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March 29, 2017

(By email billr@fairhaven-ma.gov)

William D. Roth, Jr. AICP,
Town of Fairhaven
Planning & Economic Development Director
40 Center Street
Fairhaven, MA 02719

RE: Rogers School; Fairhaven, MA

Dear Mr. Roth:

We have reviewed and analyzed property and market data in preparation for our third public meeting where we will present our findings and conclusions about the Rogers School feasibility. In advance of that meeting we have prepared a report outlining the market data that we have collected and analyzed as it relates to the feasibility of the Rogers School redevelopment. We have surveyed, analyzed, and updated national and regional economic data sources in order to contextualize the overall real estate and capital markets and understand the influences on the local and regional property and capital markets. Recent changes in national monetary policy and expectations are already having real impacts on local capital markets and necessarily have direct impact on project feasibility. Regional employment pressures, coupled with an understanding of local population and household growth, housing starts, and the nature of local property markets, informs ultimate utility and feasibility of the project.

As we previously discussed, we have engaged the architecture firm of 3 Point Design to provide us a measured set of architectural plans for the Rogers School as well as a building code compliance review so that we can better facilitate discussions on cost, reuse, and suitability for various use alternatives. We have included the results of that code review work and portions of the architectural plan sets and renderings. The full set of plans, renderings, and models will be presented to you in electronic form for future reference and use by the town or your affiliates.

We have analyzed local supply and demand data in order to understand various reuse scenarios, including reuse of the property as a public school, municipal and commercial office, and various housing-related uses in order to inform our discussion on market and financial feasibility of the various proposed uses. We have surveyed and analyzed property markets and participants in order to derive estimated construction and development costs, market rents and sales prices for various uses, current supply and additions to supply in the pipeline, and potential demand for each of the contemplated uses. We have provided independent analysis and conclusions of the current market for the various uses and the likely market and operating feasibility of each use being considered.

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The first public meeting was an opportunity to hear from the residents of Fairhaven regarding their thoughts relative to a future use. A number of citizens commented on that they felt the school should be considered for reuse as an elementary school or municipal building. The available statistical data reviewed for this report does not show demand for a new school or municipal building as growth in Fairhaven is limited and is not trending upward. If the data did point to additional growth, then the question would be 'could the building be returned to its original use and how would the costs of rehabilitation and ongoing operating compare to schools of similar size?'

Bringing the building up to code compliance for any use will be challenging but as a school, there are even more issues that would need to be addressed. Additional requirements for schools that make the reuse as a school challenging include items like separate bathrooms for adults and children and larger elevators to service upper and lower floors. There are also size requirements for different spaces within in the school that are not achievable in the current footprint. State funding for schools is very competitive and once a school has been closed it is much more difficult to receive funding to repair it to be reopened. The issues with civic reuse are the lack of funding programs available creating a need for long-term capital investment by the town or more of a mothball approach where very low impact uses are introduced, these still may be challenging as the pursuit of a certificate of occupancy my increase costs relative to meeting code requirements. We have concluded that the reuse of the building as a public school or municipal building is not the most productive or likely use for the subject based on current and projected town needs, development cost and available funding sources other than local bonding.

Other comments from the meetings focused on trying to find low-impact reuses as the building sits in a well-established residential neighborhood and concerns were expressed about non-compatible reuses and whether high–end housing, condominiums would be a viable option. The floor plan of both buildings do not layout particularly well for residential reuse due to the size and relationship of the different spaces, including the rafter beam spacing on the third floor, window spacing on floors one and two, and the connections to the 1950s addition. The large classrooms in the historic buildings are of particular difficulty as any housing reuse could most likely mean the loss of a significant portion of historic fabric to introduce kitchens and baths into the space with limited window blocking. Based on the layout of the building, the efficiency factor of the footplates, the development pro forma discussed throughout this report and the observed lack of response to the development RFPs by housing developers, condominium or rental housing does not appear to be a viable reuse of the property.

The architecture of the building is impressive and reflective of the best civic architecture of the period, but the character defining features of this period pose very difficult challenges beginning with the raised basement which sets the first floor significantly above grade, thus contributing to additional costs for accessibility for a use that would require direct and constant public access. This poses challenges to reuse relative to making the building compliant with the Americans with Disabilities Act (ADA) and the height of the raised basement and first floor create a challenge for any type of use that requires a street presence, such as retail. The location of the basement and first floor windows do not provide opportunities for display and are essentially hidden from view and exposure. This is further exacerbated by another character defining feature of schools of this period, which is that they often are located in the middle of larger green

spaces and set back from their main street without suitable parking facilities for commercial office and retail use. A preliminary review of the existing zoning requirements in Fairhaven indicate a retail or commercial use would require approximately one parking space per 250-300 square feet of gross leasable area, or approximately between 144-172 parking spaces; which approximates one acre of land area for parking. Based on the layout and physical challenges of the building, the required parking, the development pro forma discussed throughout this report and the observed lack of response to the development RFPs by commercial office and retail developers and users, a commercial office or retail use does not appear to be a viable reuse of the property.

There was a suggestion at the public meeting of some type of wedding or other reception venue. We have seen this done successfully in other historic buildings and have conducted a more thorough review of the surrounding demographics and a competition related to this use. Typically, event spaces are rented in 5-hour blocks for weddings or on an hourly basis for other events. A local survey of wedding venues indicated an estimated $1,000-$2,500 per 5-hour wedding block depending on the size of the space, day of week, and time of year and $200-$300 per hour. Because of the physical improvements and the layout of the property, it is reasonable to assume that a wedding/event venue use could be a component use to a larger institutional or community use, however, would likely not support a full-time events venue at the site. Likewise, we believe that component specialized retail or office/loft uses could be a good fit for the property. Data show that there is an established retail core in the downtown and the neighborhood is active and walk able. Retail and office as a component to a comprehensive use could address concerns noted earlier regarding the residential nature of the neighborhood, while contributing the viability of the property reuse.

Additionally an institutional user such as a private school, art school, college or training center would be another likely candidate for reuse. Like the arts use, the project could be approached in a phased manner, could utilize the character defining features of the buildings as well as the surrounding land areas, could have access to different forms of capital and could be less impactful to the neighborhood. Institutional uses vary greatly and are wholly dependent on the user and component uses at the property; however, it is reasonable to assume successful coordination and definition efforts could be made. Because the property would be used an owner occupant, the financial feasibility of the project is dependent on the underlying fundamental business model and going concern of the enterprise and is unique to the user. However, a user that could utilize the site and building layout while systematically undertaking a renovation and improvement program could maximize the benefits and utility of the property at a reasonably feasible cost. The town has previously received interest in the property from the Northeast Maritime Institute, and was the only responder to the initial RFP process. According to the RFP response, the Maritime Institute would maintain the existing building footprint and restore the 1950s addition and original building respectively. The project would be undertaken in phases and would focus on mandatory code-related and safety issues first and in subsequent phases approach cosmetic repairs and improvements. This approach is reasonable and would be anticipated with most end users of the property within this category of use. Opportunities exist to incorporate additional community and non-profit users into the overall scope of the project and would contribute to the financial feasibility and operations.

The town has previously received an estimate to demolish the property by Jay-Mor Enterprises, Inc. of Hudson, New Hampshire. The estimated total cost of the work was $578,900 and includes the demolition of the structure, removal of all debris including foundations, backfilling to grade, loam and seeding of the disturbed area. The estimate does not include the disconnection of water and sewer lines, lead remediation, asbestos or hazardous material removal, or the cost to erect an 800 linear foot fence at $10 per linear foot, or approximately $8,000. For the town to determine that demolition of the building were the most financially feasible use, the underlying value of the land would necessarily need to offset the cost to demolish, remediate, and ready the site for an alternative use. Currently the property is zoned for single-family residential use, and assuming the continuation of that use, the site would need to be subdivided, curb cuts created, and prepared for sale as single-family house lots. A preliminary review of the existing zoning RA – Single Residence District indicates the site could accommodate approximately six single family house lots while leaving the recreation area and playground unaltered, and eight single family lots if the entire site were developed; eliminating the playground and recreational areas. Based on recent transactions for land for single-family homes within Fairhaven and the estimated cost to demolish and remediate the site, it does not appear to support the conclusion that demolition and the subdivision of the property for single-family residential use is a feasible reuse possibility.

The U.S. Department of the Interior, through the National Park Service has provided specific direction on the care and preservation of historic structures, including the temporary stabilization, maintenance, and protection of the property. The subject has been vacant for approximately four years and has deteriorated from inactive use, however, remains in substantially good condition with no noticeable areas of major damage. Keeping the building water tight and well ventilated will prevent unwanted moisture and mold from further damaging the property. Mold containment is a major concern for historic properties and the costs associated with the necessary remediation efforts can be substantial. The longer a historic property sits vacant and unused, the faster the building will deteriorate. With limited climate control, ventilation, and observation, the property can quickly deteriorate and there will be a point at which major structural, systems, and building envelope repairs will be required. Additionally, long-term mothballing programs can be costly to implement for a long-term solution. Short term maintenance of the current status quo and adoption of a formal mothball and maintenance plan will not stop deterioration or formally stabilize the building, however, should be considered an interim solution that costs the town little while perusing development opportunities or permanent reuse solutions.

The most likely redevelopment scenario would be an institutional user who can best utilize the site and building for their use and make the necessary improvements as needed without necessarily having to undertake a large capital improvement project immediately. As previously discussed within this report, the base estimated costs to bring the Rogers School into a fully code compliant state would cost approximately $3,600,000. From our analysis and the analysis of the architect completing the code review, there doesn't appear to be a use scenario that would not trigger full building and accessibility code compliance. Accessibility code compliance is based on the cost of development or construction undertaken. If the development or construction costs are 30% or more than the full and fair cash value of the building (minus land). The building is currently assessed at $2,637,900 and 30% of that full and fair cash value would be approximately

$791,370. If construction costs equal or exceed $791,370, the entire building must be brought into compliance with the accessibility code requirements of the Massachusetts Architectural Access Board. This includes substantial upgrades to building access, circulation, to parking, elevators/chair lifts, and restroom facilities. The building needs enough immediate repair and restoration work and required improvements for use and general occupancy code requirements that almost any scenario requires full code compliance once a developer starts addressing immediate needs.

In the short term, it is recommended that the maintenance of the current status quo be continued and increased to include the adoption of a formal mothball and maintenance plan for the property as you develop a permanent solution for long-term use. The plan will not stop deterioration or formally stabilize the building; however, it should be considered an interim solution that costs the town little while perusing development opportunities or permanent reuse solutions. The development of vacant historic properties can be a lengthy process of entitlements, approvals, filings, and allocations and a formal mothball and maintenance plan will allow the physical asset to be best protected during the interim. Additional resources for mothballing historic properties can be found in the appendix of this report and include Preservation Brief 31 and a brief presented by MA Department of Conservation and Recreation Office of Cultural Resources, an excellent resource for historic preservation planning and guidance. Additionally, as previously discussed at the second public meeting, the town should consider listing the property with the Massachusetts Film office as a location for film, television, and commercial production. The listing is free and simple to execute and can be a low-impact use for the property on an interim basis and can generate cash flow to the town that could be used to offset building maintenance, operations, or dedicated as a funding source for the future redevelopment of the property.

In the long-term, the most likely redevelopment scenario would be an institutional user who can best utilize the site and building for their use and make the necessary improvements as needed without necessarily having to undertake a large capital improvement project immediately. Because the redevelopment scenario is most likely an end user, the town The town should decide if it wishes to maintain ownership of the Rogers School and pursue a development on their own, with a private partnership, or dispose of the Rogers School to a developer or end-user to undertake the development. Federal Historic Rehabilitation Tax Credits and Massachusetts Historic Rehabilitation Tax Credits are major sources of capital funding for the adaptive reuse of historic properties are only available for income-producing buildings which are listed in the National Register of Historic Places and which are substantially rehabilitated according to the Secretary of Interior's Standards for Rehabilitation. Because we believe the most likely redevelopment scenario would be an institutional user that can accommodate additional component uses, the town should take a role in helping finance the property through their allocation of Community Preservation Act (CPA) funds and earmarks for future allocations, beginning the application process in advance for state historic tax credits in anticipation of redevelopment, and the potential for a long-term ground lease in order to capitalize on subsidy programs, in the event the town wishes to retain ownership of the Rogers School. Efforts to establish local financing sources and secure state funding in advance will reduce the risk to a developer or end user and can increase certainty. Dedicated funding sources will make the property more attractive to potential developers and end users. Our view is that reliance on the traditional local RFP process for soliciting interest, services, and bids are often inadequately

advertised and distributed and solicitation periods are open for less time than is required to attract sufficient response from qualified entities. RFP processes need to be refined and specific in order to attract sufficient interest and ultimately provide value to the town by reducing barriers to success. From the perspective of market participants, responding to a public bid process takes time and energy and often requires building a team and sensitivity to those issues are central to responsiveness and clarity. Direct community outreach, a professional marketing campaign, and direct dialogue with users and developers is important in order to cast a net for potential users and reducing uncertainty.

The attached report serves as a summary of our findings. All of our conclusions are based on hypothetical development scenarios, physical and code review data and information related to the existing property. Changes to the physical asset, development plan or scope, and market may require a re-evaluation of our conclusions. We are delighted to be of service to you. If you have any questions regarding the content of this report please feel free to contact us.

Sincerely,

David S. Kirk, MAI, CRE®

Brett N. Pelletier

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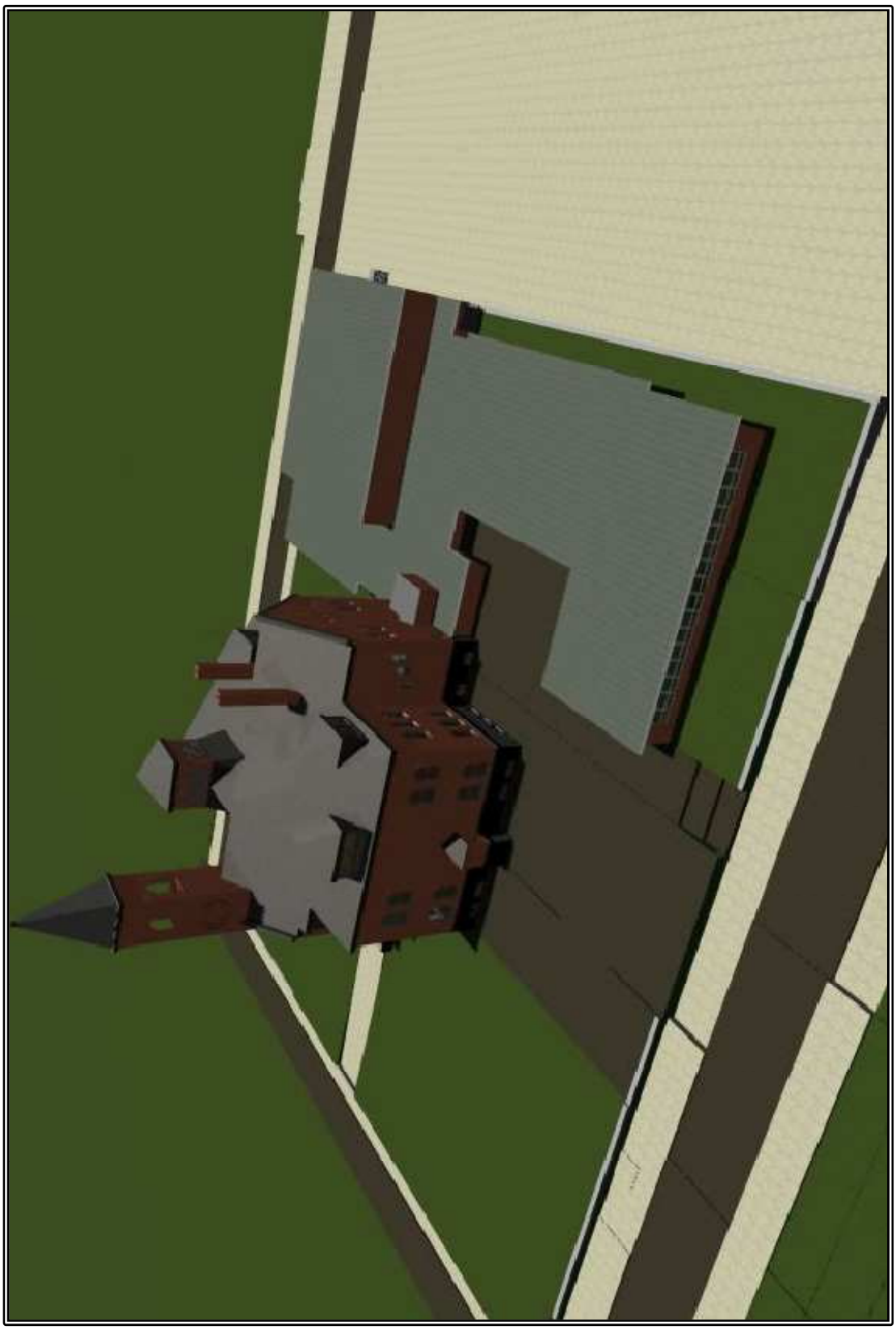
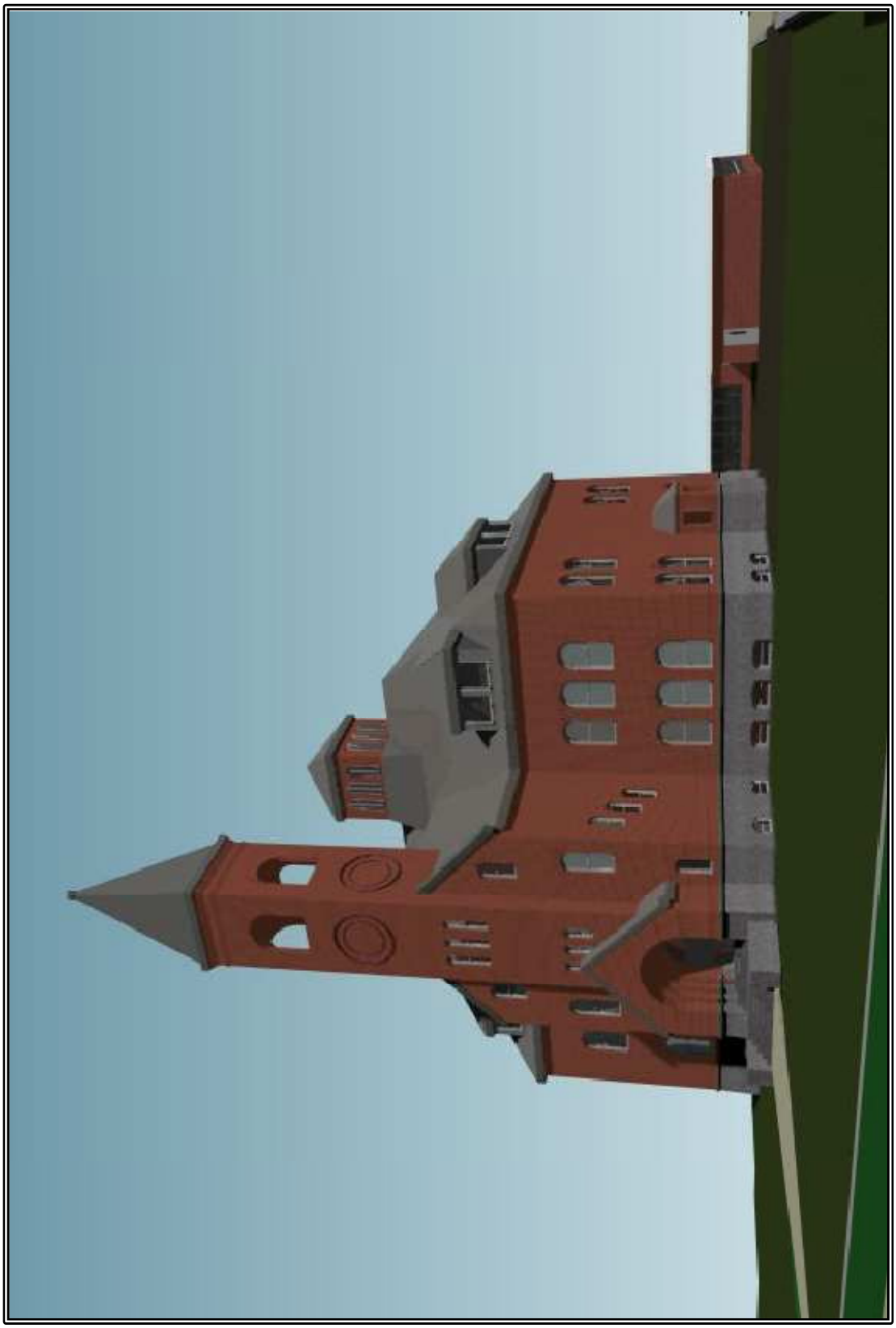
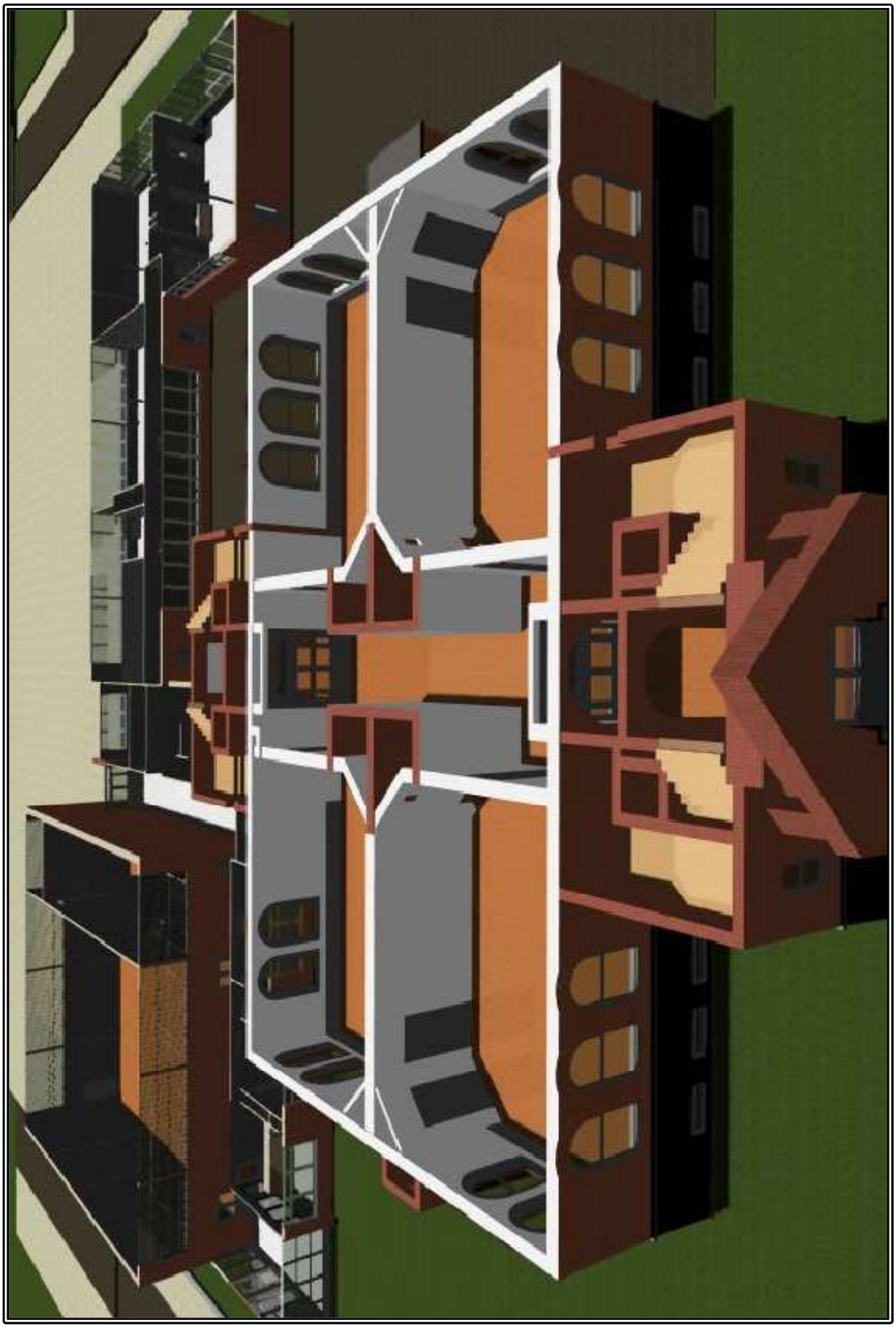
SUBJECT PROPERTY – EXISTING CONDITIONS

