

# Town of Tyngsborough, Massachusetts Main Fire Station Facility Conceptual study



**Lavallee | Brensinger Architect; Consultants:**  
VHB, Civil Engineering  
Jobin Construction Consultants, LLC; Cost Estimating Services



# Programmatic Needs Assessment

Public Safety Building Study

Town of Tyngsborough, MA

Executive Summary

LAVALLEE | BRENSINGER ARCHITECTS

LBA Project no. 24-028-00

Fire Station Program

## Executive Summary

### Fire Station No.1

Space Designation			Space Need						
No.	Function		2024 (current need)		2034	2044	Right size	Notes	
<b>COMMON/SUPPORT SPACES</b>									
C-1	Common/Support Spaces		3,344		3,344	3,344	0		
<b>COMMON/SHARED TOTAL</b>			<b>3,344</b>		<b>3,344</b>	<b>3,344</b>	<b>0</b>		
<b>FIRE DEPARTMENT</b>									
F-1	Fire Administration		2,000		2,000	2,000	0		
F-2	Fire Station		9,463		9,463	9,525	0		
F-3	Fire Departmental Support		1,903		1,903	1,903	0		
<b>FIRE TOTAL</b>			<b>13,365</b>		<b>13,365</b>	<b>13,428</b>	<b>0</b>		
<b>BUILDING SUPPORT</b>									
S-1	Facility Support		3,295		3,295	3,295	0		
<b>BUILDING SUPPORT TOTAL</b>			<b>3,295</b>		<b>3,295</b>	<b>3,295</b>	<b>0</b>		
<b>TOTAL ALL PROGRAMS</b>			<b>20,004</b>		<b>20,004</b>	<b>20,066</b>	<b>0</b>		
	Efficiency Factor	<b>25%</b>							
<b>% Increase from Existing Building GSF</b>									
		<b>5,525</b>	<b>362%</b>		<b>362%</b>	<b>363%</b>	<b>0%</b>		



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## Parking

### Fire Station No.1

Vehicle Parking Requirements					
	STAFF PERSONAL VEHICLES	FD VEHICLES	Visitor vehicles	TOTAL	Notes
Fire Department Staff	10	4	0	14	
Public - Community Room & EOC	0	0	33	33	
<b>TOTAL PARKING NEED</b>	<b>10</b>	<b>4</b>	<b>33</b>	<b>47</b>	

FD Equipment List					
TYPE	NUMBER	SIZE (LxWxH)	TYPE		BAYS
Ambulance 1	1	22' x 8' x 10'	Enclosed		
Ambulance 2	1	22' x 8' x 10'	Enclosed		
Engine/Pumper	1	32' x 8' x 10'	Enclosed		
Ladder 1	1	38' x 8' x 12'	Enclosed		
Tank Truck	1	34' x 8' x 10'	Enclosed		
Air trailer	1	20' x 8' x 8'	Enclosed		
Boat/Trailer	1	26' x 8' x 10'	Covered		
Brush truck	1	24' x 8' x 8'	Covered		
Service truck	1	20' x 7' x 7'	Covered		
Chief's SUV	1	18' x 7' x 7'	Covered		



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Space ID Name

## C-1 Common/Support Spaces Station No. 1

Space Designation			Space Need				Notes - Refer to the PD Space Program for Shared Common Spaces
No.	Function		2024 (current need)	2034	2044	Right size	
<b>C-1</b>	<b>Common/Support Spaces</b>						
C-1.1	Entry Vestibule	1	80	80	80	0	ADA accessible (8' x 10')
C-1.2	Public Lobby	1	200	200	200	0	Seating for 3-4, emergency phone, display case & smart monitor (10' x 20').
C-1.3	Public Restrooms @ 72 sf each	2	144	144	144	0	ADA accessible toilet rooms (8' x 9').
C-1.4	First Aid Room	1	100	100	100	0	Small exam table, 3-4 chairs, counter/cabinets - Adjacent to Lobby (10' x 10').
C-1.5	Training Room	50	1,250	1,250	1,250	0	Smart Boards, White Boards, Projector. Tech for Common Operating Picture (COP) during emergencies (35' x 40').
C-1.6	Training Room Furniture Storage	1	144	144	144	0	Lockable & secure (12' x 12').
C-1.7	Training Room Kitchenette	1	60	60	60	0	Sink, microwave, & refrigerator (6' x 10').
C-1.8	Training Room Unisex Toilet	1	72	72	72	0	Toilet & sink (8' x 9').
C-1.9	Fitness Room	1	625	625	625	0	Workout equipment, TV monitor & sound system (25' x 25').
	SUBTOTAL		2,675	2,675	2,675	0	
	Efficiency Factor	25%	669	669	669	0	
	<b>TOTAL</b>	<b>C-1</b>	<b>3,344</b>	<b>3,344</b>	<b>3,344</b>	<b>0</b>	



