

District: City of Boston  
 School Name: Henry Dearborn Middle School  
 Recommended Category: Preferred Schematic  
 Date: September 25, 2013

**Recommendation**

That the Executive Director be authorized to approve the City of Boston (the “City”), as part of its Invitation to Feasibility Study, to proceed into schematic design to replace the existing Henry Dearborn Middle School facility with a new (6-12) STEM Academy on the existing site. MSBA staff has reviewed the Feasibility Study and accepts the City’s preferred solution to replace the existing middle school facility with a new (6-12) STEM Academy on the existing site.

<b>District Information</b>	
District Name	City of Boston
Early Childhood Centers	1 (PK) 4 (PK-1) 1 (PK-2) 1 (PK-3) 1 (K-3)
K-12 Facilities	1 (PK-12) 1 (1-12)
Elementary School(s)	40 (PK-5) 5 (K-5) 1 (PK-6) 1 (2-6) 19 (PK-8) 2 (K-8)
Middle School(s)	1 (3-8) 1 (4-8) 8 (6-8) 1 (6-9)
Middle/High School(s)	3 (6-12) 3 (7-12)
High School(s)	22 (9-12)
Priority School Name	Henry Dearborn Middle School
Type of School	Middle School
Grades Served	6-8
Year Opened	1912
Existing Square Footage	111,880
Additions	Annex constructed in the 1940’s
Acreage of Site	2.6 acres
Building Issues	The City identified deficiencies in the following areas: <ul style="list-style-type: none"> <li>– Mechanical systems</li> <li>– Electrical systems</li> <li>– Plumbing systems</li> <li>– Accessibility</li> </ul> In addition to the physical plant issues, the City reported that the

<b>District Information</b>	
	existing facility will not support the delivery of its intended STEM educational program.
Original Design Capacity	Unknown
2012-2013 Enrollment	242
Agreed Upon Enrollment	600
Enrollment Specifics	Contingent upon the Board's approval of the preferred solution, the City will sign a Design Enrollment Certification for 600 students in grades 6-12.

<b>MSBA Board Votes</b>	
Invitation to Feasibility Study	January 27, 2010
Preferred Schematic Authorization	On October 2, 2013 Board agenda
Project Scope & Budget Authorization	City is targeting Board authorization in March, 2014
Reimbursement Rate Before Incentives	74.06%

<b>Consultants</b>	
Owner's Project Manager	Daedalus Projects, Inc.
Designer	Jonathan Levi Architects, Inc.

## **Discussion**

The existing Dearborn Middle School is a 111,880 square foot ("sf") urban middle school on a 2.6 acre site located at the intersections of Greenville Street and Winthrop Street in Roxbury. The existing facility currently houses grades 6-8.

The original school building was constructed in 1912 as a High School of Practical Arts with an addition constructed in the 1940's. The facility received a major electrical renovation in 1968, boiler work in 1982, window replacement work in 1990, and masonry repairs and a new roof in 2004.<sup>1</sup> The City identified numerous deficiencies in the Statement of Interest including: the heat distribution system is original to the building and needs replacement, the ventilation system is inadequate, the electrical system is over 40 years old, and the gym, locker rooms, cafeteria, library, and science labs do not meet the educational needs of the students.

The City is seeking to transform the Henry Dearborn School Middle School into a STEM Academy serving grades 6-12, the intent of which is outlined in the City's educational scoping document entitled "Realizing the Dream: Envisioning the Dearborn 6-12 STEM Academy." In collaboration with the City, the MSBA engaged New Vista Design to summarize the ideas and visions for the proposed STEM Academy's academic mission, learning goals, and desired programmatic features resulting in the Dearborn 6-12 STEM Academy Preliminary Design Guide.

<sup>1</sup> No records have been located to indicate that the Commonwealth has provided grant funding for any of these improvements.

The Design Guide identifies important spaces and educational adjacencies to be incorporated into the architectural program for the proposed project.

As part of the Feasibility Study, the City and its consultants performed an evaluation of all major building systems and concluded that: (1) the majority of HVAC systems are original and beyond their useful life, (2) the electrical system is in poor condition and inadequate for current needs, (3) the plumbing is in fair condition, however the fixtures do not meet current accessibility codes and have served their useful life, and (4) there is no automatic sprinkler system. The investigations also noted that a full seismic upgrade would be required, and identified a number of issues regarding accessibility associated with both the building and the site.

In conjunction with its consultants, the City also performed a comprehensive assessment of the educational program, researched features of successful STEM educational programs, and received input from educators, administrators, and facilities personnel. The City considered tuition agreements with other District's and the use of other facilities within the City and has determined that none of these options would meet the long term needs associated with the proposed STEM Academy.

