Historic Buildings Condition Assessment for:

The Town of Westford

73 Main Street – (Formerly the William E. Frost School)

65 Main Street – Roudenbush Community Center

170 Plain Road – Old Nabnasset School

May 10, 2013

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EXECUTIVE SUMMARY

May 10, 2013

At the request of the Town of Westford, Gienapp Design along with its consultants conducted a facilities condition assessment for three buildings; The Roudenbush Community Center, (RCC), at 65 Main Street, the William E. Frost School, (Frost), at 73 Main Street, and the Old Nabnasset School, (Old Nab), at 170 Plain Road.

The buildings are currently being leased from the Town by the Roudenbush Community Center, which primarily uses the buildings for child care, including all day care, before and after school care and community programs, for all ages (at RCC).

The intent of this study is to provide the Town with an assessment of the conditions and deficiencies of the buildings and provide a plan of action for short and long term planning and budgeting for capital repairs and improvement.

Based on our observations, the three buildings are all structurally sound. The condition of the exterior envelope varies at each building. The masonry at Old Nab has deteriorated and is need of repointing. The exterior envelope at Frost needs the least maintenance, the Roudenbush Community Center falls somewhere in between. Roofs at all facilities are in need of replacement.

All three buildings do not comply with A.D.A. and M.A.A.B accessibility requirements. The construction of ramps and lifts / elevators will be required. Reconfiguration of existing interior spaces will be necessary, including the upgrading of toilet facilities. Also addressed is the means of egress in each building via metal fire escapes.

We have made recommendations for site improvements, including repairing and resurfacing the drives and parking areas. There is an opportunity for landscaping upgrades as well, at all three facilities due to necessary accessibility site work.

Mechanically, existing systems need to upgraded to meet code minimums for fresh air and energy conservation. Electrical systems also need to be upgraded for code compliance, including better controls and upgrades for occupant safety and energy efficiency.

This report also addresses the need for fire suppression systems, upgrades in fire alarm systems, security concerns and backup power generation issues.

The following descriptions of existing conditions and recommendations are supplemented with photo documentation. At the end of this report, design options and cost estimates are attached.

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EXISTING CONDITIONS AND RECOMMENDATIONS

William E. Frost School – 73 Main Street

Existing Conditions:

The Frost School is a two-story building, three bay, Colonial Revival structure with a ridge hip roof. It is a rectangular building with a projecting central bay on the front façade. Entrances are on either side of the bay and are covered by flat roof, one-story porches. The West entry porch is used as the primary entrance. Porches are supported by grouped columns at the corners on plinth blocks. The building is clad in wood clapboard; the roof is slate and copper. The foundation is constructed of cut granite. The building was constructed in 1908 and is located in the Westford Center Historic District, listed on the National Register in 1998.

1. *Exterior Envelope:*

According to maintenance records, the exterior siding and trim was removed down to the existing sheathing in November 2007. New pre-primed cedar clapboards and trim was installed over new air infiltration barrier, and stained. Exterior porches and columns were also replaced. In 2004 existing windows were replaced with 47 new vinyl windows.

The standing seam copper roof at the eaves are deteriorating and are in need of replacement. There are some areas of the slate roof that are missing and cracked.

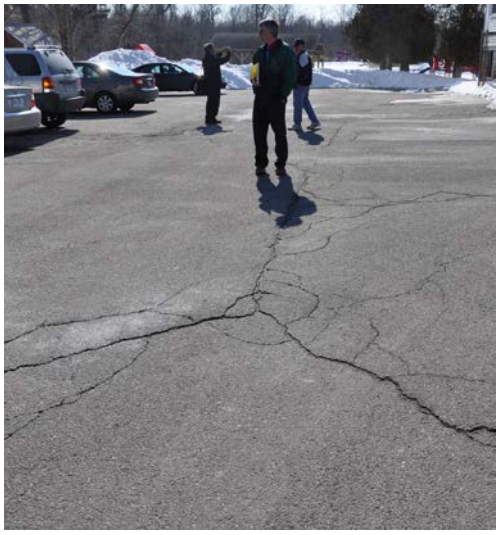
Copper gutters are in fair condition. Gutters at the East porch need to be replaced due to deterioration.

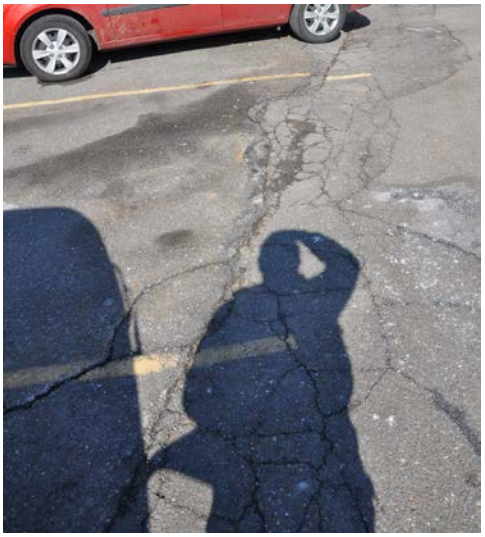
Downspouts around the building do not extend down to the ground causing rainwater to splash. There is also a missing downspout at the Northwest corner at the main roof. We recommend that downspouts be extended and either splash blocks or diverters be attached.

2. *Site:*

The paving at the parking lot and drives are deteriorated. There are many cracks, ruts and pot holes. There is also no accommodation for handicap access to the building.

It is our recommendation that the cracks and pot holes be repaired, paving in the parking lots and drive should be scarified and resurfaced.





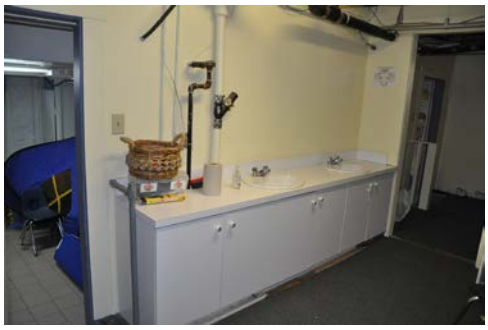
Also the grade will need to be raised to meet the entrance level to provide an accessible entrance.

Emergency egress is achieved via a metal fire escape which has rust and in need of repainting, while not ideal, can be used. It is recommended that an enclosed stair structure be constructed. Visual inspection indicates the rust has not compromised the structure.

3. *Interior:*

The Basement level is being used as day care for infants and toddlers. There are currently two areas at the front of the building which have toilet stalls.

Lavatories are not in the same room and are located out in the open in a corridor between the two day care rooms. Part of the toilet rooms is also being used as storage. There also is a sump pump with exposed wiring in one of the rooms.



One enters the building at a grade level vestibule and can either take stairs down to the Basement level or up to the First floor.

The two grand stairs are on either side of a staff room, which also contains a small toilet room and a storage closet. Three classrooms are off one central corridor. West and central classrooms share a small toilet room. The East classroom has its own dedicated toilet. Part of the East classroom was subdivided to create a small office off the corridor.

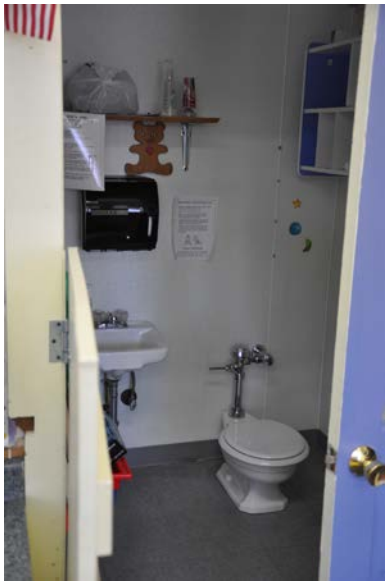
The second floor plan is similar to the first floor, except the three classrooms share only one toilet room. An office is located at the front bay between the two stairways. Access to the Attic is via a panel in the ceiling.

4. *Accessibility:*

The building is not handicap accessible. A lift or elevator should be installed accessing all levels. Toilet rooms are also are not accessible as well. Children's toilet rooms need to be enlarged to meet code. Also, unisex accessible toilets need to be constructed on all three levels for staff &/or visitors.

Stairs do not meet current code. It is probable that a code waiver can be obtained to allow the stairs to remain intact. Handrails at the walls can be upgraded at a minimum.

Enlarge existing toilet rooms



Typical stair.

Recommendations:

The main entrance should be reconfigured to create equal access to the building to all visitors including able bodied and non-able bodied. A handicap lift or elevator is required to be constructed serving all levels of the building.

Toilet facilities also should be upgraded.

Metal fire escapes at rear should be removed and replaced with an enclosed stair tower, as they are inappropriate and potentially unsafe for use by the current occupancy.

Slate roof and copper roofing at eaves also should be replaced including new underlayment, including ice and water shield. Unused ventilation shafts to be removed, and new roof structure and sheathing to be constructed to fill the void by the removal of the shafts.

Gutters at the porch roofs have failed and should be replaced with new copper gutters and downspouts.

Site improvements should include repaving parking areas and driveways, and landscaping upgrades.

Reconfigure spaces to accommodate new elevator, toilets, egress stairs and required corridors.

Upgrade interior finishes as necessary. Door hardware should be upgraded to lever type hardware.

See Consultants' reports for mechanical, plumbing and electrical recommendations.

Roudenbush Community Center – 65 Main Street

Existing Conditions:

The Roudenbush Community Center is a three-story, Romanesque Revival structure. The original building is a wood framed building sitting on a cut granite foundation. The walls are clad in wood shingles, and wood trim. Roof is hipped with large dormers at the front and rear, with smaller dormers on the side elevations. The roof material clad in slate and copper. The cupola is clad in wood shingles and the roof is copper. The gymnasium is situated at the rear of the building, and walls are also clad with wood shingles and appear to be recently replaced. The roof is a flat membrane roof , pitched to the rear to copper gutters & downspouts. The original building was constructed in 1897, and located in the Westford Center Historic District.

1. ***Exterior Envelope:***

The cedar shingle siding is in good condition, except for a few areas which were damaged from the removal of some utility wires at the front left corner of the building. This area should be repaired.

The cut granite foundation is in need of repointing, cleaning & replacement of missing stones in select areas around the building.

Figure 1 Missing mortar & Stones – East Elevation

Exterior trim needs to be scraped, and repainted around the entire building. Any damaged wood to be replaced.

Window trim at all window openings need to inspected. Any areas of deteriorated trim / sill to be replaced. Substrate to be examined for moisture infiltration. Replace any damaged sheathing. Re-flash around window openings. The windows are vinyl with insulated glazing and were installed at the gym in 2006. In 2007 new windows were installed in the rest of the building.

Also observed were several areas on the East and West elevations where the siding at the gymnasium are is too close to grade. These areas to be re-graded to keep the siding a minimum of 8” above the grade.

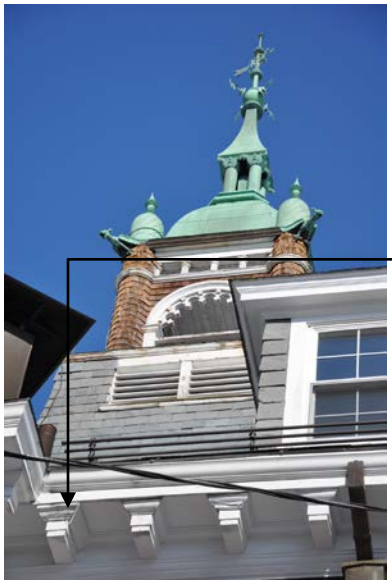
Grade too close to siding. Re-grade to maintain an 8” min. Similar on opposite side of building.

Downspout on the rear of the gym was overflowing at the pipe to the perimeter drains. Perimeter drains should be unclogged.

Metal fire escapes have deteriorated significantly, railing heights and stair widths are potentially unsafe and inappropriate for use by the current occupants. It is recommended that they be removed and an enclosed stair tower be constructed.

At certain areas of the main roof slate shingles are loose and cracked. It has also been observed by Town staff that shingles are falling off roof onto the ground below. We recommend replacing the entire roof with new slates. Copper accessories to be such as existing ridge caps, finials should either be carefully removed and reinstalled or have new ones made to match the existing. New snow guards to be installed. Integral gutter systems should be relined. Entire substrate to have new roofing felt, and ice & water shield at the eaves, rakes and valleys. Any damage sheathing should be replaced.

Replace or repair decorative brackets and soffits.



The cupola siding, slate roof and trim has deteriorated and needs to be replaced. The copper roof (dome) and ornament should be inspected.

2. Site:

Observations of the parking reveal cracking and crumbling due to freeze/thaw cycles and settling due to traffic use. Holes and cracks need to be filled and repaired. Entire paving should be scarified and resurfaced.

3. *Interior:*

The basement / grade level house the mechanical rooms and some office spaces. The gymnasium is located at the rear of the building at grade level. There is a ramp connecting the gym and grade level to the basement level. Identical stairs are located on each side of the building serving all floors.

The first level contains some class and meeting room areas as well as the main office immediately off the front vestibule. Another stair at the rear accesses the gym.

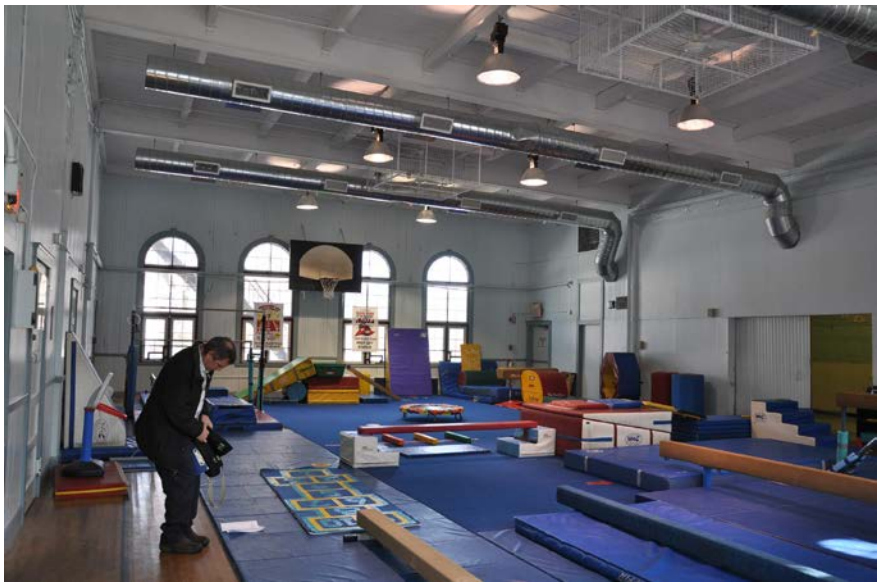
The second level contains two large classrooms at the rear, one classroom at the front which is divided into three sections, one section containing kitchen equipment. There is also an exposed utility sink in the main corridor and a counter with an under counter dishwasher as well.

Third floor is currently being used as storage. Finishes on the walls and ceilings are wood.