# Programmatic Needs Assessment

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## F-1 Fire Administration STATION No. 1

Space Designation			Space Need				
No.	Function		2024 (current need)	2034	2044	Right size	Notes
F-1.1	Administrative Assistant/Receptionist	1,1,1	120	120	120	0	(1) Work Station - Computer & file storage cabinet - Adjacent to Chief's Office and conference room (10' x 12').
F-1.2	Fire Chief's Office	1,1,1	240	240	240	0	Private office - (1) desk, credenza, book case, TV monitor & small meeting table (15' x 16').
F-1.3	Assistant Chief Office	1,1,1	200	200	200	0	Private office - (1) desk, credenza, book case, TV monitor & small meeting table (12' x 16').
F-1.4	Fire Prevention/EMS Office	1,1,1	280	280	280	0	Private office - (2) desks, file storage, small meeting table & book case (16' x 20').
F-1.5	Shift Commander/Captain	1,1,1	168	168	168		Private office - (1) desk, file storage cabinets & radio cabinet - Adjacent to Lobby - Function as communication room 24/7 (12' x 14').
F-1.6	Firefighter work station	1,1,1	168	168	168		(2) Work stations (shared) - Ambulance/training report space - Adjacent to Day Room (12' x 14').
F-1.7	FD Command Conference Room - 8	1	192	192	192	0	Conference table/chairs, smart TV/computer monitor, phone & smart board (16' x 20').
F-1.8	Copier Room & Office Supplies	1	120	120	120	0	Open/closed space, copy/printer & office supplies (10' x 12').
F-1.9	Administration Files Storage Room	1	120	120	120	0	Secure storage (10' x 12').
F-1.10	Storage Closets @ 20 sf each	2	40	40	40	0	Secure storage (5' x 8').
F-1.11	Admin Suite Unisex ADA Toilet	1	72	72	72	0	ADA accessible toilet & sink (8' x 9').
	SUBTOTAL		1,600	1,600	1,600	0	
	Efficiency Factor	25%	400	400	400	0	
	<b>TOTAL</b>		<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>0</b>	



