

Background

On Monday, August 8, 2005 Robert Mitchell met with the City Manager Joe Braun, Fire Chief Tim Joseph and Lieutenant Tim Dexter to review current and future needs of the Fire Department. On Tuesday Mitchell returned and toured the existing three fire stations with the Chief and Lieutenant. Based on these visits and conversations, Mitchell Associates Architects (MAA) proposed to perform a feasibility study to evaluate the City's options and help the City make the wisest possible choices going forward. To that end MAA propose to perform the following tasks and evaluate the following options:

Task 1 – Perform a *Preliminary Evaluation* of the physical condition of the three existing fire stations to determine in a general sense their adaptability for renovations and/or additions. This evaluation will be general and architectural, and will not include an engineering analysis of structure or mechanical systems.

Task 2 – Develop a *User Needs Analysis* (Program) that looks forward, attempting to identify the needs of the Department for the next 25 years.

Task 3 – Using the results Tasks 1 & 2, determine if any of the three stations can accommodate an *addition sufficient to meet the forecasted need*.

Task 4 – In the event that none of the existing stations prove to be adaptable for the scale of renovations and additions indicated in Task 2, evaluate *alternative locations* for a new fire station.

This project was undertaken with the full understanding that fire protection for the City of Beacon is provided by volunteers from three independent fire companies working in conjunction with the City's career staff. With that in mind, every effort has been made to ensure that each stakeholder has full opportunity to express its positions and goals.

Specific Work Items

Item 1 - CAD Input of Headquarters and Tompkins Hose

The goal was to develop base CAD drawings to allow an examination of the possibilities for additions and renovations. Due to the severe limitations of the site for Engine #1, the Committee determined that it would not be reasonable to contemplate additions there. The City Building Department provided us with copies of blueprints from the construction of Tompkins Hose in 1980, and the renovations to Headquarters and Engine #1 in 1977. Simplified versions of these drawings were input into our CAD software and provided to the City. These files became the basis of the diagrammatic designs described below.

Item 2 - Preliminary Review of the Existing Buildings

We have visited each station, made observations and have reviewed drawings of each station. Each building has significant deficiencies ranging from life safety risks to impediments to proper fire station operation. As is to be expected, Tompkins Hose, being the newest station has the fewest problems; however, it is far from meeting current standards for a proper fire station. Both Headquarters and Engine One are completely inappropriate to be fire stations in their current condition. A summary of some of the deficiencies found is included in Appendix A.

Item 3 - Programming Process

MAA provided a programming template that was distributed to sub-committees of the programming committee for their individual input. These program committees were:

- Engine Company #1 – President of Company Mike Angeloni & Tom DiCastro, Sr.
- Mase Hook & Ladder – President of Company Jerry Antalek & Fred Antalek
- Lewis Tompkins Hose Company #1 – Vice Pres. Of Company Reverend Owen Merseur & Dennis Lahey, Sr.
- Administration – Chief Joseph & Lieutenant Dexter
- Career Staff – Tim Dexter, Jr.

Each sub-committee was made up of range of representatives, and typically had between 8 and 10 members. After a series of meetings, each sub-committee submitted a program document identifying its needs. The documents were reviewed and refined by the Committee with MAA, and spreadsheets were developed to determine the building sizes required to meet the stated needs.

The programming meetings had additional participation by:

- Fire Advisory Board – Chair Pat Kelliher, Tony Piccone & Jeff Simko
- Planning Board – Chair Jay Hibbs

MAA met with the programming committee in working sessions starting in November. Over the course of these meetings, the separate groups shared their thoughts regarding their space needs, attachment to their existing facilities, the rich history and tradition of the companies, their feelings about additions, alterations to existing facilities and construction of a new facility. The results can be summarized as follows:

- Any one of the three companies, if it were to remain alone in its own building has similar needs. The previous statement only addresses the requirements to operate the individual Company, and excludes the following:
 1. Differences in the size of required apparatus bay space (eg. Ladder vs. Pumper).
 2. The existence of a large meeting room versus a small meeting/training room.
 3. The location of Departmental offices that are distinct from the Company offices.