Other than the third floor, wall and ceiling finishes are plaster. Second floor classrooms have suspended acoustical tile ceilings.

Located at intermediate landings between the second and third floor at each stair, there exist small toilet rooms. Larger toilet rooms are located at the landings at the side entrances at grade level. None are accessible. There are no toilet facilities on the third floor.

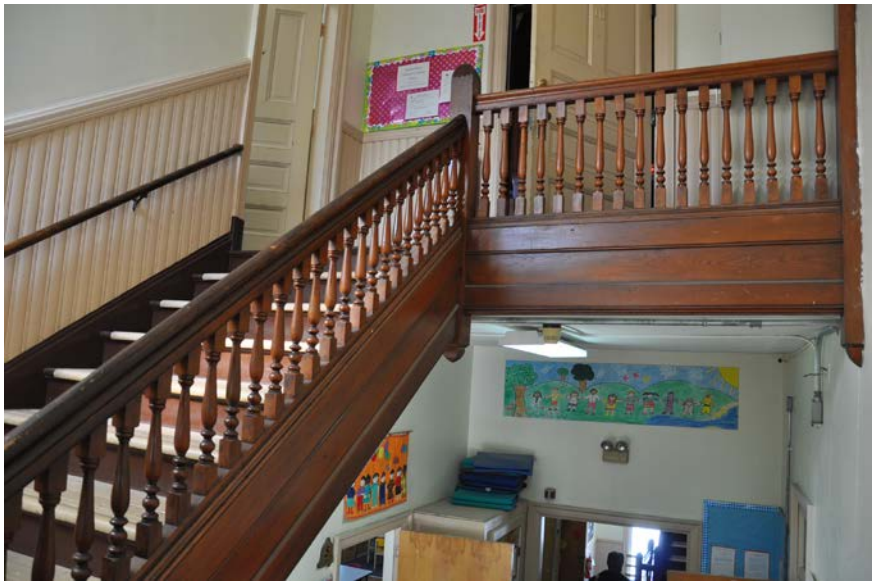
Interior view of Gymnasium



Patch and repair interior finishes.

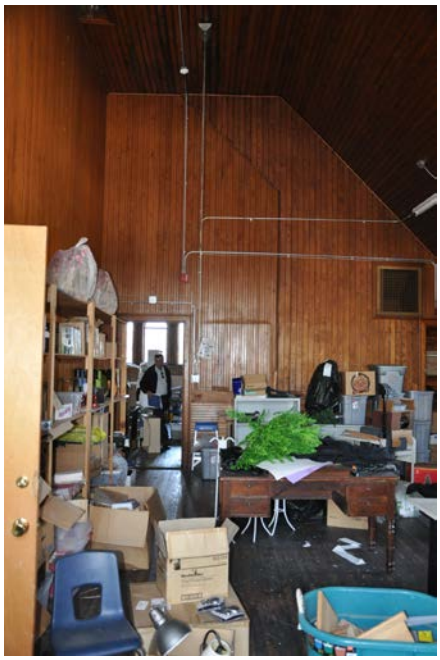
Classroom at first floor, upgrade lighting, refinish wood floors, re-paint, walls, ceilings and trim.

Existing West stair to be removed to accommodate new elevator. Identical stair at East to remain, provide new handrails at wall to meet code.



View of an abandoned high velocity HVAC system to at third floor to be removed.

Rooms at third floor are currently used as storage.



4. Accessibility:

There are two locations that are designated as accessible. One is the Westside entrance. The first floor is served by an antiquated chair lift. The second location is at the Westside of the Gym. This serves the gym and basement level. The second and third floors are not accessible to handicapped persons.

There are two unisex accessible toilets in the building. One on the First floor off the Avis Hooper Lounge. The other toilet is located in the Basement level.

Recommendations:

The main entrance should be reconfigured to create equal access to the building to all visitors including able bodied and non-able bodied. A handicap lift or elevator is required to be constructed serving all levels of the building.

Toilet facilities also should be upgraded.

Metal fire escapes at rear should be removed and replaced with an enclosed stair tower, as they are inappropriate and potentially unsafe for use by the current occupancy.

Slate roof should be removed and replaced. Cupola should be re-sided, substrate should be inspected and replaced as required with new air barriers, flashings, etc to provide water tight construction.

Equipment such as sinks, counters and other equipment in paths of egress travel should be removed to maintain a clear path of travel.

Reconfigure spaces to accommodate new elevator, toilets, egress stairs and required corridors.

Upgrade interior finishes as necessary. Door hardware should be upgraded to lever type hardware.

See Consultants' reports for mechanical, plumbing and electrical recommendations.

Old Nabnasset School – 170 Plain Road

Existing Conditions:

170 Plain Road (Old Nab) is a two-story masonry building with a flat roof, built in 1922. The exterior is constructed of brick and with stone cornices and accents. One enters the building by way of two separate entrances on either side of the front façade at grade level. Like the other two building in this study, the entrance level is half way between the Basement and Main level.

1. Exterior Envelope:

There are major areas of the building, especially on the south elevation where the masonry joints at the brick and stone cornices have failed. Moisture is getting in the masonry cavity from the cornices behind the brick veneer.

Windows are vinyl insulated and were installed in 2008. The seals around the window openings are in good condition, with no evidence of water

infiltration into the interior. Periodic inspection of sealants should be done to maintain integrity of the openings.

The roof is a single-ply membrane which was installed in 1994 as well. Seams were redone in 2007. The roof membrane is nearing the end of its lifespan and warranty. The roof is pitched to drain to the rear of the building to copper gutters and downspouts. Brick and stone parapet walls surround the roof at the front and side elevations.

Main level classrooms exit to the exterior via metal fire escapes. They are in need of painting. While structurally sound, they are inappropriate and potentially unsafe for use given the occupancy of the building.

2. *Site:*

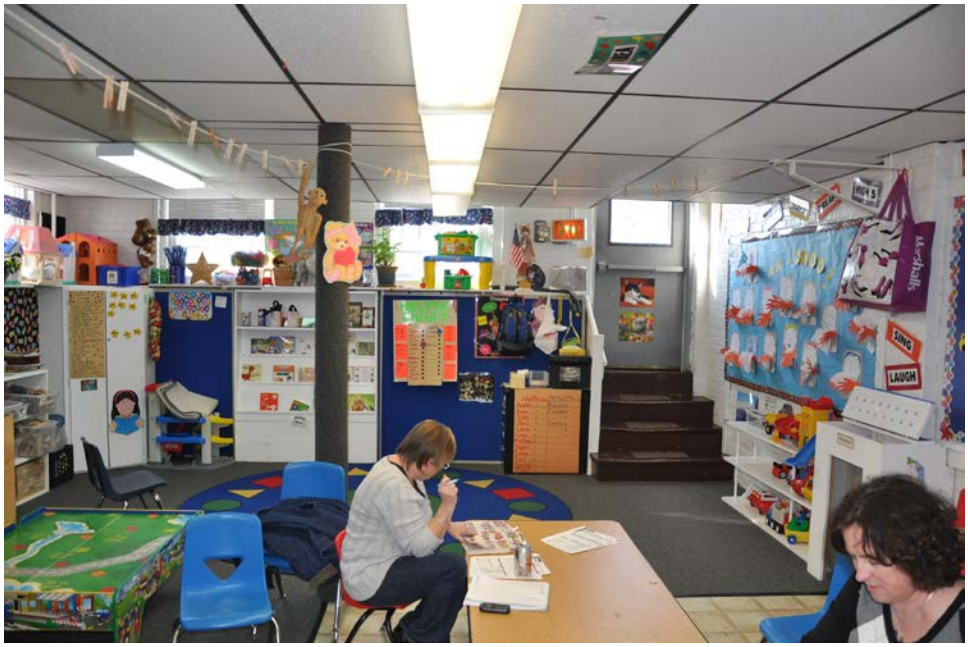
The parking lot and driveways begin from the South, wrap around the rear of the building, and continue to the north. Behind the parking lot, are Town owned ball fields.

As with the previous two building in the study, the paving has numerous cracks an ruts. Re-grading and resurfacing is recommended along with some landscaping upgrades.

3. Interior:

There are a total of four classrooms in the building, two on each floor. The Main level is organized with the two classrooms at the rear of the building off one corridor. Offices and one toilet room are located off the corridor at the front of the building.

Classrooms on both levels have suspended acoustical tile ceilings.



The Basement level is below grade and renovations in 1994 included the installation of a wheelchair lift as well as upgrades to toilet rooms. The wheelchair lift only serves this level. At the time our visit, the lift and toilet stalls were being used to store school supplies. Two classrooms flank the boiler / mechanical room and the room with the stair and wheelchair lift.

The interior finishes consist of carpet on the floors in the classrooms. Toilet rooms and miscellaneous spaces have vinyl sheet goods / tile.

4. Accessibility:

Besides the wheelchair lift at the Basement, there is not any other parts of the building that is accessible. Toilet rooms in the Basement contain accessible toilet stalls. Both of which are cluttered with storage.

Recommendations:

A common entrance should be created to create equal access to the building to all visitors including able bodied and non-able bodied. A handicap lift or elevator is required to be constructed serving all levels of the building.

Toilet facilities also should be upgraded.

Metal fire escapes at rear should be removed, as they are inappropriate and potentially unsafe for use by the current occupancy.

Exterior masonry to be re-pointed. Flashing at cornices checked and replaced as necessary.

Existing membrane roof to be replace along with associated flashing.

Copper gutter at rear to be replaced.

Reconfigure spaces to accommodate new elevator, toilets, egress stairs and required corridors.

Upgrade interior finishes as necessary. Door hardware should be upgraded to lever type hardware.

See Consultants' reports for mechanical, plumbing and electrical recommendations.

CONSULTANTS' REPORTS

Mechanical & Plumbing

William E. Frost School – 73 Main Street

EXISTING CONDITIONS:

The building is heated by a natural gas fired steam boiler located on the ground floor. The boiler is controlled by a wall mounted thermostat located in the first floor hallway. There is a 40 gallon gas fired water heater located on the ground floor providing domestic hot water to kitchenette sinks and toilet rooms.

The ground floor has steam radiators that provide the majority of the heating for this level. There are two classrooms and each classroom has an electric wall heater to provide additional heat. Each classroom also has through the wall a/c unit providing cooling. The ground floor has two toilet rooms. One toilet room has three capped sanitary connections on the floor and one active toilet and the other toilet room has three active toilets. Outside the toilet rooms are two hand sinks. Each classroom also has a kitchenette.

The first and second floors each have three large classrooms across the back of the building. The floors are connected by two stairwells. There is a ceiling fan at top of each stairwell. The first and second floors are heated by steam radiators and unit ventilators. There are nine window a/c units that are installed and removed at the start and end of each cooling system. There is a toilet room in each classroom but not all are active. The first floor has a teacher's room in the front area of the first floor and a storage room on the second floor directly over the teacher's room.

Overall, the plumbing fixtures need to be upgraded as to fixture type, bathroom size, and inadequate ventilation. The window a/c units are old and undersized for the space that they are cooling and are very inefficient.

RECOMMENDATIONS:

- Install a boiler control package with remote temperature sensors and an outdoor air reset (Heat-timer Platinum MPC series)This will allow the boiler to operate more efficiently to match the heating demands of the building. The boiler is a Weil McLain model LGB-8 series installed in September 2007. The boiler is in good condition and should be remain in service.
- Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit to provide the code required outdoor CFM per person. This unit would provide ducted fresh air to each class room.
- Remove the existing window a/c units and replace them with new ductless split high efficiency ac units.
- Complete renovation of the toilet rooms, including fixtures, ventilation and exhaust system, to bring the toilet rooms up to code.

Roudenbush Community Center – 65 Main Street:

EXISTING CONDITIONS:

65 Main Street is 4 story building consisting of a ground, first, second and third floors. The building is primarily heated by a natural gas fired steam boiler located on the ground floor. The boiler is controlled by a wall mounted thermostat located in the first floor hallway. There is a 50 gallon gas fired water heater located on the ground floor providing domestic hot water to kitchenette sinks and toilet rooms.

The ground floor level has a gym in the rear portion of the building. The gym is heated by three gas fired hot air furnaces with duct work overhead. There is no outside air ventilation and cooling in the gym. The front part of the ground floors has office areas that are heated by a high velocity ducted heating and cooling unit with supplemental electric baseboard. The high velocity heating and cooling unit has a hot water coil and a dx coil with a matching air cooled condenser located outside. There is a hot water Viessman series Atola boiler providing hot water to this hot water coil. The boiler was also sized to handle a future heating and cooling unit located on the third floor. The ground floor has two toilet rooms (Men's and Women's) and a handicap toilet. All toilet rooms are active and have sinks located inside of the room. The handicap toilet is in good condition.

The first floor has three classrooms and two office area, the second floor has three classrooms only, and the third floor has three large rooms used for storage and one small office area. The floors are connected by two stairwells. There are toilet rooms on the stair landings between the second and third floors. The first, second, and third floors are heated by steam radiators. There is electric baseboard in the toilet room on the first floor and in the third floor office. Each classroom area on the second floor has one ceiling fan and each storage room on the third floor has one ceiling fan. The first and second floor classrooms have sinks. One first floor classroom has a handicap toilet room with a sink. There are no toilet rooms on the second and third floors except the one on the stair landings between the floors. There is a "rough-in" high velocity duct system and air handling unit located on the third floor. The installation is 25% complete.

Overall, the plumbing fixtures need to be upgraded as to fixture type and inadequate ventilation.

The boiler is a Burnham model K5013B series installed in September 1998. The boiler is in good condition and should be remain in service.

RECOMMENDATIONS:

- Install a boiler control package with remote temperature sensors and an outdoor air reset (Heat-timer Platinum MPC series). This will allow the boiler to operate more efficiently to match the heating demands of the building.
- Complete renovation of the toilet rooms, including fixtures and ventilation system, to bring the toilet rooms up to code.

- Remove and replace existing HVAC system for the gym and ground floor offices with new systems. For the Gym area a new packaged Dx cooling natural gas heating unit connected to the existing ductwork.
- The ground floor offices a new Dx cooling, hot water heating air handling unit.
- Install new ductless split high efficiency ac units for the second and third floors.
- Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit to provide the code required outdoor CFM per person. This unit would provide ducted fresh air to each class room.
- Remove existing high velocity duct air handling unit located on the third floor and replace with ducted hot water fan coil units.

Old Nabnasset School – 170 Plain Road:

EXISTING CONDITIONS:

170 Plain Road is 2 story building consisting of a ground and first floors. The building is heated by a natural gas fired steam boiler located on the ground floor. The boiler had failed the day before our inspection and they were getting pricing for a new one at the time. It was anticipated that this would be replaced quickly. The boiler is controlled by a wall mounted thermostat located in the first floor hallway. There is a 30 gallon gas fired water heater located on the ground floor providing domestic hot water to kitchenette sinks and toilet rooms.

