EXISTING CONDITIONS ASSESSMENT
and BUILDING SYSTEMS EVALUATION

AT THE

WEST BARNSTABLE FIRE DEPARTMENT
2160 MEETINGHOUSE WAY
WEST BARNSTABLE, MA
for the WEST BARNSTABLE FIRE DISTRICT

MARCH 2, 2011
SUBMITTED BY:

BROWN LINDQUIST FENUCCIO & RABER
ARCHITECTS, INC.
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508-362-8382

YARMOUTHPORT, MA 02675
FAX 508-362-2828
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March 2, 2011

Joseph V. Maruca, Fire Chief  
West Barnstable Fire Department  
2160 Meetinghouse Way  
West Barnstable, MA 02668

RE: Submittal of Final Report of Existing Conditions Assessment  
West Barnstable Fire Department  
2160 Meetinghouse Way - West Barnstable, MA

Dear Chief Maruca:

We would like to thank you and your staff for the access, support and insight provided to us and our consultants during our recent site visits to the West Barnstable Fire Department.

Through our site visits and the input provided by you and your staff, we have been able to gain a good understanding of the building and site conditions, as well as the department operations and how the extended community is utilizing this facility in an ever increasing manner. Enclosed please find our final report of the existing conditions and preliminary recommendations, which represents a 100% completion level of all study tasks.

We look forward to receiving any final comments which you or the Prudential Committee may have, and upon funding of the first phase of improvements outlined herein, we will be pleased to submit a follow-up proposal for the final design, construction document preparation and construction of the renovation items outlined herein. Following your review, we would be happy to meet and discuss any specific items outlined in the report.

Please feel free to contact us if you have any questions or if you need any additional information.

Sincerely yours,

Richard Fenuccio  
President / Principal-in-Charge

RPF/ak
SUMMARY OF STUDY METHODOLOGY
STUDY METHODOLOGY & INTENT

In November 2010, Brown Lindquist Fenuccio & Raber Architects, Inc. of Yarmouthport and our engineering consultants Building Engineering Resources, Inc. (HVAC, Plumbing, Electrical and Fire Protection) and Allen & Major, Inc (Structural) were retained to conduct an evaluation of the current West Barnstable Fire Department building and site located at 2160 Meetinghouse Way in West Barnstable, MA.

In accordance with the District’s Request for Proposal dated July 14, 2010 the purpose of this evaluation is to:
1. Review the existing site & building conditions and functionality
2. Document and outline apparent building and systems deficiencies and problems
3. Provide a summary of high priority short term (0 – 3 years) and lower priority long term (5 years and beyond) recommendations and improvements to support the effective continued use of the facility.
4. Provide cost estimates of the improvements to guide future district funding requests and capital expenditures. It should be noted; however, that within the scope of this study, no selective demolition was completed and the observations made were based upon visible inspections and access to several concealed spaces.

In order to provide a thorough understanding of the current site and building, we have completed the following study tasks:

1. Obtained and reviewed all available original construction drawings(1987) of the site development and building construction by Doak Martin, Architect.
2. Performed several on-site visual and photographic inspections in conjunction with our consulting Structural and MEP (Mechanical, Electrical and Plumbing) Engineers.
3. Conducted interviews with various WBFD staff to discuss facility related problems and to gain an understanding of the operational and functional issues experienced due to the facility conditions.
4. Contacted the primary service vendors to discuss their knowledge of recent building performance issues, especially as related to the MEP (Mechanical, Electrical and Plumbing) Systems.
5. Prepared up-to-date “as-built” floor plans, elevations and section drawings showing the present building layout and notated these drawings to show major deficiencies.
6. Reviewed the Barnstable Zoning Ordinance to determine general lot and building conformance with the present zoning requirements.
7. Reviewed the Massachusetts State Building Code and Rules and Regulations of the Massachusetts Architectural Access Board in order to determine the general building code compliance and accessibility to disabled individuals.
EXECUTIVE SUMMARY

As outlined in our Scope of Services dated 9/29/2010, Brown Lindquist Fenuccio & Raber Architects, Inc. (BLFR) and our Consulting Engineers have performed an existing conditions assessment / building systems evaluation at the West Barnstable Fire Department located at 2160 Meetinghouse Way in West Barnstable, MA and prepared this report. The purpose of this report is to identify existing building defects, deficiencies and areas of deterioration, discuss the cause and effect, provide recommendations and cost estimates for repairs and prioritizing of the repairs based on their severity and their impact on the department for village residents.

The West Barnstable Fire Department (WBFD), as well as the other fire departments within the Town of Barnstable, is not officially overseen by the Town Manager and Town Council. The WBFD is an independent fire district created through special acts of the State Legislature to provide fire protection to the village of West Barnstable. The West Barnstable Fire Department protects an area of approximately 13.5 square miles with a year round population of approximately 3,500 citizens. It responds to in excess of 500 emergency calls per year including motor vehicle accidents, emergency medical services and fires of all types. The WBFD protects the Cape Cod Community College Campus with a student population of 6000 as well as the YMCA membership of approximately 4000. In addition they provide mutual aid support to surrounding communities as needed for major emergencies.

The West Barnstable Fire Headquarters building was constructed in 1988 on a 1.47 acre parcel. Since that time, the WBFD has made significant additions to its fire equipment to protect the community and keep up with current medical and life saving technology. Until recently, the WBFD headquarters building had undergone only limited upgrades or improvements.

Over the last several years, the following alterations have been completed by the WBFD District:

1. The existing cedar shingle roofing was removed and replaced with new sheathing and architectural asphalt shingles and numerous structural connections were provided at the roof truss system to improve up-lift and seismic resistance and overall structural performance.
2. A wastewater collection “tight tank” was installed and connected to the floor drains at the apparatus bays as mandated by the State Plumbing Code.
3. The original solid overhead doors at the apparatus bays were replaced with mostly glazed heavier duty doors.
4. The sewage disposal system leaching field was replaced in 2006.
5. A new water well has been installed to support both domestic and fire suppression water requirements.
6. New hot water heater and boilers were provided.