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Town of Tyngsborough, MA

Space ID Name

## F-2 Fire Station Station No. 1

Space Designation			Space Need				Notes
No.	Function		2024 (current need)	2034	2044	Right size	
F-2.1	Individual Bunk Rooms @ 120 sf each	6,6,6	720	720	720	0	Four wardrobes (1 per shift), twin bed, small desk & chair - Adjacent to Day Room (10' x 12').
F-2.2	Male Toilet & Shower Room	2	200	200	200	0	Toilet, shower, sink, & storage (10' x 10').
F-2.3	Male Lockers	25	250	250	250	0	(25) 12" x 12" lockers with bench
F-2.4	Female Toilet & Shower Room	1	100	100	100	0	Toilet, shower, sink, & storage (10' x 10').
F-2.5	Female Lockers	5	125	125	125	0	(5) 12" x 12" lockers with bench
F-2.6	Quartermaster Supply Storage	1	200	200	200	0	Lockable room
F-2.7	Day Room	4,6,6	250	250	300	0	Adjacent to Kitchen/Dining - open concept with reclines, TV, computer station, & book case.
F-2.8	Kitchen	1	160	160	160	0	Adjacent to Day Room - commercial equipment - open to Dining Area - Outside grill area.
F-2.9	Pantry Storage Room	1	80	80	80	0	Adjacent to Kitchen
F-2.10	Dining Area	8,8,8	250	250	250	0	Adjacent to kitchen and day room - open concept
F-2.11	Living Quarter Laundry Room	1	80	80	80	0	Washer Drier - adjacent to bunk rooms (8' x 10').
F-2.12	Apparatus Bays (Existing 34' x 52').	3,3,3	3,120	3,120	3,120	0	New: (2) 18' x 52' & (1) 18' x 68' apparatus bays
F-2.13	Apparatus bays - Ambulance (Existing 15' x 52 - dbl. loaded).	1,1,1	1,285	1,285	1,285		New: (1) 18' x 68' ambulance bay (double loaded).
F-2.14	Bunker Gear Storage	30,30,30	750	750	750	0	Clean Gear - including a spare set in bags on shelving
		<b>SUBTOTAL</b>	<b>7,570</b>	<b>7,570</b>	<b>7,620</b>	<b>0</b>	
		Efficiency Factor 25%	1,893	1,893	1,905	0	
		<b>TOTAL</b>	<b>9,463</b>	<b>9,463</b>	<b>9,525</b>	<b>0</b>	



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## F-3 Fire Departmental Support Station No. 1

Space Designation			Space Need				Notes
No.	Function		2024 (current need)	2034	2044	Right size	
F-3.1	Decon/Extractor/Drying Room - PPE Heady Duty Washer/Extractor/Dryer (Hot zone)	1	140	140	140	0	Adjacent to Apparatus - (2) gear extractors, (1) gear dryer and (1) residential washer/dryer.
F-3.2	Male showers, lockers & toilets (Warm zone)	1	200	200	200	0	Adjacent to Decon
F-3.3	Female showers, lockers & toilets (Warm zone)	1	150	150	150	0	Adjacent to Decon
F-3.4	Air Compressor Room/Air Casade equipment Room - SCBA	1	200	200	200	0	Adjacent to Apparatus
F-3.5	Tool Storage/Equipment Work Room	1	200	200	200	0	Adjacent to Apparatus - Work bench, mop sink & tool storage.
F-3.6	Gear & equipment Storage	1	250	250	250	0	Adjacent to Apparatus
F-3.7	Emergency/Decontamination shower	1	40	40	40	0	Adjacent to Apparatus
F-3.8	Hose Drying Cabinet	2	80	80	80	0	Adjacent to Apparatus
F-3.9	EMS Storage	1	150	150	150	0	Lockable with adjacent large SS skullery sink - adjacent to Apparatus
F-3.10	EMS Ice Machine	1	40	40	40	0	Adjacent to EMS Storage
F-3.11	Appratus Bays Unisex ADA Toilet	1	72	72	72	0	Adjacent to Apparatus
	SUBTOTAL		1,522	1,522	1,522	0	
	Efficiency Factor	25%	381	381	381	0	
	<b>TOTAL</b>		<b>1,903</b>	<b>1,903</b>	<b>1,903</b>	<b>0</b>	



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LAVALLEE | BRENSINGER ARCHITECTS

