



Our **vision** is to provide high-quality educational opportunities that inspire a community of learners

WELLNESS • EQUITY • ENGAGEMENT

Our **mission** is to develop engaged, well-balanced learners through collaborative, caring relationships



Douglas & Gates Elementary Schools

Acton-Boxborough Regional School District
Acton, Massachusetts

School Committee Presentation
September 5, 2019

Wellness
Equity
Engagement



SKANSKA

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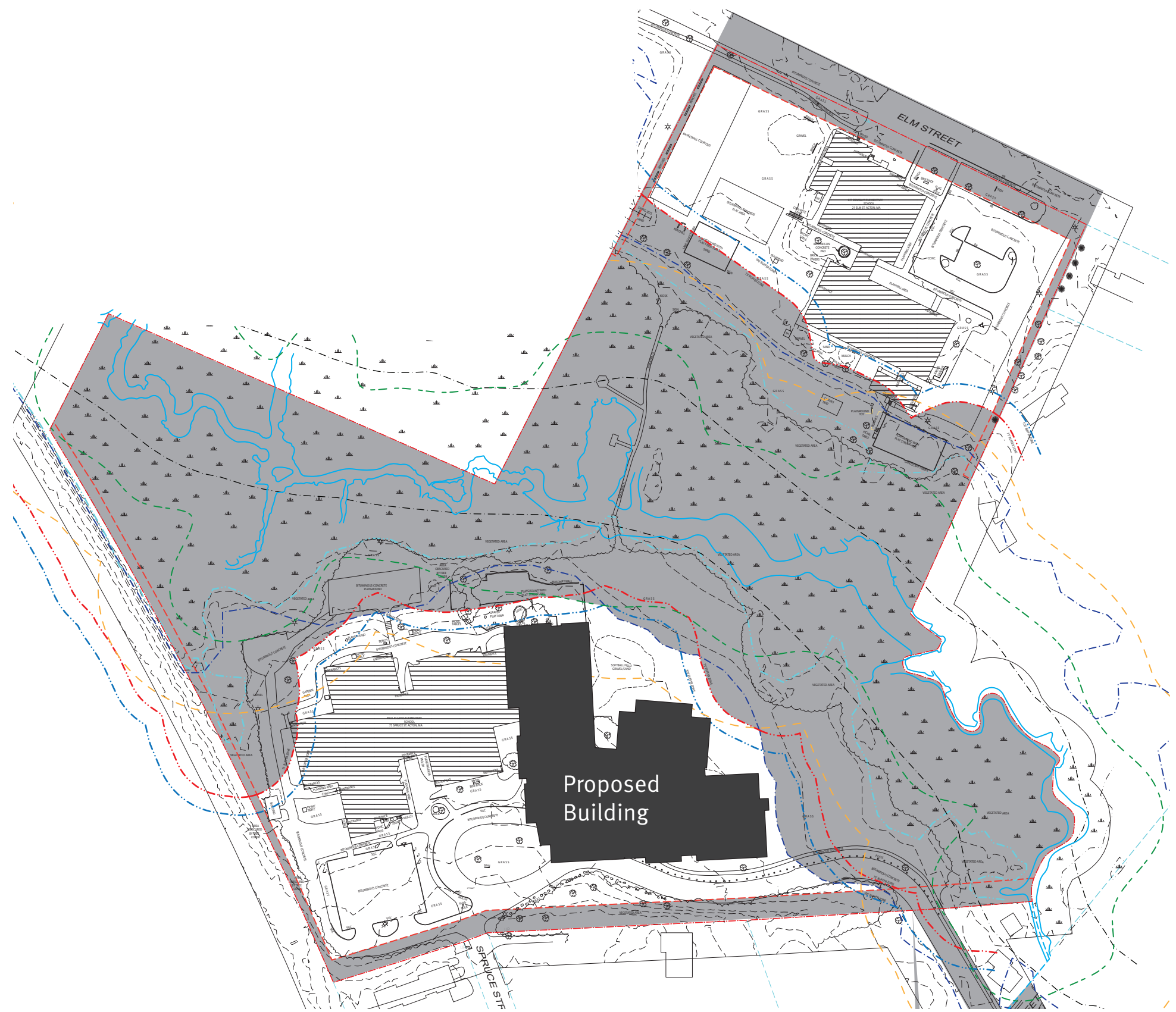


