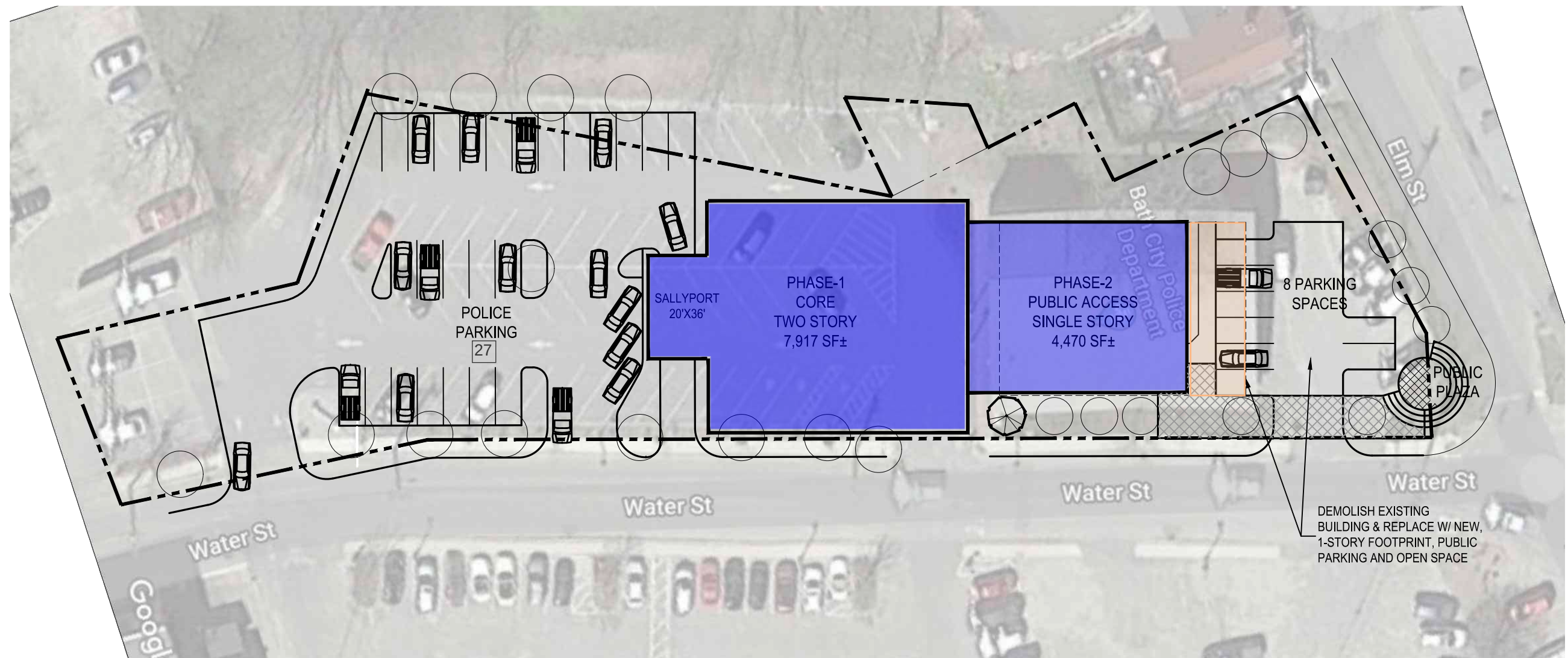
MORSE HIGH SCHOOL REUSE STUDY



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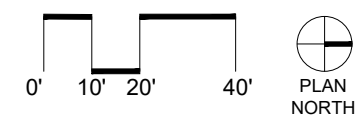


