

### 3.3.3 FINAL EVALUATION OF ALTERNATIVES

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- A. Narrative Summary
- B. Updated Existing Site Analysis & Site Program
- C. Preliminary Design Options
- D. Supporting Documents
- E. Budget Comparison
- F. Summary of Merits & Limitations

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#### A. Narrative Summary

The PDP identified the following five options for further development during the Preliminary Schematic Report (PSR) phase of this Feasibility study:

- **Code Upgrade Option**
- **Renovation/Addition Option**
- **New Construction on Existing Site**
- **New Construction on Foley Stadium Site**
- **New Construction on Chandler Magnet School Site with Added Land**

The individual options' narratives included in this section have the following information as appropriate for each option:

- **SUMMARY**
- **PHASING**
- **CONSTRUCTION IMPACTS**
- **PARTI DIAGRAM**
- **BUILDING ORGANIZATION**
- **SITE CONFIGURATION**
- **OPTION ANALYSIS**
- **ABILITY TO MEET BUILDING PROGRAM**
- **ACQUISITION ISSUES**
- **COMPARATIVE STAFF AND STUDENT IMPACT**
- **ABILITY TO MEET SITE ATHLETICS PROGRAM**
- **CENTRAL TO DISTRICT/QUADRANT**
- **SITE DEVELOPMENT COSTS**
- **TRAFFIC IMPACTS & ACCESS**
- **BUS & PARENT VEHICULAR CIRCULATION & PARKING**
- **CONSTRUCTION SCHEDULE IMPACT**
- **ADJACENT USES & NEIGHBORHOOD IMPACT**
- **UTILITIES & DEVELOPMENT ISSUES**
- **ADDITIONAL CITY COSTS (NOT ELIGIBLE FOR MSBA REIMBURSEMENT)**
- **SCOPE OF WORK**

Accompanying each of the options' narratives there are drawings of the site, preliminary building layout, pedestrian & vehicular circulation, and a construction phasing diagram when relevant.

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#### B. Site Development Requirements

### 3.3.3.B Site Development Requirements

#### 1.0 INTRODUCTION

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Nitsch Engineering has prepared this Site Development Requirements narrative as part of a Massachusetts School Building Authority (MSBA) Module 3 - Feasibility Study for the redevelopment of Doherty Memorial High School in Worcester, MA. The report corresponds to the MSBA Module 3 Preferred Schematic Report (PSR) and focuses on elements that relate specifically to the site development aspects of the Feasibility Study.

#### 2.0 SITE DEVELOPMENT REQUIREMENTS

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##### 2.1 General

The site development requirements are based on the educational and extracurricular programming that was established by the City of Worcester and further reviewed and refined by the Steering Committee. Certain project conditions and logistics may affect the scale and fulfillment of some of the site development requirements, depending on the development alternative eventually selected for advancement. For example, the lack of available swing space for displaced students may restrict the scale and configuration of certain site development features such as access, parking, and circulation. Under any redevelopment alternative, the site development plan and phasing approach must be capable of maintaining the existing Doherty School programs in operation during construction with appropriate measures for safety of the students and separation of the contractor functions from the school activities. The following sections include site development objectives, some of which are required due to regulatory conditions as noted.

##### 2.2 Access, Circulation, and Parking

###### Pedestrian / Bicycle Access

Approximately 50% of the students (800 walkers) currently access the existing Doherty site on foot and that ratio is expected to apply to the redevelopment project. This includes morning drop-offs by parents and students walking to school. Fewer parent pick-ups occur in the afternoon and most of the walkers are students who walk home at the end of the school day. The heavy pedestrian access will require a significant focus on sidewalk connections and broad interconnected internal site pathway circulation.

The existing Doherty site and the alternative sites identified in Section 4.0 include close proximity to Worcester Regional Transit Authority (WRTA) bus stops. Safe connections from all WRTA bus stops to the school building will be required.

A smaller number of students access the existing Doherty site via bicycle, and a bike rack with a minimum of 12 racking spaces is needed.

All pedestrian access from the public ways to the school must be compliant with ADA/AAB accessible route requirements and should be distinct and separate from vehicle accesses and circulation.

###### Bus Access

Access and stacking capacity for 10 full-size buses adjacent to the main school entrance is required. Access and stacking for 6 half-size buses adjacent to the main entrance for special education students is also required, non-coincident with the full-size bus arrivals and departures. Bus access should

ideally be separated from ordinary passenger vehicle access, although shared site entrance and exit curb cuts may be acceptable/desirable.

