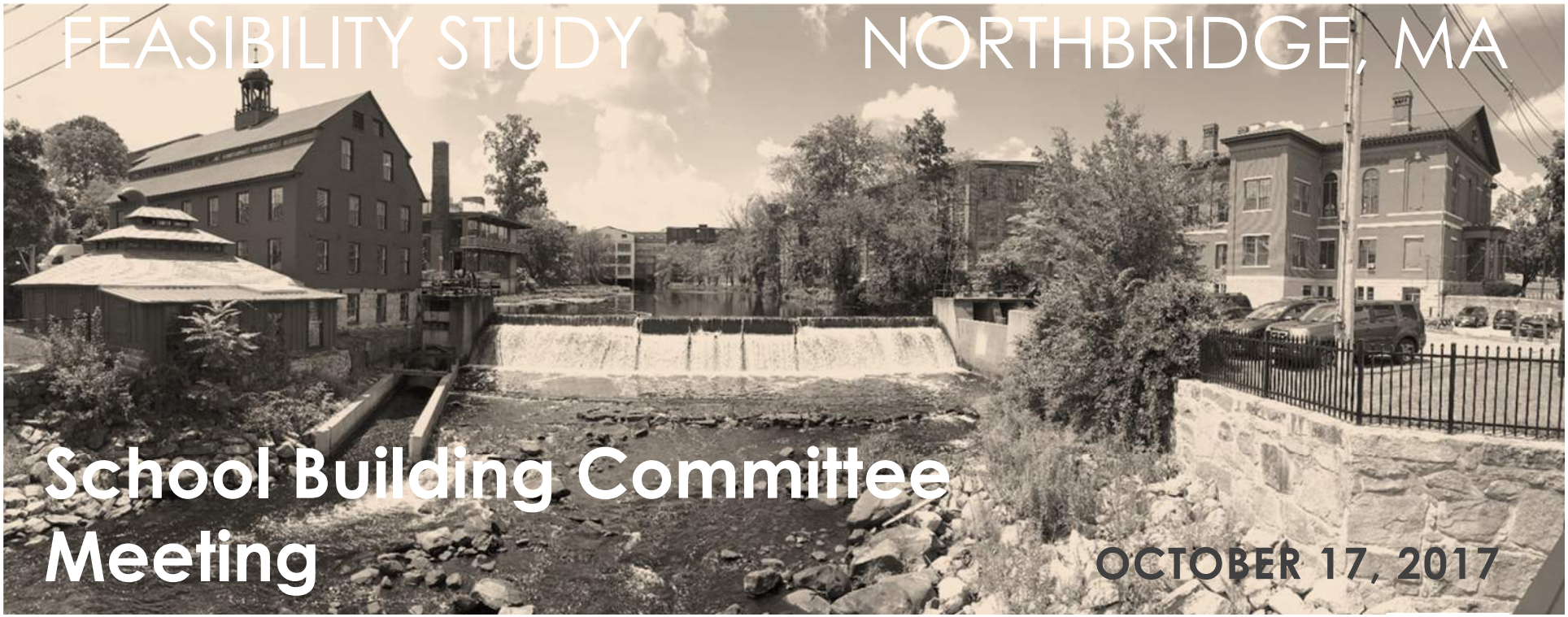
W. EDWARD BALMER SCHOOL

FEASIBILITY STUDY NORTHBRIDGE, MA



School Building Committee Meeting

OCTOBER 17, 2017

SMMA
Project Management

NORTHBRIDGE PUBLIC SCHOOLS

Massachusetts School Building Authority
Funding Affordable, Sustainable, and Efficient Schools in Partnership with Local Communities

DORE & WHITTIER ARCHITECTS, INC.

agenda

1. Revisit Project Goals
2. Green and Sustainable Strategies Update
3. Selected Design Alternatives Progress Update
4. Questions, Comments, Feedback

PROJECT GOALS
from the June 26, 2017 SBC Meeting

All Options from the Feasibility Study are to:

- incorporate MSBA standards
- be fiscally responsible
- be flexible for present and future needs
- be cost effective to maintain and operate
- address the needs of all students, including complete accessibility
- incorporate collaborative community input
- be reflective and supportive of the curriculum
- incorporate values of sustainability and efficiency
- incorporate the building and site as a learning tool
- incorporate student learning throughout the design and construction process
- be supportive of community use
- be safe and secure
- include a variety of flexible educational spaces

revisit goals

GREEN & SUSTAINABLE STRATEGIES

US EPA- Preliminary Energy Target

Building Characteristics Assumptions				
City: Northbridge			**State:** MA	
Space Type	**Gross Floor Area**	**Number of Students**	**Number of Workers**	**Months in use**
K-12 School	173,000 *	1030	165	12 (assumed)
	Wkend Operation	**Cooking Facilities**	**% Heated**	**% Cooled**
	No	Yes	100	50