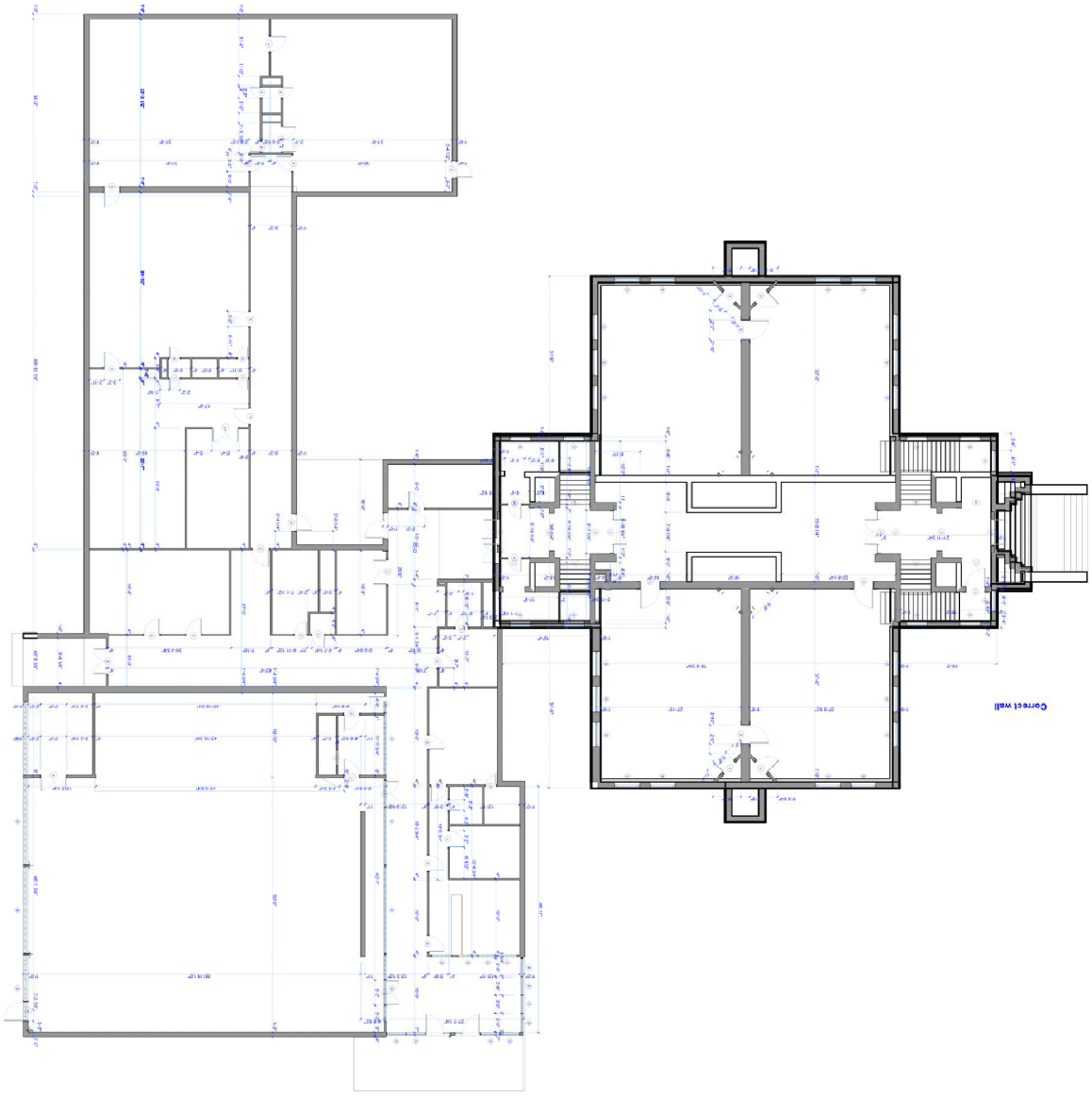
ARCHITECTURAL RENDERINGS

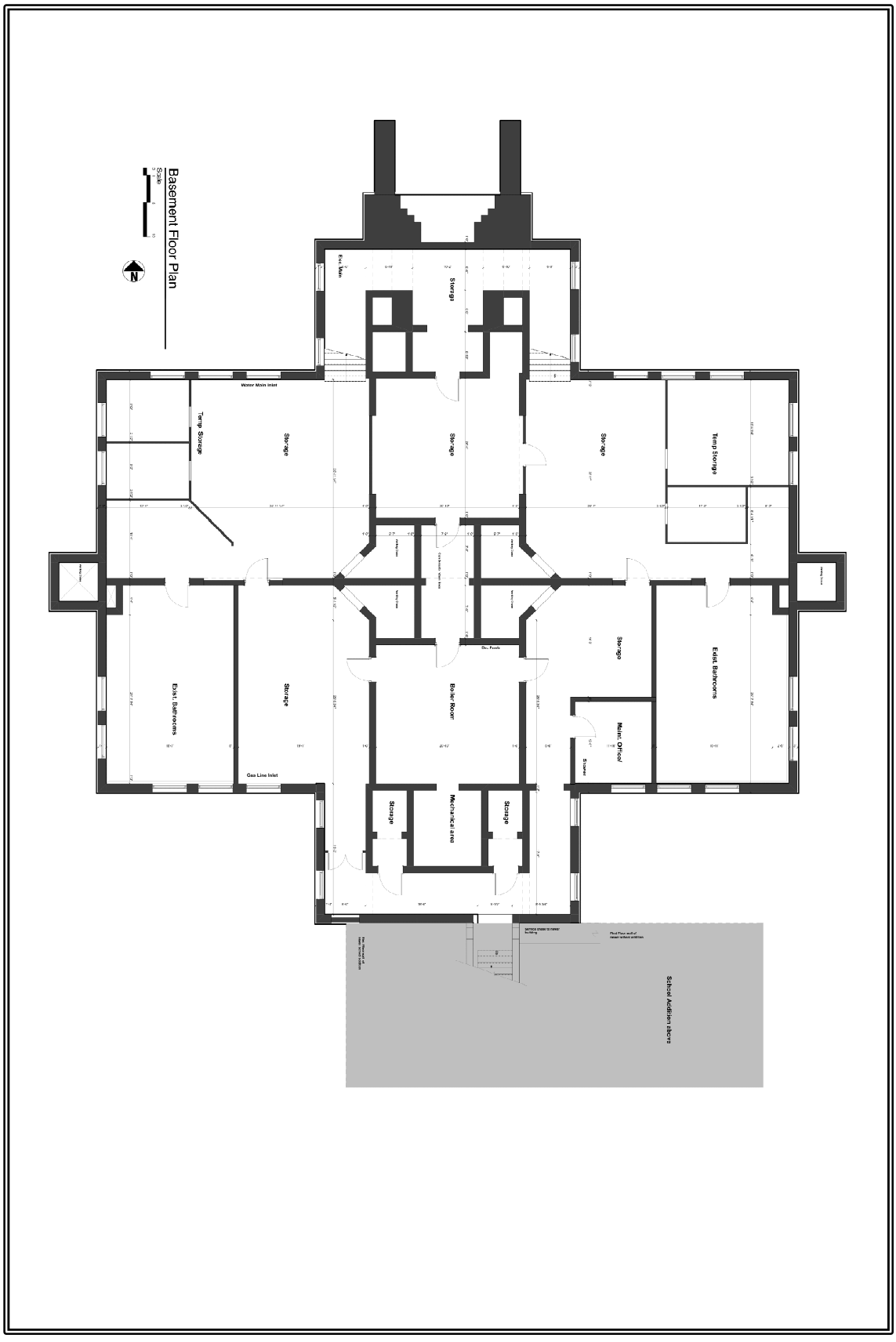


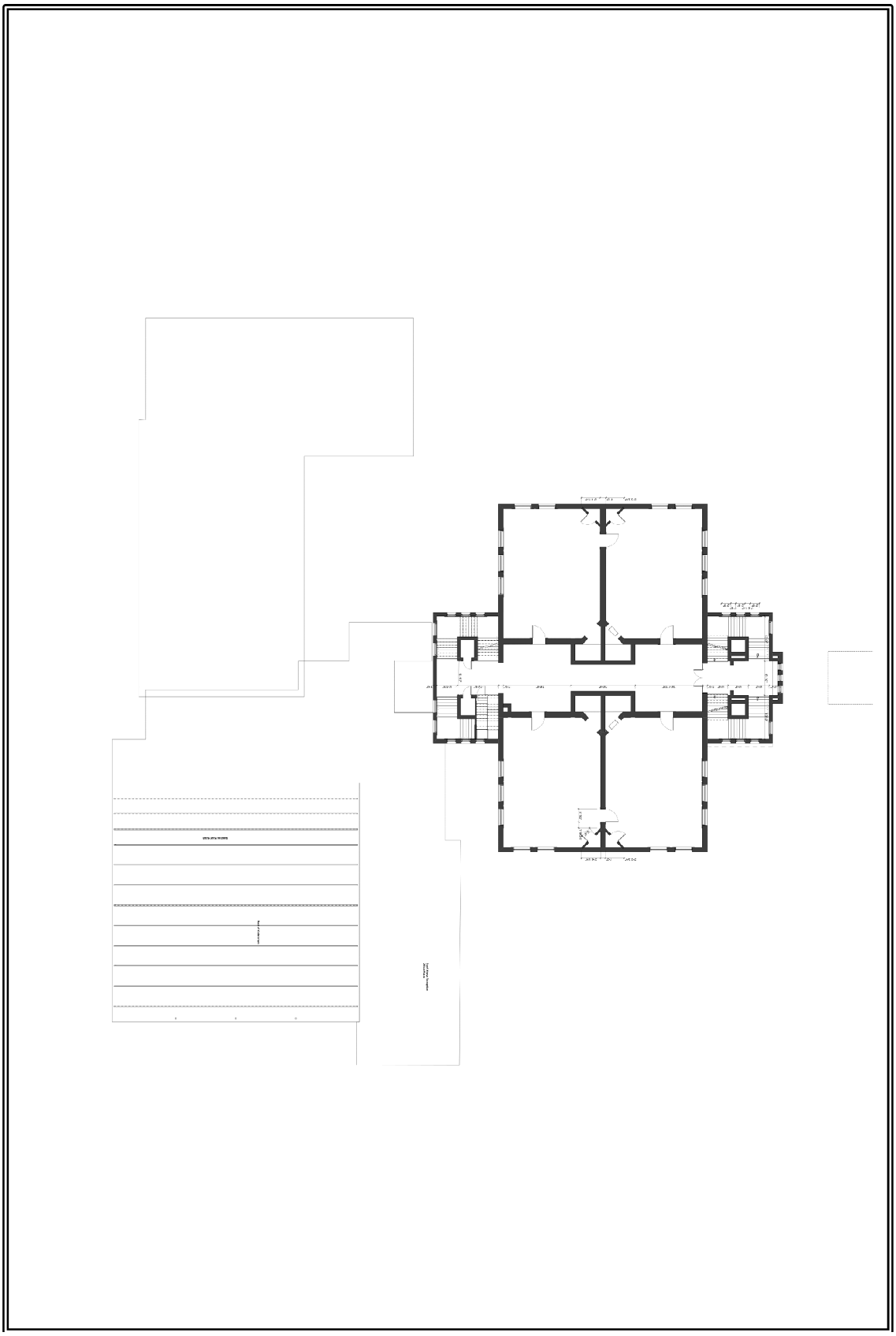




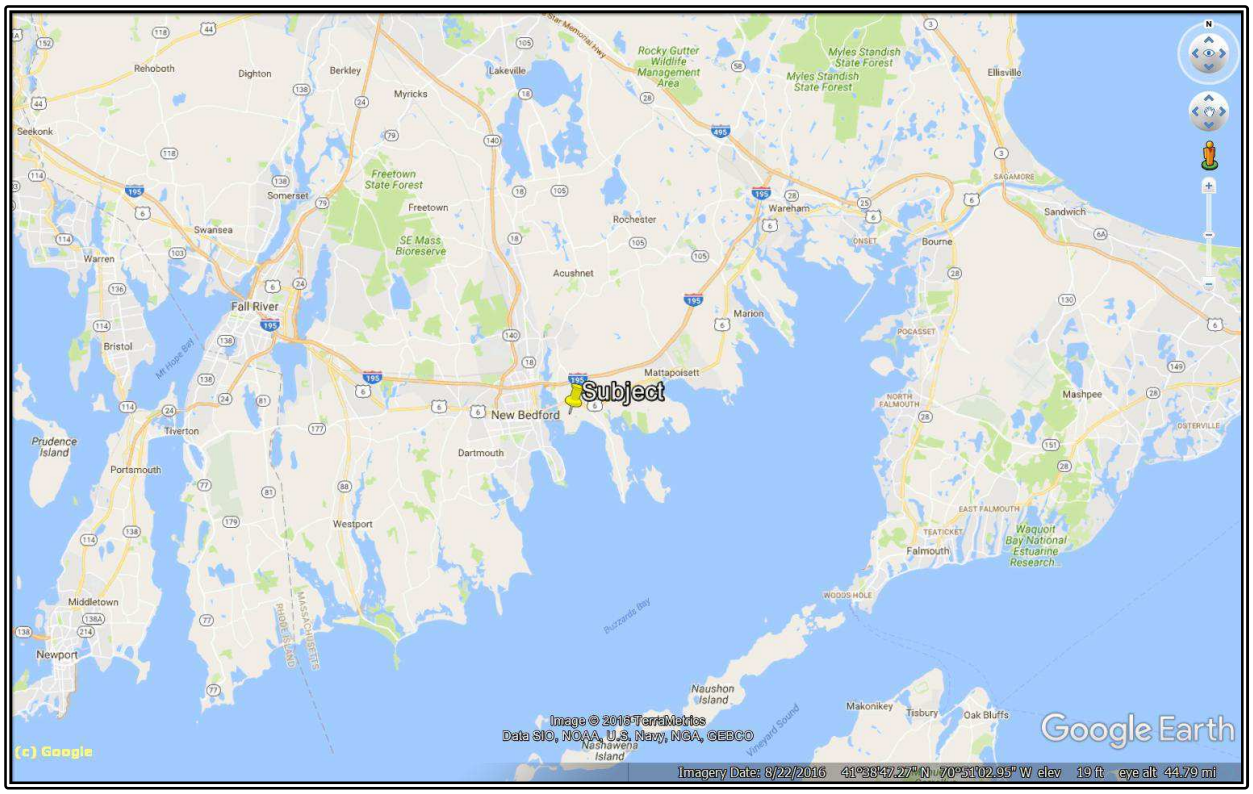
ARCHITECTURAL PLANS



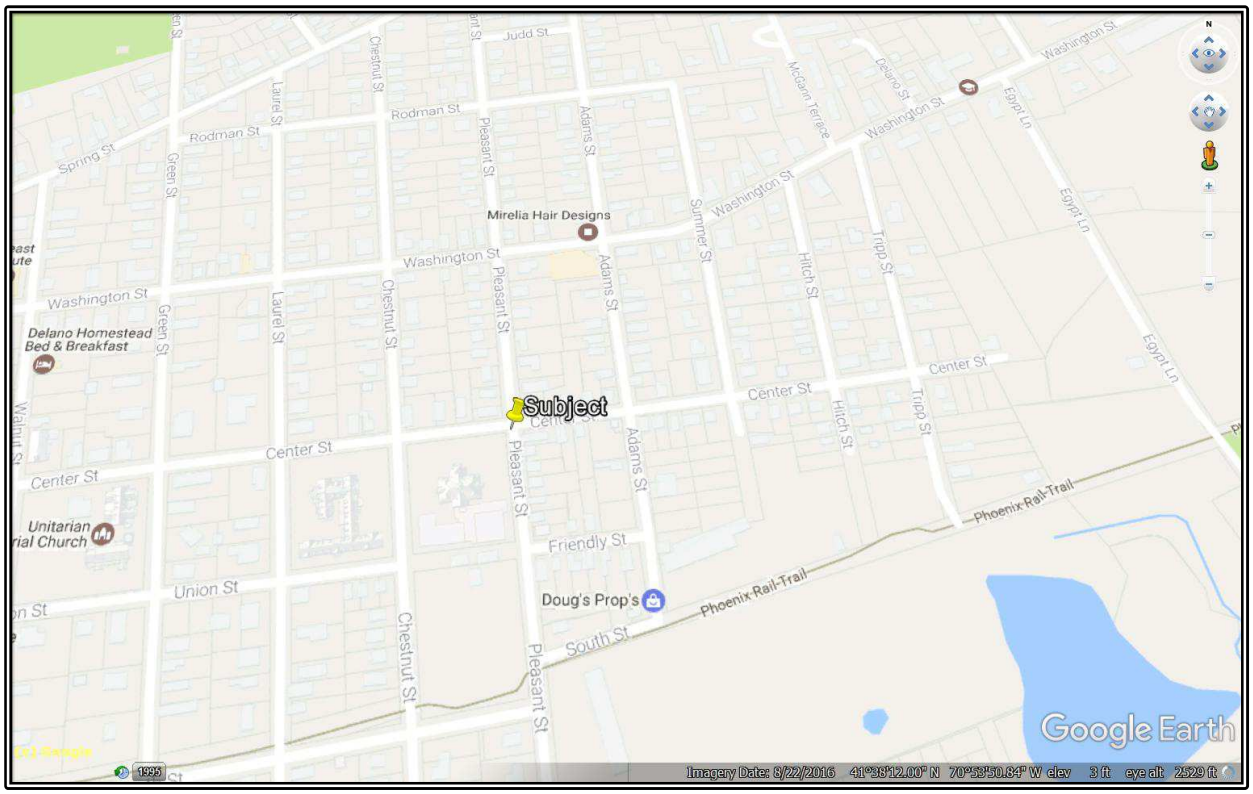

Basement Floor Plan
Scale
N
Exit Main
Storage
Water Main Inlet
Temp. Storage
Storage
Storage
Storage
Temp Storage
Exist Bathrooms
Storage
Gas Line Inlet
Boiler Room
Storage
Mechanical area
Storage
Storage
Maint. Office
Shower
Exist Bathrooms
School Addition above



SUBJECT PROPERTY REGIONAL MAP



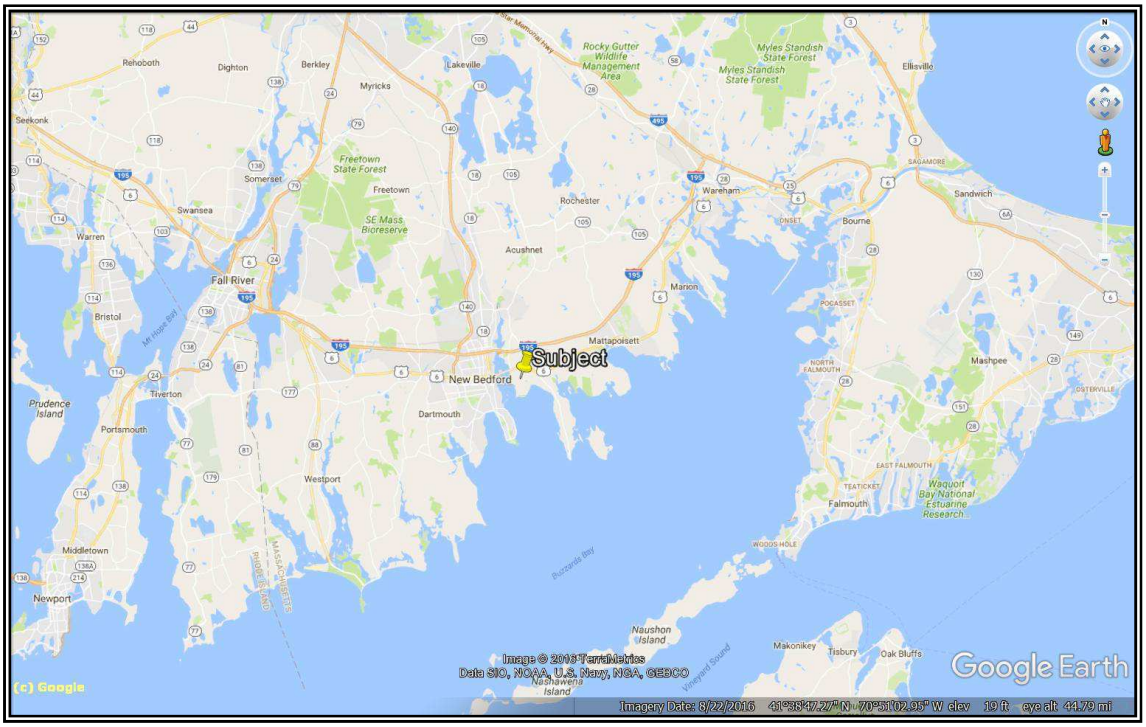
SUBJECT PROPERTY NEIGHBORHOOD MAP



Subject Property Volumetric Data

1888 Building	**Square Feet**	**Cubic Feet**	
within interior walls – to face of wall			
Basement			
Usable Space	6,134		
Vertical Circulation (stair halls)	218		
Hallway	367		
Structure & Chases	530		
Total Square Footage	7,249		
Total Cubic Volume		69,455	*assumes 9'7" ceiling height
1st Floor			
Usable Space	4,360		
Vertical Circulation (stair halls)	236		
Hallway	1,750		
Structure & Chases	904		
Total Square Footage	7,250		
Total Cubic Volume		69,455	*assumes 13'2" ceiling height
2nd Floor			
Usable Space	4,360		
Vertical Circulation (stair halls)	760		
Hallway	1,468		
Structure & Chases	662		
Total Square Footage	7,250		
Total Cubic Volume		95,550	*assumes 13'7" ceiling height
3rd Floor			
Usable Space	4,365		
Limited Use Space	864		
Vertical Circulation (stair halls)	425		
Hallway	886		
Structure & Chases	710		
Total Square Footage	7,250		
Total Cubic Volume		101,500	*assumes 14'3" ceiling height

Addition - 1950s Building	**Square Feet**	**Cubic Feet**	
within interior walls – to face of wall			
1st Floor			
Usable Space			
Non Gym	7,240		
Gym	4,710		
Hallway	2,260		
Total Square Footage	14,210		
Total Cubic Volume		33,020	Non Gymnasium at 7'11" ceili
		51,391	Non Gymnasium at 9'8" ceiling
		86,040	Gymnasium at 18' ceiling
Total Building Square Footage	43,209		
Total Building Useable Square Footage	31,169		

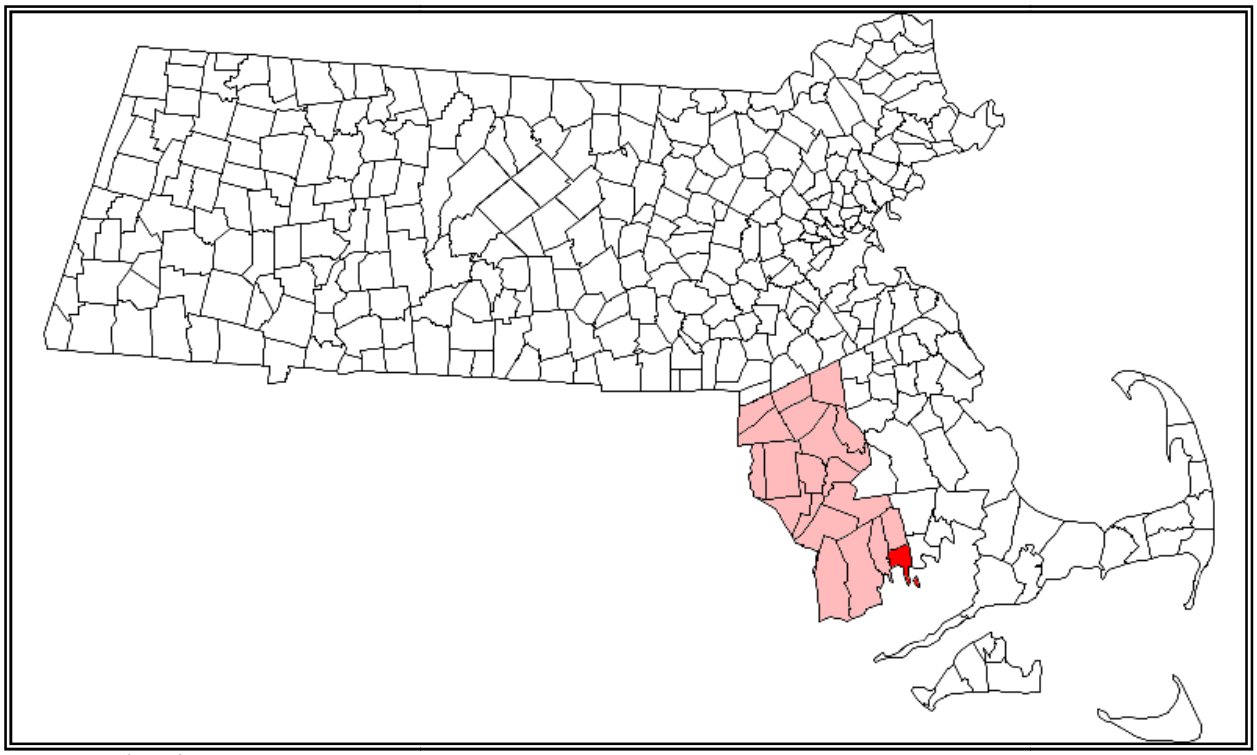


Source: Google Maps

Fairhaven and Region

We have surveyed and analyzed regional economic trends and their impact on the subject real estate and capital markets. National and regional economic trends have direct influence on the local suitability and sustainability of various proposed reuse scenarios at the property and serve to contextualize the local market. The subject property is located in the Town Center of Fairhaven, Massachusetts, located in Bristol County. Fairhaven is located in southeastern Massachusetts, bordered by Mattapoisett on the east, Acushnet on the north, the Acushnet River and New Bedford to the west, and Buzzard's Bay to the south. Fairhaven is located approximately 50 miles south of Boston, 30 miles southeast of Providence, RI, and 2 miles east of New Bedford. The principal highways servicing Fairhaven are Interstate 195 which connects the town to Cape Cod and points west and north, US Route 6 and State Route 240. Therefore, the subject is heavily influenced by the geographic, social, political and economic conditions of the South coast Region and to a lesser extent Greater Boston and Providence regions and the overall New England region. Accordingly, the economic strength of the region and Commonwealth are indications of the neighborhood stability and strength. Boston, the capital of the Commonwealth of Massachusetts, serves as the center of finance, commerce, and culture for

the New England region. The capital city is often referred to as "the Hub" because of its role as the center of New England for business, cultural activities, transportation and education.

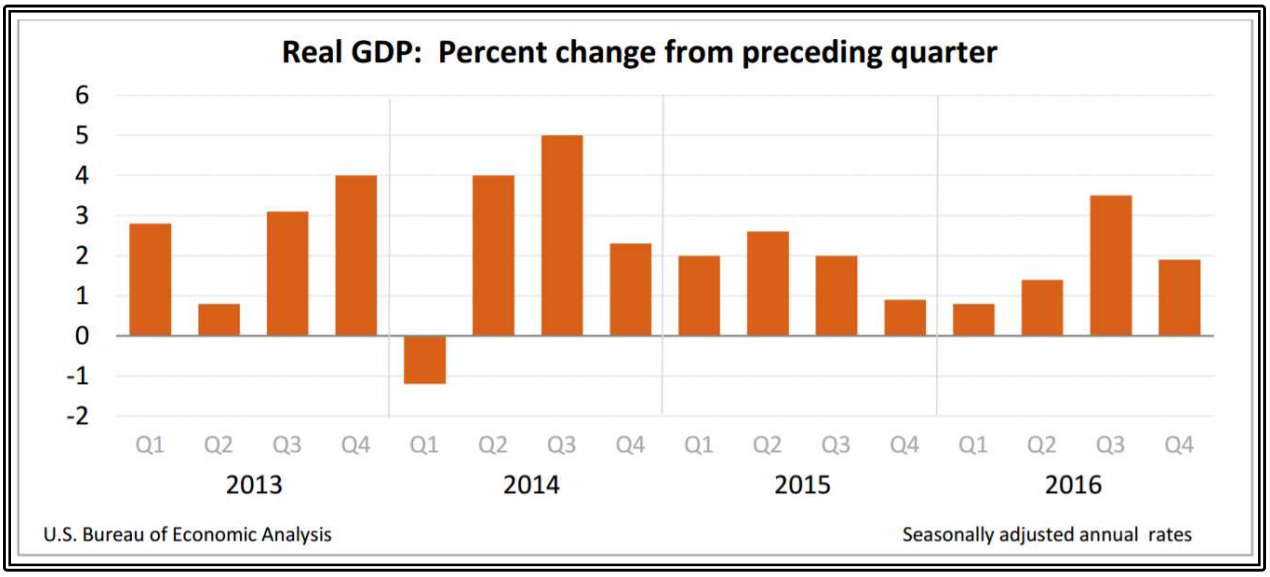


Source: Wikipedia.com

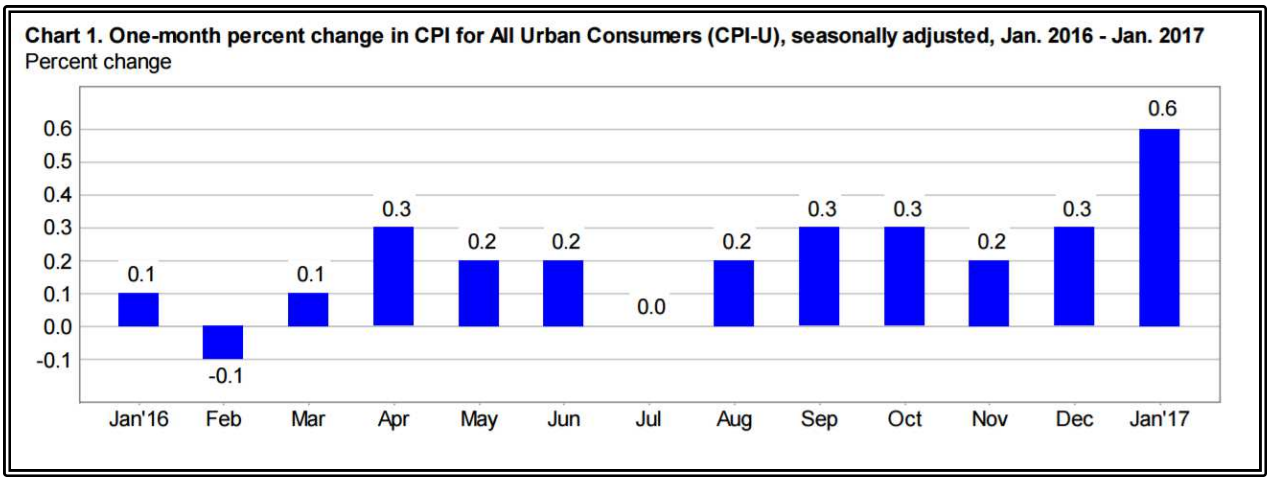
Regional Overview

Nationally and regionally economic conditions have improved over the past 12 months after the severe economic crisis. Recent improvements in both the national the regional economy indicate signs of recovery and overall general improving economic conditions. The Federal Reserve Board (Fed), in its March 1, 2017 publication of the Beige Book, for the Boston (First) District, reported modest to moderate increases in activity from a year earlier. Retailers cited flat or single-digit increases in sales, while two-thirds of responding manufacturers saw revenue gains. Staffing firms mostly saw slight year-over-year declines in revenues, attributable in part to tight labor supply. Commercial real estate markets in the region were steady, with "good but not great" office leasing activity in Boston, Portland, and Providence. Residential real estate markets across the region saw increased median sales prices and mixed sales results, partially attributable to ongoing inventory shortages. Across most sectors, input and selling prices were stable, although staffing firms have raised bill and pay rates. While some responding firms expressed concern about increased uncertainty, most continued to say they were upbeat about 2017.

According to estimates released by the U.S. Commerce Department's Bureau of Economic Analysis (BEA), the gross domestic product (GDP) increased 1.9% in the fourth quarter 2016 after increasing 3.5% in the third quarter of 2016. The increase in real GDP in the fourth quarter primarily reflected positive contributions from personal consumption expenditures (PCE), private inventory investment, residential fixed investment, nonresidential fixed investment, and state and local government spending. Those increases were partly offset by negative contributions from exports and federal government spending. Imports, which are a subtraction in the calculation of GDP, increased.



The consumer price index (CPI), as reported by the U.S. Department of Labor, increased 0.6% in January according to the most recent report of February 15, 2017. The CPI for the nation has increased 2.5% over the past 12 months before seasonal adjustment. According to the Bureau of Labor Statistics, the January increase was the largest seasonally adjusted all items increase since February 2013. A sharp rise in the gasoline index accounted for nearly half the increase, and advances in the indexes for shelter, apparel, and new vehicles also were major contributors. The energy index increased 4.0% in January as the gasoline index advanced 7.8% and the index for natural gas also increased. The food index, which had been unchanged for 6 consecutive months, increased 0.1%. The food at home index was unchanged, while the index for food away from home rose 0.4%. The index for all items less food and energy rose 0.3% in January. Most of the major component indexes increased in January, with the indexes for apparel, new vehicles, motor vehicle insurance, and airline fares all rising 0.8% or more. The shelter index rose 0.2%, a smaller increase than in recent months.



A national consumer confidence index, published monthly by the Conference Board, has increased in February, after declining moderately in January as reported in their February 28, 2017 survey. The consumer confidence index currently stands at 114.8 which was up from 111.6 in January. The Conference Board reported, "Consumer confidence increased in February and remains at a 15-year high. Consumers rated current business and labor market conditions more favorably this month than in January. Expectations improved regarding the short-term outlook for business, and to a lesser degree jobs and income prospects. Overall, consumers expect the economy to continue expanding in the months ahead."

Nationally, current mortgage rates are still hovering around historical lows. According to Bankrate, the average for a 30-year fixed conventional mortgage is currently 4.34% in the Boston, MA area, as indicated by the chart below. At the recent meeting of December 13, 2016, the Fed decided to raise the target range for the federal funds rate to 0.50% to 0.75%. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2.0% inflation. The direct impact of Fed interest rate hikes is yet to be fully realized, however, the anticipation of three additional interest rate hikes in 2017 will likely ripple through capital markets at the local level. In the two weeks preceding the Fed action, interest rates were surveyed in the metropolitan Boston area and compared to surveyed rates from the week of November 23, 2016. Interest rates on consumer mortgages have steadily increased leading up to the December 13th Fed interest rate hike, as indicated by the charts below and currently stand at 4.34% for 30-year fixed rate mortgages, as of March 8, 2017.

Weekly mortgage survey

Results from Bankrate's survey of mortgage lenders conducted March 8, 2017. Monthly payments are for a $165,000 loan. The jumbo rate is for the minimum jumbo loan amount of $598,000 in the Boston area.

	30-year fixed	15-year fixed	5-year ARM	30-year jumbo
This week's rate:	4.34%	3.45%	3.63%	4.25%
Change from last week:	+0.13	+0.12	+0.14	+0.08
Monthly payment:	$820.42	$1,175.51	$752.95	$2,941.80
Change from last week:	+$12.67	+$9.73	+$13.07	+$28.07

Source: Bankrate.com

Real Estate Market

Both nationally and in Massachusetts, economic fundamentals continue to improve, however, at a modest continual pace. The nation has experienced a slower recovery pace since the recovery began and has yet to fully recover to below-crash levels with elevated unemployment and sluggish economic growth.

Marcus & Millichap 2016 Apartment Forecast indicated that According to Marcus & Millichap's report, Boston-area tech and professional firms will lead job growth in 2016, boosting apartment demand in the core and immediately surrounding areas. Tech companies expanding into Kendall Square include Google, which has grown its Cambridge Center campus. Those employed at nearby tech and bioscience firms seek residences close to work and the amenities that areas inside the Route 128 loop offer. While homeownership is an option for some residents, the cost remains out of reach for the majority of those employed in this area, generating additional need for apartments. Developers are responding to tenant demand with new luxury towers that are changing the local landscape in areas such as Cambridge, Fenway, the Seaport District and the South End. Strong demand for new rentals with the latest amenities will support further occupancy gains in core-based units. This absorption of apartments combined with a slowing construction pipeline will slash vacancy more than last year, allowing rents in the market to rise.

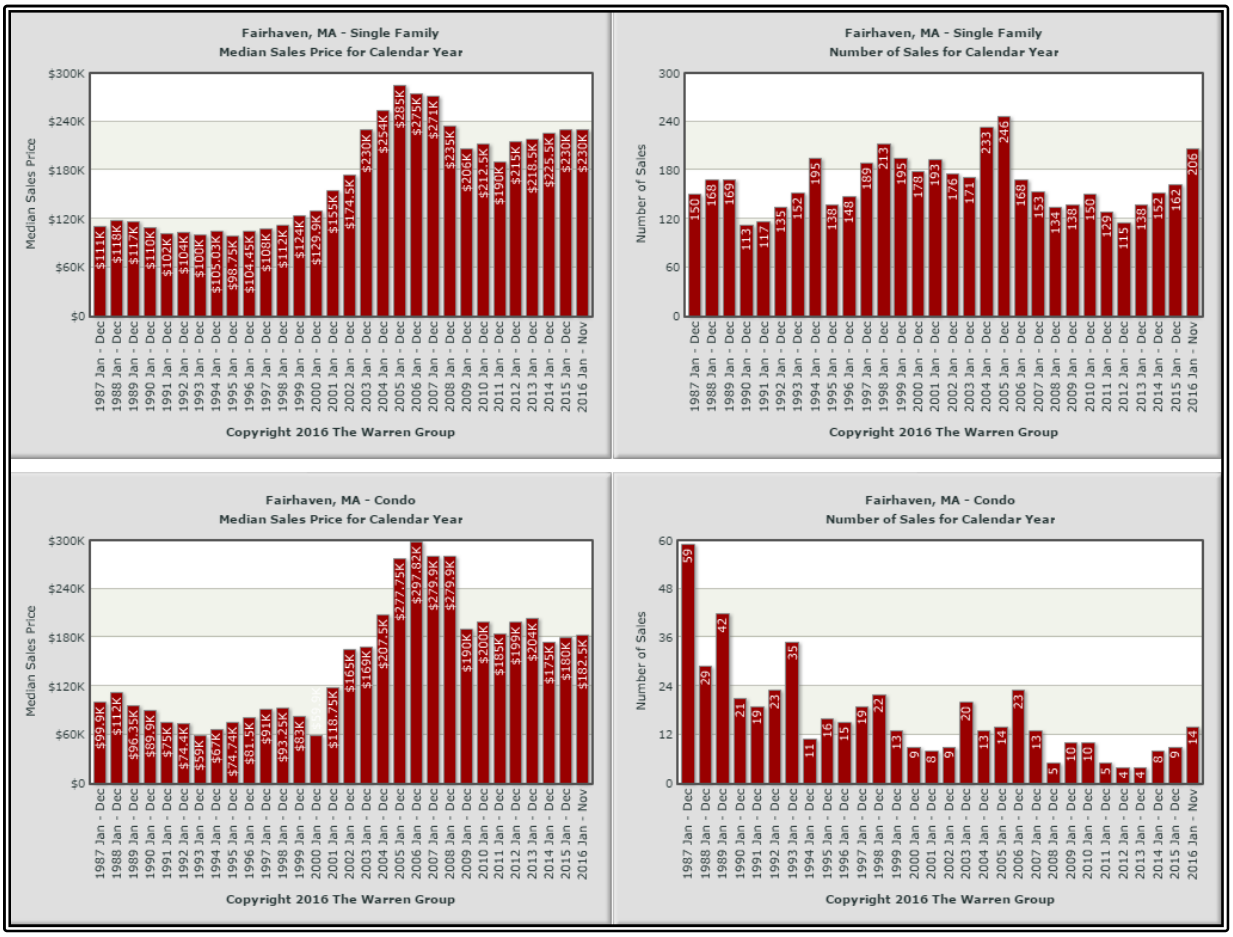
Investors will broaden their investment parameters in order to obtain desired yields in Boston, heating up competition for all apartment classes. Overall, assets can trade at cap rates in the 5% area metrowide, with properties in core areas trading at less than 4%. After an influx of completions last year, this year's easing output will reduce the availability of marketed upper-tier properties. Investor demand will exceed listings, triggering intense bidding and pressuring prices. As a result, some buyers will also move down the quality tier or to outlying geographies as competition increases. Some local investors will target such assets to obtain yields that can hover 100 basis points above the average, seeking properties as far out as the I-495 loop while also scouring the metro for value-add opportunities.

Additionally, according to the *Marcus & Millichap Multifamily Research Market Report* for the Boston Metro Area, the fourth quarter of 2016 indicates that buyers are bullish on Boston's apartment market, driven by strong fundamentals and a growing pool of corporate employers. Intense apartment demand drivers along with the potential for NOI gains will motivate investors. Private buyers with renovation capital and a willingness to manage upgrades and re-tenanting will target older Class B and C complexes. These properties can trade near 7% initial returns in tertiary areas. Those with less initiative to refurbish can also benefit from supply and demand dynamics favoring rent growth this year. These buyers will focus on smaller properties being completed in suburbs such as Lowell and Framingham, though cap rates will vary depending on upside potential. Newer properties in these areas can trade near 6% initial returns. Investors desiring stable yields target areas near the core and universities.

Overall, sources of capital are available within the market and interest rates and financing terms are generally favorable, however, financing sources are underwriting risk more cautiously than in past marks, putting a high premium on cash-on-cash return analysis versus pro-forma underwriting and weighing reserves for tenant improvements and vacancy and turnover. Major regional banks such as Eastern Bank, Cambridge Savings, and Brookline Savings are active within the market and issuing non-recourse debt for quality assets with well-capitalized sponsors. Additionally, national and international banks and insurance companies have been active participants in Boston and Suburban property underwriting and acquisition.

According to data compiled The Warren Group, 2016 sales of single-family homes in Fairhaven increased 6.58% to 162 over 2014 levels of 152 with median sale prices increasing 2.0% over the year to reach $230,000 from $225,500 in 2014. The sale of condominiums in

Fairhaven increased 12.5% to 9 over 2014 levels of 8, with average sale prices increasing 2.86% over the year to reach $180,000 from $175,000 in 2014. The current median sales price of a single family home in Fairhaven is unchanged at $230,000 and 206 have been recorded from January-November 2016 and the current median sales price of a condominium in Fairhaven is $182,500 and 14 have been recorded from January-November 2016. The low level of condominium sales transactions and relatively low median sales price is an indication of the temperate condominium market in Fairhaven and the relatively low demand for condominium units within the market, as further indicated by the charts below.



There have been no multi-family building permits issued in the town of Fairhaven and a modest amount of single family building permits annually. The majority of building permits issued within the town have been for the new construction of single-family homes, additions, and improvements, with a small number of commercial permits. The lack of large tracts of available developable land in the town combined with restrictive zoning and entitlement regulations has contributed to the low number of building permits issued. The number of single-family building

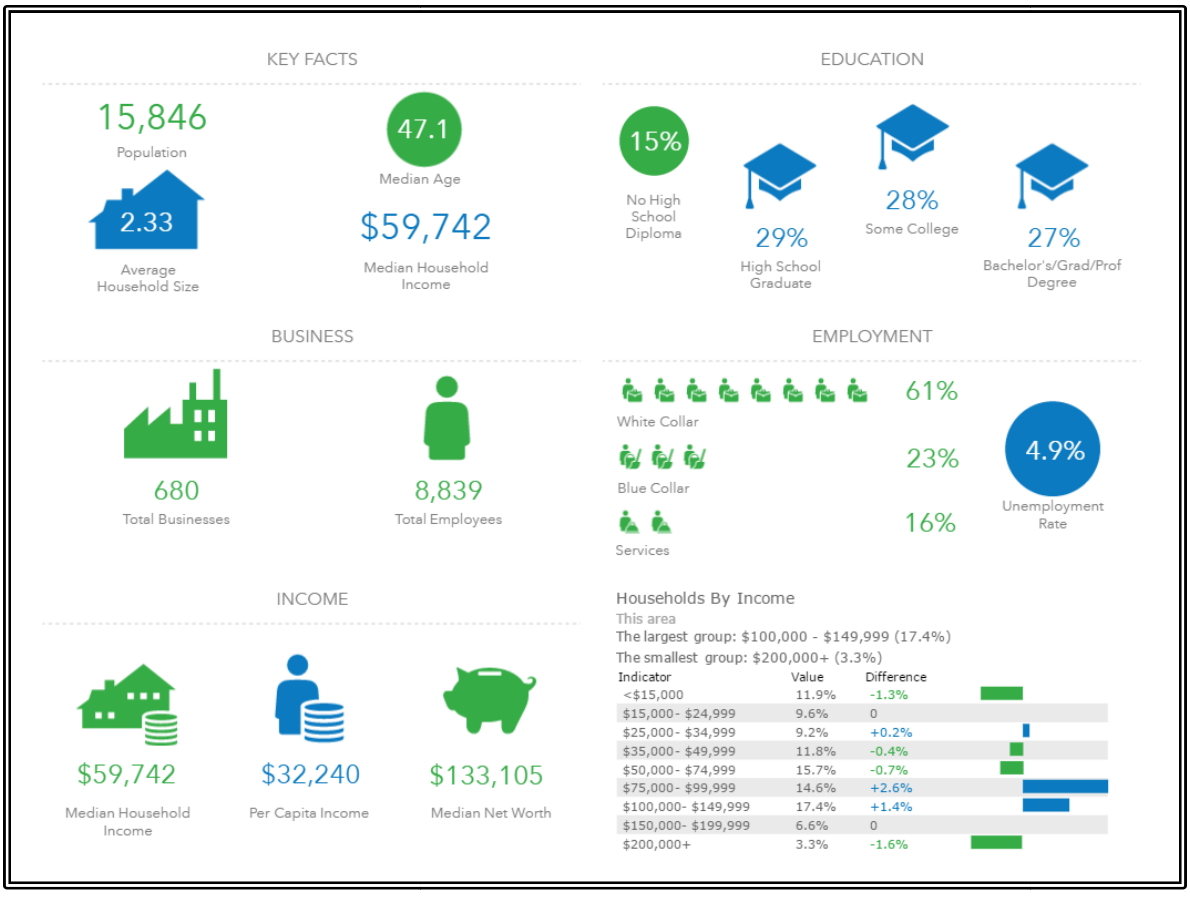
permits is evidence of the low density and development character of the Fairhaven market area and similar surrounding communities.