LBA Project no. 24-028-00

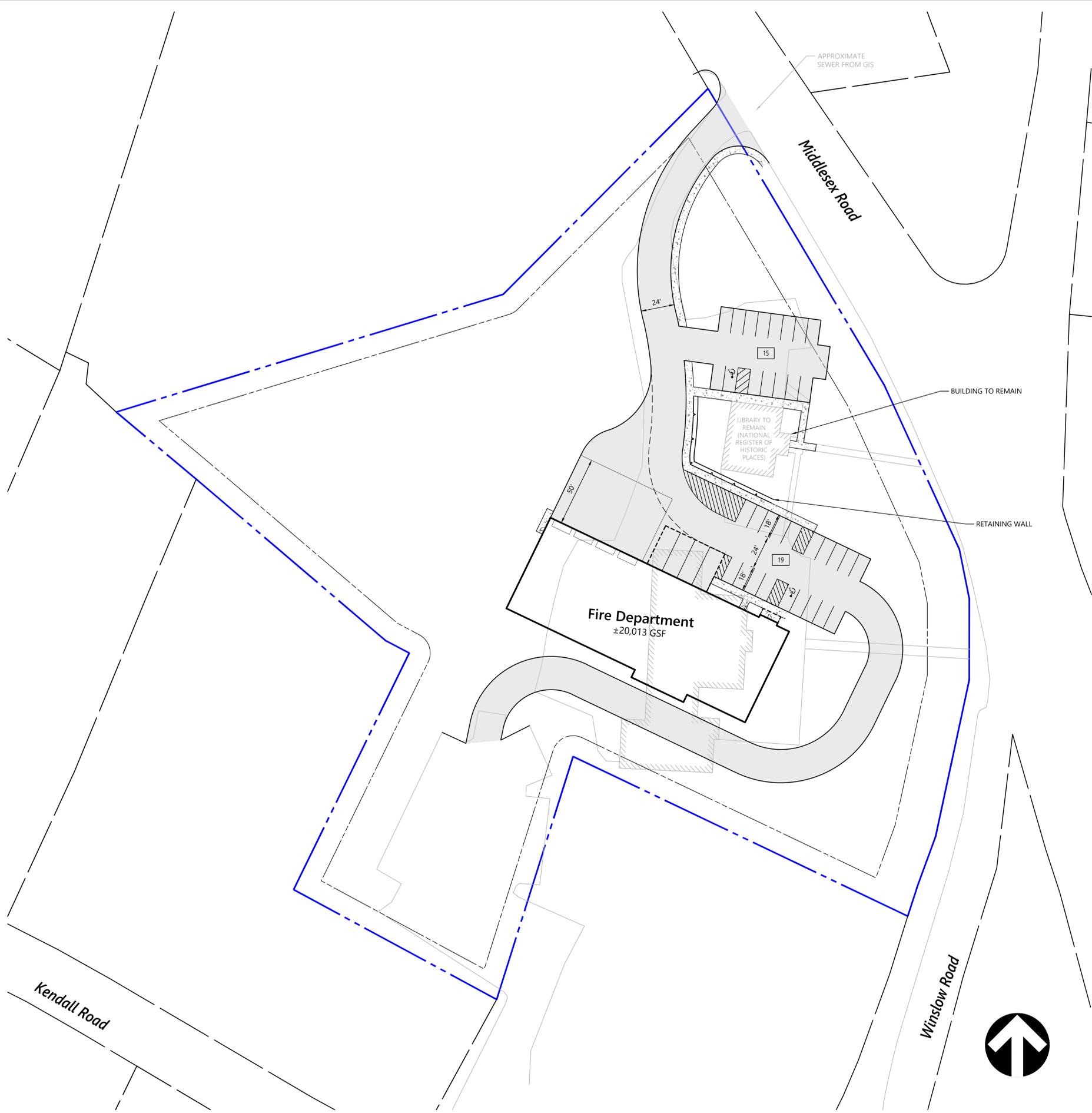
Fire Station Program

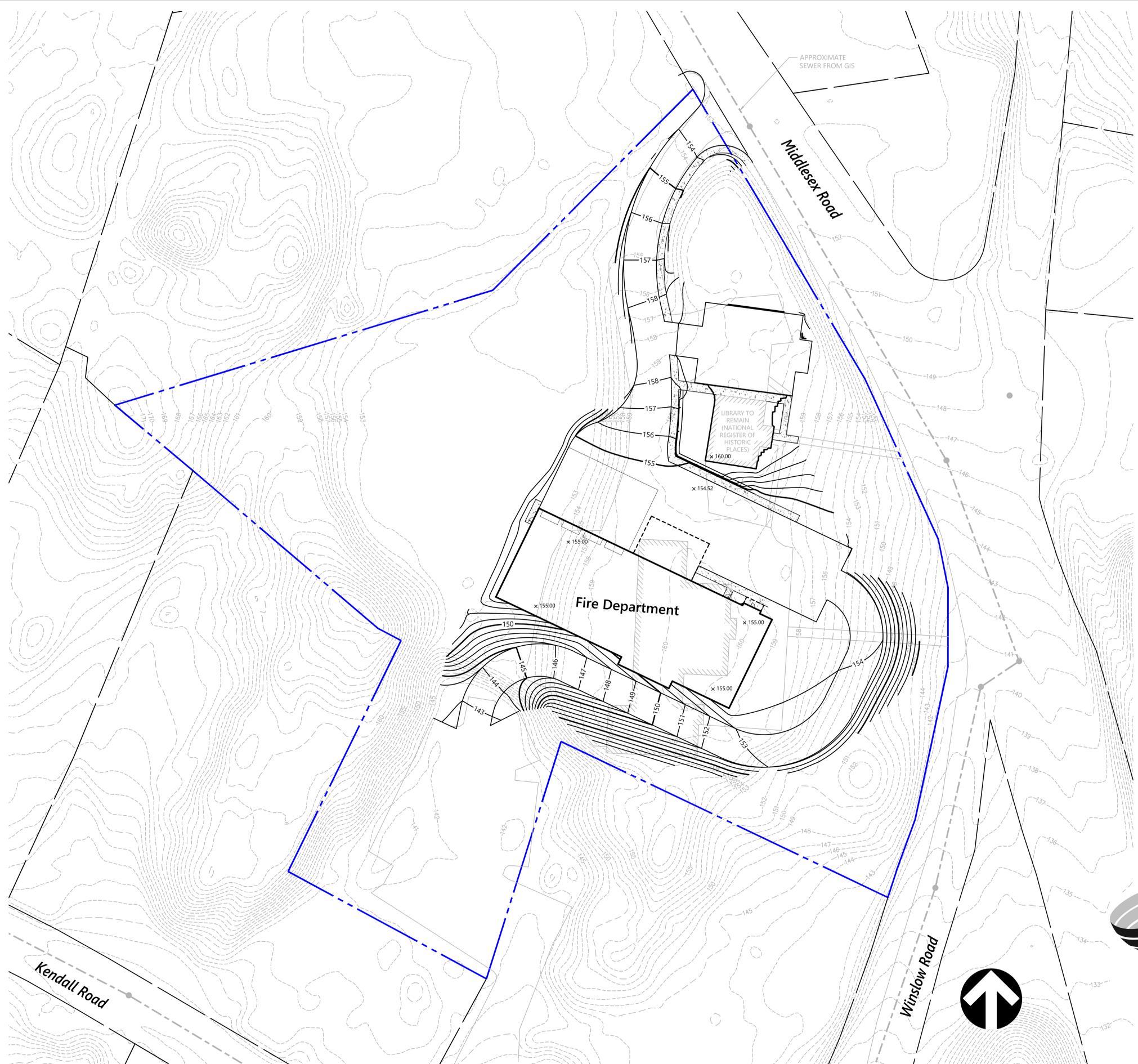
Space ID Name

## S-1 Facility Support Station No. 1

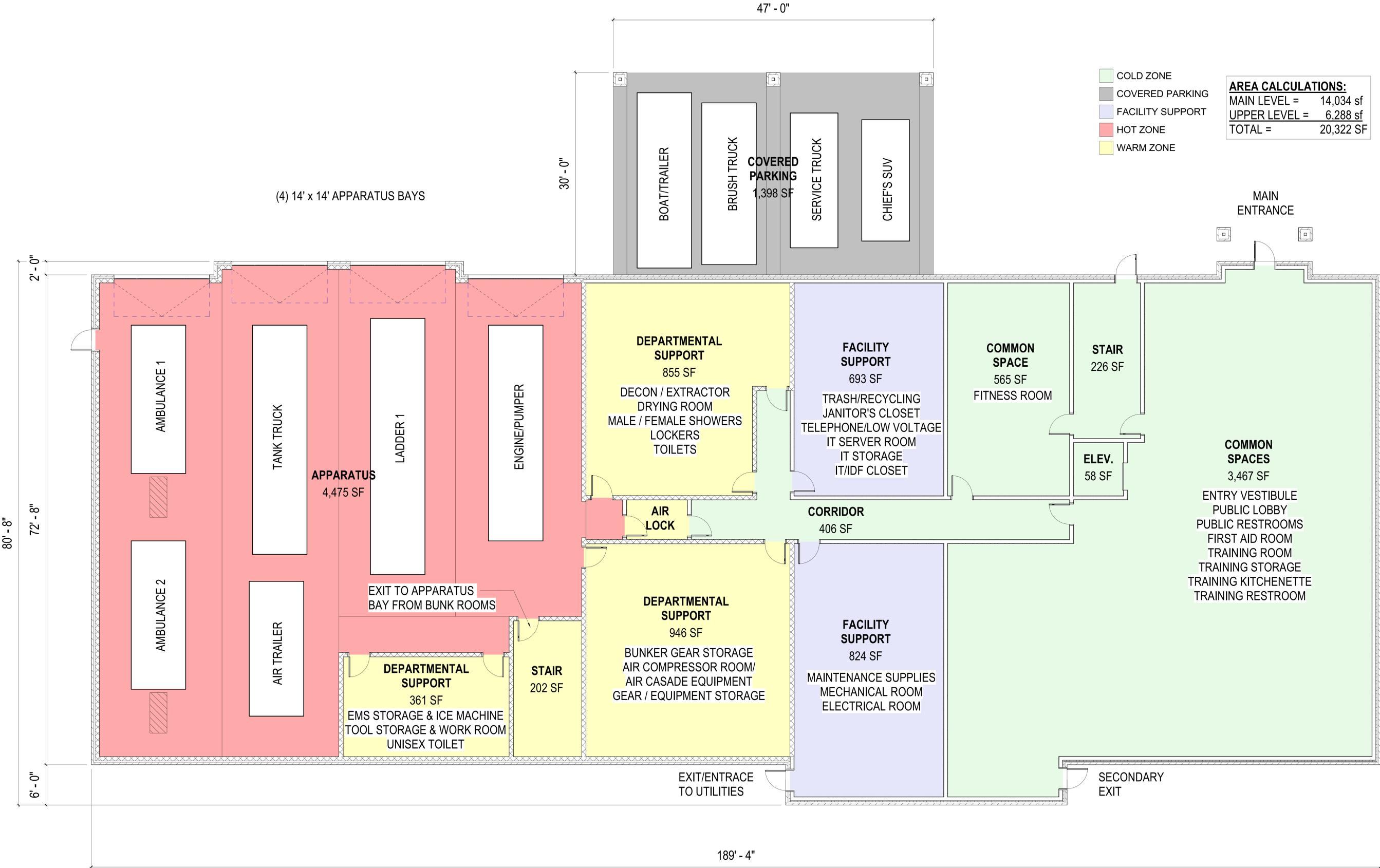
Space Designation			Space Need				Notes
No.	Function		2024 (current need)	2034	2044	Right size	
1-1.1	Trash/Recycling Storage	1	80	80	80	0	Adjacent to FD "back door"
1-1.2	Custodial Closets/Housekeeping Supplies @ 60 sf/floor	2	120	120	120	0	One per floor @ 60 SF
