

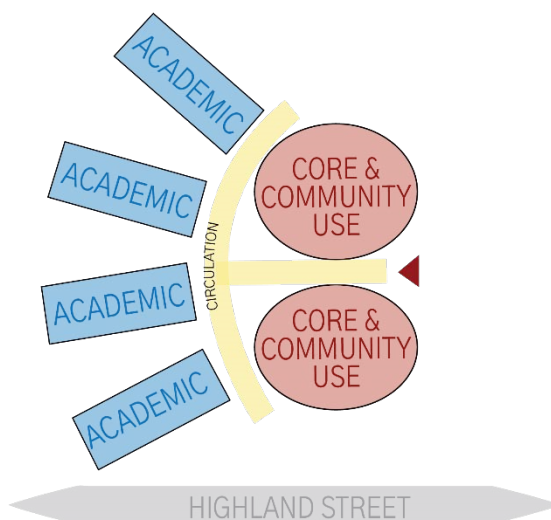
3.3.3 FINAL EVALUATION OF ALTERNATIVES

C. Preliminary Design Options

3. Option A.1 New
Construction on Existing
Site: Pods on Park
 - a. Narrative
 - b. Site Plan
 - c. Floor Plans
 - d. Section
 - e. Massing
 - f. Phasing Plans

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 the 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:

Option A.1 Pods on Park is organized with a central circulation spine with academic pods to the west and core academic areas to the east. The building is organized into a total of 6 levels that step up the site's steep topography. This configuration provides grade access to the main entrance, the Gymnasium, the receiving area and the ETA Suite, while also ensuring that no portion of the building is greater than four stories in height. The academic pods are flexible to allow Academic departments to be organized on two floors vertically (with opportunities for vertical common rooms) or in two adjacent pods on the same floor. Given this organization, access control between community and academic would occur at the pod entrances. The pod configuration provides the greatest opportunities for daylight to each classroom, and takes advantage of the prominent views toward the City center and Elm Park. A strong circulation spine provides clarity of circulation and organization, ending at the stacked 9th grade common rooms facing towards Highland Street, creating an opportunity for visual emphasis. The massing along Highland Street would therefore be varied, featuring an academic wing, as well as Art and Music classrooms and community-use spaces.

SITE CONFIGURATION:

The proposed site circulation for Option A.1 provides two separate loops for bus and parent drop/off and pickup traffic. 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. Option A.1 was refined to include a parking garage with approximately 100 staff parking spaces beneath one section of the building, with vehicular access from the east side. Relocating the parking garage below the building was found to be more cost effective, more efficient and more aesthetically pleasing as the football field could then be built on grade level. The parking garage is located conveniently on the first level with direct access to the main lobby. The site also includes a new turf football/soccer/field hockey field construction on grade, with lighting bleachers and a separate toilet /storage building. This site scheme creates an opportunity to enhance the central main entrance with a large entrance plaza and central pedestrian pathway to the field. Lastly, this option will allow for a clear north-south construction separation fence, allowing the school's existing staff parking lot to remain functional throughout construction. 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:

This New Construction Option satisfies most if not all Educational Program/Space Summary objectives. Compared to the other options on the Doherty Site, this option provides the greatest opportunities for views and daylighting in the classrooms. The building layout features clear and understandable pod organization off of a two-story lobby/entrance. The gymnasium is located one level above the main entrance as the last building section tiers step up Newton Hill. If selected as the preferred solution, the design team will review potential architectural solutions for linking these two levels. The design team will also review opportunities to optimize the floor plan overall organization, interior to exterior connections, and interface with the site and site features including the under-building parking.

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 many 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 with the additional loss of the on-site PE/Athletic practice fields. 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 student parking.
- 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 a football/soccer/practice field with bleachers and an outdoor toilet building. 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, an underground parking garage is proposed beneath the building.

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 creates separate loops for bus and parent circulation, but all access is from Highland Street, adding to traffic flow complexities. In order to achieve the required parking on site, a below grade parking garage on a portion of the first is carried within the cost estimate. The proposed the parking garage would accommodate approximately 100 parking spaces, which would be for staff vehicles only. The underground parking represents a moderate cost, but is located next to the main floor lobby for improved access and visibility. 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 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 school. Regrade and install paving around the building create fenced dedicated construction access driveway to the east of the existing building; prepare northernmost lower parking area 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 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 to lower parking lot, new terraced 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 5/2025):

- Perform remaining sitework scope including new 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 with no significant disruptions anticipated. Discussions have been held to consider mutually beneficial opportunities to link the school property and 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 at the existing nearby Duffy Softball Field. Other City offsite scope may include improvements for traffic management and pedestrian crosswalks.

Additional considerations 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
- 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.

