– SOUTHBRIDGE, MA –

# SOUTHBRIDGE FIRE STATION

## FEASIBILITY STUDY

JANUARY 31, 2019

KAESTLE BOOS associates, inc

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# 1. EXECUTIVE SUMMARY

## NEW SOUTHBRIDGE COMBINED FIRE STATION AND HEADQUARTERS STUDY

The new Southbridge combined Fire Station and Headquarters Study commenced in early 2018 when the Kaestle Boos Associates (KBA) Team was selected by the Town. As part of the KBA team, Mitchell Associates Architects (MMA) was responsible for the Firematic Programming and Design portion of the study, while Kaestle Boos Associates concentrated on the Evaluation of existing facility, Site Selection/ Analysis and Opinion of Probable Costs.

The Study commenced with a field inspection of the Southbridge Fire Department's (SFD) current central facility by architectural and engineering staff to determine its current condition. While it was evident that the facility could not meet the operational requirements for a modern Fire Station, there was the possibility of an addition on the adjacent property to consider as well as formal documentation of the facility. Concurrently, Robert Mitchell of (MA) issued a department questionnaire and began a series of meetings with key department staff to assess the needs of the department. The product of these meetings was a Space Needs Program developed based on the synergies of combining the Fire Station and Department Headquarters in a single, new facility. As a result of this analysis it was determined that a 36,000 square foot facility was required to meet both Station and Headquarter requirements

Concurrent with development of the Needs Assessment and Program, our Site Evaluation team worked with the Committee and Town staff to identify potential candidate sites. In the end 7 potential sites were analyzed and ranked with the top three being; the privately-owned Marsh Ave, the privately-owned Central Street and the Town-owned existing Fire Station site.

A two-story (plus firematic support mezzanine) conceptual design solution for the new facility was developed based on the Program, selected site and subsequent meetings with department staff. This plan was used to complete the site analysis, resulting in all but the Marsh Street and the existing fire station site being eliminated due to insufficient lot size and circulation.

Further analysis of these sites resulted in the elimination of the existing station and site. Some of the issues that lead to the elimination of the existing site are as follows:

- Unknown structural remediation to the existing structure to comply with the seismic requirement of the current building code.
- Renovating existing spaces results in potential compromises in programmatic/operational adjacencies of spaces – A result of having to 'fit' spaces into the space available rather than space required.

- Construction of an extensive retain wall of unknown dimension –Survey will need to be done to establish existing grades.
- There is not enough onsite parking, resulting in the use of the municipal parking lot adjacent to the site.
- Apparatus maneuverability is too restricted –Survey will need to be done to establish property lines and setbacks.
- The Opinion of Probable Costs for the redevelopment of the existing fire station and site is higher than the new construction at Marsh Street by more than two million dollars, largely due to the unknowns associated with the site and existing building.

After escalating the construction costs through the forth quarter of 2019, the OPC results in a total probable project cost of $22,400,000.

# 2. CODE ANALYSIS OF EXISTING FACILITY

## APPLICABILITY

This analysis reviews the existing Southbridge Fire Station at 24 Elm Street in Southbridge, MA, with regard to the Massachusetts State Building Codes ("Code") for new construction. The 9th Edition consists, in part, of the 2015 International Building Code (IBC) and the 2015 International Existing Building Code (IEBC) with Massachusetts Amendments to these codes.
Codes used in this analysis are:

- International Building Code (IBC, 2015)
- International Existing Building Code (IEBC, 2015)
- International Energy Conservation Code (IECC, 2015)
- Massachusetts State Building Code Amendments (780 CMR 9th Edition)
- Architectural Access Board Rules and Regulations (521 CMR, 2006)
- Uniform State Plumbing Code (248 CMR)

Mechanical systems, including electrical, plumbing, and fire protection systems, are reviewed in separate sections of this study. Investigative demolition was not performed and comments in this report are based on visual observation only; the Town was unable to provide information regarding the existing building in the form of original construction drawings.

Renovations to existing structures must be reviewed for code compliance by one of three separate methods in the IEBC: The Prescriptive Method, the Performance Method, and the Work Area Method. Within these methods, the modifications required for compliance vary dependent upon the extent of the renovation work; renovation work is classified as *Repair, Alteration Level 1, Alteration Level 2,* and *Alteration Level 3*. When the extent of the repair and alteration work exceeds 50% of the aggregate area of the building, this work is classified as *Alteration Level 3* and, under this classification; compliance with requirements of *Alteration Level 1* and *Alteration Level 2* is also required. *Alteration Level 2* requirements are enforced when the work involves reconfiguration of spaces or systems, but not more than 50% of the total building area. *Alteration Level 1* requirements are enforced when the work is cosmetic or replacement of existing materials with similar materials, such as re-roofing projects. All analyses in this study is based on the worst-case assumption of a renovation to more than 50% of the building and so is classified as Alteration Level 3 and under the Work Area Method.

Upgrades and corrections to existing structures undergoing renovations are limited to specific items under the IEBC. During renovations, not all existing safety issues and non-compliant conditions are required to be corrected; typically, only items within each renovated area is required to be corrected. However, non-compliant conditions at stairs and egress elements, fire rating separations, accessibility, and fire protection (sprinklers) are required to be corrected or provided as required by the IBC. Because this building was originally constructed in 1899, existing conditions which may be allowed to remain, or "grandfathered", under the limited requirements of the IEBC may also be in conflict with current life safety standards. Over time since the original construction, life safety standards have been improved in reaction to tragic events. In order to provide life safety conditions in accordance with the most current intent, current IBC and Fire Safety codes and regulations are also used as a basis for judging compliance. All modifications that are required by the IBC but which are discretionary (not necessarily required by the IEBC for this renovation) are noted in the recommendations.

Compliance with Chapter 148 Section 26G of the State Fire Code is required by the IEBC for all new buildings, additions, and renovations classified as *Alteration Level 3*. This regulation also requires that in all existing buildings in which renovations will exceed 7,500 square feet in area ***or*** in which major alterations are planned, as defined by the statute, must provide a full sprinkler fire suppression system if available water flow and pressure is available. A major alteration is reconfiguration of walls, doors, windows, mechanical systems, etc., which effectively makes installation of sprinkler systems easier and which affects more than 33% of the building area ***or*** more than 33% of the assessed value of the building.

Accessibility in public buildings is regulated by 521 CMR, which is enforced by the Massachusetts Architectural Access Board (MA AAB) and the Building Inspector of the municipality. ADA (the Americans with Disabilities Act) is a federal law; while this is not enforced by the local authority compliance is still required and any person may file suit for compliance. 521 CMR, as issued in 2006, is used for this review. MA AAB 5.1 Definitions states:
"Public Buildings: A building privately or publicly financed that is open to and used by the public, including but not limited to …, municipal buildings, commercial buildings, buildings having places of assembly, [etc.] …"
Amherst Central Fire Station is a public, municipal building and is required to be accessible in accordance with 521 CMR.

Currently, the AAB regulates only areas and conditions accessed by the "public"; areas occupied solely by staff are not included in the regulation. Staff areas are included in the ADA Accessibility Guidelines as part of federal law, but these are not directly enforceable as part of the Building Code. However, in an effort to unify compliance requirements with the recently adopted IBC as the State Building Code, the AAB will be revising the regulation to include staff areas as well as public areas. In anticipation of the release of this revised AAB document, all discussions below regarding accessibility will include compliance of staff areas.

Applicability of the AAB Regulations for renovations of existing buildings is based on the value of the renovations as a percentage of the current assessed value of the building only (100% valuation). According to AAB 3.3, partial compliance is required when the value of the renovations exceeds $100,000 and full compliance of the entire facility is required when the value of the renovations exceeds 30% of the assessed value of the building. An exception to this rule is for maintenance work on MEP systems, sprinkler systems, roofs, replacement windows, masonry repair, site utilities, landscaping, and septic system which in aggregate is less than $500,000.
As stated in AAB 3.3 (paraphrased):
"3.3 EXISTING BUILDINGS
All additions to, reconstruction, remodeling, and alterations or repairs of existing public buildings or facilities …shall be governed by all applicable subsections in 521 CMR.

3.3.1 a. if the work costs less than $100,000, then only the work being performed is required to comply with 521 CMR…,
b. if the work costs $100,000 or more, then the work being performed is required to comply with 521 CMR. In addition, an accessible public entrance and an accessible toilet room, telephone, drinking fountain (if toilets, telephones and drinking fountains are provided) shall also be provided in compliance with 521 CMR…,

3.3.2 If the work performed, including the exempted work, amounts to 30% or more of the full and fair cash value (see 521 CMR 5.00) of the building the entire building is required to comply with 521 CMR. "

Also, according to AAB 3.5, any work performed, even if under separate contracts or building permits, within a 3-year period must be included in the aggregate construction cost. This includes sitework and building renovations, whether done separately or together. Future Change Orders and future building projects within 3 years before or after the permit date for this project, could also trigger full compliance if the aggregate value exceeds the 30% limit.

Energy conservation, as required by the IECC for new construction, is not required for renovations to existing structures under the IEBC. However, any new elements or alterations to the exterior building envelope, such as new windows or new roofing, must comply to the greatest degree possible. As stated in the IEBC Alteration Level 3 Section 808 Energy Conservation "*Essentially, the entire building is not require to meet the energy provisions, but only improvement in the energy performance of the building is intended to be achieved by making the new elements meet the IECC…".* Overall upgrade of the exterior envelope of the building is not required

According to the Town of Southbridge Assessor's Office, the current assessed value of the building (not including the site) is $1,085,500 and so the threshold value of the cost triggers for accessibility and fire protection are, respectively:

- if the cost of permitted renovations exceeds $325,650 (over a consecutive 3-year period), then the entire building and site must be modified to be accessible,
- if the cost of permitted renovations exceeds $358,215 (over the current 5-year period), or if the renovation area exceeds 7,500 square feet, then the entire building must be sprinklered.

Information for work requiring building permits was not available from the Town of Southbridge Building Department. As such, the aggregate cost for permitted work in the last 5 years is not considered in the calculation of the cost threshold for compliance. Also, as the cost of a renovation under this study is presumed to exceed these 30% and 33% cost thresholds shown below, the entire site and building must be made to comply with current accessibility codes and fully sprinklered as part of a renovation of the building.

| COST THRESHOLDS FOR ACCESSIBILITY AND FIRE SUPPRESSION COMPLIANCE | |
|---|---|
| Assessed Value of Southbridge Fire Station (Structure Only) | $1,085,500 |
| 30% Cost Trigger for Accessibility Compliance | $ 325,650 |
| 33% Cost Trigger for Fire Protection | $ 358,215 |
| | |

# BUILDING CODE

**(IBC Ch. 3 – Use and Occupancy)**
(IBC 305.1) Primary Use: Group B – Business
(IBC 305.1) Mixed Use Areas: Group R-2 Residential (Bunk Area)
Group S-2 Storage (Apparatus Bay, Storage)

**IBC Ch. 6 – Types of Construction**

(IBC Table 601) The building was originally built in 1899 with a series of additions over time including a small kitchen space to the rear of the building and two additions to provide additional apparatus bays. The original building was constructed of heavy masonry (load bearing) structure with non-fire rated wood interior framing for floors and walls. Steel beams are used for longer spans in the Apparatus Bay and at the Tower. The main roof is framed with large timber-type wood trusses spanning over the large assembly space on the upper floor. Subsequent additions were constructed of CMU/Brick exterior walls with light steel bar joist roof framing. As a worst case, this wood frame construction conforms to the requirements for Type III-B ("III" references roman numeral 3, "B" references unprotected construction) construction in the current IBC. The structure is not protected with spray fireproofing or other fire-rated construction. Interior partitions are typically non-load bearing wood stud with plaster or drywall.

**Type III-B Construction Type Min. Fire Resistance Rating Requirements (780 CMR Table 601)**

| **Building Elements** | **Required Fire Resistance Rating (Hrs.)** |
|---|---|
| Structural Frame (including columns, girders, and trusses) | 0 |
| Exterior Bearing Walls | 2 |
| Interior Bearing Walls | 0 |
| Exterior Non-Bearing Walls and Partitions | 0 |
| Interior Non-Bearing Walls and Partitions | 0 |
| Floor Construction (including support beams and joist) | 0 |
| Roof Construction (including support beams and joist) | 0 |

Table 601 establishes the required minimum fire rating of construction elements and is related to the allowable height and area discussed in Table 503 below. Type III-B (3-B) construction requires that the exterior bearing wall structural members to be protected (fire rated) but that all interior structural members do not need to be fire rated. The exterior masonry walls are assumed, without detailed information available, to be inherently fire rated for a minimum of 2 hours. The tradeoff for not protecting the interior building structure under Classification III-B is a reduction in the allowable height and area that can be built; essentially, the greater the fire protection of building structural elements, the larger the building height and area which is allowed.

**(IBC Ch. 5 – General Building Limitations)**
Height and area limitations are presented below based on the allowable limits stated in Table 504 for Building Height and in Table 506 for Building Area for the building Use Groups and Construction Type noted above. Because the requirements of MGL Chapter 148 Section 26G will most likely require that a sprinkler system be installed, the allowable height and area referenced from Tables 504 and 506 are from this category.

Other uses within the mixed-use building cannot exceed an area proportional to the percentage of the area that Use Group occupies in the building. Because future uses of the building are unknown, the allowable area is calculated based on the Business Use Group only.

(Table 503) The allowable height and area for Use Groups under Type III-B (3-B) Construction is:

| USE GROUP | Allowable Height (Sprinklered) | Allowable Area (Sprinklered) | Accessible Perimeter +25% (Average) | Total Allowable Area per Floor with Allowable Increases |
|---|---|---|---|---|
| B | 4 Story (75 Feet) | 57,000 sf. | + 4,750 sf. | 61,750 sf. |
| S-2 | 4 Story (75 Feet) | 78,000 sf. | + 6,500 sf. | 84,500 sf. |
| R-2 | 5 Story (75 Feet) | 48,000 sf. | + 4,000 sf. | 52,000 sf. |

The occupied floor areas for the Basement, First Floor, and Second Floor of the building are shown below. These are as reported in the Town of Southbridge Assessor's Card for the building and are not based on construction documents or field measurements. For the purpose of estimating the number of occupants, occupancy in the residential area is estimated based on the number of sleeping rooms and not by allocating specific Use Groups to floor areas.

| | | |
|---|---|---|
| **Second Floor:** | Total Area: 4,788 GSF | 50 occupants (6 R-2 and 44 Business Use) |
| **First Floor:** | Total Area: 8,183 GSF | 49 occupants (35 Storage and 14 Business Use) |
| **Basement:** | Total Area: 5,364 GSF | 18 occupants (Mechanical) |
| **TOTAL BUILDING AREA**: | **18,335 GSF (including basement)** | |

(IBC 508.2.4 and Table 508.4) Table 508.4 shows the fire separation requirements between Use Groups. A 2-hour fire rated partition and ceiling/floor is required between a B Use and an R-2 or an S-2 Use in an unsprinklered building. This condition exists in the current building, but these use groups are not separated

by fire rated partitions.
In 508.2.4, rooms used for storage (S-2) and residence (R-2) may be considered to be accessory to the primary Use Group (B) if the aggregate area of these rooms is less than 10% of each floor area and smaller than the area allowed by Table 503. Spaces considered to be accessory to the primary use are not required to be separated from the primary use by fire rated partitions.

- The Storage S-2 use (Apparatus Bay) and the Residential R-2 use (dormitory) are more than 10% of the floor area on which each use exists and so these areas cannot be considered accessory uses.

Alternatively, the building may be classified entirely under the most restrictive Use Group, Residential R-2, and void the requirements for fire separations between use groups. This is essentially a trade-off for using the lesser allowable area of the most restrictive use group.

- In this instance, the current building would comply if considered to be entirely of the R-2 use group. This classification is only for the purposes of determining compliance with allowable height and area provisions of the Code; in all other aspects of the Code, these areas shall be classified by their own use.

**(IBC Ch. 7 – Fire and Smoke Protection)**
(Table 706.4 Fire Walls) The largest floor area of the existing Fire Station is approximately 8,183 Gross Square Feet (GSF) on the First Floor.

- All floor areas of the building are less than the allowable gross area stated in Table 506 and are compliant. Fire walls to separate building are not required.

(IEBC 703.2.1 Existing Vertical Openings) All existing vertical openings connecting 2 or more floors must have an enclosure with a fire-resistive rating of 1 hour minimum.

- The existing stair enclosure at the main entrance is not enclosed in fire-resistive rated construction, does not have fire resistive rated opening protectives (doors), and is not constructed out of fire resistive rated materials, and so is not compliant.

- The existing stair enclosure at the rear of the building is not enclosed in fire-resistive rated construction, does not have fire resistive rated opening protectives (doors), and is not constructed out of fire resistive rated materials, and so is not compliant. Further, this stair does not egress to the exterior but discharges into the Apparatus Bay; the Apparatus Bay is classified as Use Group S-2 and is a higher hazard than the R-2 and Business Uses using this stair for egress.

- The existing hose tower is not fire-resistive rated and is not compliant.


(IEBC 703.5.1 Existing Guards) Existing guards not in compliance with current IBC must be modified or replaced.
Guards at stair landing rails are not 42 inches in height and are constructed out of combustible (wood) material. These guards must be modified or replaced to provide protection to the required height and must constructed of non-combustible materials. The existing handrails do not comply as these do not extend beyond the top and bottom stair risers, are the wrong profile, and do not exist in parts of the stair.

**(IBC Chapter 10 - Means of Egress)**
(Table 1004.1) Occupancy load in the existing facility is determined by the functions in each area of the building and not the primary use group. According to the IBC Table 1004.1.2, Business functions require an occupant load calculated at 100 gross square feet (gsf) per person, dormitory functions are calculated at 50 net square feet (nsf) per person, Apparatus Bays are calculated as Parking Garages at 200 gsf per person, locker rooms are calculated at 50 gsf per person, and Mechanical/Storage areas are calculated at 300 gsf per person. The summary above estimates the relative areas for each use group.
The egress capacity (0.20"/ per occupant for unsprinklered buildings) for a minimum 36-inch wide stairway is approximately 180 occupants. The egress capacity (0.15"/ per occupant for unsprinklered buildings) for

a typical single 36-inch wide egress doorway is approximately 240 occupants. The Second Floor is estimated to have an occupancy of 50 persons, the First Floor is estimated to have an occupancy of 49 persons, and the Basement is estimated to have an occupancy of 18 persons.

The existing building has 2 exit stairways from the Second Floor and 1 exit stairway from the Basement. Table 1021.2 allows stories above or below the level of exit discharge to have one exit under certain conditions.

- On the Second Floor, the R-2 Use is limited to 4 dwelling units (sleeping rooms) and a 50-foot travel distance. There are 6 sleeping rooms on this floor and the existing travel distance to the exit exceeds the allowable 50 feet.
    - Two egress stairs are required from the second floor.
- On the Second Floor, a B Use with only one exit is limited to 29 persons and 75-foot travel distance. As the total occupancy for this floor is 44 persons, the existing occupancy exceeds the allowable occupancy.
    - Two egress stairs are required from the second floor.
- From the Basement, the Storage S-2 Use is limited to 29 occupants and a 100-foot travel distance. The existing occupancy and travel distance is less than the allowable and this floor complies for the number of exits.

(IBC 1015.2.1) requires that in unsprinklered buildings on floors with more than one exit, that these exits are separated by a minimum of ½ of the overall diagonal distance of the entire building.

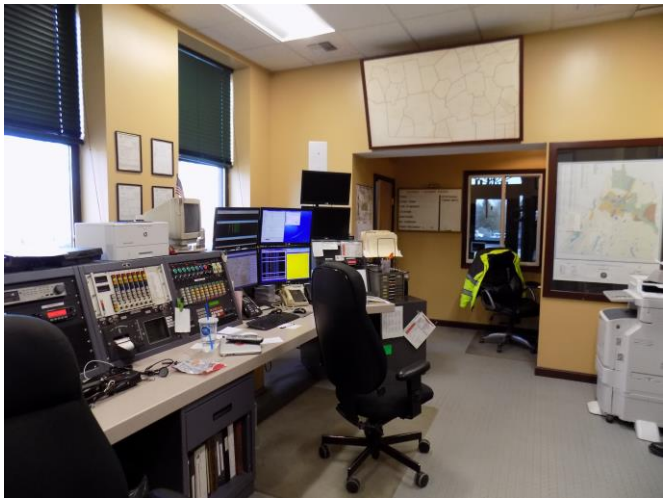
- The Second Floor requires 2 means of egress and does not comply.
- The First Floor egress man-doors are all located together on one side of the building and so the separation of exits does not comply.

(IBC 1008.1.1) requires that all egress doorways provide a minimum clear width of 32 inches from the face of the door to the frame.

- As most of the doors and doorways in the residential areas of the building are sized for 24-inch wide doors, these openings do not comply.

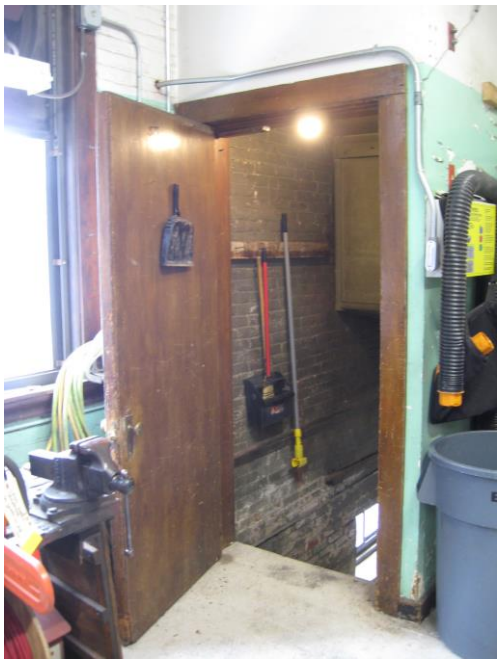
IBC 1009.6.3 requires that all enclosures under stairways be fire rated for a minimum of 1 hour and that the space below the stair is not accessed from the stairway enclosure.

- The Dispatch / Reception Office is located below the front exit stair from the Second Floor and is not enclosed in fire rated construction and is not compliant.



IBC 1022.1 requires that enclosures around exit stairways be rated for 1 hour minimum for buildings less than 4 stories in height.

- The stairway from the Second Floor and from the Basement are not enclosed in 1 hour fire rated enclosures and do not have fire rated, latching doors with automatic closing devices. These stair enclosures must be modified to be continuous in fire rating to the floor and roof deck and the doors must be replaced to provide a fire rated opening protective in compliance with Code.




IEBC 102.2.2.1 is an amendment by the State of Massachusetts and is supersedes other less restrictive paragraphs in the IEBC. This amendment requires that all existing stairs comply with current requirements of the IBC with regard to the quantity of exit ways on each floor, the width of all exit ways, fire rating, handrails, continuity, etc., to "provide safe and adequate means of egress". Existing egress stairs in the building are not enclosed in required fire rated construction, do not have risers and treads of required dimensions, do not have railings and guards with required height and spacing, do not have required rail extensions, and do not have fire rated doors which comply. All stair conditions must be corrected in accordance with current egress requirements.

- The front lobby stairs are not enclosed in fire rated construction, do not have handrails on both sides of the stair with compliant rail extensions, do not have continuous handrails but have newel posts interrupting the handrail, do not have guards in addition to the handrails, do not have fire rated doors that are latching and self-closing, have windows to the reception area that are not fire rated, and do not have the required landings at the top and bottom of the stair.
- The rear stairs are not enclosed in fire rated construction, narrower than the required width of 44", have winders within the stair flight, do not egress to the exterior, do not have handrails on both sides of the stair with compliant rail extensions, have hazardous equipment (washer / extractor machine) within the stairway, do not have fire rated doors that are latching and self-closing, and do not have the required landings at the top and bottom of the stair.

(IBC Table 1017.2 Exit Access Travel Distance)

| Occupancy | With Sprinkler System (feet) |
|---|---|
| B | 300 |
| R | 250 |
| S-2 | 400 |

(IBC 1014.3) Common path of egress travel in Business occupancy is limited to 75 feet.

- All areas of the building comply.

(IEBC 705.6) In buildings of a Business, Storage, and Residential occupancy with a sprinkler system, the allowable length of a dead-end corridor is 50 feet.

- All areas of the building comply.

(248 CMR 2.10 Plumbing Code: Fixtures) The tables below outline the plumbing code requirements for fixture quantities. Fixtures may be within a 300' allowable travel distance and one floor above or below the occupied level.

| Use Group | Rate for | Occupants | Fixtures Required |
|---|---|---|---|
| B (Business) | Male: 1 toilet / 25<br>Female: 1 toilet / 20 | 58 occupants<br>(29 Male/ 29 Female) | Male: 2 Fixtures<br>Female: 2 Fixtures |
| R-2 (Residential) | Male: 1 toilet/ 6<br>Female: 1 / 8 | 6 occupants<br>(3 Male / 3 Female) | Male: 1 Fixtures<br>Female: 1 Fixtures |
| Employee, Non-industrial (Storage, Apparatus Bay) | Male: 1 toilet / 25<br>Female: 1 toilet / 20 | 35 occupants<br>(18 Male / 18 Female) | Male: 1 Fixtures<br>Female: 2 Fixtures |
| Total fixtures required: | | | Male: 4 Fixtures<br>Female: 5 Fixtures |
| Total fixtures provided: | | | Male: 1 Fixtures<br>Female: 1 Fixtures |

In the existing facility, there are a total of 2 toilet fixtures and these are not segregated for male and female staff. The existing toilet fixture count does not meet the requirement above for staff population and none of the toilets fully comply with accessibility regulations. Additionally, there are no toilets for public use.

Accessible toilet facilities will be discussed in more detail in AAB Chapter 30, further on in this report.

# ACCESSIBILITY

**(AAB Chapter 11 – Commercial Facilities)**
**(521 CMR 11.1)**
All Public Areas, Toilet rooms, and other areas accessible to the public within commercial facilities are required to be accessible. This is expected to be revised in a pending release of the AAB to include employee areas and facilities.

**AAB 14 – Places of Assembly**
(AAB 14.2) There is a large space on the Second Floor, however, this space is stated by the Fire Department to not be used as a departmental or public assembly space.

**AAB 19 – Recreational Facilities (Locker Rooms)**
(AAB 19.4) There are no public locker rooms and so are not reviewed. Turn out gear rooms are not considered to be locker rooms as these storage rooms do not have doors and require ambulatory access. Turn out gear storage is in the Apparatus Bay and presents a hazard.

**AAB 20 - Accessible Routes**
(AAB 20.1) Accessible routes within the building generally comply with requirements for width, passing space, protruding objects, headroom, etc.

- Doorways do not provide required clearance for accessibility.
- Access to the Apparatus bay is by a step and so is not accessible.

(AAB 20.12) Areas of rescue assistance at stairways and means of egress are not required in accordance with Exception a. Existing Buildings.

(AAB 20.2 - Access to Site)
The site is limited to the concrete apron between the building and the street and the parking area beside the building. Access to the building is provided at the Main Lobby entrance.

**(AAB 21.00 Curb Cuts)**
The only entrance to the site is directly from the sidewalk into the parking lot and apparatus apron of the fire station. There is no curb cut necessary to access the site.

**(AAB 22.00 Walkways)**
The only entrance to the site is directly from the sidewalk on the street and there are no walkways used to access the building.

**(AAB 23.00 Parking and Passenger Loading Zones)**
The parking lot is accessed directly from the street. There are no accessible public parking spaces provided onsite.

**(AAB 24.00 - Ramps)**
There are no ramps onsite.

**(AAB 25.00 – Entrances)**
(AAB 25.1) All public entrances to the building must be accessible and be on an accessible route.

- The public entrance to the Main Lobby is at grade, however, pull side clearance on the exterior side are not provided.

**(AAB 26.00 – Doors and Doorways)**
(AAB 26.1.1) All doorways shall provide a 32-inch clear width and accessible routes shall be a minimum of 36-inches clear width.

- Many doorways in this building are typically 32-inches in width and do not comply.

(AAB 26.6 – Maneuvering Clearances)

- Most of the doors throughout the building provide required pull and push clearances for accessible doors, except at the toilet room in the Apparatus Bay and the toilet room on the Second Floor.

(AAB 26.11 - Door Hardware)

- Existing hardware throughout building is the original door knobs; this is not compliant and must be replaced with lever-type hardware.


(AAB 26.1.2 - Exterior Exit Doors)

- Exterior exit door from the rear exit near the stairwell can only be accessed by steps to grade and is not compliant.

**(AAB 27.00 – Stairs)**

(AAB 27.4 – Railings)

All stair railings need to be modified to comply with handrail and guardrail requirements. Guardrails are single rail type and not 42-inches high as required. The wall mounted handrails do not have extensions at the top and bottom.

- As stairs to the Second Floor may be used by the public to access the Fire Department Administrative office, these stairs must be modified to comply.

**AAB 28.00 – Elevator**

(AAB 28.1) Multistory buildings are required to be served by an elevator.

- There is currently no elevator access to the Second Floor. As the Second Floor may be used by the public to access the Fire Department Administrative office, an elevator must be provided to comply. If the building is developed in the future for a different use which allows public access to these floors, then elevator access will also need to be provided.

**(AAB 30.00 – Public Toilet Rooms)**

(AAB 30.1) Although not currently regulated by AAB, staff toilets will be regulated under the revised AAB to be published in the near future. Access to staff toilet rooms is required under Federal ADA Guidelines. Civilian staff, such as the Fire Chief's Administrative Assistant, are not required to be ambulatory and must be provided with accessible facilities. At a minimum, it is recommended that existing toilet rooms be reconstructed to provide single fixture toilet rooms with lockable doors for civilian staff use. There are not any public toilet rooms currently at the fire station. These should be provided for public use by visitors to the station.

**(AAB 31.00 – Public Bathing Rooms)**

(AAB 31.7)

There is only one shower stall in the building in the Second Floor toilet room. This stall is not accessible and does not have a changing area. Consequently, if a staff member is taking a shower access to the only toilet room on the Second Floor is not available.

**AAB 32.00 - Kitchens**

(AAB 32.1) Commercial kitchens are not regulated by the AAB and the Day Room kitchen is restricted to fire department staff only. Although this kitchen is on the Second Floor, it is currently only used by fire department staff who are required to be ambulatory. If this is to be used by civilian staff, then access by elevator and accessible counter space must be provided.

**(AAB 36.00 – Drinking Fountains)**

(AAB 36.1.1)

Drinking fountains are not provided within the building. These must be provided in accordance with plumbing code requirements and must have 2 level spouts for ADA / AAB compliance.

**(AAB 41.00 – Signage)**

(AAB 41.00)

Room signage with braille is missing throughout the building and must be provided at all 'permanent rooms and spaces' as well as code required egress signage. Directional signage, where provided, shall be compliant. Symbols of Accessibility are missing throughout building. Where exit signs indicate an accessible route, if all routes are not accessible, these signs shall include the symbol of accessibility.

## RECOMMENDATIONS FOR CODE COMPLIANCE:

- Provide a sprinkler system throughout the building.
- Provide fire rated construction, including doors, around the existing stairs from the second floor including below the stair.
- Provide direct exterior egress from the rear stair from the Second Floor and the basement.
- Provide a compliant egress door from the Apparatus Bay (not through the hose tower) to provide separated means of egress.
- Provide a 1 hour fire rated enclosure around the stairway from the Basement. Stair must exit directly to the exterior.
- All wall handrails in stairs must be replaced with handrails providing extensions at top and bottom.
- Provide an elevator to access the Second Floor.

A renovation will likely require the entire building to be accessible.

- Provide accessible ramp at all exits.
- Provide all doors with accessible lever hardware
- Toilet room on the first floor is not accessible as it does not have door and fixture clearances, fixtures do not comply, and grab bars are not provided. An accessible route is not provided as the toilet room has steps to access.
- Toilet/shower room on the second floor is not accessible as it does not have door and fixture clearances, fixtures do not comply, shower stall does not comply, and grab bars are not provided. An accessible route is not provided.
- Provide accessible drinking fountains on each floor.
- All existing doorways must be modified to be a minimum of 36” wide with accessible clearance on both sides of the door.
- Provide AAB compliant signage throughout the building.

# 2. ARCHITECTURAL ANALYSIS OF EXISTING FACILITY

## OVERVIEW

This Architectural Existing Facilities Evaluation of the Southbridge Fire Station at 24 Elm Street includes assessment of the construction and weather tightness of the exterior envelope and of the finish and function of interior elements. General observations common to most areas of the facility are discussed and issues regarding individual spaces are further detailed, as necessary, in following reports provided by consultants with expertise in other engineering disciplines. Also, although a review of the facility with regard to the Building Code is provided in a separate section of this Study, references to specific Code conditions are included in this section, as well as in sections by other engineering disciplines. Investigative demolition was not performed and comments in this report are based on visual observation only; the Town was unable to provide any construction drawings of the building.

According to the Assessor's Card from the Southbridge Assessor's Department, the current Fire Station was constructed in 1899 and is 22,475 gross square feet in area. The First Floor, which houses the Apparatus Bays and Reception/Dispatc Office, is approximately 8,183 gross square feet of floor area. The Second Floor, which has Adminisration Offices and six bunk rooms, a kitchen, and a Day Room for Firefighers is approximately 4,788 gross square feet in floor area. The Basement, which has a washer and dryer, a darkroom (which is no longer used), and Boiler Room is approximately 5,364 gross square feet.

The Fire Station consists of an original structure with two later additions for expansion of the apparatus bay and an addition in the rear for a kitchen. The building and its apparatus bays face Elm Street to the east; the Apparatus Bays are back-in only. The site is completely paved on the east and north sides with minimal space to abutting lot lines, with a parking lot on the north and a public park to the south. The public park may provide an opportunity for exjpansion of the building

## EXTERIOR ENVELOPE

### Exterior Walls

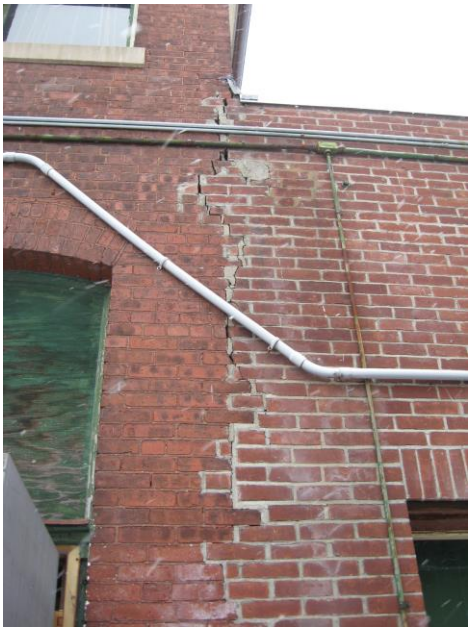
Based on limited documents available from the Assessor's Office and visual observation, the original building is constructed of load bearing masonry walls on the exterior with wood infill framing for interior floors and walls. Steel beams frame supports for long spans on the second floor above the apparatus bays. The sloped roof is framed with wood timber trusses and the flat roofs in the later additions are framed with steel joists. The Tower is framed of load bearing masonry and stone with steel beams; some of the existing columns at the tower viewing platform have decayed and have shoring to provide structural support.

The exterior envelope of the building appears to consist predominately of 4" brick veneer directly over 8" concrete masonry block with no air cavity. The brick veneer is set in an running bond pattern with a header course every 8th course. All walls are uninsulated and cavity wall weeps are not readily visible. The Elm Street façade has many interesting decorative brick features. Rustication is constructed in the brick veneer on the first floor with expressed arch keystones over the windows and apparatus bay door openings. A water table below the window sills on the first floor is constructed of sloped brick. Arches are expressed with raised brick detail. Corbelling at the roof edge and at the tower platform are highly detailed. Door and window openings have stone headers, sills, and keystones.

The existing exterior walls in the building are not constructed up to current code requirmenets for insulation value and moisture mitigation. We recommend that the wall construction be revised to provide proper weeps, vents, air and vapor barrier and insulation to the wall assembly to bring it up to code compliance. The brick veneer itself is generally in very poor condition. There are cracks, failing mortar, and other extensive damage. If the masonry veneer is to remain these areas should be repaired and repointed which, because the

exterior masonry walls are load bearing masonry, will require structural review and complete structural overhaul. Unfortunately, while the brick 'detail' adds to the character of the building façade, the decayed mortar joints at these details are at a high risk for damage by weathering; this is evident in many areas of the building.

Several areas of the brick veneer are extensively cracked and weathered. In this current condition, water infiltration and freezing temperatures will accelerate the degradation of the brick veneer. Additions to the original building were not constructed with expansion joints and the interface between buildings is cracked and severely deteriorated. These areas are at risk for imminent failure. Exterior steel lintels over windows and doors are rusted failing. Over one of the apparatus bay doors, a steel beam lintel is set on wood jamb construction. This is obviously a temporary fix that has been there for some time and is not suitable for an exposed structural condition.

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This deterioration has transated to the interior surface of the exterior walls. Where the interior surface is visible, the CMU walls show cracking in various locations. This cracking is reviewed in more depth in the Structural report. Step cracking is visible and is usually indicative of overall settlement or movement of the wall. Random cracking is also visible and is usually indicative of impact or stress failure of the wall material. Both conditions should be monitored over time to confirm that the condition is not worsening over time.