The ground floor has steam radiators that provide the majority of the heating for this level. There are two classrooms and each classroom has an electric wall heater to provide additional heat. The ground floor has two toilet rooms. Both toilet rooms are active and have sinks located inside of the room. Both toilet rooms are heated by electric wall heaters. The North classroom also has a kitchenette.

The first floor has two large classrooms across the back of the building. The floors are connected by two stairwells. There is a ceiling fan at top of each stairwell. The first are heated by steam radiators. Each classroom has two ceiling fans. There is a teacher's room in the front area with a toilet room. There is also a single toilet room in the hallway. Each toilet room on the first floor has a sink.

Overall, the plumbing fixtures need to be upgraded as to fixture type and inadequate ventilation.

There is a Radon Gas reduction system located in the mechanical room that was installed in April 2012. This system exhausts radon gas out the rear of the building thru a round PVC duct.

RECOMMENDATIONS:

- Install a boiler control package with remote temperature sensors and an outdoor air reset (Heat-timer Platinum MPC series). This will allow the boiler to operate more efficiently to match the heating demands of the building.
- Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit to provide the code required outdoor CFM per person. This unit would provide ducted fresh air to each class room.
- Install new ductless split high efficiency ac units.
- Complete renovation of the toilet rooms, including fixtures and ventilation system, to bring the toilet rooms up to code.

Electrical

William E. Frost School – 73 Main Street

Introduction

Nangle Engineering Inc. (NEI) was retained by Gienapp Design Associates, LLC (GDA) to perform observation of existing conditions, and preparation of a narrative describing those observations and recommendations for the Town of Westford's (ToW) property known as the Frost School. The facility is located at 73 Main Street Westford, MA. The use is primarily as a daycare facility for children. Occupants are not detained, and occupants over 6 years of age are generally capable of self preservation.

Gary Nangle of NEI visited the site on February 15, 2013 with Bill Kenison and Bill Chandnoit from the ToW, and William Ajemian of GDA.

Observations

Electric Distribution

The existing facility is served electric power form a public utility (National Grid) via an aerial, single phase, 240/120 volt electric service drop. The aerial conductors are fed from a utility pole mounted transformer, rating unknown. The service entrance conductors, meter and socket are rated 200 amperes. The service disconnecting means is located at the exterior meter socket, and is located behind a padlocked metal door. Overall, the electric service is in good condition. There is 3 phase aerial distribution on the utility poles at the street.

The service disconnect feeds a feeder, which enters the building at the basement level, crosses a childcare room at the basement ceiling, and serves two branch circuit panels located in the boiler room. The opening in the boiler room wall where the feeder conduit passes through is substantially larger than the conduit. The panels are manufactured by Murray and Square D, and have a combined 82 poles. Both panels are main lug only. The Square D panel has seven (7) unused poles, while the Murray panel is full. The Square D panel has a surge arrestor installed. The branch circuit panels are in good condition. The branch circuit labeling is suspect, as the schedules are incomplete. The branch circuit wiring leaving the BC panels is in good condition, primarily consisting of metal-clad (MC) cables, and a few non-metallic (NM) cables.

There are a number of receptacles located throughout the facility, which are standard duplex type. Some receptacles are fitted with anti-tamper outlet covers, many are not. There are no receptacles in the toilet rooms.

At least one non-grounding duplex receptacle was noted, in the office area.

There is an open junction box behind the condensate receiver in the boiler room. There is also a boiler emergency switchbox with an open conduit fitting at the bottom, above the condensate receiver in the boiler room.

There is a refrigerator in the boiler room, plugged into an multi-outlet strip, which also feeds another extension cord which feeds ?. One of the classrooms has an extension cord plugged into a receptacle mounted high on the wall. The extension cord then runs down the wall, and into a bathroom. Due to the age of the facility, a general lack of receptacles was indicated by the use of many extension cords and multi-outlet strips (many without anti-tamper covers) throughout.

There is a surface metal raceway (SMR, aka 'wiremold') elbow fitting cover missing next to one of the classroom unit ventilators, leaving the conductors exposed.

Lighting

Interior lighting is primarily fluorescent. Both T5 and T8 lamps were noted in the fixtures. There are a number of sections of track lighting with track heads, with incandescent lamps. There are paddle fans with lighting located in the main stairs, and staff room, with incandescent lamps. There are fan lights in the toilet rooms, presumably with incandescent lamps.

Lighting controls are manual switches, generally at the door to the space.

Exterior lighting is HID type fixtures, building mounted. A flood light on the front of the building was seen to be on at several instants, during daylight hours. There is no pole mounted lighting, nor light for the free-standing sign at the front lawn area. The exterior lighting is in good condition.

Egress lighting is unit equipment with integral battery located throughout the building. Random testing of the units indicated the units are operational. Some of the heads were out of alignment. There are several exterior remote egress light heads, at the front and rear exit discharges. It could not be determined if the exterior egress fixtures were rated for their location, either damp or wet.

There is a steel fire escape on the rear of the building, which does not appear to have any lighting.

There are a number of 'antique' pushbutton on/off controls for lighting fixtures.

Emergency/Standby Power

The facility has no emergency or standby power (generator) system.

Communications

Communications systems consist of copper telephone service, cable television (CATV), and fiber optic (FO) town network. The copper telephone and cable television services are aerial to the front corner of the building, and the FO network service is underground to the opposite rear corner of the building. The network interface and main distribution frame is located in the basement boiler room. The wiring is in good condition, although the workmanship of the wiring installation is poor. In areas the data wiring is attached to power wiring, which is a code violation, and can result in data errors.

There is a FO cable to copper cable transceiver in the basement boiler room. The transceiver is powered by a small transformer, plugged into an extension cord. The extension cord is draped over the door of the network interface (NIC).

There is an Aiphone intercom call station at the front door, to allow visitors to call staff for access.

There appears to be a coil of telephone service cable on the top of the front window bay.

Fire and Carbon Monoxide Detection and Alarm

The building is not sprinklered.

A fire alarm control panel (FACP) is located at the first floor stair landing. The FACP is an FCI FC-72 panel, with four (4) zones. A key box is located at the front door exterior. A surface mounted, single gang, ‘egg-crate’ type remote annunciator is located at the left front door exterior. There is a digitize digital communicator in the basement boiler room, presumably for the fire alarm system.

Most areas have fire alarm system-connected heat detectors. There are smoke detectors in the common areas such as corridors. Manual stations are located throughout the facility, although not always located in accordance with current code.

Notification appliances consist of audio-visual devices, some of which are located too high. The visual components appear to be conventional lights – not strobes. There are no notification devices in the toilet rooms. There is one wall-type strobe improperly mounted to the ceiling in the basement area.

The water heater and the boiler located in the basement boiler room are natural gas (fossil fuel) burning equipment. No carbon monoxide detection or alarm was noted in the facility.

Security

The facility has an intrusion detection control panel located in the main stair. There are motion detectors located in the building.

An access keypad is located at the front door exterior to allow users to gain access to the facility. Motion detectors were located in the facility corridors.

No video surveillance system was noted.

Other

The facility uses a dual electric grinder pump system for waste disposal. The control panel is located in the basement boiler room, next to the electric panels. There is a simplex sump pump located in a sump pit in the basement boiler room. The boiler room contains a washer and electric dryer. There are eight (8) window type air conditioners stored in the basement boiler room.

Discussion and Recommendations

Electric Distribution

Many of the existing receptacles do not have outlet covers as required by the numerous regulations for child-care occupancies. All existing receptacles located within reach of the child occupants should be changed to tamper-resistant receptacles. This will eliminate the potential for human error leaving a receptacle(s) cover out. Until the receptacles can be replaced, anti-tamper covers should be installed immediately in all receptacles accessible to the younger occupants of the facility.

The opening at the boiler room wall where the service feeder conduit passes through should be closed and fire stopped to prevent the passage of smoke, fire and CO from the boiler room into the occupied spaces.

Receptacles should be added where required to eliminate the use of extension cords throughout the facility. Code prohibits the use of extension cords in place of what should be permanent wiring methods. The use of extension cords and multi-outlet strips should be prohibited, as inadvertent human error can prevent the installation of tamper covers, which could result in electrocution of an occupant. The extension cord into the bathroom on the upper floor should be removed immediately, and replaced with a ground fault circuit interrupting (GFCI) receptacle if the receptacle is required in the toilet room.

Any ungrounded type receptacles should be replaced with grounding type receptacles (if a ground is present in the box) or a GFCI receptacle if no ground is present.

The circuit labeling at the branch circuit panels should be verified and updated, as required by current code.

The open junction box behind the condensate receiver in the boiler room should have a blank plate installed, and the open conduit fitting at the bottom of the switchbox above it should be removed and the opening sealed.

The missing SMR elbow fitting cover missing next to one of the classroom unit ventilators should be replaced immediately to provide physical protection for the exposed conductors.

Lighting

A number of fixtures, including track heads, ceiling fans and toilet room fan-light fixtures are fitted with incandescent lamps. All incandescent lamps should be replaced with LED or compact fluorescent (CF) lamps to comply with energy code and lamp efficacy regulations. Energy will be saved, and maintenance will be reduced as these lamps generally have a longer life.

Manual switches should be replaced with vacancy sensor type switches where practical.

The photocell on the front floodlight should be re-aimed and/or replaced to prevent the fixture from coming on during daylight hours.

Lamp heads on emergency battery units should be adjusted (aimed) to ensure they provide lighting for the path of egress.

Exterior egress remote heads should be checked to ensure they are rated for the location (damp or wet), and replaced if not properly rated.

As part of the path of egress, battery-backed egress lighting should be added to the steel fire escape on the rear of the building.

Exterior fixtures should be replaced with LED type fixtures. Incentives from the public utility are available for replacement fixtures which are listed by the Design Lights Consortium (DLC). As with interior lamp replacement, LED exterior fixtures will save energy and reduce maintenance.

The ‘antique’ pushbutton on/off controls for lighting fixtures should be replaced with conventional toggle switches (or lighting controls) since the pushbuttons are not operable by the impaired.

Emergency/Standby Power

As the building has a grinder pump disposal system and sump pump, a standby power system should be considered to power this equipment to prevent damaging ground or sanitary waste water back-ups. If a standby power system is installed, it should also power the heating equipment, so that heat can be maintained during a prolonged power outage to prevent freezing of the plumbing.

Communications

The wiring of the telephone communications system should be re-terminated and ‘cleaned-up’, including proper cable management, support, and labeling. Separation for power circuits should also be a goal of cleaning up the installation.

A receptacle should be installed to provide power for the FO transceiver, so that the extension cord can be removed.

The coil of wire on top of the front window bay should be investigated and removed if it is no longer required.

Fire and Carbon Monoxide Detection and Alarm

The existing FCI fire alarm control equipment is obsolete, and should be replaced. Replacement parts are difficult to reliably source, and a failure of several zone cards or the 'mother board' would require replacement of the equipment on an emergency basis, and may prevent the use of the facility (or at least a costly fire watch) until the system is restored. If the control equipment is replaced, that will trigger the replacement of the system smoke detectors, due to compatibility.

The existing heat and smoke detectors should be replaced, as they are beyond their life span.

Since the building is not sprinklered, smoke detectors (in lieu of heat detectors) should be used in more areas to provide earlier warning of fire to the occupants, and for earlier warning of a fire if the building is unoccupied.

Many of the existing notification appliances are mounted too high, and are not strobe type as required by the Americans with Disabilities Act (ADA). The existing notification appliances should be replaced, and be lowered to the height required by the relevant codes. The devices should be replaced with devices which include ADA compliant strobes.

Visual notification appliances should be installed in all toilet rooms, meeting and conference rooms, classrooms, cafeterias, filing and photocopy rooms, employee break rooms, dressing, examination, and treatment rooms, and similar spaces, to comply with requirements of the ADA.

While the facility is not a residential use group, it is without question that children will be sleeping in the facility. Since children have a lower blood volume and tolerance for carbon monoxide (CO), they can be affected by CO long before adults are affected. As the water heater and boiler are fossil-fuel burning equipment (FFBE), carbon monoxide detection must be provided in each room used by children for sleeping, learning or participating in other early education or care activities in accordance with 527 CMR 31.00.

Security

The existing exterior keypad requires a multi-digit code to be pressed to gain access. The code should be changed often to prevent unauthorized entry. A shield should be fitted to the keypad to prevent an unauthorized person from watching the code being entered by an authorized user.

A video surveillance system should be considered. Color video cameras should be located at building entrances, exits and main corridors to detect and record the activities of unauthorized personnel. Cameras should also be considered for exterior play areas, and drop-off/pick-up areas for surveillance of the children while outside, but on the facility grounds. If vandalism of the facility is a problem, additional cameras should be considered to deter and

record such activities. A digital video recorder with at least seven (7) days video storage should be installed, so that video can be retrieved.

Other

Since there is no standby power system, a sump pump with battery back-up should be considered.

Central air conditioning systems should be considered, since window AC units are generally the least energy-efficient method of cooling. The installation and removal is also an effort, and the equipment takes up valuable storage space during the heating season.

If a lift is added for accessibility, the lift should be single phase.

Roudenbush Community Center – 65 Main Street

Introduction

Nangle Engineering Inc. (NEI) was retained by Gienapp Design Associates, LLC (GDA) to perform observation of existing conditions, and preparation of a narrative describing those observations and recommendations for the Town of Westford's (ToW) property known as the Roudenbush Community Center. The facility is located at 65 Main Street, Westford, MA. The use is as a community center facility for ToW residents. Occupants are not detained, and occupants over 6 years of age are generally capable of self preservation.

Observations

Electric Distribution

The existing facility is served electric power from a public utility (National Grid) via an aerial, three phase, 208Y/120 volt electric service drop. The aerial conductors are fed from a utility pole mounted transformer bank, (with 3 cans at 25 kVA each) 75 kVA rating. The service entrance conductors, meter and socket are rated 400 amperes, 320 amperes continuous. The service disconnecting means is located in the main electric room at the basement level. The electric service was recently upgraded to 400 amperes, and overall, the electric service is in good condition.

The service entrance conductors feed through the class 320 meter socket and feed a main distribution panel (MDP) located in the basement electric room, which then serves two branch circuit panels located in the electric room. The panels are manufactured by Siemens, one main circuit breaker type, one main lug only. Each branch circuit panel has a surge arrestor installed. The branch circuit panels are in good condition. The branch circuit labeling is suspect, as the schedules are incomplete. The branch circuit wiring leaving the BC panels is in good condition, primarily consisting of metal-clad (MC) cables, and a few non-metallic (NM) cables. There is an open wireway above the branch circuit panels.

There is a fair amount of storage in the basement electric room, which impedes upon the code-required clear working space.

There is an former fused load center in the office off the gymnasium. The enclosure houses a few splices, and is open. The load center appears to have been gutted and replaced with a modern Square D load center, in good condition, in the nearby storage area at the rear of the gym.

There is a load center in the boiler room, enclosed within a wooden enclosure. The wooden enclosure impedes upon the code required clear working space.

