Evaluations of Existing Conditions

SECTION 3.1.4

EVALUATIONS OF EXISTING CONDITIONS

LEICESTER MIDDLE SCHOOL

ADDRESS:	70 Winslow Avenue Leicester, MA 01524
USE:	Middle School Grades 6 through 8
DATE BUILT:	1961
OCCUPANCY GROUP:	E-Educational
CONSTRUCTION TYPE:	2B Non-combustible with a 0-hour rating
BUILDING AREA:	73,464 SF
PARKING:	56 spaces

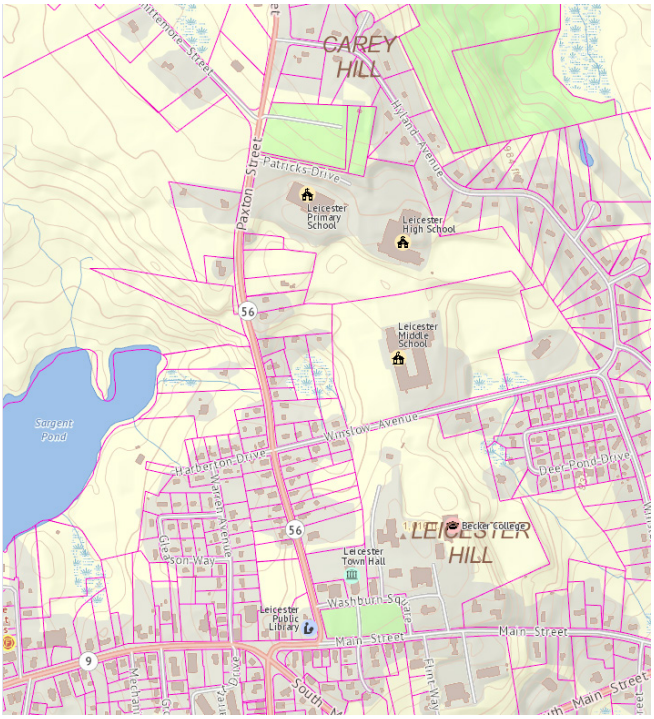
The site of the Leicester Middle School is owned by the Town of Leicester - see Appendix for Proof of Title. There are no historic or development regulations that would prevent the building of a new school on the existing Middle School site. In accordance with the Massachusetts Historical Commission (MHC), a Project Notification Form will be submitted to MHC following the MSBA Board Approval of a Preferred Schematic Design should it be determined that existing middle school building and/or site will be used.

On Wednesday, January 23, 2019 the Design Team gathered at the existing Leicester Middle School building and site for an "all hands" existing conditions assessment. Subsequent site visits were conducted for an existing site analysis and building testing. The following reports summarize the existing conditions of the building and site. Once the final site location has been determined we do recommend that additional geotechnical soil borings are conducted at the foundation locations.

CIVIL ENGINEERING

Nitsch Engineering

Nitsch Engineering has researched the existing site conditions and anticipated site permitting requirements for the Leicester Middle School located at 70 Winslow Avenue in Leicester, Massachusetts. Nitsch Engineering's research included an initial site visit/walk on January 16, 2019, discussions with facilities personnel, and a review of record drawings. Nitsch Engineering reviewed a record survey prepared by Bouley Brothers, Inc., dated May 31, 1988. A summary of our observations and findings are listed below.



The existing Leicester Middle School was built to serve as the Town's High School in 1961 and was converted to use as a Middle School in 1994. The middle school site is bounded by the Leicester High School and Leicester Elementary School to the north, residential properties to the east, a wooded area and residential properties to the west, and Winslow Avenue to the south. There is a one-way entrance to the site from Winslow Avenue and a one-way exit from the site to Winslow Avenue. There are parking lots located to the south and east of the school building. A service road extends from the parking lot to the east of the building around to the northern side of the building where there is a maintenance shed and utility area. There are tennis courts located to the west of the building and athletic fields located to the north and east of the building.

The summary descriptions below represent the site utility conditions/assumptions as we understand them at this timed based on record documents, site observations, and conversations with school officials.

STORM DRAINAGE

No roof drains or labeled drain manholes were observed onsite. Record plans appear to show two 12-inch drain services that may connect from the building to a 12-inch vitrified clay outfall that discharges to the wetland along the southeast corner of the site.

Catch basins were observed in the parking lot along the east side of the building. The record plans indicate that these structures discharge through a 12-inch vitrified clay outfall to the wetlands at the southeast corner of the site. The location and number of catch basins do not meet current engineering practices.

There is a swale at the bottom of the slope from the parking lot that conveys drainage from the track and high school site to the wetlands at the southeast corner of the site. Record plans show an outfall at the top of the slope near the high school that drains to this swale although no outfall was observed during our site visit. The drainage swale was observed with a culvert that interrupted the swale to allow for pedestrians to cross.

Record plans show an 18-inch drain that collects the stormwater runoff from the Elementary School site and conveys it through the northwestern edge of the Middle School Site and discharges to an 18-inch outfall which directs runoff to the wetlands to the west of the site.

School facility staff described drainage issues during the site walk on January 16th and are outlined below:
The Softball field (located at the bottom of a slope to the north of the middle school) does not drain well and becomes wet with some standing water after rainfall events;
The baseball field experiences localized ponding and flooding during rain events;and
There are two drainage "tunnels" under each wing of the building and water has come through the tiles in the floor into the building when the sump pump was unable to keep up with the groundwater.

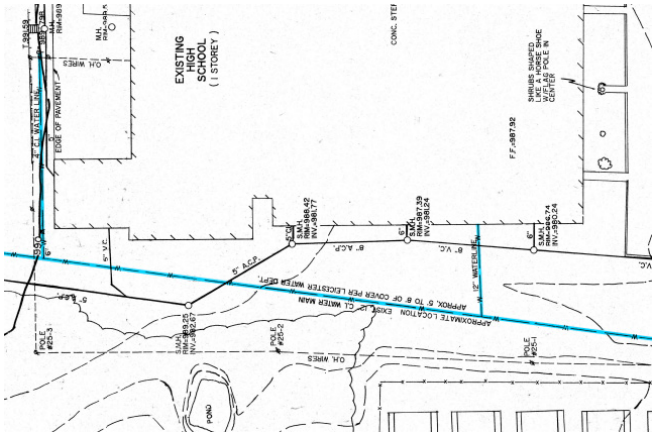
Nitsch Engineering did not to observe a wet condition at the softball fields or other conditions described above; most likely due to the season and weather at the time of the site visit. Drainage tunnels are not shown on the record plans. Nitsch did observe wet conditions at the drainage swale that separates the bottom of the slope to the parking lot from the baseball fields, although flooding did not appear to extend into the field area.

The current drainage system is not in compliance with the current Department of Environmental Protection (DEP) Stormwater Regulations (2008). The construction of a Leicester Middle School and site improvements will require new stormwater structures or systems to reduce Total Suspended Solids (TSS), reduce run-off to the maximum extent practicable, and to mitigate the increase in runoff from an increase in impervious areas as a result of renovation, addition, or new school at the site per the DEP Stormwater Standards.

WATER

Leicester Middle School is connected to the Municipal water system. School personnel indicated that the water service to the building was connected to a main in Winslow Avenue. Record plans show a 12-inch cast iron water main from the Leicester Water Supply District parcel to the north of the Elementary School Site, through the Elementary and Middle School Site, and to Winslow Avenue. The record drawings do not show the main continuing in Winslow Avenue, however; fire hydrants were observed along Winslow Avenue.

Record plans show a 12-inch water service connection from the west face of the building to the 12-inch cast iron



main and a 4-inch cast iron service from a fire hydrant near the utility area to the 12-inch main. There is a fire hydrant located along Winslow Avenue to the south of the building but the hydrant and connection from the hydrant are now shown on the record plans.

There appears to be a well located on the Middle School Site between the track and the athletic field to the east of the building. Neither the well nor piping from the well are shown on any record plans that Nitsch has reviewed.

Nitsch Engineering observed what appeared to be blue dig safe markings along the wooded area to the west side of the building. The surface cover appeared to be recently disturbed. A neighbor to the high school indicated that a new water main had been installed through Patrick's Drive, a private road adjacent to the residential properties to the west of the school site. The neighbor believed work stopped at the middle school property, although the DIGSAFE markings and limit of disturbance appeared to be on the Middle School property. The School officials Nitsch Engineering spoke with had no knowledge of this work. It is unknown if this work connected to any main on the Leicester Middle School property.

SEWER

Sanitary sewer for the Leicester Middle School is serviced by a Town sewer main in Winslow Avenue. Record documents show a 5-inch Asbestos Cement Pipe (ACP) sanitary sewer service connection from the Leicester Elementary School to the north of the site, through the site and to Winslow Avenue. Record plans also show two 5-inch sanitary sewer and two 6-inch sanitary sewer services that exit the west side of the building and connect to the sanitary sewer service coming from the Elementary School. The connection to the main in Winslow Avenue from the last building service is an 8-inch vitrified clay pipe.

There appears to be no sanitary sewer main in Winslow Avenue to the east of the existing connection.

NATURAL GAS/ FUEL TANKS

The site is not serviced by a natural gas line. School officials indicated that there is a natural gas main located in Winslow Avenue but that it does not extend to the area of Winslow Avenue adjacent to the site and it does not have the necessary capacity to supply the school with natural gas.

There is an oil tank located in the utility area to the north of the existing building. No information is available to Nitsch Engineering at this time regarding the size/ condition of the tank. No underground fuel tanks were observed onsite and the record plans do not indicate any surface or buried tanks. See Mechanical, Electrical, Plumbing Engineer's narrative for additional information.

ELECTRICAL

Record drawings show electrical service being supplied to the building through a series of utility poles and overhead wires that connect from Winslow Avenue through the west side of the site adjacent to the tennis courts, and to the north side of the building through the utility area. During the site visit performed on January 16th, Nitsch Engineering observed utility poles and overhead wires along the tennis courts but they did not appear to connect to the Middle School building.

Nitsch observed a series of utility poles and overhead wires that connect from Winslow Avenue, along the eastern parking lot, and to the north of the building through the utility area. There is a transformer located along the northern face of the building where electricity is most likely fed into the building. See Mechanical, Electrical, Plumbing Engineer's narrative for additional information.

TELECOMMUNICATIONS SERVICE

Telecommunications service likely uses the same utility

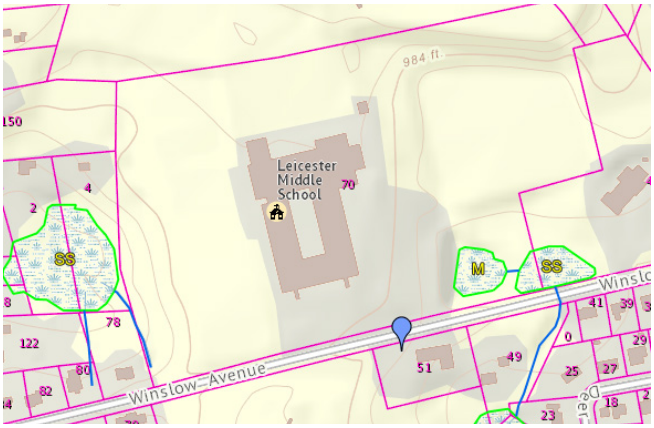
poles as the electrical service and is connected from Winslow Avenue, along the parking lot to the east, and into the building from the north. See Mechanical, Electrical, Plumbing Engineer's narrative for additional information.

SOIL CONDITIONS

NRCS SOIL INFORMATION

Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey (2011), the majority of the soils for the Middle School are classified as Udorthents. There are also areas of the site classified as Ridgebury Fine Sandy Loam or Paxton Fine Sandy Loam. The Udorthents are classified as a Hydrologic Soil Group (HSG) Type A; however, the Ridgebury Fine Sandy Loam is classified as HSG D and the Paxton Fine Sandy Loam is classified as HSG C. This indicates that the soil may have limited infiltrative capacity.

Further investigation including test pits will be needed to determine estimated seasonal high groundwater elevations and in-situ infiltration capacities of the soil to support new stormwater infrastructure.



PRELIMINARY PERMITTING CONSIDERATIONS

WETLANDS PROTECTION ACT (310 CMR 10.00)

The Wetlands Protection Act ensures the protection of Massachusetts' inland and coastal wetlands, tidelands, great ponds, rivers, and floodplains. It regulates activities in coastal and wetlands areas and contributes to the protection of ground and surface water quality, the prevention of flooding and storm damage, and the protection of wildlife and aquatic habitat.

A review of the Massachusetts Department of Environmental Protection (DEP) wetland layers available on the Massachusetts Geographic Information System (MassGIS), appear to indicate that there are wetlands located on the southeast corner of the site and along the western boundary of the site.

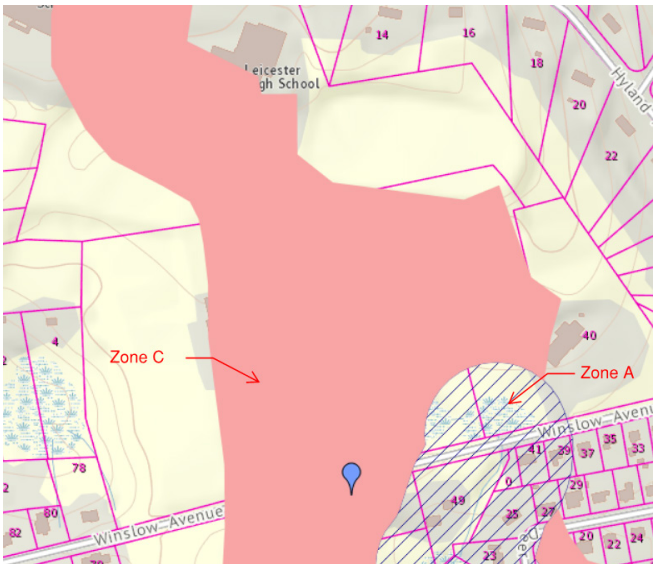
Onsite investigations revealed an area of surface water to the west of the middle school building on the property in the wooded area. Record documents indicate flagged wetlands extending between the athletic fields to the east of the school and the parking lot. Neither of these areas are indicated as wetlands on MassGIS.

The site should be evaluated by a wetland scientist and wetland resource areas should be identified, flagged and surveyed prior to the start of design.

Work performed within resource areas or jurisdictional buffer zones will require a filing of a Notice of Intent (NOI) with the local Conservation Commission and the Massachusetts Department of Environmental Protection.

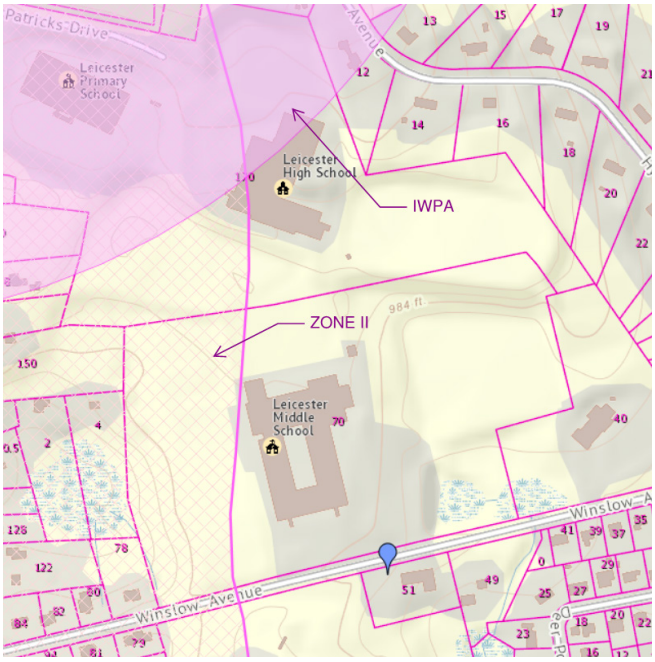
SURFACE WATER SUPPLY PROTECTION

The Massachusetts Department of Environmental Protection (DEP) ensures the protection of surface waters used as sources of drinking water supply from contamination by regulating land use and activities within critical areas of surface water sources and tributaries and associated



surface water bodies to these surface water sources.

A review of the Massachusetts DEP resource layers available on the MassGIS indicates the Middle School is located within the Zone C surface protection area. A portion of the site may be located within a Zone A surface water protection area depending on the limits of work. At least a portion of the site currently discharges to the Zone A area. Proposed work within Zone A and Zone C will have restrictions. Zone A and C are restrictive and will require consideration while designing the stormwater management system and stormwater treatment.



DEP WELLHEAD PROTECTION

A review of the Massachusetts DEP resource layers available on the MassGIS indicates the Middle School is located within the DEP Approved Zone II and potentially within an Interim Wellhead Protection Area depending on the limits of work of the project. Proposed work within Zone II and the Interim Wellhead Protection Area will have restrictions. These will need to be considered wile designing the stormwater management system and stormwater treatment.

NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM

A review of the 14th Edition of the Massachusetts Natural Heritage Atlas prepared by the Natural Heritage and Endangered Species Program (NHESP), from 2017, indicates that the Middle School site is NOT located within a Priority Habitat of Rare Species or an Estimated Habitat of Rare Wildlife and that there are no vernal pools on or adjacent to the site.

FLOOD PLAIN

Based on the Flood Insurance Rate Map (FIRM), Community Panel Number 25027 C0595E, dated July 4, 2011, it appears that the site is in Flood Zone X.

Massachusetts Environmental Protection Act (MEPA): Development of this site does not appear to trigger any MEPA thresholds and will likely not require an ENF or EIR to be filed with MEPA. Further evaluation is required as the project proceeds to the design development phase.

US EPA NPDES

Construction activities that disturb more than one acre are regulated under the United States Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES) Program. In Massachusetts, the USEPA issues NPDES permits to operators of regulated construction sites. Regulated projects are required to develop and implement stormwater pollution prevention plans in order to obtain permit coverage.
The project will disturb more than one (1) acre and is anticipated to require this permit.

ARCHITECTURAL

Finegold Alexander Architects

SUMMARY

The Leicester Middle school represents a building that has been well maintained but has degraded due to its age and materials of construction. The lack of exterior thermal insulations paired with single pane windows and corrugated plastic cladding does not meet current energy code standards. Interior finishes are failing and have exceed their life expectancy. The building does not meet current building codes and is not fully handicapped accessible. The overall building condition ranges from poor to very poor.

View at Main Entrance

BUILDING DESCRIPTION

Leicester Middle School, located at 70 Winslow Avenue, Leicester, MA, was originally constructed in 1961 to serve as the Leicester High School. It was used as such until the new high school was built in 1994. When the new Leicester High School building was occupied, the 1961 buildings became Leicester Middle School. The original 1961 High School, now Middle School, was comprised of two separate one-story buildings. A U-shape building, referred to as "Unit A, Classroom building" consisted of administration and classrooms in a double loaded corridor configuration. A T-shaped building, referred to as "Unit B, Activities Building" consisted of the cafeteria, gymnasium and auditorium. In 1972, the "Unit A and B Addition" was built to connect the new buildings, albeit at different floor levels, creating a central courtyard. The Leicester Middle School Building is a single-story structure of approximately 73,464 SF and is part of the 23-26 acre campus that is shared with the Leicester Primary School and the Leicester High School. Below are our findings, based on field surveys, review of existing drawings, Town reports and with the intended continued use of this building for educational purposes.

EXTERIOR ENVELOPE

The exterior walls appear to be uninsulated and do not meeting energy code. The introduction of insulating to attempt to bring the building up to current Energy Code will be a challenge and at a high cost. The exterior wall assembly is comprised of several different wall systems. The primary wall system consists of thin concrete panels installed between structural steel members, with a corrugated plastic top lapping over the concrete. Portions of the walls have been infilled with concrete block between structural steel.
Exterior masonry showing excessive wear and damage.
A row of plastic corrugated façade material wraps the majority of building perimeter above the window head.

View at West Elevation

ROOF

The roof was recently replaced and is reported to be in good condition.
Re-evaluated of the roof will be required if future renovations occur.



View of perimeter windows

EXTERIOR DOORS AND WINDOWS

There are several types of door systems used in the building, in different finishes.
The Main entry door assemblies consists of and aluminum frame and sidelight system and was noted to be in fair condition, showing deterioration and degradation of finish and base material. Numerous repairs are required, if not complete replacement.
Condition of door hardware varies requiring repair or replacement.
The exterior window system consists of non-thermally broken aluminum storefront frames, single layer glazed units, with partial plastic or metal grille infill panels.
In some areas, plant growth on the building has penetrated the glazing system and entered the interior spaces.
Most windows are in poor condition, requiring replacement. Many have failed.

BUILDING ACCESSIBILITY

The majority of the entrances, including the main entrance, are not accessible.
The floor elevations within the 1972 "Unit A & B" connector infill vary between 1961 Classroom Building and the 1961 Activities Building, resulted in the addition of numerous ramps. The ramps slope and handrails are not ADA compliant with current Code.



Non-compliant Main Entrances

The majority of the Classrooms are not accessible do not comply with current code. Doors and openings that do comply are equipped with hardware that does not comply with ADA requirements. Some doors don't have hardware installed at all. Some doors lack required clearances on latch side.
Casework and counters don't meet the required code clearances for wheelchair users and are too high to comply with Code.
Labs, Science and Art rooms don't have handicapped- accessible sinks.
Restrooms lack required clearances and are not accessible.
The library circulation desk does not me ADA code requirements.
The majority of the plumbing fixtures are not accessible.
Grab bars within in designated ADA compliant stalls are not compliant with current Code.
Drinking fountains don't meet current requirements, requiring a 2 tier/2 height type of fountain.
The auditorium and stage is not accessible.
There are no accessible lockers.
Kitchen servery clearances do not meet accessibility requirements.
Gymnasium and locker rooms are not handicapped-accessible from classroom wing. There are no accessible showers or benches. Restrooms within locker rooms are not compliant.
Room Signage is missing throughout the building.
Signage that is provided is not ADA complaint.
The interior Courtyard is not handicapped-accessible.
There is no accessible route to the playing fields.

BUILDING FINISHES

The majority of interior finishes appear to be original to the building, showing excessive wear and failure.
Numerous wood doors are delaminating and in disrepair.
Casework showing excessive wear and failure in some locations.
Generally, the floor finishes have exceeded their expected life. Excessive wear, years of moisture damage and localized patch repairs are prevalent throughout the building.
Ceilings conditions vary from fair to poor. Hard ceilings have been patched and ACT ceilings and grids have been repaired with mismatched tile.
The majority of the interior walls are comprised of thin, prefabricated concrete panels between structural supports.

View of wall deterioration on Locker Rooms

Numerous utility room areas were observed to contain hazardous materials. i.e. asbestos.
Water damage was observed with peeling paint at the ceilings in locker room.
Excessive damage to ceramic tiles was observed at walls and floors of locker rooms due to moisture exposure and wear and tear. Exposed rusted steel was observed in these locations.
Exposed, recessed in-floor mop sinks within locker rooms are not code compliant and create a safety risk.
Toilets and toilet partitions in locker rooms are either missing or damaged.
Numerous auditorium seats are broken or missing and in some cases replaced with metal folding chairs.
Numerous lockers are broken or missing doors.

View of Kitchen

KITCHEN AND SERVERY EQUIPMENT

The majority of the equipment appears to be quite old and perhaps the original to the building. The equipment has exceeded its usage life and will need to be replaced.

EGRESS AND SAFETY

Existing fire doors fitted with wire glass in doors does not comply with current code.
Fire door hold-opens do not comply with current code.

SITE

Sidewalk curbs and asphalt showing excessive wear.
Uneven pavers and sink holes in the courtyard.
Refer to Civil and Landscape reports for full assessment.