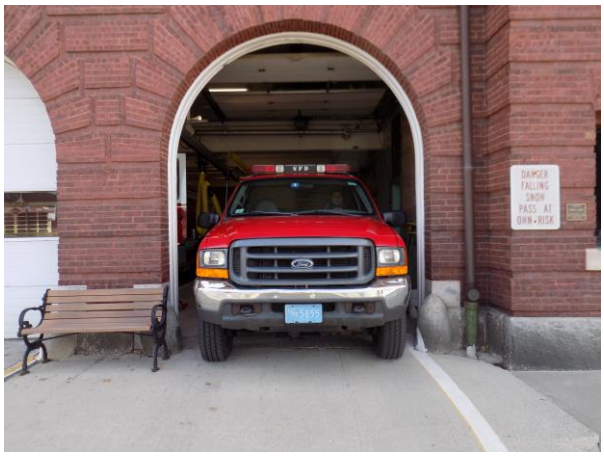
## Exterior Windows

The exterior windows have been replaced with aluminum double hung windows and frames with insulating glass about 20 years ago. These presumably replaced the original double hung windows of the same overall size in the original building. While these windows are 'newer', these do not comply with current State energy code requirements and are in fair condition.

## Exterior Doors

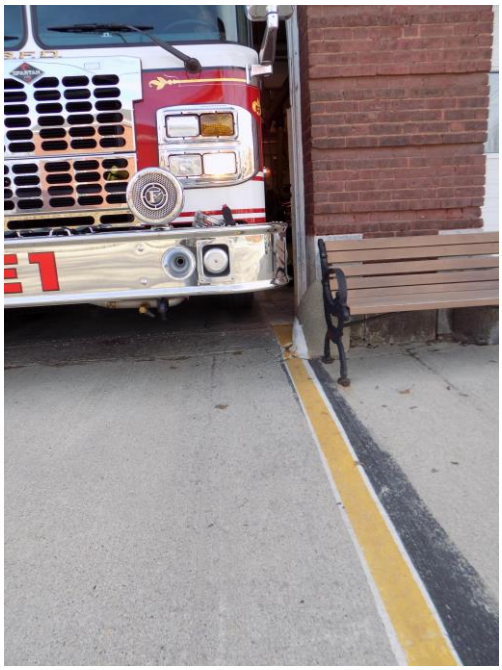
There are only two exterior man doors in the fire station: one at the main lobby entrance and one at the rear of the Apparatus Bays in the hose tower space. The main lobby entrance is a newer aluminum and glass storefront entrance system that is in fair condition. The door at the hose tower is a steel painted door with a makeshift 2x4 wood infill frame and plywood transom. The rear door is not an accessible exit as it is accessed by steps at the door opening and is in very poor condition. Additional egress doors must be provided from the interior stairs and spaces in the building.


E3
E1


DANGER
FALLING
SNOW
PASS AT
OWN RISK


E1

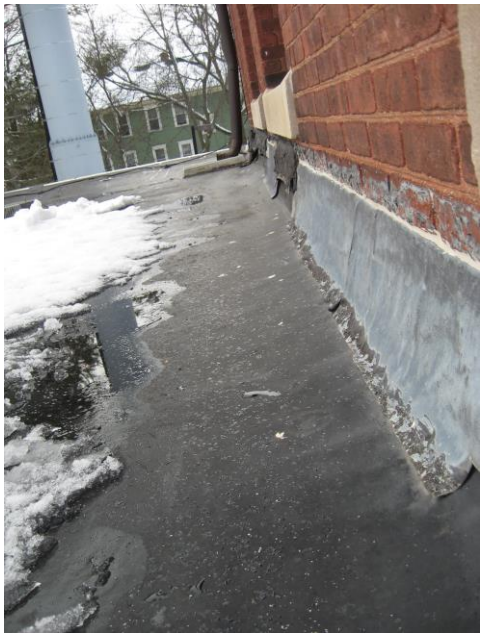

FIRE DANGER
today is
MODERATE
Only you can prevent wildfires.
Memory of
Kokoszka


E1

Overhead doors to the apparatus bays vary in size. Facing Elm Street, there are three original arched openings that are 9'-6" wide and about 10'=8" to the top of the arch. These doors are too small for current fire apparatus and the sides of the doors have been scraped by the engines pulling in and out of the bays. Compounding the problem with the width of the bay door is that all of the bays are back-in bays which require the apparatus to back in from the street rather than drive through the bay to enter and exit. Adjacent is an original flat arch opening that is 9'-10" wide and 10'-8" high; this opening has been shored with a steel beam supported on wood jamb blocks which has reduced the overall size of the opening. In the first addition, a slightly wider door opening of 10'-6" is provided and in the last addition a wider 16'-0" opening is provided. In the rear of the building, a small 7' high x 8' wide single panel garage door is provided at the back of the first addition bay. There is a small pair of doors in the basement which extend above grade and are open to an access areaway. This areaway has a steel cover and is the only access for equipment in the basement. All openings are in poor condition due to deterioration of brick support walls and damage from apparatus.

**Roofing**

Steep sloped roofing is slate on the Elm Street façade and asphalt shingles facing the rear and sides of the building. Low slope roofing is EPDM membrane. The roofing was repaired / replaced about 10 years ago and is in fair condition. The asphalt shingles are showing excessive wear at locations of downspouts and water flow. Step flashing at the parapet walls appears to be in good condition, however, the flashing at the interface of the Apparatus Bay roof and building face is not embedded or sealed in a reglet and water can readily infiltrate the roof and building.



Gutters at sloped roofs appear to be curved copper gutters which drop into cylindrical downspouts. The downspouts appear to be made of soldered copper and are dark brown in appearance. The downspouts drain onto the lower flat roofs to internal roof drain system. Where these downspouts extend to the grade on the front of the building, cast iron downspout "boots" are used to protect the more delicate copper downspouts in traffic areas where these may be damaged by vehicles, snowblowers, or plows. In some cases, the downspout boots necessary to connect to the subsurface drains have been damaged and the downspouts have also been damaged.

Overall, the exterior shell of the building is in poor condition and in need of immediate repair.

## INTERIOR BUILDING ELEMENTS

### Interior Finishes

***Walls:*** Interior wall finishes are painted drywall/plaster in occupied spaces and painted masonry on the First Floor Apparatus Bay walls. Interior walls in the Second Floor Administrative Offices and bunk areas are finished with drywall or plaster with knotty pine wood paneling. These surfaces appear to be in good condition but require some patching at cracking finishes and corners. Wood trim at doors, windows, and ceilings has been cut and modified over time and not repaired. Some trim is in poor condition, worn and without paint.

***Flooring:*** On the First Floor, the concrete floor slab on grade is bare in the Apparatus Bays and is cracked in several locations. Cracking is extensive near the bay doors and settlement has occurred. The concrete floor does not appear to be sealed and is degrading. Finish flooring in offices is sheet carpet and is in poor condition. In the toilet room off the apparatus bay, the floor appears to be ceramic porcelain tile and off the kitchen is rubber tile. Carpeting is in poor condition.

On the Second Floor, the floor finish is wood strip flooring with carpet set on top of the wood in the offices, bunk rooms, and day room. In other spaces, such as storage rooms in the kitchen is vinyl asbestos tile. In the toilet room, the floor is mosaic ceramic tile. Carpeting and VAT is in poor condition.

The exposed concrete slab in the Apparatus Bay in the original building and later additions is cracked in several locations. This slab is reported to have settled substantially in the past and to have been cast again. Unfortunately, settlement and movement of the slab under the load of the apparatus has caused excessive cracking, especially along the front of the space near the apparatus bay doors. Additionally, the addition is at a different elevation than the original building and a steeply sloped concrete transition exists between the two bays. This is a tripping and life safety hazard considering the quickness with which firefighters must get to the apparatus to respond to a call.

***Ceilings:*** Ceilings in the Apparatus Bay are painted plaster. Most other areas are 2x4 suspended acoustical tile and recessed fluorescent lighting is installed. In the assembly room on the second floor, an original tin ceiling is visible and painted. All ceilings are in fair condition and require repainting or replacement of damaged acoustical tile.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***Interior doors and windows:*** Throughout the building, original doors are varnished raised panel wood doors in wood frames and window casings and sills are wood. Doors to bunk rooms are fabricated from the same knotty pine paneling as is on the walls of the Second Floor. No frames or doors have fire rating labels. On the First Floor, the doors to the Apparatus Bay from the main lobby are raised panel wood doors with single pane glazing; this door has push/pull door hardware and is not a latching door for security or fire rating. All doors have doorknobs and not handicapped accessible leversets. Doors and windows are worn and in fair condition.

**Recommendations:**

1. Reconstruct the exterior masonry walls to repoint and repair all brick veneer and stone.
2. Reconstruct exterior masonry veneer to provide expansion joints at interface between the original building and all additions. This may require structural upgrade for lateral stability.
3. Replace all flat roofing with new EPDM or PVC roof membranes. Provide reglets with counterflashing at all building wall interfaces.
4. An interior, insulated wall with a vapor barrier should be provided on the entire station to upgrade the exterior wall to current energy conservation standards.
5. Flooring finishes should be replaced.
6. Replace acoustical ceilings and repaint all drywall ceilings and soffits.
7. All wall surfaces should be patched and repainted.
8. All door should be replaced with new solid wood / hollow metal doors with lever hardware and metal frames. Provide fire rated doors at the Apparatus bay and at bunk rooms.
9. Provide fire rated construction, including doors, around the existing stair to the main lobby.

10. Provide fire rated construction, including doors, around the existing stair at the rear of the building. Reconstruct this stair to eliminate winders, provide minimum required egress width of 44", and exit directly to the exterior.
11. Replace stair guards and rails to be at correct height. Provide wall mounted handrails with extensions at the top and bottom of the stair.
12. Provide an elevator to access the publicly accessed spaces on the Second Floor.
13. Install new aluminum gutters and downspouts with adequate capacity to provide continuous free flow of water to grade.

# Existing MEP Systems Report

**Existing Southbridge Fire Headquarters**
**at**
**24 Elm Street**
**Southbridge, MA**

**New Fire Headquarters**
**At**
**Marsh Avenue**
**Southbridge, MA**

Update: September 27, 2018

Prepared by:

AWE
Air Water Energy
Engineers, Inc.

78 Blanchard Road, Suite 202
Burlington, MA 01803

p: 781.652.8688
f: 781.652.8689

www.awe-e.com

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## Existing Fire Headquarters at 24 Elm Street

### HVAC Existing Conditions

A. The building is about 119 years old (constructed in around 1899). It is 2-story plus a basement and an attic. Currently, heating for the second floor is provided by (2) gas-fired furnaces, manufactured by Nordyne. These furnaces were installed in the Attic in 2014. Branch supply ducts run off the two furnaces to serve different rooms on the second floor. However, these are single-zone units, which mean individual spaces have no separate temperature control. Further, there is no ventilation air provided by the units to serve the building.

B. The Nordyne furnaces are also equipped with air-cooled condensers, mounted on the flat roof, so that the units also provide cooling to the second floor spaces.

C. The first floor of the building is mostly apparatus bay area, plus a reception area, a dispatch center and a kitchen. These areas are heated by gas-fired unit heaters. A York rooftop unit, mounted on the flat roof, provides cooling for the first floor areas except the Apparatus area.

D. There is a 6-drop Plymovent vehicle engine exhaust system installed in the Apparatus bay area. The exhaust fan is mounted on the flat roof. Although this exhaust system is in fair conditions, because the area is overcrowded with vehicles and storage items such as fire fighters' gears, there is no adequate ventilation airflow across the space. Further, the space is not equipped with CO and NO sensors to interlock with Plymovent system. The air quality in this space would have been very poor without the very leaky doors and windows, which are very energy inefficient.

E. In the first floor kitchen area, there is a commercial kitchen hood exhaust system serving the 6-burner gas range. The hood exhaust fan is mounted on the flat roof. There is no dedicated makeup air system for the kitchen exhaust hood.

F. There are no exhaust fan systems for the toilets in the building. The toilet rooms in the first floor are not heated.

G. In the basement, there is a ceiling-hung, gas-fired direct vent heating and cooling unit for space heating and humidity control. The unit is in fair conditions.

H. The entire building was originally heated by an oil-fired steam boiler system. The boiler has been abandoned in the basement. Floor mount steam radiators have also been abandoned in place throughout the building. The oil tank has been removed. Spaces in the first floor used to be heated by the radiators currently has no effective heating. The hose tower used to be heated by a radiator mounted in a pit at the bottom of the tower, but since the boiler heating system was abandoned, the hose tower no longer has heat to dry the hoses. The reception lobby on the first floor, which is connected to the second floor via the stair, depends on the

hot air from the second floor ceiling for heating, which is very ineffective as hot air tends to stay at the top of the space.

I. The overall HVAC systems are not up to current code. No ventilation airflow is provided for every room in the building that requires mechanical ventilation; toilet rooms do not have exhaust; certain rooms are not heated, etc.

## Electrical Existing Conditions

*Main Electrical Service*

The building is served by a single electrical service rated 200A at 120/208V, 3-phase. The incoming electric service comes from an existing utility pole mounted transformer located at Elm Street. The service enters the building underground into an existing switchboard located in the basement. The service disconnect switch then feeds several panels located throughout the building.

In the Attic space right under the tower, there is a Thunderbolt generator. This generator, along with the 100-amp Westinghouse circuit breaker, is no longer being used and they are abandoned in place.

In the basement, there is another generator, General Electric, 15 kW, 120V/3Ph/60Hz that is no longer being used and has been abandoned in place. The associated muffler and exhaust pipe is also abandoned in place.

A diesel-fueled 50 kW Kohler generator with a belly tank is pad mounted outside the building. The generator feeds one automatic transfer switch, located in the basement near the electric service, backs up the entire building. The generator appears to be in fair conditions and it is currently in function.

Wiring in the building is in very poor conditions. A mix of sheathed wiring (romex), metal clad (mc) and fabric sheathed wiring is present in the building. There is also a concern that knob and tube wiring may be present in concealed spaces. This type of old wiring has far exceeded its life expectancy, and it is considered a fire hazard in the building. Wires are not properly supported in the basement. Many wiring cables are fastened to metal pipes or are dangling loosely over the plumbing pipes or run disorderly across the space in the basement. Communication and Cat 5 data wiring is also visible in the basement area intertwined with power cables. Wiring are often bundled through tight chases or through rough cut cores which do not meet code or manufacturer's standard. The electric and communications wiring use the plumbing waste stacks as chases. The electric and communications wiring come in contact with both waste and supply water piping creating the concern of electrical short circuits damage due to water leak. Communications wiring is not separated from the electric wiring, this may cause stray current from the electric wiring to interfere with the signal in the communications wiring. Due to the age of the building and of the wiring observed, there is also a concern that many of the outlets may not be grounded, which can affect most new electronic equipment and communications equipment.

*Lighting*

The lighting throughout the facility consists high efficiency LED fixtures. The existing lighting controls consist of manual wall mounted switches. Per the deputy chief, the LED light fixtures were installed in 2016 and in good conditions.

There are no exit signs in the building.

*Fire Alarm*

There is no comprehensive fire alarm system that serves the building.

## Plumbing Existing Conditions

The building is served with a 1-1/2" CW service main. It has a 2"CW water meter. The incoming domestic water service line is a 1-1/2" copper pipe; it then transition to a 2" black iron pipe where a 2" water meter is installed; after the water meter, the line further splits into 2-1/2" and 1-1/2" copper pipes for distribution to the building spaces.

The domestic hot water system is currently provided by a 50-gallon storage electric water heater located in the basement.

There is another 40-gallon, gas-fired A. O. Smith domestic hot water heater in the basement that is no longer being used. This water heater has been abandoned in place with the gas line disconnected.

The plumbing fixtures throughout the building are in fair conditions and operational. Most of the plumbing fixtures will need to be replaced with efficient low flow fixtures. A washing machine is located in an egress stair and it discharges into a basement floor drain. There are no separate toilet rooms and no separate locker rooms in the building. There is only one shower stall in this 24/7 facility for both male and female personnel.

A 2" natural gas line enters into the basement through the foundation wall. A gas meter is installed at the pipe off the foundation wall. The gas lines are welded and threaded black iron pipes.

The Sanitary system was original to the building constructed in around 1899. The waste piping in the basement has pinhole leaks which add moisture to the basement area. Some areas of waste piping also had bad leaded joints which allow effluent to leak into the basement space. Sections of a PVC drain pipe have sags and pitches in the pipe that does not allow for proper discharge of waste. The age of the waste piping is old. Several of the leaded pipe hubs have had the lead missing. The lack of tight seal allows for sewer gasses to enter into the space. There are also signs of waste water leaking from the joint.

The storm system consists of downspouts for the hip roof portions of the building, and roof drains and storm water pipes for the two flat roof areas.

There is a sump pump in the basement. This sump pump discharges ground water into the floor drain in the basement. During the site visit, we witnessed that the sump pump is active – it was discharging ground water into the floor drain in the basement.

**Fire Protection Existing Conditions**

There is no existing fire protection sprinkler system in the building.

# Existing MEP Systems General Recommendations

**Existing Southbridge Fire Headquarters**
**at**
**24 Elm Street**
**Southbridge, MA**

**New Fire Headquarters**
**At**
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Update: September 27, 2018

Prepared by:

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## General Recommendations

We assume that the Town's decision on whether to demolish the existing building and build a new one, or to renovate and upgrade the existing building to suite the Town's long-term emergency service needs will be primarily depending on architectural and structural assessments of the building's problems and issues. In the scenario of keeping the existing building and renovating and upgrading it, based on the existing conditions of the systems, and the potential requirements of a modern, code-compliant public safety building, the building systems will need to be a total gut-renovation. That is, the systems will need to be completely demolished and re-built, with perhaps a few small exceptions, as more specifically explained below.

### HVAC Recommendations

The units serving the second floor are single zone units that do not give separate temperature control for individual spaces. These will most likely not meet the requirements of new programming spaces of an upgraded building. Further, the units do not provide ventilation air to the spaces to satisfy code requirement.

There is no effective heating and cooling system to serve the first floor currently, except the apparatus bays which are heated by gas-fired unit heaters. The existing floor mount steam radiator system will not be suitable for a modernized building, for its very old age and its lack of good temperature control and energy efficiency.

There is currently no general exhaust system to serve the toilets. The apparatus bay Plymovent system will also need to be upgraded.

A complete new heating, ventilation and air-conditioning system with modern control system will need to be installed for the upgraded building.

### Electrical Recommendations

Power

A new electrical service will need to be brought into the building, because the existing 200 amp electrical service will likely not be adequate for an upgraded building with upgraded mechanical systems, elevators and equipment, as well as the poor conditions of the existing service.

New distribution panels will need to be installed to meet new programming and new mechanical systems requirements. The entire existing wiring of the building will need to be demolished and new code-compliant wiring installed. New outlets will need to be installed throughout the building for the new building layout.

Emergency Power

There appears to be 2 existing generators for this facility. One generator is a 50kW generator and the other is a 15kw both appear to be in fair condition and still operational, a new single generator with a larger capacity will be required to meet the needs of an upgraded building.

Lighting

A complete new lighting system consisting of exit and emergency lighting and general room lighting will need to be provided. A lighting control system shall be installed to meet the current energy codes. Although the existing lighting fixtures were high efficiency LED fixtures and they were installed recently, these will need to be demolished because of the anticipated significant ceiling work required for installing new HVAC and fire protection sprinkler systems.

Fire Alarm System

A new addressable fire alarm system will need to be installed.

## Plumbing Recommendations

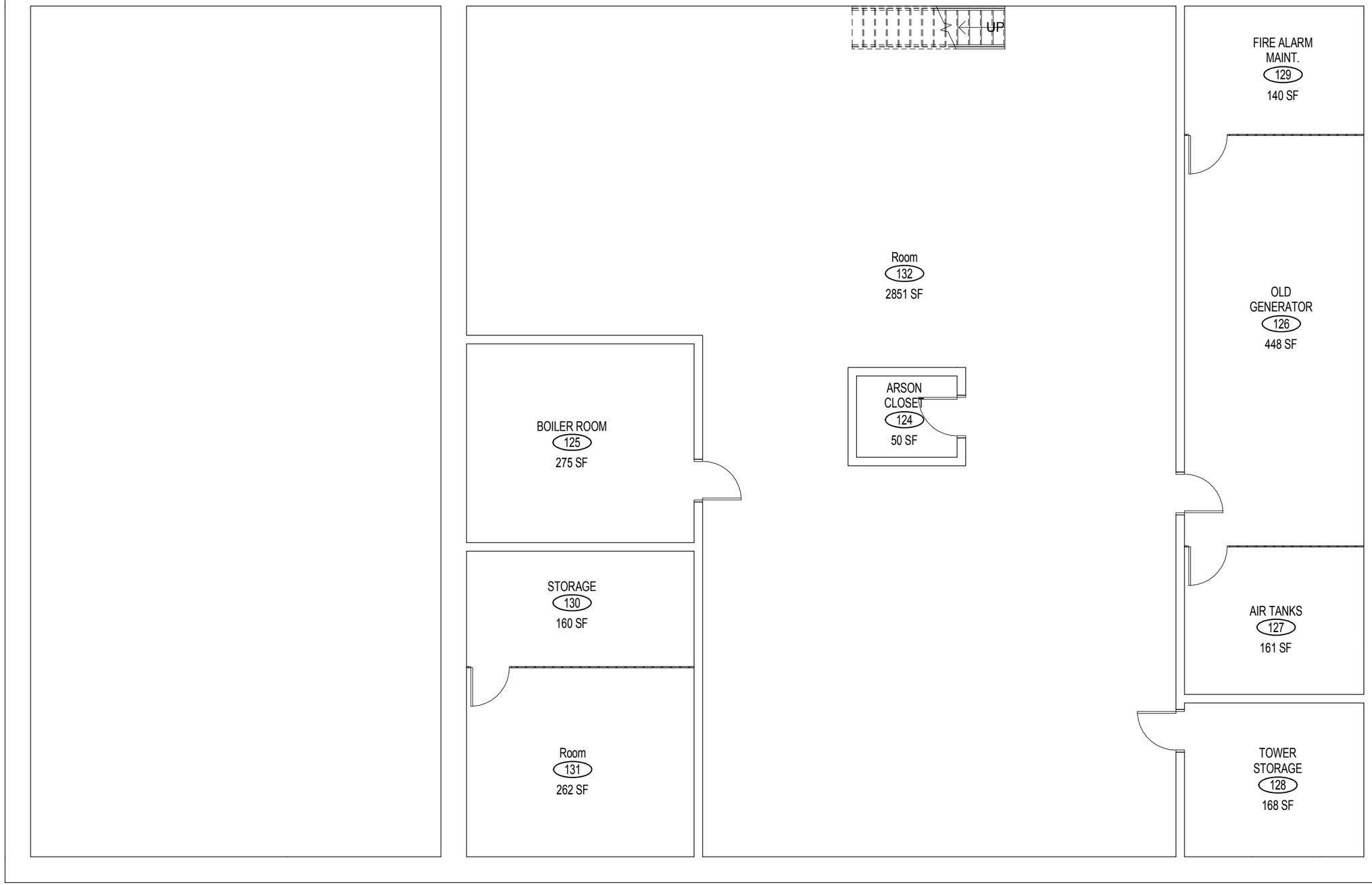
A new larger water service line will need to be installed, given the current of lacking toilet and shower facilities in the building. A new larger domestic hot water heater will be required.

The existing underground sanitary piping and storm water piping will need to be replaced with new.

All existing plumbing piping inside the building will need to be demolished and new piping installed to suite new programming needs. Install new distribution cold water, hot water, sanitary, vent and storm piping to suit new program space layout. All existing plumbing fixtures will need to be demolished and new high efficiency plumbing fixtures installed.

## Fire Protection Recommendations

A new estimated 6” Fire Service completed with a backflow preventer, riser check valves and all associated components shall be provided. Install a full automatic wet/dry sprinkler system for the entire building.



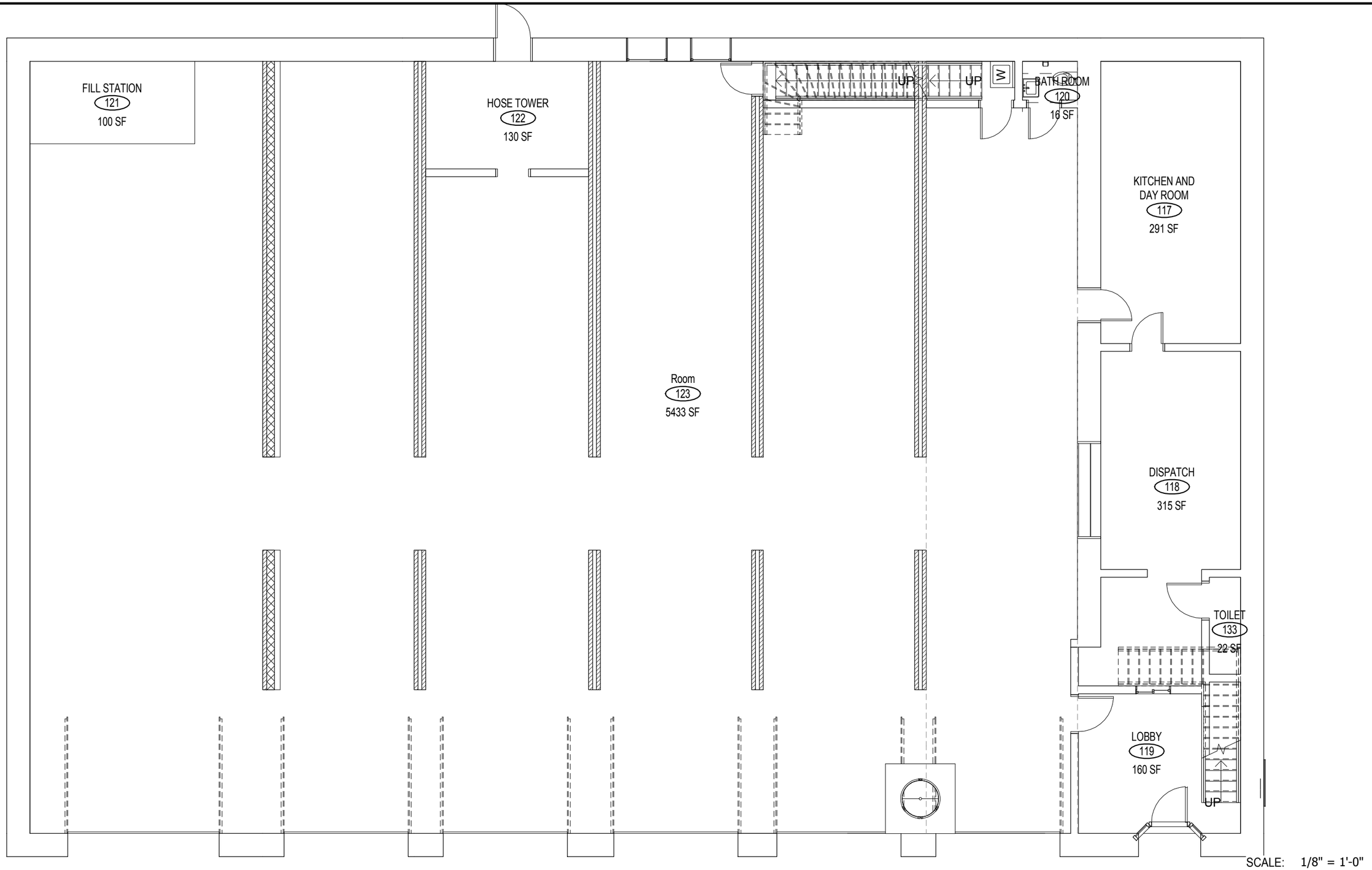

SCALE: 1/8" = 1'-0"

# SOUTHBRIDGE FIRE DEPARTMENT STUDY

## BASEMENT

10/31/2018

KAESTLE BOOS associates, inc



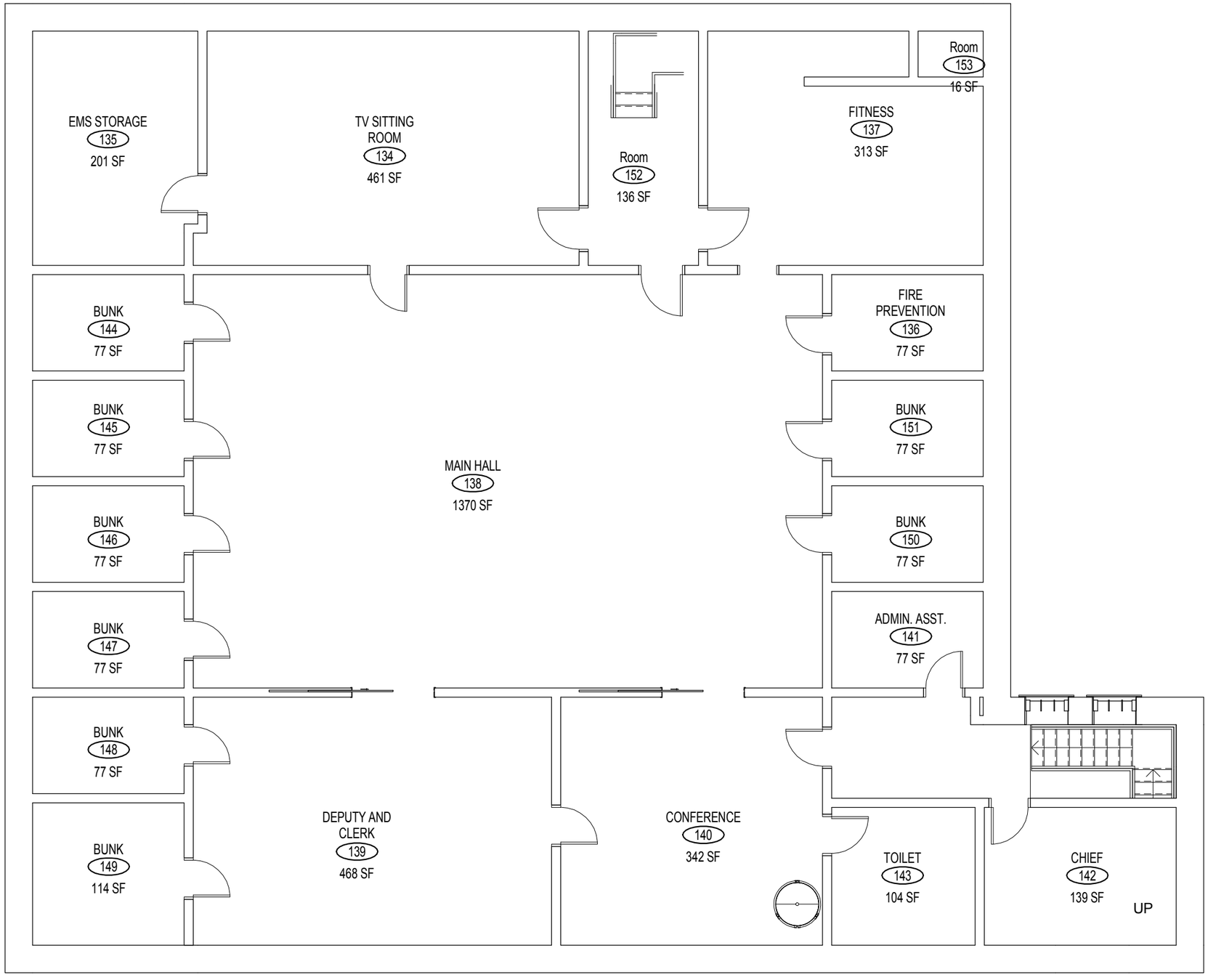

SCALE: 1/8" = 1'-0"

# SOUTHBRIDGE FIRE DEPARTMENT STUDY

## FIRST FLOOR

10/31/2018

KAESTLE BOOS associates, inc




SCALE: 1/8" = 1'-0"

# SOUTHBRIDGE FIRE DEPARTMENT STUDY

## SECOND FLOOR

10/31/2018

KAESTLE BOOS associates, inc

# Fire Station Program Document - Final

**Project Name: SOUTHBRIDGE FIRE DEPARTMENT**

1st Program Meeting Date: **March 1, 2018**

Printout Date: **November 5, 2018** Filename: Southbridge Fire Program.docx

## A General Information

A1. Staffing level at station: total: **40** active: **30** female: **2 (1 is staff))**

A2. Future Possible:

A3. Typical Turnout: **5-6**

A4. Comments: **7 of staff currently live in community. There are 3 ambulances. Can staff 2 ambulances. If a 3rd is needed, use recall.**

A5. Number of calls/year at station: **4000, 70% are EMS**

A6. Administrative Staffing: **4**

A7. Building Committee:

| Meeting Attendance: Date: | 3/1/18 | 4/3/18 | 4/12/18 | 4/16/18 | 4/19/18 | | | |
|---|---|---|---|---|---|---|---|---|
| A5.1. **Chief DiFronzo** | ☒ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ | ☐ |
| A5.2. **Deputy Normandin** | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| A5.3. **Lt. Hulyk** | ☒ | ☒ | ☒ | ☒ | ☒ | ☐ | ☐ | ☐ |
| A5.4. **Jack Jovan** | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| A5.5. **Dave Lungeren** | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| A5.6. **Casey Burlingame** | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| A5.7. **John Szugda** | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

A8. Type of entity:

A8.1. District: **7 (Mass Fire District)**

A8.2. Municipality: **Town**

A9. 501C.3: **N/A**

A10. Describe Business & Social Structure: **Mill town originally based on textiles and optics which has transitioned to fiber optics and a sizable socially dependent population**

A11. Number of Companies or Departments involved: **1**

A12. Location: **24 Elm St**

A13. Tax Map Number: **047,159.00001**

A14. Zoning: **General Business**

A15. Allowable use: **GB**

A16. Exempt from zoning: **pre-existing, non-conforming**

A17. Prevailing Code: **Mass 780 CMR**

A18. Subdivision required: _____**;** Assigned to: _____

A19. Waiver of fees obtained: _____; Assigned to: _____

## B Functional Activities in Building

B1. Types of response:

B1.1. Fire: **Y**

B1.2. EMS: **Y**

B1.3. Heavy Rescue: **Y (minimal) + regional response**

B1.4. HAZ MAT: **Y (minimal) + regional response**

B1.5. Water Rescue: **Y (minimal) + regional response**

B1.6. Ambulance: **Y** ; Transporting: **Y**

B2. Training activities in building:

B2.1. **Currently restricted due to space**

B2.2. **More audio-visual**

B3. Training activities on site:

B3.1. **Ladders, hose handling, aerial operations**

B3.2. **Pump operations**

B4. Fuel Filling Station: **No**

B5. Other uses of apparatus bay:

B5.1. Social events: **Not in some time**

B6. Sleeping Over:

B6.1. Now

.6.1.1. Intermittent, short duration: **12-14 (storm coverage)**

.6.1.2. Long term: **24-hour shift, 6 per shift currently**

B6.2. Future

.6.2.1. Intermittent, short duration: **16-20 potentially**

.6.2.2. Long term: **24-hour shift 8-10 staff?**

B7. Standing by:

B7.1. Will other fire companies park their apparatus in the bay under certain circumstances: **Yes**

.7.1.1. Describe: **Mutual aid station coverage**

.7.1.2. Is their access to the building to be limited: **Yes**

.7.1.3. Describe: **Limited to apparatus and sitting areas**

B8. In-Station Meetings:

B8.1. Type: **Union**; size: **20-24** frequency: **Monthly**

B8.2. Type: **Officer**; size: **7**; frequency: **Monthly**

B9. Social Life:

B9.1. Daily recreation – describe: **Time spent in current kitchen, dining, sitting area**

B9.2. Outdoor recreation – describe: **Past Basketball behind building**

B10. Access control: **NEEDED**

B10.1. Electronic access: **Yes**

B10.2. Vendor's access to drop off material: **Yes**; here: _____

## C Site

C1. Size: **0.25 acres**

C2. Shape: **Rectangular**

C3. Number of primary responder parking spaces needed: **10**

C4. Number of other parking spaces needed: **15**

C5. Number of spaces needed for visiting apparatus: **No**

C6. Recreation requirements (Pavilion, grill, patio, etc.): **Patio with grill ad limited visual access**

C7. Training requirements: **Ladders, hose deployment and handling, forcible entry, tech rescue**

C8. Dumpster: **Yes**

C9. Utilities in the street at site (if there is a lateral into the site, identify that as well):

C9.1. Water: **Y**

C9.2. Sewer: **Y**

C9.3. Storm: **Y**

C9.4. Electric: **Y**; 3 phase: **Y**

C9.5. Gas: **Y**

C9.6. Phone: **Y**

C9.7. Cable: **Y**

C10. Electric company: **National Grid**

C11. Gas company: **National Grid**

C12. Telephone company: **Verizon**

C13. Cable company: **Charter**

C14. Alarm/Security company: **None currently**

# APPARATUS

## 1 Main Apparatus Bays

1.1 Number of vehicles: **13**; # of bays: **6**

**Front Line Vehicles**

| | | | | |
|---|---|---|---|---|
| 1.1.1 | Name: **M1**; | type: **Medic**; | length: **27'**; | weight: **14.5k** |
| 1.1.2 | Name: **M2**; | type: **Medic**; | length: **27'**; | weight: **14.5k** |
| 1.1.3 | Name: **R1**; | type: **New rescue**; | length: **33'**; | weight:**42k** |
| 1.1.4 | Name: **E1**; | type: **Pump**; | length: **30'**; | weight: **47k** |
| 1.1.5 | Name: **E3**; | type: **Tanker**; | length: **29'**; | weight: **43k** |
| 1.1.6 | Name: **T1**; | type: **Aerial Platform**; | length: **53'**; | weight: **80k** |