There is a 100 ampere Siemens load center in one of the second floor classrooms. The code required clear working space for the loadcenter is blocked by a couple bookcases.

There are two (2) FPE Stab-lok load centers located in the sidewall of the stair to the attic. The panels, being located in a stair, do not have code required clear working space.

There are a number of receptacles located throughout the facility, which are standard duplex type. Some receptacles are fitted with anti-tamper outlet covers – many are not. Generally, there are no receptacles in the toilet rooms. In the basement rest room, the receptacle is not GFCI type.

There is no service receptacle at the exterior condensing unit.

Lighting

Interior lighting is primarily fluorescent. T5, T8 and T12 lamps were noted in the fixtures. Lighting in the gym is HID, and there are a number of PAR lamps (120 volt?) located at the ceiling, presumed to be emergency lighting. 8' T12 lamps were noted in the storage room off the back of the gym. There are a number of down lights in the first floor rear hall. Lighting in 'Avis S. Hooper Lounge' is four (4) five lamp fixtures with incandescent lamps.

Lighting in utility spaces (basement electric room) is a porcelain fixture with incandescent lamp.

Lighting controls are manual switches, generally at the door to the space.

Exterior lighting is HID type fixtures, building mounted. There is no pole mounted lighting. Overall, the exterior lighting is in good condition. There is an incandescent fixture at the front door overhang.

Egress lighting is unit equipment with integral battery located throughout the building. Random testing of the units indicated the units are operational. The maintenance staff had a recently changed batteries, as evidenced by a box of removed batteries on a workbench in the boiler room. Some of the heads were out of alignment. There did not appear to be any exit discharge egress lighting.

There is a steel fire escape on the side of the building, which does not appear to have any lighting.

Emergency/Standby Power

The facility has no emergency or standby power (generator) system.

Communications

Communications systems consist of copper telephone service, cable television (CATV), and fiber optic (FO) town network. The copper telephone and cable television services are aerial to the front corner of the building, and

the FO network service is underground to the side of the building. The network interface and main telephone distribution and PBX equipment is located in a room off of the basement boiler room. A small data network is located in the basement facilities office. The wiring is in good condition, although the workmanship of the equipment and wiring installation is poor.

Fire and Carbon Monoxide Detection and Alarm

The building is not sprinklered.

A fire alarm control panel (FACP) is located in the first floor director's office. The FACP is an FCI FC-72 panel, with five (5) zones. A key box was not noted. A surface mounted, graphic map type remote annunciator is located at the front door vestibule.

Most areas have fire alarm system-connected heat detectors. There are smoke detectors in the common areas such as corridors. Smoke detectors are located in the gym, on the bottom of the beams. Manual stations are located throughout the facility, although not always located in accordance with current code.

Notification appliances consist of audio-visual (A/V) devices, some of which are located too high, and/or not properly located for complete coverage. Generally, there are no notification devices in the toilet rooms, including the accessible toilet room off of the 'Avis S. Hooper Lounge'. There are no A/V devices in the basement staff area.

The water heater and the boiler located in the basement boiler room are natural gas (fossil fuel) burning equipment.

Security

The facility has an intrusion detection control panel located in the main stair. There are motion detectors located in the building. A system control keypad is located in the front entry vestibule.

No video surveillance system was noted.

Other

The facility uses a dual electric grinder pump system for waste disposal.

There is an outdated lift in one of the stairways, to access the first floor only from an entrance at grade.

Discussion and Recommendations

Electric Distribution

The cover should be installed on the wireway above the branch circuit panels as required by code.

The stored material in the electric room impedes upon the code required clear working space of the panels, and should be removed. The former load center in the gym office should be fitted with a blank plate. The wooden cabinet enclosure around the boiler room load center impedes upon the code required clear working space of the panels, and should be removed. The bookcases at the second floor load center impede upon the code required clear working space of the panels, and should be removed.

The FPE load centers in the attic stair should be relocated and replaced since they do not have the code required clear working space, and since they are FPE stab-lok panels, which are notoriously unreliable.

Many of the existing receptacles do not have outlet covers as required by the numerous regulations for child-care occupancies. All existing receptacles located within reach of the child occupants should be changed to tamper-resistant receptacles. This will eliminate the potential for human error leaving a receptacle(s) cover out.

All receptacles in bathrooms or within 6 feet of a sink or other wet area should be replaced with GFCI receptacles.

The circuit labeling at the branch circuit panels should be verified and updated, as required by current code.

A receptacle should be added at the exterior condensing unit, as required by current code.

Lighting

A number of fixtures are fitted with incandescent lamps. All incandescent lamps should be replaced with LED or compact fluorescent (CF) lamps to comply with energy code and lamp efficacy regulations. Energy will be saved, and maintenance will be reduced as these lamps generally have a longer life.

Manual switches should be replaced with vacancy sensor type switches where practical.

Lamp heads on emergency battery units should be adjusted (aimed) to ensure they provide lighting for the path of egress.

As part of the path of egress, battery-backed egress lighting should be added to the steel fire escape on the rear of the building.

Exterior fixtures should be replaced with LED type fixtures. Incentives from the public utility are available for replacement fixtures which are listed by the Design Lights Consortium (DLC). As with interior lamp replacement, LED exterior fixtures will save energy and reduce maintenance.

Emergency/Standby Power

As the building has a grinder pump disposal system, a standby power system should be considered to power this equipment to prevent damaging sanitary waste water back-ups. If a standby power system is installed, it should also

power the heating equipment, so that heat can be maintained during a prolonged power outage to prevent freezing of the plumbing.

Communications

The wiring of the data system should be re-terminated and 'cleaned-up', including proper cable management, support, and labeling. The network equipment in the basement facilities office should be properly mounted in a shelf or rack.

Fire and Carbon Monoxide Detection and Alarm

The existing FCI fire alarm control equipment is obsolete, and should be replaced. Replacement parts are difficult to reliably source, and a failure of several zone cards or the 'mother board' would require replacement of the equipment on an emergency basis, and may prevent the use of the facility (or at least a costly fire watch) until the system is restored. If the control equipment is replaced, that will trigger the replacement of the system smoke detectors, due to compatibility.

The existing heat and smoke detectors should be replaced, as they are beyond their life span.

Since the building is not sprinklered, smoke detectors (in lieu of heat detectors) should be used in more areas to provide earlier warning of fire to the occupants, and for earlier warning of a fire if the building is unoccupied.

Some of the existing notification appliances are mounted too high, and are not strobe type as required by the Americans with Disabilities Act (ADA). The existing notification appliances should be replaced, and be lowered to the height required by the relevant codes. The devices should be replaced with devices which include ADA compliant strobes.

Visual notification appliances should be installed in all toilet rooms, meeting and conference rooms, classrooms, cafeterias, filing and photocopy rooms, employee break rooms, dressing, examination, and treatment rooms, and similar spaces, to comply with requirements of the ADA.

While the facility is not a residential use group, it is without question that children will be sleeping in the facility. Since children have a lower blood volume and tolerance for carbon monoxide (CO), they can be affected by CO long before adults are affected. As the water heater and boiler are fossil-fuel burning equipment (FFBE), carbon monoxide detection must be provided in each room used by children for sleeping, learning or participating in other early education or care activities in accordance with 527 CMR 31.00.

Security

A video surveillance system should be considered. Color video cameras should be located at building entrances, exits and main corridors to detect and record the activities of unauthorized personnel. Cameras should also be

considered for exterior play areas, and drop-off/pick-up areas for surveillance of the children while outside, but on the facility grounds. If vandalism of the facility is a problem, additional cameras should be considered to deter and record such activities. A digital video recorder with at least seven (7) days video storage should be installed, so that video can be retrieved.

Old Nabnasset School – 170 Plain Road

Introduction

Nangle Engineering Inc. (NEI) was retained by Gienapp Design Associates, LLC (GDA) to perform observation of existing conditions, and preparation of a narrative describing those observations and recommendations for the Town of Westford's (ToW) property known as the Old Nabnasset (or Old Nab) School. The facility is located at 170 Plain Street, Westford, MA. The use is as a child care center for ToW residents. Occupants are not detained, and occupants over 6 years of age are generally capable of self preservation.

Observations

Electric Distribution

The existing facility is served electric power from a public utility (National Grid) via an aerial, single phase, 208Y/120 volt electric service drop. The aerial conductors are fed from a utility pole mounted transformer bank, rating unknown. The service entrance conductors, meter and socket are rated 100 amperes. The service disconnecting means is located in the main electric panel at the basement level. Overall, the electric service is in fair condition.

The service entrance conductors feed through the meter socket and feed a main distribution panel (MDP) located in the basement kitchen area, manufactured by Square D. The main panel is full, and has no spaces. The main panel then serves a General Electric branch circuit panel located in the upper floor office closet. The panel has no schedule. The location in the closet does not have code required clear working space, and what space is available is blocked by stored materials.

There are a number of receptacles located throughout the facility, which are standard duplex type. Some receptacles are fitted with anti-tamper outlet covers – many are not. Generally, there are no receptacles in the toilet rooms.

Lighting

Interior lighting is primarily fluorescent. For the most part T8 lamps were noted in the fixtures. There was a porcelain socket fixture noted outside the boiler room.

Lighting controls are manual switches, generally at the door to the space.

Exterior lighting is HID type fixtures, building mounted. There is no pole mounted lighting. Overall, the exterior lighting is in good condition.

Egress lighting is unit equipment with integral or remote battery located throughout the building. Random testing of the units indicated the units are operational. Some of the heads were out of alignment. There did not appear to be any exit discharge egress lighting.

Emergency/Standby Power

The facility has no emergency or standby power (generator) system.

Communications

Communications systems consist of copper telephone service, cable television (CATV), and fiber optic (FO) town network. The copper telephone and cable television services are aerial to the front corner of the building, and the FO network service is underground to the side of the building.

Fire and Carbon Monoxide Detection and Alarm

The building is not sprinklered.

A fire alarm control panel (FACP) is located in the first floor corridor. The FACP is an FCI FC-72 panel, with four (4) zones. A key box was not noted.

Most areas have fire alarm system-connected heat detectors. There are smoke detectors in the common areas such as corridors. Manual stations are located throughout the facility, although not always located in accordance with current code.

Notification appliances consist of audio-visual (A/V) devices, some of which are located too high, and/or not properly located for complete coverage.

The boiler located in the basement boiler room are natural gas (fossil fuel) burning equipment. There was a CO detector mounted in the room immediately outside the boiler room.

Security

The facility has an intrusion detection control panel located in the first floor office. There are motion detectors located in the building.

No video surveillance system was noted. A system once existed, but was removed. What appear to be old camera video and power wiring are exposed in the upper corridor.

Other

There is a lift in one of the stairways.

Discussion and Recommendations

Electric Distribution

The main service panel is located in the basement kitchen is built into a wooden cabinet, located above the kitchen counter. Both of these impede upon the code required clear working space of the panel. It is probably not realistic to suggest that the service be relocated, or the kitchen be removed, but if in planning the kitchen is relocated, the space around the panel should be left clear.

The stored materials at the upper floor closet load center impede upon the code required clear working space of the panels, and should be removed. It is important to have ready access to the circuit breakers, in case of a problem.

Many of the existing receptacles do not have outlet covers as required by the numerous regulations for child-care occupancies. All existing receptacles located within reach of the child occupants should be changed to tamper-resistant receptacles. This will eliminate the potential for human error leaving a receptacle(s) cover out.

Any receptacles in bathrooms or within 6 feet of a sink or other wet area should be replaced with GFCI receptacles.

The circuit labeling at the main and branch circuit panels should be verified and updated, as required by current code.

Lighting

Any incandescent lamps should be replaced with LED or compact fluorescent (CF) lamps to comply with energy code and lamp efficacy regulations. Energy will be saved, and maintenance will be reduced as these lamps generally have a longer life.

Manual switches should be replaced with vacancy sensor type switches where practical.

Lamp heads on emergency battery units should be adjusted (aimed) to ensure they provide lighting for the path of egress.

Exterior fixtures should be replaced with LED type fixtures. Incentives from the public utility are available for replacement fixtures which are listed by the Design Lights Consortium (DLC). As with interior lamp replacement, LED exterior fixtures will save energy and reduce maintenance.

Fire and Carbon Monoxide Detection and Alarm

The existing FCI fire alarm control equipment is obsolete, and should be replaced. Replacement parts are difficult to reliably source, and a failure of several zone cards or the ‘mother board’ would require replacement of the equipment on an emergency basis, and may prevent the use of the facility (or at least a costly fire watch) until the system is restored. If the control

equipment is replaced, that will trigger the replacement of the system smoke detectors, due to compatibility.

The existing heat and smoke detectors should be replaced, as they are beyond their life span.

Since the building is not sprinklered, smoke detectors (in lieu of heat detectors) should be used in more areas to provide earlier warning of fire to the occupants, and for earlier warning of a fire if the building is unoccupied.

Some of the existing notification appliances are mounted too high, and are not strobe type as required by the Americans with Disabilities Act (ADA). The existing notification appliances should be replaced, and be lowered to the height required by the relevant codes. The devices should be replaced with devices which include ADA compliant strobes.

Visual notification appliances should be installed in all toilet rooms, meeting and conference rooms, classrooms, cafeterias, filing and photocopy rooms, employee break rooms, dressing, examination, and treatment rooms, and similar spaces, to comply with requirements of the ADA.

While the facility is not a residential use group, it is without question that children will be sleeping in the facility. Since children have a lower blood volume and tolerance for carbon monoxide (CO), they can be affected by CO long before adults are affected. As the water heater and boiler are fossil-fuel burning equipment (FFBE), carbon monoxide detection must be provided in each room used by children for sleeping, learning or participating in other early education or care activities in accordance with 527 CMR 31.00.

Security

A video surveillance system should be considered. Color video cameras should be located at building entrances, exits and main corridors to detect and record the activities of unauthorized personnel. Cameras should also be considered for exterior play areas, and drop-off/pick-up areas for surveillance of the children while outside, but on the facility grounds. If vandalism of the facility is a problem, additional cameras should be considered to deter and record such activities. A digital video recorder with at least seven (7) days video storage should be installed, so that video can be retrieved.