View of Main Entrance


View of West Elevation


View of West Elevation towards playing fields


View of North West Elevation from playing fields


View of Gymnasium from playing fields


View of delivery, trash back of house


Service entrance for Kitchen and walk-in


View of propane storage tank at rear


View of East Entrance from main parking lot


View of main drop-off/pickup area


View of main parking lot


View of court yard

Non-compliant main entrance


View of exterior wall assembly


View of greenhouse

Non-compliant exit


Poor condition of exterior wall assembly


View of corrugated plastic, failing tile & rusted steel

View at secondary entry


Exterior mechanical room access


Courtyard view of non-compliant access

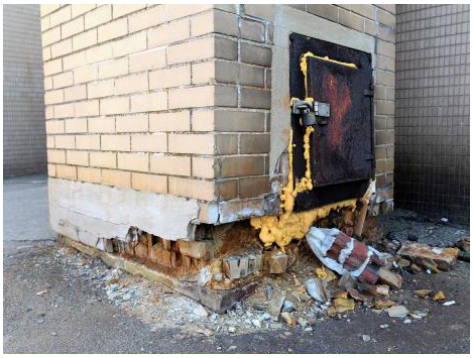

Courtyard view of non-compliant building access


Courtyard view of non-compliant Library


View of rear of building

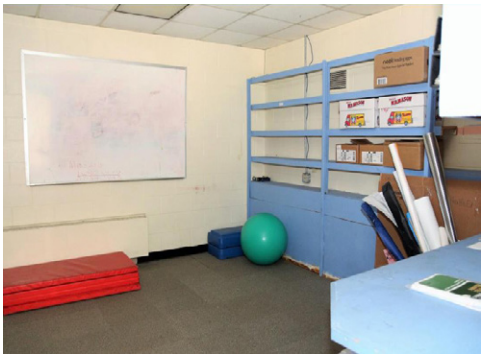
View of non-compliant building access

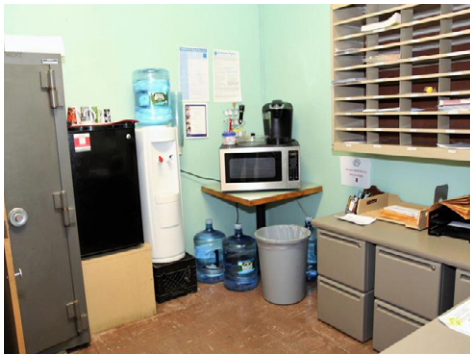

View of non-compliant Main Entrance building access


Masonry deterioration at chimney


Light fixture penetrating stud wall


Water damaged plaster and paint


Poorly equipped OT/PT room


Undersized Administration support space

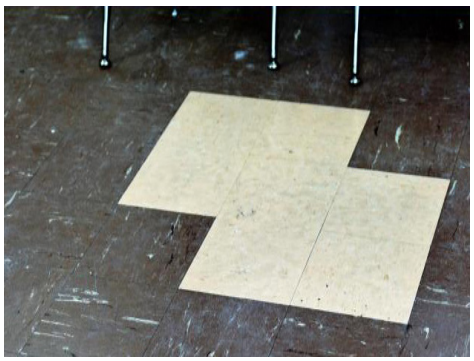

Damaged and inoperable seats in auditorium


Retrofitted mechanical equipment


Damaged and inoperable lockers


Damaged flooring at material transitions


Damaged and worn flooring finishes


Poor patching of existing finishes


Damaged tile walls in Locker Rooms


Non-compliant sinks, cabinets and clearances in Life Learning Classroom


Non-compliant sinks, cabinets and clearances in Science Classrooms


Non-compliant circulation deck in Library

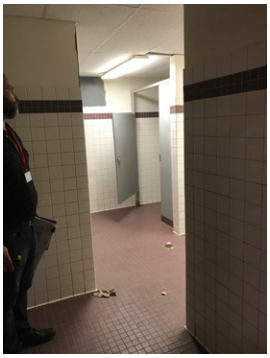

Non-compliant sink/ clearances in corridor


Non-compliant showers/ water damaged ceiling


Non-compliant door clearances


Non-compliant showers


Toilet room not accessible


Partial accessible bathrooms


Deteriorated wall tile


Non-compliant showers


Non-compliant showers


Non-compliant doorswing direction


Lack of instrument storage


Non-compliant custodial sink. Damages wall/ floor tile and plumbing fixtures


No lockers in Locker Rooms


Non-compliant sinks, cabinets, and clearances


Team Locker room with non-compliant shower and bathroom


Lack of proper trash storage in building. Trash located in egress path


Lack of proper SPED support spaces


Non-compliant ramp and railings


Non-compliant door clearance in servery

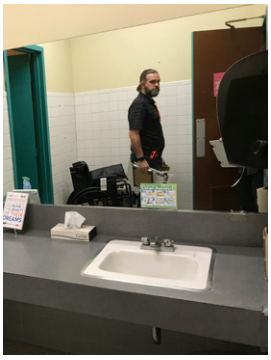

Non-compliant custodial slop sink in kitchen


Lack of privacy in Nurses office. No exam rooms


Non-compliant locker room toilets


Typical undersized office


Inadaquate storage in Nurse's Office


Non-compliant sink in Nurse's office bathrooms


Non-complaint reception desk in the Main Office


Undersized band performance/practice area


Undersized gymnasium with inadequate seating and spectator area


Non-compliant stage access

STRUCTURAL ENGINEER

RSE ASSOCIATES Inc.

INTRODUCTION

On January 16, 2019, RSE visited the existing Leicester Middle School to make observations of the building structure. No exploratory probes were performed at this time, so all field observations were made on exposed structure. An Existing Conditions Study report written by Roome & Guarracino in 2014 was provided to RSE to be used as a reference. Original 1959 structural drawings and the 1972 renovation and addition drawings and were also available.

EXISTING CONSTRUCTION

The existing single-story Leicester Middle School was built in 1959 as 2 separate buildings and later connected in 1972 to form a single building. The ground floor is a 4" concrete slab on grade with ramps at the 1970's connectors, and the foundations are shallow reinforced concrete spread footings and frost walls at the perimeter.

The roof is framed with steel beams at 8 to 10 feet on center. Between the steel beams are gypsum roof panels with steel bulb T's. There are a series of steel columns that align with the exterior walls and central corridors to support the steel beams. Between the columns, there are reinforced concrete wall panels between 3"-4½" thick. Steel channels connect the exterior columns at the perimeter of the building above the roof.

The gymnasium is framed with steel bents to form the taller volume. The "connectors" that were built after the original construction have open web steel joists spanning between steel girders for the roof structure and exterior CMU walls instead of concrete wall panels. The 1970's additions (weight room and outdoor storage maintenance) are framed with steel beams and metal roof deck.

STRUCTURAL CONDITIONS ASSESSMENT

The condition of the structure appears to be good to very good. No visible rust on the steel was observed from the interior. No significant cracking of concrete or CMU walls was visible, and the slab on grade did not show major signs of cracking due to subsurface settlement. Minor staining of the gypsum roof panels was seen, but since the roofing was relatively new, repainting of the roof panels could be covering up history of prior leaks.

From the exterior, some local rusting of the steel columns could be seen, which can be remedied with basic maintenance. Since the perimeter steel columns and channels are exposed to the elements, there is a thermal bridge to the interior conditioned space.

STRUCTURAL RECOMMENDATIONS

Since the existing building appears to be well maintained and shows no major signs of structural distress, no repairs are required unless a proposed renovation or addition triggers structural upgrades per CMR 780 9th edition, which references the IEBC 2015. The following options can be considered.

1. Level 1 Alterations – minor cosmetic changes such as repainting and changing floor finishes, new MEP equipment
    a. Structural elements will be maintained.
    b. New equipment will be designed for current code-mandated loads.
2. Level 2 Alternations – reconfiguration of walls, changes in any doors or windows
    a. Structural elements can remain:
        i. If existing gravity loads are not increased more than 5%, or capacity of structural elements carrying gravity loads is not reduced by more than 5%. Gravity elements are roof panels, steel beams, steel columns, and concrete footings.
        ii. If capacity of existing lateral elements is not reduced by more than 10%. Lateral elements are reinforced concrete wall panels.
    b. Structural elements need to be designed for current IBC 2015 loads:
        i. If the demand/capacity ratio listed above has

been exceeded.
ii. New structural elements
iii. Voluntarily for the purposes of improving seismic performance

3. Level 3 Alternations – work area exceeds 30% of the total roof area
   a. Substantial structural alteration requires existing gravity and lateral systems to be designed for current IBC 2015 loads and reduced seismic loads.
4. Addition – horizontal or vertical addition
   a. For a horizontal addition with an expansion joint between new and existing, the new structure should be designed for current IBC 2015 loads.
   b. For a horizontal and vertical addition that adds more than 5% gravity load or 10% lateral load to the existing structure, the affected structure should be designed for current IBC 2015 loads

In general, minor structural changes such as creating small openings for new rooftop equipment will not trigger major structural upgrades. Keeping in place the structural framing and concrete wall panels, and simply providing basic building maintenance such as periodic roofing replacement and scraping and painting exposed steel structure will extend the life of the building for many more years. Any major renovation resulting in an upgrade to the lateral system will require positive connections between the roof diaphragm and the concrete wall panels, and a possible replacement of several concrete wall panels with a thicker concrete wall to resist the current lateral loads. Very often the cost of the seismic upgrade results in the renovation option to be cost prohibitive compared to the cost of new construction.

CONCLUSION

Using the existing structural drawings and observations made during the walk-through, the condition of the existing structural system appears to be satisfactory and requires periodic maintenance. Aside from the structural implications outlined above, any proposed renovation should address the lack of insulation and widespread thermal bridges at the exterior walls that affect both the energy use of the building and the likelihood of present and future steel corrosion due to condensation.

PHOTO 1: Interior beam framing into steel column. Concrete wall panel nested between column flanges.

PHOTO 2: Minor water staining of gypsum roof panels

PHOTO 3: Steel roof bents in gymnasium

PHOTO 4: Roof beam bearing on interior column with concrete wall panels below clerestory windows

PHOTO 5: View from exterior showing exterior steel columns and steel channel at roof line (painted in red).

Photo 6: Close up of column showing slight rusting of steel

MECHANICAL

BLW ENGINEERS

GENERAL

The Leicester Middle School is a 69,500 square foot building last renovated in 1978. The heating and ventilating systems are original construction, have long outlived their anticipated lives, are in mostly poor operating condition and are in need of complete replacement.

BOILER ROOM

The boiler room is located on the main level; it provides hot water for heating to the building heating terminal equipment and the domestic hot water indirect heater/water storage tank. The hot water heating system consists of two 150bhp Cleaver Brook, oil fired water tube boilers, rated for 5,230 MBH of hot water heating.

The boilers are provided No.2 fuel oil from an 10,000 gallon above ground fuel tank located adjacent to the building. Fuel oil is piped from the tank to a fuel oil pumpset in the boiler room to provide fuel oil to the two boilers.

The boilers are provided with a horizontal breeching system into a masonry chimney; the chimney is reportedly in very poor condition and could pose a safety hazard. Combustion air is provided through wall louvers and a ceiling mounted hot water heating/ventilating unit which draws air through a roof mounted intake vent.

The remainder of the boiler room consists of zone circulating pumps, water specialties, insulated hot water distribution piping system and pneumatic controls. Insulated hot water distribution system from the boilers to the zone circulating pumps provides heating hot water into the insulated hot water distribution piping system; the hot water system is provided with a 3-way mixing valve to provide compensated hot water supply temperature control based on outdoor air temperature.

The existing zone circulating pumps consist of the following:

Pump 1,2: Zone 1, Base Mounted, 3hp
Pump 3,4: Zone 2, Vertical Inline, 200 gpm, 50'TDH, 5hp
Pump 5,6: Domestic hot water heater/storage tank, inline

The boilers are provided with protected water from a reduced pressure backflow preventer and a vertical expansion tank.

The boiler room is heated by the heating/ventilating unit and a vertical hot water unit heater.

The boiler room also house the building duplex compressor which provides compressed air throughout the building for the pneumatic temperature controls.

The insulation appears to be asbestos containing materials.

CLASSROOMS

Classrooms are provided with unit ventilators and fintube radiation to provide classroom heating and ventilating; the unit ventilators are original construction. Each unit is controlled by a wall mounted pneumatic thermostat. Units are provided with a hot water heating coils with 2-way control valves interconnected to the hot water distribution piping system. The unit ventilators are controlled by a wall mounted pneumatic thermostat.

Classrooms exhaust is through an exhaust register at the floor level under a storage cabinet into an underground horizontal exhaust duct distribution system and then to vertical risers which exhausts to the outdoors through roof exhaust fans.

COMMON SPACES

Administration areas have been provided with unit ventilators, hot water convectors, hot water radiation for heating and some through wall air conditioning units for exterior offices; ventilation is through the unit ventilators operable windows. The space was originally designed

with a heating, ventilating and air conditioning unit with a remote air cooled condensing unit adjacent to the front entrance and an above ceiling duct distribution with air outlets to each space for air conditioning but the unit is no longer providing air conditioning.

The Library is provided with two unit ventilators and fintube radiation to provide heating and ventilating; the unit ventilators are original construction. The units are controlled by a wall mounted pneumatic thermostat. Unit is provided with a hot water heating coils with 2-way control valves interconnected to the hot water distribution piping system. Space exhaust is through an exhaust register into a horizontal exhaust duct distribution system and exhausted to the outdoors through a roof exhaust fan. Adjacent Work and Speech Rooms are provided with fintube radiation for heating and operable windows for ventilation.

The Gymnasium is provided with heating and ventilation from a hot water heating/ventilating unit located in a storage closet with supply air distribution behind one of the walls terminating at wall outlets, return air from air outlets on an adjacent wall and outdoor air from wall mounted intake louvers; this is original construction and controlled by a wall mounted pneumatic thermostat. Units are provided with a hot water heating interconnected to the hot water distribution piping system. Space exhaust is through an exhaust register at the opposite side of the up into a vertical shaft and exhausted to the outdoors through a roof exhaust fan. The Gymnasium has also been provided with destratification fans along the peak of the sloped roof.

The Weight Room is provided with two horizontal unit ventilators to provide heating and ventilating; the unit ventilators are original construction. The units are controlled by a wall mounted pneumatic thermostat. The units are provided with a hot water heating coils with 2-way control valves interconnected to the hot water distribution piping system. Space exhaust is through an exhaust register into a horizontal exhaust duct distribution system and exhausted to the outdoors through a roof exhaust fan.

Locker Rooms are provided with a hot water heating/ventilating to provide heating and ventilating; the heating and ventilating unit provided with supply air distribution ductwork above the ceiling terminating in air outlets in each space, outdoor air from outdoor air intake hood and is original construction. The is controlled by a wall mounted pneumatic thermostat. The unit is provided with a hot water heating coil with 2-way control valve interconnected to the hot water distribution piping system. Locker Room exhaust is through an exhaust register into a horizontal exhaust duct distribution system and exhausted to the outdoors through a roof exhaust fan.

The Cafeteria is provided with heating and ventilation from fintube radiation along the exterior wall and a hot water heating/ventilating unit located in a mechanical closet with supply air distribution to a wall outlet and outdoor air from wall mounted intake louvers at the mechanical room exterior wall; this is original construction and controlled by a wall mounted pneumatic thermostat. The unit and fintube radiation provide hot water heating interconnected to the hot water distribution piping system.

The Kitchen Hoods is provided with a duct system to roof mounted exhaust fan makeup air is through transfer air registers from ventilation air provided by the cafeteria heating, ventilating unit; the kitchen hood is not provided with an Ansul fire protection system. The dishwasher is provided with an exhaust register over the kitchen to an exhaust air duct system that exhausts air to the outdoors through a roof mounted exhaust fan. The Kitchen is also provided with hot water heating and sidewall propeller exhaust fan.

The Auditorium is provided with heating and ventilation from a hot water heating/ventilating unit located in an adjacent mechanical closet with supply air distribution above the ceiling terminating is air outlets, return air from air outlets on the face of the stage and outdoor air from wall mounted intake louvers in the mechanical room wall; the is original construction and controlled by a wall mounted pneumatic thermostat. Units are provided with a hot water heating interconnected to the hot water distribution piping system. The band office is provided with exhaust only and the band storage room is not provided with any heating, ventilating and air conditioning.

Teacher's Room provided with fintube radiation to provide heating, a window air conditioning unit, a wall mounted exhaust fan and operable windows to provide ventilation. The heating is controlled by a wall mounted pneumatic

thermostat. The radiation provides hot water heating coils with a 2-way control valves interconnected to the hot water distribution piping system.

MISCELLANEOUS SPACES

The corridors are provided with heating by convectors or cabinet unit heaters interconnected to the hot water distribution piping system. Entries and vestibules are heated by convectors or unit heaters interconnected to the hot water distribution piping system

Each toilet is provided with exhaust through wall mounted exhaust register(s) to provide exhaust from the space by a roof mounted exhaust fans through a low pressure duct distribution system. Each exhaust fan operates continuously during occupied hours and be deenergized during unoccupied hours. Heating, where required, is provided by wall convectors interconnected to the hot water distribution piping system; controlled by a wall mounted pneumatic thermostat and two-way control valve.

Each custodial is provided with exhaust through ceiling exhaust register(s) to provide exhaust from the space by a roof mounted exhaust fans through a low pressure duct distribution system. Each exhaust fan operates continuously during occupied hours/deenergized during unoccupied hours.

Miscellaneous spaces, that were storage rooms have converted to storage rooms or classrooms, are provided with hot water heating, where required, and an exhaust air system in accordance with applicable code requirements. No means for tempered or conditioned ventilation has been provided.

Miscellaneous spaces, such as storage rooms, are provided with hot water heating, where required, and an exhaust air system in accordance with applicable code requirements.

Existing Hot Water Boilers


Existing Fintube Radiator


Existing Fuel Oil Pump


Existing Gym Air Outlet


Existing Classroom Unit Ventilation and Fintube Radiator


Existing Gym Destratification Fans


Existing Hot water Circulating Pumps


Existing 10,000 Above Ground Oil Tank


Existing Roof Top Equipment


Existing Hot Water Piping


Existing ATC Air Compressor


Existing Heating Ventilating Unit

PLUMBING

BLW ENGINEERS

SUMMARY

The plumbing report is based on review of the existing drawings and a site visit to the facility. The plumbing systems were visually noted and reviewed for signs of deterioration, major compliance issues and consideration for future use.

PLUMBING EXISTING CONDITIONS

Domestic water enters the water room as a 3" service. A water meter and isolation valve has been provided for the domestic water use. A 3" main is distributed to the cold water fixtures. Pipe material was a combination brass IPS and copper sweat type fittings. Most piping was insulated. Several older and corroded gate valves were observed. It was noted piping, valves and insulation appeared original to the structure and showing signs of age.

Domestic hot water was provided by (1) large insulated storage tank. The existing oil fired boiler is the tank's heat source. A mixing valve and building recirculation loop was provided. The domestic hot water components appear original to the building and in poor condition. The temperature monitoring system appears to have failed some time ago. The current installation yields very high energy usage as the large inefficient oil fired boiler must run at full capacity during shoulder and summer months.

Sanitary and kitchen waste piping appears to be combined within the building. An exterior grease trap did not appear to be present. A single intermediate grease trap was provided at the 3 bay sink. It was noted that most piping was original to the structure and showing signs of age. Fuel source for kitchen equipment was electric. Electric booster heaters are provide for kitchen fixtures requiring higher hot water temperatures. Floor drains and prep sinks to did not appear to be treated for grease waste. This would be in violation of current codes and leaves the sanitary system prone to grease waste failure.

Plumbing fixtures were porcelain type with commercial flushometers. Drinking fountains were not ADA compliant. Floor drains have been provided in bathrooms. Floor drains/sinks have been provided in the commercial kitchen areas. All fixtures appear to be original to the building, not ADA or water conservation type and past their useful life expectancy. Janitor's sinks are provided with chemical dispensers. Chemicals are directly connected to the vacuum breaker faucet. This is a code/safety violation; approved backflow preventers should be provided.

Science classrooms were equipped with typical laboratory faucets, emergency showers and soap stone sinks. It was noted that there was no acid waste system in place to chemicals prior to discharge to the sanitary system. Also, there did not appear to be a separate tempered water loop for emergency showers. This is a code/safety violation.

Storm water appears to be conveyed via roof drains through the building and out to a site system. Existing drains are a combination of dome and insertion type. It should be noted that insertion type roof drains are no longer accepted in Massachusetts as the decrease the pipe capacity; leaving the roof prone to ponding.

Natural gas was not provided at this site. Building fuel sources are electric and oil.


Domestic Water Service


Domestic Hot Water Storage Tank

Defunct Water Heater


Grease Interceptor at 3-Bay Sink


Electric Hot Water Booster at Dish Machine


Typical Plumbing Fixtures


Typical Plumbing Fixtures 2


Typical Plumbing Fixtures 3


Typical Plumbing Fixtures 4


Janitor's Sink with Chemical Dispenser


Insert Type Roof Drain

FIRE PROTECTION

BLW ENGINEERS

SUMMARY

The fire protection report is based on a brief site visit to the facility. The available systems were visually noted and reviewed for signs of deterioration, major compliance issues and consideration for future use.

FIRE PROTECTION EXISTING CONDITIONS

The building is not currently provided with any form of automatic fire protection/sprinkler system.

ELECTRICAL ENGINEER

ART Engineering
we build the future.

ART Engineering (ART) has completed a site survey for the existing structure and we have developed a Failed/Poor/Fair/Good/Excellent/Indeterminate rating system for the various electrical systems for Leicester Middle School.

Failed – The equipment, component or system is no longer in proper operating condition.

Poor – The equipment, component or system is still in operation, but failure is imminent. Significant signs of deterioration are present and/or components may be missing from equipment. Significant repair work may be required.

Fair – The equipment, component or system is still in operation and still has some operational life left. Minor signs of deterioration may be present. Equipment has all its required components still working correctly. Minor repair work may be required.

Good - The equipment, component or system is still in operation and still has significant operational life left. No signs of deterioration are present, and all components are in proper working order. Some clearing may be required, but no repair work should be necessary.

Excellent - The equipment, component or system is in like-new condition. No signs of deterioration are present, and all components are in present and in proper working order. No repair work is required, and very minor cleaning is necessary.

Indeterminate – The equipment, component of system could not be accessed to determine its condition.

Most of the systems included in this study were found to have fair ratings. There are many reasons for this, including the age and systems that do not meet current code requirements. The rating system considers the condition of the electrical systems as well as the types of systems, sizing and applicability for their respective spaces.

The Massachusetts State Building Code 780 CMR requires all buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by the State Building Code to be maintained in a safe, operable and sanitary condition. All service equipment, means of egress, devices and safeguards which are required by the State Building Code in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order.

MAIN ELECTRICAL SERVICE & DISTRIBUTION EQUIPMENT

The existing main electrical service is 1200A, 208/120V, 3-phase, 4-wire and in a shared storage space within a single-floor slab construction. The main service equipment was assembled in 1954. The main service is operational, but is past a useful life of 45-yrs.

The main electrical switchgear and distribution panelboards in the building are by Square D. The panelboards in the Electrical Closets are Square D circuit breaker type. The wiring in the building is a combination of type AC and MC. Additional SQUARE-D distribution panels have been added to support Kitchen and Cafeteria systems.

Finding breakers and replacement components for this electrical system is not likely to continue. While the Electrical System appears to be maintained, a rating of poor is assigned due to the risk associated with OEM replacement parts and no spare/replacement parts on hand. Branch panels are distributed throughout the School and consist of original recessed Westinghouse (60-yrs+ in service), surface mount Square-D (25 to 45-years in service) and Eaton (15 – 25yrs in service).
RATING: POOR

GENERAL PURPOSE POWER

The general-purpose receptacles are located throughout

the building. The location and the quantity of the receptacles may not be adequate for a new program. Receptacle outlets should be replaced due to age. Surface mounted conduit to power and data outlets reflect incremental updates to meet in-class technology updates.
RATING: FAIR

Main Distribution


Branch Distribution Panel

EMERGENCY POWER

A 30 kw, 120/208V, 3 phase, 4 wire diesel generators by Onan is located in the Boiler Room. The generator was manufactured by Onan #30DEH and is in very poor condition. A 100A, 120/208V transfer switch connects circuits to normally-off egress lighting.
RATING: POOR

100A Transfer Switch


Onan 30 kW Generator

EGRESS & EXIT LIGHTING

The egress lighting consists of emergency lighting units with remote light heads, normally off, located in the egress pathways. The EXIT signs are a mix of printed, incandescent and florescent-lit types.
RATING: POOR


Egress Lighting

Printed EXIT Sign

LIGHTING AND CONTROLS

The lighting in the building is a mixture of fluorescent and incandescent fixtures. The fluorescent fixtures are typically surface-mount 1x4 and 2x4 recessed troffers using T-8 fluorescent lamps and round surface mounted fixtures with compact fluorescent and incandescent lamps. Lighting control is by wall mounted snap switches. There are no automated controls. The building's perimeter lighting utilizes wall packs which produce light pollution and glare. In general, the lighting system does not meet today's requirements for efficiency, controls and light pollution. Gymnasium and Weight Room lighting has recently been upgraded to LED.
RATING: POOR

FIRE ALARM SYSTEM

The fire alarm system is a 6-zone monitored system by FIRE-LITE®. The quantity and location of audible-visual signaling devices is inadequate in mechanical spaces and does not comply with NFPA 72 standards for notification. Many signaling devices have been updated, but several devices are outmoded and do not meet ADA compliance. Overall coverage of the automatic fire detection devices is adequate in public spaces.


Media Room Lighting


Common Area Lighting


Exterior Sodium Vapor Lighting


Classroom Lighting

Fire Alarm Panel

Noncompliant Pull Station

TELECOMMUNICATIONS CABLING INFRASTRUCTURE

The telecommunications system comprises mostly of Category 3/6a cables for data and voice communications. The system was recently modernized in the last 24-months, but rack and storage closets do not comply with the BICSI standards for telecommunications infrastructure. The telecommunications distribution is distributed by telecom closets in and around the three-building campus. The telecommunications wiring is run in surface non-metallic raceway to surface mounted outlets. Phones service provider is by ESI-100 and is prone to service interruptions.

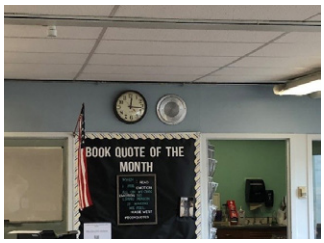
Main Communications Rack

ESI Digital Phone

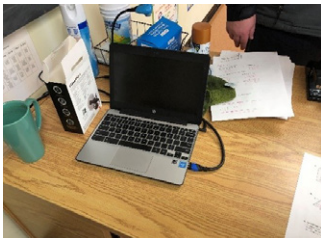
CLASSROOM TECHNOLOGY AND COMMUNICATIONS

The paging and intercom system is well serviced by a DUKANE PA and Tone Generator System. The phone system is digital POTS-Line with handsets by ESI. All classrooms have two-way communication with the Main Office. Each classroom has a projector and computer workstations / laptops and EPSON short throw projectors. Extreme Networks Wireless (Wi-Fi) routers are located throughout the corridors.

DUKANE PA



Simplex Clock / Speaker



Laptop Teaching Tool

EPSON Short Throw

SECURITY

One over-head exterior camera is located at the main entry of the building. There is an AIPHONE LEF-5 Intercom with select door release located in the Administration Office. A 16-Channel DIGIMASTER DVR store monitored corridor activity and is remotely accessible through secure VPN.

RATING: FAIR

AIPHONE LEF-5

Security Camera

MAIN ELECTRICAL SERVICE & DISTRIBUTION EQUIPMENT

Recommend replacing the obsolete main service with a new 1000A, 480/277 service. At a minimum, continue to test and exercise the existing main circuit breakers.

