

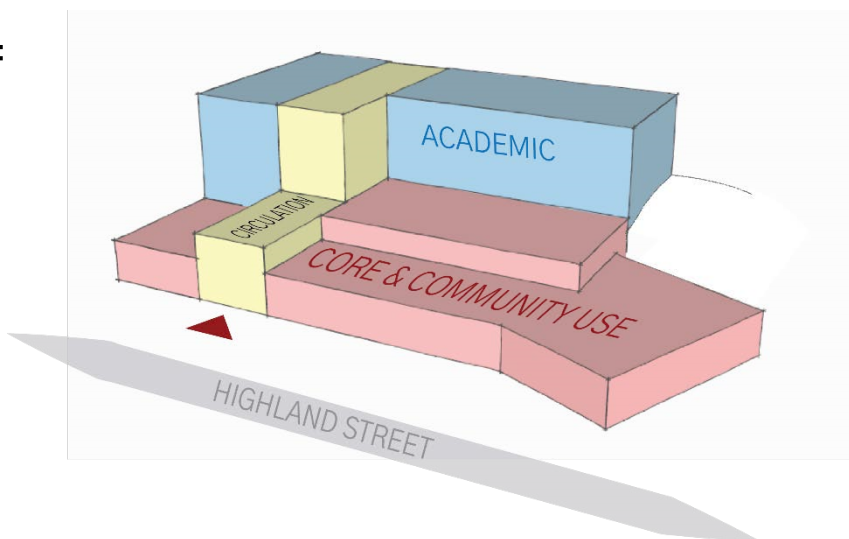
3.3.3 FINAL EVALUATION OF ALTERNATIVES

C. Preliminary Design Options

5. Option A.3 New
Construction on Existing
Site: Highland Proud
 - a. Narrative
 - b. Site Plan
 - c. Floor Plans
 - d. Section
 - e. Massing

SUMMARY: The New Construction Option is based on a new building located on the adjacent field area east of the existing building, and assumes that the new building will be constructed while the existing building remains fully occupied. Once the new building is complete, the existing building would be demolished in its entirety and any remaining site features (athletic fields, parking, driveways, etc.) would be completed. While there will be **temporary** construction impacts with this option, most notably the loss of nearly all existing outdoor areas and student parking capacity in part, they are primarily site-related and the end result is a solution that meets most if not all of the Educational Program requirements. However, given the limited acreage of developable site, the sports fields site program will not be met.

PARTI DIAGRAM:



BUILDING ORGANIZATION:

The building in Option A.3 Highland Proud is organized with a central circulation spine that bisects the building as it climbs up the existing site’s steep topography. This strong circulation spine provides clarity of circulation and organization and creates an opportunity for visual and physical connections between floors. This option pushes the building mass further away from the roadway, allowing space for a dedicated bus loop in front of a “classic” main entrance on Highland Street.

The building is organized into a total of 6 levels that step up the site’s steep topography. However, the terraced approach ensures that the majority of the of the building is no more than four stories in height. This configuration provides grade access at the main entrance at Highland Street and a secondary entrance at the Gymnasium facing toward the parking area and fields. Exterior access is also provided for the receiving area, the ETA Suite and Life Skills classrooms. The core and community spaces would be located on the first and second levels, connected by a large “google” staircase within the central circulation spine. The lowest levels are buried into the existing topography, resulting in some teaching

spaces without natural daylight, such as the Chapter 74 classrooms and computer labs. The general academic classrooms are organized by department on the upper floors, located to the east and west of the main circulation spine. Access control between community and academic spaces would occur between the second and third floor. The massing along Highland Street would be limited to two or three stories, and would feature active and aesthetically interesting spaces such as the Cafeteria, Media Center, and Art / Music classrooms.

SITE CONFIGURATION:

The proposed site for Option A.3 is distinct as it locates the main entrance and bus loop at the lowest level along Highland Street. In order to accomplish this frontage on the main access street, the building footprint was expanded into the existing staff parking lot, which would result in comparatively greater impact on the existing school parking during construction and more complex construction separation. However, the area in front of the proposed building (the location of the future bus loop) would provide the contractor with a large staging area throughout construction.

The PDP submission site plans and cost estimate for the New Construction on Existing Site option included a parking deck below an elevated football field. To achieve the desired number of parking spaces, this option also includes a new turf football/soccer/field hockey field construction on an elevated deck above an open-air parking garage. Refer to the Civil and Traffic Basis of Design narratives in section 3.3.3.D.1 for additional analysis.