PROJECT BUDGET
Westford Facilites Condtion Assessment
Westford, Massachusetts

Gienapp Design Associates, LLC

June 11, 2013

	Item	73 Main Street Frost School	Roudenbush Community Center 65 Main Street	170 Plain Road Old Nabnasset School	**Total All Buildings**
1	Construction Cost	$ 2,495,141	$ 4,784,382	$ 1,956,554	**$ 9,236,077**
2	Architectural Engineering Fee	$ 249,514	$ 478,438	$ 195,655	**$ 923,608**
3	Testing and Inspection	$ 17,500	$ 17,500	$ 17,500	**$ 52,500**
4	OPM and Clerk of the Works	$ 124,854	$ 193,531	$ 108,697	**$ 427,082**
5	Separate Contracts	$ 31,000	$ 36,000	$ 22,000	**$ 89,000**
6	Reimbursable Expenses	$ 2,000	$ 2,000	$ 2,000	**$ 6,000**
7	Moving Costs	By Tenant	By Tenant	By Tenant	**By Tenant**
8	Bond Costs	$ 24,951	$ 47,844	$ 19,566	**$ 92,361**
9	Contingency (10% of above)	$ 294,496	$ 555,970	$ 232,197	**$ 1,082,663**
10	**Grand Total**	**$3,239,457**	**$6,115,665**	**$2,554,169**	**$11,909,291**

PROJECT BUDGET
Westford Facilites Condtion Assessment
Westford, Massachusetts
May 10, 2013

Gienapp Design Associates, LLC

Prepared by: WLA

Back-up to Project Budget Line Items

BUDGET - WESTFORD HISTORIC FACILITIES CONDITION ASSESSMENT

		73 Main Street Frost School		Roudenbush Community Center 65 Main Street		170 Plain Road Old Nabnasset School	
		Items	Subtotals	Items	Subtotals	Items	Subtotals
1.	**Construction Cost**						
1.1	Estimated Construction Cost	$ 2,495,141		$ 4,784,382		$ 1,956,554	
	Total Construction Cost		$ 2,495,141		$ 4,784,382		$ 1,956,554
2.	**Architectural Engineering Fee**						
2.1	10% of construction cost	$ 249,514		$ 478,438		$ 195,655	
	Total Architectural Engineering Fee		$ 249,514		$ 478,438		$ 195,655
3.	**Testing and Inspection**						
3.1	Hazmat Pre-Construction Testing & Specification (Allowance)	$ 7,500		$ 7,500		$ 7,500	
3.2	Hazmat Construction Monitoring (Allowance)	$ 7,500		$ 7,500		$ 7,500	
3.3	Boring and Test Pits	$ 2,500		$ 2,500		$ 2,500	
	Total Testing and Inspection		$ 17,500		$ 17,500		$ 17,500
4.	**OPM and Clerk of the Works**						
4.1	OPM (3.0% of Const. Cost)	$ 74,854		$ 143,531		$ 58,697	
4.2	Clerk of the Works - Allowance	$ 50,000		$ 50,000		$ 50,000	
	Total OPM and Clerk of the Works		$ 124,854		$ 193,531		$ 108,697

PROJECT BUDGET
Westford Facilites Condtion Assessment
Westford, Massachusetts
May 10, 2013

Gienapp Design Associates, LLC

Prepared by: WLA

Back-up to Project Budget Line Items

BUDGET - WESTFORD HISTORIC FACILITIES CONDITION ASSESSMENT

		73 Main Street Frost School		Roudenbush Community Center 65 Main Street		170 Plain Road Old Nabnasset School	
		Items	Subtotals	Items	Subtotals	Items	Subtotals
5	**Separate Contracts**						
5.1	Geotechnical Engineering	$ 4,000		$ 4,000		$ 4,000	
5.2	Elevator Engineering	$ 15,000		$ 15,000		$ 10,000	
5.3	HVAC Commissioning	$ 10,000		$ 15,000		$ 6,000	
5.4	Video Surveillance	$ 2,000		$ 2,000		$ 2,000	
	Total Separate Contracts		$ 31,000		$ 36,000		$ 22,000
6	**Reimbursable Expenses**						
6.1	Printing Bid Documents	$ 2,000		$ 2,000		$ 2,000	
	Total Reimbursable Expenses		$ 2,000		$ 2,000		$ 2,000
7	**Moving Costs**						
7.1	Tenant expense	$ -		$ -		$ -	
8	**Bond Costs**						
8.1	Bond Costs (1%)	$ 24,951		$ 47,844		$ 19,566	
	Total Bond Costs		$ 24,951		$ 47,844		$ 19,566
9	**Project Contingency**						
9.1	Contingency (10% of all others)	$ 294,496		$ 555,970		$ 232,197	
	Total Project Contingency		$ 294,496		$ 555,970		$ 232,197

COST ESTIMATES

The following cost estimates include budgeting for 10-year capital projections. Categories for planning are broken down into three time periods. They are as follows:

Time Period	*Description of work*	*Cost*
A 1 – 3 Years	Work to provide accessibility, Roof Replacement, Electrical & Plumbing modifications for life safety	$ 3,150,076
B 4 – 6 Years	Toilet Upgrades, HVAC & Other Interior work	$ 2,262,115
C 7 – 10 Years	Site Improvements, Interior Painting, Finishes and Ceiling Upgrades	$ 510,649

The plan as shown budgets the bulk of the costs in the first two categories. See the full cost estimate for more detail.

Alternate Budget Projection: – The accessibility work at Frost and Roudenbush can be shifted to the 4 – 6 year timeline, and the major work at Old Nab delayed out to 7 – 10 years. This would space out the capital outlay a bit more evenly.

The major work in the first three years would be limited to the most pressing projects:

1. **Frost:** Roof replacement, electrical and plumbing issues affecting life safety. Fire Alarm upgrades. Painting and maintenance of metal fire escapes.
2. **Roudenbush Community Center:** Removal of metal fire escapes, construction of new stair tower at rear over gymnasium. Reconfigure rooms to provide new corridors. Roof replacement, siding and exterior trim repair. Installation of new fire sprinkler systems. Electrical and plumbing issues affecting life safety.
3. **'Old Nab':** Immediate work includes, masonry repair, roof replacement and metal fire escape painting.

Alternate totals for the three categories could be:

	Time Period	*Cost*
A.	1 – 3 Years	$1,854,426.
B.	4 – 6 Years	$2,874,345.
C.	7 – 10 Years	$1,194,069.

Additional shifting of costs could be made in order to level out the budgeting more equally by fully determining the Town's construction priorities. However, there are liabilities involved in delaying certain projects, such as accessibility.

Further, the costs associated with breaking the work into smaller pieces would most likely involve increased mobilization and other soft costs.

At the very least, we have prioritized projects to address preventing the building envelope from deteriorating, i.e. roof replacement, masonry, and siding repair.

Building Facilities Assessment Study

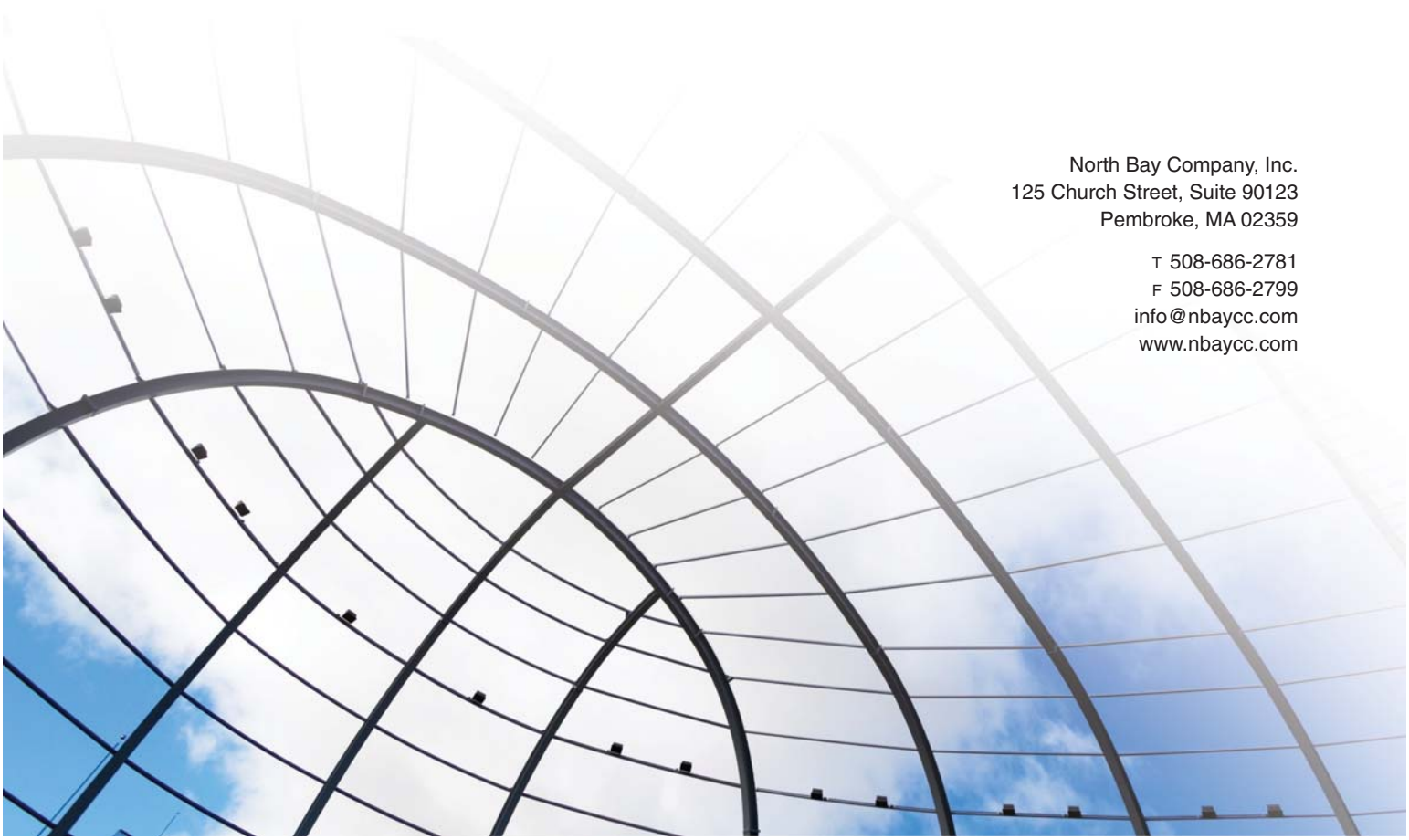
73 Main Street, 65 Main Street, and 170 Plain Road

Order of Magnitude Cost Estimate - 10 Year Capital Plan

May 10, 2013

Designer: Gienapp Design Associates, LLC

Prepared for: Town of Westford, MA



North Bay Company, Inc.
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Pembroke, MA 02359

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info@nbaycc.com
www.nbaycc.com

Project: Westford Facilities Study
Architect: Gienapp Design Associates, LLC
Cost Estimator: North Bay Company, Inc., 125 Church St., Unit 90-123, Pembroke, MA
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

INTRODUCTION

PROJECT DESCRIPTION:

10 Year Capital improvements for the following Municipal Properties:
William E. Frost School, 73 Main St., Westford, MA
Roundenbush Community Center, 65 Main St., Westford, MA
Old Nanasset School, 170 Plain Rd., Westford, MA

PROJECT PARTICULARS:

Documents dated April 11, 2013 prepared by Gienapp Design Associates
Quantities are from direct takeoff of items, when possible, according to ASPE recommended Standard Estimating Practice

PROJECT ASSUMPTIONS:

Construction will be phased to allow each trade to perform their work with least amount of impact on other trades and occupants
The project will be publicly bid and performed by a Prime General Contractor certified by DCAM using prevailing wage rates
Costs are based on a competitive bid process in all trades and sub-trades
Unit costs and labor are based on current construction costs in Westford, MA
General Requirements value covers bonding and insurances for the GC

PROJECT EXCLUSIONS:

Escalation beyond 1 year from now
Design Fees and other soft costs
Project Administration
Construction of temporary facilities
Site or existing conditions surveys
Hazardous materials survey, report and removal
Police detail and street/sidewalk permits
Printing and Advertising
Testing and Inspections

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

GRAND SUMMARY

Category	Period	William E. Frost School	Roundenbush Community Center	Old Nabnasset School
		73 Main St.	65 Main St.	170 Plain Rd.
A	1 - 3 YEARS	$ 589,731	$ 1,788,289	$ 772,056
B	4 - 6 YEARS	$ 807,859	$ 1,052,623	$ 401,633
C	7 - 10 YEARS	$ 202,475	$ 227,179	$ 80,995
	TOTAL DIRECT COSTS	**$ 1,600,065**	**$ 3,068,092**	**$ 1,254,684**
	GENERAL REQUIREMENTS (15%)	$ 240,010	$ 460,214	$ 188,203
	OVERHEAD AND PROFIT (13%)	$ 239,210	$ 458,680	$ 187,575
	TOTAL - DIRECT COST AND OH&P	**$ 2,079,284**	**$ 3,986,985**	**$ 1,630,462**
	DESIGN CONTINGENCY (20%)	$ 415,857	$ 797,397	$ 326,092
	ESCALATION - 1 YEAR (4% PER YEAR)	$ 99,806	$ 191,375	$ 78,262
	TOTAL - SCHEMATIC DESIGN ESTIMATE	**$ 2,495,141**	**$ 4,784,382**	**$ 1,956,554**
	TOTAL SF	8,000	17,000	6,000
	COST PER SF	$ 311.89	$ 281.43	$ 326.09

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

GRAND SUMMARY

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NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

MAIN SUMMARY

William E. Frost School, 73 Main Street:	8,000	SF
Roudenbush Community Center, 65 Main Street:	17,000	SF
Old Nabnasset School, 170 Plain Road:	6,000	SF

DIV.	ELEMENT	William E. Frost School 73 Main St.	Cost Per SF	Roundenbush Community Center 65 Main	Cost Per SF	Old Nabnasset School 170 Plain	Cost Per SF
02	**DEMOLITION AND SITEWORK**	**$ 166,686**	**$ 20.84**	**$ 368,548**	**$ 21.68**	**$ 153,000**	**$ 25.50**
03	**CONCRETE**	**$ 30,192**	**$ 3.77**	**$ 74,350**	**$ 4.37**	**$ 24,052**	**$ 4.01**
04	**MASONRY**	**$ 1,750**	**$ 0.22**	**$ 20,100**	**$ 1.18**	**$ 115,998**	**$ 19.33**
05	**METALS**	**$ 109,715**	**$ 13.71**	**$ 208,845**	**$ 12.29**	**$ 94,784**	**$ 15.80**
06	**WOOD, PLASTICS AND COMPOSITES**	**$ 7,685**	**$ 0.96**	**$ 265,575**	**$ 15.62**	**$ 18,120**	**$ 3.02**
07	**THERMAL AND MOISTURE PROTECTION**	**$ 216,106**	**$ 27.01**	**$ 349,120**	**$ 20.54**	**$ 70,774**	**$ 11.80**
08	**OPENINGS**	**$ 42,392**	**$ 5.30**	**$ 109,400**	**$ 6.44**	**$ 43,360**	**$ 7.23**
09	**FINISHES**						
	GYPSUM WALLBOARD SYSTEMS	$ 39,368	$ 4.92	$ 136,348	$ 8.02	$ 47,440	**$ 7.91**
	ACOUSTICAL CEILINGS	$ -	$ -	$ 25,600			
	FLOORING	$ 41,600	$ 5.20	$ 67,683	$ 3.98	$ 31,000	**$ 5.17**
	PAINTING	$ 61,867	$ 7.73	$ 130,540	$ 7.68	$ 41,020	**$ 6.84**
10	**SPECIALTIES**	**$ 11,241**	**$ 1.41**	**$ 15,060**	**$ 0.89**	**$ 11,580**	**$ 1.93**
11	**EQUIPMENT**						
12	**FURNISHINGS**						
14	**CONVEYOR SYSTEMS**	**$ 156,600**	**$ 19.58**	**$ 210,000**	**$ 12.35**	**$ 132,825**	**$ 22.14**
15	**MECHANICAL**						
	FIRE SUPPRESSION	$ 50,050	$ 6.26	$ 110,500	$ 6.50	$ 39,000	$ 6.50
	PLUMBING	$ 187,050	$ 23.38	$ 122,200	$ 7.19	$ 97,850	$ 16.31
	HVAC	$ 289,243	$ 36.16	$ 580,523	$ 34.15	$ 212,706	$ 35.45
26	**ELECTRICAL**	**$ 186,020**	**$ 23.25**	**$ 273,700**	**$ 16.10**	**$ 107,176**	**$ 17.86**
33	**RECOMMENDED OPTIONS**	**$ 2,500**	**$ 0.31**	**$ -**	**$ -**	**$ 13,999**	**$ 2.33**
	TOTAL DIRECT COSTS	**$ 1,600,065**	**$ 200.01**	**$ 3,068,092**	**$ 180.48**	**$ 1,254,684**	**$ 209.11**