**Second Line Vehicles**

| | | | | |
|---|---|---|---|---|
| 1.1.7 | Name: **M3**; | type: **Medic**; | length: **27'**; | weight: **14.5k** |
| 1.1.8 | Name: **E2**; | type: **Pump**; | length: **31'**; | weight: **43k** |
| 1.1.9 | Name: **FF1**; | type:**F550** | length: **24'**; | weight: **18k** |
| 1.1.10 | Name: **FF2**; | type: **Forestry**; | length: **23'** | weight: **14.5k** |
| 1.1.11 | Name: **UTV & FF3**; | type: **Forestry**; | length: **16'**; | weight: **7k** |
| 1.1.12 | Name: **Car 1**; | type: **Expedition**; | length: **20'**; | weight: **7.5k** |
| 1.1.13 | Name: **Car 2**; | type: **Explorer**; | length: **16'**; | weight: **6.3k** |

1.2 Type of bays:
- 1.2.1 Drive-through: **6**
- 1.2.2 Double deep: **6**
- 1.2.3 Single deep: **0**
- 1.2.4 Extra wide: **1 was bay should be extra wide**

1.3 Wash bay: **Yes;** Where: **All have drains**

1.4 Plan for future expansion of bays: **No**

1.5 Overhead doors:
- 1.5.1 Front:
  - 1.5.1.1 Number: **6**
  - 1.5.1.2 Width: **13'4"**; Height: **14'**
  - 1.5.1.3 Windows: **2 panel**
- 1.5.2 Rear:
  - 1.5.2.1 Number: **7**
  - 1.5.2.2 Width: **13'4"**; Height: **14'**
  - 1.5.2.3 Windows: **2 panels**

1.6 Trench drains: **Yes**; Layout: **1 row each bay**

1.7 Wall mounted water hose reels: **Yes**; Quantity: **8**; Tempered: **Yes**

1.8 Fume exhaust: **Yes**; Type: **Plymovent**

1.9 Truck fills:
- 1.9.1 Overhead: **No**
- 1.9.2 Wall hydrant: **Yes;** Quantity: **2 on center columns**
- 1.9.3 Outdoor hydrant: **Yes;** Quantity: **1**

1.10 Overhead electrical drops: **Yes**; Quantity: **8**

1.11 Overhead airdrops: **Yes**; Quantity: **5 (combo reels)**

1.12 Wall mounted air hose reels: **Yes** Quantity:**2 on center columns**

1.13 Hand wash sinks: **Yes;** Where: **Each door to living space**

1.14 Water fountain/bottle filling station: **Yes**

1.15 Epoxy flooring: **Yes**

1.16 Wall construction type: **CMU**

1.17 Comments:
- 1.17.1 **Storage area on floor for turnout gear, etc. for the on duty crew**

1.18 Size: **8,460** sq ft

## 2 Wash Bay

2.1 Number of vehicles:**1**; # of bays: **1**

2.1.1 Name: **L1**; type: **Aerial ladder**; length: **60'**; weight: **48k**

2.2 Type of bays:

2.2.1 Drive-through: **Yes**; quantity: **1**

2.2.2 Double deep: **Yes**

2.2.3 Extra wide: **Yes**

2.3 Plan for future expansion of bays: **No**

2.4 Overhead doors:

2.4.1 Front:

2.4.1.1 Number: **3**

2.4.1.2 Width: **13'-4"**; Height: **14**

2.4.1.3 Windows: **1 row**

2.4.2 Rear:

2.4.2.1 Number: **1**

2.4.2.2 Width: **13'-3"**; Height: **14**

2.4.2.3 Windows: **1 row**

2.5 Trench drains: **Yes**; Layout: **1 row each bay**

2.6 Wall mounted water hose reels: **Yes**; Quantity: **8**; Tempered: **Yes**

2.7 Fume exhaust: **Yes**; Type: **Plymovent**

2.8 Truck fills:

2.8.1 Overhead: **No**

2.8.2 Wall hydrant: **Yes;** Quantity: **2 on center columns**

2.8.3 Outdoor hydrant: **Yes;** Quantity: **1**

2.9 Overhead electrical drops: **Yes**; Quantity: **8**

2.10 Overhead airdrops: **Yes**; Quantity: **5 (combo reels)**

2.11 Wall mounted air hose reels: **Yes** Quantity:**2 on center columns**

2.12 Hand wash sinks: **Yes;** Where: **Each door to living space**

2.13 Water fountain/bottle filling station: **Yes**

2.14 Epoxy flooring: **Yes**

2.15 Wall construction type: **CMU**

2.16 Comments:

2.16.1 **Storage area on floor for turnout gear, etc. for the on duty crew**

2.16.2 **Provide under-carriage cleaning**

2.17 Size: **1,874** sq ft

# 3 Accessory Apparatus Bay

3.1 Number of vehicles: **7**; # of bays: **7**

- 3.1.1 Name: **FA #1**; type: **Bucket**; length: **24'**; weight: **16k**
- 3.1.2 Name: **Com**; type: **Freightliner Sprinter**; length: **22'**; weight: **14k**
- 3.1.3 Name: **ST1**; type: **P/U**; length: **20'**; weight: **10k**
- 3.1.4 Name: **ST2**; type: **P/U**; length: **20'**; weight: **10k**
- 3.1.5 Name: **MCI**; type: **Trailer**; length: **20'** weight: **7.7k**
- 3.1.6 Name: **Car 8**; type: **SUV** length: **16'** weight: **6.3k**
- 3.1.7 Name: **Jeep**; type: **Jeep**; length: **12'**; weight: **2.5k**

3.2 Type of bays:

- 3.2.1 Drive-through: **Yes**; quantity: **3**
- 3.2.2 Double deep: **No**
- 3.2.3 Single deep: **Yes**
- 3.2.4 Extra wide: **No**

3.3 Plan for future expansion of bays: **No**

3.4 Overhead doors:

- 3.4.1 Front:
  - 3.4.1.1 Number: **3**
  - 3.4.1.2 Width: **12**; Height: **12**
  - 3.4.1.3 Windows: **1 row**
  - 3.4.1.4 Number: **4**
  - 3.4.1.5 Width: **10**; Height: **10**
  - 3.4.1.6 Windows: **1 row**
- 3.4.2 Rear:
  - 3.4.2.1 Number: **3**
  - 3.4.2.2 Width: **12**; Height: **12**
  - 3.4.2.3 Windows: **1 row**

3.5 Square drains: **One per vehicle**

3.6 Wall mounted water hose reels: **Yes, One**

3.7 Fume exhaust: **No**

3.8 Overhead electrical drops: **Yes**

3.9 Overhead airdrops: **No**

3.10 Compressed air for tools: **No**

3.11 Wall mounted air hose reels: **No**

3.12 Utility sinks: **Yes, one**

3.13 Hand wash sinks: **Yes, one**

3.14 Water fountain/bottle filling station: **No**

3.15 Other equipment: **N/A**

3.16 Epoxy flooring: **No**

3.17 Wall construction type: **Pole barn**

3.18 Comments: **Storage shelving for tires, etc.**

3.19 Size: **3,445** sq ft

- **Outdoors**
  - Number of vehicles: **4**
    - Name: **MDU**; type: **Box trailer**; length: **16'**; weight: **7k**
    - Name: **Signboard**; type: **electronic sign**; length: **12'**; weight: **1k**
    - Name: **Shelter**; type: **Box trailer**; length: **17'**; weight: **6k**
    - Name: **Light Tower**; type: **Light tower**; length: **14'**; weight: **2.k**

# FIREMATIC SUPPORT

## 4 Mezzanine

4.1 Comments: **Compressor room, parade storage, fire prevention materials, quartermaster storage**

4.2 Size: **948** sq ft

## 5 Turnout Gear Storage Room

5.1 Operational Comments: **Insufficient**

5.1.1 Response pathway

5.1.1.1 **Apparatus Bays**

5.2 Quantity of Lockers: **40 now, 50 later (shelving temporarily where the 10 will go)**

5.3 Describe Lockers: **Open mesh**

5.4 Locker Size: **24** x **24 ( 1 ½ per firefighter)**

5.5 Location: **Adjacent bay**

5.6 Contents per firefighter:

5.6.1 **2 sets of turnout gear, one hanging, one folded**

5.6.2 **1 helmet**

5.6.3 **2 pair boots (1 active, 1 spare)**

5.6.4 **SCBA bottle, harness & mask**

5.6.5 **Cold bag**

5.7 Size: **896** sq ft

## 6 DeCon/Laundry

6.1 Operational Comments: **No Decon**

6.1.1 **Basement & Floor 1**

6.2 Chemical, biological, radiological and nuclear (CBRN) environments: **-**

6.3 Sink(s): **1** Foot Pedal: **0** Number of sink chambers: **2**

6.4 Gear washer/extractor: **1** size: **2 sets**

6.5 Cabinet gear dryer: **None**

6.6 Ventilated gear racks: **Open air gear storage**

6.7 Residential type clothes washer & dryer: **Yes**

6.8 Drench shower: **No**

6.9 SCBA Washing: **Yes**; Describe: **Machine**

6.10 Backboard/Etc. cleaning: **No – done at hospital**

6.11 Holding tank: **No**

6.12 Red bag storage cabinet: **No**

6.13 Location: **Bays & basement**

6.14 Size: **502** sq ft

## 7 Showering

7.1 Use: **4 shower stalls for personal deconning after fires**

7.2 Security: **N/A**

7.3 Adjacencies: **Decon/Laundry, Turnout gear lockers**

7.4 Comments: **continuous ventilation**

7.5 Size: **267** sq ft

## 8 EMS Storage Room

8.1 Operational Comments:

8.1.1 **Insufficient**

8.2 Items to be located in this space (from current inventory):

8.2.1 **LBB, Scoops, Straps**

8.3 Location: **Bay 1**

8.4 Security: **None**

8.5 Size: **308** sq ft

## 9 Apparatus Floor Rest Rooms

9.1 Quantity: **1**

9.2 Fixtures: **Sink, toilet, urinal**

9.3 Shower: **No**

9.4 Lockers: **No**

9.5 Location: **Back of Bay 1**

9.6 Size: **78 sq ft**

## 10 Storage Room #1

10.1 Items to be stored:

10.1.1 **Evidence cans (1 gal cans), etc.**

10.2 Location: **Floor 2**

10.3 Security: **Lock**

10.4 Adjacencies: **Apparatus floor**

10.5 Comments: **Continuous ventilation**

10.6 Size: **208** sq ft

## 11 Storage Room #2

11.1 Items to be stored:

11.1.1 **Extra fire extinguishers**

11.1.2 **Roll N Rack (27" x 32" footprint)**

11.2 Other equipment: **tool fuel, speedy dry**

11.3 Size: **243** sq ft

## 12 Dive Team and/or Swift Water Storage Room

12.1 Items to be located in this space:

12.1.1 **Member rolling cases cylinders, etc.**

12.1.2 **4 Gumby suits**

12.1.3 **6 dive sets and buoyancy compensators in cases 3'l x 2'h x 2'w (Stanley work box)**

12.1.4 **Folding ice sled (rescue alive) (88"l x 18" w x 38"t)**

12.2 Location: **Bay 6**

12.3 Size: **176** sq ft

## 13 Hose Storage Recess

13.1 Operational Comments:

13.1.1 **Insufficient**

13.2 A room, or on the floor: **Basement**

13.3 Hose racks: **Yes**; # **3**; Size: **12' 3 shelves**

13.4 Hose drying: **Hung in hose tower, air dried**

13.5 Hose washer: **No, wash on front of apron**

13.6 Hose winder: **Yes**

13.7 Inventory:

13.7.1 4" LDH: **5** @ 100' [6 ½" footprint]

13.7.2 2 ½" LDH: **20** @ [4" footprint]

13.7.3 2" LDH: **20** @ 50' [3" footprint]

13.7.4 1 ½" LDH: **10** @ 100' [2 1/2" footprint]

13.7.5 1 ⅛" LDH: **10** @ 100' [2" footprint]

13.7.6 Total LF of hose rack = **20**

13.8 Size: **27** sq ft

## 14 Work Room

14.1 Use: **Tool & equipment storage**

14.2 Mechanic: **No** Type of work: **General firehouse repairs**

14.3 Operational Comments:

14.3.1 **Storage ad fill/charging of water extinguishers**

14.4 Workbench: **Yes**

14.5 Tool storage: **Yes**

14.6 Stationary power tools: **Yes**

14.7 Air: **Yes**

14.8 Water/Sink: **Yes**

14.9 Flammable Storage: **Yes**

14.10 Items to be located in this space:

14.10.1 **Tools, etc.**

14.10.2 Storage of Diesel Exhaust Fluid: **Back bench, currently insufficient**

14.11 Additional items (not in current inventory):

14.11.1 **Station use power tools**

14.12 Security: **None**

14.13 Location: **Back of Bay 3 & 4**

14.14 Size: **292** sq ft

## 15 SCBA Fill Station Room (Split Design)

15.1 "Public" access: **No**

15.2 Sink: **Yes**

15.3 Filling station: **Yes**

15.4 Cascade: **Yes**

15.5 SCBA storage: **Yes**

15.6 SCBA repair: **No**

15.7 Air Bottles – Size & Quantity: **TBD**

15.8 Back Packs – Size & Quantity: **6**

15.9 Location: **Far end of the bay**

15.10 Size: **143** sq ft

## 16 SCBA Compressor Room (Split Design)

16.1 Air compressor size: **TBD**

16.2 Sound attenuation panels: **NA**

16.3 Oxygen Generator: **No**

16.4 House Air Compressor: **Yes**

16.5 Location: **On mezzanine**

16.6 Size: **164** sq ft

## 17 Utility Recess

17.1 Slop sink: **Yes**

17.2 Truck cleaning tool & supplies: **Yes**

17.3 Garbage & recycling: **Yes**

17.4 Curb & floor drain: **Yes**

17.5 Adjacencies: **Wash Bay**

17.6 Size: **32** sq ft

## 18 Janitor's Closet

18.1 Mop Receptor: **Yes**

18.2 Slop Sink: **No**

18.3 Floor Machine: **Yes**

18.4 Shelving: **Yes**

18.5 Mop/Broom Rack: **Yes**

18.6 Location: **Apparatus Bay**

18.7 Size: **64** sq ft

## 19 Hydration

19.1 Refrigerator with water bottles: **Yes**

19.2 Ice machine: **No**

19.3 Shelving for coolers & portable water bottles: **Yes, 3 or 4 portable coolers**

19.4 Location: **arm or Cold Zone Near Bay**

19.5 Security: **None**

19.6 Size: **27 sq ft**

## 20 Radio Room/Dispatch

20.1 View control: **Windows to bays & cameras**

20.2 Seating for how many: **3**

20.3 Items:

20.3.1 Door operator switches: **Yes**

20.3.2 Traffic device control: **Yes**

20.3.3 Light switches for app bay: **Yes**; Outside: **No**

20.3.4 Internal paging system: **Yes, phone, house bell**

20.3.5 Siren trigger: **Yes** Shutoff: **Yes** Siren location: **Tower**

20.3.6 Computer equipment: **4 towers**

20.3.7 Closed Circuit TV, Phones, Weather Station: Describe: **TV's, phones**

20.3.8 Other equipment: **Phone recording system, Fore alarm digitizer**

20.3.9 File cabinets: **Yes** Describe: **General use**

20.3.10 Rechargeable items (flashlights, pagers): **Radios, cardiac monitor batteries**

20.3.11 Lockable storage: **None**

20.4 Location: **Floor 1**

20.5 Security: **Need to limit access**

20.6 Size: **333** sq ft

## 20A Radio Room/Dispatch Rest Room

- Quantity: **1**
- Fixtures: **Sink, toilet, urinal**
- Shower: **No**
- Lockers: **No**

- Adjacencies: **Radio Room/Dispatch**
- 
- Size: **73 sq ft**

## 21 Hose/Training Tower

21.1 Describe: **Provide stand pipe**

21.2 Location: **Floor 1**

21.3 Security: **Need to limit access**

21.4 Size: **151** sq ft on 1st floor,

# ADMINISTRATION

## 22 Staff Lobby

22.1 Items to be located in this space: **Photos**

22.2 Size: **100** sq ft

## 23 Conference Room

23.1 Uses:

23.1.1 **Chief's conference room**

23.1.2 **Officers' meetings**

23.2 Seat how many: **10** at table; **10** at wall

23.3 Is there a workstation with a computer to be shared by all users: **NO ?**

23.4 Location: **Floor 2**

23.5 Security: **NA**

23.6 Adjacencies: **Chief**

23.7 Size: **330** sq ft

## 24 Chief

24.1 Seat how many: **3 currently**

24.2 Use: **Office**

24.3 Location: **Floor 2**

24.4 Security: **Locks**

24.5 Adjacencies:

24.6 Comments: **4-person table**

24.7 Size: **332** sq ft

## 25 Administrative Assistant

25.1 Seat how many: **3**

25.2 Use: **Reception, general office work**

25.3 Location: **Floor 2**

25.4 Security: **Locks**

25.5 Adjacencies: **Lobby & Chief**

25.6 Comments: **Is primary public contact**

25.7 Size: **196** sq ft

## 26 Deputy Chief

26.1 Seat how many: **3**

26.2 Use: **Office, computer work stations**

26.3 Location: **Floor 2**

26.4 Security: **None**

26.5 Adjacencies: **Chief**

26.6 Size: **180** sq ft

## 27 Fire Inspector

27.1 Seat how many: **2, plus 2 visitors**

27.2 Use: **General office**

27.3 Location: **Admin**

27.4 Security: **Locks**

27.5 Adjacencies: **Plan review table & additional staff**

27.6 Size: **288** sq ft

## 28 Captains

28.1 Seat how many: **3**

28.2 Use: **Currently office and supply storage**

28.3 Location: **Floor 2**

28.4 Security: **Locks**

28.5 Size: **220** sq ft

## 29 Lieutenants

29.1 Seat how many: **3**

29.2 Use: **Office, work station, files**

29.3 Size: **220** sq ft

## 30 EMS

30.1 Seat how many: **3**

30.2 Use: **Office, work station, files**

30.3 Size: **144** sq ft

## 31 Study Room

31.1 Seat how many: **3**

31.2 Use: **Office, work station, files**

31.3 Size: **120** sq ft

## 32 Office Support

32.1 Purpose:

32.1.1 Copier: **Yes**

32.1.2 Fax: **Yes**

32.1.3 Recycling: **Yes**

32.1.4 Mailboxes: **Yes**

32.1.5 Work Surface: **Yes**

32.1.6 Storage Cabinet(s): **Yes**

32.2 Location: **Admin**

32.3 Comments: **Currently throughout building**

32.4 Size: **126** sq ft

## 33 Office Area ADA Compliant Rest Room (One)

33.1 Fixtures: **Toilet, urinal & sink**

33.2 Showers: **No**

33.3 Lockers: **No**

33.4 Size: **72** sq ft

## 34 Records Storage

34.1 Items to be located in this space :

34.1.1 **Files**

34.2 Location: **Admin**

34.3 Security: **Yes**

34.4 Size: **100 sq ft**

## 35 Fire Prevention Storage

35.1 Location: **Mezzanine**

35.2 Size: **100** sq ft

## 36 Parade Storage

36.1 Items to be located in this space

36.1.1 **Flowers, axes, etc., wreaths**

36.2 Location: **Mezzanine**

36.3 Security: **Yes**

36.4 Size: **64** sq ft

# FIREFIGHTERS

## 37 Kitchen/Dining

37.1 Equipment:

37.1.1 Stove size: **5 burner**

37.1.2 Describe refrigerators: **2 side-by-side**

37.1.3 Describe sink(s): **One, 2 bowl, deep**

37.1.4 Describe dish washer: **commercial, under counter**

37.1.5 Describe pantries: **4 shifts, plus common**

37.2 Adjacencies: **Living**

37.3 Access to exterior: **Yes**

37.4 Seat how many: **24 at dining tables, 4 at counter**

37.5 Size: **777** sq ft

## 38 Living Room

38.1 Seat how many: **11**

38.2 Activities other than TV? **None currently**

38.3 Adjacencies: **Kitchen/Dining**

38.4 Comments: **Recliners**

38.5 Size: **661** sq ft

## 39 Exercise

39.1 Equipment:

39.1.1 Cardio: **Yes**

39.1.2 Weights: **Yes**

39.1.3 Weight Machines: **Yes**

39.2 Location: **Floor 2**

39.3 Security: **Need limited access**

39.4 Comments: **Only iron weights can be re-used**

39.5 Size: **593** sq ft

## 40 Detox Rehab

40.1 Size: **92** sq ft

## 41 Bunkers' Bed Rooms w/ Lockers

41.1 Number of rooms: **12**

41.2 Beds per room: **1**

41.3 Storage: **Lockers**

41.4 Desks: **Only officers' suite (12'x18')**

41.5 Location: **Floor 2**

41.6 Security: **None**

41.7 Comments: **Add desk space**

41.8 Size: **12 @ 93** sq ft

## 42 Bunker's Non-ADA Bathrooms

42.1 Quantity: **3**

42.2 Details: **sink, toilet, shower, bench**

42.3 Security: **Privacy lock**

42.4 Adjacencies: **Bedrooms**

42.5 Comments: **Easily decontaminated**

42.6 Size: **72** sq ft

## 43 Bunker's ADA Bathroom

43.1 Quantity: **1**

43.2 Details: **sink, toilet, shower, bench**

43.3 Security: **Privacy lock**

43.4 Adjacencies: **Bedrooms**

43.5 Comments: **Easily decontaminated**

43.6 Size: **91** sq ft

## 44 Bunker's Bedding Storage

44.1 Size: **36** sq ft

## 45 Bunker's Area Laundry Room

45.1 Location: **None currently**

45.2 Size: **80** sq ft

# PUBLIC SPACES

## 46 Public Entry Area

46.1 Trophy case: **Needed**

46.2 Bulletin board: **Yes**

46.3 Museum Display: **Tiger 7**

46.4 Items to be located in this space (from current inventory):

46.4.1 **Tiger 7 (hand drawn tub)**

46.5 Additional items (not in current inventory):

46.5.1 **Handouts**

46.6 Location**: Floor 1**

46.7 Size: 66**7** sq ft

## 47 Coat Recess

47.1 Size: **36** sq ft

## 48 Meeting/Training Room – Like Rockland

48.1 Intended population: **FD, regional training, public use (?)**

48.2 Public access: **Yes**

48.3 Uses:

48.3.1 Department meetings: **Yes**

48.3.2 Training: **Yes**

48.3.3 Fundraising dinners: **Not for some time**

48.4 Purpose: **Training**

48.4.1 Avg. people: **20**

48.4.2 Max people: **40**

48.4.3 Frequency: **weekly, monthly**

48.4.4 Seating: **Up to 90**

48.4.5 Special needs: **Subdivide**

48.5 Number of tables & size:**10 - 8**

48.6 Number of chairs: **90**

48.7 Trophy case: **Yes** Size **10' x 2'**

48.8 Whiteboard: **Yes** Size **6' x 4'**

48.9 Bulletin board: **No**

48.10 Projector & screen: **Yes**

48.11 Location: **Near entry**

48.12 Size: **750** sq ft

## 49 Meeting/Training Room Table & Chair Storage

49.1 Table rack quantity: **2**

49.2 Chair rack quantity: **6**

49.3 Size: **121** sq ft

## 50 EOC Storage

50.1 Use: **Needed**

50.2 Items to be stored:

50.2.1 **Materials to allow room to be an EOC**

50.3 Size: **60** sq ft

## 51 Meeting/Training Room A/V Equipment

51.1.1 **Projector**

51.2 Location: **Floor 2**

51.3 Security: **Limited Access**

51.4 Size: **62** sq ft

## 52 Kitchenette

52.1 Equipment types and size:

Refrigerator: **Residential, under counter**

Sink: **1, apartment size**

52.2 Dish storage: **Cabinets**

52.3 Location: **Meeting/Training**

52.4 Size: **31** sq ft

## 53 Public Rest Rooms (2 Unisex)

53.1 Handicapped accessible: **Yes**

53.2 Comments: **Toilet, urinal, sink**

53.3 Size: **93 sq ft each**

# MISCELLANEOUS SPACES

## 54 Entry Vestibules

54.1 Location: **Main Lobby**

54.2 Size: **122** sq ft

## 55 House Keeping Storage

55.1 Size: **50** sq ft

## 56 Office Side Janitors Closet

56.1 Mop Receptor: **Yes**

56.2 Slop Sink: **Yes**

56.3 Floor Machine: **Yes**

56.4 Shelving: **Yes**

56.5 Mop/Broom Rack: **Yes**

56.6 Size: **86** sq ft

## 57 File Server

57.1 Size: **153** sq ft

## 58 Yard Storage

58.1 Items to be stored:

58.1.1 **Yard tractor**

58.1.2 **Snow blower**

58.1.3 **Mower**

58.1.4 **Grill**

58.1.5 **Garbage & recycling**

58.2 Security: **Yes**

58.3 Adjacencies: **Bay**

58.4 Size: **327**sq ft

## 59 Mechanical, Electrical, Plumbing, HVAC, Sprinkler, Alarm, etc.

59.1 Fuel type at site: **Gas**

59.2 Heating type in apparatus bay: **Gas Modine**

59.3 Heating type elsewhere: **Gas HVAC**

59.4 Building to be sprinklered: **Yes**

59.4.1 Adequate water pressure: **Yes**

59.4.2 Storage tank: **No**

59.5 Hose bibs for exterior: **Yes**

59.6 Bay lighting type: **LED**

59.7 Site lighting type: **LED**

59.8 Other lighting considerations: **Transitional night lighting**

59.9 Generator: **50k**

59.9.1 Fuel: **Diesel**

59.9.2 Location of generator: **Behind station**

59.9.3 Circuits on generator: **Whole building**

59.10 Access control type (fob?): **None**

59.11 Security cameras: **Yes** Describe: **Bays only**

59.12 Alarm: **Yes**

59.13 Siren: **Yes** Mounting location: **Whistle in tower, compressor basement**

59.14 Hazardous waste handling: **DPW**

59.15 Comments: **No one space**

59.16 Size: **350** sq ft

## 60 Sprinkler Room

60.1 Assume **70** sq ft

## 61 Generator

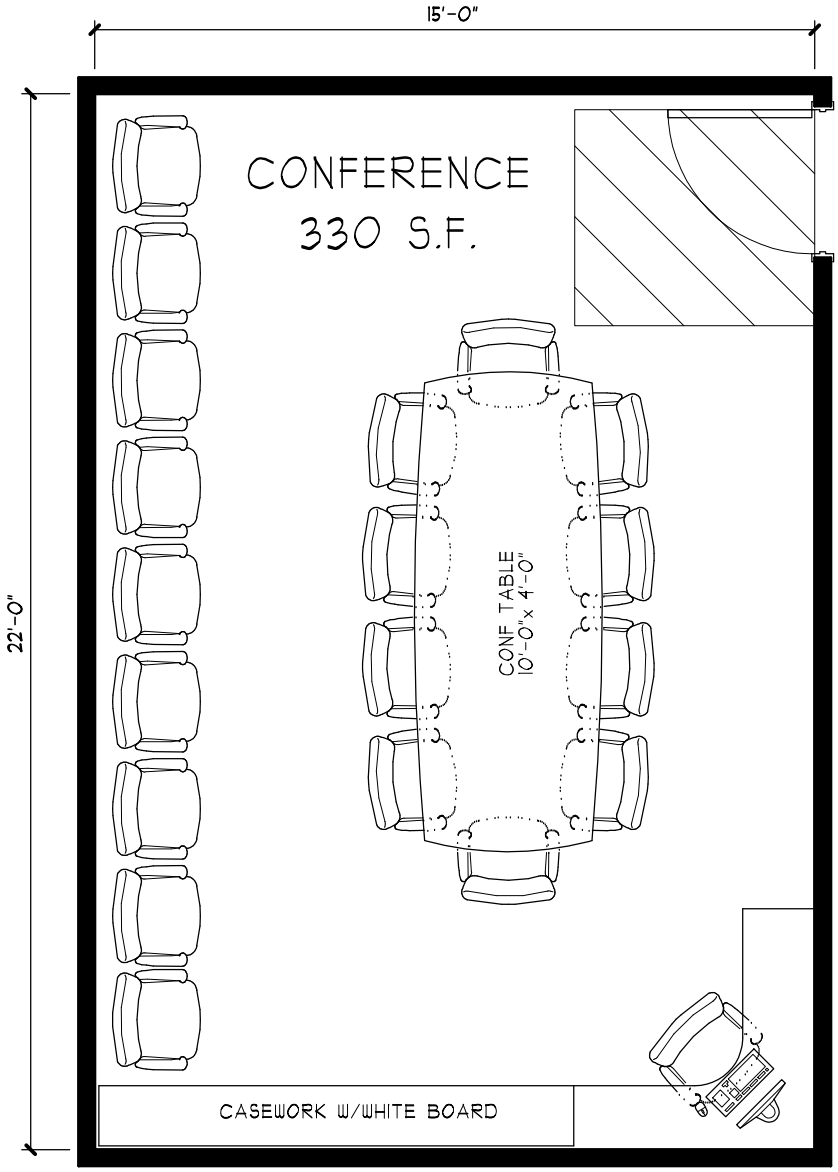
61.1 Location: **Outside**

# Southbridge Fire Headquarters Space/Usage Analysis

| Program Item | Room Name | 1st Floor Area | Mezz | Upper Tower | Remote Structure | Total Area |
|---|---|---|---|---|---|---|
| | **Apparatus Bay** | | | | | |
| **1** | Main Apparatus Bay | 8,404 | | | | 8,404 |
| **2** | Wash Bay | 1,874 | | | | 1,874 |
| **3** | Accessory Apparatus Bay | | | | 3,445 | 3,445 |
| | **Subtotal - Apparatus** | **10,278** | | | **3,445** | **13,723** |
| | **Firematic Support** | | | | | |
| **4** | **Mezzanine** | | **948** | | | **948** |
| | | | | | | |
| **5** | Turnout Gear Storage | 896 | | | | 896 |
| **6** | Decon/Laundry | 502 | | | | 502 |
| **7** | Showering | 267 | | | | 267 |
| **8** | EMS Storage | 308 | | | | 308 |
| **9** | Apparatus Floor Restroom | 78 | | | | 78 |
| **10** | Storage Room #1 | 208 | | | | 208 |
| **11** | Storage Room #2 | 243 | | | | 243 |
| **12** | Swift Water Storage | 176 | | | | 176 |
| **13** | Hose Recess | 27 | | | | 27 |
| **14** | Work Room | 292 | | | | 292 |
| **15** | SCBA Fill Station | 149 | | | | 149 |
| **16** | SCBA Compressor | | 164 | | | 164 |
| **17** | Utility Recess | 32 | | | | 32 |
| **18** | Janitors Closet | 64 | | | | 64 |
| **19** | Hydration | 27 | | | | 27 |
| **20** | Radio Room/Dispatch | 333 | | | | 333 |
| **20A** | Radio Room/Dispatch Bathroom | 73 | | | | 73 |
| **21** | Hose/Training Tower | 151 | 151 | 151 | | 453 |
| | **Subtotal - Firematic Support** | **3,826** | **315** | **151** | **0** | **4,292** |
| | **Administration** | | | | | |
| **22** | Staff Lobby | 100 | | | | 100 |
| **23** | Conference | 330 | | | | 330 |
| **24** | Chief | 332 | | | | 332 |
| **25** | Administrative Assistant | 196 | | | | 196 |
| **26** | Deputy Chief | 180 | | | | 180 |
| **27** | Fire Inspector | 288 | | | | 288 |
| **28** | Captains | 220 | | | | 220 |
| **29** | Lieutenants | 220 | | | | 220 |
| **30** | EMS Storage | 144 | | | | 144 |
| **31** | Study Room | 120 | | | | 120 |
| **32** | Office Support | 126 | | | | 126 |
| **33** | Admin Bathroom | 72 | | | | 72 |
| **34** | Records Storage | 100 | | | | 100 |
| **35** | Fire Prevention Storage | | 151 | | | |
| **36** | Parade Storage | | 151 | | | 151 |
| | **Subtotal - Administration** | **2,328** | **302** | | | **2,630** |

# Southbridge Fire Headquarters Space/Usage Analysis

| Program Item | Room Name | 1st Floor Area | Mezz | Upper Tower | Remote Structure | Total Area |
|---|---|---|---|---|---|---|
| | **Firefighters** | | | | | |
| **37** | Kitchen/Dining | 777 | | | | 777 |
| **38** | Living Room | 661 | | | | 661 |
| **39** | Exercise | 593 | | | | 593 |
| **40** | Detox Rehab | 92 | | | | 92 |
| **41** | Bunkers' Bedrooms w/ Lockers (12 @ 93 sf) | 1116 | | | | 1,116 |
| **42** | Bunkers' Non-ADA Bathrooms (3 @72 sf) | 216 | | | | 216 |
| **43** | Bunkers' ADA Bathroom | 91 | | | | 91 |
| **44** | Bunkers' Bedding Storage | 36 | | | | 36 |
| **45** | Bunker's Laundry | 80 | | | | 80 |
| | **Subtotal - Firefighters** | **3,662** | | | | **3,662** |
| | **Public Spaces** | | | | | |
| **46** | Public Entry Area | 700 | | | | 700 |
| **47** | Coat Room | 40 | | | | 40 |
| **48** | Meeting/Training Room | 750 | | | | 750 |
| **49** | Table & Chair Storage | 120 | | | | 120 |
| **50** | Training Props & A/V | 120 | | | | 120 |
| **51** | Kitchenette | 30 | | | | 30 |
| **52** | Public Rest Rooms M & F | 250 | | | | 250 |
| | **Subtotal - Public Spaces** | **2,010** | | | | **2,010** |
| | **Miscellaneous Space** | | | | | |
| **53** | (2) Entry Vestibules | 128 | | | | 128 |
| **54** | Housekeeping Storage | 50 | | | | 50 |
| **55** | Janitors Closet | 48 | | | | 48 |
| **56** | File Server | 153 | | | | 153 |
| **57** | Yard Storage | 249 | | | | 249 |
| **58** | Mechanical/Electrical | 350 | | | | 350 |
| **59** | Sprinkler | 70 | | | | 70 |
| **60** | (2) Stairwells (area per floor) | 0 | | | | 0 |
| **61** | Elevator (area per floor) | 0 | | | | 0 |
| **62** | Elevator Equipment Room | 0 | | | | 0 |
| **63** | Elevator Foyer | 0 | | | | 0 |
| | **Subtotal - Miscellaneous Spaces** | **1,048** | | | | **1,048** |
| | **Area Subtotals** | | | | | |
| | Bay | **10,278** | | | **3,445** | **13,723** |
| | Firematic Support | **3,826** | **315** | | | **4,141** |
| | Mezzanine | | **948** | | | **948** |
| | Office & Living | **9,048** | | | | **9,048** |
| | **Walls & Circulation** | | | | | |
| | Apparatus Bay Walls @ 8% | 822 | | | | 822 |
| | Firematic Support Walls @ 15% | 574 | 47 | | | 621 |
| | Firematic Support Circulation @ 15% | 574 | | | | 574 |
| | Office Area Walls @ 16% | 1,448 | | | | 1,448 |
| | Office Area Circulation @ 15% | 1,357 | | | | 1,357 |
| | **Subtotal - Walls & Circulation** | **4,775** | **47** | | | **4,822** |
| | **Total >>** | **27,927** | **1,310** | | **3,445** | **32,682** |
| | **Footprint>>** | **27,927** | | | | **27,927** |




