

Coakley Middle School

Norwood Public Schools

School Building Committee

March 22, 2021



Ai3 Architects, LLC
Compass Project Management

Agenda

February 8, 2021

- ◆ **Reviewed PDP Report**
Reviewed Table of Contents
- ◆ **Reviewed Educational Plan**
Reviewed key points & framework
- ◆ **Reviewed Space Summary**
Overview of the space summary
Category review
Site test fits

March 22, 2021

- ◆ **PDP Report update**
Review Table of Contents
- ◆ **Space Summary**
Category review
Total Building Size being carried forward
- ◆ **School Committee presentation update**
- ◆ **Community Forum #2 update**
- ◆ **Review of Options**
Project Estimates
Ranking matrix
- ◆ **MSBA Submission Vote**



PRELIMINARY DESIGN PROGRAM (PDP) REPORT

TABLE OF CONTENTS

Table of Contents

3.1.1 INTRODUCTION

<i>Project Overview</i>	✓
<i>Capital Budget Statement</i>	✓
<i>Project Directory</i>	✓
<i>Project Schedule</i>	✓

3.1.2 EDUCATIONAL PROGRAM

<i>Educational Visioning Sessions</i>	✓
<i>Educational Program</i>	✓

3.1.3 INITIAL SPACE SUMMARY

<i>Space Summary Narrative</i>	✓
<i>Space Summary</i>	✓
<i>Space Summary Template Deviation</i>	✓

3.1.4 EVALUATION OF EXISTING CONDITIONS

<i>Floor Plans</i>	✓
<i>Architectural Review Education Analysis</i>	✓
<i>Architectural Review Building Analysis</i>	✓
<i>Structural Review</i>	✓
<i>Electrical, Mechanical, Plumbing, and Fire Protection Review</i>	✓
<i>Technology Review</i>	✓
<i>Building Code Analysis</i>	✓
<i>Energy Code Review</i>	✓
<i>Handicap Accessibility & Code Review</i>	✓
<i>Hazardous Materials Identification Study</i>	✓
<i>Historical Analysis</i>	✓

3.1.5 SITE DEVELOPMENT REQUIREMENTS

<i>Site Evaluation - Alternate Site Options</i>	✓
<i>Hennessey Field</i>	✓
<i>Forbes Hill</i>	✓
<i>Savage Center</i>	✓
<i>Site Selection Matrix</i>	✓
<i>Legal Title of Property, Site Availability & Restrictions</i>	✓
<i>Site Analysis Narrative</i>	✓
<i>Site Survey</i>	✓
<i>Site Utility Narrative</i>	✓
<i>Permitting Narrative</i>	✓
<i>Traffic Analysis</i>	✓
<i>Geotechnical Evaluation</i>	✓
<i>Soils Analysis</i>	✓
<i>Phase I ESA Report</i>	✓

3.1.6 PRELIMINARY EVALUATION OF ALTERNATIVES

<i>Summary of Options Considered</i>	✓
<i>Options Considered</i>	✓
<i>Conceptual Cost Projections</i>	✓
<i>Recommendation for Further Work</i>	✓

3.1.7 LOCAL ACTIONS AND APPROVALS

<i>Local Actions and Approvals Letters</i>	✓
<i>SBC Meeting Minutes</i>	✓
<i>Community Outreach</i>	✓

APPENDICES

<i>A. Statement of Interest</i>	✓
<i>B. Invitation to Conduct a Feasibility Study</i>	✓
<i>C. Design Enrollment Certification Letter</i>	✓
<i>D. Phase 1 Traffic Impact Analysis</i>	✓
<i>E. Geotechnical Evaluation</i>	✓
<i>F. Soils Analysis</i>	✓
<i>G. Phase I ESA Report</i>	✓



NORWOOD SPECIFIC MIDDLE SCHOOL

PROGRAM REQUIREMENTS

6 THRU 8 GRADE LEVEL CONFIGURATION

	Coakley MS areas	Allowable area per MSBA requirements (800 students)	Over/Under MSBA template	
Core Academic	45,740	38,800	6,940	ADD classrooms to support grade configuration and foreign language
Special Education	10,680	9,060	1,620	
Art & Music	4,600	4,600	0	ADD District specific Special Education requirements
Vocations & Technology	2,880	4,320	-1,440	
Health & Physical Education	11,400	8,400	3,000	ADD halfcourt gym @ 3,000 sf Total 1.5 full courts
Media Center	4,980	4,980	0	
Dining & Food Service	8,867	10,467	-1,600	1,600 sf stage does not qualify because an auditorium is being included
Medical	710	710	0	
Administration & Guidance	3,600	3,600	0	
Custodial & Maintenance	2,275	2,275	0	
Other (auditorium) <small>* 400 seat auditorium</small>	6,350	0	6,350	ADD 4,500 sf auditorium, 1,600 sf stage, 100 sf mother's room, & 150 sf SRO office

Area INCLUDING grossing factor (1.47)

150,060 sf

128,000 sf

22,060 sf

SBC presentation on Feb. 8 values

(153,941 sf)

(25,941 sf)

75% Utilization for teaching spaces



NORWOOD SPECIFIC MIDDLE SCHOOL PROGRAM REQUIREMENTS 5 THRU 8 GRADE LEVEL CONFIGURATION

Space Summary Categories	Coakley MS area (sf)	Allowable area per MSBA requirements (1070 students)	Over/Under MSBA template	
Core Academic	57,490	51,650	5,840	ADD classrooms to support grade configuration and foreign language
Special Education	14,530	12,080	2,450	
Art & Music	5,000	5,000	0	ADD District specific Special Education requirements
Vocations & Technology	2,880	5,760	-2,880	
Health & Physical Education	11,400	8,400	3,000	ADD halfcourt gym @ 3,000 sf Total 1.5 full courts
Media Center	6,533	6,533	0	
Dining & Food Service	11,319	12,919	-1,600	1,600 sf stage does not qualify because an auditorium is being included
Medical	810	810	0	
Administration & Guidance	4,320	4,320	0	
Custodial & Maintenance	2,545	2,545	0	
Other (auditorium) <small>* 535 seat auditorium</small>	7,100	0	7,100	ADD 5,500 sf auditorium & 1,600 sf stage

Area INCLUDING grossing factor (1.50)

185,890 sf

171,200 sf

14,690 sf

SBC presentation on Feb. 8 values

(201,640 sf)

(30,440 sf)

81% Utilization for teaching spaces



NEW Middle Schools in Massachusetts

Enrollment of 800 or more

	Natick	Lynn	Beverly	Leicester	Braintree	Weymouth	Dennis-Yarmouth	Haverhill	Wachusett	Lynn	Peabody
School	Kennedy MS	West Lynn MS	Beverly MS	Leicester MS	South MS	Chapman MS	Mattacheese MS	Hunking MS	Mountain View MS	Thurgood Marshall	Higgins MS
Enrollment	1,000	1,008	1,395	930	800	1,470	940	1,005	800	1,100	1,340
Building Size	182,195 SF	185,444 SF	231,509 SF	152,464 SF	145,846 SF	252,170 SF	186,500 SF	147,996 SF	126,200 SF	181,847 SF	211,982 SF
sf/student	182	184	166	164	182	172	198	147	158	168	158

Average NEW middle school in Massachusetts (800+ students) = 171 sf/student

Average of both Natick & Braintree middle schools = 182 sf/student



NORWOOD SPECIFIC MIDDLE SCHOOL PROGRAM REQUIREMENTS

5 - 8 GRADE LEVEL CONFIGURATION 1070 students

	Building Area (SF)	Area per Student (SF)
MSBA Guidelines	171,200	160
NMS no auditorium or larger gym (base)	173,140	162
NMS including just larger gym	177,640	166
NMS including both larger gym and auditorium * 535 seat auditorium	185,890	174

Average NEW middle school in
Massachusetts (800+ students)
= 171 sf/student

6 - 8 GRADE LEVEL CONFIGURATION 800 students

	Building Area (SF)	Area per Student (SF)
MSBA Guidelines	128,000	160
NMS no auditorium or larger gym (base)	139,035	174
NMS including just larger gym	143,445	179
NMS including both larger gym and auditorium * 400 seat auditorium	150,060	188

