

May 2, 2018

FIRE STATION BUILDING COMMITTEE

East Milton Fire Station – Recommendation Going Forward

Synopsis

Based on the lot size of the present East Milton Fire Station available for constructing a modern, 21st Century fire station, the existing site provides neither the area nor the plot geometry and orientation to construct a modern fire station to meet the national standards and the public safety requirements for the residents of Milton.

Existing Condition The existing two story East Milton Fire House is located at 525 Adams Street. According to Town of Milton Assessor's Office the East Milton Fire Station is a two story building of approximately 3,514 gross square feet (GSF); representing a building footprint of roughly 2,050 SF. The building is located on, according to the Assessor, 7,020 SF of land. The Fire Station houses Engine No. 2 of the Milton Fire Department. Additionally, a non-operation fire engine is stored at this fire station. Engine No. 2 coverage area begins at the Randolph – Milton municipal town boundary, then runs roughly along Randolph Avenue past St. Elizabeth Church, continues along Randolph Avenue to Adams Street; then extends eastward to the City of Quincy municipal boundary. Responding to any call west of the Southeast Expressway during normal rush hours, Engine No. 2, must maneuver thorough heavy traffic into the convoluted East Milton Square traffic pattern.



East Milton Fire Station (Existing)

Analysis Any design of new East Milton Fire Station must take into consideration two elements; 21st Century Massachusetts Building Code Regulations and recognizable, modern firefighting

equipment use, maintenance and storage. The East Milton Fire Station needs to be replaced as it provides none of those design elements or modern services.

Massachusetts Building Codes.¹ Construction or extensive renovation of the the East Milton Fire Station Station most comply with the Massachusetts State Building Codes (“Code”). The Code (now in its ninth Edition) consists, in part, of the 2015 International Building Code (IBC) and the International Existing Building Code (IEBC) (recently updated) with Massachusetts Amendments. In accordance with 521 Code of Massachusetts Regulations (CMR), Architectural Access Board Rules regulate construction design related to access to public buildings. Further, Federal Law dictates that staff areas be included in Americans with Disabilities Act (ADA) Accessibility Guidelines.

Compliance with current Massachusetts State Building Codes and Federal Law will directly result in a newly constructed or extensively renovated East Milton Fire Station structure that significantly increases in total square feet. Some examples of design requirements that will add to the fire station structure's increase in square footage are:

- Public Access. Visitors to the fire house are to be met in a reception area which has a ADA compliant bathroom.
- ADA Compliance. Staff working areas, staff living areas, hallways, etc. must now be comply with Federal ADA design regulations.
- Egress Compliance. Based on a 7,020 SF lot size, any new East Milton Fire Station would be a two-story structure; having living quarters, storage and possibly office space on the second floor. Fire Code regulations will require, therefore, a minimum of two stairwell egresses from the second floor.

Use and Accommodation of Modern Fire Equipment. Since inauguration in 1952 of the East Milton Fire Station, fire departments have witnessed a dramatic increase in fire truck size, fire equipment proliferation and complexity. Additionally, the Milton Fire Department mission has expanded. Approximately eighty percent of Milton Fire Department calls now involve, not structural fires, but human life aid support calls.

FSNC Findings. The Milton Town Meeting previously authorized the Fire Space Needs Committee (FSNC) to evaluate the physical condition of Milton's three fire stations, the potential for renovating those stations, and, if renovation was not cost effective, to propose designs and cost estimates to replace the three fire stations. In the Fall 2015, the Fire Station Needs Committee retained Kaestle Boos Associates to provide consulting and design services to evaluate the Milton Fire Departments three existing facilities. That report, **2016 Milton Fire Station Space Needs Study**, dated April 26, 2016, *Sec. 3. East Milton – 525 Adams Street C. Space Needs*, contains a detailed assessment by Mitchell Associates Architects, a subcontractor to Kaestle Boos Associates, of the amount of square footage a modern East Milton Fire Station would require to provide the required safely needs for the citizens of the Town of Milton. See: Enclosure (1) for Mitchell Associate Architect complete report. The result of that study determined the following:

Total Building Estimate: 7,688 SF

Estimate by Building Floor: 4,177 SF (First) 3,511 (Second)

Building Footprint Estimate: 4,177 SF

Evaluation of Present Fire Station Site For illustrative purposes, the Fire Station Building Committee (The Committee) analyzed building a 21st Century fire station at the present site of the existing East Milton Fire Station. If a modern fire station were constructed to replace the existing East Milton Fire Station, then these two questions would have to be addressed. First, can a new, modern fire station be constructed on the lot/land of the present East Milton Fire Station, and secondly, can a modern fire station with a 40 – 50 year life span, if constructed at this site, effectively support Milton Fire Department Engine No. 2.

