

Town of Wolfeboro

Public Safety Building

Feasibility Study Final Report
August 8, 2018

Prepared for:
Town of Wolfeboro
Public Safety Building Steering Committee



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TOWN OF WOLFEBORO

Public Safety Building Study

EXECUTIVE SUMMARY

The existing Public Safety Building is located at 251 South Main Street, adjacent to the Wolfeboro Public Library and across the street from Huggins Hospital. It was constructed in 1974 and has had only minor improvements made to it since then, including some ADA modifications and heating/cooling system improvements. The approximate gross area of the building is as follows:

- The two story Office building; 40' X 80' footprint (3,200) X two levels = 6,400 gross sq. ft.
- The Apparatus/ Sally Port Bay area; 95' X 70' = 6,650' gross sq. ft.

The Feasibility Study explored the current and future needs of the Police and Fire Departments, and evaluated the possibility of upgrading the current facility or plan for a new facility on the existing site.

The Lavallee Brensinger Architects team was charged with preparing a Feasibility Study comprised of the following key steps:

1. Space Needs Analysis

We performed an analysis of the space needs for the Wolfeboro Police and Fire Departments, taking into account the potential for shared use of some spaces, and a 20-year future space needs projection.

2. Evaluate Current Facility for its potential for rehabilitation and expansion to meet the space needs for the Police and Fire Departments

Our team reviewed the existing Public Safety facility and prepared an Existing Conditions Report including the building's structural, mechanical, electrical, and plumbing systems, to determine their general condition and identify potential improvements required to make the existing building and any addition(s) compliant with current building and accessibility codes.

3. Evaluate feasibility of proposed options and provide cost analysis with recommendations, including any phasing that may be required in implementing recommendations.

Based on the approved Space Program, Lavallee Brensinger prepared conceptual site and building design options including proposed additions to and complete renovation of the existing building, as well as the possibility of an entire new public safety building. Based on detailed conversation with the Study Steering Committee, an addition/renovation option was selected for final development.

EXISTING CONDITIONS REPORT SUMMARY

The Lavallee Brensinger Architects Team prepared an Existing Conditions Report of the existing Public Safety Feasibility. The full report has been submitted to the Study Steering Committee and is available for review. The following is a summary of findings:

- **Site** – there are no major site issues impacting the proposed project.
 - ✓ An existing sewer line crosses the site from North to South.
 - ✓ Maximum Building Coverage at 30% of Lot Area (74,000 SF x 0.3 = 22,000 SF)
 - ✓ Buildable Area (+/- 56,000 SF within setbacks)
 - ✓ The site is not located in a flood zone and there are no wetlands or other natural water features
- **Building Envelope** - in reasonable condition
- **Accessibility** – accessible areas limited to the first floor only
- **Life Safety** – the facility is need of corrective design and upgrades to meet current code requirements including seismic design criteria
- **Structural** – the existing building design is not conducive to vertical expansion. Lateral expansion is achievable.



Existing Conditions Diagram

TOWN OF WOLFEBORO

Public Safety Building Study

EXISTING CONDITIONS REPORT SUMMARY (cont'd)

MEP Systems – the existing facility features several deficiencies including:

- ✓ Lack of ventilation/exhaust in the Sally Port and equipment bays
- ✓ Uninsulated plumbing pipes
- ✓ Non-ADA compliant fixtures
- ✓ Lack of an automated fire sprinkler system
- ✓ Outdated electrical panel boards, wo separate services into the building, and inadequate overall capacity of service
- ✓ Lack of code compliant emergency lighting
- ✓ Fire Alarm system is more recent and code compliant

SELECTED OPTION DESCRIPTION

After reviewing options developed by LBA to satisfy the space needs and operational adjacencies requested in the programming phase, the Study Steering Committee unanimously selected a conceptual design option that combines full renovation of the existing building with additions to the existing structure.

The selected option:

- ✓ Keeps the familiar façade of the existing Public Safety Building intact and visible from Main Street,
- ✓ Provides much-needed additional space for both the police and fire departments,
- ✓ Improves security of the site and building access, and
- ✓ Replaces the existing undersized equipment bays with new taller and longer bays
- ✓ Proposes a phased implementation allowing continuous operations during construction



Site diagram of the Selected Option; see following pages for more detailed images

Site Layout

The site is generally organized with the following key components and locations:

- ✓ Functions:
 - Fire Department bays and supporting spaces are generally located towards the front (Main Street) side of the site, with Police Department functions generally at the rear. The renovated existing building is shared by the two departments and contains space for both.
- ✓ Site Circulation and Parking:
 - A single access point from Main Street is provided at the north end of the site for all vehicles
 - Fire Department truck access and aprons are organized perpendicular to the street (vehicle bays do not face Main Street). Two FD bays are accessed at the rear of the site.
 - A driveway leads past the existing building and Fire Department bays to visitor parking and a main public entrance off the driveway
 - Staff and Fleet Parking is consolidated into a single lot at the rear of the site, slightly larger than the existing parking lot and out of sight from Main Street. A secure area is provided for vehicle impound and other exterior secure storage needs of the Police Department.
 - The Sally Port is accessed at the rear of the site in a secure, out-of-the way location from public areas.
 - An emergency-only vehicular access is provided from the rear parking lot to the Library lot

Building Layout

In this combined Public Safety Building, access to and from public and shared space is a key consideration of the building layout. Public functions such as the lobby, reception, and the EOC are located to provide convenient access from both departments. Front-facing departmental functions such as the fire department plan review room and the dispatch area are located in close proximity to these public areas.

Police Department functions are located at the back of the site. Administrative offices and PD storage are located primarily on the second floor, with booking and dispatch located on the first floor.

Fire Department equipment, decontamination areas, and administration offices are located on the first floor in close proximity to the FD equipment bays. Second floor space for the Fire Department contains FD living areas and a shared duty office. A shared Agility and Training Room is located between the two departments on the second level.

The building layout takes into consideration the need for separation of the two departments for functional and security reasons, while maintaining appropriate main building circulation and egress.

Executive Summary

Space Designation		Space Need		
No.	Function	2018 (current need)	2022	2032
COMMON/SHARED SPACES				
C-1	Common/Shared Spaces	2,768	2,768	2,768
	COMMON/SHARED TOTAL	2,768	2,768	2,768
POLICE DEPARTMENT				
P-1	Records Storage	600	600	600
P-2	Community Resources	202	278	278
P-3	Administration	847	847	847
P-4	Dispatch	605	605	605
P-5	Booking and Intake	1,896	1,896	1,896
P-6	Property and Evidence	1,217	1,217	1,217
P-7	Investigations	514	590	590
P-8	Patrol/Operations/Training	986	1,085	1,085
P-9	PD Departmental Support	1,518	1,518	1,518
	POLICE TOTAL	8,384	8,636	8,636
FIRE DEPARTMENT				
F-1	Fire Administration	1,236	1,236	1,236
F-2	Fire Station	13,132	13,211	13,142
F-3	FD Departmental Support	1,206	1,206	1,206
	FIRE TOTAL	15,574	15,653	15,584
BUILDING SUPPORT				
S-1	Facility Support	2,342	2,342	2,342
	BUILDING SUPPORT TOTAL	2,342	2,342	2,342
	TOTAL ALL PROGRAMS	29,069	29,400	29,332

Parking Requirements				Notes
	STAFF	PD/FD VEHICLES	TOTAL	
Police Department	10	7	21	Shared by PD and FD and includes ADA spaces Does not include parking spaces for off-duty & part time personnel for fire calls
Fire Department	8	0	8	
Public - Community Room & EOC	0	0	5	All spaces to be provided off-site
TOTAL PARKING NEED	18	7	34	

C-1 Common/Shared Spaces

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
C-1	Common/Shared Spaces				
C-1.1	Entry Vestibule	80	80	80	
C-1.2	Public Lobby	300	300	300	seating for 6-8 people, prescription drug drop off (mailbox size)
C-1.3	Public Restrooms @ 64 sf each	128	128	128	one with direct access to EOC
C-1.4	Administrative Assistant/Receptionist	64	64	64	shared with FD/PD; currently staffed by Dispatch but would like to move away from this (privacy issues). Current need: camera connect. Future: Admin assistant day shift, telephone or camera connect to dispatch nights
C-1.5	Small Interview/Briefing Room	120	120	120	accessed from Lobby, also used as Sex Offender Waiting, Records Conference Room
C-1.6	Community Meeting Room/EOC/Training/Commissioners Briefing Room/Command Staff Conference Room	875	875	875	35 occupants. Tech for Common Operating Picture (COP) during emergencies. Could be reduced to 25-30 if necc. Includes Law Library.
C-1.7	Community Meeting Room Storage	100	100	100	Chairs/tables storage
C-1.8	Community Meeting Room Kitchenette	40	40	40	
C-1.9	Physical Agility Room/Defense Tactics Lab	600	600	600	Shared Police/Fire
	SUBTOTAL	2,307	2,307	2,307	
	Efficiency Factor 20%	461	461	461	
	TOTAL C-1	2,768	2,768	2,768	

P-2 Community Resources

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
P-2	Community Resources				
P-2.1	Animal Control Work Area	64	64	64	Workstation, locate near sally port. For records writing, files
P-2.2	K-9 Storage with Safe	40	40	40	
P-2.3	Police Prosecutor/ Paralegal (Asst. Prosecutor, P/T Officer)	64	128	128	Shared open work area
	SUBTOTAL	168	232	232	
	Efficiency Factor 20%	34	46	46	
	TOTAL P-2	202	278	278	

Space Program

P-3 Administration

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
P-3	Administration				
P-3.1	Chief of Police Office	160	160	160	
P-3.2	Captain/Executive Officer	130	130	130	
P-3.3	Small Meeting Room	120	120	120	include reference library. Also Police Commission Meeting space
P-3.4	Copy/Supply Alcove	60	60	60	
P-3.5	Intern Work Area	2	72	72	
P-3.6	Reception/Waiting	64	64	64	
P-3.7	Administrative Assistant	64	64	64	
P-3.8	Police Commission Files Storage	36	36	36	Adjacent to P-3.4 small meeting room
C-1.6	Command Staff Conference Room	-	-	-	see C-1 Common/Shared
	SUBTOTAL	706	706	706	
	Efficiency Factor 20%	141	141	141	
	TOTAL P-3	847	847	847	

P-4 Dispatch

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
P-4	Dispatch				
P-4.1	Dispatch Supervisor	64	64	64	workstation off dispatch current: 2 dispatchers + supervisor. Includes 2 workstations plus small touch down area for supervisor (standing desk)
P-4.2	Call Taker/Dispatchers @ 80 sf each	160	160	160	
P-4.3	Break Room with Lockers	120	120	120	lockers + kitchenette
P-4.4	Staff Unisex Bathroom	80	80	80	
P-4.5	Specialized Equipment Storage	80	80	80	
P-4.6	After-Hours Public Service Counter	0	0	0	share with reception desk? See C-1.5
	SUBTOTAL	504	504	504	
	Efficiency Factor 20%	101	101	101	
	TOTAL P-4	605	605	605	

P-5 Booking and Intake

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
P-5	Booking and Intake				
P-5.1	Vehicle Sally Port	600	600	600	1 bay @ 20' x 30'
P-5.2	Detainee Wash Down Alcove	12	12	12	
P-5.3	Security Vestibules @ 64 sf each	2	128	128	
P-5.4	Juvenile Holding Cell @100 sf each	1	100	100	
P-5.5	Detainee Property Storage Room		80	80	
P-5.6	Booking		120	120	combined adult and juvenile
P-5.7	Adult Male Holding Cells @100 sf each	2	200	200	
P-5.8	Intoxilizer Room with Medical Area		120	120	
P-5.9	Live Scan Alcove		80	80	
P-5.10	Secured Interview Room		80	80	
P-5.11	Temporary Evidence Drop Lockers		60	60	4 lockers
C-1.5	Small Interview/Briefing Room		-	-	see Common/Shared C-1
	SUBTOTAL		1,580	1,580	1,580
	Efficiency Factor 20%		316	316	316
	TOTAL P-5		1,896	1,896	1,896

P-6 Property and Evidence

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
P-6	Property and Evidence				
P-6.1	Evidence Drop/Retrieval/Viewing Room	150	150	150	adjacent to booking
P-6.2	Evidence Storage Room	280	280	280	Existing = 8x14
P-6.3	Cash/Valuables Vault	40	40	40	
P-6.4	Weapons Vault	100	100	100	
P-6.5	Narcotics Vault	120	120	120	
P-6.6	Chemical Processing Lab	160	160	160	
P-6.7	Evidence to Be Destroyed Staging Area	60	60	60	
P-6.8	Freezer Bank/DNA Storage	40	40	40	Inside Evidence Storage area
P-6.9	Found Articles Storage	64	64	64	Exterior
P-6.10	Vehicle Evidence Processing Bay	-	-	-	Exterior; fenced area with cameras. DPW Location OK. Recommended 600 sf
	SUBTOTAL	1,014	1,014	1,014	
	Efficiency Factor 20%	203	203	203	
	TOTAL P-6	1,217	1,217	1,217	

P-7 Investigations

Space Designation			Space Need			Notes
No.	Function		2018 (current need)	2022	2032	
P-7	Investigations					
P-7.1	Detective Workstations @ 64 sf each	1,2	64	128	128	
P-7.2	Files Storage		60	60	60	
P-7.3	Specialized Equipment Storage Room		100	100	100	
P-7.4	Detainee Restroom		64	64	64	
P-7.5	Interview Rooms @ 80 sf each	1	80	80	80	
P-7.6	Interview Monitoring Equipment Room		60	60	60	
	SUBTOTAL		428	492	492	
	Efficiency Factor 20%		86	98	98	
	TOTAL P-7		514	590	590	

Space Program

P-8 Patrol/Operations/Training

Space Designation			Space Need			Notes
No.	Function		2018 (current need)	2022	2032	
P-8	Patrol/Operations/Training					
P-8.1	Patrol Workstations (F/T) @ 36 sf each	3,5	108	180	180	added (2) P/T stations starting 2022
P-8.2	Patrol Work Area Files Storage		20	30	30	can be included with workstations area (not separate); stackable file cabinets
P-8.3	Patrol Sergeant's Suite @ 80 sf each	1	100	100	100	
P-8.4	Staff Sergeant's Office		100	100	100	private office, reduced 2.5
P-8.5	Central Business Hub		60	60	60	copy, print, shared supplies & resources
P-8.6	Armory		80	80	80	
P-8.7	Ammunitions Storage		40	40	40	
P-8.8	Quartermaster Supply Storage		250	250	250	
P-8.9	PD Bicycle Storage @16 sf each	4	64	64	64	Police bicycles; near equipment bays
P-8.10	Reference Library		-	-	-	included in Admin sm. Meeting room P-3.4
	Community Meeting Room/EOC/Training/Commissioners Briefing Room/Command Staff Conference Room		-	-	-	See Common/Shared C-1
C-1.7	Small Interview/Briefing Room		-	-	-	See Common/Shared C-1
C-1.10	Physical Agility Room/Defense Tactics Lab		-	-	-	900 sf; shared with FD See C-1
	SUBTOTAL		822	904	904	
	Efficiency Factor 20%		164	181	181	
	TOTAL P-8		986	1,085	1,085	

Flr 2 470
Flr 1 434

Space Program

F-1 Fire Administration

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
F-1	Fire Administration				
F-1.1	Administrative Assistant to the Chief	90	90	90	
F-1.2	Fire Chief's Office	180	180	180	
F-1.3	Deputy Fire Chief's Office	1	120	120	
F-1.4	Small Meeting Room		120	120	include reference library
F-1.5	Fire Prevention/Plans Review/Investigator		100	100	
F-1.6	Lieutenant/EMT offices @ 100 sf each	3	100	100	
F-1.8	Files Storage Room		150	150	12x12 existing; similar area at substation, would need to be bigger if substation comes offline. Offsite possible
F-1.9	Lieutenant's Bunk Rooms - open space + restroom/shower		90	90	for one bunk room; shared by 3-4 lts.
F-1.10	Storage Closets @ 20 sf each	4	80	80	
C-1.4	Administrative Assistant/Receptionist		-	-	See Common/Shared C-1
C-1.6	Command Staff Conference Room		-	-	See Common/Shared C-1
	SUBTOTAL		1,030	1,030	1,030
	Efficiency Factor 20%		206	206	206
	TOTAL F-1		1,236	1,236	1,236

F-3 FD Departmental Support

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
F-3	FD Departmental Support				
F-3.1	Extractor/Drying Room	140	140	140	
F-3.2	Air Compressor Room	80	80	80	currently in open area; enclosed OK. Include spare cylinders storage
F-3.3	Tool Storage/Equipment Work Room	200	200	200	existing =21x16. Includes FD equipment maintenance
F-3.4	Air Cascade Equipment Room	140	140	140	
F-3.5	Decontamination	120	120	120	
F-3.6	Hose Drying/Training Tower	225	225	225	15x15 footprint, +/-40' high
F-3.7	Laundry	100	100	100	
	SUBTOTAL	1,005	1,005	1,005	
	Efficiency Factor 20%	201	201	201	
	TOTAL F-3	1,206	1,206	1,206	

S-1 Facility Support

Space Designation		Space Need			Notes
No.	Function	2018 (current need)	2022	2032	
S-1	Facility Support				
1-1.1	Trash/Recycling Storage	80	80	80	
1-1.2	Custodial Closets @ 60 sf each	2	120	120	
1-1.3	Mechanical Rooms @ 240 sf each	2	480	480	
1-1.4	Electrical Rooms @ 100 sf each	1	100	100	
1-1.5	Stair Towers @ 288 sf each	2	576	576	
1-1.6	Telephone	80	80	80	
1-1.7	IT Server Room	200	200	200	
1-1.8	IT Storage	60	60	60	
1-1.9	Telephone/Fiber Room	80	80	80	
1-1.10	IT/IDF Closets @ 32 sf each	1	32	32	
1-1.11	Elevator Machine Room	80	80	80	
1-1.12	Elevator	64	64	64	
	SUBTOTAL		1,952	1,952	1,952
	Efficiency Factor 20%		390	390	390
	TOTAL S-1		2,342	2,342	2,342

Graphic Program

8/8/2018

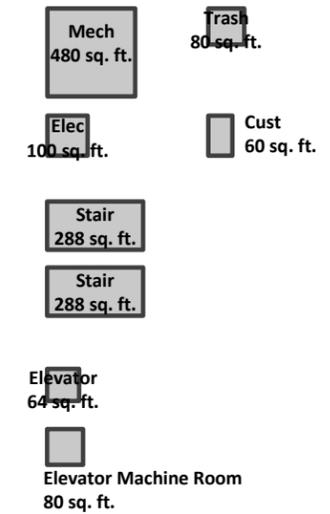
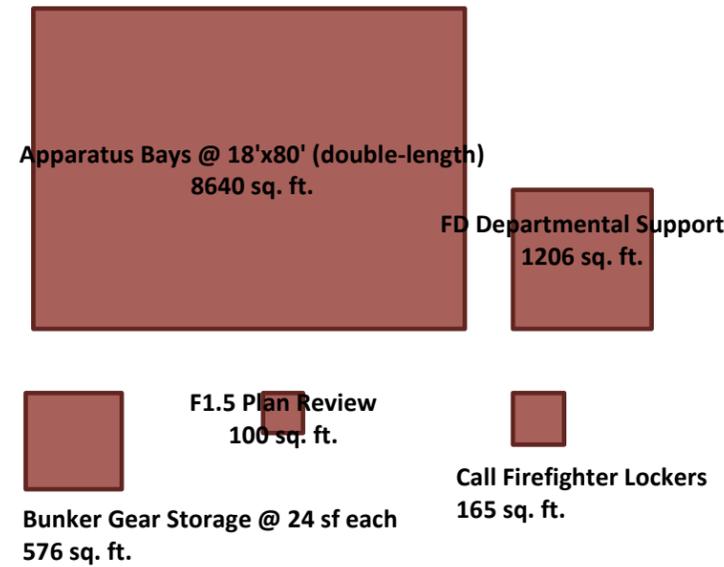
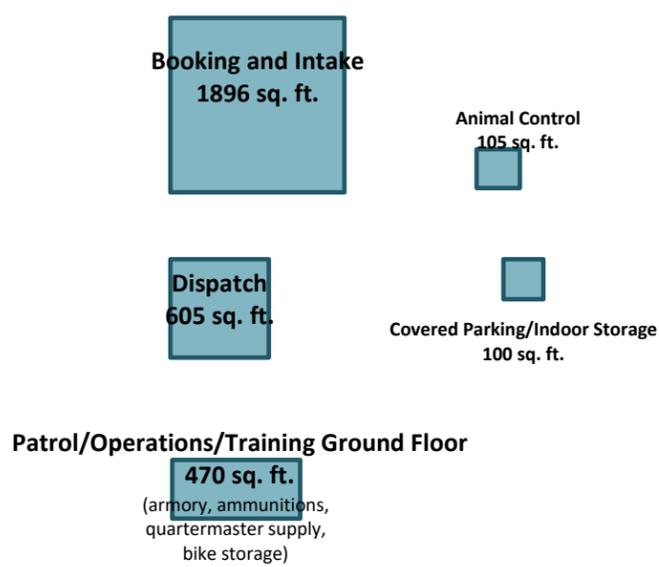
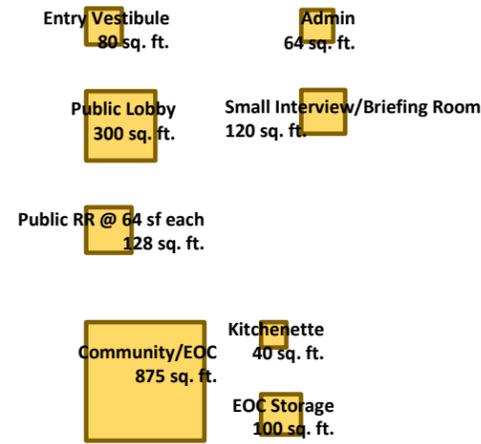
COMMON/SHARED SPACE

POLICE DEPARTMENT

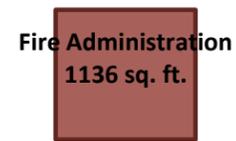
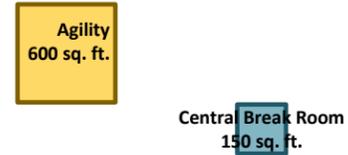
FIRE DEPARTMENT

BUILDING SUPPORT

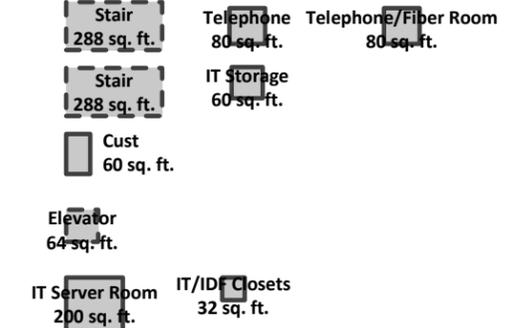
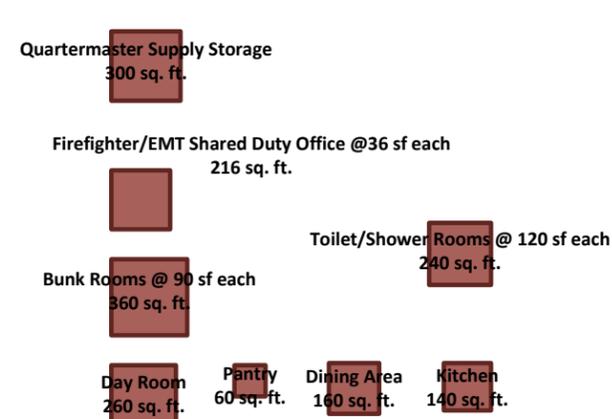
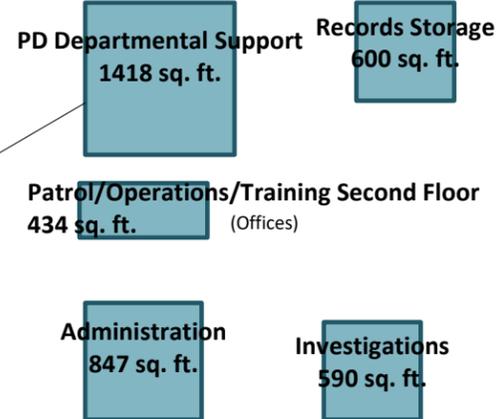
LEVEL 1



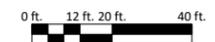
LEVEL 1
OR 2



LEVEL 2



TOTAL 620



TOWN OF WOLFEBORO
Public Safety Building

LAVALLEE BRENSINGER ARCHITECTS

CONCEPTUAL SITE PLAN
8/8/2018

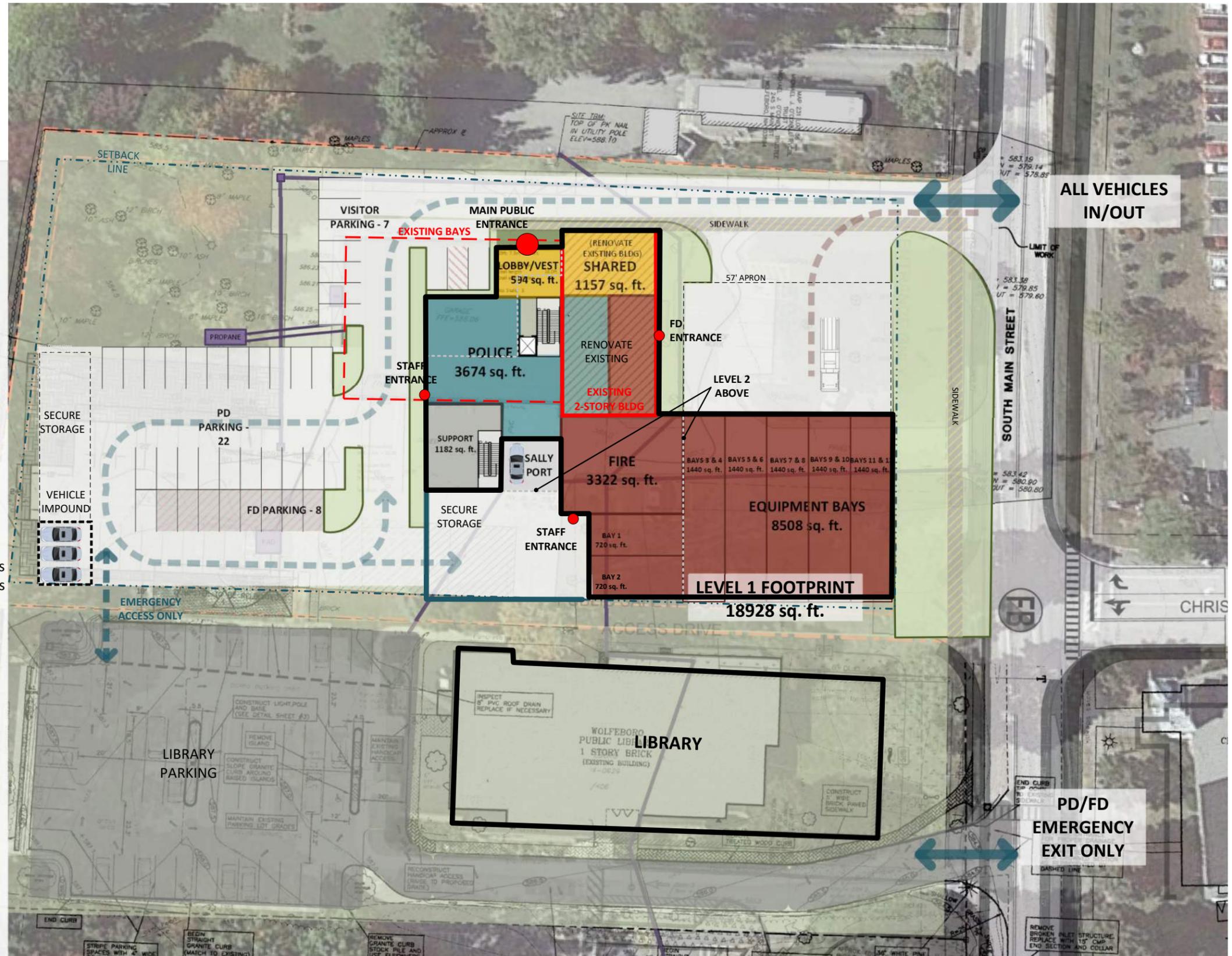
SELECTED OPTION
Renovation and Addition(s)