The ± 10,108 gross square foot building, as it stands today, is nearly identical to the building first constructed in 1988 and consists of an unprotected wood framed structure with cedar shingle siding, clad wood framed windows and steep sloped roofs. After reviewing the original construction drawings, it is clear to us that the WBFD building is constructed in a manner similar to that of a typical custom, but “light duty” wood framed single family residence. At 23 years old many of the materials and systems of the building are experiencing problems and are in need of repair or replacement.
The function of the building has also changed significantly over the years. When first constructed, the building was used primarily by volunteer fire personnel, emergency service workers and related equipment. As the community has grown, the WBFD has transformed and altered with this growth to continue to be able to provide protection and services of all types. In various cases, this has involved adding equipment to provide needed protection. However, as the community has grown and the daily demands of the Fire Department have changed and intensified, the facility has essentially remained the same.

In terms of mission staffing and call volume, the WBFD in 1987/88, was a nearly all-volunteer call department consisting of 25 volunteers, 2 career firefighters, a part-time fire chief and no administrative staff. The emergency call volume was 305 and there were six emergency vehicles. In sharp contrast, the department in 2010/2011, is a 24/7 manned operation consisting of 51 volunteers, 5 career firefighters, a full time chief, full time administrator, and part-time accountant/bookkeeper. There are nine vehicles, two trailers and the department responded to 567 calls in 2010 alone.

Although not part of the original intent of this study, we have been asked to consider supplementing this study with preparation of a Space Programming Analysis and Conceptual Design Plan which would:

1. Evaluate the current and anticipated personnel, building uses and space utilization
2. Develop space use projections
3. Prepare a schematic (conceptual) site & building design plan which would address known space and functional deficiencies and
4. Prepare a preliminary construction cost estimate and project budget based upon a preferred design plan which would be used for future planning and funding requests.

Today, in addition to its public safety mission, the building maintains a prominent role as a de facto “community building” with a wide range of public meetings and events occurring on the property that are not directly related to Fire Department uses. For example, the West Barnstable Civic Association holds periodic meetings at the WBFD; along with special events such as spaghetti dinners. Professional and public education such as EMT, CPR and AED training occur at the WBFD on a regular basis to increase public safety. Even AmeriCorps volunteers work at the facility to organize various programs and events sponsored by the WBFD.

A review of event registration forms on file with the administration office indicated that a total of thirty one (31) separate community groups and organizations, have requested meeting or event space at the Fire Department over the past eighteen months (See Exhibit ‘A’). These groups have ranged in size from three to over fifty people. While the Fire Department clearly sees itself as a civic facility and an extension of the community for which it serves; the facility and parking lot is clearly not suited nor laid out properly with sufficient spaces to accommodate current or expanded public assembly use.

During the fall / winter of 2010-11 several on-site investigations of the building and site were conducted by BLFR and our consulting Structural and MEP engineering team in order to visually review existing conditions and identify problem, or potential problem areas. During field investigations, BLFR staff as well as staff members from our consultants Building Engineering Resources, Inc (Mechanical, Electrical, Plumbing) and Allen & Major Associates, Inc (Structural)
toured accessible interior and exterior areas and interviewed building personnel about past and present problems at the facility. Current building and site conditions were observed and recorded. An inventory of the conditions observed is provided on the Annotated Drawings that accompany this report.

Based on the conditions noted during our investigations, various repairs and improvements are recommended to maintain the building in a comfortable, safe and serviceable condition. The following list outlines our initial findings and recommendations and is prioritized with those items requiring prompt attention placed under the high priority ‘A’ section. Given the conditions noted, and available funds, the following scope of work is recommended and is prioritized as outlined below:

**High Priority / Recommended Immediate or Short-Term Approach (0-3 years)**

*Items are considered high priority because they represent non-code compliant or poor/deteriorating condition, or a potential safety concern.*

1.01 Jack the floor framing back into place under the Rescue Room and Ramp, provide steel angles anchored to the foundation wall to provide adequate structural support at existing beams and repair or replace damaged floor finishes above.

1.02 Replace columns that support the large beam beneath the Training Room and include larger column cap plates to provide proper support below main carrying beam.

1.03 Perform structural repairs and provide new finishes to the floor area adjacent to the rear entrance (area of previous water infiltration & dry rot) to provide an adequate floor surface.

1.04 Remove and replace all exterior doors with heavier duty commercial doors to resolve operational problems and functional problems (water leakage) and to prevent additional building damage and accessibility issues. During replacement, ensure that doors swing in the direction of egress travel to correct existing violations. Also ensure that new doors comply with current Massachusetts Architectural Access Board (MAAB) requirements.

1.05 Remove and replace deteriorated rear bulkhead with better grade fiberglass unit.

1.06 Modify the existing toilet rooms as necessary to comply with current MAAB requirements and make areas accessible to, functional for, and safe for use by persons with disabilities. Include additional grab bars, turning space in front of sink related to door swing, sink / faucet configuration and fixture position as required to meet current standards for accessibility.

1.06(a) Replace the existing Kitchen to comply with current MAAB requirements and make area accessible to, functional for, and safe for use by persons with disabilities. Include lower cabinet heights, suitable knee spaces and suitable appliances / controls as required to meet current standards for accessibility. Existing cabinets and countertops are low quality residential type and in poor condition.

1.07 Provide code required first floor insulation where missing with possible blown-in foam insulation which will improve moisture control.
1.08 Provide joint filler/joint sealant at perimeter of apparatus slab to reduce water infiltration especially into crawl space. Correct water leakage through waste piping from Apparatus Bay slab into the Crawl Space.

1.09 Provide mechanical ventilation for the crawl space as required by Code. Fan to energize when humidity levels reach a pre-determined level. Provide an air conditioning and/or dehumidification system for the Basement as needed, pending conditions following basement waterproofing work.

