

- a Existing Conditions Summary
- b Space Analysis Plans
- c Evidence of Legal Title
- d Base Repair – Budget Cost Estimate
- e Base Repair – Preliminary Architectural Scope Diagrams

3.1.4

EVALUATION OF EXISTING CONDITIONS

3.1.4

EVALUATION OF EXISTING CONDITIONS

As a component of this Feasibility Study, DRA Architects and its consultants conducted an evaluation of the existing conditions that included the following:

- Evidence of Legal Title
- Historic Restrictions
- Developmental Restrictions
- Evaluation of Code Compliance
- Evaluation of Significant Physical Conditions
- Determination for Need and Schedule for Soils Exploration and Geotechnical Evaluation
- Phase I Environmental Analysis
- Hazardous Materials Assessment

DRA and its consultant team conducted numerous site visits and reviewed documentation provided by the owner. The results have been compiled into this report. Additional information is available in Appendix B.

Northeast Metropolitan Regional Vocational High School is a Grade 9-12 vocational high school with a wide variety of course offerings, situated on Hemlock Road in Wakefield, MA. The existing School is approximately 239,444 square feet.

The following document, the “Existing Conditions Summary” describes the general condition and recommendations for the various Building Systems and Site. Additional detail can be found under Appendix “B” where a detailed assessment of the Architectural Systems, as well as consultants reports on various disciplines, are located. Also included hereunder are Space Analysis Plans that show an analysis of the existing building programs spaces and whether those areas are adequate or deficient based on the Proposed Space Summary.

Evidence of Legal Title

Legal title for the existing Northeast Metropolitan Regional Vocational High School is included as an attachment under this Section 3.1.4, hereunder.

Historic Restrictions

To the best of our knowledge, the existing Northeast Metropolitan Regional Vocational High School building is not inventoried by the Massachusetts Historical Commission (MHC) nor is it a Historic Landmark. A Project Notification Form (PNF) has been submitted to the Massachusetts Historical Commission (MHC).

Developmental Restrictions

The District is unaware of any developmental restrictions for the existing school site. The property at Northeast Metropolitan Regional Vocational High School Site is available for development, notwithstanding limitations due to local zoning (setbacks, FAR, etc.).

Evaluation of Building Code Compliance

Refer to Appendix B, sub item f “Existing Conditions Report – Building Code.”

Evaluation of Significant Physical Conditions

Refer to “Existing Conditions Summary” included in this Section 3.1.4, hereunder, and the following Existing Conditions Reports included under Appendix B:

- (a) **Landscape** by Warner Larson
- (b) **Civil** by Nitsch Engineering
- (c) **Architectural** by Drummey Rosane Anderson, Inc.
- (d) **Accessibility** by Kessler McGuiness & Associates, LLC
- (e) **Furniture and Equipment** by Tavares Design Associates, Inc.
- (f) **Building Code** by R.W. Sullivan Engineering
- (g) **Structural Assessment** by Engineers Design Group, Inc. (EDG)
- (h) **Fire Protection, Plumbing, Mechanical & Electrical** by BALA
- (i) **Technology & Security** by 3si
- (j) **Hazardous Material Summary Report** by CDW Consultants, Inc.
- (k) **Traffic Assessment Report** by Nitsch Engineering

Determination for Need and Schedule for Soils Exploration & Geotechnical Evaluation

Refer to Appendix H – Preliminary Geotechnical Review by Lahlaf Geotechnical Consulting, Inc.

Phase I Environmental Assessment

Refer to Appendix D – ASTM Phase I Environmental Site Assessment by FS Engineering, Inc.

Hazardous Material Assessment

Refer to Appendix B – Sub-item j – “Hazardous Material Summary Report” by CDW Consultants, Inc.