Average NEW middle school in
Massachusetts (800+ students)
= 171 sf/student

Average of both Natick &
Braintree middle schools
= 182 sf/student



FIRST FLOOR SPECIFIC SPACES & PROGRAMS

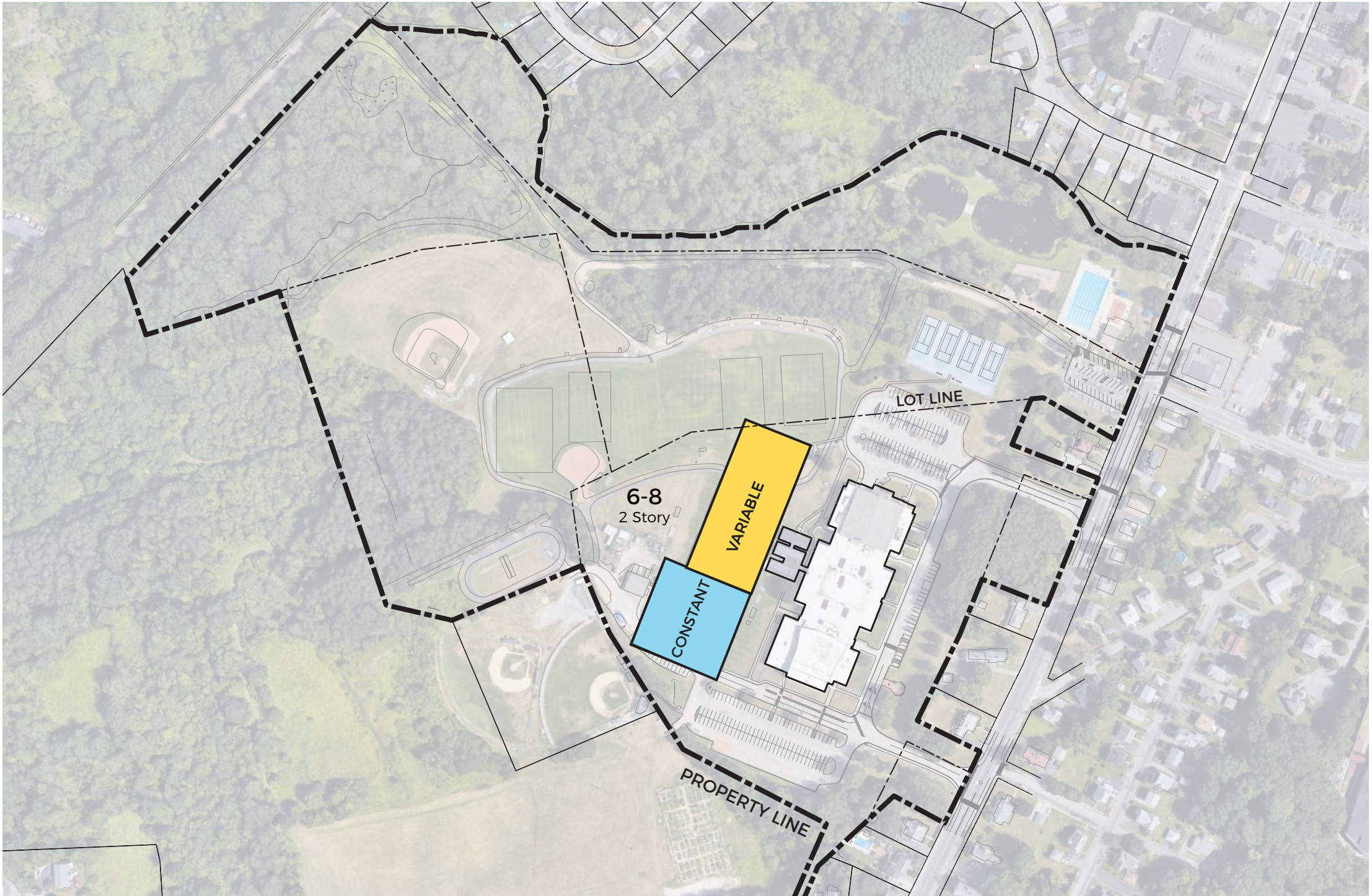
from February 8th meeting

Grades **6-8**
2 Story

Constant: **40,000 ft²**

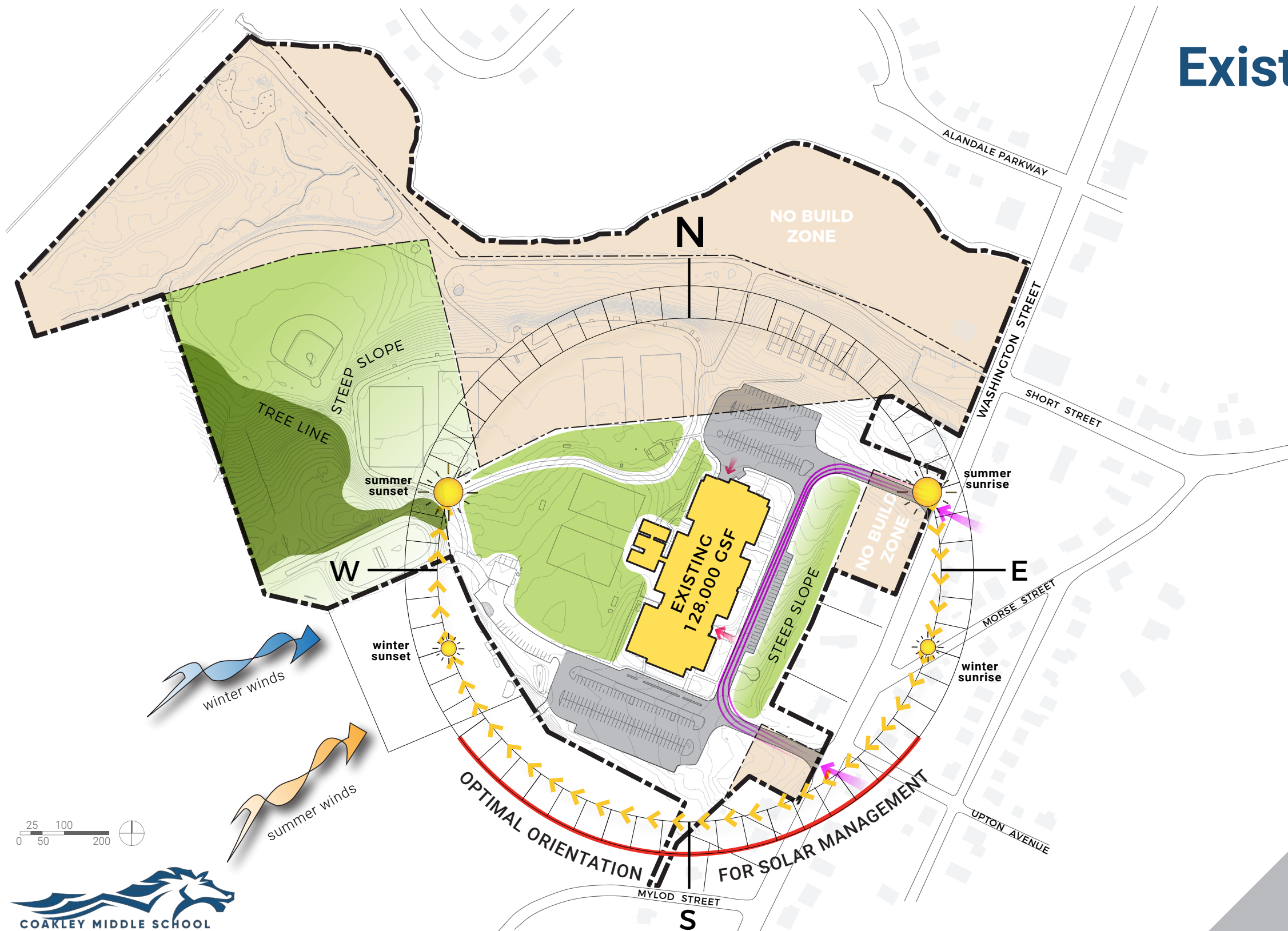
Variable: **50,000 ft²**

Total Footprint: **90,000 ft²**



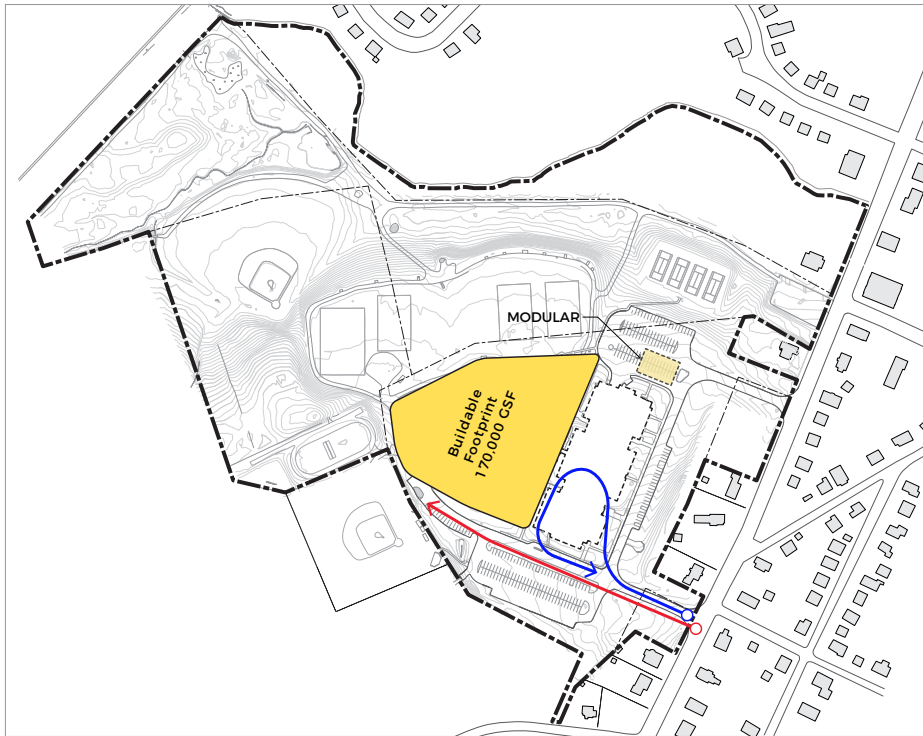
Existing Conditions

site analysis



- ◆ large areas of the site are restricted from having built structures added
- ◆ building orientation to consider solar orientation for optimal solar management
- ◆ building orientation to consider southwest prevailing winds for ventilation and open space
- ◆ consider all natural buffers between site and residential neighbors





