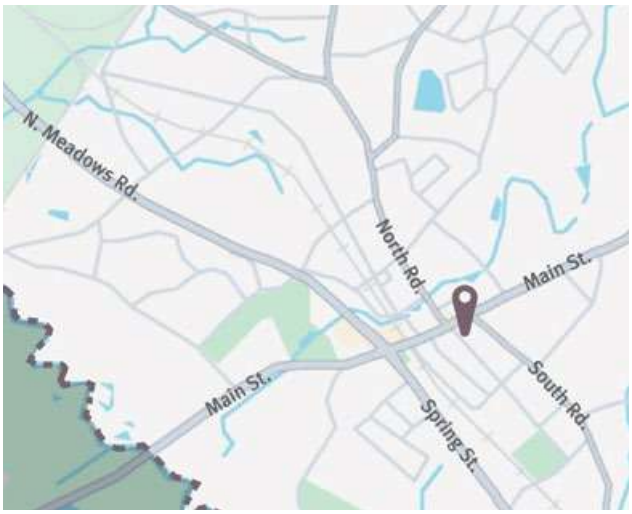


Medfield Public Library



Facilities Information

Address:	468 Main Street
Building Use:	Library
Year(s) Built:	1917
Major Renovations	1998 (addition), 2020's (attic insulation)
Building Area:	22,192 SF
Assessed Value:	$4,856,700
On Site Combustion:	yes
Capacity for Solar:	no

Electrification Information	EXISTING	PROPOSED	% CHANGE
Electric (KWH/yr)	75,542	147,735	96%
Natural Gas (kBTU/yr)	455,800	0	-100%
TOTAL Energy Use (kBTU/yr)	713,550	504,071	29%
Electric Utility Cost ($/yr)	$9,707	$18,984	96%
Natural Gas Utility Cost ($/yr)	$4,986	$0	-100%
TOTAL Utility Cost ($/yr)	$14,693	$19,984	29%
TOTAL Emissions (MTCO2e/yr)	44	26	-41%

CONDITIONS SUMMARY

PARKING	Parking lot and drive are in adequate condition.
LANDSCAPE	Some plantings are overgrown and should be trimmed/pruned. Areas are over-mulched, covering masonry weeps.
SIDEWALKS	Portions of the concrete walks to the main entrance are uneven - potential trip hazards present. Original entry is now only used as an emergency exit, stairs and landing at original entry are deteriorating.
FOUNDATIONS	Original building has a brick foundation with stucco parging. The 1998 addition has a poured concrete foundation. The condition of the original is adequate but there are signs of water infiltration, in the basement interior. Parging at original foundation requires patching and some crack repair. Window wells are in poor condition.
STRUCTURE	Original building is a full wythe, solid brick wall with wood framing. The 1998 addition is a steel-framed structure with a brick veneer exterior.
ROOF	Wood-framed, gabled roofs are finished with EPDM and slate tile. The roofs appear to be in good condition and have been repaired within the last 10 years. Roofs are flashed into brick parapets at each end at both the original building and the addition. Flat areas are membrane roofs flashed into brick walls.
GUTTERS & RAINWATER MANAGEMENT	Copper gutters and downspouts are located at the eaves and are routed to the underground collection system. Metal snow guards are located at strategic areas. Some gutters and downspouts are damaged. Others appear to be decorative only as they do not attach to a downspout.
WALLS & FAÇADE	Original brick facades are in adequate condition, though there are signs of weathering and porosity. Some bricks appear damaged and effloresce is present in some areas, indicating water infiltration. Façade at the 1998 addition in relatively good condition though regular maintenance and inspection of masonry recommended.
WINDOWS	Windows are vinyl-clad throughout - most likely original windows were replaced in the addition renovation. Exterior caulking should be thoroughly inspected and repaired as part of routine maintenance.
DOORS & ENTRIES	Doors are a combination of solid wood entry doors (original main entrance non-operation and emergency egress only). Other egress doors are flush metal. ADA operator non-functional at main entrance. Wood trim at entrance canopy is in need of sanding and repainting.
SEALANTS & JOINTS	Original building façade in need of repointing - some repointing work appears to have been done incorrectly causing potential failure in mortar and face brick. Shrinking mortar present at several locations. Masonry joints at 1998 addition should be fully inspected and repointed if necessary as building is approaching 20 years of age. Several penetrations require sealant.