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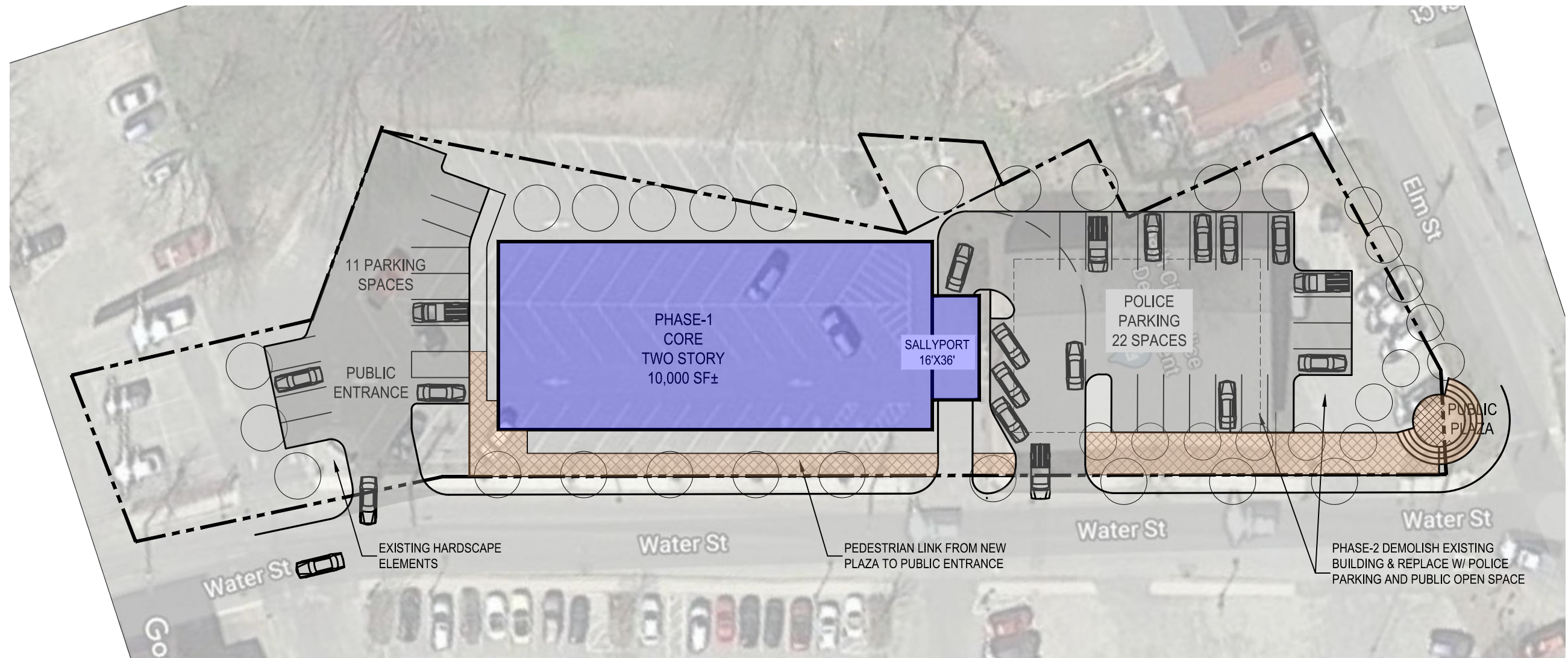
BATH PUBLIC SAFETY FACILITY STUDY

BATH, ME
HA: 20394



**CONCEPT SITE PLAN
BPD OPTION - 1**

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BATH PUBLIC SAFETY FACILITY STUDY

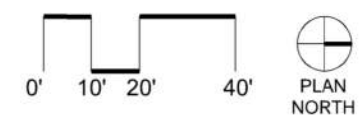
BATH, ME
HA: 20394

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BATH PUBLIC SAFETY FACILITY STUDY