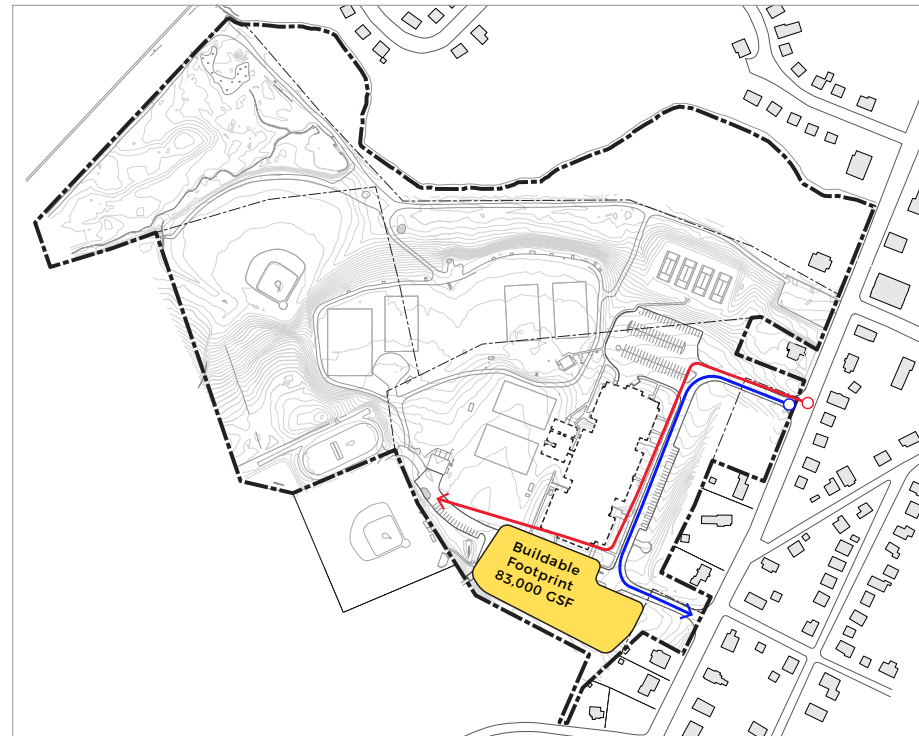
Back

170,000 GSF

uses the modular replacement to gain additional GSF

centrally located on site

2 practice fields would be offline during construction



New Options

buildable area

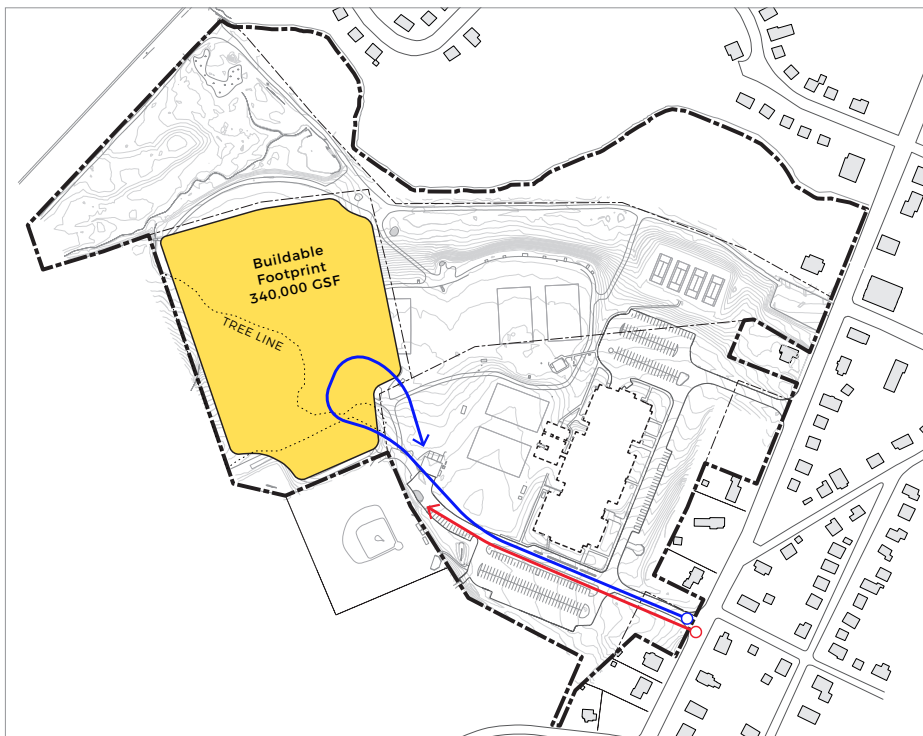
— school access
— little league access

South

83,000 GSF

smallest footprint results in tallest building closest to abutters

longest access drive to little league field



Far Back

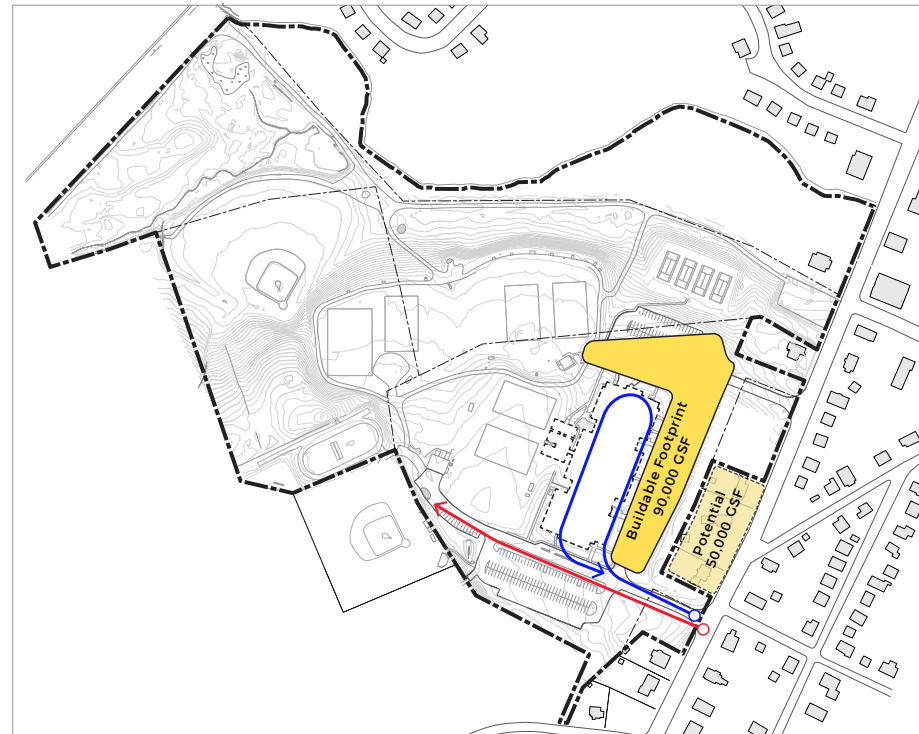
340,000 GSF

step slopes

requires the removal of existing established trees

poor access through site pinch-point

2-3 structured fields would be offline during construction



Front

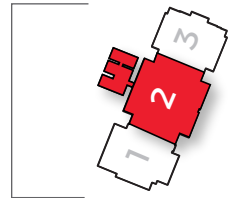
90,000 GSF + 50,000 GSF =
140,000 GSF

narrow lot with steep slopes results in long building and entry/circulation at back

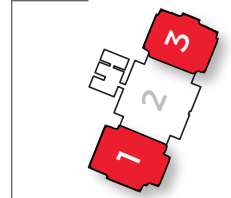
project would incur added cost if 3 properties were purchased

option 2A Add/Reno 1-story/2-story

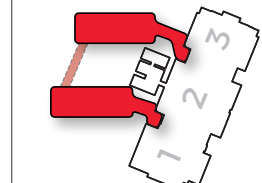
zone 2 contains undersized program: 50% of that program has no natural light/ventilation



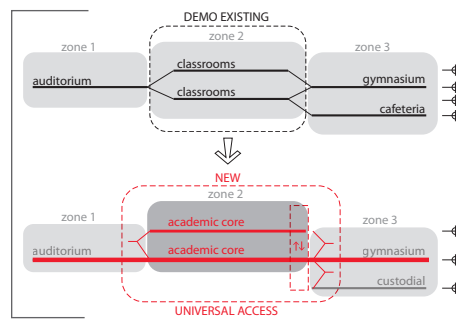
zones 1 and 3 renovated to retain program space that exceeds MSBA guidelines



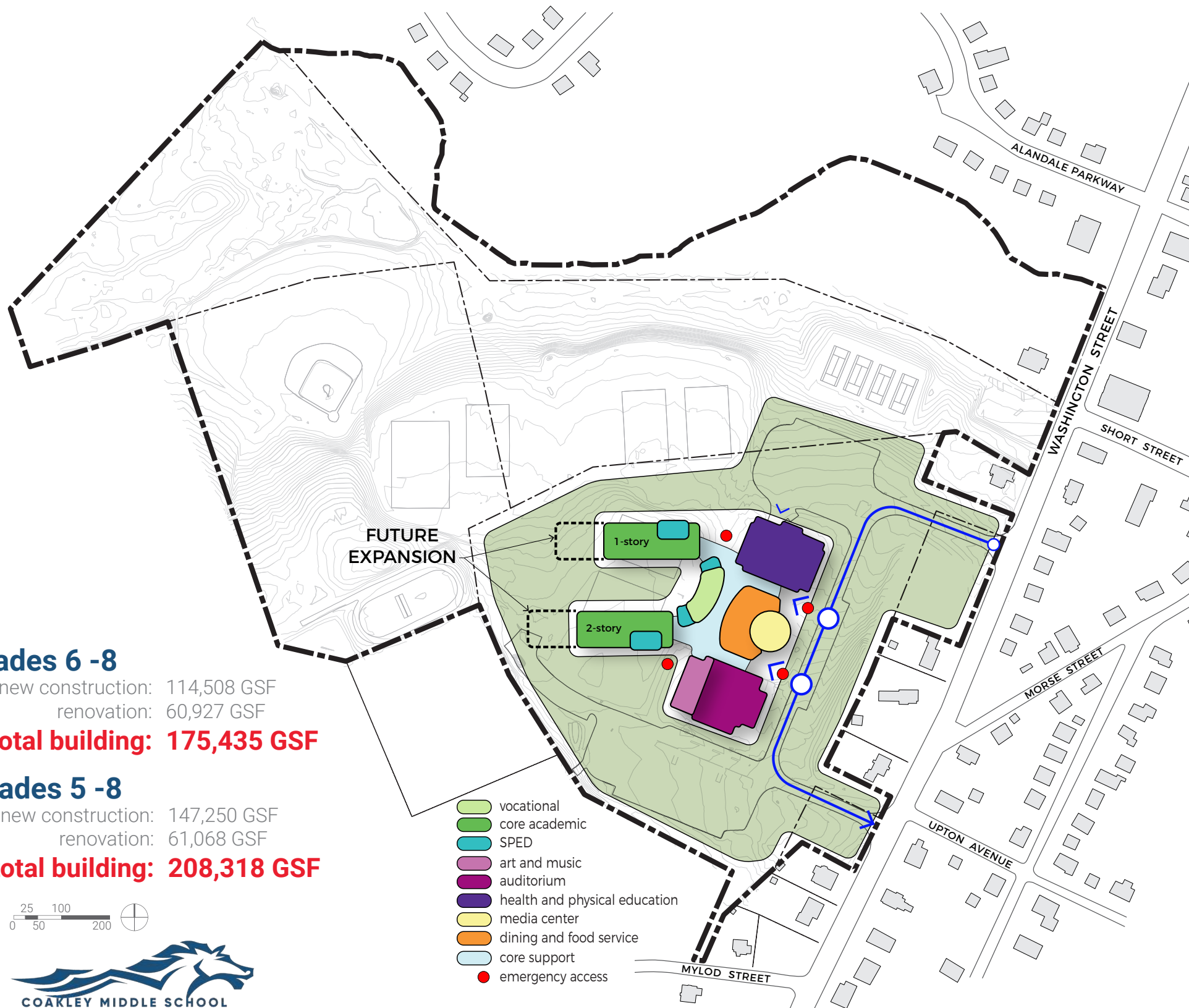
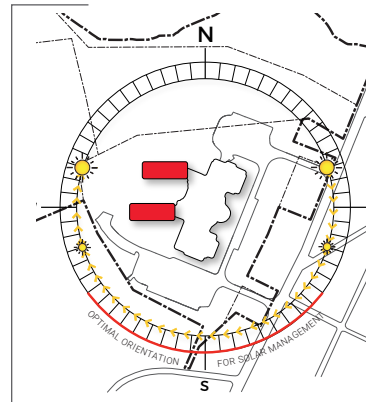
classroom wings added first for swing space



new zone 2 to connect zones 1 and 3 with a main floor that has universal access



optimal solar orientation for classrooms



- vocational
- core academic
- SPED
- art and music
- auditorium
- health and physical education
- media center
- dining and food service
- core support
- emergency access

grades 6 -8

new construction: 114,508 GSF
renovation: 60,927 GSF

total building: 175,435 GSF

grades 5 -8

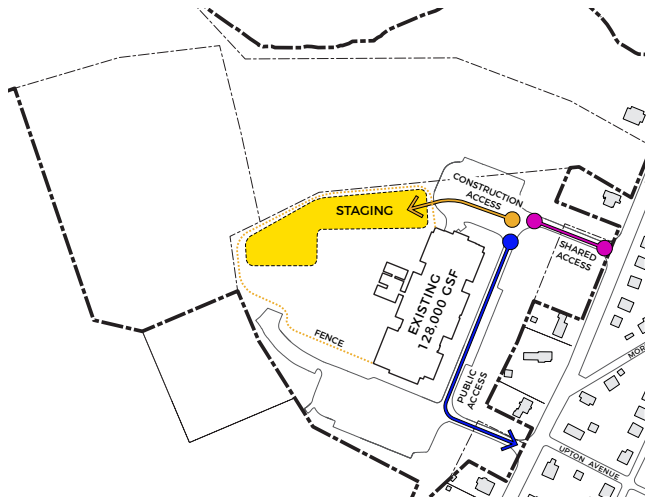
new construction: 147,250 GSF
renovation: 61,068 GSF

total building: 208,318 GSF



option 2A
Add/Reno
 1-story/2-story

Phased Construction with New
 Temporary Modular Classrooms
Total Duration: +/- 45 months



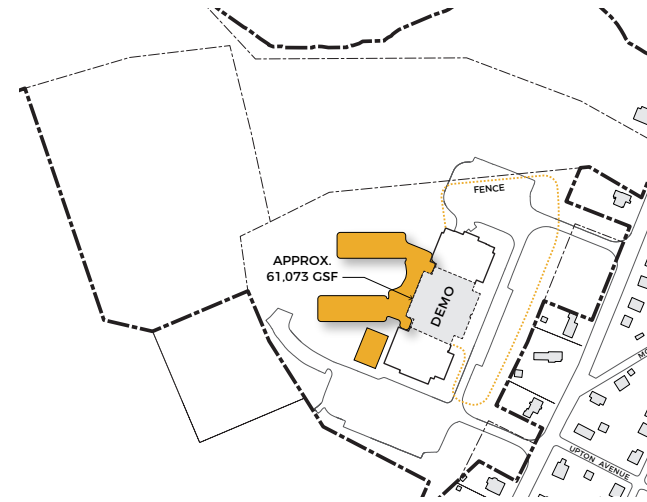
2 months **Phase 1a**

Prepare construction access, fencing and new temporary modular classrooms.