1-1.3	General Maintenance Supplies	1	100	100	100	0	
1-1.4	Mechanical Room	1	300	300	300	0	
1-1.5	Electrical Room	1	120	120	120	0	
1-1.6	Stair Tower @ 240 SF each	1	480	480	480	0	2 story building (10' x 24').
1-1.7	Training Tower @ 360 SF/each	1	720	720	720	0	Stair Training Tower footprint. Based on 1 stair tower and a 2 story building - Enclosed stair, standpipe & windows (12' x 30').
1-1.8	Telephone/Low Voltage	1	100	100	100	0	Secure room (10' x 10').
1-1.9	IT Server Room	1	144	144	144	0	Adjacent to the Admin Suite (12' x 12').
1-1.10	IT Storage	1	64	64	64	0	Secure room (8' x 8').
1-1.11	Telephone/Fiber Room	1	64	64	64	0	Secure Room (8' x 8').
1-1.12	IT/IDF Closets @ 32 sf each floor	2	64	64	64	0	Secure Room (8' x 8').
1-1.13	Elevator Machine Room	1	80	80	80	0	Secure Room (8' x 10').
1-1.14	Elevator @ 100 SF/Floor	1	200	200	200	0	8 x 8 (shaft 10 x 10) - Based on a 2 story building
	SUBTOTAL		2,636	2,636	2,636	0	
	Efficiency Factor 25%		659	659	659	0	
	<b>TOTAL</b>		<b>3,295</b>	<b>3,295</b>	<b>3,295</b>	<b>0</b>	