ENERGY TARGETS (1)				
Energy Performance Rating	**50 (Median)**	**90**	**95**	**100**
Energy Use Reduction (%)	**0%**	**38.0%**	**45.9%**	**61.8%**
Source Energy Use Intensity (kBtu/sf/yr)	107.1	66.5	57.9	40.9
Site Energy Use Intensity (kBtu/sf/yr)	**67.3**	**41.7**	**36.4**	**25.7**
Total Annual Source Energy (MBtu)	18,534	11,497	10,019	7,075
Total Annual Site Energy (MBtu)	11,641	7,221	6,293	4,444
Energy Cost Reduction (%)	**0%**	**38.0%**	**45.9%**	**61.8%**
Total Annual Energy Cost ($)	$ 216,577	$ 134,350	$ 117,078	$ 82,675
Δ (change in energy cost)	n/a	**$ (82,227)**	**$ (99,499)**	**$ (133,902)**
co2 Emissions (Metric Tons CO2e /yr)	689.5	427.7	372.7	263.2
Δ (change in CO2 emission)	n/a	(262)	(317)	(426)
CO2 Emissions Reduction (%)	**0%**	**38.0%**	**45.9%**	**61.8%**

* Assumes [26]% electricity and [74]% natural gas. Baseline Energy Star Median / CBECS data.

***Larger PK-5 building option shown; smaller option similar**

MSBA Requirements

- **Minimum Energy Performance Rating = 95**
- **Translates to Energy Use Intensity (EUI) of mid-30's**
- **Recent D&W project: EUI 37.7**

green strategies

Comparison of Proposed to Existing Energy Targets

PROPOSED:

- Minimum Energy Performance Rating = 95

  (Meaning: this building preforms in the 95th percentile of similar existing K-12 school buildings in the nationwide EPA database)

- Translates to Energy Use Intensity (EUI) of 36.4

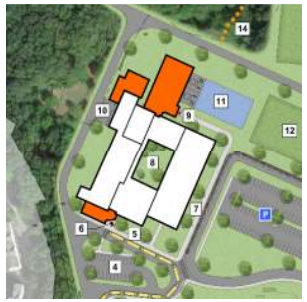
EXISTING (calculated using last three years of utility data):

- Balmer: Energy Use Intensity (EUI) of 79.3
- NES: Energy Use Intensity (EUI) of 60.7
- Benchmark EPR of 50th percentile ~ EUI of 62.1

SELECTED DESIGN ALTERNATIVES

PROGRESS UPDATE

options evaluation



B1 $29.0M

B2 $34.6M

C1 $61.3M

C3 $58.9M

GROUP A
Balmer + NES
CODE/ DM
ONLY
$53.0M
total

B3 $33.8M

C2 $55.6M

C4 $66.6M

OPTIONS OVERVIEW WITH COST TO TOWN

Estimated costs are preliminary and subject to change as the project is refined.

C5 $58.3M

options evaluation

B1 $29.0M

B2 $34.6M

C1 $61.3M

C3 $58.9M

GROUP A
Balmer + NES
CODE/ DM
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$53.0M
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OPTIONS OVERVIEW WITH COST TO TOWN