Item #1 (Apparatus Bays) - it is necessary to evaluate the number of pieces of apparatus to be assigned to any individual Company. Projecting 30 years the programming committee felt the Department would need to have a total of 8 bays to support the fire, rescue, EMS and support functions of the dept with no station having less than 2. This leaves a range of possibilities of from 2 to 8 pieces of apparatus in any building.

Item #2 (Meeting/Training Rooms) – Each station currently has a recreational space, but only Tompkins has a “Meeting Room.” The question is where this function will be located in the future. In the course of this study we identified the following possible arrangements:

- The large meeting room remains at Tompkins, and smaller Meeting/Training room(s) are located at one or two other stations.

- The large meeting room is relocated to a new building to house Mase & Engine #1, and the existing space at Tompkins is reduced to a smaller Meeting/Training room.
- A new central station is built with a large Meeting/Training room and the existing stations closed.

Item #3 (Departmental Offices) – Office and storage space currently available for administration of the Department is grossly deficient. Furthermore, these needs will grow over time as the State and Federal requirements for training and documentation increase. Necessary spaces include the following:

- Chief's Office
- Department Officers
- Company Chiefs
- Tour Commander/Career Officer
- Department Secretary/Receptionist
- Conference Room
- Fire Prevention
- Offices for Training, Safety and EMS
- Records Storage
- Storage for the Conference Room

The need for these spaces was discussed at length, and **there was a clear agreement within the Committee that the future needs of the Department would not be met without these physical spaces.**

The programs are attached as Appendix B

Item 4 - Summary of Programming Results

The first thing that was determined and agreed to was the basic space needs that would apply equally to any single Company. The required area was determined in the abstract, ignoring any existing available space, and becomes the groundwork for evaluating the ability of the existing buildings to meet future requirements.

Required Space if One Story – 14,550 sq ft

Required Space if Two Story – 15,900 sq ft (16,609 if at Tompkins)

Required Space if Three Story – 17,250 sq ft

Existing at Headquarters – 7,038 sq ft Required Addition – 10,212 sq ft

Existing at Tompkins Hose – 10,133 Required Addition – 6,476 sq ft

After Engine #1 was evaluated for an addition the consulting Architects determined that the topography of the site precludes building a cost effective addition.

After evaluating the required expansion for individual companies, we calculated the space requirements for various combinations of number of companies and height of the building. In each case, we included the Departmental offices in the facility. The following spreadsheet summarizes the results. The results reflect economies of having multiple companies sharing common resources, and dis-economies of multi-story facilities due to space requirements for vertical circulation and redundancies of rooms such as bathrooms, janitor’s closets and utility rooms.

	One Company w/ Departmental Spaces	Two Companies w/ Departmental Spaces	Three Companies w/ Departmental Spaces
One Story			
Building Size	24,500	27,174	34,090
Apparatus Bay	5,709	5,709	9,135
Firematic Support & Mezzanine	3,339	3,765	4,790
Office & Public Area	15,452	17,701	20,165
Footprint (1)	23,300	25,974	32,890
Min Lot Size In Acres (100 cars)			1.95
Preferred Lot Size			2.45
Two Stories			
Building Size	25,870	28,544	35,460
Apparatus Bay	5,709	5,709	9,135
Firematic Support & Mezzanine	3,339	3,765	4,790
Office & Public Area	16,822	19,071	21,535
Footprint (2)	16,312	17,842	23,396
Min Lot Size In Acres (100 cars)			1.92
Preferred Lot Size			2.42
Three Stories			
Building Size	26,450	29,124	36,040
Apparatus Bay	5,709	5,709	9,135
Firematic Support & Mezzanine	3,339	3,765	4,790
Office & Public Area	17,402	19,651	22,115
Footprint (2)	14,475	15,123	20,154
Min Lot Size In Acres (100 cars)			1.76
Preferred Lot Size			2.26