CONDITIONS SUMMARY - CONT.

FLOORING	Most of the building is carpeted with the exception of the main entry lobby and circulation desk which is finished with VCT. There is ceramic tile in the bathrooms. Carpet at the main level appears to be original from 1998. Carpet at the main level of the original building appears to have reached it's end of life and should be replaced. Sections of carpet in the basement have been replaced within recent years. The carpet at the children's area at the second floor has reached it's end of life and replacement is recommended.
WALLS	Walls are either painted GWB or painted plaster and lath. Walls are mostly in good condition except in areas of the original building where water infiltration is causing the paint to peel. Repair and replacement is recommended once source of water infiltration is addressed.
CEILINGS	Ceilings are either suspended ACT or painted plaster. Ceilings are mostly in adequate condition with minimal staining on the ACT ceilings. Some areas of plaster ceilings show signs of water damage and paint is peeling.
STAIRS	Steel pan and concrete stairs are finished with a rubberized surface. The condition is adequate.
ELEVATORS & LIFTS	Elevator appears to be in good, working condition.
PLUMBING FIXTURES	Fixtures are vitreous china and stainless steel. All fixtures appear to be functioning properly. Building was last renovated in 1998.
WATER DISTRIBUTION	There is a 2-inch domestic water service with a 1-inch water meter. There is no reduced pressure backflow preventer on the service. Distribution piping is copper tubing with soldered joints and fittings. Domestic Hot Water is produced by an electric tank type water heater. The water heater appears to be in good condition. There is no thermostatic mixing valve on the system. The hot water system is recirculated.
SANITARY WASTE	Cast iron is used for sanitary and storm drainage. Where visible, the cast iron pipe appears to be in good condition. Smaller pipe sizes appear to be copper.
OTHER	An elevated pressure gas service is provided to the building. Gas meter is located on the exterior. Natural gas is provided to the heating boiler. Gas piping is black steel with threaded joints. Gas piping appears to be in good condition.
ELECTRICAL SERVICE & DISTRIBUTION	120/208V 3phase 4 wire 800Ampere service. Manufactured by Siemens.800Ampere main breaker feeds 800Ampere MDP. The Service is fed from a utility co. owned pad mounted transformer below grade. Distribution system is in fair condition. The service is adequately sized for the current use, however it is Marginal for any substantial renovation with an electric heating system.
LIGHTING & POWER	Some lighting and lamps have been upgraded to LED. Exit signs are edge-lit, but backup battery status is unclear. Occupancy sensors are in some areas, though some wall-mounted sensor lenses are damaged. Most spaces use line voltage switches for control. Site lighting consists of decorative pole-mounted lanterns with screw-in LED bulbs. There are no required service receptacles for the RTUs.

CONDITIONS SUMMARY - CONT.