New Privately-Owned Residential Building Permits - Fairhaven, MA

October Year to Date Item	YTD 2016		2015		2014		2013		2012	
	Buildings /Units	*Construction Cost*	*Buildings /Units*	*Construction Cost*	*Buildings /Units*	*Construction Cost*	*Buildings /Units*	*Construction Cost*	*Buildings /Units*	*Construction Cost*
Single-Family	13/13	$2,820,100	9/9	$2,407,800	12/12	$2,158,700	11/11	$2,153,300	13/13	$2,432,000
Two Family	0	$0	0	$0	0	$0	0	$0	0	$0
Three/Four Family	0	$0	0	$0	0	$0	0	$0	0	$0
Five or More Family	0	$0	0	$0	0	$0	0	$0	0	$0
Total	**13/13**	**$2,820,100**	**9/9**	**$2,407,800**	**12/12**	**$2,158,700**	**11/11**	**$2,153,300**	**13/13**	**$2,432,000**

Source: U.S. Census Bureau

Below we have prepared a demographic 'snapshot' of Fairhaven which highlights some of the fundamental indicators that variously influence project feasibility. These conclusions are consistent with our observations within the Fairhaven market and with data sources reconciled within this report. The population in Fairhaven is decidedly older than the region as a whole with a median age of 47.1 years old compared to Bristol County at 40.8 years and the Commonwealth of Massachusetts at 39.8 years. Further, population projections outlined within this memorandum indicate an aging population with a median age of residents increasing to 48.2 in 2021; as indicated by projections provided by ESRI.



Employment

In Massachusetts, the labor force has increased over the past 12- and 24-month periods. Employment levels have increased over the same periods and most recently increased 1.5% over the past 12 months. The seasonally unadjusted unemployment rate in Massachusetts as of December 2016 was 2.8%, 4.2% as of December 2015, and 4.9% as of December 2014. The unadjusted national unemployment rate was 4.5% in December 2016. The labor force in the town of Fairhaven has decreased by 1.0% over the past 12 months and employment has increased at 1.5%, over the same period indicating stabilizing employment conditions as the unemployment rate reached 3.4% as of December 2016. Regionally and locally, the economies are close to full employment of most recent estimates. Improvements have been made in the past 12-months showing additional signs of recovery and eventual returns to pre-recession levels. The town of Fairhaven has unemployment levels, which have been historically comparable to that of the region, however slightly behind the Commonwealth of Massachusetts and County. The outlook for improving employment conditions remains cautiously optimistic as the Massachusetts economy continues to outperform the nation, however, at an increasingly slower pace.

Employment Trends

Massachusetts	December 2014	December 2015	December 2016	24 month % Change	12 month % Change
Labor Force	3,560,900	3,577,000	3,575,000	0.4%	-0.1%
Employed	3,385,300	3,426,100	3,476,100	2.7%	1.5%
Unemployed	175,600	150,900	98,900	-43.7%	-34.5%
Unemployment Rate	4.9%	4.2%	2.8%	-43.9%	-34.4%
New Bedford, MA Metropolitan NECTA	December 2014	December 2015	December 2016	24 month % Change	12 month % Change
Labor Force	84,055	84,033	83,002	-1.3%	-1.2%
Employed	77,823	78,386	79,561	2.2%	1.5%
Unemployed	6,232	5,647	3,441	-44.8%	-39.1%
Unemployment Rate	7.4%	6.7%	4.1%	-44.1%	-38.3%
Bristol County	December 2014	December 2015	December 2016	24 month % Change	12 month % Change
Labor Force	288,473	287,683	286,962	-0.5%	-0.3%
Employed	270,494	271,366	276,955	2.4%	2.1%
Unemployed	17,979	16,317	10,007	-44.3%	-38.7%
Unemployment Rate	6.2%	5.7%	3.5%	-44.0%	-38.5%
Fairhaven	December 2014	December 2015	December 2016	24 month % Change	12 month % Change
Labor Force	9,413	9,434	9,337	-0.8%	-1.0%
Employed	8,837	8,887	9,017	2.0%	1.5%
Unemployed	576	547	320	-44.4%	-41.5%
Unemployment Rate	6.1%	5.8%	3.4%	-44.0%	-40.9%

Source: Massachusetts Department of Employment and Training

Additionally, below is a demographic summary of the Fairhaven population, including statistics on employment and transportation characteristics. The majority of employed residents (92.6%) commute by car and most employed have a commute of less than 25 minutes, as indicated by the chart below. This concentration of regional employment is consistent with observations within the market.

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ACS Population Summary

Fairhaven town, MA
Fairhaven town, MA (2500522130)
Geography: County Subdivision

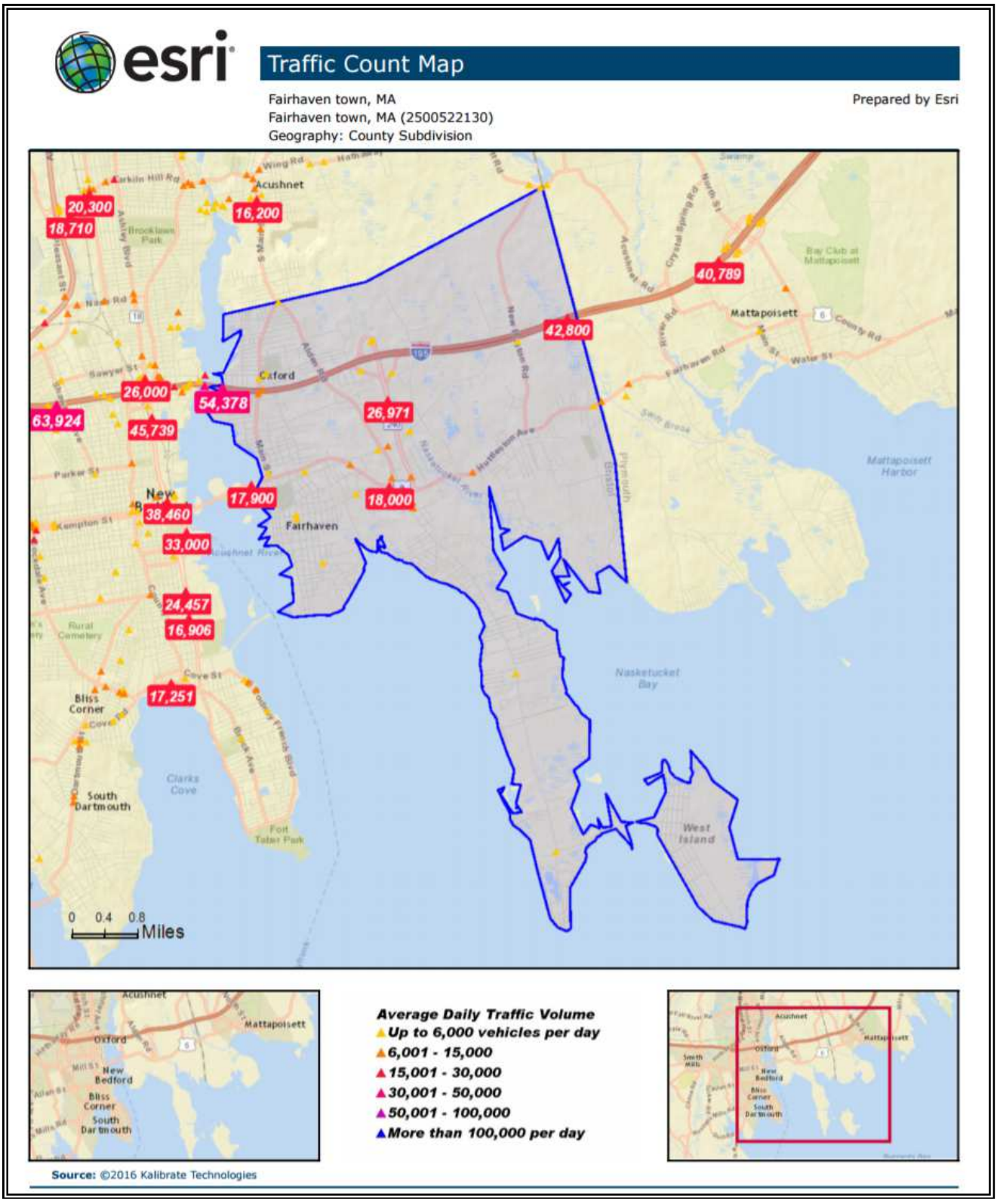
Prepared by Esri

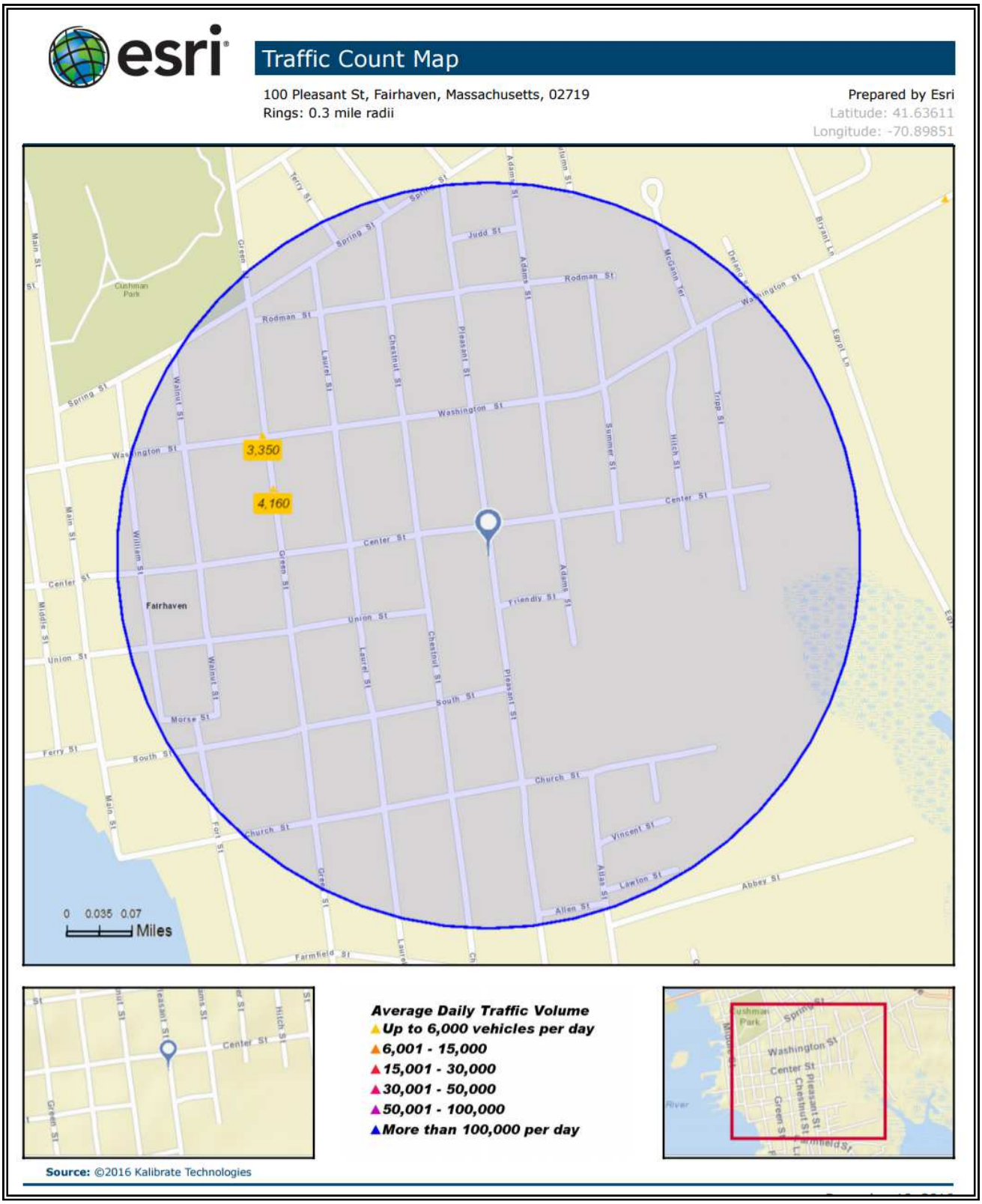
	2010 - 2014 ACS Estimate	Percent	MOE(±)
WORKERS AGE 16+ YEARS BY PLACE OF WORK			
Total	8,004	100.0%	387
Worked in state and in county of residence	6,095	76.1%	370
Worked in state and outside county of residence	1,555	19.4%	242
Worked outside state of residence	354	4.4%	158
WORKERS AGE 16+ YEARS BY MEANS OF TRANSPORTATION TO WORK			
Total	8,004	100.0%	387
Drove alone	6,826	85.3%	372
Carpooled	583	7.3%	182
Public transportation (excluding taxicab)	152	1.9%	108
Bus or trolley bus	28	0.3%	25
Streetcar or trolley car	0	0.0%	19
Subway or elevated	0	0.0%	19
Railroad	91	1.1%	99
Ferryboat	33	0.4%	43
Taxicab	0	0.0%	19
Motorcycle	22	0.3%	25
Bicycle	25	0.3%	31
Walked	98	1.2%	55
Other means	23	0.3%	21
Worked at home	275	3.4%	107
WORKERS AGE 16+ YEARS (WHO DID NOT WORK FROM HOME) BY TRAVEL TIME TO WORK			
Total	7,729	100.0%	400
Less than 5 minutes	170	2.2%	82
5 to 9 minutes	1,223	15.8%	276
10 to 14 minutes	1,494	19.3%	264
15 to 19 minutes	1,373	17.8%	237
20 to 24 minutes	1,046	13.5%	223
25 to 29 minutes	466	6.0%	162
30 to 34 minutes	474	6.1%	147
35 to 39 minutes	124	1.6%	91
40 to 44 minutes	146	1.9%	80
45 to 59 minutes	463	6.0%	127
60 to 89 minutes	509	6.6%	164
90 or more minutes	241	3.1%	103
Average Travel Time to Work (in minutes)	23.8		2.6

Transportation

Massachusetts benefits from a broad-based and well-established transportation network. Logan International Airport, located in the city of Boston, is one of the country's most active terminals serving both domestic and international travelers. A large interstate highway system connects Massachusetts with the rest of New England and the country. Interstate 95 connects with State Route 128 and forms the inner loop around Boston, while Interstate 495 forms the outer loop, both of which run in a generally north-south direction. The Massachusetts Turnpike (Interstate 90) originates in Boston and connects the city with points west and upstate New York. The John F. Fitzgerald Expressway (the Central Artery) runs north-south through Boston and connects the north and south shores. The Central Artery Project has expanded and depressed the Southeast Expressway and connects the Massachusetts Turnpike to Logan Airport through the Ted Williams Tunnel in an effort to ease traffic congestion and beautify the city of Boston.

According to traffic count estimates provided by ESRI, the intersection of Washington Street and Green Street is the most traveled non-highway intersection in Fairhaven. The Route 240/Route 6 traffic counter indicated an average of 18,000-26,971 car trips per day traveling in a north-south direction, and between 3,350 and 6,700 daily car trips along Washington Street and Green Street. The concentration of car trips around the subject property is considered significant when compared to known regional high traffic areas along Interstate 195 of between 40,789 and 63,924 car trips per day, as indicated by the below maps. The subject property benefits from excellent access to transportation and exposure to vehicular and pedestrian traffic.


esri
Traffic Count Map
Fairhaven town, MA
Fairhaven town, MA (2500522130)
Geography: County Subdivision
Prepared by Esri
20,300
18,710
16,200
40,789
42,800
26,000
54,378
63,924
45,739
26,971
17,900
18,000
38,460
33,000
24,457
16,906
17,251
Acushnet
Mattapoisett
Oxford
Fairhaven
New Bedford
Bliss Corner
South Dartmouth
0 0.4 0.8 Miles
Average Daily Traffic Volume
Up to 6,000 vehicles per day
6,001 - 15,000
15,001 - 30,000
30,001 - 50,000
50,001 - 100,000
More than 100,000 per day
Source: ©2016 Kalibrate Technologies


esri
Traffic Count Map
100 Pleasant St, Fairhaven, Massachusetts, 02719
Rings: 0.3 mile radii
Prepared by Esri
Latitude: 41.63611
Longitude: -70.89851
3,350
4,160
Fairhaven
0 0.035 0.07
Miles
Average Daily Traffic Volume
Up to 6,000 vehicles per day
6,001 - 15,000
15,001 - 30,000
30,001 - 50,000
50,001 - 100,000
More than 100,000 per day
Source: ©2016 Kalibrate Technologies

esri

Demographic and Income Profile

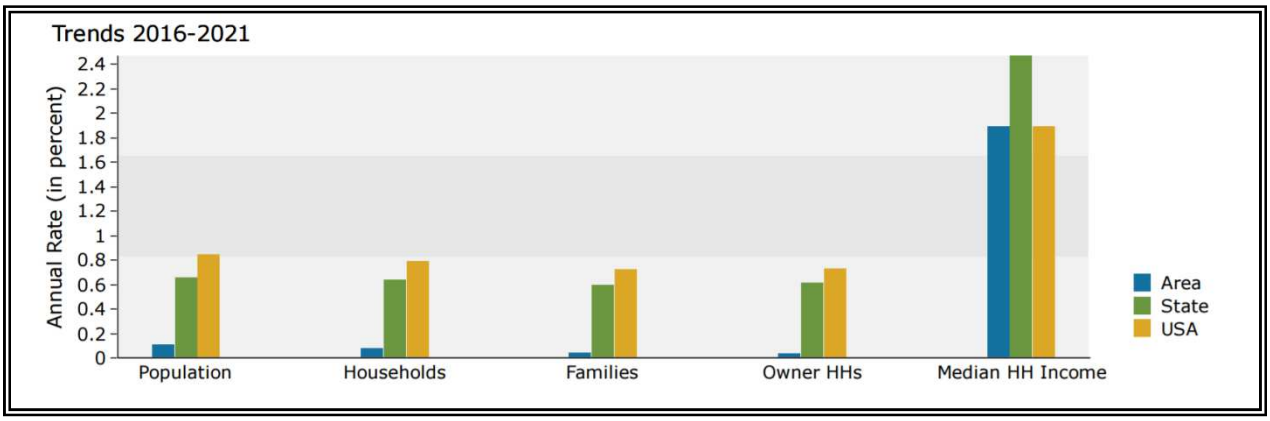
Fairhaven town, MA
Fairhaven town, MA (2500522130)
Geography: County Subdivision

Prepared by Esri

Summary	Census 2010	2016	2021
Population	15,873	15,846	15,932
Households	6,672	6,646	6,673
Families	4,178	4,144	4,152
Average Household Size	2.33	2.33	2.34
Owner Occupied Housing Units	4,796	4,675	4,681
Renter Occupied Housing Units	1,876	1,971	1,992
Median Age	45.3	47.1	48.2
Trends: 2016 - 2021 Annual Rate	**Area**	**State**	**National**
Population	0.11%	0.66%	0.84%
Households	0.08%	0.64%	0.79%
Families	0.04%	0.60%	0.72%
Owner HHs	0.03%	0.61%	0.73%
Median Household Income	1.89%	2.47%	1.89%

	Census 2010		2016		2021	
Population by Age	Number	Percent	Number	Percent	Number	Percent
0 - 4	696	4.4%	651	4.1%	644	4.0%
5 - 9	731	4.6%	686	4.3%	656	4.1%
10 - 14	943	5.9%	767	4.8%	758	4.8%
15 - 19	983	6.2%	845	5.3%	760	4.8%
20 - 24	758	4.8%	945	6.0%	821	5.2%
25 - 34	1,605	10.1%	1,674	10.6%	1,886	11.8%
35 - 44	2,142	13.5%	1,877	11.8%	1,807	11.3%
45 - 54	2,624	16.5%	2,416	15.2%	2,179	13.7%
55 - 64	2,262	14.3%	2,541	16.0%	2,570	16.1%
65 - 74	1,424	9.0%	1,748	11.0%	2,060	12.9%
75 - 84	1,037	6.5%	1,014	6.4%	1,131	7.1%
85+	668	4.2%	682	4.3%	660	4.1%
<18	3,000	18.9%	2,626	16.6%	2,531	15.9%
18+	12,873	81.1%	13,220	83.4%	13,401	84.1%
21+	12,343	77.8%	12,693	80.1%	12,941	81.2%
Median Age	45.3		47.1		48.2	

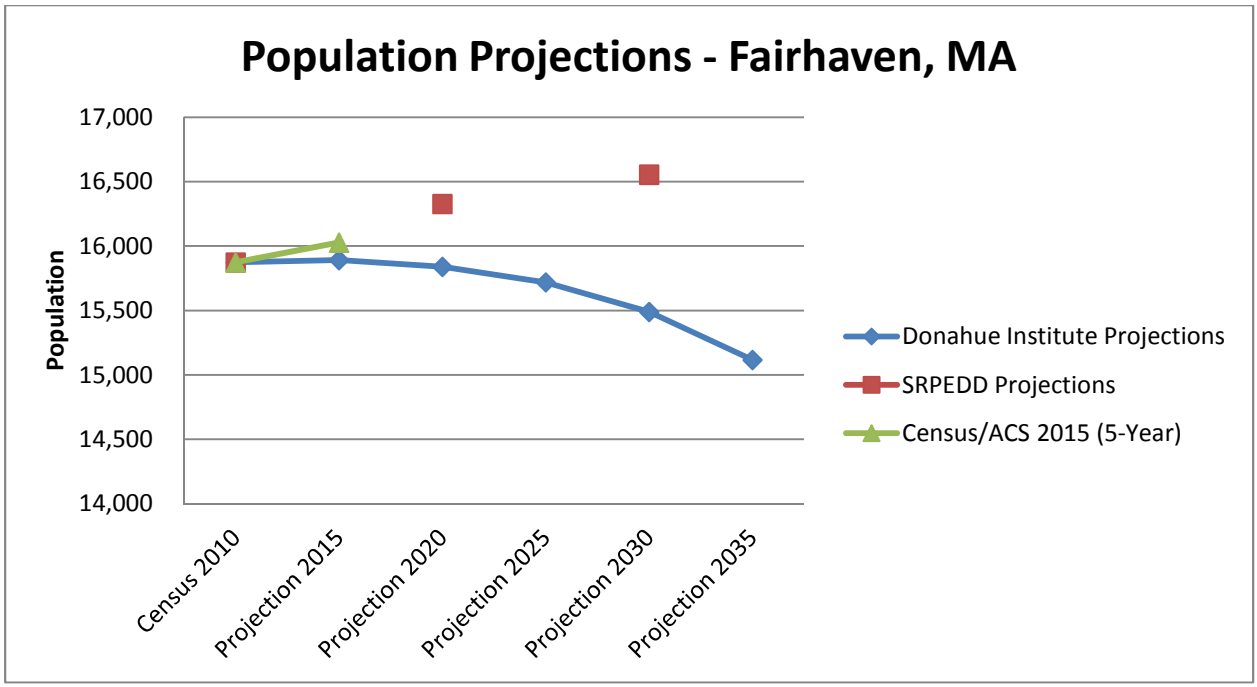
Trends – Fairhaven



Source: STDBOnline

Population

Fairhaven is an established commercial and residential community and had a 2000 population of 16,159. According to demographic data provided by *STDBOnline*, the population of Fairhaven had decreased since 2000 for a 2010 population of 15,873, with an estimated 2016 population of 15,846; an annual decrease of 0.03% over the period, and with an estimated 2021 population of 15,932; an annual increase of 0.11% over the period. Additionally, we have compiled various population projections for Fairhaven. The Donahue Institute projections are the most comprehensive and indicate a decline in overall population of Fairhaven into the future, as indicated by the chart below, however those projections are compared against projections from the Census Bureau's American Communities Survey and the Southeast Regional Planning and Economic Development District.



Projected Population by Age
Donahue Institute Modeling - Fairhaven

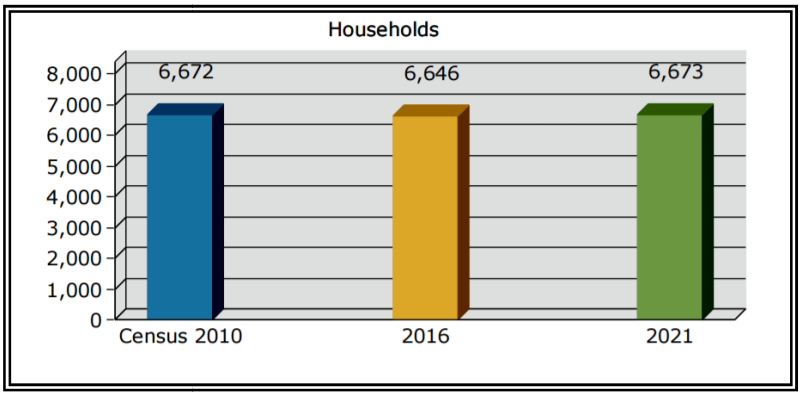
Age Range	2000	2015	% Change	2020	% Change	2025	% Change	2030	% Change	2035	% Change
0-4	696	622	-10.63%	615	-1.13%	580	-5.69%	535	-7.76%	503	-5.98%
5-9	731	749	2.46%	690	-7.88%	677	-1.88%	639	-5.61%	591	-7.51%
10-14	943	822	-12.83%	861	4.74%	805	-6.50%	784	-2.61%	739	-5.74%
15-19	983	827	-15.87%	728	-11.97%	769	5.63%	719	-6.50%	695	-3.34%
20-24	758	787	3.83%	675	-14.23%	600	-11.11%	629	4.83%	593	-5.72%
25-29	742	782	5.39%	783	0.13%	688	-12.13%	622	-9.59%	650	4.50%
30-34	863	855	-0.93%	868	1.52%	871	0.35%	768	-11.83%	693	-9.77%
35-39	991	986	-0.50%	966	-2.03%	972	0.62%	968	-0.41%	858	-11.36%
40-44	1,151	1,036	-9.99%	1,045	0.87%	1,030	-1.44%	1,024	-0.58%	1,023	-0.10%
45-49	1,300	1,138	-12.46%	1,037	-8.88%	1,050	1.25%	1,041	-0.86%	1,033	-0.77%
50-54	1,324	1,265	-4.46%	1,103	-12.81%	1,008	-8.61%	1,022	1.39%	1,014	-0.78%
55-59	1,220	1,403	15.00%	1,324	-5.63%	1,157	-12.61%	1,063	-8.12%	1,079	1.51%
60-64	1,042	1,184	13.63%	1,341	13.26%	1,265	-5.67%	1,109	-12.33%	1,019	-8.12%
65-69	769	922	19.90%	1,042	13.02%	1,176	12.86%	1,110	-5.61%	968	-12.79%
70-74	655	838	27.94%	997	18.97%	1,127	13.04%	1,268	12.51%	1,194	-5.84%
75-79	517	524	1.35%	658	25.57%	776	17.93%	878	13.14%	984	12.07%
80-84	520	439	-15.58%	443	0.91%	544	22.80%	640	17.65%	730	14.06%
85+	668	713	6.74%	663	-7.01%	624	-5.88%	670	7.37%	751	12.09%
65+	**15,873**	**15,892**	**0.12%**	**15,839**	**-0.33%**	**15,719**	**-0.76%**	**15,489**	**-1.46%**	**15,117**	**-2.40%**

Source: Dohahue Institute (Umass)

Household growth and formation is generally anemic and lags the overall population growth; indicating that residents are potentially unable to form new discrete households or chose not to. Data indicates Fairhaven households growing at a rate of 0.08% since 2000 for a 2010 count of 6,672 households, with an estimated 2016 household count of 6,646, an annual decrease of 0.06% over the period, and an estimated 2021 household count of 6,673, an annual increase of

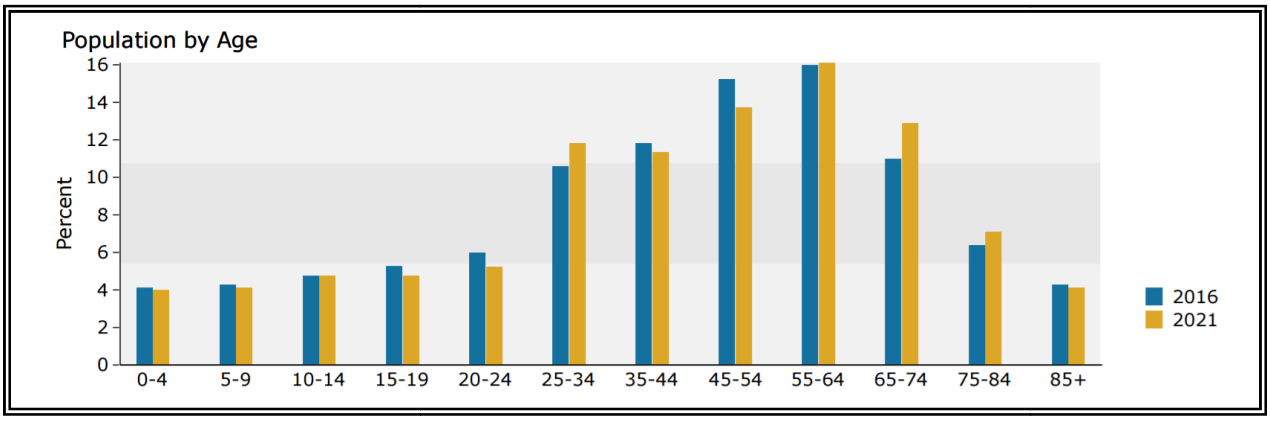
only 0.08% over the period. Few additions to supply and a relatively small (25%) of rental units may contribute to slow household formation and growth rates within Fairhaven, as compared to the region.

Households – Fairhaven



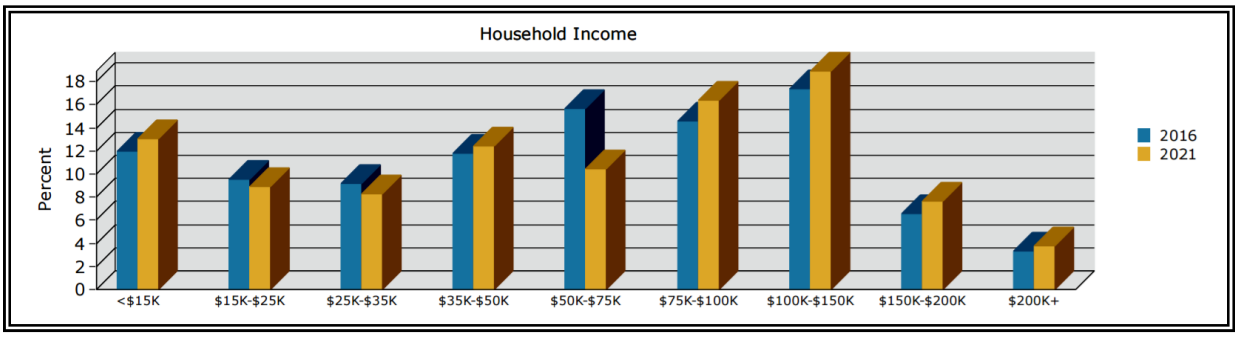
Source: STDBOnline

Population by Age –Fairhaven



The cohort charts depict an abnormal population distribution in the Fairhaven market compared to the State and Nation with a population density heavily weighted in 45-64 year old age brackets and a gradual decline after age 65+ age groups. What is also of note is the population trends projected over the next 5 years with the largest population growth in 25-84 year old age cohorts and a decline in <25 populations in every age bracket. This data is consistent with various surveyed sources throughout this report and indicates an aging population and population growth in older households.