PROS:

- Maximizes reuse of existing building
- Consolidated footprint at the center of the site, leaving rear of site for parking and secure storage
- Provides vehicular and pedestrian connection to library, creating large connected municipal property
- Maintains sizeable buffer zone to adjacent properties to the rear, and saves most of the existing large trees

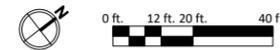
CONS:

- Phased construction required
- FD aprons and Equipment Bays visible to street
- Access to Bays during construction requires reconfiguration of existing circulation paths
- Requires the use of Library property for circulation
- Requires relocation of existing sewer line

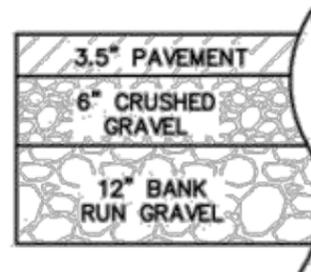
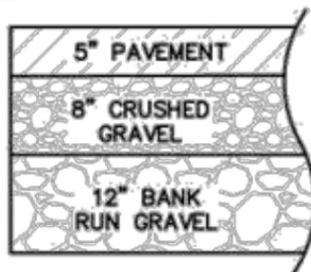
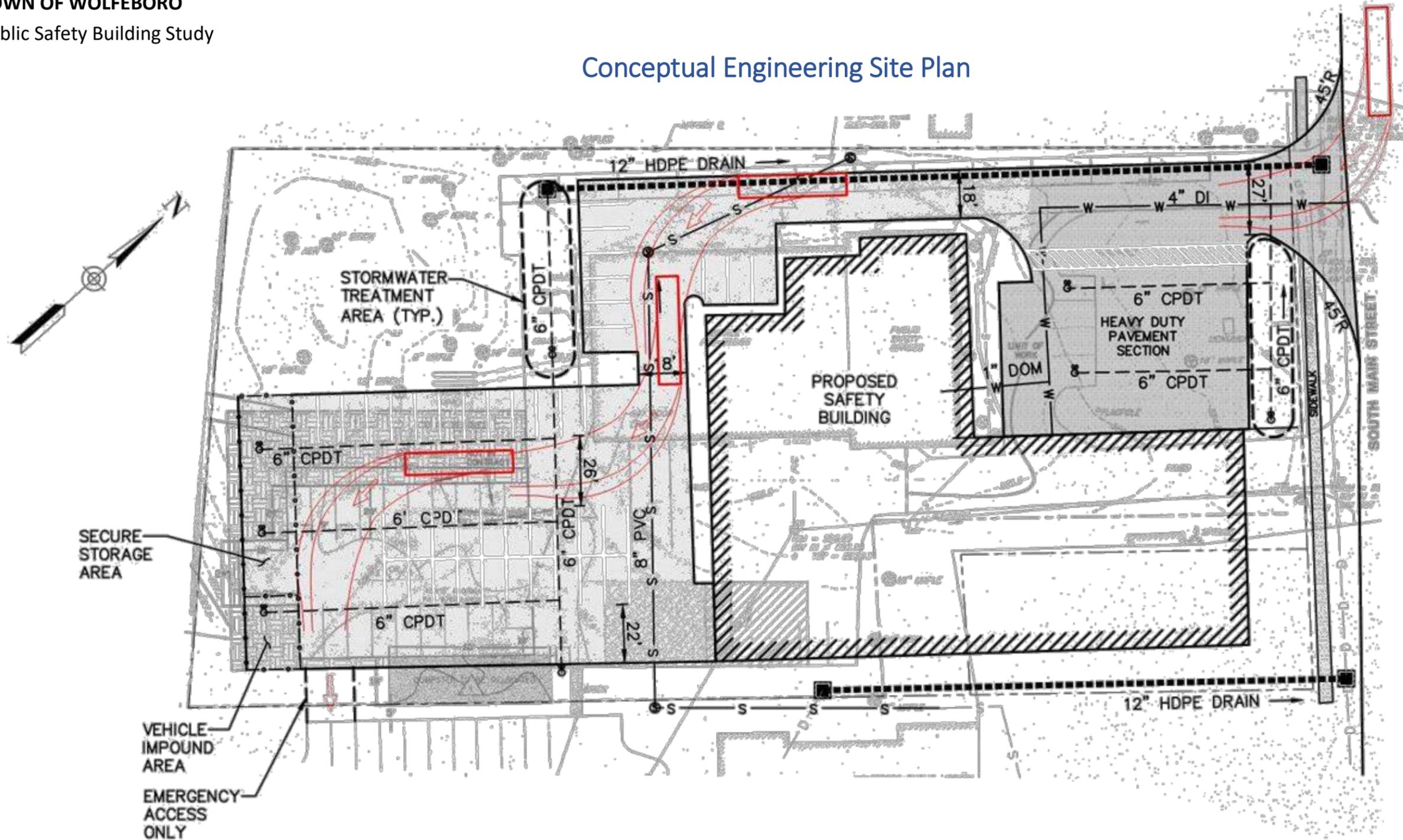


ALL VEHICLES
IN/OUT

PD/FD
EMERGENCY
EXIT ONLY

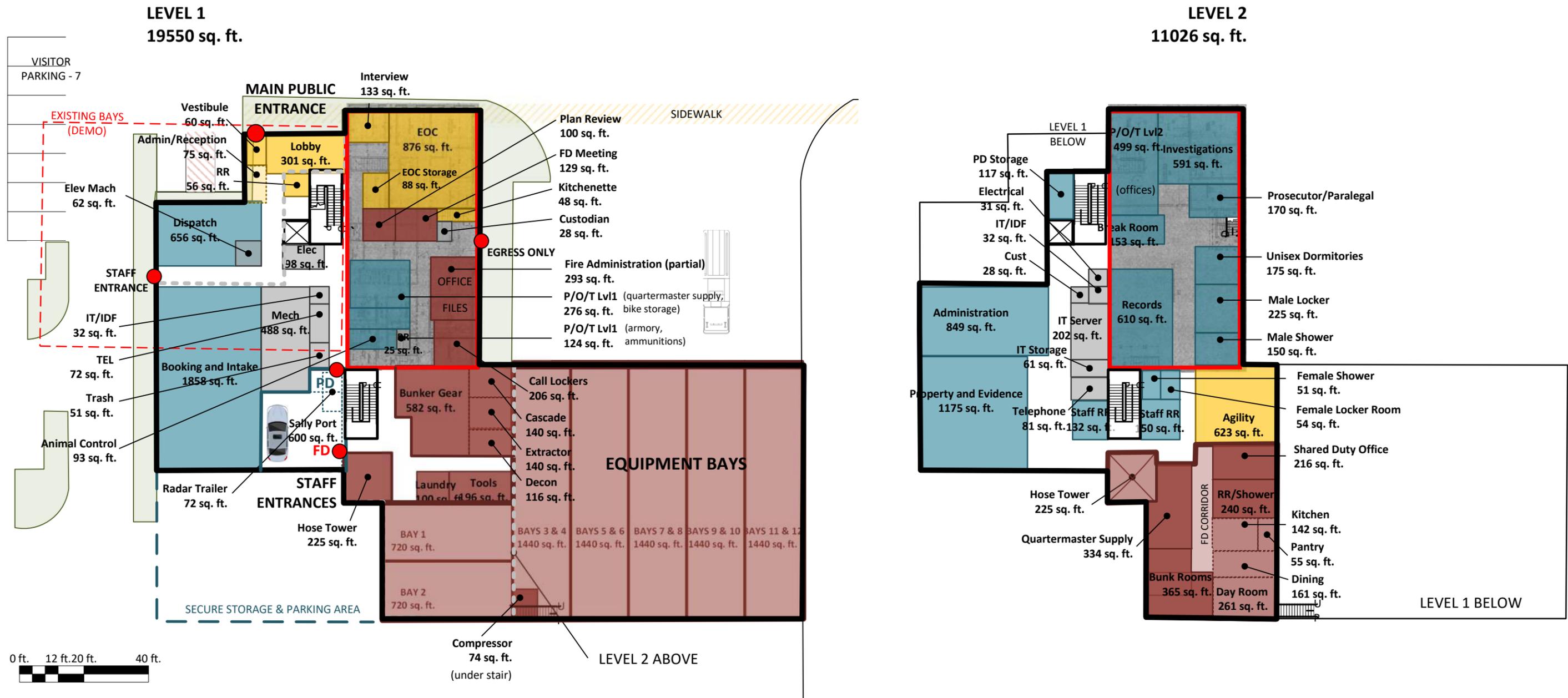


Conceptual Engineering Site Plan



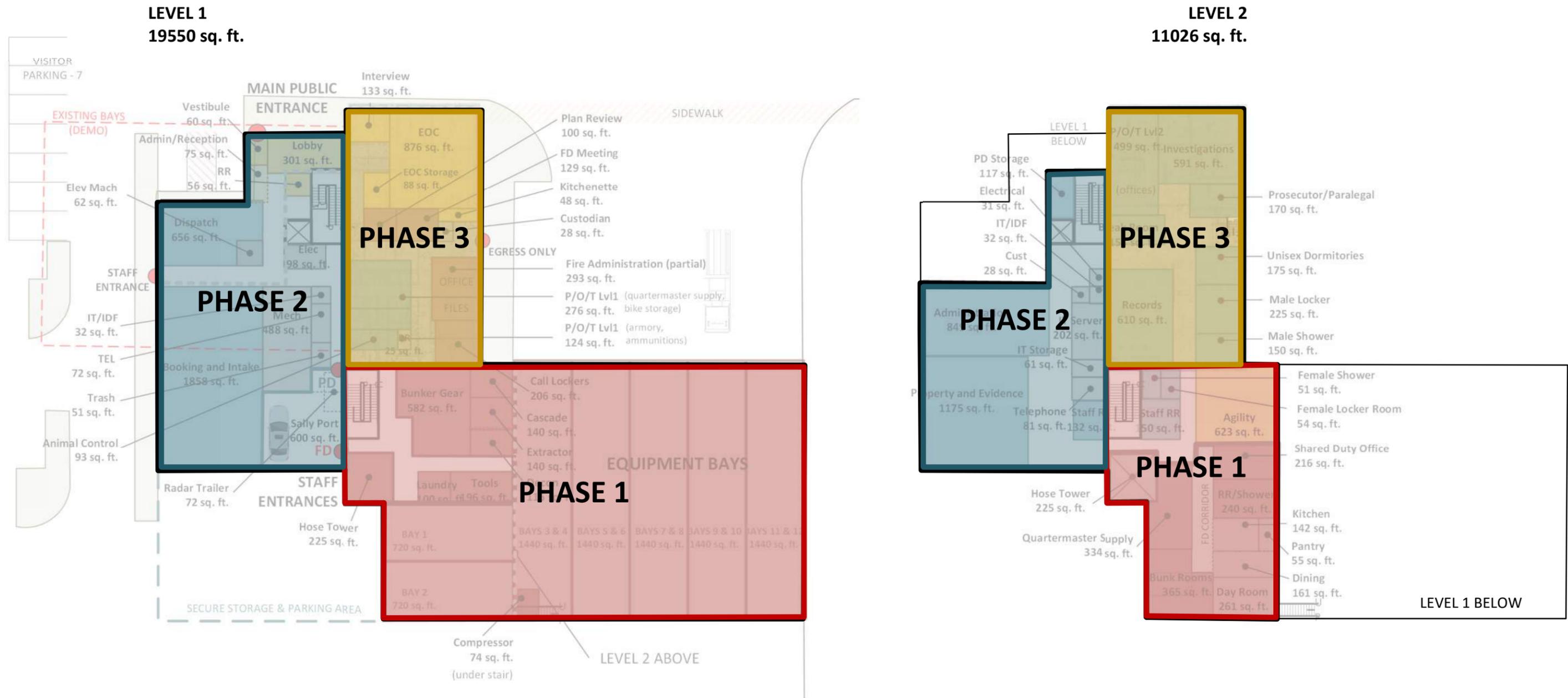
SELECTED OPTION: Renovation and Addition(s)
PROGRAM DIAGRAM

8/8/2018

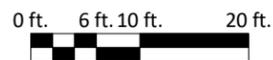
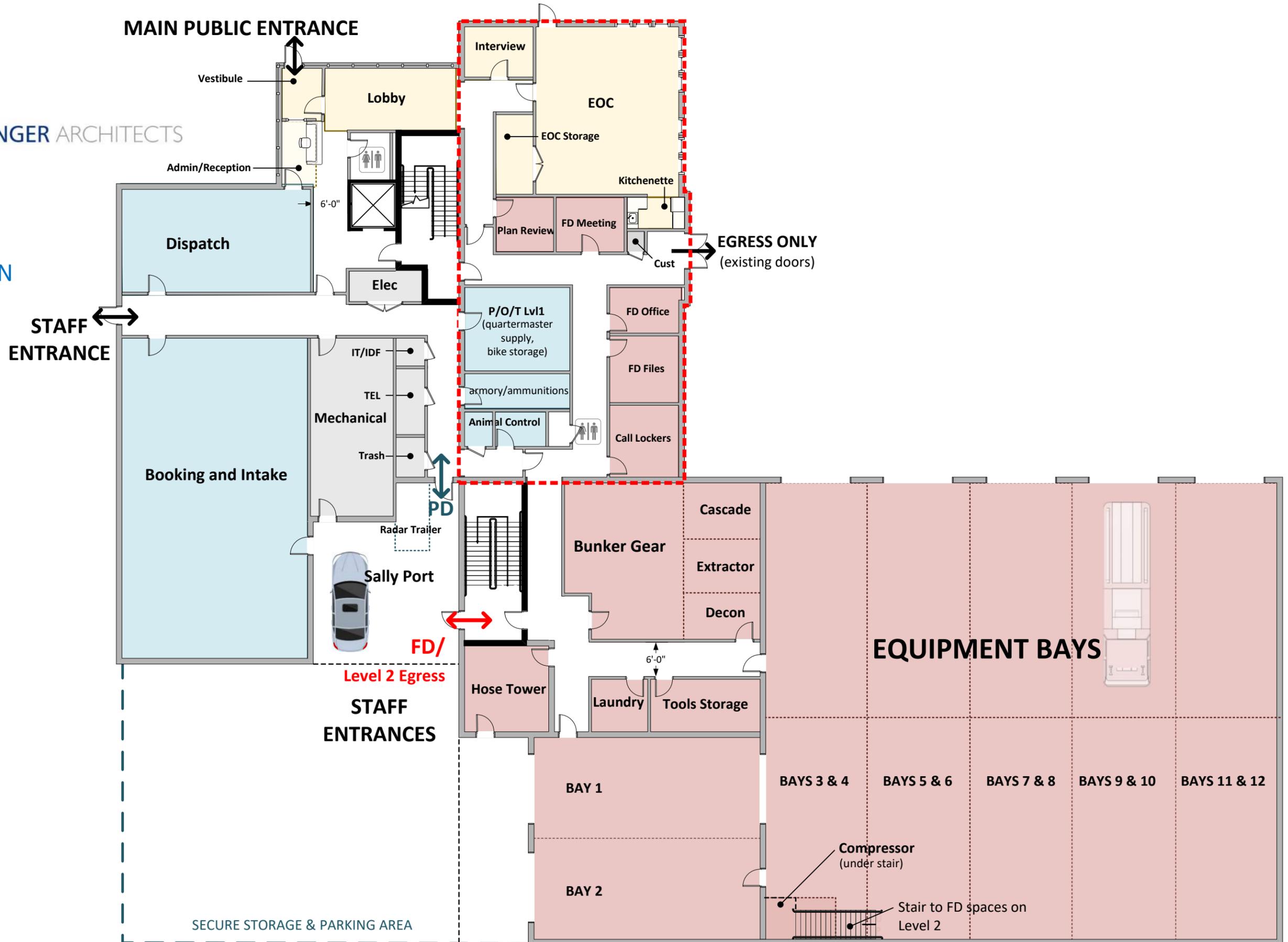


SELECTED OPTION: Renovation and Addition(s)
SUGGESTED PHASING

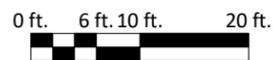
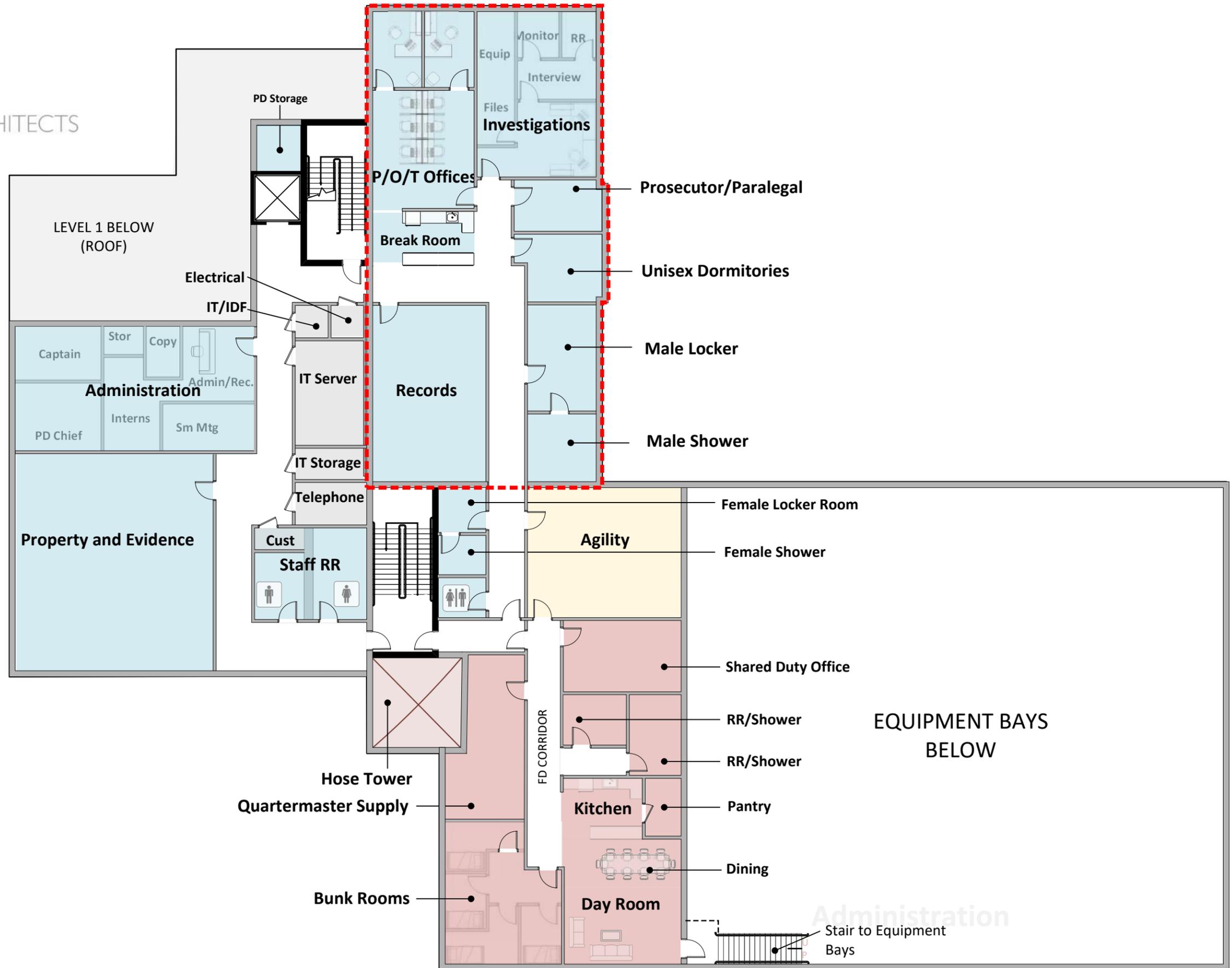
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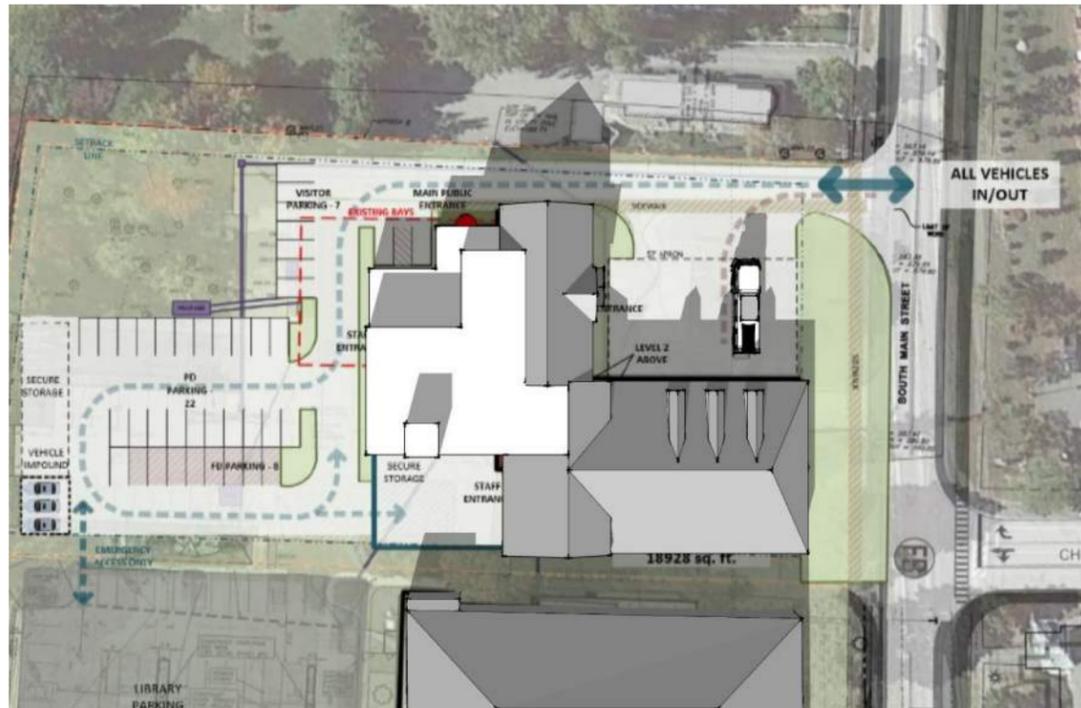
Level 1 SPACE PLAN
Selected Option



Level 2 SPACE PLAN
Selected Option



Conceptual 3D Views



Conceptual Rendering



TOWN OF WOLFEBORO
Public Safety Building Study

Basis of Design

Town of Wolfboro, New Hampshire
Police and Fire Safety Complex
Basis of Design Summary
Project Number: 17-083-00

Basis of Design Summary		
Spec #	Topic	Comments
	Site Documentation (Due Diligence)	
	Land Survey	
	Environmental Assessment	
	Geotechnical investigations	
	Endangered species	
	Water flow test (Hydrant Test)	
	Water quality test	
	Building Code, Permitting, Regulatory	
	Applicable codes	State of New Hampshire Building Code (RSA 155A): 2009 Editions effective April 1, 2010 2009 International Building Code, with amendments 2009 International Existing Building Code , with amendments 2009 International Energy Code, with amendments 2009 International Plumbing Code, with amendments 2009 International Mechanical Code, with amendments 2011 National Electrical Code, with amendments
		State of New Hampshire Fire Code - CHAPTER Safe - C-6000 STATE FIRE CODE Statutory Authority: RSA 153:5; RSA 153:10a, III; RSA 153:14, IV; and RSA 158:28, V(a) [Of particular interest the adoption of NFPA 101, The Life Safety Code and NFPA 1,, The Fire Prevention Code]
	LEED / Level of sustainability	N/A
	NHDOT	Driveway Permit by Town. Excavation permit for utility connections by contractor
	Town of Wolfboro	Planning Review (advisory status) during final design
	Use Classification	Business
	Construction Type	
	Insurance Requirements	
	BIM	
	Revit version	
	LOD	
	Management of model (Design, Bidding, CA, Closeout)	
	Level 1 elevation (100' or Sea Level)	
	Building Envelope	
	Brick Veneer Wall system	4" Masonry (Brick)/ 2" Cavity/ 3" Rigid Insulation/ Weatherbarrier System/ 1/2" Gypsum Glass Board Sheathing/ 6" Steel Stud (non-load bearing)/ 5/8" Gypsum Wall Board/ Paint Finish.
	Metal Panel Wall system	N/A
	Cement Board Wall system	Cement Board Siding/ Drainage Plain/ Furring/ 3" Rigid Insulation/ Weatherbarrier System/ 1/2" Thick Gypsum Glass Board Sheathing/ 6" Steel Stud (non-load bearing)/ 5/8" Gypsum Wall Board/ Paint Finish.
	Membrane Roof System	Single Ply Fully Adheared Roofing Membrane (TPO)/ 1/2" Cover Board/ 6" Rigid Insulation Board/ 1/2" Gypsum Deck Board.
	Pitched roof system	Heavy Weight Architectural Grade Asphalt Shingle/ Weather Barrier System/ 5/8" Plywood Sheathing.
	Roof top equipment screens	N/A
	Building Foundations and Superstructure	Poured-In-Place Concrete Foundation/ Structural Steel Column, Beam and Girder System
	Traditional spread footings	Cast-in-place shallow, spread and strip footings
	Steel framing	Hot rolled steel framing, 50 ksi yield, "W", "C" and "L" sections
	Ideal column grid size	Variable; 26' maximum span in office areas, 40' max. in apparatus bay
	Roof framing (Flat)	Open web steel joists with cold-formed steel deck on primary steel frame
	Roof framing (Pitched)	Open web steel joists with cold-formed steel deck, primary steel frame
	Live load	Vehicular: AASHTO HS-25. Office: 60 psf typical, 100 psf at file and storage areas
	Floor to floor heights	12' to 14', 16' clear high bay at vehicular bays.
	Roof parapet	None