Existing Conditions Summary

The original building was built between 1968-70 and opened in 1970 to teach both traditional high school classes such as English, Math and Science, along with offering students a variety of trades. Over the last 50 years there have been several minor renovations to the building. A few years after the school was built, interior classroom wall partitions were added. A fire in the Carpentry Shop required replacement of the entire shop and localized sprinkler system was installed just for that area, otherwise the entire building is unsprinkled. The pool area was abandoned some time ago due to leaks in the pool itself, the pool deck area is used as Gym and general storage.

The Northeast Metropolitan Regional Vocational High School. School site is located south of Water street (Route 129) southeast of Wiley Street, east and north of Farm street east of Wakefield Memorial High School and Woodville School and west of the Saugus/Wakefield municipal boundary, North and

east located The Commonwealth of Massachusetts' Breakheart Reservation which also contains a right-of-way from the New England Power Company running parallel with such boundary.

The following is an existing conditions summary. For the full reports, refer to Appendix B.

Landscape	<ul style="list-style-type: none"> • Of the 60-acre site, 28 acres are develop including buildings, parking and playing fields. The southern half of the site is undeveloped woodland with a rugged terrain at a higher elevation with extensive exposed ledge. • The main parking is in front of the school with some parking in the back, it has a counterclockwise single lane that loops around the school for buses, shop access and for emergency vehicles. The pavement and curbs are in poor condition. Some access roads to the playing fields are hazardous. There is no pedestrian access from Hemlock road, it ends at the end of Memorial High School at the beginning of Hemlock road south of the school. • Athletic Fields and basketball courts are in poor condition and lack accessibility. The practice field to the north is natural grass with no irrigation and poor drainage the football field to the west is also grass, has an undersized irrigation system and poor drainage, same for the baseball field. Chain link fences are in poor to fair condition. Pedestrian access to the fields is shared with service vehicles. None of the fields have lights or speaker system. • In general, exterior stairs and retaining walls lack code and accessibility compliant rails. • Football bleachers and press box structures are not accessible. The running track is asphalt in very poor condition. • The playground area for early child education is to the north of the baseball field and very remote from the classroom. • Parking site lighting is in fair condition. • Vegetation along the boundary with the Breakheart Reservation is surrounded by mature native trees. The landscape around the school proper is primarily grass and some trees mainly at the front of the school and not in good shape in particular the crabapples along the parking lot.
Civil	<ul style="list-style-type: none"> • Elevations in the developed portion of the site range from elevation 113' at the football field and elevation 55' at the softball field. • Water supply: The existing water service to the school is an 8" pipe from a 12" pipe municipal main on Farm Street. Existing water pressure for the size of this school is not sufficient. Plans where develop to bring a 16" water line from Water street from the Town of Wakefield but never got implemented. • Storm Management Systems: The majority of the site drainage is done by grading away from the building and sloping the parking lots. For the size of this building there are very few drainage structures. The roof has internal roof drains that connect to these drainage structures that connect to a buried culvert that contains an existing brook to the south east of the develop site. The use of grading for large pavement areas has resulted in rutting and erosion landscape areas and pavement. According to the school facilities personnel no flooding has ever been observed. • Sanitary Sewage Disposal: The building is served by town sewer, construction documents indicate an 8" sewer main serves the site starting southeast corner of the site and runs north to the softball field and to turns to northwest thru an easement over some residential area a finally ties to the sewer main on Riley street. Two 4" and 6" serve the building. One of the 4" is indicated to acid waste. The construction documents do not indicate, and no visible external grease trap was observed. The sewer material was indicated on the construction documents to be A.C.P., however the plumbing legend does not indicate as such. In in projects of this age it was often used.