OPTION ANALYSIS:

Proposed SF areas for this option are approximately as follows:

- **New Construction** = 420,000 GSF
- **Demolition (existing building)** = 167,000 GSF

ABILITY TO MEET BUILDING PROGRAM:

Option A.3 satisfies most if not all Educational Program/Space Summary objectives. This option’s organization locates the Main Administration suite and the Media Center at the lowest (main entrance) level and these spaces are remote from the bulk of the academic spaces on the upper levels. Terracing into the existing topography allows secondary entrance to the gymnasium, and exterior access to receiving, and life skills and ETA, but also results in some “buried” spaces without natural daylight. This

option ensures that the majority of the teaching spaces will have direct or borrowed daylight, however, some of the Chapter 74 spaces and computer labs are completely interior. The academic wings are built into the existing steep topography, but with this organization, approximately half of the classrooms would have exterior views overlooking the roofs below, which is considered to be less architecturally desirable.

ACQUISITION ISSUES:

The Site is bounded by park land; there are no expansion options or acquisition issues. The Doherty sports programs utilize Foley Stadium for practices and games. Improved access to Foley would be beneficial.

COMPARATIVE STAFF AND STUDENT IMPACT:

It is assumed that the work will begin with construction of a new building, including associated sitework infrastructure, to be located on the field area east of the existing building. We anticipate that the entire practice football field, and the student/Newton Hill visitor parking lot, will be consumed by the building and the Contractor for staging material laydown/storage, worker/equipment parking areas and temporary office trailers. During this time the existing building would remain fully occupied and functional, at least internally, much like it does presently. Externally, construction access would impact vehicular traffic and parking patterns as well as losing the PE/Athletic practice fields. Option A.3 Highland proud has a comparatively greater construction site impact, as the building footprint is on top of the existing Staff parking area. Temporary off-site parking or shuttling may be required. We expect that the Contractor will access the site via the driveway and parking area to the side of the existing building, however, construction access may also have a construction only access road at the east side. Similar to the Code Upgrade and Renovation/Addition Options, the summer break will be leveraged to maximize productivity for work (i.e. sitework such as repaving, new site utilities, drainage infrastructure, etc.) that would normally disturb school vehicular/pedestrian traffic.

Because a new building can be constructed entirely outside the footprint of the existing building (which can remain fully occupied), the New Construction Option will have less impact to students than the Code Upgrade or Renovation/Addition Options, all without the need for “swing space”. As previously noted, the biggest temporary construction impacts are site-related and include the following:

- Loss of PE/Athletic fields and other outdoor spaces during construction.
- Loss of staff and student parking, temporary off-site parking or shuttles may be required for staff.
- Relocation of pedestrian/vehicular traffic and staff/faculty parking from a reconfigured site layout, designated parking areas, and a dedicated construction access-way.

One advantage of New Construction is that it doesn't have the same limitations, in terms of work area, as either the Code Upgrade or Renovation/Addition Options. More workers can be productive because there is a greater area to work in. Consequently, the duration of the project can be less than an occupied project which has numerous phases with complex scope of work, relocations, and temporary support facilities. Like the other options, the New Construction Option will leverage summer breaks to maximize productivity, particularly site-related, and reduce construction impacts.

ABILITY TO MEET SITE ATHLETICS PROGRAM

While the program ideally would have all the desired fields on the same site, limited field development is anticipated. The proposed site plan shows an elevated football/soccer/practice field above an open-air parking deck. The off-site fields at Foley Stadium will still be beneficial to supplement the athletic program.

CENTRAL TO DISTRICT/QUADRANT:

The existing school site is recognized as central to the Doherty Quadrant.

SITE DEVELOPMENT COSTS:

The Soils test from the original construction and record information indicate heavy glacial till and assumed ledge or boulders. Short to moderate height retaining walls are anticipated to optimize site area available. Conceptual designs include moderate soils cutting at existing the sports field and parking garage. To better meet the site program, a parking deck is proposed beneath the sports field.

TRAFFIC IMPACTS & ACCESS:

The existing Doherty site is limited to access from Highland Street only, which has limitations, and is subject to traffic congestion. Refer to Section 3.3.3.D.1 for an updated traffic analysis.