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	Future Expansion (Vertical/horizontal)	N/A
	Special ground floor equipment loads	Apparatus Bay - Emergency & Fire Vehicles
	Slab on grade / concrete foundation walls /spread footings	Grade supported floor slabs, Vehicular slab: 8". Office areas: 4"
	Primary Frame Columns; Tube steel / WF section	HSS columns in office areas, Wide flange columns (W8, W10) in vehicular bays.
	Floor System: Composite Deck / WF section framing	Composite framing, using 3/4" diameter headed studs welded thru the steel deck. 4" concrete on 2" deep, cold-formed composite steel deck (6" total thickness), with WWF reinforcing
	Roof System: Metal roof deck, steel joist or WF beams	Cold-formed, wide rib steel roof deck. Open web joists at 5'-0" on centers.
	Suspended Roof Slab at mechanical equipment	Sim. To Floor System above.
	Roof top equipment screens	N/A
	Building Expansion Joints	Separation of new from building to remain, separation of new office from apparatus bays.
	Window cleaning tie-offs	N/A
	Egress Stairs: Service quality steel w conc pans and pine rails	
	General Conditions add 00 21 13 Instructions to Bidders	
	2004 CSI format	
	Division 00 - Procurement and Contracting Requirements	
00 72 00	General Conditions	
00 73 00	Supplemental Conditions	
	Division 01 -- General Requirements	
01 00 00	General Requirements	
01 00 30	Electronic Media	Digital Documents
01 21 20	Allowances	TBD
01 22 00	Unit prices	TBD
01 23 00	Alternates	TBD
01 57 21	Indoor air quality add 01 40 00 Quality Requirements and Special Inspections	YES
01 74 19	Construction waste management	TBD
01 78 00	Project Closeout / Record Documents	YES
01 78 10	Warranties	YES
	Division 02 -- Existing Conditions	
02 32 10	Subsurface Explorations	
02 41 00	Demolition	Existing Safety Complex - Complete Existing Apparatus Bay/ Partial Police & Fire Office Building
	Division 03 -- Concrete	
03 30 00	Cast-in Place Concrete	
	Footings	3000 psi, 3/4" aggregates (ASTM C33), normal weight, Portland cement (ASTM C150), AE.
	Admixtures in concrete	Air entraining agent, water reducer, set retarder or accelerator, as required.
	Concrete Foundations	3000 psi, 3/4" aggregates (ASTM C33), normal weight, Portland cement (ASTM C150), AE.
	Concrete Slab on grade	4000 psi, 3/4" aggregates (ASTM C33), normal weight, Portland cement (ASTM C150).
	Underslab drainage system	Perforated PVC
	Vapor retarder	15 mil. Minimum thickness with taped joints, Vapor retarder by Stego Wrap or equal
	Perimeter insulation and drainage system	2" rigid (R-10) min Extruded Polystyrene Extended 4"Vertically at Perimeter Foundation
	Underslab insulation	2" Rigid (R-10) min Extruded Polystyrene
	Waterstops	N/A
	Entrance slabs	Pedestrian: 4" Thick - minimum Concrete. Vehicular: 8" thick.
	Depressed entrance mat	1" Deep
	Elevator pit (with sump pit)	4' Deep

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	Concrete suspended slabs	6" total depth, 4000 psi concrete, 2" deep composite steel deck
	Concrete MEP/FP equipment pads	6" grade supported slab with 18" haunched perimeter
	Cast concrete ramp / stairs	N/A
	Concrete filled stair pans	YES/ 4' wide-min.
	Concrete retaining walls	N/A
	Exterior cast in place conc. Stairs/ramps	N/A
	CMU partitions	8" non load-bearing CMU, horizontal joint reinf., #4 @ 48 vert.
	Light pole base	Precast 30" Dia. X 6' - 24" Exposure Above Finish Grade
	Loading Dock	N/A
03 45 00	Architectural Precast Concrete	N/A
03 54 00	Cast Underlayment	N/A
	Division 04 -- Masonry	
04 20 00	CMU	ASTM C129 (non load-bearing)
	Brick veneer	Standard Size/ Severe Weathering/ Red with Flash
	Reinforcing, ties, anchors, flashing, weeps	Posi-Tie Ties/ Stainless Steel Rigid Drip Flasing/ Vertical Celular Weeps/ Top of Cavity Celular Vents
04 40 00	Natural Thin stone veneer system	N/A
04 73 00	Manufactured stone masonry	TBD
	Division 05 -- Metals	
05 12 00	Structural steel framing	ASTM A992 ("W" sections), ASTM A36 ("L" and "C" sections, plates), ASTM A500 (HSS)
05 21 00	Steel Joist Framing	Steel joist institute, K, and LH series
05 31 00	Steel Decking	Roof: 1.5" deep, 20 gauge wide rib "B" deck. Floor: 2" deep, 20 gauge composite deck
05 40 00	Cold-Formed Metal Framing	6" - 16 Gauge min. Galvanized Steel Stud Exterior Wall Framing
05 50 00	Metal Fabrications	Overhead Vehicle Door Frames/ Equipment Supports/ Exterior Concrete Stairway Abrasive nosings
	Loose lintels	Galvanized steel angles, ASTM A36
	Elevator pit supports, pit covers, grating, frames	Grate and frame over elevator sump/ Grating covers over trench drains in vehicle bays
	Bollards at Vehicle Bay Doors	Bollards located each side of all Vehicle Door Openings/ Protective Bollards around Site Mounted Equipment and Tanks
	Trench drain assemblies	Fire Apparatus Bay/ Police Sallyport Bays/ Police Evidence Bays
	Misc. steel angles, plates	ASTM A36
	Exterior and wet location components hot dipped galvanized	All Exterior Steel Exposed to Elements/ Paint Finish
	Window cleaning tie-offs	N/A
	Folding partitions	N/A
	Ceiling hung partitions	TBD
05 51 00	Metal Stairs	Steel Channel & Angle Framing/ Steel Pan Concrete Fill/ Painted
	Steel Ladders Fabrications	Roof Hatch Ladder/ Elevator Pit Ladder
	Handrails and guardrails	1.5" Dia Tubular Handrails & Guardrails/ 1/2 Round Picket Guard Infill
	Ordamental stairs in Lobby	TBD
	Division 06 -- Wood, Plastics, and Composites	
06 10 00	Rough carpentry	Dimensional Sawn Lumber SPF #2 typically. Interior and Window Head-Jams/ Pressure Treated Blocking - Wet Locations. Structural Composite Lumber for girders and posts (LVL, PSL).
06 10 54	Wood blocking	Interior Walls- Fire Treated
06 17 53	Wood blocking and curbing	2x Pressure Treated Blocking at Roof Edge Perimeters
06 20 00	Shop Fabricated wood trusses	N/A
	Finish Carpentry and Arch Millwork	
	AWI Grade	Custom
	Painted wood	TBD
	Wood for translucent finish	TBD

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	Solid surface window sills	Exterior Windows
	Counter supports	Angular Metal Brackets/ Undercounter Cabentry
06 41 00	Arch Wood Casework	Vertical and Horizontal Grade Level Plastic Laminate Finish/ MDO Panel Core- Phomaldihide free
	AWI Grade	Custom
	Cabinets, drawer, aprons, valances	TBD
	Custom reception desks	Police Department Main Lobby Reception Window
	Wall mounted cabinets	Mail Room/ Break Rooms/ Kitchenette
	Wood blocking at door stops	N/A
	Hardware	Commercial Grade B Morticed/ Intregrated Security Access Scan
	Cabinet door hinges	European Style
	Door pulls	4" Wire Style
	Drawer slides	4" Wire Style
	Coat hooks	YES - Back of Office Doors
06 42 16	Wood Veener Paneling	TBD
	Division 07 -- Thermal and Moisture Protection	
07 11 13	Bituminous Damproofing	Applied to Structural Steel Below and Embedded in Concrete
07 14 00	Waterproofing	Elevator Pit - Liquid Applied-Interior face
07 21 00	Thermal insulation	
	Batt acoustical insulation (interior walls)	2 1/2" Batt in all interior wall studs - full height
	Rigid cavity wall insulation	3" (R-18) min. Rigid Isocyanurate Board- Two Equal Layers
	Rigid roof insulation	6" (R-36) min. Rigid Isocyanurate Board- Two Equal Layers Min.
	Underslab insulation (extent)	Full Coverage
07 21 19	Foamed-in-place insulation	TBD
07 24 00	Exeter Insulation and Finish Systems (EFIS)	N/A
07 25 00	Weather barrier system (sheet)	Sheet 40mil minimum
07 31 13	Asphalt Shingles	Heavy Weight Architectural Grade Asphalt Shingle
07 41 13	Metal Roof Panels	N/A
07 42 13	Metal Wall Panels	N/A
07 42 14	Insulated Metal Wall Panel	N/A
07 42 64	Metal Composite Material Wall Panel	TBD
07 46 46	Fiber Cement Siding	4" Exposure Clapboards and Corner Boards
07 54 00	Thermoplastic Membrane Roofing (TPO)	TBD/ Adheared
	Polyisocyanurate roof insulation	6" (R-36) min. in two Equal Layers w/ 1/2" coverboard (Assumes Pitched Structure to Drain)
	Deck underlayment	1/2" Thick Deck Board
07 62 00	Sheet Metal Flashing and Trim	TBD
07 72 00	Roof Accessories	Roof Hatch Ladder Access with Safety Railing & Post-up
07 81 00	Applied Fireproofing	N/A
07 81 23	Intumescent Mastic Fireproofing	N/A
07 84 00	Firestopping	Fire Sealant/ Caulk/ Fiber Fill
07 90 05	Joint Sealers	Silicone
07 95 13	Expansion Joint Covers	2" Joint between Existing Wood Frame Structure and New Construction
	Division 08 -- Openings	
08 11 13	Hollow metal doors and frames	
	Hollow metal doors and frames/ Exterior	Frames - 14 Gauge Extra Heavy Duty HD Galvanized Seamless (Fully Welded Joints Ground Smooth) - Thermal Broken & Insulated. Doors - 16 Gauge Extra Heavy Duty Galvanized Seamless With Bonded Rigid ISO-Board Insulation Core

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Spec #	Topic	Comments
	Hollow metal doors and frames/ Interior	Frames - 16 Gauge Heavy Duty Seamless (Fully Welded Joints Ground Smooth. Doors - 18 Gauge Heavy Duty - Rigid Interior Core
08 14 16	Flush Wood Doors	1-3/4" Thick 5-Ply Solid Core - 32 PSF Density Partical Board or Mineral Core, Architectual Wood Clear Finish Wood Veneer, Lifetime Warrantee
08 31 00	Access Doors and Panels	Misc. Locations Related With MEP Systems
08 33 23	Overhead Coiling Doors	2" Steel Thermal Insulate/ Painted
08 33 23	Overhead Sectional Doors	2" Steel Thermal Insulate/ Vision Windows/ Painted
08 34 63	Detention Doors and Frames	Steel Channel Holding Cell Sliding Door, Painted
08 42 29	Automatic entrances	HC Entry Doorways - Main Entrance/ Vestibule
08 43 13	Alum. Framed Storefronts & Doors	2-1/2" x 4 1/2" Wide, High Energy Efficiency Thermal Broken Storefront - Main Entrance/ Vestibule
08 44 13		
08 51 13	Fiberglass Windows (Fixed & Operable)	3-1/2" min. Fiberglass pultruded Frame, Completely Polyurethane Foam Insulation Filled, Reinforced Molded Mitered Corners/ CSA A440, AAMA and NFRC Tested and Rated/Custom Color Selections/ 7/8" Sealed Double Glazed Glass Unit with 5/8" min. Argon Filled Air Space.
08 71 00	Door Hardware	Commercial Grade 1 (Heavy Duty) Morticed Lever Door Hardware/ Egress Door Panic Hardware/ Integrated Proximity Card Reader.
08 71 00	Door Control Hardware	Electronic Commercial Grade 1 (Heavy Duty) Morticed Lever Door Hardware with Integrated Proximity Card Scan Access control
08 80 00	Glazing	1" Thick High Performance/Low-E/Argon Filled Air Space
08 91 00	Louvers	Architectural Louvers - Anodized Alum with Insect Screen Coordinated with HVAC
	Division 09 -- Finishes	
09 05 61	Floor Preparation	Moisture Barrier System Applied On Concrete with Sheet & Carpet Tile
09 21 16	Gypsum Board Assemblies	Board - 5/8" FR GWB/ 1/2" Fiberglass-Cement board Sheathing/ 5/8" Cement Board @ Tiling/ Shaftwall Mold & Moisture Resistant Misc Materials - Metal Corner & Casing Bead Trim/ Tape/ Compound. Ceilings - Booking & Intake Spaces - 1/2" Gypsum Wall Board over Plywood suspended. Interior Steel Stud Framing - 3-5/8" Wide, 18 Gauge min. + Miscellaneous Framing.
	Typical acoustical partition	5/8" GWB-Painted/ 3 5/8" Steel Stud/ 2 1/2" Acoustic Fiberglass Batt
09 30 00	Tiling	Floor - Architectural Grade 12" x 12" min. Porcelain Tile/ Tile Thin Set Mortar Bed/ Epoxy Mortar Joint Wall - Glazed Porcelain 4" x 12"/ Latex-Portland Cement Grout.
09 51 00	Acoustical Ceilings	2' x 2', Tegular, High NRC 0.07 min., LR- 0.90 min. Light Reflectance/ 15/16" Grid Suspension
09 65 00	Resilient Flooring	Rubber Sheet/ Rubber Tile/ Rubber Treads & Tile Landing @ Toilet Rooms & Laboratory Spaces.
	Wall base	4" Rubber Base/ Cove Base-Wet Locations
09 65 66	Resilient Athletic Flooring	Rubber Tile - 3/8" thickness x 27" Square Tile in Agility- Defense Tactics Lab Space.
09 67 23	Resinous Flooring	Epoxy Resin Flooring in Booking and Intake Spaces (Excluding Vehicle Sally Port)
09 67 70	Detention Surface Padding	Wall Covering in Detention Holding Cells
09 68 00	Carpeting (Tile)	General - Tufted Construction, Multi-Textured Colored Loop,100% Solution Dyed, Reinforced Polyester Cushion Backing. Dispatch Room - Static Dissipative Carpet Tiles.
	Typical Flooring Finishes Schedule	
	Lobby	Walk-off Tile Carpet
	Waiting	Carpet Tile
	Dormatory	Carpet Tile
	Office	Carpet Tile
	Storage room	Resilient Sheet
	Toilet Room	Tile
	Corridors	Carpet Tile
	Public stairs	Resilient Rubber
	Egress stairs	Relilent Rubber
09 72 00	Wall Coverings	Vinyl Protection Sheet - 4' High In Corridors

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09 77 70	Interior Wood Wall Panels	Laminate Covered/ MDO Core/PVC & Metal Edging/Clip Anchored/ Lobby Location
09 84 00	Acoustic Wall Treatment	Community Room/ TBD
09 91 13	Exterior Painting	Enamel - 3 Coats
09 91 23	Interior Painting	Latex - 3 Coats
	Division 10 -- Specialties	
10 11 01	Visual display boards	Marker Board - One (1) per Conference & Meeting room (4' x 6')/ One (1) - 4' x 8' in the Community Room
10 14 24	Interior signage	One Each Room
10 21 13	Toilet Room Compartments	Recycled Plastic Stall Partitions with Stainless Steel Fittings and Door Hook
10 22 26	Folding Panel Partitions	TBD
10 26 01	Wall and cornerguards	48" High Wall Protection all Corridors/ 48" High Corner Guards all Corridor Outside Corners
10 28 00	Toilet Accessories	
	Toilet Paper Dispenser	One per Each Toilet
	Hand towel Dispenser	One per Each Toilet Room
	Soap Dispenser	Deck Mount each sink
	Grab bars	HC Toilets -Stainless Steel - Back/ Side/ Vertical - Each Toilet
	Mirrors	30" x 42" Stainless Steel Channel Trim each Sink
	Shower curtain rods	Four (4) - One Each
	Utility hooks	One (1) Each Shower Stall
	Robe hooks	One (1) Each Office on Back of Door
	Trash receptables	One Recessed Each Toilet Room
	Napkin Disposal receptacles	One (1) Each Women's Toilet Stall
	Baby changing stations	Two (2) - One Each Public Toilet Room
10 44 13	Fire Protection Specialities	Recessed Fire Extinguisher Cabinet + Extinguisher + Monitoring System
10 51 00	Lockers	Metal - Police Staff Wide Personal Locker + Bottom Storage Drawer + Intregrated Benck/ Interior Power/UBS outlets Plastic Laminate - Dispatch Personal - 12" x 12" x 72" Double Tier - PD & FD Staff/ 15" x 15" Box Locker - Booking Detainee Personel Property Metal Tall Cabinet - Police Evidence Drop Lockers - Locking Secure Double Side Access Box Locker Metal - Recessed Wall Mount Weapons Box Lockers at PD Entry Doorways, Sallyport, Booking & Intake
10 56 26	Movable Storage Shelving	High Density Compact Records Paper File Storage - Long Term
10 56 29	Heavy Duty Storage Shelving	36" Deep Heavy Duty Steel Storage Shelving - Adjustable - Property & Evidence Storage
10 75 00	Flagpoles	Aluminum Pole - Tapered/ Internal Halyard with Locking Cover/Swivel Top/2 Poles at 25' Tall/ 1 Pole at 30' Tall
	Division 11 -- Equipment	
11 52 13	Projection screens	6' x 8' in Conference & Meeting Rooms/ 8' x 12' in Community Meeting Room
11 66 23	Wall Padding	2" Thick x 72" High/ Vinyl Covering/ Located on All Walls in Agility & Defense Tactics Lab
	Division 12 -- Furnishings	
12 21 16	Vertical Louver Blinds	N/A
12 24 00	Window Roller Shade System	5% Transmittance/ Fabric/ Manual Chain Control/ All Exterior Windows
12 32 00	Wood Casework	N/A
12 36 00	Countertops	Solid Surface - Public Lobby Reception Windows Plastic Lam - Misc Countertops/ Marine Plywood at Counter Tops with Sinks. Stainless Steel - Booking/ Secreue Interview/ Detention Control Center/ Chemical Processing Lab/ Intoxilizer Room 1" Recessed Walk-off Mat - Removable
12 48 13	Entrance floor mats and frames	
12 93 13	Bicycle rack	TBD
	Artwork	TBD
	Division 13 -- Special Construction	
	Division 14 -- Conveying Equip	

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	Passenger Elevator	One (1) - 3500# Capacity, Machine Roomless/ Electric
	Division 21 -- Fire Suppression	
	Sprinkler Water Service	Fully Sprinklered, NFPA-13 compliant wet sprinkler system.
	Fire pump	TBD. Flow Test Required.
	Sprinkler systems	Wet in all heated spaced. Dry in cold attic spaces.
	Sprinkler head type	Concealed pendant or exposed pendant with guard.
	Sprinkle head location	Ceiling or exposed.
	Fire suppression system	See above.
	Fire Pump	See above.
	Standpipes	None.
	Water shut offs	OS&Y Gate w/ Tamper, Wilkins (or equal) DCDA.
	Materials	Schedule 40 steel with grooved fittings.
	Proposed manufacturers	Tyco, Victaulic, Potter, Viking, AGF
	Division 22 -- Plumbing	
	Domestic Water Service	Exist to remain. Rework exist. FD meter & exist. PD Meter.
	Domestic Water Heating Systems	New LP Gas high efficiency heater, HTP Phoenix 119.
	Domestic Water Distribution Systems	Type L Hard Copper, hot water, cold water, full recirculation. Fully insulated 1".
	Sanitary Drainage and Venting Systems	Sch. 40 Cast iron.
	Storm Water Drainage Systems	Sch. 40 Cast iron.
	Roof drainage	Sch. 40 Cast iron.
	Canopy drainage	TBD
	Special Drainage and Venting Systems	Sand/oil interceptor, heavy duty trench drains @ each bay door.
	Propane or Natural Gas Systems	(2) 1000 Gal. above ground LP Gas tanks.
	Reverse-Osmosis (RO) Water Systems	N/A
	Plumbing Fixtures	ADA where applicable.
	Handwashing sinks (Staff Toilet - multi-user)	Wall mount or countertop lavs. Manual wristblade faucets. PVC guards on all exposed traps.
	Handwashing sinks (Public Toilet - single occupancy)	Wall mount or countertop lavs. Manual wristblade faucets. PVC guards on all exposed traps.
	Toilet (Staff, single occupancy)	Floor mount toilet with manual 1.28 gal/flush valve. ADA where applicable.
	Toilet (Public, single occupancy)	Floor mount toilet with manual 1.28 gal/flush valve. ADA where applicable.
	Toilet (Public, multi-user occupancy)	Floor mount toilet with manual 1.28 gal/flush valve. ADA where applicable.
	Toilet + Sink Unit (Police Holding Cell - Single user occupancy)	Security type with push-button activation, anti-ligature.
	Urinal (Public Toilet, Multi-user occupancy)	Wall mount with manual 1/8 gal/flush valve
	Shower unit	ADA fiberglass insert with center drain an collapsible dam. ADA valve and head assembly.
	Eyewash station	Shower/eyewash combination with tempering valve in each apparatus bay.
	H/K mop sink	One min. - Each Floor Level
	Drinking fountains / water bottle filler	One min. - Each Floor Level
	Division 23 -- Heating, Ventilating, and Air-Conditioning (HVAC)	
	Design degree criteria	IMC 2009 + NH Amendments.
	Fuel source options	Electric heat pump, LP fired makeup air units and infrared heaters.
	Primary Heating Systems	Hydronic heat with LP Gas fired boiler, Fin tube radiation in offices with supplemental heat pump for heating or cooling. (2) 650 MBH boilers. 75 GPM HW Pumps.
	Perimeter heat preference	Baseboard radiation.
	Primary Cooling Systems	18 Ton Heat Pump technology, Mitsubishi Y-Series.
	Hydronic Distribution Systems	Direct return
	Humidification Systems and Distribution	None.

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	Air Handling Systems	Static core energy recovery unit ducted to fan coils.
	Special Air Handling Systems	Vehicle bay - gas fired makeup air unit, Greenheck IGX.
	General Exhaust Systems	Static core energy recovery unit
	Special Exhaust Systems	Plymovent vehicle exhaust with hoses and tracks.
	Air Distribution Systems	Fully ducted supply, return and exhaust systems. All air conditioning and above ceiling duct to be fully insulated.
	Local Terminal Equipment and Systems	Trane unit heaters, Cab heaters. Price grilles, registers and diffusers. Greenheck louvers.
	Piping Materials	Type L Hard Copper, fully insulated 1 1/2" up to 2". 2" on 2" and up.
	Duct Materials	SMACNA
	Proposed Manufacturers	Trane, Taco, Greenheck
	Division 25 -- Integrated Automation	
	Automatic Temperature controls	Yes, new DDC system with touch pad controller equal to Trane Tracer.
	HVAC Zoning	Central cooling control (1 t-stat) with individually zones for heating in each space. Like spaces may be joined in a heating zone.
	Division 26 -- Electrical	
	Electrical company / designation	Wolfeboro Light and Power
	Normal Electrical Service	1200 amperes at 120/208 volts, three phase, four wire
	Pad mount transformer (utility)	Pad preferred, but Utility may opt for a pole mounted solution
	Generator - Standby	250 KW, Sound Attenuated Diesel, 48 HR fuel supply, outdoor pad mounted
	Electrical equipment	1200 ampere MDP, 1200 ampere SE Rated Transfer Switch and subpanels.
	Grounding	Building Steel, Service, Water Piping, Rebar and Telecom Ground Bars
	Lightning Protection	Faraday Cage, roof mounted air terminals in accordance with NFPA 780
	Wiring Methods	Conductors in conduit for exposed work, MC cable for concealed in non-cmu walls
	Lighting and Controls	Localized Digital Controls, sensors and TOD Relay Panel
	Lighting	LED only
	Office	2x2 Layin Volumetric, 3000 lumen
	Waiting / Public corridors	2x2 Layin Volumetric, 3000 lumen
	Toilet Rooms	Over mirror linear product plus a lens downlight
	Building mounted	LED wall packs and area lights, photocell controlled
	Parking lot	LED Area Lights on 20 foot poles, photocell controlled
	Lighting and Controls	Localized Digital Controls, sensors and TOD Relay Panel
	Photovoltaic Collectors	TBD
	Division 27 -- Communications	
	Main Data Room	Per TIA Standards
	Data Room (per floor)	Per TIA Standards
	IT Raceway/Pathway System/Cabling/Terminations	Wire Basket Tray above accessible Ceilings, CAT 6 cabling, Jacks and Patch Panels for plug and play. Four data drops minimum per office. 2 each on opposing walls
	Voice Communications	TBD, but cabled with Data systems
	Cable TV	RG6 cabling to sleeping, dayrooms and dispatch
	Wireless network	TBD, but cabled with Data systems
	Overhead Paging system	TBD, but interfaced with Dispatch and Call System
	AV Systems / requirements / infrastructure	Day Room, Training Room and Conference Room, interfaced with Data
	Waiting Rms / USB port - Phone	Power Receptacles with USB phone chargers
	Employee Time Clock	TBD
	Division 28 -- Electronic Safety and Security	
	Security	TBD
	Card access - doors	See Hardware
	Video surveillance (interior & exterior)	TBD
	Fire Alarm System	Addressable with Horn/Strobe Notification Signals.
	Division 31 -- Earthwork Specifications	

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31 08 00	Testing	Allowance for Geotech Field Testing (concrete, pavement, aggregates, stormwater infiltration areas)
31 10 00	Site Clearing	Small trees (under 24" diameter)
31 08 00	Testing	
31 10 00	Site Clearing	
31 20 00	Earth Moving add 31 23 15 building Pad Earthwork based on geotec report	
	Crushed Gravel	NHDOT 304.3 or 304.4 (Option 1 - may substitute reclaimed asphalt)
	Bank Run Gravel	NHDOT 304.2 or 304.5
	Division 32 -- Exterior Improvements	
	Site Design Elements	
	Solar orientation	
	Views to nature/ entry drive	
	Parking (Per zoning, min. size)	9'W x 19' L (or length can be reduced to 17' if vehicle overhangs a turf area)
	Parking (Per zoning, min. size)	
	Public transportation / bus access	
	Patient drop off	
	Patient / Staff entrance	
	Service area / Loading dock requirements	N/A
	Police & Fire Vehicle Entrance	Check turn radii for fire trucks.
	Snow removal	
	Future expansion (parking and building)	
32 12 00	Flexible Paving Surface (Asphalt)	Heavy Duty pavement in 57' Apron area (also parking aisles where truck traffic is anticipated for Option 1)
	Heavy Duty Pavment Section	3 Lifts NHDOT Superpave (2.25" 19MM Binder, 1.5" 12 MM Wearing, 1.25" 9.5 MM Wearing)
	Regular Pavement Section	2 Lifts NHDOT Superpave (2.25" 19MM Binder, 1.25" 9.5 MM Wearing)
	Sidewalks	3" asphalt w. 18" crushed gravel in NHDOT ROW (Town Standard)
	Parking lot islands	Turf (4" Loam and Seed w. mulch and tackifiers)
32 13 00	Rigid Paving (Concrete)	Internal site areas
	Sidewalks	4" depth x 5'W (6" depth at curb ramp areas)
	Parking lot islands	
32 14 00	Unit Paving	
32 16 00	Curbs, Sidewalks, Driveways	Not at this time
	Curbing (material & type)	
	Curbing at patient drop off	
	Sidewalks (materials, width, fill material)	
32 17 13	Parking bumpers	
32 17 23	Parking markings	Thermoplastic pavement markings for cross walk areas, Retroflective Paint (white) all other areas (parking spaces, etc.)
32 17 23	Pavement Snow Melting system	
32 31 00	Fences and Gates	
32 32 00	Retaining Walls	
32 33 00	Site Furnishings	
	Site Bicycle rack	
	Site trash receptacles	
	Site manufactured planters	
	Site seating and tables	
	Flagpole	
32 39 00	Site Specialties	See Architectural Division 10 - Section 10 75 00
	Metal Bollards	

Town of Wolfboro, New Hampshire
Police and Fire Safety Complex
Basis of Design Summary
Project Number: 17-083-00