Appendix C contains 11 spreadsheets (6 @ 8 ½ x 11 and 5 @ 11 x 17) that describe the existing conditions at Mase and Tompkins, and the following options:

- Basic one-company building areas
- Combinations of one, two or three companies in one building, for either one, two or three stories.
- Mase & Engine 1 located at Mase site with renovations and additions
- Tompkins hose with either one or two additional companies at Tompkins Hose site, with a new exterior skin and roof system.
- Minimal additions and renovations at Tompkins Hose with a large meeting room, with a new exterior skin and roof system.
- Minimal additions and renovations at Tompkins Hose with **no** large meeting room, with a new exterior skin and roof system.

Item 5 - Diagrammatic Block Floor Plans for up to Two Solutions and Diagrammatic Site Designs for up to Two Locations

MAA was contractually obligated to provide block diagrams floor plans and site plans for up to two solutions that would depict the conclusion of the Committee. As is so often the case in the real world, many more opportunities presented themselves, and we felt it was appropriate to evaluate them by means of a drawing. Appendix D contains the following drawings:

- L1 – 3 companies plus Departmental offices, 1 story, back-in, on a tight site
- L2 – 3 companies plus Departmental offices, 2 stories, back-in, on a tight site
- L3 – 3 companies plus Departmental offices, 3 stories, back-in, on a tight site
- L4 – 3 companies plus Departmental offices, 1 story, drive-thru, on an optimal site
- L4A – 3 companies plus Departmental offices, 2 stories, drive-through, on a tight site
- L5 – Mase & #1, plus Departmental offices & large meeting, new 2 stories on a tight site
- L6 – Mase & #1, plus Departmental offices, **no** large meeting, new building, 2 stories on a tight site
- L7 – Mase & #1, plus Departmental offices & large meeting, renovation of Mase w/ addition located on site of former City Hall, 3 stories on a tight site
- L8 – Mase & #1, plus Departmental offices, no large meeting, renovation of Mase w/ addition located on site of former City Hall, 2 stories on a tight site
- L9 – Mase alone, renovation w/ addition, 3 stories on its current, tight site
- L10 & 11 – 3 companies plus Departmental offices & large meeting, renovation of Tompkins w/ addition, 2 stories on its current tight site
- L12 & 13 – Tompkins and Mase plus Departmental offices & large meeting, renovation of Tompkins w/ addition, 2 stories on its current tight site
- L14 & 15 – Tompkins alone & large meeting, renovation of Tompkins w/ addition, 2 stories on its current tight site
- L16 – Engine #1 alone, 2 stories, on the current parking lot site w/ acquisition of the adjacent house
- L17 – Acquisition of the Brandley Dye Works, with renovations and additions

Item 6 - New Site Requirements

As shown in the spreadsheet above, and in diagrams L1 through L17, the new site requirements vary greatly, based on what combination of companies is going to occupy the site. For a new building, housing all firematic functions, the required area varied from just under 2 acres for a 3

story building with adequate parking spaces to just under 3 acres for a 1 story building with 100 parking spaces and recreation/expansion space.

Item 7 - Review of Alternative Prospective Sites

On 2/27/06 Chief Joseph and Lieutenant Dexter brought me to see 13 locations being considered by the Committee. These locations are:

1. South Avenue Park
2. The Elks Club
3. Sargent School Access Road, West Side
4. Sargent School Access Road, East Side
5. Former Ski Lodge
6. Left of, and adjacent Madame Brett
7. Memorial Park
8. Chem Prene
9. Adjacent City Hall
10. North Cedar Street
11. Old DMV site on Main Street
12. Brandley Dye Works
13. 578 Main Street

The properties range from easily developed, well located parcels such as Memorial Park to tight sites such as Liberty/East Main and North Cedar, to politically challenging sites such as DMV and Madame Brett (both of which are also small), to sites at the edge of the response area such as the former ski lodge and Chemprene. The land adjacent City Hall falls steeply from 9D and would be extremely expensive to develop. The Sargent School access road and Elks Club sites proximity to children is a challenge. 578 Main has potentially high demolition costs and appears to be below the flood plain.

