Somerville High School



Symmes Maini & McKee Associates



May 9, 2016

Somerville High School

Tonight's Agenda:

- · Mass Historic letter
- PSR 3 Alternatives Required
- Alternative 4b Detailed Review
- Phasing Considerations
- Sustainability Considerations
- Community Outreach
- Schedule and Next Steps

Symmes Maini & McKee Associates



PSR: Three Alternatives

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PSR Alternates

Somerville High School Somerville Public Schools ALTERNATIVES CRITERIA MATRIX



	Preliminary Design Program [PDP] Alternatives									
CRITERIA	Alt 0 Repairs & Code Compliance Only	Alt 1 Interior Full Renovation Only	Alt 2 New Auditorium Add/Reno	Alt 3 Renovated Auditorium Add/Reno	Alt 4 Concourse Plan Add/Reno	Alt 4A Campus Plan Add/Reno	Alt 4B East Side of Hill Infill Plan Add/Reno	Alt 5 New Const. at Existing HS Site	Alt 6 New Const at DPW Site Franey Roa	
		14								
Students	1,590	1,590	1,590	1,590	1,590	1,590	1,590	1,590	1,590	
Total Gross Area (Square Feet)	360,000	360,000	376,285	392,575	394,575	394,575	376,285	364,290	364,290	
Total Approximate Project Cost (Millions)	\$74	\$232	\$247	\$254	\$268	\$268	\$277	\$279	\$297	
Approximate Construction Start	Apr-2018	Apr-2018	Apr-2018	Apr-2018	Apr-2018	Apr-2018	Apr-2018	Apr-2018	Apr-2020	
Approximate Construction Duration	24 months	36 months	36 months	36 months	36 months	36 months	36 months	36 months	60 months	

Revised to Alternative 2a -

Revised with Alt. 4b'



EDUCATIONAL PROGRAM DIAGRAM Educational Visioning 21st C. Design Patterns

- 1 Varied and Flexible Spaces
- 2 Greeting and Gatekeeping
- 3 Clusters of Learning
- 4 Community Access
- 5 Collaborative Spaces for Learning
- 6 Seamless Technology
- 7 Visible Learning and Transparency
- 8 Athletic Facilities
- 9 Outdoor Spaces
- 10 Sustainability
- 11 Effective Classrooms
- 12 Campus Feel



Alternative 2a: 4/11/2016

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Alternative 2a: 5/9/2016 Plan







Alternative 2a



Phasing Considerations

- PHASE 1: Programs Affected
 - Media Center
 - TV Studio
 - Weight Room / Fitness Room
 - Band
 - Locker Rooms
 - Storage / CTE Offices
 - Life Skills Classroom
 - Child Care Classroom
 - Dental
 - Health / Fashion
 - 30 Classroom equivalents (TBD)
- PHASE 2: Programs Affected
 - Administration
 - Cafeteria
 - 4-6 Social Studies Classrooms
 - Health Classrooms

- SUMMER PHASES:
 - Field House
 - CTE Lower Level Shops
 - CTE Remaining Shops
 - Auto-tech / Alt School Wing
- PHASE 3:
 - Demolition of A Wing
 - Construct Parking Structure & Fields

EVALUATION CRITERIA: ALTERNATIVE 2A

STRENGTHS

Organizational Plan for STEM and STEAM Use of Site & Hillside Arts Integration Combines Historic and Modern CLARITY OF CIRCULATION COMMUNITY RELATIONSHIPS USABLE FIELD SPACE INDOOR/OUTDOOR CONNECTIVITY PROJECT COST

OPPORTUNITIES

Connects Lower Level most effectively Urban Relationships North and South Coordination with Main Library Outdoor learning spaces & environments Field opportunity Parking Opportunity

CHALLENGES

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Phase 1
Historic Building reuse
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Alternative 3: 4/11/2016

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Alternative 3: 5/9/2016 Plan