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

DIRECT COST DETAIL - 73 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	10 -YEAR PLAN A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
02	**DEMOLITION AND SITEWORK**									**$ 166,686**
02 41	**Demolition**					**$ 114,686**				
	Remove paving at select areas to create landscape buffers	400	SF	$ 4.50	$ 1,800.00				$ 1,800.00	
	Remove East stair, risers, treads & railings from basement through second floor level	450	SF	$ 25.00	$ 11,250.00		$ 11,250.00			
	Repair paving at parking & drives, scarify and existinig paving, regrade as necessary and resurface with new bitiuminuous asphalt paving. Re-stripe, new curbing	18,000	SF	$ 4.50	$ 81,000.00				$ 81,000.00	
	Remove existing copper roof ventilators at South side.	2	EA	$ 800.00	$ 1,600.00		$ 1,600.00			
	Remove existing interior walls at central classrooms (1st & 2nd floors) for new accessible toilet rooms.	400	SF	$ 3.00	$ 1,200.00		$ 1,200.00			
	Remove exisitng toilet rooms and fixtures (all levels)	6	EA	$ 1,500.00	$ 9,000.00			$ 9,000.00		
	Remove existing sinks and counters in basement corridor	1	LS	$ 2,500.00	$ 2,500.00		$ 2,500.00			
	Remove fire escapes	1	LS	$ 6,336.00	$ 6,336.00			$ 6,336.00		
	Sitework					**$ 37,000**				
	Bulk excavation, ramp foundation, and footings	1	LS	$ 10,000.00	$ 10,000.00		$ 10,000.00			
	Hand excavate for inteior elevator, foundation, footings	1	LS	$ 8,000.00	$ 8,000.00		$ 8,000.00			
	Regrade	4,000	SF	$ 1.00	$ 4,000.00		$ 4,000.00			
	Loam, seed and landscaping	1	LS	$ 10,000.00	$ 10,000.00		$ 3,333.33	$ 3,333.33	$ 3,333.33	
	Site drainage	1	LS	$ 5,000.00	$ 5,000.00			$ 2,500.00	$ 2,500.00	
02 81	**Hazardous Materials**					**$ 15,000**				
	Abatement allowance	1	LS	$ 15,000.00	$ 15,000.00		$ 7,500.00	$ 7,500.00		

NORTH BAY
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DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
03	**CONCRETE**									**$ 30,192**
03 30	**Cast-In-Place Concrete**					**$ 30,192**				
	New slab on grade and foundation for new accessible entrance	451.00	SF	$ 12.00	$ 5,412.00			$ 5,412.00		
	Foundations, addition	14.00	CY	$ 680.00	$ 9,520.00			$ 9,520.00		
	Footings, addition	7	CY	$ 680.00	$ 4,760.00			$ 4,760.00		
	Foundation, elevator pit	4	CY	$ 900.00	$ 3,600.00		$ 3,600.00			
	Footings, elevator pit	2	CY	$ 900.00	$ 1,800.00		$ 1,800.00			
	Slab, elevator pit	1	LS	$ 900.00	$ 900.00		$ 900.00			
	Concrete Cutting	1	LS	$ 1,500.00	$ 1,500.00		$ 1,500.00			
	Concrete placement at metal pan stairs	2	FLTS	$ 1,350.00	$ 2,700.00			$ 2,700.00		
04	**MASONRY**									**$ 1,750**
4.1	Repoint select areas of granite foundation	50	SF	$ 35.00	$ 1,750.00		$ 1,750.00			
05	**METALS**									**$ 109,715**
05 12	**Structural Steel Framing**					**$ -**				
05 50	**Miscellaneous Metals**					**$ 109,715**				
	New railings at existing interior stairs	48	LF	$ 300.00	$ 14,400.00		$ 14,400.00			
	Metal pan stairs, tread	109	SF	$ 235.00	$ 25,615.00			$ 25,615.00		
	Metal pan stairs, landing	210	LF	$ 190.00	$ 39,900.00			$ 39,900.00		
	New railings at new stairs	64	LF	$ 295.00	$ 18,880.00			$ 18,880.00		
	Wall railings at existing stair	40	LF	$ 105.00	$ 4,200.00		$ 4,200.00			
	Wall railings at new stair	64	LF	$ 105.00	$ 6,720.00			$ 6,720.00		

NORTH BAY
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DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
06	**WOOD, PLASTICS AND COMPOSITES**									**$ 7,685**
06 05	**Carpentry**					**$ 7,685**				
	New roof sheathing at ventilator ductwork openings	150	SF	$ 2.50	$ 375.00		$ 375.00			
	Infill ceiling at ventilator openings in attic	150	SF	$ 8.00	$ 1,200.00		$ 1,200.00			
	New wood trim, baseboard & door casings at new toilet rooms	150	LF	$ 7.40	$ 1,110.00		$ 1,110.00			
	Raise exterior porch at new accessible entrance, level w/ floor	250	SF	$ 20.00	$ 5,000.00		$ 5,000.00			
7	**THERMAL AND MOISTURE PROTECTION**									**$ 216,106**
07 11	**Roofing**					**$ 199,616**				
	Replace enitire roof down to existing sheathing. Re-use existing slate shingles and provide new slate shingles to	3,565	SF	$ 35.00	$ 124,775.00		$ 124,775.00			
	New roof at stair addition	400	SF	$ 26.00	$ 10,400.00			$ 10,400.00		
	New underlayment entire roof	3,565	SF	$ 2.50	$ 8,912.50		$ 8,912.50			
	Ice and water shield 36" from all eaves, 18" ea side of valleys, hips and ridges	935	SF	$ 1.10	$ 1,028.50		$ 1,028.50			
	New fiberglass insulation at attic ceiling, where missing and at void left by demolished venitlators	150	SF	$ 3.00	$ 450.00		$ 450.00			
	Existing downspouts to be extended to grade	70	LF	$ 15.00	$ 1,050.00			$ 1,050.00		
	Provide new downspouts at missing downspout at northwest corner	28	LF	$ 15.00	$ 420.00		$ 420.00			
	Replace copper gutters and downspouts at entrance porches	80	LF	$ 45.00	$ 3,600.00		$ 3,600.00			
	Remove and replace copper roofing at eaves	940	SF	$ 32.00	$ 30,080.00		$ 30,080.00			
	New cedar siding and vapor barrier at stair addition	2,100	SF	$ 9.00	$ 18,900.00			$ 18,900.00		
07 21	**Thermal Insulation**					**$ 3,990**				
	Batt insulation, new construction	2,100	SF	$ 1.90	$ 3,990.00			$ 3,990.00		
07 84	**Firestopping**					**$ 12,500**				
	Through walls and floors	1	LS	$ 2,500.00	$ 2,500.00		$ 2,500.00			
	Sealant	1	LS	$ 10,000.00	$ 10,000.00		$ 10,000.00			

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DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
08	**OPENINGS**									**$ 42,392**
08 41	**Windows**					**$ 3,200**				
	Windows at new stair tower	40	SF	$ 80.00	$ 3,200.00			$ 3,200.00		
08 12	**Doors, Frames and Hardware**					**$ 39,192**				
	Replace all door knobs with levers except at egress doors	18	EA	$ 294.00	$ 5,292.00			$ 2,646.00	$ 2,646.00	
	New exterior drs, frms, hdwr	3	EA	$ 3,800.00	$ 11,400.00			$ 11,400.00		
	New interior drs, frms, hdwr	9	EA	$ 2,500.00	$ 22,500.00			$ 22,500.00		
09	**FINISHES**									**$ 142,835**
09 21	**Gysum Wallboard Systems**					**$ 39,368**				
	Gypsum wallboard at new toilet rooms	1,500	SF	$ 8.00	$ 12,000.00		$ 12,000.00			
	GWB ceilings at toilet rooms	450	SF	$ 8.00	$ 3,600.00		$ 3,600.00			
	Gyp on metal studs, addition w/ sheathing	2,100	SF	$ 10.00	$ 21,000.00			$ 21,000.00		
	Gyp on metal framing, ceiling new stair	346	SF	$ 8.00	$ 2,768.00			$ 2,768.00		
09 68	**Flooring**					**$ 41,600**				
	Remove carpeting, refinish all wood floors	4,000	SF	$ 5.50	$ 22,000.00				$ 22,000.00	
	Remove carpeting, basement	1,200	SF	$ 1.50	$ 1,800.00		$ 450.00		$ 1,350.00	
	New carpet at basement	1,200	SF	$ 4.00	$ 4,800.00		$ 1,200.00		$ 3,600.00	
	Flooring at stair addition	400	SF	$ 10.00	$ 4,000.00			$ 4,000.00		
	Ceramic tile floors at toilet rooms	450	SF	$ 20.00	$ 9,000.00		$ 9,000.00			

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DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
09 91	**Painting and Finishing**					**$ 61,867**				
	Prime and paint (two coats) walls at new toilet rooms and reconfigured walls	1,500	SF	$ 2.50	$ 3,750.00		$ 3,750.00			
	Paint all walls, wood trim & ceilings throughout	7,700	SF	$ 3.00	$ 23,100.00				$ 23,100.00	
	Paint shaftwall	1,000	SF	$ 11.00	$ 11,000.00		$ 11,000.00			
	Power wash and clean exterior, paint	4,879	SF	$ 4.00	$ 19,517.02		$ 6,505.67	$ 6,505.67	$ 6,505.67	
	Scrape and paint metal fire escapes	1	LS	$ 4,500.00	$ 4,500.00		$ 4,500.00			
10	**SPECIALTIES**									**$ 11,241**
	Handicap signage	7,700	SF	$ 0.15	$ 1,155.00		$ 1,155.00			
	New egress signage	7,700	SF	$ 0.18	$ 1,386.00		$ 1,386.00			
	Fire protection specialties	6	EA	$ 375.00	$ 2,250.00		$ 2,250.00			
	Access panels	1	LS	$ 450.00	$ 450.00		$ 450.00			
	Toilet accessories at new toilet rooms	5	EA	$ 1,200.00	$ 6,000.00		$ 6,000.00			
11	**EQUIPMENT**									**$ -**
12	**FURNISHINGS**									**$ -**

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DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
14	**CONVEYING EQUIPMENT**									**$ 156,600**
	Install new four stop elevator and shaft to service Entry Level, Basment, 1st & 2nd floors	1	LS	$ 156,600.00	$ 156,600.00		$ 156,600.00			
15	**MECHANICAL**									**$ 526,343**
	Fire Protection					**$ 50,050**				
	New fire protection system	7,700	SF	$ 6.50	$ 50,050.00			$ 50,050.00		
	Plumbing					**$ 187,050**				
	Demolition and disconnects	7,700	SF	$ 1.00	$ 7,700.00			$ 7,700.00		
	Install accessible toilet rooms for staff, (includes accessible lavatories & water closets)	3	EA	$ 25,000.00	$ 75,000.00			$ 75,000.00		
	Install toilet rooms (includes lavatories and water closet mounted for juvenile use)	4	EA	$ 25,000.00	$ 100,000.00			$ 100,000.00		
	Gas piping	100	LF	$ 43.50	$ 4,350.00			$ 4,350.00		
15	**HVAC**					**$ 289,243**				
	Selective HVAC Demolition	1	LS	$ 7,000.00	$ 7,000.00			$ 7,000.00		
	Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit	1	LS	$ 142,842.70	$ 142,842.70			$ 142,842.70		
	Remove the existing window a/c units and replace them with new ductless split high efficiency ac units	11	EA	$ 9,000.00	$ 99,000.00			$ 99,000.00		
	Air distribution and grilles	3,000	LBS	$ 12.00	$ 36,000.00			$ 36,000.00		
	Testing, adjusting, balancing	40	HRS	$ 110.00	$ 4,400.00			$ 4,400.00		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
16	**ELECTRICAL**									**$ 186,020**
	Provide new tamper resistant electrical receptacles throuhout	7,700	SF	$ 3.44	$ 26,488.00		$ 26,488.00			
	Add receptacles at locations where extension cords are being used	10	EA	$ 212.00	$ 2,120.00		$ 2,120.00			
	Add GFCI recepatcles at all toilet room locations and near sinks	10	EA	$ 212.00	$ 2,120.00		$ 2,120.00			
	Replace ungrounded type receptacles with grounding type receptacles	7,700	SF	$ 3.44	$ 26,488.00		$ 26,488.00			
	Replace incandescent lamps with LED or compact fluorescent (CF) lamps	7,700	SF	$ 1.20	$ 9,240.00			$ 9,240.00		
	Replace manual switches with vacancy sensor switches where practical	7,700	SF	$ 1.20	$ 9,240.00			$ 9,240.00		
	Exterior fixtures should be replaced with LED type fixtures	6	EA	$ 690.00	$ 4,140.00				$ 4,140.00	
	Upgrade: Replace light fixtures at areas no renovated	6,000	SF	$ 8.00	$ 48,000.00				$ 48,000.00	
	Antique' pushbutton controls for lighting fixtures to be replaced	10	EA	$ 500.00	$ 5,000.00		$ 5,000.00			
	Install hookup for portable emergency generators	1	EA	$ 2,500.00	$ 2,500.00				$ 2,500.00	
	Replace exisitng fire alarm control equipment	7,700	SF	$ 4.00	$ 30,800.00		$ 30,800.00			
	Replace existing heat and smoke detectors	Included					$ -			
	Replace notification applicances, strobes, pull boxes etc. Mount at heights to meet ADA & relevant codes	Included					$ -			
	Visual notification appliances to be installed in toilet rooms, meeting, conference, classrooms and similar space to comply with ADA requirements	Included					$ -			