GENERAL PURPOSE POWER

A. Provide a minimum of three general purpose duplex receptacles and one computer double duplex receptacle in offices and conference rooms; where walls exceed 12 feet, an additional duplex receptacle for each additional 12 feet

of wall or fraction thereof will be provided.

B. Provide a minimum of one general purpose duplex receptacle in utility and storage.

C. All new feeder and branch circuit wiring will be concealed EMT conduit or type MC cable. All telecommunications and low voltage wiring will be installed in conduit stubs to accessible ceilings and j-hooks to the telecommunications closet.

EGRESS & EXIT LIGHTING

A. Provide LED egress lighting in egress pathways, bathrooms, public and common areas and outside each egress door.

B. Provide exit lighting in egress pathways and in public and common areas.

LIGHTING AND CONTROLS

A. Provide high efficiency lighting in all interior spaces as well as on the exterior of the building. The light power density shall not exceed 0.7W/sq. ft. All light fixtures shall be LED type.

B. Interior lighting shall be controlled with an automatic control device to shut off building lighting in all spaces. This automatic control device shall function on either:

a. A scheduled basis using a time of day operated control device that turns lighting off at specific programmed times; or
b. An occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space; or
c. An unscheduled basis by occupant intervention.

C. Each space enclosed by ceiling-height partitions shall have at least one control device to independently control the general lighting within the space. Each control device shall be activated either manually by an occupant or automatically by sensing an occupant.

D. Each perimeter office space enclosed by ceiling-height partitions shall have a manual control to allow the occupant to uniformly reduce the connected lighting load by at least 50% or shall be provided with automatic daylighting controls.

FIRE ALARM SYSTEM

A. Provide new addressable fire alarm system with connection to Central Host Monitoring Co.

B. The design of the fire alarm system shall be based on engineering criteria as defined by NFPA 72 and The Massachusetts State Building Code 780 CMR. The system shall be supported by standby batteries. The batteries shall support 24-hours of full supervisory operation followed by 15 minutes of alarm.

C. Provide combination audiovisual signaling appliances as required per NFPA 72. Standalone devices may be used to augment combination units when necessary. The audiovisual notification appliances shall be in all egress pathways, classrooms, public and common areas. Provide visual devices in all offices. The devices shall follow the Americans with Disabilities Act (ADA).

D. Manual pull stations shall be located within 5 ft. of each means of egress and mounted at 44 in. above the floor to the activating lever of the box. The pull stations will mechanically latch upon operation and remain so until manually reset by a key common to all system locks.

E. Photoelectric smoke detectors shall be located in all egress pathways spaced 30 feet on center, and 15 feet from all stairwells and opposing walls. Smoke detectors shall also be located at the top, bottom of each stairway; mechanical equipment; electrical; transformer; telephone equipment; elevator machine; or similar room. Sprinkler tamper and flow devices shall be wired for trouble and alarm indication respectively into the fire alarm control panel.

TELECOMMUNICATIONS CABLING INFRASTRUCTURE

A. Provide a new telecommunications cabling infrastructure in compliance with the latest TIA standards. The utility company services will be terminated in a telecommunications entrance facility (EF). Fire rated plywood backboards, grounding, equipment racks, 110-type punch down blocks, patch panels, conduit sleeves will be

provided in the EF and the telecommunications room (TR). Voice and data horizontal cabling will be Category 6a, unshielded, twisted pair, 8 conductor copper cable from each jack to the nearest telecommunications closet. Each end of each cable will be labeled.

B. A minimum of one voice/data drop will be provided in each office; a minimum of two (2) data drops will be provided in the ceiling in corridors and assembly areas on 40 ft. centers for wireless access points.

ENVIRONMENTAL

FUSS & O'NEILL
EnviroScience, LLC

PHASE I ENVIRONMENTAL SITE ASSESSMENT

On March 2019, Fuss & O'Neill performed a Phase I Environmental Site Assessment, in conformance with American Society for Testing and Materials (ASTM) Standard Practice E1527-13, Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment Process.

The Leicester Middle School, located on the northern side of Winslow Avenue in Leicester, occupies an approximately 20-acre property adjoining Leicester High School and Leicester Primary School. The building is heated using fuel oil, stored aboveground in a 10,000 gallon tank, and served by public water, sewer, electrical and telecommunications lines.

In the early 20th century, the middle school site was used for agriculture. The Town of Leicester acquired the property in 1959. The middle school was initially constructed in 1961 as a high school and was expanded and improved with ballfields and tennis courts prior to 1980. The present high school opened north of the Site in 1994, and the former high school was repurposed as a middle school.

The Middle School is a single-story building, which includes a boiler room and maintenance garage at its north end. Maintenance chemicals, including gasoline, paints, and floor surfacing chemicals, are stored in the maintenance garage and boiler room. A grease trap is connected to the kitchen. No other hazardous materials were stored in the building. The grounds include tennis courts, ballfields, a detention pond, and a series of driveways. A salt storage shed was located northeast of the school building.

The westernmost portion of the site is located over a Zone II water supply protection area, and the depth to groundwater (based on past field activities at the adjacent high school) is estimated to be 10 feet below grade. The surface soils are mapped as "Paxton Sandy Loam" and "Udorthents," meaning sandy soils derived from glacial till, and specifically soil that has been reworked. The southeastern portion of the property includes a mapped wetland area.

Both the middle school and the adjacent high school were associated with past spills of fuel oil managed under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000):

- In 2017, approximately 30 gallons of heating oil were released to pavement, storm drains and soil at the Middle School. A total of approximately 37 tons of contaminated soil and 10 drums of oily solids were collected and disposed, and a "Permanent Solution with No Conditions" (PSNC) was entered, closing out the site. The PSNC indicates that no further response actions are warranted and the release has been addressed to a state compatible with unrestricted future use.

- In 1995, approximately 170 gallons of heating oil were released to a monitoring well at the high school. The oil and groundwater were recovered and in 1996, a Class A1 Response Action Outcome (RAO; now a form of PSNC) was entered for the release, closing out that site. Based on the nature of that release, no impact to the Middle School property was suspected.

- In 2009, approximately 50 gallons of heating oil were released from an underground storage tank at the high school. The release affected a catch basin and oil flowed to the wetland area at the southeastern corner of the Middle School property. In August 2009, approximately six tons of oil-impacted soil were excavated from the wetland area, and a Class A2 RAO (now a form of PSNC) was entered for the release, closing out that site.

The PSNC status indicates that no further response actions are warranted and the release has been addressed to a state compatible with unrestricted future use.

As a result of this Phase I ESA, Fuss & O'Neill developed the following conclusions:

- No current Recognized Environmental Conditions (RECs; the presence or likely presence of oil or hazardous materials in the environment, as a result of release or in a

manner constituting a threat of release) were identified in connection with the Leicester Middle School site.

- No Controlled RECs (CRECs; conditions which have achieved regulatory closure subject to institutional or engineered controls to restrict future exposures) were identified in connection with the Leicester Middle School site.
- Because each of the past releases achieved PSNC status, these conditions meet the standard for Historical RECs (HRECs; past releases which have achieved regulatory closure without ongoing controls or maintenance) per ASTM E1527-13.

Refer to the Appendix for the full Phase I Environmental Site Assessment.

LIMITED HAZARDOUS BUILDING MATERIALS INSPECTION

On April 1, 2019, Fuss & O'Neill state-certified Asbestos Inspectors performed a limited asbestos inspection, presumed polychlorinated biphenyl (PCB)-containing source building materials inventory, and a fluorescent light ballast and mercury-containing equipment inventory.

As a result of the inspections, numerous building materials were determined to be ACM and PCB-containing. Additionally, PCB-containing fluorescent light ballasts were identified in the building during inspection. For the purpose of the inspection, all coated building components are assumed to be coated with Lead-Based Paint (LBP).

Refer to the Appendix for the full Limited Hazardous Building Materials Inspection report.

GEOTECHNICAL REPORT

PURPOSE AND SCOPE

The purpose of our preliminary design study was to obtain initial subsurface information across the proposed building site and to identify preliminary foundation design considerations associated with the feasibility study assessing options for the proposed project.

AVAILABLE INFORMATION

Information available to McPhail Associates, LLC (McPhail) for use in the preparation of this report included the following:

- An undated compilation of existing site survey information transmitted to McPhail electronically on February 27, 2019 from FAA; and
- A draft Existing Conditions Plan provided by Nitsch Engineering on April 1, 2019.

Elevations referenced herein are in feet and are referenced to the North American Vertical Datum of 1988 (NAVD 88).

GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS
2269 Massachusetts Avenue
Cambridge, Massachusetts 02140
(617) 868-1420

EXISTING AND PROPOSED CONDITIONS

It is understood that a feasibility study is being conducted to assess several alternative locations for construction of a new middle school in the area north of the existing Leicester Middle School, which fronts onto Winslow Avenue to the south, and south of the existing Leicester High School, which fronts onto Paxton Street to the west. The existing school buildings are generally surrounded by bituminous concrete paved parking lots and roadways with landscaped margins. Grassed athletic fields occupy the majority of the remaining site area and a pond is located at the southeast corner of the site. The remainder of the site is generally bordered by wooded areas and/or residential properties. The Leicester Senior Center borders the site to the southeast.

It is understood that the proposed construction will likely include a new middle school which would be located in the general vicinity of the existing athletic fields. The size and layout of the proposed building is presently unknown, as well as if it would contain occupied below-grade space.

The athletic fields are generally separated into four relatively level areas which are considered as feasible options for the location of the proposed new school building. East of the existing high school building, the football field is generally level at about Elevation +1000. Located to the north of the existing middle school building, the softball field and general use field to the northwest of the softball field backstop is relatively level at approximately Elevation +995. The general use field consists of a slight slope from north to south down to approximately Elevation +991, where a more pronounced slope leads down to the lacrosse/soccer field at approximately Elevation +987. To the northeast of the existing middle school building, downhill of the surrounding asphalt parking lot, the baseball field is located at approximately Elevation +967.

SUBSURFACE EXPLORATION PROGRAM

A subsurface exploration program consisting of eight (8) borings was conducted at the site on March 5 and 6, 2019 by Technical Drilling Services (TDS) of Sterling, Massachusetts under contract to McPhail. Boring logs prepared by McPhail are contained in Appendix B and approximate plan locations of the borings are as indicated on the enclosed Subsurface Exploration Plan, Figure 2.

Borings were performed utilizing track-mounted drilling equipment. Each boring was advanced using 2.25-inch inner diameter hollow stem augers. Standard 2-inch O.D. split-spoon samples and standard penetration tests (SPT) were generally obtained at 5-foot intervals of depth in accordance with the standard procedures in ASTM D1586.

The borings were terminated at depths ranging from 11.5 to 27 feet below the existing ground surface.

The explorations were observed by a representative of McPhail who performed field layout, prepared field logs, obtained and visually classified soil samples, monitored groundwater conditions in the borings, and made minor adjustments to the exploration locations and determined the required exploration depths based upon the actual subsurface conditions encountered.

Field locations of the borings and the ground surface elevation at each boring location were determined by survey by Nitsch Engineering.

LABORATORY TESTING

At the completion of the subsurface exploration program, soil samples were returned to our laboratory for more detailed classification, analysis, and testing. The laboratory testing consisted of sieve analyses to determine the grain size distribution and confirm the visual classifications of the fill and glacial till deposits. Laboratory test procedures were in general accordance with applicable ASTM Standards. Results of the gradation testing appear on Figure 3 and Figure 4 following the text of this report.

SUBSURFACE CONDITIONS

A detailed description of the subsurface conditions encountered within the borings is documented on the boring logs contained in Appendix B. Based on these explorations, the following is a description of the generalized subsurface conditions encountered across the site from ground surface downward.

Underlying a thin superficial layer of topsoil, the borings encountered fill soil which extends to depths of about 2 to 7 feet below ground surface. The fill generally consists of a loose to dense, dark brown to orange-brown silt and sand with trace to some gravel varying to a gravelly sand with trace to some silt. The fill also contains trace amounts of root matter and clay and likely contains cobbles as well. Furthermore, the fill within boring MA-6 was also observed to contain a trace of brick and ash. Grain size distributions of samples of the fill are shown on Figure 3. Based on a comparison of the grain size distributions of the fill and underlying glacial till deposit, the fill observed in the borings appears to primarily consist of reworked natural glacial till.

A historic topsoil/subsoil layer was encountered underlying the fill within boring MA-1 at an approximate depth of 4 feet below the existing ground surface, extending to the glacial till deposit at a depth of approximately 6 feet. The historic topsoil/subsoil layer was generally observed to consist of a loose, black-brown sandy silt with trace gravel and some root matter.

Underlying the fill and/or historic topsoil/subsoil, a natural glacial till deposit was encountered within each boring at depths of 2 to 7 feet below grade, specifically ranging from about Elevation +998.6 at boring MA-7 to about Elevation +961.5 at boring MA-1. The glacial till deposit was observed to generally consist of a compact to very dense, brown to orange-brown to gray silt and sand with trace to some gravel and trace clay varying to a silty sand with some to trace gravel and trace clay. Grain size distributions of samples of the glacial till deposit are shown on Figure 4.

Borings MA-1, MA-2, and MA-6 through MA-8 were terminated in the glacial till deposit at depths of 12 to 27 feet below ground surface. Borings MA-3 through MA-5 were terminated upon auger or split spoon refusal, which is generally assumed to be indicative of cobbles or boulders within the glacial till deposit or potentially the underlying bedrock surface, at approximate depths varying from 11.5 to 14.7 feet below ground surface.

Groundwater was observed in borings MA-1 and MA-3 through MA-6 upon completion of drilling at approximate depths ranging from about 6 to 8 feet below ground surface, corresponding to levels ranging from about Elevation +961.5 to about Elevation +992.6. It is anticipated that water levels could be indicative of groundwater that is perched on top of the relatively impervious glacial till deposit or the surface of the bedrock. Groundwater was not encountered in boring MA-2 upon completion of drilling. Additionally, it is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, periods of heavy precipitation and alterations of existing drainage patterns.

PRELIMINARY FOUNDATION DESIGN RECOMMENDATIONS

Based on the scope of the proposed development and the subsurface conditions encountered at the site, for preliminary design purposes it is recommended that foundation support for the proposed structure consist of conventional spread footing foundations in conjunction with slab-on-grade construction. Additional foundation design recommendations are contained below.

FOOTING RECOMMENDATIONS

Footings are recommended to bear on the natural, undisturbed glacial till deposit, or on imported gravel borrow that is placed and compacted over the natural glacial till deposit. For preliminary design purposes, the footings should be proportioned utilizing a maximum design bearing pressure of two (2) tons per square-foot (tsf). All foundations should be designed in accordance with the Code. Recommended minimum footing widths for continuous and isolated spread footings are 24 and 36 inches, respectively.

All footings in unheated areas should be provided with a minimum 4-foot thickness of soil cover as frost protection. Interior foundations should be located such that the top of the foundation concrete is a minimum of 6 inches below the underside of the lowest level slab. All foundations should be located such that they bear below a theoretical line drawn upward and outward at 2 to 1 (horizontal to vertical) from the bottom exterior edge of all adjacent footings, structures and utilities.

Fill material should be removed at footing locations and within the lateral limits defined herein for the placement of gravel borrow. Where proposed footings are to be supported on gravel borrow, the lateral limits of the excavation should extend beyond the outside edge of the footings for a horizontal distance equal to the depth from the bottom of the proposed footing to the surface of the natural, undisturbed glacial till deposit, plus two (2) feet in all plan directions.

Gravel borrow should consist of an off-site well-graded natural sand and gravel containing less than eight (8) percent passing the no. 200 sieve. Reuse of the on-site soil as ordinary fill outside the building footprint is discussed in more detail in the "Preliminary Geotechnical Construction Considerations" section of this report.

All gravel borrow placed within the footprint of the proposed building for support of the footings and slab-on-grade should be placed in lifts having a compacted thickness of 6 inches and be compacted to a minimum of 95 percent of its maximum modified Proctor dry density. The placement and compaction of gravel borrow should be monitored by a Registered Professional Engineer or his designated representative in accordance with the provisions of the Code.

SLAB RECOMMENDATIONS

The proposed lowest level slabs should be designed as conventional soil-supported slabs-on-grade bearing on proof-compacted existing fill material or on imported gravel borrow that is placed and compacted over the proof-compacted existing fill material. Preparation of the building pad for support of the spread footings and slabs should include the removal of all topsoil from the entire proposed building footprint.

The existing fill, where encountered, may remain in place below the lowest level slab provided it is proof-compacted with a minimum of six (6) passes of a large walk-behind double drum vibratory roller. All soft, spongy or "weaving" areas observed during the proof-compaction should be removed and replaced with compacted gravel borrow.

The lowest level slabs should be underlain by a polyethylene vapor barrier spread across the surface of a 9-inch thickness of compacted ¾-inch crushed stone, which is underlain by filter fabric, such as Mirafi 140N or equivalent, spread across the proof-compacted fill or glacial till subgrade.

As indicated above, groundwater was encountered in several borings at depths of 6 to 8 feet below ground surface upon the completion of drilling. If the proposed lowest level slabs will be located below-grade, groundwater and/or surface water runoff that infiltrates into the ground could become periodically or seasonally perched on the surface of the fill or glacial till and infiltrate into the occupied below-grade space. Therefore, to protect the lowest level slabs from groundwater intrusion, underslab and perimeter foundation drains may be

required. The proposed grading plan should be provided to McPhail for review to determine if foundation drainage is required. Recommendations for foundation drainage, if required, would be contained in the Final Foundation Engineering Report (FFER).

All localized depressions in the lowest level slab (such as elevator pits, etc.) should be provided with properly tied continuous waterstops in all construction joints and cementitious waterproofing to protect against groundwater intrusion. Furthermore, the perimeter below-grade foundation walls should receive a troweled-on bitumastic damproofing.

GENERAL FOUNDATION RECOMMENDATIONS

Below-grade foundation walls receiving lateral support at the top and bottom (i.e. restrained walls) should be designed for a lateral earth pressure corresponding to an equivalent fluid density of 60 pounds per cubic-foot. Similarly, drained cantilevered retaining walls, (i.e. receiving no lateral support at the top) should be designed for a lateral earth pressure corresponding to an equivalent fluid density of 40 pounds per cubic-foot for a level backfill condition. To these values must be added the pressures attributable to earthquake forces per Section 1610.2 of the Code.

Cantilevered site retaining walls should be backfilled with free-draining material and provided with weep holes spaced at maximum 10-foot centers. Crushed stone surrounded by filter fabric should be provided at each weep hole.

Lateral forces can be considered to be transmitted from the structure to the soil by passive pressure against the foundation walls utilizing an equivalent fluid density of 120 pounds per cubic-foot providing that the walls are designed to resist these pressures. Lateral force can also be considered to be transmitted from the structures to the soil by friction on the base of footings using a coefficient of 0.35, to which a safety factor of 1.5 should be applied.

SEISMIC DESIGN CONSIDERATIONS

For the purposes of determining parameters for structural seismic design, for preliminary design purposes this site is considered to be a Site Class D as defined in Chapter 20 of American Society of Civil Engineers (ASCE) Standard 7-10 "Minimum Design Loads for Buildings and Other Structures". The bearing strata on the proposed site are not considered to be subject to liquefaction during an earthquake based on the criterion of Section 1806.4 of the Code.

PRELIMINARY GEOTECHNICAL CONSTRUCTION CONSIDERATIONS

The primary geotechnical construction considerations that are anticipated to have an impact on the design of the structure include the elevation of the proposed lowest level floor slab(s) in relation to the elevation of the surface of the natural glacial till deposit, and on-site reuse of excavated soils. Additional geotechnical construction considerations, such as preparation of foundation and slab bearing surfaces, construction dewatering, and off-site removal of excess excavated material, should be discussed in the FFER.

As indicated above, the proposed footings are recommended to bear on the natural glacial till deposit or on compacted gravel borrow placed over the natural glacial till deposit. The existing fill located below the footings, and within the zone of influence of the footings, will need to be excavated and imported gravel borrow placed and compacted for support of the footings.

Depending on the location of the proposed building and the elevation of the lowest level slab(s), cuts and/or fills may be required to facilitate the building construction. To minimize the amount of imported gravel borrow that is required, it is recommended that the proposed finished slab elevations be located close to the existing site grades. If the site grades will be raised by more than a couple feet, consideration could be given to reusing the on-site fill soil as ordinary fill within the building footprint to raise the proposed grades and employing a ground improvement method such as aggregate piers (APs) to improve the characteristics of the fill in lieu of excavating the fill below footings and importing gravel borrow. As a ground improvement technique, APs are considered to be a technically suitable alternate to the placement of gravel borrow for foundation support. Furthermore, the structural design of the footings and slabs-on-grade supported on soil improved by APs would be the same as if gravel borrow were used.

As described above, grain size distributions of representative samples of the fill material indicate that the fines content (i.e. silt and clay) ranges from about 35 to 46 percent. In addition, grain size distributions of representative samples of the glacial till deposit indicate that the fines content ranges from about 41 to 51 percent. Due to the fines content of the on-site soils, excavated material may become unsuitable for re-use if it is not covered and becomes too wet to be properly compacted. Furthermore, when the on-site material is wet it is susceptible to freezing which would also prevent it from being acceptable for on-site reuse for support of the building foundations. If the earthwork operations are performed during a wet and/or cold period, it is anticipated that significant portions of the on-site soil may become unsuitable for re-use on-site for support of the footings and slabs.

As such, at the present time the on-site fill and glacial till are not recommended to be reused on-site for support of the proposed footings or slabs (unless ground improvement methods are employed) due to the high fines content. It is anticipated that portions of the excavated soils may be re-used on-site as ordinary fill, provided they are maintained in a dry condition and can be properly compacted.

It is emphasized that excavated material will become unsuitable for re-use if it becomes too wet. Therefore, it is recommended that stockpiles of excavated material intended for reuse be protected against increases in moisture content by securely covering the stockpiles at all times with 6-mil polyethylene for protection from precipitation and also as a dust mitigation measure. The placement and compaction of on-site material should be completed during relatively dry and non-freezing conditions. If, due to any of the above conditions, the excavated material is unsuitable for reuse, an off-site gravel borrow should be used.

FINAL COMMENTS

It is recommended that McPhail be retained to prepare a Final Foundation Engineering Report once the details of the proposed building project are finalized. The final report would provide final foundation recommendations based on the specific project design requirements. Additional subsurface explorations will be necessary to further delineate the subsurface conditions across the final building site.