1.10 Due to fire suppression system connection to well and concealed piping, conduct flow testing to verify water supply, run time, pressure and flow to assist with more detailed evaluation of the sprinkler system and determine compliance with NFPA 13 and Building Code.

1.11 Replace existing non-compliant Ramp at Main Entrance to comply with current Massachusetts Architectural Access Board (MAAB) requirements. Include landings, transitions, handrails and edge protection as required to meet current standards for accessibility.

1.12 Remove and reinstall settled concrete slabs / steps at entry doors. Provide suitable fill below slabs to prevent further settlement.

1.13 Modify the existing Reception Area to comply with current MAAB requirements and make area accessible to, functional for, and safe for use by persons with disabilities. (See #1.15 too)

1.14 Begin a sidewall shingle & exterior trim replacement program beginning with worst exposure (south & west side). Consider adding layer of additional rigid insulation to exterior sheathing to improve air leakage and thermal performance. Also replace damaged exterior mill work and trim. Utilize painted cellular PVC mill work and trim to match historic profiles and prevent similar deterioration in the future. Provide suitable flashings below doors to prevent water entry and deterioration of underlying components. (Note: The current OKH Committee has a “policy” against the use of PVC)

1.15 Construct a new secure and accessible entrance vestibule to increase security of the building, provide public waiting area and increase energy efficiency. Consider expanding Radio/Reception Room in conjunction with vestibule addition and incorporating access control system to monitor personnel entry and exits.

1.16 Provide sub-surface stormwater collection system and connect to downspouts currently surface discharging.

1.17 Provide new handrails at both sides of all stairs to provide proper height, configuration and continuity at landings, etc. Modify existing guards at tops of stairs to provide proper height to meet current Building Code requirements.

1.18 Repair missing draftstopping / fireblocking at the chimney Replace narrow door(s) with wider unit(s) to meet Egress requirements of the Building Code.

1.19 Replace narrow door(s) with wider unit(s) to meet Egress requirements of the Building Code.
1.20 Replace missing window screens and broken window glass.

1.21 Provide adequate fire separation assemblies between the various use groups of the facility in accordance with current Massachusetts Building Code Requirements (Apparatus vs. Office/Residential and Office vs. Basement Mechanical Room).

1.22 Complete repairs necessary to stop water leakage into the basement of the building. This could include significant site excavation required to control leakage, correct site grading issues and storm water collection issues that may contribute to current leakage. Consider foundation waterproofing and footing drains, underslab waterproofing, and underslab drainage as necessary to prevent leakage due to known poor soils and elevated seasonal groundwater.

1.23 Clean, inspect and if needed, replace the existing clogged n/w catch basin to provide suitable site drainage and increased parking capacity. Conduct soil testing and if high water table/poor soils are encountered, consider design of new surface-level bio-retention drainage system within green space.

1.24 Remove and replace existing deteriorated concrete driveway apron to provide a suitable driving surface for fire apparatus. Discuss feasibility of some tree removal at west street edge to improve visibility.

1.25 Replace original highly worn carpets throughout building with low pile high traffic commercial carpets.

1.26 Begin developing space analysis and conceptual design study to address current space and use deficiencies, also develop a site plan to show potential expanded parking lot to alleviate pressure on existing 27 space lot and space for potential storage building (light trailer etc...).

1.27 Replace non-functioning split system air conditioning systems with a high efficiency ductless Mitsubishi City-Multi air conditioning system or similar Variable Refrigerant Volume (VRV) system. This system is similar to the existing but several indoor units can be connected to a single outdoor condensing unit. Each indoor unit would be sized properly to maintain cooling set points and additional units would be added in other occupied offices. Each indoor unit would have a new dedicated thermostat to maintain comfort of the occupants. The new thermostats would be 7-day programmable to increase efficiency.

1.28 Extend ductwork from one of the existing Energy Recovery Ventilators ERV’s to serve the Radio/Reception Room & the Assistant Chief’s office which are currently not receiving the Code required amount of outside air.

1.29 Replace the ERV serving the Training Room with one sized to meet the minimum outside air requirements to serve all spaces in 1.28 above.

1.30 To insure and improve good air quality, consider replacing the existing flexible ductwork with hard ductwork which can be cleaned in the future. The existing flexible ductwork cannot be cleaned.

1.31 Rebalance existing Toilet exhaust systems as required to assure code minimum airflow is being achieved. Provide new exhaust fans for 1st floor (No. 127) Toilet Room and Janitors Closet.
1.32 Provide a combustion air system for the boilers and other gas-fired equipment in the basement; combustion air to be taken from outdoors. This can be achieved by a louver with minimal ductwork and motorized dampers. With the introduction of outside air, the Utility Room will need to be heated as well. Provide radiant unit(s) off of existing forced hot water piping for basement heat.

1.33 Provide A/C zone or dehumidification system at existing basement to maintain set humidity levels.

1.34 Provide code required mechanical ventilation at existing crawlspace with automatic fan.

1.35 Provide air vents in the hot water piping at the highest points in the system to eliminate system being air bound, which is a chronic problem according to service records and vendor input.

1.36 Repair or replace leaking boiler pump.

1.37 Replace damaged baseboard heaters.

1.38 Replace the hot water unit heaters in the Apparatus Bay with gas-fired (non-hydronic) unit heaters to correct the problems with the existing heating system and provide spare capacity to handle any Proposed Addition.
   ➢ Provide similar gas-fired unit at poorly heated Shop Area
   ➢ This will also free up boiler capacity for any expansion

1.39 Provide an additional zone of heating on the second floor to increase efficiency and comfort, especially at office with minimal heat.

1.40 Replace all thermostats with 7-day programmable thermostats to increase efficiency.

1.41 Provide new diesel exhaust recovery system (type and preference as coordinated with WBFD) for Apparatus Bay engine exhausts. Provide “purge system” with outside air louver and motorized damper to provide make-up air to the Apparatus Bay, sequenced damper to open when fan is energized or alternative ceiling-mounted filtration units as recently bid by WBFD.