Fire Station Lot Size. The initial fire station modeling results demonstrate a modern fire station, incorporating the space needs from Enclosure (1), cannot possibly be constructed on the 7,020 SF lot which the existing East Milton Fire Station resides. Engine No. 2 exiting on to either Granite Avenue or Adams Street, dictates the orientation of the new fire station. That orientation and building foot print size essentially eliminate any usable apron around the new fire station. This would likely result in no parking for staff, maneuvering Engine No. 2, maintenance crews, or visitors.

It is noted, this model is not a site specific architectural plan. While a more detailed analysis could be explored, as previously explained, this model incorporated the amount of square footage a modern East Milton Fire Station would require based on the detailed assessment by Mitchell Associates Architects.² These requirements are contained in the Architects' report, **2016 Milton Fire Station Space Needs Study**, dated April 26, 2016, *Sec. 3. East Milton – 525 Adams Street C. Space Needs*. See Enclosure (1).

New Fire Station Use and Support Deficiencies. Analyzing how effectively a new fire station constructed at the present location of the East Milton Fire Station would support the fire fighting and life saving duties of Engine No. 2 has determined these following deficiencies.



East Milton Fire Station (Proposal A)
Schematic Design: Fire truck entering/exiting from Granite Street

In addition to the deficiencies outlined above related to lot size, Proposal A also has the following design challenges:

- Engine No. 2 would be forced to back into its bay in a new East Milton Fire Station. Most

modern fire station designs strive to have drive through bays for fire engines. This design approach avoids the current hazardous condition of firefighters having to stop heavy traffic on Granite Avenue and Adams street to back Engine No. 2 into its bay multiple times a day.



East Milton Fire Station (Proposal B)

Schematic Design: Fire truck entering From Adams St/exiting to Granite Ave

In addition to the deficiencies outlined above related to lot size, Proposal A and B also has the following design challenges:

- There would be few parking spaces available. One can argue that East Milton Square provides sufficient parking for the Engine No. 2 crew and fire station staff. That argument would be missing an important fact. There is no location in East Milton to park Engine No. 2 when maintenance is required to the interior of the fire station. There is no ready access to the building by tradesmen with their vehicles to repair the fire station. Related, there is no ready access to the building by maintenance personnel to service or repair the myriad of firefighting or life saving equipment used by Engine No. 2.
- A new fire station, built in the same location as the East Milton Fire Station, would still be in a disadvantage location. Any new fire station built at the same location of the present East Milton Fire Station would still force its fire engine to maneuver through the same East Milton Square traffic. As explained previously in this report, Engine No. 2 coverage area runs from approximately Randolph Avenue to the City of Quincy municipal boundary. That means the majority of Engine No. 2's coverage area lies to the west of the Southeast Expressway. Specifically, Engine No. 2's coverage area equals an area approximately 1.81 square miles (sq mi). Using the Southeast Express Way as the demarcation line between Engine No 2's east and west coverage area; 1.31 sq mi or 71.2% lies to the west of the Southeast Expressway. See: Enclosure (2) for map of Engine No. 2 coverage area depicting the east and west area allocations.
- Another analysis to determine how the traffic in East Milton Square effects the Engine No. 2's response time is to compare the call volume between the Engine No. 2's east coverage area versus its west coverage area. This data was extracted from a Milton Fire Department

run time analysis conducted by FireStats LLC. During the five year period of July 1, 2012 – July 1, 2017 the East Sector received 1,337 calls (24.8%), while the West Sector received 4,050 calls (75.2%). The meaning of this statistic is that three quarters of Engine No. 2's calls are to its west coverage area. This results in Engine No. 2, for most calls, must deal with traffic delays in East Milton Square to reach its high call volume area. See: Enclosure (2) for call volume graphical comparison.

- The Committee requested the Milton Fire Department provide a statistical base analysis of Engine No. 2's run time from its fire station to the U.S. Post Office. During the week of April 9, 2018, a set of timed runs from the East Milton Fire Station to the U.S. Post Office were conducted during a light traffic period using a vehicle traveling at Engine No. 2's speed when responding to an alarm. These call responses average a run time of 1:00 minute. Engine No. 2 to reach its coverage area during heavy traffic periods will use valuable response time minutes maneuvering through East Milton Square traffic, far exceeding the 1:00 minute run time in light traffic, to gain access either to Adams Street or Edge Hill Road.