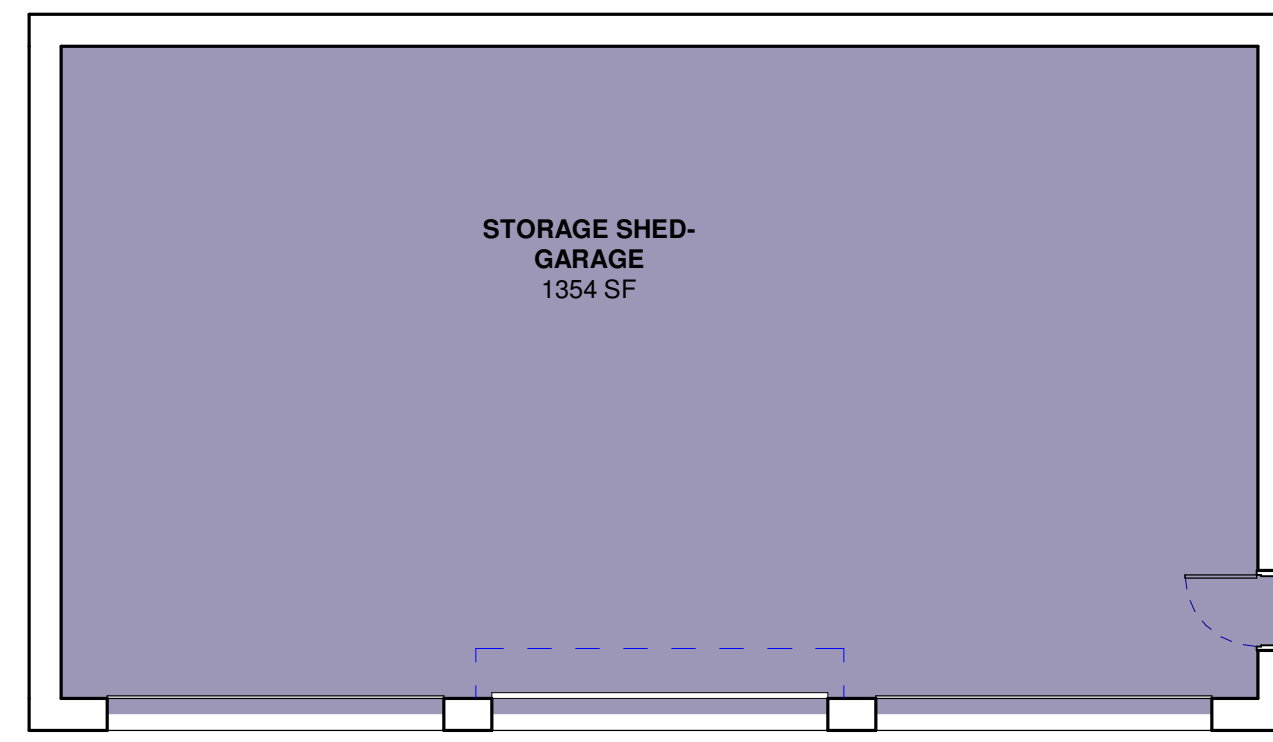
BATH, ME
HA: 20394



**CONCEPT SITE PLAN
BPD OPTION - 1 REV**

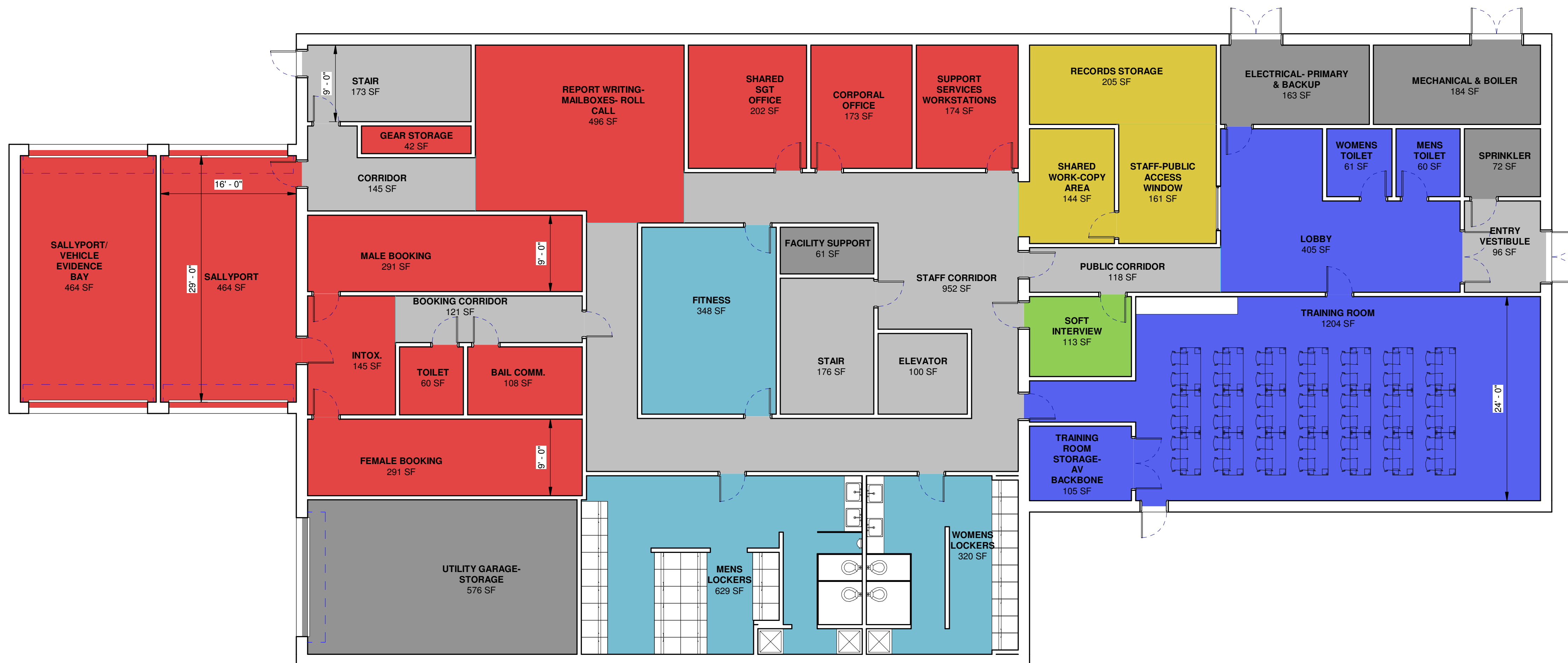
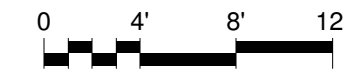
HARRIMAN 20394 SEPT. 21, 2020

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UTILITY STORAGE BUILDING FLOOR PLAN