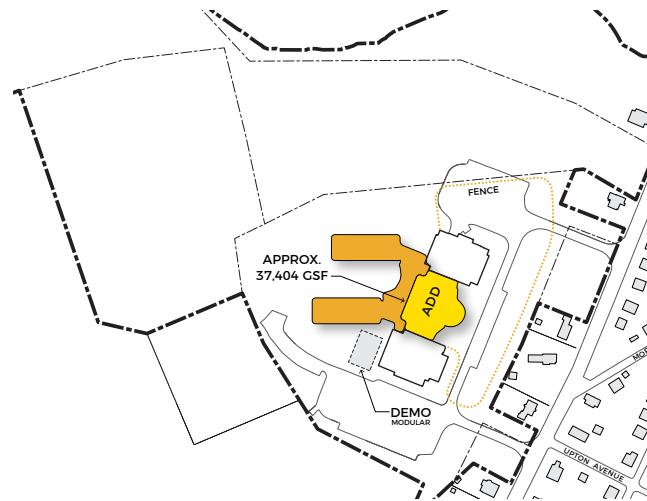
12-14 months **Phase 1b**

(2) New 2-Story 6-8 addition. Classrooms, SPED and Vocation transition to new wings.



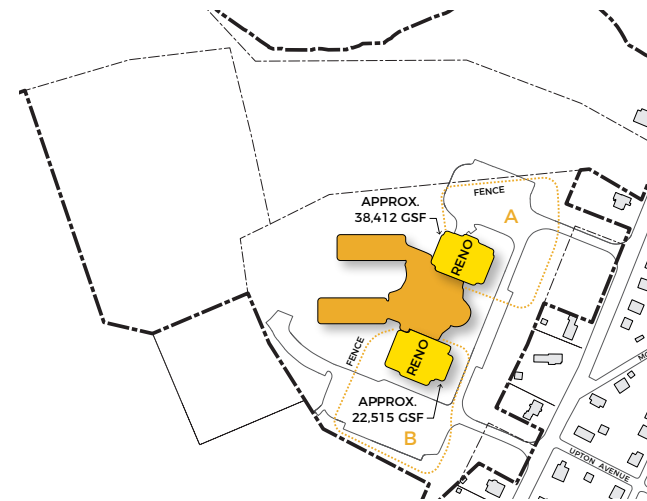
4 months **Phase 2a**

Demo existing Zone 2



10 months **Phase 2b**

New building core with Entry Lobby, Library Media Center, Cafeteria/Student Commons, Administration and Guidance



12 months **Phase 3**

Renovate existing Arts, Music, Auditorium, Admin, Gym, and Custodial



6 months **Phase 4**

Re-construction of site amenities, play fields, parking, and circulation

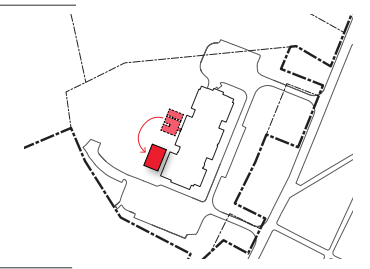
option 3A

New Construction

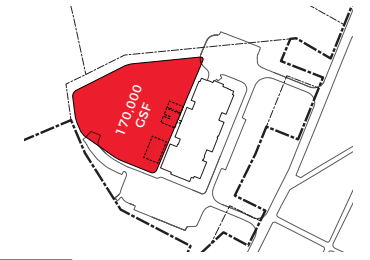
3-story

Total Duration: +/- 32 months

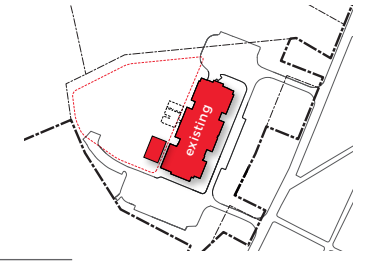
modulars move in first phase to accommodate building footprint



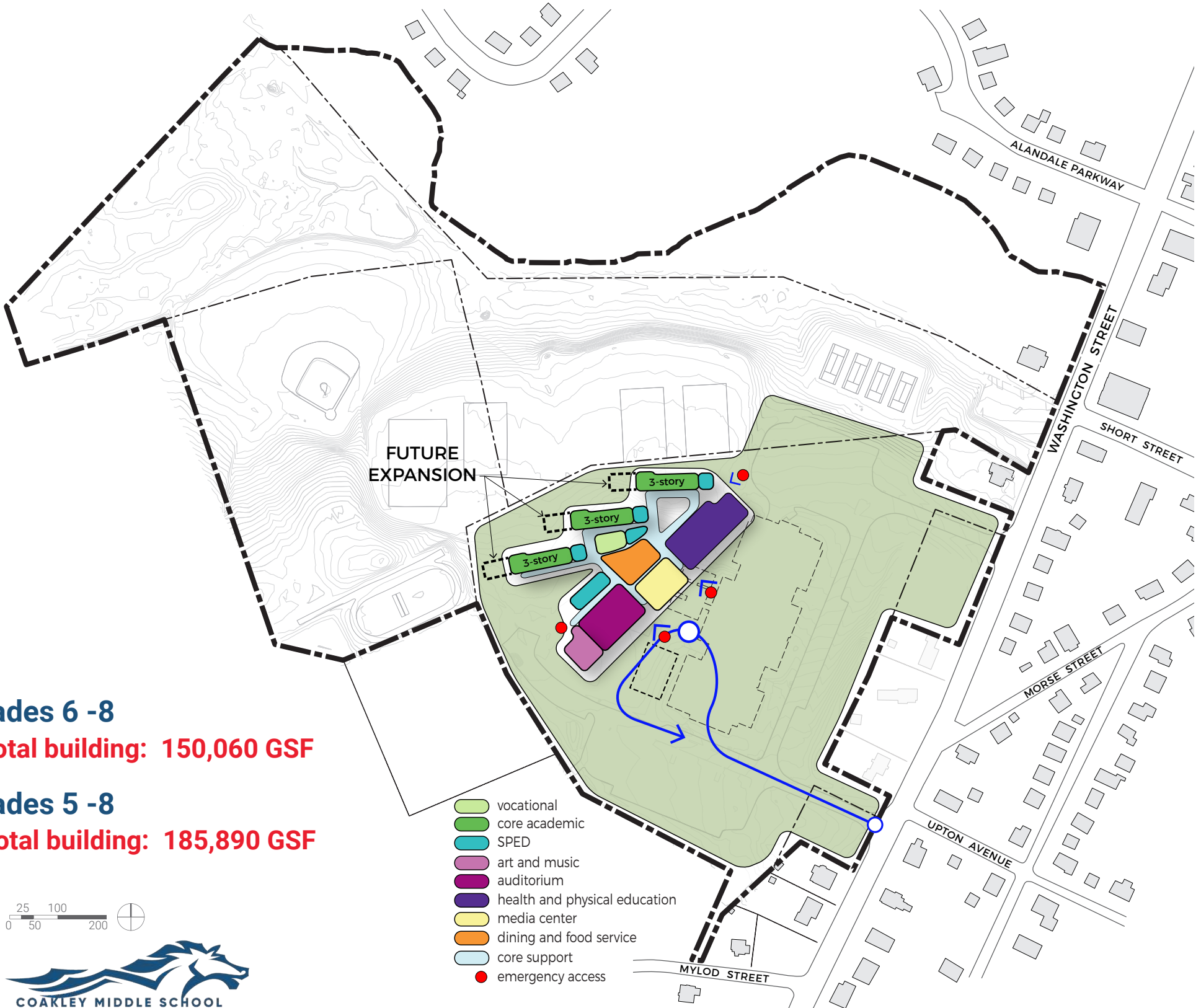
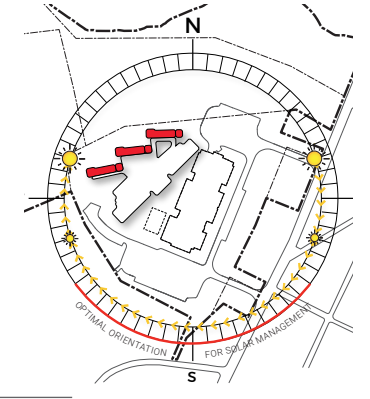
takes advantage of centrally located buildable site



existing building to remain functional during construction



optimal solar orientation for classrooms



grades 6 -8
total building: 150,060 GSF

grades 5 -8
total building: 185,890 GSF

- vocational
- core academic
- SPED
- art and music
- auditorium
- health and physical education
- media center
- dining and food service
- core support
- emergency access