1.42 Service or replace the (currently inoperable) existing water softening system and place back in use to improve water quality and protect existing water supply piping, fittings and fixtures, keep pipes clearer with less corrosive elements and allow appliances to work more efficiently. Utilize a maintenance plan for the water softener to keep in good operating condition.

1.43 Replace high volume / inefficient and inoperable plumbing fixtures with lower volume high efficiency fixtures and faucets to save water, reduce load on the septic system and save water in accordance with Code required water conservation measures. If sanitary pitch problems exist as expected but is a concealed condition, or the line has any clogging, use of low flow fixtures could make known problems worse.

1.44 Provide drinking water via a drinking fountain as required by Code.
1.45 Install grease interceptor at kitchen sink to minimize grease input to new septic leaching area.

1.46 Facility does not have a hot water recirculation system and circulator pumps should be installed to improve performance and reduce water consumption.

1.47 Review unprotected cross connections between potable and non-potable water connections and revise accordingly.

1.48 Conduct additional well flow test using pump and 2" water service to building to verify pump curve values.

1.49 There is a sump pit and pump at the basement level but point of discharge is unknown. The leaking discharge piping at the pump connection needs to be repaired.

1.50 Continue routine pumping of septic and tight tanks to maintain optimal performance (per Cape Wide Enterprises, last pumped in 2008).

1.51 Consider incorporating basement level floor drains with trap primers (dependent upon known ground water) and sewage ejector system. Drains to receive indirect waste from heating equipment, ice maker, laundry and general area drainage.

1.52 Consider having JP Macomber / Cape Wide perform camera survey of all concealed waste and underground sanitary piping to determine if any restrictions exist.

1.53 Augment the existing Fire Alarm system with a new addressable fire alarm control panel to provide adequate fire protection to the building. (Existing system is not NFPA 71 compliant)

1.54 Provide a new Code compliant kitchen hood exhaust system with sidewall exhaust fan, welded and insulated ductwork with cleanouts, Ansul fire suppression system and make-up air unit.

1.55 Relocate computer server rack out of basement to secure and dry main level location. Create dedicated server closet.

1.56 Review, test and repair/replace lighted exit signs to provide properly functioning devices.

1.57 Provide additional convenient outlets at spaces with heavy use and equipment connections.

1.58 Emergency lighting by standby generator is not code-compliant. Provide battery powered units for emergency lighting.

1.59 Possible “PCB” containing fluorescent lighting ballasts should be replaced with new electronic ballasts and higher efficiency T8 lamps.

1.60 Consider adding additional perimeter site lighting at known darker areas of the site while remaining cognizant of abutting (south) single family residence.

1.61 Install 3 way switched light fixture at basement stair where none exists.
Moderate Priority (3-5 years)

Items are considered moderate priority because they address a potential code violation safety hazard, will prevent further deterioration to the WBFD structure or property, and/or would result in improved performance or cost savings via energy savings:

2.01 Remove / replace cracked & settled concrete apparatus apron. (See 1.24 also)

2.02 Repair cracks and similar damage to existing Apparatus Bay slab. Provide new resinous flooring system to provide a slip resistant surface.

2.03 Run existing natural gas piping (already on site) over to the existing propane fired Emergency Generator and convert unit to a natural gas system, as required to correct current multiple on-site violation (simultaneous propane / natural gas). Remove existing above ground propane tank.

2.04 If building expansion is planned, an electrical service upgrade from 200 amps to 400 amps will be required.

2.05 If building expansion or major renovation is planned, consider replacement of all sanitary waste and vent piping and steepen pitch to reduce clogging. New toilets and faucets will be required at this time as well.

2.06 Provide dedicated non-potable water system to existing hose and valve outlets.

Low Priority

Items that are considered low priority due to the fact that they are pre-existing, not exhibiting deterioration or safety concern at this time and currently functioning as intended or offer only aesthetic improvement

3.01 Repaint rusted generator enclosure and when required replace existing propane fired Emergency Generator with a natural gas fired unit to provide a long term, energy efficient standby power system and remove non-code compliant “duel fuels” on-site. (Note: 125 amps of stand-by power (±2.5 watts per S.F.) is adequate for light use but would not be sufficient for heavy, sustained loading).

3.02 Restore / replace cracked plaster and previously water damaged plaster and related ceiling / wall finishes. Refinish all building interior walls, ceilings and woodwork as a matter of periodic maintenance.

3.03 Provide hot & cold water pipe insulation, pipe labels and flow arrows to clarify plumbing systems and improve energy efficiency. (Low cost item which could easily be done in conjunction with other plumbing work)
Budgetary construction cost estimates have been prepared for the recommended repairs / improvements noted above. The estimates are preliminary and are provided to give the Prudential Committee an “order of cost magnitude” indication as to what the construction costs may be given the existing conditions. The estimates are based on present day labor and materials costs and include a reasonable contingency for potential unforeseen work. For purposes of projecting future costs, an increase of 5 to 10 % per year, depending on economic and bidding climate, is realistic and recommended.