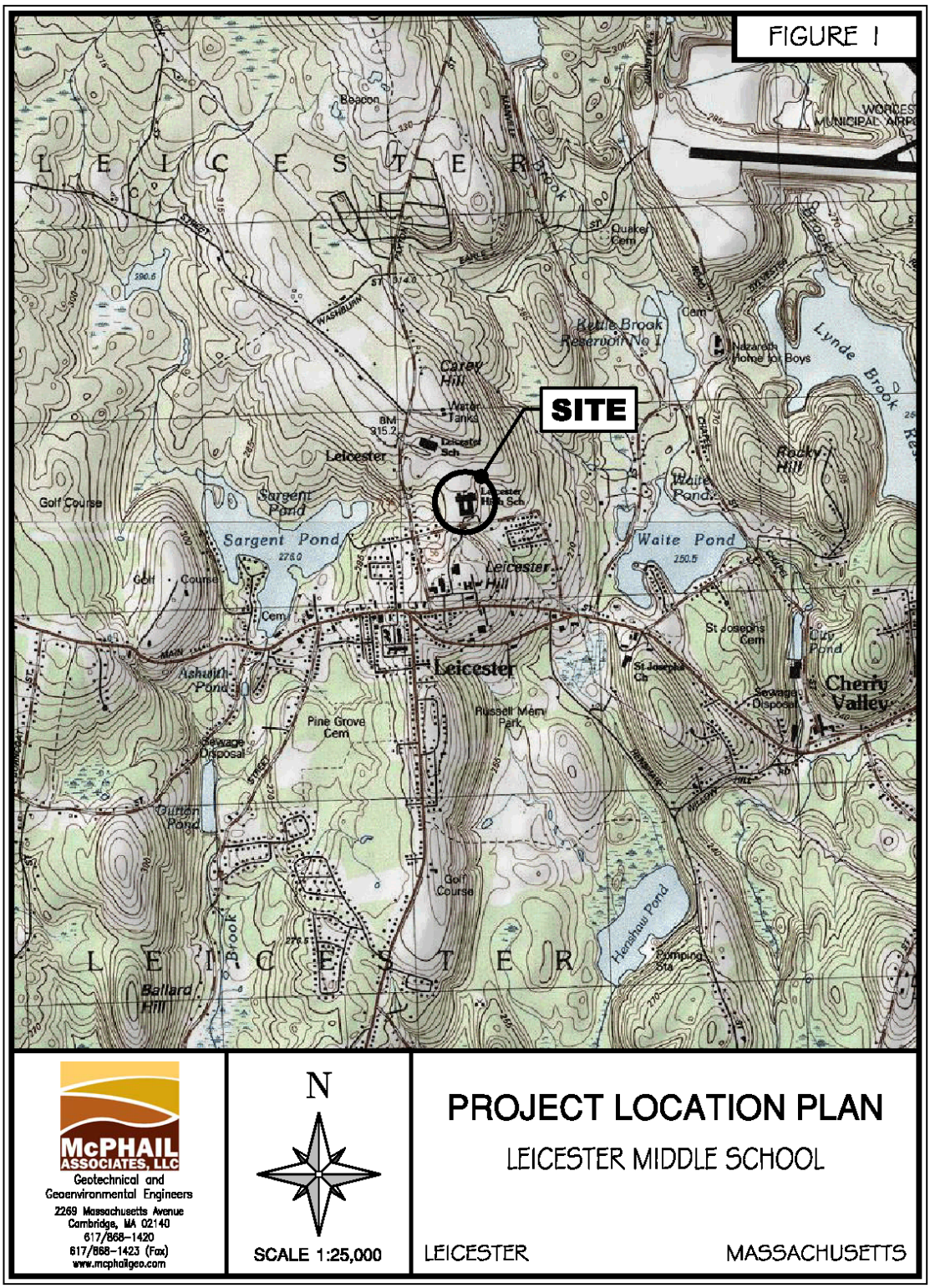
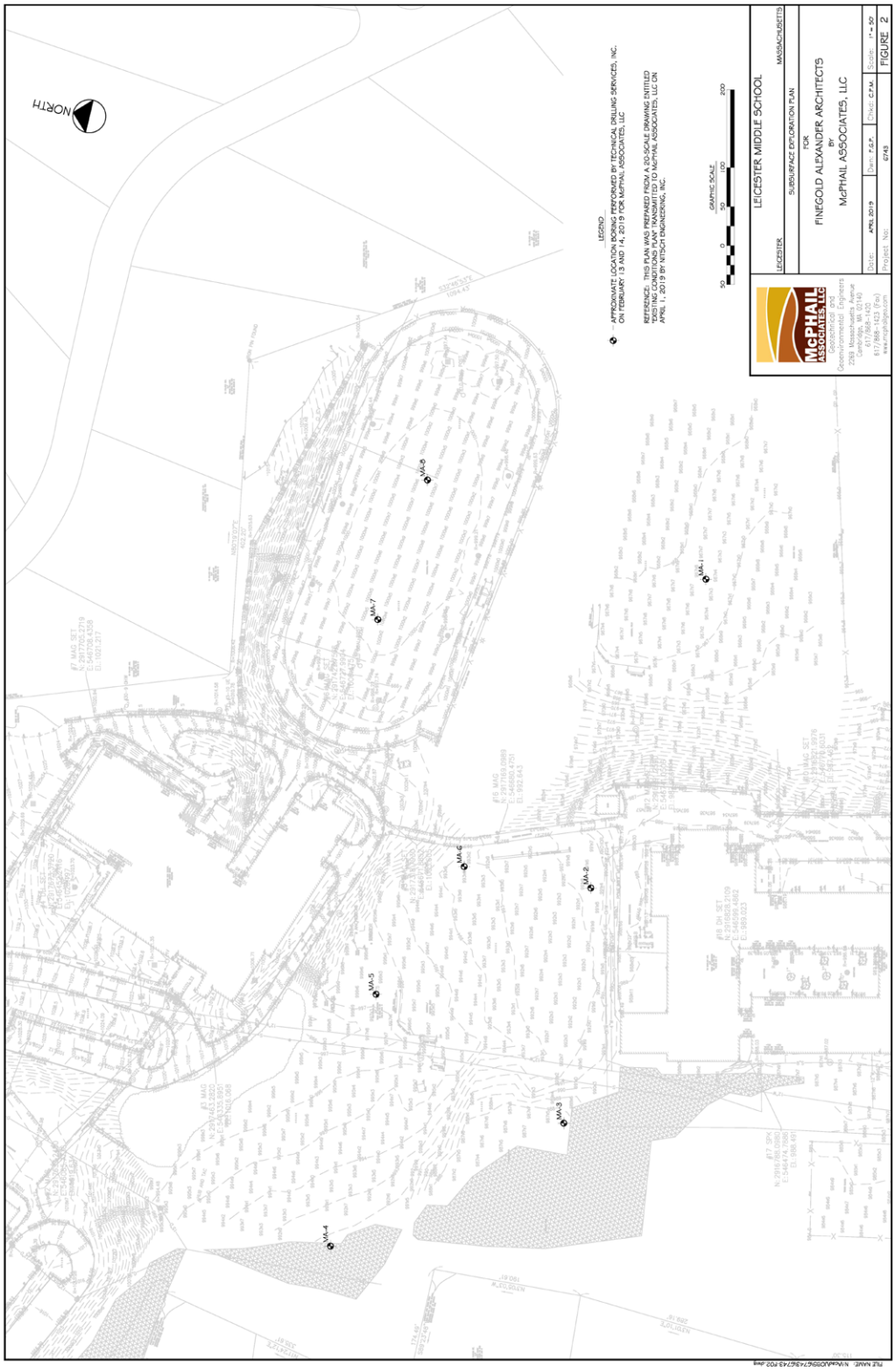


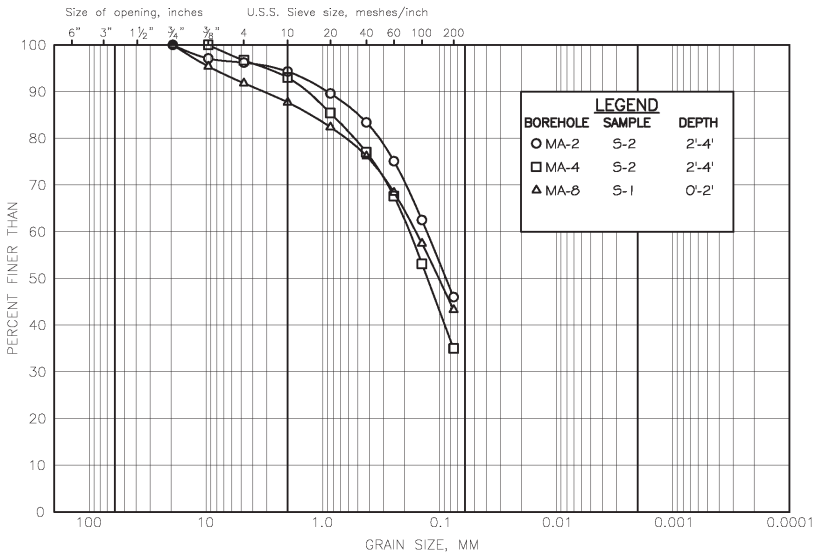
FIGURE 1
SITE
Leicester
Golf Course
Sargent Pond
Waite Pond
Leicester Hill
Cherry Valley
Rocky Hill
Carey Hill
Ashuilt Pond
Pine Grove Cem
Russell Mem Park
Union Pond
Henshaw Pond
Ballard Hill
Lynde Brook
Kettle Brook Reservoir No 1
Nazareth Home for Boys
Quaker Cem
St Josephs Cem
Water Tanks
Sewage Disposal
Pumping Sta
McPHAIL ASSOCIATES, LLC
Geotechnical and Geoenvironmental Engineers
2269 Massachusetts Avenue
Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)
www.mcphailgeo.com
N
SCALE 1:25,000
PROJECT LOCATION PLAN
LEICESTER MIDDLE SCHOOL
LEICESTER
MASSACHUSETTS


NORTH
LEGEND
- APPROXIMATE LOCATION BORING PERFORMED BY TECHNICAL DRILLING SERVICES, INC. ON FEBRUARY 13 AND 14, 2019 FOR McPHAIL ASSOCIATES, LLC
REFERENCE: THIS PLAN WAS PREPARED FROM A 20-SCALE DRAWING ENTITLED "TOPOGRAPHIC PLAN" PREPARED FOR McPHAIL ASSOCIATES, LLC ON APRIL 1, 2019 BY NITSCH ENGINEERING, INC.
GRAPHIC SCALE
50 0 50 100 200
LEICESTER MIDDLE SCHOOL
LEICESTER MASSACHUSETTS
SUBSURFACE EXPLORATION PLAN
FOR
FINEGOLD ALEXANDER ARCHITECTS
BY
McPHAIL ASSOCIATES, LLC
Date: APRIL 2019
Drawn: F.G.P.
Chkd: C.P.M.
Scale: 1" = 50'
Project No: 6748
FIGURE 2
McPHAIL ASSOCIATES, LLC
Geotechnical and Geoenvironmental Engineers
MA-1
MA-2
MA-3
MA-4
MA-5
MA-6
MA-7

FILE NAME: N:\Acad\JOBS\6743\6743-F03_Sieve.dwg PROJECT No. 6743

McPHAIL ASSOCIATES, LLC

M.I.T. GRAIN SIZE SCALE



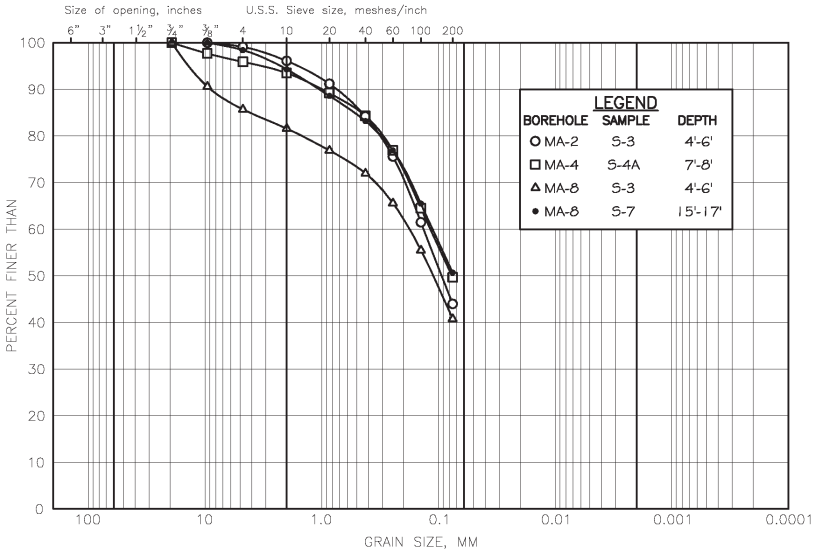
GRAIN SIZE DISTRIBUTION
FILL

FIGURE 3

FILE NAME: N:\Acad\JOBS\6743\6743-F04_Sieve.dwg PROJECT No. 6743

McPHAIL ASSOCIATES, LLC

M.I.T. GRAIN SIZE SCALE



GRAIN SIZE DISTRIBUTION
GLACIAL TILL

FIGURE 4

APPENDIX A:

LIMITATIONS

This preliminary report has been prepared on behalf of and for the exclusive use of Finegold Alexander Architects for specific application to the proposed new Leicester Middle School in Leicester, Massachusetts in accordance with generally accepted soil and geotechnical engineering practices. No other warranty, expressed or implied, is made.

The recommendations contained in this report are for preliminary pricing and design purposes only. Final subsurface exploration program and foundation engineering analyses will be required for the design and construction of the proposed project. In the event that any changes in nature, design, or location of the proposed construction are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by McPhail Associates.

The preliminary analyses and recommendations presented in this report are based upon the data obtained from the preliminary subsurface explorations performed at the approximate locations indicated to McPhail. If variations in the nature and extent of subsurface conditions between the widely spaced explorations become evident during the course of construction, it will be necessary for a re-evaluation of the recommendations of this report to be made after performing on-site observations during the construction period and noting the characteristics of any variations.

APPENDIX B:
BORING LOGS MA-1 THROUGH MA-8

Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No. **MA-1**

Contractor:	Technical Drilling Services	**Casing Type:**	4 1/2" HSA
Driller/Helper:	Brett/Donnie	**Casing Hammer (lbs)/Drop (in):**	N/A
Logged By/Reviewed By:	K. Seaman	**Sampler Size/Type:**	24" Split Spoon
Surface Elevation (ft):	967.5	**Sampler Hammer (lbs)/Drop (in):**	140LB/30"

Groundwater Observations

Date	Depth	Elev.	Notes
3-6-19	6.0	961.5	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	No.	Pen. /Rec. (in)	Depth (ft)	Blows/6" Min/ft	Sample Description and Boring Notes
1	967			FILL	46	S1	12/11	0.0-1.0	21 25	Dense, light brown to orange, SAND, trace silt. (Fill)
2	966				76	S1A	12/11	1.0-2.0	41 35	Very dense, orange to gray, GRAVELLY SAND, some silt. (Fill)
3	965				40	S2	24/8	2.0-4.0	17 22 18 19	Dense, brown to gray, SILTY SAND and GRAVEL. (Fill)
4	964		4.0 / 963.5							
5	963			HISTORIC TOPSOIL/SUBSOIL	9	S3	24/10	4.0-6.0	3 3 6 15	Loose, black-brown, SAND SILT, trace gravel, with some root matter. (Historic Topsoil/Subsoil)
6	962		6.0 / 961.5							
7	961			GLACIAL TILL	33	S4	24/4	6.0-8.0	22 18 15 17	Dense, gray, SILTY SAND, some gravel. (Glacial Till)
8	960									
9	959				10	S5	24/10	8.0-10.0	10 5 5 9	Compact, brown to gray-brown, SILT and SAND, some gravel. (Glacial Till)
10	958									
11	957				16	S6	24/12	10.0-12.0	10 10 6 5	Compact, brown to gray-brown, SILT and SAND, some gravel. (Glacial Till)
12	956									
13	955				18	S7	24/12	12.0-14.0	7 7 11 14	Compact, brown to gray-brown, SILT and SAND, some gravel. (Glacial Till)
14	954									
15	953									
16	952									
17	951									
18	950									
19	949									
20	948		20.0 / 947.5							
21	947			GLACIAL TILL	28	S8	24/6	20.0-22.0	9 12 16 18	Compact, gray, SILT and SAND, some gravel. (Glacial Till)
22	946									
	945									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Partly Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Page 1 of 2

Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No.

MA-1

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: K. Seaman
Surface Elevation (ft): 967.5

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations

Date	Depth	Elev.	Notes
3-6-19	6.0	961.5	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
24	944									
25	943			GLACIAL TILL						
26	942				18	S9	24/2	25.0-27.0	5 9 9 9	Compact, gray, SILT and SAND, trace gravel. (Glacial Till)
27	941		27.0 / 940.5							
28	940			Bottom of boring at 27 feet below ground surface.						
29	939									
30	938									
31	937									
32	936									
33	935									
34	934									
35	933									
36	932									
37	931									
38	930									
39	929									
40	928									
41	927									
42	926									
43	925									
44	924									
45	923									
	922									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Partly Cloudy

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CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Page 2 of 2

Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No.

MA-2

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: K. Seaman
Surface Elevation (ft): 991.8

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations			
Date	Depth	Elev.	Notes

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	No.	Pen. /Rec. (in)	Depth (ft)	Blows/6" / Min/ft	Sample Description and Boring Notes
1	991			FILL	17	S1	24/20	0.0-2.0	15 11 6 9	Compact, brown, SAND, some silt, trace root matter and gravel. (Fill)
2	990									
3	989				28	S2	24/22	2.0-4.0	14 13 15 15	Compact, brown, SILT and SAND, trace gravel. (Fill)
4	988		4.0 / 987.8							
5	987			GLACIAL TILL	14	S3	24/18	4.0-6.0	4 6 8 12	Compact, brown to tan, SILT and SAND, some gravel. (Glacial Till)
6	986									
7	985				20	S4	24/16	6.0-8.0	7 9 11 10	Compact, brown to tan, SAND, some silt, trace gravel (Glacial Till)
8	984									
9	983				20	S5	24/20	8.0-10.0	6 7 13 20	Compact, brown to tan, SAND, some silt and gravel. (Glacial Till)
10	982									
11	981									
12	980									
13	979				51	S6	24/10	12.0-14.0	16 25 26 32	Very dense, gray, SILTY SAND, some gravel. (Glacial Till)
14	978		14.0 / 977.8							
15	977			Bottom fo borehole 14' below ground surface.						
16	976									
17	975									
18	974									
19	973									
20	972									
21	971									
22	970									
	969									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
No groundwater observed.

Weather: Clear

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Page 1 of 1

Project: Leicester Middle School
Location: 70 Winslow Avenue
City/State: Leicester, MA

Job #: 6743.2.00
Date Started: 3-5-19
Date Finished: 3-5-19

Boring No.

MA-3

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: C. Miller
Surface Elevation (ft): 987.5

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations

Date	Depth	Elev.	Notes
3-5-19	6.0	981.5	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Mir/ft	Sample Description and Boring Notes
1	987			FILL	24	S1	18/16	0.0-1.5	13 13 11	Compact, dark brown, SILT and SAND, trace gravel. (Fill)
2	986				20	S1A	6/6	1.5-2.0	10	Compact, light brown, SAND and GRAVEL, some silt. (Fill)
3	985				19	S2	24/23	2.0-4.0	5 9 10 14	Compact, light brown/orange-brown, SILTY SAND, trace gravel. (Fill)
4	984		4.0 / 983.5							
5	983			GLACIAL TILL	18	S3	24/24	4.0-6.0	6 8 10 12	Compact, light brown, SILTY SAND, some gravel. (Glacial Till)
6	982									
7	981				28	S4	24/16	6.0-8.0	10 13 15 17	Compact, light brown/orange-brown, SILTY SAND, some gravel. (Glacial Till)
8	980									
9	979				30	S5	24/20	8.0-10.0	5 12 18 22	Dense, orange-brown, SILTY SAND, some gravel, occasional cobbles. (Glacial Till)
10	978									
11	977									
12	976									
13	975									
14	974				24	S6	20/11	13.0-14.7	8 16 8 100/2"	Dense, orange-brown, SILTY SAND, some gravel, occasional cobbles. (Glacial Till) Split spoon refusal at 14.7' below ground surface.
15	973		14.7 / 972.8							
16	972			Bottom of borehole 14.7' below ground surface.						
17	971									
18	970									
19	969									
20	968									
21	967									
22	966									
	965									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Frost from 0'-1.25' below ground surface.

Weather: Clear

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Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-5-19
City/State:	Leicester, MA	**Date Finished:**	3-5-19

Boring No.

MA-4

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: C. Miller
Surface Elevation (ft): 991.6

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations			
Date	Depth	Elev.	Notes
3-5-19	8.0	983.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	No.	Pen. /Rec. (in)	Depth (ft)	Blows/6" / Min/ft	Sample Description and Boring Notes
1	991			FILL	25	S1	24/22	0.0-2.0	13 13 12 12	Compact, gray brown/brown SILTY SAND, some gravel. (Fill)
2	990									
3	989				16	S2	24/17	2.0-4.0	7 9 7 5	Compact, light brown, SILTY SAND, trace gravel. (Fill)
4	988									
5	987				5	S3	24/16	4.0-6.0	4 3 2 2	Loose, brown, SILTY SAND, trace gravel. (Fill)
6	986									
7	985		7.0 / 984.6		7	S4	12/8	6.0-7.0	2 5	Loose, brown, SILTY SAND, trace gravel. (Fill)
8	984			GLACIAL TILL	53	S4A	12/11	7.0-8.0	12 41	Very dense, orange brown, SILT and SAND, trace gravel. (Glacial Till) Mottling at approximately 7' below ground surface.
9	983				70	S5	24/18	8.0-10.0	11 35 35 59	Very dense, orange brown, SILT and SAND, trace gravel. (Glacial Till)
10	982									
11	981									
12	980				122	S6	19/12	11.0-12.6	90 71 51 100/1"	Very dense, orange brown, SILTY SAND, some gravel, with occasional cobbles. (Glacial Till) Auger refusal 11' below ground surface. Split spoon refusal 12.6' below ground surface.
13	979		12.6 / 979.0	Bottom of borehole 12.6' below ground surface.						
14	978									
15	977									
16	976									
17	975									
18	974									
19	973									
20	972									
21	971									
22	970									
	969									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Clear

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Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-5-19
City/State:	Leicester, MA	**Date Finished:**	3-5-19

Boring No.

MA-5

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: C. Miller
Surface Elevation (ft): 996.3

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations

Date	Depth	Elev.	Notes
3-5-19	8.0	988.3	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	No.	Pen. /Rec. (in)	Depth (ft)	Blows/6" / Mir/ft	Sample Description and Boring Notes
0	996									
1	995			FILL	19	S1	24/24	0.0-2.0	13 12 7 8	Compact, brown, SILTY SAND, some gravel, trace root matter. (Fill)
2	994									
3	993				18	S2	24/22	2.0-4.0	7 7 11 9	Compact, gray brown/orange brown, SILTY SAND, trace gravel. (Fill)
4	992									
5	991		5.0 / 991.3		20	S3	24/24	4.0-6.0	8 9 11 14	Compact, gray brown, SILTY SAND, some gravel. (Fill)
6	990			GLACIAL TILL	39	S4	24/24	6.0-8.0	19 19 20 22	Dense, gray brown, SILTY SAND, some gravel. (Glacial Till)
7	989									
8	988				30	S5	24/24	8.0-10.0	11 12 18 26	Dense, gray brown, SILTY SAND, some gravel. (Glacial Till)
9	987									
10	986				114/11"	S6	17/12	10.0-11.4	11 14 100/5"	Very dense, gray/orange brown, SILTY SAND, some gravel, with occasional cobbles. (Glacial Till) Auger refusal 11.5' below ground surface.
11	985		11.5 / 984.8							
12	984			Bottom of borehole 11.5' below ground surface.						
13	983									
14	982									
15	981									
16	980									
17	979									
18	978									
19	977									
20	976									
21	975									
22	974									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Clear

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Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No.

MA-6

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: K. Seaman
Surface Elevation (ft): 993.2

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations			
Date	Depth	Elev.	Notes
3-6-19	6.0	987.2	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
0	993									
1	992			FILL	14	S1	24/14	0.0-2.0	12 7 7 6	Compact, brown, SAND, some silt, trace gravel, brick and ash. (Fill)
2	991									
3	990				17	S2	24/12	2.0-4.0	5 8 9 21	Compact, gray, SAND, some clay, silt, and gravel. (Fill)
4	989									
5	988		5.0 / 988.2		34	S3	24/14	4.0-6.0	10 10 24 23	Dense, gray, SILTY SAND, some clay and gravel. (Fill)
6	987			GLACIAL TILL	41	S4	24/12	6.0-8.0	18 18 23 23	Dense, gray, SILTY SAND, some clay and gravel. (Glacial Till)
7	986									
8	985									
9	984									
10	983				55	S5	24/6	10.0-12.0	29 30 25 29	Very dense, gray, SILTY SAND, some clay and gravel. (Glacial Till)
11	982									
12	981		12.0 / 981.2	Bottom of borehole 12' below ground surface.						
13	980									
14	979									
15	978									
16	977									
17	976									
18	975									
19	974									
20	973									
21	972									
22	971									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Clear

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Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No.

MA-7

Contractor:	Technical Drilling Services	**Casing Type:**	4 1/2" HSA
Driller/Helper:	Brett/Donnie	**Casing Hammer (lbs)/Drop (in):**	N/A
Logged By/Reviewed By:	K. Seaman	**Sampler Size/Type:**	24" Split Spoon
Surface Elevation (ft):	1000.6	**Sampler Hammer (lbs)/Drop (in):**	140LB/30"

Groundwater Observations

Date	Depth	Elev.	Notes
3-6-19	8.0	992.6	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
1	1000			FILL	33	S1	24/20	0.0-2.0	15 16 17 12	Dense, brown, SILT and SAND, some gravel, trace root matter. (Fill)
2	999		2.0 / 998.6							
3	998			GLACIAL TILL	20	S2	24/20	2.0-4.0	7 9 11 11	Compact, brown to gray, SILTY SAND, some gravel. (Glacial Till)
4	997									
5	996									
6	995									
7	994									
8	993									
9	992				51	S3	24/4	8.0-10.0	19 24 27 30	Very dense, gray, SILTY SAND, some gravel, trace clay. (Glacial Till)
10	991									
11	990		11.0 / 989.6							
12	989			GLACIAL TILL	35	S4	24/14	13.0-15.0	10 16 19 20	Dense, gray, SILT and SAND, trace clay and gravel. (Glacial Till)
13	988									
14	987									
15	986				22	S5	24/8	15.0-17.0	8 10 12 16	Compact, gray, SILT and SAND, trace clay and gravel. (Glacial Till)
16	985									
17	984				41	S6	24/20	17.0-19.0	16 19 22 23	Dense, gray, SILT and SAND, trace clay and gravel. (Glacial Till)
18	983									
19	982		19.0 / 981.6							
20	981			Bottom of borehole 19' below ground surface.						
21	980									
22	979									
	978									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:

Weather: Clear

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Project:	Leicester Middle School	**Job #:**	6743.2.00
Location:	70 Winslow Avenue	**Date Started:**	3-6-19
City/State:	Leicester, MA	**Date Finished:**	3-6-19

Boring No.

MA-8

Contractor: Technical Drilling Services
Driller/Helper: Brett/Donnie
Logged By/Reviewed By: K. Seaman
Surface Elevation (ft): 1001.0

Casing Type: 4 1/2" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 24" Split Spoon
Sampler Hammer (lbs)/Drop (in): 140LB/30"

Groundwater Observations			
Date	Depth	Elev.	Notes

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value / RQD	Sample No.	Sample Pen. /Rec. (in)	Sample Depth (ft)	Sample Blows/6" / Min/ft	Sample Description and Boring Notes
1	1000			FILL	25	S1	24/20	0.0-2.0	13 13 12 10	Compact, brown, SILT and SAND, some gravel. (Fill)
2	999									
3	998				31	S2	24/14	2.0-4.0	13 14 17 37	Dense, brown, SAND, some silt and gravel. (Fill) Auger refusal at 4.3' below ground surface.
4	997		4.0 / 997.0							
5	996			GLACIAL TILL	26	S3	24/10	4.0-6.0	10 12 14 12	Compact, brown to gray, SILT and SAND, some gravel, trace clay. (Glacial Till)
6	995									
7	994				30	S4	24/20	6.0-8.0	25 14 16 17	Compact to dense, gray, SILT and SAND, some gravel, trace clay. (Glacial Till)
8	993									
9	992									
10	991									
11	990									
12	989				28	S5	24/14	11.0-13.0	7 11 17 17	Compact, gray-brown, SILT and SAND, trace clay and gravel. (Glacial Till)
13	988		13.0 / 988.0							
14	987			GLACIAL TILL	43	S6	24/12	13.0-15.0	15 16 27 12	Dense, gray, SILT and SAND, trace clay and gravel. (Glacial Till)
15	986									
16	985				34	S7	24/20	15.0-17.0	13 15 19 21	Dense, gray, SILT and SAND, trace clay and gravel. (Glacial Till)
17	984		17.0 / 984.0							
18	983			Bottom of borehole 17' below ground surface.						
19	982									
20	981									
21	980									
22	979									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
No groundwater observed.