Alternative 3



Phasing Considerations

- PHASE 1: Programs Affected
 - Media Center
 - TV Studio
 - Weight Room / Fitness Room
 - Band
 - Locker Rooms
 - Storage / CTE Offices
 - Life Skills Classroom
 - Child Care Classroom
 - Dental
 - Health / Fashion
 - 30 Classroom equivalents
 - 6 programs
- PHASE 2: Programs Affected
 - Auditorium
 - Administration
 - Cafeteria
 - 4-6 Social Studies Classrooms
 - Health Classrooms

• SUMMER PHASES:

- Field House
- CTE Lower Level Shops
- CTE Remaining Shops
- Auto-tech / Alt School Wing
- PHASE 3:
 - Partial Demolition of A Wing
 - Construct Parking Structure & Fields

EVALUATION CRITERIA: ALTERNATIVE 3

STRENGTHS

Combines Historic and Modern Community Relationships Relative Project Cost

OPPORTUNITY

Larger Auditorium seating capacity

CHALLENGES

Phase 1

Effective Reuse of lower level central spaces Creating true STEAM environment Harder to create "centers of Learning" and Common spaces Disconnected lower level Still requires substantial work/rebuild at stage Single loaded inefficient corridors on upper levels Field and structured Parking unlikely Historic Building inefficient space reuse





Alternative 4b: Approved 4/11/2016

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Alternative 4b: 4/11/2016 Plan First Floor

Alternative 4b:



Alternative 4b: Daylighting



Alternative 4b: 1st Floor



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Alternative 4b: Lower Level Plan



Alternative 4b: 2nd Floor





Alternative 4b: 3rd Floor



Alternative 4b: 4th Floor



Alternative 4b: 5th Floor Plan



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Alternative 4b Roof Plan



Alternative 4b: Images







Alternative 4b: Images







Alternative 4b: Images



Alternative 4b: Sketches



Alternative 4b: Sketches



Alternative 4b: Site Plan



Alternative 4b: Phasing Considerations

B





Alternative 4b



Phasing Considerations

- PHASE 1: Programs Affected
 PHASE 2
 - New STEAM FAB LAB
 - Machine Shop
 - Metal Fab Shop
 - Carpentry
 - Drafting
 - AutoTech
 - Cosmetology
 - Culinary
 - Fitness PE storage AD office
 - Medical suite and CHA
 - Healthcare
 - Graphic arts
 - Electrical
 - ISSN
 - Career service CTE offices
 - Field house

- PHASE 2: Programs Affected
- Media center
- TV studio
- Weight room
- Health and fashion
- Life skills
- English/social studies
- 30 CRs equivalents (TBD)
- Band
- PHASE 3:
 - Demolition of Remaining 1929 Wings
 - Stabilization of 1895
 - Construct Parking Structure & Fields

Disruptions

- Access to field house/egress
- Lower level shop loading area
- Toilets

Swing Space

Swing Space:

- Cummings
- St. Anne's
- Modulars

Contractor Lay Down space:

- Homans Site (NA)
- Community Path/Hillside
- Adjacent to Library parking lot/Playground
- Medford Street





Planning for the Community Path & Site Sections



Existing High School Site

Site Section:



SECTION A

Site Section



REBUILD ORIGINAL HIP

ALT 4B - SITE SECTION B - AT 1895/1914 STRUCTURE AND PARKING GARAGE

B) SCALE: 1" = 40'-0"

Building Section













Alternative 4b:



Alternative 4b:



Sustainable Design

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MSBA REQUIREMENTS

- Green schools required for all new construction to receive state funding
 - LEED v4 for Schools Certified 40 points out of 110 meets this threshold (Required)
- MSBA Reimbursement Budget based on Project Cost
 - Additional Reimbursement of 2% for reaching:
 - LEED v4 for Schools Silver 50 points out of 110
 - 6 Points in Energy Optimization (16% better performance than a baseline building)