Aerial View Douglas/Gates



Development Restrictions

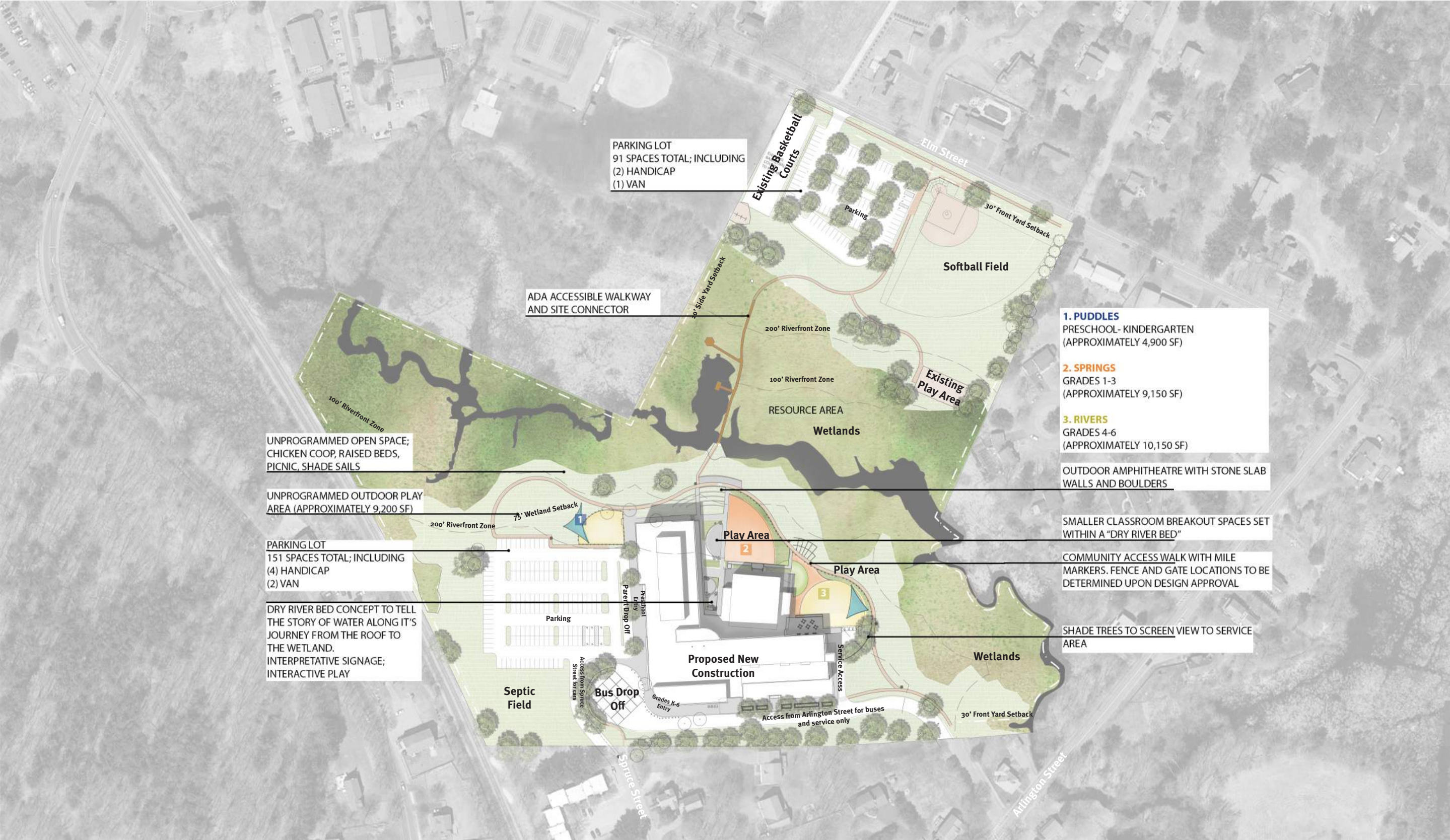
- Site Areas Affected- No Build Zone
- - - Wetland Delineation
- - - 75' Wetland Buffer
- - - 100' Wetland Buffer
- - - Riverfront Area
- - - 200' Riverfront Buffer
- - - Flood Plain
- - - Zoning



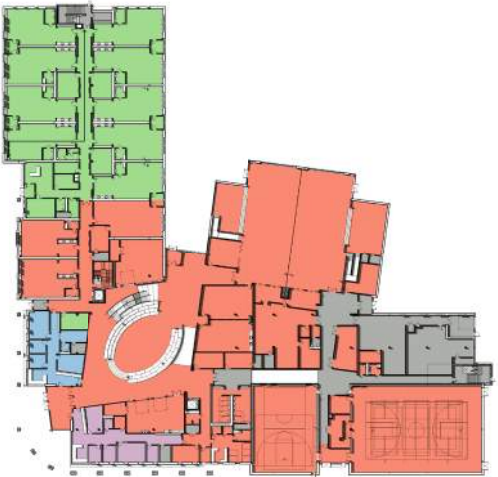
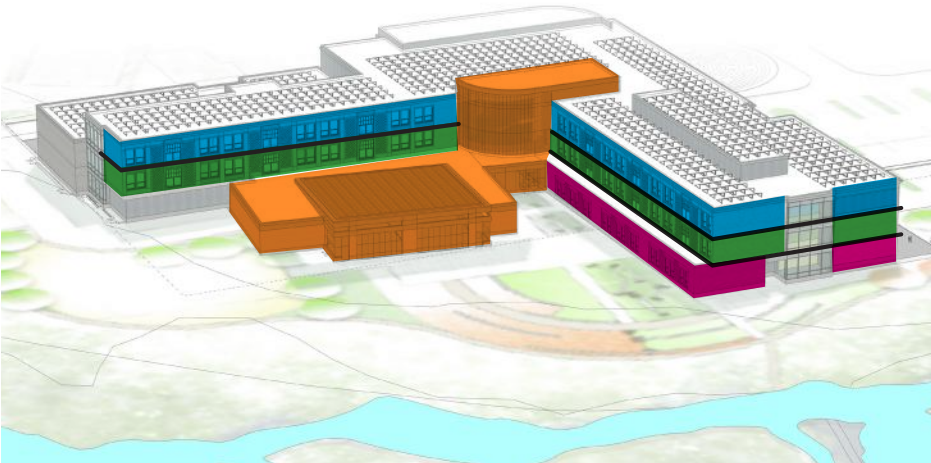
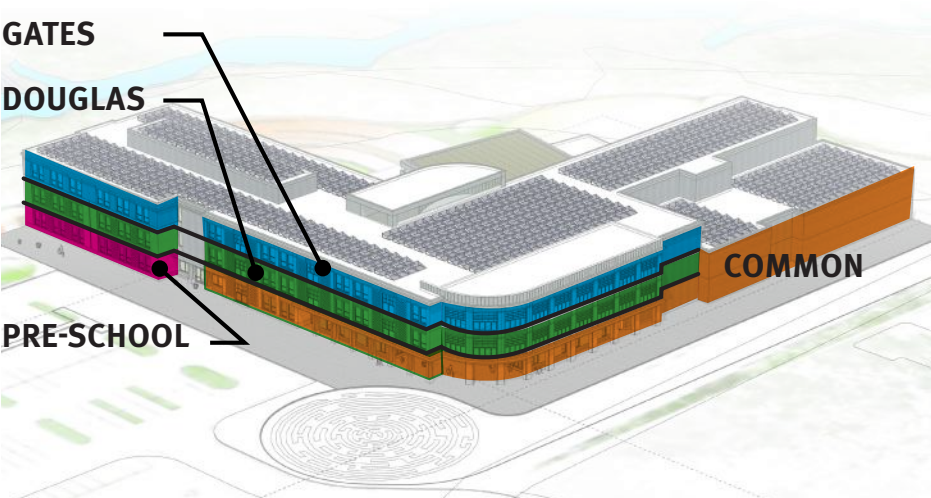
Site Plan