	<p>It should be verified. A program of pipe cleaning and video inspection is highly recommended to understand the condition of the pipes.</p> <ul style="list-style-type: none"> • Natural Gas: the school is not served by natural gas. There three propane tanks around the building to satisfy the school's needs. There were plans develop in 1994 to bring gas parallel with the prosed water service. • Electrical: There is no exterior transformer on the site. There is an electrical pole on east side of the site an underground to the building an enters near the kitchen loading dock. There is a vault transformer room in the basement that gives service to the building.
Architectural	<ul style="list-style-type: none"> • The building is a total of approximately 239,444 square feet, spread out over three floors, with the first floor having multiple levels. And sits on approximately 60 acres of land. • Exterior Walls: All exterior walls are loadbearing brick and CMU, with no insulation. The brick joints by the pool wing are in poor condition and is spalling. It is recommended that the brick joints in this area be regouted. The caulking around most of the structural precast concrete around the windows have asbestos, are cracked and failing. It's recommended that they be removed and replaced at both exterior and interior caulking joints. • Windows: Windows are 2" aluminum frames with single-pane clear glass. They appear to be original to the building. Some of the windows mainly in the vocational shops have transoms with translucent sandwich uninsulated panels. Hardware components are in poor condition. It is recommended that all exterior windows, storefronts be replaced insulated and thermally broken units. • Exterior doors and frames: Main entrance frames seem to be original and are hollow metal not thermally broken with single-pane clear glass, they show a lot of rust. Doors lack weather protection and show a lot of rust. It's recommended to replace all doors and frames including overhead doors with insulated units. • Roof: Depending on location, the original flat roof deck is constructed out built up roof over 2" gypsum over 1 ½" Formboard, supported by open web metal joist except at the gym and pool roof which is supported by prefabricated concrete Tees. Around the year 2000 the original built up roof was replaced with an EPDM membrane roof over an unknown thickness insulation and type. The roof membrane is at the end of its useful life. At a few locations, the roof ponds due to lack of positive slope to drain and delamination is evident at the pool roof and other minor locations at other roofs. Evidence of water penetration can be found in the HVAC/R shop. An applied roof rolled-on waterproofing system throughout is evident for leak mitigation. It is recommended that infrared scans be performed to verify extent of water damage. It is also recommended that roofing membrane and underlying materials/insulation be removed and replaced. Existing deck needs to be tested to confirm fastener pull out strength. • Interior: Interior finishes and casework are showing wear and tear. Doors look old and tired; hardware needs to be replaced to accessibility standards. Corridor and Cafeteria terrazzo floors are in good shape. VCT floors should all be replaced. Acoustical ceilings look old and tired with a lot of wear and tear. It's recommended that they be all replaced.
Accessibility	<ul style="list-style-type: none"> • Renovations are planned for this building that will exceed 30% of the full and fair cash value of the building, thus triggering full compliance with 521 CMR and MAAB. • All entrances an egress door to the building need to be made accessible and need to lead to an accessible route.