Somerville High School

Sustainable Design Overview



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CURRENT LEED PROJECTIONS

- Our most current estimates place us having:
 - 58 Points that are Likely
 - 41 Points that are Maybes
 - 11 Points that we are not pursuing
- Based on experience, a 6 point buffer (we have 8) is a good margin of error to ensure the project meets targeted certification





CURRENT LEED SCORECARD:



LEED v4 for BD+C: New Construction and Major Renovation - Schools Somerville Add/Reno Preliminary Scorecard

	Project Name: Somerville High School PNUM: 15070								
				Date: 5	/02/2016				
T	2+	2-	N						
1				Oradi1	Integrative Process	1			
	_			1	······				
10	3	n	2	Locat	ion and Transportation Possible Points:	15			
	-	-	-	Gradit 1	LEED for Neighborhood Development Location	15			
1	-	-		Gradit 2	Sensitive Land Protection	1			
· ·	-		2	Gradit 3	High Priority Site	2			
5	-		-	Gradited	Surrounding Density and Diverse Likes	5			
2	2	-		Crudit 5	Access to Quality Transit	4			
1	-	-		0	Biourolo Esolítico	1			
-	1	-		0	Peduced Parking Economics	÷			
1	-	-		0	Green Vehicles				
				orbaico	Oleen vehicles				
3	3	5	1	Sustai	nable Sites Dossible Doints	12			
	5			Justa	Construction Anticia Delivator Descention				
r				Prorog1	Construction Activity Policition Prevention	Hequired			
Y				Proroq2	Environmental Site Assessment	Required			
1				Crodit 1	Site Assessment	1			
		2		Crodit 2	Site DevelopmentProtect or Restore Habitat	2			
		1		Crodit 3	Open Space	1			
	2	1		Crodit 4	Rainwater Management	3			
	1	1		Crodit 5	Heat Island Reduction	2			
1				Crodit 6	Light Pollution Reduction	1			
			1	Crodit 7	Site Master Plan	1			
1				Ore-dit 8	Joint Use of Facilities	1			
8	1	2	1	Water	Efficiency Possible Points:	12			
Y				Prorog1	Outdoor Water Use Reduction	Required			
Y				Proroq2	Indoor Water Use Reduction	Required			
Y				Prorog3	Building-Level Water Metering	Required			
2				Credit 1	Outdoor Water Use Reduction	2			
5	1		1	Oredit 2	Indoor Water Use Reduction	7			
		2		Crodit 3	Cooling Tower Water Use	2			
1				Credit 4	Water Metering	1			
18	4	6	3	Energ	y and Atmosphere Possible Points:	31			
Y				Prorog1	Fundamental Commissioning and Verification	Required			
Y				Proroq2	Minimum Energy Performance	Required			
Y	1			Prorog3	Building-Level Energy Metering	Required			
Y				Prorog 4	Fundamental Refrigerant Management	Required			
5	1			Oredit 1	Enhanced Commissioning	6			
10	2	2	2	Crodit 2	Optimize Energy Performance	16			
1				Credit 3	Advanced Energy Metering	1			
2				Oredit 4	Demand Response	2			