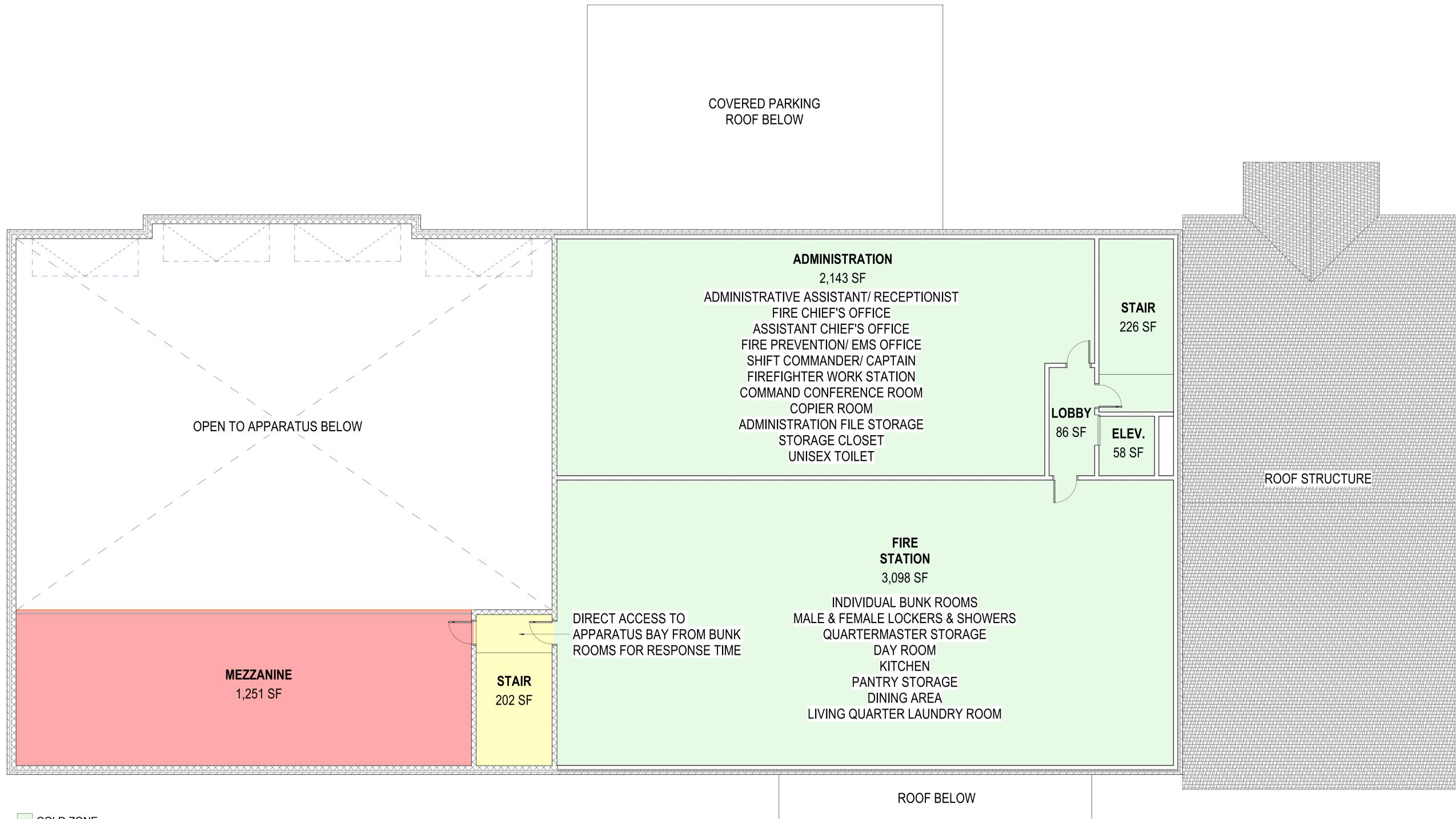
2 Bedford Farms Drive  
Suite 200  
Bedford, NH 03110  
603.391.3900