MITCHELL ASSOCIATES ARCHITECTS

# CONFERENCE ROOM

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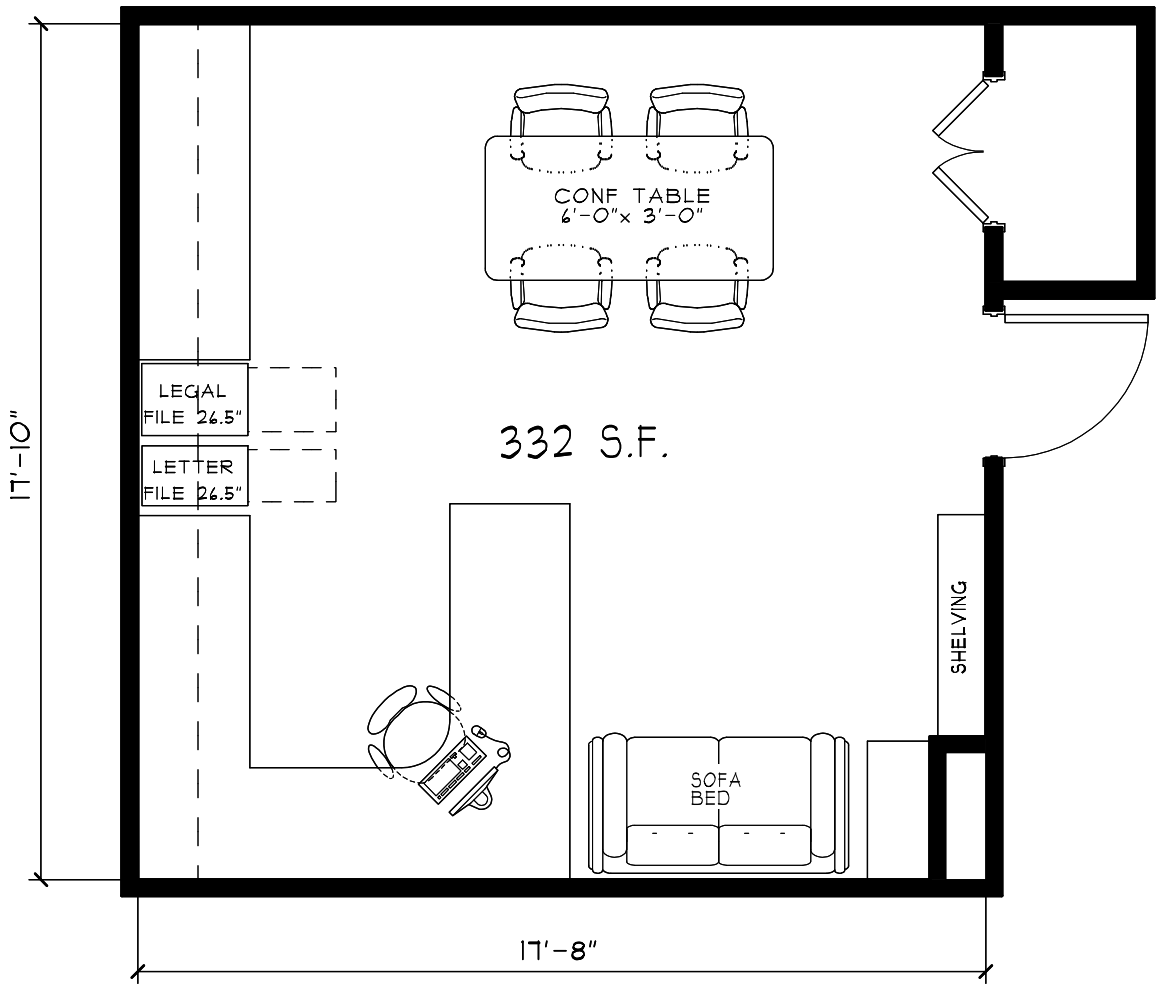
23

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# CHIEF

SCALE: 1/4"

DATE: 4/20/2018

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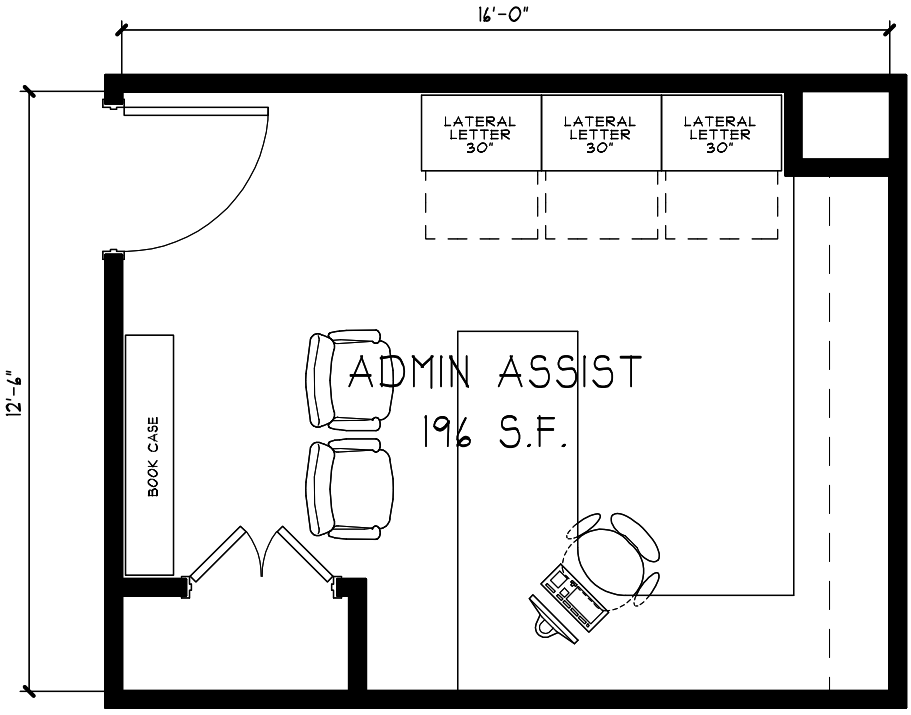
24

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# ADMINISTRATIVE ASSISTANT

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DATE: 4/20/2018

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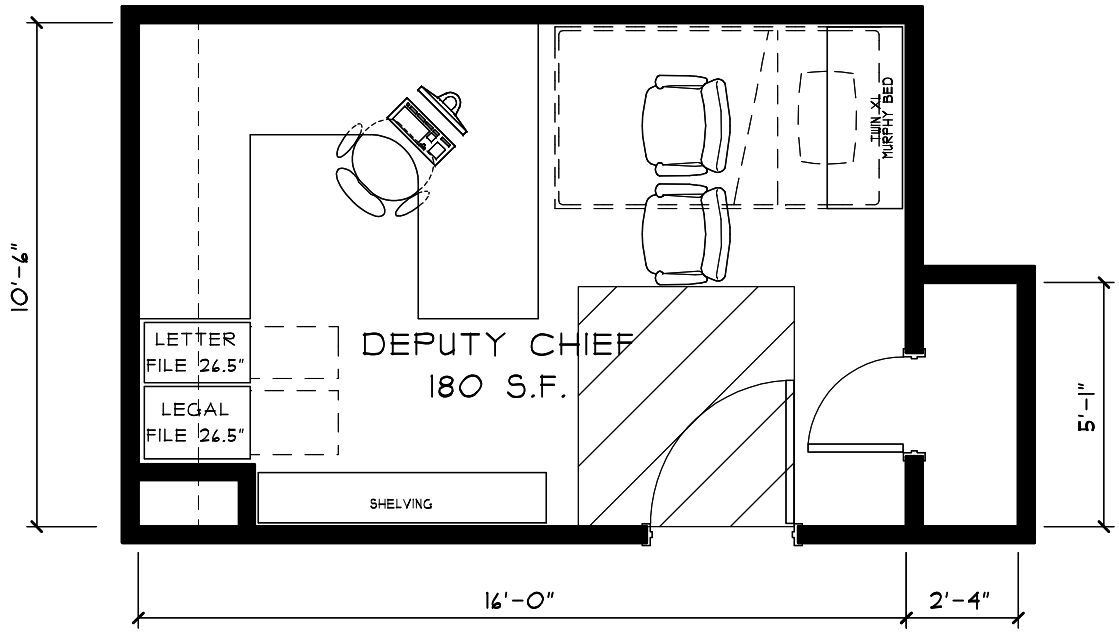
25

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# DEPUTY CHIEF

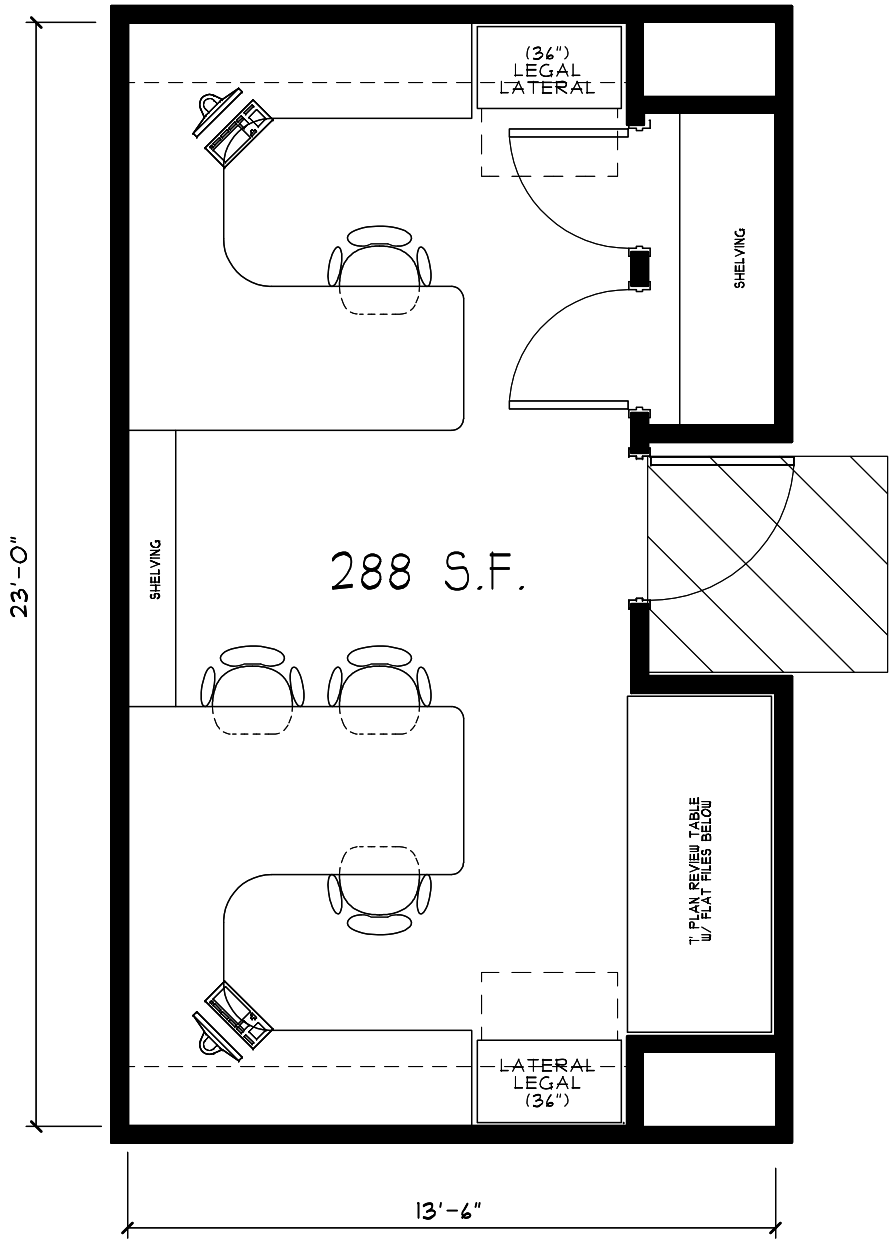
SCALE: 1/4"

DATE: 4/20/2018

S:\J Drive\Kaestle Boos\Southbridge\Individual Rooms\2 - Administration\26 - Deputy Chief

26

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# FIRE INSPECTOR

SCALE: 1/4"

DATE: 4/20/2018

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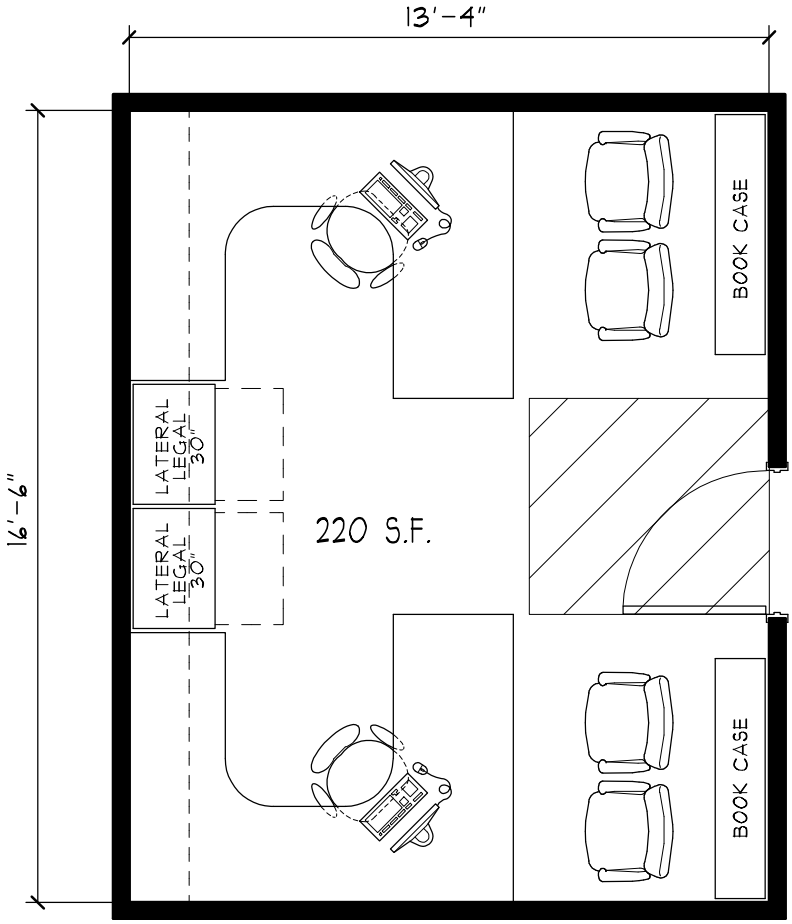
27

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# CAPTAINS & LIEUTENANTS

SCALE: 1/4"

DATE: 4/20/2018

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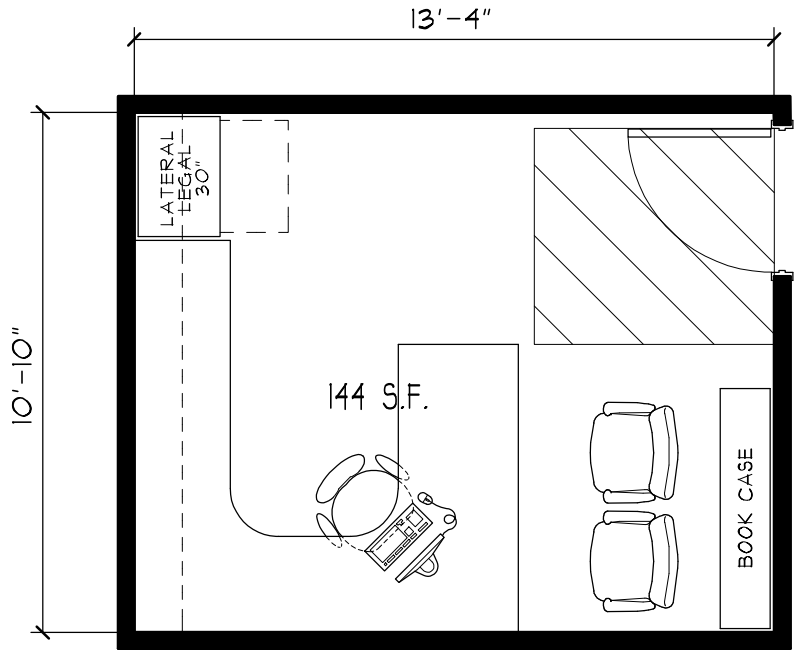
28 & 29

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# EMS OFFICE

SCALE: 1/4"

DATE: 4/20/2018

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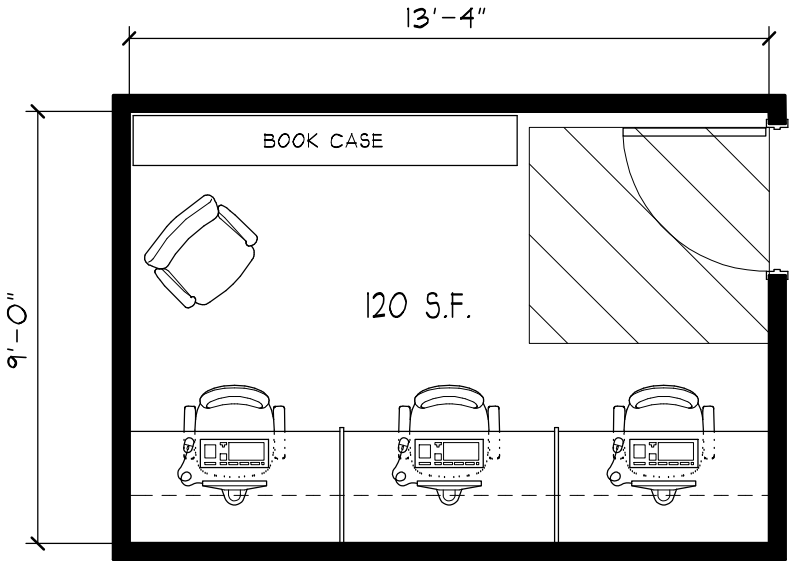
30

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

STUDY

SCALE: 1/4"

DATE: 4/20/2018

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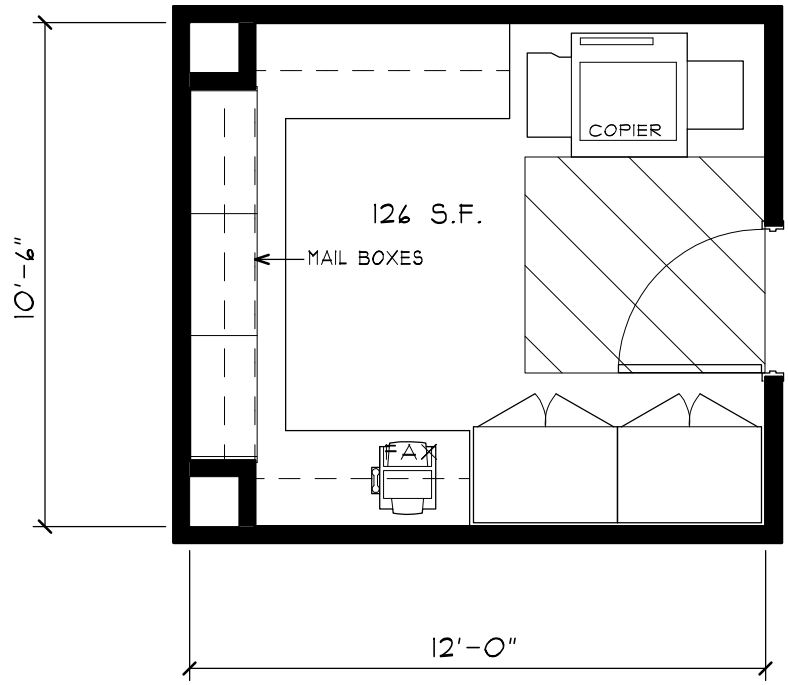
31

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# OFFICE SUPPORT

SCALE: 1/4"

DATE: 4/20/2018

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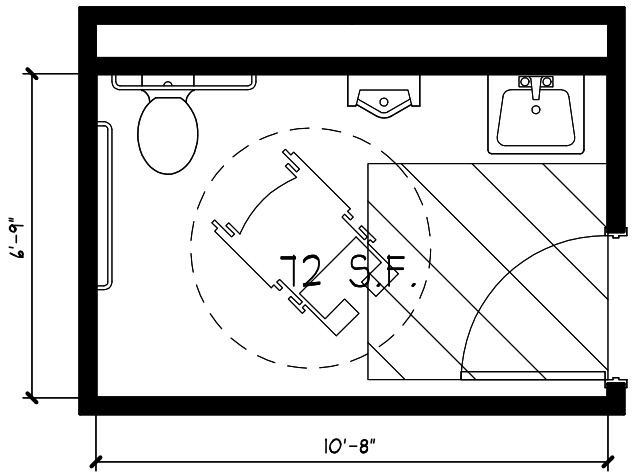
32

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# OFFICE AREA ADA BATHROOM

SCALE: 1/4" = 1'-0"

DATE: 4/20/2018

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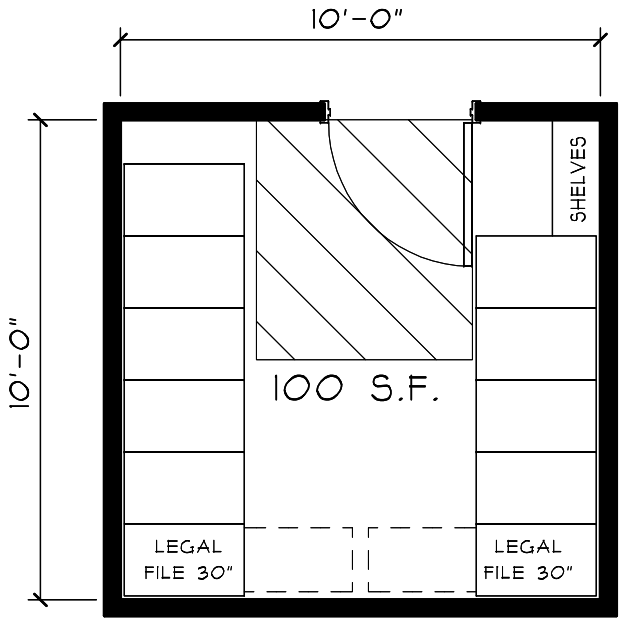
33

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# RECORDS STORAGE

SCALE: 1/4"

DATE: 4/20/2018

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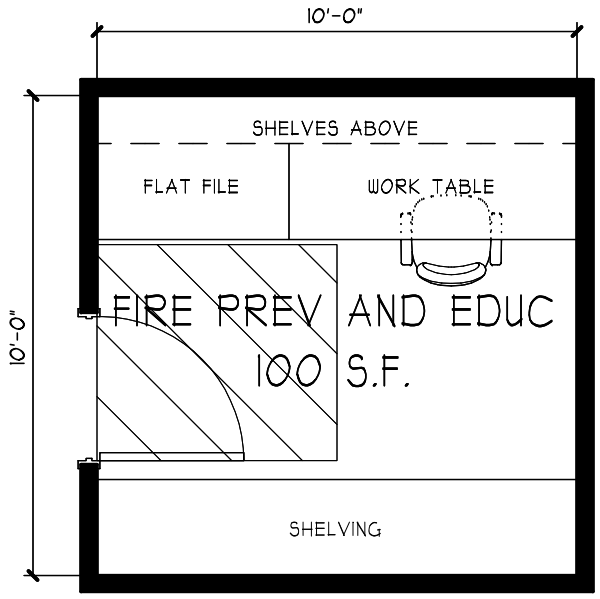
34

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# FIRE PREV. & EDUC. STORAGE

SCALE: 1/4" = 1'-0"

DATE: 4/20/2018

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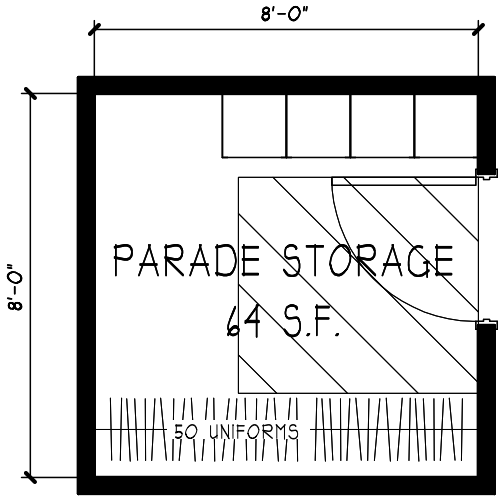
35

ROOM #




MITCHELL ASSOCIATES ARCHITECTS

# PARADE STORAGE

SCALE: 1/4" = 1'-0" | DATE: 4/20/2018

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36

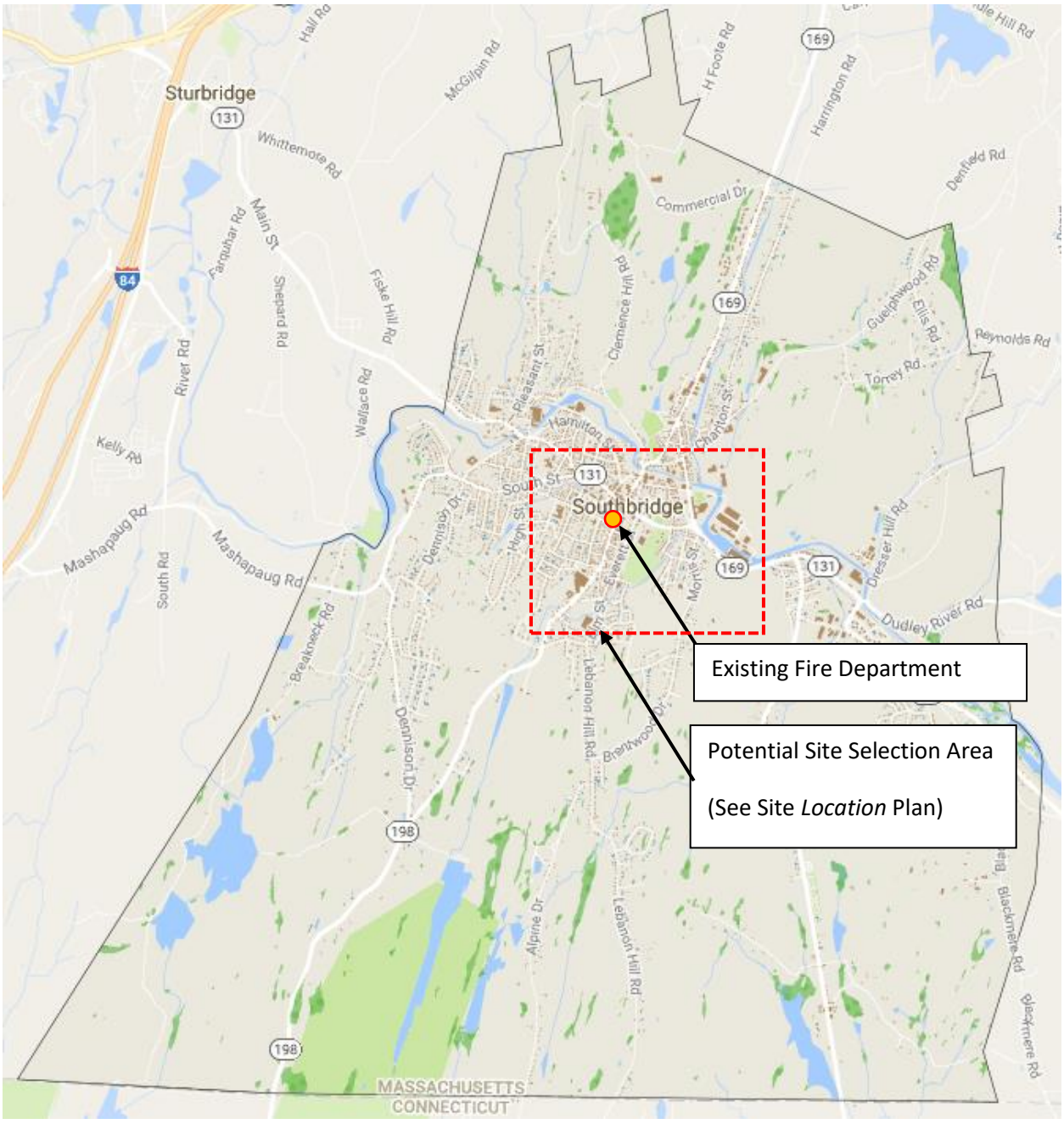
ROOM #

## 5.1 SITE EXISTING CONDITIONS REPORT

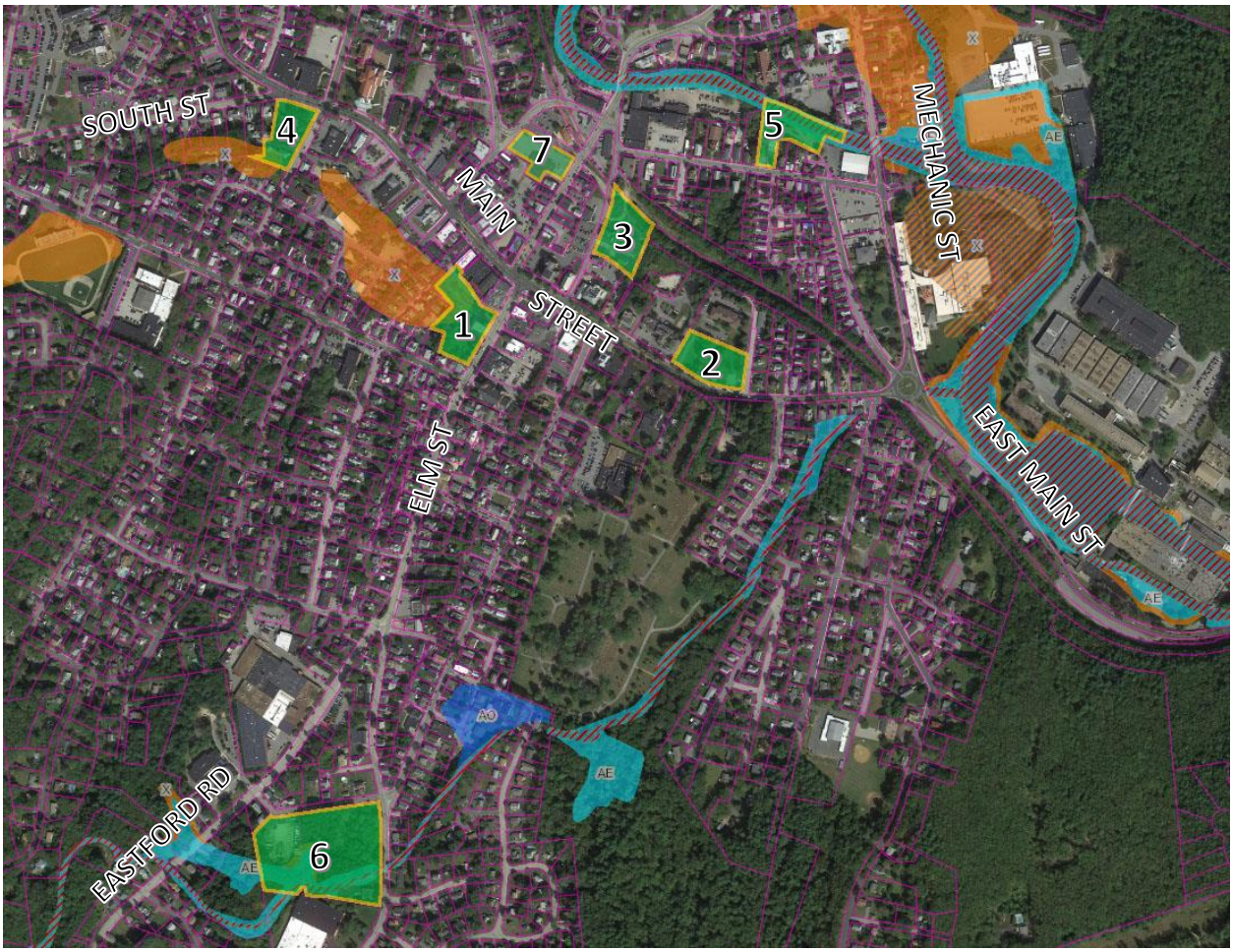
### LOCATION

Six potential sites were selected for review for the construction of a new Fire Headquarters in the center of the Town of Southbridge. The sites were chosen for their availability, constructability and location. All of the sites are located in the proximity of the Town center and range in size from 1.8 to 5.9 acres.

## CONTEXT PLAN

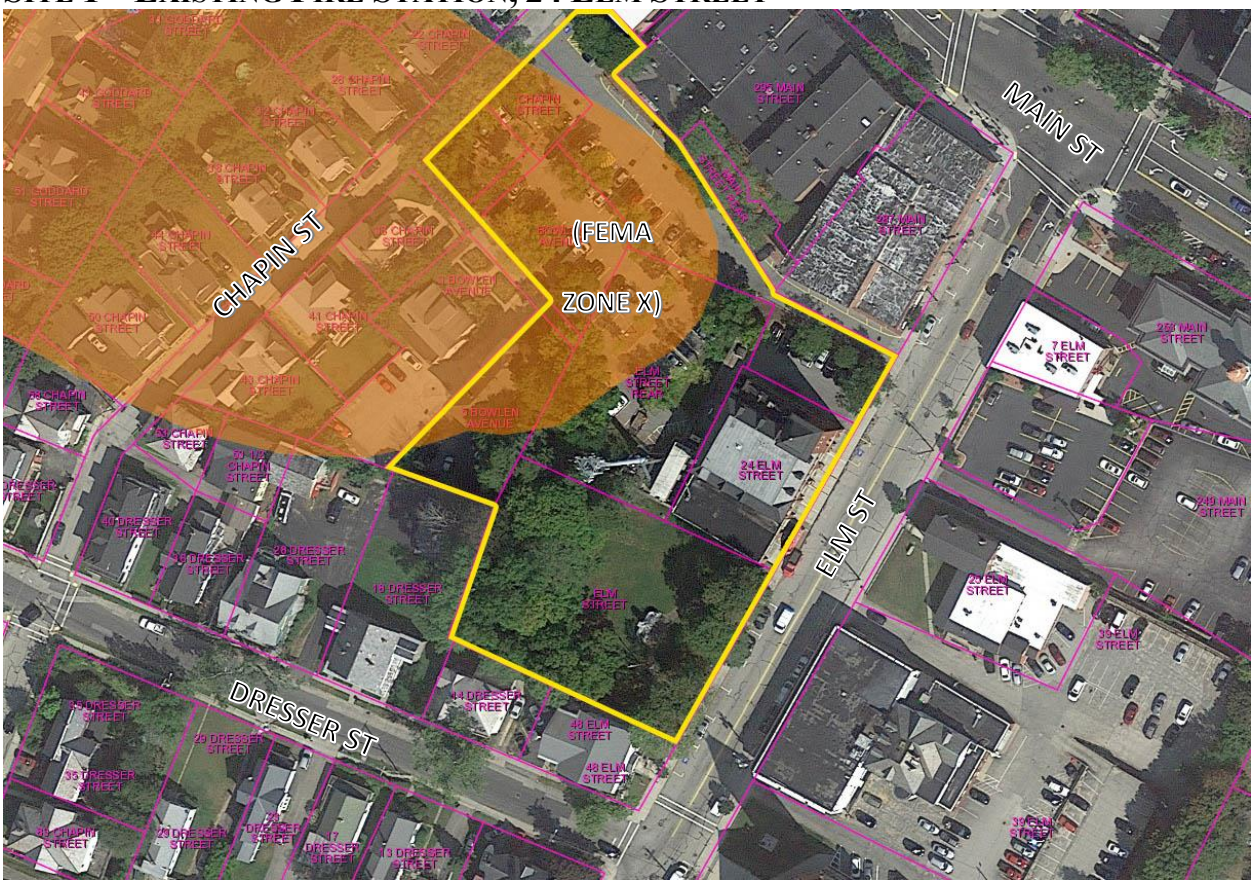


## SITE LOCATION PLAN




1. Existing Fire Station, 24 Elm Street
2. Dresser Park, Main Street
3. Foster Street
4. Beechwood, 495 Main Street
5. 79 North Street
6. Marsh Avenue at Elm Street
7. 67 Central Streetwater

## SITE 1 – EXISTING FIRE STATION, 24 ELM STREET




The site is located in the town center. It is a ±2.6 acre site consisting of 8 parcels located between Elm Street and Chapin Street just south of Main Street in the downtown. The Town of Southbridge owns 7 parcels and one parcel is privately owned. A portion of the overall site is currently occupied by the Southbridge Fire Department. In addition to the existing Fire Department and associated parking, uses on adjacent parcels being considered for the overall site include a park with memorial on Elm Street and a multifamily residence with access from Chapin Street. Three buildings exist within the overall site; the existing fire station and accessory structure, and a multifamily residence. The buildings and associated parking cover approximately 60% of the overall site. The remaining area is park open space.

The parcels with the existing Fire station, parking, and park are zoned General Business within the Central Core District. The parcel with the multifamily residence is zoned Multiple Family. Dimensional regulations for the General Business Zone are:

GB: General Business

| | |
|---|---|
| Max. Building Coverage: | 70% |
| Front Setback: | 10’ |
| Side Setback: | 10’ |
| Rear Setback: | 20’ |
| Max. Building Height: | 60’ (4 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site is generally level along Elm Street and slopes down towards Chapin Street. The existing fire station bays are accessed from Elm Street. There is a small parking area adjacent to the fire station that is accessed from Elm Street. Access to the larger fire station parking lot is via Strand Pl, a connector drive between Elm Street and Chapin Street. There is a ±4-5’ retaining wall at the rear of the fire station separating the fire station from the main parking lot. The parking lot is lower in elevation. The existing radio tower is located in a fenced-in area at the southwest corner of the fire station. The existing park to the south of the fire station contains open lawn area, several mature trees, and a granite memorial and flagpole accessed from the sidewalk on Elm Street. The park is separated from the fire station at the northern boundary by a stone wall. The multifamily house is accessed via Bowlen Ave which connects to Chapin Street. Bowlen Ave also provides access to a multifamily residence adjacent to the site. Good unobstructed site lines exist from the existing fire station ±300’ north to the intersection with Main Street and ±500’ south to a slight curve in Elm Street. Municipal sewer is located in Elm and Chapin Street and municipal water is located in Elm St, Chapin St, Strand Pl and Bowlen Ave.