			_				_		
			5	4	3	1	Mater	ials and Resources Possible Points:	13
			Y				Prorog 1	Storage and Collection of Recyclables	Required
			Y				Prorog2	Construction and Demolition Waste Management Planning	Required
			3	1		1	Crodit 1	Building Life-Cycle Impact Reduction	5
				1	1		Crodit 2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
				1	1		Oredit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
				1	1		Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
			2				Crodit 5	Construction and Demolition Waste Management	2
			6	6	1	3	Indoo	r Environmental Quality Possible Points:	16
			Y				Proreg 1	Minimum Indoor Air Quality Performance	Required
			Y				Proroq2	Environmental Tobacco Smoke Control	Required
			2				Credit 1	Enhanced Indoor Air Quality Strategies	2
				3			Crodit 2	Low-Emitting Materials	3
			1				Crodit 3	Construction Indoor Air Quality Management Plan	1
				1	1		Crodit 4	Indoor Air Quality Assessment	2
			1				Crodit 5	Thermal Comfort	1
			2				Crodit 6	Interior Lighting	2
						3	Crodit 7	Daylight	3
				1			Crodit 8	Quality Views	1
				1			Crodit 9	Acoustic Perfomance	1
			5	1	0		Innov	ation Possible Points:	6
			4	1			Credit 1	Innovation	5
			1				Crodit 2	LEED Accredited Professional	1
			_						
			2	1	1		Regio	nal Priority Possible Points:	4
			1				Credit 1	Regional Priority: Indoor Water Use Reduction - 40%	1
			1				Credit 2	Regional Priority: Optimize Energy Performance – 8 pts. Min.	1
					1		Crodit 3	Regional Priority: Rainwater Management - Both Points	1
				1			Credit 4	Regional Priority: Renewable Energy (2 pt. min), Building Life Cycle 50% reuse, High Priority	: 1
	?-	N							
	•		-	- 4 -	- 1				
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Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Somerville High School

Crodits Renew able Energy Production

1 Gradite Enhanced Refrigerant Management

Credit 7 Green Power and Carbon Offsets

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Sustainable Design Overview



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Integrative Process

(New Credit and Credit Category for 1 Point)

- Credit targets the intent of LEED integrated design and frontloaded collaboration
 - "Encourages early analysis of energy and water systems to inform design"
- Simple box energy model to assess load reduction opportunities
- Preliminary water budget analysis that documents at least one source of reduction
- Analyses are used to inform the Owner's Project Requirements (OPR), the Basis of Design (BOD), and the eventual design of the project

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Location and Transportation

- Credits are awarded based on how people move to and from the project site
- > May obtain extra points from the green line extension
- Bike storage will be built into the building plan
- Preferred parking for Green Vehicles and E/V Charging



Somerville High School Sustainable Design Overview





Sustainable Sites

- Credits are awarded based on site design, community integration, and habitat preservation
- Community use of facilities planned
- Strategies for reducing heat island effect will be integrated
- Reduction of nocturnal light pollution
- Site open space will be a goal but inhibited by large turf areas



SMMA

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Sustainable Design Overview



Water Efficiency

- Credits are awarded based on indoor and outdoor water
- No irrigation water use is a common strategy
- Increased focus on indoor water use reduction, including kitchen equipment
- Includes water use sub-metering
- Potential credit points for water use reduction in projects with cooling towers



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Sustainable Design Overview





Energy Efficiency

- Credits are awarded based on energy optimization
- Demand Response participation will be investigated
- Enhanced Commissioning, including envelope commissioning, will be provided through the MSBA
- Energy efficiency will be a focal point
- Renewable energy is a possible path to earn more points



Somerville High School Sustainable Design Overview





Materials and Resources

- Credits are awarded based on material optimization and waste reduction
- Life cycle impact of structure and enclosure to be evaluated
- Recycling program is a prerequisite
- Construction waste will be minimized
- Many new product standards likely not accessible due to publicly bid project and requirement for 3 equal products



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Sustainable Design Overview





Indoor Environmental Quality

- Credits are awarded based on healthy and comfortable interiors
- Low VOC materials will be specified
- Access to natural light and views will be considered
- Thermal comfort controls will be provided
- Acoustic performance a prerequisite
- No smoking on campus
- High quality lighting will be used
- Sufficient fresh air will create a well ventilated building





Somerville High School Sustainable Design Overview

Innovation in Design and Regional Priority

- Credits are awarded for innovative practices and targeting credits that are regionally prioritized
- Up to the project team to pick the innovation and pilot credits
- The US Green Building Council chooses regional priorities based off project location





Somerville High School Sustainable Design Overview

Schedule & Next Steps

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Frequently Asked Questions:

- Q: Where can I obtain more information about the project?
- A: A project web site has been established for the project, and will be continuously updated with project information. The web site address is:

http://www.somervillema.gov/highschool/



Symmes Maini & McKee Associates

Thank you!

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