Basis of Design Summary		
Spec #	Topic	Comments
	Trash compactor / dumpster	Dumpster (south side of building Option 1; back of building Option 3)
32 80 00	Irrigation system? Components?	
32 90 00	Planting Pre, Soil Prep, Stabilization	
32 92 00	Turf and Grassess	Remaining non paved areas
32 93 00	Plants	TBD - Stormwater Management Areas
	Ground cover	
	Plants and Bulbs	
	Shrubs	
	Trees	
33 00 00	Utilities	
33 14 00	Water Utility Tranmission & Distribution	Match existing waterline size (4") unless fire flow demands require increase. Replace to drive apron w. new Ductile Iron pipe. 1" copper domestic service
	Piping, valves, enclosures	
33 16 00	Water Utility Storage Tanks	
33 19 00	Water Utility Metering Equipment	to be provided by Town w. connection permit
	Fire department connection	4" to match existing (unless determined otherwise per above)
33 30 00	Sanitary Piping, Equipment	Relocate 8" PVC as shown (Option 3) or provide 4" PVC service connection (Option 1)
	Manholes	4' Diameter Concrete
33 40 00	Stormwater Utilities	
33 41 00	Subdrainage	6" CPDT for groundwater and poor soils in parking/pavement areas
	Foundation drainage	
	Underslab drainage	
	Retaining wall drainage	
33 42 00	Stormwater Conveyance	12" HDPE corrugated pipe, smooth interior, 4' Diameter Catch Basins (NHDOT Type B)
33 44 00	Stormwater Utility Equipment	
33 46 00	Stormwater Management	Raingarden Bioretention areas (or other TBD) - depressed area 2' below FG, plantings, 4" mulch 18" biomedial, 12" crushed stone, 6" CPDT perforated, cleanout
	Detention ponds, retention ponds	
	Fire Protection ponds	
	Cooling tower ponds	
33 70 00	Electrical Utilities	
	Electrical poles	
	Electrical u/g ductbanks, manholes	
33 71 26	Transmission and Distribution Equip	
33 73 00	Utility Transformer	
	Generator	
33 80 00	Communications Utilities	
	Tramsmission and Distribution	
33 83 00	Wireless Com. Trans. & Distribution	
33 52 00	Underground Gas Utility	
	Gas Storate Tank	
34 40 00	Transportation Signaling & Control Equip	
	Site signage/wayfinding	
	Traffic Signage	
	Site lighting (Light poles, pedestrian walkways)	
	Emergency pull stations	
	Security cameras	
	Vehicular guiderails (material)	

Conceptual Budget

Selected Option

TOWN OF WOLFEBORO - PUBLIC SAFETY BUILDING			
OPTION 3 - Addition/Renovation 29,761 s.f. - Conceptual Budget			
SITE DEVELOPMENT:		\$ 720,000	\$ 24.19 psf
Mobilization, erosion control, clean-up	\$ 60,000	\$ 2.02	psf
Site demolition, cuts/fills	\$ 80,000	\$ 2.69	psf
Excavation, backfill for structure, slab preparation	\$ 100,000	\$ 3.36	psf
Utilities and drainage	\$ 205,000	\$ 6.89	psf
Pavement, markings, hardscape, sidewalks, signage, bollards	\$ 250,000	\$ 8.40	psf
Landscaping, benches, bike racks	\$ 25,000	\$ 0.84	psf
DEMOLITION OF EXISTING STRUCTURES:		\$ 60,000	\$ 2.02 psf
RENOVATION/ADDITION CONSTRUCTION: 29,761 sf		\$ 7,559,294	\$ 254.00 psf
Structure and foundation, including masonry walls	\$ 1,636,855	\$ 55.00	psf
Thermal and moisture protection	\$ 714,264	\$ 24.00	psf
Doors and windows	\$ 446,415	\$ 15.00	psf
Framing and finishes	\$ 1,101,157	\$ 37.00	psf
Specialties and equipment	\$ 178,566	\$ 6.00	psf
Elevator	\$ 89,283	\$ 3.00	psf
Mechanical systems and fire protection	\$ 1,607,094	\$ 54.00	psf
Electrical and security systems	\$ 892,830	\$ 30.00	psf
CM general conditions and fee	\$ 892,830	\$ 30.00	psf
DESIGN AND CONSTRUCTION CONTINGENCY 10%:		\$ 833,929	\$ 28.02 psf
HARD CONSTRUCTION COST TOTAL:		\$ 9,173,223	\$ 308.23 psf
SOFT COSTS 16% OF HARD COSTS:		\$ 1,467,716	\$ 49.32 psf
A/E fees			
Geotechnical engineering			
Planning and permitting fees			
Legal, accounting, builders' risk insurance			
Third party testing			
Owner's project manager/clerk of the works			
Utility connection fees and backcharges			
Generator			
Exterior signage			
Furniture, fixtures, equipment			
ADDITIONAL COSTS NOT INCLUDED:			
Relocate dispatch equipment			
Existing building abatement and testing			
Police radio system and equipment			
HARD CONSTRUCTION COST ESCALATOR TO 2020 - 4% PER YEAR		\$ 1,145,405	\$ 38.49 psf
SOFT COST ESCALATOR TO 2020 - 2.5% PER YEAR		\$ 112,854	\$ 3.79 psf
TOTAL PROJECT HARD AND SOFT COSTS in 2021:		\$ 11,899,198	\$ 399.83 psf

APPENDIX

EXISTING FACILITY CONDITIONS ASSESSMENT

March 26, 2018



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EXISTING FACILITY ASSESSMENTS

Architectural Assessment	A-1 – A-10
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Mechanical / Plumbing / Fire Protection / Electrical Assessment	MEP-1 – MEP-11
Site Assessment	C-1 – C-2

APPENDIX

Existing Building – LBA Drawings
Melanson Company Roofing Documentation Communications

EXISTING FACILITY – ARCHITECTURAL ASSESSMENT

WOLFEBORO PUBLIC SAFETY BUILDING - EXISTING CONDITIONS ASSESSMENT

EXISTING CONDITIONS - INTRODUCTION

The Town of Wolfeboro contracted with Lavallee Brensinger Architects and its consultants Underwood Engineering; Civil Engineers, Yeaton Associates; HVAC Engineers, Foley Buhl Roberts and Associates; Structural Engineers, to conduct an existing facilities assessment of the Town Public Safety Building at 84 South Main Street, Wolfeboro, NH on January 5, 2018. This structure houses the combined Town Police Department and the main Fire Department facility. The Town provided Lavallee Brensinger with the following studies and documentation as reference in our assessment. Additionally, the Town made available access to existing Department personnel to assist with anecdotal information during our on-site review.

Owner Shared Existing Conditions Documentation

- AG Architects, PC; Space Needs Assessment, dated 2003
- AG Architects, PC; Wolfeboro Public Safety Building Renovations, Permit Set, dated May 2010.
- Bennett Technical Services LLC: Building Inspection and Life Safety Code Analysis of the Wolfeboro Public Safety Building, dated 2010
- Existing Facility Construction Documents (partial documents set) by Donald E. L. Hallock, Eng./Designer, dated 1973.
- Melanson Company; Apparatus Bay Reroofing quote (LBA contacted and requested info) (See Addendum)

EXISTING BUILDING – General Overview

The existing facility is constructed of two (2) building structure types. Both Departments share office functions in an attached 2-story platform framed wood structure with a 4" thick cavity wall veneer finish. The north, east and south elevations are of brick. The west elevation abutting the one-story apparatus bay structure is veneered with 4" thick concrete block. The roof structure is a pitched wood truss construction bearing on exterior wood 2x4 stud walls on the east and west elevations. A smaller minor dormer roof section of similar wood construction located on the east elevation is over-framed on the main roof trusses. The exterior cavity wall structure sits on a perimeter concrete frost wall foundation with a first floor slab-on-grade construction. The roof waterproof layer is an asphalt shingle style product. The windows are thermal insulating glass with wood frame. Exterior personnel door types vary on each elevation including sheet metal with vision glass, anodized aluminum frame with insulating glass and solid wood panel type with wood frame.

The Apparatus/ Sallyport Bay structure abuts the two-story office structure to the west. It consists of a combined exterior painted single wythe 8" concrete block perimeter bearing wall and interior steel column and beam structure. The roof structure is a low pitch bar joist construction bearing on interior steel beams and exterior masonry wall. Metal deck roof construction spans bar joist. The roof waterproof layer is a single-ply membrane product and drained to internal drains. The exterior personnel doors are sheet metal construction with insulating vision glass. The few west wall windows are sliding aluminum frame with single pane glass. The apparatus bay overhead doors are a sectional insulating type construction using two (2) exterior layers of fiberglass sheets with an internal aluminum frame construction.

The approximate gross area of the building is as follows:

- The two story Office building; 40' X 80' footprint (3,200) X two levels = 6,400 gross sq. ft.
- The Apparatus/ Sallyport Bay area; 95' X 70' = 6,650' gross sq. ft.

Site visit weather conditions during our facility assessment was cold and in the low 20 degrees Fahrenheit. There was a light breeze and sunny with intermittent snow showers. On the day before our visit, January 4th, there was a snow storm which left approximately 11 inches of snow accumulation.



BUILDING EXTERIOR ENVELOPE

ROOFING

Due to the previous day's weather conditions, it was not possible to fully observe and verify existing conditions. We were able to contact the roofing contractor; Melanson Company of Bow, NH who recently installed a new roof and insulation on the apparatus bay portion for further information. With this information and from discussion with existing employees, the following was determined:

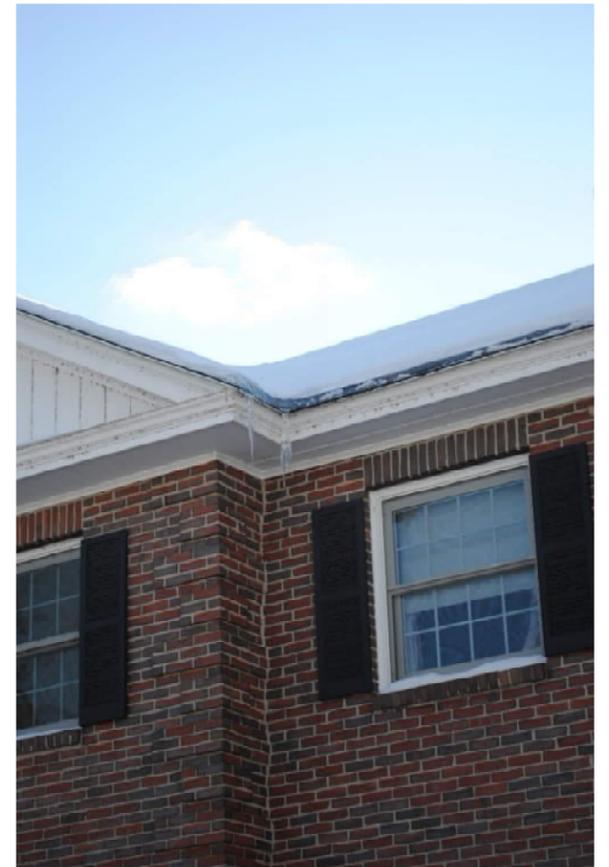
- Roof - Fire Department Apparatus Bay/ Police Department Sallyport

The Apparatus Bay and hose tower roofs are low pitch (1"/12" slope) construction. The roof system including membrane, metal edge drip flashing and insulation were totally replaced in 2012. The system is a Firestone single-ply EPDM membrane system with a 15-year warrantee. Two (2) inch thickness of rigid isocyanate insulation was installed over the metal deck. This insulation has a thermal value R-11.4 Long Term Thermal Resistance (LTTR). The recommended roof R-value for this climate zone (Zone 6) is R-25 (PIMA). Due to snow covered roof, we were unable to observe the membrane conditions. However, considering that the roof membrane is only 5+ years old, it should be in very good condition. No evidence of water leakage was apparent nor shared by employees. This roofing system would appear to be in very good condition.

- Roof – Office Facilities

The two-story Office roof (7"/12" slope) portion of the facility is covered with a 3-tab style shingle style asphaltic product. From information provided by the Town's employee, this roof was replaced around the late 1990's. The quality of product used is unknown. And if the assumed install date is accurate, this roofing would be close to 20 years old. Anecdotal comments from the employee shared that the roof shingles are showing aging with edge wear and curling. We were unable to confirm this condition due to snow accumulation on the roof. No evidence of interior space water leakage was observed. And, no other comments were offered at the time of review. The average residential quality asphalt roofing shingles warrantee and life expediency is between 15 to 25 years for this type shingle. Further review by a roofing contractor would be suggested to get a detailed report and confirm conditions. Based on the age of the existing roof, the replacement of this roof will be recommended as a part of the planned renovation and expansion for the facility.

Minor ice damming on the east elevation roof in the small gable roof valleys above the public entry doors was observed. No similar conditions were observed elsewhere. Soffit venting was observed along the main roof and gable ends. Venting in the lower soffit above the masonry exterior wall was missing. In reviewing the construction drawings, the small gable roof section was built over the main roof plywood sheathing and supported by the main trusses. This creates a complex space and potentially difficult to vent. So, it is suspected that this valley ice buildup could be a result of trapped heat loss from below causing melting snow on the roof. Further study of this area might clarify what is causing this issue. Interior damage from water back-up was not apparent from inside the building. Ice damming was not observed on the west facing gable roof.



Minor ice damming at East façade roof

EXTERIOR FACADE

- Masonry Walls – Fire Department Apparatus Bay/ Police Department Sallyport

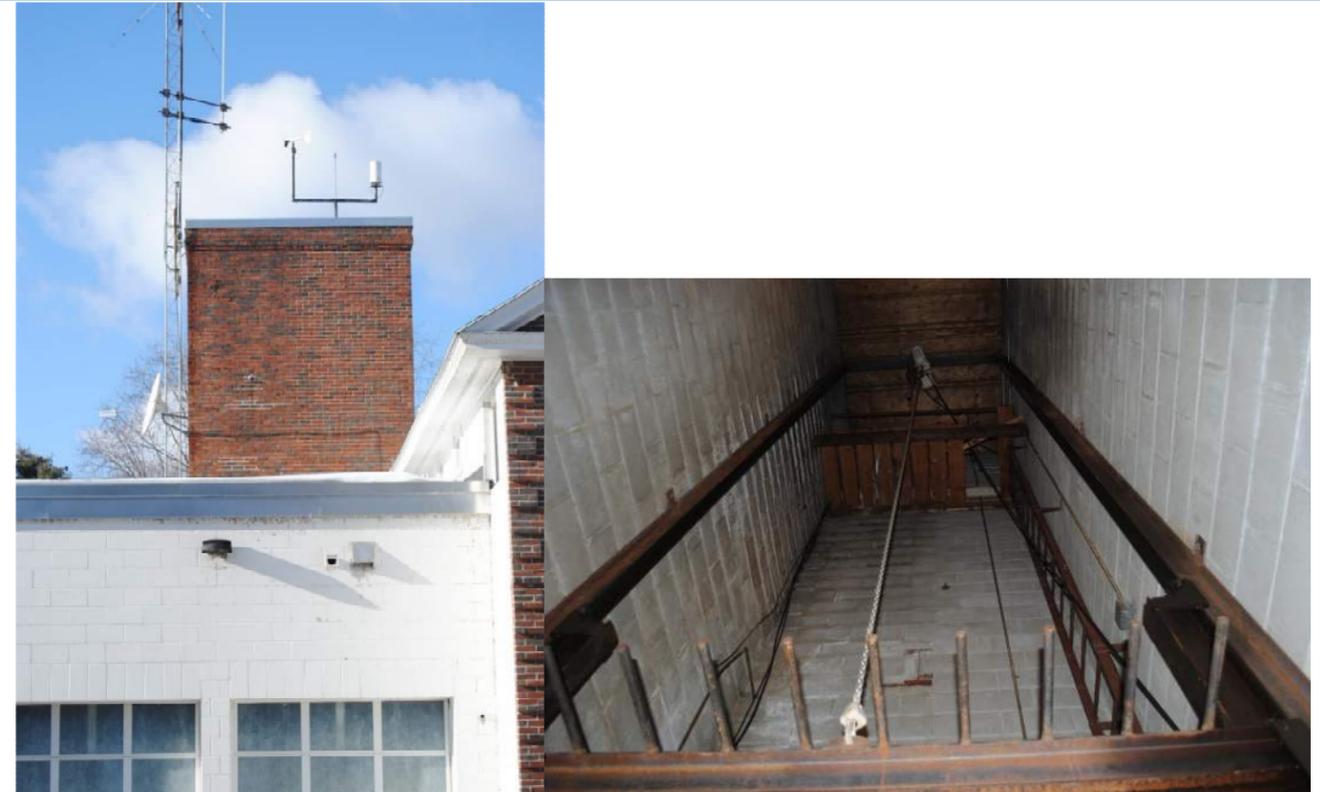
The Apparatus Bay walls appear to be in good condition and well maintained. The walls are holding a good paint finish with no evident surface failures. Mortar joint degradation and cracking was not observed.

The exterior Hose Tower brick veneer was not accessible from the outside for a close review. They appear to be in good condition. According to the *Bergeron* report, the brick should have been repointed. However, it does not appear to have been repointed recently. The hose drying tower from the interior view appears to have moisture saturation on the interior concrete block surfaces on the south and west walls near the top of the shaft. This moisture could be due to warm air rising from inside the Apparatus Bay and condensing on the walls. However, this shaft is vented at the top with a wall louver on the west elevation and should relieve this possibility. A better possibility could be from a combination of roof and wall conditions. The tower roof pitch drains moisture over the roof edge allowing water to drain down the brick face. This can saturate the veneer surface and travel inside the wall. Similar moisture conditions were identified in the "*Bergeron*" report. Further review of this issue is warranted to resolve the cause of this condition.

- Masonry Walls – Office Facilities

The two-story Office portion of the facility appears to be in good condition with only a few issues for comment. The exterior brick veneer extends up from just above finished grade to the roof overhang on the north, east and south elevations. The wall face is well protected by an 18”+/- roof overhang. Thru-wall asphalt coated copper cavity wall flashing was observed extending under the brick and above the concrete foundation wall. The flashing was cut flush with the brick and concrete foundation wall. The same metal flashing was also observed atop steel lintels at masonry wall window and door openings. It too was cut flush with brick finish. Unfortunately, missing at all these locations were masonry cavity wall weep openings. These openings should be located just above thru-wall flashing in vertical brick joints 16” o.c. These vents allow moisture from within the wall cavity behind a brick to drain out. In review of the *Bergeron* report, it called for brick joint repointing in numerous locations of the brick walls. It also noted along with repointing repair work to, *“Be careful however to not fill intentional drainage “weeps” with mortar.”*. Apparently, this warning was not followed during repairs and repointing process incorrectly mortared existing weeps close. Reinstalling cavity weeps as soon as possible is imperative for a healthy cavity wall construction. Moisture build-up in the wall cavity behind brick from capillary action through wet brick and mortar joints has no way to escape. Trapped moisture can cause damage to wood framed walls, cavity side sheathing and interior gypsum wallboard wall finish. We recommend the install of pre-manufactured rectangular cavity wall weeps. An example product to be considered is “Cell Vent” by Hickmann (3/8”x2-1/2”) or other similar product specifically designed for this purpose. Weeps at the bottom of wall cavity should be maintained free of ice and snow build-up. And, the perimeter grade at walls should pitch positively away from walls. The present flashing location is only slightly above adjacent finish grade creating a potential problem. If moisture build-up at grade is an issue, further steps could be taken to keep moisture away from these weeps.

The brick veneer and mortar joints on all elevations appeared to be in good condition. There is evidence that some isolated repointing to wall mortar joints was executed. Brick sills at locations accessible to observe need some repointing where mortar has chipped and eroded. Sills see severe weathering, and should all be reviewed for attention. There is some minor build-up of liken and moss growth along the lower 16”+/- surfaces above grade only on the east elevation wall. This could be resulting of constant wetting of the brick surface from roof rain run-off and splashing up from the adjacent finish grade. This liken should be removed with a proper cleaning method. The *“Bergeron”* report recommended applying a waterproofing to all brick surfaces. If this was executed during the earlier restoration, a reapplication may be recommended following cavity weeps installation and brick cleaning.



Hose tower exterior and interior views of moisture saturation.



Brick masonry previous repointing – no brick weeps



Liken growing on east façade brick.

WINDOWS

- Exterior Windows – Fire Department Apparatus Bay/ Police Department Sallyport

Exterior windows on the west wall of the Apparatus Bay are side-sliding aluminum frame with single pane glass. They appear to be original installed product. They look in good condition but are very poor energy efficiency performing. Considering the poor energy performance of the Apparatus Bay envelope, replacement of these windows may not prove a valued action until further overall envelop improvements are considered.

- Exterior Windows – Office Facility

Exterior windows appear in general to be in good condition. They appear to be of a residential level quality product and expect are replacement units since the original building construction. The windows are of a thermal insulating glass and wood frame type with weather-stripping. Some conditions were observed where the bottom weather-stripping on lower sash have come free. It would be our recommendation to review all windows and replace or repair weather-stripping as necessary. Reducing air infiltration through windows is a major step in increasing building energy performance. And, this maintenance is a very cost-effective action to take. Perimeter joints between window frame and brick masonry are very important to maintain building energy efficiency as well in the reduction of air infiltration. These joints should be inspected annually and replaced about every 7+/- years. It was observed from inside the attic and outside that the south attic semi-circular window joint between frame and brick had no sealant. Although the attic is an unheated space, this opening also allows moisture into the building which can then create damage to the interior wall system along with air infiltration. It is unknown when sealant joints were last reviewed. It usually happens when wood trim is repainted. A review of all joint conditions should be scheduled to determine the full extent of repairs necessary.



Apparatus Bay west windows

Office section window weatherstripping repair



Missing sealant around window to brick joint.

DOOR OPENINGS

- Exterior Doors – Fire Department Apparatus Bay/ Police Department Sallyport

Apparatus Bay garage roll-back overhead doors were preplaced around 2012 per the facility staff. They are an aluminum framed door with fiberglass sheets on the interior and exterior face of the frames creating an insulated panel system. They appear to be in good condition and presently operate appropriately according to facility staff. There is one bay door on the south elevation on the west end of the building that has a broken exterior skin. We would recommend this condition be repaired to keep moisture intrusion from the door system and return it back to designed thermal quality. There are two (2) exterior personnel doors. Both doors and their weatherstripping appear to be in good condition. It could not be verified whether these doors are insulated.

- Exterior Doors – Office Facility

Exterior pass doors are of a metal type except one (1) and all appeared to have perimeter weather-stripping. It could not be verified whether these doors are insulated. The north elevation door and frame are of wood and may be original to the building. The front public entry doorway is a commercial style of aluminum and insulating glass with two (2) swinging doors. Because it is difficult to weatherstrip double doors, they potentially are not very energy efficient.

WOODWORK

- Exterior Wood Trim – Office Facility

In general, all trim at roof soffits, windows and doors appear to be in good condition with no observed chipping or peeling. There are numerous insect cocoons collected on the wood surfaces. The colonial wood decorative trim over the front entry door is showing some rotting. Considering the advanced condition, it looks like this condition may have been here for a while. Moisture may be gathered on the flat top surface and soaking into the wood. Repair or replacement would be recommended.

- Exterior Wood Trim – Fire Department Apparatus Bay/ Police Department Sallyport

No wood trim was observed on this part of the building.



Apparatus Bay south elevation overhead doors (with damage).

Offices exterior metal doors.



Trim rotting above front public entry doorway

BUILDING INTERIOR

FINISHES

The interior of the building floor plan layout appears mostly unchanged from the time of construction. Minor renovations consisted of the addition of a handicapped toilet room accessed from the public entry lobby, an adjacent revised Police Department Staff Room and Evidence Room on the first floor. These changes are documented on the drawings by AG Architects dated May 13, 2010. Walls and floors appear to be well maintained. Minor renovations to the second floor on the Police Department side of the building added offices and small storage rooms where once was open space.

DOORWAYS AND HARDWARE

Interior Office space doors and frames appear to be existing from time of original construction and renovations. They are wood frames with wood doors and appear to be in good working condition. It appears some door hardware has been replaced and upgraded as needed.

Egress Stairway interior doors appear to be existing and in good working condition. Older style panic bar hardware is installed but without door closer mechanism. These doors appear to be labeled "Type B – 2 Hr." fire rated. The doorway separating the Offices and Apparatus Bay appears also rated but was unable to verify due to a painted label being. The doorway between Offices and the Sallyport is labeled "Type B – 2 Hr." There is an interior horizontal sliding type fire door between the Apparatus Bay and the Fire Department workroom which follows the fire separation between Storage and Business Occupancies. This door is also rated but was unable to confirm the rating due to a painted label. Fire labels should not be painted. Paint should be removed on all labels to expose door's label ratings.

RESTROOMS & PUBLIC TOILET FACILITIES

The existing toilet facilities provided are split between the Police Department, Fire Department and Public spaces. A new ADA handicap compliant public toilet was recently installed off the Public lobby (see AG Architects documents). This is the only fully accessible toilet in the facility. Toilets for the Fire Department and Police Department appear to be original to the facility. By present Building Accessibility and ADA Code requirements, these facilities would not comply. The door swing accessing the toilets on the Police department side were restricted by toilet fixtures severely limiting access.



Interior finishes

Door opening missing interior closers



Toilet Room door swing conflict

Missing door closer hardware

VERTICAL & HORIZONTAL EGRESS

Horizontal egress through main egress corridors to stairways and exterior exits appeared to be a minimum 44" width.

There are three stairways within the existing facility. Stair run width appeared to be a minimum 44". Only the south and east stairways exit directly to the exterior. The north stairway in the Fire Department side empties into a first floor unprotected corridor. This unprotected corridor leads to an exit doorway on the north elevation.

Stairway enclosure protection appears to be continuous gypsum wall board finish. But, full verification could not be confirmed. Stairway wall enclosure is only separated at the first floor level and open to the second floor level at both the north and south stairways. The east stairway is open to the first floor Lobby and through the Police Department information window and public entry lobby. It did appear that all doors were rated for at least a one (1) hour fire rating. But the following code required hardware was missing:

- Door closers mechanisms are missing on all fire labeled doors.
- The north Fire Department stairway first floor door was missing a positive latch mechanism.

It was noted in multiple locations that areas under egress stairways are being used for storage. It was not possible to determine if protectives are in place to protect stairway construction from fire starting from within these storage areas.

Present stairway construction and protections would not comply with present Code requirements if substantial renovation were to be considered. They would need to be replaced.

BUILDING HANDICAP ACCESSIBILITY

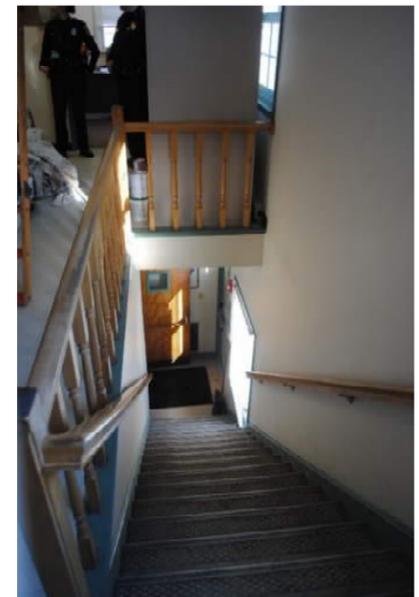
Handicap code accessible is limited to the first floor level Public Lobby. There is no elevator in this facility. Access is limited to the main entry lobby space. Doorways and corridors beyond the Public Lobby do not provide proper side clearances and circulation necessary for access. The facility meeting room and breakroom on the second floor level are inaccessible.



Public entry handicap ramp



Exit stairway from Second Floor through Public Lobby.



Exit stairway from Second Floor Police Department side

ATTIC; 2-STORY OFFICE BUILDING

The attic space is an unconditioned vented space from soffits vents and a high location in the west roof by multiple vent hoods placed at approximately 7'+/- above the lower cord of the roof truss. There are two types of pitched roof trusses installed; a “scissor” truss configuration on the southern portion creating a cathedral style sloped ceiling space and “Fink” truss configuration on the northern portion of the roof over the Fire Department spaces. This roof design is noted on the “Existing Facilities Construction Documents”. Access to the attic area is by a pull-down/ fold-out residential quality wood stairway.