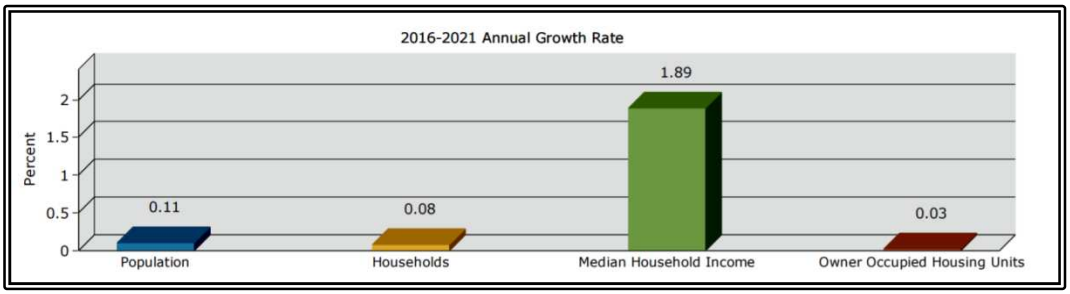
Household Income – Fairhaven



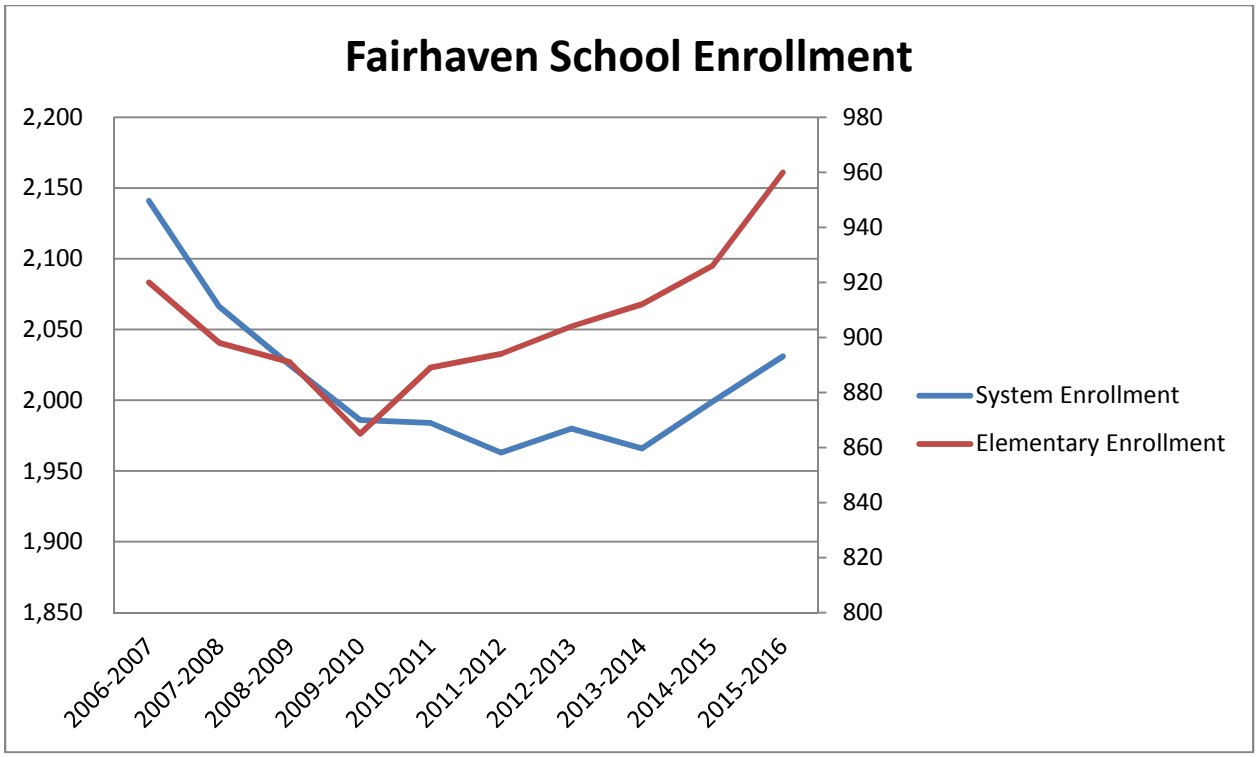
Income

A study conducted by *STDBOnline*, estimates the median household income (MHI) of households in Fairhaven at $59,742, compared to a MHI estimate of $65,597 for 2021. The household income trends in the above chart indicate an increase in two distinct cohorts; <$15,000 and $75,000-$150,000+ per year groups, consistent with a stable, long-term population group that is aging.

Annual Growth Rates – Fairhaven



Additionally, we have reviewed and analyzed published attendance statistics for the Fairhaven public school system to attempt to quantify need and demand for additional school buildings or classrooms. The data indicates a declining system enrollment from 2006 through 2014 and more recently, an increase in overall enrollment, however, still well below peak levels in 2006. Elementary enrollment data indicates recent increasing enrollment overall, however, marginal in overall increase. Historic and current school enrollment, coupled with projected population and household formation statistics outlined within this report are considered significant and do not indicate a strong future need for additional school development.



Source: Massachusetts Department of Elementary and Secondary Education

Preliminary Retail Demand Analysis

As an exercise in analyzing potential retail demand, we have reviewed data provided by ESRI Business Systems in a report titled *Retail MarketPlace Profile*. The report is included below and classifies existing retail establishments into 27 industry groups in the retail trade sector, as well as four industry groups within the food services and drinking establishments subsector. The report estimates sales to consumers by existing establishments and demand in the form of retail potential estimates the expected amount spent by consumers at existing retail establishments. The Leakage/Surplus Factor represents a snapshot of potential retail opportunity and is a measure of the relationship between supply and demand. A positive value represents leakage of retail opportunity outside the trade area and a negative value represents a surplus of retail sales; a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales, as indicated by the chart below, and serves to illustrate the unsatisfied local demand.

esri

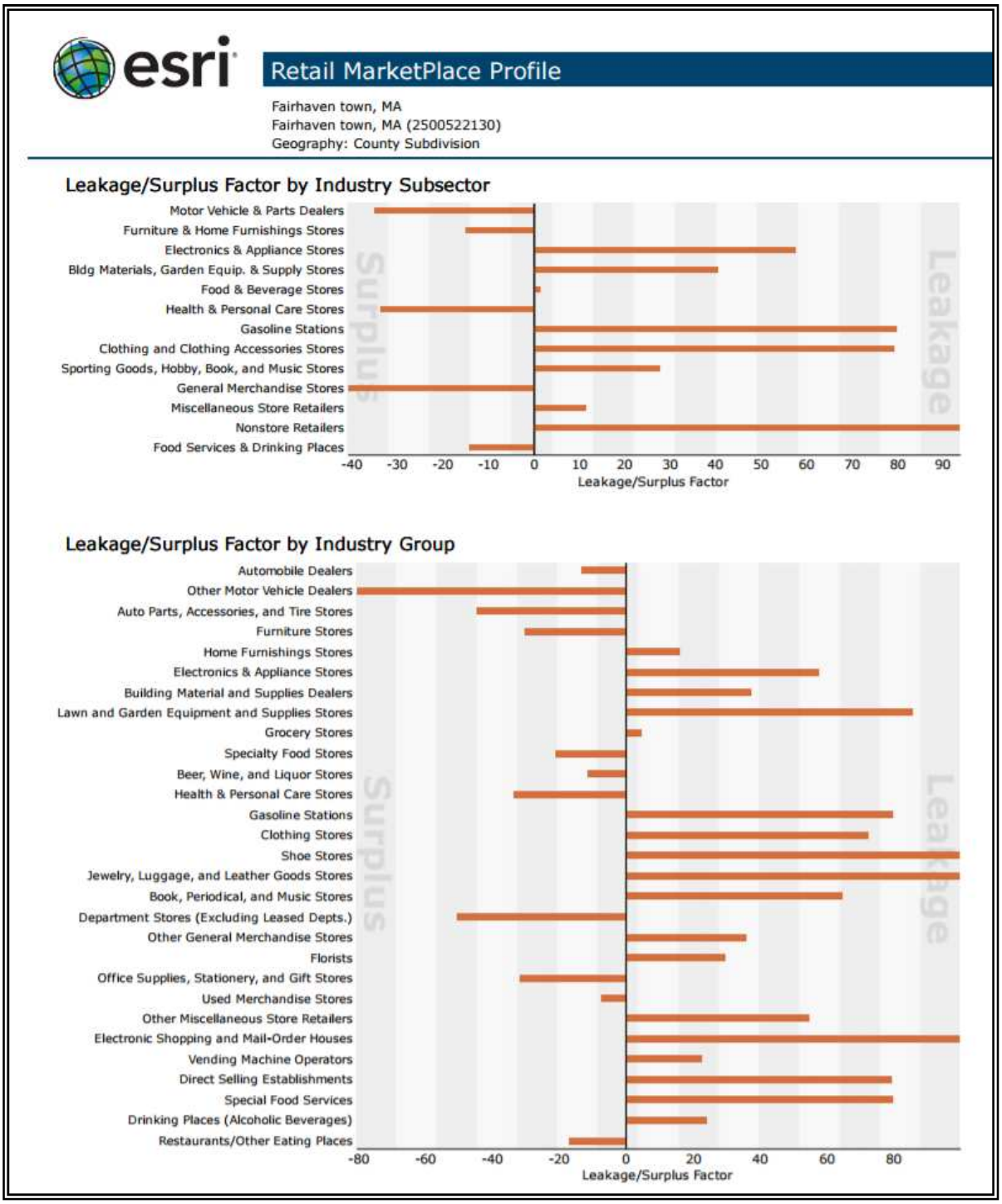
Retail MarketPlace Profile

Fairhaven town, MA
Fairhaven town, MA (2500522130)
Geography: County Subdivision

Prepared by Esri

Summary Demographics	
2016 Population	15,846
2016 Households	6,646
2016 Median Disposable Income	$47,056
2016 Per Capita Income	$32,240

Industry Summary	NAICS	Demand (Retail Potential)	Supply (Retail Sales)	Retail Gap	Leakage/Surplus Factor	Number of Businesses
Total Retail Trade and Food & Drink	44-45,722	$270,807,607	$336,540,925	-$65,733,318	-10.8	163
Total Retail Trade	44-45	$245,838,867	$303,315,869	-$57,477,002	-10.5	104
Total Food & Drink	722	$24,968,740	$33,225,056	-$8,256,316	-14.2	59
Industry Group	**NAICS**	**Demand (Retail Potential)**	**Supply (Retail Sales)**	**Retail Gap**	**Leakage/Surplus Factor**	**Number of Businesses**
Motor Vehicle & Parts Dealers	441	$55,115,262	$114,643,655	-$59,528,393	-35.1	24
Automobile Dealers	4411	$47,138,967	$61,738,932	-$14,599,965	-13.4	11
Other Motor Vehicle Dealers	4412	$4,741,385	$44,417,800	-$39,676,415	-80.7	9
Auto Parts, Accessories & Tire Stores	4413	$3,234,910	$8,486,923	-$5,252,013	-44.8	4
Furniture & Home Furnishings Stores	442	$6,116,928	$8,286,297	-$2,169,369	-15.1	9
Furniture Stores	4421	$3,371,260	$6,315,809	-$2,944,549	-30.4	5
Home Furnishings Stores	4422	$2,745,668	$1,970,488	$775,180	16.4	4
Electronics & Appliance Stores	443	$15,475,568	$4,163,392	$11,312,176	57.6	5
Bldg Materials, Garden Equip. & Supply Stores	444	$14,378,909	$6,061,938	$8,316,971	40.7	8
Bldg Material & Supplies Dealers	4441	$13,095,948	$5,963,537	$7,132,411	37.4	7
Lawn & Garden Equip & Supply Stores	4442	$1,282,961	$98,401	$1,184,560	85.8	1
Food & Beverage Stores	445	$49,269,538	$47,912,312	$1,357,226	1.4	14
Grocery Stores	4451	$42,355,927	$38,495,959	$3,859,968	4.8	8
Specialty Food Stores	4452	$2,473,160	$3,794,313	-$1,321,153	-21.1	1
Beer, Wine & Liquor Stores	4453	$4,440,451	$5,622,040	-$1,181,589	-11.7	5
Health & Personal Care Stores	446,4461	$14,865,712	$30,030,073	-$15,164,361	-33.8	8
Gasoline Stations	447,4471	$13,946,998	$1,552,684	$12,394,314	80.0	1
Clothing & Clothing Accessories Stores	448	$14,759,990	$1,703,908	$13,056,082	79.3	2
Clothing Stores	4481	$10,626,000	$1,703,908	$8,922,092	72.4	2
Shoe Stores	4482	$1,725,055	$0	$1,725,055	100.0	0
Jewelry, Luggage & Leather Goods Stores	4483	$2,408,935	$0	$2,408,935	100.0	0
Sporting Goods, Hobby, Book & Music Stores	451	$8,431,933	$4,757,909	$3,674,024	27.9	10
Sporting Goods/Hobby/Musical Instr Stores	4511	$7,324,225	$4,522,717	$2,801,508	23.6	9
Book, Periodical & Music Stores	4512	$1,107,708	$235,192	$872,516	65.0	1
General Merchandise Stores	452	$31,574,815	$75,307,699	-$43,732,884	-40.9	5
Department Stores Excluding Leased Depts.	4521	$23,271,797	$71,402,616	-$48,130,819	-50.8	3
Other General Merchandise Stores	4529	$8,303,018	$3,905,083	$4,397,935	36.0	2
Miscellaneous Store Retailers	453	$10,745,554	$8,546,376	$2,199,178	11.4	15
Florists	4531	$666,363	$358,663	$307,700	30.0	1
Office Supplies, Stationery & Gift Stores	4532	$2,893,541	$5,593,283	-$2,699,742	-31.8	7
Used Merchandise Stores	4533	$585,869	$679,236	-$93,367	-7.4	3
Other Miscellaneous Store Retailers	4539	$6,599,781	$1,915,194	$4,684,587	55.0	4
Nonstore Retailers	454	$11,157,660	$349,626	$10,808,034	93.9	3
Electronic Shopping & Mail-Order Houses	4541	$8,728,046	$0	$8,728,046	100.0	0
Vending Machine Operators	4542	$150,763	$94,992	$55,771	22.7	1
Direct Selling Establishments	4543	$2,278,851	$254,634	$2,024,217	79.9	2
Food Services & Drinking Places	722	$24,968,740	$33,225,056	-$8,256,316	-14.2	59
Special Food Services	7223	$954,984	$105,446	$849,538	80.1	1
Drinking Places - Alcoholic Beverages	7224	$1,194,370	$726,020	$468,350	24.4	4
Restaurants/Other Eating Places	7225	$22,819,386	32,393,590	-9,574,204L/	-17	54



Economic activity in the U.S. continues to improve; however, the economic growth of the nation can be characterized as modest as the economy of the nation is in recovery. Employment, GDP, investment spending, consumer confidence, and availability of capital for investment are showing signs of improvement on a national basis. Massachusetts and the region have outpaced the national recovery and are showing signs of stabilized economic and

employment situations. On December 15, 2015, the Federal Reserve Bank decided to increase the target range for the federal funds rate to 0.25% to 0.50%. The Committee judged that there had been considerable improvement in labor market conditions throughout the year, and it was reasonably confident that inflation would rise, over the medium term, to its 2% objective. Given the economic outlook, and recognizing the time it takes for policy actions to affect future economic outcomes, the Committee decided to raise the target range for the federal funds rate. At the most recent meeting of December 13, 2016, the Fed decided to raise the target range for the federal funds rate to 0.50% to 0.75%. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2.0% inflation.

Real estate recoveries are driven mainly by employment growth and when GDP, and the labor markets begin to add jobs again, the real estate markets can begin to recover. Real estate recoveries are driven mainly by employment growth and when GDP, and the labor markets begin to add jobs again, the real estate markets can begin to recover. Fairhaven has a population and household growth rate that has historically been substantially lower than the region and state, and has population and household formation projections either increasing at a nominal rate, or declining, which provides the demographic context for our feasibility analysis going forward.

Historic Financing Sources

Given the analysis above and the lack of response to previous development oriented RFPs, it is clear that the project will require additional subsidy no matter the use. Below are some typical forms of financial sources utilized in historic buildings across the Commonwealth.

Federal Historic Rehabilitation Tax Credits

The federal historic rehabilitation tax credits are available for income-producing buildings which are listed in the National Register of Historic Places and which are substantially rehabilitated according to the Secretary of Interior's Standards for Rehabilitation. Under this program, 20 percent of the total qualified rehabilitation expenditures ("QRE's") are returned to the owner in the form of a dollar-for-dollar credit on federal income taxes.

A three-part Historic Preservation Certification Application ("HPCA"), together with project plans and photographs are submitted to the Massachusetts Historical Commission (MHC) and the National Park Service (NPS). The MHC has a review and comment role in the process, but the NPS has the final decision making authority regarding certification of the completed rehabilitation. Successful certification of the completed project and, obtaining the subsequent tax benefits, is dependent upon rehabilitation work that meets the Secretary of the Interior's Standards for Rehabilitation.

The Massachusetts Historic Rehabilitation Tax Credit ("MAHRTC") is available on a competitive basis for income-producing buildings which are determined a "qualified historic structure" by the MHC and which are substantially rehabilitated and determined a certified rehabilitation by the MHC. Under the Massachusetts tax credit program, up to 20 percent of the total qualified rehabilitation expenditures is returned to the owner in the form of a dollar-per-dollar credit on state income taxes. The three-part MAHRTC application, together with the additional supporting information required for the competitive process and photographic documentation, is submitted to the MHC to qualify for consideration in application rounds. Successful certification of the completed project by the MHC and securing the subsequent tax benefits is dependent upon rehabilitation work that meets the Secretary of the Interior's *Standards for Rehabilitation.*

The two programs follow the same basic standards from a design review perspective and both are at least partially administered by the MHC. The major differences lie in the fact that the federal program is a guaranteed 20% of the QRE's while the state program funds are "up to

20%", competitive and allocated to a project during three application rounds that take place annually in January, April, and August. Other differences between the programs include that MAHRTC having a lower basis test, being available to non-profits and only requiring the building be eligible for listing on the National Register, but not actually listed. The capped nature of the state program makes it very difficult to both receive state tax credit allocations in any sizable amount as well predict what the total amount of state credit will be relative to the project's sources.

The Massachusetts Preservation Projects Fund (MPPF) is a state-funded 50% reimbursable matching grant program established in 1984 to support the preservation of properties, landscapes, and sites (cultural resources) listed in the State Register of Historic Places. Applicants must be a municipality or nonprofit organization.

Historic cultural resources in public and nonprofit ownership and use frequently suffer from deferred maintenance, incompatible use, or are threatened by demolition. These important resources represent a significant portion of the Commonwealth's heritage. By providing assistance to historic cultural resources owned by nonprofit or municipal entities, the Massachusetts Historical Commission hopes to ensure their continued use and integrity

Requests may be submitted to conduct studies necessary to enable future development or protection of a State Register-listed property, such as feasibility studies involving the preparation of plans and specifications, historic structures reports, and certain archaeological investigations. With planning projects, the architectural/engineering fees to conduct such studies are eligible for funding. Costs associated with the project sign, photography, and legal ads are also eligible for reimbursement.

Requests may be submitted for construction activities including stabilization, protection, rehabilitation, and restoration. Grant funding can only be used to cover costs of material and labor necessary to ensure the preservation, safety, and accessibility of historic cultural resources. Development of universal access is allowable as part of a larger project (ideally, no more than 30%). With construction or "bricks & mortar" projects, therefore, the architectural or engineering fees for any project work are not eligible for funding or use as matching share.

Allowable costs: Overall building preservation, building code compliance, and barrier-free access where historic fabric is directly involved are eligible as well as the cost of a project sign, photography, recording of the preservation restriction, and legal ads.

Non-allowable costs: Projects consisting of routine maintenance, upgrading of mechanical systems (i.e., heating, ventilation, air conditioning, electrical, plumbing), renovation of non-historic spaces, moving of historic buildings, or construction of additions will not be considered. Projects involving the interior of buildings actively used for religious purposes are generally not considered eligible. Architectural or engineering fees for any project work are not eligible for funding or use as matching share.

Requests may be submitted to acquire State Register-listed properties that are imminently threatened with inappropriate alteration or destruction.

The Massachusetts Preservation Projects Fund is currently funded for one grant round through fiscal year 2016. Requests for pre-development projects can range from $5,000 to $30,000; requests for development or acquisition projects may range from $7,500 to $100,000. Work completed prior to grant award is ineligible for funding consideration.

A unique feature of the program allows applicants to request up to 75% of total construction costs if there is a commitment to establish a historic property maintenance fund by setting aside an additional 25% over their matching share in a restricted endowment fund. Emergency funds are available at the Secretary's discretion for stabilization of resources considered in imminent danger. There are no deadlines for the submission of emergency fund requests.

The State Register of Historic Places is the official list of the state's cultural resources deserving preservation consideration. The State Register is a compilation of eight different types of local, state, and federal designations. The most common designations on the State Register are National Historic Landmarks, National Register properties, and local historic districts.

The largest single category on the State Register is from National Register nominations. The MHC can only accept National Register nominations from communities that have completed a comprehensive survey of their historic properties. National Register listing involves substantial lead-time and therefore procedures for nominating eligible unlisted properties should be implemented well ahead of the next grants cycle. Properties can be listed individually or as contributing elements of a National Register District. To find out if your community has a comprehensive survey or to initiate the process of evaluating a property for listing on the National Register, contact the Preservation Planning Division of the MHC. Applicants should contact the Massachusetts Historical Commission or their local historical commission to

ascertain State Register status of the property before applying for grant funds.

Selection Criteria

- Level of historical significance of the property
- Potential for loss or destruction of the property
- Administrative and financial management capabilities of the applicant
- Appropriateness of proposed work for the property
- Demonstrated financial need
- Extent of public support and benefit from users, professionals, and community leaders
- Consistency with state and local preservation and community revitalization plans
- Use of traditional materials and building techniques
- Geographic distribution and first-time grant for community/project

The owner of a property funded for a development or acquisition project must enter into and record a preservation restriction and maintenance agreement in perpetuity. Owners of properties funded for pre-development projects shall enter into a preservation restriction for a term of years, depending on the grant amount awarded.

Most subsidy programs for historic rehabilitation and adaptive reuse of historic properties are dependent upon the viability and feasibility of the underlying project. Soft debt, tax credits, or other forms of subsidy are utilized to fill funding gaps in otherwise unfeasible projects. These financing vehicles can offset development costs up to 20%-30%, however, there are some funding gaps outlined within the feasibility exercises that are far too wide to bridge with soft debt or tax credit allocations.

Discussion of General Findings

As was noted in the interim report, based on the result of previous RFPs with little to no response from the development community, the building does not have a market-rate use. Developers who are looking at a historic building like the Rogers School typically layer multiple sources of funding in order to make the project feasible and reduce the inherent risk of a historic building. Schools are often good adaptive reuse candidates due to their architectural character as well as their location in a neighborhood setting and their ability to be subdivided for multiple users and for a variety of uses from multifamily housing to traditional office or even light manufacturing. Schools also are often configured to provide abundant natural light to the classrooms and have a corridor configuration that lend themselves to multiple uses as noted above.

The Rogers School does not have many of the features that make historic school buildings attractive for rehabilitation. A typical floor plate at Rogers has approximately 7,250 square feet, of which only about 4,360 is usable. Approximately 25% of the first and second floor area is center hallway space and another 15% is allocated to structures, chases, and stair halls. Schools built post 1900, especially more towards the 1920s, tend to have the desired architectural features and more efficient use of square footage making them more readily rehabilitated. The architecture of the building is impressive and reflective of the best civic architecture of the period, but the character defining features of this period pose very difficult challenges beginning with the raised basement which sets the first floor significantly above grade, thus contributing to additional costs for accessibility. This poses challenges to reuse relative to making the building compliant with the Americans with Disabilities Act (ADA). The height of the raised basement and first floor also creates a challenge for any type of use that requires a street presence, such as retail. The location of the basement and first floor windows do not provide ample opportunities for display. This is further exacerbated by another character defining feature of schools of this period, which is that they often are located in the middle of larger green spaces and set back from their main street.

The rear addition does not have the same ADA compliance challenges as the original building, but its orientation, location at the rear of the main building, and the prominence of the large, high-bay gym also hinder visibility for any use that want a street presence. The scale of

the building also does not help relative to trying to address compliance issues in the original school.

Most of the exterior compliance issues can be overcome through thoughtful design or possibly variances and waivers, but they need to not only facilitate entrance from the exterior, but link up to vertical circulation on the interior. Again, due to the period of construction, the floor plans of the original building are not conducive to many types of reuses. The foursquare configuration with two connected lobbies creates circulation and subdivision issues when trying to configure for a number of uses, especially residential. Schools of a later period tend to longer double or single-loaded corridors that provide a greater ratio of windows per wall then the original building, which makes them more conducive to efficient reuse. The floor plan also makes it difficult to cost effectively locate an elevator that can allow access to all floors while being located close to a main entrance point.

Another issue related to efficiency relative to operating the original building long-term is the large interior volume of the building that adds additional operating costs to heating and cooling. A typical floor plate at Rogers has approximately 7,250 square feet, of which only about 4,360 is usable. Approximately 25% of the first and second floor area is center hallway space and another 15% is allocated to structures, chases, and stair halls. The total useable area of the combined buildings is approximately 31,169, compared to a gross area of 43,209; which indicates an efficiency factor of 72%. Accordingly 28% of the area of the building is unusable and lost to stairwells, hallways, utility areas, and obstructions. Similar efficiency issues arise relative to the amount of insulation, or lack there of, found in the building. Many of these items can be addressed during a rehabilitation process, but will add costs to the project.

An initial analysis of the costs associated with bringing the two buildings into basic ADA and building code compliance is approximately $3.6 million, as indicated by the chart below. This estimate is based on typical per square foot costs for rehabilitation projects. It does not include any lead paint or asbestos abatement, mold remediation, sprinkler systems and fire alarms, new HVAC systems, new electrical systems and wiring, or repairs to exterior masonry or roofing systems. Once in compliance, the building could theoretically be used for basic office use, but would still need additional investment in order to be brought up to an operating condition that was fully code compliant and ready for a future use. This additional investment of approximately $60-$70 per square foot ($2.5-$3.0 million) would include those items that are

noted above, but would not account for a specific use type or specialized improvements or fixtures. For instance, a residential use would have a much larger budget due to the additional expense of adding kitchens and baths as well as the demolition expense of removing existing baths and other partitions in order to try to maximize unit efficiency. Other more intensive uses, like a medical use, would also have additional added costs well beyond the $7 million estimate. Specifics regarding the cost estimates follow in the appendix.

This chart outlines the basic code compliance issues and cost estimates associated with bringing the property up to current building and accessibility codes for a commercial assembly use.

Soft Code Compliance Costs	**Cost/SF**		**Total Cost**
Development Expense			
Site Control			$0
Remediation			$0
Site Work, Parking, Paving & Landscaping			$894,000
Interior Fit out Costs			
Original Building			$784,860
Addition			$322,860
Circulation Costs/Common Areas			$425,400
Envelope Repair Costs/Energy Code			$239,049
Construction Cost			**$2,666,169**
Soft Costs (Engineering, Architect, Legal)		10.00%	$266,617
Developer's Profit & Overhead		10.00%	$266,617
Construction Contingency		15.00%	$399,925
Total Cost to Bring to Code Compliance	**$83.31**		**$3,600,000**

The conclusion of the general findings is that the level of investment required to bring the building up to some level of code compliance and make it operational for a specific use is most likely a minimum investment of approximately $5 million, depending on the intensity of use and the level of renovations. This level of investment would make the building functional and include some systems upgrades but in no way would it be considered a complete rehabilitation nor would the improvements be enough to likely find a market use. We have analyzed potential uses and markets below to understand the use potential and markets for each potential use.

Potential Use Scenarios

Looking at the potential rehabilitation costs and the area market data, as was noted in the previous section, the buildings do not appear to be economically feasible from a traditional market perspective. The renovation costs and level of intervention required to bring the structures up to code would not meet minimum return on investment requirements to make the property financeable. Even with additional funding sources brought to bear, a truly market derived project is most likely not feasible. This is not to say that the property does not have any potential as a real estate development, but does mean that any third party development would most likely not fit into the traditional real estate model.

We have reviewed and analyzed general market conditions, capital market conditions, and the current regulatory environment for various uses. Through our analysis we have made baseline assumptions around a basic 'plain vanilla' construction program that includes basic costs to improve the building for a certain prescribed use. These assumptions have been based on published construction cost estimating databases, local and current statistical adjusters, previous experience within the market, and consultation with active market participants within the various uses and markets. In short, the data and assumptions are based on typical costs experienced within the market and are considered a reasonable basis for analysis and discussion for each of the potential use scenarios.

The base construction cost is then adjusted for any outstanding construction costs, developer's profit, overhead, and contingency to arrive at a total estimated development cost for each scenario. Appropriate allowances for direct construction costs to complete the construction and contingency and developer's profit are estimated for the prevailing and foreseeable market and are based on the development scenario and risk profile assessed to each building program. Additionally, indirect costs, contingencies, or administrative costs not directly attributable to specific cost items are estimated to be in the range of 10%-20% of the total hard costs, depending on the development profile. Developer's profit or entrepreneurial profit often is included as a soft cost in the pro-forma and it is the incentive required to cause a development to be undertaken. The range for developer's profit is substantial, from 10% or less for turnkey development to upwards of 25% for highly speculative ventures. For this analysis 10%-20% the total project development has been estimated.

Reuse as a Public (Elementary) School

Based on public input to date, the majority of the citizens interested in saving the building favor the town retaining ownership and the return of the building to a school or administrative related use. Through our demographic and economic analysis, and data projections provided by the town of Fairhaven School department, in the previous section of the report, historic growth patterns for the town and projected future trends indicate that the need for an additional school for the Fairhaven Public School system is minimal for the foreseeable future. Additionally, as previously discussed, the level of investment required to return the buildings back to an operable school use does not appear to make economic sense as a newly constructed school building could receive a much greater amount of state funding, be built to a greater level of efficiency and cost effectiveness, and would more readily address any future needs. Schools also have more specialized design requirements and a modern school would have a more efficient layout and better use of space. Based on current new construction and rehabilitation cost estimates provided by the Massachusetts School Building Authority for school renovation and addition projects within the previous 12 months, the likely redevelopment cost for the reuse as a school building would be in the range of approximately $17 million, as indicated by the chart below. The Massachusetts School Building Authority source data is attached as an appendix to this report for reference. We have assumed an average construction cost of approximately $300 per square foot of building area and a 20% construction contingency and 10% developer's profit estimate. The model below does not estimate site work or remediation of hazardous materials. Our experience suggests that asbestos removal can range from an average of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement.

The use requirements for a public school, private school, or other public use governed and regulated by the Commonwealth of Massachusetts would be similar, if not the same. The development cost estimates include the construction and interior fit out costs as well as systems and infrastructure costs for educational uses. These estimates do not include specialized

equipment or fixtures, nor do they anticipate any addition or modification of the existing building envelope.

School/Education Use	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Site Work/Remediation			$0
Construction Cost	43,210	$300	$12,963,000
Construction Contingency		20.00%	$2,592,600
Developer's Profit		10.00%	$1,296,300
Total Cost to Develop School		**$391**	**$16,900,000**

As discussed throughout this report, the current population metrics and projected growth in the town is considered modest at most and there does not appear to be sufficient current or long-term demand for additional school or administration facilities within Fairhaven. As a school facility would most likely be municipally owned and operated, there are limited sources of capital or operating revenue, aside from one-time capital reimbursement from the state and town funds to offset the cost of development of a school facility. The most likely scenario would involve a public finance model using a municipal bond issue. Fairhaven currently has a Moody's rating of Aa2 and the current market for municipal bonds is active and offers a competitive advantage over rates available for existing long-term financing tools. Under this scenario, the town would be bear most, if not, all of the capital and operating costs associated with the use.

Reuse as a School Administration/Municipal Office Building

The other use that was mentioned on multiple occasions during the public process was the use of the building for administrative purposes by the town, either by the municipality of the schools. Included in these discussions were several comments regarding the need for a new location for the local cable access television channel, in addition to meeting space. The use of the building by the town may in some ways be the most efficient as there is a greater likelihood the town could invest less in the property, not updating all systems for instance, while still bringing the building into compliance. In many ways this may seem like the path of least resistance, but at best it is a short-term fix. Like a potential school use, looking at the data, the growth of the town over the next decade or more would not appear to require additional office space beyond what already exists. Like a new school, if additional office space is needed, construction of a new facility would be the most cost affective and could most likely be build to address any special interest groups like the cable access channel. Financing would be more readily available as the town could most likely fund the rehabilitation through a bond offering, but it again would only be a stopgap measure.

We have modeled two scenarios for a plain vanilla municipal office use, with the first utilizing the entire building of approximately 43,210 square feet, including basement, first floor, second floor, third floor, and the entire 1950s addition. The second scenario limits the buildout and finishing to approximately 28,710 square feet, including first floor, second floor, and the entire 1950s addition. The code compliance costs and major infrastructure improvements are for the entire building and are relatively fixed and not a function of the amount of space improved, finished, or occupied.

Based on current new construction and rehabilitation cost estimates developed through discussions with market participants, the Marshall & Swift construction cost database, and analysis of the current code requirements of the property, the estimated redevelopment cost for the reuse as a municipal office or school administration building would be in the range of approximately $4.8-5.4 million, as indicated by the charts below. We have assumed a plain vanilla office fit out of low cost construction of approximately $35.00 per square foot of building area and a 10% soft costs estimate, 10% construction contingency and 10% developer's profit estimate and overhead. The model below does not estimate site work or remediation of hazardous materials. Our experience suggests that asbestos removal can range from an average

of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement.

Municipal Office/Administrative - Full Scope	**SF**	**Cost/SF**	**Total Cost**
Development Expense			
Site Control			$0
Remediation			$0
Site Work, Parking, Paving & Landscaping			$894,000
Interior Fit Out Costs			
Original Building			$784,860
Addition			$322,860
Circulation Costs/Common Areas			$425,400
Envelope Repair Costs/Energy Code			$239,049
Interior Office Finish - Low Cost	43,210	$35.00	$1,512,350
Construction Cost			**$4,178,519**
Soft Costs (Engineering, Architect, Legal)		10.00%	$417,852
Developer's Profit & Overhead		10.00%	$417,852
Construction Contingency		10.00%	$417,852
Total Cost to Develop Municipal Office - Full Scope		**$124.97**	**$5,400,000**

As indicated in the model below, the limited scope scenario does not offer the benefit of amortizing or spreading out the fixed costs over the entire building, but rather puts upward pressure on the cost per square foot of useable area. There may be opportunities to reduce fixed costs by occupying portions of the building and mothballing portions, however, code compliance waivers may be required in order to accommodate partial occupancy.

Municipal Office/Administrative - Limited Scope	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Remediation			$0
Site Work, Parking, Paving & Landscaping			$894,000
Interior Fit Out Costs			
Original Building			$784,860
Addition			$322,860
Circulation Costs/Common Areas			$425,400
Envelope Repair Costs/Energy Code			$239,049
Interior Office Finish - Low Cost	28,710	$35.00	$1,004,850
Construction Cost			**$3,671,019**
Soft Costs (Engineering, Architect, Legal)		10.00%	$367,102
Developer's Profit & Overhead		10.00%	$367,102
Construction Contingency		10.00%	$367,102
Total Cost to Develop Municipal Office - Limited Scope		**$167.19**	**$4,800,000**

As discussed throughout this report, the current population metrics and projected growth in the town is considered modest at most and there does not appear to be sufficient current or long-term demand for additional municipal office space or school administration facilities within Fairhaven. As a municipal office building or administration facility would most likely be municipally owned and operated, there are limited sources of capital or operating revenue, aside from one-time capital reimbursement from the state and town funds to offset the cost of development of a municipal office building. The most likely scenario would involve a public finance model using a municipal bond issue. Fairhaven currently has a Moody's rating of Aa2 and the current market for municipal bonds is active and offers a competitive advantage over rates available for existing long-term financing tools. Under this scenario, the town would be bear most, if not, all of the capital and operating costs associated with the use.

Multifamily Housing – Market Rate Condominiums

As discussed within this report the sale of condominiums in Fairhaven increased 12.5% to 9 over 2014 levels of 8, with average sale prices increasing 2.86% over the year to reach $180,000 from $175,000 in 2014. The current median sales price of a condominium in Fairhaven is $182,500 and 14 have been recorded from January-November 2016. The low level of condominium sales transactions and relatively low median sales price is an indication of the temperate condominium market in Fairhaven and the relatively low demand for condominium units within the market.

Based on current new construction and rehabilitation cost estimates developed through discussions with market participants, the Marshall & Swift construction cost database, and analysis of the current code requirements of the property, the estimated redevelopment cost for the reuse as a market-rate for-sale condominium use would be in the range of approximately $8.425 million, as indicated by the chart below. We have assumed a plain vanilla residential fit out of good quality construction of approximately $150 per square foot of building area and a 10% soft costs estimate, 10% construction contingency and 10% developer's profit estimate and overhead.