The estimates include all recommended repairs / improvements as discussed above. The estimate also includes all insurance, bonds, permits and costs for related items. The priority ranking and estimated costs have been reviewed with the WBFD Staff and Prudential Committee and have been reorganized as follows:

### Recommended Scope of Work Items & Preliminary Construction Cost Estimate (Version Two)

The following preliminary construction cost estimate for "Priority A" projects is based upon direct input provided by commercial-level general contractors and sub-contractors who are experienced in public renovations projects, similar to the West Barnstable Fire Station, and our experience on similar renovation type public projects. This estimate is exclusive of project soft costs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Priority</th>
<th>Recommended Scope of Work Description</th>
<th>Est. Cost w/o contingency or contractor mark-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.01</td>
<td>A</td>
<td>Jack the floor framing back into place under the Rescue Room and Ramp, provide adequate structural support and repair or replace damaged floor finishes</td>
<td>$7,250.00</td>
</tr>
<tr>
<td>1.02</td>
<td>A</td>
<td>Replace columns that support the large beam beneath the Training Room to provide proper support below main carrying beam</td>
<td>$1,100.00</td>
</tr>
<tr>
<td>1.03</td>
<td>A</td>
<td>Structural Repairs and provide new finishes to the floor area adjacent to the rear entrance</td>
<td>$2,550.00</td>
</tr>
<tr>
<td>1.04</td>
<td>A</td>
<td>Remove and replace all exterior doors with heavier duty commercial doors to resolve operational problems and functional problems</td>
<td>$16,100.00</td>
</tr>
<tr>
<td>1.05</td>
<td>A</td>
<td>Remove and replace deteriorated rear bulkhead with better grade fiberglass unit</td>
<td>$4,700.00</td>
</tr>
<tr>
<td>1.07</td>
<td>A</td>
<td>Provide code required first floor insulation where missing with possible blown-in foam insulation which will improve moisture control</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>1.08</td>
<td>A</td>
<td>Provide joint filler/joint sealant at perimeter of apparatus slab to reduce water infiltration especially into crawl space</td>
<td>$2,800.00</td>
</tr>
<tr>
<td>1.10</td>
<td>A</td>
<td>Due to fire suppression system connection to well and concealed piping, conduct flow testing to verify water supply, run time, pressure and flow to determine compliance with NFPA 13 (quote per Yankee Sprinkler)</td>
<td>$1,000.00</td>
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<tr>
<td>1.11</td>
<td>A</td>
<td>Replace existing non-compliant Ramp at Main Entrance to comply with current Massachusetts Architectural Access Board (MAAB) requirements (see Item 1.15 &quot;Priority B&quot; Project List below)</td>
<td>-</td>
</tr>
<tr>
<td>1.12</td>
<td>A</td>
<td>Remove and reinstall settled concrete slabs / steps at entry doors</td>
<td>$6,200.00</td>
</tr>
<tr>
<td>1.16</td>
<td>A</td>
<td>Provide sub-surface stormwater collection system and connect to downspouts / Correct negative drainage condition at front yard</td>
<td>$16,800.00</td>
</tr>
<tr>
<td>1.18</td>
<td>A</td>
<td>Repair missing draftstopping / fireblocking at the chimney</td>
<td>$250.00</td>
</tr>
<tr>
<td>1.24</td>
<td>A</td>
<td>Remove and replace existing deteriorated concrete driveway apron to provide a suitable driving surface for fire apparatus (OSHA?)</td>
<td>$29,150.00</td>
</tr>
<tr>
<td>1.26</td>
<td>A</td>
<td>Expand parking lot (16 spaces) to alleviate pressure on existing 27 space lot and space for potential storage building per Conceptual Site Plan dated 3/23/2011</td>
<td>$50,000.00</td>
</tr>
<tr>
<td>1.27</td>
<td>A</td>
<td>Replace non-functioning split system air conditioning systems with a high efficiency ductless Mitsubishi City-Multi air conditioning system or similar Variable Refrigerant Volume (VRV) system. The new thermostats would be 7-day programmable to increase efficiency.</td>
<td>$85,000.00</td>
</tr>
<tr>
<td>1.32</td>
<td>A</td>
<td>Provide a combustion air system for the boilers and other gas-fired equipment in the basement; combustion air to be taken from outdoors. Provide radiant unit(s) off of existing forced hot water piping for basement heat.</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>1.33</td>
<td>A</td>
<td>Provide A/C zone or dehumidification system at existing basement to maintain set humidity levels.</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>1.34</td>
<td>A</td>
<td>Provide code required mechanical ventilation at existing crawlspace with automatic fan</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>1.35</td>
<td>A</td>
<td>Provide air vents in the hot water piping at the highest points in the system to eliminate system being air bound</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>1.36</td>
<td>A</td>
<td>Replace leaking boiler pump</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>1.38</td>
<td>A</td>
<td>Replace the hot water unit heaters in the Apparatus Bay with gas-fired (non-hydrionic) unit heaters to correct the problems with the existing heating system Ø Provide similar gas-fired unit at poorly heated Shop Area</td>
<td>$12,000.00</td>
</tr>
<tr>
<td>1.39</td>
<td>A</td>
<td>Provide an additional zone of heating on the second floor to increase efficiency and comfort, especially at office with minimal heat</td>
<td>$4,000.00</td>
</tr>
<tr>
<td>1.40</td>
<td>A</td>
<td>Replace all thermostats with 7-day programmable thermostats</td>
<td>$750.00</td>
</tr>
<tr>
<td>1.41</td>
<td>A</td>
<td>Provide new diesel exhaust recovery system for Apparatus Bay engine exhausts (see prior bids received-not included) Note: Project on hold until bid protests resolved.</td>
<td>$0.00</td>
</tr>
<tr>
<td>1.42</td>
<td>A</td>
<td>Service or replace the (currently inoperable) existing water softening system and place back in use to improve water quality and protect existing water supply piping, fittings and fixtures (allowance only)</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>1.45</td>
<td>A</td>
<td>Install grease interceptor at kitchen sink to minimize grease input to new septic leaching</td>
<td>$2,900.00</td>
</tr>
<tr>
<td>1.46</td>
<td>A</td>
<td>Facility does not have a hot water recirculation system and circulator pumps should be installed to improve performance</td>
<td>$4,100.00</td>
</tr>
</tbody>
</table>
1.47  A  Review unprotected cross connections between potable and non-potable water connections and revise  $1,400.00

1.48  A  Conduct additional well flow test using pump and 2” water service to building (See 1.10 above)  -

1.49  A  There is a sump pit and pump at the basement level. The leaking discharge piping at the pump connection needs to be repaired  $1,400.00