Finally, there is the Brandley Dye works. This parcel offers a unique opportunity to rejuvenate and stimulate investment in an area of great potential. It offers significant architectural opportunities that can stimulate investors to make the types of property improvements that will have great and long lasting positive impact on the City.

Further documentation regarding the incremental site development costs is included as Appendix E, our observations regarding the sites are included as Appendix F, and aerial views are included as Appendix G.

Item 8 - Preliminary Budgets of Alternative Solutions

Instead of the two budget figures proposed in the original scope of work attached are 6 detailed Conceptual Budgets. These are for the following:

- Three companies, 2 stories on a tight site (L2)
- Mase & Engine #1, 1 story new construction on a tight site (L5)
- Mase & Engine #1, renovation plus 2 story addition, but no large meeting room (L8)
- Tompkins alone, with minor additions, keeping the large meeting room (L14 & 15)
- Engine #1 alone, 2 story, across from its current site (L16)
- Brandley Dye Works additions and renovations (L17)

In addition, we have provided a preliminary evaluation of the incremental site development costs relative to the “base” site development cost, which is based on Memorial Park.

INCREMENTAL SITE DEVELOPMENT COSTS

ITEM	DESCRIPTION	AMOUNT
1	SOUTH AVE PARK	\$50,000
2	ELKS CLUB	\$25,000
3	COMBINED SARGENT SITES	\$150,000
4	SARGENT SITE 1 ALONE	\$250,000
5	SARGENT SITE 2 ALONE	\$425,000
6	MEMORIAL PARK	NO UNUSUAL COSTS ASSOCIATED WITH THIS SITE
7	CHEM PRENE	\$125,000
8	CITY HALL	\$500,000
9	BRANDLY DYE WORKS	\$75,000
10	578 MAIN	\$100,000
11	SKI LODGE	NO UNUSUAL COSTS ASSOCIATED WITH THIS SITE

The results of the budget analysis are as follows:

Option	Notes	Gross Hard Cost	Gross Square Footage	HardCost Per Square Foot
THREE COMPANIES, 2 STORIES, TIGHT SITE – L2	New building on a new site	\$7,479,600	35,424	\$211.14
THREE COMPANIES, 1 STORY, TIGHT SITE – L1 (*)	New building on a new site	\$6,903,785	33,677	\$205.00
MASE & ENGINE #1, 1-STORY ON A TIGHT SITE – L-5	New building on a new site	\$6,335,500	26,761	\$236.74
MASE & ENGINE #1 WITHOUT LARGE MEETING ROOM - L8	Renovation & addition at Mase, (requires acquisition & demolition of old City Hall)	\$6,109,600	23,087	\$264.63
TOMPKINS HOSE ALONE WITH MINOR ADDITIONS - L-14, L-15	Has only small Training Room	\$2,782,900	13,030	\$213.58
TOMPKINS HOSE ALONE WITH MINOR ADDITIONS - L-14, L-15	Has large Meeting Room	\$3,338,500	16,163	\$206.55
ENGINE #1 ONLY, 2-STORY WITH PROGRAM ADDITIONS - L-16	New building on site across from existing station - purchase of adjacent house site	\$3,838,500	14,550	\$263.81
BRANDLEY DYE WORKS CENTRAL STATION FOR THREE COMPANIES L-17	Renovations & Additions at the Brandley Dye Works	\$7,479,800	35,680	\$209.64

(*) This cost was extrapolated by the Architect from data supplied by the Estimator. The costs estimates are included as Appendix H.

Soft Costs, Land Costs and Income and Tax Revenue from the Sale of Existing Properties

In addition to the hard construction costs, the project will incur “soft costs” in the order of magnitude of \$1,100,000 to \$1,250,000. Soft costs include professional fees (architect, engineer, surveyor, geotechnical, accounting, legal, etc.), Clerk-of-the-works, testing, insurance, bonding costs, furniture, furnishings, fit up, equipment, etc.