The model below does not estimate site work or remediation of hazardous materials. Our experience suggests that asbestos removal can range from an average of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement.

MF Residential - Condominium	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Site Work/Remediation			$0
Construction Cost - All In	43,210	$150	$6,481,500
Soft Costs (Engineering, Architect, Legal)		10.00%	$648,150
Developer's Profit & Overhead		10.00%	$648,150
Construction Contingency		10.00%	$648,150
Total Cost to Develop Condominiums		**$195**	**$8,425,950**
Condominium Sales Revenue			
Condominium Sales	26,459	$250	$6,614,750
Condominium Sales Expenses			
Brokerage Commission/Marketing		5.00%	$330,738
Net Income			**($2,100,000)**

This analysis assumes the site and building have the capacity to support such improvements and no assumptions have been made about the capacity of the site for domestic water, septic or sewer, or other infrastructure capacities. Based on recent transactions for condominium homes within Fairhaven, an estimated sales price of $250 per square foot is considered a reasonable basis for the analysis. Additionally, we have used a 5.0% reserve for marketing and brokerage commissions. The total sales revenue of $6,614,750, based on a full unit buildout of the net building area less the gymnasium area, has been adjusted for brokerage commissions of $330,738 and the construction cost estimate of approximately $8,425,950 to result in a net deficit of $2,100,000. This exercise is considered preliminary and is based on a hypothetical subdivision and buildout capacity that could be influenced by sensitivities within the models and altered assumptions, however, does not appear to support the conclusion that adaptive reuse of the property for market-rate condominium use is a feasible reuse possibility without alternative financing methods to fill the funding gap.

The simple condominium feasibility pro forma above shows a conservative estimate of a 25% funding gap on a development cost of around $8,425,950. That's exclusive of site control, remediation, and any site work, and assumes a fairly simple development scenario. However, with a funding gap at 25% of the total construction costs, it is unlikely there will be enough soft debt, tax credits, or another subsidy to fill the funding gap for a market-rate project.

Multifamily Housing – Market Rate or Subsidized Rental Housing

Based on current new construction and rehabilitation cost estimates developed through discussions with market participants, the Marshall & Swift construction cost database, and analysis of the current code requirements of the property, the estimated redevelopment cost for the reuse as a market-rate or subsidized rental housing use would be in the range of approximately $8.425 million, as indicated by the chart below. We have assumed a plain vanilla residential fit out of good quality construction of approximately $150 per square foot of building area and a 10% soft costs estimate, 10% construction contingency and 10% developer's profit estimate and overhead.

The model below does not estimate site work or remediation of hazardous materials. Our experience suggests that asbestos removal can range from an average of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement.

MF Residential - Rental	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Site Work/Remediation			$0
Construction Cost - All In	43,210	$150	$6,481,500
Soft Costs (Engineering, Architect, Legal)		10.00%	$648,150
Developer's Profit & Overhead		10.00%	$648,150
Construction Contingency		10.00%	$648,150
Total Cost to Develop Apartments		**$195**	**$8,425,950**

We have made assumptions for the modeling of a market-rate and affordable rental housing development within the existing building envelope and a hypothetical model that includes the construction of approximately 84 units of rental housing within a large extension building constructed to the rear of the property to bring the hypothetical development to 100 units.

Unit #	*Unit type*	*SF*	*Rent/Month*	*Annual*	*Per Unit/Year*
Residential Income					
24	One-Bedroom Units		$1,500	$432,000	$18,000
Potential Gross Residential Income				$432,000	$18,000
Residential Vacancy & Collection Loss			*5.0%*	*$21,600*	*$900*
Effective Gross Income				**$453,600**	**$18,900**
Operating Expenses					
Operating Expenses				$156,000	$6,500
Total operating expenses				**$156,000**	**$6,500**
Replacement Reserve				$6,000	$250
Net Operating Income				**$291,600**	**$12,150**
Captilization Rate					6.50%
Implied Capitalized Value					**$4,486,154**

A simple rental housing feasibility pro forma above shows a conservative estimate of a 45% feasibility gap, or approximately $4,000,000 on a development cost of around $8,425,950. This model is exclusive of site control, remediation, and any site work costs, and assumes a fairly simple development scenario with aggressive operating assumptions within the existing building shell. However, with a funding gap of over 45% of the total construction costs, it is unlikely there will be enough soft debt, historic tax credits, or another subsidy to fill the funding gap for a market-rate project.

Additionally, we have looked at the suitability of the project to support an affordable housing development within the existing shell and building a large attached structure to accommodate approximately 100 units in total. A project of between 75 and 125 units would be most likely in order to amortize and distribute the capital costs associated with the development. We have chosen 100 units as a point of analysis and comparison for this exercise. A simple affordable rental housing feasibility pro forma below shows a conservative estimate of an $800,000+- funding gap between sources and uses for development. The model assumes a federal Low Income Housing Tax Credit (LIHTC) allocation of 9% for new construction, priced at $0.85/credit, an historic tax credit estimate of approximately 20% of qualifyable base costs, and a supportable first mortgage assuming 30 year amortization at a rate of 4.50% and a 1.15 debt coverage ratio (DCR). Additionally, we have assumed a nominal acquisition basis and site work estimate, along with our previously discussed construction cost estimates of $8,425,019 for the 24-unit scenario within the existing building envelope and an estimate of $17,099,063 for the construction of the new building, along with $244,980 for the demolition of the existing 1950s building.

This model assumes a fairly simple development scenario with aggressive operating assumptions within the existing building shell and with the demolition of the 1950s building and the construction of a large addition to house approximately 84 units.

Multimfamily Housing - 24 Units w/in Existing Envelope
LIHTC Development Proforma

Sources	
LIHTC Capital - 9% Credit @ $0.85/c	$6,445,140
Historic Tax Credits @ 20% of base	$1,685,004
1st Mortgage - 30y/4.50% - 1.15 DCR	$240,307
Total Sources	**$8,370,450**
Uses	
Acquisition Basis - Land	$250,000
Direct Construction Costs	$8,425,019
Site Work & Remediation	$500,000
Total Uses	**$9,175,019**
Net Difference	**($804,569)**

Multimfamily Housing - 100 Units w/Large Addition to Rear
LIHTC Development Proforma

Sources	
LIHTC Capital - 9% Credit @ $0.85/c	$13,080,783
Historic Tax Credits @ 20% of base	$3,419,813
1st Mortgage - 30y/4.50% - 1.15 DCR	$2,287,259
Total Sources	**$18,787,854**
Uses	
Acquisition Basis - Land	$250,000
Direct Construction Costs	$17,099,063
Demolition Costs - Addition	$244,980
Site Work & Remediation	$850,000
Total Uses	**$18,444,043**
Net Difference	**$343,811**

Recent announcements at the Federal level include the potential for tax reform, reductions to the Housing and Urban Development (HUD) budget, increases to the Fed Funds Rate and uncertainty within the markets has caused LIHTC markets to all but stop functioning. Tax credit allocating agencies have slowed deal flow and investors have changed expectations and reduced their demand for tax credits. Recent reports of pricing metrics indicate a drop from a national average of approximately $1.00 per dollar of credit to between $0.85 and $0.95 per credit dollar with the anticipation that a decrease in the corporate tax rate from 35% to 20% will

put downward pressure on the pricing of approximately 7.0%-15.0% in order for investors to maintain return expectations. We have assumed a middle of the road scenario of $0.85 per credit on a 9% deal; however, a reduction of 15% would reduce the credit price to just over $0.72 per credit, which would open an additional gap of just under $1,000,000 for the 24-unit scenario and $1,650,000 for the 100-unit scenario. Additionally, a 50 basis point (bp) increase in current mortgage rates has further negative consequences on the development feasibility LIHTC projects are entirely dependent on the pricing and current market for tax credits for feasibility. Small fluctuations in the market can cause substantial funding shortfalls and feasibility problems.

Multimfamily Housing - 24 Units w/in Existing Envelope
LIHTC Development Proforma

Sources	
LIHTC Capital - 9% Credit @ $0.85/c	$5,459,412
Historic Tax Credits @ 20% of base	$1,685,004
1st Mortgage - 30y/4.50% - 1.15 DCR	$240,307
Total Sources	**$7,384,723**
Uses	
Acquisition Basis - Land	$250,000
Direct Construction Costs	$8,425,019
Site Work & Remediation	$500,000
Total Uses	**$9,175,019**
Net Difference	**($1,790,296)**

Multimfamily Housing - 100 Units w/Large Addition to Rear
LIHTC Development Proforma

Sources	
LIHTC Capital - 9% Credit @ $0.85/c	$11,080,193
Historic Tax Credits @ 20% of base	$3,419,813
1st Mortgage - 30y/4.50% - 1.15 DCR	$2,287,259
Total Sources	**$16,787,264**
Uses	
Acquisition Basis - Land	$250,000
Direct Construction Costs	$17,099,063
Demolition Costs - Addition	$244,980
Site Work & Remediation	$850,000
Total Uses	**$18,444,043**
Net Difference	**($1,656,779)**

Lower-risk alternatives within the market exist that offer developers of multifamily housing increased certainty and reduced risk while also conforming to an established development model. Any multifamily residential use would almost certainly require the construction of a large additional structure to house most, if not all of the rental apartment units. The floor plans of both buildings do not layout well for multifamily residential reuse due to the size and relationship of the different spaces, including the rafter beam spacing on the third floor. The large classrooms in the historic buildings are of particular difficulty as any housing reuse could most likely mean the loss of a significant portion of historic fabric to introduce kitchens and baths into the space. The market for condominiums can sometimes absorb unit anomalies and unit features that are difficult and costly to incorporate into rental housing. Throughout our analysis and development of general rehabilitation costs for the buildings, we have observed that the required yield on rental and for sale housing based on existing data is prohibitive. Based on the lack of responses to the development RFPs, housing does not appear to be a viable reuse.

Commercial Office/Retail

Based on current new construction and rehabilitation cost estimates developed through discussions with market participants, the Marshall & Swift construction cost database, and analysis of the current code requirements of the property, the estimated redevelopment cost for the reuse as a market-rate or subsidized rental housing use would be in the range of approximately $4.6-$7.0 million, as indicated by the charts below. We have assumed a plain vanilla commercial office fit out of low-cost construction of approximately $125 per square foot of building area and a 10% soft costs estimate, 10% construction contingency and 10% developer's profit estimate and overhead. We have modeled two scenarios for a plain vanilla municipal office use, with the first utilizing the entire building of approximately 43,210 square feet, including basement, first floor, second floor, third floor, and the entire 1950s addition. The second scenario limits the build-out and finishing to approximately 28,710 square feet, including first floor, second floor, and the entire 1950s addition. The code compliance costs and major infrastructure improvements are for the entire building and are relatively fixed and not a function of the amount of space improved, finished, or occupied. The use as a commercial office and retail building would necessitate a higher level of finish and constriction to that of a municipal use or school administrative facility.

The model below does not estimate site work or remediation of hazardous materials. Our experience suggests that asbestos removal can range from an average of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement.

Commercial Office/Retail Use	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Site Work/Remediation			$0
Construction Cost	43,210	$125	$5,401,250
Construction Contingency		10.00%	$540,125
Soft Costs		10.00%	$540,125
Developer's Profit		10.00%	$540,125
Total Cost to Develop Commercial Office/Retail		**$163**	**$7,021,625**
Capitalized Rental Revenue			
Income			
Annual Office/Retail Rents (NNN)	43,210	$10.00	$432,100
Gross Potential Income			$432,100
Vacancy Allowance		20.00%	($86,420)
Effective Gross Income			**$345,680**
Operating Expenses			
Management Fee		5.00%	$17,284
Legal Fees/Auditing/Accounting			$10,000
Other Insurance		0.50%	$2,161
Contingency Reserve		2.50%	$10,803
Total Operating Expenses			**$40,247**
Net Operating Income			**$305,433**
Capitalized Value		**10.00%**	**$3,054,330**
Net Income			**($4,000,000)**

Commercial Office/Retail Use	SF	Cost/SF	Total Cost
Development Expense			
Site Control			$0
Site Work/Remediation			$0
Construction Cost	28,710	$125	$3,588,750
Construction Contingency		10.00%	$358,875
Soft Costs		10.00%	$358,875
Developer's Profit		10.00%	$358,875
Total Cost to Develop Commercial Office/Retail		**$163**	**$4,665,375**
Capitalized Rental Revenue			
Income			
Annual Office/Retail Rents (NNN)	28,710	$10.00	$287,100
Gross Potential Income			$287,100
Vacancy Allowance		20.00%	($57,420)
Effective Gross Income			**$229,680**
Operating Expenses			
Management Fee		5.00%	$11,484
Legal Fees/Auditing/Accounting			$10,000
Other Insurance		0.50%	$1,436
Contingency Reserve		2.50%	$7,178
Total Operating Expenses			**$30,097**
Net Operating Income			**$199,583**
Capitalized Value		**10.00%**	**$1,995,830**
Net Income			**($2,700,000)**

The height of the raised basement and first floor also creates a challenge for any type of use that requires a street presence, such as retail. The location of the basement and first floor windows do not provide ample opportunities for display. This is further exacerbated by another character defining feature of schools of this period, which is that they often are located in the middle of larger green spaces and set back from their main street.

The various historic preservation and rehabilitation programs available at the federal and state levels would be available to this use and could offset a portion of the construction cost, however, in either pro forma scenario, the feasibility gap is approximately 55% on a development cost of between $4.6-$7.0 million. This model is exclusive of site control, remediation, and any site work costs, and assumes a fairly simple development scenario with aggressive operating assumptions. However, with a feasibility gap of over 52% of the total construction costs, it is unlikely there will be enough soft debt, tax credits, or another subsidy to fill the feasibility gap for a commercial office or retail project.

Wedding/Event Venue

Another suggestion made during the public meeting process was use of the building as a wedding or event venue. There is no readily available data regarding the need for a use like this one, but something along these lines might make sense depending on the developer and their long-term goals for the property. Large spaces, such as some of the rooms in the Rogers School often find many short-term users rather than any one single intensive user and can contribute to the feasibility of the project as a component use of a larger enterprise. A use such as this one, would require the building be brought up to code and most likely have a more complete rehabilitation then one undertaken by the town, but most likely the things that make the space inefficient for other uses could be advantageous for this type of use. The size of the classrooms and the floor layouts could potentially work with minimal changes relative to this type of use. Like wise, historic finishes and architectural features would be seen as positive elements for this type of use. A use of this type would also benefit from the surrounding property and landscape, which could add to the potential rentable area during the summer.

Wedding/event venues typically operate on the basis of a fixed fee for a specified block of time unless the venue has a food service or drinks service component, then they operate on the basis of minimums of service. It is assumed that any wedding/event venue use of Rogers School will not include a catering or food/drink service component and will just be a space for events, perhaps utilizing the large gymnasium area, or the smaller rooms in the historic structure, or even a lawn tent at the rear of the property grounds. Typically, event spaces are rented in 5-hour blocks for weddings or on an hourly basis for other events. A local survey of wedding venues indicated an estimated $1,000-$2,500 per 5-hour wedding block depending on the size of the space, day of week, and time of year, with premiums for Saturdays in peak season (May-September) and discounts attributed to mid-week timeslots and off-peak season. Typically $200-$300 per hour for corporate and private rentals is considered reasonable on an hourly basis. Because of the physical improvements and the layout of the property, it is reasonable to assume that a wedding/event venue use could be a component use to a larger institutional or community use, however, would likely not support a full-time events venue at the site.

A further examination of the use and required layout as a component to a specific larger use would be recommended to understand if this use is physically and financially viable as a component to a comprehensive development strategy. The various uses would need to be

separated and distinguished as to not interfere with each other, in order to maximize the utility of the property.

Arts/Cultural/Educational Facility – Public-Private Model

A similar use that would not require as significant a rehabilitation effort would be an arts related use, potentially as a component to a larger campus use. The Arts & Business Council of Greater Boston (A&BC) is beginning a program to invest in 'creative campus' opportunities. Their goal is to create an interconnected arts campus across the Commonwealth by partnering with arts groups in different towns and cities. A&BC would provide the capital and the real estate knowledge to invest in a project and the local partner provides the programming that is appropriate for their area. Potential property uses include:

- Shared office, including incubator space for small and fringe organizations
- Shared rehearsal spaces
- Multi-use black box performance venues for dance, theatre, film, etc
- Maker spaces for (printmaking, ceramics, writing, jewelry, music, theatre set design, foundry, etc)

Their identified universal, mission driven attributes for all projects regardless of combinations of uses:

- Site and community specific, based on a needs assessment
- Located in an under-resourced community or one where the arts are in jeopardy
- Community activated space—open/flexible, accessible, and technology enabled
- Diverse and inclusive in all aspects of construction, programming, and management
- Mix of uses and collaborators, e.g. tech incubation, shared maker space
- Green/sustainable when and where possible
- Close to transportation
- Mixed-use and performance friendly, including sufficient load-in and storage space
- Designed to accommodate rotating public art installations and public events
- Safe environments for artists and arts organizations
- A&BC services provided to tenants

Arts and Cultural facilities uses may have advantages over a traditional market uses for the neighborhood and community. Like the previous discussion, the property features that are incongruent with a traditional market use can be managed or even seen a positive for a project property like Rogers. The use is a very public one, allowing the citizens access to the site, even

more so then when the building was a school. The rehabilitation could be phased over a longer period of time and could bring a variety of funding sources to bare including traditional bank financing, raised capital from donations, state and federal historic tax credits, cultural council funding, grants and Community Preservation Act funds. This type of use is could also use the surrounding open space and would be of a lower intensity, having less of an impact on the surrounding neighborhood. It also could include rentable space of many different types of events.

Additionally an institutional user such as a private school, art school, college or training center would be another likely candidate for such a use. Like the arts use, the project could be approached in a phased manner, could utilize the character defining features of the buildings as well as the surrounding land areas, could have access to different forms of capital and could be less impactful to the neighborhood; depending on the user. Institutional uses vary greatly and are wholly dependant on the user and component uses at the property. Because the property would most likely be used an owner occupant, the financial feasibility of the project is dependent on the underlying fundamental business model and going concern of the enterprise and is unique to the user. However, a user that could utilize the site and building layout while systematically undertaking a renovation and improvement program could maximize the benefits and utility of the property at a reasonably feasible cost. The town has previously received interest in the property from the Northeast Maritime Institute, and was the only responder to the initial RFP process. According to the RFP response, the Maritime Institute would maintain the existing building footprint and restore the 1950s addition and original building respectively. The project would be undertaken in phases and would focus on mandatory code-related and safety issues first and in subsequent phases approach cosmetic repairs and improvements. This approach would be anticipated with most end users of the property within this category of use. Opportunities exist to incorporate additional community and non-profit users into the overall scope of the project and would contribute to the financial feasibility and operations.

A further examination of the use and required layout that considers component uses to a specific larger use would be recommended to understand if this use is physically and financially viable as a component to a comprehensive development strategy. The various uses would need to be separated and distinguished as to not interfere with each other, in order to maximize the

utility of the property. However, it is reasonable to conclude that multiple users and uses could be organize and arranged at the property to maximize utility and use.

Demolition Scenario – Single Family House Lots

According to the cost estimate manual published by *Marshall Valuation Service* demolition costs for the demolition of a similar building range between $4.25 and $6.50 per square foot of building area, for the region, or an average of approximately $5.40 per square foot. It is reasonable to assume that costs of approximately $216,050 would be incurred to demolish the 43,210 square-foot building. These costs are average costs of demolition and removal per square foot of total building floor area, including loading and hauling, but not dump fees. The demolition cost estimates assume the materials have no salvage value. Costs for demolition and removal vary greatly depending on the size and complexity of the job and the extent of contamination regarding hazardous materials. Our experience suggests that asbestos removal can range from an average of approximately $2.25-$3.00 per square foot for encapsulation methods to approximately $15.00 per square foot for spot removal and approximately $30.00-$40.00 per square foot for full abatement. Similarly, lead removal can range from an average of approximately $4.00-$4.50 per square foot for encapsulation methods to approximately $12.50 per square foot for spot removal and approximately $15.00-$16.00 per square foot for full abatement. Additionally, we have not assumed any site work or site decontamination. Biological soil remediation costs have averaged approximately $125 per cubic yard for land treatment, $240 per cubic yard for bioventing vapor extraction to $375 per cubic yard for full bioreactor treatment. It is reasonable to assume that costs of approximately $432,100 would be incurred to remove the hazardous materials during demolition of the 43,210 square-foot building, using a factor of $10.00 per square foot of building area. Additionally, a conservative demolition contingency of 15% has been applied to the total cost to account for the unknown hazardous materials and unforeseen remediation needs. A total demolition and remediation cost estimate of $745,000 is considered reasonable and appropriate for this exercise.

Demolition Scenario	SF	Cost/SF	Total Cost
Demolition Expense			
Site Control			$0
Demolition	43,210	$5.00	$216,050
Hazardous Material Removal	43,210	$10.00	$432,100
Site Work			$0
Demolition Contingency		15.00%	$97,223
Total Demolition Cost			**$745,000**

The town has previously received an estimate to demolish the property by Jay-Mor Enterprises, Inc. of Hudson, New Hampshire, which is attached as an appendix to this report. The estimate dated March 24, 2016 includes demolition of the entire building and return of the land to an open grass field. The estimated total cost of the work was $578,900 and would take approximately 100 working days to complete. Additionally, the estimate includes the demolition of the structure, removal of all debris including foundations, backfilling to grade, loam and seeding of the disturbed area. The estimate does not include the disconnection of water and sewer lines, lead remediation, asbestos or hazardous material removal, or the cost to erect an 800 linear foot fence at $10 per linear foot, or approximately $8,000.

For the town to determine that demolition of the building were the most financially feasible use, the underlying value of the land would necessarily need to offset the cost to demolish, remediate, and ready the site for an alternative use. Otherwise, the cost would be born entirely by the town and the end result would be an open lot of land. Currently the property is zoned for single-family residential use, and assuming the continuation of that use, the site would need to be subdivided, curb cuts created, and prepared for sale as single-family house lots. A preliminary review of the existing zoning RA – Single Residence District indicates a minimum lot size of 15,000 square feet with a minimum frontage of 100 linear feet. Based on the existing available land area and current as-of-right zoning for the parcel, the site could accommodate approximately six single family house lots while leaving the recreation area and playground unaltered and eight single family lots if the entire site were developed; eliminating the playground and recreational areas.

This analysis assumes the site has the capacity to support such improvements and no assumptions have been made about the capacity of the site for domestic water, septic or sewer, or other infrastructure capacities. Based on recent transactions for land for single-family homes within Fairhaven, an estimated sales price of $85,000 for the six smaller lots and $125,000 for the two optional larger lots has been used as a basis for this analysis. Additionally, we have used a 5.0% reserve for marketing and brokerage commissions. The total sales revenue of $760,000, based on a full eight lot buildout, has been adjusted for brokerage commissions of $38,000 and the demolition cost estimate of approximately $745,000 to result in a net deficit of $23,000. This exercise is considered preliminary and is based on a hypothetical subdivision and buildout capacity that could be influenced by sensitivities within the models and altered assumptions,

however, does not appear to support the conclusion that demolition and the subdivision of the property for single-family residential use is a feasible reuse possibility.

Single Family Sales Scenario	Lots	Price/Lot	Total Income
Single Fmaily Home Sales Revenue			
SF Lot Sales - 15,000 SF Lots	6	$85,000	$510,000
SF Lot Sales - 25,000 SF Lots	2	$125,000	$250,000
Subtotal Sales			**$760,000**
Single Family Sales Expenses			
Brokerage Commission/Marketing		5.00%	$38,000
Demolition Cost			$745,000
Net Income			**($23,000)**

Status Quo - Mothball Scenario

The U.S. Department of the Interior, through the National Park Service has provided specific direction on the care and preservation of historic structures, including the temporary stabilization, maintenance, and protection of the property. Specifically, Preservation Brief 31, attached in the appendix of this report, is a good resource for assessing property condition and needs and establishing a formal checklist and maintenance schedule for near- and long-term mothballing strategies. The subject has been vacant for approximately four years and has deteriorated from inactive use, however, remains in substantially good condition with no noticeable areas of major damage. Keeping the building water tight and well ventilated will prevent unwanted moisture and mold from further damaging the property. Mold containment is a major concern for historic properties and the costs associated with the necessary remediation efforts can be substantial.

Typically, the longer a historic property sits vacant and unused, the faster the building will deteriorate. With limited climate control, ventilation, and observation, the property can quickly deteriorate and there will be a point at which major structural, systems, and building envelope repairs will be required. The roof was observed to be water tight during our inspections, however, the age and condition of the slate roof is unknown. Additionally, long-term mothballing programs can be costly to implement for a long-term solution. Short term maintenance of the current status quo will not totally stop deterioration or formally stabilize the building, however, may be an interim solution that costs the town little while perusing development opportunities or permanent reuse solutions.

Summary of Conclusions

The first public meeting was an opportunity to hear from the residents of Fairhaven regarding their thoughts relative to a future use. A number of citizens commented on that they felt the school should be considered for reuse as an elementary school or municipal building. The available statistical data reviewed for this report does not show demand for a new school or municipal building as growth in Fairhaven is limited and is not trending upward. If the data did point to additional growth, then the question would be 'could the building be returned to its original use and how would the costs of rehabilitation and ongoing operating compare to schools of similar size?'

Bringing the building up to code compliance for any use will be challenging but as a school, there are even more issues that would need to be addressed. Additional requirements for schools that make the reuse as a school challenging include items like separate bathrooms for adults and children and larger elevators to service upper and lower floors. There are also size requirements for different spaces within in the school that are not achievable in the current footprint. State funding for schools is very competitive and once a school has been closed it is much more difficult to receive funding to repair it to be reopened. The issues with civic reuse are the lack of funding programs available creating a need for long-term capital investment by the town or more of a mothball approach where very low impact uses are introduced, these still may be challenging as the pursuit of a certificate of occupancy my increase costs relative to meeting code requirements. We have concluded that the reuse of the building as a public school or municipal building is not the most productive or likely use for the subject based on current and projected town needs, development cost and available funding sources other than local bonding.

Other comments from the meetings focused on trying to find low-impact reuses as the building sits in a well-established residential neighborhood and concerns were expressed about non-compatible reuses and whether high–end housing, condominiums would be a viable option. The floor plan of both buildings do not layout particularly well for residential reuse due to the size and relationship of the different spaces, including the rafter beam spacing on the third floor, window spacing on floors one and two, and the connections to the 1950s addition. The large classrooms in the historic buildings are of particular difficulty as any housing reuse could most likely mean the loss of a significant portion of historic fabric to introduce kitchens and baths into

the space with limited window blocking. Based on the layout of the building, the efficiency factor of the footplates, the development pro forma discussed throughout this report and the observed lack of response to the development RFPs by housing developers, condominium or rental housing does not appear to be a viable reuse of the property.

The architecture of the building is impressive and reflective of the best civic architecture of the period, but the character defining features of this period pose very difficult challenges beginning with the raised basement which sets the first floor significantly above grade, thus contributing to additional costs for accessibility for a use that would require direct and constant public access. This poses challenges to reuse relative to making the building compliant with the Americans with Disabilities Act (ADA) and the height of the raised basement and first floor create a challenge for any type of use that requires a street presence, such as retail. The location of the basement and first floor windows do not provide opportunities for display and are essentially hidden from view and exposure. This is further exacerbated by another character defining feature of schools of this period, which is that they often are located in the middle of larger green spaces and set back from their main street without suitable parking facilities for commercial office and retail use. A preliminary review of the existing zoning requirements in Fairhaven indicate a retail or commercial use would require approximately one parking space per 250-300 square feet of gross leasable area, or approximately between 144-172 parking spaces; which approximates one acre of land area for parking. Based on the layout and physical challenges of the building, the required parking, the development pro forma discussed throughout this report and the observed lack of response to the development RFPs by commercial office and retail developers and users, a commercial office or retail use does not appear to be a viable reuse of the property.

There was a suggestion at the public meeting of some type of wedding or other reception venue. We have seen this done successfully in other historic buildings and have conducted a more thorough review of the surrounding demographics and a competition related to this use. Typically, event spaces are rented in 5-hour blocks for weddings or on an hourly basis for other events. A local survey of wedding venues indicated an estimated $1,000-$2,500 per 5-hour wedding block depending on the size of the space, day of week, and time of year and $200-$300 per hour. Because of the physical improvements and the layout of the property, it is reasonable to assume that a wedding/event venue use could be a component use to a larger institutional or

community use, however, would likely not support a full-time events venue at the site. Likewise, we believe that component specialized retail or office/loft uses could be a good fit for the property. Data show that there is an established retail core in the downtown and the neighborhood is active and walk able. Retail and office as a component to a comprehensive use could address concerns noted earlier regarding the residential nature of the neighborhood, while contributing the viability of the property reuse.

Additionally an institutional user such as a private school, art school, college or training center would be another likely candidate for reuse. Like the arts use, the project could be approached in a phased manner, could utilize the character defining features of the buildings as well as the surrounding land areas, could have access to different forms of capital and could be less impactful to the neighborhood. Institutional uses vary greatly and are wholly dependent on the user and component uses at the property; however, it is reasonable to assume successful coordination and definition efforts could be made. Because the property would be used an owner occupant, the financial feasibility of the project is dependent on the underlying fundamental business model and going concern of the enterprise and is unique to the user. However, a user that could utilize the site and building layout while systematically undertaking a renovation and improvement program could maximize the benefits and utility of the property at a reasonably feasible cost. The town has previously received interest in the property from the Northeast Maritime Institute, and was the only responder to the initial RFP process. According to the RFP response, the Maritime Institute would maintain the existing building footprint and restore the 1950s addition and original building respectively. The project would be undertaken in phases and would focus on mandatory code-related and safety issues first and in subsequent phases approach cosmetic repairs and improvements. This approach is reasonable and would be anticipated with most end users of the property within this category of use. Opportunities exist to incorporate additional community and non-profit users into the overall scope of the project and would contribute to the financial feasibility and operations.

The town has previously received an estimate to demolish the property by Jay-Mor Enterprises, Inc. of Hudson, New Hampshire. The estimated total cost of the work was $578,900 and includes the demolition of the structure, removal of all debris including foundations, backfilling to grade, loam and seeding of the disturbed area. The estimate does not include the disconnection of water and sewer lines, lead remediation, asbestos or hazardous material

removal, or the cost to erect an 800 linear foot fence at $10 per linear foot, or approximately $8,000. For the town to determine that demolition of the building were the most financially feasible use, the underlying value of the land would necessarily need to offset the cost to demolish, remediate, and ready the site for an alternative use. Currently the property is zoned for single-family residential use, and assuming the continuation of that use, the site would need to be subdivided, curb cuts created, and prepared for sale as single-family house lots. A preliminary review of the existing zoning RA – Single Residence District indicates the site could accommodate approximately six single family house lots while leaving the recreation area and playground unaltered, and eight single family lots if the entire site were developed; eliminating the playground and recreational areas. Based on recent transactions for land for single-family homes within Fairhaven and the estimated cost to demolish and remediate the site, it does not appear to support the conclusion that demolition and the subdivision of the property for single-family residential use is a feasible reuse possibility.

The U.S. Department of the Interior, through the National Park Service has provided specific direction on the care and preservation of historic structures, including the temporary stabilization, maintenance, and protection of the property. The subject has been vacant for approximately four years and has deteriorated from inactive use, however, remains in substantially good condition with no noticeable areas of major damage. Keeping the building water tight and well ventilated will prevent unwanted moisture and mold from further damaging the property. Mold containment is a major concern for historic properties and the costs associated with the necessary remediation efforts can be substantial. The longer a historic property sits vacant and unused, the faster the building will deteriorate. With limited climate control, ventilation, and observation, the property can quickly deteriorate and there will be a point at which major structural, systems, and building envelope repairs will be required. Additionally, long-term mothballing programs can be costly to implement for a long-term solution. Short term maintenance of the current status quo and adoption of a formal mothball and maintenance plan will not stop deterioration or formally stabilize the building, however, should be considered an interim solution that costs the town little while perusing development opportunities or permanent reuse solutions.

The most likely redevelopment scenario would be an institutional user who can best utilize the site and building for their use and make the necessary improvements as needed

without necessarily having to undertake a large capital improvement project immediately. As previously discussed within this report, the base estimated costs to bring the Rogers School into a fully code compliant state would cost approximately $3,600,000. From our analysis and the analysis of the architect completing the code review, there doesn't appear to be a use scenario that would not trigger full building and accessibility code compliance. Accessibility code compliance is based on the cost of development or construction undertaken. If the development or construction costs are 30% or more than the full and fair cash value of the building (minus land). The building is currently assessed at $2,637,900 and 30% of that full and fair cash value would be approximately $791,370. If construction costs equal or exceed $791,370, the entire building must be brought into compliance with the accessibility code requirements of the Massachusetts Architectural Access Board. This includes substantial upgrades to building access, circulation, to parking, elevators/chair lifts, and restroom facilities. The building needs enough immediate repair and restoration work and required improvements for use and general occupancy code requirements that almost any scenario requires full code compliance once a developer starts addressing immediate needs.

Soft Code Compliance Costs	**Cost/SF**		**Total Cost**
Development Expense			
Site Control			$0
Remediation			$0
Site Work, Parking, Paving & Landscaping			$894,000
Interior Fit out Costs			
Original Building			$784,860
Addition			$322,860
Circulation Costs/Common Areas			$425,400
Envelope Repair Costs/Energy Code			$239,049
Construction Cost			**$2,666,169**
Soft Costs (Engineering, Architect, Legal)		10.00%	$266,617
Developer's Profit & Overhead		10.00%	$266,617
Construction Contingency		15.00%	$399,925
Total Cost to Bring to Code Compliance	**$83.31**		**$3,600,000**

In the short term, it is recommended that the maintenance of the current status quo be continued and increased to include the adoption of a formal mothball and maintenance plan for the property as you develop a permanent solution for long-term use. The plan will not stop

deterioration or formally stabilize the building; however, it should be considered an interim solution that costs the town little while perusing development opportunities or permanent reuse solutions. The development of vacant historic properties can be a lengthy process of entitlements, approvals, filings, and allocations and a formal mothball and maintenance plan will allow the physical asset to be best protected during the interim. Additional resources for mothballing historic properties can be found in the appendix of this report and include Preservation Brief 31 and a brief presented by MA Department of Conservation and Recreation Office of Cultural Resources, an excellent resource for historic preservation planning and guidance. Additionally, as previously discussed at the second public meeting, the town should consider listing the property with the Massachusetts Film office as a location for film, television, and commercial production. The listing is free and simple to execute and can be a low-impact use for the property on an interim basis and can generate cash flow to the town that could be used to offset building maintenance, operations, or dedicated as a funding source for the future redevelopment of the property.