There are no wetlands, water protection areas or riverfront buffer zones on the overall site. Roughly 50% of the site adjacent to Chapin Street is in the 500-year flood zone (FEMA Zone X: 0.2% Annual chance of flooding). The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). The existing fire station building is listed as SBD.27 in the Massachusetts Cultural Resource Information System (MACRIS) and referred as “Elm Street Fire House.” The building is also listed in the Massachusetts State Register of Historic Places and is listed as a National Register Individual Property and located in a National Register MRA effective 6/22/1989.

Abutting land uses are Commercial/Main Street to the north, Commercial/Elm Street to the east, Multifamily residential/Dresser Street to the south, and Multifamily residential/Chapin Street to the west.

*Fire Station on Elm Street*

*Adjacent parking area and Strand Pl*

*Looking west down Strand Pl*

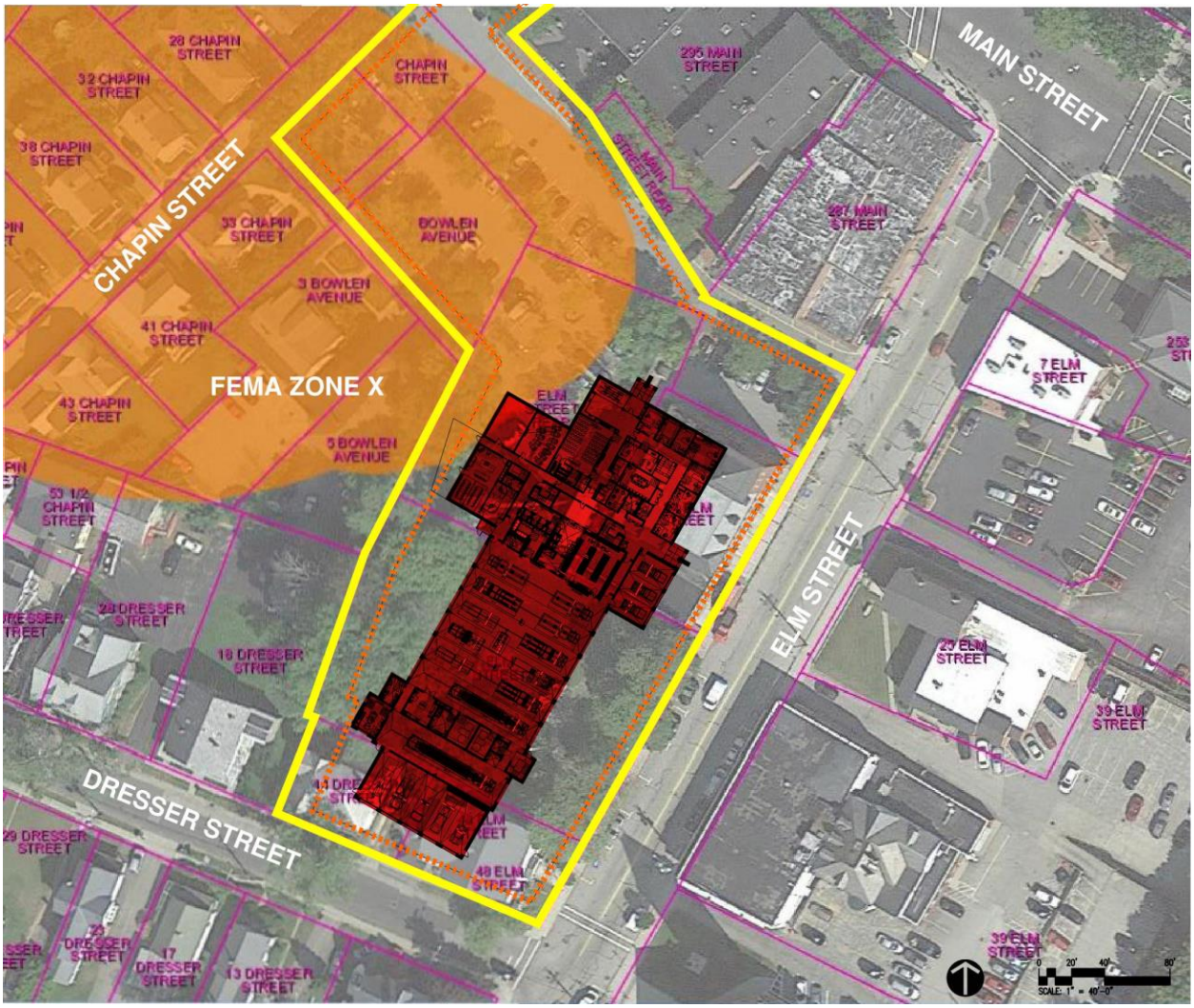
*Existing radio tower*

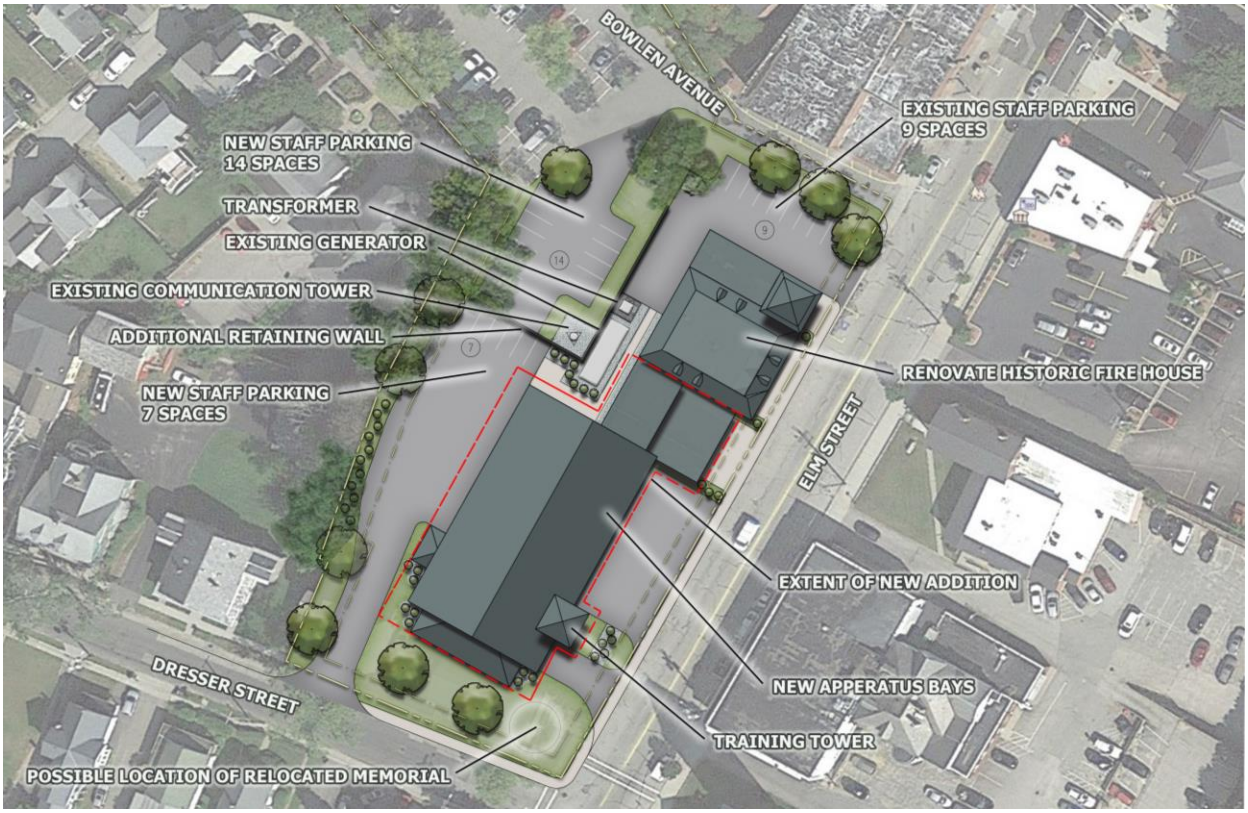
*Retaining wall behind fire station*

*Stone wall at northern edge of park*

*Memorial and flagpole at park*

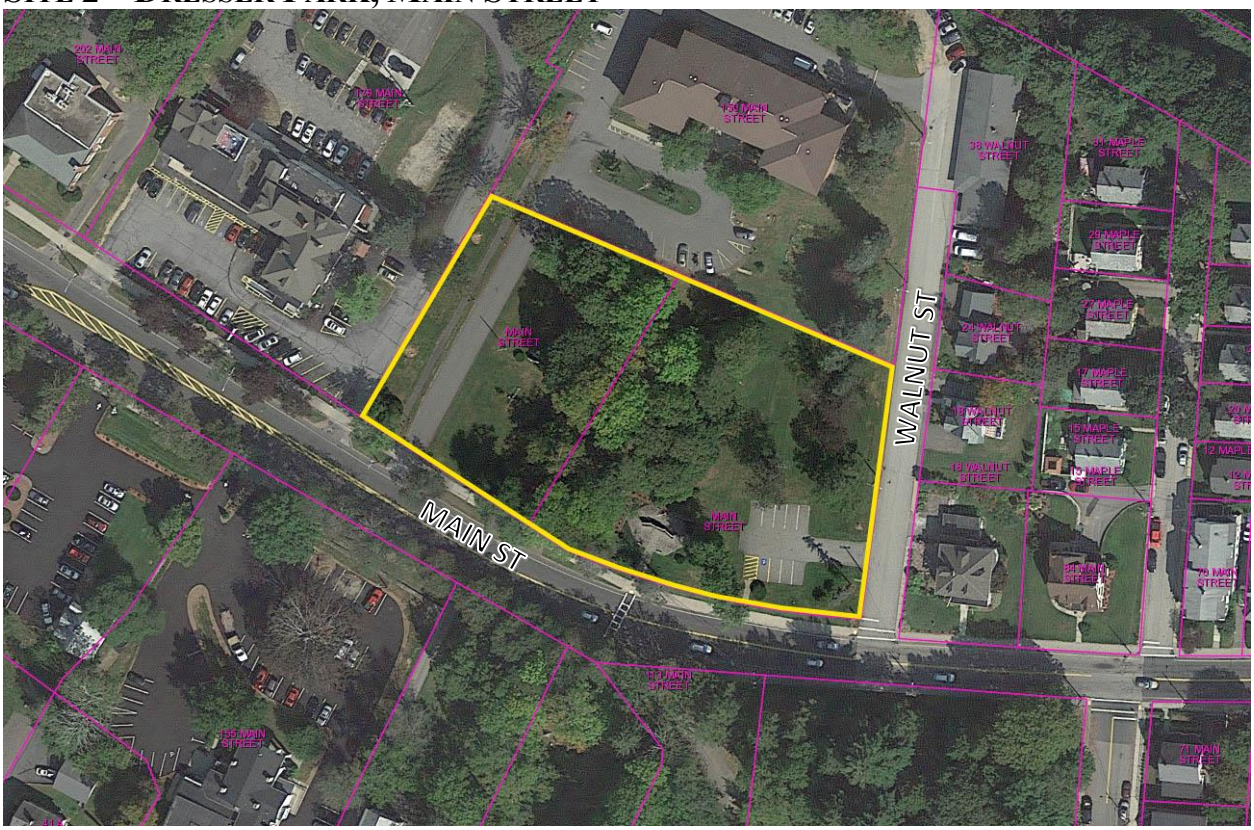
*Main parking lot and multifamily residence*






*Proposed Additions and Renovations tat Elm Street Site*

## SITE 2 – DRESSER PARK, MAIN STREET




The site is located in the town center. It is a ±1.8 acre site consisting of 2 parcels located on Main Street. The Town of Southbridge owns both parcels. The site is currently used as a park and is predominately open lawn with mature trees. There is a drive on the western edge of the site that provides access to an adjacent parcel to the north and a 9-space parking lot in the southeast portion of the site. There are several monuments on site as well as a time capsule marker. The access drive, parking lot and monuments cover approximately 10% of the overall site with the remaining area being open space. The deed to the property states that any future use can be a municipal auditorium, park, or town hall.

The parcels are zoned Two Family. Dimensional regulations for an accessory structure within this zone are:

<u>TF: Two Family</u>

| | |
|---|---|
| Max. Building Coverage: | 30% |
| Front Setback: | 20’ |
| Side Setback: | 10’ |
| Rear Setback: | 10’ |
| Max. Building Height: | 35’ (2.5 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site slopes down from west to east along Main Street and up towards the rear of the site. The access drive to the adjacent parcel to the north is connected through the site to Main Street. The 9-space parking lot is accessed from Walnut Street and appears to service the WWII memorial. There is a grass and concrete access drive off Main Street that terminates in the park. A sidewalk runs along Main Street across the front of the site and there are utility poles with overhead wires across the frontage. Across from the site is a stone arch marking the former access drive to the cemetery. Good unobstructed site lines exist from the site for ±900' in either direction down Main Street. Municipal sewer and water are located in Main Street.

There are no wetlands, water protection areas or riverfront buffer zones on the overall site. There are no areas in a FEMA flood zone. The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). Dresser Park is listed as SBD.903 in the Massachusetts Cultural Resource Information System (MACRIS) and referred as "Dresser Park." Dresser Park is part of SBD.A: Centre Village District Historic District in the National Register District effective 9/7/1979.

Abutting land uses are residential apartments to the north, residential/Walnut Street to the east, cemetery/commercial/Main Street to the south, and commercial to the west.

*Korean and Vietnam Memorial*

*Veterans Auxilliaries Memorial*

*Dresser Memorial Park Monument*

*WWII Memorial*

*Stone arch at cemetery across Main St*

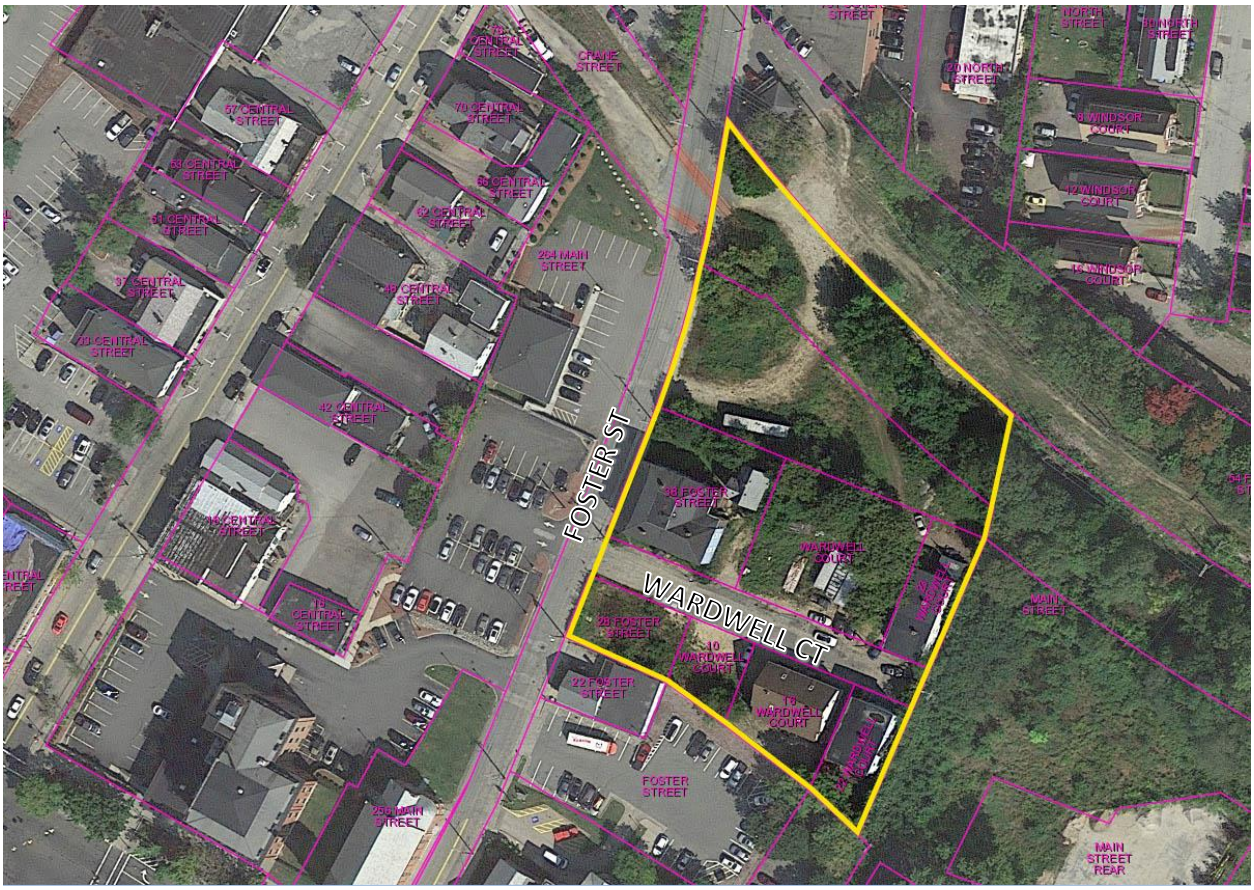
*Time capsule marker*

*9-space parking lot*

*Access drive off Main St into park*


176 MAIN STREET
150 MAIN STREET
38 WALNUT STREET
WALNUT STREET
24 WALNUT STREET
18 WALNUT STREET
16 WALNUT STREET
MAIN STREET
113 MAIN STREET
155 MAIN STREET
SCALE: 1" = 40'-0"

## SITE 3 – FOSTER STREET




The site is located near the town center. It is a ±1.8 acre site consisting of 9 parcels located off Foster Street just north of Main Street in the downtown. The Town of Southbridge owns 2 parcels, the Commonwealth owns 1 parcel, and the rest are privately owned. The site is currently occupied by six multifamily residential buildings that cover approximately 30% of the overall site. The remaining area is open space and dirt lot.

The parcels are zoned Multi-Family. Dimensional regulations for an accessory structure within this zone are:

<u>MF: Multi-Family</u>

| | |
|---|---|
| Max. Building Coverage: | 35% |
| Front Setback: | 15’ |
| Side Setback: | 10’ |
| Rear Setback: | 10’ |
| Max. Building Height: | 35’ (2.5 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site is gradually sloping down from south to north along Foster Street. The existing residential buildings on site are accessed from Wardwell Ct which connects to Foster Street. To the north of the residential buildings is a dirt lot that appears to be used for overflow parking. At the northernmost portion of the site is a contiguous northwest-northeast parcel that is owned by Mass Highway and would require an agreement with the Commonwealth to become part of this overall site. A sidewalk runs along Foster Street across the front of the site and there are utility poles with overhead wires across the frontage. Good unobstructed site lines exist from the site for ±350' in either direction down Foster Street. Municipal sewer and water are located in Foster Street and Wardwell Ct.

There are no wetlands, water protection areas or riverfront buffer zones on the overall site. There are no areas in a FEMA flood zone. The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). There are no structures or areas on site listed in the Massachusetts Cultural Resource Information System (MACRIS).

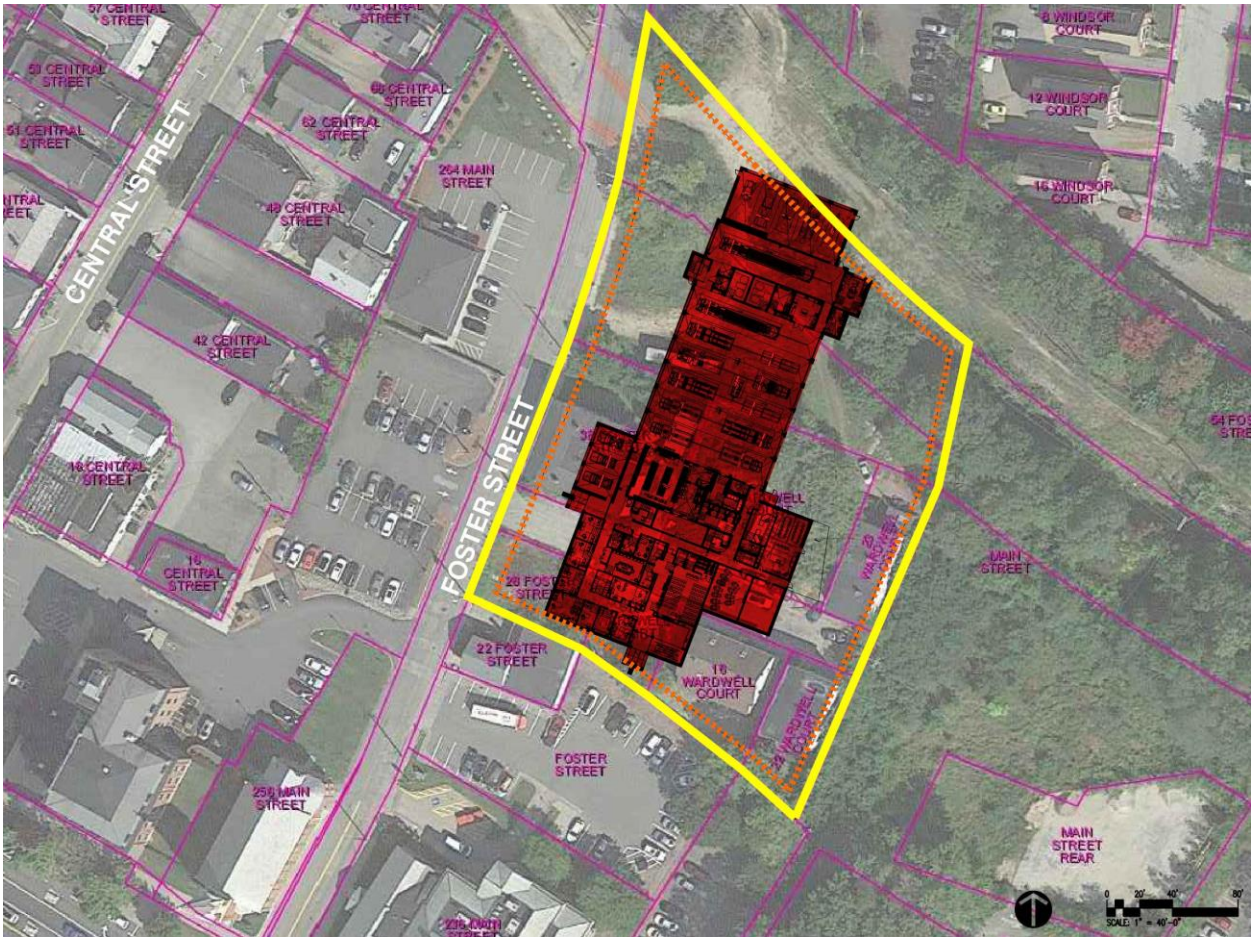
Abutting land uses are commercial to the north, a wooded/brush lot to the east, residence and public library parking lot to the south, and a parking lot/Foster Street to the west.

*Looking east towards residential buildings*

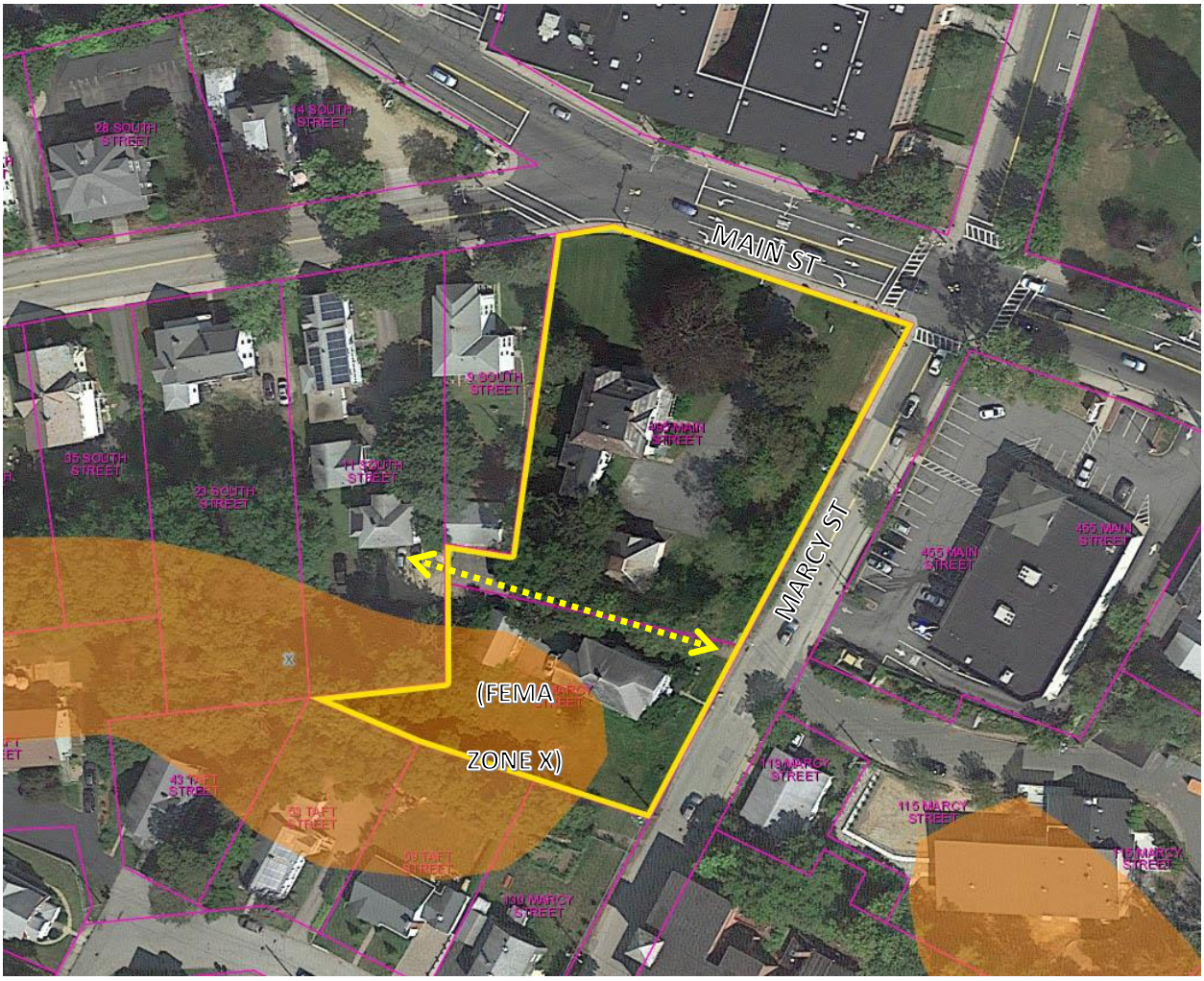
*Looking south down Foster Street*

*Dirt lot at north of site*

*Looking southeast down Foster St at site*


CENTRAL STREET
FOSTER STREET
WARDWELL COURT
MAIN STREET
MAIN STREET REAR
FOSTER STREET
22 FOSTER STREET
16 WARDWELL COURT
42 CENTRAL STREET
16 CENTRAL STREET
49 CENTRAL STREET
62 CENTRAL STREET
264 MAIN STREET
8 WINDSOR COURT
12 WINDSOR COURT
16 WINDSOR COURT

## SITE 4 – BEECHWOOD, 495 MAIN STREET




The site is located in the town center. It is a ±1.5 acre site consisting of 2 parcels located at the corner of Main Street and Marcy Street in the downtown. The 2 parcels are separately owned by private parties. The site is currently occupied by four buildings total, with each parcel having a residence and accessory garage. The buildings and associated pavement cover approximately 35% of the overall site. A driveway runs through the site and provides access to buildings on adjacent parcels to the west which may be subject to an access easement. There is a stream in the southwest corner of the site and the remaining area is lawn and tree vegetation.

The parcels are zoned Two Family. Dimensional regulations for an accessory structure within this zone are:

TF: Two Family

| | |
|---|---|
| Max. Building Coverage: | 30% |
| Front Setback: | 20’ |
| Side Setback: | 10’ |
| Rear Setback: | 10’ |
| Max. Building Height: | 35’ (2.5 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site is gently sloping from west to east along Main Street and slopes down from north to south along Marcy Street. The parcel at the corner of Main Street and Marcy Street has an access drive to Main Street. The main building is an historic residence with a garage structure that terminates the access drive. The parcel is fairly level before sloping down at the back of the garage structure. There is a stone and concrete retaining wall at the southeast edge of the property. There are several mature trees on the property and a vegetated strip at the rear of the garage. The parcel that fronts on Marcy Street contains a residence in poor condition and a garage structure that is accessed via a driveway off Marcy Street. The driveway also provides access through the parcel to buildings on adjacent parcels to the west. The site is fairly level with a gradual slope to the south. At the southernmost boundary of the property runs a stream. A sidewalk runs along Marcy Street for approximately 65’. There are utility poles with overhead wires across the frontage on Marcy Street. Good unobstructed site lines exist in either direction on Main Street. Site lines are less direct on Marcy Street due to the difference in elevation up at Main Street. Municipal sewer and water are located in Main Street and Marcy Street.

Due to the presence of a stream in the southwest corner of the parcel there would be a wetland buffer and riverfront area for any future development. There are no water protection areas on the overall site. Roughly 15% of the site is in the 500-year flood zone (FEMA Zone X: 0.2% Annual chance of flooding). The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). The existing historic residence is listed as SBD.21 in the Massachusetts Cultural Resource Information System (MACRIS) and referred as “Beechwood House.” The building is also listed in the Massachusetts State Register of Historic Places and is listed as a National Register Individual Property and located in a National Register MRA effective 6/22/1989.

Abutting land uses are Wells Jr High School/Main Street to the north, Commercial/Marcy Street to the east, residential to the south, and residential to the west.

*Beechwood residence*

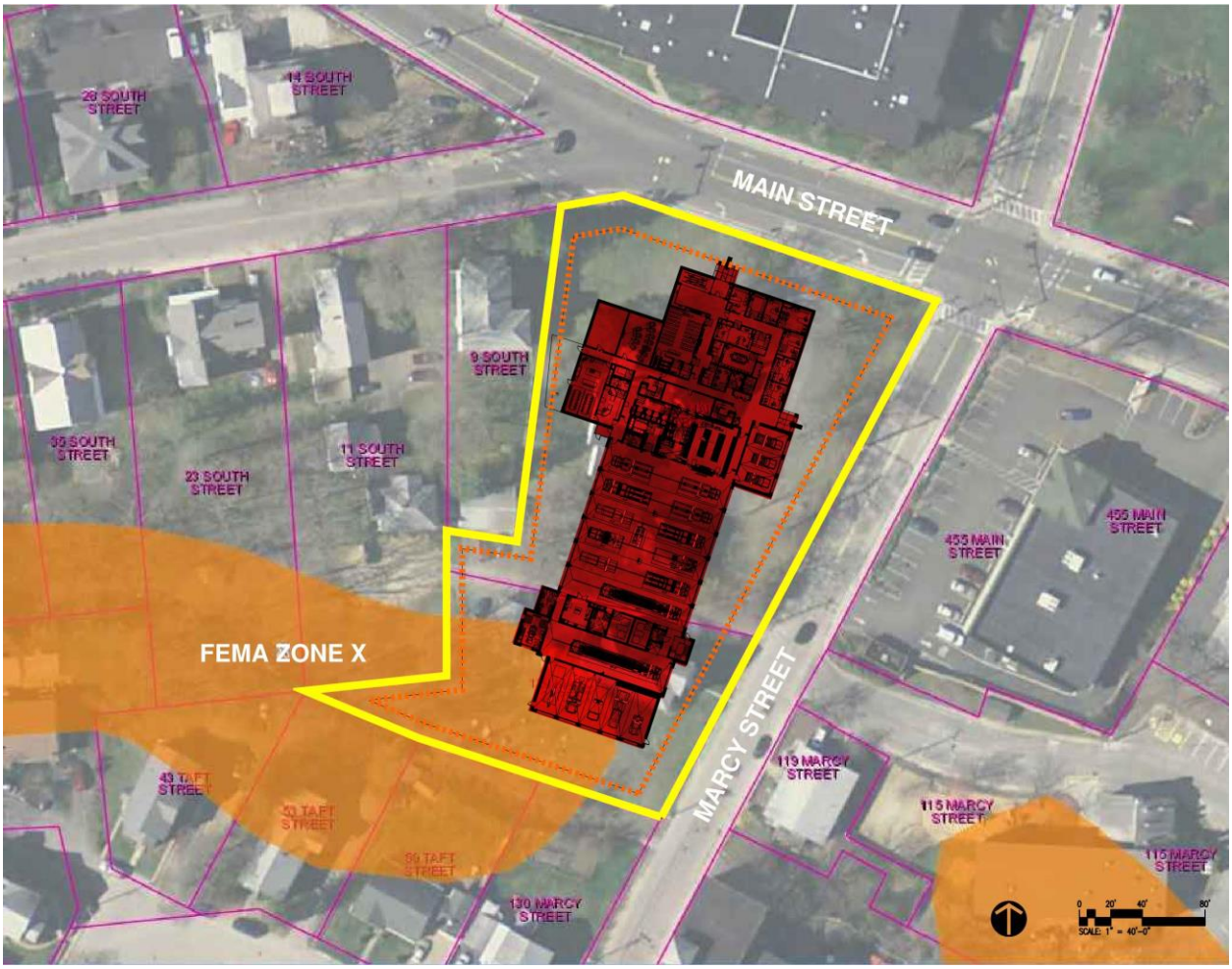
*Beechwood residence, garage, and site*

*Stone and concrete retaining wall*

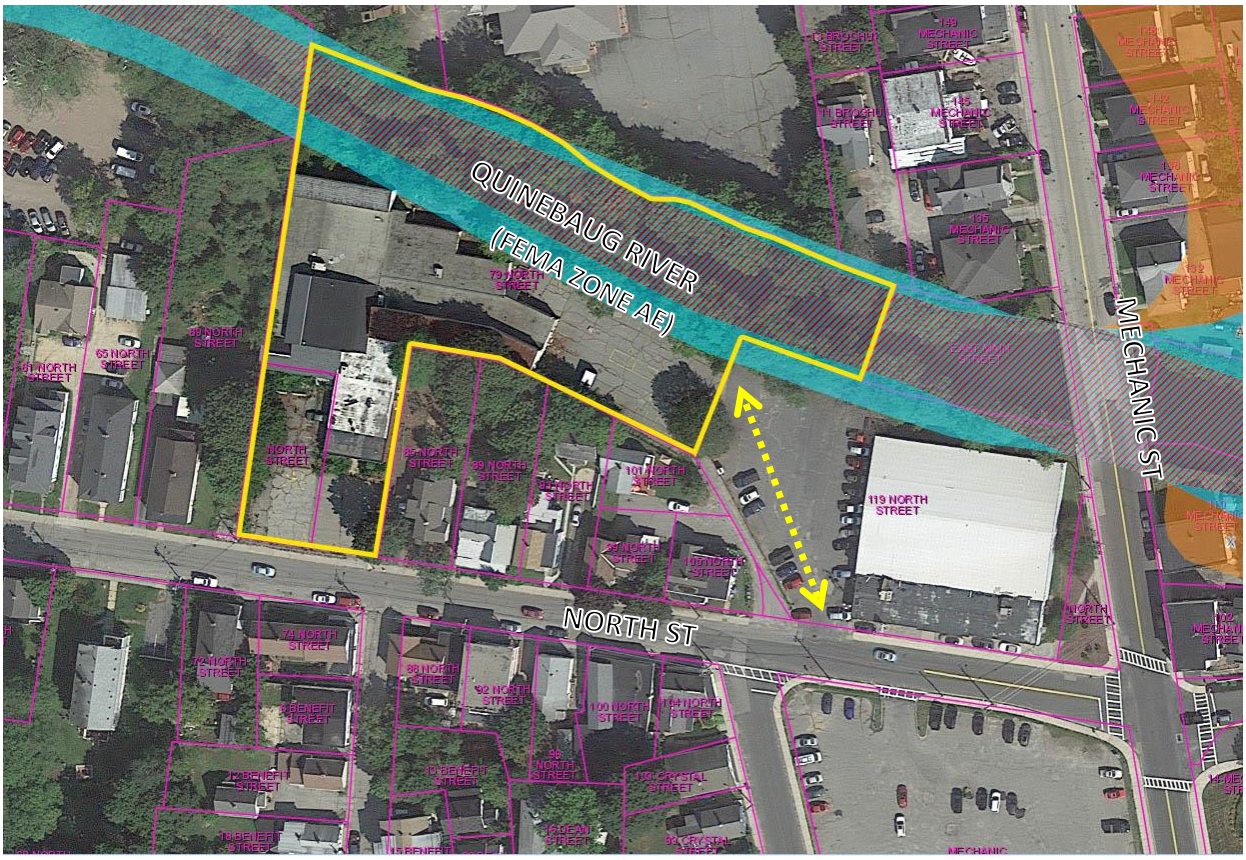
*Residence on Marcy Street*

*Residence on Marcy Street and site*

*Looking north on Marcy Street*


MAIN STREET
MARCY STREET
FEMA ZONE X
28 SOUTH STREET
14 SOUTH STREET
9 SOUTH STREET
35 SOUTH STREET
23 SOUTH STREET
11 SOUTH STREET
453 MAIN STREET
455 MAIN STREET
119 MARCY STREET
115 MARCY STREET
115 MARCY STREET
130 MARCY STREET
43 TAFT STREET
33 TAFT STREET
56 TAFT STREET
SCALE: 1" = 40'-0"

## SITE 5 – 79 NORTH STREET




The site is located within the proximity to the town center just north of the Southbridge Police Department. It is a ±2.16 acre site consisting of 2 parcels located on North Street. The parcels are owned by a private party. The site is currently occupied by one building. The building and associated pavement cover approximately 60% of the overall site. The remaining area is the Quinebaug River and tree cover.