Mechanical equipment and systems components are installed on and within truss framing members.

The “scissor” truss framing has a gypsum wall board ceiling installed over the bottom truss cord. Fiberglass insulation batt is installed above this ceiling and dislodged at various locations. It is assumed this ceiling is original construction. There were holes cut thru the ceiling at various location and observed associated with mechanical equipment and controls locations.

Apparently at some time after occupancy, this second floor area was renovated to create Police Department rooms. A flat ceiling framing was added over top of new stud walls. A sheet plywood deck was added across the top of ceiling joist framing. There was no documentation when this renovation work was completed. The purpose for this deck was documented in the “Bennett” report as being used as storage of files. We observed that this area is clear and not being used for storage. There is only a plywood walkway installed over the midspan of the “Fink” truss bottom cord to access existing mechanical equipment.

The effective attic insulation layer is between ceiling framing and truss lower cord members. The material appears to be a loose blown-in cellulose product. Thickness was measured at 6”+. Random placement of 6” fiberglass batt insulation was also observed above cellulose but not in any effective placement to add thermal value.



Mechanical systems above second floor ceiling.



Scissor Truss area with plywood decking atop ceiling joists and openings to access H&V equipment controls.



Loose blown-in cellulose insulation - uneven layered.

BUILDING COMPARTMENTATION

OCCUPANCY USE CLASSIFICATION

Because this facility contains multiple building code Occupancy Use Classifications, separation by fire rated wall systems and opening protections is required. The Apparatus/ Sallyport Bay (STORAGE classification) and the offices (BUSINESS classification) portion of the facility need to be separated by a rated construction. Extensive on-site review was not included in the scope of this assessment to verify continuity of separation. From observations within spaces, block wall construction appears to be continuous between the Apparatus/ Sallyport Bay and Offices. Personnel doors and frames are fire rating labeled. However, it was observed that a vision window opening between the Apparatus Bay and adjacent Fire Department office is not properly fire rated. This window is a breach in protection of the fire separation and should be replaced. This condition was referenced in the "Bennett" report.

VERTICAL SHAFT SEPARATION

Walls

It was observed from within spaces that stairway walls appeared to be continuous for all three conditions. According to referenced documentation, walls were constructed of wood stud covered with 5/8" fire code gypsum wall board. Stair construction appears to be of wood. And doorway openings in the egress path within separation walls are fire rating labeled. It was also observed that spaces under each stairway appear to be used as storage space of flammable products. We are not able to confirm proper fire separation between storage spaces and the exit stair construction. But, it would be good practice not to store anything below a stairway without proper safety separation measures in place.

Opening Protections

Exit door latching hardware is installed on all doors except the north stairway first floor door Fire Station. This door is missing latching hardware. All doors through protected walls are missing door closer mechanism hardware. It is unknown at this point whether closer hardware was a code requirement at the time of construction. However, by today's code standards, a door closer mechanism is required as an opening protection in stairway rated walls. We would recommend that closers be installed to maintain opening protection of rated wall protection.



Fire Department Apparatus Bay (Storage Use Occupancy) block wall and rated sliding fire door. NOTE: window on left of wall is an unprotected opening through the concrete block separation wall into the Office (Business Use Occupancy)



Separation wall in the Police Department Sallyport



THERMAL ENVELOPE

Below is a summary representing what is assumed existing envelope thermal resistant values based on provided information and observations.

- Fire Department Apparatus Bay thermal protections
 - Roof; R-11.6 - 2" rigid isocyanurate insulation (Melanson Company information).
 - Walls; R-2 - 8" concrete block walls with no added insulation
 - Garage Doors; R-2 - unknown/ assumed, 2" cavity fiberglass skin/ aluminum frame sectional garage doors
 - Personnel Access Doors; R-5 – unknown/assumed metal insulated 1-inch rigid urethane insulation
- Offices 2 Story Structure
 - Roof; R-21 - above the second floor ceiling) observed/ measured - 6" +/- loose blown-in cellulose insulation @ R-3.5/inch
 - Walls; R-21 - estimated base on construction design document wall section – 4" Brick cavity wall construction, 1" rigid urethane cavity insulation, 2x4 wood stud wall construction - referenced "Existing Facility Construction Document".
 - Windows; R-1.6 - assumed – wood double hung with insulating glass, residential quality, 3/16" glass, 1/4" air space.
 - Personnel Access Doors; R-5 – unknown/assumed metal insulated 1-inch rigid urethane insulation

FACILITY CODE COMPLIANCE

Safety Facilities such as this includes multiple Use Occupancies which include Business, Assembly and Storage Occupancies within one structure. The present facility is grandfathered by an older code from 1973. This review does not include an evaluation of compliance with the present enforced building codes or the previous. If renovations are anticipated altering the present building's design, a complete code evaluation will be necessary upgrading the to present Town adopted Building Codes.

The current codes for the Town of Wolfeboro are:

State of New Hampshire Building Code (RSA 155A): 2009 editions below effective April 1, 2010

2009 International Building Code, with amendments

2009 International Existing Building Code, with amendments

2009 International Energy Conservation Code, with amendments

2009 International Plumbing Code, with amendments

2009 International Mechanical Code, with amendments

2011 National Electrical Code, with amendments

State of New Hampshire Fire Code CHAPTER Safe - C 6000 STATE FIRE CODE Statutory Authority: RSA 153:5; RSA 153:10a, III; RSA 153:14, IV; and RSA 158:28, V(a) [Of particular interest the adoption of NFPA 101, The Life Safety Code® and NFPA 1, The Fire Prevention Code]

EXISTING FACILITY – STRUCTURAL ASSESSMENT

Apparatus Bay – Floor Slab

The original construction drawings indicate that the apparatus bay floor is a 5" grade-supported concrete slab, pitched to drain to an interior trench drain located along the centerline of the building and reinforced with 6"X6" welded wire fabric. The original plans do not specify the concrete strength. This floor slab is extensively cracked. To some degree, the cracking may be the result of inadequate subgrade compaction. However the primary cause of the cracking is more likely the result of inadequate slab thickness and reinforcement to support the wheel loads imposed by the fire apparatus.

Apparatus Bay – Foundation

Minor step cracking in the west end concrete masonry exterior wall is indicative of some foundation settlement. This condition has been previously remediated by repointing of the masonry.

Apparatus Bay – Interior Masonry Wall

The masonry partition separating the apparatus bay from the sally port is not restrained at the top of the wall. This condition represents a seismic hazard.

Apparatus Bay – North and South Exterior Walls

The exterior walls on these two elevations have been reconstructed and/or extensively repaired, reportedly due to the previous collapse of a section of the roof due to the failure of one of the original door headers. Construction drawings for the reconstructed walls were not available for review for this report. Based on field observations, reconstruction apparently included the full extents of these two walls, including the piers between the overhead doors and the door headers. The reconstructed door headers are apparently of reinforced concrete masonry construction (whereas the 1973 construction drawings indicate that the original door headers were comprised of steel channels.). The reconstructed masonry walls are in good condition.

Apparatus Bay Roof

The roof of the apparatus bay is a low pitch (1V:12H), high bay gable roof. The roof deck is a 22 gauge, 1.5" deep cold formed steel deck, supported on 24" deep open web steel joists spaced at 5'-0" on centers. The joists bear on the north and south exterior masonry walls and on one line of interior structural steel framing, located beneath the center ridge line. The joist spans are 35 feet (measured horizontally) on either side of the main ridge line.

The interior structural steel bearing line beneath the main ridge line is comprised of W14 rolled steel wide flange sections, supported on a line of W6 steel columns spaced at 15'-0" on centers. These steel columns are relatively slender elements and they are not protected from vehicular impact in any manner.



Cracked floor slab, Apparatus Bay



Reconstructed/Repaired masonry bearing walls and door headers, Apparatus Bay

Apparatus Bay Roof (continued)

On the basis of field measurements and the date of construction, the open web joists are believed to be 24J8 sections. These joists are most likely the limiting factor with respect to the roof snow load capacity. Based on this information, the original design roof snow load capacity (which is not specified on the construction drawings) is estimated at 40 to 45 pounds per square foot.

While this roof remains code-compliant in a “grandfathered” status, the current New Hampshire building code requires considerably heavier snow loads for new construction in Wolfeboro. For comparison, the current code would require a minimum design roof snow load of 75 pounds per square foot for a similar structure, based on an Occupancy Category IV (i.e. essential facility) categorization.

The apparatus bay roof is lower than the adjacent two-story office wing. Current design codes would require that allowances be made for drifted snow loads on the lower (apparatus bay) roof. Drifted snow load requirements were not mandated by Code at the time this building was designed. Review of the apparatus bay roof framing indicates that drifted snow was not considered in the original design.

Apparatus Bay – Lateral Loads

The 1973 date of construction indicates that the building predates any building code requirements for seismic design considerations. In particular, the apparatus bay has an inherent vulnerability to east-west seismic loads.

Sally Port – Mezzanine

The sally port contains a wood framed mezzanine, accessible by a ladder, used for storage. Attachment of the ledger that attaches the mezzanine floor joists to the supporting masonry wall is inadequate and should be supplemented.

Office Wing – Foundation

The original structural drawings indicate that the first floor of the building is a grade-supported 4” concrete slab. The perimeter concrete foundation walls are typically 10” thick and bear upon 1’-10” wide strip footings, with the bottom of footing elevation 5’-4” below the slab. The foundation also include a central 8” foundation wall down the centerline of the building, founded on a 1’-8” wide strip footing. Despite the presence of that center foundation wall, it is apparent from the second floor framing plan that some load-bearing first floor walls bear directly on the 4” floor slab. Despite this condition, no evidence of foundation issues was observed in the course of this assessment.



Open web joists and centerline steel framing, Apparatus Bay.



Sally port mezzanine framing ledger.

Office Wing – Second Floor

The typical second floor framing is comprised of a plywood floor deck on 2x12 sawn lumber floor joists spaced at 16" on centers. No lumber species or grade is specified on the original structural drawings. These joists are exposed to view only in very limited areas. No lumber grade stamps were observed on these floor joists in the course of this assessment. On the basis of the limited areas exposed to view, we believe the lumber would likely be classified as Spruce-Pine-Fir. The floor joists span length is variable. Spans of 18 feet are common, and the maximum joist span is 20 feet. Given these span lengths, the live load capacity of the second floor is limited and probably no more than 40 pounds per square foot. This floor is not suitable for assembly or storage uses.

Office Wing – Exterior Walls

The exterior walls are comprised of a 4" brick veneer with a 2x4 wood stud backup. The walls have punched window openings with steel angle lintels. No issues were noted with the brick veneer or with the stud walls.

The attachment of the shed canopy over the entry door at the south end of the building appears to be inadequate and should be reinforced.

Office Wing – Interior Stud Walls

As previously noted, the original second floor framing plan indicates that many of the north-south stud walls within the building are load-bearing walls. Some of these walls are aligned over interior foundation walls while others apparently bear directly on the 4" floor slab. This observation may complicate or limit repartitioning of the space during future renovations since removal of load-bearing interior walls would require re-support of the second floor joists in the affected areas.

Office Wing – CMU Walls

Concrete masonry walls (interior and exterior) exist in the holding cells, in the hose tower, and between the Office wing and the Apparatus Bay. No issues or concerns were noted with these walls. It was not possible to ascertain if these walls are reinforced or grouted. A similar CMU wall in the sally port area is unrestrained at the top of the masonry, and that wall appears to be neither reinforced, nor grouted.

Office Wing – Roof Structure

The roof of the office wing is a gable configuration, with a 7:12 pitch. The roof deck is plywood, with asphalt shingle roofing. The primary roof framing is comprised of 39' span metal plate connected wood trusses, spaced typically at 2'-0" on centers, spanning the short axis (i.e., east-west) of the office wing and bearing on the exterior walls.

The roof trusses in the southern end of building are a scissor truss configuration, although subsequent to the original construction a flat ceiling has been framed below these scissor trusses. The reason for this modification is not evident.



Top: Sally port interior wall, ungrouted and unreinforced / Bottom: South side entry canopy



Office Wing – Roof Structure (continued)

The roof trusses in the northern end of the building are a “Fink” configuration (identified on the original roof framing plan as “Belgian Trusses”). These Fink trusses are notable in that the web members are unusually small member sizes (2x3 lumber).

Office Wing – Roof Structure (continued).

With regard to all of the 39 foot span roof trusses (Scissor and Fink Trusses) these trusses have no Continuous Lateral Bracing (CLB; also known as through-truss bracing). CLB is commonly required by the truss designer and its purpose is to limit the buckling length of truss web compression members. The complete absence of CLB in this roof structure is a concern. It is possible – but unusual - to design wood trusses of this size so as not to require CLB bracing. Given the member sizes used– especially for the Fink trusses – it is likely that these trusses should have had CLB installed. Determining whether CLB is required in the absence of further information regarding the original truss design and the lumber grades is a complex task.



Fink roof truss 2x3 web members, no thru-truss bracing.

Office Wing – Potential for Vertical Expansion (i.e., added third floor)

The office wing was not designed for vertical expansion. The first floor load-bearing stud walls and the foundations are not adequate to support an additional story. An additional story would also trigger Building Code requirements for full compliance with current wind, snow and seismic design standards. Given those requirements and the inherent limitations of the existing building structure, a completely new building would be a more cost-effective solution.



Scissor trusses – no thru-truss bracing

EXISTING FACILITY – MECHANICAL / PLUMBING / FIRE PROTECTION / ELECTRICAL ASSESSMENT

Introduction

Yeaton Associates, Inc. has been engaged by Lavallee|Brensinger Architects to provide a Facility Assessment of the Mechanical, Electrical, Plumbing & Fire Protection Systems at the Town of Wolfeboro Fire and Police Safety Building on Main Street, Wolfeboro, New Hampshire

Yeaton Associates conducted an on-site inspection of the property on January 9th, 2018, and has reviewed existing floor plans of the MEP systems. The goal of this assessment is to outline findings and comment on the condition and integrity of the mechanical, electrical, plumbing and fire protection systems as they exist today.



Mechanical

The apparatus bays for the fire and police department are heated by LP gas fired infrared tubes installed high in the bays and power vented through a common pipe out the back of the fire department truck bay. Three Space-Ray heaters rated for 130,000 BTU/hr serve the fire department. One (1) 130,000 BTU/hr heater serves the police department sally port. Heaters are controlled by an electronic wall mounted thermostat, one for each department. All reports indicate that in the 15 plus years the heaters have been installed, no issues have been noticed and the heat output is more than sufficient for the space. The heaters were observed to be in fair condition. At more than 15 years old, small signs of vent deterioration and tube pitting are starting to show. It is estimated the tubes have 5-7 years of useful life remaining before deterioration starts to warrant replacement. Additionally, residue around the vent pipe joints was observed indicating back-pressure may be allowing some products of combustion into the space.

Supplemental heat in the apparatus bays are provided by electric unit heaters hung from the roof structure. The fire department is served by four (4) heaters and the Police sally port is served by one (1) heater. Heaters are controlled by wall mounted Honeywell thermostats, which were not functional when tested. None of the electric heaters have been used since the installation of the radiant tube heaters. Under a renovation, it is recommended that these be removed and turned over to the Owner.

Vehicle exhaust fumes in the Fire Department Apparatus Bay are removed by a relatively new Plymovent vehicle exhaust system. The system is of the "Source Capture" type, with 4"Ø flexible hoses attach directly to the tailpipe of the vehicle once it is moved into the space. Hoses are attached to a sliding track system allowing them to move with the vehicle and keep the hose attached at all times while in the space. All hoses are attached to a galvanized spiral duct exhaust network running towards the back of the bay where a direct drive fan blows vehicle exhaust out the side of the building through a 10"Ø spiral pipe. The system is in very good conditional and no complaints were reported. It is estimated the system has at least 10-15 years of useful life remaining.

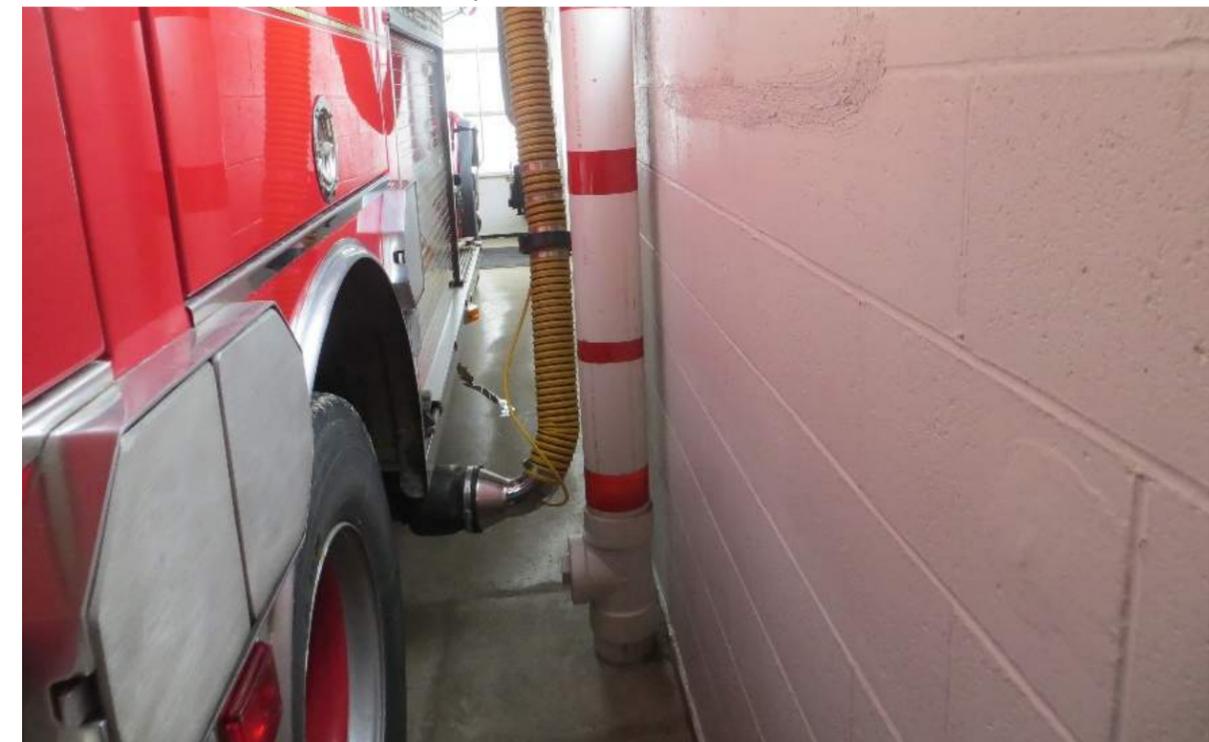
The sally port of the Police Department has no ventilation or exhaust to speak of. Walls do not run to the roof deck, and air freely communicates from the sally port to the apparatus bay of the Fire Department. Cars are not permanently parked or run in the space and there is no requirement for a vehicle exhaust system.

There is no general ventilation or exhaust currently installed in the apparatus bays. All fresh air is introduced by infiltration through doorways and windows, and the day to day opening of overhead doors. The currently adopted 2009 International Mechanical Code requires *enclosed parking garages* be designed with a system that exhausts 0.75 CFM per square foot of occupiable space. Apparatus bays are generally viewed as an enclosed parking garage, and it is good practice to continuously exhaust these spaces to remove hazardous fumes. Under a renovation of the space the installation of an exhaust and heated make-up air system is recommended, including a roof mounted, aluminum exhaust fan with ductwork leading to steel exhaust grilles installed low in the space is optimal.

Heating, ventilation and air conditioning in the combination police/fire department is primarily done by two 4-ton York air source heat pumps located in the attic of the building. A heat pump is dedicated to serving the fire department and a heat pump is dedicated to the police department. Perimeter electric baseboard radiators serve as necessary supplemental heat sources in each room with an exterior wall. Installed roughly 7 years ago, both heat pumps blow air through insulated ductwork to all occupiers spaces. It was observed that spray-foam insulation was used to cover galvanized ductwork in the attic. While effective, the spray-on insulation is not even in all spaces and may not provide the code required R-8 thermal resistance required by the 2009 International Energy Conservation Code.



Example of Infrared Tube Heaters



Vehicle Exhaust System Connected to Fire Truck

All branch ductwork in the building appeared to be insulated flex ductwork. The flex duct is in good shape, although it is kinked in some areas and most likely restricts airflow from the heat pump to some degree with long twisting runs.

Outdoor air is introduced to the heat pump system through a passive opening field cut into the return air ductwork at the heat pump. Through negative pressure the cold attic space presumably allows some fresh air into the duct system which is then pushed through the duct network. This is not a code compliant means of introducing outdoor air, and the amount introduced is not quantifiable. It is recommended a ducted connection from the outdoors be installed with a manual damper than can allow a balancer to set outdoor air to the code compliant amount.

Condensing units located on grade outside run a single circuit of insulated refrigerant lines to the heat pumps. The condensing units are in very good condition, and are expected to have a useful service life of 10-15 more years.

Air terminals in the occupied spaces were observed to be surface mount diffusers and registers. The grilles appeared to be in fair physical condition, but are dirty and have accumulated dust. Under a renovation, these air terminals are recommended to be replaced with a more modern style to compliment aesthetic upgrades.

Electric baseboard installed around the perimeter was observed to be in varied condition. Older radiation appeared somewhat dirty and aesthetically out of date. Most of the older radiation is controlled using unit mounted dials, which is functional but is not viewed as convenient. Recently renovated spaces have been upgraded to include new electric baseboard with new wall mounted thermostats. The newly installed radiation is in excellent shape.

Electric Wall Heaters were found at each building entry. The building staff reported that the heaters are never used, and do not have the capacity to quickly respond to a cold gust of air when they do turn on. These heaters do not appear to be of any use, and it is recommended that they are replaced with a more substantial heater.

The Dispatch Room of the Police Department is served by a dedicated 1-ton Mitsubishi heat pump split system, with a wall mounted evaporator and on-grade condensing unit. The split system is in good condition and reportedly cools the room and offsets equipment heat loads. The staff did note that condensate, which gravity drains to the exterior wall, drips when the room is especially hot. Insulation is recommended on the piping, and if the problem persists, a drip pan may be considered.

Dedicated Ceiling Exhaust fans are located in each bathroom. Fans, for the most part, are exhausted to exterior wall cape presumable through flex ductwork. A lower level toilet room in the Fire Department was observed to exhaust into the adjacent storage room. This is not a code compliant installation and it is recommended this fan is ducted to the outdoors if the opportunity becomes available. All fans are functional but appear to be aging. A replacement with quieter, more modern fans is recommended when opportunity arises.

The Evidence Room in the police Department is served by a dedicated energy recovery ventilator, which is set to run on a 24 hour, 7 day a week basis. Spiral duct with ceiling supply and exhaust grilles run from the room to above the sally port, where the unit is located. It was observed that the equipment exhaust connection blows directly into the sally port space, which is not a code compliant installation. Furthermore, the outdoor air inlet at the exterior wall was found to be directly next to a vent serving a gas fire radiant heater. The close proximity of the vent to an outdoor air inlet is not code compliant and possibly allows for hazardous vent fumes to be introduced directly into the evidence room. It is recommended that the outdoor air inlet be located to a minimum of 10 feet from the vent as required by the 2009 International Mechanical Code.



Existing Heat Pump Serving Police Department



Existing Condensing Units Serving Heat Pumps



Existing Ductwork in Attic



Example of Recently Installed Electric Baseboard



Ductless Split Serving Dispatch Room

The IT closet located in the Police Department suffers from excessive heat gain. An open ended duct off the heat pump system currently allows cool air, when the unit is providing air conditioning, into the space in an un-controlled manner. A sign on the door clearly states that the door is to remain open, indicating the open-ended duct does not provide enough air movement to prevent overheating. Additionally, should the heat pump system be in heating mode, the warm air introduced to the space adds heat to the space instead of removing it. The heating load produced by the equipment should be evaluated, and a properly sized, dedicated exhaust fan is recommended to remove the heat.



Plumbing

The building water entrance lies in the apparatus bay, and begins with a 4" cast iron entrance thru the slab with a gate valve for isolation. The entrance splits into two separately metered services, a 1" metered service to the police and fire station building, and a 2" dedicated to the apparatus bays. Copper tubing is connected to existing uninsulated system and is in good condition. There is no water pressure boosting system, and the observed water pressure at fixtures was noted to be excellent.

Hot water for the entire facility is heated by a recently installed Bradford White 50 gallon electric hot water heater. Installed in 2017, the heater is in like-new condition and was noted by staff to be of sufficient capacity for the current usage. Along with the new heater, a new mixing valve and new copper tubing has been installed around the heater. The Fire Department Staff reported hot water supply and delivery time was adequate at all fixtures, indicating good pressure and relatively short runs of hot water piping. No hot water recirculation was found to be installed. While not required by the 2009 International Plumbing Code, installation of a recirculation line to fixtures furthest from the heater may further improve hot water delivery times and prevent growth of bacteria in warm stagnant pipes.

Water distribution piping throughout the building is constructed of un-insulated copper tubing, with some pex tube piping installed around the new hot water heating. The copper piping is in fair condition, is expected to last many more years. No pipe insulation was noted during the site visit. Alterations to the existing building will require insulation on domestic piping as notes in the 2009 International Energy Conservation Code, Chapter 5.

Plumbing fixtures were noted to be manual operation and of varying condition throughout the building. Lavatories are vitreous china construction of the counter or wall mount type and were observed to function properly and without leaks. Toilets are floor mount with manual Sloan Royal flush valves. Urinals are vitreous china with manual Sloan Royal flush valves. Showers were of the plastic insert type, with manual valves and non-adjustable heads. Fixtures did not appear to meet ADA standards, and are generally dated in appearance. It is recommended that all fixtures be replaced should a renovation encompass any restrooms.

Two hose bibbs were found on the exterior. Existing hose bibbs are of the non-freeze type and are in fair condition. The building does not appear to have extensive landscaping and the need for additional hose connections is not anticipated unless requested by the Department's Staff. Interior hose connections are located at each apparatus bay on both the Police and Fire side. 1 1/2" ball valves with hose connections are dropped on each column in the fire station bays for cleaning of the trucks.

Stormwater is collected over the apparatus bay by two horizontal roof leaders running the length of the bay, joining together to a single 6" PVC exit at the rear of the facility. Horizontal runs are insulated and all piping appears to be in good condition.

Facility sewer runs under the building headed west with a 6"Ø exit connecting to Town sewer on the west side of the building. Piping is original and is most likely schedule 40 cast iron soil pipe, although more recently installed piping was observed in the apparatus bay to be schedule 40 PVC. Trench drains with iron grating run down the center of the apparatus bay, pitching to a sump near the front of the building and connecting to sewer. The sump has to be cleaned of sand and debris on occasion, which is normal for garages of this type. Sewer and drainage piping was reported to function as intended, with no reported backups or complaints of a lack of drainage.