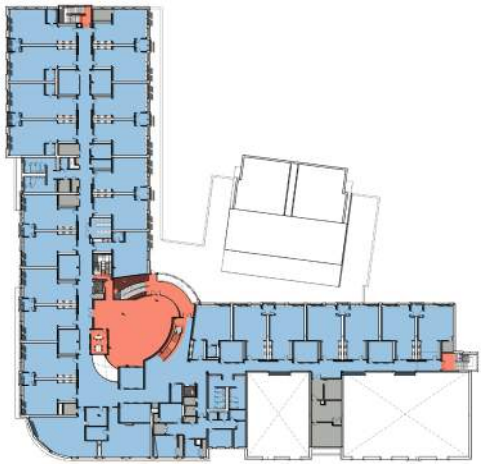
Site Plan



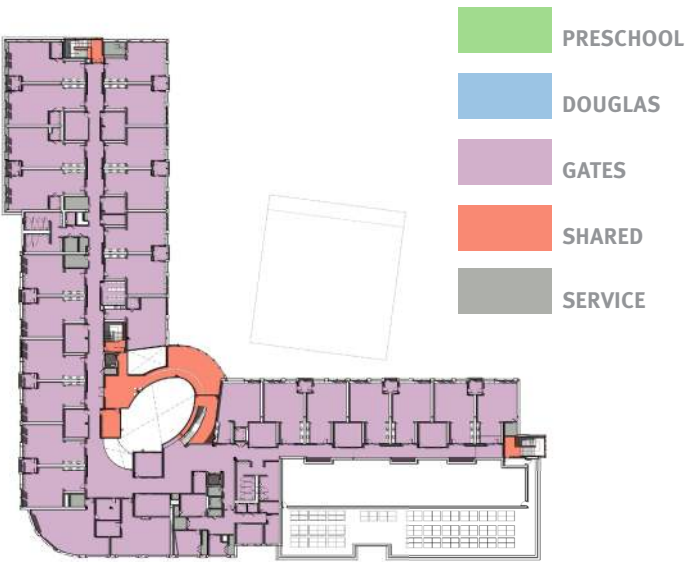
Massing Diagrams



LEVEL 1



LEVEL 2



LEVEL 3