The parcels are zoned Heavy Industry. Dimensional regulations within this zone are:

<u>TF: Heavy Industry</u>

| | |
|---|---|
| Max. Building Coverage: | 50% |
| Front Setback: | 30’ |
| Side Setback: | 10’ |
| Rear Setback: | 20’ |
| Max. Building Height: | 60’ (6 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site is generally level along North Street. The rear of the site slopes down dramatically towards the river and is mostly vegetated slopes. There is a parking lot in front of the building with access to North Street. A secondary access through the parking lot on the adjacent parcel is provided through an access easement. The site envelopes a cluster of 6 parcels with residences on North Street. A sidewalk runs along North Street. Good unobstructed site lines exist in either direction on North Street, however North street narrows and gets considerably more residential in nature as it heads west. Municipal sewer and water are located in Mechanic Street and North Street.

Due to the presence of the Quinebaug River at the rear of the site there would be a wetland buffer and riverfront area for any future development. There are no water protection areas on the overall site. Roughly 30% of the site is in the 100-year flood zone (FEMA AE: 1% Annual chance of flood, with Base Flood Elevations (BFE). The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). There are no structures or areas on site listed in the Massachusetts Cultural Resource Information System (MACRIS).

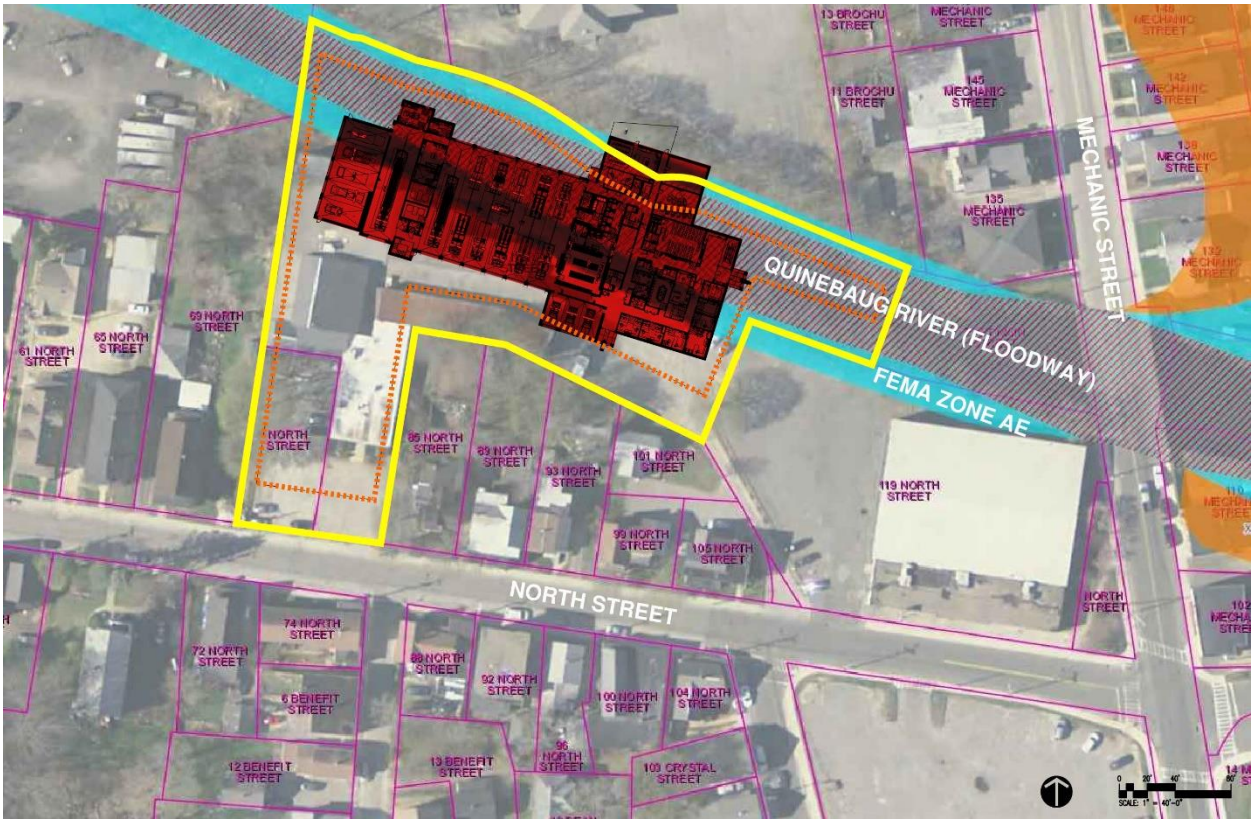
Abutting land uses are the Quinebaug River to the north, commercial to the east, residential/North Street to the south, and residential to the west.

*Corner of North St and Mechanic St*

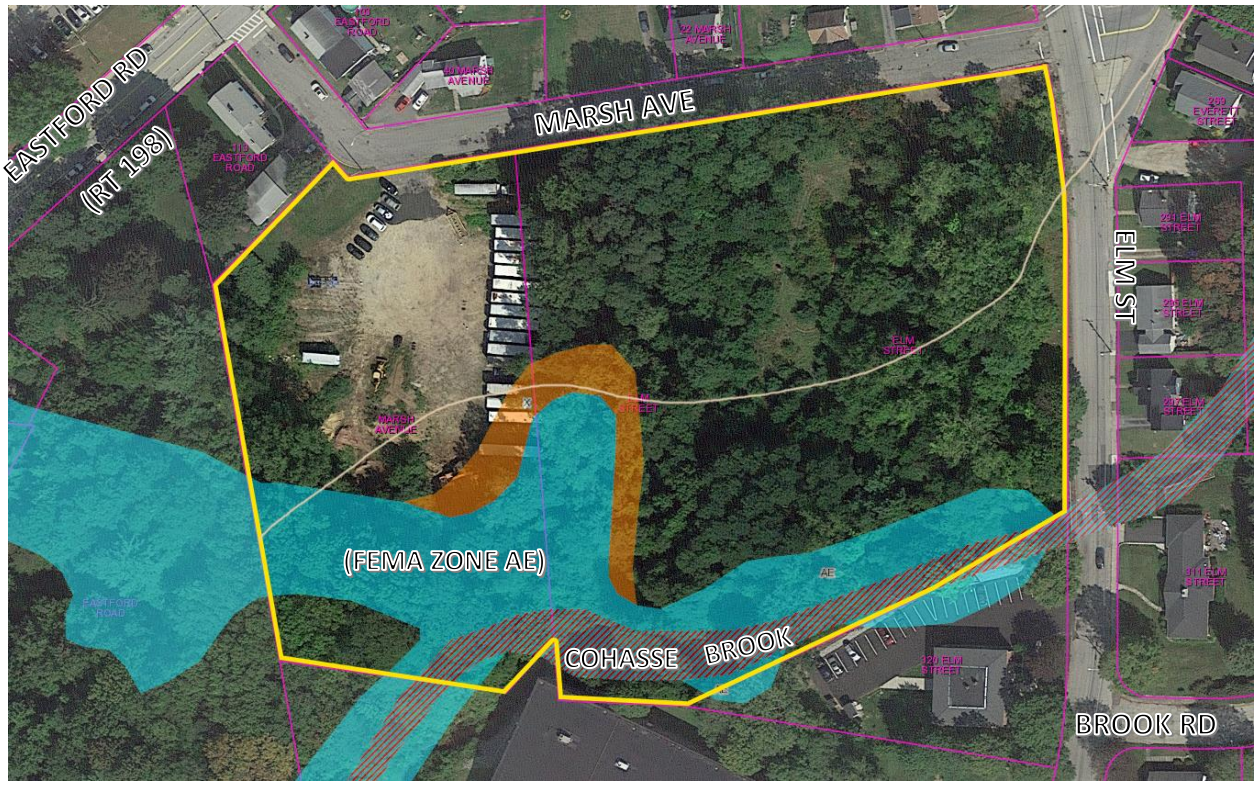

*Quinebaug River at rear of site*


*Looking east down North St*


*Looking west down North St*



## SITE 6 – MARSH AVENUE




The site is located south of the town center. It is a ±5.9 acre site consisting of 2 parcels located at the corner of Marsh Avenue and Elm Street. Both parcels are owned by the same private party. The site has no buildings and is predominately wooded with a small dirt lot. Cohasse Brook flows through the southern edge of the site.

The parcels are zoned Light Industry. Dimensional regulations within this zone are:

<u>TF: Light Industry</u>
Max. Building Coverage: 50%
Front Setback: 30’
Side Setback: 10’
Rear Setback: 20’
Max. Building Height: 60’ (6 stories)
*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*
The site falls within the 200’ Riverfront zoning.

The topography of the site is generally level along Marsh Ave and gently slopes from north to south along Elm Street. The rear of the site slopes down towards Cohasse Brook. There is a dirt lot accessed from Marsh Ave that is currently used for overflow parking and trailer storage. Marsh

Ave connects to Eastford Road (Rt 198) approximately 150' from the site. The remainder of the site is heavily vegetated with brush and trees. Good unobstructed site lines exist in either direction on Elm Street. Municipal sewer and water are located in Mechanic Street and North Street.

Due to the presence of Cohasse Brook at the rear of the site, a wetland buffer and 200' Riverfront area adds constraints for any future development. There are no water protection areas on the overall site. Roughly 40% of the site is in the 100-year flood zone (FEMA AE: 1% Annual chance of flood, with Base Flood Elevations (BFE). The site contains no areas of Critical Environmental Concern (ACEC) or National Heritage & Endangered Species Program (NHESP). There are no structures or areas on site listed in the Massachusetts Cultural Resource Information System (MACRIS).

Abutting land uses are the residential to the north, residential/Elm Street to the east, industrial to the south, and a wooded lot to the west.

*Looking north on Elm St*

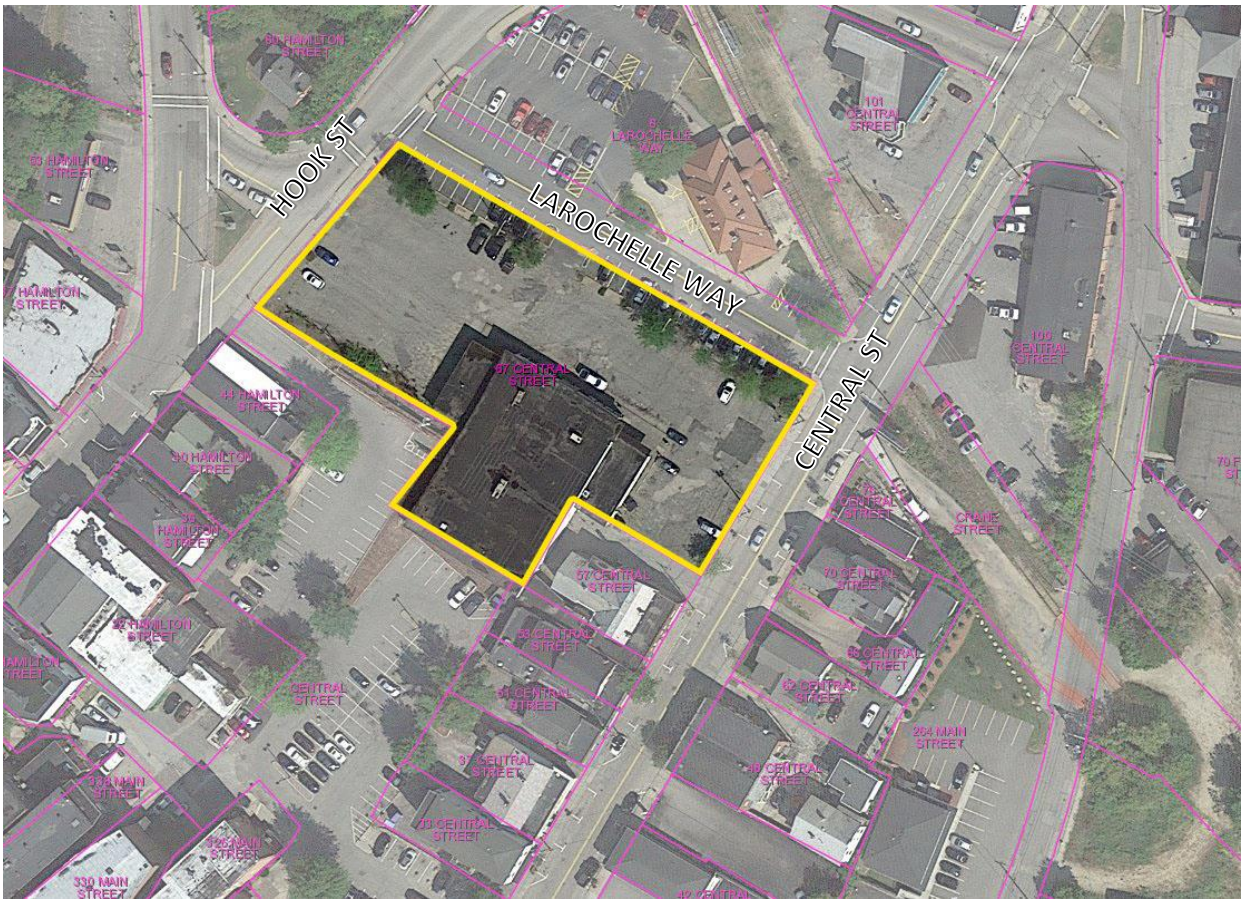
*Looking south on Elm St*

*Looking north on Elm St*

*Cohasse Brook at rear of site*


MARSH AVENUE
EASTFORD ROAD
ELM STREET
200' RIVERFRONT SETBACK
FEMA ZONE X
FEMA ZONE AE
COHASSE BROOK (FLOODWAY)
54 196
54 207
54 195
54 209
54 192
54 193
54 194
54 191
54 184
54 183
54 185
54 186
54 187
54 188
54 189
54 165
54 166
54 167
54 181
54 180
54 179
54 178
54 57
54 58
54 41
54 42
54 43
54 44
53 4
53 3
53 2
53 1

## SITE 7 – 67 CENTRAL STREET




The site is located in the town center. It is a ±1.16 acre site consisting of 1 parcel located between Hook Street and Central Street with Larochelle Way to the North. AK Southbridge Realty Trust owns the parcel. Currently there is a structure on site which is half occupied by the 'Quick Corner Convenience Store' with the other half of the building vacant. The remainder of the site is paved except for a row of Pin Oaks confined to a concrete berm separating the lot from Larochelle Way. There is no lawn or landscape around the structure. The site has vehicular access from Hook Street, Central St, and Larochelle Way.

The parcel is zoned General Business. Dimensional regulations for an accessory structure within this zone are:

<u>GB: General Business</u>

| | |
|---|---|
| Max. Building Coverage: | 70% |
| Front Setback: | 10' |
| Side Setback: | 10' |
| Rear Setback: | 20' |
| Max. Building Height: | 60' (4 stories) |

*A fire station is permitted by right in all zones but subject to Site Plan Review requirements noted in 701.A.1 of the zoning by-laws.*

The topography of the site is generally flat with a slight slope down from Hook Street. Good unobstructed site lines exist from the site for ±550' in either direction down Central Street. Site lines of ±200' exist north on Hook Street and ±400' exist south on Hook Street continuing on Hamilton Street. There are both municipal water and sewer on Hook and Central Streets.

There are no wetlands, water protection areas or riverfront buffer zones on the overall site. From local knowledge there appears to be a piped stream below this parking lot that is not located on any GIS Maps. This site contains no areas of Critical Environmental Concerns (ACEC) or National Heritage & Endangered Species Program (NHESP). There are no structures or areas on site listed in the Massachusetts Cultural Resource Information System (MACRIS).

Abutting land uses are the Massachusetts Registry of Motor Vehicles to the northeast. Abutters to the south and west include 'mixed-use' residential with commercial.

*Looking south on Central St*


*Lookin north on Central st*

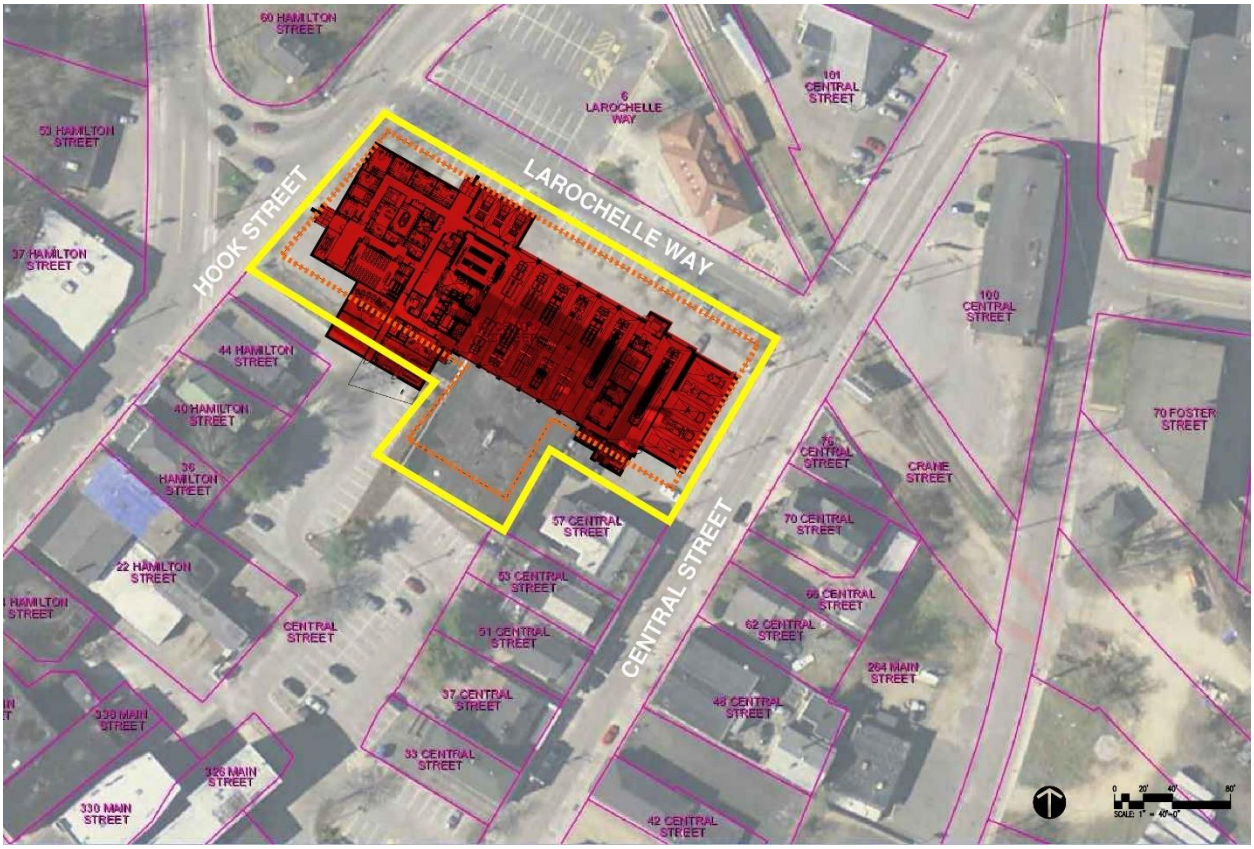
*Looking west from Central St onto the site*

*Lookin south on Hook st*

*Looking north on Hook St*

*Lookin east from Hook st  onto the site*

*Looking south from Larochelle Way onto the site*


60 HAMILTON STREET
6 LAROCHELLE WAY
101 CENTRAL STREET
53 HAMILTON STREET
HOOK STREET
LAROCHELLE WAY
37 HAMILTON STREET
100 CENTRAL STREET
44 HAMILTON STREET
40 HAMILTON STREET
70 FOSTER STREET
76 CENTRAL STREET
CRANE STREET
36 HAMILTON STREET
57 CENTRAL STREET
70 CENTRAL STREET
22 HAMILTON STREET
53 CENTRAL STREET
66 CENTRAL STREET
CENTRAL STREET
51 CENTRAL STREET
62 CENTRAL STREET
CENTRAL STREET
264 MAIN STREET
37 CENTRAL STREET
48 CENTRAL STREET
339 MAIN STREET
33 CENTRAL STREET
326 MAIN STREET
330 MAIN STREET
42 CENTRAL STREET

# Southbridge Fire Study

Site Evalutation 5.2

Southbridge, Massachusetts

| Site Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Site Name | **Existing Fire Station** | **Dresser Park** | **Foster Street** | **Beechwood** | **North Street** | **Marsh Ave** | **Central Street** |
| Address | **24 Elm Street** | **Main St @ Walnut St** | **Foster Street** | **Main St @ Marcy St** | **79 North Street** | **Marsh Ave @ Elm Street** | **67 Central Street** |
| Parcel ID | 047-159 | 036-008 | 036-096 | 048-134 | 036-124 | 054-182 | 35-28 |
| Lot Size | 2.62 Acres (8 Parcels) | 1.8 (2.94) Acres (2 Parcels) | 1.8 Acres (9 Parcels) | 1.5 Acres (2 Parcels) | 2.16 Acres (2 Parcels) | 4.9 Acres (2 Parcels) | 1.16 Acres (1 Parcels) |
| Current Uses | Southbridge Fire Department, Open Space with Memorial, Multifamily Residence | Open Space/Park with Memorial | Residential | Residential | Commercial | Wooded with dirt lot | Grocery store, Vacant store front and paved parking |
| No. of Buildings on Site | 2 | None | 4 | 4 | 1 | None | 1 |
| Ownership | Town of Southbridge and Tracey T Chlapowski | Town of Southbridge | Town of Southbridge, Judith C Leahy, Robert Mason, Timothy Bertrand, Edward Paquette, Michelle Belanger, Center of Hope Foundation, Mass Highway | Thomas Theverthundiyil, US Bank c/o Ocwen Loan Servicing | Fromm Development Inc | Hyde Tools Inc | Southbridge Realty Trust |
| Public or Private | Public and Private | Public | Public and Private | Private | Private | Private | Private |
| Numbers of Owners | 2 | 1 | 8 | 2 | 1 | 1 | 1 |
| Assessed Value | $1,622,900.00 | $68,900 | $901,400 | $464,500 | $489,000 | $176,000 | $88,400 |
| Legal Restrictions | | Deed states future use can be Municipal Auditorium, Park, or Town Hall | | Acess easement from Marcy St across property | Access easement through adjacent property to North Street | | |
| Site Natural Features | | | | | | | |
| Topography | Level along Elm Street, may slope down towards Chapin Street (confirm on site) | Sloping down W/E along Main Street | Sloping down S/N along Foster Street | Gentle slope down W/E along Main Street, Slope down N/S along Marcy Street | Level along North Street | Level along Marsh Ave, slopes down N/S along Elm St | Sloping down off Hook St, level along Larochelle Way and Central St. Retaining wall in rear |
| Soils | Paxton-Urban land complex (Fine Sandy Loam) | Paxton-Urban land complex (Fine Sandy Loam) | Paxton-Urban land complex (Fine Sandy Loam) | Paxton-Urban land complex (Fine Sandy Loam) | Hinckley-Urban land complex (Gravely Sandy Loam) | Paxton-Urban land complex (Fine Sandy Loam) | Paxton-Urban land complex (Fine Sandy Loam) |
| Areas of Critical Environmental Concern (ACEC) | No | No | No | No | No | No | No |
| National Heritage & Endangered Species Program (NHESP) | No | No | No | No | No | No | No |
| Mass Cultural Resource Information System (MACRIS) | Yes - SBD.27 Elm Street Fire House. National Register Individual Property (6/22/89); Nat'l Register MRA (6/22/89); In State Register of Historic Places | Yes - SBD.903 Dresser Park. Part of SBD.A: Centre Village Historic District; In State Register of Historic Places (9/7/79) | No | Yes - SBD.21 Beechwood House. National Register Individual Property (6/22/1989); Nat'l Register MRA (6/22/1989); In State Register of Historic Places | No | No | No |
| Vegetation | | | | | | | |
| Flood Plain | Part of Site in FEMA X: 0.2% Annual Chance of Flooding | No | No | Part of Site in FEMA X: 0.2% Annual Chance of Flooding | Rear of Site FEMA AE: 1% Annual chance of flood, with BFE | Rear of Site FEMA AE: 1% Annual chance of flood, with BFE and Zone X: 0.2% Annual Chance of Flooding | No |
| Vernal pools | None | None | None | None | None | None | None |
| Wetlands | None | None | None | USGS Stream Designation SW corner of parcel 048-133 | Rivers Edge | Cohasset Brook | None |
| Habitat | | | | | | | |
| Well head protection area, Surface Water Protection District | No | No | No | No | No | No | No |
| Ground Water Protection District | No | No | No | No | No | No | No |
| Aquifer Zone (medium & High yield) | No | No | No | No | No | No | No |
| Riverfront & Wetland Buffer Zone | No | No | No | Potential Riverfront buffer | Potential Riverfront buffer | Riverfront & Wetland Buffer Zone | None |

# Southbridge Fire Study

Site Evalutation 5.2

Southbridge, Massachusetts

| Site Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Existing Zoning* | GB: General Business (Central Core District*) and MF: Multiple Family | TF: Two Family (Dim Regs below are for Accessory Structure) | MF: Multi-Family (Dim Regs below are for Accessory Structure) | TF: Two Family (Dim Regs below are for Accessory Structure) | HI: Heavy Industry | LI: Light Industry | GB:General Business |
| Zoning (maximum building coverage) | GB: 70% | 30% | 35% | 30% | 50% | 50% | 70% |
| Miinimum setbacks | GB: Front 10', Side 10', Rear 20' | Front 20', Side 10', Rear 10' | Front 15', Side 10', Rear 10' | Front 20', Side 10', Rear 10' | Front 30', Side 10', Rear 20' | Front 30', Side 10', Rear 20' | Front 10', Side 10', Rear 20' |
| Max building height | GB: 60' (4 stories)** | 35' (2.5 stories) | 35' (2.5 stories) | 35' (2.5 stories) | 60' (6 stories) | 60' (6 stories) | 60' (4 stories) |
| Abutting Land Uses | | | | | | | |
| North Side | Business/Main St | Residential Apartments | Commercial | Jr High School/Main St | River | Residential | Commercial |
| East Side | Business/Commercial/Elm St | Residential/Walnut St | Wooded/Brush Lot | Commercial/Marcy St | Commercial/Mechanic St | Residential/Elm St | Commercial |
| South Side | Multifamily Residential/Dresser St | Public Cemetery/Commercial/Main St | Residence and Public Library Parking | Residential | Residential/North St | Industrial | Commercial |
| West Side | Multifamily Residential/Chapin St | Business/Commercial | Parking Lot/Foster St | Residential | Residential | Wooded Lot | Commercail |
| Vehicular Accessibility | | | | | | | |
| Utility Services Available | | | | | | | |
| Municipal Water or well | Municipal Water | Municipal Water (at Main St) | Municipal Water (at Foster St and Wardwell Ct) | Municipal Water (at Main St and Marcy St) | Municipal Water (at North St and Mechanic St) | Municipal Water (at Marsh Ave and Elm St) | Municipal Water |
| Municipal Sanitary Sewer | Yes | Yes (at Main St) | Yes (at Foster St and Wardwell Ct) | Yes (at Main St and Marcy St) | Yes (at North St and Mechanic St) | Yes (at Elm St) | Yes |
| Electric | | | | | | | Yes |
| Gas | | | | | | | |
| Community Impacts | | | | | | | |
| Environmental Concerns (21-E), AUL | | | | | | | |
| Other Site Features/Comments | | | | | | | |
| Significant Site Specific Construction Costs | | | | | | | |
| Earthwork | | | | | | | |
| Roadways | | | | | | | |
| Utilities | | | | | | | |
| Permits | | | | | | | |
| Mass Highway | | | | | | | |
| Conservation Commission | | | | | | | |
| MEPA | | | | | | | |
| EIR or ENF | | | | | | | |

*Fire Station is permitted by right in all zones but subject to Site Plan Review requirement in 701.A.1 of the by-laws

*Central Core District - Any new use or additional to an existing structure must be authorized by Special Permit. The SPGA shall determine all dimensional regulations based upon review of the site. Maximum height shall be four stories or 40'.

**Southbridge Fire Station Feasibility Study**
Southbridge, Massachusetts

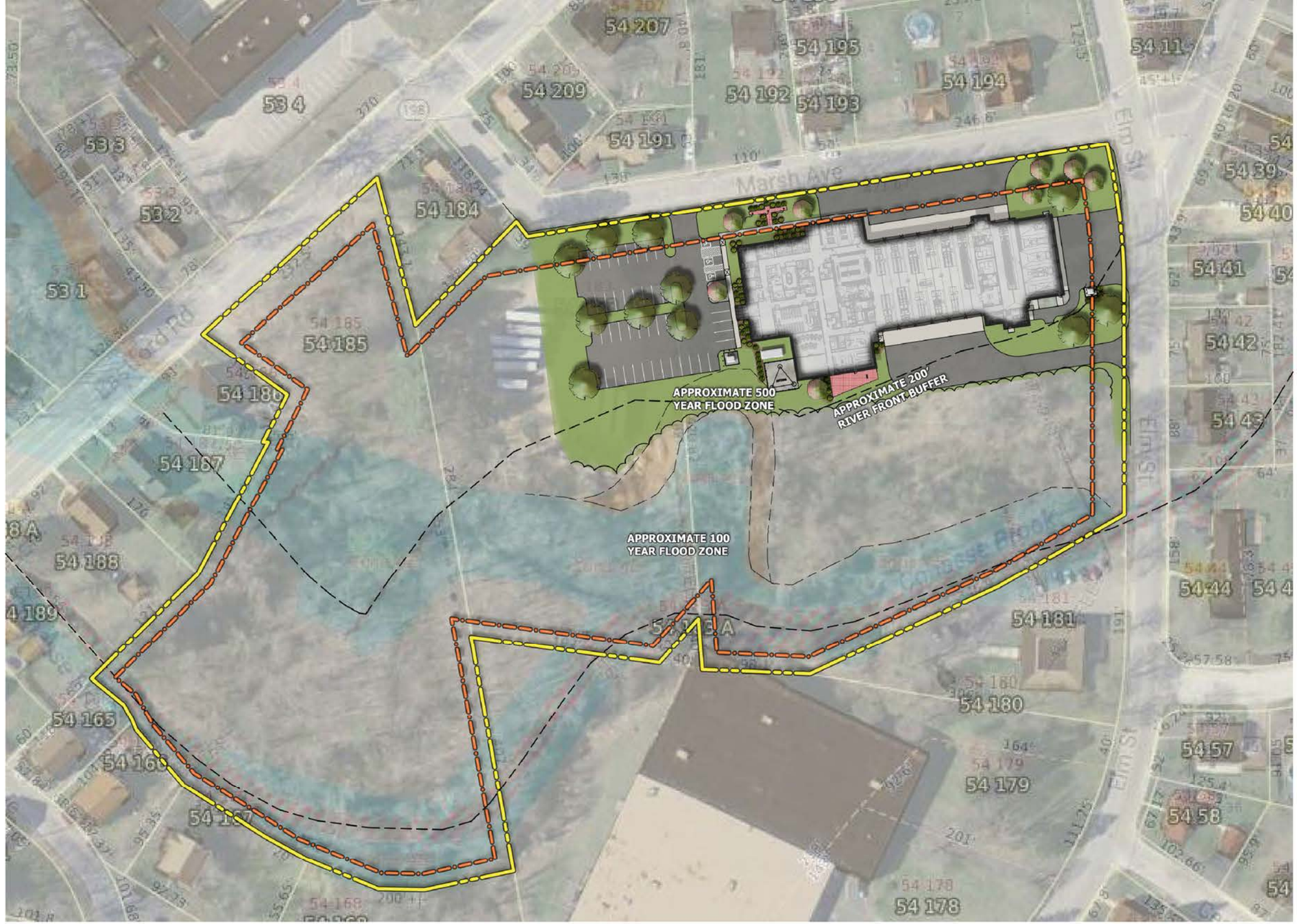
# Site Ratings & Recommendations 5.3

| Site Reference | Total Acreage/Unusable Land | General Location/Geographical Position | Traffic/Impact/Access | Topography | Wetlands/watercourses | Soils/Rocks | Municipal water & sewer | Neighborhood impacts | Predevelopment Costs (land acquisition, remediation, clearing, etc.) | Restrictions: Parkland or Historic Considerations | Reuse of previously developed land | Total | Recommendation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Existing Fire Dept | 1 | 5 | 5 | 1 | 3 | 3 | 3 | 5 | 3 | 3 | 3 | **35** | |
| Dresser Park | 0 | 4 | 3 | 3 | 5 | 3 | 3 | 3 | 3 | 0 | 3 | **30** | |
| Foster Street | 0 | 3 | 4 | 3 | 5 | 3 | 3 | 1 | 1 | 5 | 3 | **31** | |
| Beechwood | 0 | 4 | 1 | 3 | 1 | 3 | 3 | 1 | 1 | 0 | 3 | **20** | |
| North Street | 0 | 3 | 4 | 3 | 0 | 3 | 3 | 1 | 1 | 5 | 4 | **27** | |
| Marsh Ave | 5 | 4 | 4 | 5 | 1 | 3 | 3 | 3 | 3 | 5 | 4 | **40** | Recommended Site |
| Central Street | 0 | 4 | 3 | 5 | 3 | 3 | 3 | 2 | 2 | 5 | 3 | **33** | |

| | |
|---|---|
| 0 | Not Possible |
| 1 | Less Favorable |
| 3 | Neutral |
| 5 | More Favorable |
| | |
| | Recommended Site |

KAESTLE BOOS associates, inc

Revised 07/16/2018




**17048.00**

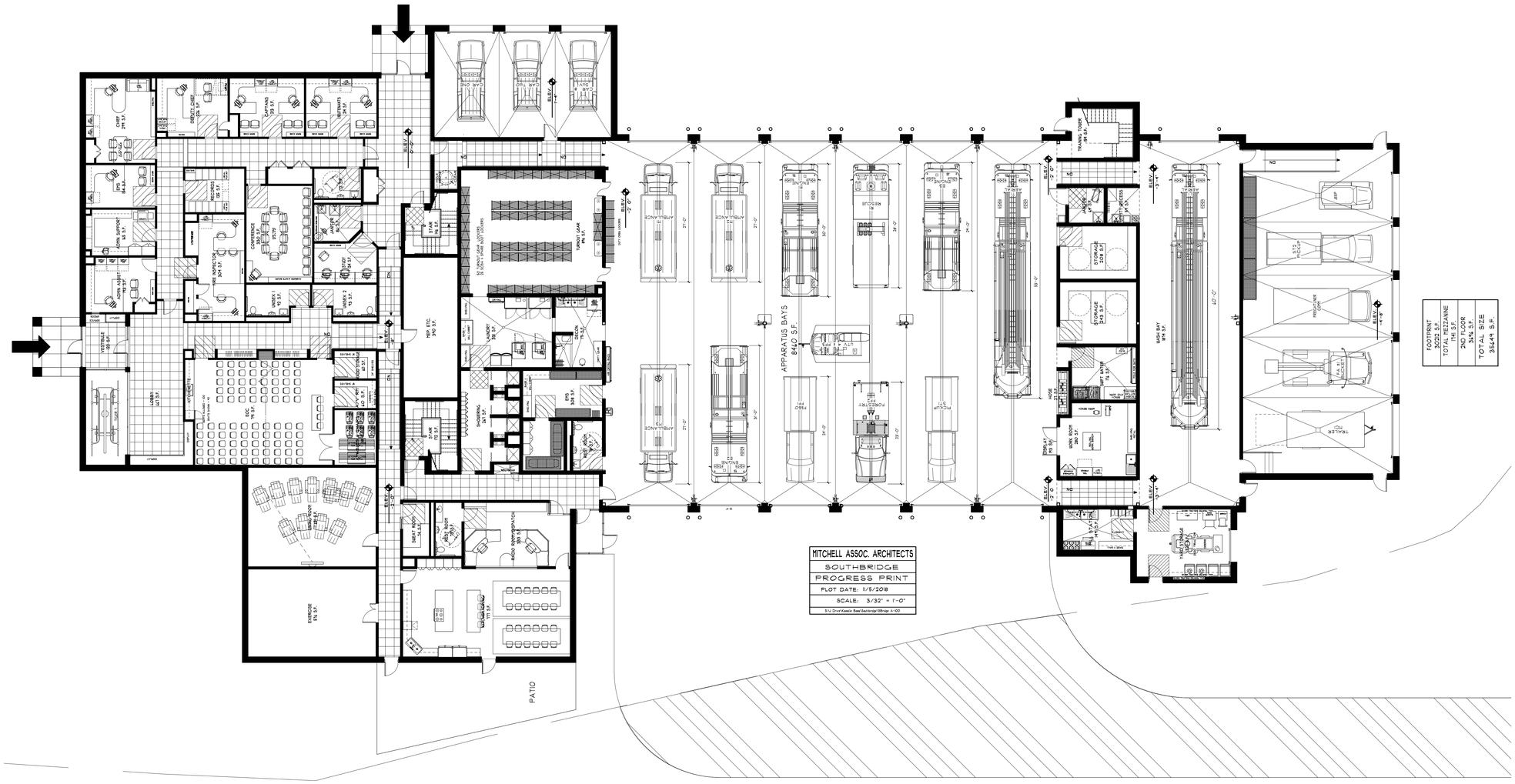
0 20' 40' 80'
SCALE: 1" = 40'-0"

# SOUTHBRIDGE FIRE HEADQUARTERS

**MARSH AVENUE**
**SOUTHBRIDGE, MA 01550**

June 26, 2018

MITCHELL ASSOCIATES ARCHITECTS
KAESTLE BOOS associates, inc




KAESTLE BOOS
associates, inc

416 Slater Road, P.O. Box 2590, New Britain, CT 06050-2590
Phone: 860-229-0361 △ Fax: 860-229-5303

325 Foxborough Boulevard, Suite 100, Foxborough, MA 02035
Phone: 508-549-9906 △ Fax: 508-549-9907

Email: kba@kba-architects.com △ Web: www.kba-architects.com

CONSTRUCTION / PROGRAM MANAGER

MA MITCHELL Associates Architects
FIREMATIC CONSULTANT

FOR ALL ABBREVIATIONS, SYMBOL LEGENDS, AND GENERAL NOTES SEE SHEET R0.01

SOUTHBRIDGE FIRE DEPT. MASS.