BUS & PARENT VEHICULAR CIRCULATION & PARKING:

This option provides a dedicated loop for buses in front of the main entrance to the building along Highland Street, completely separated from the parent and staff vehicular traffic. All vehicular access is from Highland Street, adding to traffic flow complexities. In order to achieve the required student parking, a decked parking area below the athletic fields is included in the cost estimate. The parking deck represents a moderate cost and some security/surveillance issues. Perimeter access around the building for emergency vehicles is provided per requirements.

CONSTRUCTION SCHEDULE IMPACT:

With the phased construction, the building is anticipated to meet the current occupancy goal of Fall 2024, however the fields and parking deck will not be completed and available for use until the following year.

Early bid packages are anticipated as follows:

- Design Development Submission and Site Enabling Bid Package
- 60% Construction Document Submission and Early Site Work Bid Package
- 90% Construction Document Submission and Early Concrete and Steel Bid Package

The conceptual project phasing at the time of this report is as follows:

ENABLING SITEWORK PACKAGE (06/2021 to 9/2021):

- Mobilize on site; Install temporary retaining walls at Highland Street, excavation and slope mitigation at the rear of the existing school. Regrade and install paving around the building; create fenced dedicated construction access driveway to the east of existing building; excavate and prepare the northeast corner of the property as CM/Subcontractor area for temporary facilities, storage, parking, etc.

PHASE 1 (10/2018 to 6/2024):

- Mobilize on site; create fenced dedicated construction access driveway around the west of the existing building; prepare northernmost lower parking lot as CM/Subcontractor area for temporary facilities, storage, parking, etc.
- Perform early sitework scope including site prep for new building, new utilities, construction access, new parking lots and perimeter driveway (Early bid packages are anticipated for Site Work, Concrete and Steel.
- Construct new building

PHASE 2 (6/2024 to 9/2024):

- Abate hazardous materials and demolish existing part of existing school, beginning with the areas closest to the new building (Gymnasium, ETA, Music, Auditorium and Classrooms)
- Perform sitework scope including new staff parking and driveways at main entry
- Receive and install FF&E
- Occupy existing building for the 2024 school year.

PHASE 3 (9/2024 to 9/2025):

- Perform remaining sitework scope including new parking deck with elevated synthetic field, bleachers and outdoor toilet building, finish paving, landscaping and other site improvements
- Demobilize

ADJACENT USES & NEIGHBORHOOD IMPACT:

The existing school is an established location, so impact on the neighborhood is expected to be limited primarily to construction related activities, with a minor increase of traffic due to the added enrollment. The southern portion of the site that is currently undeveloped is used by the Newton Hill parks programs, disc golf, trails, and buffer land. The project development must be very sensitive to the adjacent park land, and has had discussions with the Friends of Newton Hill throughout the PSR phase to discuss ways that the school project can be mutually beneficial to the park. Possible solutions discussed include improvement of trails on Newton Hill, provision of parking spaces for access to the park after hours, green retaining walls and other facility improvements.

Historical Elm park is also across Park Avenue to the east, which represents opportunities for views and visual connections.

UTILITIES & DEVELOPMENT ISSUES:

Utilities are available and adequate. Refer to the Civil Basis of Design narrative in Section 3.3.3.D.1.

ADDITIONAL CITY COSTS (NOT ELIGIBLE FOR MSBA REIMBURSEMENT)

LPA|A reviewed opportunities to supplement Doherty’s athletic fields, both during construction and after completion. One option for expansion is the addition of a rectangular football/soccer/field hockey field adjacent to the existing Duffy Softball Field. Other City may include offsite improvements for traffic management and pedestrian crosswalks.

Other option City costs include:

- Temporary Off-Site parking through construction
- Newton Hill trail improvements
- Improved Access to Foley Field (land cost of rear land of three Abbott Street parcels)
 - Development of added land with new basketball or tennis courts and Surface Parking

MSBA Module 3

Feasibility Study PSR

3.3.3 FINAL EVALUATION OF ALTERNATIVES

C. Preliminary Design Options

5. Option A.3 New Construction on Existing Site:

HIGHLAND PROUD

a. Narrative

- Beaver Brook practice field improvements (underdrains)
- Foley Stadium Improvements to Rear Fields

The total added city costs for this Option would range between \$6–11 Million. Refer to Section 3.3.3.D.3 Offsite improvements for more information.

NEW CONSTRUCTION SCOPE OF WORK:

Site:

Provide full site accessibility to comply with 521 CMR including:

- Provide an accessible route, via new sidewalks ramps, and curb cuts, from Highland Street
- Refer to Civil and Traffic Basis of Design narratives in Section 3.3.3.D.1.