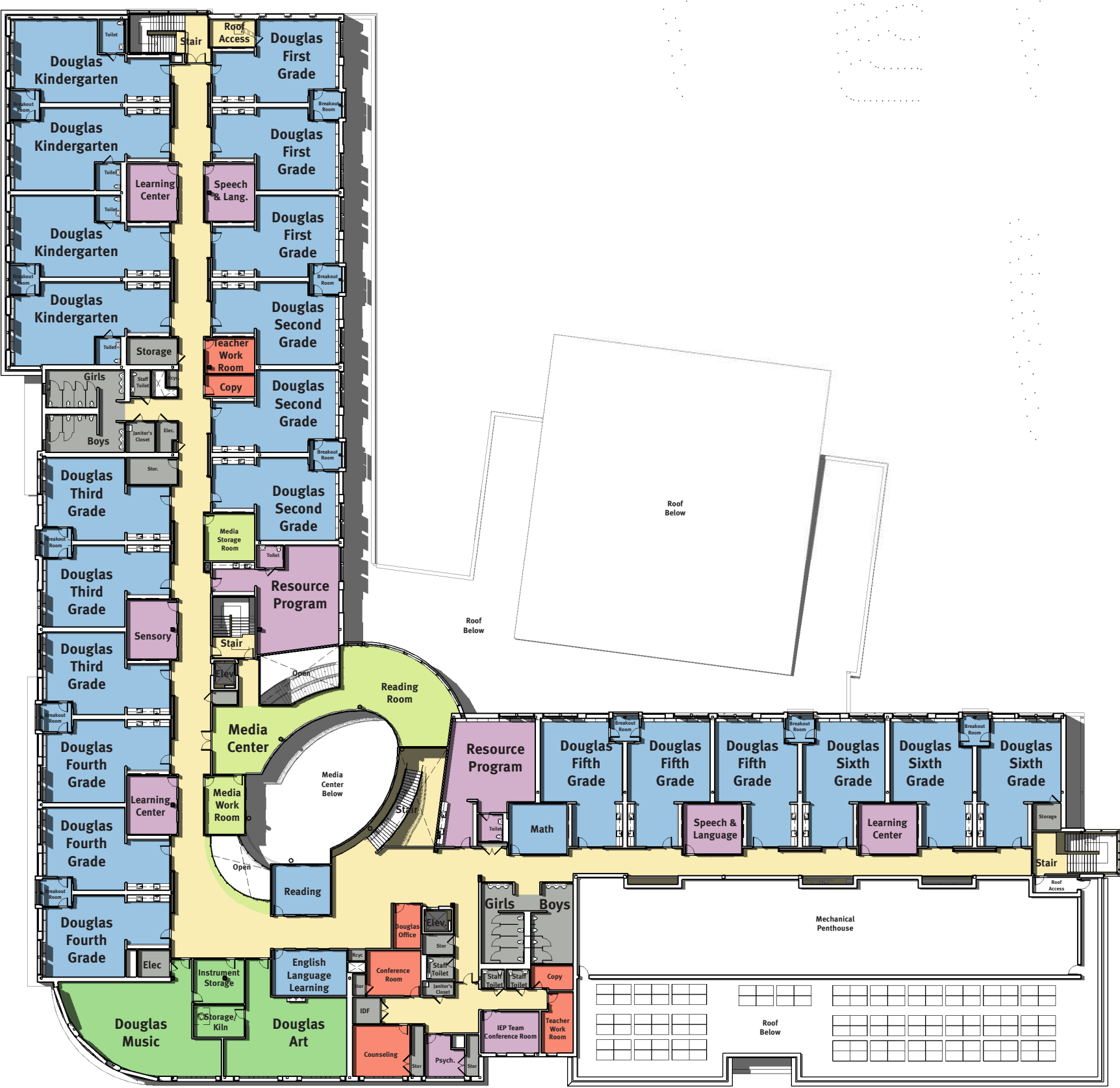
Design Progress / First Floor Plan



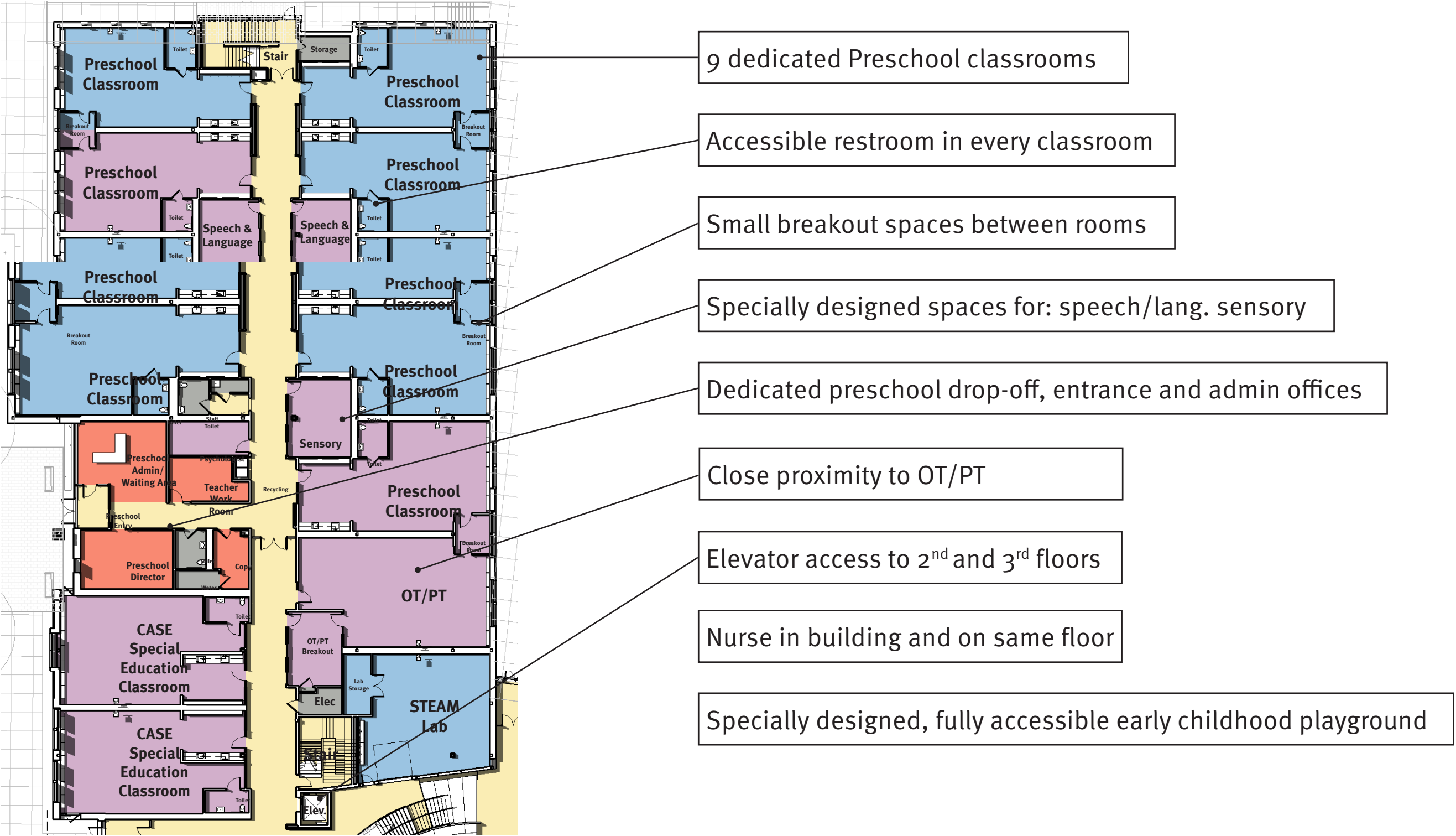
Design Progress / Second Floor Plan, Gates School