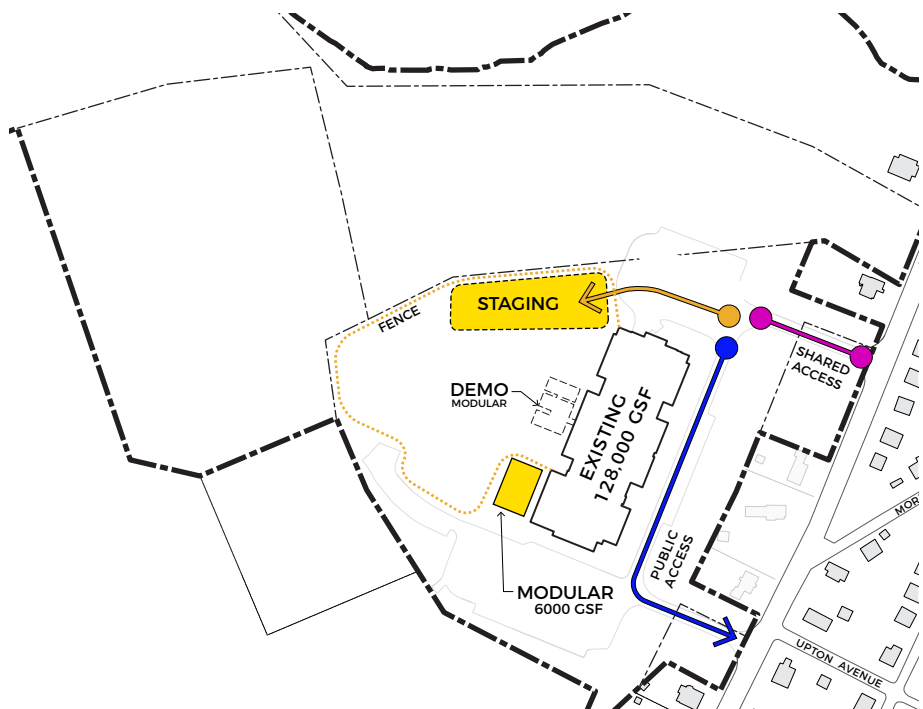


New Construction

3-story

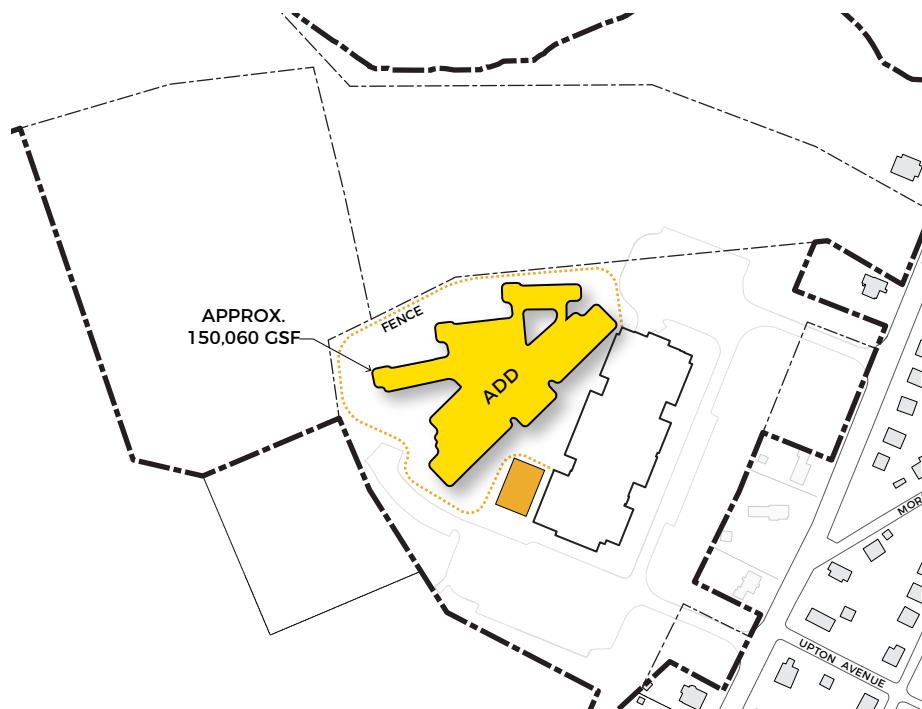
Phased Construction with New Temporary Modular Classrooms

Total Duration: +/- 32 months



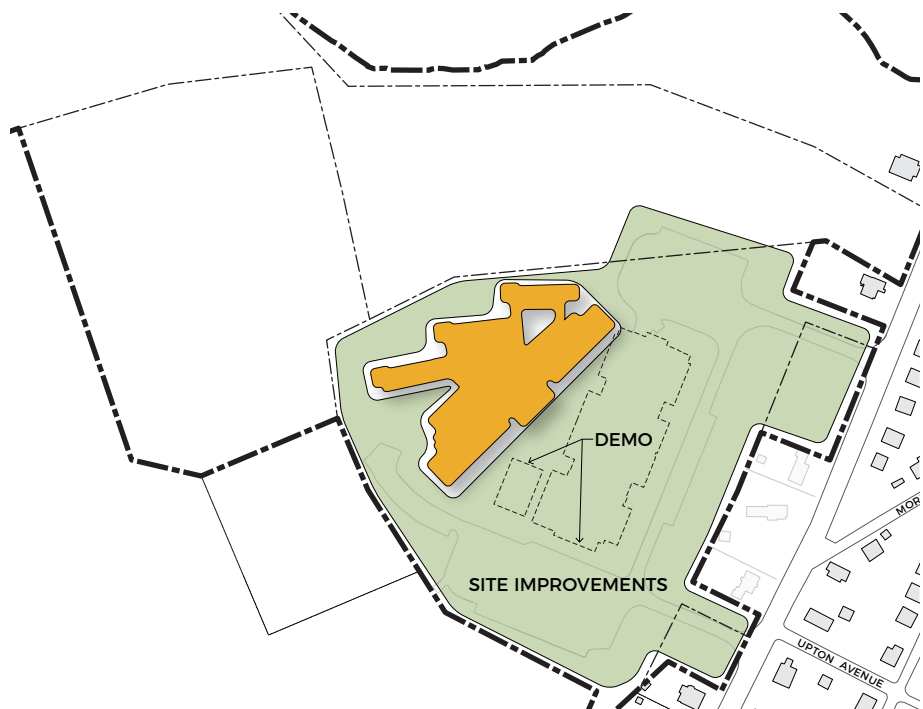
2 months Phase 1a

Prepare construction access, fencing and new temporary modular classrooms.



24 months Phase 1b

New school constructed on back lot behind existing school.



6 months Phase 2

Demolition of existing school and modules. Re-construction of site amenities, play fields, parking, and circulation



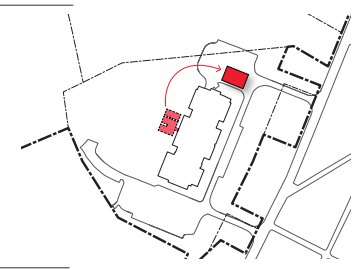
option 3B

New Construction

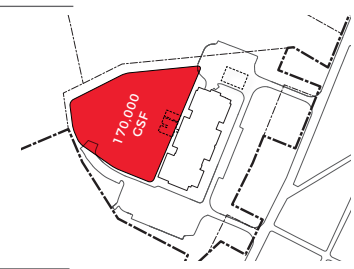
1-story/2-story

Total Duration: +/- 32 months

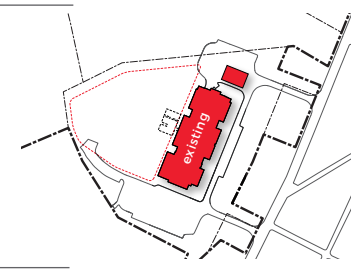
modulars move in first phase to accommodate building footprint



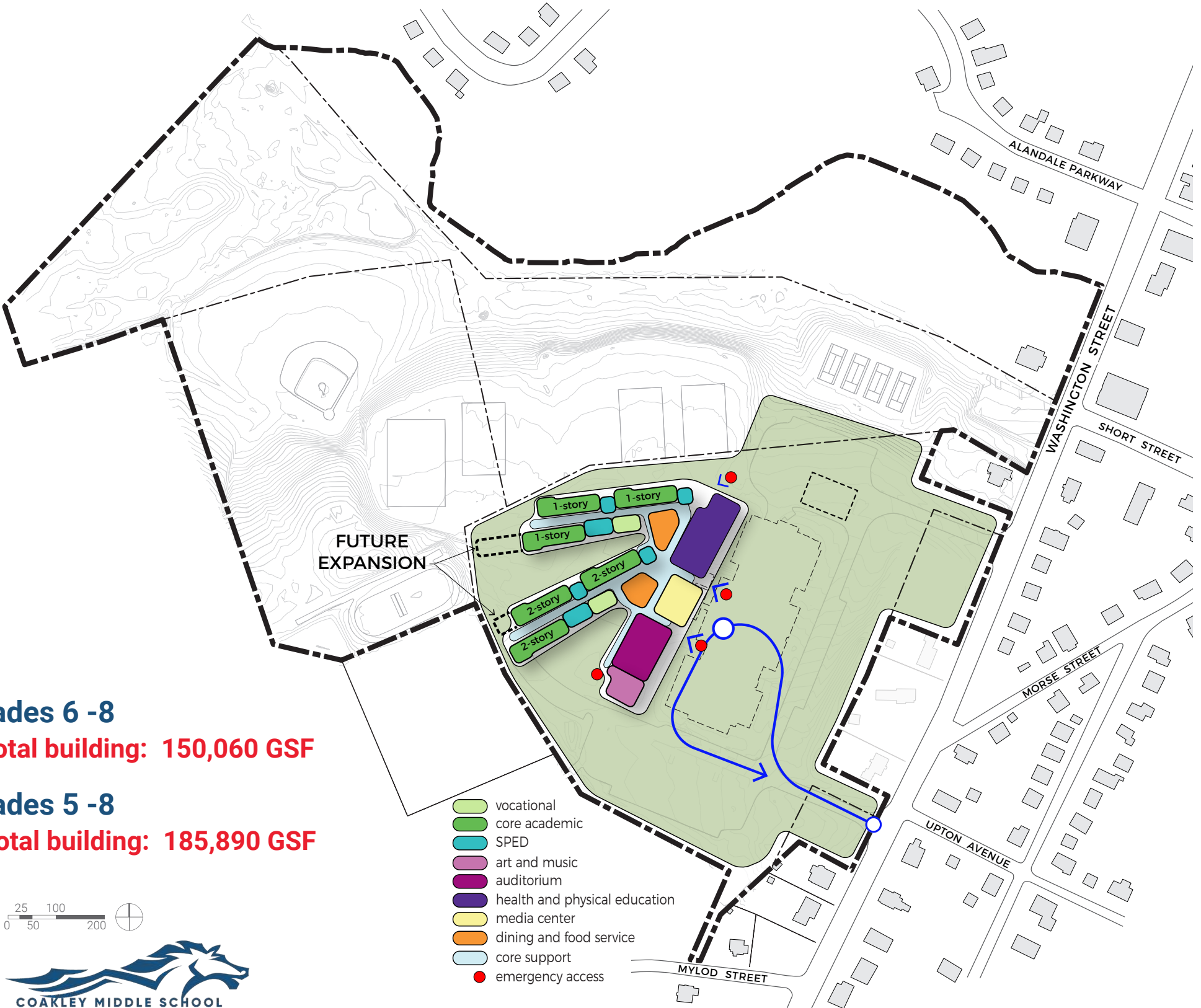
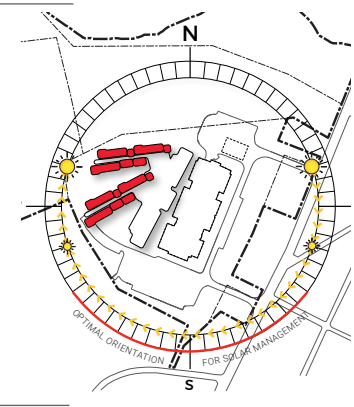
takes advantage of centrally located buildable site



existing building to remain functional during construction



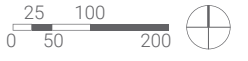
optimal solar orientation for classrooms



grades 6 -8
total building: 150,060 GSF

grades 5 -8
total building: 185,890 GSF

- vocational
- core academic
- SPED
- art and music
- auditorium
- health and physical education
- media center
- dining and food service
- core support
- emergency access