- COLD ZONE
- COVERED PARKING
- FACILITY SUPPORT
- HOT ZONE
- WARM ZONE

AREA CALCULATIONS:	
MAIN LEVEL =	14,034 sf
UPPER LEVEL =	6,288 sf
<b>TOTAL =</b>	<b>20,322 SF</b>





- COLD ZONE
- COVERED PARKING
- FACILITY SUPPORT
- HOT ZONE
- WARM ZONE



### **Projected Architectural and Engineering Professional Fees**

At the request of the Town we are providing projected A/E fees for the Schematic Design, Design Development, and Construction Documents phases of the proposed Fire Station relocation project. These phases represent 77% of the total A/E fee. The remaining phases comprising approximately 23% of the remainder are the Bidding and Construction Administration phases.

Based on the estimated project construction cost of \$19.33 million the A/E fees for the project phases noted above may range between \$950,000 to \$980,000. Breakdown per phase is as follows:

- Schematic Design Phase - \$300,000 to \$310,000
- Design Development Phase - \$300,000 to \$310,000
- Construction Documents Phase - \$350,000 to \$360,000

These fees are inclusive of standard architectural, civil engineering (including landscape architecture), mechanical/electrical/plumbing and fire protection engineering, and structural engineering services.

This is exclusive of the following:

- Reimbursable Expenses – this can range approximately 3% of professional fees
- Property Survey including boundary, topographic, utilities, and easements – Town has already prepared the survey
- Special Site Permitting including AoT, wetlands, state permits, etc. - \$15K to \$20K
- Traffic engineering and traffic signal design – will vary based on the scope
- Geotechnical exploration - \$20K to \$25K
- Environmental testing, design services, and abatement monitoring – will vary based on the scope
- Radio antenna and communication system design – will vary based on the scope
- FF&E selection and specification (furniture, fixtures and equipment) - \$25K to 35K
- LEED and Net Zero Ready design. A/E fees are based on meeting current MA Energy codes – will vary based on the scope and can range from \$50K to \$75K



# TYNGSBOROUGH FIRE DEPARTMENT

## MIDDLESEX ROAD - NEW CONSTRUCTION - CONCEPTUAL BUDGET

<b>CONSTRUCTION BUDGET</b>		<b>Proposed Area: 20,322 s.f.</b>	
Site Development		\$	2,750,000
Existing Building Demolition		\$	300,000
Building Construction 20,322 s.f. @ \$600		\$	12,193,200
Design and Construction Contingency - 10%		\$	1,524,320
Contractor General Conditions		\$	1,500,000
Construction Management Fee - 6%		\$	1,096,051
		<b>Construction Budget:</b>	<b>\$ 19,363,571 \$ 952.84/psf</b>
<b>PROJECT SOFT COST - 25% of Construction Budget</b>			
Architectural/engineering fees			
Geotechnical engineering			
Planning and permitting fees			
Builders' risk insurance			
Owner Project Manager			
Utility connection fees			
Backup generator			
Exterior signage			
Furniture, fixtures, equipment			
Gear storage, extractors, laundry equipment			
Security and IT equipment			
		<b>Soft Cost Budget:</b>	<b>\$ 4,840,893 \$ 238.21/psf</b>
		<b>Total Project Budget:</b>	<b>\$ 24,204,464 \$1,191.05/psf</b>

### ALTERNATE:

50'x20' Covered parking structure \$ 225,000

### CLARIFICATIONS:

The budget does not include temporary facility or relocation expenses.

This budget is based on construction commencing in Q3 of 2025. Escalation beyond this time should be added at 5% per year.

No new antennas or radio equipment is included in this budget. It is assumed that existing equipment will be reused.

Middlesex Road improvements or signalization costs are not included in this budget

JOBIN CONSTRUCTION CONSULTANTS, LLC