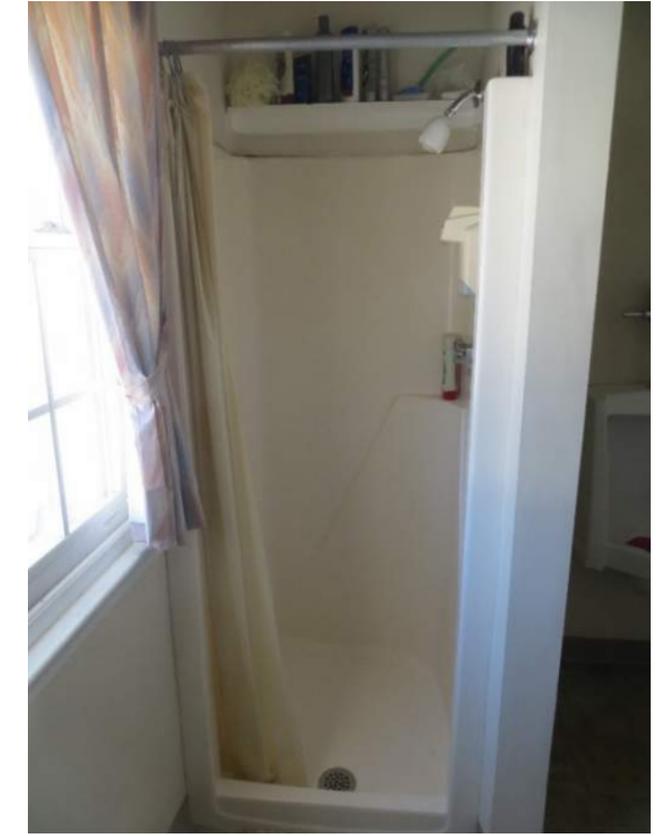
Building Water Entrance



Domestic Hot Water Heater



Example of Existing Plumbing Fixtures



Example of Existing Shower Stall

Propane (LP) Gas

LP Gas fired equipment in the building includes infrared tube heaters in the apparatus bay and the generator. An existing 1 ½" line formerly serving the fire and police department is capped and no longer in use. Two above grade, 1,000 gallon tanks located to the back of the site provide LP gas to all equipment. Two wall mounted regulators provide separate and dedicated low pressure LP gas to the generator and building interior. Gas piping within the building is schedule 40 steel with screwed fittings. The piping, tanks, and regulator all appear to be in good condition and no signs of deterioration were observed.

Compressed Air

There are two air compressors located in the Fire Department Apparatus Bay. A 21 CFM, 60 gallon Ingersoll Rand compressor is located at the far end of the Apparatus Bay and serves the spaces general compressed air needs including filling tires. The system was reported to be sufficient for the needs of the apparatus bay and is in good condition. Given its condition and capacity the reuse of this compressor should be sufficient to handle a renovation or added space. A second compressor is located between tow overhead doors in the Fire Department Apparatus Bay and is dedicated to the Plymovent Vehicle exhaust system. The compressor is in excellent condition, and was observed to be functioning properly. The compressor is recommended to be reused if the apparatus bay is renovated.

Laundry

Laundry is done by a residential grade washer and dryer located in the Apparatus Bay of the Fire Department. Additionally, a heavy duty Milnor machine washes heavily soiled gear. Machines are plumbed off the standard domestic system, and discharge into PVC sanitary piping seen through an in-floor grate. The equipment functions well and the plumbing is leak free. If more suitable location is desired as part of a renovation, slab cutting to accommodate new drainage piping may be required. Additionally, hot and cold water are readily available due to the Laundry's proximity to the water entrance and hot water heater. New piping will most likely be required if the machines are moved.

The clothes dryer is currently vented through the apparatus bay wall through 4"Ø pipe and a standard louvered wall cap. Dryer venting is assisted by an inline Fantech dryer booster fan. The fan operates on sensing pressure from the dryer activating, and appears to function properly. Foil faced tape sealing the fan to the vent appears to be peeling away, and the fan appears to be in fair condition. If the dryer is relocated as part of a renovation, the need for a booster fan will be evaluated. A new fan is recommended, and will be required should venting exceed 35 feet in equivalent length.



Existing LP Gas Tanks



Existing Air Compressor



Existing Compressor Serving Plymovent Systems

Fire Protection

There is no sprinkler system serving the building. Although it is not anticipated, a significant renovation or addition to the building may require installation of an NFPA 13 compliant automated sprinkler system. International Existing Building Code v.2009 requires addition of an automated sprinkler system if all of the following requirements associated with a Level 2 Alteration are met:

- Alterations to the existing building exceed 50% of the floor area.
- Water pressure be readily available without need of a fire pump.
- The area renovated requires a sprinkler system as stated by International Building Code v.2009, for new constructions.

The need for an automated sprinkler system must be reevaluated once a clear vision of building additions and renovations has been obtained. Additionally, at that time, a flow test should be conducted to determine if adequate flow is available without the need for a fire pump.

General Power

The existing electrical power infrastructure to the building, consists of two separate electrical services.

Building Electrical Service #1 is the original underground electrical service which terminates in the Fire Department Main Electrical Room, off the apparatus bay. This service used to be a 400 ampere, three phase at 120/208 volts, but was changed at some point to a 200 ampere service. The original service was fed from parallel sets of 250 KCMIL aluminum conductors from the utility riser pole. One of these sets has been disconnected at the main panel, and at the riser pole, with the remaining set of conductors metered at the existing indoor CT Cabinet. The service disconnecting means is clearly labeled and is fed from the CT cabinet. From this service disconnect, it travels thru a whole house generator transfer switch and back to the 400 ampere main distribution panel (MDP), at this room. The limiting factor for the 400 ampere panel is the single set of conductors and the 200 ampere overcurrent device/service disconnecting means. Further conversations with the power company has determined that one of the sets of underground conductors failed due to frost issues. It was never replaced and the resulting service converted to 200 amperes. We would recommend a new 600 ampere electrical service be installed, as part of any renovations to the building. We feel that the second service #2 should be eliminated in favor of one larger service.

It should be noted that utility demand readings are not available for evaluation, as this utility does not bill demand charges. Yeaton is unable to assess the actual service capacity without costly third party testing and chart recording metering. We feel comfortable with our recommendation for a new single three phase service upgrade as noted.

Building Electrical Service #2 is the fairly new overhead electrical service which terminates in the building attic to serve heating and air conditioning equipment. This service is installed as a 200 ampere, single phase at 120/240 volts, fed with overhead utility conductors to an outdoor meter/disconnect. The service disconnecting means is clearly labeled. From this service meter/disconnect, it travels vertically up the outside of the building to a panelboard in the attic. As part of any major renovations to the building, we would recommend removing this single phase service and combining the two electrical services as one, as described in the previous paragraph.

Circuit Breaker Panelboards appear to be original and are installed as residential style load centers, fed from the main distribution panel described in the Building Electrical Service #1. There appears to be five lighting and plug load panels, and two heating panels. As part of any major renovations to the building, we would recommend replacing all of these residential load centers with new commercial rated panelboards.



Building Electrical Service #1



Building Electrical Service #2



Building Electrical Service #2



Circuit Breaker Panelboards



Circuit Breaker Panelboards

Standby Power Systems

The existing three phase electrical service #1 is supported by a propane fueled emergency generator and 200 ampere transfer switch. The existing outdoor rated generator is a Kohler 50 KW machine, which is good for 173 amperes at 208 volt three phase. This generator size compliments the existing 200 ampere service and present demand. We would recommend no changes to this system, short of reconfiguration of the non-code compliant emergency lighting system wiring down-stream of the transfer switch. If the owners desire addition standby power to support air conditioning systems, then consideration should be given to replacing this generator and transfer switch to a 100 KW machine to compliment a 400 ampere building service solution.

Lighting and Emergency Lighting

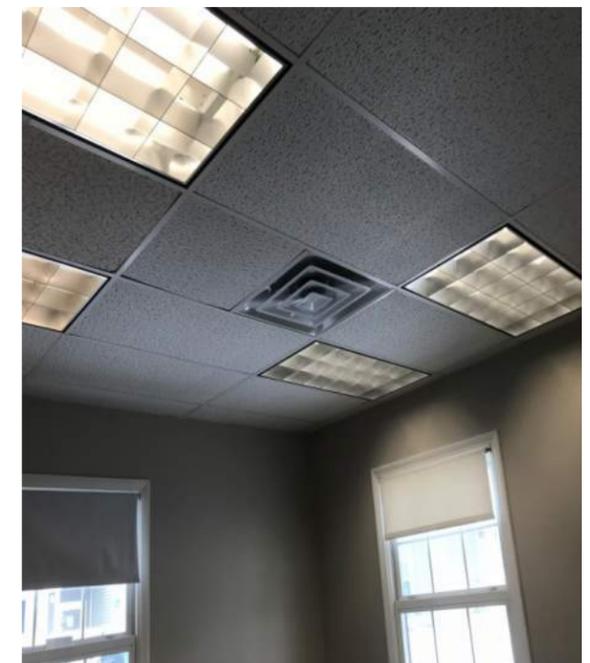
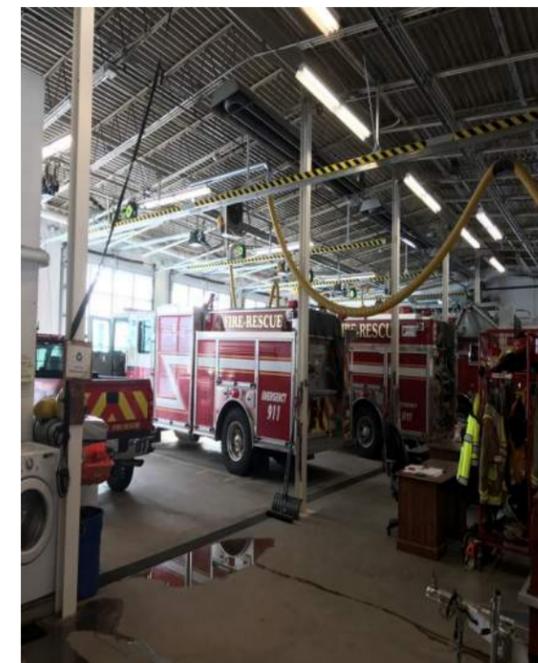
The building lighting systems are a mix of compact and linear T8 fluorescent, incandescent and some recently installed LED. Recessed lighting is linear fluorescent parabolic louver product with T5 HO linear strip lights in the apparatus bay. As part of any major renovations to the building, we would recommend changing all of the lighting to LED product to gain performance, energy savings and eliminate lamp changes. Consideration could be given to keeping the more recently installed apparatus bay lighting intact and adding like product to accommodate any bump out addition to the truck bays.

Technology what it is today would suggest that LED lighting be installed to replace existing, where substantial renovations are programmed. There are value added rebates and incentives from the electric utility, to defray some of the cost associated with these upgrades. The LED upgrades are recommended to eliminate the need for replacement lamp stock and the labor to install them as they burn-out. The LED lighting systems have no lamps to replace, and have expected life beyond 60,000 hours, which equates to 15 years at 4000 hours per year. Even after 15 years the lighting will still be operating, but only producing 90% of the initial rated lumens. There is energy savings and maintenance savings associated with replacing the existing fluorescent lighting systems with LED.

Code Compliant Emergency Lighting for the building is non-existent and is provided basically from normally powered lighting products and exit signs, wired and powered thru the standby generator power system and its transfer switch. The existing standby generator picks up the entire Building Electrical Service #1 thru this transfer switch. NFPA 70 and 101 require UL 1008 and UL 924 listed transfer equipment and shunt devices, in order to allow connection to a standby generator source. As part of any major renovations to the building we would recommend the installation of Code Compliant UL 1008 devices and distribution to pick up those lighting systems needed to provide illumination of the path of egress, exit access and to the exit public way. An alternate means to provide code compliant emergency lighting would be to install self-contained, battery powered emergency lighting units and exit signage, wired to the unswitched lighting circuits serving the paths of egress. The building is presently in violation of NFPA 70 and NFPA 101 from a life safety standpoint as the lighting system wiring is shared with other non-life safety circuits, and not separated or controlled in terms of UL 1008 and UL 924.



Standby Power Systems



Lighting and Emergency Light

General Wiring

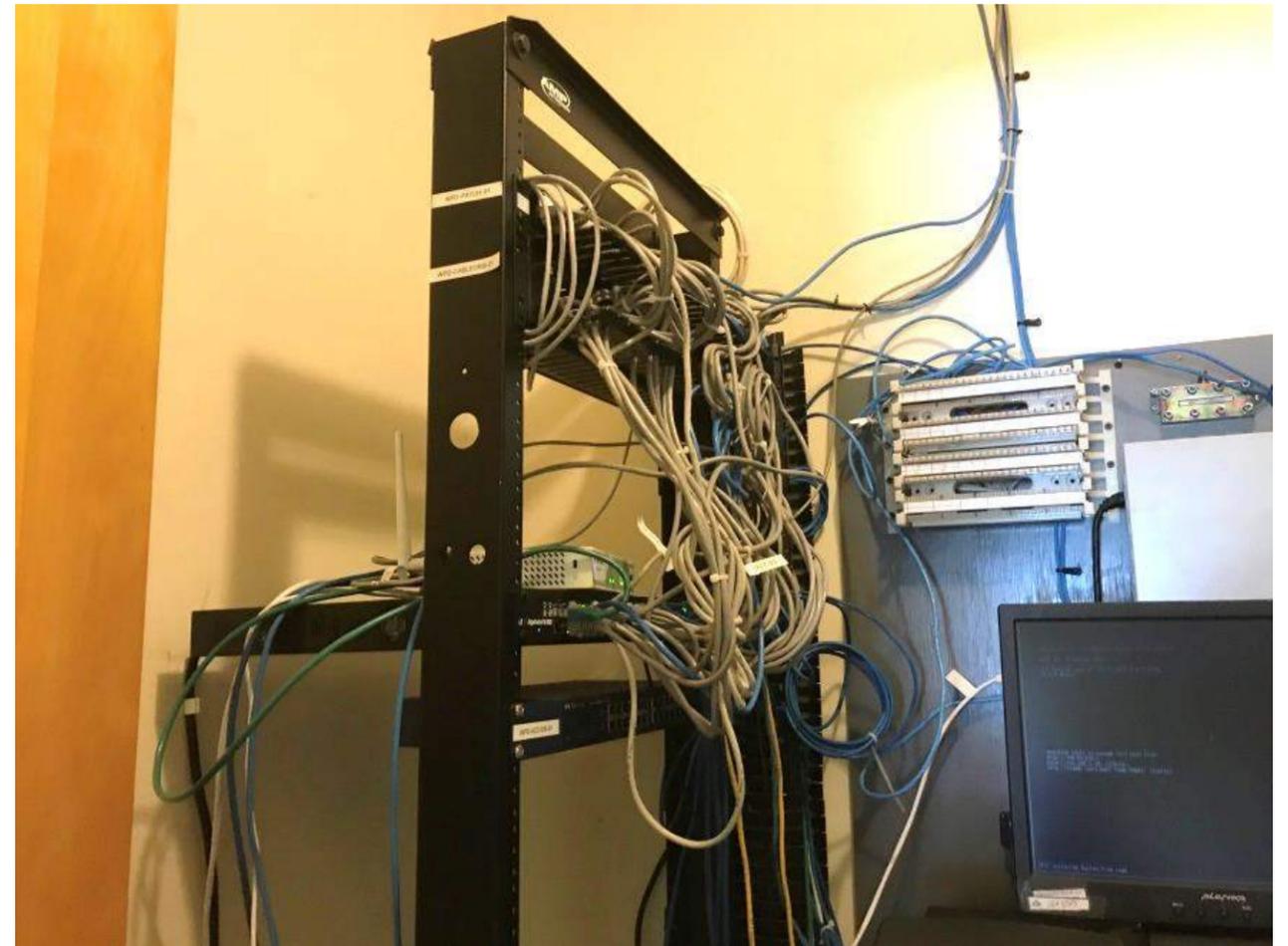
The existing exposed general wiring consists basically of conductors in conduit to feed load centers and large equipment and most of the branch circuits. It was difficult to determine the concealed wiring for branch circuits associated with lighting, heating and receptacles. Type NM (romex) cabling has been installed in the attic for feeds to heat pump and air handling equipment. We would expect that much of the concealed wiring in non-cmu wall cavities and wiring above accessible ceilings has been installed as NM cable. This method was code compliant for this type of wood frame structure. As part of any renovations, we would recommend conductors in conduit for exposed work and armored MC cabling for concealed work in non-cmu walls and above accessible lay-in ceilings.

Connectivity Systems – Voice/Data

Existing connectivity appears to be in good shape. We would suggest that review of these elements is subjective, as tenants traditionally make changes to their spaces to accommodate their needs, associated with technology, internet speeds and overall support of their spaces. In general, there is access to the outside world thru existing conduit systems. We recommend no changes to this system, short of expansion and cabling associated with renovations and additions.



General Wiring



Connectivity Systems – Voice/Data

Fire Alarm Systems

The existing Fire Alarm System is presently supported by a recent vintage, addressable Napco Fire Wolf Fire Alarm Control Panel, with two indoor remote annunciators located in each of the fire and police dispatch rooms. The system has Horn/Strobe notification with full detection as the building is not sprinklered. There are a mixture of spot smoke and heat sensors to provide full coverage. The system appears to be monitoring conventional, non-addressable initiation devices which were installed from a previous system. The system is fully expandable. We recommend no changes to this system, short of expansion associated with renovations and additions.



Fire Alarm Systems

EXISTING FACILITY – SITE ASSESSMENT

Site Access

Site access is provided from two curb cuts off South Main Street (NH Rte 28). Parking for Police and Fire Department customers is provided in the front of the building which sets back from the road approximately 100 feet. The northern driveway (entrance) continues around the back of the building to the Fire Department's garage bays. Although the garage door bays are arranged for pull through parking, the pavement width limits the required turn movements for most fire apparatus to pull in from this side. Instead, large equipment backs into the garage from the south side of the building.

The driveway access continues beyond the garage and opens to an area of additional parking, snow storage and dumpster staging. The Police Department vehicles are parked in this area as well as staff parking for both Departments.

A total of six (6) bays are provided at the north garage wall and seven (7) bays are provided at south garage wall (5 large and 2 small bays). Fire Department vehicles exit from the south facing garage bays and pull out onto South Main Street with assistance from emergency preemption controls at the driveway exit.

A third driveway is provided to the south of the main exit for non-emergency vehicles.

Drainage

A closed drainage system is provided to manage stormwater runoff generated from the impervious surfaces on site. In general, stormwater runoff paths are separated by a subtle ridge running east to west behind the Fire Department garage area. Runoff generated to the west of the ridge leaves the back of the site by sheet flow. Runoff generated east of the ridge is captured in the closed drainage network of catch basins and subsurface drainage pipes. Two separate pipe segments discharge stormwater collected from the surface to South Main Street at the entrance and exit driveways.

Site improvements were constructed within the last 10 years to address subsurface drainage conditions in the parking areas including underdrains to control

groundwater levels. Based on staff reports, the aggregate materials used in the construction may be moisture susceptible and the pavement surface exhibits stress from frost action in certain areas.

Utilities

The Town's sewer main runs through the property just a few feet off the face of the building entrance. The building sewer service is located of the northwest corner of the main building.

The Town's water main is located within South Main Street. Water service to the building is provided by a 4" ductile iron pipe running below the entrance drive and entering the building at the first man door before the garage bays.



Emergency Pre-emption at driveway exit (left), Christian Ridge Road (right) and South Main Street (2 locations not shown)



Garage bay entrance at north building wall (6 large bays)



Existing Conditions Site Plan (Green = Sewer Line, Orange = Drain Lines, Blue = Drainage High Point)

See attached Figure 1 for Zoning Requirement information.



Garage bay entrance at south building wall (5 large bays and 2 small bays)

APPENDIX



Town of Wolfeboro, NH

Police and Fire Safety Building - Existing Conditions and Space needs Report

Perspective-11x17

SCALE:

03/26/18.....

LAVALLEE BRENSINGER ARCHITECTS



1 SITE PLAN
 PRES-02 1" = 30'-0"

Town of Wolfeboro, NH

Police and Fire Safety Building - Existing Conditions and Space needs Report

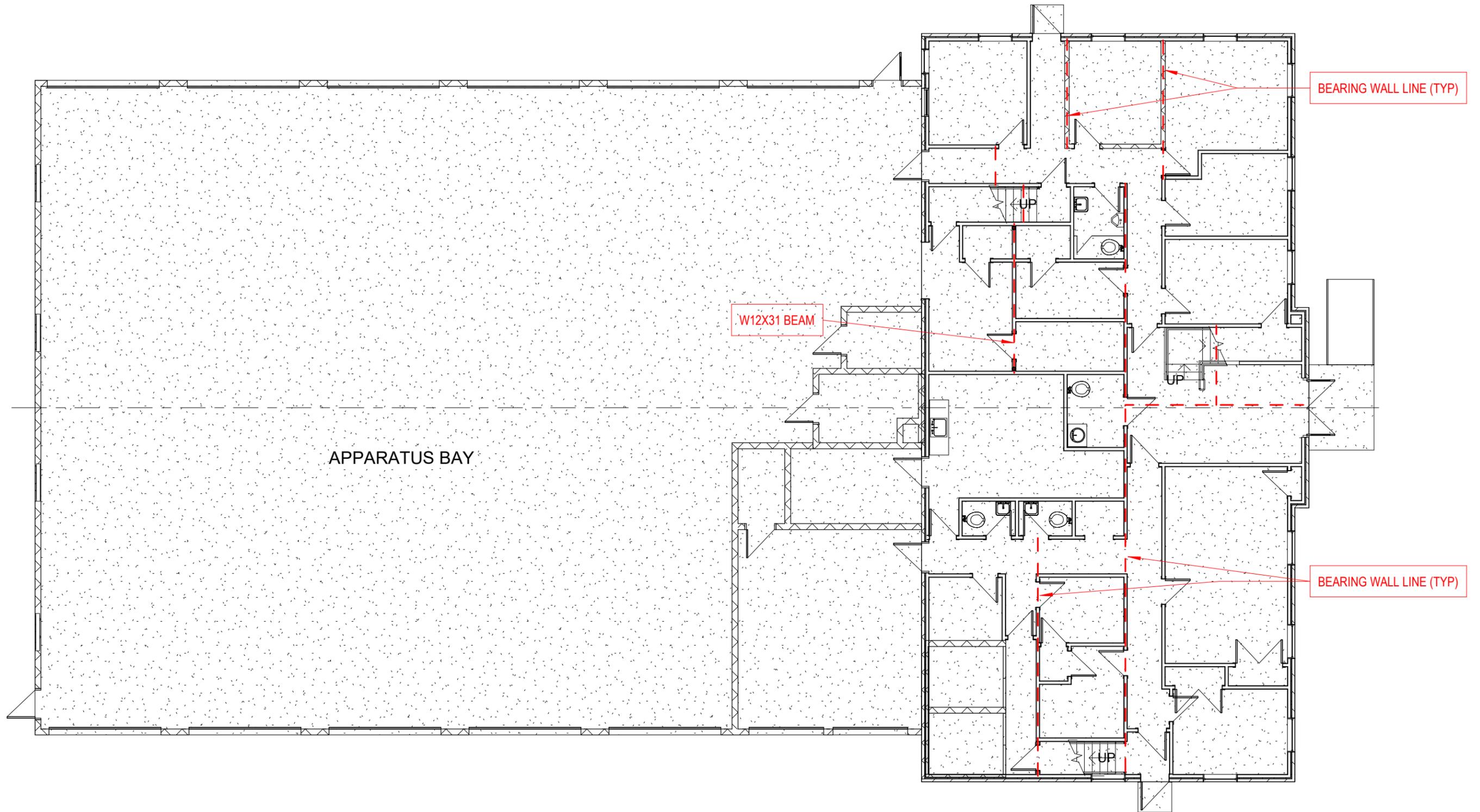
Site Plan-11x17

SCALE: 1" = 30'-0"



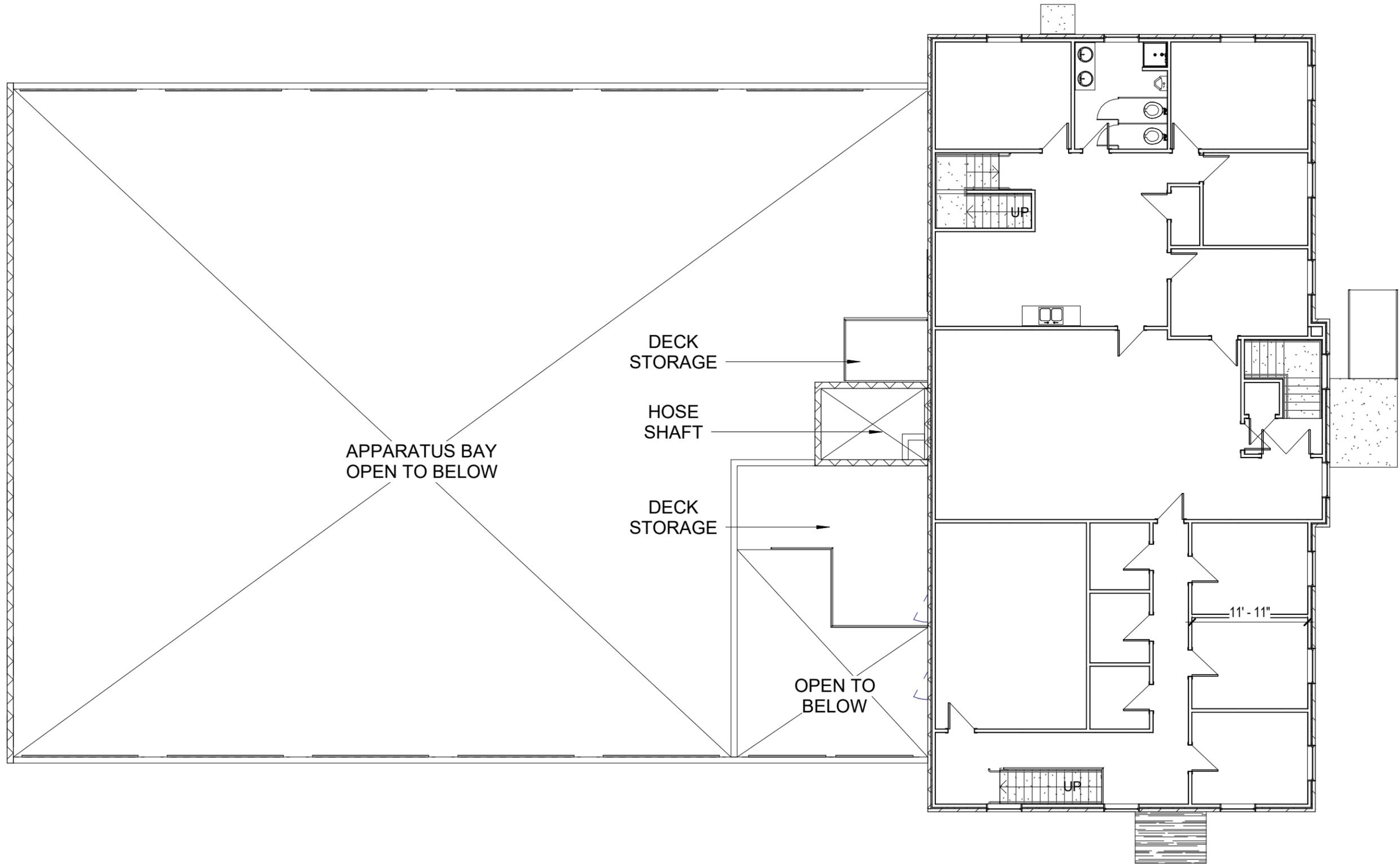
03/26/18

LAVALLEE BRENSINGER ARCHITECTS

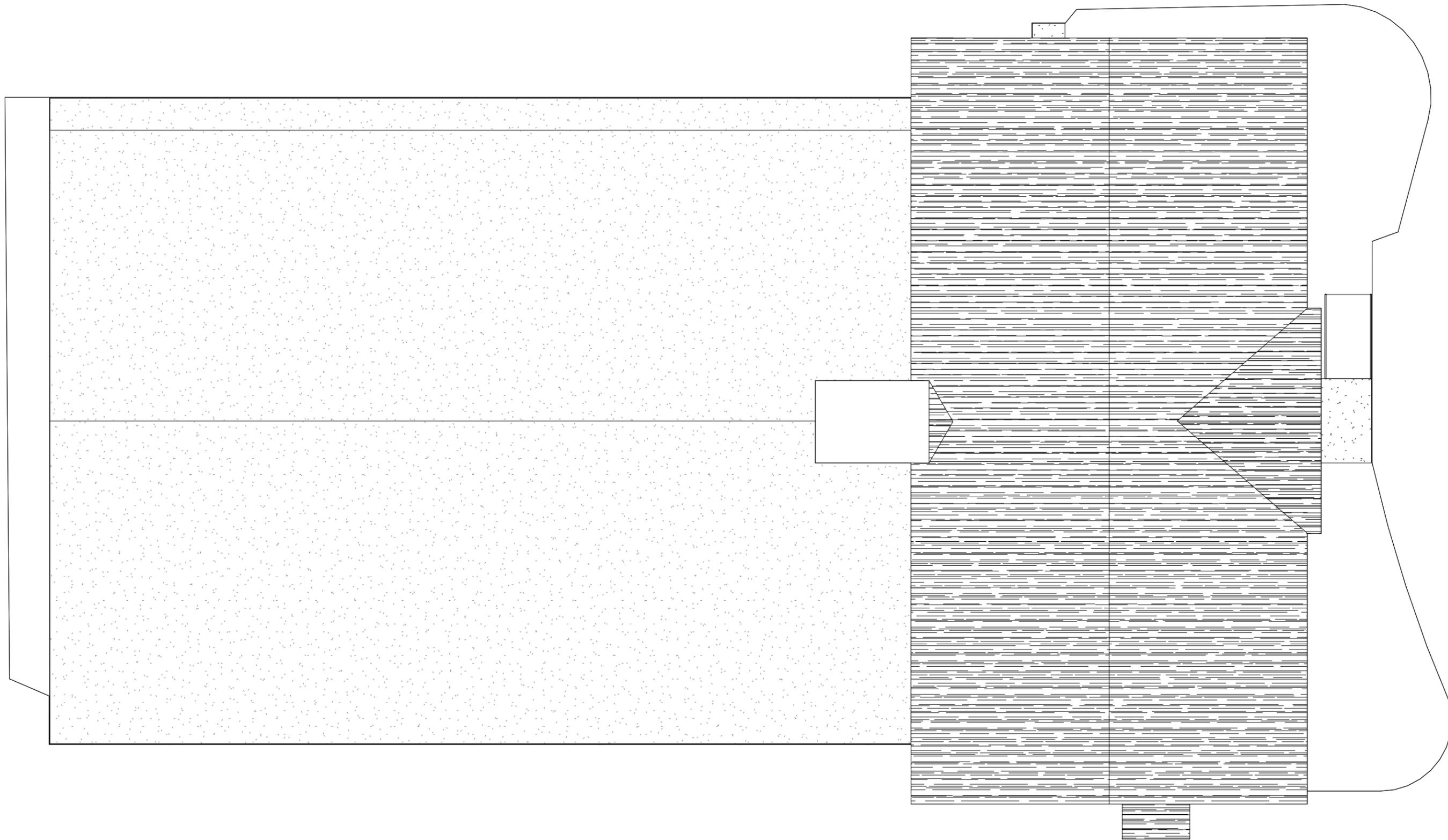


1 LEVEL 1-Original Conditions
 PRES-03 3/32" = 1'-0"





1 LEVEL 2 - Original Conditions
 PRES-04 3/32" = 1'-0"



1	ROOF PLAN
PRES-05	3/32" = 1'-0"

Town of Wolfeboro, NH

Police and Fire Safety Building - Existing Conditions and Space needs Report

Roof Plan-11x17

SCALE: 3/32" = 1'-0"