#### Passenger Vehicles

Access and internal circulation for passenger vehicles should be separated from bus circulation. Stacking for approximately 20 passenger vehicles for parent drop-off / pick-up are needed.

#### Emergency Vehicles

Access drives and internal circulation drives must be wide enough to accommodate fire apparatus and other emergency vehicles with passenger vehicles present. Access to the perimeter of the building via a 20'-wide emergency drive is needed per the requirements of NFPA 1 as amended by 527 CMR 1.00.

#### Service Vehicles

A depressed loading dock providing tractor trailer access is required for building deliveries/servicing is required and should be separated from bus and passenger vehicle access to the greatest extent possible. The loading dock area should provide access for at least 4 bays (compactor, recycling dumpster, 2 tractor trailers). Ramp access to the loading dock for two-wheel carts should be provided.

The building will require overhead door access for maintenance equipment and to access the boiler room. Overhead door access and outdoor space will also be required to accommodate the needs of the various Chapter 74 programs that are included in the educational programming for the school.

#### Parking

The desired parking program will include:

- 180 staff spaces ideally within close proximity to building entrances, with designated spaces near main entry for: Principal, 4 Assistant Principals, 2 Nurses;
- 5-10 visitor spaces near main entrance; and
- 250 combined visitor and student spaces (this is a target number and could be reduced if site conditions are prohibitive).

As noted previously, some shared parking for Elm Park (Newton Hill) visitors is provided at the existing site. This shared parking is assumed to be included under any redevelopment scenario on the existing site. No additional parking would be available for events at the school.

### **2.3 Athletic Facilities (Site)**

The elements of the on-site athletic facilities will be heavily influenced by the physical characteristics of the selected development option, including variations on the existing Doherty site or alternative sites. Ideally, all athletic fields will be located on the same site. If spatial constraints prevent the full array of fields, the preferred prioritization includes a football/general purpose field on the site, with other facilities potentially located remotely. The elements listed below are objectives in terms of type, number, and content of athletic facilities desired by the City.

- Practice Football Field: 360'x160' artificial turf football field, pole mounted lights, close access to school toilet rooms;
- Softball Field: skinned infield, regulation-sized outfield;
- Baseball Field: regulation-sized field;
- Soccer Field: boys and girls 240' x 120';
- Basketball Courts: 2 full-size asphalt, lighted courts;

- Tennis Courts: 3 full-size asphalt, lighted courts;
- Running Track: 400m/8 lane running track; rubber track, pole mounted lights; close access to school toilet rooms, multi-vantage press box;
- Spectators: seating (bleacher) capacity for each game field; and
- Adjacent Uses: trail connection to the existing park trails (where applicable).

## 2.4 Other Site Features and Project Conditions

The School program outlines other items to be developed with the site including:

- Outside work areas for the Chapter 74 Construction Craft Laborer program and overhead door access to the shop,
- Outside access for the Engineering and Technologies academy shops,
- Connection to the existing pathways / trail system at Newton Hill (for Doherty site), and
- Site development and phasing capability sufficient to maintain the existing Doherty School programs in operation during construction with appropriate measures for safety of the students and separation of the contractor functions from the school activities (for Doherty site).

## 2.5 Site Utilities

### Storm Drainage

Under any redevelopment scenario, a stormwater management system meeting the requirements of the City of Worcester requirements (and by extension, the Massachusetts Department of Environmental Protection Stormwater Standards) will be required for the project. The improved system will include provisions for groundwater recharge, peak flow mitigation, and water quality treatment.

### Sanitary Sewerage

Separated sanitary sewer connections from the school building will be required under any redevelopment scenario and will include a kitchen waste service pipe and one or more ordinary sanitary service pipes. The kitchen waste pipe will be routed through an external grease trap prior to connection with the rest of the sewer service infrastructure. All floor drains in building areas that are accessible by motorized vehicles and equipment must be connected to a gas/oil separator per state plumbing code requirements.

### Water

Except for the Code Upgrade Option, any site redevelopment option will likely require installation of a new looped water service main that will provide fire protection (building service and hydrants) and domestic water service to the building.

### Natural Gas

The school building (existing or new) will utilize natural gas as a primary fuel source. Refer to the mechanical engineering narrative for information related to the building fuel system.

### Electrical / Tele-comm

An emergency generator will be required under any development scenario. Photovoltaic arrays may be considered for the building roof and/or parking areas. Refer to the electrical engineering narrative for information related to the building electric and telecommunications systems.