Design Progress / Third Floor Plan, Douglas School



Design Progress / Pre School Features



Design Progress / Shared Spaces



Design Progress / Interior



Design Progress / Interior



Design Progress / Interior



Design Progress / Exterior



Design Progress / Exterior



Design Progress / Exterior



Site Circulation Diagram



Project Schedule

November 7, 2018	<i>Preliminary Design Program Submitted to MSBA</i>
February 20, 2019	<i>Preferred Schematic Report Submitted to MSBA</i>
April 10, 2019	<i>MSBA Board Meeting - Approval of Preferred Solution</i>
September 11, 2019	<i>Submit Schematic Design Report to MSBA</i>
October 30, 2019	<i>MSBA Board Meeting - Approval of Project Scope & Budget</i>
December 10, 2019	<i>Anticipated Town Vote</i>
Summer 2020	<i>Begin Construction</i>
Summer 2022	<i>Building Complete</i>
Summer 2023	<i>Site Complete</i>

How does this project save taxpayers?

- Consolidation of 3 schools
 - Value: Undetermined (multi-million)
 - Original estimate for Douglas only project: \$99M
 - Final Budget for “Twin” school + preschool: \$117.5M
- Single-phase vs. multi-phase project
 - Value: \$7M
 - Saved 15 months of construction
- Value engineering process
 - Value: \$3.5M

What are the additional costs of a “twin” school?

- Additional administration spaces beyond MSBA guidelines
 - Cost: c. \$1.8M
 - Additional 3K sq.ft. over MSBA guidelines
 - MSBA only reimburses for one school administration space

High Level Cost Savings Strategies

Date	Item	Amount
8/6	Original project budget estimate	\$124,531,424
8/6-8/30	Value Engineering Process	-\$3,555,678
8/6-8/30	Reduce construction contingency from 4% to 2.5%	-\$1,571,064
8/6-8/30	Reduce owner's contingency from 1.5% to 1%	-\$638,865
8/6-8/30	Reduce consultant fees negotiated	-\$996,746
8/30	Final Voted Project Budget	\$117,833,519

Still to be determined: Permitting fees with Town of Acton -

- Carried as zero (\$0) in project budget*

** In recent similar projects permit fees were carried by the CM firms in their allowances and billed as a direct expense (not marked-up)*