Weather: Clear

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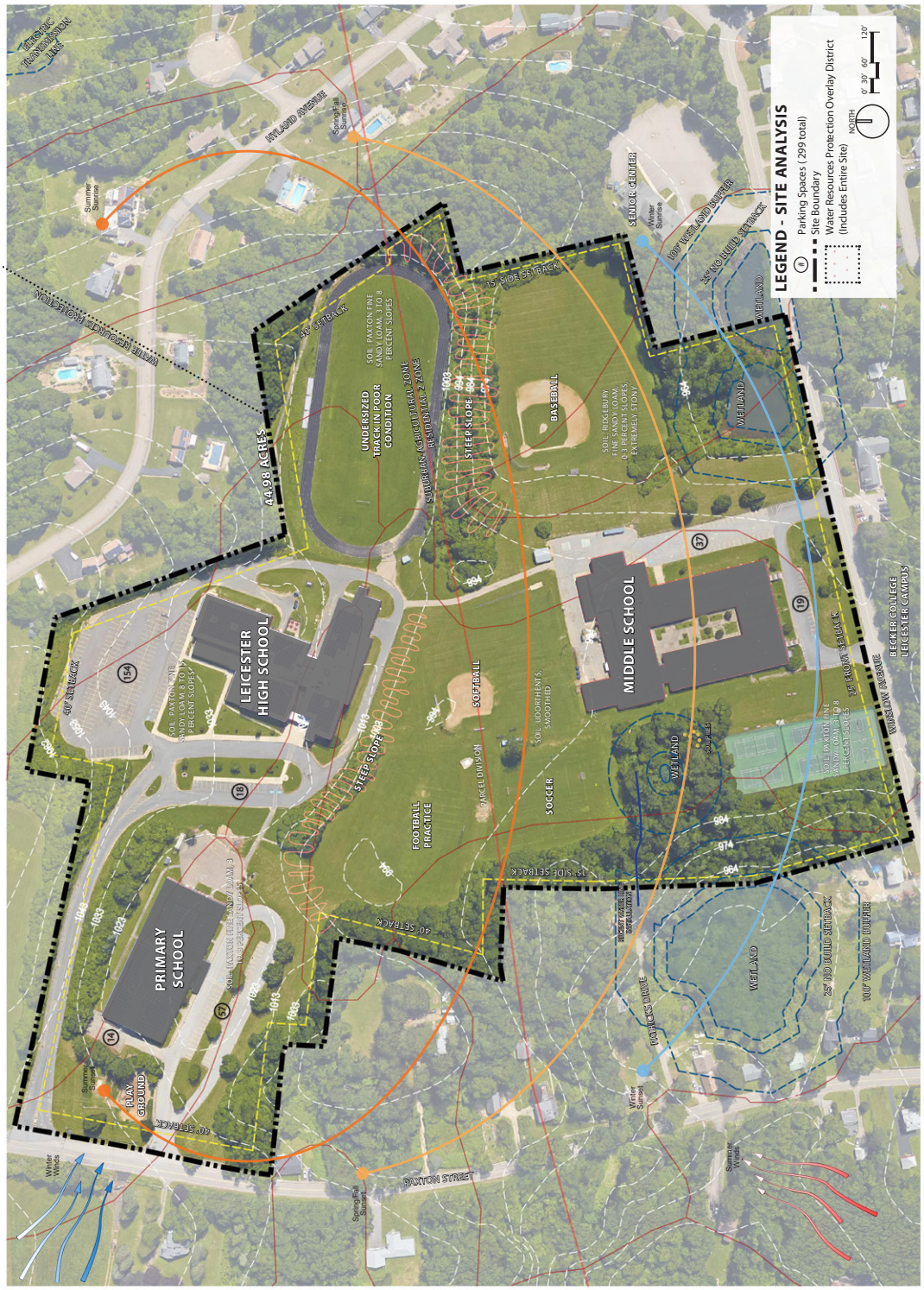
Site Development Requirements

SECTION 3.1.5

EXISTING SITE PLAN



SITE DEVELOPMENT NARRATIVE

WARNER LARSON
LANDSCAPE ARCHITECTS

PROPERTY DESCRIPTION

Parcel ID: 15A140
Zoning Districts: Residential 2, Suburban-Agricultural and Water Resources Protection Overlay
Parcel Size: 20.44 acres in Residential 2 District; 24.54 acres in Suburban-Agricultural District
Address: 70 Winslow Av, Leicester, MA

SITE CONFIGURATION

The existing Leicester Middle School as shown in Figure 1 (on adjacent page) is bordered by residential properties to the east and west. The Middle School shares the 45-acre campus with the Leicester Primary School and Leicester High School including associated athletic facilities. Leicester Senior Center abuts the site to the southeast, and the Becker College campus is across Winslow Avenue to the south. The school campus is walking distance to Leicester's town center. Winslow Ave connects to Route 56 (Paxton Street) which is the primary north-south thoroughfare through town.

The existing one-story school building, as shown below in Figure 2, is located on the south side of the site and accessed from Winslow Avenue. Drop off and parking is in front and along the east side of the school. A basketball court and four tennis courts are adjacent to Winslow Avenue and athletic fields to the north and east of the middle school building.

2

PHYSICAL CONDITIONS SUMMARY

Buses and cars share the same two-way driveway for drop-off. Buses loop in front of the building, and car drop-off and pickup occurs in the east parking lot. Pedestrian routes are painted on the driveway and not separated by a curb. There is a sidewalk on the south side of Winslow Avenue between Paxton Street and the school site, switching to the north side of Winslow Avenue at a crosswalk in front of the school and continuing beyond the Senior Center. The building has a central courtyard bracketed by the library and cafeteria on either ends. As shown in Figure 3, there is only paved access connecting to the High School and there are no accessible paths to any of the courts or fields. The baseball field sits much lower on the site and reportedly has poor drainage. North of the tennis courts is a wooded area with a man made depression with standing water and a series of earth piles. The football field is part of the High School program, but the track is used by the Middle School. The track is in very poor condition and not used by the High School track program.

3

There is approximately 100-foot change in elevation from north to south across the site transitioning in terraces separated by steep slopes ranging from 20 to 30 feet

There is approximately 100-foot change in elevation from north to south across the site transitioning in terraces

separated by steep slopes ranging from 20 to 30 feet high. There are wetland areas to the west and east of the existing building extending beyond the site boundary. The entire site is located with the Water Resources Protection Overlay District.

SITE DEVELOPMENT REQUIREMENTS

The items described within this section identify existing conditions and programmatic or regulatory requirements to be considered in the development and evaluation of alternative site designs, and are further depicted on the existing site plan.

STRUCTURES AND FENCES

The existing fencing on the site is ball containment for the various sports activities. Since the softball, soccer and baseball fields are out back in the open with no adjacency to vehicular or abutters, fencing is minimal in key areas for ball control. All of the fencing is old and exhibiting wear and tear.
The service/mechanical areas are currently not fenced or buffered by vegetation and some barrier may be required in new design based on location.

Retaining walls will be incorporated as required by the proposed building and site design to negotiate grade changes and provide accessibility.

SITE ACCESS AND CIRCULATION

Pedestrian access is poor and the sidewalk on Winslow is narrow, has little curb reveal and is in poor condition (See Figure 4). within school property the pedestrian route is painted on the driveway with no curb separation. New pedestrian routes will include curbed separation from vehicular areas and provide accessibility to all Middle School site facilities.
The courtyard access is not flush and there is no ADA access (See Figure 5).
There is one main drop-off that serves the existing school and is shared by both buses and cars (Figure 6). There is no parking allowed in the bus drop off zone.
The service area behind the building is accessed from Winslow Ave and includes adequate paved space for large vehicle maneuvering and access as shown in Figure 6.


4


5


6


7

PARKING

There are about 56 parking spaces at the existing middle school. A single parking lot with 90-degree parking along one side serves as the bus loop across the front of the building and a dead-end parking lot east of the building with parking on both sides serves as the car drop off and pick up area.

Leicester Planning Board's Parking Regulations adopted July 9, 2013 include the following formula to determine the required parking spaces for schools and colleges: 2 spaces per classroom for elementary and intermediate; 4 spaces per classroom for secondary, and 1 space per 2 students beyond secondary, none to be fewer than 1 space per teacher and staff, plus one space for every five seats of total seating capacity in auditorium or gymnasium, whichever has the larger capacity.

These Parking Regulations include the following Parking Facility Design requirements:
DRIVEWAY WIDTH

All driveways serving any non-residential use shall be at

ANGLE OF PARKING (in degrees)	WIDTH OF PARKING STALL (feet)	PARKING STALL LENGTH OF LINE (feet)	WIDTH OF MANEUVERING AISLE (feet)
90° (2-way)	10	20	24
60° (1-way)	10	20	16
Single Lane Access	10	20	16

least twenty (20) feet wide where separate access and egress are provided.

PEDESTRIAN ACCESS

Provision for safe and convenient pedestrian access shall be incorporated into plans for new parking areas.

LIGHTING

Adequate illumination shall be provided for the comfort and safety of persons using parking and loading areas. Parking and loading area lighting shall not shine beyond the property lines, except for driveway entrances where light may shine onto the immediate area of the street right-of-way.

LOADING SPACE

Adequate off-street loading facilities and space must be provided to service all needs created by new construction, whether through new structures or additions, and by change of use of existing structures. Facilities shall be so sized and arranged that no trucks need to back onto or off a public way, or be parked on a public way while loading or unloading.

PAVING AND CURBING

Existing driveway and parking pavement is asphalt in poor condition. Where curbing exists, it is asphalt berm of similarly poor condition. New curbing will include vertical granite at walkways and high impact areas and likely Cape Cod asphalt berm at low impact zones such as at parking stalls along landscaped areas. Paving will meet the applicable Town and or state standards. Asphalt paving of vehicular driveways and parking is typical. Walkway paving will include different materials such as asphalt, concrete and unit pavers based on location and use.

CODE REQUIREMENTS

The preferred building solution and site design will fully meet current accessibility regulations and building code requirements. This includes compliant accessible parking, pedestrian routes, curb ramps, stairs and ramps with associated handrails as well as compliant guard railings along pedestrian routes located above walls greater than 30-inches high.

ZONING SETBACKS AND LIMITATIONS

SCHEDULE OF DIMENSIONAL REQUIREMENTS

R2 District	
Minimum Area	20,000 SF
Minimum Lot Frontage	125′
Minimum Front Yard	25′
Minimum Side Yard	15′
Minimum Rear Yard	25′
Maximum Bldg Height	35′, 2.5 stories
Maximum Bldg Coverage	30%

SA District	
Minimum Area	80,000 SF
Minimum Lot Frontage	200′
Minimum Front Yard	40′
Minimum Side Yard	40′
Minimum Rear Yard	40′
Maximum Bldg Height	35′, 2.5 stories
Maximum Bldg Coverage	30%

GENERAL LANDSCAPING REQUIREMENTS

Leicester Planning Board's Landscape Regulations dated June 20, 2018 are very specific with requirements for protection of existing vegetation, planting for parking areas, buffer planting including plant size and spacing requirements. Key requirements are summarized below:

- Landscaping should generally be provided between the street and the building and/or parking areas. The plantings shall be a mixture of trees, shrubs, and groundcovers that shall be located so as not to interfere with vehicular views for entering or exiting the site.
- Buffer areas between the development (inclusive of parking lots) and rear or side lot lines shall meet the depth requirements as set forth within the individual zoning district regulations. Screening shall consist of a combination of native plantings of trees, shrubs, and groundcovers that is mostly evergreen and accented with deciduous materials in staggered rows of substantially sight impervious foliage.
- Landscaping within parking areas shall provide visual and climatic relief from broad expanses of pavement. Planted areas within parking areas must be contained

within islands. Placement of islands shall be either in long rows between the parking aisles or shall break up the long rows of parking with islands perpendicular to the parking row, or a combination of both. Parking Islands shall have a 5-foot minimum width of plant bed.

- Planting Guidelines
  - -Deciduous Trees shall be at least 2 inches in caliper (measured at breast height) at time of planting, and shall be expected to reach a height of 20 feet within 10 years after planting.
  - -Evergreen trees shall be a minimum of 6' to 8' (feet) in height at time of planting. Exceptions to height standards will be accepted on an individual project basis.
  - -Shrubs and hedges shall be at least 2.5 feet in height at time of planting and have a spread of at least 24 inches.
  - -Grass or groundcovers are preferable to mulch where practical.

The Town has a recommended list of planting which will be taken into consideration for planting design.

ACCESSIBILITY

The sloping site presents challenges for accessibility, and there are no accessible routes to any of the existing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9

exterior facilities. (Figures 8 and 9). Accessible pedestrian routes will be a key component of early site planning to integrate them into the grade changes with minimal need for ramps and handrails.

EMERGENCY VEHICLE ACCESS

Emergency access is provided to the building from Winslow Avenue and the high school, but only 3 sides of the building have paved access. An unpaved access route runs along the west side of the building (See Figure 10). The new site plan will provide emergency access meeting current regulations.

SAFETY AND SECURITY REQUIREMENTS


10

Site access from Paxton Street and Winslow Avenue should be maintained and improved to accommodate the largest emergency vehicles. The design of the site and landscape is an important component to providing a safe educational environment and ability for building occupants to egress safely during emergencies.

Strategies including providing transition zones between vehicular and pedestrian areas with barriers to stop vehicles while allowing free pedestrian egress. Increased distance between the site access point and the building entrance, clear sight-lines at eye level and from security cameras and adequate site lighting are also critical factors that allow time to see and respond to dangers.

ATHLETIC FACILITIES

The athletic facilities on the site are used by both the Middle School and High School students. The site includes 1 basketball court and 4 tennis courts (Figure 11), a softball field, youth soccer fields (Figure 12), a football practice field, a varsity baseball field and overlapping soccer field (Figure 13) at a lower elevation that has poor drainage and the football field and track. The Middle School also uses the track at the High School. All fields are


11


12

natural grass and believed to be irrigated.

LANDSCAPE CHARACTER AND OTHER LOCATION CONSIDERATIONS

The current character of the maintained landscape consists mostly of lawn and few trees with very little ornamental planting (Figure 14). The dramatic change in elevation across this site and apparent drainage issues


13

associated with dense soils present some of the bigger challenges for locating new structures and reconfiguring the campus, but we believe the site can be shaped to enhance the natural beauty of the rural agrarian landscape while incorporating effective drainage systems and site accessibility. The surrounding natural areas have


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significant invasive plants such as Asiatic Bittersweet vine (Figure 15) among other species. Careful removal of these invasives will enhance the beauty of these areas. Given the legacy of Olmsted's design of the Town Common, the school campus site design can draw inspiration from the Olmstedian scenic landscape style with the rolling topography to create a park-like campus with walking and running trails amidst lawn and trees encouraging healthy physical activity.

Preliminary Evaluation of Alternatives

SECTION 3.1.6

PRELIMINARY EVALUATION OF ALTERNATIVES

The MSBA approved the study of three (3) different grade configurations for three (3) different evaluation of alternatives which include: Code Upgrade Option consisting of repair of systems and/or scope required for purposes of code compliance with no modifications of existing spaces or their function; Renovations and/or Addition of varying degrees to the existing building; New Construction.

SCHOOL ASSIGNMENT PRACTICES

The Leicester Public Schools are currently at capacity. There is no available space in other schools. With the consolidation, each school is at capacity.

TUITION AGREEMENTS

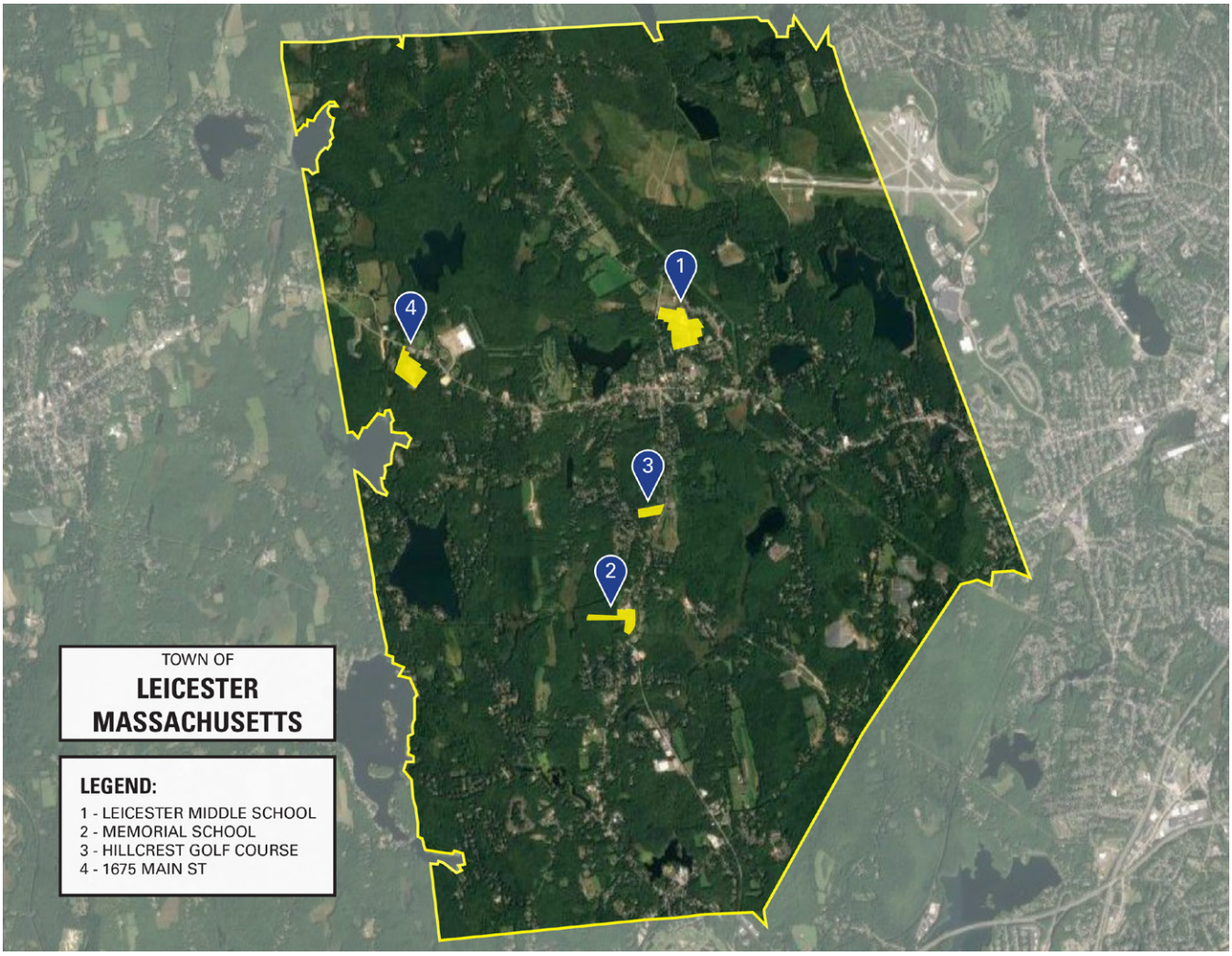
The Town of Leicester has no tuition agreements with neighboring towns.

RENTAL OR ACQUISITION OF EXISTING BUILDING

Consultation with the City staff and School Building Committee identified no appropriate buildings available in Leicester. The vacated Leicester Memorial School is not code compliant, has aging boilers, and is too small to accommodate even the smallest certified enrollment.

ALTERNATIVE SITES

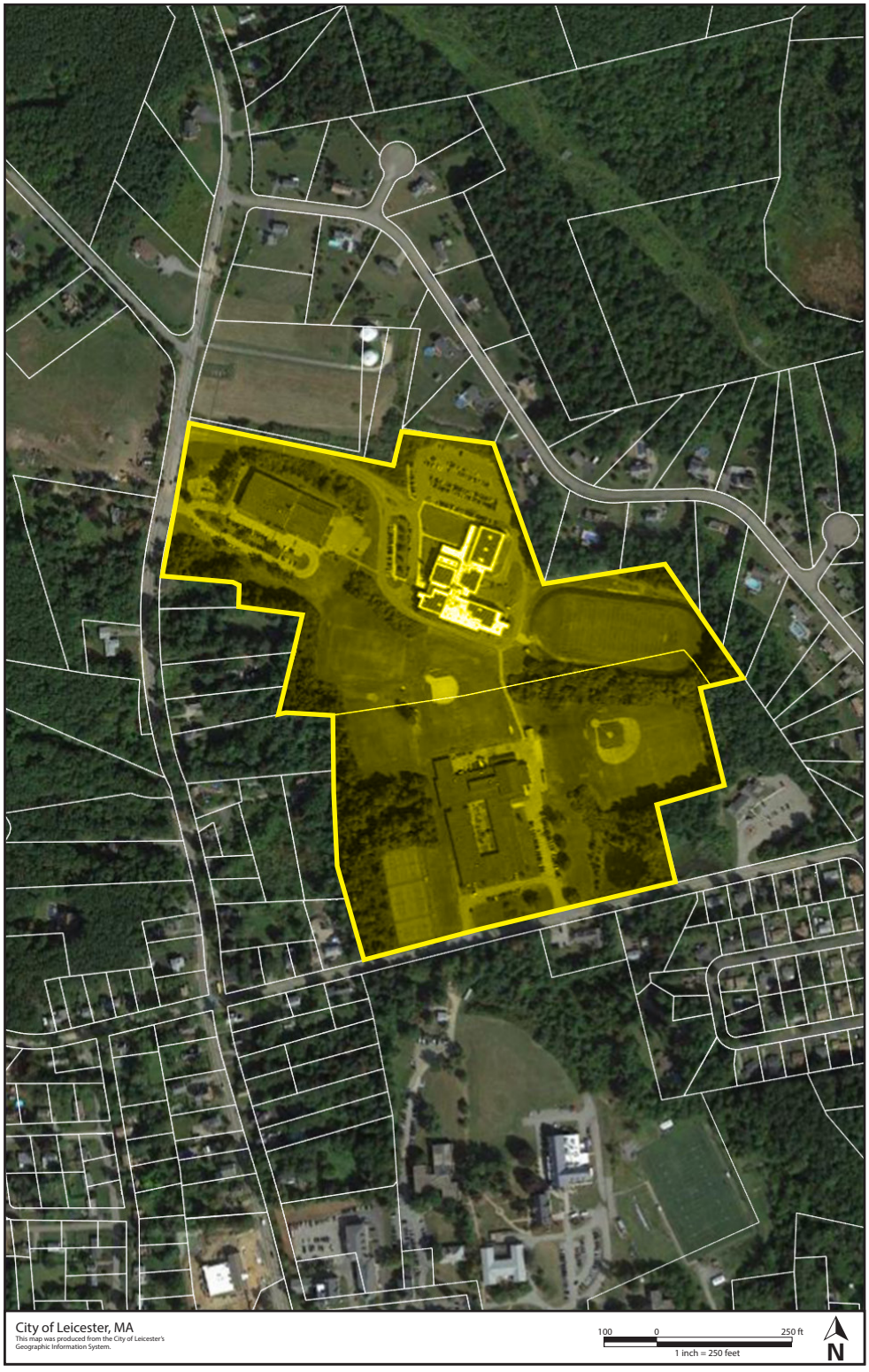
While the District educational program goals are to create a single campus for all schools, four potential alternative sites were identified by the School Building Committee, City Assessor, the OPM, and the design team.