As is certainly clear, some of the sites being reviewed will need to be acquired.

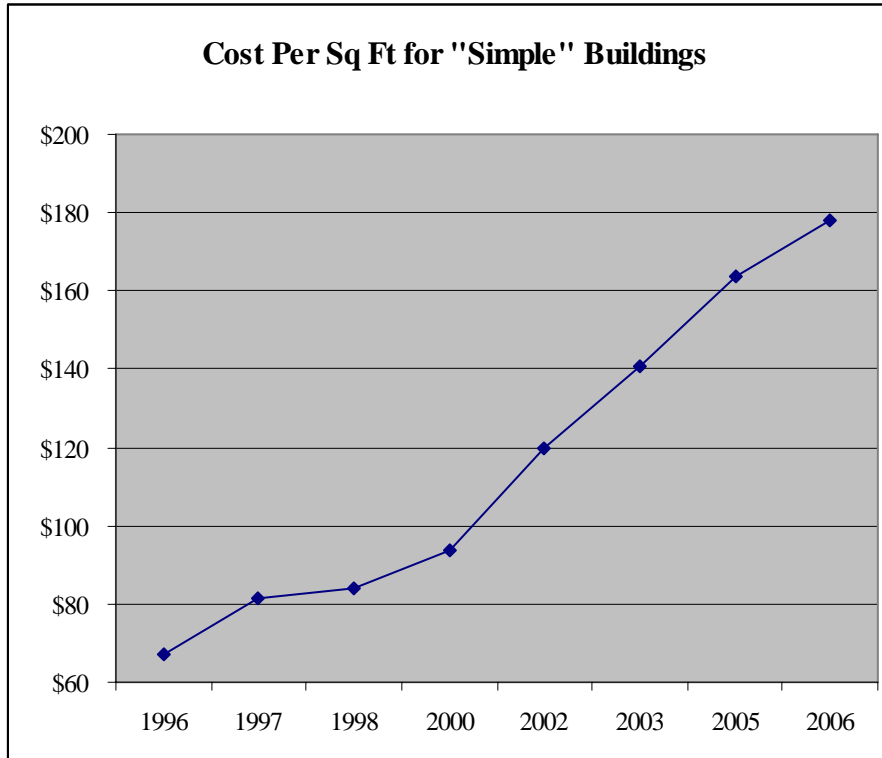
Based on which buildings are sold, the Committee has offered a complete guess that property sale income could be in the range of \$1,500,000. Of course, this assumption needs to be evaluated by means of building appraisals.

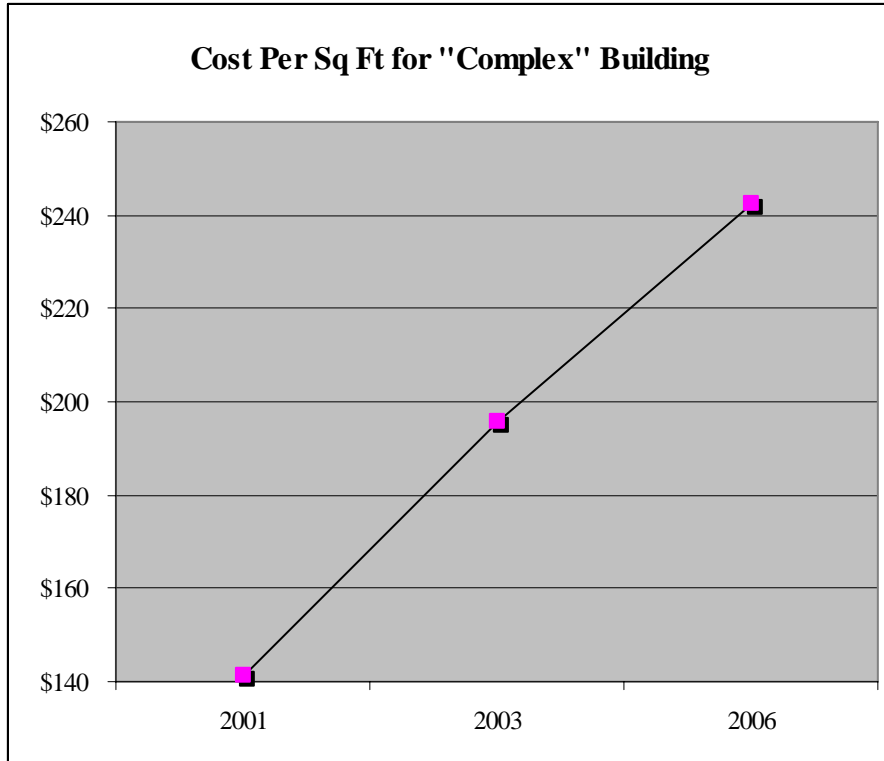
Sale of the existing fire stations would place those properties on the tax rolls.