Full VE List

Douglas & Gates Elementary Schools - SD Estimate

Updated 8/27/2019

Item No.		VE Item Description	Initial Savings	Savings w/ Markup	Approve Reduction / Keep In Scope	Arrowstreet Comments	S&C Comments	Priority #1 (Remove)
1	Permitting	Repeal permit fees with Town of Acton	-		Approved	Value unclear		
2	Project Costs	Reduce Construction Contingency from 4% to 1.5%	-		Approved		Will double check %	
3	Project Costs	Reduce Owner's Contingency from 1.5% to 1%	-		Approved		Will double check %	
4	Exterior	Eliminate or reduce specialty brickwork between windows	-		Included below	CSMU Types A & B priced equally in schematic pricing		
5	Exterior	Change CSMU to brick	\$ 207,120	\$ 258,859	Approved	If 100% of CSMU becomes glazed brick		\$ 258,859
6	Interior	Simplify decorative railing design from mesh to other	\$ 8,601	\$ 8,500	Approved			\$ 8,500
7	Interior	Reduce display cases to \$50,000 allowance	\$ 37,991	\$ 47,481	Approved			\$ 47,481
8	Exterior	Reduce amount and simplify metal cornice	-		Included below	Value of reductions unclear at this phase of design		
9	Exterior	Reduce amount and simplify roof edge and soffit	\$ 35,000	\$ 43,743	Approved	Value of reductions unclear at this phase of design		\$ 43,743
10	Exterior	Eliminate green roof	\$ 268,300	\$ 335,321	Approved			\$ 335,321
11	Exterior	Reduce size of gable windows	-		Included below	EUI Impact: Value of reductions unclear at this phase of design		
12	Exterior	Reduce exterior glazing by 5%	\$ 110,000	\$ 137,478	Approved	EUI Impact Reduction: 5% of total cost - may not be accurate. (x1,000 SF of Glazing)		\$ 137,478
13	Interior	Eliminate garage doors at STEAM labs	\$ 28,160	\$ 36,444	Approved	Removal of doors only - substitute doors not assumed		\$ 36,444
14	Interior	Change lower 2' Breakout Room Glass to drywall	\$ 15,840	\$ 19,797	Approved	12 SF x 24 x 555/SF		\$ 19,797
15	Interior	False indoor glazing sills to reduce safety glass by 25%	\$ 17,490.00	\$ 21,859	Approved	pricing seems to be independent of first floor sill height		\$ 21,859
16	Exterior	Change mechanical penthouse exterior materials from metal panel to corrugated metal	\$ 40,000	\$ 49,992	Approved	Alternative cost has been requested from PM&C		\$ 49,992
17	Interior	Shared toilet room entries full height tile to 48" high	\$ 61,525	\$ 79,394	Approved	Non-Wet walls reduced to 48" tile height		\$ 79,394
18	Interior	Reduce drywall ceilings at corridors	\$ 106,800	\$ 134,978	Approved	Reduction of 25%	Find other areas to reduce drywall ceiling scope	\$ 134,978
19	Interior	Health & Wellness flooring from maple to athletic floor	\$ 12,000	\$ 14,998	Approved	AFT assumed		\$ 14,998
20	Interior	Change floor tile in bathrooms to epoxy floor	\$ 29,392	\$ 29,235	Approved	All bathrooms counted		\$ 29,235
21	Interior	Replace sprung wood at platforms to theater floor (Vinyl/Marley)	\$ 28,804	\$ 35,374	Approved	If sprung wood flooring becomes linoleum		\$ 35,374
22	Interior	Change terrazzo to linoleum flooring	\$ 279,657	\$ 342,017	Approved	If 100% of terrazzo becomes linoleum		\$ 342,017
23	Interior	FRP Panels in lieu of Bathroom Wall Tile	\$ 154,480	\$ 193,082	Approved*	Not recommended - value for full height FRP at all walls in lieu of tile - will provide alternatives		\$ 193,082
24	Interior	Classroom windowills quartzstone to something	\$ 18,000.00	\$ 12,498	Approved*	Window sills are currently provided by allowance (\$55/SF, \$72K total)	Request alternate material, provide examples	\$ 12,498
25	Interior	Eliminate operable acoustics folding partition at Media Center	\$ 28,260	\$ 36,569	Approved			\$ 36,569
26	Exterior	Eliminate loading dock equipment	\$ 20,000	\$ 24,996	Approved			\$ 24,996
27	Interior	One shared art room kls between Douglas & Gates	\$ 5,000	\$ 6,249	Approved	**Currently shown as NIC in estimate (Verify price)		\$ 6,249
28	Interior	Eliminate curtain at one stage	\$ 35,000	\$ 43,743	Approved			\$ 43,743
29	Interior	Reduce number of electric basketball backstops at Gym	\$ 20,000	\$ 24,996	Approved	Backstops reduced from 8 to 6 (\$16K ea.)		\$ 24,996
	Site	Move site furniture to PFE budget	\$ 31,500	\$ 39,369	Approved	Picnic Tables & Benches, Moveable tables, chairs, Benches		\$ 39,369
30	Site	Reduce size of water harvesting tanks	\$ 56,000	\$ 62,490	Approved	Working toward more precise pricing		\$ 62,490
31	Mechanical	Reduce Geothermal wells by 25% and provide (2) electric boilers	\$ 240,000	\$ 299,952	Approved	Number per GGD LOCA 7/10/18		\$ 299,952
32	Interior	Eliminate radiant flooring at Preschool and CASE Classrooms	\$ 157,500	\$ 196,844	Approved	EUI Impact Reduction; reduction to unit heaters only - may need add'l ductwork		\$ 196,844
33	Interior	Reduce Scope/Amount of theatrical lighting	\$ 6,000	\$ 7,499	Approved*		Reduce scope, but do not remove	\$ 7,499
34	Site	Eliminate allowance for breulders	\$ 48,750	\$ 60,928	Approved			\$ 60,928
35	Site	Do not replace boardwalk Observation Deck and Floating Dock	\$ 48,100	\$ 60,115	Approved			\$ 60,115
36	Site	Reduce fence - quantity and type	\$ 74,100	\$ 92,610	Approved	If plantings are used in lieu of the north fence, ~200 LF; type unchanged		\$ 92,610
37	Site	Change permeable pavers to concrete	\$ 39,060.00	\$ 37,494	Approved*	Must check site permeability numbers (likely not viable due to code)	Remove pavers from scope entirely	\$ 37,494
38	Site	Reduce Planter Walls and Seat Walls target \$200K reduction	\$ 206,000	\$ 249,960	Approved			\$ 249,960
40	Site	Eliminate shade sail structures	\$ 45,000	\$ 56,241	Approved*		What types of trees can replace?	\$ 56,241
41	Exterior	Eliminate planters at gymnasium	-		Included in 38			
42	Interior	Reduce cafeteria size by 731 SF to make second stage within reimbursable	\$ 308,717	\$ 387,085	Approved	Subject to further approval		\$ 387,085
43	Exterior	Reduce pop-up of Media Center; eliminate clerestory windows at Media Center	\$ 54,900	\$ 67,489	Approved	EUI Impact; reduction for 4305 SF curtain wall (cannot be taken with #35)		\$ 67,489
Subtotal:			\$ 2,844,997	\$ 3,555,678				\$ 3,555,678