# SOUTHBRIDGE FIRE HEADQUARTERS

MARSH AVE
SOUTHBRIDGE. MA 01550
**153-0051 EA**

PROJECT NO.: DRAWN BY: TNL

# 1ST FLOOR PLAN

DRAWING NO.:
A100


| MITCHELL ASSOC. ARCHITECTS |
|---|
| SOUTHBRIDGE |
| 2ND FLOOR PROGRESS PRINT |
| PLOT DATE: 11/5/2018 |
| SCALE: 3/32" = 1'-0" |
| S:\1 Drive\Kaestle Boos\Southbridge\SBridge A-100 |

KAESTLE BOOS
associates, inc

416 Slater Road, P.O. Box 2590, New Britain, CT 06050-2590
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SOUTHBRIDGE FIRE DEPT. MASS.

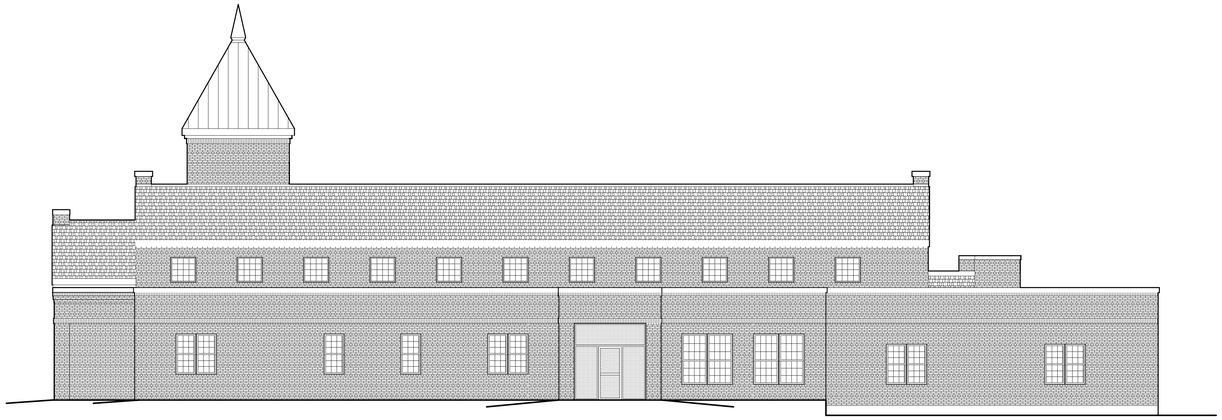
# SOUTHBRIDGE FIRE HEADQUARTERS

MARSH AVE
SOUTHBRIDGE. MA 01550
**153-0051 EA**

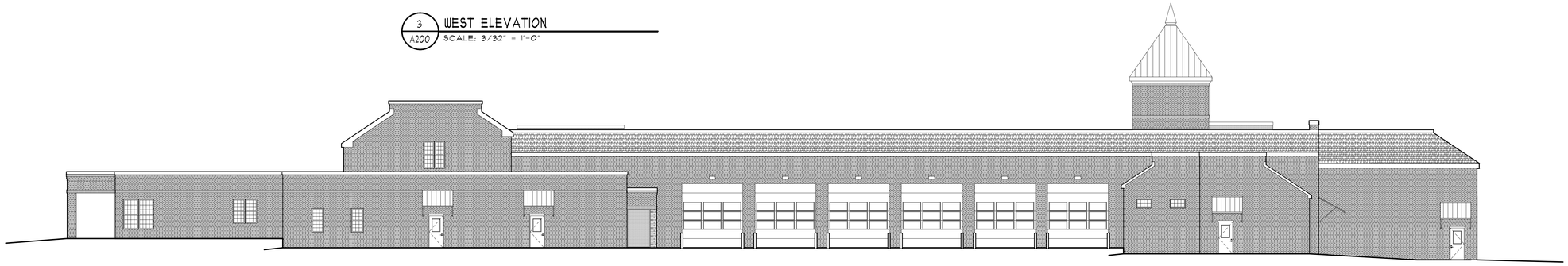
PROJECT NO.: DRAWN BY: TNL

## 2ND FLOOR PLAN

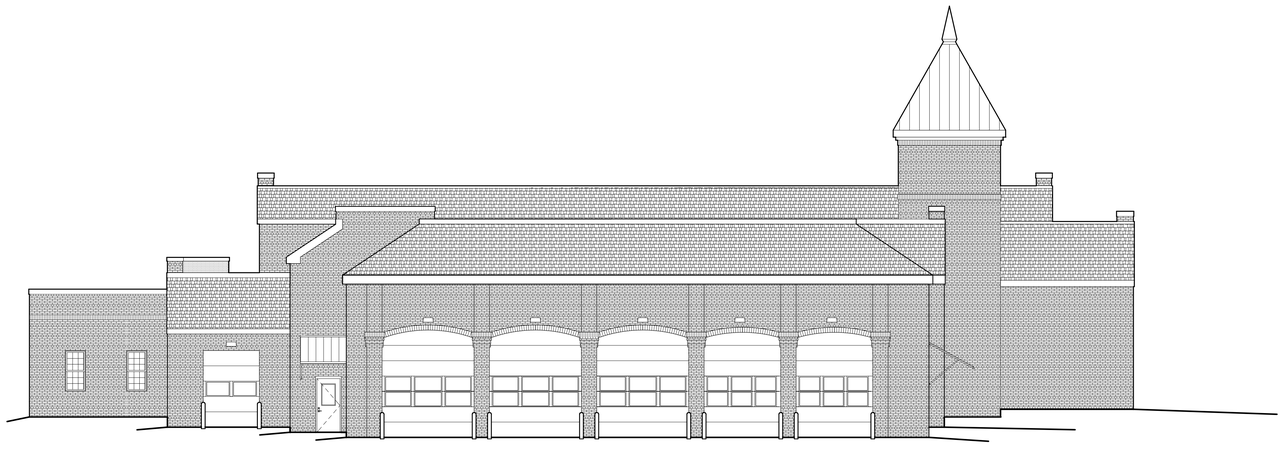
DRAWING NO.:
A101



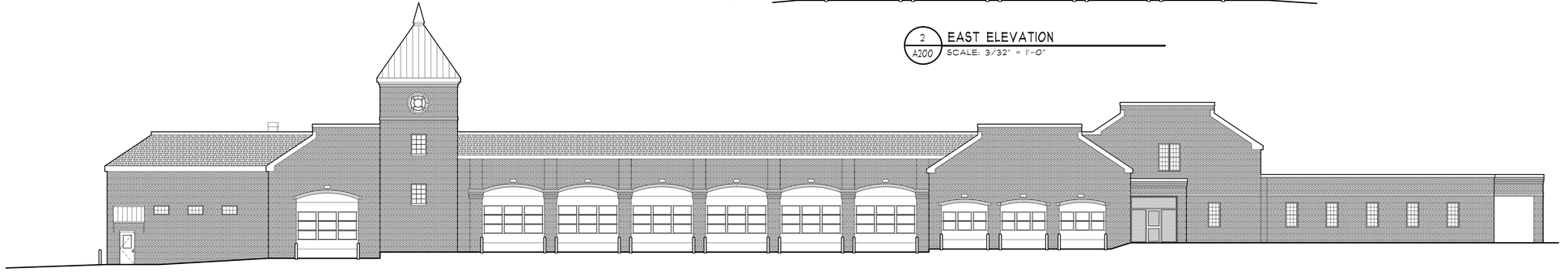
3 A200 WEST ELEVATION
SCALE: 3/32" = 1'-0"



3 A200 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



2 A200 EAST ELEVATION
SCALE: 3/32" = 1'-0"



1 A200 NORTH ELEVATION
SCALE: 3/32" = 1'-0"


KAESTLE BOOS associates, inc

416 Slater Road, P.O. Box 2590, New Britain, CT 06050-2590
Phone: 860-229-0361 △ Fax: 860-229-5303

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Phone: 508-549-9906 △ Fax: 508-549-9907

Email: kba@kba-architects.com △ Web: www.kba-architects.com


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SOUTHBRIDGE FIRE DEPT MASS.

# SOUTHBRIDGE FIRE HEADQUARTERS

MARSH AVE
SOUTHBRIDGE. MA 01550
**153-0051 EA**

PROJECT NO.: DRAWN BY: TNL

## ELEVATIONS

DRAWING NO.:
A200

**New MEP/FP Systems Recommendations**

**New Fire Headquarters**
**At**
**Marsh Avenue**
**Southbridge, MA**

Update: September 27, 2018

Prepared by:

AWE
Air Water Energy
Engineers, Inc.

78 Blanchard Road, Suite 202
Burlington, MA 01803

p: 781.652.8688
f: 781.652.8689

www.awe-e.com

Table of Contents

## New Fire Headquarters Building at Marsh Avenue

### HVAC Recommendations

Option 1: Ground-source Heat Pump System

A. Ground heat exchanger system: Approximately fifty five (55) 6"-diameter, 500' deep vertical boreholes will be drilled in the parking lot area on the west end of the building (the office / admin end). HDPE U-tube ground heat exchangers will be inserted to the boreholes and grouted from bottom up with thermally enhanced bentonite grout. The ground heat exchangers will be ganged into five circuits with reverse return head piping. The five sets of 3" HDPE supply and return piping mains will run 6 feet below grade and enter the main mechanical room. The five sets (10 pipes) will be manifold inside the mechanical room.

B. Approximately twenty (20) water-to-air ground source heat pumps of various sizes will be located above ceiling throughout the building. Total cooling capacity of the heat pumps will be approximately 165 tons. The supply and return ducts of each heat pump will run to the zone served by that heat pump. Each heat pump will have a space temperature sensor to control it for heating or cooling to satisfy the space temperature set point. At any given time, the heating or cooling mode of a heat pump will be depending on the demand of the zone it serves. Condensate from the heat pumps will be piped to the nearest storm line.

C. Radiant floor heating system for the Apparatus Bay: One (1) approx. 30-ton water-to-water ground source heat pump and one (1) 200-gallon hot water storage tank and circulators and accessories will be installed in the main mechanical. A manifold will be installed in the same mechanical room. PEX tubing radiant floor systems will be installed in the concrete floor of the Apparatus Bay. The radiant floor heating system will maintain certain floor slab temperature to provide thermal comfort to the space. The radiant floor heating system will NOT cover the Wash Bay.

D. In the Apparatus Bay area, there will be four (4) water-to-air ground-source heat pumps for supplemental heating during the heating season. By choice, the heat pumps will also provide cooling for the Apparatus Bay during the cooling season. An additional water-to-air ground-source heat pump will be installed in the Wash Bay to provide heating, and, by choice, cooling.

E. The two smaller garages attached to the main building – (1) 3-car garage and (1) 5-car garage – will each be minimally heated with a water-to-air heat pump. There will be no radiant floor heating for these two garages.

F. Geothermal domestic hot water maker: Two (2) approx. 4-ton water-to-water ground source heat pumps will be installed to produce domestic hot water. This hot water maker will be piped to an electric hot water heater (see Plumbing section) to form the domestic hot water system.

G. Two base-mount, end suction ground loop pumps (approx.15 horse power each, one running and one stand-by) will be installed in the main mechanical room. The running ground loop pump will circulate the ground loop condenser water from the loop field to every heat pump, and then return back to the loop field. Every heat pump will have a control valve on the condenser water return pipe. The ground loop pumps will be on Variable Frequency Drives (VFD's).

H. 20% Propylene glycol solution shall be provided for the ground loop condenser water system.

I. Ventilation / Exhaust air: One (1) approx. 10,000 CFM O.A. / 8,000 CFM E.A. Energy Recovery Ventilator (ERV) with integral ground source heat pump unit will be installed on the flat roof near the middle of the building. Outside air, after being treated by the ERV, will be ducted to the return air duct of every heat pump. Exhaust air from toilet rooms, locker rooms, mechanical / electrical rooms and general relief air will be ducted through the ERV before being discharged to outside. The Fans in the ERV will be equipped with VFD's.

J. Apparatus Bay vehicle tailpipe exhaust: A Plymovent system with 11 flex exhaust hose connections (5 bays, 11 vehicles in total) will be installed in the Apparatus Bay.

K. A kitchen hood exhaust fan will be installed on the roof. A matching makeup air unit will be installed on the kitchen roof.

L. Miscellaneous heating: electric cabinet unit heaters will be installed in the entry vestibules.

M. A web-based Direct Digital Control (DDC) Building Management System including automatic temperature control will be provided to control / monitor all the HVAC equipment.

<u>Option 2: Variable Refrigerant Flow (VRF) Heat Pump System</u>

A. Heat recovery type Variable Refrigerant Flow (VRF) heat pump systems will be installed in the building to provide heating and cooling. The total nominal tonnage of the VRF systems will be approx. 165 tons. Each VRF system consists of one outdoor air-cooled condensing unit (ACCU) and multiple indoor fan coil units (FCU). The indoor units will be providing heating or cooling to the corresponding thermal zones to satisfy the space temperature set points.

B. There will be five (5) VRF systems, namely, five ACCU's, each approx. 33-ton capacity, serving the building. Each ACCU will be connected to multiple indoor FCU's with refrigerant piping. The VRF systems will provide adequate number of thermal zones with their own thermostat control. The (5) ACCU's will be either grade-mounted outside, or mounted on the flat roof in the middle of the building.

C. There will be approx. (20) FCU's serving the entire building. The units will be installed above the ceilings with supply and return ducts. At any given time, a FCU may be providing either heating or cooling, depending on the demand of the zone it serves. Condensate from the FCU's will be piped to the nearest storm line.

D. Ventilation / Exhaust air: One (1) approx. 10,000 CFM O.A. / 8,000 CFM E.A. Energy Recovery Ventilator (ERV) with a gas-fired burner for indirect heating will be installed on the flat roof in the middle of the building. Outside air, after being treated by the ERV, will be ducted to the return air duct of every FCU. Exhaust air from toilet rooms, locker rooms, mechanical / electrical rooms and general relief air will be ducted through the ERV before being discharged to outside. The Fans in the ERV will be equipped with VFD's.

E. Radiant floor heating system for the Apparatus Bay: One (1) gas-fired, high-efficiency hot water boiler, approx. 500,000 BTU/HR input, with circulators and accessories will be installed in the mechanical room at the west side of the building. A manifold will be installed in the same mechanical room. PEX tubing radiant floor systems will be installed in the concrete floor of the Apparatus Bay. The radiant floor heating system will maintain certain floor slab temperature to provide thermal comfort to the space.

F. Fin-tube radiators will be installed in the perimeters for the rest of the building to provide supplemental heating. Two (2) inline pumps (one running and one stand-by) will distribute hot water from the gas-fired high efficiency hot water boiler to the radiators.

G. Chemical treatment will be provided to the hot water heating system.

H. In the Apparatus Bay area, there will be four (4) FCU's for supplemental heating during the heating season. By choice, the FCU's will also provide cooling for the Apparatus Bay during the cooling season.

I. Apparatus Bay vehicle tailpipe exhaust: A Plymovent system with 11 flex exhaust hose connections (5 bays, 11 vehicles in total) will be installed in the Apparatus Bay.

J. Miscellaneous heating: hot water cabinet unit heaters will be installed in the entry vestibules.

K. A web-based Direct Digital Control (DDC) Building Management System (BMS) will be installed to control and monitor the systems. The BMS will interface with manufacturer provided DDC interfaces of the ERV's and the VRF systems, allowing for remote control, monitoring and trouble-shooting.

<u>Option 3: Central VAV Air-handling and Perimeter Radiation Systems</u>

A. Two (2) packaged DX rooftop air-handling units (AHU), each approx. 85 tons, will be installed on the flat roof in the middle of the building. The units will be equipped with

supply and return fans with VFD's. A gas-fired indirect heat burner will be part of each packaged rooftop unit.

B. Approx. twenty (20) VAV boxes with integral hot water heating coils and sound attenuators will be installed throughout the building above the ceilings. Each VAV box will be wired to a space temperature sensor that controls the temperature of the corresponding thermal zone served by the VAV box.

C. Supply and return ducts will run off of the rooftop units throughout the building. The inlets of VAV boxes will be connected to branch supply ducts; the outlets of the VAV boxes will be connected to branch ducts that serve multiple rooms in the same thermal zone.

D. Two (2) gas-fired high efficiency condensing hot water boilers, each with approx. 500,000 BTU/hr input, with circulators and accessories, will be installed in the mechanical room at the west side of the building.

E. A manifold will be installed in the same mechanical room. PEX tubing radiant floor systems will be installed in the concrete floor of the Apparatus Bay. The radiant floor heating system will maintain certain floor slab temperature to provide thermal comfort to the space.

F. Two (2) base-mount end suction hot water pumps, each approx. 3 horsepower, will be installed in the mechanical room. The two pumps, one running and one standby, will distribute hot water throughout the building for VAV boxes reheat. VFD's will be provided for the pumps.

G. Two (2) inline pumps, each approx. 1 horsepower, will be installed in the mechanical room. The two pumps, one running and one standby, will provide hot water for the fin-tube baseboard radiators at the perimeter walls.

H. Chemical treatment shall be provided to the hot water system.

I. Apparatus Bay vehicle tailpipe exhaust: A Plymovent system with 11 flex exhaust hose connections (5 bays, with 11 vehicles) will be installed in the Apparatus Bay.

J. Four (4) hot-water unit ventilators will be installed in the Apparatus Bay for supplemental heating. No cooling will be provided for the Apparatus Bay.

K. Exhaust fans will be installed for each individual toilet rooms, janitor's closets, locker rooms, mechanical and electrical rooms, and storage rooms when applicable.

L. Miscellaneous heating: hot water cabinet unit heaters will be installed in the entry vestibules.

M. A web-based Direct Digital Control (DDC) Building Management System (BMS) will be installed to control and monitor the systems. The BMS will interface with manufacturer

provided DDC interfaces of the ERV's and the VRF systems, allowing for remote control, monitoring and trouble-shooting.

Comparison of HVAC Lifecycle Costs

| | | Option 1: Ground-source Heat Pump System | Option 2: VRF System + Perimeter Hot Water Heating | Option 3: Central VAV AHU + Perimeter Hot Water Heating |
|---|---|---|---|---|
| **Energy Cost** | | $2,657,715 | $3,407,004 | $4,593,569 |
| **Installation Cost** | Ground Heat Exchanger System | $550,000 | 0 | 0 |
| | Other Equipment | $1,650,000 | $1,815,000 | $1,650,000 |
| **Salvage** | | ($948,984) | ($635,470) | ($577,700) |
| **CO2 Emission** | Amount (tons) | 11,383 | 14,593 | 20,170 |
| | Cost | N/A | N/A | N/A |
| **NPV Lifecycle Cost (25 years)** | | $3,908,731 | $4,586,534 | $5,665,868 |
| **Lifecycle CO2 Emissions Reduction (tons)** | | 8,787 | 5,577 | 0 |
| **Lifecycle Cost Savings (25 years)** | | $1,757,138 | $1,079,334 | 0 |
| **Simple Payback (years)** | | 6.7 | 3.4 | Base |

Assumptions:

1. Building operates 24/7.
2. Energy cost includes heating, ventilation and air-conditioning only.
3. Electricity rate $0.17/kWh.
4. Natural gas rate $1.25/Therm.
5. Inflation rates: Electricity 3%; Natural gas 4%.
6. "Other Equipment" installation cost based on $50/SF for Geothermal & VAV, and $55/SF for VRF.
7. Depreciation schedule based on 39 years for business properties.
8. CO2 emission rate based on 1.34 lbs/kWh national average.

## Electrical Recommendations

Codes

The electrical design will be in accordance with the NEC, IBC and all applicable local codes and ordinances.

Power

A new Three phase electric service will be brought to the site and stepped down to the service entrance voltage of 480Y/277 volts via a utility owned pad mounted exterior transformer located near the facility. The new service shall be a 500A, 480/277V, 3-phase, 4-wire service and shall be coordinated with the local utility. Secondary conductors will be brought into the facility from the pad mounted transformer and terminate in a new main switchboard.

Metering of the electrical service will be in accordance with NGRID regulations.
Distribution within the facility will consist of copper conductors in conduit. Both 480Y/277V panelboards and 208Y/120V panelboards will be utilized as necessary. Disconnects will be provided for all HVAC equipment, etc. as per the NEC.

Emergency Power

A new 400KW, 480Y/277V diesel generator with a belly tank sized for 48 hours of backup shall be provided. The new generator will be sized to provide backup power to 100% of the facility and be housed in an outdoor weatherproof sound attenuated enclosure. The generator will feed a standby automatic transfer switch and a life safety automatic transfer switch. The life safety automatic transfer switch and all life safety panelboards will be located within 2hr rated emergency electrical rooms. The transfer switches will feed new 480/277V and 120/208V panelboards.

Lighting

A complete lighting system consisting of exit and emergency lighting and general room lighting will be provided. All fixtures shall utilize a light-emitting diode (LED) lamp source. The maintained foot-candle illumination levels will be in compliance with the values listed in the Illumination Engineering Society of North America handbook. Highbay LED lighting will be used within the apparatus bay. Controls will consist of occupancy sensors with manual override switches in office type spaces, Lighting control panel with override switches in public and sleeping areas, apparatus bays, garages and any large open areas and manual only controls in process/mechanical/electrical type spaces.

Exit signs will be red LED type with white housings and have battery back-up with self-testing electronics.

Emergency lighting will consist of specific lights located throughout the facility provided with emergency battery ballasts/drivers to provide the code required lighting levels throughout the entire facility.

Exterior lighting will consist of LED wall packs mounted to the building. Luminaries will be full cutoff type with no light output above 90 degrees. Fixtures will be controlled by integral photo-cell for dusk to dawn operation with a manual override switch.

Communications Systems

A complete building backbone distribution system, and horizontal distribution system will be provided. All components necessary, including but not limited to all wiring pathway systems, grounding and backboards for all copper service entrance pairs, outlet boxes, telephone jacks, data jacks and cover plates will be provided. Grounding systems will be provided in accordance with the NEC. All grounding electrode systems will have a maximum resistance to ground of 10 ohms and will be interconnected at a single point. Grounding systems will include the electrical systems ground, equipment grounding and all auxiliary systems grounding such that all systems and components maintain low potential differences.

Fire Alarm

A new voice activated addressable fire alarm system will be installed. The fire alarm system shall include but not be limited to, the following:

1. Manual Fire Alarm pull-stations.

2. Self-adjusting, self-diagnostic intelligent fire alarm smoke and heat detectors in storage areas, and other areas required by code.

3. ADA/MAAB-compliant audio/visual and visual devices.

4. Fire alarm duct smoke detectors for mechanical equipment shut-downs.

5. Supervisory of fire detection and fire protection system.

**Plumbing Recommendations**

A. Domestic Water: Cold Water Systems

1. A single 4" metered domestic water service lines will enter the building in the Mechanical Room. This service will originate from the city water main, location to be identified. This service will also include a backflow preventer as required.

    a. Potable water will serve the toilet areas, water coolers, and the kitchen. Low flow faucets and flush valves will be specified for water conservation purposes.

    b. Non-potable water system will serve make up water for the mechanical systems. This system will contain reduced pressure backflow preventers for HVAC equipment to prevent cross contamination.

1. Water Systems will be distributed above the ceiling and be distributed horizontally. Each branch take-off from water main will include a shut-off valve.

2. The cold water system is designed to meet or exceed the requirements of the Massachusetts State Plumbing Code (248 CMR).

3. The following is a list of design assumptions that have been made for this project:

    a. Incoming Domestic Water temperature is 40 degrees (F).
    b. Adequate water pressure and supply is available.

B. Domestic Water: Hot Water Systems

1. The water heater will be located in the Mechanical Room. Cold water supply to the hot water systems will be taken after the water meter and supplied to the water heater.

2. Potable Hot Water System:

    a. An Electric Water Heater with 200 Gallons of storage capacity and a recovery rate of 100 Gallons Per Hour (GPH) @ 80 degrees will be installed in the mechanical room. Hot water will normally be generated by the (2) ground-source heat pumps (see HVAC section); the electric element in the water heater will serve as supplemental / backup for domestic water heating.

    b. Potable hot water temperature output will be 120 degrees (F).

    c. Potable hot water will be distributed to all areas where public supply is used, i.e. toilet cores and kitchenettes. Lavatory faucets will be provided with mixing valves to reduce water temperature to 110 degrees (F) at each station.

3. Hot water systems will be provided with a hot water recirculating loop and a pump originating at the water heater in the Mechanical Room.

4. The hot water system is designed to meet or exceed the requirements of the Massachusetts State Plumbing Code (248 CMR).

C. Sanitary & Vent System

1. A complete sanitary waste and vent system serving all plumbing fixtures, kitchen equipment, and floor drains will be provided. A six inch (6”) sanitary sewer will exit the building by gravity and will extend to a point 10’ – 0” outside the foundation wall. Continuation of the sanitary sewer will be by site utilities.

2. Pipe and fittings below ground shall be service weight cast iron hub and spigot pipe with resilient gaskets. Pipe and fittings aboveground shall be cast iron hubless pipe

with stainless steel couplings, service weight cast iron hub and spigot with resilient gaskets or DWV copper pipe with soldered joints.

3. A duplex sewage ejector will be provided if the building sanitary system cannot be drain by gravity.

D. Storm Water System

1. A 6” storm water line will be provided to connect the roof drains for the flat roof portion of the building. The storm line will run inside of the building, go underground and exit the building through the foundation wall to 10’ from the exterior wall.

2. Rain water for the slop roofs will be via scuppers and downspouts and connect to downspout boots at multiple locations.

E. Plumbing Fixtures: All plumbing fixtures shall be low flow type fixtures. The following are fixture requirements:

1. Toilets: 1.28 GPF, Battery Sensor Operated Flush Valve
2. Lavatory Faucets: Battery Sensor, 0.5 GPM
3. Kitchen/Craft Sink Faucet: 1.5 GPM Max. Flow
4. Urinals: 1/8 GPF Min to 0.5 GPF
5. Shower: Symmons
6. Mop service basin: Fiat
7. Washing machine
8. Dishwasher

**Fire Protection Recommendations**

A. New Fire Service: A new 8" Fire Service (estimated) main will be provided below ground and will enter into the Mechanical Room. The fire service will pass through a new double check valve assembly and will supply the new Automatic Wet Systems. The system will also include one (1) Wet System Alarm Valve. A Fire Department Connection (FDC) will be installed on the front of the building. A visual beacon will also be installed adjacent to the FDC.

B. Automatic Wet Sprinkler System: A new wet sprinkler system will be installed throughout the building. A Floor Control Valve Assembly's will be provided in the building. Fire Alarm signals from the Flow and Tamper switches at the control valve will indicate the zone that has been triggered. Sprinkler design requirements will be as follows:

1. Light Hazard Areas (general floor areas, bathrooms and similar): Shall be designed with a design density of .10 GPM per square foot over the

hydraulically most remote 1500 square feet. Maximum protection area per sprinkler head shall be 225 square feet.

2. Ordinary Hazard Areas (Mechanical Rooms and similar): Shall be designed with a design density of .15 GPM per square foot over the hydraulically most remote 1500 square feet. Maximum protection area per sprinkler head shall be 130 square feet.

3. The following is a list of design assumptions that have been made for this project:

    a. Adequate water pressure and supply is available.

    b. The roof will be fully insulated and piping in eave/attic spaces will not be subjected to freezing conditions.

    c. Sprinkler drains will be discharged outside to safe location.

C. A hydrant flow test will be required to be performed by the Town, or recent test data from within the last 12 months provided. It is assumed a 6" to 8" Fire Service will be required to accommodate the flow/pressure requirements of this building. A fire pump is not anticipated. However, calculations will need to be performed to determine if city water supply can satisfy the sprinkler demand.

# *Southbridge Fire Station*

Marsh Avenue
Southbridge, MA

## Schematic Design Estimate

September 25, 2018


**Architect:**

Kaestle Boos Associates, Inc.

325 Foxborough Boulevard, Suite 100

Foxborough, MA  02035

(508) 549-9906

**Cost Estimator:**

Miyakoda Consulting

PO Box 47

Raynham, MA

(617) 799-5832


miyakoda CONSULTING

# *Southbridge Fire Station*
# *Marsh Avenue*
Southbridge, MA

## *Introduction*

**Basis For The Estimate:**

1. The project consists of a new Fire Station in Southbridge, MA
2. Sitework has been included.
3. This project will be built in 1 phase.

**Project Particulars:**

1. Estimate is based on Schematic Design Drawings dated 5/21/2018, and narratives

**Assumptions:**

1. The project will be publicly bid amongst GC builders. This project will be bid with no less than four General Contractos bidding the project.
2. Our costs assume that there will be competitive bidding in all trades and sub-trades i.e. at least three bids per trade or sub-
3. Unit rates are based on current dollars (prevailing wage rates)
4. Design Contingency is an allowance for unforeseen design issues, design detail development and specification clarifications
5. General Conditions and Requirements value covers Construction Manager's site office overhead and on-site supervision
6. Fee markup is calculated on a percentage of direct construction costs.
7. Escalation has been included

**Exclusions within the Estimate:**

1. Design fees and other soft costs
2. Interest expense
3. Owner's project administration
4. Construction of temporary facilities
5. Printing and advertising
6. Specialties, loose furnishings, fixtures and equipment beyond what is noted
7. Site or existing condition surveys and investigations
8. Hazardous Abatement
9. Building Demolition

# *Southbridge Fire Station*
# *Marsh Avenue*
Southbridge, MA

## *Main Summary*
36,178 GSF

| | *DESCRIPTION* | | | *TOTAL* | *COST/SF* |
|---|---|---|---|---|---|
| *1* | Hazardous Waste for Headquarters | | | NIC | |
| *2* | Building Demolition | | | NIC | |
| *3* | Police & Fire Station HQ Building Trade Cost | | 36,178 GSF | $12,142,129 | $335.62 |
| *4* | Fire Station Sitework Cost | | | $1,137,333 | $31.44 |
| *5* | **Trade Cost Subtotal** | | | **$13,279,462** | **$367.06** |
| *6* | Design Contingency | 10.00% | | $1,327,946 | $36.71 |
| *7* | **Trade Cost Total** | | | **$14,607,408** | **$403.76** |
| *8* | **Mark-ups (on Direct Trade Costs Subtotal)** | | | | |
| *9* | General Conditions and Requirements | 8.00% | $14,607,408 | $1,168,593 | $32.30 |
| *10* | Insurance | 1.25% | $15,776,000 | $197,200 | $5.45 |
| *11* | Bonds | 0.65% | $15,973,200 | $103,826 | $2.87 |
| *12* | Permit | | $16,077,026 | NIC | |
| *13* | Fee | 3.00% | $16,077,026 | $482,311 | $13.33 |
| *14* | **Estimate Construction Cost Subtotal** | | | **$16,559,337** | **$457.72** |
| *15* | Escalation (Assume construction to begin 4th quarter 2019) | 4.00% | $16,559,337 | $2,205,349 | $60.96 |
| *16* | **ECC Total, including Escalation** | | | **$18,764,686** | **$518.68** |

# *Southbridge Fire Station*

Southbridge, MA

## *Police and Fire Sation HQ Building Summary*

36,178 GSF

| *ELEMENT* | *TOTAL* | *Total/GSF* |
|---|---|---|
| 02 26 00 Hazardous Material Assessment | NIC | |
| **02-EXISTING CONDITIONS** | **$0** | **$0.00** |
| 03 00 00 Cast-In-Place Concrete | $657,894 | $18.18 |
| **03-CONCRETE TOTAL** | **$657,894** | **$18.18** |
| 04 00 00 Masonry | $1,158,550 | $32.02 |
| **04-MASONRY TOTAL** | **$1,158,550** | **$32.02** |
| 05 10 00 Structural Steel Framing | $1,021,642 | $28.24 |
| 05 30 00 Metal Decking | $156,772 | $4.33 |
| 05 40 00 Cold Formed Metal Framing | $0 | $0.00 |
| 05 50 00 Metal Fabrications | $165,034 | $4.56 |
| **05-METALS TOTAL** | **$1,343,449** | **$37.13** |
| 06 10 00 Rough Carpentry | $85,406 | $2.36 |
| 06 20 00 Finish Carpentry | $496,509 | $13.72 |
| **06-WOOD AND PLASTICS TOTAL** | **$581,915** | **$16.08** |
| 07 10 00 Dampproofing and Waterproofing | $170,687 | $4.72 |
| 07 20 00 Insulation | $320,382 | $8.86 |
| 07 40 00 Roofing and Siding Panels | $525,453 | $14.52 |
| 07 46 00 Siding | $35,856 | $0.99 |
| 07 80 00 Firestopping & Fireproofing | $12,662 | $0.35 |
| 07 92 00 Joint Sealants | $90,445 | $2.50 |
| **07-THERMAL AND MOISTURE TOTAL** | **$1,155,485** | **$31.94** |
| 08 10 00 Doors & Frames | $112,150 | $3.10 |
| 08 3 1 00 Access Doors & Panels | $5,000 | $0.14 |
| 08 33 23 Coiling and Overhead Doors | $302,000 | $8.35 |
| 08 41 13 Aluminum Framed Entrances, Storefront | $101,470 | $2.80 |
| 08 50 00 Windows | $70,535 | $1.95 |
| 08 80 00 Glazing | $26,500 | $0.73 |
| **08-DOORS AND WINDOWS TOTAL** | **$617,655** | **$17.07** |
| 09 21 00 Plaster and Gypsum Board Assemblies | $545,162 | $15.07 |
| 09 30 00 Tile | $163,324 | $4.51 |
| 09 51 00 ACT | $80,077 | $2.21 |
| 09 65 00 Resilient Flooring | $121,251 | $3.35 |
| 09 67 23 Resinous Flooring | $0 | $0.00 |

# *Southbridge Fire Station*

Southbridge, MA

## *Police and Fire Sation HQ Building Summary*

36,178 GSF

| ***ELEMENT*** | | | ***TOTAL*** | ***Total/GSF*** |
|---|---|---|---|---|
| 09 68 00 Carpeting | | | $21,672 | $0.60 |
| 09 90 00 Painting | | | $210,201 | $5.81 |
| **09-FINISHES TOTAL** | | | **$1,141,686** | **$31.56** |
| 10 00 00 Specialties | | | $263,259 | $7.28 |
| 10 28 13 Toilet Accessories | | | $9,900 | $0.27 |
| **10-SPECIALTIES TOTAL** | | | **$273,159** | **$7.55** |
| 11 00 00 Equipment | | | $222,000 | $6.14 |
| 11 31 00 Residential Appliances | | | $63,300 | $1.75 |
| **11-EQUIPMENT TOTAL** | | | **$285,300** | **$7.89** |
| 12 00 00 Furnishings | | | $4,270 | $0.12 |
| 12 20 00 Window Treatments | | | $5,887 | $0.16 |
| **12-FURNISHINGS TOTAL** | | | **$10,157** | **$0.28** |
| 14 20 00 Elevators | | | $155,000 | $4.28 |
| **14-CONVEYING DEVICES TOTAL** | | | **$155,000** | **$4.28** |
| 21 00 00 Fire Protection | | | $257,302 | $7.11 |
| 22 00 00 Plumbing | | | $795,916 | $22.00 |
| 23 00 00 HVAC | | | $1,808,900 | $50.00 |
| **21, 22, 23 - MECHANICAL TOTAL** | | | **$2,862,118** | **$79.11** |
| 26 00 00 Electrical | | | $1,736,544 | $48.00 |
| **26-ELECTRICAL TOTAL** | | | **$1,736,544** | **$48.00** |
| 31 00 00 Earthwork | | | $163,218 | $4.51 |
| **31-EARTHWORK TOTAL** | | | **$163,218** | **$4.51** |
| **BUILDING DIRECT COST TOTAL** | | | **$12,142,129** | **$335.62** |
| Design Contingency | 10.00% | $12,142,129 | $1,214,213 | $33.56 |
| **Trade Cost Total** | | | **$13,356,342** | **$369.18** |
| **Mark-ups (on Direct Trade Costs Subtotal)** | | | | |
| General Conditions and Requirements | 8.00% | $13,356,342 | $1,068,507 | $29.53 |
| Insurance | 1.25% | $14,424,849 | $180,311 | $4.98 |
| Bonds | 0.65% | $14,605,160 | $94,934 | $2.62 |