Leicester Middle School
43.7 Acres
Owner: Town of Leicester

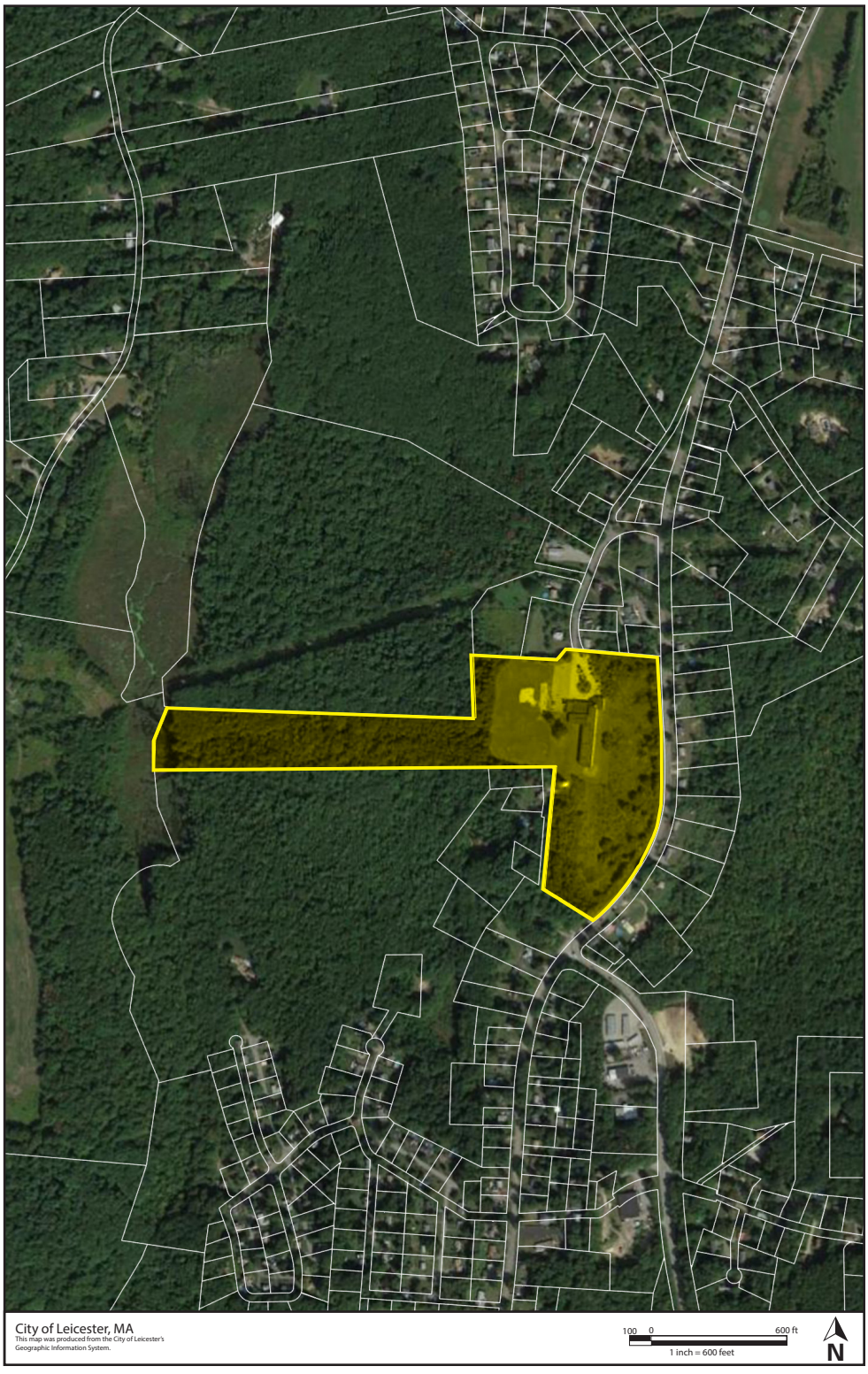
This parcel is owned by the Town of Leicester and is a viable site. The geotechnical investigations found natural glacial till deposits at depths of 2' to 7' below grade that are considered to be suitable for conventional footing bearing support. Groundwater was observed at approximate depths ranging from about 6' to 8' below ground surface (refer to full geotechnical report for more detailed information). It is anticipated that future groundwater levels across the site may vary due to factors such as normal seasonal changes, periods of heavy precipitation and alterations of existing drainage patterns.

In addition to the Code Upgrade option, combinations of Renovation/ New Addition and New Construction options on the existing playing fields will be considered. The Town owns the site which is large enough to accommodate a school building, parking and playing fields. The existing Leicester Middle School site is also adjacent to the Primary Elementary School and Leicester High School, satisfying the District's educational program desire to create one campus for all schools.



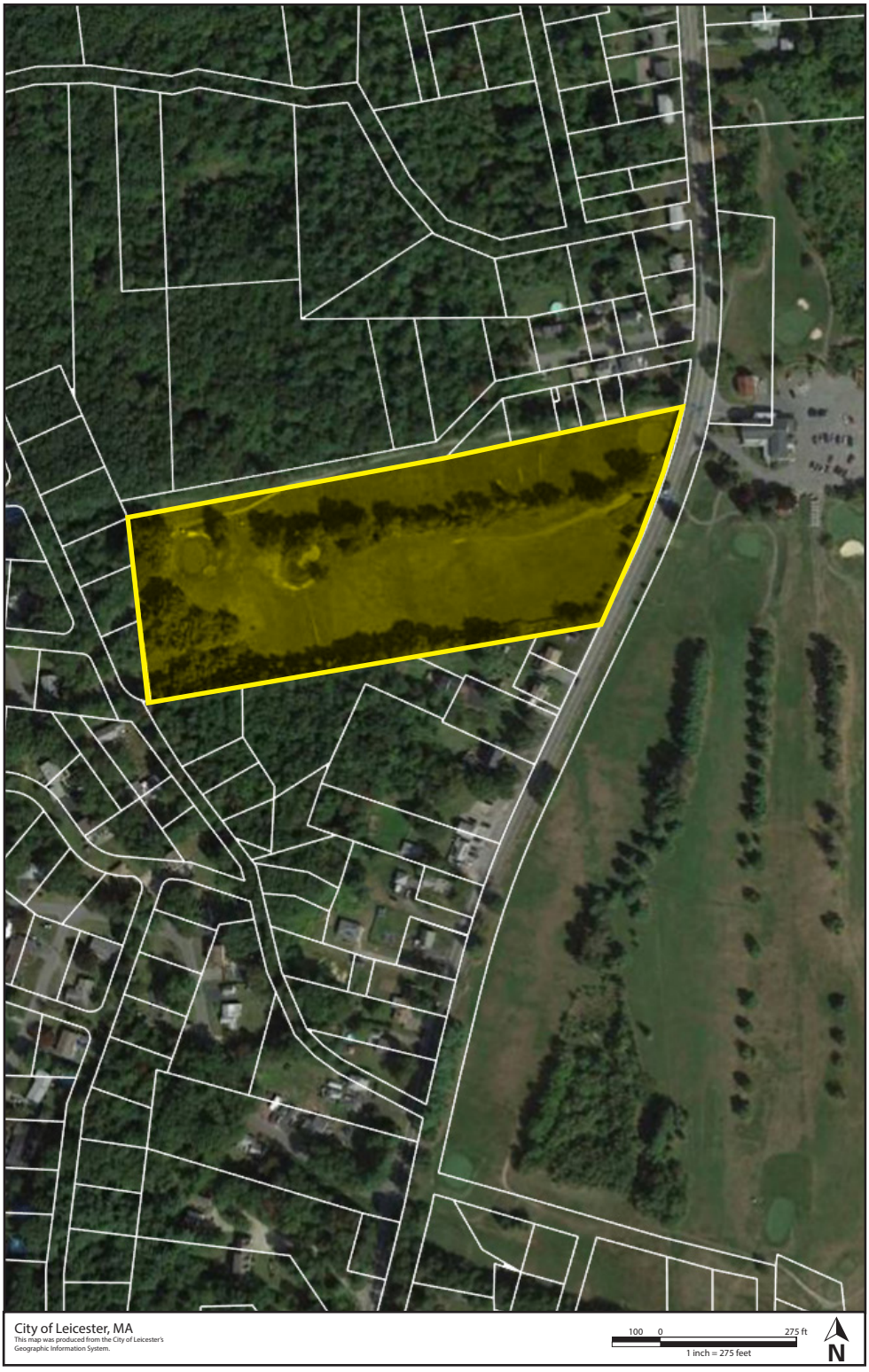
Memorial School
28.0 Acres
Owner: Town of Leicester

This parcel is owned by the Town of Leicester and, until June of 2019, serves as the Grade 3 – 5 elementary school location. The site is located 2.2 miles from the existing middle school campus. Access to the site requires travel through a small, residential neighborhood. The parcel of land would require the demolition of the existing building and the Town has not yet determined what they will do with the facility. While the field may be used for a new building, the "dog leg" portion of the site is not suitable for development for a school as the proportions of the site do not allow for construction of a school building, parking, playing fields and appropriate vehicular circulation around the site. This site does not offer any advantages over the existing school site and does not satisfy the District's educational program desire to create one campus for all schools. The School Building Committee elected not to pursue this site.



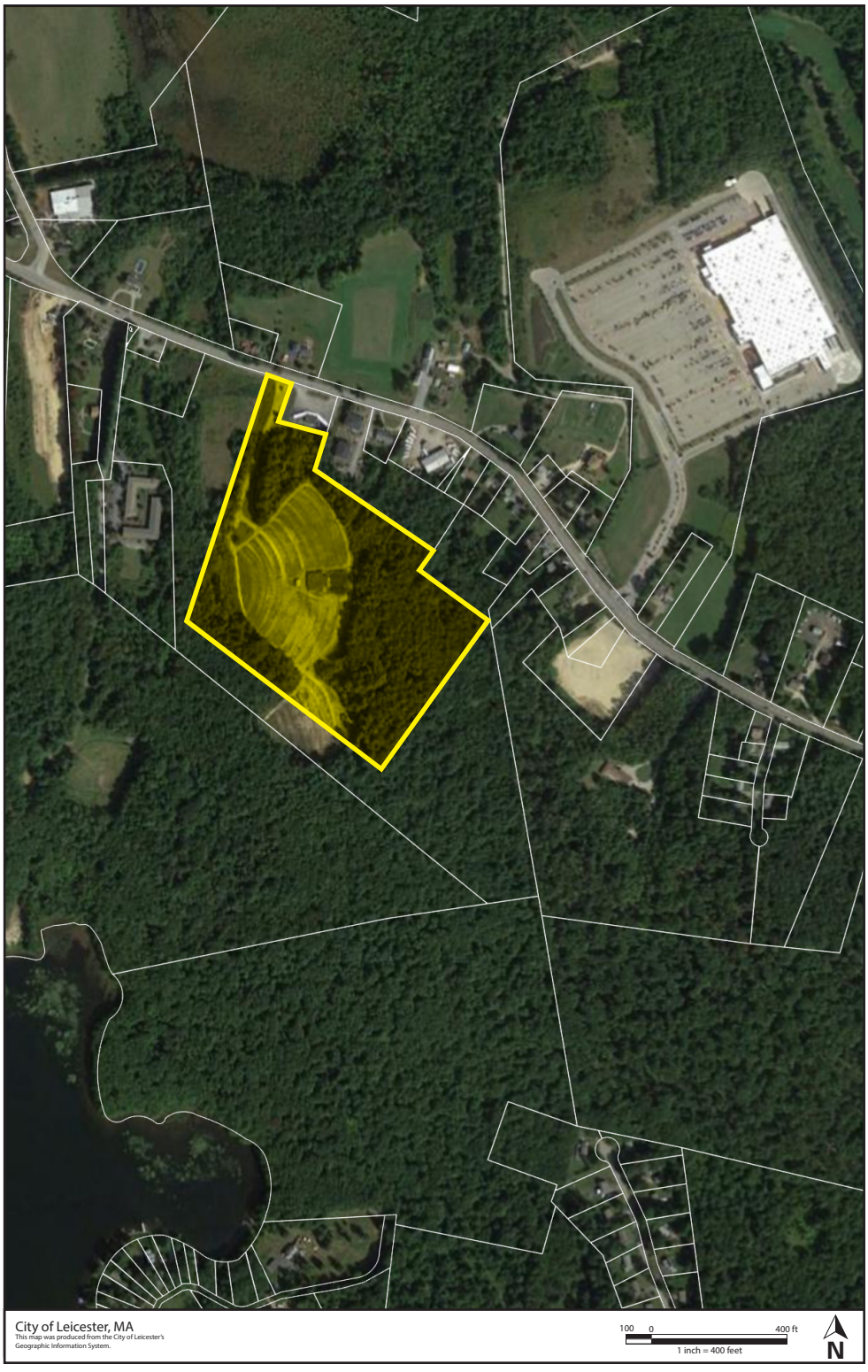
HILLCREST GOLF COURSE
11.3 ACRES
OWNER: Town of Leicester

This parcel is owned by the Town of Leicester and is part of the municipal golf course. The site is located .5 mile from the existing middle school campus. Use of this site would require a reconfiguration of the Town's municipal golf course, as three of the course's nine holes are located on the site. This site does not offer any advantages over the existing school site and does not satisfy the District's educational program desire to create one campus for all schools. The School Building Committee elected not to pursue this site.



1675 MAIN STREET
24 ACRES
OWNER: Hanna Joseph

This parcel is a former drive-in movie theater near an adjacent Walmart Supercenter. The site is located 2.6 miles from the existing middle school campus. Access to the site is limited to one entry point off the Main Street. The site is surrounded by commercial properties and a Town Park. There are some existing wetlands on site. The land is not owned by the Town of Leicester and would need to be purchased from the present owner. The School Building Committee elected not to pursue this site due to the expense of acquiring the property and that it does not satisfy the District's desire to create one campus for all schools.



LEICESTER MIDDLE SCHOOL - LEICESTER,MA

Proposed Site Alternatives

SITE ALTERNATIVES EVALUATION MATRIX

● Advantageous
◐ Neutral
○ Disadvantageous

		SITE A LEICESTER MIDDLE SCHOOL	SITE B LEICESTER MEMORIAL SCHOOL	SITE C HILLCREST GOLF CLUB	SITE D 1675 MAIN STREET
BUILDING AND SITE FACTS					
01	Distance from existing MS campus (miles)	●	2.2	0.5	2.6
02	Maintain a campus school	●	○	○	○
03	Size of site (acres)	20.4	28.0	11.3	24
04	Existing wetlands	◐	●	○	◐
05	Legal restrictions, Town owned land	●	●	●	○
06	Site acquisition costs	●	●	●	○
07	Parking and field capacity	●	●	○	●
08	Location beneficial for community use	●	◐	○	●
09	Potential for future building expansion	●	●	○	◐
10	Traffic flow	●	○	◐	◐
SCHEDULE AND CONSTRUCTION					
11	Construction impact to students	◐	●	●	●
12	Use of existing playfields during construction	◐	◐	◐	◐
13	Develop a cost efficient design	◐	◐	◐	◐
14	Develop a schedule efficient design	●	◐	●	●

PROCESS SUMMARY

MSBA does not provide reimbursement for acquisition of land. In order to minimize costs to the Town of Leicester, the School Building Committee voted on 04/11/2019 to approve the site of the existing Leicester Middle School as the preferred site option.

GRADE CONFIGURATION AND ENROLLMENT

There are four schools in the Town of Leicester: Primary School serving grades PK – 2, Memorial School serving grades 3 – 5, Leicester Middle School serving grades 6 – 8, and Leicester High School serving grades 9 – 12. The Memorial School will be closed in June of 2019. Grades 3 and 4 will be temporarily house at the Primary School while grade 5 will be temporarily housed at the Leicester Middle School. (confirm with District/OPM). The MSBA authorized the study of three grade configurations for three enrollments for the Leicester Middle School project.

LEICESTER MIDDLE SCHOOL GRADE CONFIGURATIONS

GRADES 6-8	GRADES 5-8	GRADES K-8
330 students	440 students	930 students

At the beginning of the process, the Town of Leicester was instructed by the MSBA to study a 6-8 (330 student) option, a 5-8 (440 student) option, and a K-8 (930 student) option. Space Standards were developed for each grade configuration to determine the allowable size for each of these configurations. The Design Team worked with the Town to identify potential alternatives sites for a new building to ensure that a more favorable site did not exist in Town. During this same time, the Design Team and Educational Programmer conduct a series of Visioning Workshops with the Town, including teachers, students, parent, and community members, to identify the specific educational program needs for which to design around. The Design Team then developed a series of options to review with the School Building Committee. The School Building Committee approved the K-8 option and the 930 student enrollment certification on the existing site. The Design Team further developed the options.

PROPOSED ALTERNATIVES

PROPOSED ALTERNATIVE: OPTION 1 - CODE UPGRADE OPTION (GRADES 6 - 8)

The existing Leicester Middle School is comprised of 73,464 SF. The smallest certified enrollment is 330 students in Grades 6 through 8. The MSBA space summary template for this projection is 62,700 SF. While the existing building can accommodate this grade configuration, the building has significant ADA/Building Code, Energy Code, and Maintenance issues that would need to be addressed to make this a viable learning environment for 21st century education and beyond. The classrooms themselves are also under sized according to the space summary template. The diagram and matrix on the subsequent pages outline the issues.

Estimate of Probable Cost for this Option = $34,438,039

PROPOSED ALTERNATIVE: CODE UPGRADE OPTION (GRADES 5 - 8 AND GRADES K - 8)

The existing Leicester Middle School is comprised of 73,464 SF. The certified enrollment is 440 students in Grades 5 through 8 and 930 students in Grades K through 8. The MSBA space summary template for the 5-8 projection is 82,091 SF and 143,793 SF for K-8. The existing building is too small to accommodate these grade configurations as a Code Upgrade Option.

PROPOSED ALTERNATIVE: OPTION 2A - RENOVATION/NEW ADDITION (GRADES 6 - 8)

This approach removes the academic wing ("Unit A Classroom Building") because the existing classrooms are undersized and insufficient according to the MSBA Space Summary Guidelines and retains approximately 24,757 SF of the existing cafeteria/auditorium/gymnasium wing ("Unit B Activities Building"). This option would require fully renovating the existing wing to remain to address the ADA/Building Code, Energy Code and Maintenance issues addressed in the "Code Upgrade Option". It would also require all new building systems and upgrades to all finishes which are mostly original. The addition for this option is an academic wing that is constructed to the north of the existing building on the playing field. This addition would include new Classrooms, Administration, Media Center, Art Rooms, Science and distributed Special Education. Option 2a fulfills the Educational Program requirements in that it will create new, right-sized classrooms for Grades

6 through 8, but does not fulfill the Educational Program goal of creating a K-8 school for the District. The renovated portion of the building will require significant, costly upgrades to bring the building up to seismic code. This construction approach would be disruptive to the school in that it requires the existing building to be occupied while the new addition is constructed. Once the new academic wing is constructed the old "Unit A Classroom Building" would be demolished to make way for parking, vehicular circulation, and a playing field. The renovated "Unit B Activities Building" would have to be taken off line and the school would need to find a temporary alternative for the cafeteria, auditorium and gymnasium during this time.

Estimate of Probable Cost for this Option = $40,514,400

PROPOSED ALTERNATIVE: OPTION 2B - RENOVATION/NEW ADDITION (GRADES 5 - 8)

This approach removes the academic wing ("Unit A Classroom Building") because the existing classrooms are undersized and insufficient according to the MSBA Space Summary Guidelines and retains approximately 24,757 SF of the existing cafeteria/auditorium/gymnasium wing ("Unit B Activities Building"). This option would require fully renovating the existing wing to remain to address the ADA/Building Code, Energy Code and Maintenance issues addressed in the "Code Upgrade Option". It would also require all new building systems and upgrades to all finishes which are mostly original. The addition for this option is an academic wing that is constructed to the north of the existing building on the playing field. This addition would include new Classrooms, Administration, Media Center, Art Rooms, Science and distributed Special Education. Option 2b fulfills the Educational Program requirements in that it will create new, right-sized classrooms for Grades 5 through 8, but does not fulfill the Educational Program goal of creating a K-8 school for the District. The renovated portion of the building will require significant, costly upgrades to bring the building up to seismic code. This construction approach would be disruptive to the school in that it requires the existing building to be occupied while the new addition is constructed. Once the new academic wing is constructed the old "Unit A Classroom Building" would be demolished to make way for parking, vehicular circulation, and a playing field. The renovated "Unit B Activities Building" would have to be taken off line and the school would need to find a temporary alternative for the cafeteria, auditorium and gymnasium during this time.

Estimate of Probable Cost for this Option = $45,539,207

PROPOSED ALTERNATIVE: OPTION 2C - RENOVATION/NEW ADDITION (GRADES K - 8)

This approach removes the academic wing ("Unit A Classroom Building") because the existing classrooms are undersized and insufficient according to the MSBA Space Summary Guidelines and retains approximately 24,757 SF of the existing cafeteria/auditorium/gymnasium wing ("Unit B Activities Building"). This option would require fully renovating the existing wing to remain to address the ADA/Building Code, Energy Code and Maintenance issues addressed in the "Code Upgrade Option". It would also require all new building systems and upgrades to all finishes which are mostly original. The addition for this option is an academic wing that is constructed to the north of the existing building on the playing field. This addition would include new Classrooms, Administration, Media Center, Art Rooms, Science and distributed Special Education. Option 2c fulfills the Educational Program requirements in that it will create one K through 8 school for the District with right-sized classrooms. The renovated portion of the building will require significant, costly upgrades to bring the building up to seismic code. This construction approach would be disruptive to the school in that it requires the existing building to be occupied while the new addition is constructed. Once the new academic wing is constructed the old "Unit A Classroom Building" would be demolished to make way for parking, vehicular circulation, and a playing field. The renovated "Unit B Activities Building" would have to be taken off line and the school would need to find a temporary alternative for the cafeteria, auditorium and gymnasium during this time.

Estimate of Probable Cost for this Option = $62,139,329

PROPOSED ALTERNATIVE: OPTION 3 – "TRACK" NEW CONSTRUCTION (GRADES 5-8)

This option utilizes the open football field and track adjacent to the high school for a new Grade 5 through 8 middle school. This location aligns the middle school with the existing high school and Primary School creating a linear

campus. While this option creates a compact, efficient floor plan, it results in a number of challenges. The size of the site will not accommodate a K through 8 school. It also will not allow for future building expansion. There is very limited usable outdoor space adjacent to the building as it is required for vehicle circulation and parking. The bus lane and parking must share the same space which is not ideal from a safety standpoint. Given the topography of the site, extensive retaining walls are required. Option 3 assumes that once constructed, the existing middle school will be demolished, and the site will be used for playing fields to account for the football field and track that the building displaced. While the playing fields will be a visible community asset from Winslow Avenue, the school building is tucked in the back north east corner of the site and not visible from the street making it more difficult to access.

Estimate of Probable Cost for this Option = $45,089,798

PROPOSED ALTERNATIVE: OPTION 4A – "STREET" NEW CONSTRUCTION (GRADES 6-8)

This option is constructed on the open playing field to the north of the existing school. By creating a central "street" the building fulfills the Educational Program requirements in that all the shared programs, such as Administration, Media Center, Cafetorium, and Gym are separated from the classroom wing and can be used after hours as a community resource. The classroom wing is arranged in neighborhood clusters to allow for collaboration between rooms and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor courtyard with the classroom wing. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.

Option 4a assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the High School and Primary School creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $38,740,811

PROPOSED ALTERNATIVE: OPTION 4B – "STREET" NEW CONSTRUCTION (GRADES 5-8)

This option is constructed on the open playing field to the north of the existing school. By creating a central "street" the building fulfills the Educational Program requirements in that all the shared programs, such as Administration, Media Center, Cafetorium, and Gym are separated from the classroom wing and can be used after hours as a community resource. The classroom wing is arranged in neighborhood clusters to allow for collaboration between rooms and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor courtyard with the classroom wing. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.

Option 4b assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the High School and Primary School creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $46,429,109

PROPOSED ALTERNATIVE: OPTION 4C – "STREET" NEW CONSTRUCTION (GRADES K-8)

This option is constructed on the open playing field to the north of the existing school. By creating a central "street" the building fulfills the Educational Program requirements in that all the shared programs, such as Administration, Media Center, Cafetorium, and Gym are separated from the two classroom wings and can be used after hours as a community resource. This layout achieves the Educational Program goal of having "two schools under one roof" with the K-5 in one wing and the 6-8 in another wing. The 2-story classroom wings are arranged in neighborhood clusters to allow for collaboration between rooms

and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor courtyard with the classroom wings. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.
Option 4c assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the High School, creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $70,472,980

PROPOSED ALTERNATIVE: OPTION 5A – "WINGS" NEW CONSTRUCTION (GRADES 6-8)
This option is constructed on the open playing field to the north of the existing school. The building configuration and orientation is driven by the adjacent high school and middle school geometries. The school is arranged around a central "Town Common" with all of the shared spaces, such as Administration, Media Center, Cafetorium, and Gym located at the front of the building allowing for easy after-hours community access, while the classroom wing can be closed off. The classroom wing is arranged in neighborhood clusters to allow for collaboration between rooms and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor courtyard with the classroom wing. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.
Option 5a assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the Primary and High School, creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $40,353,690

PROPOSED ALTERNATIVE: OPTION 5B – "WINGS" NEW CONSTRUCTION (GRADES 5-8)
This option is constructed on the open playing field to the north of the existing school. The building configuration and orientation is driven by the adjacent high school and middle school geometries. The school is arranged around a central "Town Common" with all of the shared spaces, such as Administration, Media Center, Cafetorium, and Gym located at the front of the building allowing for easy after-hours community access, while the classroom wing can be closed off. The classroom wing is arranged in neighborhood clusters to allow for collaboration between rooms and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor courtyard with the classroom wing. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.
Option 5b assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the Primary and High School, creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $47,912,272

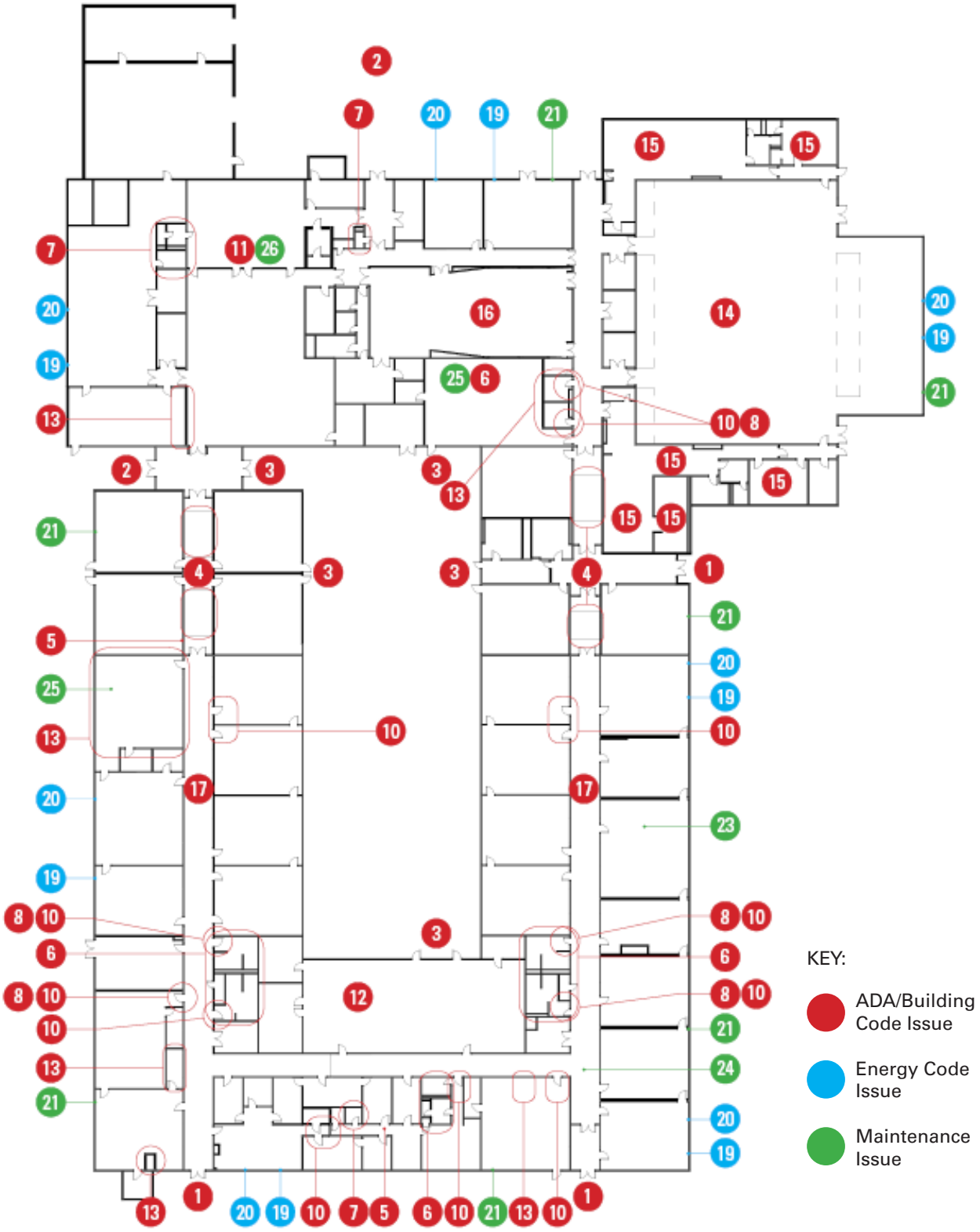
PROPOSED ALTERNATIVE: OPTION 5C – "WINGS" NEW CONSTRUCTION (GRADES K-8)
This option is constructed on the open playing field to the north of the existing school. The building configuration and orientation is driven by the adjacent high school and middle school geometries. The school is arranged around a central "Town Common" with all of the shared spaces, such as Administration, Media Center, Cafetorium, and Gym located at the front of the building allowing for easy

after-hours community access, while the classroom wings can be closed off. The classroom wings are arranged in neighborhood clusters to allow for collaboration between rooms and breakout space outside of the classroom. The Media Center is at the heart of the building and shares an outdoor learning courtyard with the classroom wings. The building orientation is ideal for natural light. The efficient building layout lends itself to future expansion should it be required.
Option 5c assumes that the middle school will be fully occupied during construction so that no swing space will be required. There will be some disruption during construction in that construction activities will be in close proximity to the building and site. Once the new building is constructed the existing middle school will be demolished making way for playing fields and vehicle circulation and parking. The building and playing fields will be visible from the main access drive on Winslow Avenue. This option, adjacent to the High School, creates a single school campus for the Town of Leicester.