Summary of Major Value Engineering Items

Reduce scope of landscaping (multiple items)	\$597K
Reduce Cafeteria size to make 2nd stage reimbursable	\$387K
Change terrazzo flooring at entry to linoleum	\$342K
Eliminate green roof (make green roof “ready”)	\$335K
Option for “hybrid” geothermal mechanicals w/ electric boilers	\$300K
Change specialized exterior CSMU (concrete masonry) to brick	\$259K
Eliminate radiant flooring in preschool classrooms	\$197K
Fiberglass panel in restrooms instead of ceramic tile	\$193K
Reduce exterior glazing (glass) by 5%	\$137K
Eliminate drywall ceilings in corridors- seek alternative	\$135K
Reduce size of rainwater harvesting tank (to 93% of need capacity)	\$62K
Other misc. reductions	\$612K

Important Final Budget Data

116	Board Authorization	
117	Design Enrollment	990
118	Total Building Gross Floor Area (GSF)	174,759
119	Total Project Budget (excluding Contingencies)	\$114,309,033
120	Scope Items Excluded or Otherwise Ineligible	\$36,568,626
121	Third Party Funding (Ineligible)	\$0
122	Estimated Basis of Maximum Total Facilities Grant ¹	\$77,740,407
123	Reimbursement Rate	49.70%
124	Est. Max. Total Facilities Grant (before recovery) ¹	\$38,636,982
125	Cost Recovery ²	\$0
126	Estimated Maximum Total Facilities Grant ¹	\$38,636,982

127	Construction Contingency ³	\$2,381,396
128	Ineligible Construction Contingency ³	\$1,428,837
129	"Potentially Eligible" Construction Contingency ³	\$952,558
130	Owner's Contingency ³	\$1,143,090
131	Ineligible Owner's Contingency ³	\$0
132	"Potentially Eligible" Owner's Contingency ³	\$1,143,090
133	Total Potentially Eligible Contingency ³	\$2,095,649
134	Reimbursement Rate	49.70%
135	Potential Additional Contingency Grant Funds ³	\$1,041,537
136	Maximum Total Facilities Grant	\$39,678,520
137	Total Project Budget	\$117,833,519

Summary of Project Costs

Total Project Budget Including Contingencies	\$117,833,519	
Feasibiliy Study Costs	\$1,300,000	
	\$116,533,519	
Maximum Total Facilities Grant (incl Contingencies)	\$39,678,520	34.05%
School District Share	\$76,855,000	65.95%

Already Paid

Remaining

Note that the “share” figures are approximate and will be determined by the MSBA audit process

What is reimbursable?

Examples Include:

- 98% of all planned spaces within building estimated to be reimbursable (171,392 sq.ft.)
- Site costs up to 8% of Direct Building Costs
- Furniture, Fixtures & Equipment (F,F&E) up to \$1200 per student (990 students)
- Technology up to \$1200 per student (990 students)

What is not reimbursable?

Examples Include:

- Total cost of construction per SF is *capped* at \$333
- Space allocation beyond MSBA guidelines (3,367 sq.ft.)
- Site costs exceeding 8% of Direct Building Costs
- Some construction contingencies, insurance, bonds, etc.
- Asbestos abatement
- FF&E and Technology above \$1200 per students (990 students)