	<ul style="list-style-type: none"> • Designated accessible parking spaces lack compliant signage. Slope of designated parking spaces are greater than 2%. • The ramp and curb cuts in front of the main entrance do not meet accessibility codes. • Cross slopes in walkways and running slopes exceed ADA & MAAB. • Intercoms at main entrances are over 48" high. • There is no accessible route to the playing fields, including the playground. • Interior courtyards are not located on an accessible route. • All rooms lack Braille mounted on the latch side of doors. • Some single and double leaf doors do not meet the minimum 32" clearance. Most doors have noncompliant hardware. And some have thresholds greater than ½". • Stairs, handrails are mounted below 33", handrails dogleg stairs are not continuous. Some stairs lack handrails on both sides and some stairs have handrails cross sections that are not rounded or oval. • Interior ramp has slope greater than 8.3% at 22% • There is no accessible route to the second and basement floors. • Drinking fountains do not meet accessibility codes. • At least 5% of lockers should have accessible hardware • The public entrance serving the carpentry shop is reached via stairs. • Most toilet rooms lack accessible elements. • The auditorium lacks an accessible route to the stage. • Most classrooms & laboratories lack accessible workstations and sinks. • Auditorium and Gymnasium lack accessible seating and the Auditorium does not have an accessible route to the stage. • Classrooms with specialty sinks (Auto Body, Metal Fab, Plumbing shops) lack an adjacent sink with required knee clearance for forward approach. • Lunch tables in the cafeteria lack the required knee and toe clearance for a forward approach. <p>Performing renovation work within this building will require bringing the Technical High School into compliance with the Massachusetts Architectural Barrier Board Regulations.</p>
Furniture & Equipment	<ul style="list-style-type: none"> • Science Labs: Do not meet MSBA's current standards. Fume hoods are not accessible. Science Prep Rooms have worn casework and non-accessible sinks. Countertops are scratched and torn. • Fitness Room: Equipment is in poor condition. • Classroom: Furniture is older and shows damage. The furniture is not conducive for 21 century learning. • Gym bleachers are old and do not have distributed ADA seating. • Stage curtain are fair condition, lighting is not adequate and have no acoustical design incorporated into the space. • Culinary Arts: kitchen equipment should be brought to NFS standards. • Auto Shop: well-maintained equipment. Some work benches misc. equipment need replacement. A curtain should be installed at wash bay. Better ventilation should be provided for the small engine area. • Auto Body Shop: nice an ample space, newer booths, replace older spray booth, replace some older welding equipment. Add space around spray booths for better access to panels. • Kitchen: Culinary and Main Kitchen are co-mingled requiring the student to walk through the main kitchen space and vice versa. Upgrades are required to meet health codes. Hand sinks required updated accessible faucets and do not meet health standards. Kitchen hood should be updated to energy efficient model which covers cooking equipment.

	<ul style="list-style-type: none"> Robotics: increase overhead power better storage and flow and add ventilation for possible added equipment. Plumbing shop: make teacher space accessible, provide floor drains for equipment, provide more space for furnaces and increase booths on main floor. Metal Fabrications/ Welding: Ample space for equipment. Most equipment is newer and some older equipment needs replacement. The space has good flow. Create better spacing around robotic welder. Cosmetology: Replace all styling stations and wet stations, increase dispensary, add manicure space with venting and create an area for facials bed. Carpentry: Mix of new and old equipment. Newer exterior dust collection system connected to all equipment. Good flow and clear markings on the floor. Replace older drill press and saw equipment. HVAC/R: good size shop with many wiring booths, but lack of storage requires parts and pieces to be stored in inaccessible mezzanines. Cad/Design: Computer lab equipment on old tables should be replaced. Revise power locations and add data. Newer plotter and scanners. Dental: cabinetry is generally newer.
Building Code	<ul style="list-style-type: none"> Occupancy Classification: Non-Separated Mixed Use. Construction Type: Type IIB Construction. Building is unprotected steel.
Structural Assessment	<ul style="list-style-type: none"> Designed in accordance with 9th edition MSBC and IBC 2015 with MA amendments. The proposed scheme will require repairs, renovations and upgrades to the existing school triggered by requirements for compliance with the IEBC. Based on the proposed scope scheme is recommended following compliance requirements of the Work Area Compliance Method since it will be the most cost-effective method. Based on observation the structure appears to be performing adequately. Scheme proposes to infill the pool structure and demolish the concrete bleachers reconfigure the space in this area. And to reconfigure some of the demising walls in other parts of the school for expanding classrooms and vocational spaces.
Fire Protection	<ul style="list-style-type: none"> The building does not have a fire protection system except for a localized portion in the carpentry shop, which recently installed due to fire. The school will have to be upgraded to a fully sprinkled building. The school will have to be compliant with life safety and current codes and standards. A new fire protection system will also include an 8" fire service, back flow preventer, service valves, fire department valves, fire department connection(s) and monitored alarm system, plus all other miscellaneous items such as zones with risers, supply mains, branch lines and sprinkler heads.
Plumbing	<ul style="list-style-type: none"> The site is fed by an 8" municipal main that loops around the building and enters by the boiler with a 6" which is then reduced to 4". The remote-read-meter, pressure reducing station and uninsulated copper piping are in fair to good condition. Pressure gauges provide inaccurate readings and are poor condition. Its recommended pipe insulation abatement, lead and pressure testing of potable water, sanitary, waste, vent and storm piping systems. Replacement of inoperable valves, replacement of all plumbing fixtures for low water consumption and ADA compliance. and complete upgrade of domestic water heating plant to include high-efficiency equipment.