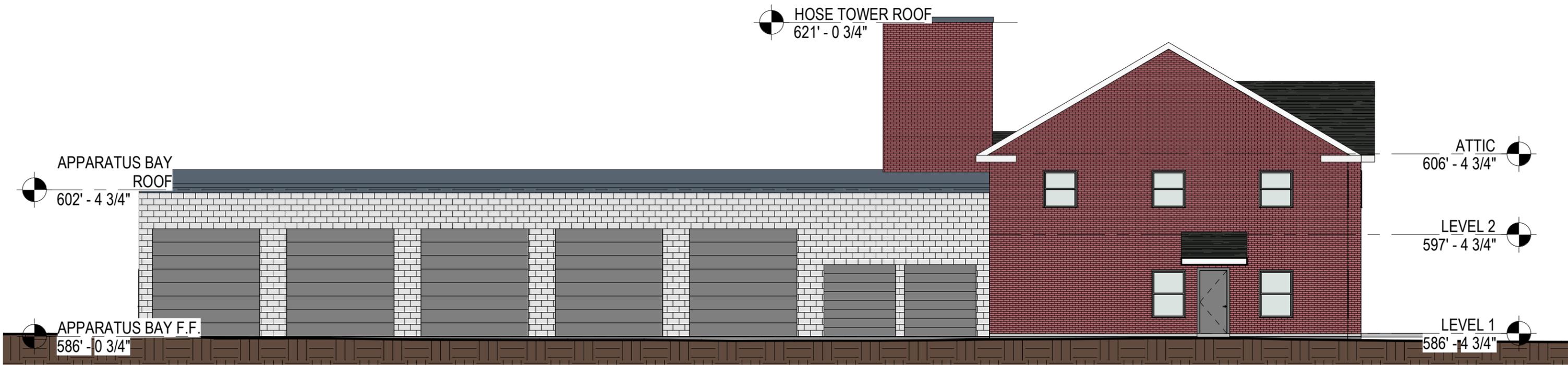


03/26/18

LAVALLEE BRENSINGER ARCHITECTS

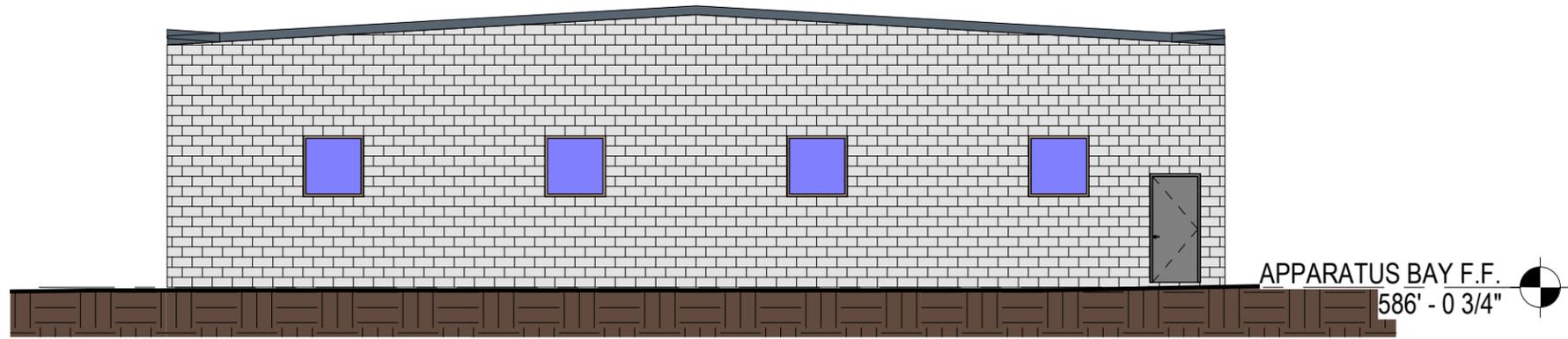


1 EAST ELEVATION - EXISTING
 PRES-06 3/32" = 1'-0"



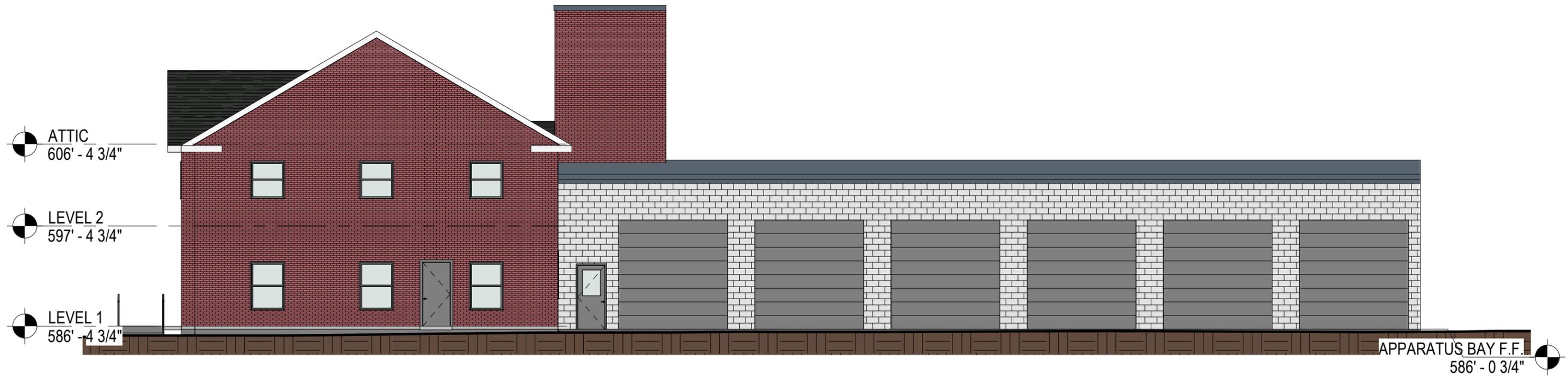
2 SOUTH ELEVATION - EXISTING
 PRES-06 3/32" = 1'-0"

Town of Wolfeboro, NH



APPARATUS BAY F.F.
586' - 0 3/4"

1 WEST ELEVATION - EXISTING - APPARATUS
PRES-07 3/32" = 1'-0"



APPARATUS BAY F.F.
586' - 0 3/4"

2 NORTH ELEVATION - EXISTING
PRES-07 3/32" = 1'-0"

Town of Wolfeboro, NH



BUILDING PRODUCTS

PRE-INSTALLATION NOTICE

RubberGard EPDM/UltraPly 78+/UltraPly TPO

STATUS: Accepted
FBPCO No: AD8491 (Firestone File Number)

Page 1 Of 1

Start Date: May 30, 2012 Note: Must be completed 2 weeks prior to start of project.

NOTE: Only information entered in PIN is shown on this report

Firestone Contractor (Firm Name): The Melanson Co., Inc. Firestone License No: 01906
Address: 353 West Street city Keene state NH zip 034312442 country US
phone (603) 352 - 4232 Fax No. (603) 352 - 6375 E-Mail Address _____

WARRANTY DATA

The warranty will be printed using the information as submitted on this form.

Building Name: Wolfeboro Life Safety Building
Building Address: Route 28 Wolfeboro state NH zip 03894 county US ph _____
Owner (company): Town of Wolfeboro Contact Name: _____ ph _____
Owner Address: PO Box 629
Wolfeboro state NH zip 03894-0629 county US ph _____
Specifier Fire/Owner state AK zip _____ ph _____

INSTALLATION DATA

Warranty Request Red Shield Warranty Length 15 Yr. Membrane Warranty No Membrane Warranty Length _____
Warranted Sq. Ft. 6800 Dimensions X Roof Height 15 Parapet Height _____
Roof Slope 1 Roof Slope Other _____ Increased Wind Speed Warranty No MPH _____
Ground Viewable Hail Warranty No
Roughness Exposure Opening > 10 feet. Opening < 10 feet. _____

System / Construction / Decks / Insulation / Membrane Information

System Type: Adhered - EPDM Construction Type: Existing Number of Decks: 1 Vapor Retarder: None
Deck Type 1: Steel Gauge 20 Other: _____
Number of Layers of Insulation: 1
Base Layer: ISO 95+ Thickness 2.0 (50.8) Other _____ Thickness _____
Attachment: Firestone Fasteners Length / Type: 4 in. (101.6 mm)/Heavy Duty Rate: 8 Per Board App. Layout: _____ Other: _____
Fastener _____
Membrane Information: Type: EPDM NonRein. LSFR Gauge: .060 Color: _____ Adhesive: Bonding Adhesive BA-2004 (T)
Fasteners: _____ Length: _____ Invisiweld Att. Rate: _____ Design Layout NO.: _____
Surfacing Type: None Rate _____ Other: _____
Window/Cleaning Equipment: _____ Expected Foot Traffic: _____
Above Membrane Components:
SkyScape System: None SkyScape Warranty: _____ PhotoVoltaic: None
SunWave: No Number Of _____
Existing Roof Construction: Complete Tear Off Existing Roof Membrane: _____ Other: _____
Edge Metal Information:
Firestone AnchorGard: No Firestone Coping: _____ Firestone Edging: No
Firestone UnaEdge: No Firestone Coil or Flat Stock Metal: Yes
Specification Requires Final Inspection: Yes TotalGard Maintenance Agreement: No
Sales rep pre-approval of any special considerations for this project: No
Additional Information:

30-May-12 Approved as noted; Please submit RFI & ARD for warranty. Thanks

Roof Accessibility: Ladder required Ladder Length: 28 ARD with PIN No
Forman Name: Scott Stone Reviewed by: Carl Hunt -- 05/30/2012 x53803

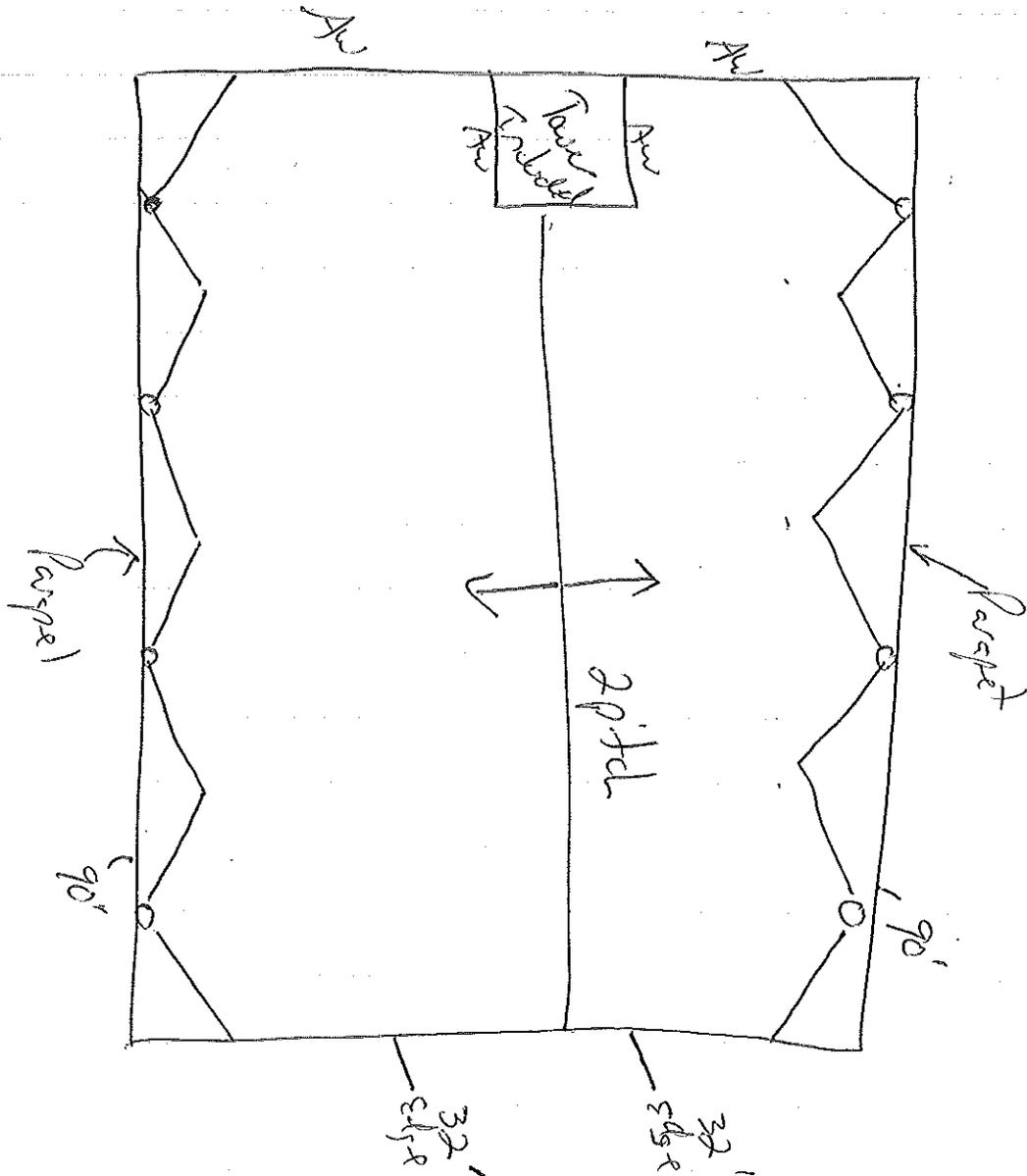
Address: 250 West 96th Street Phone: 800-428-4511
Indianapolis, IN 46260 Fax: 800-242-0504

Certification: I certify to the best of my knowledge the above information is accurate. Tech Rep assigned is: Tom Donahue -- 53277
Submitted By: Jeffrey Bellen Company: The Melanson Company inc Date: 05/30/2012

This Pre-Installation Notice (PIN) is used to verify that the proposed assembly meets Firestone's minimum requirements to obtain the appropriate warranty. For compliance to code or other requirements, please contact the Firestone Roofing System Solutions department at (800) 428-4511.

Project: Wolfeboro Life Safety Bldg
Main St.
Wolfeboro NH
AD8491

By: The Melanson Co. Inc.
5 Ferry Rd.
Bow NH 03304



RED SHIELD BUILDING PRODUCTS WARRANTY



RED SHIELD ROOFING SYSTEM LIMITED WARRANTY

Warranty No: RD109919 FBPCO #: AD8491 Square Footage: 6800 s.f.
Building Owner: TOWN OF WOLFEBORO
Building Identification: WOLFEBORO LIFE SAFETY BUILDING
Building Address: ROUTE 28, WOLFEBORO, NH, 03894-0000
Warranty Period Of: FIFTEEN (15) Years; Beginning On: 07/16/12
Roofing Contractor: THE MELANSON CO., INC. (01908)

For the warranty period indicated above, Firestone Building Products Company, LLC ("Firestone"), an Indiana limited liability company, warrants to the Building Owner ("Owner") named above that Firestone will, subject to the Terms, Conditions and Limitations set forth below, repair any leak in the Firestone Roofing System ("System").

TERMS, CONDITIONS AND LIMITATIONS

- Products Covered.** The System shall mean only the Firestone brand roofing membranes, Firestone brand roofing insulations, Firestone brand roofing metal, and other Firestone brand roofing accessories when installed in accordance with Firestone technical specifications by a Firestone licensed applicator.
- Notice.** In the event any leak should occur in the System, the Owner must give notice in writing or by telephone to Firestone within thirty (30) days of any occurrence of a leak. Written notice may be sent to Firestone at the street address or fax number shown on the reverse side of this Limited Warranty. Evidence of this notice shall be the receipt by Owner of a Firestone Leak Notification Acknowledgement. By so notifying Firestone, the Owner authorizes Firestone or its designee to investigate the cause of the leak.
- Investigation.** If upon investigation, Firestone determines that the leak is not excluded under the Terms, Conditions and Limitations set forth in this Red Shield Roofing System Limited Warranty (the "Limited Warranty"), the Owner's sole and exclusive remedy and Firestone's total liability shall be limited to the repair of the leak. Should the investigation reveal that the leak is excluded under the Terms, Conditions and Limitations, the Owner shall be responsible for payment of the investigation costs. Failure by Owner to pay for these costs shall render this Limited Warranty null and void. Firestone will advise the Owner of the type and/or extent of repairs required to be made at the Owner's expense that will permit this Limited Warranty to remain in effect for the unexpired portion of its term. Failure by the Owner to properly make these repairs in a reasonable manner using a Firestone licensed applicator and within 60 days shall render this Limited Warranty null and void.
- No Dollar Limit (NDL).** There is no dollar limit placed on warranted leak repairs to the extent such repairs are covered by this Limited Warranty.
- Disputes.** Any dispute, controversy or claim between the Owner and Firestone concerning this Limited Warranty shall be settled by mediation. In the event that the Owner and Firestone do not resolve the dispute, controversy or claim in mediation, the Owner and Firestone agree that neither party will commence or prosecute any suit, proceeding, or claim other than in the courts of Hamilton County in the state of Indiana or the United States District Court, Southern District of Indiana, Indianapolis Division. Each party irrevocably consents to the jurisdiction and venue of the above identified courts.
- Payment Required.** Firestone shall have no obligation under this Limited Warranty unless and until Firestone and the licensed applicator have been paid in full for all materials, supplies, services, approved written change orders, warranty costs and other costs which are included in, or incidental to, the System. In the event that repairs not covered by this Limited Warranty are required in the future, Firestone reserves the right to suspend this Limited Warranty until such repairs have been completed and the licensed applicator and/or Firestone has been paid in full for such repairs.
- Exclusions.** Firestone shall have no obligation under this Limited Warranty, or any other liability, now or in the future if a leak or damage is caused by:
(a) Natural forces, disasters, or acts of God including, but not limited to, fires, hurricanes, tornadoes, hail, wind-blown debris, lightning, earthquakes, volcanic activity, atomic radiation, insects or animals; (b) Winds of peak gust speed at or in excess of 55MPH calculated at ten (10) meters above ground using available meteorological data; (c) Act(s), conduct or omission(s) by any person, or act(s) of war, terrorism or vandalism, which damage the System or which impair the System's ability to resist leaks; (d) Failure by the Owner to use reasonable care in maintaining the System, said maintenance to include, but not be limited to, those items listed on the reverse side of this Limited Warranty entitled "Building Envelope Care and Maintenance Guide"; (e) Deterioration or failure of building components, including, but not limited to, the roof substrate, walls, mortar, HVAC units, skylights etc.; (f) Construction generated moisture, condensation or infiltration of moisture in, from, through, or around the walls, copings, rooftop hardware or equipment, skylights, building structure or underlying or surrounding materials; (g) Acid, oil, harmful chemicals, or the reaction between them; (h) Alterations or repairs to the System that are not completed in accordance with Firestone's published specifications; not completed by an approved contractor; and/or not completed with proper notice to Firestone; (i) The design of the roofing system; Firestone does not undertake any analysis of the architecture or engineering required to evaluate what type of System is appropriate for a building and makes no warranty, express or implied as to the suitability of its products for any particular structure; such a determination is the responsibility of the architect, engineer or design professional; (j) Improper selection of materials for the roof assembly or the failure to accurately calculate wind uplift and/or roof loads; (k) Deterioration to metal roofing materials and accessories caused by marine salt water, atmosphere, or by regular spray of either salt or fresh water; or, (l) Change in building use or purpose.
- Transfer.** This Limited Warranty shall be transferable subject to Owner's payment of the current transfer fee set by Firestone.
- Term.** The term of this Limited Warranty shall be for the period set forth above and such term shall not be extended under any circumstances.
- Roof Access.** During the term of this Limited Warranty, Firestone's designated representative or employees shall have free access to the roof during regular business hours. In the event that roof access is limited due to security or other restrictions, Owner shall reimburse Firestone for all reasonable cost incurred during inspection and/or repair of the System that are due to delays associated with said restrictions. Owner shall be responsible for the damage caused by, removal and replacement of any overburdens, superstrata or overlays, either permanent or temporary, excluding accepted stone, ballast or pavers, as necessary to expose the system for inspection and/or repair.
- Waiver.** Firestone's failure to enforce any of the terms or conditions stated herein shall not be construed as a waiver of such provision or of any other terms and conditions of this Limited Warranty.
- Governing Law.** This Limited Warranty shall be governed by and construed in accordance with the laws of the State of Indiana without regard to that State's rules on conflict of laws.
- Severability.** If any portion of this Limited Warranty is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force.

FIRESTONE DOES NOT WARRANT PRODUCTS INCORPORATED OR UTILIZED IN THIS INSTALLATION THAT WERE NOT FURNISHED BY FIRESTONE. FIRESTONE SPECIFICALLY DISCLAIMS LIABILITY UNDER ANY THEORY OF LAW ARISING OUT OF THE INSTALLATION OF, PERFORMANCE OF, OR DAMAGES SUSTAINED BY OR CAUSED BY PRODUCTS NOT FURNISHED BY FIRESTONE.

THIS LIMITED WARRANTY SUPERSEDES AND IS IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND FIRESTONE HEREBY DISCLAIMS ALL SUCH WARRANTIES. THIS LIMITED WARRANTY SHALL BE THE OWNER'S SOLE AND EXCLUSIVE REMEDY AGAINST FIRESTONE, AND FIRESTONE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR DAMAGES TO THE BUILDING OR ITS CONTENTS OR THE ROOF DECK. THIS LIMITED WARRANTY CANNOT BE AMENDED, ALTERED OR MODIFIED IN ANY WAY EXCEPT IN WRITING SIGNED BY AN AUTHORIZED OFFICER OF FIRESTONE. NO OTHER PERSON HAS ANY AUTHORITY TO BIND FIRESTONE WITH ANY REPRESENTATION OR WARRANTY WHETHER ORAL OR WRITTEN.