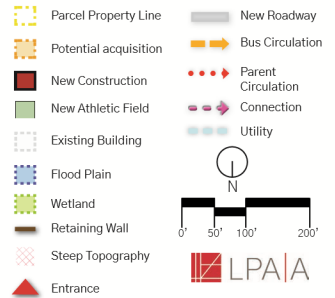
3.3.3 Final Evaluation of Alternatives
 C. Preliminary Design Options
 Option A.1 New Construction on Doherty Site
 EXISTING SITE

- NOTES:**
- Surrounded by Newton Hill Park
 - Steep topography to the South
 - Access only from Highland Street

QUADRANT KEY PLAN:



LEGEND:

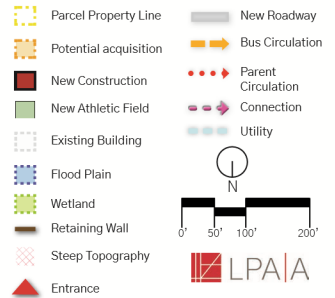


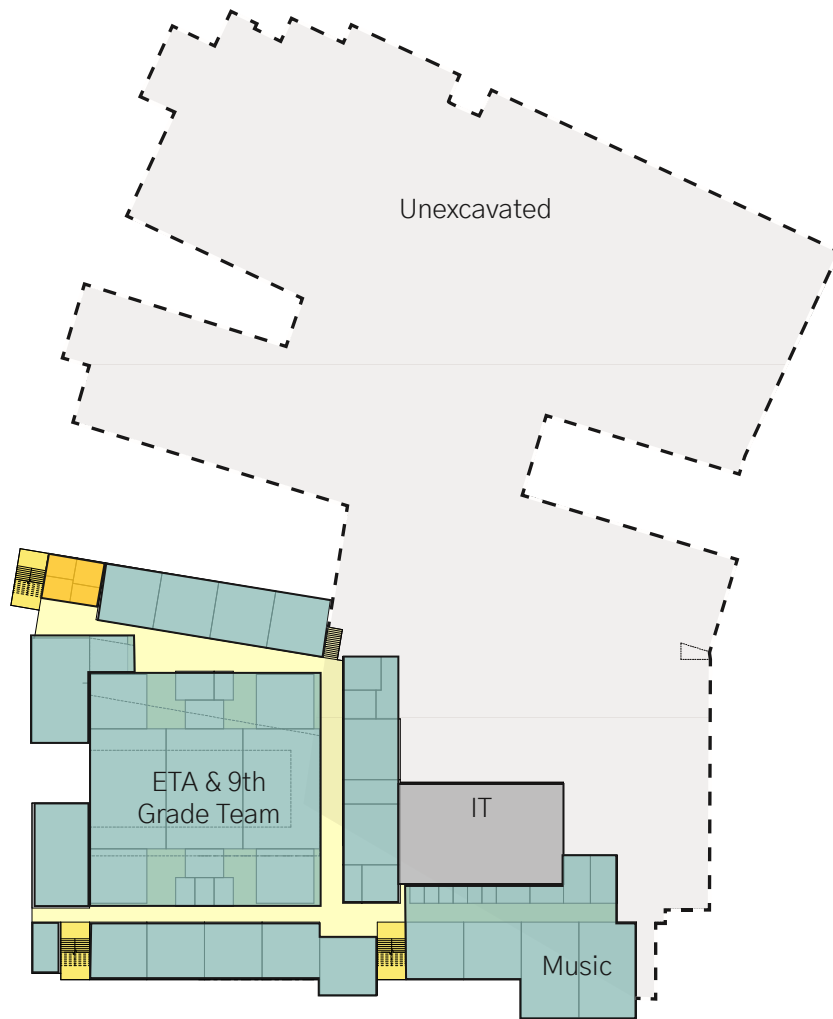
- NOTES:**
- Pod configuration is ideal for views and daylight
 - Parking below-building for +/- 100 Staff

QUADRANT KEY PLAN:



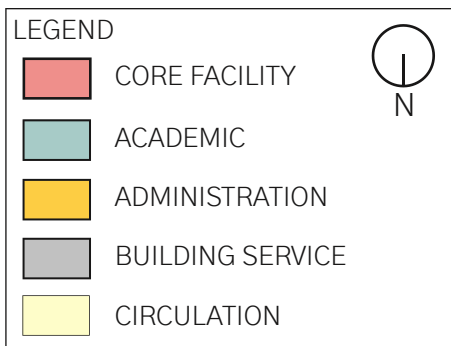
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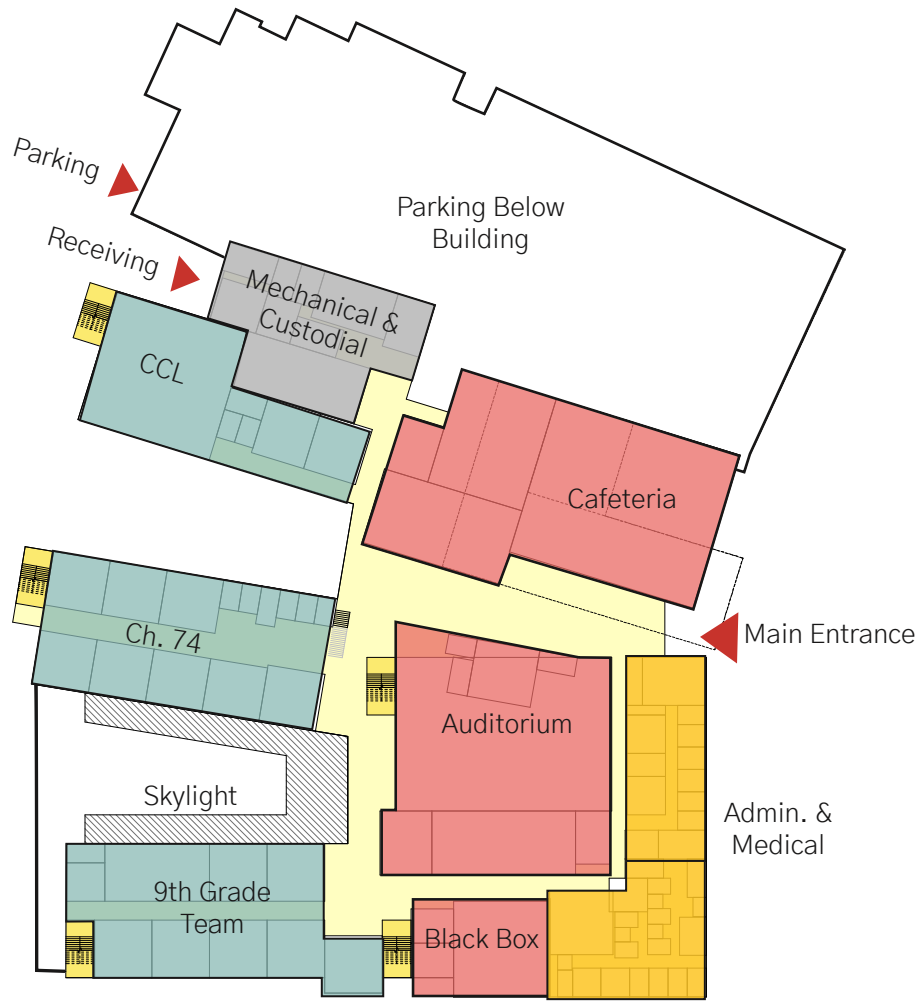
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Doherty Memorial High School

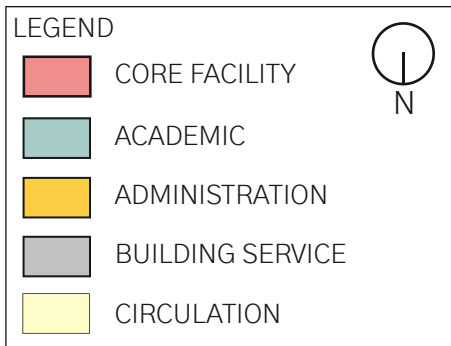
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SECOND FLOOR

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Doherty Memorial High School

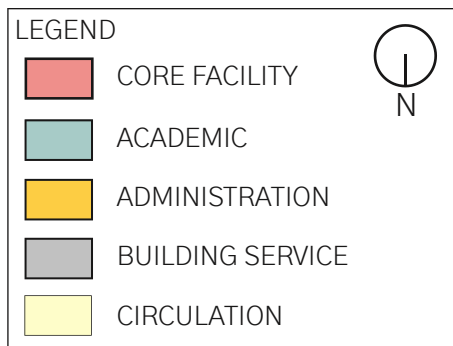
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THIRD FLOOR

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Doherty Memorial High School

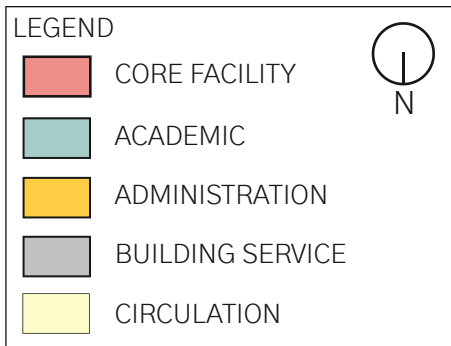
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FOURTH FLOOR

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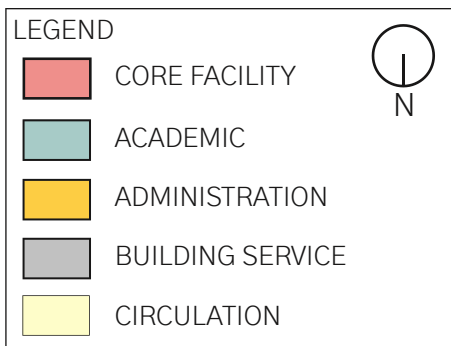
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FIFTH FLOOR

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Doherty Memorial High School

299 Highland Street, Worcester MA











SIXTH FLOOR

1"=100'

LEGEND

	CORE FACILITY
	ACADEMIC
	ADMINISTRATION
	BUILDING SERVICE
	CIRCULATION


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Doherty Memorial High School

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