COMMS & SECURITY	The building uses Category 5 cabling, but the rack patching is disorganized and needs reorganization. It has copper telephone lines, a Toa mixer/amp for general paging, and an outdated Vodavi PBX system. UPS units are not rack-mounted and sit on equipment or furniture. The CCTV system has several cameras with image issues, covering only interior areas and lacking IP functionality. The building also has an intrusion system with keypads, door contacts, and motion sensors, but no access control system.
EMERGENCY POWER	There is no generator. Emergency lighting is accomplished using battery units with remote heads and bodine ballasts. The system looks to be having issues. Bodine ballasts seem to be problematic. Emergency lighting generally does not look to be adequate. A lights out test should be done to determine code compliance.
FIRE ALARM	Fire alarm control panel is a Simplex 4020. The panel reported system normal during the site visit. Transmission of alarms is accomplished via AES intellinet wireless transmitter. Notification coverage is inadequate. The control panel is beyond its serviceable life.
OTHER	The building contains a lightning protection system.
HVAC SUPPLY & GENERATION	The building has 8 packaged RTUs with DX cooling and natural gas heat; two units were recently replaced, and six more are planned for replacement with heat pumps to reduce fuel use. Perimeter and supplemental heat are provided by hydronic fin-tube radiation and cabinet unit heaters. Hydronic heat comes from a Lochinvar Knight high-efficiency condensing boiler with a 399 CFH input and 380 MBH output.
DISTRIBUTION	Supply and return ductwork distribution is run throughout the building and distributed through registers, grilles and diffusers. Hydronic heat is distributed throughout the building through hot water piping.
UNIT SOURCES	Registers, grilles and diffusers distribute supply and return air. Exhaust grilles are provided for exhaust terminations in spaces
CONTROLS	The building uses standalone, dated controls for RTUs and supplemental heat sources. Though occupied and unoccupied modes may exist, they likely aren't maintained. New thermostats will be needed for the heat pump RTUs, and a building management system is recommended.
FIRE PROTECTION	The building has full automatic sprinkler protection with a 6-inch fire service, a 4-inch double check valve, one wet and one dry 4-inch alarm valve, and a 4-inch Storz Fire Department connection. Piping is black steel with couplings or threaded joints as needed. Sprinkler heads are semi-recessed pendant type in ceiling areas and upright in non-ceiling areas. The system appears to be in good condition.

CAPITAL RECOMMENDATIONS

ELEMENT TITLE	RECOMMENDATIONS	COST ESTIMATE	PRIORITY
Exterior Walls	Repoint original portion of the building with similar mortar mix and aggregate.	$145,000	1
	Remove and replace broken face bricks.	$36,250	1
	Repoint joints in water table bricks or add sealant as a soft joint.	$14,500	1
	Repoint poorly repaired areas to match the existing mortar's consistency and material.	$88,620	1
	Re-seal all existing control joints and add backer rod where missing (test existing caulking for ACM).	$29,540	1
	Engage an exterior envelope specialist to evaluate the source of water infiltration in the areaway. Investigate potential sources, including open joints in brickwork, area drain failure, failed seams in parapet coping, or roof leaks; destructive testing may be necessary.	$14,770	1
	Core out and restore weeps at the 1998 addition. Review construction documents to confirm if through-wall base flashing was installed in the brickwork; destructive testing may be necessary.	$14,770	1
	If base flashing is present, install additional weep holes as needed. Avoid placing mulch in a way that could block these weep holes.	$7,385	1
	Apply sealant to the open joint where horizontal flashing was cut in at the shed roof on the rear wall.	$4,431	1
	Entire area of brick - clean and then apply (2) coats of brick sealer. A restoration detergent is recommended.	$59,080	1
Exterior Windows	Remove storms and replace windows in original building with triple-glazed wood windows to match original.	$804,460	1
	Verify window sills on east side pitch away from window. Make adjustments as necessary.	$4,431	1
	Upon completion of area well repairs, check window sills there for damage or infiltration and make similar repairs.	$7,250	1
Roof Coverings	Replace all EPDM roof areas	$73,850	1
Wall Finishes	After exterior and roof repairs are complete, repair all wood trim in original building.	$14,770	1
Floor Finishes	Replace carpet in first floor back of house	$23,200	1
Ceiling Finishes	After roof repairs, repaint ceiling in original building and replace damaged ceiling tiles	$108,750	1

CAPITAL RECOMMENDATIONS - CONT.

