Project: **A060800 Town of Maynard**

Campus: **Maynard High School**

Asset Name: **Maynard High School**

Statistics:

Total Requirements Cost:	$13,955,422.65
Assessed Value:	$3,590,400.00
Current Replacement Value:	$0.00
Year Constructed:	1962
Year Last Renovated:	Library 1988 / Cafeteria & Auditorium 1992
Size:	89,000 SQFT
Construction Type:	
Use:	High School 9-12 / Administration / Classrooms

Address	1 Tiger Drive
City:	Maynard
State:	MA
Zip:	01754-

Description:

Building Description:
The existing Maynard High School was built in 1962 as a series of rectangular shaped wings around a central courtyard. The music and art rooms, gymnasium, cafeteria, administration areas, some classrooms, and the auditorium are all single story elements. The classroom wing on the eastern end of the building is a two story structure. There is no basement. There is a light gage steel plenum system in the corridor ceilings.

Architectural:

Substructure:
Floor and Foundation Structure:
The building has cast-in-place concrete foundations; spread footings, foundation walls, and slabs-on-grade. The structure is founded on spread footings with an allowable soil bearing capacity of 2 tsf. The second floor of the classroom wing is framed with steel open web joists supported on steel beams with a 3' thick cast-in-place slab cast on form deck.

Superstructure:

Exterior Walls:
Wall and Column Structure:
The open web steel joists that frame the auditorium roof appear to be supported on CMU bearing walls, similarly for the long span deck panels at the art/music areas. Structural steel tubes support the roof and floor steel at the classroom and Administration areas. The gym roof is supported on W-section columns bearing on CMU walls about half way up. See Figure 3. The interior CMU walls infill between steel columns throughout the building to provide lateral stability. The exterior walls of most of the building appear to be brick masonry veneer with CMU back-up and large wood windows. The upper walls of the gym appear to be a non-structural translucent composite panel.

Exterior Doors:
Exterior doors are hollow metal with continuous hinge. The hardware is in fair to good condition. Water shed devices are missing at most door heads. Most doors from the school have a step making them non-compliant. The front entrance is marked as a Handicap Accessible entrance. MAAB calls for all public means of ingress and egress to the building to be handicap accessible.

Exterior Windows:
The exterior swing hopper windows are predominately housed within the aluminum curtain wall. They have no thermo break and are single glazed units.

Roofing:
Roof Structure:
The roof framing for this structure varies. The gym roof is framed with steel roof trusses made up of steel "T" sections and double angles, with 4.5" deep cellular acoustical deck panels. The framing for the auditorium roof is 1.5" deep roof deck supported on open web steel joists. The rest of the structure has 7.5" deep cellular acoustical deck panels framing between structural steel beams at the corridors and at the building exterior.

Roof Surface:
The roof is an early rubber membrane made by Carlyle, approximately 10 to 15 years in age. It has evidence of being patched in several lcoations. The expansion joints membrane cover is consistently separating from primary roof membrane, with evidence of many repairs.
The flashing appears to be 6" above the roof surface and consequently will allow moisture into the masonry from the freeze / thaw of snow build up. The same issue is apparent on several of the louvers. It appears that when this roof was replaced from an original T & G to an insulated rubber membrane the design was for a dead flat inslation with approximately a 1 inch tapper up at the roof edge perimeter. The roof drains are set in pockets 3 and 4 inches deep. Because of the lack of slope to drain water and snow melt there are ponds throughout the roof areas. The slightest leak will saturate the roof insulation. Once wet it is of little insulating value.

Interior Partitions:
Interior partitions vary from masonry, tile and GWB. Typically the wall surfaces need painting and cleaning but are generally in good condition.