Building Exterior/Interior:

- Refer to the Architectural Basis of Design Narrative in Section 3.3.3.D.1.

Sustainability / Net Zero Energy Goal:

- Provide infrastructure required for sustainable building project, and net zero energy goals
- The City / School Facilities departments have developed a list of preferred systems and equipment choices that are maintainable, durable and efficient, and updates their list with newer equipment as systems come on the market.
- A design charrette will be scheduled early in the design process to solicit input and priorities in an effort to determine the best strategies for this project. The Sustainable Design consultant and MEP consultants will attend and present new energy saving strategies for consideration.
- One approach used in the past that would be continued on this project are to maximize the R value of the building envelope, including components such as windows and doors.
- Refer to the MEP narratives for additional information.

Fixtures, Furnishings & Equipment (FF&E)/Technology:

- Provide new FF&E throughout including furnishings, equipment, maintenance items, etc.
- Provide new Technology throughout including student/teacher computers, mobile device charging carts, interactive projectors, servers, etc.

Hazardous Materials:

- Abate entire existing building prior to demolition
- Provide radon mitigation system at Lower Level slab-on-grade areas

Structural:

- Refer to the Structural Basis of Design narrative in Section 3.3.3.D.1.

Fire Protection:

- Refer to the Fire Protection Basis of Design narrative in Section 3.3.3.D.1.

Plumbing:

- Refer to the HVAC/Plumbing Basis of Design narrative in Section 3.3.3.D.1.

HVAC:

- Refer to the HVAC/Plumbing Basis of Design narrative in Section 3.3.3.D.1.

Electrical:

- Refer to the Electrical Basis of Design narrative in Section 3.3.3.D.1.

Food Services:

- Refer to the Food Service Basis of Design narrative in Section 3.3.3.D.1.

NOTES:

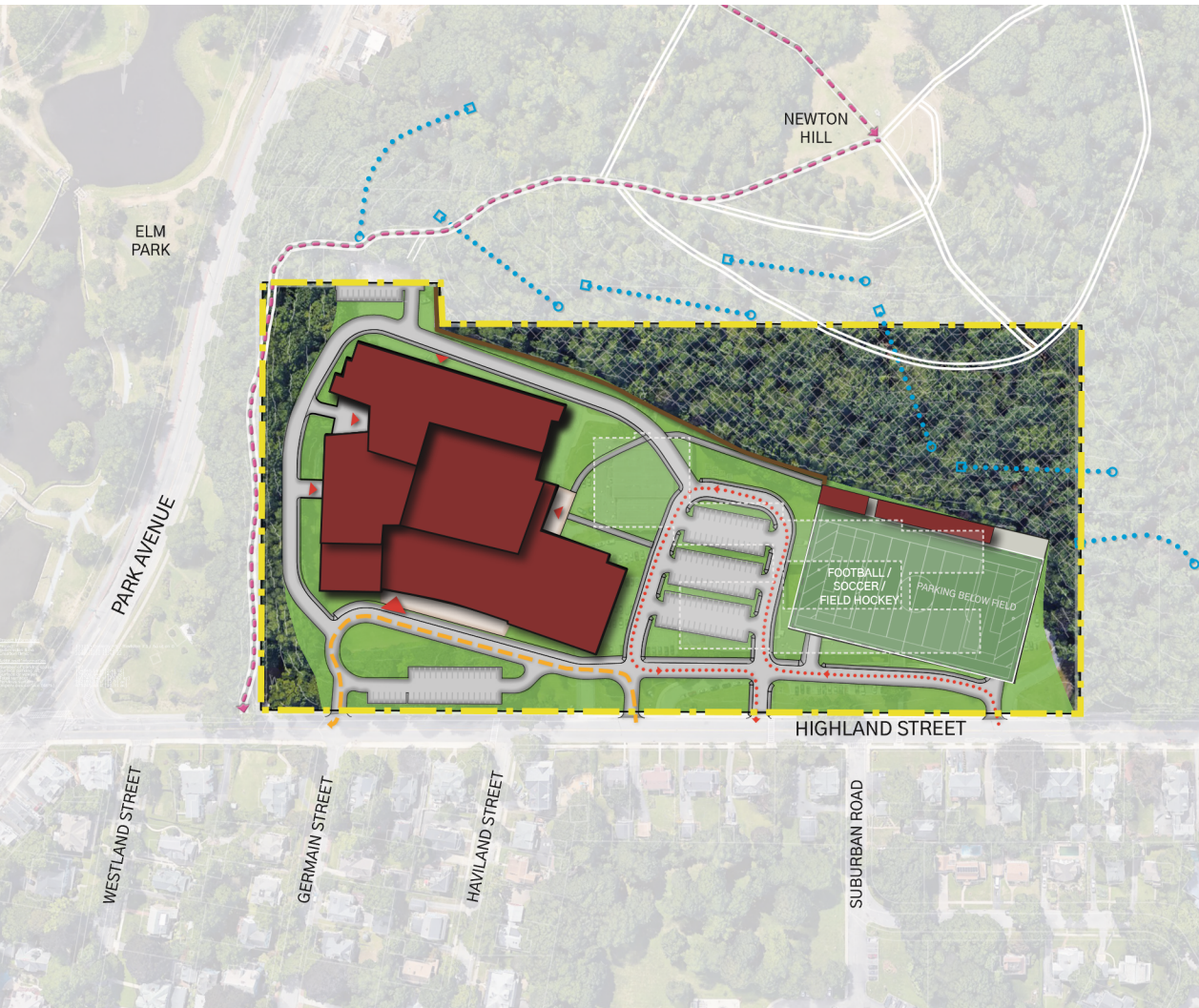
QUADRANT KEY PLAN:

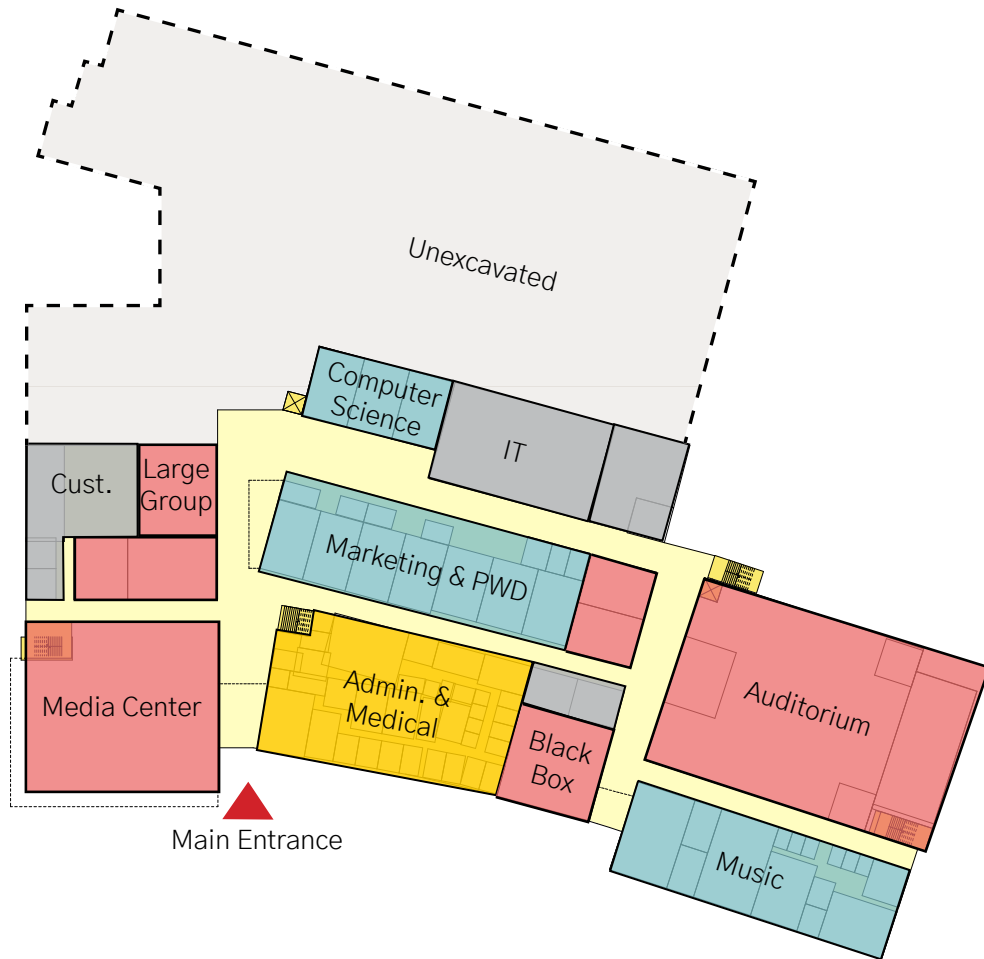
- Existing K-12 schools
- ★ Existing Site
- 📍 Proposed Site