Electrical Service & Distribution	Provide code required service receptacles at RTU's	$7,250	1
Lighting & Branch Wiring	Upgrade emergency lighting system to a combination of emergency battery units and inverters.	$58,000	1
Communications & Security	Replace fire alarm system with new addressable system with compliant notification and detection devices.	$145,000	1
Priority 1 Total		**$1,661,307**	
Standard Foundations	Remove areas of loose stucco and apply new.	$1,477	2
	Create control joint in area of current crack and fill joint with sealant and where stucco meets any other dissimilar materials.	$7,385	2
Exterior Walls	Replace stucco finish in the exterior stairwell. Remove handrail for the work and reinstall. Install control joints at vertical cracks, and apply sealant where stucco meets adjoining materials.	$43,500	2
	Rebuild the original brick steps and entrance platform of the 1917 wing.	$29,540	2
	Scrape and paint existing wood louvers at rear shaft, add bird screen where missing, or blank-off if not functional.	$4,431	2
	Provide sealant around electrical service penetrations on west side.	$725	2
Exterior Windows	Replace the existing window caulking in the addition. Clean any mildew from window surfaces.	$118,160	2
Roof Coverings	Replace damaged gutter hangers. Provide additional hangers at shaded areas to help prevent further ice damage.	$14,500	2
	Provide adapters where missing at downspouts. Replace damaged section of downspout at rear with cast-iron receptor and fasten to brick to prevent further damage.	$2,954	2
	Provide termination bars at areas noted above	$4,431	2
Wall Finishes	Scrape all loose paint, prime and repaint.	$14,770	2
	Test for and monitor moisture levels in the space to prevent further peeling.	$21,750	2
Controls & Instrumentation	Upgrade to new BMS	$383,393	2
Lighting & Branch Wiring	Upgrade interior lighting to LED. Provide new lighting controls, occupancy and daylight sensors in compliance with current energy codes.	$130,500	2
	Upgrade site pole light with LED lantern.	$5,800	2

CAPITAL RECOMMENDATIONS - CONT.

Landscaping	Clean debris from subsurface drainage, excavate down and add a layer of crushed stone at basement windows.	$1,477	2
Priority 2 Total		**$784,793**	
Standard Foundations	Scrape and paint existing metal grates, handrails and guardrail.	$1,477	3
	Add top rail to existing guardrail to achieve minimum 36” height	$1,477	3
Exterior Walls	Scrape, paint, and reinstall the existing handrails and guardrails at the 1917 entrance.	$2,954	3
	Scrape and paint all existing metal brackets on original building.	$4,431	3
	Remove random rusted fasteners and fill holes with sealant.	$2,954	3
	Add handrails to steps leading from side door on east and clean vegetation off steps.	$1,477	3
	Scrape and repaint wood columns, trim, etc. (repeat every 5 yrs)	$11,816	3
Exterior Windows	Replace windows in Addition with triple glazed fiberglass windows	$643,568	3
Exterior Doors	Replace rusted hinges at rear HM door.	$1,477	3
Floor Finishes	Replace all carpet, except back of house to replaced earlier	$434,408	3
Domestic Water Distribution	Install thermostatic mixing valve on exiting water heater	$3,625	3
Communications & Security	Upgrade data wiring to CAT6 with new patch panels racks and UPS	$116,000	3
	Upgrade access control and CCTV systems	$72,500	3
Parking Lots	Provide new compliant sign posts, remount handicap parking signs. Eliminate lip in paving and granite accent strip to provide flush conditions. Replace damaged brick edging. Verify entrance slope (if it exceeds 1:20, add handrail on side of ramp segment per MAAB regulations). Relocate dumpsters to maintain sidewalk width. Relocate book depository for proper clearance at Knox box.	$29,540	3
Accessibility	Accessibility upgrades per 2021 Self Evaluation and Transition Plan	$59,378	3
Priority 3 Total		**$1,387,082**	
Total		**$3,833,182**	

ELECTRIFICATION RECOMMENDATIONS

ELEMENT TITLE	RECOMMENDATIONS	COST ESTIMATE	PRIORITY
D30-HVAC	The Library is served by 8 RTUs, 2 have already been replaced recently and the remaining 6 are scheduled to be replaced with air source heat pumps to reduce the gas consumption for the building. The high efficiency gas boiler appears to be operating in good to fair condition and shouldn't require replacement for 6-10 years.	$1,287,136	2
D50 Electrical	Replace existing 800 amp 120/208V 3 phase service with a 1200 ampere 120/208V 3 phase service and back feed existing panelboards.	$174,000	2
Total		**$1,461,136**	