Based on the findings of these efforts, the City and its consultants initially studied seven options that include: one renovation only option, three addition/renovation configurations, and three new construction options. In developing and comparing the options, it was determined that temporary off-site swing space will be used to house the students during construction. The City is working to identify the needed space within its existing inventory for use during construction. Upon further review and consideration, MSBA staff and the City agreed to consider all seven options in the final evaluation of alternatives. The City and its consultants developed preliminary design pricing as presented below.

**Summary of Preliminary Design Pricing for Final Evaluation of Options**

<b>Option (Description)</b>	<b>Total Gross Square Feet</b>	<b>Square Feet of Renovated Space (cost*/sf)</b>	<b>Square Feet of New Construction (cost*/sf)</b>	<b>Site, Building Takedown, Haz Mat. Cost*</b>	<b>Estimated Total Construction ** (cost*/sf)</b>	<b>Estimated Total Project Costs</b>
Option 0 (Renovation Only)	111,880	111,880 \$321/sf	NA	\$4,580,000	\$40,480,000 \$362/sf	\$52,000,000
Option A: (Reno/ Addition) Courtyard	131,085	86,500 \$321/sf	44,585 \$429/sf	\$5,939,000	\$52,782,000 \$403/sf	\$69,700,000
Option B: (Reno/ Addition) Covered Courtyard	131,085	67,000 \$347/sf	64,085 \$385/sf	\$6,284,000	\$54,185,000 \$413/sf	\$71,100,000
Option C: (Reno/ Addition) Main Street	131,085	67,000 \$345/sf	64,085 \$375/sf	\$6,224,000	\$53,312,000 \$407/sf	\$70,000,000

<b>Option (Description)</b>	<b>Total Gross Square Feet</b>	<b>Square Feet of Renovated Space (cost*/sf)</b>	<b>Square Feet of New Construction (cost*/sf)</b>	<b>Site, Building Takedown, Haz Mat. Cost*</b>	<b>Estimated Total Construction ** (cost*/sf)</b>	<b>Estimated Total Project Costs</b>
<i>Option D: (New)*** Cluster</i>	125,085	NA	125,085  \$365/sf	\$6,940,000	\$52,571,000  \$420/sf	\$68,400,000
Option E: (New) Solar Crescent	125,085	NA	125,085  \$380/sf	\$6,940,000	\$54,508,000  \$436/sf	\$70,894,000
Option F: (New) Forecourt	125,085	NA	125,085  \$392/sf	\$6,940,000	\$55,923,000  \$447/sf	\$72,729,000

\* Marked up construction costs

\*\* Does not include construction contingency

\*\*\***District's preferred solution**

The City has selected “Option D – New Construction Cluster Design,” as the preferred solution to proceed into schematic design because it best reflects the educational organization desired by the City, the building mass is lower and fits well into the scale of the neighborhood, and it is the most cost-effective solution. The base renovation option, “Option 0,” fails to provide sufficient space for delivery of the educational program, and maintaining the existing floors and partitions inhibits the creation of open and transparent work spaces intrinsic to the proposed STEM program design features. The three addition/renovation options provide for educational needs, however the complications inherent in the necessary structural and MEP upgrades increase the cost and risk beyond that for new construction.

The City presented its proposed project to the MSBA Facilities Assessment Subcommittee (“FAS”) on August 28, 2013. At that meeting, members of the FAS raised a number of issues including: 1) the proposed scheduling as it relates to student lab and material fabrication time; 2) the preparation for development and delivery of the STEM curriculum; and 3) the commitment to staffing and operational budgets in support of delivery of the proposed STEM curriculum. The FAS and MSBA staff discussed with the City the following items: 1) the proposed technology plan; 2) the number of general academic classrooms; and 3) the size of the science/exploratory spaces.

MSBA staff reviewed the conclusions of the Feasibility Study, all subsequent submittals, and the enrollment data with the City and found:

- 1) MSBA has completed an enrollment projection and has reached a mutual agreement with the City for a design enrollment of 600 students for the Henry Dearborn Middle School.
- 2) MSBA reviewed the Feasibility Study and subsequent material and finds that the options investigated were sufficiently comprehensive in scope, the approach undertaken in this study was appropriate, and the City’s preferred solution is reasonable and cost-effective and meets the needs identified by the City.

- 3) The City has submitted an operational budget for educational objectives and a capital budget for MSBA review.
- 4) The City's schematic design submittal will be subject to final review and approval by the Department of Elementary and Secondary Education as part of the schematic design submittal prior to a Project Scope and Budget Agreement.
- 5) Subject to Board approval, the MSBA will participate in a project that includes spaces that meet MSBA guidelines. All proposed spaces will be reviewed during the Schematic Design Phase.
- 6) As part of the schematic design submittal, the MSBA will be seeking an update to better understand the City's ongoing efforts in the development and implementation of the STEM curriculum and its plans for staffing and development of the educational operating budgets specific to the delivery of the proposed STEM curriculum.

Based on the review outlined above, staff recommends that the City of Boston be approved to proceed into schematic design to replace the existing middle school facility with a new (6-12) STEM Academy on the existing site.