In the long-term, the most likely redevelopment scenario would be an institutional user who can best utilize the site and building for their use and make the necessary improvements as needed without necessarily having to undertake a large capital improvement project immediately. Because the redevelopment scenario is most likely an end user, the town The town should decide if it wishes to maintain ownership of the Rogers School and pursue a development on their own, with a private partnership, or dispose of the Rogers School to a developer or end-user to undertake the development. Federal Historic Rehabilitation Tax Credits and Massachusetts Historic Rehabilitation Tax Credits are major sources of capital funding for the adaptive reuse of historic properties are only available for income-producing buildings which are listed in the National Register of Historic Places and which are substantially rehabilitated according to the Secretary of Interior's Standards for Rehabilitation. Because we believe the most likely redevelopment scenario would be an institutional user that can accommodate additional component uses, the town should take a role in helping finance the property through their allocation of Community Preservation Act (CPA) funds and earmarks for future allocations, beginning the application process in advance for state historic tax credits in anticipation of redevelopment, and the potential for a long-term ground lease in order to capitalize on subsidy programs, in the event the town wishes to retain ownership of the Rogers School. Efforts to

establish local financing sources and secure state funding in advance will reduce the risk to a developer or end user and can increase certainty. Dedicated funding sources will make the property more attractive to potential developers and end users. Our view is that reliance on the traditional local RFP process for soliciting interest, services, and bids are often inadequately advertised and distributed and solicitation periods are open for less time than is required to attract sufficient response from qualified entities. RFP processes need to be refined and specific in order to attract sufficient interest and ultimately provide value to the town by reducing barriers to success. From the perspective of market participants, responding to a public bid process takes time and energy and often requires building a team and sensitivity to those issues are central to responsiveness and clarity. Direct community outreach, a professional marketing campaign, and direct dialogue with users and developers is important in order to cast a net for potential users and reducing uncertainty.

Appendixes

Construction & Renovation Costs
Elementary Schools
Provided by
The Massachusetts School Building Authority

Information as of:

November 2016 Board Meeting

DESIGNER AND OPM Fees [ON OR AFTER JANUARY 1, 2014]
Elementary Schools

The information and data contained in this spreadsheet is based on the MSBA's review of contracts and other documentation provided by cities, towns, and regional school districts, may include a preliminary review of scope exclusions and is intended for informational purposes only. The data may have changed based on actual construction bids or contract amendments, for example, and the MSBA shall have no responsibility or duty to update any of the information contained therein. Please contact the Districts for exact information. The MSBA hereby disclaims any and all liability and responsibility that may arise in connection with the information contained in this spreadsheet. All costs identified are subject to review and audit by the MSBA and may not be eligible for reimbursement by the MSBA.

District	Athol-Royalston		Brookline		Carver		Gloucester		Granby		Hingham		Hopkinton		Milford	
School Name	Riverbend		Edward Devotion		Carver ES		West Parish		West St		Hingham ES		Center		Woodland	
Project Type	Core Program		Core Program		Core Program		Core Program		Core Program		Core Program		Core Program		Core Program	
Project Scope	New Construction		Addition / Renovation		New Construction		New Construction		Addition / Renovation		New Construction		New Construction		New Construction	
Enrollment	545		1,010		750		355		430				395		985	
GSF	95,726		227,087		112,350		65,679		68,760				83,256		132,539	
Assumed Start of Construction	Nov-14		Jul-15		Sep-16		Sep-14		Feb-17				Dec-16		Mar-15	
OPM	Symmes Maini & McKee Associates		Town Employee		PMA Construction Services		Knight, Bagge & Anderson Inc.		Colliers International		KBA/Mary Mahoney Partnership		Compass Project Management, Inc.		Joslin, Lesser + Associates Inc.	
Designer	Mount Vernon Group Architects, Inc.		HMFH Architects, Inc.		HMFH Architects, Inc.		Dore & Whittier Architects, Inc.		Jones Whitsett Architects, Inc.				Drummey Rosane Anderson, Inc.		HMFH Architects, Inc.	
Cost Estimator	Project Management & Cost		Project Management & Cost		A M Fogarty & Associates Inc.		Project Management & Cost		Project Management & Cost				VJ Associates of New England		Project Management & Cost	
Description	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction
Designer	**Mount Vernon Group Architects, Inc.**		**HMFH Architects, Inc.**		**HMFH Architects, Inc.**		**Dore & Whittier Architects, Inc.**		**Jones Whitsett Architects, Inc.**				**Drummey Rosane Anderson, Inc.**		**HMFH Architects, Inc.**	
Basic Services																
Feasibility Study	$295,000	0.84%	$1,580,000	1.71%	$502,350	1.27%	$365,000	1.22%	$520,000	1.97%	$251,710	1.17%	$446,714	1.25%	$548,677	1.13%
Design Development	$623,000	1.76%	$2,473,760	2.68%	$936,273	2.37%	$680,000	2.27%	$560,000	2.12%	$563,083	2.62%	$836,925	2.34%	$1,300,000	2.69%
Construction Contract Documents	$1,103,000	3.13%	$2,868,757	3.11%	$1,235,881	3.13%	$850,000	2.83%	$900,000	3.40%	$415,823	1.93%	$1,818,479	5.74%	$1,740,000	3.59%
Bidding	$173,000	0.48%	$478,128	0.52%	$187,255	0.47%	$100,000	0.33%	$90,000	0.34%	$59,403	0.28%	$164,185	0.47%	$169,000	0.35%
Construction Contract Administration	$830,000	2.36%	$2,725,329	2.95%	$1,310,763	3.32%	$1,205,545	4.02%	$765,000	2.89%	$297,016	1.38%	$836,924	2.34%	$1,040,000	2.15%
Closeout	$43,000	0.11%	$143,438	0.13%	$74,901	0.19%	$150,000	0.50%	$42,000	0.16%			$164,185	0.47%	$96,000	0.20%
Other Basic Services	$185,000	0.53%	$10,000	0.01%			$40,835	0.14%								
Subtotal Designer Basic Services	**$3,241,000**	**9.21%**	**$10,279,422**	**11.14%**	**$4,247,443**	**10.77%**	**$3,391,480**	**11.31%**	**$2,877,000**	**10.88%**	**$1,587,035**	**7.37%**	**$3,724,412**	**10.69%**	**$4,693,677**	**10.11%**
Reimbursable Services																
Construction Testing	$13,000	0.03%	$400,000	0.43%			$67,000	0.22%					$10,000	0.03%		
Printing (Over Minimum)	$43,000	0.11%	$50,000	0.05%	$15,000	0.04%	$26,100	0.09%	$10,000	0.04%	$35,000	0.16%	$30,000	0.09%		
Other Reimbursable Costs	$43,000	0.11%	$25,000	0.03%	$100,000	0.25%			$90,000	0.34%	$20,000	0.09%	$10,000	0.03%	$65,000	0.13%
Sub-Consultants																
Hazardous Materials			$150,000	0.13%	$100,000	0.25%	$50,000	0.17%	$75,000	0.28%			$10,000	0.03%	$60,000	0.12%
Geotech & Geotech Environment	$83,000	0.23%	$334,375	0.25%	$100,000	0.25%	$150,000	0.50%	$5,000	0.02%	$33,000	0.18%	$106,000	0.29%	$85,000	0.18%
Site Survey	$25,000	0.07%			$25,000	0.06%	$52,470	0.17%	$5,000	0.02%	$12,580	0.06%	$5,000	0.01%		
Wetlands	$15,000	0.04%							$10,000	0.04%	$3,000	0.01%	$17,000	0.05%	$75,000	0.16%
Traffic Studies	$23,000	0.06%					$12,076	0.04%	$5,000	0.02%	$5,800	0.03%	$26,000	0.05%	$30,000	0.06%
Total Designer Fees	**$3,471,000**	**9.86%**	**$11,138,797**	**12.08%**	**$4,587,443**	**11.63%**	**$3,749,120**	**12.50%**	**$3,377,000**	**11.63%**	**$1,703,395**	**7.91%**	**$3,926,412**	**11.17%**	**$5,298,677**	**10.77%**
Owner's Project Manager	**Symmes Maini & McKee Associates**				**PMA Construction Services**		**Knight, Bagge & Anderson Inc.**		**Colliers International**		**KBA/Mary Mahoney Partnership**		**Compass Project Management, Inc.**		**Joslin, Lesser + Associates Inc.**	
Feasibility Study	$104,000	0.30%	$170,000	0.18%	$123,000	0.31%	$135,000	0.45%	$260,000	1.06%	$15,350	0.08%	$159,285	0.45%	$199,774	0.41%
Design Development	$103,000	0.28%	$250,000	0.27%	$78,000	0.20%	$170,110	0.57%	$45,000	0.17%	$5,000	0.03%	$95,500	0.27%	$91,500	0.19%
Construction Contract Documents	$143,000	0.40%	$500,000	0.54%	$110,000	0.28%	$213,766	0.71%	$45,000	0.17%	$12,000	0.06%	$93,000	0.23%	$175,000	0.36%
Bidding	$63,000	0.17%	$125,000	0.14%			$24,068	0.08%	$50,000	0.19%	$13,000	0.06%	$36,150	0.09%	$70,000	0.14%
Construction Contract Administration	$755,000	2.15%	$2,105,000	2.23%	$1,098,250	2.78%	$538,479	1.80%	$810,000	3.06%	$291,750	1.36%	$981,000	2.51%	$1,125,500	2.33%
Closeout	$63,000	0.17%	$240,000	0.25%	$48,883	0.12%	$73,425	0.24%	$45,000	0.17%			$95,630	0.27%	$50,500	0.10%
Extra Services	$43,000	0.11%			$50,000	0.13%	$23,996	0.08%								
Other Project Manager Costs											$59,250	0.26%				
Reimbursables & Other Services	$15,000	0.04%			$140,275	0.38%							$5,000	0.01%		
Cost Estimates	$53,000	0.14%	$90,000	0.13%	$75,000	0.19%	$40,000	0.13%	$25,000	0.09%			$45,000	0.13%		
Total OPM Fees	**$1,324,000**	**3.76%**	**$3,480,000**	**3.77%**	**$1,732,408**	**4.39%**	**$1,218,842**	**4.06%**	**$1,300,000**	**4.91%**	**$395,350**	**1.84%**	**$1,404,576**	**4.00%**	**$1,712,274**	**3.54%**
Total Designer and OPM Fees	**$4,795,000**	**13.63%**	**$14,618,797**	**15.85%**	**$6,319,851**	**16.02%**	**$4,967,962**	**16.56%**	**$4,377,000**	**16.55%**	**$2,098,745**	**9.75%**	**$5,330,988**	**15.17%**	**$6,920,951**	**14.30%**
Total Construction Costs	**$35,191,363**		**$92,237,854**		**$39,443,454**		**$29,995,466**		**$26,453,000**		**$21,528,000**		**$35,140,962**		**$48,381,844**	

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Information as of:

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Elementary Schools

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District	New Bedford		Newton		Northborough		Revere		South Hadley		Woburn		Worcester		TOTAL - ALL ELEMENTARY SCHOOLS	
School Name	John Hannigan		A E Angier		Lincoln Street		Staff Sergeant James J. Hill School		Plains ES		Wyman		Nelson Place			
Project Type	Core Program		Core Program		Core Program		Core Program		Core Program		Core Program		Core Program			
Project Scope	New Construction		New Construction		Addition / Renovation		New Construction		New Construction		New Construction		New Construction			
Enrollment	400		465		270		690		270		410		600			
GSF	74,056		74,960		52,920		103,650		63,377		70,701		111,255			
Assumed Start of Construction	May-16		Jun-14		Apr-15		Jan-14		May-14		Apr-16		Jul-15			
OPM	Daedalus Projects Inc		Joslin, Lesser + Associates Inc.		Colliers International		Hill International Company		Arcadis U.S., Inc.		Municipal Building Consultants, Inc.		Tishman Construction Corporation of MA			
Designer	Turowski2 Architecture, Inc.		DiNisco Design Partnership, Limited		Lamoureux Pagano & Associates, Inc.		Drummey Rosane Anderson, Inc.		Jones Whitsett Architects, Inc.		DiNisco Design Partnership, Limited		Lamoureux Pagano & Associates, Inc.			
Cost Estimator	Project Management & Cost		A M Fogarty & Associates Inc.		A M Fogarty & Associates Inc.		CostPro, Inc.		Project Management & Cost		A M Fogarty & Associates Inc.		A M Fogarty & Associates Inc.			
Description	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction
Designer	Turowski2 Architecture, Inc.		DiNisco Design Partnership, Limited		Lamoureux Pagano & Associates, Inc.		Drummey Rosane Anderson, Inc.		Jones Whitsett Architects, Inc.		DiNisco Design Partnership, Limited		Lamoureux Pagano & Associates, Inc.			
Basic Services																
Feasibility Study	$658,308	2.21%	$501,467	1.91%	$345,000	1.89%	$450,000	1.33%	$599,000	2.76%	$676,111	2.50%	$635,129	1.36%	$7,850,095	1.55%
Design Development	$752,000	2.52%	$516,256	1.96%	$381,500	2.09%	$631,800	1.86%	$570,000	2.64%	$436,433	1.62%	$1,029,655	2.21%	$11,705,569	2.32%
Construction Contract Documents	$1,100,000	3.69%	$1,013,640	3.86%	$915,000	5.02%	$1,274,500	3.76%	$570,000	2.64%	$995,910	3.65%	$1,912,235	4.11%	$17,295,225	3.42%
Bidding	$107,000	0.36%	$126,705	0.48%	$55,000	0.30%	$157,950	0.47%	$120,000	0.56%	$123,238	0.46%	$80,600	0.17%	$2,096,465	0.42%
Construction Contract Administration	$591,000	1.98%	$601,849	2.29%	$473,850	2.60%	$750,250	2.21%	$390,000	1.81%	$492,955	1.82%	$957,125	2.06%	$12,486,756	2.47%
Closeout	$78,000	0.26%	$31,676	0.12%	$20,150	0.11%	$39,490	0.12%	$26,000	0.12%	$123,239	0.46%	$50,375	0.11%	$1,037,454	0.21%
Other Basic Services	$50,000	0.17%									$20,000	0.07%	$65,000	0.14%	$370,855	0.07%
Subtotal Designer Basic Services	**$3,336,308**	**11.20%**	**$2,795,567**	**10.62%**	**$2,190,500**	**12.02%**	**$3,304,000**	**9.75%**	**$2,275,000**	**10.55%**	**$2,857,887**	**10.58%**	**$4,730,128**	**10.16%**	**$52,844,469**	**10.46%**
Reimbursable Services																
Construction Testing	$50,000	0.17%					$65,000	0.19%	$70,000	0.32%	$20,000	0.07%	$75,000	0.16%	$767,000	0.15%
Printing (Over Minimum)	$3,000	0.03%			$30,000	0.16%	$85,000	0.25%	$20,000	0.09%	$50,000	0.19%	$10,000	0.02%	$399,100	0.08%
Other Reimbursable Costs	$10,800	0.04%	$75,000	0.29%	$6,000	0.03%	$30,000	0.09%	$40,000	0.18%	$45,000	0.17%	$120,000	0.26%	$586,800	0.12%
Sub-Consultants																
Hazardous Materials	$15,000	0.05%	$57,000	0.22%	$60,000	0.33%			$40,000	0.18%	$10,000	0.04%	$50,000	0.11%	$602,000	0.12%
Geotech & Geotech Environment	$15,000	0.05%	$60,000	0.23%	$14,000	0.08%	$80,000	0.24%	$20,000	0.09%	$83,000	0.31%	$15,000	0.03%	$1,075,375	0.21%
Site Survey	$3,000	0.02%	$10,000	0.04%	$20,000	0.11%	$15,000	0.04%	$30,000	0.14%	$5,000	0.02%	$72,000	0.15%	$277,030	0.05%
Wetlands					$20,000	0.11%	$18,000	0.05%			$220,000	0.81%	$9,000	0.02%	$377,000	0.07%
Traffic Studies			$5,000	0.02%			$12,000	0.04%	$25,000	0.12%	$5,000	0.02%			$135,870	0.03%
Total Designer Fees	**$3,440,738**	**11.55%**	**$2,992,567**	**11.41%**	**$2,340,500**	**12.84%**	**$3,609,000**	**10.65%**	**$2,520,000**	**11.69%**	**$3,295,887**	**12.20%**	**$5,081,128**	**10.92%**	**$57,064,664**	**11.30%**
Owner's Project Manager	**Daedalus Projects Inc**		**Joslin, Lesser + Associates Inc.**		**Colliers International**		**Hill International Company**		**Arcadis U.S., Inc.**		**Municipal Building Consultants, Inc.**		**Tishman Construction Corporation of MA**			
Feasibility Study	$82,500	0.28%	$216,152	0.82%	$155,000	0.85%	$250,000	0.74%	$151,000	0.76%	$238,865	0.77%	$310,672	0.67%	$2,281,863	0.45%
Design Development	$80,000	0.27%	$57,000	0.22%	$41,563	0.23%	$26,000	0.08%	$100,560	0.47%	$231,400	0.75%	$105,000	0.23%	$1,402,733	0.28%
Construction Contract Documents	$130,000	0.44%	$95,000	0.36%	$60,766	0.33%	$72,000	0.21%	$97,850	0.48%			$108,800	0.23%	$1,807,876	0.36%
Bidding	$15,000	0.05%	$35,000	0.13%	$44,231	0.24%	$14,400	0.04%	$41,250	0.19%			$42,500	0.09%	$514,809	0.10%
Construction Contract Administration	$575,000	1.93%	$652,000	2.49%	$540,189	2.96%	$829,000	2.45%	$520,562	2.41%	$824,566	2.31%	$975,000	2.09%	$11,511,316	2.28%
Closeout	$35,000	0.12%	$56,000	0.21%	$34,958	0.36%	$60,000	0.18%	$55,477	0.26%	$28,250	0.10%	$210,000	0.45%	$1,076,127	0.21%
Extra Services	$10,000	0.03%											$85,000	0.18%	$206,996	0.04%
Other Project Manager Costs							$1,000	0.00%							$57,250	0.01%
Reimbursables & Other Services	$5,000	0.02%											$35,000	0.08%	$206,275	0.04%
Cost Estimates					$24,000	0.13%	$65,000	0.19%	$40,000	0.18%	$32,500	0.08%	$44,000	0.09%	$496,500	0.10%
Total OPM Fees	**$932,500**	**3.13%**	**$1,111,152**	**4.24%**	**$930,803**	**5.11%**	**$1,317,400**	**3.89%**	**$1,006,729**	**4.67%**	**$1,065,599**	**4.02%**	**$1,915,872**	**4.12%**	**$19,557,545**	**3.87%**
Total Designer and OPM Fees	**$4,373,238**	**14.68%**	**$4,103,759**	**15.64%**	**$3,271,303**	**17.95%**	**$4,926,400**	**14.53%**	**$3,526,729**	**16.35%**	**$4,361,486**	**16.22%**	**$6,997,000**	**15.03%**	**$76,632,209**	**15.17%**
Total Construction Costs	**$29,792,732**		**$26,231,698**		**$18,224,600**		**$33,897,336**		**$21,583,821**		**$27,017,841**		**$46,546,300**		**$505,193,291**	

Published 1/5/2017

Information as of:

November 2016 Board Meeting

DESIGNER AND OPM Fees [ON OR AFTER JANUARY 1, 2014]
Repair Projects

The information and data contained in this spreadsheet is based on the MSBA's review of contracts and other documentation provided by cities, towns, and regional school districts, may include a preliminary review of scope exclusions and is intended for informational purposes only. The data may have changed based on actual construction bids or contract amendments for example, and the MSBA shall have no responsibility or duty to update any of the information contained therein. Please contact the Districts for exact information. The MSBA hereby disclaims any and all liability and responsibility that may arise in connection with the information contained in this spreadsheet. All costs identified are subject to review and audit by the MSBA and may not be eligible for reimbursement by the MSBA.

District	Greater Lawrence RVT		Provincetown		Westborough		TOTAL - ALL Repair Projects	
School Name	Gr Lawrence Reg Voc Tech		Provincetown HS		Sarah W Gibbons MS			
Project Type	Core Program		Core Program		Core Program			
Project Scope	Repair		Repair		Repair			
Enrollment	1,400		111		550			
GSF	360,000		62,645		110,000			
Assumed Start of Construction	Jul-14		Apr-16		Jan-15			
OPM	Vertex Construction Services		Atlantic Construction and Management, Inc.		HEERY			
Designer	Richard D. Kimball Company, Inc.		Raymond Design Associates, Inc.		Habeeb & Associates Architects, Inc.			
Cost Estimator	Tarbell Construction Management Inc		Atlantic Construction and Management, Inc.		North Bay Company, Inc.			
Description	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction	Cost	% of Total Construction
Designer	**Richard D. Kimball Company, Inc.**		**Raymond Design Associates, Inc.**		**Habeeb & Associates Architects, Inc.**			
Basic Services								
Feasibility Study	$32,000	0.73%	$132,425	2.32%	$230,000	1.07%	$394,425	1.25%
Design Development	$73,000	1.67%	$100,000	1.75%	$318,000	1.47%	$491,000	1.55%
Construction Contract Documents	$150,500	3.45%	$220,000	3.85%	$628,050	2.91%	$998,550	3.15%
Bidding	$16,000	0.37%	$20,000	0.35%	$39,750	0.18%	$75,750	0.24%
Construction Contract Administration	$82,000	1.88%	$80,000	1.40%	$564,450	2.61%	$726,450	2.29%
Closeout	$16,000	0.37%	$5,000	0.09%	$39,750	0.18%	$60,750	0.19%
Other Basic Services			$66,000	1.16%			$66,000	0.21%
Subtotal Designer Basic Services	**$369,500**	**8.47%**	**$623,425**	**10.92%**	**$1,820,000**	**8.43%**	**$2,812,925**	**8.88%**
Reimbursable Services								
Construction Testing			$5,000	0.09%			$5,000	0.02%
Printing (Over Minimum)	$3,000	0.07%	$5,000	0.09%	$5,000	0.02%	$13,000	0.04%
Other Reimbursable Costs	$5,000	0.11%	$15,000	0.26%			$20,000	0.06%
Sub-Consultants								
Hazardous Materials	$5,000	0.11%	$10,835	0.19%	$45,000	0.21%	$60,835	0.19%
Geotech & Geotech Environment					$5,000	0.02%	$5,000	0.02%
Site Survey			$10,000	0.18%			$10,000	0.03%
Wetlands								
Traffic Studies								
Total Designer Fees	**$382,500**	**8.77%**	**$669,260**	**11.72%**	**$1,875,000**	**8.68%**	**$2,926,760**	**9.24%**
Owner's Project Manager	**Vertex Construction Services**		**Atlantic Construction and Management, Inc.**		**HEERY**			
Feasibility Study	$38,200	0.88%	$104,000	1.82%	$145,000	0.67%	$287,200	0.91%
Design Development	$15,220	0.35%	$31,500	0.55%	$32,645	0.15%	$79,365	0.25%
Construction Contract Documents	$15,220	0.35%	$43,750	0.77%	$65,219	0.30%	$124,189	0.39%
Bidding	$3,760	0.09%	$16,250	0.28%	$17,787	0.08%	$37,797	0.12%
Construction Contract Administration	$355,420	8.15%	$292,136	5.12%	$480,813	2.23%	$1,128,369	3.56%
Closeout	$8,680	0.20%	$26,000	0.46%	$34,887	0.16%	$69,567	0.22%
Extra Services								
Other Project Manager Costs								
Reimbursables & Other Services								
Cost Estimates			$12,500	0.22%	$102,600	0.48%	$115,100	0.36%
Total OPM Fees	**$436,500**	**10.01%**	**$526,136**	**9.21%**	**$879,951**	**4.07%**	**$1,841,587**	**5.82%**
Total Designer and OPM Fees	**$819,000**	**18.78%**	**$1,195,396**	**20.94%**	**$2,753,951**	**12.75%**	**$4,768,347**	**15.06%**
Total Construction Costs	**$4,361,641**		**$5,709,882**		**$21,595,600**		**$31,667,123**	

Published 1/5/2017

Demolition Cost Estimate
Dated 03/24/2016
Provided by
Jay-Mor Enterprises, Inc.

Jay-Mor Enterprises, Inc.

10 West Road
P.O. Box 785
Hudson, NH 03051

Phone # 603-459-8584 jaymorent@comcast.net
Fax # 603-589-9126

PROPOSAL

DATE
3/24/2016

NAME / ADDRESS
Town of Fairhaven 40 Center Street Fairhaven, MA 02719

TERMS	DUE DATE	REP	PROJECT
	3/24/2016		

ITEM	DESCRIPTION	Total
	Rogers School - 100 Pleasant Street, Fairhaven, MA Estimate to demolish the above structure. Cost includes demolition of the structure, removal of all debris including foundations and slab. Backfill to grade, loam and seed disturbed area. Price does not include the disconnection of water/sewer lines at Main if Town requires, lead remediation if present, asbestos or hazardous material removal. In order to secure property during demolition, it would take approximately 800 linear feet of 6-foot high chain link fencing which usually runs around $10 linear foot	
Demolition	One story portion with gymnasium - 1 story - approximately 15,718 square feet Estimated Breakdown: 600 cy of demo debris 2,640 cy of concrete / brick terracotta block 500 cy of common fill to bring to matching grade 300 cy of loam/seed Estimated time to complete - 26 working days which includes all equipment, labor, trucking and disposal	147,000.00
Demolition	Main Building - 4 story plus attic and tower - approximately 8,400 square feet	431,900.00
	Total	

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Jay-Mor Enterprises, Inc.

PROPOSAL

10 West Road
P.O. Box 785
Hudson, NH 03051

Phone # 603-459-8584 jaymorent@comcast.net
Fax # 603-589-9126

DATE
3/24/2016

NAME / ADDRESS
Town of Fairhaven 40 Center Street Fairhaven, MA 02719

TERMS	DUE DATE	REP	PROJECT
	3/24/2016		

ITEM	DESCRIPTION	Total
	Estimated Breakdown: 4,000 cy of demo debris 4,220 cy of concrete / brick terracotta block 3,700 cy of common fill to bring to matching grade 260 cy of loam/seed Estimated time to complete - 100 working days which includes all equipment, labor, trucking and disposal	
	Total	$578,900.00

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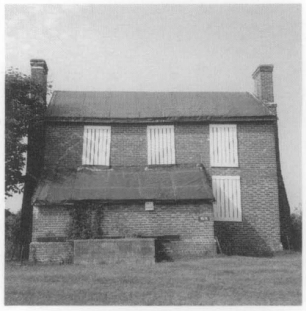
Preservation Brief 31
Dated September 1983
Provided by
U.S. Department of the Interior
National Park Service

31 PRESERVATION BRIEFS

Mothballing Historic Buildings

Sharon C. Park, AIA



U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

When all means of finding a productive use for a historic building have been exhausted or when funds are not currently available to put a deteriorating structure into a useable condition, it may be necessary to close up the building temporarily to protect it from the weather as well as to secure it from vandalism. This process, known as mothballing, can be a necessary and effective means of protecting the building while planning the property's future, or raising money for a preservation, rehabilitation or restoration project. If a vacant property has been declared unsafe by building officials, stabilization and mothballing may be the only way to protect it from demolition.

This Preservation Brief focuses on the steps needed to "de-activate" a property for an extended period of time. The project team will usually consist of an architect, historian, preservation specialist, sometimes a structural engineer, and a contractor. Mothballing should not be done without careful planning to ensure that needed physical repairs are made prior to securing the building. The steps discussed in this Brief can protect buildings for periods of up to ten years; long-term success will also depend on continued, although somewhat limited, monitoring and maintenance. For all but the simplest projects, hiring a team of preservation specialists is recommended to assess the specific needs of the structure and to develop an effective mothballing program.

A vacant historic building cannot survive indefinitely in a boarded-up condition, and so even marginal interim uses where there is regular activity and monitoring, such as a caretaker residence or non-flammable storage, are generally preferable to mothballing. In a few limited cases when the vacant building is in good condition and in a location where it can be watched and checked regularly, closing and locking the door, setting heat levels at just above freezing, and securing the windows may provide sufficient protection for a period of a few years. But if long-term mothballing is the only remaining option, it must be done properly (see fig. 1 & 2). This will require stabilization of the exterior, properly designed security protection, generally some form of interior ventilation - either through mechanical or natural air exchange systems - and continued maintenance and surveillance monitoring.

Figure 1. Proper mothballing treatment: This building has been successfully mothballed for 10 years because the roof and walls were repaired and structurally stabilized, ventilation louvers were added, and the property is maintained. Photo: Charles E. Fisher, NPS.

Comprehensive mothballing programs are generally expensive and may cost 10% or more of a modest rehabilitation budget. However, the money spent on well-planned protective measures will seem small when amortized over the life of the resource. Regardless of the location and condition of the property or the funding available, the following 9 steps are involved in properly mothballing a building:

Figure 2. Improper treatment: Boarding up without adequate ventilation, lack of maintenance, and neglect of this property have accelerated deterioration. Photo; NPS file.

Documentation

1. Document the architectural and historical significance of the building.
2. Prepare a condition assessment of the building.

Stabilization

3. Structurally stabilize the building, based on a professional condition assessment.
4. Exterminate or control pests, including termites and rodents.
5. Protect the exterior from moisture penetration.

Mothballing

6. Secure the building and its component features to reduce vandalism or break-ins.
7. Provide adequate ventilation to the interior.
8. Secure or modify utilities and mechanical systems.
9. Develop and implement a maintenance and monitoring plan for protection.

These steps will be discussed in sequence below. Documentation and stabilization are critical components of the process and should not be skipped over. Mothballing measures should not result in permanent damage, and so each treatment should be weighed in terms of its reversibility and its overall benefit.

Documentation

Documenting the historical significance and physical condition of the property will provide information necessary for setting priorities and allocating funds. The project team should be cautious when first entering the structure if it has been vacant or is deteriorated. It may be advisable to shore temporarily areas appearing to be structurally unsound until the condition of the structure can be fully assessed (see fig. 3). If pigeon or bat droppings, friable asbestos or other health hazards are present, precautions must be taken to wear the appropriate safety equipment when first inspecting the building. Consideration should be given to hiring a firm specializing in hazardous waste removal if these highly toxic elements are found in the building.

Documenting and recording the building. Documenting a building's history is important because evidence of its true age and architectural significance may not be readily evident. The owner should check with the State Historic Preservation Office or local preservation commission for assistance in researching the building. If the building has never been researched for listing in the National Register of Historic Places or other historic registers, then, at a minimum, the following should be determined:

- The overall historical significance of the property and dates of construction;
- the chronology of alterations or additions and their approximate dates; and,
- types of building materials, construction techniques, and any unusual detailing or regional variations of craftsmanship.

Old photographs can be helpful in identifying early or original features that might be hidden under modern materials. On a walk-through, the architect, historian, or preservation specialist should identify the architecturally significant elements of the building, both inside and out (see fig.4).

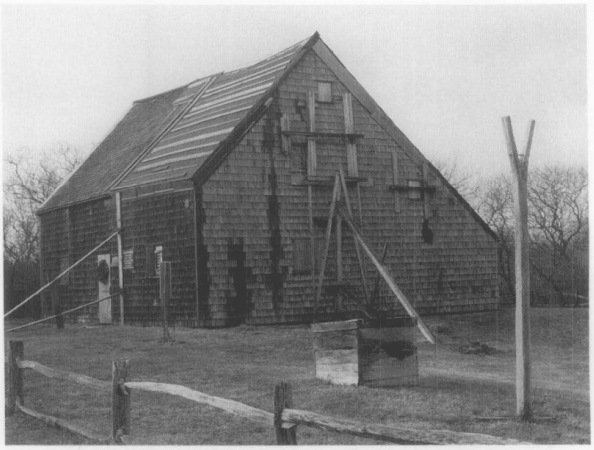


Figure 3. Buildings seriously damaged by storms or deterioration may need to be braced before architectural evaluations can be made. Jethro Coffin House. Photo: John Milner Architects.

Figure 4. Documenting the building's history, preparing schematic plans, and assessing the condition of the building will provide necessary information on which to set priorities for stabilization and repair prior to securing the building. Photo: Frederick Lindstrom, HABS.

By understanding the history of the resource, significant elements, even though deteriorated, may be spared the trash pile. For that reason alone, any materials removed from the building or site as part of the stabilization effort should be carefully scrutinized and, if appearing historic, should be photographed, tagged with a number, inventioried, and safely stored, preferably in the building, for later retrieval (see fig. 5).

A site plan and schematic building floor plans can be used to note important information for use when the building is eventually preserved, restored, or rehabilitated. Each room should be given a number and notations added to the plans regarding the removal of important features to storage or recording physical treatments undertaken as part of the stabilization or repair.

Because a mothballing project may extend over a long period of time, with many different people involved, clear records should be kept and a building file established. Copies of all important data, plans, photographs, and lists of consultants or contractors who have worked on the property should be added to the file as the job progresses.

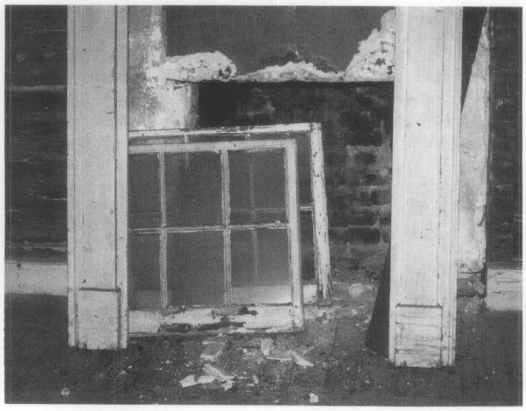


Figure 5. Loose or detached elements should be identified, tagged and stored, preferably on site. Photo: NPS files.

Recording all actions taken on the building will be helpful in the future.

The project coordinator should keep the building file updated and give duplicate copies to the owner. A list of emergency numbers, including the number of the key holder, should be kept at the entrance to the building or on a security gate, in a transparent vinyl sleeve.

Preparing a condition assessment of the building. A condition assessment can provide the owner with an accurate overview of the current condition of the property. If the building is deteriorated or if there are significant interior architectural elements that will need special protection during the mothballing years, undertaking a condition assessment is highly recommended, but it need not be exhaustive.

A modified condition assessment, prepared by an architect or preservation specialist, and in some case a structural engineer, will help set priorities for repairs necessary to stabilize the property for both the short and long-term. It will evaluate the age and condition of the following major elements: foundations; structural systems; exterior materials; roofs and gutters; exterior porches and steps; interior finishes; staircases; plumbing, electrical, mechanical systems; special features such as chimneys; and site drainage.