Discussion Any city or town's fire station is not simply a garage where the municipality parks its fire engines between calls. A 21st Century fire station provides accommodations for the fire engines crew, a training area for that crew, maintenance areas for the fire engine and ancillary equipment, and sufficient storage capacity for supplies and required back-up equipment. Further, a modern fire station contains a communications or command and control center, a reception area for visitors, and an accessible parking lot for the fire engine crew and station staff, the shift change, fire station visitors, maintenance technicians, instructors and inspectors. There is one final consideration for a city or a town. That is where to site a fire station. City and towns strive to locate their stations next to a road network that can deliver a fire engine directly to the highest percentage of coverage area for that fire station.

Constructing a new, 21st Century fire station to replace the East Milton Fire Station, but locating that new station at the same location as the existing station, has the potential to not effectively protect the public safety of the citizens of Milton. The factor that summarizes the potential to not effectively protect Milton's citizens' public safety is "accessibility." The accessibility deficiencies by locating a 21st Century fire station at the location of the present East Milton Fire Station are as summarized:

- Massachusetts State Building Codes and Federal Law Compliance. Any new fire station constructed on the site of the present East Milton Fire Station will be two stories. This is because the small lot size forces living quarters, storage, etc. to be housed on a second story. ADA accessibility compliance in accordance with Federal regulations will require (possible) installation of an elevator. Fire Code regulations will require, with living quarters on the second story, several stairwell egresses from that second floor. Design components; elevators, stairwells egresses, etc., to meet accessibility code compliance will add additional construction costs to a new fire station built at the present site of the East Milton Fire Station.
- Engine No. 2 Access to Apparatus Bay. Depending on the orientation of the new fire station, the potential hazardous situation exists of firefighters having to stop heavy traffic several times per day on Granite Avenue or Adams Street in order to maneuver Engine No. 2 into its bay.
- Engine No. 2 Does Not Have Direct Access to Majority of its Coverage Area. The East

Milton Fire Station location is in East Milton Square; yet the majority of Engine No. 2's coverage area lies to the west of the Southeast Expressway. In order to reach the coverage area to the west, Engine No. 2 must use valuable response time to maneuver through East Milton Square traffic, then avoid merging traffic over the Southeast Expressway before either gaining access to Adams Street or Edge Hill Road.

- Support and Public Accessibility. A new, modern East Milton Fire Station once commissioned, if it is expected to achieve its 40-50 year life span, requires constant maintenance and repair. Any fire station presents a unique maintenance challenge because it is a 24-hour per day, 7-day per week operation. Maintenance or repair efforts need to adapt to a fire station's continuous operations tempo. After constructing a new, modern fire station at the site of the present East Milton Fire Station there will be no or little accessible parking. The direct result of the elimination of these spaces is maintenance vehicles with their associated loaded supply parts have no access to the new, modern fire station. Envision crews installing a new roof, repairing a heating system, or painting the fire station's interior – all maintenance functions expected in a building's forty year life span – needing to close one lane of Granite Avenue and/or Adams Street to park their vehicles to access equipment and supplies.
- Public access to a new, modern East Milton Fire Station would be predominately be walk-ins; either seeking emergency aid or directions. This new, modern East Milton Fire Station probably will not be visited by any Town of Milton civic groups; such as; fraternal organizations, youth groups, various Milton school's grades, senior grades, etc. The reason these groups most likely cannot visit a new, modern East Milton Fire Station is because sufficient, accessibility parking for the groups transports is not available. The footprint of a new, modern East Milton Fire Station, located at the site of the present fire station, provides insufficient room for accessible parking.

Conclusion Based on the Committee's review of the FSNC work, Kaestle Boos report and its own analysis, it concludes a fire station of a 21st Century design cannot be constructed at the present East Milton Fire Station location. This decision is based on two major deficiencies related to that site. First, the site is too small to construct a modern fire station based on design elements contained in the previously explained **2016 Milton Fire Station Space Needs Study**. See Enclosure (1). Secondly, there are multiple deficiencies that detract from effectively operating a modern fire station. Those deficiencies analyzed in this report were; maneuvering Engine No. 2 in heavy East Milton Square traffic, increase response times for Engine No. 2 to drive through East Milton Square traffic to access the majority of Engine No 2's coverage area, and no accessible parking for the fire station staff, maintenance technicians, repair crews or public groups.