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Interior Doors:	Interior original wood doors are in average condition. They have been fitted with compliant hardware.
Wall Finishes:	Wall finishes vary from masonry, tile and GWB. Typically the wall surfaces need painting and cleaning but are generally in good condition.
Floor Finishes:	Floor finishes are average to good condition and vary from wood (Gynasium), to tile (bathrooms & locker rooms) and VAT (corridor & classroom). The VAT is showing signs of wear in some of the transitions between corridor and classrooms.
Ceiling Finishes:	The ceilings are in average condition overall, however, there is evidence of water penetration in some of the classrooms. The gymnasium paint is badly peeling of the ceiling panels.
Sitework:	The bituminous concrete on the site is in poor condition and in need of replacement. The sidewalks and ramps are in poor condition and in need of replacement. Many of the walks and ramps do not meet current ADA and MAAB requirements. Some of the sidewalks are missing accessible curb cuts at crosswalk locations. The curbing is a mixture of granite and bituminous concrete. A good portion of the paved areas have no curbing. Some granite curbing has been painted yellow, however, may still be re-used on the site if needed. There is limited fencing on site which is in satisfactory condition. The site has some wood guard rails which are in need of some repair.There were not enough handicap parking spaces. There were two located to the front of the site. Additional spaced will be needed in the student lot. Many of the walkways to non-accessible doorways were over 5%. Some flat walks around the site had greater than 2% cross slope. The path to the playing fields was not accessible. There is no specified trash location. A dumpster was placed in the parking lot, and barrels were sitting outside the school. The lighting on site appears sufficient. There was an excess of parking spaces during the day. The general circulation pattern is satisfactory. A turnaround is provided with some additional parking separate from the student lot. Perpendicular parking along the main road coupled with narrow road widths create and unsafe back-out conditions. There currently is Emergency access around most of the school. Vehicles could access the back of the school via a pedestrian walkway.
Mechanical:	The schools have received average maintenance of the HVAC systems over there occupied years. Even with adequate maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance, etc. Systems will gradually deteriorate to a point of exceeding their maximum serviceable life. These building are a typical example of such projects. While generally speaking, most systems are operating and maintaining reasonable space temperature control, but due to the antiquated nature of the mechanical systems and their gradual scaling of the various piping systems, heat transfer rates have become reduced and the overall system is taxed to a point of inefficiency being created by the slowly depreciating system. In addition automatic temperature control appears compromised due to failed controls and equipment and ventilation rates and good air-quality are compromised due to the progressing surface contamination on many systems as well as failed controls. While there are no catastrophic failures obvious with the present systems, the systems could continuously be repaired and modified on a sectional basis that will keep the systems operating maintaining acceptable space temperature control however, continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. Overall air quality will also be continuously compromised since many of the controls in the ventilation systems do not operate. With overall maintenance, cleaning and calibrating of the system, a continued limited service could be achieved however, unpredictable at best.
Electrical:	Fire Alarm: The building is equipped throughout with an automatic fire alarm system with smoke detectors in the corridors. The horn/lights do meet ADA. Magnetic door holders are present on some corridor fire doors, but are not operational. The fire alarm devices in the gym do not have wire guards installed and stopper covers on the pull stations. Therefore, the equipment is subject to physical damage. The fire alarm system is conventional and manufactured by FCI model FC-72 with 8 zones and is in poor condition. The original Edwards system was replaced in the 1980's. There is a Gamewell local energy master box with an obsolete annunciator mounted adjacent to it. A new fire alarm system is recommended for ADA and life safety compliance.
Electric Service and Distribution:	The existing electrical service is located below the boiler room entrance. The service rating is 100 amps, 120/208 volt, 3Ø, 4 wire manufactured by General Electric equipment is poor and has been subject to severe moisture and flooding. The room was flooded. There is a waterline that measures approximately 12 inches above finished floor. The demand reading from the meter appears to be (0.97 mult. @ 120) = 116.4Kw. The electrical service capacity is rated at 640 amps or 230 Kw. The existing service yields approximately 2.6 watts/square foot. New service standards are typically designed for 10 watts/square foot. We recommend a new 1200 amp, 277/480V, 3Ø, 4 wire service.
Emergency Lighting and Power:	Emergency Generator, Lighting and Exit Signs: The existing facility is equipped with emergency battery units. The emergency lighting systems appears to be well maintained. Maintenance tags were present on equipment. Some exit signs have been replaced with