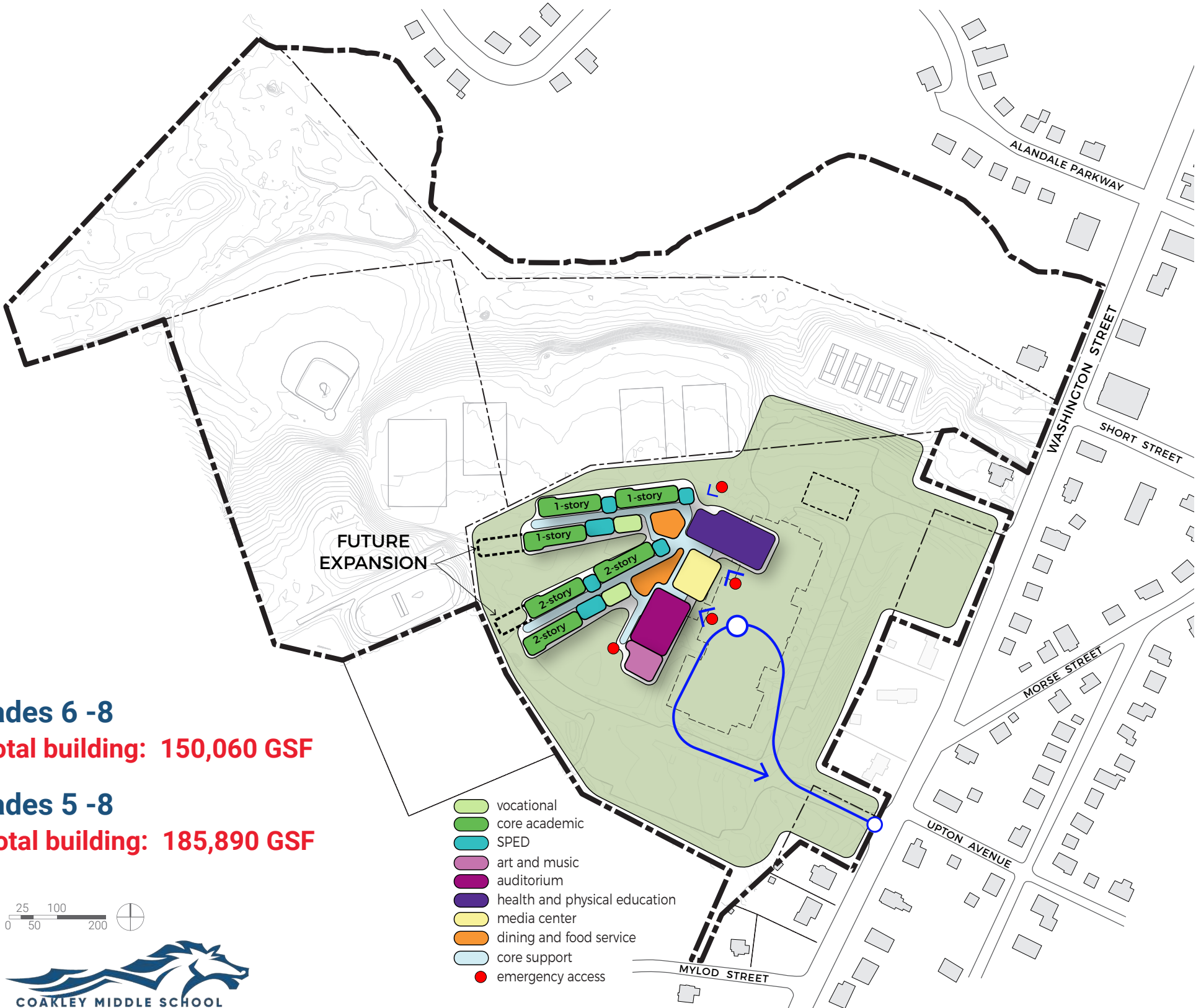


option 3C

New Construction

1-story/2-story

Total Duration: +/- 38 months



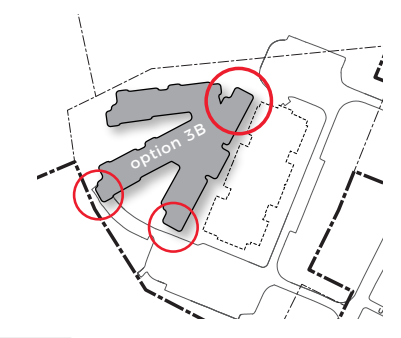
grades 6 -8
total building: 150,060 GSF

grades 5 -8
total building: 185,890 GSF

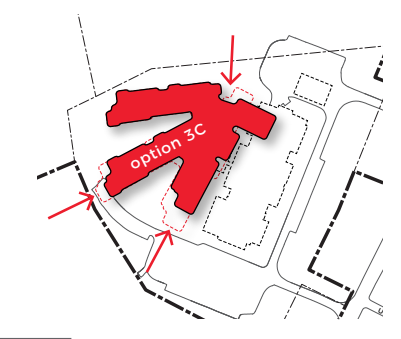
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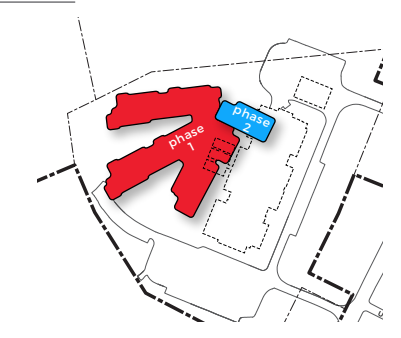
option 3B creates potential constraints



rotation of the gym allows adjustment to address these constraints



phase 1 of construction would keep existing zone 3 (gymnasium) with the new gym being built in phase 2



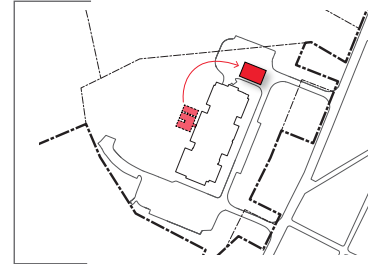
option 3D

New Construction

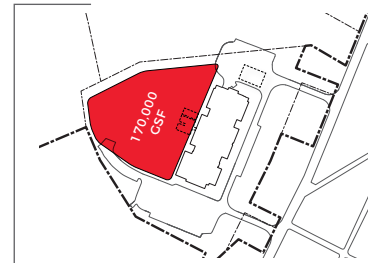
1-story/2-story

Total Duration: +/- 32 months

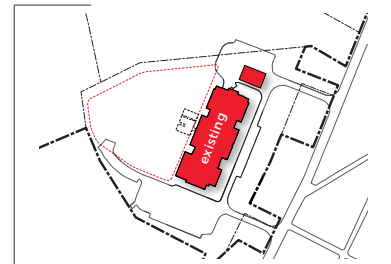
modulars move in first phase to accommodate building footprint



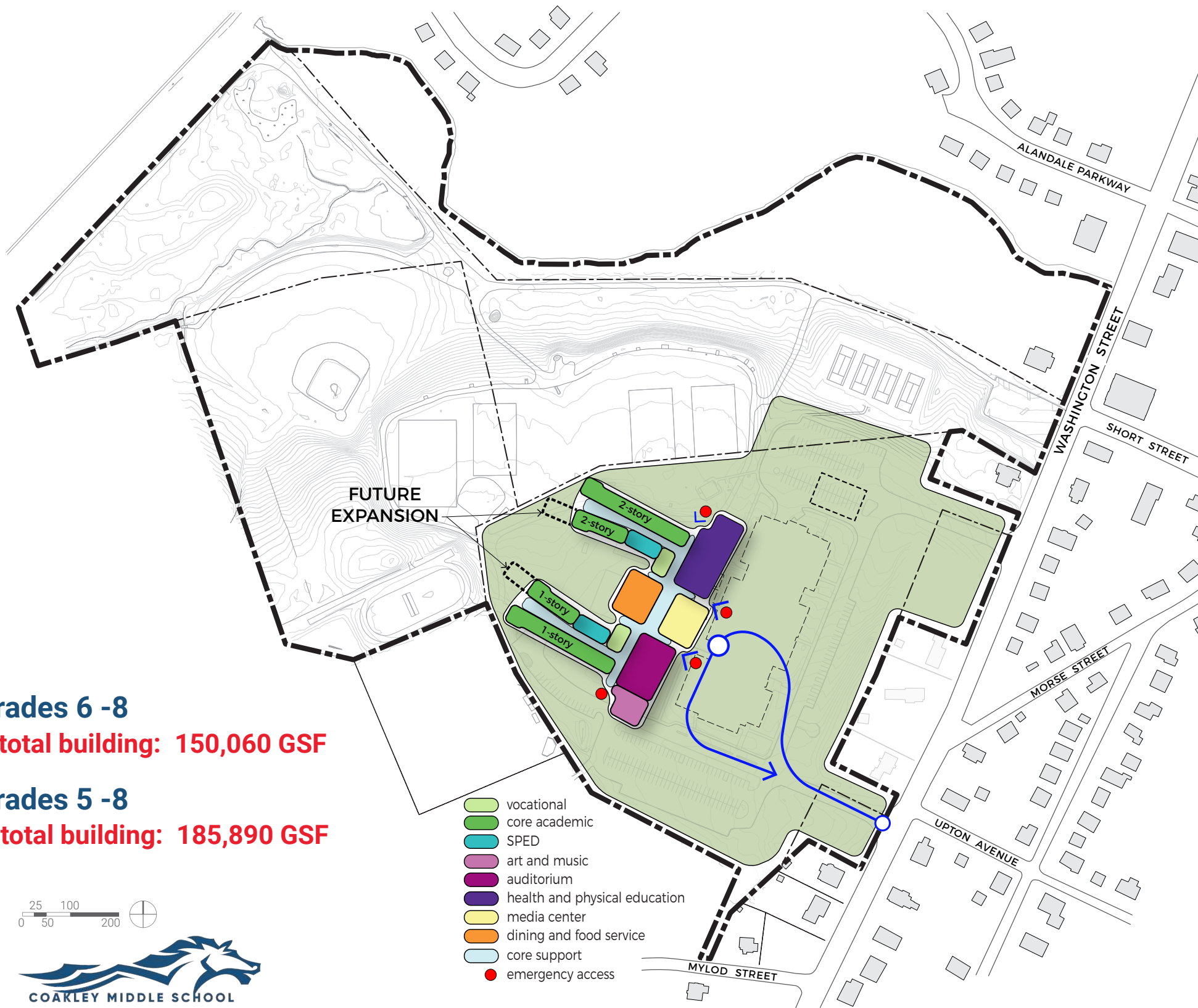
takes advantage of centrally located buildable site



existing building to remain functional during construction



student commons and main courtyard open to endean park vistas



grades 6 -8
total building: 150,060 GSF

grades 5 -8
total building: 185,890 GSF

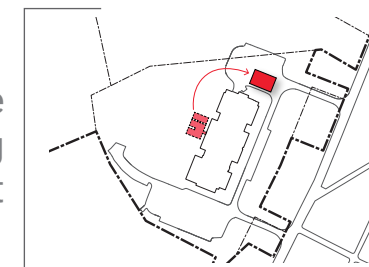
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- emergency access