1,566 GSF



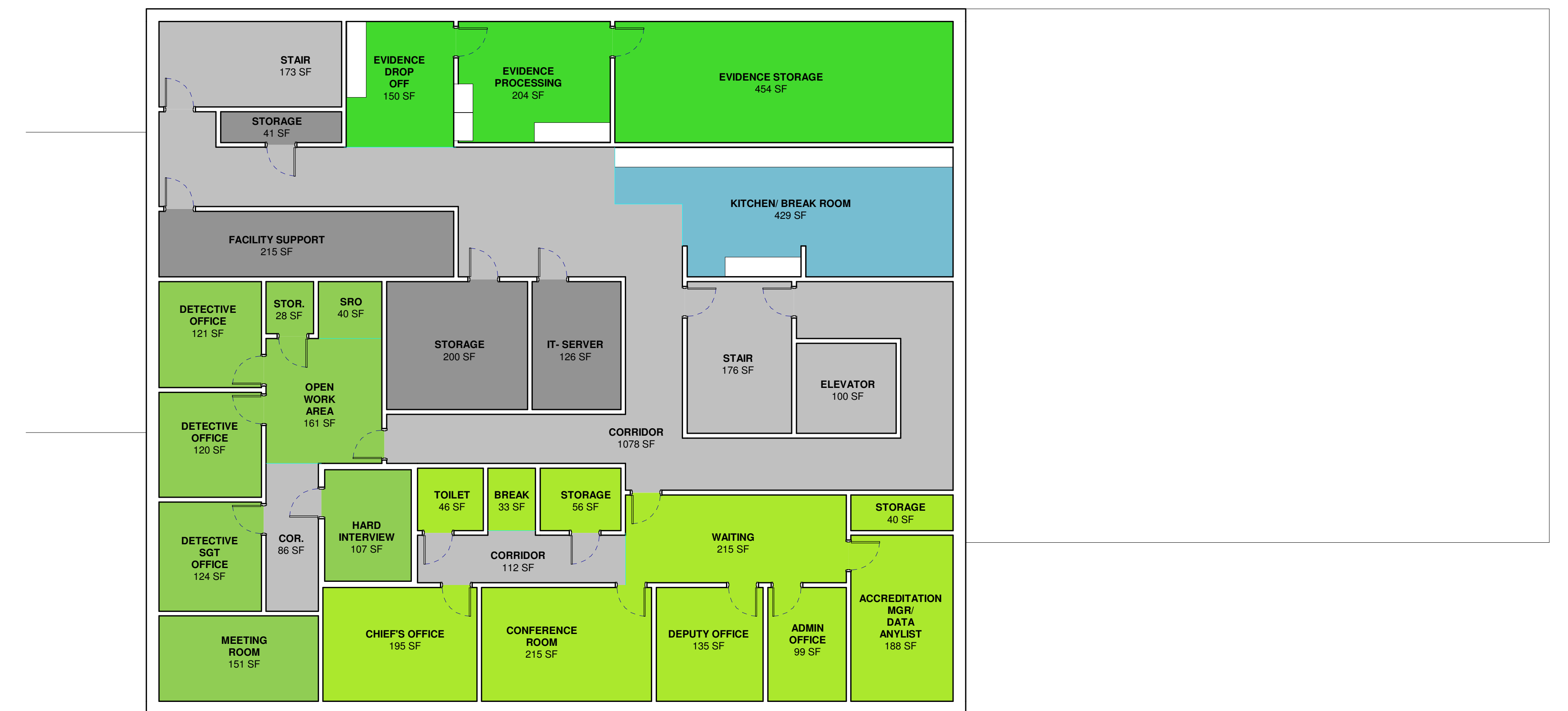
GROUND FLOOR PLAN

10,948 GSF



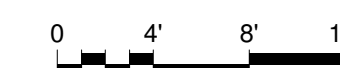
Department Legend

- CIRCULATION
- COMMON FACILITIES
- FACILITY SUPPORT
- FLEET
- INVESTIGATIONS
- PARTROL
- PUBLIC ACCESS AREAS
- RECORDS



SECOND FLOOR PLAN

6,417 GSF



Department Legend

- ADMINISTRATION
- CIRCULATION
- COMMON FACILITIES
- FACILITY SUPPORT
- INVESTIGATIONS
- PROPERTY & EVIDENCE

An abstract graphic design featuring a solid green background. A series of white geometric lines intersect to form a stylized 'H' shape on the left side. One line runs diagonally from the top left towards the bottom center. Another line runs diagonally from the top left towards the bottom right. A third line runs horizontally across the middle, intersecting the other two. A fourth line runs diagonally from the bottom left towards the top right, intersecting the horizontal line. The intersection of these lines creates a central white square and several other white rectangular areas of varying sizes.

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