To record existing conditions of the building and site, it will be necessary to clean debris from the building and to remove unwanted or overgrown vegetation to expose foundations. The interior should be emptied of its furnishing (unless provisions are made for mothballing these as well), all debris removed, and the interior swept with a broom. Building materials too deteriorated to repair, or which have come detached, such as moldings, balusters, and decorative plaster, and which can be used to guide later preservation work, should be tagged, labeled and saved.

Photographs or a videotape of the exterior and all interior spaces of the resource will provide an invaluable record of "as is" conditions. If a videotape is made, oral commentary can be provided on the significance of each space and architectural feature. If 35mm photographic prints or slides are made, they should be numbered, dated, and appropriately identified. Photographs should be cross-referenced with the room numbers on the schematic plans. A systematic method for photographing should be developed; for example, photograph each wall in a room and then take a corner shot to get floor and ceiling portions in the picture. Photograph any unusual details as well as examples of each window and door type.

For historic buildings, the great advantage of a condition assessment is that architectural features, both on the exterior as well as the interior, can be rated on a scale of their importance to the integrity and significance of the building. Those features of the highest priority should receive preference when repairs or protection measures are outlined as part of the mothballing process. Potential problems with protecting these features should be identified so that appropriate interim solutions can be selected. For example, if a building has always been heated and if murals, decorative plaster walls, or examples of patterned wall paper are identified as highly significant, then special care should be taken to regulate the interior climate and to monitor it adequately during the

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mothballing years. This might require retaining electrical service to provide minimal heat in winter, fan exhaust in summer, and humidity controls for the interior.

Stabilization

Stabilization as part of a mothballing project involves correcting deficiencies to slow down the deterioration of the building while it is vacant. Weakened structural members that might fail altogether in the forthcoming years must be braced or reinforced; insects and other pests removed and discouraged from returning; and the building protected from moisture damage both by weatherizing the exterior envelope and by handling water run-off on the site. Even if a modified use or caretaker services can eventually be found for the building, the following steps should be addressed.

Structurally stabilizing the building. While bracing may have been required to make the building temporarily safe for inspection, the condition assessment may reveal areas of hidden structural damage. Roofs, foundations, walls, interior framing, porches and dormers all have structural components that may need added reinforcement. Structural stabilization by a qualified contractor should be done under the direction of a structural engineer or a preservation specialist to ensure that the added weight of the reinforcement can be sustained by the building and that the new members do not harm historic finishes (see fig. 6). Any major vertical post added during the stabilization should be properly supported and, if necessary, taken to the ground and underpinned.

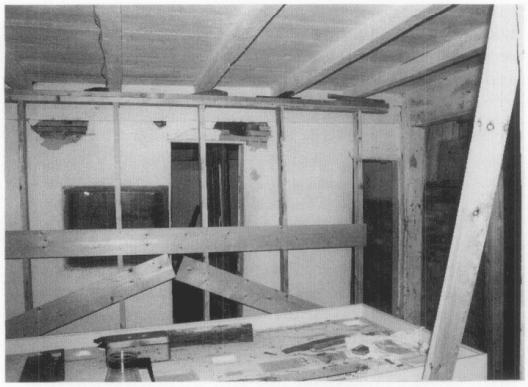

Figure 6. Interior bracing which will last the duration of the mothballing will protect weakened structural members. Jethro Coffin House. Photo: John Milner Architects.

If the building is in a northern climate, then the roof framing must be able to hold substantial snow loads. Bracing the roof at the ridge and mid-points should be considered if sagging is apparent. Likewise, interior framing around stair openings or under long ceiling spans should be investigated. Underpinning or bracing structural piers weakened by poor drainage patterns may be a good precaution as well. Damage caused by insects, moisture, or from other causes should be repaired or reinforced and, if possible, the source of the damage removed. If features such as porches and dormers are so severely deteriorated that they must be removed, they should be documented, photographed, and portions salvaged for storage prior to removal.

If the building is in a southern or humid climate and termites or other insects are a particular problem, the foundation and floor framing should be inspected to ensure that there are no major structural weaknesses. This can usually be done by observation from the crawl space or basement. For those structures where this is not possible, it may be advisable to lift selective floor boards to expose the floor framing. If there is evidence of pest damage, particularly termites, active colonies should be treated and the structural members reinforced or replaced, if necessary.

Controlling pests. Pests can be numerous and include squirrels, raccoons, bats, mice, rats, snakes, termites, moths, beetles, ants, bees and wasps, pigeons, and other birds. Termites, beetles, and carpenter ants destroy wood. Mice, too, gnaw wood as well as plaster, insulation, and electrical wires. Pigeon and bat droppings not only damage wood finishes but create a serious and sometimes deadly health hazard.

If the property is infested with animals or insects, it is important to get them out and to seal off their access to the building. If necessary, exterminate and remove any nests or hatching colonies. Chimney flues may be closed off with exterior grade plywood caps, properly ventilated, or protected with framed wire screens. Existing vents, grills, and louvers in attics and crawl spaces should be screened with bug mesh or heavy duty wire, depending on the type of pest being controlled. It may be advantageous to have damp or infected wood treated with insecticides (as permitted by each state) or preservatives, such as borate, to slow the rate of deterioration during the time that the building is not in use.

Securing the exterior envelope from moisture penetration. It is important to protect the exterior envelope from moisture penetration before securing the building. Leaks from deteriorated or damaged roofing, from around windows and doors, or through deteriorated materials, as well as ground moisture from improper site run-off or rising damp at foundations, can cause long-term damage to interior finishes and structural systems. Any serious deficiencies on the exterior, identified in the condition assessment, should be addressed.

To the greatest extent possible, these weatherization efforts should not harm historic materials. The project budget may not allow deteriorated features to be fully repaired or replaced in-kind. Non-historic or modern materials may be used to cover historic surfaces temporarily, but these treatments should not destroy valuable evidence necessary for future preservation work. Temporary modifications should be as visually compatible as possible with the historic building.

Roofs are often the most vulnerable elements on the building exterior and yet in some ways they are the easiest element to stabilize for the long term, if done correctly. "Quick fix" solutions, such as tar patches on slate roofs, should be avoided as they will generally fail within a year or so and may accelerate damage by trapping moisture. They are difficult to undo later when more permanent repairs are undertaken. Use of a tarpaulin over a leaking roof should be thought of only as a very temporary

Figure 7. Non-historic materials are appropriate for mothballing projects when they are used to protect historic evidence remaining for future preservation. This lightweight aluminum channel frame and roofing covers the historic wooden shingle roof. Galvanized mesh panels secure the window openings from intrusion by raccoons and other unwanted guests. Photo: Williamsport Preservation Training Center, NPS.

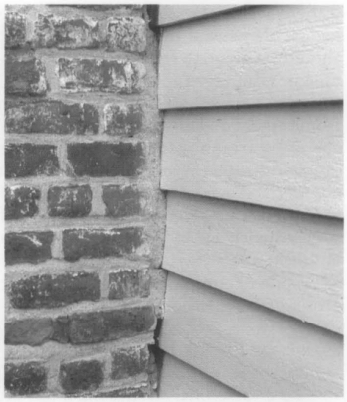

Figure 8. Appropriate mortar mixes should be used when masonry repairs are undertaken. In this case, a soft lime based mortar is used as an infill between the brick and wooden elements. When full repairs are made during the restoration phase, this soft mortar can easily be removed and missing bricks replaced.

emergency repair because it is often blown off by the wind in a subsequent storm.

If the existing historic roof needs moderate repairs to make it last an additional ten years, then these repairs should be undertaken as a first priority. Replacing cracked or missing shingles and tiles, securing loose flashing, and reanchoring gutters and downspouts can often be done by a local roofing contractor. If the roof is in poor condition, but the historic materials and configuration are important, a new temporary roof, such as a lightweight aluminum channel system over the existing, might be considered (see fig. 7). If the roofing is so deteriorated that it must be replaced and a lightweight aluminum system is not affordable, various inexpensive options might be considered. These include covering the existing deteriorated roof with galvanized corrugated metal roofing panels, or 90 lb. rolled roofing, or a rubberized membrane (refer back to cover photo). These alternatives should leave as much of the historic sheathing and roofing in place as evidence for later preservation treatments.

For masonry repairs, appropriate preservation approaches are essential. For example, if repointing deteriorated brick chimneys or walls is necessary to prevent serious moisture penetration while the building is mothballed, the mortar should match the historic mortar in composition, color, and tooling. The use of hard portland cement mortars or vapor-impermeable waterproof coatings are not appropriate solutions as they can cause extensive damage and are not reversible treatments (see fig. 8).

For wood siding that is deteriorated, repairs necessary to keep out moisture should be made; repainting is generally warranted. Cracks around windows and doors can be beneficial in providing ventilation to the interior and so should only be caulked if needed to keep out bugs and moisture. For very deteriorated wall surfaces on wooden frame structures, it may be necessary to sheathe in plywood panels, but care should be taken to minimize installation damage by planning the location of the nailing or screw patterns or by installing panels over a frame of battens (see fig. 9). Generally, however, it is better to repair deteriorated features than to cover them over.

Foundation damage may occur if water does not drain away from the building. Run-off from gutters and downspouts should be directed far away from the foundation wall by using long flexible extender pipes equal in length to twice the depth of the basement or crawl space. If underground drains are susceptible to clogging, it is recommended that the downspouts be disconnected from the drain boot and attached to flexible piping. If gutters and downspouts are in bad condition, replace them with inexpensive aluminum units.

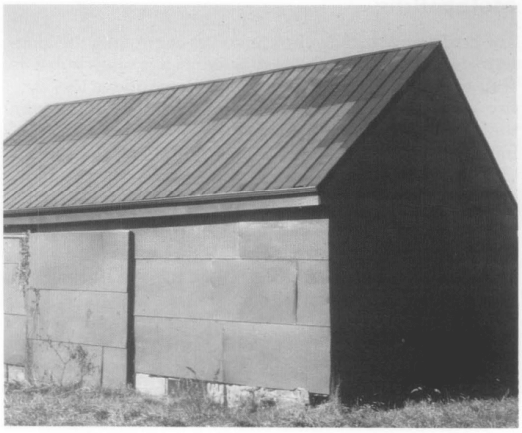

Figure 9. Severely deteriorated wooden siding on a farm building has been covered over with painted plywood panels as a temporary measure to eliminate moisture penetration to the interior. Foundation vents and loose floor boards allow air to circulate inside.

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If there are no significant landscape or exposed archeological elements around the foundation, consideration should be given to regrading the site if there is a documented drainage problem (see fig. 10). If building up the grade, use a fiber mesh membrane to separate the new soil from the old and slope the new soil 6 to 8 feet (200 cm-266 cm) away from the foundation making sure not to cover up the dampcourse layer or come into contact with skirting boards. To keep vegetation under control, put down a layer of 6 mil black polyethylene sheeting or fiber mesh matting covered with a 2"-4" (5-10 cm.) of washed gravel. If the building suffers a serious rising damp problem, it may be advisable to eliminate the plastic sheeting to avoid trapping ground moisture against foundations.

Figure 10. Regrading around the Booker Tenement at Colonial Williamsburg has protected the masonary foundation wall from excessive damp. This building has been successfully mothballed for over 10 years. Note the attic and basement vents, the temporary stairs, and the informative sign interpreting the history of this building.

Mothballing

The actual mothballing effort involves controlling the long-term deterioration of the building while it is unoccupied as well as finding methods to protect it from sudden loss by fire or vandalism. This requires securing the building from unwanted entry, providing adequate ventilation to the interior, and shutting down or modifying existing utilities. Once the building is de-activated or secured, the long-term success will depend on periodic maintenance and surveillance monitoring.

Securing the building from vandals, break-ins, and natural disasters. Securing the building from sudden loss is a critical aspect of mothballing. Because historic buildings are irreplaceable, it is vital that vulnerable entry points are sealed. If the building is located where fire and security service is available then it is highly recommeded that some form of monitoring or alarm devices be used.

To protect decorative features, such as mantels, lighting fixtures, copper downspouts, iron roof cresting, or stained glass windows from theft or vandalism, it may be advisable to temporarily remove them to a more secure location if they cannot be adequately protected within the structure.

Mothballed buildings are usually boarded up, particularly on the first floor and basement, to protect fragile glass windows from breaking and to reinforce entry points (see fig. 11). Infill materials for closing door and window openings include plywood, corrugated panels, metal grates, chain fencing, metal grills, and cinder or cement blocks (see fig. 12). The method of installation should not result in the destruction of the opening and all associated sash, doors, and frames should be protected or stored for future reuse.

Figure 11. Urban buildings often need additional protection from unwanted entry and graffiti. This commercial building uses painted plywood panels to cover expansive glass storefronts and chain link fencing is applied on top of the panels. The upper windows on the street sides have been covered and painted to resemble 19th century sash. Photo: Thomas Jester, NPS.

Generally exterior doors are reinforced and provided with strong locks, but if weak historic doors would be damaged or disfigured by adding reinforcement or new locks, they may be removed temporarily and replaced with secure modern doors (see fig. 13). Alternatively, security gates in a new metal frame can be installed within existing door openings, much like a storm door, leaving the historic door in place. If plywood panels are installed over door openings, they should be screwed in place, as opposed to nailed, to avoid crowbar damage each time the panel is removed. This also reduces pounding vibrations from hammers and eliminates new nail holes each time the panel is replaced.

For windows, the most common security feature is the closure of the openings; this may be achieved with wooden or pre-formed panels or, as needed, with metal sheets or concrete blocks. Plywood panels, properly installed to protect wooden frames and properly ventilated, are the preferred treatment from a preservation standpoint.

There are a number of ways to set insert plywood panels into windows openings to avoid damage to frame and sash (see fig. 14). One common method is to bring the upper and lower sash of a double hung unit to the mid-point of the opening and then to install pre-cut plywood panels using long carriage bolts anchored into horizontal wooden bracing, or strong backs, on the inside face of the window. Another means is to build new wooden blocking frames set into deeply recessed openings, for example in an industrial mill or warehouse, and then to affix the plywood panel to

the blocking frame. If sash must be removed prior to installing panels, they should be labeled and stored safely within the building.

Plywood panels are usually 1/2"-3/4" (1.25-1.875 cm.) thick and made of exterior grade stock, such as CDX, or marine grade plywood. They should be painted to protect them from delamination and to provide a neater appearance. These panels may be painted to resemble operable windows or treated decoratively (see fig. 15). With extra attention to detail, the plywood panels can be

Figure 12. First floor openings have been filled with cinderblocks and doors, window sash and frames have been removed for safe keeping. Note the security light over the windows and the use of a security metal door with heavy duty locks. Photo: H. Ward Jandl, NPS.

Figure 13. If historic doors would be damaged by adding extra locks, they should be removed and stored and new security doors added. At this lighthouse, the historic door has been replaced with a new door (seen both inside and outside) with an inset vent and new deadbolt locks. The heavy historic hinges have not been damaged. Photo: Williamsport Preservation Training Center, NPS.

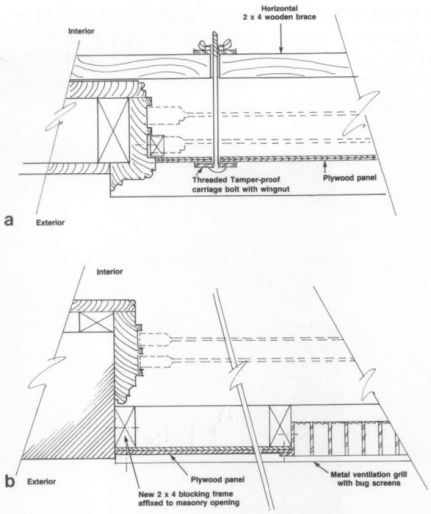

Figure 14. A: Plan detail showing plywood security panel anchored with carriage bolts through to the inside horizontal bracing, or strong backs. B: Plan detail showing section of plywood window panel attached to a new pressure treated wood frame set within the masonry opening. Ventilation should be included whenever possible or necessary.

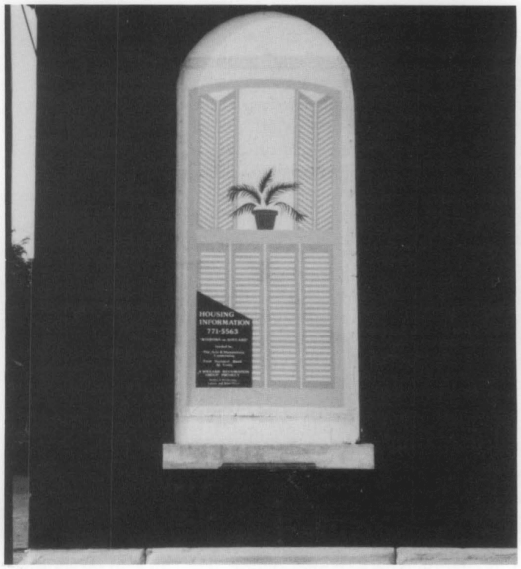

Figure 15. Painting trompe l'oeil scenes on plywood panels is a neighborhood friendly device. In addition, the small sign at the bottom left corner gives information for contacting the organization responsible for the care of the mothballed building. Photo: Lee H. Nelson, FAIA.

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trimmed out with muntin strips to give a shadow line simulating multi-lite windows. This level of detail is a good indication that the building is protected and valued by the owner and the community.

If the building has shutters, simply close the shutters and secure them from the interior (see fig. 16). If the building had shutters historically, but they are missing, it may be appropriate to install new shutters, even in a modern material, and secure them in the closed position. Louvered shutters will help with interior ventilation if the sash are propped open behind the shutters.

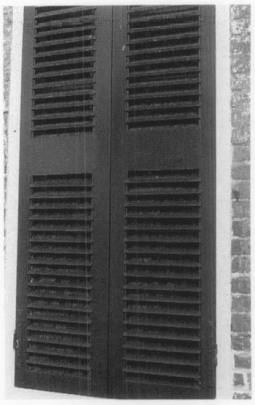

Figure 16. Historic louvered shutters make excellent security closures with passive ventilation.

There is some benefit from keeping windows unboarded if security is not a problem. The building will appear to be occupied, and the natural air leakage around the windows will assist in ventilating the interior. The presence of natural light will also help when periodic inspections are made. Rigid polycarbonate clear storm glazing panels may be placed on the window exterior to protect against glass breakage. Because the sun's ultraviolet rays can cause fading of floor finishes and wall surfaces, filtering pull shades or inexpensive curtains may be options for reducing this type of deterioration for significant interiors. Some acrylic sheeting comes with built-in ultraviolet filters.

Securing the building from catastrophic destruction from fire, lightning, or arson will require additional security devices. Lightning rods properly grounded should be a first consideration if the building is in an area susceptible to lightning storms. A high security fence should also be installed if the property cannot be monitored closely. These interventions do not require a power source for operation. Since many buildings will not maintain electrical power, there are some devices available using battery packs, such as intrusion alarms, security lighting, and smoke detectors which through audible horn alarms can alert nearby neighbors. These battery packs must be replaced every 3 months to 2 years, depending on type and usage. In combination with a cellular phone, they can also provide some level of direct communication with police and fire departments.

If at all possible, new temporary electric service should be provided to the building (see fig. 17). Generally a telephone

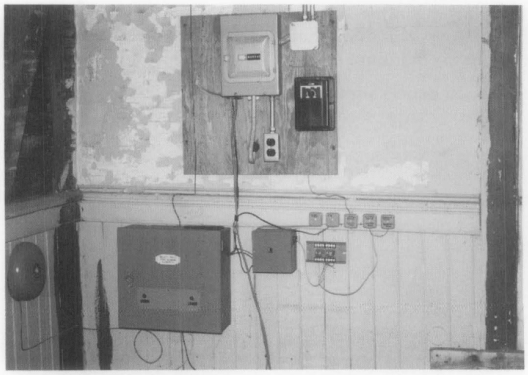

Figure 17. Security systems are very important for mothballed buildings if they are located where fire and security services are available. A temporary electric service with battery back-up has been installed in this building. Intrusion alarms and ionization smoke/fire detectors are wired directly to the nearby security service.

line is needed as well. A hard wired security system for intrusion and a combination rate-of-rise and smoke detector can send an immediate signal for help directly to the fire department and security service. Depending on whether or not heat will be maintained in the building, the security system should be designed accordingly. Some systems cannot work below 32°F (0°C). Exterior lighting set on a timer, photo electric sensor, or a motion/infra-red detection device provides additional security.

Providing adequate ventilation to the interior. Once the exterior has been made weathertight and secure, it is essential to provide adequate air exchange throughout the building. Without adequate air exchange, humidity may rise to unsafe levels, and mold, rot, and insect infestation are likely to thrive (see fig. 18). The needs of each historic resource must be individually evaluated because there are so many variables that affect the performance of each interior space once the building has been secured. A

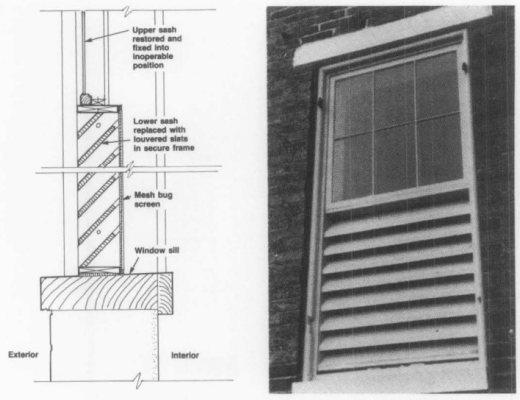

Figure 18. Heavy duty wooden slated louvers were custom fabricated to replace the deteriorated lower sash. The upper sash were rebuilt to retain the historic appearance and to allow light into this vacant historic building. Refer back to Fig. 1 for a view of the building. Photo: Charles E. Fisher, NPS. Drawing by Thomas Vitanza.

mechanical engineer or a specialist in interior climates should be consulted, particularly for buildings with intact and significant interiors. In some circumstances, providing heat during the winter, even at a minimal 45° F (7°C), and utilizing forced-fan ventilation in summer will be recommended and will require retaining electrical service. For masonry buildings it is often helpful to keep the interior temperature above the spring dew point to avoid damaging condensation. In most buildings it is the need for summer ventilation that outweighs the winter requirements.

Many old buildings are inherently leaky due to loose-fitting windows and floorboards and the lack of insulation. The level of air exchange needed for each building, however, will vary according to geographic location, the building's construction, and its general size and configuration.

There are four critical climate zones when looking at the type and amount of interior ventilation needed for a closed up building: hot and dry (southwestern states); cold and damp (Pacific northwest and northeastern states); temperate and humid (Mid-Atlantic states, coastal areas); and hot and humid (southern states and the tropics). (See fig. 19 for a chart outlining guidance on ventilation.)

Once closed up, a building interior will still be affected by the temperature and humidity of the exterior. Without proper ventilation, moisture from condensation may occur and cause damage by wetting plaster, peeling paint, staining woodwork, warping floors, and in some cases even causing freeze thaw damage to plaster. If moist conditions persist in a property, structural damage can result from rot or returning insects attracted to moist conditions. Poorly mothballed masonry buildings, particularly in damp and humid zones have been so damaged on the interior with just one year of unventilated closure that none of the interior finishes were salvageable when the buildings were rehabilitated.

The absolute minimum air exchange for most mothballed buildings consists of one to four air exchanges every hour; one or two air exchanges per hour in winter and often twice that amount in summer. Even this minimal exchange may foster mold and mildew in damp climates, and so monitoring the property during the stabilization period and after the building has been secured will provide useful information on the effectiveness of the ventilation solution.

There is no exact science for how much ventilation should be provided for each building. There are, however, some general rules of thumb. Buildings, such as adobe structures, located in hot and arid climates may need no additional ventilation if they have been well weatherized and no moisture is penetrating the interior. Also frame buildings with natural cracks and fissures for air infiltration may have a natural air exchange rate of 3 or 4 per hour, and so in arid as well as temperate climates may need no additional ventilation once secured. The most difficult

VENTILATION GUIDANCE CHART

CLIMATE	AIR EXCHANGES		VENTILATION				
Temperature and Humidity	Winter air exchange per hour	Summer air exchange per hour	Frame Buildings passive louvering % of openings louvered winter	Frame Buildings passive louvering % of openings louvered summer	Masonry Buildings passive louvering % of openings louvered winter	Masonry Buildings passive louvering % of openings louvered summer	Masonry Buildings fan combination one fan + % louvered summer
hot and dry Southwestern areas	less than 1	less than 1	N/A	N/A	N/A	N/A	N/A
cold and damp Northeastern & Pacific northwestern areas	1	2-3	5%	10%	10%	30%	20%
temperate/humid Mid-Atlantic & coastal areas	2	3-4	10%	20%	20%	40%	30%
hot and humid Southern states & tropical areas	3	4 or more	20%	30%	40% or more	80%	40% or more

Figure 19. This is a general guide for the amount of louvering which might be expected for a medium size residential structure with an average amount of windows, attic, and crawl space ventilation. There is currently research being done on effective air exchanges, but each project should be evaluated individually. It will be noticed from the chart that summer louvering requirements can be reduced with the use of an exhaust fan. Masonry buildings need more ventilation than frame buidings. Chart prepared by Sharon C. Park, AIA and Ernest A. Conrad, PE.

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buildings to adequately ventilate without resorting to extensive louvering and/or mechanical exhaust fan systems are masonry buildings in humid climates. Even with basement and attic vent grills, a masonry building many not have more than one air exchange an hour. This is generally unacceptable for summer conditions. For these buildings, almost every window opening will need to be fitted out with some type of passive, louvered ventilation.

Depending on the size, plan configuration, and ceiling heights of a building, it is often necessary to have louvered opening equivalent to 5%-10% of the square footage of each floor. For example, in a humid climate, a typical 20'x30' (6.1m x 9.1m) brick residence with 600 sq. ft.(55.5 sq.m) of floor space and a typical number of windows, may need 30-60 sq. ft.(2.75sq.m-5.5 sq. m) of louvered openings per floor. With each window measuring 3'x5'(.9m x 1.5 m) or 15 sq. ft. (1.3 sq.m), the equivalent of 2 to 4 windows per floor may need full window louvers.

Small pre-formed louvers set into a plywood panel or small slit-type registers at the base of inset panels generally cannot provide enough ventilation in most moist climates to offset condensation, but this approach is certainly better than no louvers at all. Louvers should be located to give cross ventilation, interior doors should be fixed ajar at least 4" (10cm) to allow air to circulate, and hatches to the attic should be left open.

Monitoring devices which can record internal temperature and humidity levels can be invaluable in determining if the internal climate is remaining stable. These units can be powered by portable battery packs or can be wired into electric service with data downloaded into laptop computers periodically (see fig. 20). This can also give long-term information throughout the mothballing years. If it is determined that there are inadequate air exchanges to keep interior moisture levels under control, additional passive ventilation can be increased, or, if there is electric service, mechanical exhaust fans can be installed. One fan in a small to medium sized building can reduce the amount of louvering substantially.

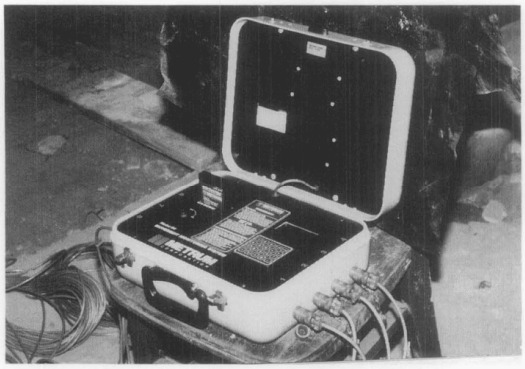

Figure 20. Portable monitors used to record temperature and humidity conditions in historic buildings during mothballing can help identify ventilation needs. This data can be downloaded directly into a lap top computer on site. These monitors are especially helpful over the long term for buildings with significant historic interiors or which are remaining furnished. If interiors are remaining damp or humid, additional ventilation should be added or the source of moisture controlled.

If electric fans are used, study the environmental conditions of each property and determine if the fans should be controlled by thermostats or automatic timers. Humidistats, designed for enclosed climate control systems, generally are difficult to adapt for open mothballing conditions. How the system will draw in or exhaust air is also important. It may be determined that it is best to bring dry air in from the attic or upper levels and force it out through lower basement windows (see fig. 21). If the basement is damp, it may be best to zone it from the rest of the building and exhaust its air separately. Additionally, less humid day air is preferred over damper night air, and this can be controlled with a timer switch mounted to the fan.

The type of ventilation should not undermine the security of the building. The most secure installations use custom-made grills well anchored to the window frame, often set in plywood security panels. Some vents are formed using heavy millwork louvers set into existing window openings (refer back to fig.18). For buildings where security is not a primary issue, where the interior is modest, and where there has been no heat for a long time, it may be possible to use lightweight galvanized metal grills in the window openings (refer back to fig.7). A cost effective grill can be made from the expanded metal mesh lath used by plasterers and installed so that the mesh fins shed rainwater to the exterior.

Securing mechanical systems and utilities. At the outset, it is important to determine which utilities and services, such as electrical or telephone lines, are kept and which are cut off. As long as these services will not constitute a fire

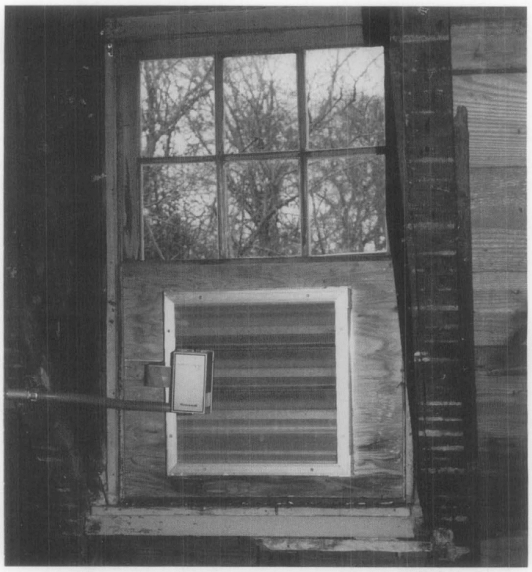

Figure 21. This electric thermostat/humidistat mounted in the attic vent controls a modified ducted air/fan system. The unit uses temporary exposed sheet metal ducts to pull air through the building and exhaust it out of the basement. For over ten years this fan system in combination with 18" x 18" preformed louvers in selective windows has kept the interior dry and with good air exchanges.

hazard, it is advisable to retain those which will help protect the property. Since the electrical needs will be limited in a vacant building, it is best to install a new temporary electric line and panel (100 amp) so that all the wiring is new and exposed. This will be much safer for the building, and allows easy access for reading the meter (see fig. 22).

Most heating systems are shut down in long term mothballing. For furnaces fueled by oil, there are two choices for dealing with the tank. Either it must be filled to the top with oil to eliminate condensation or it should be drained. If it remains empty for more than a year, it will likely rust and not be reusable. Most tanks are drained if a newer type of system is envisioned when the building is put back into service. Gas systems with open flames should be turned off unless there is regular maintenance and frequent surveillance of the property. Gas lines are shut off by the utility company.

If a hot water radiator system is retained for low levels of heat, it generally must be modified to be a self-contained system and the water supply is capped at the meter. This recirculating system protects the property from extensive damage from burst pipes. Water is replaced with a water/glycol mix and the reserve tank must also be filled with this mixture. This keeps the modified system from freezing, if there is a power failure. If water service is cut off, pipes should be drained. Sewerage systems will require special care as sewer gas is explosive. Either the traps must be filled with glycol or the sewer line should be capped off at the building line.

Figure 22. All systems except temporary electric have been shut off at this residence which has been mothballed over 20 years. An electric meter and 100 amp panel box have been set on a plywood panel at the front of the building. It is used for interior lighting and various alarm systems. The building, however, is showing signs of moisture problems with efflorescent stains on the masonry indicating the need for gutter maintenance and additional ventilation for the interior. The vegetation on the walls, although picturesque, traps moisture and is damaging to the masonry. Photo: H. Ward Jandl, NPS.

Developing a maintenance and monitoring plan. While every effort may have been made to stabilize the property and to slow the deterioration of materials, natural disasters, storms, undetected leaks, and unwanted intrusion can still occur. A regular schedule for surveillance, maintenance, and monitoring should be established: (See fig. 23 for maintenance chart).

MAINTENANCE CHART

periodic
- ❑ regular drive by surveillance
- ❑ check attic during storms if possible

monthly walk arounds
- ❑ check entrances
- ❑ check window panes for breakage
- ❑ mowing as required
- ❑ check for graffiti or vandalism

enter every 3 months to air out
- ❑ check for musty air
- ❑ check for moisture damage
- ❑ check battery packs and monitoring equipment
- ❑ check light bulbs
- ❑ check for evidence of pest intrusion

every 6 months; spring and fall
- ❑ site clean-up; pruning and trimming
- ❑ gutter and downspout check
- ❑ check crawlspace for pests
- ❑ clean out storm drains

every 12 months
- ❑ maintenance contract inspections for equipment/utilities
- ❑ check roof for loose or missing shingles
- ❑ termite and pest inspection/treatment
- ❑ exterior materials spot repair and touch up painting
- ❑ remove bird droppings or other stains from exterior
- ❑ check and update building file

Figure 23. Maintenance Chart. Many of the tasks on the maintenance chart can be done by volunteer help or service contracts. Regular visits to the site will help detect intrusion, storm damage, or poor water drainage.

The fire and police departments should be notified that the property will be vacant. A walk-through visit to familiarize these officials with the building's location, construction materials, and overall plan may be invaluable if they are called on in the future.

The optimum schedule for surveillance visits to the property will depend on the location of the property and the number of people who can assist with these activities. The more frequent the visits to check the property, the sooner that water leaks or break-ins will be noticed. Also, the more frequently the building is entered, the better the air exchange. By keeping the site clear and the building in good repair, the community will know that the building has not been abandoned (see fig. 24). The involvement of neighbors and community groups in caring for the property can ensure its protection from a variety of catastrophic circumstances.

The owner may utilize volunteers and service companies to undertake the work outlined in the maintenance chart.

Service companies on a maintenance contract can provide yard, maintenance, and inspection services, and their reports or itemized bills reflecting work undertaken should be added to update the building file.

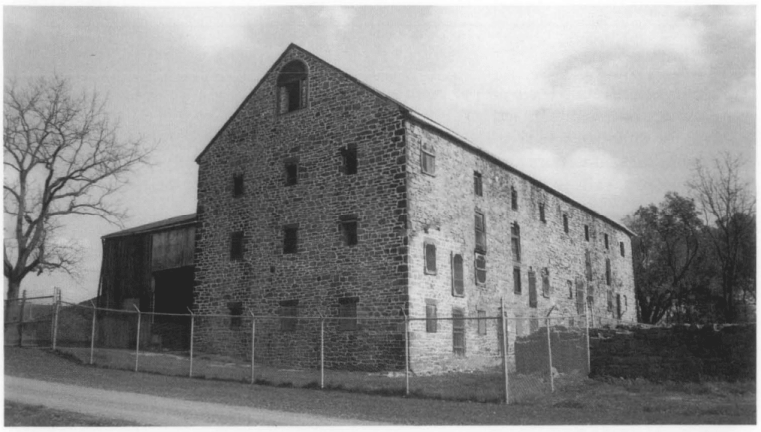

Figure 24. Once mothballed, a property must still be monitored and maintained. The openings in this historic barn has been modified with a combination of wood louvers and metal mesh panels which require little maintenance. The grounds are regularly mowed, even inside the chain link security fence. Photo: Williamsport Preservation Training Center, NPS.