FIRESTONE BUILDING PRODUCTS COMPANY, LLC

By: Phil LaDuke

Authorized

Signature:

Title:

Director, Quality Assurance

Firestone

OPTION 1 New Construction at Rear of Site

PROS:

- All construction can be completed at the same time, while maintaining access to the existing building
- Ample space for parking and on-site storage
- Area of site remains available for future development

CONS:

- Circulation around the back of the building is not possible
- A sizeable portion of the building must be placed on the second floor, some of it above Equipment Bays
- Sally Port is within view of the main entrance
- Two bays are not accessible until existing bays are demolished



OPTION 2
Two Buildings with Connector,
Renovate Existing

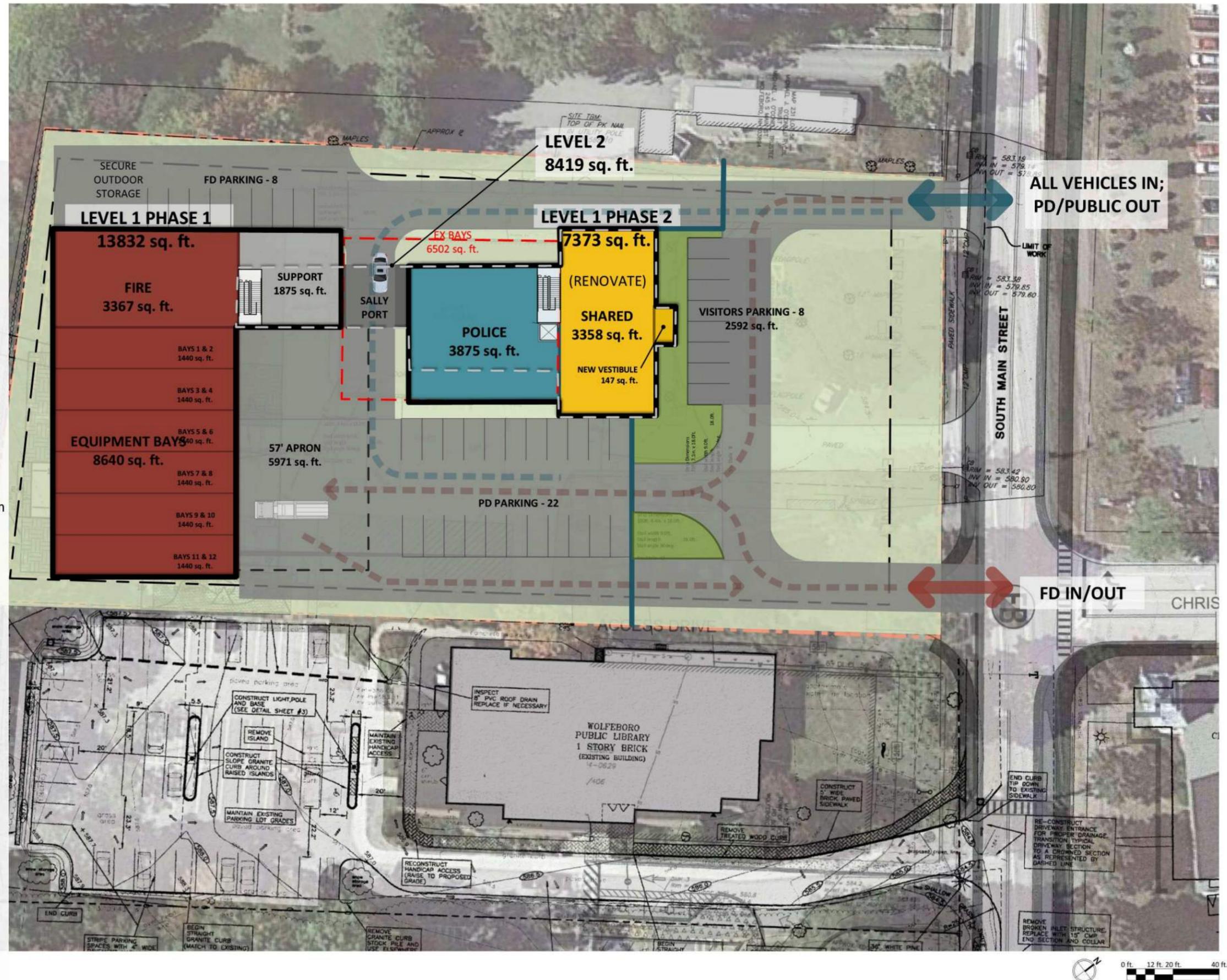
PROS:

- Many programs are able to be accommodated on the ground floor
- Large consolidated Secure Parking and Apron area at the center of the site, not accessible to the public
- Fire Department has dedicated vehicular entrance and exit (not shared)

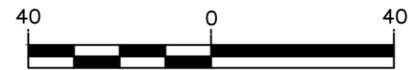
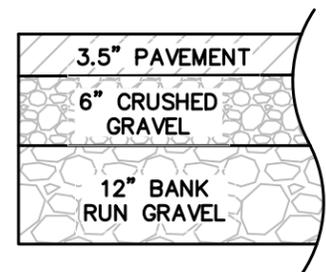
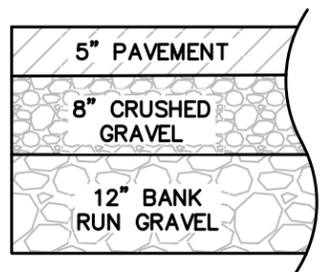
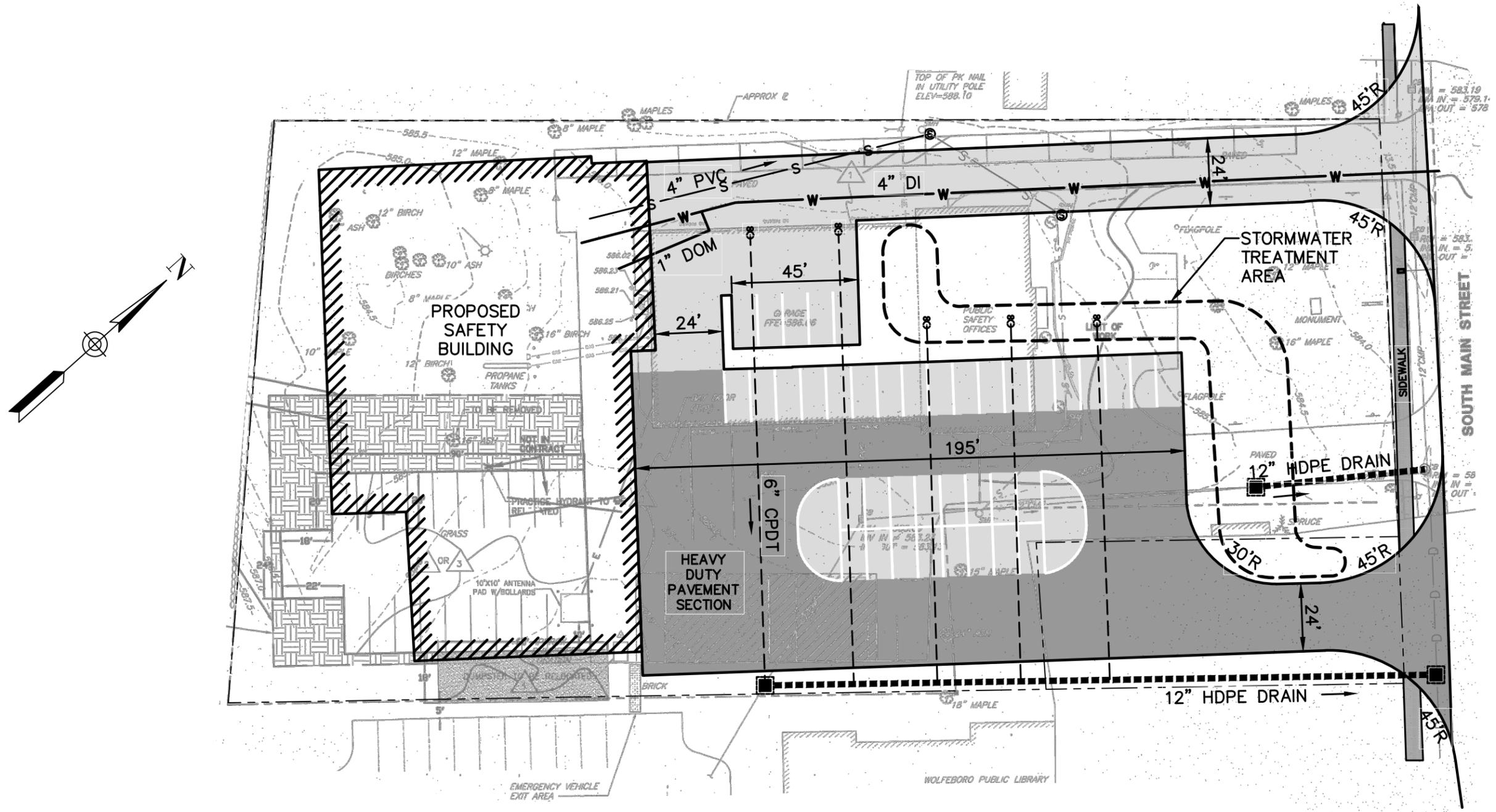
CONS:

- Phased construction required, with Fire Station as Phase 1
- Renovation of existing building for program may be inefficient
- Circulation Fire Station and rear access to bays is not possible

EARLY OPTIONS



EARLY OPTIONS



DATE	6/1/18	UNDERWOOD engineers
PROJECT	25 Vaughan Mall, Portsmouth, N.H. 03801 Tel. 603-436-6192 Fax. 603-431-4733	

SAFETY BUILDING
OPTION 1
TOWN OF WOLFEBORO
WOLFEBORO, NEW HAMPSHIRE

FIG.
1
82

Early Option - Conceptual Budget

New Building Option

TOWN OF WOLFEBORO - PUBLIC SAFETY BUILDING OPTION 1 - New Building 29,508 s.f. - Conceptual Budget

July 25, 2018

SITE DEVELOPMENT:		\$ 710,000	\$ 24.06 psf
Mobilization, erosion control, clean-up		\$ 70,000	\$ 2.37 psf
Site demolition, cuts/fills		\$ 130,000	\$ 4.41 psf
Excavation, backfill for structure, slab preparation		\$ 100,000	\$ 3.39 psf
Utilities and drainage		\$ 135,000	\$ 4.58 psf
Pavement, markings, hardscape, sidewalks, signage, bollards		\$ 250,000	\$ 8.47 psf
Landscaping, benches, bike racks		\$ 25,000	\$ 0.85 psf
DEMOLITION OF EXISTING STRUCTURES:		\$ 90,000	\$ 3.05 psf
NEW CONSTRUCTION:	29,508 sf	\$ 7,642,572	\$ 259.00 psf
Structure and foundation, including masonry walls		\$ 1,829,496	\$ 62.00 psf
Thermal and moisture protection		\$ 708,192	\$ 24.00 psf
Doors and windows		\$ 442,620	\$ 15.00 psf
Framing and finishes		\$ 1,091,796	\$ 37.00 psf
Specialties and equipment		\$ 177,048	\$ 6.00 psf
Elevator		\$ 88,524	\$ 3.00 psf
Mechanical systems and fire protection		\$ 1,593,432	\$ 54.00 psf
Electrical and security systems		\$ 885,240	\$ 30.00 psf
CM general conditions and fee		\$ 826,224	\$ 28.00 psf
DESIGN AND CONSTRUCTION CONTINGENCY 10%:		\$ 844,257	\$ 28.61 psf
HARD CONSTRUCTION COST TOTAL:		\$ 9,286,829	\$ 314.72 psf
SOFT COSTS 16% OF HARD COSTS:		\$ 1,485,893	\$ 50.36 psf
A/E fees			
Geotechnical engineering			
Planning and permitting fees			
Legal, accounting, builders' risk insurance			
Third party testing			
Owner's project manager/clerk of the works			
Utility connection fees and backcharges			
Generator			
Exterior signage			
Furniture, fixtures, equipment			
ADDITIONAL COSTS NOT INCLUDED:			
Relocate dispatch equipment			
Existing building abatement and testing			
Police radio system and equipment			
HARD CONSTRUCTION COST ESCALATOR TO 2021 - 4% PER YEAR		\$ 1,159,591	\$ 39.30 psf
SOFT COST ESCALATOR TO 2021 - 2.5% PER YEAR		\$ 114,251	\$ 3.87 psf
TOTAL PROJECT HARD AND SOFT COSTS in 2021:		\$ 12,046,564	\$ 408.25 psf

9:30-10:30 AM PROJECT KICK OFF MEETING

Intro participants and roles

Sergeant PD and Lieutenant FD will lead LBA through building

Stakeholders & Point of Contact

-Dave Owen City Mgr

- DO: you will report to Board of Selectmen. LBA will make a presentation to them, representative on Steering Committee will be liason until then
- RR: Steering Committee? Would prefer smaller group if possible for streamlined communication and decision making
 - DO: planner, chiefs PD & FD, town mgr, selectmen rep

SCOPE OF WORK REVIEW

- Dale – review structure, finishes, accessibility, etc...existing conditions review. Will assemble report, draft for review and final.
 - FD Chief – facilities maintenance budget is under FD. “public safety maintenance” for whole building
 - Dale – please provide work done on facility in last 2 years
 - Lt. Jim Dearborn contact at FD for facilities maintenance
 - Roof shingles are in poor condition
 - PD Chief – the Steering Committee should be able answer all questions about building condition
 - RR: study is overview “annual check-up” of building condition. Mostly code, accessibility. LBA is cognizant of end game – seems to be a check on whether functions can remain on site with renovation/expansion or not.
- DO priority – library must remain operational during work, along with public safety operations.
- RR: important to have conversations up front about priorities and direction
- Programming overview: PD questionnaire is complete but need more tiem for 2038 projections, strategic planning occurring now for Police Commission
 - RR: things affecting projections: demographics, hot-button issues (opioids, etc)
 - Planner – Wolfeboro is losing population. PD/FD chiefs disagree with census numbers
 - PD chief: population does appear to be increasing “tremendously”. Traffic conditions are an examples
 - DO: do we design building on anecdotal info or fact?
 - Chief - we are missing transient population. RR: study peak population. DO 3-month period
 - Planner – we have traffic info that will support increase in transient population
 - Chief - nearing 60,000 calls/year at PD. Need to evaluate and justify need based on PD/FD activity, not necc population
- Site Planning overview
 - Research buildable area, circulation, parking and apparatus needs, overlay with program

- RR initial discussion about phasing: what do you need minimally to operate on site
- AC: we will program to 2038 number, but do we build 2038 building now, or preserve site area for future expansion?
 - RR: considerations: cost of construction (escalation), and practicality of future expansion is important factor in making that determination
 - DO: CPI for this area is 1.6% northeast. RR: cost of construction is running +/-5x higher
- Final Documentation
 - Draft and final reports
 - Budget:
 - RR: may apply general metrics to options that we put together along the way as a check, but final cost estimate will occur once preferred option has been determined.
 - AC: we will look at big picture options first to figure out general idea of cost differences among options
- Final Presentation of Study to Board of Selectmen
 - DO: televised, publicly viewed
- SCHEDULE
 - Programming and Site Conditions complete 4-5 weeks; end of January draft report
 - Options – big picture may occur February, more detailed study March/April
 - Final option May/June. Possible to complete study before end of June (?)
- Agreement signed, LBA waiting for PO
- RR: would like to do additional service of measured drawings, OK?
 - DO will get PO for project
 - RR: measured drawings will occur ASAP; scanned drawings have been sent to Town
- DO reviewed history of ADA compliance
 - Complaint filed with DOJ 2006 regarding ADA compliance in town
 - Report/assessment created of deficiencies and proposed solutions at that time.
 - Town entered Consent Decree with dept of Justice to complete ADA improvements; town spent millions to complete
 - AG architects was involved in ADA improvements in town. Ramp and ADA bathroom in lobby at public safety bldg.

PROGRAMMING INTRO MEETING

Town Hall 10:45-11:30

- RR: 2 weeks for draft program
- AC: who are individuals to speak to related to specific functions, adjacencies, etc? May discover some of these today
- RR: we will assist in identifying over/under programmed spaces in honest and straightforward way
 - DO: we want LBA to distinguish between needs and wants
- 2003 Space Need study was completed for all Town departments
- Initial assumptions and visioning
 - Chief – we all understand that we need to fit in a budget (not stated)
 - RR: we will prioritize operational needs, quality of life for occupants
 - AC: divorce mentally from current operations and think about future functionality

- Questionnaires
 - FD – needs time to sit with staff to discuss vision and projections.
 - Apparatus is main focus of space need
 - Apparatus are getting bigger, taller. Guidelines
 - RR: give us some guidance on living arrangements
 - PD
 - Questionnaires mostly complete, waiting on 2038 strategic planning
 - Holding cells needed are increasing, law requires certain things that they don't currently have
 - Draft Program –
 - DO: will it compare existing space to need? RR: can do this by gross area or by overall department
 - Chief: we have constitutional challenges that are posing issues. Ex: impound lot. DO: there is no impound lot in the county, Wolfeboro should not necessarily have to have this facility.
 - Sight/sound separation for prisoners is an issue. We are 15 mins away from county jail, so often transport to that facility. Need to hold, secure, process, and interview prisoners.
 - Draft program to be sent by email, then meet to “scrub”
 - AC: any questions regarding site or preferences for circulation will help inform site studies that will be underway soon
- Discussion: Potential Shared Space
 - Current Lobby/reception: dispatchers currently serve as “greeters” for all Public Safety Bldg
 - Potential Shared Spaces:
 - Public uses (RR diagram):
 - Lobby & Vestibule with access to:
 - EOC/Community Room/Police Commission Meeting Room
 - Kitchen, Storage
 - Public counters for PD/FD
 - Interview room outside departments
 - Restrooms
 - Shared Conference Room PD/FD, with good access to Administrative Suites (chiefs)
 - Agility Room/Tactical Training/Fitness Room
 - Police Commission (chief reports to them), must brief them monthly on budget
 - Selectman question: will all this be on the first floor? Elevator will be needed.
- Dispatch discussion
 - DO: currently under control of PD. Can use PD break room, share PD common uses.
 - Chief: we are 24/7. Break room needs to have kitchen function. Currently only 1 dispatcher on late shift...they may need their own amenity spaces and potentially duplicate restrooms, break area, etc.

NOTES FROM THE SITE CONCEPT DESIGN MEETING – MAY 1, 2018 10 AM – 11:30 AM

Participants discussion the following:

1. Bob R. introduced the Agenda and goals for this meeting.
2. Participants received the Final Space Program document LBA will be using to implement the Concept Design.
3. Bob R. reviewed the current time line and schedule for the project. Our team was tasked to complete the Study by July 1, 2018. The schedule proposed in order to meet the deadline of July 1 is as follows:

Next Steps in the Study – May/June 2018

- a. Develop Site, Building Massing, and Concept Plans for the Selected Option – May 2018
 - b. Concept Design Review – May 22, 2018
 - c. Prepare brief Basis of Design Narrative outlining the overall quality of the proposed Option – June 1, 2018
 - d. Prepare Conceptual Budget for the Selected Option – June 12
 - e. Complete Report – June 18, 2018
 - f. Final Presentation/Meeting at the Town Hall – June 20/21, 2018
4. Review the 3 Test Fit Options:

Alice C and Bob R introduced the overall concept of the 3 options. LBA presented each option and then opened the discussion up to all participants. The following comments were made by participants:

- a. Option 1 – New Construction at Rear of Site
 - ✓ PD Chief noted that all 3 options will work for the PD but liked Option1.
 - ✓ Town Manager noted that he is not in favor of this option due to the fact that it pushes the new building to the rear of the site and does not present a positive presence to Route 28 to enforce the street frontage
 - ✓ Bob R noted that this option would involve the least number of phases (estimated 2 phases)
 - ✓ Group consensus was that circulation around the back of the building was not mandatory. PD Chief asked about secondary access through lots at the rear of the site, via a new easement or roadway. The group concluded that this should not be under consideration at this time.
- b. Option 2 – Two Building Option with Connector and Renovation of Existing – Phasing (estimating 3 to 4 major phases)
 - ✓ This option appeared to be the least favorite due to several logistic challenges and the connection between the PD and FD, and the location of the Shared Spaces in one of the buildings.
 - ✓ Although the exact location of Shared Space could be altered slightly, its proximity to the PD appears better than to the FD, and it was unclear how public visitors would enter and circulate through the complex if meeting at the FD.
- c. Option 3 - Renovation of Existing and Addition(s) to Existing – Phasing (estimating 4 major phases)
 - ✓ Shared Spaces needs to be accessible directly from the PD and the FD.

- ✓ Relocate the main entrance into the Shared Space closer to Route 28, but cannot be directly adjacent to the FD equipment bay apron.
- ✓ Expand the Shared Space to encompass most of the first floor in the existing building
- ✓ The FD confirmed that 5 large double-loaded bays with a 14' min. clearance are acceptable.
- ✓ The FD confirmed that 2 smaller bays with an 11' high are also acceptable.
- ✓ FD confirmed that the configuration of the bays and apron is acceptable.
- ✓ The new PD/FD addition can be shaped several ways to accommodate the Space Program. LBA will review.
- ✓ Comments were made regarding snow removal/storage on site. LBA will review.
- ✓ Security fence is only required at the Sallyport. (not at the PD and FD vehicle and staff parking)
- ✓ Parking lot overall shape can be adjusted as needed
- ✓ Participants discussed the connection between the Library and Public Safety complex. LBA will reach out to Underwood to obtain the most recent site layout and Civil design. A gate may be needed at the connection between the PD/FD and the Library for a second means of emergency egress if the main entrance is blocked. A vehicular connection for public use may cause too many issues of circulation and security, but emergency access is preferable, in the event of a closure of the Public Safety complex main entrance drive.

OPTION 1	OPTION 2	OPTION 3
<p>OPTION 1 New Construction at Rear of Site</p> <p>PROS:</p> <ul style="list-style-type: none"> • All construction can be completed at the same time, while maintaining access to the existing building • Ample space for parking and on-site storage • Area of site remains available for future development <p>CONS:</p> <ul style="list-style-type: none"> • Circulation around the back of the building is not possible • A sizeable portion of the building must be placed on the second floor, some of it above Equipment Bays • Sally Port is within view of the main entrance • Two bays are not accessible until existing bays are demolished 	<p>OPTION 2 Two Buildings with Connector, Renovate Existing</p> <p>PROS:</p> <ul style="list-style-type: none"> • Many programs are able to be accommodated on the ground floor • Large consolidated Secure Parking and Apron area at the center of the site, not accessible to the public • Fire Department has dedicated vehicular entrance and exit (not shared) <p>CONS:</p> <ul style="list-style-type: none"> • Phased construction required, with Fire Station as Phase 1 • Renovation of existing building for program may be inefficient • Circulation Fire Station and rear access to bays is not possible 	<p>OPTION 3 Renovation and Addition(s)</p> <p>PROS:</p> <ul style="list-style-type: none"> • Maximizes reuse of existing building • Consolidated footprint at the center of the site, leaving rear of site for parking and secure storage • Provides vehicular and pedestrian connection to library, creating large connected municipal property • Maintains sizeable buffer zone to adjacent properties to the rear, and saves most of the existing large trees <p>CONS:</p> <ul style="list-style-type: none"> • Phased construction required • FD aprons and Equipment Bays highly visible to street • Access to Bays during construction requires reconfiguration of existing circulation paths • Requires the use of Library property for circulation • Requires relocation of existing sewer line

5. Final voting for the Site Concepts resulting in the Selection of Option 3 for further Concept Design development:

Town Manager	Option 3	State he did not like any of the 3 Options and was imagining something closer to the front of the lot and with larger presence to Route
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		28. Liked keeping and renovating the existing building. Wants to limit the fencing around the building and the property.
Selectman Senecal	Option 3	Noted that some “massaging” of the PD block and relocation of the Main Entrance into the Shared Space is needed. Liked keeping and renovating the existing building.
PD Chief	Option 2, all	Stated that all 3 options work, but is OK with Option 3 to move forward. Fencing is not needed around PD and Staff parking.
PD Captain	All OK	
FD Chief	All OK	Stated that Option 3 will work for the FD. See item #4 notes above for additional comments.
FD Deputy Chief	All OK	Option 3 will work
Town Planner	Option 3	Option 3 will work. See item #4 above for additional comments.

Please contact us with any comments or amendments.

Sincerely

Bob and Alice

Robert C. Robicsek, AIA, NCARB

Principal, Civic Studio Leader

Project: Town of Wolfeboro Public Safety Building Study

Date: June 6, 2018

Time: 12 Noon – 2 PM

Project Number: 17-083-00

Location: Town of Wolfeboro Town Hall

List of Attendees: per the attached sign-in list

Purpose of Meeting: Review of Options 1 and 3 and selection of one option to proceed to Final Report

MINUTES FROM OPTIONS 1 & OPTIONS 3 CONCEPT DESIGN MEETING

Participants discussion the following:

1. Bob R. introduced the Agenda and goals for this meeting.
2. Bob R. provided a brief overview of work performed to date which includes:
 - a. Space Programming with the PD and FD – *completed*
 - b. Existing Conditions and Report – *completed*
 - c. Preparation of 3 Options and review – *completed*
 - d. Decision to proceed with Options 1 and 3 for more detailed review – *completed*
 - e. Prepare Options 1 and 3 including a basis-of-design, site and building conceptual layouts, and conceptual budgets – *completed*
3. Bob R. reviewed the updated time line and schedule for the project. Our team was tasked to complete the Study by July 1, 2018. However the schedule was extended for additional exploration of Options 1 and 3 to July 27, 2018. The schedule proposed in order to meet the deadline of July 1 is as follows:

Next Steps in the Study – June/July 2018

 - a. LBA will review the comments received from the June 6 meeting – *completed as of June 15*
 - b. LBA will set up Skype conferences with PD and FD to review the block plans for the selected Option 1 – *completed June 15*
 - c. LBA will update Option 1 Plans based on comments received and provide to the Town for final review – June 22
 - d. Comments due back from Town to LBA by July 6
 - e. LBA will complete the Final Report – July 18, 2018 and provide to the Town for inclusion in the July Board package via email in PDF format.
 - f. Final Presentation/Meeting at the Town Hall – July 25, 2018

4. Review of Option 1 and Option 2:

Alice C and Bob R introduced the overall concept of the 2 options. LBA presented each option and then opened the discussion up to all participants. The following comments were made by participants:

a. Option 1 – New Construction at Rear of Site

- ✓ PD Chief noted the need for a 3 car secure storage for vehicle evidence impound. Area needs to be enclosed with a fence, have a concrete pad to mitigate fuel and oil leaks, and video surveillance. Participants discussed potential locations.
- ✓ Site circulation is not ideal. Also, building is pushed to the back of the lot with a large expanse of parking and driveways facing Route 28.
- ✓ Group consensus was that based on building massing, overall layout and cost this option was not favored.

b. Option 3 - Renovation of Existing and Addition(s) to Existing – Phasing (estimated 4 major phases)

- ✓ Committee members noted that based on site layout, proposed building massing, functional space layout, and budget estimate, this Option is more appealing and conducive to garner community support.
- ✓ Vehicle Impound Lot location was discussed. This option offers better location for this function. Refer to Item 4.1 for details.
- ✓ Comments were made regarding snow removal/storage on site. Upon further discussion the Committee felt that this was not an issue and could be addressed by the DPW.
- ✓ Security fence is only required at the Sallyport and the Vehicle Evidence Impound area (not at the PD and FD vehicle and staff parking)
- ✓ Participants discussed the connection between the Library and Public Safety complex for emergency access in the event of a closure of the Public Safety complex main entrance drive. It was agreed to indicate this connection on the final site plan.
- ✓ Phasing: PD noted that it is possible to utilize the Sheriff Department in the short term for lock-up, booking, and holding during the phase construction.
- ✓ Space Plan Layout: PD and FD discussed layout of functions on the first and second floors. The layout will be reviewed further in accordance with Item 3.b and 3.c above.

5. Marc Jobin presented and reviewed the Conceptual Budgets for Options 1 and 3 and explained the approach, the basis-of-design standards, and the “hard” and “soft” costs. The projected costs for the options are very similar for both options and as such is not a major differentiator in selecting a preferred option. Costs provided are benchmarked for 2021, reflects phasing, and includes escalation projection. Budget items for consideration by the Town in addition to the costs identified in the Conceptual Budget include:

- ✓ Capital expenditures for PD/FD Dispatch Equipment – Town to provide estimated cost
- ✓ PD Radio Communications tower and equipment – relocation or new? Town to provide info.
- ✓ Moving costs for phase implementation

6. Final voting for the Site Concepts resulting in the Selection of Option 3 for further Concept Design development:

Town Manager	Option 3	Liked Option 3
Selectman Senecal	Option 3	Liked keeping and renovating the existing building. Stated that this is a better solution for the Town and would be easier to gather community support for this Option.
PD Chief	Option 3	Liked Option 3 to move forward with the comments made in Item 4.
PD Captain	Option 3	Selected Option 3
FD Chief	Option 3	Stated that Option 3 will work best for the FD based on layout. See item #4 notes above for additional comments.
Town Planner	Option 3	Stated that Option 3 is best from a planning perspective based on site access, massing, and overall design.

7. LBA will proceed with the Final Study Package which will comprise of the following items for the selected Option 3:

- Executive Summary with brief narrative of design approach
- Space Program Document
- Conceptual Site Plan
- 3D Building Massing images
- Concept Plans
- Basis of Design
- Updated Budget Estimate
- Appendix with prior documents generated during the Study

Please contact us with any comments or amendments.

Sincerely

Bob and Alice

Robert C. Robicsek, AIA, NCARB

Principal, Civic Studio Leader