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 73 Main Street **10 -YEAR PLAN**

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
	Install carbon monoxide detectors in each room used by children	8	EA	$ 298.00	$ 2,384.00		$ 2,384.00			
	Elevator power allowance	1	LS	$ 7,500.00	$ 7,500.00		$ 7,500.00			
	Mechanical starters, feeds and disconnects	1	LS	$ 10,000.00	$ 10,000.00			$ 10,000.00		
	RECOMMENDED OPTIONS									**$ 2,500**
	Install video surveillance system	By Tenant, See project budget								
	Exterior keypad replaced to keypad w/ shield	1	EA	$ 2,500.00	$ 2,500.00			$ 2,500.00		
	TOTAL DIRECT COSTS						**$ 589,731**	**$ 807,859**	**$ 202,475**	**$ 1,600,065**

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
02	**DEMOLITION AND SITEWORK**									**$ 368,548**
02 41	**Demolition**					**$ 259,048**				
	Repair paving at parking & drives, scarify and existing paving, regrade as necessary and resurface with new bituminous asphalt paving. New curbing Re-stripe. (Regrade to maintain slope away from building perimeter.	30,000	SF	$ 4.50	$ 135,000.00			$ 135,000		
	Concrete pavers w/ sub base at main entrance	2,000	SF	$ 30.00	$ 60,000.00		$ 60,000			
	Regrade pavement at East & West side of gym to allow minimum of 8" clear from grade to siding	200	SF	$ 9.00	$ 1,800.00			$ 1,800		
	Remove West Stair, Treads, Risers and Railings to accommodate installation of new elevator. See attached drawings for extent.	800	SF	$ 10.00	$ 8,000.00		$ 8,000			
	Remove existing granite steps & platform at Main Entrance save for reuse.	200	SF	$ 10.00	$ 2,000.00		$ 2,000			
	Remove bituminous paving in front of Main Entrance to accommodate new ramp & reconstructed stairs.	2,000	SF	$ 2.00	$ 4,000.00		$ 4,000			
	Remove existing doors, walls and ceilings to accommodate reconfigured space for new elevator common corridor to new egress stair and new toilet rooms - See attached drawings for extent.	1,100	SF	$ 8.00	$ 8,800.00		$ 8,800			
	Remove existing rear dormer and wall to accommodate new stair tower	200	SF	$ 15.00	$ 3,000.00		$ 3,000			
	Remove wood finishes at Third floor walls, ceilings, prepare for installation of new wall and ceiling finishes (GWB)	2,000	SF	$ 8.00	$ 16,000.00		$ 4,000	$ 12,000		
	Remove existing cedar shingles to sheathing at cupola	500	SF	$ 7.00	$ 3,500.00		$ 3,500			
	Remove small toilet rooms at mid landing between 2nd & 3rd Floors	50	SF	$ 20.00	$ 1,000.00		$ 500		$ 500	
	Remove existing abandoned high velocity HVAC system, including ductwork, equipment and piping at Third Floor	1	LS	$ 7,500.00	$ 7,500.00			$ 7,500		
	Remove fire escapes	1	LS	$ 8,448.00	$ 8,448.00		$ 8,448			

NORTH BAY
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DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
	Sitework					**$ 84,500**				
	Bulk excavation, ramp foundation, and footings	1	LS	$ 38,000.00	$ 38,000.00		$ 38,000			
	Hand excavate for inteior elevator, foundation, footings	1	LS	$ 9,000.00	$ 9,000.00		$ 9,000			
	Regrade	4,000	SF	$ 1.00	$ 4,000.00			$ 4,000		
	New landscaping at front entry, planting and lawn	1,600	SF	$ 20.00	$ 32,000.00				$ 32,000	
	Perimeter drainage, clean	1	LS	$ 1,500.00	$ 1,500.00			$ 1,500		
02 81	**Hazardous Materials**					**$ 25,000**				
	Abatement allowance	1	LS	$ 25,000.00	$ 25,000.00		$ 12,500	$ 12,500		
03	**CONCRETE**									**$ 74,350**
03 30	**Cast-In-Place Concrete**					**$ 74,350**				
	New concrete ramp, frost wall, footings	500.00	SF	$ 125.00	$ 62,500.00		$ 62,500			
	Footings, elevator pit	2	CY	$ 900.00	$ 1,800.00		$ 1,800			
	Foundation, elevator pit	4	CY	$ 900.00	$ 3,600.00		$ 3,600			
	Slab, elevator pit	1	LS	$ 900.00	$ 900.00		$ 900			
	Concrete Cutting	1	LS	$ 1,500.00	$ 1,500.00		$ 1,500			
	Concrete placement at metal pan stairs	3	FLTS	$ 1,350.00	$ 4,050.00			$ 4,050		
04	**MASONRY**									**$ 20,100**
	Repoint select areas of granite foundation	100	SF	$ 35.00	$ 3,500.00		$ 1,750	$ 1,750		
	New granite curbing cheek walls at new main entrance stair and ramp.	20	LF	$ 350.00	$ 7,000.00		$ 7,000			
	Reinstall granite treads and risers at main entrance.	20	SF	$ 480.00	$ 9,600.00		$ 9,600			

NORTH BAY
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DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
05	**METALS**									**$ 208,845**
05 12	**Structural Steel Framing**					**$ 13,500**				
	Reinforce gymnasium roof structure to carry loads from new stair tower	250	SF	$ 54.00	$ 13,500.00		$ 13,500			
05 50	**Miscellaneous Metals**					**$ 195,345**				
	New metal pan stairs at new egress stair, treads, risers, stringers	210	SF	$ 235.00	$ 49,350.00		$ 49,350			
	Metal pan stairs, landing	315	SF	$ 190.00	$ 59,850.00		$ 59,850			
	New railings at new stairs	96	LF	$ 295.00	$ 28,320.00		$ 28,320			
	New handrails along walls at existing interior stair	90	LF	$ 205.00	$ 18,450.00			$ 18,450		
	Install new handrails at reconfigured main entry stairs and new ramp	175	LF	$ 225.00	$ 39,375.00		$ 39,375			
06	**WOOD, PLASTICS AND COMPOSITES**									**$ 265,575**
06 05	**Carpentry**					**$ 265,575**				
	New floor framing at demolished interior West stair	400	SF	$ 10.50	$ 4,200.00		$ 4,200			
	New wood trim, baseboard & door casing at new toilet rooms and reconfigured rooms - match existing style	1,250	LF	$ 7.50	$ 9,375.00		$ 9,375			
	North façade - repair cedar shingle siding at select areas	500	SF	$ 15.00	$ 7,500.00		$ 2,500	$ 2,500	$ 2,500	
	North façade - repair wood siding and trim at select areas around building	1,000	SF	$ 12.00	$ 12,000.00		$ 4,000	$ 4,000	$ 4,000	
	Install new cedar shingles at existing cupola	500	SF	$ 28.00	$ 14,000.00		$ 14,000			
	Repair and replace window trim / sills at select windows	30	EA	$ 800.00	$ 24,000.00		$ 24,000			
	Miscellaneous interior trim repair	1,000	LF	$ 7.50	$ 7,500.00			$ 3,750	$ 3,750	
	Wall framing, sheathing and siding at new stair tower	1,400	SF	$ 45.00	$ 63,000.00		$ 63,000			
	Improve guards, etc at Gym -- Allowance	1	LS	$ 20,000.00	$ 20,000.00			$ 20,000		
	Floor infill at shafts	200	SF	$ 20.00	$ 4,000.00			$ 4,000		
	Repair and replace exterior trim	1	LS	$ 100,000.00	$ 100,000.00		$ 33,333	$ 33,333	$ 33,333	

NORTH BAY
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DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
7	**THERMAL AND MOISTURE PROTECTION**									**$ 349,120**
07 11	**Roofing**					**$ 305,450**				
	Replace entire roof down to existing sheathing. Re-use existing slate shingles and provide new slate shingles to	7,500	SF	$ 35.00	$ 262,500.00		$ 262,500			
	New underlayment entire roof	7,500	SF	$ 2.50	$ 18,750.00		$ 18,750			
	Ice and water shield 36" at eaves, rakes and valleys	4,500	SF	$ 1.10	$ 4,950.00		$ 4,950			
	New slate roof at rear addtion to egress stair	550	SF	$ 35.00	$ 19,250.00		$ 19,250			
07 21	**Thermal Insulation**					**$ 6,170**				
	Rigid insulation at new egress stair tower	550	SF	$ 5.00	$ 2,750.00		$ 2,750			
	Batt insulation, walls, new construction	1,800	SF	$ 1.90	$ 3,420.00		$ 3,420			
07 84	**Firestopping and joint sealants**					**$ 37,500**				
	Through walls and floors	1	LS	$ 2,500.00	$ 2,500.00		$ 2,500			
	Exterior sealants	1	LS	$ 25,000.00	$ 25,000.00		$ 25,000			
	Interior sealants	1	LS	$ 10,000.00	$ 10,000.00		$ 10,000			
08	**OPENINGS**									**$ 109,400**
08 41	**Windows**					**$ 3,200**				
	Windows at new stair tower	40	SF	$ 80.00	$ 3,200.00		$ 3,200			
08 12	**Doors, Frames and Hardware**					**$ 106,200**				
	Update all existing door hardware to meet ADA codes	40	EA	$ 900.00	$ 36,000.00		$ 36,000			
	New doors, frames and hardware	27	EA	$ 2,600.00	$ 70,200.00		$ 70,200			

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
09	**FINISHES**									**$ 360,171**
09 21	**Gysum Wallboard Systems**					**$ 136,348**				
	New GWB ceilings at demolished interior West stair	400	SF	$ 8.00	$ 3,200.00		$ 3,200			
	Gypsum wall board at new reconfigured rooms	12,500	SF	$ 7.00	$ 87,500.00		$ 87,500			
	GWB, metal studs, exterior sheathing, stair tower	2,400	SF	$ 12.00	$ 28,800.00		$ 28,800			
	Shaft wall, Gyp, Elevator	1,296	SF	$ 13.00	$ 16,848.00		$ 16,848			
09 48	**Acoustical Ceilings**					**$ 25,600**				
	New suspended ceilings at reconfigured rooms	3,000	SF	$ 7.20	$ 21,600.00			$ 21,600		
	Repair suspended ceilings as needed	1,000	SF	$ 4.00	$ 4,000.00		$ 4,000			
09 68	**Flooring**					**$ 67,683**				
	Remove carpeting, refinish all wood floors	5,056	SF	$ 5.50	$ 27,808.00				$ 27,808	
	Refinish, repair ex wood floor	7,500	SF	$ 4.25	$ 31,875.00			$ 15,938	$ 15,938	
	Ceramic tile floors at toilet rooms	400	SF	$ 20.00	$ 8,000.00		$ 8,000			
09 91	**Painting and Finishing**					**$ 130,540**				
	Prime and paint (two coats) walls at new toilet rooms and reconfigured walls	12,500	SF	$ 2.50	$ 31,250.00		$ 31,250			
	Paint all walls, wood trim & ceilings throughout	4,500	SF	$ 2.50	$ 11,250.00		$ 3,750	$ 3,750	$ 3,750	
	Paint shaftwall	1,296	SF	$ 2.50	$ 3,240.00		$ 3,240			
	Paint new stair tower walls, ceilings	2,400	SF	$ 2.00	$ 4,800.00		$ 1,600	$ 1,600	$ 1,600	
	Exterior: scrape, prime, and paint	1	LS	$ 80,000.00	$ 80,000.00		$ 40,000	$ 20,000	$ 20,000	

NORTH BAY
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DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
10	**SPECIALTIES**									**$ 15,060**
	Handicap signage	17,000	SF	$ 0.15	$ 2,550.00		$ 2,550			
	New egress signage	17,000	SF	$ 0.18	$ 3,060.00		$ 3,060			
	Fire protection specialties	8	EA	$ 375.00	$ 3,000.00		$ 3,000			
	Access panels	1	LS	$ 450.00	$ 450.00		$ 450			
	Toilet accessories at new toilet rooms	5	EA	$ 1,200.00	$ 6,000.00		$ 6,000			
11	**EQUIPMENT**									**$ -**
12	**FURNISHINGS**									**$ -**
14	**CONVEYING EQUIPMENT**									**$ 210,000**
	Install new five-stop elevator to serve the Basement level, West entrance grade landing, First, Second and Third Floors.	1	LS	$ 210,000.00	$ 210,000.00		$ 210,000			

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
15	**MECHANICAL**									**$ 813,223**
	Fire Protection					**$ 110,500**				
	New fire protection system	17,000	SF	$ 6.50	$ 110,500.00		$ 110,500			
	Plumbing					**$ 122,200**				
	Demolition and disconnects	17,000	SF	$ 0.50	$ 8,500.00		$ 8,500			
	Install new accessible toilets as shown on plans	3	EA	$ 25,000.00	$ 75,000.00		$ 75,000			
	Upgrade existing plumbing fixtures at existing toilet rooms to remain	4	EA	$ 7,500.00	$ 30,000.00			$ 30,000		
	Gas piping	200	LF	$ 43.50	$ 8,700.00		$ 8,700			
	HVAC					**$ 580,523**				
	Selective HVAC Demolition	1	LS	$ 34,000.00	$ 34,000.00			$ 34,000		
	Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit	1	LS	$ 231,887.50	$ 231,887.50			$ 231,888		
	Remove and replace existing HVAC system for the gym and ground floor offices with new systems. For the Gym area a new packaged Dx cooling natural gas heating unit connected	1	LS	$ 149,835.00	$ 149,835.00			$ 149,835		
	Install new ductless split high efficiency ac units for the second and third floors.	4	EA	$ 9,000.00	$ 36,000.00			$ 36,000		
	Testing, adjusting, balancing	80	HRS	$ 110.00	$ 8,800.00			$ 8,800		
	Air distribution and grilles	10,000	LBS	$ 12.00	$ 120,000.00			$ 120,000		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
16	**ELECTRICAL**									**$ 273,700**
	The cover should be installed on the wireway above the branch circuit panels as required by cod	1	LS	$ 1,000.00	$ 1,000.00		$ 1,000			
	The former loadcenter in the gym office should be fitted with a blank plate.	1	EA	$ 500.00	$ 500.00			$ 500		
	The FPE loadcenters in the attic stair should be relocated and replaced	1	LS	$ 1,000.00	$ 1,000.00			$ 1,000		
	Replace ungrounded type receptacles with grounding type receptacles	17,000	SF	$ 3.44	$ 58,480.00			$ 58,480		
	Replace incandescent lamps with LED or compact fluorescent (CF) lamps	17,000	SF	$ 1.20	$ 20,400.00			$ 20,400		
	Replace manual switches with vacancy sensor switches where practical	17,000	SF	$ 1.10	$ 18,700.00			$ 18,700		
	Exterior fixtures should be replaced with LED type fixtures	6	EA	$ 1,000.00	$ 6,000.00				$ 6,000	
	New GFCI receptacles to be installed within 6 feet of a sink or other wet areas	10	EA	$ 212.00	$ 2,120.00		$ 2,120			
	Install hookup for portable emergency generators	1	EA	$ 4,000.00	$ 4,000.00			$ 4,000		
	Replace existing fire alarm control equipment	17,000	SF	$ 4.00	$ 68,000.00		$ 68,000			
	Replace existing heat and smoke detectors	Included								
	Replace notification appliances, strobes, pull boxes etc. Mount at heights to meet ADA & relevant codes	Included								
	Visual notification appliances to be installed in toilet rooms, meeting, conference, classrooms and similar space to comply with ADA requirements	Included								
	Install carbon monoxide detectors in each room used by children	Included								