LEGEND:

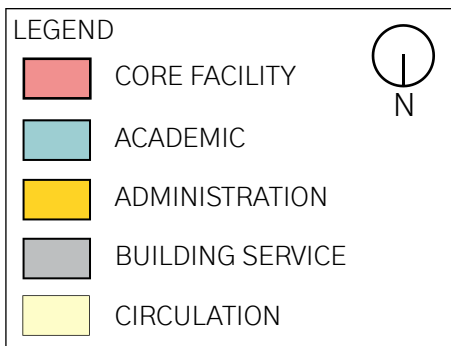
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|--|-----------------------|--|--------------------|
| | Parcel Property Line | | New Roadway |
| | Potential acquisition | | Bus Circulation |
| | New Construction | | Parent Circulation |
| | New Athletic Field | | Connection |
| | Existing Building | | Utility |
| | Flood Plain | | N |
| | Wetland | | 0' 50' 100' 200' |
| | Retaining Wall | | LPA A |
| | Steep Topography | | |
| | Entrance | | |





FIRST FLOOR

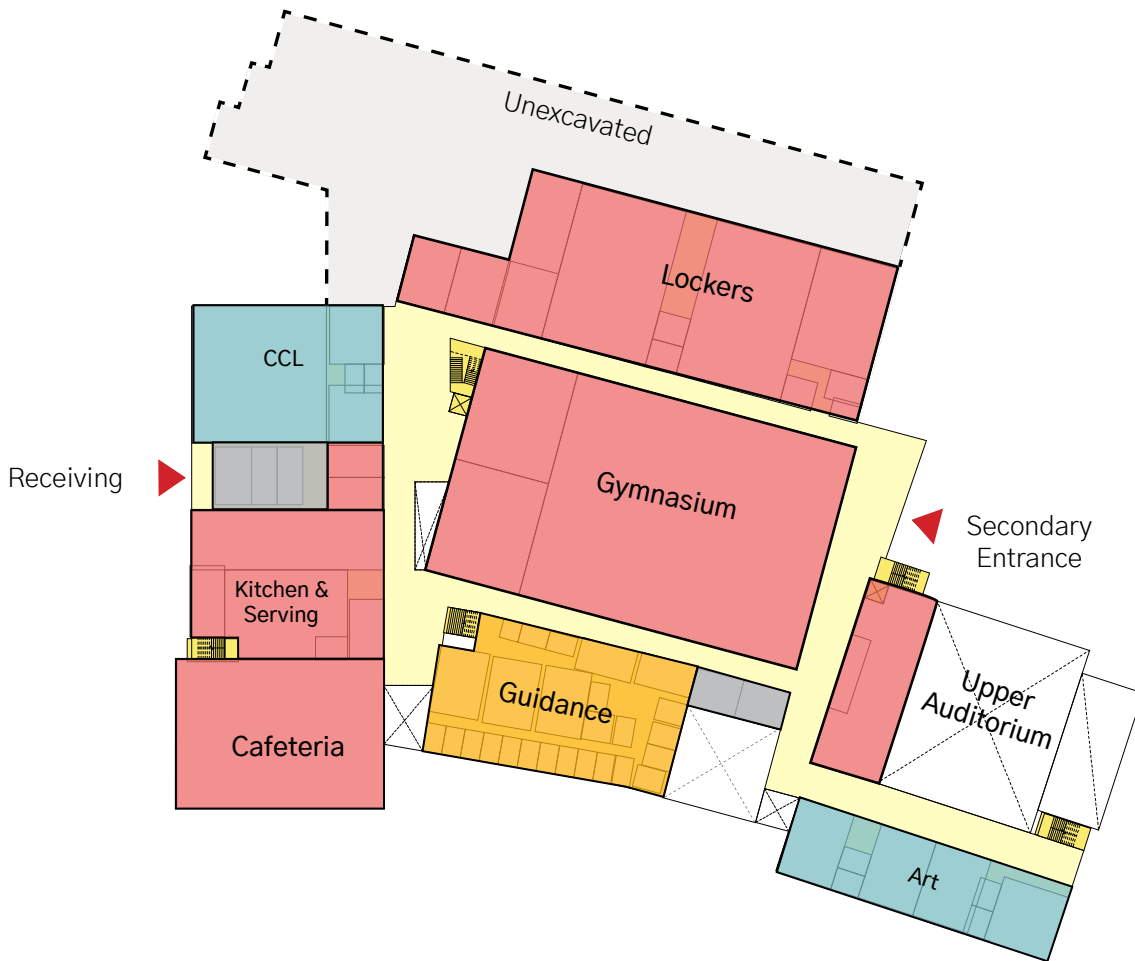
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Doherty Memorial High School