Accordingly, the Fire Station Building Commission recommends against further consideration of the present East Milton Fire Station location for a new fire station.

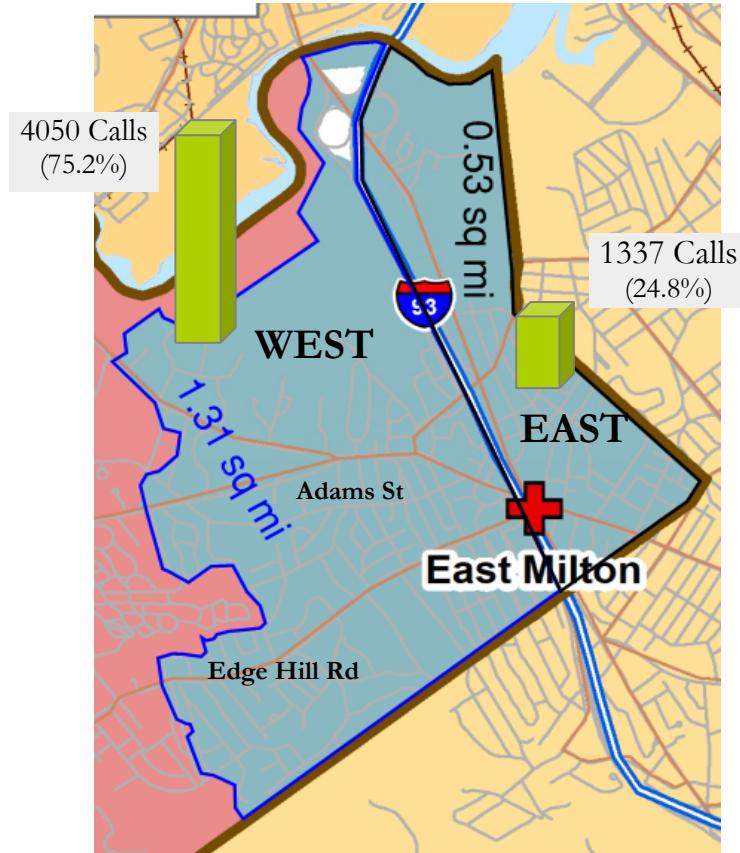
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- SPACE NEEDS -

https://docs.wixstatic.com/ugd/2bc50e_357b62dab2e640118538cbb37bd2d9ab.pdf

Enclosure (1)

- ENGINE No. 2 COVERAGE AREA -
 and
- CALL VOLUME -
 (07.01.2012 – 07.01.2017)



Enclosure (2)

¹ The Milton Town Meeting previously authorized the Fire Station Needs Committee to evaluate the physical condition of Milton's three fire stations, the potential for renovating those stations, and, if renovation was not cost effective, to propose designs and cost estimates to replace the three fire stations. In the Fall 2015, the Fire Station Needs Committee retained Kaestle Boos Associates to provide consulting and design services to evaluate the Milton Fire Department's three existing facilities. That report **2016 Milton Fire Station Space Needs Study**, dated April 26, 2016, Sec. 3.A. Code Analysis, contains a detail analysis of how compliance to Massachusetts Building Codes will directly effect the design requirements of any new Milton fire station construction. See: https://docs.wixstatic.com/ugd/2bc50e_31873881e0544fbdbb0ff606c1693c10.pdf

² The Committee through extensive discussions with the Milton Fire Department Chief evaluated whether or not some design elements of the Mitchell Associates Architects **2016 Milton Fire Station Space Needs Study** could be eliminated or reduced. The conclusion of the Chief and The Committee was each design element contained in that report was essential. For example, the DeCon Laundry, Patrol Room (Command & Control) or Day Room (Kitchen/Dinning Area) could not be eliminated. Similarly, Engine No. 2's Apparatus Bay, Hose Storage, or Turnout Gear Storage could not be reduced. The model developed based on the Mitchell Associates Architects study requires two stories. The fire station as a public building is required to be compliant with ADA regulations. In order to be ADA compliant, a new two story fire station will require an elevator be installed for access to the second floor. The Town of Milton possible could request an exemption from the ADA requirements to install an elevator. The amount of square footage eliminated, though, would be only 328 SF, or 7.85% of the new building's total area. It is noted the Town of Westwood, MA recently inaugurated a modern, two story fire station in November 2017. That new, two story station has an elevator. The Committee's conclusion is that each design element of the **2016 Milton Fire Station Space Needs Study** is essential and compliance with ADA requirements has not bloated a newly designed East Milton Fire Station's square footage.