Components of a Mothballing Project

Document: Brearley House, New Jersey; 2½ story center hall plan house contains a high degree of integrity of circa 1761 materials and significant early 19th century additions. Deterioration was attributable to leaking roof, unstable masonry at gables and chimneys, deteriorating attic windows, poor site drainage, and partially detached gutters. Mothballing efforts are required for approximately 7-10 years.

Stabilize: Remove bat droppings from attic using great caution. Secure historic chimneys and gable ends with plywood panels. Do not take historic chimneys down. Reroof with asphalt shingles and reattach or add new gutters and downspouts. Add extenders to downspouts. Add bug screens to any ventilation areas. Add soil around foundation and slope to gain positive drain; do not excavate as this will disturb archeological evidence.

Mothball: Install security fence around the property. Secure doors and windows with plywood panels (½" exterior grade). Install preformed metal grills in basement and attic openings. Add surface mounted wiring for ionization smoke and fire detection with direct wire to police and fire departments. Shut off heat and drain pipes. Add window exhaust fan set on a thermostatic control. Provide for periodic monitoring and maintenance of the property.

Figure 25. Above is a summary of the tasks that were necessary in order to protect this significant property while restoration funds are raised. Photographs: Michael Mills; Ford Farewell Mills Gatsch Architects.

a. A view showing the exterior of the house in its mothballed condition.

b. Plywood panels stabilize the chimneys. Note the gable vents.

c. The exhaust fan has tamper-proof housing.

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MOTHBALLING CHECKLIST

Mothballing Checklist In reviewing mothballing plans, the following checklist may help to ensure that work items are not inadvertently omitted.	Yes	No	Date of action or comment.
Moisture • Is the roof watertight? • Do the gutters retain their proper pitch and are they clean? • Are downspout joints intact? • Are drains unobstructed? • Are windows and doors and their frames in good condition? • Are masonry walls in good condition to seal out moisture? • Is wood siding in good condition? • Is site properly graded for water run-off? • Is vegetation cleared from around the building foundation to avoid trapping moisture?			
Pests • Have nests/pests been removed from the building's interior and eaves? • Are adequate screens in place to guard against pests? • Has the building been inspected and treated for termites, carpenter ants, and rodents? • If toxic droppings from bats and pigeons are present, has a special company been brought in for its disposal?			
Housekeeping • Have the following been removed from the interior: trash, hazardous materials such as inflammable liquids, poisons, and paints and canned goods that could freeze and burst? • Is the interior broom-clean? • Have furnishings been removed to a safe location? • If furnishings are remaining in the building, are they properly protected from dust, pests, ultraviolet light, and other potentially harmful problems? • Have significant architectural elements that have become detached from the building been labeled and stored in a safe place? • Is there a building file?			
Security • Have fire and police departments been notified that the building will be mothballed? • Are smoke and fire detectors in working order? • Are the exterior doors and windows securely fastened? • Are plans in place to monitor the building on a regular basis? • Are the keys to the building in a secure but accessible location? • Are the grounds being kept from becoming overgrown?			
Utilities • Have utility companies disconnected/shut off or fully inspected water, gas, and electric lines? • If the building will not remain heated, have water pipes been drained and glycol added? • If the electricity is to be left on, is the wiring in safe condition?			
Ventilation • Have steps been taken to ensure proper ventilation of the building? • Have interior doors been left open for ventilation purposes? • Has the secured building been checked within the last 3 months for interior dampness or excessive humidity?			

Figure 26.. MOTHBALL CHECKLIST. This checklist will give the building owner or manager a handy reference guide to items that should be addressed when mothballing a historic building. Prepared by H. Ward Jandl, NPS.

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Conclusion

Providing temporary protection and stabilization for vacant historic buildings can arrest deterioration and buy the owner valuable time to raise money for preservation or to find a compatible use for the property. A well planned mothballing project involves documenting the history and condition of the building, stabilizing the structure to slow down its deterioration, and finally mothballing the structure to secure it (See fig. 25). The three highest priorities for the building while it is mothballed are 1) to protect the building from sudden loss, 2) to weatherize and maintain the property to stop moisture penetration, and 3) to control the humidity levels inside once the building has been secured. See Mothballing Checklist Figure 26.

While issues regarding mothballing may seem simple, the variables and intricacies of possible solutions make the decision-making process very important. Each building must be individually evaluated prior to mothballing. In addition, a variety of professional services as well as volunteer assistance are needed for careful planning and repair, sensitively designed protection measures, follow-up security surveillance, and cyclical maintenance (see fig. 27).

In planning for the future of the building, complete and systematic records must be kept and generous funds allocated for mothballing. This will ensure that the historic property will be in stable condition for its eventual preservation, rehabilitation, or restoration.

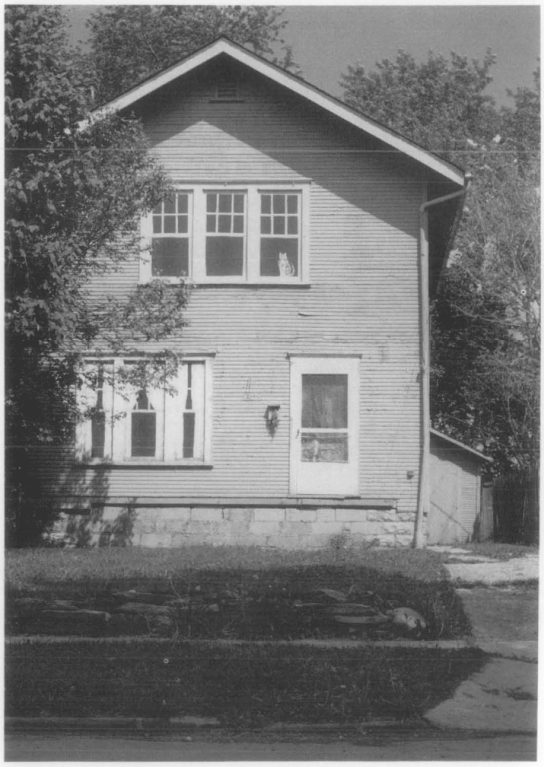

Figure 27. This residential building blends into its neighborhood even though all the windows have been covered over and the front steps are missing. The grounds are maintained and the special attention to decoratively painting the window panels shows that the property is being well cared for until it can be rehabilitated. Photo: Ohio Historical Society.

Acknowledgements

This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Comments on the usefulness of this publication may be directed to H. Ward Jandl, Deputy Chief, Preservation Assistance Division, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127. This publication is not copyrighted and can be reproduced without penalty. Normal procedures for credit to the author and the National Park Service are appreciated.

The author, Sharon C. Park, Senior Historical Architect, Preservation Assistance Division, National Park Service, would like to acknowledge the assistance of the following individuals in the preparation and review of this publication. H. Ward Jandl served as the technical editor and assisted with producing this Preservation Brief. In addition the following persons have provided invaluable information and illustrations: Ernest A. Conrad, PE; Doug Hicks, NPS Williamsport Preservation Training Center; Thomas C. Taylor, Colonial Williamsburg; Karen Gordon, Seattle Urban Conservation Office; Kevin B. Stoops, Seattle Department of Parks and Recreation; Michael Mills, AIA; Christine Henry, architect, Mary Beth Hirsch, Ohio Historical Society. Thanks also to Preservation Assistance Division staff members Michael J. Auer, Anne E. Grimmer, Kay D. Weeks, Timothy A. Buehner, and Jean Travers, and to the numerous staff members of the NPS Regional offices who submitted comments.

All photographs and drawings are by the author unless otherwise noted.

Cover photograph: Mothballing of this historic house involved a new membrane roof covering over the historic roof and slatted window covers for security and ventilation. Photo: Williamsport Preservation Training Center, NPS.

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Further Reading

Cotton, J. Randall. "Mothballing Buildings." *The Old House Journal*. July/August, 1993.

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Michell, Eleanor. *Emergency Repairs for Historic Buildings*. London: Butterworth Architecture, 1988.

"Mothballing Vacant Buildings," *An Anti-Arson Kit for Preservation and Neighborhood Action*. Washington, DC: Federal Emergency Management Agency, 1982.

Nelson, Lee H. *Preservation Briefs 17. Architectural character-Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington, DC: Government Printing Office, 1988.

Solon, Thomas E. "Security Panels for the Foster-Armstrong House." *Association for Preservation Technology Bulletin*. Vol XVI no. 3 & 4, 1984. (note the design of the panels, but be aware that additional louvering may be needed on other projects).

MA Department of Conservation and Recreation
Office of Cultural Resources
Best Management Practices

Mothballing Historic Buildings

Contact: Jeffrey Harris, OCR, 617-626-4936
jeffrey.harris@state.ma.us

Goal: Stabilize historic vacant buildings to "buy time" for developing preservation plan; prevent total loss of significant cultural resources; protect public safety.

Guidelines:

General

- Consider mothballing a historic building if it is surplus to park needs and if the building is expected to stand vacant for more than 3 years. Empty buildings deteriorate fast.
- Mothball the building as soon as possible to halt deterioration.
- Do not forget about the mothballed building. Park staff should regularly monitor for storm damage, holes in the roof and walls, break-ins and other vandalism.
- Mothballing may include vegetation removal; plants should be cut to grade only, with NO DIGGING unless the DCR Archaeologist is consulted beforehand.
- Shut off and secure all utilities to the building and related systems, including electric, gas, and water.
- For information on mothballing procedures related to fire safety, please refer to this DCAMM document: http://www.mass.gov/anf/docs/dcam/mafma/manuals/recommended-procedures-for-closure-state-facilities.pdf
- Contact OCR for a detail of a window panel and for assistance in developing a full mothballing scope customized to your building(s).
- Consider underused historic buildings for the Historic Curatorship program (link to TF9)
- If a building returns to active use, refer to the "Historic Building Maintenance" BMP.

Mothballing

Vegetation management

- Remove all vegetation on the building, including gutters, downspouts, roof valleys and window wells. Large plants should be cut as close to the building as possible; smaller ones can be pulled as long as removal does not damage the building in any way.

- Clear dirt and debris from roof, roof valleys, gutters, downspouts and window wells
- Cut back growth within 10' of building (in the case of unwanted invasives and volunteer plants)
- Prune historic plantings regularly
- Prune trees around historic buildings to prevent storm damage and to eliminate sources of entry for pests and critters
- Barns and other utilitarian buildings can be completely cleared of vegetation unless evidence (on site and in historic records) indicates historic plantings survive

A properly mothballed building should have a secure and well-vented roof and exterior envelope:

- Assess the condition of the **roof** and determine if replacement is warranted; address drainage gutters/downspouts (consult with OCR)
- If replacement is not possible, **patch the roof** with like materials or protect with a tarp and strapping.
- First floor, basement, and accessible areas - Enclose exterior **openings** with well-vented plywood panels; attach panels to interior braces with long carriage bolts passed through open sash; do not nail or screw to historic wooden trim or framing (contact OCR for detail)
- **Shoring** is needed where structural instability is evident (rotted sills, deteriorated floor joists, rafters, wall framing, bulging foundation walls). Shoring includes temporary support through columns, beams, and bracing until a more thorough repair plan can be implemented. This type of structural stabilization should only be undertaken under the guidance of an engineer or architect.
- Remove all combustible and **flammable materials** (furniture, trash, debris) from the inside of the building and from the immediate building site.
- Consider property for inclusion in DCR's Historic Curatorship Program (link to webpage http://www.mass.gov/dcr/stewardship/curator/index.htm)

Basic Monitoring Checklist for Mothballed Buildings

Regular inspection of a mothballed building should include an assessment of the exterior envelope and identification of any new damage. Inspect a minimum of 2x/year.

Yes	No	
		Window and door coverings (and locks) are damaged or show signs of tampering
		There are signs of vandalism (graffiti, trash, bottles, charred wood)
		Roof and gutters are clogged, disconnected, or missing
		Branches and other vegetation are touching or leaning on the building, fences or secondary structures (porches, garages, etc.)
		There are signs of animal infestation or unauthorized human occupation

If "yes" to any of the above, report conditions to OCR and the regional engineer.

Narrative Code Review
Provided by
3Point Design Architecture

Code Review for Rogers Elementary School, 100 Pleasant Street, Fairhaven, MA
Concentration is on Accessibility and Life Safety

Other considerations that are not included but will affect overall costs and planning are Asbestos, Lead Paint and Mold abatement.

**Analysis is based primarily on expressed intent to house a Business Occupancy within. This includes a consideration of the use of the Gymnasium to continue as an Assembly usage.*

Part 1 - 1950 Building Addition (NB) (1885 building is initialed OB) – Total Occupancy – from 745 to 1025 depending on Classroom occupancy type and use. Changes within the building from one type of occupancy to another will require changes in fire ratings between and possibly within each occupancy type.

1. Exterior
    a. Only formal parking available to the whole building is on Chestnut Street. The paved playground area, that was once Union Street, may not be available pending division of land. Resurfacing required and proper delineation of Handicap & Van spaces. Given potential building population of more than 500, if gymnasium is to be used for Assembly purposes, more parking is required with approximately 2% of spaces being HDCP.
        i. Parking requirements for Fairhaven are 300 sf of gross floor area per parking space. There are 38,000 gsf in the combined buildings all floors.
        ii. 38000 gsf / 300 sf per car = 126 Car parking lot. Approximately 6 HDCP spaces required.
        iii. Total square footage needed for 126 Car Parking lot at 300sf (minimal) to 400sf per space including circulation/driveway space =37,800 sf – 50,400 sf.
    b. New graded landscape to the Pleasant Street door, whether or not it is used as a public entrance. Some walking surfaces in need of repair and replacement.
    c. Parking area needed adjacent to Pleasant Street door if it is to be used as a public entrance. Lot will require code required number and type of HDCP spaces.
    d. Union Street entry/exit in the middle of the building, between the classrooms and gymnasium will have to be ramped for egress – as of ADA 2010 all egress has to now be accessible – relative easy with a new ramp parallel to long axis of building and relocation of three risers and a portion of the slab.
    e. Emergency Egress from auditorium needs to be ramped and should be a double door
    f. Ramped landscaped access to Pleasant Street entry area – easily accomplished in landscape, possibly without the need for hand rails – Handicap parking at Southeastern corner in-lot and on street in front of entry. Van parking, signage needed.
    g. Pleasant Street Entry NB
        i. Threshold's may need to be replaced
        ii. Push button automatic doorway needed

2. Interior
    a. General to the New Building
        i. Should be sprinklered – If current city water supply is inadequate a reservoir needs to be installed to the capacity required – Pumps and pump room will need to be provided.
        ii. In general new fire alarming with visual and audio warnings
        iii. Weather vestibule required at all three ends of main hallway, if each door is to be a public entry.
        iv. Hardware into hazardous areas needs to have friction grip tactile handles
        v. All doorways on the any egress corridor need 45 minute rated doors with automatic closers and Electromagnetic door holders wired to alarm system. All glazing in doors needs rating for material and manner of securing glass in door.
        vi. All knob door handles need to be changed to lever handle.
    b. Weather Isolating Vestibule needed at Pleasant Street door
    c. Projecting display cases and Alarm/Electrical boxes project too far into hallways for blind people to be aware of. 4 inch maximum
3. Office
    a. Counter needs to have lowered area approachable by wheelchair
    b. Projecting water fountains need to be removed or set in to wall to allow 4 inch maximum protrusion
    c. Office Bathroom re-fixture (toilet, sink, mirror, towel dispenser and required grab bars installed)
    d. Office area occupation – 2 in reception, 3 offices – total occupation 5 people
4. Gymnasium
    a. Exit Door from Gym Floor to South side of building should be 6 foot door. Platform at exterior of this door would be flush to gym floor (it is now). Exit would require a ramp to grade.
    b. Stage
        i. Access by ramp or lift
        ii. New code approved handrails at stage steps
        iii. Curtains to be fire rated
        iv. New Rails at stage stairs in back.
    c. Classroom area
    d. Should be sprinklered
    e. Possible gymnasium and stage occupancy – Assembly usage – fixed seating- 700 people
5. Hallway
    a. Each of three ends to this hallway, if they are to be used as public entrances, needs an enclosed weather vestibule for energy code compliance. This would also allow egress isolation at the West end of the Hallway where there is likely to be a new Elevator and Egress Stair termination. The stairs rising to the OB first floor and OB basement areas need separation from their contiguous hallways of both the NB and OB.
    b. Non-flammable surfaces in Hallway. Flammability of ceiling undetermined.
    c. Automatic closers on doors

6. Stair to OB
    a. Non Code railings
    b. Non Code stairs-Stair treads dimensions between NB and OB are not to code, needs to corrected to proper ratio – 7" risers and 11" treads.
    c. Needs better fire separation from the rest of the hallway – current separation is by means of doors too far into the basement of the OB and too far into the first floor of the OB.
    d. Automatic closers on all doors – Electromagnetic door plates on doors that will be consistently left open wired to alarm system
    e. A clearer visual awareness of a direct egress to exterior needed at the West Hallway stair. A new stair/elevator area here will allow this. The current funneling of the main stair from the OB, and the stair up from the basement of the OB, and the NB hallway all exit to a 3 foot egress door. This should be a 6 foot door.
7. Hallway accessed toilets – Men's - 3 toilets, 2 urinals, one sink. Women's - 3 toilets, two sinks
    a. Entry door not wide enough
    b. Needs Grab bars
    c. Needs HDCP Toilet
    d. Needs ADA sinks & mirrors
    e. Reduced size due to HDCP equipment would allow 1 HDCP, 1 Ambulatory, 1 urinal 2 sinks but configuration has to change
    f. Radiator protrudes too far into path
8. NB (Addition) Hallway running East West against classrooms
    a. Obstacles in path – columns, radiators, bracketed shelves
    b. All hallway doors need to be 45 minute rated with rated glazing
9. Classrooms – 4 of similar configuration and size -
    a. All intermediate doors between classrooms would have to be 45 minute rated, including conjoining doors to bathrooms located between each classroom.
    b. All sinks are inaccessible and should be -1 per classroom
    c. All toilets are inaccessible but do not have to be -1 per classroom
    d. All Toilets rely on classroom sink for hand washing
    e. All doors need to have hardware changed to lever handled
    f. Columns don't appear to be fireproof and may need to be encased.
    g. Final classroom, furthest West, has an exterior door egress. This should be accessed by Hallway that is not part of the classroom but a continuation of the adjoining egress hallway so that there are two means of egress when leaving any classroom. This would be alleviated if other classrooms also had direct egress to exterior.
    h. Occupant load of the Classrooms are potentially above 50 persons and would be considered Assembly occupancy. If not reduced in size all doorways would have to reverse swing
    i. Occupant Load as Business Occupancy – 10 persons per classroom (at 100 sf per person). If used for any other occupancy, as education in some respect – this jumps to 80 (at 15 sf per person) and changes its occupancy class to Assembly.

This would also change egress requirements. Total Occupancy for classrooms – 40 to 320 persons or more.

Part 2 – 1885 Building (OB) – Total Occupancy is a maximum of 43 persons per floor if used as a Business Occupancy type. Approximately 140 person total.

1. Exterior
    a. Access is via two entries. One from the NB Western door onto the existing parking area, and the other by the original School door on the North side of the building and accessed by the Centre Street Sidewalk.
        i. Grade difference between the Centre Street sidewalk and the first floor is 5'10". The grade can be reconditioned to allow this to be reduced to a 5' which equals a 60 inch total vertical elevational change. This would require a 60 foot ramp at the code required 1 foot horizontal for each 1 inch vertical (1:12) plus a 5 foot level space every 30 vertical inches and a 5 x 5 turning area directional changes, and top of ramp. This would require a minimum ramp distance of 65 feet. Accommodation of an accessible path from Centre Street and from the adjacent parking area would be required. A re-grading of the existing entry paving, starting from sidewalk grade at Centre Street and ending at the base of a ramp is possible without the need for railings. The ramp from there to the level of the first floor would need railings. This could be done with sensitivity to the existing Historic nature of the building but would change the existing stone staircase and stone railings significantly and a significant cost as well. Current ADA code waivers might allow a variance for this. Internal fire egress is affected as it means any egress for persons with mobility problems would have only one means of egress from the OB. This would be to a new vertical circulation stair and elevator adjacent to the current NB West door/parking area.
        ii. No chairlift or elevator lobby is possible on the North side of the building without significantly and aesthetically harming the Historic façade.
        iii. Parking would be adjacent to the Centre Street door by a newly re-graded, paved, and painted parking area at the current location west of the building off of Chestnut Street.
        iv. Doorway access from OB entry at Centre Street and NB entry at Chestnut Street should be 6 foot out-swinging doors from interior weather vestibules.
2. Interior
    a. General
        i. The building does not meet current energy code and it is expected it will pass the 31% threshold in construction cost relative to assessed value that will cause full compliance of all codes.
        ii. There is currently no insulation in the attic which will need to be remedied and that surface covered
        iii. It is unknown if there is any insulation in the perimeter exterior walls.

iv. There is not insulation in the walls of the staircases as they are solid brick.
v. There is no rated fire separation between floors. This can be accomplished by placing a layer of fire rated gypsum board on it to achieve a one hour rating between floors.
vi. It is not known what the exterior wall to floor detail is and whether there is fire-blocking at the perimeter.
vii. There is no rated fire separation between classrooms and hallways so walls and doors/transoms will need to be reconditioned or replaced. There are through floor open air and heating chases that will need to be fit with fire-dampers if they are in use, or blocked if they are not.
viii. New smaller bathrooms should be provided for each floor. Building occupancy suggests that approximately two toilets per gender per floor will be sufficient. Locations for bathrooms on all floors, it is recommended each meeting accessible requirements. This would mean the two bathrooms would each have two toilets (or one urinal) in stalls; one would be a HDCP stall, one sink, and access to the main hallway.

b. Vertical Circulation and Egress
i. The OB has four egress stairs accessed by all levels to varying degrees of occupancy access.
ii. The stairs are 'twinned' in that they are equal and opposite to each other on the first and second floors and are reduced in capacity from the attic down and the basement up.
iii. The stair treads are unevenly dimensioned and are greater than the code required 7" maximum.
iv. The stairways are NOT fire-isolated from Hallways throughout with rated 45 minute doors and hourly rated walls as is required.
v. They are also composed of flammable materials.
vi. Existing handrails are not to code
vii. Three stairs should be replaced and walls and doorways conditioned for proper ratings. Two stairs are all that is needed and can be accomplished with a 44" wide stairway. Although this is the case it may be better for the replacement stairs to fit within the existing building shell. This would not compromise the structure. The front stair walls also support the Bell Tower so it is ill advised to change the footprint. There will be closet spaces within these stair towers that can remain as long as they have fire rated doors, are smoke/fire alarmed and subject to inspection so that no flammables are stored within.
viii. Automatically closing Electromagnetic release rated doors should be installed. The fourth stair, located either in the Southwest or Southeast rear extended portion of the OB contiguous to the NB demising wall, should be removed and replaced by an elevator.

c. Elevator
i. A new full sized elevator (with 88" cab width) is required for full access
ii. It would need to service the basement, first, second, and attic floors. This is possible by reconfiguration of one of the existing exit stairways with

loss of that stairway, which would not compromise the egress requirement of the building.

iii. It would be located within the current vertical egress stair on the South West corner of the South extended portion of the OB bordering on the NB.

iv. Access to the attic floor is possible depending on the size and exact location of the elevator. The third floor roof, at the stairway is lower than the main attic roof and clearances are minimal but possible.

v. The elevator would be a two door elevator with 5 stops. Full stops would be on the basement, first, second and attic levels of the OB and a mid-stop at the level of the NB. The mid stop level would have its door facing South, and at all other stops the elevator door would most likely face East pending design configuration.

1. The elevator would open to a new vestibule at the NB level with access to the West entry to Parking and access to a Hallway leading to the Pleasant Street side of the building.

d. Basement - The basement is comprised of storage spaces, maintenance office, mechanical rooms and bathrooms.

i. Basement could continue to be used for maintenance and storage, but because it has exterior windows can also by used for human occupation. Training/classrooms or offices are possible. Ten offices would suggest an active population of 10-20 people that would present no burden on egress.

ii. The existing bathrooms should be removed and smaller HDCP provided as listed above

iii. The new elevator installation and access to this level will cause a spatial reconfiguration of hallways and staircase access needs to allow isolation of the stairway from the basements function areas. Clear egress paths with no intervening locked doors suggests installation of an egress hallway with hourly rated assembly and doors.

e. First Floor

i. Isolated fire zoning of Hallway from Classrooms with fire rated walls, fire rated doors and frames.

ii. Closing or fire damping of existing venting needed.

iii. Rated ceiling

iv. Occupancy for Business would be 43 persons.

f. Second Floor

i. Repeats the requirements for the first and the general considerations above.

ii. Occupancy for Business = 43 persons

g. Third/Attic Floor

i. The current configuration is not amenable to a “Business” occupancy and it should not be used for an Assembly occupancy as half of it currently is with an existing theatre area.

ii. Window configuration and available natural light is below code required. New skylight can be placed without dramatic effect on the Historic architecture.

iii. 30 % of the attic is an existing theatre with clearance provided by the use of scissor trusses. The opposite side, representing more the same possible percentage is obstructed by a standard triangulated truss. This would have to be restructured to allow any use beyond storage. The height is significant and possibly made useful by a lofted area, which could not be used for purposes require accessibility.

iv. Staircases-

    1. There are two, currently closed, staircases to the North and one to the South. The Southern stair case was to access an apartment of unusual configuration which should be demolished. It is recommended that one egress stair on the North side and one egress stair on the South side be newly constructed and connected to egress stairs below in a continuous path. One stair can be removed for use as other needed space.

v. Occupancy for Business usage – approximately 35-43 persons depending on configuration.

Code Review Calculations & Cost Estimates

Provided by

3Point Design Architecture

Index/Glossary

OB	Old Building-1855 Building
NB	New Building - 1950's Addition
Does not include	Heating System, Fire or Security System, Asbestos or Lead Removal
	Sprinkling System, New Roofing, repair or maintenance to exterior
	Masonry walls, mold mitigation

Area and Work Required	Work	QTY	Unit Measure	Price/Unit	Unit	Cost of Work
Exterior Full Building Site- (NESW)						
Parking, paving and site work						
Centre Street	Removing existing sidewalk perimeter steps at Centre Street					$3,000
	Regrading Sidewalk Centre St. to OB stoop - concrete	1000	SF	$8.00	SF	$8,000
	New Entry Stairs and New Ramp made from new & original stone		1600		SF	$180,000
	New Sidewalk to Chestnut Street Lot		400 sf		SF	$4,000
	Repaving Chestnut Street Lot			$15/sf	SF	
	Landscape & planting to hide portion of ramp		Larger size Trees, bushes, grass, curbing			$8,000
Pleasant Street	regrading for accessible, no rail ramp from Pleasant St. Sidewalk to door		500 sf.			$4,000
	hand rails at entry slab		180 lf	$60/lf		$10,400
	New slab at sidewalk, relocated stairs		400 sf			$3,200
New Parking in South Lot on what was Union Ave.	Regrading		100 cars, 400 sf, 40,000sf			$80,000
	New Surface		40,000	$10 sf		$400,000
	Painting and Signage		100 cars	$50		$5,000
	Handrails at ramp		240 sf	60/lf		$14,400
South Entry Between Gym and Classrooms	New slab at exit area		80 sf			$1,000
	relocated/new stairs		40 sf			$2,000
	ramp to parking level		240 sf			$3,000
	Hand rails at ramp		80 lf	$60/ls		$4,800
West Lot on Chestnut Street	Regrading		40 cars, 400 sf / car=16000sf			$3,200
	New Surface		16000			$160,000
	Painting and Signage		40 cars			
Subtotal Site Work						**$894,000**

Interior-NB

General				
New Steel Windows to current energy code	Gymnasium Kalwall Windows - 50% Translucent	1040 sf of replacement Kalwall	$24	$25,000
	Pleasant Street Steel Windows	8 full height windows - 360 sf	$60 sf	$18,000
	Ribbon Windows throughout New Building	60 Ganged windows	$60 sf	$75,600
	New Chester Street Entry Window	4 windows	$60 sf	$6,000
Added Insulation	Roof included in roofing below			
	Possible addition of wall insulation on interor within new framed out wall	Also possible to add an exterior 'Dryvit' skin to insulate exterior w	6300 sf	$12,300
New Hardware for every door	New Lever Handled doors	38 doorways	$160 ea	$6,000
Automatic door closers	Both Fire alarmed magnetic, and standard fire rated mechanical closure	38 doorways	$200 ea	$7,600
New Floor surfaces throughout	Vinyl tile less Gym	10000 sf	$7 psf	$70,000
	remove existing tile	10000	$1	$10,000
Added roof insulaton with New roof surfacing	assumes use of existing deck for adhering insulation and membrane	14000 sf	$2.30	$32,200
	Membrane roof	14000 sf	$4	$56,000
	Edge and Perimeter Flashing	740 linear feet	14/lf	$10,360
Reopening and replacement of all skylighting	28 Skylights		1600/each	$44,800
Water fountains	Not included.			
Pleasant Street Entry				
Office Area/Reception	Replacement of office area with new reception	New exterior doors		$10,000
	New Rated doors into gymnasium (two sets)	wider than existing		$6,000
	Demolition of existing Office area			$4,000
	Reception Counters and Cabinetry			$10,000
Creation of New Bathrooms	New bathrooms adjacent to Gym/office area	Three Rooms		$75,000
	one child/parent/hdcp	1 fixture, 1 sink, I changing table		
	one mens	10 fixtures 3 sinks		
	one womens	10 fixtures 3 sinks		
Gymnasium/Theater	Stair/lift access	one lift to stage level, two stair		$25,000
	New 6' exit door with flush exit to ramp(priced above)			$10,000
	Refinihsed existing floor of Gym and Stage	5000 sf	$4/sf	$20,000
Chester Street Entry	New Stair from First NB to Basement OB, First NB to First OB	steel/concrete pan		$30,000
	New foyer Rated Egress Foyer	4 sets of 2 door/side light		$40,000
Renovation of Existing Bathrooms	Two Bathrooms-new surfaces, fixture locations, Male, Female	one HDCP, two std toilets, 2 sinks		$25,000
		one HDCP, two std toilets, 2 sinks		$25,000
Renovation of Classrooms	adapted to added office divisions with additonal hallways access			
	Sub division each classroom to two office rated s	250 linear wall	installed	$50,000
	demolition of existing bathrooms	addition of		$3,000
	additions of new sinks and cabinetry	four sinks /6 feet of cabinetry		$20,000
	some resurfacing of existing walls	4000 sf		$40,000
	Rated office entry doors with sidelights	Subdivision of classrooms and addition of rated hallway adds 6 doors		$18,000
Subtotal Interior NB				**$784,860**

1885 School Building Interior OB					
In General					
Insulation within exterior wall	as currently framed and foamed in existing wall		15,400 sf	2.30 /sf	$35,420
demolition of existing wall and ceiling surfaces	112 per floor per stair is brick 440 linear exterior perimeter per floor-		15400 for walls 18000 for celings	34000sf	$112,000
Insulation of Attic roof			7200 sf of roof surface	$1.50	$10,000
installing finished walls surfaces where none exist			1400 sf of wall surface	$6	$8,400
Removing walls surfaces and replacing		9700 sf wall surface on first, second, basement and attic levels		$3	$29,100
New attic flooring on unfinished areas			3500 sf	$10/sf	$35,000
Refinishing existing wood flooring		7500 sf per floor - approx. 19,000 total		$4/sf	$76,000
Does not inlcude alteration of Truss system					
replacement of all door hardware	lever handle knows		66 doors estimated	$160	$10,540
automatic door closers	on ratee doors only		32 fire rated door	$200	$6,400
Subtotal Interior OB					**$322,860**

Circulation				
Front Entry	new glazed entry to Centre Street exit.	6 foot door, transom and sidelights		$12,000
Elevator	Five Level, four floor, two door, hydraulic elevator with acute clearances	$45000 per level		$225,000
	includes preparation of the shaft, shaft wall, and hydraulic core install			
Staircases	Fire rated enclosure, demolition of some existing walls, continuous	12 fire rated doors, glazed		$36,000
	travel between basement and attic floor, 2 fire rated doors per stair	Total new wall surface 1400 sf	$6 sf	$8,400
	on two floors, one fire rated door on attic and basement level per stair	Total refinshed wall surface - 200 lf/fl = 5200 sf	$3	$16,000
	Enclosure wall surfaces (some surfaces are masonry and will need to	10 sections of concrete filled metal stair per stair - $1800 per section		$18,000
	have paint removed (lead), new railings, new stairs.			
Front Entry	new glazed entry to Centre Street exit.	6 foot door, transom and sidelights		$12,000
Basement	new exterior walls for insulation	included in General above		
	New interior walls for office and storage configuration	not to ceiling	1200 sf	$8,000
New bathrooms	2 gender per floor on first, second and attic floors. 6 total	One HDCP Toilet, One HDCP sink, grab bars and accessible doo	$15 k ea	$90,000
		gender		**$425,400**
New Steel Windows to current energy code	28 Arched Basement Windows of two sizes	$60 per sq. foot		$13,440
	40 large windows on each of two floors-first and second	$60 per sq. foot		$57,600
	20 windows of various sizes and shapes on first and second floors	$60 per sq. foot		$17,800
	12 windows in dormers	$60 per sq. foot		$23,000
	12 windows or various sizes and shapes on third floor	$60 per sq. foot		$108,009
	additon of 16 skylights		$1200 ea	$19,200
Subtotal Circulation				**$664,449**
Subtotal Construction				**$2,666,169**
Contractor profit and overhead			10%	$266,617
Soft Costs - Architect/Engineer			10%	$266,617
Contingency			15%	$399,925
Total to bring to code				**$3,599,328**

Code Review Cost Summary

Compiled by
Kirk&Company

Soft Code Compliance Costs	Cost/SF	Total Cost
Development Expense		
Site Control		$0
Remediation		$0
Site Work, Parking, Paving & Landscaping		$894,000
Interior Fit out Costs		
Original Building		$784,860
Addition		$322,860
Circulation Costs/Common Areas		$425,400
Envelope Repair Costs/Energy Code		$239,049
Construction Cost		**$2,666,169**
Soft Costs (Engineering, Architect, Legal)	10.00%	$266,617
Developer's Profit & Overhead	10.00%	$266,617
Construction Contingency	15.00%	$399,925
Total Cost to Bring to Code Compliance	**$83.31**	**$3,600,000**