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C5 $58.3M

OPTION B2

- 2-4 (510)
- NEW CONSTRUCT.
- 2 STORIES
- REAR/EAST EDGE OF SITE
- 2 YEAR DURATION

preliminary design

OPTION C2

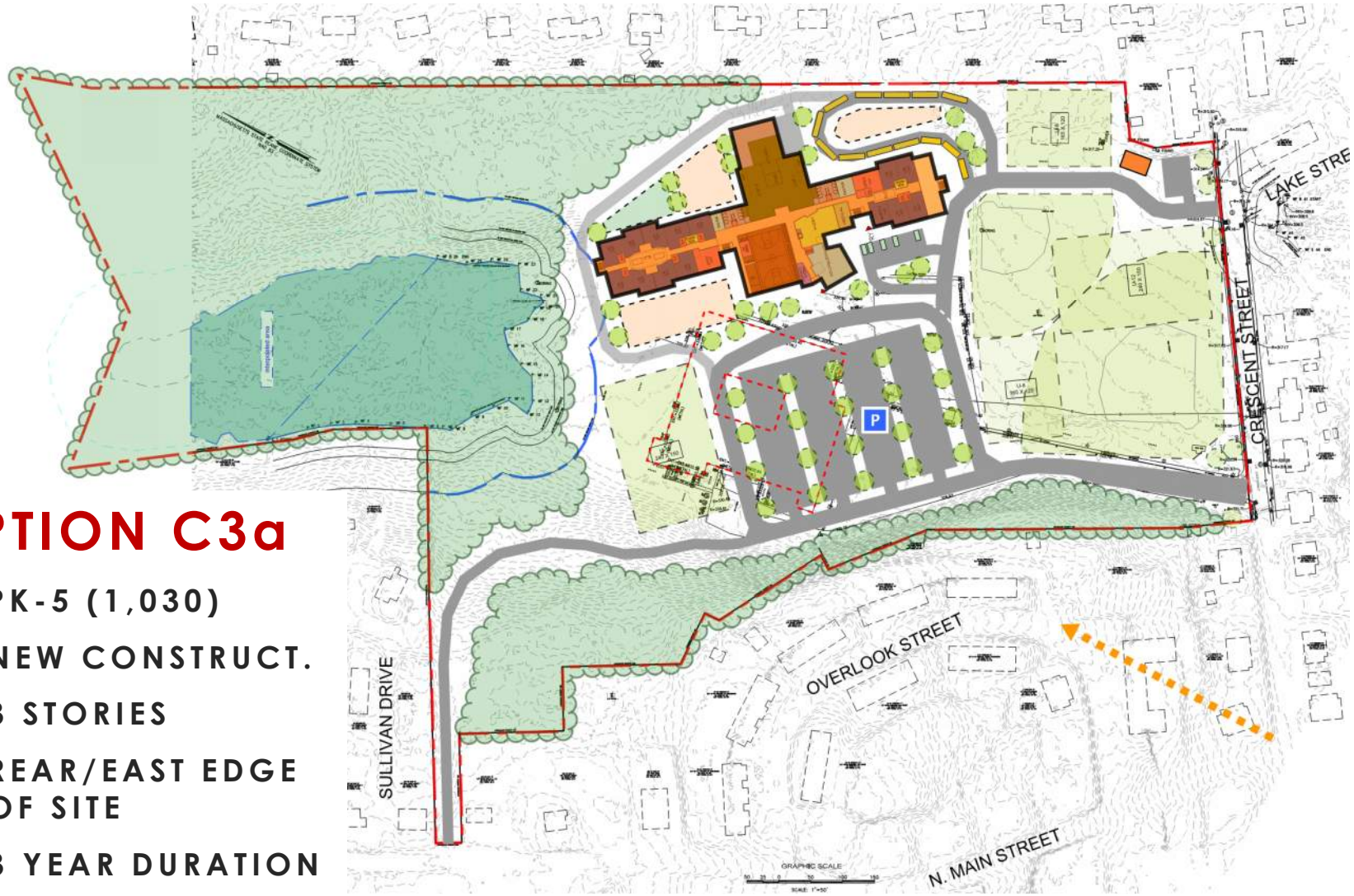
- PK-5 (1,030)
- ADD/RENO
- 2 STORY ADDITIONS
- EXISTING SITE
- 4 YEAR DURATION

preliminary design

OPTION C3

- PK-5 (1,030)
- NEW CONSTRUCT.
- 3 STORIES
- REAR/EAST EDGE OF SITE
- 3 YEAR DURATION

preliminary design



OPTION C3a

- PK-5 (1,030)
- NEW CONSTRUCT.
- 3 STORIES
- REAR/EAST EDGE OF SITE
- 3 YEAR DURATION

preliminary design

OPTION C5

- PK-5 (1,030)
- NEW CONSTRUCT.
- 3 STORIES
- FRONT OF SITE
- 3 YEAR DURATION

preliminary design


QUESTIONS?
D&W
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ARCHITECTS, INC.

NEXT STEPS

- Continue to refine building plan diagrams with Working Group, using the Education Plan and Space Summary Program.
- October 12-26, 2017 – Survey #1 issued
- October 30, 2017 – Community Forum #4 at Balmer ES Library
- November , 2017 - Survey #2 issued
- December 6, 2017 – Community Forum #5 at NES Cafeteria
- January 3, 2018 – Submit Preferred Schematic Report (PSR) to MSBA
- May 9, 2018 - Submit Schematic Design (SD) documents to MSBA
- June 27, 2018 – MSBA board meeting to approve project to bring to voters
- Fall 2018 – Town Vote

process


THANK YOU
D&W
DORE & WHITTIER
ARCHITECTS, INC.