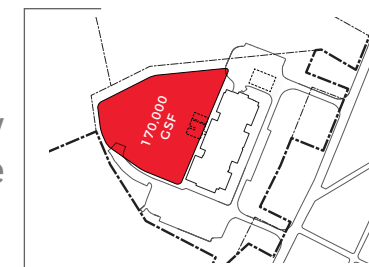
option 3E
New 6-8
 3-story

Total Duration: +/- 32 months

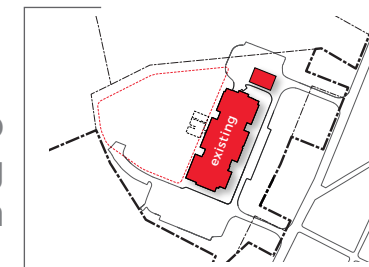
modulars move in first phase
 to accommodate building
 footprint



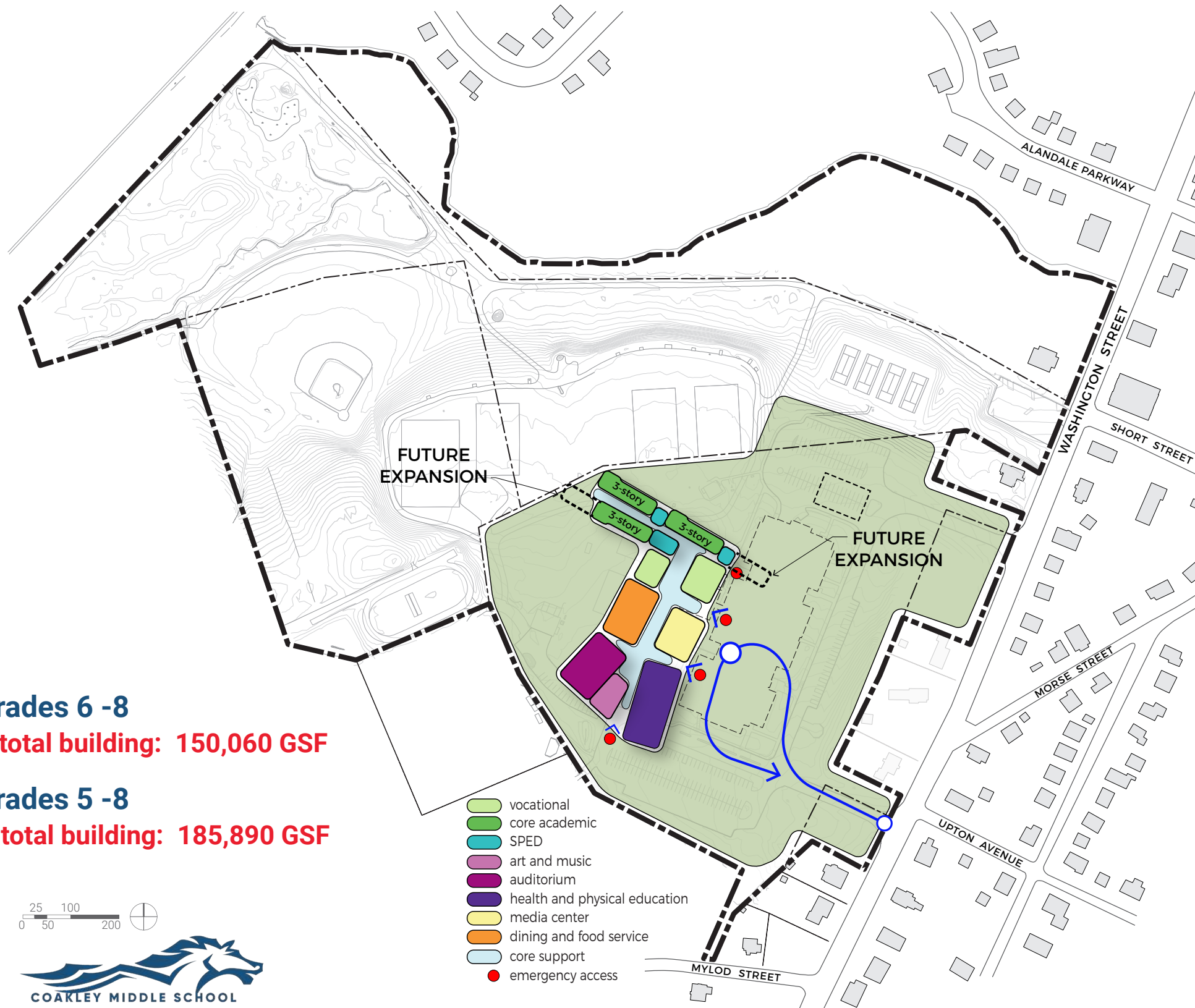
takes advantage of centrally
 located buildable site



existing building to
 remain functional during
 construction



auditorium and
 gymnasium are grouped
 together at one end of
 the building



grades 6 -8
 total building: 150,060 GSF

grades 5 -8
 total building: 185,890 GSF

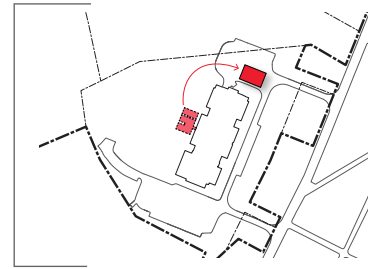
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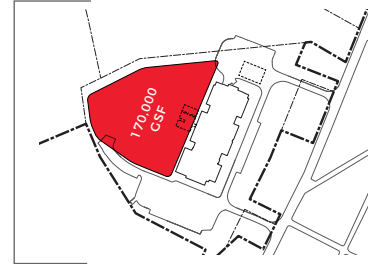
option 3F
New 6-8
 3-story

Total Duration: +/- 32 months

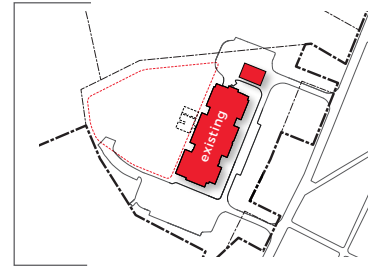
modulars move in first phase
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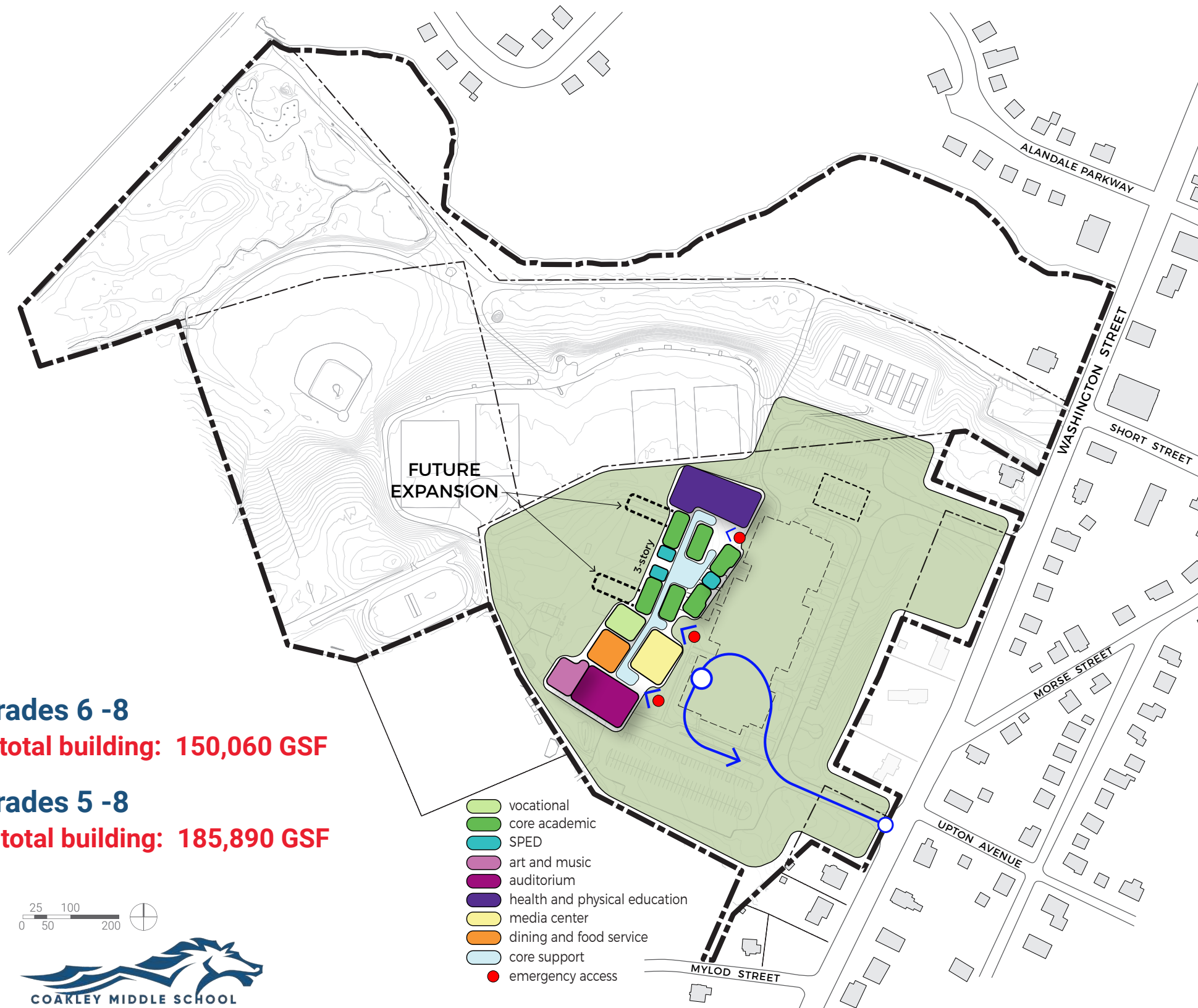
takes advantage of centrally
 located buildable site



existing building to
 remain functional during
 construction



core academics centrally
 located with a front
 facade presence



grades 6 -8
 total building: 150,060 GSF

grades 5 -8
 total building: 185,890 GSF

- vocational
- core academic
- SPED
- art and music
- auditorium
- health and physical education
- media center
- dining and food service
- core support
- emergency access