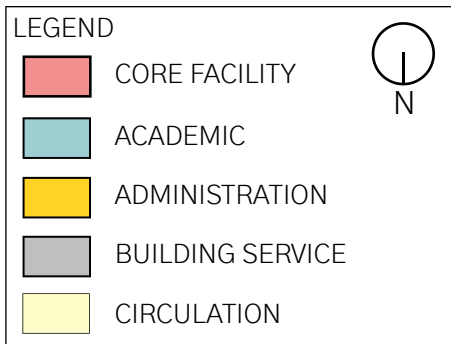
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SECOND FLOOR

1"=100'



Doherty Memorial High School

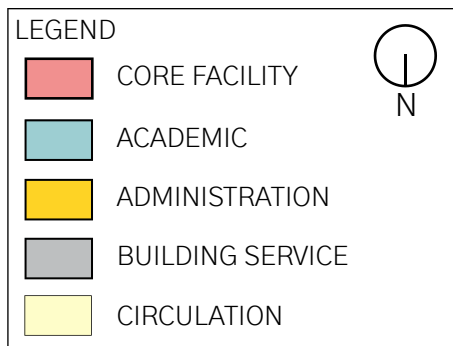
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THIRD FLOOR

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Doherty Memorial High School

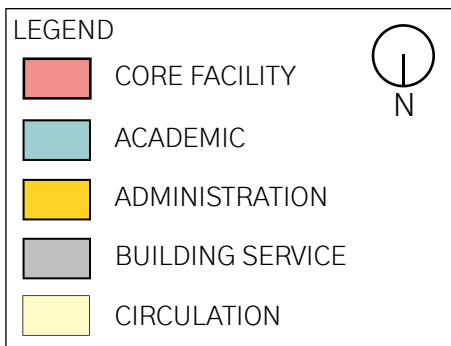
299 Highland Street, Worcester MA





FOURTH FLOOR

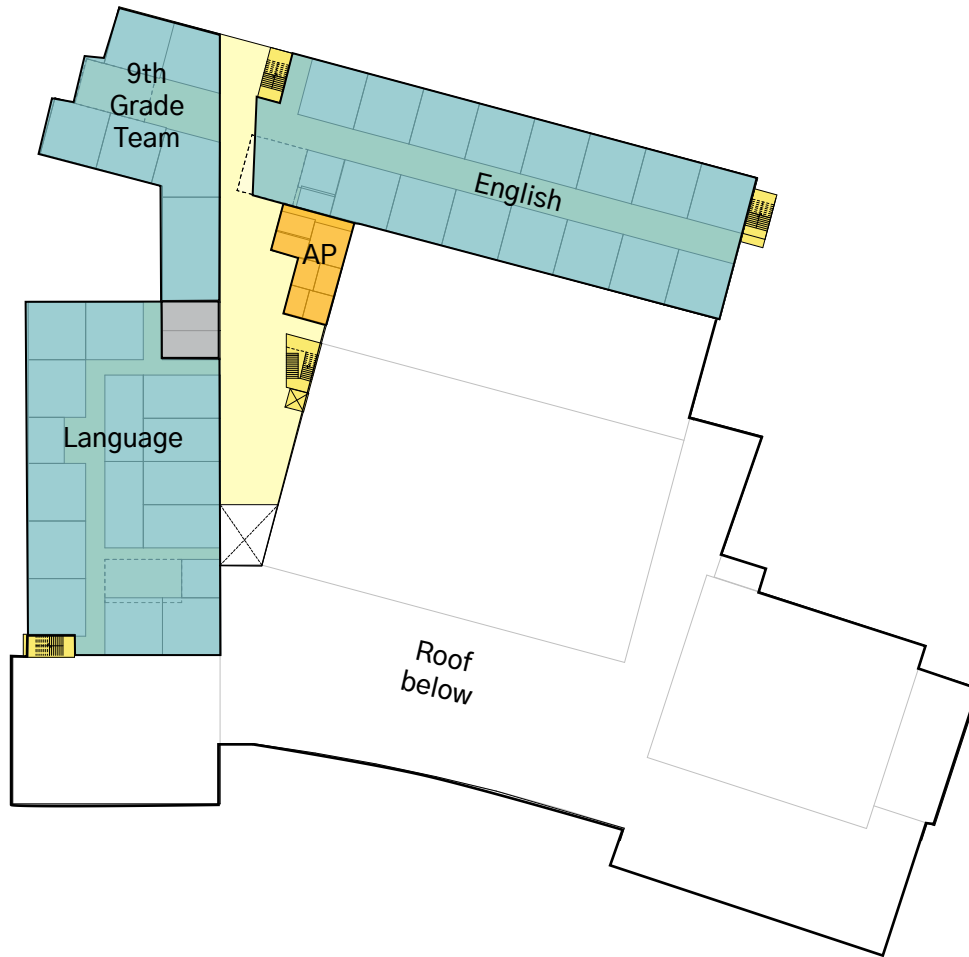
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Doherty Memorial High School