1.50  A  Continue routine pumping of septic and tight tanks to maintain optimal performance  N/A

1.52  A  Consider having Canco or Cape Wide perform camera survey of all concealed waste and underground sanitary piping to determine if any restrictions exist.  $350.00

1.55  A  Relocate computer server rack out of basement to secure and dry upper level location. Create dedicated server closet. (Cost does not include computer/radio/communications vendor work)  $2,500.00

1.57  A  Provide additional convenient outlets at spaces (Allowance for 10 outlets)  $2,000.00

1.59  A  Possible “PCB” containing fluorescent lighting ballasts should be replaced with new electronic ballasts and higher efficiency T8 lamps (Quantity to be confirmed/allowance only)  $2,500.00

1.60  A  Consider adding additional perimeter site lighting at known darker areas of the site (lights to be fully shielded & cut-off to minimize light spill-over)  $9,800.00

1.61  A  Install 3 way switched light fixture at basement stair where none exists  $500.00

2.03  A  Run existing natural gas piping (already on site) over to the existing propane fired Emergency Generator and convert unit to a natural gas system  $4,000.00

2.04  A  If building expansion is planned, an electrical service upgrade from 200 amps to 400 amps will be required  $15,000.00

Subtotal - Direct Costs  $308,100.00

+ General Conditions (9% of Cost)  $27,729.00

+ Contractor Performance Bond (1% of cost)  $3,081.00

+ General Contractor Fee (6% of cost)  $18,486.00

CONSTRUCTION SUBTOTAL  $357,396.00

1.23  A  Clean, inspect and if needed, replace the existing clogged n/w catch basin to provide suitable site drainage. Conduct soil testing and, consider design of new surface-level bio-retention drainage system within green space in conjunction with parking lot expansion. (soil test only)  $3,200.00

1.62  A  Conduct Space Needs Analysis, Conceptual Design Study and Cost Estimate for potential Headquarters Building expansion.  $23,075.00

1.62(a)  A  Prepare conceptual site feasibility of Station 3 (1633 Rte. 6A W. Barnstable) including soil perc test and septic system capacity analysis  $17,800.00