# *Southbridge Fire Station*

Southbridge, MA

## *Police and Fire Sation HQ Building Summary*

36,178 GSF

| ***ELEMENT*** | | | ***TOTAL*** | ***Total/GSF*** |
|---|---|---|---|---|
| Permit | 0.00% | $14,700,093 | | |
| Fee | 3.00% | $14,700,093 | $441,003 | $12.19 |
| **Estimate Construction Cost Subtotal** | | | **$15,141,096** | **$418.52** |
| Phasing | 1.50% | $15,141,096 | $227,116 | $6.28 |
| Escalation Allowance To The Start Of Construction · | 6.00% | $15,368,213 | $922,093 | $25.49 |
| **ECC Total, including Escalation** | | | **$16,290,305** | **$450.28** |

# Southbridge Fire Station
Southbridge, MA

## Detailed Estimate for Police and Fire Station
36,178 GSF

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 10 | **02-EXISTING CONDITIONS** | | | | |
| 11 | | | | | |
| 12 | **02 26 00 Hazardous Material Assessment** | | | | |
| 13 | Hazmat | | | | NIC |
| 14 | **02 26 00 Hazardous Material Assessment Total** | | | | **NIC** |
| 15 | | | | | |
| 16 | | | | | |
| 17 | **03-CONCRETE** | | | | |
| 18 | | | | | |
| 19 | **03 00 00 Cast-In-Place Concrete** | | | | |
| 20 | Footings | | | | |
| 21 | *Continuous footings* | *1,068* | *lf* | | |
| 22 | Concrete; material | **166** | CY | $120.00 | $19,943 |
| 23 | Concrete; place | **166** | CY | $85.00 | $14,126 |
| 24 | Reinforcement | **10,802** | LB | $1.15 | $12,423 |
| 25 | Keyways | **1,068** | LF | $2.00 | $2,137 |
| 26 | Formwork | **2,137** | SF | $12.00 | $25,640 |
| 27 | | | | | |
| 28 | *Spread footings* | *25* | *ea* | | |
| 29 | Concrete; material | **124** | CY | $120.00 | $14,933 |
| 30 | Concrete; place | **124** | CY | $85.00 | $10,578 |
| 31 | Reinforcement | **9,333** | LB | $1.15 | $10,733 |
| 32 | Formwork | **1,680** | SF | $12.00 | $20,160 |
| 33 | | | | | |
| 34 | Foundations Walls | | | | |
| 35 | *Foundation walls* | *1,068* | *lf* | | |
| 36 | Concrete; material | **158** | CY | $120.00 | $18,960 |
| 37 | Concrete; place | **158** | CY | $85.00 | $13,430 |
| 38 | Reinforcement | **23,700** | LB | $1.15 | $27,255 |
| 39 | Formwork | **8,547** | SF | $10.00 | $85,468 |
| 40 | | | | | |
| 41 | *Slab on Grade; 4" thick* | *15,453* | *sf* | | |
| 42 | Concrete; material | **198** | CY | $125.00 | $24,789 |
| 43 | Concrete; place & finish | **15,453** | SF | $2.50 | $38,633 |
| 44 | WWF | **15,453** | SF | $0.50 | $7,727 |
| 45 | | | | | |
| 46 | *Slab on Grade; 8" thick* | *14,860* | *sf* | | |
| 47 | Concrete; material | **387** | CY | $125.00 | $48,398 |
| 48 | Concrete; place & finish | **387** | SF | $2.50 | $968 |
| 49 | 2 Layer WWF | **14,860** | SF | $0.85 | $12,631 |
| 50 | | | | | |
| 51 | *Slab on deck* | *5,865* | *sf* | | |

| | Element/Description | | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|---|
| 52 | Concrete; material | | **86** | CY | $125.00 | $10,691 |
| 53 | Concrete; pump, place & finish | | **5,865** | SF | $2.85 | $16,715 |
| 54 | Reinforcement (6x6 mesh) 10% overlap | | **6,452** | SF | $0.50 | $3,226 |
| 55 | | | | | | |
| 56 | *Miscellaneous* | | | | | |
| 57 | Allow for equipment pads | | **1** | LS | $5,000.00 | $5,000 |
| 58 | Vapor barrier under slab | | **30,313** | SF | $1.00 | $30,313 |
| 59 | Rigid insulation under slab on grade | | **30,313** | SF | $2.25 | $68,204 |
| 60 | Moisture vapor control; barrier 1 @ occupied areas | | **585** | CY | $60.00 | $35,130 |
| 61 | Insulation to basement and foundation walls | | **4,273** | SF | $2.50 | $10,684 |
| 62 | Concrete for metal pan stairs | | **3** | FLT | $3,000.00 | $9,000 |
| 63 | Concrete accessories | | **1** | LS | $60,000.00 | $60,000 |
| 64 | ***03 00 00 Cast-In-Place Concrete Total*** | | | | | **$657,894** |
| 65 | | | | | | |
| 66 | | | | | | |
| 67 | *Exterior closure total* | | | | | |
| 68 | | *Brick veneer* | *19,955* | *sf* | | |
| 69 | | *Storefront* | *190* | *sf* | | |
| 70 | | *Punch windows* | *651* | *sf* | | |
| | | *Overhead doors* | *3,446* | | | |
| 72 | | *total* | *20,796* | *sf* | | |
| 73 | | | | | | |
| 74 | ***04-MASONRY*** | | | | | |
| 75 | | | | | | |
| 76 | ***04 00 00 Masonry*** | | | | | |
| 77 | *Exterior façade:* | | | | | |
| 78 | Brick veneer | | **19,955** | SF | $34.00 | $678,470 |
| 79 | Jack arches | | **192** | LF | $50.00 | $9,600 |
| 80 | Interior CMU walls | | **10,368** | SF | $20.00 | $207,360 |
| 81 | CMU backup system | | **11,960** | SF | $22.00 | $263,120 |
| 82 | ***04 00 00 Masonry Total*** | | | | | **$1,158,550** |
| 83 | | | | | | |
| 84 | | | | | | |
| 85 | ***05-METALS*** | | | | | |
| 86 | | | | | | |
| 87 | ***05 10 00 Structural Steel Framing*** | | | | | |
| 88 | WF structural steel | | **226** | TNS | $3,550.00 | $802,699 |
| 89 | WF structural steel column | | **54** | TNS | $4,000.00 | $217,068 |
| 90 | Trusses and joists | | | | | Included |
| 91 | Base plates | | **25** | EA | $75.00 | $1,875 |
| 92 | Relieving angle along perimeter each floor | | **1,122** | LF | $25.00 | NIC |

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 93 | ***05 10 00 Structural Steel Framing Total*** | | | | **$1,021,642** |
| 94 | | | | | |
| 95 | ***05 30 00 Metal Decking*** | | | | |
| 96 | Galv. composite metal floor deck | **6,158** | SF | $3.75 | $23,093 |
| 97 | Galvnized roof deck | **38,194** | SF | $3.50 | $133,679 |
| 98 | ***05 30 00 Metal Decking Total*** | | | | **$156,772** |
| 99 | | | | | |
| 100 | ***05 40 00 Cold Formed Metal Framing*** | | | | |
| 101 | Light ga metal framing system | **8,646** | SF | $8.00 | Div 09 21 00 |
| 102 | ***05 40 00 Cold Formed Metal Framing Total*** | | | | **$0** |
| 103 | | | | | |
| 104 | ***05 50 00 Metal Fabrications*** | | | | |
| 105 | Metal pan stairs | **3** | FLT | $18,000.00 | $54,000 |
| 106 | Small flight of stairs | **1** | EA | $2,500.00 | $2,500 |
| 107 | Miscellaneous metals; TBD | **36,178** | GSF | $3.00 | $108,534 |
| 108 | ***05 50 00 Metal Fabrications Total*** | | | | **$165,034** |
| 109 | | | | | |
| 110 | | | | | |
| 111 | ***06-WOOD AND PLASTICS*** | | | | |
| 112 | | | | | |
| 113 | ***06 10 00 Rough Carpentry*** | | | | |
| 114 | Install doors and frames | **87** | EA | $150.00 | $13,050 |
| 115 | Rough carpentry / blocking | **36,178** | SF | $2.00 | $72,356 |
| 116 | ***06 10 00 Rough Carpentry Total*** | | | | **$85,406** |
| 117 | | | | | |
| 118 | ***06 20 00 Finish Carpentry*** | | | | |
| 119 | Dispatching casework | **1** | LS | $15,000.00 | $15,000 |
| 120 | Bunk casework | **1** | LS | $25,000.00 | $25,000 |
| 121 | Base and upper cabinets with counter | **176** | LF | $685.00 | $120,560 |
| 122 | Upper cabinets | **25** | LF | $200.00 | $5,000 |
| 123 | Island | **9** | LF | $800.00 | $7,200 |
| 124 | Office casework | **1** | LS | $15,000.00 | $15,000 |
| 125 | Countertop | **149** | LF | $325.00 | $48,425 |
| 126 | Tall cabinets | **15** | EA | $1,200.00 | $18,000 |
| 127 | Closet rod and shelf | **17** | LF | $25.00 | $425 |
| 128 | Shelving | **64** | LF | $50.00 | $3,200 |
| 129 | Base, Upper Cabinets and Counter & Backsplash | **169** | LF | $685.00 | $115,765 |
| 130 | Counters | | | | |
| 131 | Wardrobe | **12** | EA | $1,200.00 | $14,400 |
| 132 | Miscellaneous standing and running trim | **36,178** | SF | $3.00 | $108,534 |
| 133 | ***06 20 00 Finish Carpentry Total*** | | | | **$496,509** |

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 134 | | | | | |
| 135 | | | | | |
| 136 | **07-THERMAL AND MOISTURE** | | | | |
| 137 | | | | | |
| 138 | ***07 10 00 Dampproofing and Waterproofing*** | | | | |
| 139 | Waterproof foundation walls | **4,273** | SF | $7.50 | $32,051 |
| 140 | Air/vapor barrier behind brick | **20,606** | SF | $6.00 | $123,636 |
| 141 | Vapor barrier under slab | | | | In 03 |
| 142 | Miscellaneous dampproofing and waterproofing | **1** | LS | $15,000.00 | $15,000 |
| 143 | ***07 10 00 Dampproofing and Waterproofing Total*** | | | | **$170,687** |
| 144 | | | | | |
| 145 | ***07 20 00 Insulation*** | | | | |
| 146 | Rigid insulation under slab on grade | | | | In 03 |
| 147 | Nailable insulated roof | **38,194** | SF | $6.50 | $248,261 |
| 148 | Rigid insulation at exterior walls | **20,606** | SF | $3.50 | $72,121 |
| 149 | ***07 20 00 Insulation Total*** | | | | **$320,382** |
| 150 | | | | | |
| 151 | ***07 40 00 Roofing and Siding Panels*** | | | | |
| 152 | Asphalt roof | **38,194** | SF | $12.00 | $458,328 |
| 153 | Canopy | **5** | EA | $1,625.00 | $8,125 |
| 154 | Walkable roof area (allow) | **500** | SF | $18.00 | $9,000 |
| 155 | Allow for roof accessories | **1** | LS | $50,000.00 | $50,000 |
| 156 | ***07 40 00 Roofing and Siding Panels Total*** | | | | **$525,453** |
| 157 | | | | | |
| 158 | ***07 46 00 Siding*** | | | | |
| 159 | Soffits/trim | **1,992** | LF | $18.00 | $35,856 |
| 160 | ***07 46 00 Siding Total*** | | | | **$35,856** |
| 161 | | | | | |
| 162 | ***07 80 00 Firestopping & Fireproofing*** | | | | |
| 163 | Fire proof steel and deck | | | | NIC |
| 164 | Through floor penetration firestopping | **36,178** | SF | $0.35 | $12,662 |
| 165 | ***07 80 00 Firestopping & Fireproofing Total*** | | | | **$12,662** |
| 166 | | | | | |
| 167 | ***07 92 00 Joint Sealants*** | | | | |
| 168 | Caulking and sealants | **36,178** | SF | $2.50 | $90,445 |
| 169 | ***07 92 00 Joint Sealants Total*** | | | | **$90,445** |
| 170 | | | | | |
| 171 | | | | | |
| 172 | **08-DOORS AND WINDOWS** | | | | |
| 173 | | | | | |
| 174 | ***08 10 00 Doors & Frames*** | | | | |

# Southbridge Fire Station

Southbridge, MA

## Detailed Estimate for Police and Fire Station

36,178 GSF

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 175 | *Interior Doors* | | | | |
| 176 | 3' x 7' Interior doors | **76** | EA | $300.00 | $22,800 |
| 177 | 6' x 7' Interior doors | **3** | PR | $600.00 | $1,800 |
| 178 | Closet doors | **5** | PR | $400.00 | $2,000 |
| 179 | *Frames* | | | | |
| 180 | 3' x 7' Interior door frame | **76** | EA | $225.00 | $17,100 |
| 181 | 6' x 7' Interior door frame | **3** | EA | $300.00 | $900 |
| 182 | Closet frame | **5** | EA | $250.00 | $1,250 |
| 183 | *Exterior Doors* | | | | |
| 184 | Exterior egress door & frame | **8** | EA | $1,500.00 | $12,000 |
| 185 | *Hardware* | | | | |
| 186 | Hardware sets | **82** | EA | $650.00 | $53,300 |
| 187 | Closet hardware sets | **5** | EA | $200.00 | $1,000 |
| 188 | ***08 10 00 Doors & Frames Total*** | | | | **$112,150** |
| 189 | | | | | |
| 190 | ***08 3 1 00 Access Doors & Panels*** | | | | |
| 191 | Allow for access doors | **1** | AL | $5,000.00 | $5,000 |
| 192 | ***08 3 1 00 Access Doors & Panels Total*** | | | | **$5,000** |
| 193 | | | | | |
| 194 | ***08 33 23 Coiling and Overhead Doors*** | | | | |
| 195 | Overhead doors - Apparatus bay, glazed | **13** | EA | $15,000.00 | $195,000 |
| 196 | Overhead doors - East elevation | **5** | EA | $15,000.00 | $75,000 |
| 197 | Overhead doors - smaller | **3** | EA | $8,000.00 | $24,000 |
| 198 | Overhead door - Yard Storage | **1** | EA | $8,000.00 | $8,000 |
| 199 | ***08 33 23 Coiling and Overhead DoorsTotal*** | | | | **$302,000** |
| 200 | | | | | |
| 201 | ***08 41 13 Aluminum Framed Entrances, Storefront*** | | | | |
| 202 | Exterior storefront | **190** | SF | $95.00 | $18,050 |
| 203 | Interior storefront | **436** | SF | $95.00 | $41,420 |
| 204 | Exterior doors | **7** | EA | $3,500.00 | $24,500 |
| 205 | Vestibule doors | **3** | EA | $3,500.00 | $10,500 |
| 206 | Interior vestibule doors | **2** | EA | $3,500.00 | $7,000 |
| 207 | ***08 41 13 Aluminum Framed Entrances, StorefrontTotal*** | | | | **$101,470** |
| 208 | | | | | |
| 209 | ***08 50 00 Windows*** | | | | |
| 210 | Windows | **651** | SF | $85.00 | $55,335 |
| 211 | Circular window | **2** | EA | $7,600.00 | $15,200 |
| 212 | ***08 50 00 WindowsTotal*** | | | | **$70,535** |
| 213 | | | | | |
| 214 | ***08 80 00 Glazing*** | | | | |
| 215 | Door glazing | **1** | LS | $10,000.00 | $10,000 |

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 216 | Mirror | **500** | SF | $28.00 | $14,000 |
| 217 | Service windows | **1** | EA | $2,500.00 | $2,500 |
| 218 | ***08 80 00 Glazing Total*** | | | | **$26,500** |
| 219 | | | | | |
| 220 | | | | | |
| 221 | ***09-FINISHES*** | | | | |
| 222 | | | | | |
| 223 | ***09 21 00 Plaster and Gypsum Board Assemblies*** | | | | |
| 224 | Light ga metal framing; exterior walls | **8,646** | SF | $8.00 | $69,168 |
| 225 | Densglass wall board | **20,606** | SF | $4.00 | $82,424 |
| 226 | Interior of exterior walls | **19,955** | SF | $3.50 | $69,843 |
| 227 | Standard drywall partitions | **25,454** | SF | $10.00 | $254,540 |
| 228 | Additional chase/plumbing walls | **1,736** | SF | $13.50 | $23,436 |
| 229 | Allow for soffits | **1** | LS | $15,000.00 | $15,000 |
| 230 | GWB ceiling; allow | **3,618** | SF | $8.50 | $30,751 |
| 231 | ***09 21 00 Plaster and Gypsum Board Assemblies Total*** | | | | **$545,162** |
| 232 | | | | | |
| 233 | ***09 30 00 Tile*** | | | | |
| 234 | Main lobby flooring | **1,627** | SF | $25.00 | $40,675 |
| 235 | Porcelain tile base | **400** | LF | $20.00 | $8,000 |
| 236 | Ceramic tile flooring | **1,199** | SF | $15.00 | $17,985 |
| 237 | Tile base | **562** | LF | $10.00 | $5,620 |
| 238 | Tile walls | **5,058** | SF | $18.00 | $91,044 |
| 239 | ***09 30 00 Tile Total*** | | | | **$163,324** |
| 240 | | | | | |
| 241 | ***09 51 00 ACT*** | | | | |
| 242 | Acoustical ceiling tile - Typical | **17,572** | SF | $4.25 | $74,681 |
| 243 | Acoustical ceiling tile - moisture resistant | **1,199** | SF | $4.50 | $5,396 |
| 244 | ***09 51 00 ACT Total*** | | | | **$80,077** |
| 245 | | | | | |
| 246 | ***09 65 00 Resilient Flooring*** | | | | |
| 247 | Flooring | **14,807** | SF | $6.00 | $88,842 |
| 248 | Athletic Flooring | **583** | SF | $18.00 | $10,494 |
| 249 | Rubber tile, landing ; stairs | **180** | SF | $10.00 | $1,800 |
| 250 | Rubber treads | **330** | LFR | $15.50 | $5,115 |
| 251 | Rubber base | **1** | LS | $15,000.00 | $15,000 |
| 252 | ***09 65 00 Resilient Flooring Total*** | | | | **$121,251** |
| 253 | | | | | |
| 254 | ***09 67 23 Resinous Flooring*** | | | | |
| 255 | No work in this section | | | | |
| 256 | ***09 67 23 Resinous Flooring Total*** | | | | **$0** |

# Southbridge Fire Station
Southbridge, MA

## Detailed Estimate for Police and Fire Station
36,178 GSF

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 257 | | | | | |
| 258 | ***09 68 00 Carpeting*** | | | | |
| 259 | Carpet (assume included in flooring) | **516** | SY | $42.00 | $21,672 |
| 260 | ***09 68 00 Carpeting Total*** | | | | **$21,672** |
| 261 | | | | | |
| 262 | ***09 90 00 Painting*** | | | | |
| 263 | Painting ceiling | **3,618** | SF | $1.00 | $3,618 |
| 264 | Painting walls | **74,335** | SF | $0.85 | $63,185 |
| 265 | Paint CMU walls | **32,696** | SF | $1.25 | $40,870 |
| 266 | Apparatus Bay | **8,460** | SF | $2.00 | $16,920 |
| 267 | Wash Bay | **1,874** | SF | $2.00 | $3,748 |
| 268 | Truck bay | **2,474** | SF | $2.00 | $4,948 |
| 269 | Car bay | **981** | SF | $2.00 | $1,962 |
| 270 | Paint exposed ceilings - Apparatus bay | **8,460** | SF | $1.50 | $12,690 |
| 271 | Paint expossed ceiling - Wash Bay | **1,874** | SF | $1.50 | $2,811 |
| 272 | Paint exposed ceiling - Truck bay | **2,474** | SF | $1.50 | $3,711 |
| 273 | Paint exposed ceiling - Car bay | **981** | SF | $1.50 | $1,472 |
| 274 | Miscellaneous painting | **36,178** | SF | $1.50 | $54,267 |
| 275 | ***09 90 00 Painting Total*** | | | | **$210,201** |
| 276 | | | | | |
| 277 | | | | | |
| 278 | ***10-SPECIALTIES*** | | | | |
| 279 | | | | | |
| 280 | ***10 00 00 Specialties*** | | | | |
| 281 | Allow for visual display boards | **1** | LS | $10,000.00 | $10,000 |
| 282 | Interior and exterior signage | **36,178** | SF | $1.25 | $45,223 |
| 283 | Impact resistant wall coverings allowance | **1** | LS | $5,000.00 | $5,000 |
| 284 | Lockers | **26** | EA | $1,800.00 | $46,800 |
| 285 | Turnout lockers | **50** | EA | $500.00 | $25,000 |
| 286 | Shower lockers | **10** | EA | $250.00 | $2,500 |
| 287 | Evidence lockers | **1** | LS | $5,000.00 | $5,000 |
| 288 | Bunk lockers | **60** | EA | $500.00 | $30,000 |
| 289 | Mailboxes allowance | **1** | LS | $5,000.00 | $5,000 |
| 290 | Aluminum louvers | **100** | SF | $55.00 | $5,500 |
| 291 | Fire extinguisher cabinets | **9** | EA | $450.00 | $4,070 |
| 292 | Mobile storage units | **1** | LS | $50,000.00 | $50,000 |
| 293 | Operable Partitions | **1** | EA | $21,840.00 | $21,840 |
| 294 | Access flooring | **333** | SF | $22.00 | $7,326 |
| 295 | ***10 00 00 Specialties Total*** | | | | **$263,259** |
| 296 | | | | | |
| 297 | ***10 28 13 Toilet Accessories*** | | | | |

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 298 | Toilets | 1 | RMS | $650.00 | $650 |
| 299 | Toilet & Showers (private) | 9 | RMS | $1,000.00 | $9,000 |
| 300 | Mop and broom strip | 2 | EA | $125.00 | $250 |
| 301 | ***10 28 13 Toilet Accessories Total*** | | | | **$9,900** |
| 302 | | | | | |
| 303 | | | | | |
| 304 | ***11-EQUIPMENT*** | | | | |
| 305 | | | | | |
| 306 | ***11 00 00 Equipment*** | | | | |
| 307 | Fume Hood | 1 | EA | $7,000.00 | $7,000 |
| 308 | Firemen's pole | 1 | EA | $95,000.00 | $95,000 |
| 309 | Firematic equipment | 1 | LS | $120,000.00 | $120,000 |
| 310 | ***11 00 00 Equipment Total*** | | | | **$222,000** |
| 311 | | | | | |
| 312 | ***11 31 00 Residential Appliances*** | | | | |
| 313 | Kitchen equipment, allowance | 1 | AL | $50,000.00 | $50,000 |
| 314 | Install appliances | | EA | $100.00 | Included |
| 315 | Kitchenette | 1 | LOC | $8,500.00 | $8,500 |
| 316 | Washer | 2 | EA | $1,200.00 | $2,400 |
| 317 | Dryer | 2 | EA | $1,200.00 | $2,400 |
| 318 | ***11 31 00 Residential Appliances Total*** | | | | **$63,300** |
| 319 | | | | | |
| 320 | | | | | |
| 321 | ***12-FURNISHINGS*** | | | | |
| 322 | | | | | |
| 323 | ***12 00 00 Furnishings*** | | | | |
| 324 | Entry mats | 122 | SF | $35.00 | $4,270 |
| 325 | ***12 00 00 FurnishingsTotal*** | | | | **$4,270** |
| 326 | | | | | |
| 327 | ***12 20 00 Window Treatments*** | | | | |
| 328 | Window treatment | 841 | SF | $7.00 | $5,887 |
| 329 | ***12 20 00 Window Treatments Total*** | | | | **$5,887** |
| 330 | | | | | |
| 331 | | | | | |
| 332 | ***14-CONVEYING DEVICES*** | | | | |
| 333 | | | | | |
| 334 | ***14 20 00 Elevators*** | | | | |
| 335 | No work in this section | 1 | EA | $155,000.00 | $155,000 |
| 336 | ***14 20 00 Elevators Total*** | | | | **$155,000** |
| 337 | | | | | |
| 338 | | | | | |

# Southbridge Fire Station

Southbridge, MA

## Detailed Estimate for Police and Fire Station

36,178 GSF

| | Element/Description | Quantity | Unit | Rate | Total |
|---|---|---|---|---|---|
| 339 | **21, 22, 23 - MECHANICAL** | | | | |
| 340 | | | | | |
| 341 | ***21 00 00 Fire Protection*** | | | | |
| 342 | Sprinkler Coverage | **36,178** | SF | $6.75 | $244,202 |
| 343 | 6" Backflow Preventer | | EA | $6,850.00 | Included |
| 344 | 6" Water Service | | EA | $2,250.00 | Included |
| 345 | 6" Alarm Valve | | EA | $4,250.00 | Included |
| 346 | Dry Alarm Valve w/ compressor | | EA | $4,000.00 | Included |
| 347 | Zones | | EA | $3,250.00 | Included |
| 348 | Siamese connection | | EA | $2,100.00 | Included |
| 349 | Main piping: | | | | |
| 350 | - 6" | | LF | $65.00 | Included |
| 351 | Fees & Permit | **1** | LS | $1,850.00 | $1,850 |
| 352 | Seismic Restraints | **1** | EA | $3,250.00 | $3,250 |
| 353 | Shop drawings/hydraulic calculations | **1** | LS | $5,500.00 | $5,500 |
| 354 | Lifts | **1** | LS | $2,500.00 | $2,500 |
| 355 | ***21 00 00 Fire Protection Total*** | | | | **$257,302** |
| 356 | | | | | |
| 357 | ***22 00 00 Plumbing*** | | | | |
| 358 | Plumbing | **36,178** | SF | $22.00 | $795,916 |
| 359 | ***22 00 00 Plumbing Total*** | | | | **$795,916** |
| 360 | | | | | |
| 361 | ***23 00 00 HVAC*** | | | | |
| 362 | HVAC system | **36,178** | SF | $50.00 | $1,808,900 |
| 363 | ***23 00 00 HVAC Total*** | | | | **$1,808,900** |
| 364 | | | | | |
| 365 | | | | | |
| 366 | **26-ELECTRICAL** | | | | |
| 367 | | | | | |
| 368 | ***26 00 00 Electrical*** | | | | |
| 369 | Electrical system | **36,178** | SF | $48.00 | $1,736,544 |
| 370 | ***26 00 00 Electrical Total*** | | | | **$1,736,544** |
| 371 | | | | | |
| 372 | | | | | |
| 373 | **31-EARTHWORK** | | | | |
| 374 | | | | | |
| 375 | ***31 00 00 Earthwork*** | | | | |
| 376 | Rock removal, using back hoe jack hammer | | | | NIC |
| 377 | Rough and fine grade for new slab | **30,313** | SF | $1.50 | $45,470 |
| 378 | Bulk excavation | **3,929** | CY | $10.00 | $39,290 |
| 379 | Gravel below slab | **1,123** | CY | $25.00 | $28,068 |

# *Southbridge Fire Station*

Southbridge, MA

## *Detailed Estimate for Police and Fire Station*

36,178 GSF

| | *Element/Description* | *Quantity* | *Unit* | *Rate* | *Total* |
|---|---|---|---|---|---|
| 380 | Perimeter drain system | **929** | LF | $16.00 | $14,864 |
| 381 | *Exterior strip footings* | *1,068* | *LF* | | |
| 382 | Excavation | **989** | CY | $9.00 | $8,901 |
| 383 | Remove soil | **782** | CY | $6.00 | $4,692 |
| 384 | Backfill with imported fill | **873** | CY | $22.00 | $19,206 |
| 385 | *Isolated footings* | *25* | *EA* | | |
| 386 | Excavation | **148** | CY | $9.00 | $1,332 |
| 387 | Remove soil | **141** | CY | $6.00 | $846 |
| 388 | Backfill with imported fill | **25** | CY | $22.00 | $550 |
| 389 | ***31 00 00 Earthwork Total*** | | | | **$163,218** |
| 390 | | | | | |

# *Southbridge Fire Station*

Southbridge, MA

## *Sitework Detail and Summary*

| | *Description/Element* | *Quantity* | *Unit* | *Rate* | *Total* |
|---|---|---|---|---|---|
| 9 | **SITEWORK** | | | | |
| 10 | | | | | |
| 11 | Site clearing | **2** | ACRE | $2,500.00 | $5,000 |
| 12 | Site demolition and relocations | **1** | AL | $25,000.00 | $25,000 |
| 13 | Site protection | **1** | AL | $10,000.00 | $10,000 |
| 14 | Rough grading | **11,468** | SY | $1.50 | $17,202 |
| 15 | Fine grading | **33,753** | SF | $0.50 | $16,877 |
| 16 | Construction fence | **1,350** | LF | $8.00 | $10,800 |
| 17 | Gate | **2** | EA | $1,500.00 | $3,000 |
| 18 | Paving | **16,039** | SF | $2.00 | $32,078 |
| 19 | Heavy paving | **13,413** | SF | $2.22 | $29,807 |
| 20 | Apron | **3,326** | SF | $2.45 | $8,149 |
| 21 | Parking spaces | **47** | EA | $15.00 | $705 |
| 22 | HC parking spaces | **2** | EA | $75.00 | $150 |
| 23 | Miscellaneous marking | **1** | LS | $8,000.00 | $8,000 |
| 24 | Curbing | **2,766** | LF | $42.00 | $116,172 |
| 25 | Standard concrete patio | **690** | SF | $6.00 | $4,140 |
| 26 | Entry paving | **285** | SF | $18.00 | $5,130 |
| 27 | Gravel base | **1,250** | CY | $35.00 | $43,750 |
| 28 | Curb cuts | **10** | EA | $250.00 | $2,500 |
| 29 | Dumpster fence | **160** | LF | $15.00 | $2,400 |
| 30 | Dumpster gate | **2** | EA | $1,000.00 | $2,000 |
| 31 | Dumpster pad | **2** | EA | $2,500.00 | $5,000 |
| 32 | Generator pad | **1** | EA | $5,000.00 | $5,000 |
| 33 | Antenna pad | **1** | EA | $25,000.00 | $25,000 |
| 34 | Bollards | **44** | EA | $600.00 | $26,400 |
| 35 | Transformer pad | **1** | EA | $3,500.00 | $3,500 |
| 36 | Site and street furnishes | **1** | LS | $75,000.00 | $75,000 |
| 37 | Carport | | | | NIC |
| 38 | Mow strip | **929** | LF | $10.50 | $9,755 |
| 39 | Flagpole | **3** | EA | $7,500.00 | $22,500 |
| 40 | Relocation of memorial garden | **1** | AL | $25,000.00 | $25,000 |
| 41 | Wall/fence to generator | **15** | LF | $500.00 | $7,500 |
| 42 | Lawns | **39,149** | SF | $0.33 | $12,919 |
| 43 | Topsoil | **1,450** | CY | $22.00 | $31,900 |
| 44 | Planting | **1** | LS | $50,000.00 | $50,000 |
| 45 | Water service | **1** | AL | $65,000.00 | $65,000 |
| 46 | Sanitary sewer | **1** | LS | $50,000.00 | $50,000 |
| 47 | Storm drainage | **1** | AL | $175,000.00 | $175,000 |
| 48 | Gas | **1** | AL | $5,000.00 | $5,000 |
| 49 | Site electrical | **1** | AL | $200,000.00 | $200,000 |
| 50 | **SITEWORK TOTAL** | | | | **$1,137,333** |
| 51 | | | | | |

# Southbridge Central Fire Station

## *Opinion of Probable Costs: Opt. 1*

***January 31, 2018***

Mitchell Associates Architects

KAESTLE BOOS associates, inc

| Description | | | Subtotals | Totals | Comments |
|---|---|---|---|---|---|
| **1. Construction Costs** | | | | | |
| Site Work | | | $1,137,333 | | |
| Building Construction | | 36,000 SF | $12,142,129 | | |
| | | ***Subtotal:*** | $13,279,462 | | |
| Concept Design / Estimating Contingency | @ | 10.0% | $1,327,946 | | |
| | | ***Subtotal Direct Construction Costs:*** | **$14,607,408** | | |
| General Conditions & Overhead | @ | 8.00% | $1,168,593 | | |
| Insurance | @ | 1.25% | $197,200 | | |
| Bonds | @ | 0.65% | $103,826 | | |
| GC Fee (Profit) | @ | 3.00% | $482,311 | | |
| Permit Fee | @ | 1.50% | Waived | | |
| | | | $16,559,337 | | |
| Escalation (bid 4th Quarter of 2019) | @ | 4.00% | $662,662 | | |
| | | ***Subtotal Construction Cost:*** | **$17,222,000** | | |
| **2. Owner's Indirect Costs** | | | | | |
| Land Survey | | | $15,000 | | *(incorp. additional land)* |
| Geotechnical Investigation | | | $15,000 | | |
| Arch.& Eng.Fees (Design & Construction) | | | $1,602,000 | | |
| Additional Services and Reimbursables | | | $160,000 | | |
| Peer Review | | | $12,000 | | |
| Project Management (4%) | | | $689,000 | | |
| Firematic Equipment | | | $200,000 | | *Allowance* |
| Furniture & Furnishings | | | $360,000 | | *$10 /SF* |
| Communications Equipment Allowance | | | $100,000 | | *Allowance* |
| Network & Computers | | | $50,000 | | *Allowance* |
| Utility Backcharge | | | $20,000 | | *Allowance* |
| Moving | | | $25,000 | | *Allowance* |
| Reproduction / Miscellaneous | | | $15,000 | | *Assume OnLine Service* |
| Legal/Advertising | | | $12,000 | | |
| Material Testing | | | $50,000 | | |
| Owner's Contingency (8% of all costs; 1,2 + 3) | | | $1,659,000 | | |
| | | ***Subtotal Indirect Costs:*** | **$4,984,000** | | |
| **3. Land Acquisition** | | | **$194,000** | | *Assessed value +10%* |
| | | ***Total Project Cost:*** | **$22,400,000** | | |

# Southbridge Central Fire Station

## *Opinion of Probable Costs: Opt. 2*

***January 31, 2018***

Mitchell Associates Architects

KAESTLE BOOS associates, inc

| Description | | | Subtotals | Totals | Comments |
|---|---|---|---|---|---|
| **1. Construction Costs** | | | | | |
| HazMat | | | $250,000 | | *Allowance* |
| Demolition of Addition | 2,400 | SF | $90,000 | | |
| Site Work | | | $980,000 | | |
| Renovation of Original Fire Station | 15,150 | SF | $4,545,000 | | |
| New Building Construction | 22,500 | SF | $8,100,000 | | |
| ***Subtotal:*** | | | $13,965,000 | | |
| Concept Design / Estimating Contingency | @ 15.0% | | $2,095,000 | | |
| ***Subtotal Direct Construction Costs:*** | | | **$16,060,000** | | |
| General Conditions & Overhead | @ 8.00% | | $1,285,000 | | |
| Insurance | @ 1.25% | | $217,000 | | |
| Bonds | @ 0.65% | | $114,000 | | |
| GC Fee (Profit) | @ 3.00% | | $530,000 | | |
| Permit Fee | @ 1.50% | | Waived | | |
| ***Subtotal Construction Cost:*** | | | $18,206,000 | | |
| Escalation (bid 4th Quarter of 2019) | @ 4.00% | | $729,000 | | |
| ***Subtotal Probable Construction Cost (2019):*** | | | **$18,935,000** | | |
| **2. Owner's Indirect Costs** | | | | | |
| Land Survey | | | $15,000 | | *(incorp. additional land)* |
| Geotechnical Investigation | | | $20,000 | | |
| Arch.& Eng.Fees (Design & Construction) | | | $1,764,000 | | |
| Additional Services and Reimbursables | | | $171,000 | | |
| Peer Review | | | $12,000 | | |
| Project Management (4.5%) | | | $852,000 | | |
| Firematic Equipment | | | $200,000 | | *Allowance* |
| Furniture & Furnishings | | | $225,000 | | *$10 /SF* |
| Communications Equipment Allowance | | | $100,000 | | *Allowance* |
| Network & Computers | | | $50,000 | | *Allowance* |
| Utility Backcharge | | | $20,000 | | *Allowance* |
| Moving | | | $25,000 | | *Allowance* |
| Reproduction / Miscellaneous | | | $15,000 | | *Assume OnLine Service* |
| Legal/Advertising | | | $12,000 | | |
| Material Testing | | | $50,000 | | |
| Owner's Contingency (10% of all costs) | | | $2,291,000 | | |
| ***Subtotal Indirect Costs:*** | | | **$5,822,000** | | |
| **3. Land Acquisition** | | | **$441,000** | | *Assessed value +10%* |
| ***Total Project Cost:*** | | | **$25,198,000** | | |