299 Highland Street, Worcester MA











FIFTH FLOOR

1"=100'

LEGEND

	CORE FACILITY
	ACADEMIC
	ADMINISTRATION
	BUILDING SERVICE
	CIRCULATION



Doherty Memorial High School

299 Highland Street, Worcester MA











SIXTH FLOOR

1"=100'

LEGEND

	CORE FACILITY
	ACADEMIC
	ADMINISTRATION
	BUILDING SERVICE
	CIRCULATION



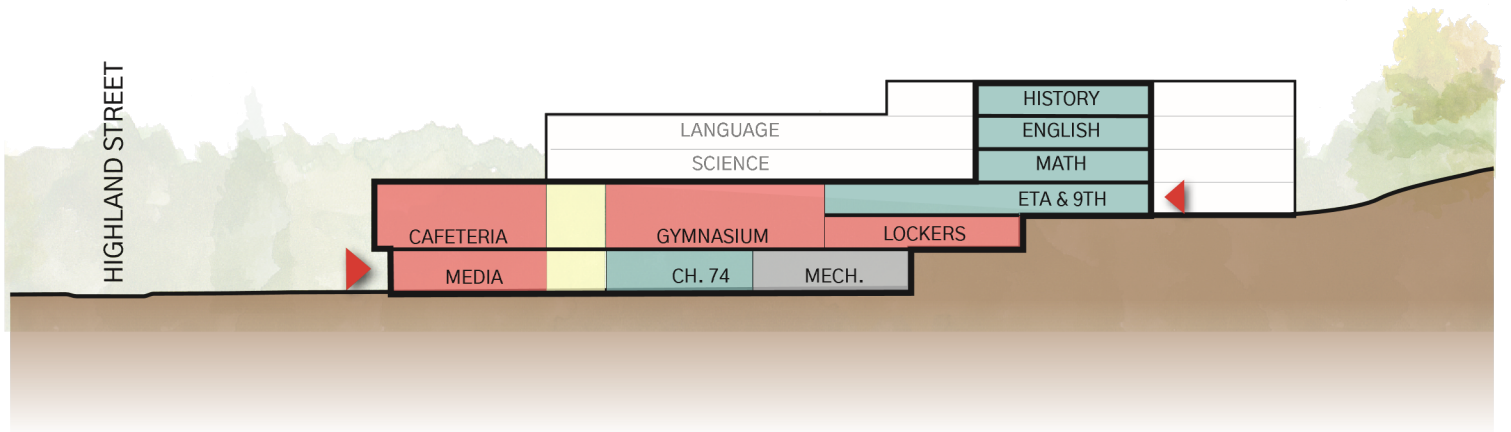
Doherty Memorial High School

299 Highland Street, Worcester MA



FEASIBILITY STUDY

3.3.3 Final Evaluation of Alternatives
 C. Preliminary Design Options
 5. Option A.3 New Construction On Existing Site
 HIGHLAND PROUD
 d. Section



Doherty Memorial High School

299 Highland Street, Worcester MA



FEASIBILITY STUDY

3.3.3 Final Evaluation of Alternatives
C. Preliminary Design Options
5. Option A.3 New Construction on Existing Sites:
HIGHLAND PROUD
e. Massing View



Doherty Memorial High School
299 Highland Street, Worcester MA