	"LED" type. Some exit signs are not illuminated.
Lighting and Branch Wiring:	Lighting: The existing lighting system consists of various types of fixtures. The lighting system has recently been upgraded with T-8 lamps and electronic ballasts. Incandescent fixtures are still present in all areas. The lighting upgrade only addressed T-12 lamps. The fixtures in kitchen hood do not have the lamps covered as is required by Board of Health in food prep area. Generally the types of fixtures is as follows: Cafeteria: 2' x 4' acrylic lensed fixtures renovated in the 1980's. Display Areas: Incandescent accent fixtures. Team Rooms: Light level is extremely low with incandescent "jelly jar" fixtures. Classrooms/Instructional Spaces/Offices: Flourescent fixtures with either wraparound lenses. Weight Room: Ballasts in fixtures are in poor condition. Branch Circuit Wiring: Existing wiring should be replaced as phasing progresses. All existing wiring no longer used would be removed complete. New wiring would generally consist of conduit wire for service and feeders with MC Cable allowed for concealed branch circuits above ceiling, in stud walls where allowed by code. A system of double neutral feeders will be used for computer grade panelboards and dedicated neutrals in branch circuits feeding devices that connect to these panels. An insulated grounding conductor will be provided with every branch circuit or feeder. Surface raceways in finish spaces would be of the wiremold type which house both power and contain a separate compartment for telecommunications wiring and devices. Normal/emergency wiring will be kept entirely separate from normal only power in accordance with code. It is recommended that a system of devices with adequate coverage be provided. Devices for computers and other electronic loads would be circuited to computer grade panelboards and identified as such by having a different finish. Devices installed on existing walls would be on surface type raceways similar to wiremold. It is recommended that an uninterruptible power supply "UPS" be provided for the telecommunications system such as voice mail, data, etc.
Communication and Security:	Security System: There is an existing security system present and is manufactured by Radionics. The system is not however operational. The system consists of door contacts at exterior doors and motion sensors in the corridors. It is recommended that the existing security system be provided with contacts at roof access hatches, overhead doors, etc. Also passive infrared/motion sensors be provided in grade level perimeter rooms with windows. The system would be zoned strategically to meet the Owner's needs. The system would remain connected to a remote monitoring service. Panic stations should be provided at the main reception area. Other auxiliary functions would be provided such as automatically turn "on" all lighting in public spaces upon alarm. It is recommended that a solid state system with high resolution cameras be provided with digital storage into a hard drive. This eliminates the need for VCR and changing of tapes. Recording would be into a computer hard drive with network accessibility. It is recommended that a card access system be provided at all exterior doors.