Estimate of Probable Cost for this Option = $70,228,252

The full Concept Design Construction Cost Estimate is included in the Appendix.

PROPOSED ALTERNATIVE: OPTION 1 - CODE UPGRADE OPTION (GRADES 6-8)

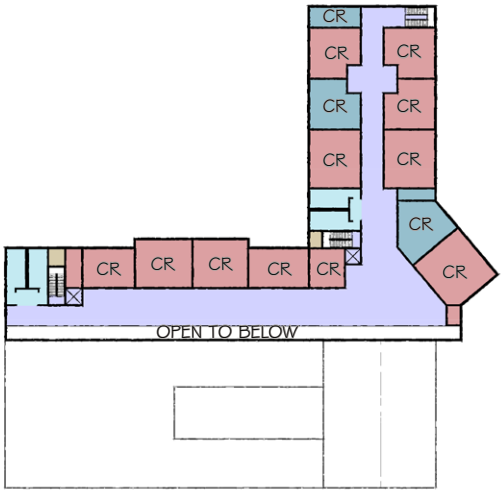


NUMBER	OBSERVED CONDITION	RESOLUTION	REC'D	REQ'D
1	Path to building entrances are not accessible.	Install ramps and alter walkway elevations.		X
2	Park and playing fields are not accessible from to building.	Install ramps and alter walkway elevations.		X
3	Interior courtyard entrances are not accessible from to building.	Install ramps and alter walkway elevations.		X
4	Ramps and handrails do not comply with ADA and current building code requirements. Typ.	Remove and rebuild ramp to proper slope. Remove and replace handrails per code.		X
5	Drinking fountain does not comply with ADA and current building code requirements. Typ.	Install code-compliant hi-lo drinking fountain. Add wing walls or cane rails as required by code.		X
6	Restrooms do not comply with ADA requirements.	Alter restrooms to provide ADA-compliant restrooms.		X
7	Restrooms do not comply with ADA requirements.	Remove exiting restroom and modify adjacent space to provide new ADA-compliant restrooms.		X
8	Interior door clear width does not have code-required clearance.	Remove existing door and frame. Increase opening size and install new door and frame.		X
9	Door hardware does not comply with ADA requirements. Wood doors show deterioration. Wire glass does not comply with current building code. Typical throughout the building.	Remove existing doors. Install new doors and hardware. Typical all interior doors.		X
10	Interior door does not have code-required clearance at pull side of door.	Install powered automatic door opener.		X
11	Clearances at servery do not meet ADA.	Alter kitchen servery equipment layout.		X
12	Circulation desk does not comply with ADA-requirements.	Replace or alter existing circulation desk to provide ADA-compliant desk access.		X
13	Sink and casework do not comply with ADA requirements.	Provide accessible sink, faucet and casework.		X
14	Gymnasium does not comply with ADA. No ADA seating at bleachers. Thresholds at doors do not comply with ADA.	Provide ADA-compliant thresholds. Add wheelchair spaces at bleachers		X

NUMBER	OBSERVED CONDITION	RESOLUTION	REC'D	REQ'D
15	Looker rooms do not comply with ADA. Lockers are not ADA-compliant. Showers and toilets are not compliant.	Revise layout locker room layout and provide ADA-compliant lockers. Revise shower and toilet room.		X
16	Auditorium and stage is not ADA-accessible.	Install lift at stage. Provide wheelchair seating location		X
17	Lockers are not accessible and in varying levels of deterioration.	Remove select locker and install accessible lockers. Assume 5% for ADA-compliance and additional 25% replacement.		X
18	Required room signage is missing. Typical throughout the building.	Install code-compliant room signage.		X
19	Exterior walls are uninsulated and do not comply with current energy code requirements.	Add insulation and new wall system/finish.	X	
20	Exterior windows have exceeded their expected life, do not comply with current energy code requirements.	Replace windows with energy efficient units.	X	
21	Repair/repaint existing exterior masonry.	Provide cut and pointing of 50% of exterior façade. Assume 20% masonry repair per façade.	X	
22	Flooring extremely worn, water-damaged and marred. Multiple patches observed. Varying levels of deterioration throughout the building.	Remove and install new flooring.	X	
23	Ceilings have exceeded expected life.	Remove and replace existing ACT and associated grids.	X	
24	Gypsum roof panels show signs of water damage.	Repair/replace water damaged panels. Assume 50% replacement.	X	
25	Casework throughout building has deteriorated beyond repair and has exceeded expected lifespan.	Remove and replace casework.	X	
26	Kitchen equipment is original to building and is reaching the end of life.	Provide and install new equipment.	X	
27	Assume all new MEP/FP. Typical throughout the building.	Replace all MEP/FP		

PROPOSED ALTERNATIVE: OPTION 2A – RENOVATION/NEW ADDITION (GRADES 6-8)

PROPOSED ALTERNATIVE: OPTION 2A – RENOVATION/NEW ADDITION (GRADES 6-8)



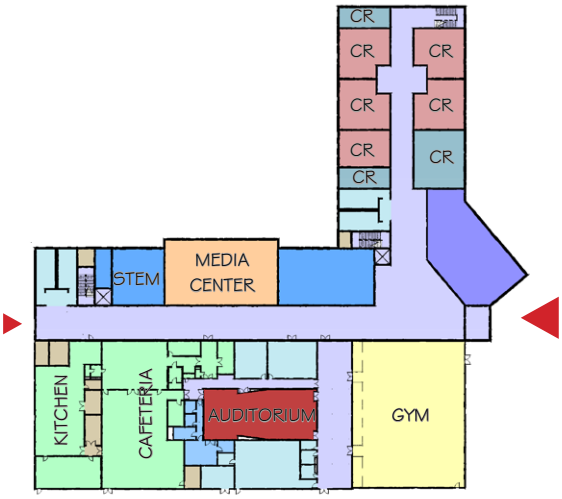
SECOND FLOOR PLAN

KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

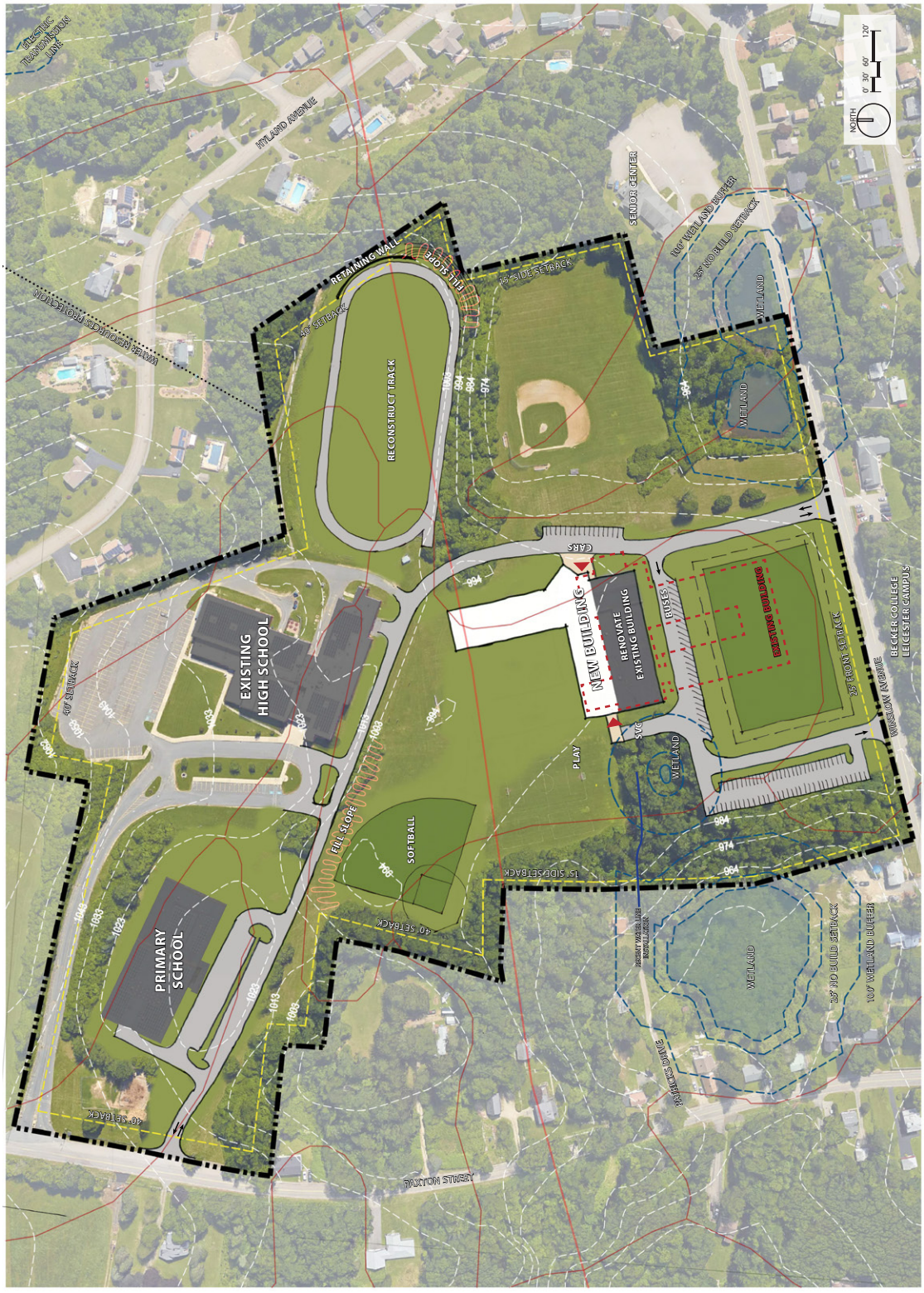
BUILDING DATA
2 STORY BUILDING
GRADES 6-8
330 STUDENTS

EXISTING:	24,757 SF
NEW:	57,117 SF
TOTAL:	**81,874 SF**

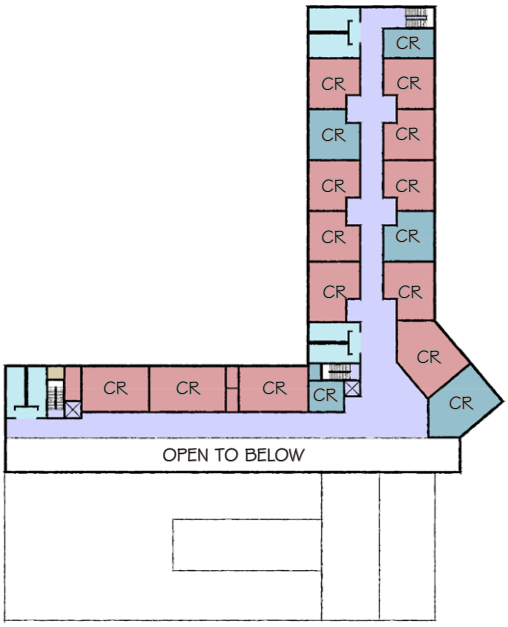


FIRST FLOOR PLAN

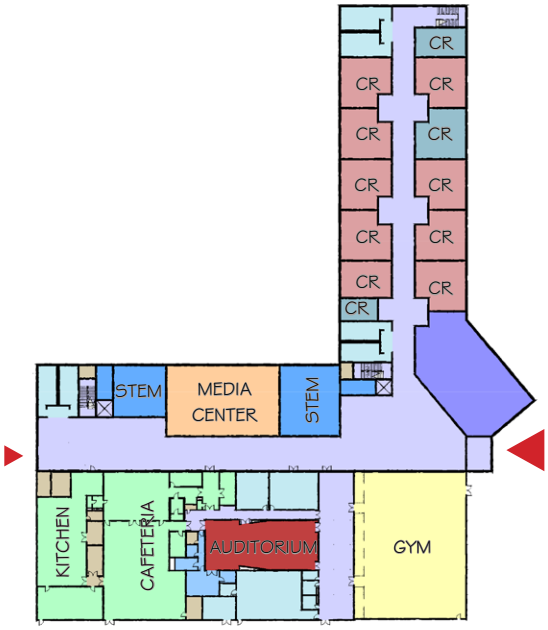
PROPOSED ALTERNATIVE: OPTION 2B – RENOVATION/NEW ADDITION (GRADES 5-8)



PROPOSED ALTERNATIVE: OPTION 2B – RENOVATION/NEW ADDITION (GRADES 5-8)



SECOND FLOOR PLAN



FIRST FLOOR PLAN

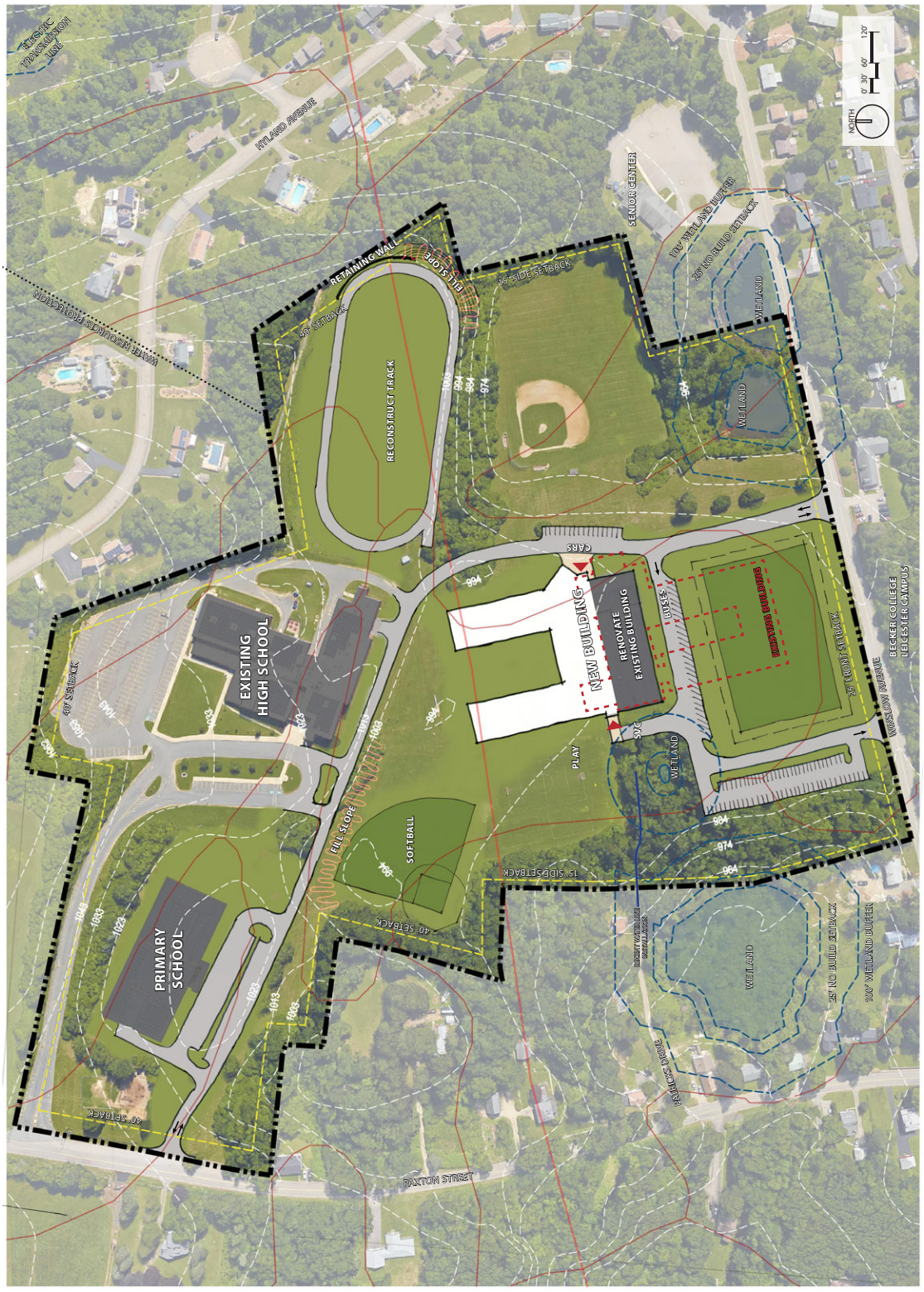
KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

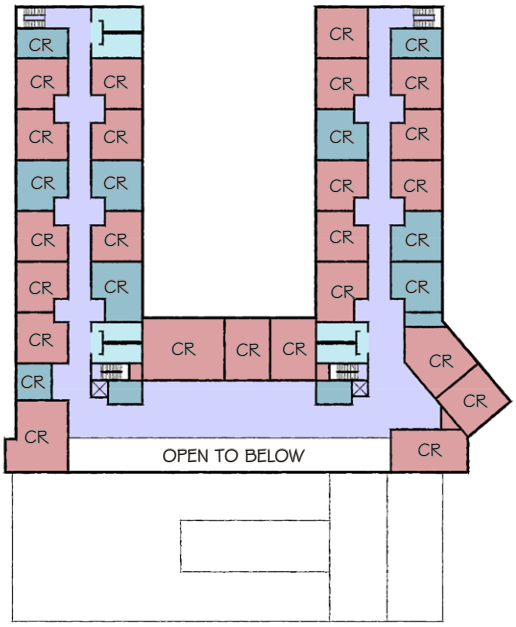
BUILDING DATA
2 STORY BUILDING
GRADES 5-8
440 STUDENTS

EXISTING:	24,757 SF
NEW:	69,959 SF
TOTAL:	**94,716 SF**

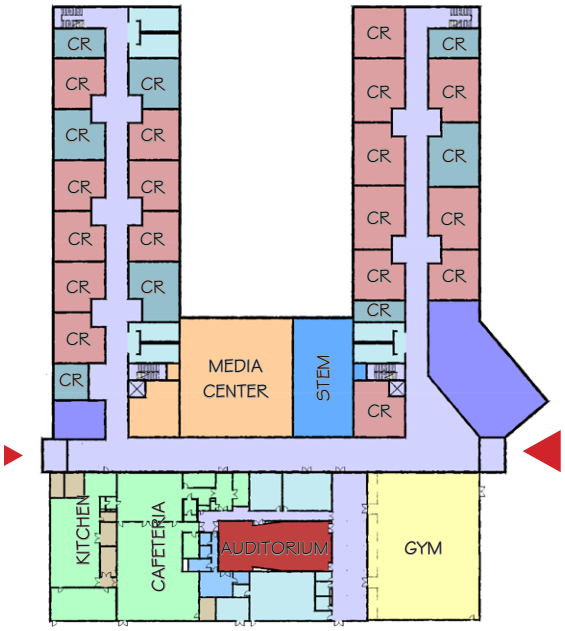
PROPOSED ALTERNATIVE: OPTION 2C – RENOVATION/NEW ADDITION (GRADES K-8)



PROPOSED ALTERNATIVE: OPTION 2C – RENOVATION/NEW ADDITION (GRADES K-8)



SECOND FLOOR PLAN



FIRST FLOOR PLAN

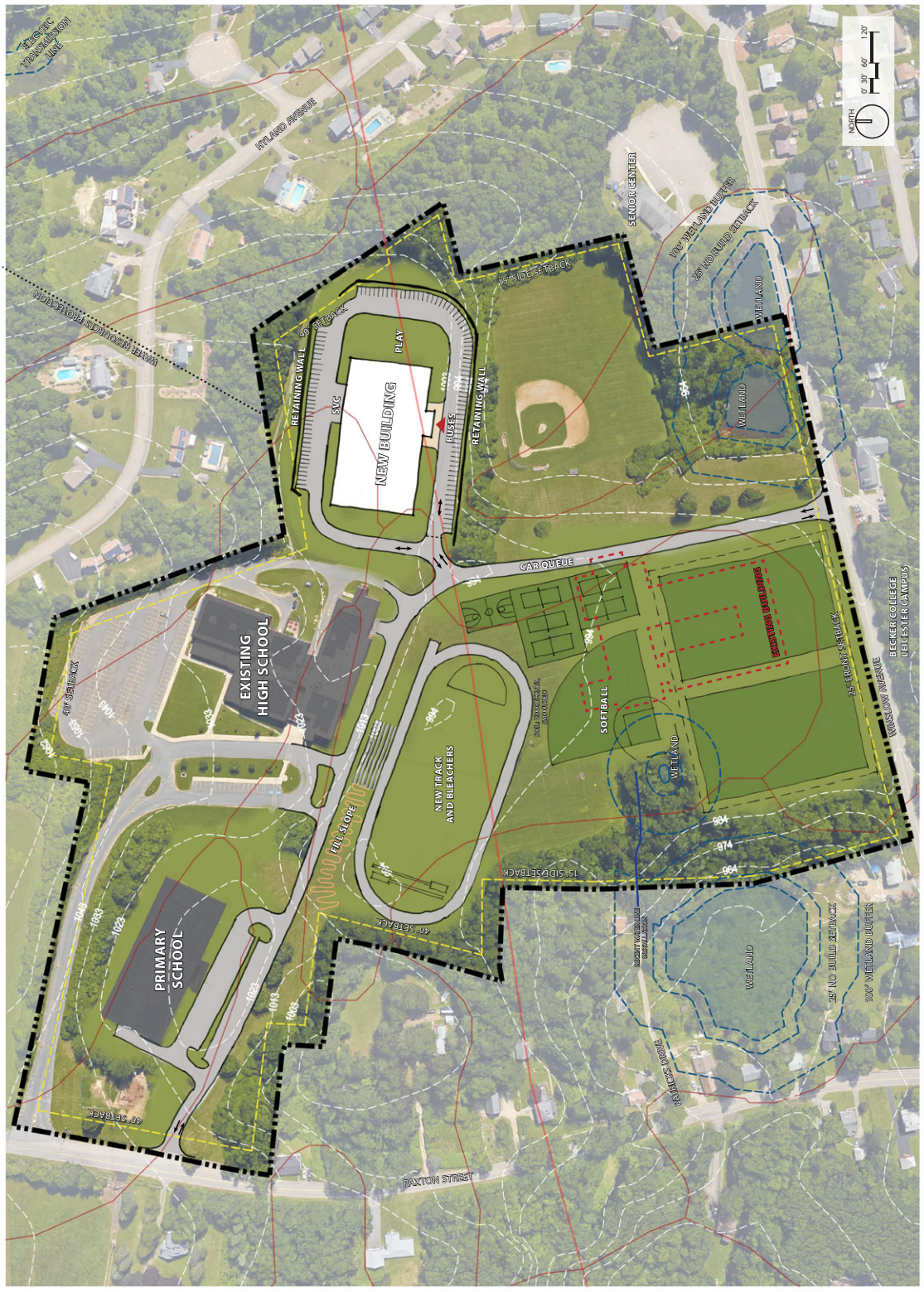
KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