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 65 Main Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
	Upgrade: Replace light fixtures at areas no renovated	9,500	SF	$ 8.00	$ 76,000.00				$ 76,000	
	Elevator power allowance	1	LS	$ 7,500.00	$ 7,500.00		$ 7,500			
	Mechanical starters, feeds and disconnects	1	LS	$ 10,000.00	$ 10,000.00			$ 10,000		
	RECOMMENDED OPTIONS									**$ -**
16.15	Install video surveillance system	By Tenant, See project budget								
	TOTAL DIRECT COSTS						**$ 1,788,289**	**$ 1,052,623**	**$ 227,179**	**$ 3,068,092**

NORTH BAY
CONSTRUCTION CONSULTANTS

Project: Westford Facilities Study
Date: May 10, 2013

ORDER OF MAGNITUDE COST ESTIMATE - 10 YEAR CAPITAL PLAN

DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
02	**DEMOLITION AND SITEWORK**									**$ 153,000**
02 41	**Demolition**					**$ 104,000**				
	Repair paving at parking & drives, scarify and existing paving, regrade as necessary and resurface with new bituminous asphalt paving, re-stripe. (Regrade to maintain slope away from building perimeter. New curbing	14,800	SF	$ 4.50	$ 66,600.00			$ 33,300	$ 33,300	
	Remove existing exterior masonry wall at new elevator lobby/stair construction - See drawing options for extent	60	SF	$ 38.00	$ 2,280.00		$ 2,280			
	Demolish existing walls, ceilings, floor finishes at reconfigured interior spaces - See drawing options for extent	2,400	SF	$ 10.00	$ 24,000.00			$ 24,000		
	Remove windows at new lobby / stair construction - See Options for extent	80	SF	$ 7.00	$ 560.00		$ 560			
	Remove existing stair and rails at Northeast entry, including entrance door	1	LF	$ 6,336.00	$ 6,336.00			$ 6,336		
	Remove fire escapes	1	LS	$ 4,224.00	$ 4,224.00		$ 4,224			
	Sitework					**$ 39,000**				
	Bulk excavation, ramp foundation, and footings	1	LS	$ 20,000.00	$ 20,000.00		$ 20,000			
	Hand excavate for inteior elevator, foundation, footings	1	LS	$ 5,000.00	$ 5,000.00		$ 5,000			
	Regrade	4,000	SF	$ 1.00	$ 4,000.00		$ 4,000			
	Loam, seed and landscaping	1	LS	$ 10,000.00	$ 10,000.00		$ 4,000	$ 3,000	$ 3,000	
02 81	**Hazardous Materials**					**$ 10,000**				
	Abatement allowance	1	LS	$ 10,000.00	$ 10,000.00		$ 5,000	$ 5,000		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
03	**CONCRETE**									**$ 24,052**
03 30	**Cast-In-Place Concrete**					**$ 24,052**				
	Slab on grade	276.00	SF	$ 12.00	$ 3,312.00		$ 3,312			
	Foundation, addition	10.00	CY	$ 680.00	$ 6,800.00		$ 6,800			
	Footings, addition	6.00	CY	$ 680.00	$ 4,080.00		$ 4,080			
	Footings, elevator pit	3	CY	$ 680.00	$ 2,040.00		$ 2,040			
	Foundation, elevator pit	4	CY	$ 680.00	$ 2,720.00		$ 2,720			
	Slab, elevator pit	1	LS	$ 900.00	$ 900.00		$ 900			
	Concrete Cutting	1	LS	$ 1,500.00	$ 1,500.00		$ 1,500			
	Concrete placement at metal pan stairs	2	FLTS	$ 1,350.00	$ 2,700.00		$ 2,700			
04	**MASONRY**									**$ 115,998**
	Repoint / repair exterior masonry walls	1,298	SF	$ 30.00	$ 38,941.20		$ 38,941			
	Wash down and clean exterior masonry	3,245	SF	$ 2.60	$ 8,437.26		$ 8,437			
	Repoint / repair joints at concrete cornices	197	LF	$ 32.00	$ 6,304.00		$ 6,304			
	New masonry walls at new accessible entrance	1,154	SF	$ 54.00	$ 62,316.00		$ 62,316			

NORTH BAY
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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
05	**METALS**									**$ 94,784**
05 12	**Structural Steel Framing**					**$ 9,384**				
	Roof framing	276	SF	$ 26.00	$ 7,176.00		$ 7,176			
	Metal roof deck at new entrance	276	SF	$ 8.00	$ 2,208.00		$ 2,208			
05 50	**Miscellaneous Metals**					**$ 85,400**				
	New railings at existing interior stairs	48	LF	$ 300.00	$ 14,400.00			$ 14,400		
	Metal pan stairs, tread	80	SF	$ 235.00	$ 18,800.00		$ 18,800			
	Metal pan stairs, landing	156	SF	$ 190.00	$ 29,640.00		$ 29,640			
	New railings at new stairs	48	LF	$ 295.00	$ 14,160.00		$ 14,160			
	Wall railings at existing stair	40	LF	$ 105.00	$ 4,200.00			$ 4,200		
	Wall railings at new stair	40	LF	$ 105.00	$ 4,200.00		$ 4,200			
06	**WOOD, PLASTICS AND COMPOSITES**									**$ 18,120**
06 05	**Carpentry**					**$ 18,120**				
	Misc blocking	1	LS	$ 4,800.00	$ 4,800.00		$ 4,800			
	New interior wood trim to match existing at reconfigured spaces both levels	1,800	BF	$ 7.40	$ 13,320.00		$ 6,660	$ 6,660		

NORTH BAY
CONSTRUCTION CONSULTANTS

DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
7	**THERMAL AND MOISTURE PROTECTION**									**$ 70,774**
07 11	**Roofing**					**$ 54,854**				
	Replace existing membrane roof and copings	2,257	SF	$ 22.00	$ 49,654.00		$ 39,723	$ 9,931		
	New membrane roof system with rigid insulation at new stair / elevator lobby	260	SF	$ 20.00	$ 5,200.00		$ 5,200			
07 21	**Thermal Insulation**					**$ 3,420**				
	Batt insulation, new construction	1,800	SF	$ 1.90	$ 3,420.00		$ 3,420			
07 84	**Firestopping**					**$ 12,500**				
	Through walls and floors	1	LS	$ 2,500.00	$ 2,500.00	.	$ 2,500			
	Sealant	1	LS	$ 10,000.00	$ 10,000.00		$ 10,000			
08	**OPENINGS**									**$ 43,360**
08 41	**Windows**					**$ 12,360**				
	Storefront system at new entrance	80	SF	$ 92.00	$ 7,360.00		$ 7,360			
	Windows at addition	40	SF	$ 80.00	$ 3,200.00		$ 3,200			
	New window at removed door to fire escape	2	EA	$ 900.00	$ 1,800.00		$ 1,800			
08 12	**Doors, Frames and Hardware**					**$ 31,000**				
	Update all door hardware to meet ADA codes	15	EA	$ 600.00	$ 9,000.00			$ 9,000		
	New doors & frames	8	EA	$ 2,500.00	$ 20,000.00		$ 20,000			
	Sealant and flashing	100	LF	$ 20.00	$ 2,000.00		$ 2,000			

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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
09	**FINISHES**									**$ 119,460**
09 21	**Gysum Wallboard Systems**					**$ 47,440**				
	Exterior wall framing & sheathing, addition	1,154	SF	$ 9.00	$ 10,386.00		$ 10,386			
	Frame ceiling, addition	276	SF	$ 10.00	$ 2,760.00		$ 2,760			
	Shaft wall, Gyp, Elevator	609	SF	$ 16.00	$ 9,744.00		$ 9,744			
	Toilet rooms and closets	1,258	SF	$ 10.25	$ 12,894.50		$ 12,895			
	Gyp ceilings	1,110	SF	$ 10.50	$ 11,655.00		$ 11,655			
09 68	**Flooring**					**$ 31,000**				
	Remove carpeting, refinish all wood floors	3,000	SF	$ 5.50	$ 16,500.00				$ 16,500	
	New floor at addition	300	SF	$ 15.00	$ 4,500.00		$ 4,500			
	Ceramic tile floors at toilet rooms	500	SF	$ 20.00	$ 10,000.00		$ 10,000			
09 91	**Painting and Finishing**					**$ 41,020**				
	Prime and paint (two coats) walls at new toilet rooms and reconfigured walls	4,408	SF	$ 2.50	$ 11,020.00		$ 11,020			
	Paint all walls, wood trim & ceilings throughout	6,000	GSF	$ 3.00	$ 18,000.00			$ 9,000	$ 9,000	
	Exterior paint at trim	1	LS	$ 12,000.00	$ 12,000.00			$ 6,000	$ 6,000	

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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
10	**SPECIALTIES**									**$ 11,580**
	Handicap signage	6,000	SF	$ 0.15	$ 900.00		$ 900			
	New egress signage	6,000	SF	$ 0.18	$ 1,080.00		$ 1,080			
	Fire protection specialties	2	EA	$ 375.00	$ 750.00		$ 750			
	Access panels	1	LS	$ 450.00	$ 450.00		$ 450			
	Toilet partitions	4	EA	$ 1,340.00	$ 5,360.00		$ 5,360			
	Urinal screens	1	EA	$ 640.00	$ 640.00		$ 640			
	Toilet accessories at new toilet rooms	2	EA	$ 1,200.00	$ 2,400.00		$ 2,400			
11	**EQUIPMENT**									**$ -**
12	**FURNISHINGS**									**$ -**
14	**CONVEYING EQUIPMENT**									**$ 132,825**
	Install new three-stop elevator to serve the grade level mid-stop, basement, main level	1	LS	$ 132,825.00	$ 132,825.00		$ 132,825			

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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
15	**MECHANICAL**									**$ 349,556**
	Fire Protection					**$ 39,000**				
	New fire protection system	6,000	SF	$ 6.50	$ 39,000.00			$ 39,000		
	Plumbing					**$ 97,850**				
	Demolition and disconnects	1	LS	$ 3,500.00	$ 3,500.00		$ 3,500			
	Install new accessible toilets as shown on plans	3	EA	$ 30,000.00	$ 90,000.00		$ 90,000			
	Gas piping	100	LF	$ 43.50	$ 4,350.00			$ 4,350		
15	**HVAC**					**$ 212,706**				
	Selective HVAC Demolition	6,000	SF	$ 1.00	$ 6,000.00			$ 6,000		
	Provide a new 100% outdoor air packaged dx cooling and natural gas heating unit	1	LS	$ 111,306.00	$ 111,306.00			$ 111,306		
	New ductless split high efficiency ac units	4	EA	$ 9,000.00	$ 36,000.00			$ 36,000		
	New ventilation system for all toilet rooms	4	EA	$ 1,200.00	$ 4,800.00			$ 4,800		
	Air distribution and grilles	4,000	LBS	$ 12.00	$ 48,000.00			$ 48,000		
	Testing, adjusting, balancing	60	HRS	$ 110.00	$ 6,600.00			$ 6,600		

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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
16	**ELECTRICAL**									**$ 107,176**
	Electrical demolition	6,000	SF	$ 2.00	$ 12,000.00		$ 12,000			
	Install new tamper-resistant receptacles	6,000	SF	$ 3.44	$ 20,640.00		$ 20,640			
	Install GFCI receptacles in toilet rooms and within six feet of a sink or other wet areas	10	EA	$ 212.00	$ 2,120.00		$ 2,120			
	Replace incandescent lamps with LED or compact fluorescent (CF) lamps	6,000	SF	$ 1.20	$ 7,200.00				$ 7,200	
	Replace manual light switches to vacancy sensor types switches where practical	14	EA	$ 265.00	$ 3,710.00			$ 1,855	$ 1,855	
	Replace exterior light fixtures with LED type fixtures	6	EA	$ 690.00	$ 4,140.00				$ 4,140	
	Replace existing FCI fire alarm control equipment	6,000	SF	$ 5.00	$ 30,000.00		$ 30,000			
	Replace existing heat and smoke detectors	16	EA	$ 298.00	$ 4,768.00		$ 4,768			
	Replace notification appliances with devices which are ADA compliant	8	EA	$ 270.00	$ 2,160.00		$ 2,160			
	Install visual notification appliances in all toilet rooms, classrooms and similar space to comply with the requirements of ADA	6	EA	$ 491.00	$ 2,946.00		$ 2,946			
	Install carbon monoxide detectors per 527 CMR 31.00	4	EA	$ 298.00	$ 1,192.00		$ 1,192			
	Elevator power allowance	1	LS	$ 7,500.00	$ 7,500.00		$ 7,500			
	Mechanical starters, feeds and disconnects	1	LS	$ 8,800.00	$ 8,800.00			$ 8,800		

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DIRECT COST DETAIL - 170 Plain Street

DIV.	ELEMENT	QTY	UNIT	UNIT COST	COST	SUBTOTAL	A - 1-3 YEARS	B - 4-6 YEARS	C - 7-10 YEARS	TOTAL
	RECOMMENDED OPTIONS									**$ 13,999**
	Install video surveillance system	By Tenant, See project budget								
Option C - (In addition to Base work) - Preferred Option										
DIVISION 2 Demolition										
	Remove existing North stair to accommodate new toilet rooms	91	SF	$ 45.00	$ 4,095.00			$ 4,095		
	Remove existing masonry wall at rear of building at new lobby and elevator entrance - Basement and Main Levels	64	SF	$ 45.00	$ 2,880.00		$ 2,880			
	Remove existing metal fire escapes	1	EA	$ 4,224.00	$ 4,224.00		$ 4,224			
	Remove existing interior partitions per drawings to accommodate reconfigured walls	1,000	SF	$ 2.00	$ 2,000.00		$ 2,000			
	Remove existing wheelchair lift at Basement Level	1	EA	$ 800.00	$ 800.00		$ 800			
	TOTAL DIRECT COSTS						**$ 772,056**	**$ 401,633**	**$ 80,995**	**$ 1,254,684**

OPTIONS

The following are proposed design options.

Gienapp Design Associates, LLC
Architects & Planners
20 Conant Street
Danvers, MA 01923
978-750-9062 ▪ www.gienappdesign.com

Historic Buildings Condition Assessment
Westford, Massachusetts