Costs Associated with Phasing or Delay

The rate of growth in the cost of construction is far outstripping inflation in general.

The following two graphs compile this Architects experience over the past decade:





These graphs indicate an average cost growth of approximately 11.5%, well more than the 3-4% growth rate of the economy at large. You can clearly see that the graph is steeper in recent years. At an 11.5% growth rate, the cost of construction will increase 75% over the next 5 years. One might argue that this rate of growth is unsustainable. That may be so, but assuming that prices will flatten out is to deny the history of the past decade.

One scheme that was looked at by the Committee involved providing a new facility for Mase & Engine #1 now, and postponing renovation of Tompkins for five years. The costs difference would be as follows:

Build a new facility for three stations now:	\$7,479,800
Phase project over five years	
Building a new station for Mase, Engine #1, and Administration now	\$6,757,500
Renovating Tompkins in five years (\$2,782,900 Growing at 11.5%/anum)	\$4,870,075
Total Cost for Phased Project	\$11,627,575
Cost Savings for Building Entire Project Now	\$44,147,775

Architects Observations and Committee Recommendations

A central station for three companies costs in the range of \$7,500,000.

Combining Mase and Engine #1 in one facility with Administration, with Tompkins remaining in its current facility (renovated) costs on the range of \$9,540,400. Furthermore, a site would have to be found to house Mase, Engine #1 and Administration.

We explored the possibility of combining all three companies at the Tompkins Hose site. Drawings L10 and L-11 show that it is physically possible to place a large enough building on the site. However, the same drawings also show that the required shape and massing of the buildings to achieve this are extremely inefficient and expensive.

In order to have each company maintain separate quarters that meet the requirements stated in the program, the following expenses would be incurred:

- Mase in a new building - \$3,433,800
- Tompkins with renovations and additions - \$2,782,900
- Engine #1 in a new building - \$3,838,500
- Administrative Space added to Mase (11,320 sq ft) - \$2,377,200

This results in a total cost of \$12,432,400. Furthermore, the Mase & Engine would require acquisition of land.

If, as seems to this consultant and the Committee, the idea of the central station is compelling, and the City opts for a new building, then it remains to evaluate the alternative sites.

- Memorial Park is well suited from the point of view of location and topography.
- South Avenue Park is well situated, and may work well for a central station. Further analysis is needed to be absolutely sure
- The Elks club site is well suited from the point of view of location and topography, subject to the evaluation of its proximity to the school. We believe that acquisition of the Elks building would be the correct way to use this site.
- Using the two Sargent sites, with the station on the West side and parking on the East side would work well physically. The proximity to the school needs to be evaluated.
- Chem Prene and the Ski Lodge are not well located with the response area.
- The topography of the property adjacent the City Hall is a distinct disadvantage.
- The remainder of the sites that were considered are, in the Architect and Committee's opinions, too small.

The Brandley Dye works offers an unusual opportunity for the City to generate significant revitalization in an area of great potential. The construction cost is comparable to a new building; however the City would need to obtain the property.