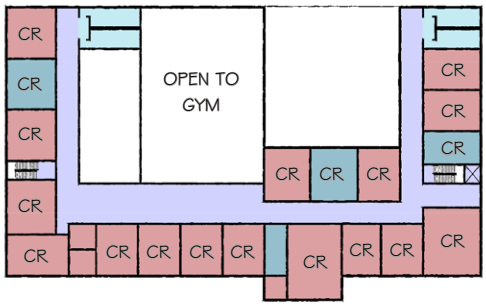
BUILDING DATA
2 STORY BUILDING
GRADES K-8
930 STUDENTS

EXISTING:	24,757 SF
NEW:	114,267 SF
TOTAL:	**139,024 SF**

PROPOSED ALTERNATIVE: OPTION 3 – "TRACK" NEW CONSTRUCTION (GRADES 5-8)



PROPOSED ALTERNATIVE: OPTION 3 – "TRACK" NEW CONSTRUCTION (GRADES 5-8)



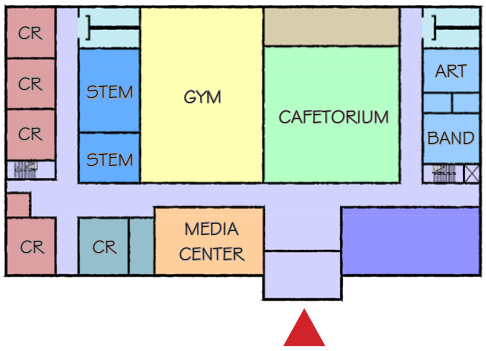
SECOND FLOOR PLAN

KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

BUILDING DATA
2 STORY BUILDING
GRADES 5-8
440 STUDENTS

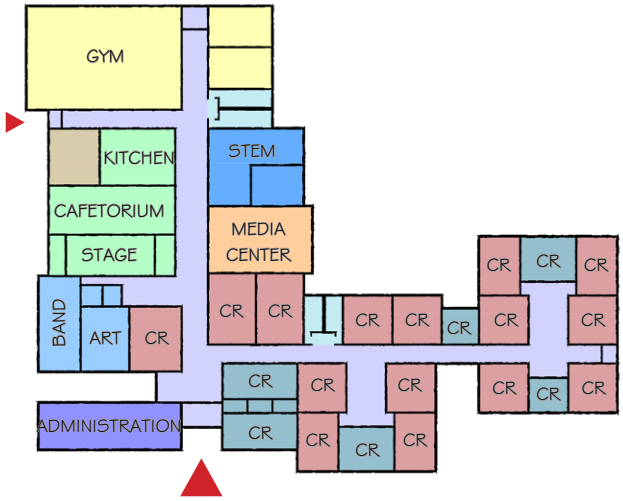
EXISTING:	0 SF
NEW:	82,587 SF
TOTAL:	**82,587 SF**



FIRST FLOOR PLAN

PROPOSED ALTERNATIVE: OPTION 4A – "STREET" NEW CONSTRUCTION (GRADES 6-8)

PROPOSED ALTERNATIVE: OPTION 4A – "STREET" NEW CONSTRUCTION (GRADES 6-8)



FIRST FLOOR PLAN

KEY:

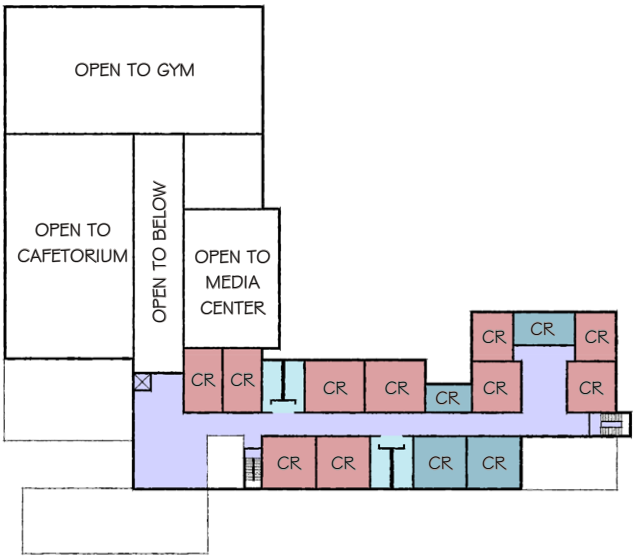
- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

BUILDING DATA
2 STORY BUILDING
GRADES 6-8
330 STUDENTS

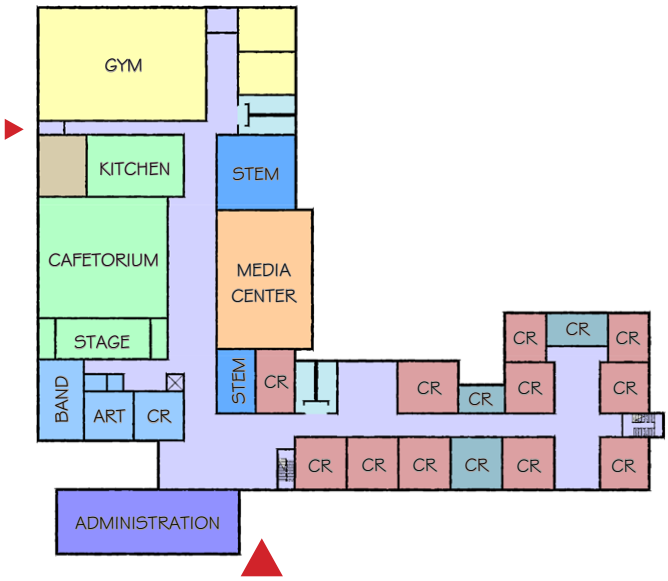
EXISTING:	0 SF
NEW:	62,638SF
TOTAL:	**62,638 SF**

PROPOSED ALTERNATIVE: OPTION 4B – "STREET" NEW CONSTRUCTION (GRADES 5-8)

PROPOSED ALTERNATIVE: OPTION 4B – "STREET" NEW CONSTRUCTION (GRADES 5-8)



SECOND FLOOR PLAN



FIRST FLOOR PLAN

KEY:

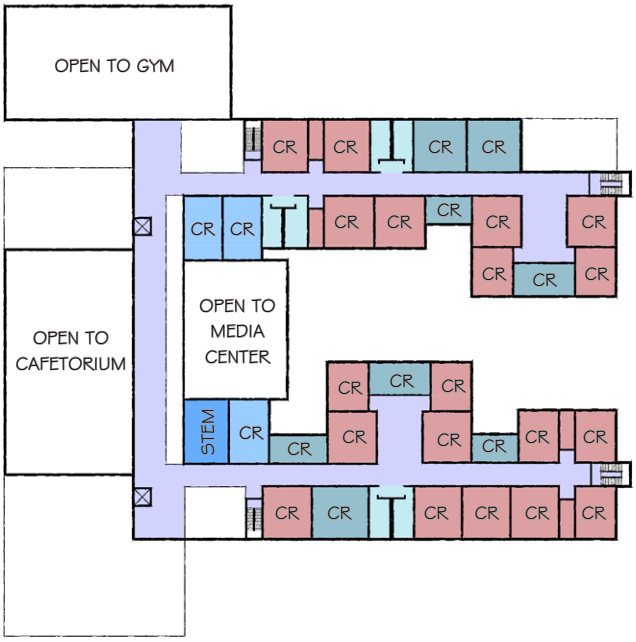
- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

BUILDING DATA
2 STORY BUILDING
GRADES 5-8
440 STUDENTS

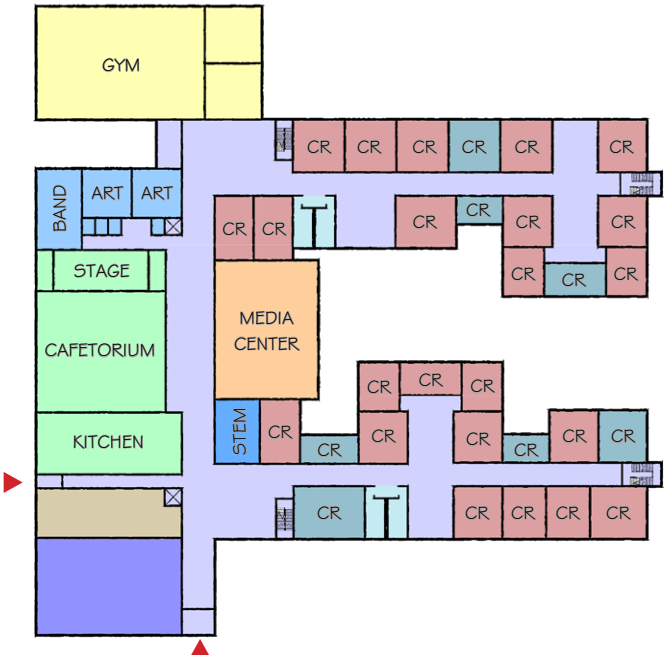
EXISTING:	0 SF
NEW:	82,091 SF
TOTAL:	**82,091 SF**

PROPOSED ALTERNATIVE: OPTION 4C – "STREET" NEW CONSTRUCTION (GRADES K-8)

PROPOSED ALTERNATIVE: OPTION 4C – "STREET" NEW CONSTRUCTION (GRADES K-8)



SECOND FLOOR PLAN



FIRST FLOOR PLAN

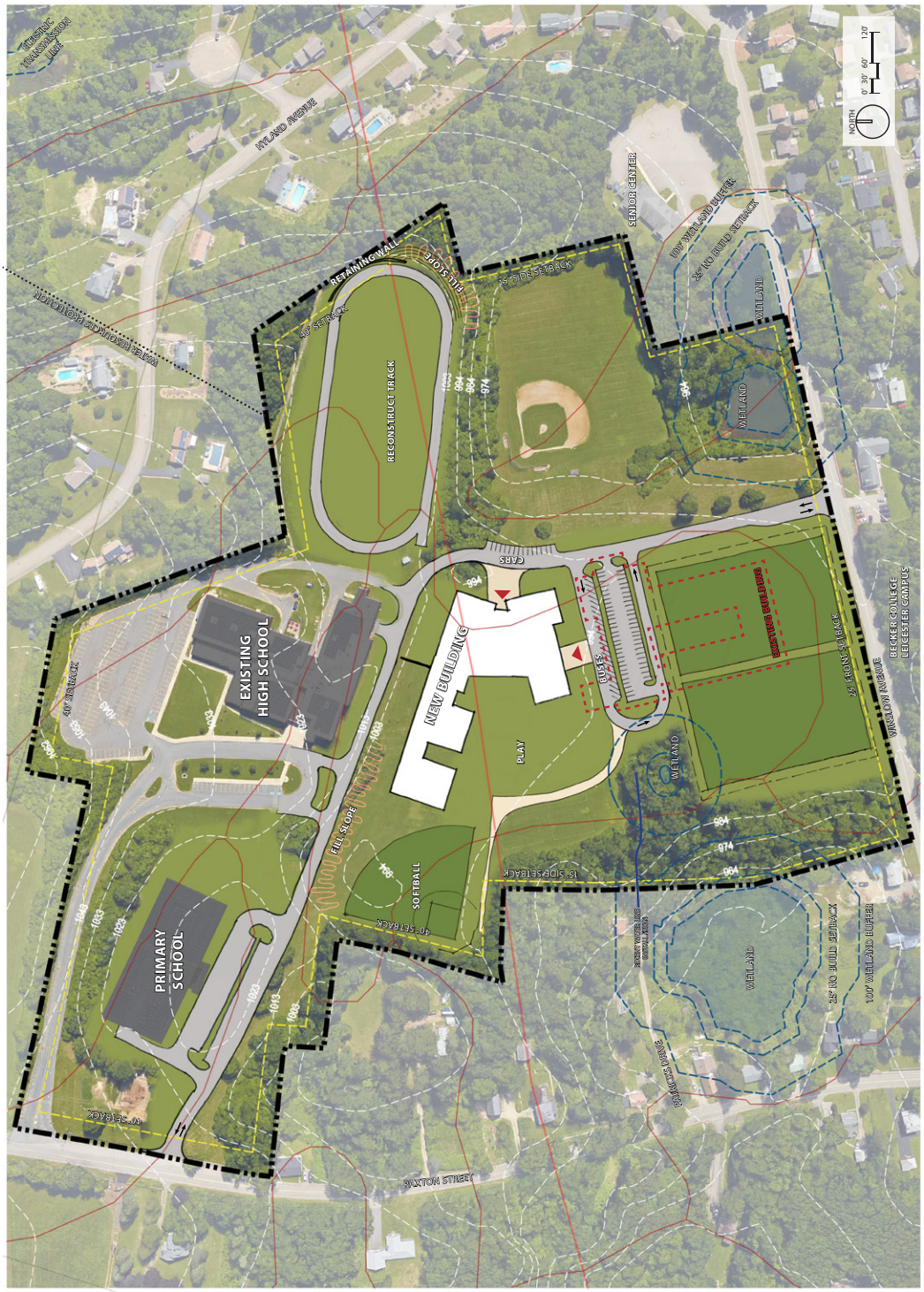
KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

BUILDING DATA
2 STORY BUILDING
GRADES K-8
930 STUDENTS

EXISTING:	0 SF
NEW:	143,793 SF
TOTAL:	**143,793 SF**

PROPOSED ALTERNATIVE: OPTION 5A – "WINGS" NEW CONSTRUCTION (GRADES 6-8)



PROPOSED ALTERNATIVE: OPTION 5A – "WINGS" NEW CONSTRUCTION (GRADES 6-8)

FIRST FLOOR PLAN

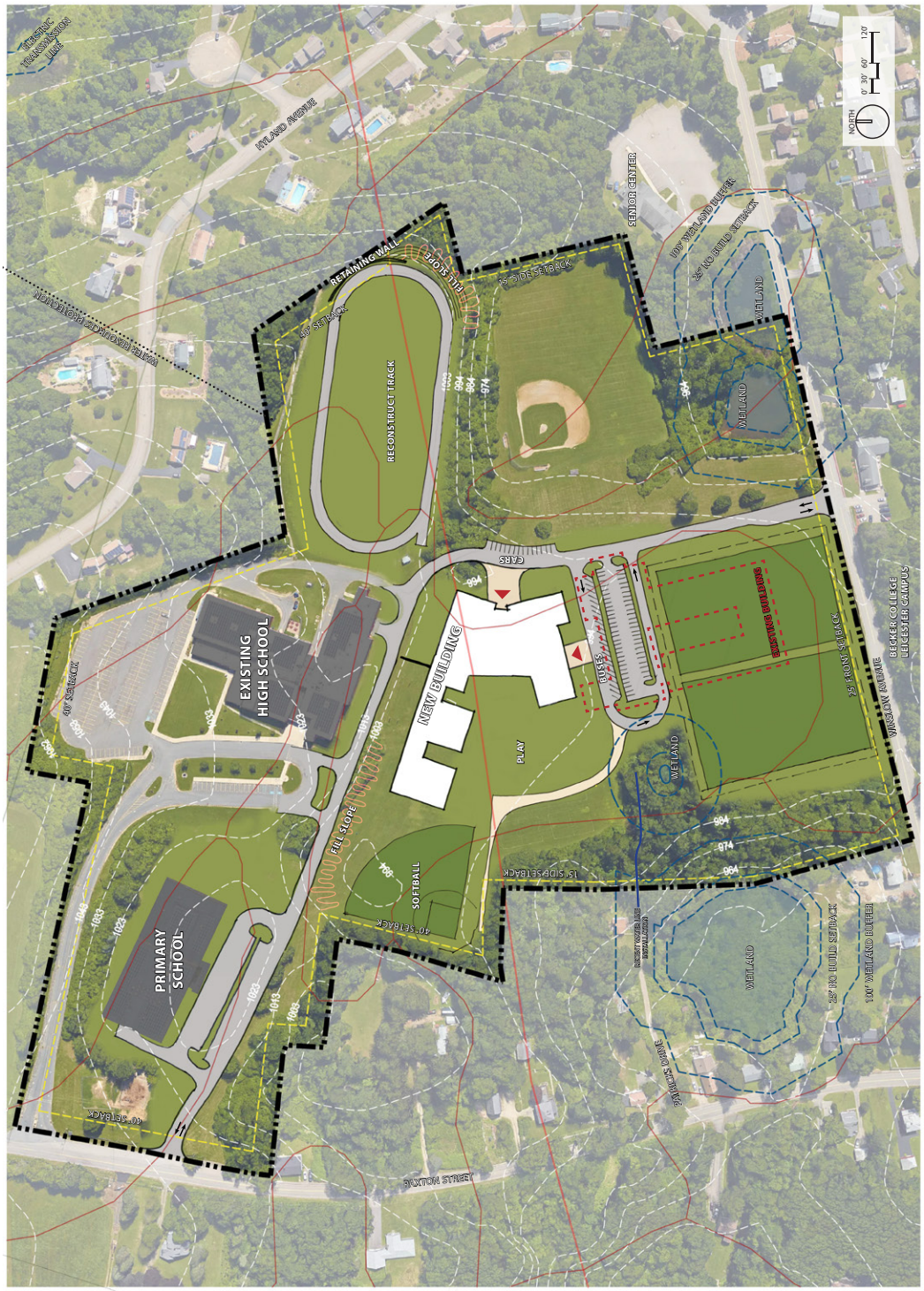
KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

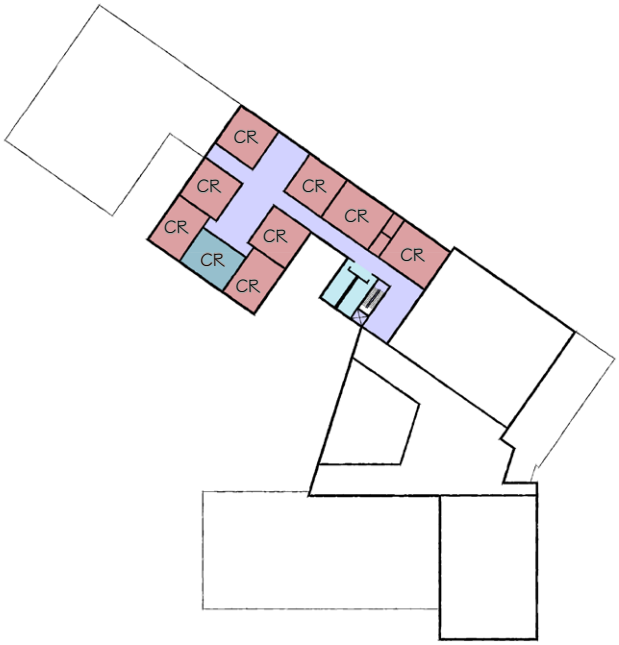
BUILDING DATA
2 STORY BUILDING
GRADES 6-8
330 STUDENTS

EXISTING:	0 SF
NEW:	62,700 SF
TOTAL:	**62,700 SF**

PROPOSED ALTERNATIVE: OPTION 5B – "WINGS" NEW CONSTRUCTION (GRADES 5-8)



PROPOSED ALTERNATIVE: OPTION 5B – "WINGS" NEW CONSTRUCTION (GRADES 5-8)



SECOND FLOOR PLAN

FIRST FLOOR PLAN

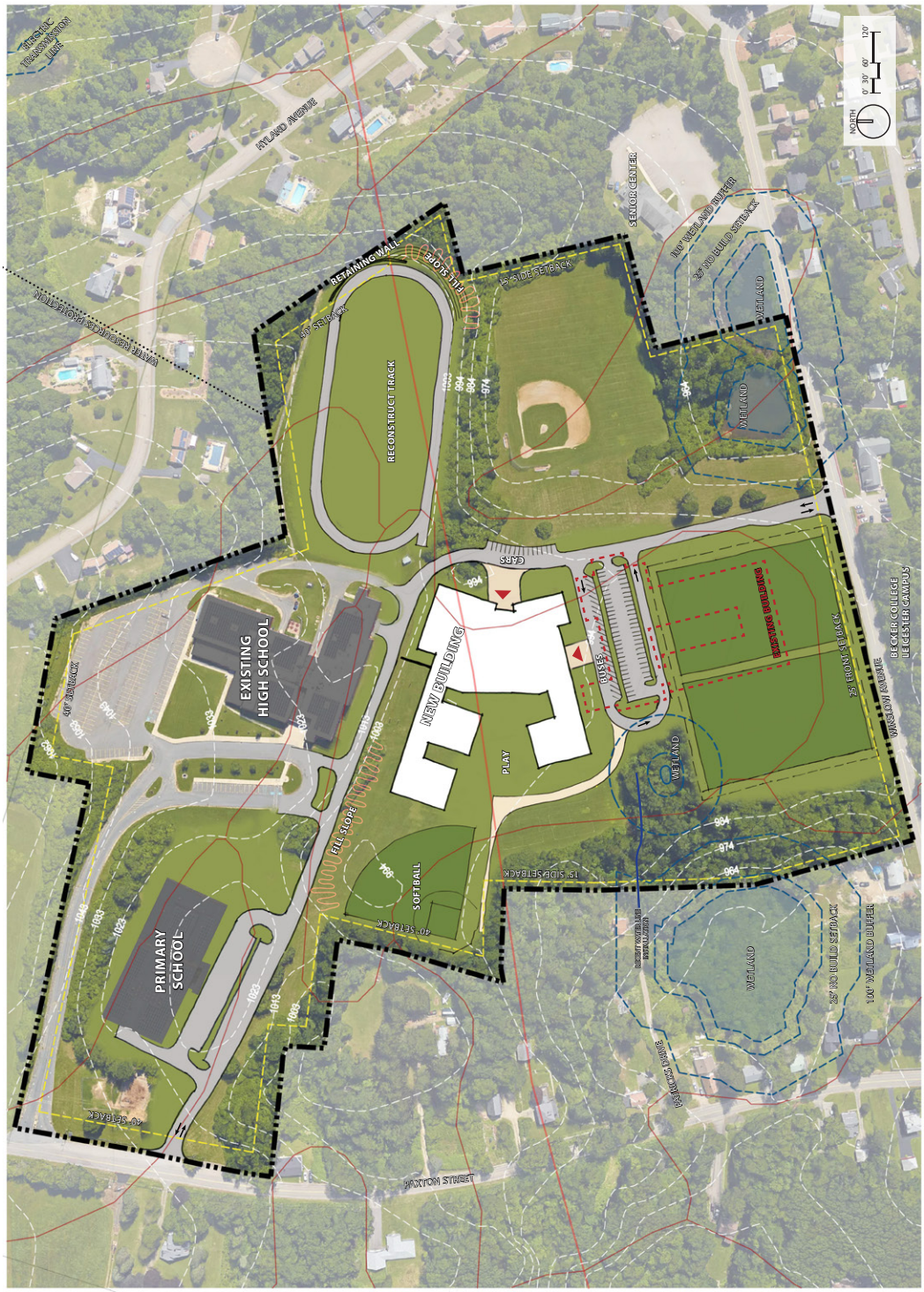
KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
- Dining & Food Service
- Restroom
- Special Education
- Vocations & Technology
- Circulation
- Administration & Guidance

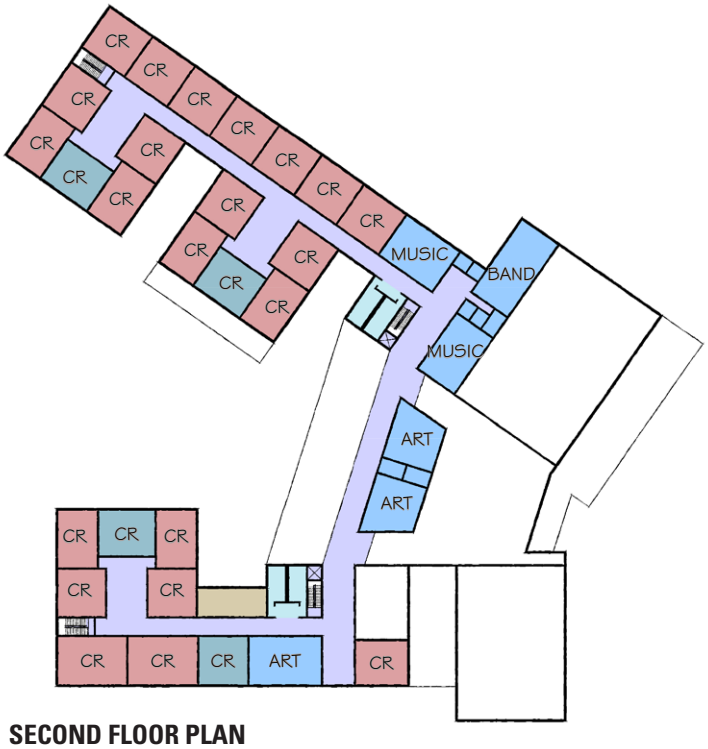
BUILDING DATA
2 STORY BUILDING
GRADES 5-8
440 STUDENTS

EXISTING:	0 SF
NEW:	81,452 SF
TOTAL:	**81,452 SF**

PROPOSED ALTERNATIVE: OPTION 5C – "WINGS" NEW CONSTRUCTION (GRADES K-8)



PROPOSED ALTERNATIVE: OPTION 5C – "WINGS" NEW CONSTRUCTION (GRADES K-8)



SECOND FLOOR PLAN

FIRST FLOOR PLAN

KEY:

- Core Academic Spaces
- Media Center
- Custodial & Maintenance
- Health & Physical Education
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- Restroom
- Special Education
- Vocations & Technology
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- Administration & Guidance

BUILDING DATA
2 STORY BUILDING
GRADES K-8
930 STUDENTS

EXISTING:	0 SF
NEW:	142,121 SF
TOTAL:	**142,121 SF**