Mechanical	<ul style="list-style-type: none"> • In general, all major HVAC systems are original to the building and are well beyond the service life expectancy of these systems, the existing heating, ventilation and air conditioning system has been very well maintained, but due to age its recommended that all HVAC equipment and systems be replaced. • In general, we recommend the following: Replace existing boilers with high efficiency gas-fired condensing boilers, install an air cooled chiller to provide cooling to interior rooms and classrooms, replace unit ventilators in classrooms with fan coils units that can cool or heat, serve the outdoor air ventilation requirements with rooftop outdoor air systems (DOAS) with heat recovery systems. New pumps should have variable speed pumping. All air handling units should be replaced with new units that include filtration upgrades. The existing specialized exhaust systems serving the shops could be utilized but the fans serving the shops should be replaced. • A new direct digital control (DDC) building management system (BMS) should be provided not only to control and monitor the HVAC systems but to be connected to other building automation equipment, including electrical and gas consumption meters. The BMS should be web-based accessible to allow monitor and alarm reporting off site.
Electrical	<ul style="list-style-type: none"> • In general, the electrical distribution system is original to the building and operating well beyond service life expectancy. Its recommended replacement of all equipment with the exception of fire alarm panel which was recently upgraded. However, the school is not supported by a full smoke detection throughout the building and it should, because fire sprinklers are not present. • A new standby/emergency life safety would be provided. A new voice paging, fully addressable, fire alarm system, new LED lighting, with emergency lighting at each egress door and egress pathways and enhanced lighting along vehicle roadways and parking areas for greater nighttime safety would be provided would be provided.
Technology & Security	<ul style="list-style-type: none"> • <u>Wired Network Tel/Data Infrastructure:</u> Data cabling has been retrofitted over time, by in-house staff & students, to meet schools needs. Head End room need proper Mechanical control. Recommend upgrading to most current cabling system. • <u>MDF/HEAD End Room Equipment:</u> Equipment is in excellent condition. • <u>Data Switches:</u> Switches are a mix of new to 5-years of age. Recommended stackable PoE data switches. • <u>Wireless Network:</u> This is the school's primary means for student access to the network/internet. School is currently upgrading the system. • <u>Voice Infrastructure & Phone System:</u> PBX system should be upgraded to an all VoIP system. • <u>Video Distribution System:</u> There is no functioning school-wide system. • <u>Public Address / Intercom System:</u> PA system has significant number of speakers not working due to equipment & cable issues. PA volume in shops is an issue. Maintenance of the system has become more expensive due to the age. • <u>Master Clock System:</u> Clock system is operational but beyond its useful life. The Simplex time controller is obsolete. • <u>Security Systems:</u> It is recommended that the core intrusion system control panel be replaced with an addressable system that can interface with the access control system. Visitor Aiphone system is in good condition. CCTV cameras are low resolution and should be upgraded. Gunshot detection system is installed in corridors and common spaces only. Hall Pass visitor management system is in good condition. The school does not have a Panic/Duress Alert System.

	<ul style="list-style-type: none">• <u>Classrooms Instruction:</u> The school does not have interactive instructional audiovisual system. Data and power have been retrofitted into the classroom with surface mounted conduits and extension cords. Long throw ceiling mounted projectors were added six plus years ago and utilize the projector's built-in speakers which is inadequate. The school does not have a Speech Reinforcement System.
--	---

Space Analysis Plans

The following plans include an analysis of the existing building program spaces as compared to the Proposed Space Summary and evaluating whether they are adequately sized, marginal or deficient.