GRAND TOTAL  $401,471.00
The following preliminary construction cost estimate for "Priority B" projects is based upon direct input provided by commercial-level general contractors and sub-contractors who are experienced in public renovations projects, similar to the West Barnstable Fire Station, and our experience on similar renovation type public projects. This estimate is exclusive of project soft costs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Priority</th>
<th>Recommended Scope of Work</th>
<th>Est. Cost w/o contingency or contractor mark-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.06</td>
<td>B</td>
<td>Modify the existing toilet rooms as necessary to comply with current MAAB requirements.</td>
<td>$16,340.00</td>
</tr>
<tr>
<td>1.06(a)</td>
<td>B</td>
<td>Replace the existing kitchen to comply with current MAAB requirements. Include lower cabinet heights, suitable knee spaces and suitable appliances/controls</td>
<td>$33,300.00</td>
</tr>
<tr>
<td>1.09</td>
<td>B</td>
<td>Provide mechanical ventilation for the crawl space as required by Code. Fan to energize when humidity levels reach a pre-determined level (See 1.34 below)</td>
<td>-</td>
</tr>
<tr>
<td>1.13</td>
<td>B</td>
<td>Modify the existing Reception Area to comply with current MAAB requirements and make area accessible (See 1.15)</td>
<td>-</td>
</tr>
<tr>
<td>1.14</td>
<td>B</td>
<td>Begin a sidewall shingle &amp; exterior trim replacement program beginning with worst exposure (south &amp; west side).</td>
<td>$60,900.00</td>
</tr>
<tr>
<td>1.15</td>
<td>B</td>
<td>New Vestibule / Radio Room Addition: Construct a new secure and accessible entrance vestibule to increase security of the building, provide public waiting area and increase energy efficiency. Consider expanding Radio/Reception Room in conjunction with vestibule addition and incorporating access control system (Estimated 390 SF Addition - Allowance only to be confirmed in Design Phase)</td>
<td>$150,000.00</td>
</tr>
<tr>
<td>1.15(a)</td>
<td>B</td>
<td>A new rear vestibule / mudroom (staff entry, closet, trash/recycling area)</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>1.17</td>
<td>B</td>
<td>Provide new handrails at both sides of all stairs to provide proper height, configuration and continuity at landings</td>
<td>$2,200.00</td>
</tr>
<tr>
<td>1.19</td>
<td>B</td>
<td>Replace narrow door(s) with wider unit(s) to meet Egress requirements</td>
<td>$2,800.00</td>
</tr>
<tr>
<td>1.20</td>
<td>B</td>
<td>Replace missing window screens and broken window glass</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>1.21</td>
<td>B</td>
<td>Provide adequate fire separation assemblies between the various use groups of the facility in accordance with current Massachusetts Building Code Requirements</td>
<td>$22,800.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Description</td>
<td>Cost</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>1.22</td>
<td>B</td>
<td>Complete repairs necessary to reduce water leakage into the basement of the building. Consider foundation waterproofing and footing drains, underslab waterproofing, and underslab drainage as necessary to prevent leakage due to known poor soils and elevated seasonal groundwater (additional estimate pending from waterproofing contractor)</td>
<td>$22,000.00</td>
</tr>
<tr>
<td>1.25</td>
<td>B</td>
<td>Replace original highly worn carpets throughout building with low pile high traffic commercial carpets</td>
<td>$10,200.00</td>
</tr>
<tr>
<td>1.28</td>
<td>B</td>
<td>Extend ductwork from one of the existing Energy Recovery Ventilators ERV's to serve the Radio/Reception Room &amp; the Assistant Chief’s office</td>
<td>$7,800.00</td>
</tr>
<tr>
<td>1.29</td>
<td>B</td>
<td>Replace the ERV serving the Training Room with one sized to meet the minimum outside air requirements to serve all spaces</td>
<td>$4,000.00</td>
</tr>
<tr>
<td>1.30</td>
<td>B</td>
<td>Consider replacing the existing flexible ductwork with hard ductwork which can be cleaned in the future</td>
<td>-</td>
</tr>
<tr>
<td>1.31</td>
<td>B</td>
<td>Rebalance existing Toilet exhaust systems. Provide new exhaust fans for 1st floor (No. 127) Toilet Room and Janitors Closet.</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>1.37</td>
<td>B</td>
<td>Replace damaged baseboard heaters</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>1.41</td>
<td>N/A</td>
<td>Provide new diesel exhaust recovery system for Apparatus Bay engine exhausts (see prior bids received-not included) Project on hold</td>
<td>-</td>
</tr>
<tr>
<td>1.43</td>
<td>B</td>
<td>Replace high volume / inefficient and inoperable plumbing fixtures with lower volume high efficiency fixtures and faucets to save water, reduce load on the septic system and save water in accordance with Code required water conservation measures</td>
<td>$9,020.00</td>
</tr>
<tr>
<td>1.44</td>
<td>B</td>
<td>Provide drinking water via a drinking fountain</td>
<td>$1,960.00</td>
</tr>
<tr>
<td>1.50</td>
<td>B</td>
<td>Continue routine pumping of septic and tight tanks to maintain optimal performance</td>
<td>N/A</td>
</tr>
<tr>
<td>1.51</td>
<td>B</td>
<td>Consider incorporating basement level floor drains with trap primers (dependent upon known ground water)</td>
<td>N.I.C.</td>
</tr>
<tr>
<td>1.53</td>
<td>B</td>
<td>Augment the existing Fire Alarm system with a new addressable fire alarm control panel to provide adequate fire protection to the building</td>
<td>$18,000.00</td>
</tr>
<tr>
<td>1.54</td>
<td>B</td>
<td>Provide a new Code compliant kitchen hood exhaust system with sidewall exhaust fan, insulated ductwork, Ansul fire suppression system and make-up air unit.</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>1.56</td>
<td>B</td>
<td>Review, test and repair/replace lighted exit signs (Allowance for 8)</td>
<td>$800.00</td>
</tr>
<tr>
<td>1.58</td>
<td>B</td>
<td>Emergency lighting by standby generator is not code-compliant. Provide battery powered units for emergency lighting. (Allowance for 6 T.B.D.)</td>
<td>$900.00</td>
</tr>
<tr>
<td>2.02</td>
<td>B</td>
<td>Repair cracks and similar damage to existing Apparatus Bay slab. Provide new resinous flooring system to provide a slip resistant surface</td>
<td>$31,450.00</td>
</tr>
<tr>
<td>2.05</td>
<td>B</td>
<td>If building expansion or major renovation is planned, consider replacement of all sanitary waste and vent piping and steepen pitch to reduce clogging</td>
<td>$37,500.00</td>
</tr>
<tr>
<td>2.06</td>
<td>B</td>
<td>Provide dedicated non-potable water system to existing hose and valve outlets</td>
<td>$750.00</td>
</tr>
<tr>
<td>2.07</td>
<td>B</td>
<td>Remove and replace 38 existing, original wood and vinyl clad windows with more energy efficient windows. ($2000 per unit for disposal and new installation)</td>
<td>$76,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construct a new HC accessible platform lift &amp; hoistway for 2nd floor access (not included at this time - Allowance of <strong>$75,000</strong> for external addition)</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Subtotal - Direct Costs</td>
<td>$554,220.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ General Conditions (9% of Cost)</td>
<td>$49,879.80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Contractor Performance Bond (1% of cost)</td>
<td>$5,542.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ General Contractor Fee (6% of cost)</td>
<td>$33,253.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td><strong>$642,895.20</strong></td>
<td></td>
</tr>
</tbody>
</table>
In summary, while portions of the site and building are in relatively good condition overall, various areas of the WBFD Headquarters building are showing signs of age, structural fatigue and deterioration. If these conditions are left unattended, more widespread deterioration and failures are anticipated to occur. Based on the age of the building, many of the items requiring repair are due to systems reaching the end of their useful service life. Assorted repairs and improvements are recommended to maintain the building’s performance characteristics and preserve its appearance and character of the building.

Building Codes have also changed over the years and based on the Public Safety nature of the building, the affected systems should be upgraded to meet current Codes. Various repairs / improvements are discussed and represented within this report. Viable solutions to the current problems are outlined in general but additional design and engineering work will be required to fully document the extent of work required to address each condition.

In addition to the miscellaneous repairs and improvements recommended at this time, the use / function of the building has changed over the past two decades and the building has not been modified to keep up with these changes. Reconfiguration of various areas of the building as well as consideration for the expansion of the building are now recommended to accommodate these changes. A detailed Space Analysis and Concept Plans of the recommended space alterations and additions can be provided under a separate design agreement.
Preliminary Outline of Space or Use Deficiencies

Based upon our review of the current site development and internal organization of the existing spaces, as well as soliciting staff input at a meeting on February 1, 2011, the following represents our understanding of the basic space and/or use deficiencies at the Fire Department:

1. Lack of a controlled Entry Vestibule for security, access control and waiting area of public visitors and exposure to weather.

2. Very small Radio/Reception Office which is serving as a staff dayroom/office space with no acoustical separation to other spaces. Minimal size prevents necessary functions (i.e. staff gathering, mailboxes, bulletin boards, file cabinets, report writing space, storage…). Despite the dispatch functions being provided by the County, this space needs to still function as an internal communications office for pager radio, text message control etc…)

3. Public access to “Rescue Room” is highly problematic (i.e. public is brought through apparatus bays and has access to hazardous conditions and materials). A separate Public Consult/Blood Pressure space should be provided.