ADD/RENO

option 2A



option 2A.1
6-8 grade configuration
1-story/2-story

option 2A.2
5-8 grade configuration
2-story

BASE REPAIR

option 1



option 1
6-8 grade configuration
2-story

NEW

option 3A



option 3A.1
6-8 grade configuration
3-story

option 3A.2
5-8 grade configuration
4-story

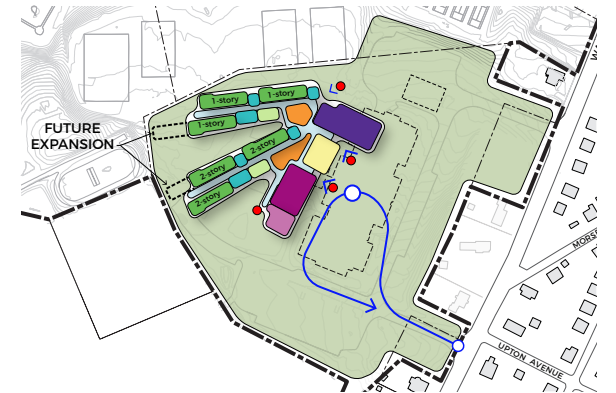
option 3B



option 3B.1
6-8 grade configuration
1-story/2-story

option 3B.2
5-8 grade configuration
2-story

option 3C



option 3C.1
6-8 grade configuration
1-story/2-story

option 3C.2
5-8 grade configuration
2-story

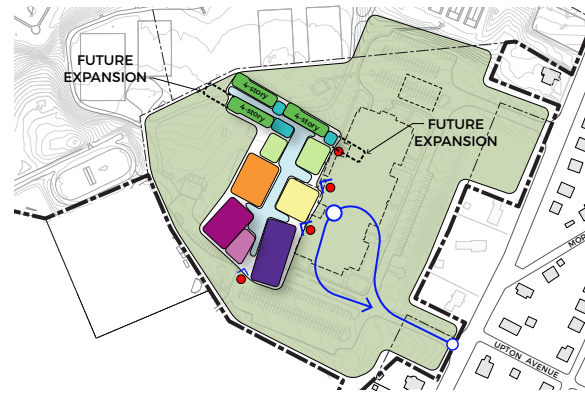
option 3D



option 3D.1
6-8 grade configuration
1-story/2-story

option 3D.2
5-8 grade configuration
2-story

option 3E



option 3E.1
6-8 grade configuration
3-story

option 3E.2
5-8 grade configuration
4-story

option 3F



option 3F.1
6-8 grade configuration
3-story

option 3F.2
5-8 grade configuration
4-story

Project Options: Estimates

	base repair	add/reno	new construction		
	option 1 1-2 story 48+ months base repair 128,000 SF	option 2A 1-2 story 45 months 6-8 add/reno 175,435 SF 5-8 add/reno 208,318 SF	option 3A, 3E, & 3F 3-4 story 32 months 6-8 new 150,060 SF 5-8 new 185,890 SF	option 3B & 3D 1-2 story 32 months 6-8 new 150,060 SF 5-8 new 185,890 SF	option 3C 1-2 story phased 38 months 6-8 new 150,060 SF 5-8 new 185,890 SF
Building Construction Cost *	\$35.8 million	\$63.0 - \$75.0 million	\$54.0 - \$65.0 million	\$55.5 - \$67.0 million	\$55.5 - \$67.0 million
Site, Building Demo, Haz Mat., Temp. Construction	\$1.9 million	\$11.5 - \$13.0 million	\$10.8 - \$12.5 million	\$11.0 - \$12.8 million	\$11.0 - \$12.8 million
Phasing, general conditions & requirements, insurance, estimating contingency & escalation to 2023	\$11.3 million	\$31.0 - \$36.0 million	\$24.4 - \$28.3 million	\$25.0 - \$29.0 million	\$26.7 - \$31.0 million
Estimated Construction Cost	\$49.0 million	\$105.8 - \$124.5 million	\$89.3 - \$106.0 million	\$91.5 - \$109.0 million	\$93.2 - \$110.5 million
Project Soft Costs: (25% of const cost) FF&E, Technology, A/E fees, OPM fees, contingency	\$12.2 million	\$28.5 - \$33.3 million	\$24.4 - \$28.5 million	\$25 - \$29 million	\$25.4 - \$29.8 million
+ Modular Classrooms (approx 2.1 mil)					
Additional Add/Reno Contingency: 2%		\$2.1 - \$2.5 million			
Estimated Total Project Cost	\$61.3 million	\$136.6 million \$160.2 million	\$113.8 million \$134.5 million	\$116.5 million \$138.0 million	\$118.8 million \$140.4 million
ADD for CMr (C.149A)		\$6.7 - \$7.8 million	\$5.8 - \$6.8 million	\$5.9 - \$6.9 million	\$6.0 - \$7.0 million



* Estimates based on a Net Zero Ready building. There would be additional cost for a full Net Zero building with a renewable power source on site

2017 NORWOOD FEASIBILITY STUDY & LONG RANGE PLAN VS. PROJECTED COSTS

2024
\$594/SF

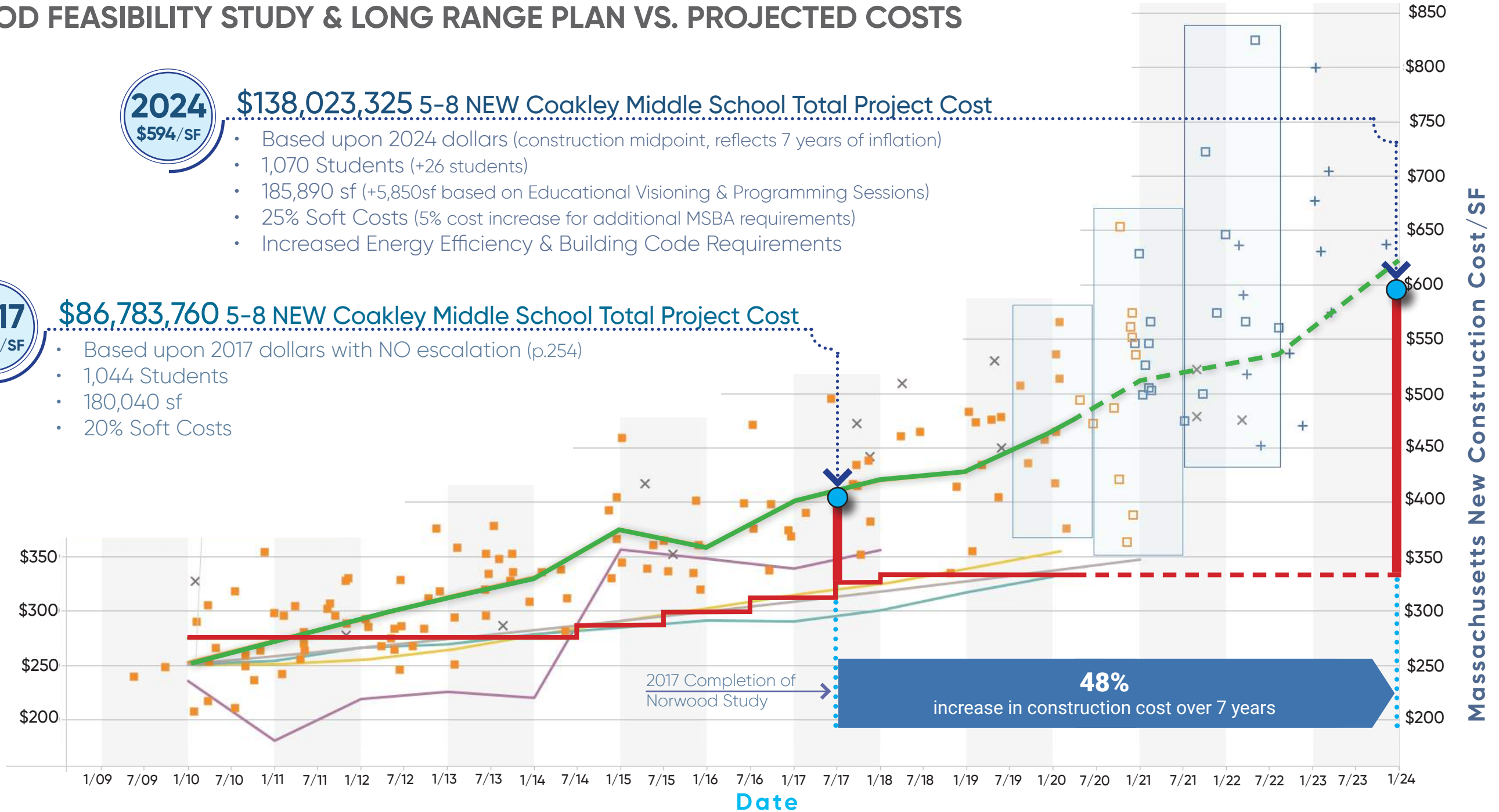
\$138,023,325 5-8 NEW Coakley Middle School Total Project Cost

- Based upon 2024 dollars (construction midpoint, reflects 7 years of inflation)
- 1,070 Students (+26 students)
- 185,890 sf (+5,850sf based on Educational Visioning & Programming Sessions)
- 25% Soft Costs (5% cost increase for additional MSBA requirements)
- Increased Energy Efficiency & Building Code Requirements

2017
\$402/SF

\$86,783,760 5-8 NEW Coakley Middle School Total Project Cost

- Based upon 2017 dollars with NO escalation (p.254)
- 1,044 Students
- 180,040 sf
- 20% Soft Costs



OPTION RANKING: MATRIX

Project Evaluation Criteria / Matrix		Option 1	Option 2A	Option 3A	Option 3B	Option 3C	Option 3D	Option 3E	Option 3F
Norwood Public Schools, Norwood MA									
DRAFT 3.22.2021		Base Repair	Add/Reno	New 3/4 Story	New 1/2 Story	New 1/2 Story 2 Phase	New 1/2 Story	New 3/4 Story	New 3/4 Story
Community	1	Does the option optimize community use and access of site?							
	2	The sharing of resources among the school and community is one of the primary goals identified during the educational visioning process. The Town identified a strong desire to provide clear and distinct separation between the community functions in the building from the core academic spaces. Does the proposed option provide clear access to the community while providing separation from the academic core of the building?							
Site Use Opportunities	3	Does the option provide future expansion possibilities?							
	4	Does the option reconfigure the existing Coakley Middle School site to maximize indoor/outdoor space and amenities? The opportunities include: outdoor activity zone (educational space), outdoor dining area, amphitheater, fitness and running trails, and an outdoor entry plaza.							
Site Safety	5	Does the option improve safety of the overall school environment by providing appropriate automobile and bus circulation on site, as well as by providing sufficient parking for visitors, staff, and administration?							
Building Safety	6	Does the option create a clearly identifiable, secure, safe, and welcoming entrance environment (greeting and gatekeeping)?							
Ed Plan	7	Does the option provide sufficient 21st Century educational space for middle school students within the Town of Norwood? Specifically, creating the much-needed project labs and hands-on learning environments with fully integrated classrooms, as identified in the educational visioning sessions and educational program, and which are grossly absent from the existing middle school facility.							
	8	Does the option create the necessary adjacencies, program areas, transparency, exhibit space, and other key elements that were identified in the educational visioning and programming process, and that were deemed vital to an appropriate 21 st Century learning environment?							
	9	Does the option create the necessary program space and adjacencies to support critical team teaching and collaboration, which were identified in the educational visioning and programming process, and which were deemed vital to an appropriate 21 st Century learning environment?							
	10	Does the option create a middle school that will allow the 5/6 grade or 6th grade population to co-exist with the 7/8 grade population? Does the option resolve current adjacency challenges in the existing building by allowing all grade levels to share resources and educational opportunities, while simultaneously maintaining the necessary separations?							
	11	Does the option provide a middle school environment that includes all of the necessary program space and adjacencies to achieve the highly detailed goals and guiding principles established in the educational plan and the educational visioning workshops? Specifically, addressing the ideal educational environment for the serviced student population and any of their specialized needs.							

Questions?

**MSBA Preliminary Design
Program submission VOTE**