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Requirements

Name:	Prime System:	Category:	Priority:	Action Date:	Cost:
Fire Alarm	Electrical Service and Distribution	Life Safety	1-Currently Critical	06/01/2007	$610,896.00
Interior Signage	Architectural	Code Compliance	1-Currently Critical	06/01/2007	$2,574.00
Kitchen Exhaust Hood	Other HVAC Systems and Equipment	Beyond Service Life	1-Currently Critical	06/01/2007	$63,492.00
Media Center	Other HVAC Systems and Equipment	Functionality	1-Currently Critical	06/01/2007	$84,084.00
Power Plant	Energy Supply	Beyond Service Life	1-Currently Critical	06/01/2007	$308,880.00
Replace Classroom Unit Ventilators	Other HVAC Systems and Equipment	Code Compliance	1-Currently Critical	06/01/2007	$321,750.00
Roof	Roofing	Functionality	1-Currently Critical	06/01/2007	$686,164.05
Roof Fans	Other HVAC Systems and Equipment	Functionality	1-Currently Critical	06/01/2007	$85,800.00
Roof Mounted Exhaust Fans	Other HVAC Systems and Equipment	Functionality	1-Currently Critical	06/01/2007	$106,392.00
Automatic Temperature Control	Controls and Instrumentation	Beyond Service Life	2-Potentially Critical	06/01/2008	$360,789.00
Courtyard Concrete Work	Architectural	Accessibility	2-Potentially Critical	06/01/2008	$143,520.00
Exterior Doors	Exterior Doors	Accessibility	2-Potentially Critical	06/01/2008	$26,820.30
Exterior Masonry	Architectural	Functionality	2-Potentially Critical	06/01/2008	$127,374.00
Exterior Windows and Glazing System	Exterior Windows	Functionality	2-Potentially Critical	06/01/2008	$1,842,662.25
Floor Finishes	Floor Finishes	Asbestos	2-Potentially Critical	06/01/2008	$623,056.20
Fuel Tank	Site Mechanical Utilities	Beyond Service Life	2-Potentially Critical	06/01/2008	$134,550.00
Kitchen Appliances	Architectural	Beyond Service Life	2-Potentially Critical	06/01/2008	$89,700.00
Locker Rooms	Architectural	Beyond Service Life	2-Potentially Critical	06/01/2008	$481,913.25
Access Road and Parking Areas	Architectural	Code Compliance	3-Necessary-Not Yet Critical	06/01/2009	$441,324.00
Elevator - Music Room	Architectural	Accessibility	3-Necessary-Not Yet Critical	06/01/2009	$93,600.00
Interior Doors	Interior Doors	Functionality	3-Necessary-Not Yet Critical	06/01/2009	$101,181.60
Storm Water Drainage	Rain Water Drainage	Environmental	3-Necessary-Not Yet Critical	06/01/2009	$46,800.00
Water Service and Sanitary Sewer Service	Architectural	Functionality	3-Necessary-Not Yet Critical	06/01/2009	$18,720.00
Auditorium Stage	Interior Finishes	Appearance	4-Recommended	06/01/2010	$165,750.00
Branch Circuit Wiring	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$819,000.00
Ceilings	Ceiling Finishes	Beyond Service Life	4-Recommended	06/01/2010	$487,987.50
Domestic Water Heater	Domestic Water Distribution	Functionality	4-Recommended	06/01/2010	$58,500.00
Domestic Water Piping	Domestic Water Piping	Functionality	4-Recommended	06/01/2010	$243,750.00
Dumpster Pad, Enclosure and Service Area	Civil and Landscape	Functionality	4-Recommended	06/01/2010	$6,825.00
Electrical Service	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$253,500.00
Emergency Generator, Lighting and Exit Signs	Electrical Service and Distribution	Life Safety	4-Recommended	06/01/2010	$206,700.00
Fencing and guard rails	Civil and Landscape	Security and Safety	4-Recommended	06/01/2010	$84,825.00
HVAC - Auditorium	Terminal and Package Units	Air and Water Quality	4-Recommended	06/01/2010	$93,600.00
HVAC - Cafeteria	Terminal and Package Units	Air and Water Quality	4-Recommended	06/01/2010	$76,050.00
HVAC - Gymnasium	Terminal and Package Units	Air and Water Quality	4-Recommended	06/01/2010	$83,850.00
Interior Walls	Interior Finishes	Appearance	4-Recommended	06/01/2010	$555,750.00
Lighting System	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$626,925.00
Local Area Network System	Communications and Security	Functionality	4-Recommended	06/01/2010	$588,900.00
Locker Room - Unit Ventilators	Terminal and Package Units	Air and Water Quality	4-Recommended	06/01/2010	$189,150.00
Mechanical System Wiring	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$279,825.00
Plumbing Fixtures	Domestic Water Distribution	Functionality	4-Recommended	06/01/2010	$14,625.00
Science Classrooms - Gas / Water / Drainer	Controls and Instrumentation	Functionality	4-Recommended	06/01/2010	$234,000.00
Security System	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$194,025.00

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Site Lighting	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$117,975.00
Site Signage	Architectural	Accessibility	4-Recommended	06/01/2010	$18,525.00
Telephone System/Paging System	Communications and Security	Functionality	4-Recommended	06/01/2010	$95,940.00
Theatrical Lighting	Electrical Service and Distribution	Functionality	4-Recommended	06/01/2010	$448,500.00
Toilet Rooms	Architectural	Accessibility	4-Recommended	06/01/2010	$270,952.50
Automatic Sprinkler System	Sprinklers	Functionality	5-Does Not Meet Codes / Standards	06/01/2011	$852,774.00
Walkways and Ramps (Accessibility)	Architectural	Accessibility	5-Does Not Meet Codes / Standards	06/01/2011	$85,176.00
			Total of Requirements		$13,955,422.65