4. Lack of a dedicated Decontamination Room with proper cleaning facilities off of apparatus.

5. There is more staff than gear lockers within the apparatus area. There is no dedicated Gear Locker Room and increasing gear is stored on walls and movable locker carts.

6. Battery charging area needed within Apparatus Bay Area

7. Lack of dedicated EMS Supply Closet or Linen Storage adjacent to ambulance area.

8. Lack of general business office space and storage. There is a clear need for private:
   - Accountant & Treasurer Offices
   - District Clerk Office
   - AmeriCorp / Fire Corps Staff Office

9. Lack of dedicated Conference Room for smaller12-18 person meetings, fire prevention officer-plan reviews… (Note: Original Chief’s Conference Room has become Lieutenant Fire Prevention Office)

10. Central Meeting/Training Room lacks space definition and is open to general circulation and meeting disruption. Public meeting space has increased dramatically since the station became “fully manned”.
    - Needs to become a more defined “Classroom/Training” space with web-conferencing capability and updated audio-visual systems.
    - The space is rated for 43 occupants but is functionally tight with even 30-35 people.
    - This space should be modified or relocated to accommodate up to 50 occupants.

11. Lack of general fire department Staff Work Area or Reference Library space for report writing, studying and exam preparation, storage of reference materials and computer/printer.
12. Due to lack of general equipment and emergency response materials storage, the Shop Space has stopped functioning as a workshop and is used primarily for the air recharge station and storage space only.

13. The Existing Bunk Room is wide open and lacks:
   - Privacy between men and women
   - Acoustical separation
   - Capacity for 7-12 average overnight volunteers during a storm event
   - Personal effects storage or lockers
   - Desk/work space
   - Significant volunteer overnight stays

14. Existing Kitchen space is very limited in size, storage and ability to accommodate dining for more than 4-6 people.

15. Second floor Fitness Room is a Conference/Storage/Catch-All space and should be reconsidered in terms of available headroom, and appropriate fitness equipment. Relocating the existing conference table and stored items will allow this space to return as a “Fitness / Staff” Area.

16. The building lacks a Hose Drying Tower or other means of drying hoses; however, more fire departments are utilizing hoses that do not require drying and can be stored on racks.
NOTATED 11 x 17 DRAWINGS & PHOTOGRAPHS OF EXISTING CONDITIONS
SUPPLEMENTAL REPORTS FROM 
CONSULTING ENGINEERS 
(BUILDING ENGINEERING RESOURCES, INC.)
<table>
<thead>
<tr>
<th>External (Non WBFD) Organizations using facility from 6/09-1/11</th>
<th>Approx. # of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parrish Acres Board Mtg. &amp; Annual Mtg.</td>
<td>10-25</td>
</tr>
<tr>
<td>2. Barnstable County – CC Coop Extension</td>
<td>+/- 30</td>
</tr>
<tr>
<td>3. Fowler Pest Control</td>
<td>12</td>
</tr>
<tr>
<td>4. Meetinghouse Farm</td>
<td>10-12</td>
</tr>
<tr>
<td>5. CERT</td>
<td>35-40</td>
</tr>
<tr>
<td>6. Boy Scouts of America / Pinewood Derby</td>
<td>+/- 50</td>
</tr>
<tr>
<td>7. W. Barnstable Historical Society</td>
<td>30-40</td>
</tr>
<tr>
<td>9. Public design meeting (Barnstable DPW) for Oak St. reconstruction</td>
<td>+/- 25</td>
</tr>
<tr>
<td>10. Hydrant Committee</td>
<td>3</td>
</tr>
<tr>
<td>11. Barnstable Agricultural Commission</td>
<td>6-8</td>
</tr>
<tr>
<td>12. Comfort Zone Camp</td>
<td>25-30</td>
</tr>
<tr>
<td>13. Lombard Trust Advisory Committee</td>
<td>6-8</td>
</tr>
<tr>
<td>14. Weekes Crossing Homeowners Association</td>
<td>+/- 35</td>
</tr>
<tr>
<td>15. West Parish Family School</td>
<td>+/- 50</td>
</tr>
<tr>
<td>16. W. Barnstable Village Festival Committee</td>
<td>+/- 20</td>
</tr>
<tr>
<td>17. Americorps of Cape Cod (Red Cross First Aid/CPR Training)</td>
<td>+/- 25</td>
</tr>
<tr>
<td>18. Cape Cod DART – Disaster Animal Response Team (Disaster sheltering for companion animals)</td>
<td>70</td>
</tr>
<tr>
<td>19. Town of Barnstable Fire Prevention Meeting</td>
<td>15-20</td>
</tr>
<tr>
<td>20. (CC) American Red Cross</td>
<td>20</td>
</tr>
<tr>
<td>21. Cape &amp; Islands EMS / Training &amp; Operations Committee</td>
<td>20</td>
</tr>
<tr>
<td>22. Cape Cod Chapter – HRHS (National Railway Historical Society)</td>
<td>15</td>
</tr>
<tr>
<td>23. Hunter Hill Residents Association / Annual Meeting</td>
<td>20-30</td>
</tr>
<tr>
<td>24. Old King’s Highway Regional Appeal Committee</td>
<td>10</td>
</tr>
<tr>
<td>25. Girl Scout Daisy Troop</td>
<td>15</td>
</tr>
<tr>
<td>26. 4th of July Parade Meeting</td>
<td>10</td>
</tr>
<tr>
<td>27. Coast Guard Heritage Museum / Board Meeting</td>
<td>18</td>
</tr>
<tr>
<td>28. Sandwich Chamber of Commerce</td>
<td>Varies</td>
</tr>
<tr>
<td>29. WB Neighborhood Watch</td>
<td>+/- 20</td>
</tr>
<tr>
<td>30. WBCA – By-Law Committee</td>
<td>5</td>
</tr>
<tr>
<td>31. Barnstable Quarterback Club</td>
<td>12-18</td>
</tr>
</tbody>
</table>