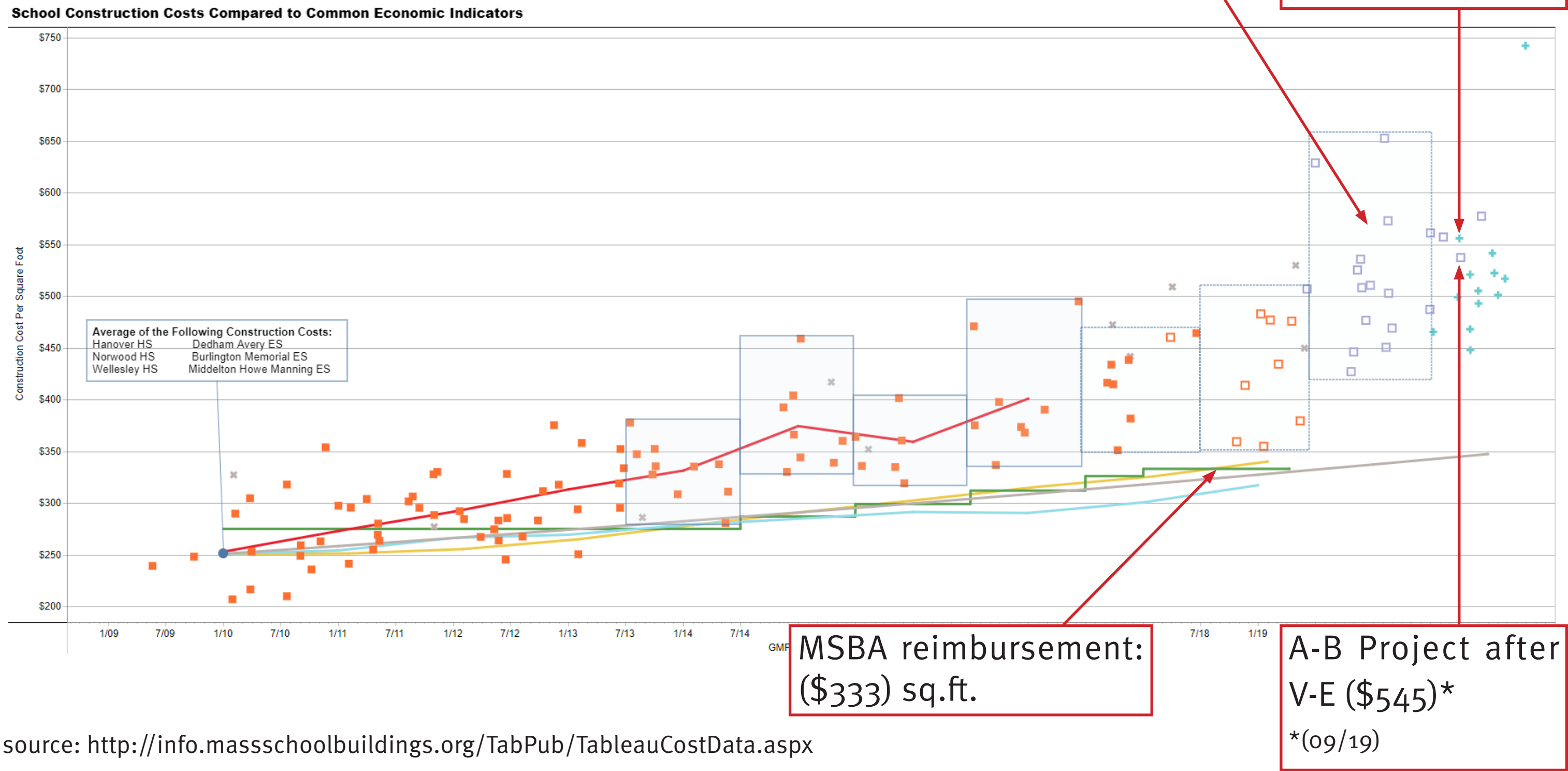
Costs Ineligible for reimbursement?

Construction cost/ sq.ft. > \$333 (MSBA cap)	c. \$212 sq.ft. Δ (our costs - \$505 sq.ft.)	c. \$29M
Site costs exceeding 8% of direct building costs		c. \$2.9M
Space exceeding MSBA guidelines	3,367 sq. ft.	c. \$1.8M
Misc. Contingencies, Bonds & Insurances		c. \$1.2M
Asbestos Abatement		\$528K
Additional Furniture, Fixtures & Equipment exceeding MSBA	Budget @ \$1,500/student v. \$1,200/ student (1,150 students)	\$492K
Additional Technology exceeding MSBA	Budget @ \$1,500/student v. \$1,200/ student (1,150 students)	\$492K
	TOTAL EST. INELIGIBLE	c. \$36.5M

Sq. Ft. Cost Comparisons

Costs of recently completed or approved projects

A - B Building Project (\$556)*
*(04/19)



Spaces Over MSBA Guidelines (Ineligible)

- Gym Storage - 150 sq.ft.
- Administration (3 Schools) - 3015 sq.ft.
 - Each school admin area is individually under MSBA space guidelines for a single school

and possibly...

- Math, Reading, EL Rooms in CORE Spaces (1900 sq.ft.)
 - We reduced 1 gen ed classroom (950 sq.ft.)

The Cost of Net Zero

Net Zero Energy: \$3.27M

Cost Estimate Summary

Groundsource heat pump (PM+C)	\$12,272,421	Boilers and chillers (PM+C)	\$ 8,750,000	\$ 3,522,421
Zero Combustion	\$ -	Gas Line (Allowance)	\$ 50,000.00	\$ (50,000)
PV ready infrastructure - Roof	\$ 10,000	PV ready infrastructure	\$ 10,000	\$ -
PV ready infrastructure - Parking	\$ 40,000	No PV	\$ -	\$ 40,000
VE to hybrid system	\$ 12,032,421			(\$240,000)
			\$ 3,272,421	Total Based on Estimate

Net Zero Water: \$415K

NZ Design	Estimated Cost	Non NZ Design	Estimated Cost	NZ 'Premium'
Rainwater reuse system (50,000g tank)	\$ 290,000	Larger stormwater retention	\$ -	\$ 290,000
Reuse piping to WC/urinals	\$ 175,000	Potable only piping	\$ -	\$ 175,000
VE to 20,000g tank	\$ 240,000			\$ (50,000)
			\$ 415,000	Total

Payback Period Calulation - Septic	
Estimated demand savings in gallon/year	500,500
Current water cost per gallon	\$ 0.0064
Estimated annual water cost	\$ 3,203.20
Payback period in years	130

Payback Period Calulation - Sewer	
Estimated demand savings in gallon/year	500,500
Current water cost per gallon	\$ 0.0064
Estimated annual water cost	\$ 3,203.20
Current sewer cost per gallon	\$ 0.03
Estimated annual sewer cost	\$ 12,512.50
Payback period in years	26

Net Zero Waste: \$0

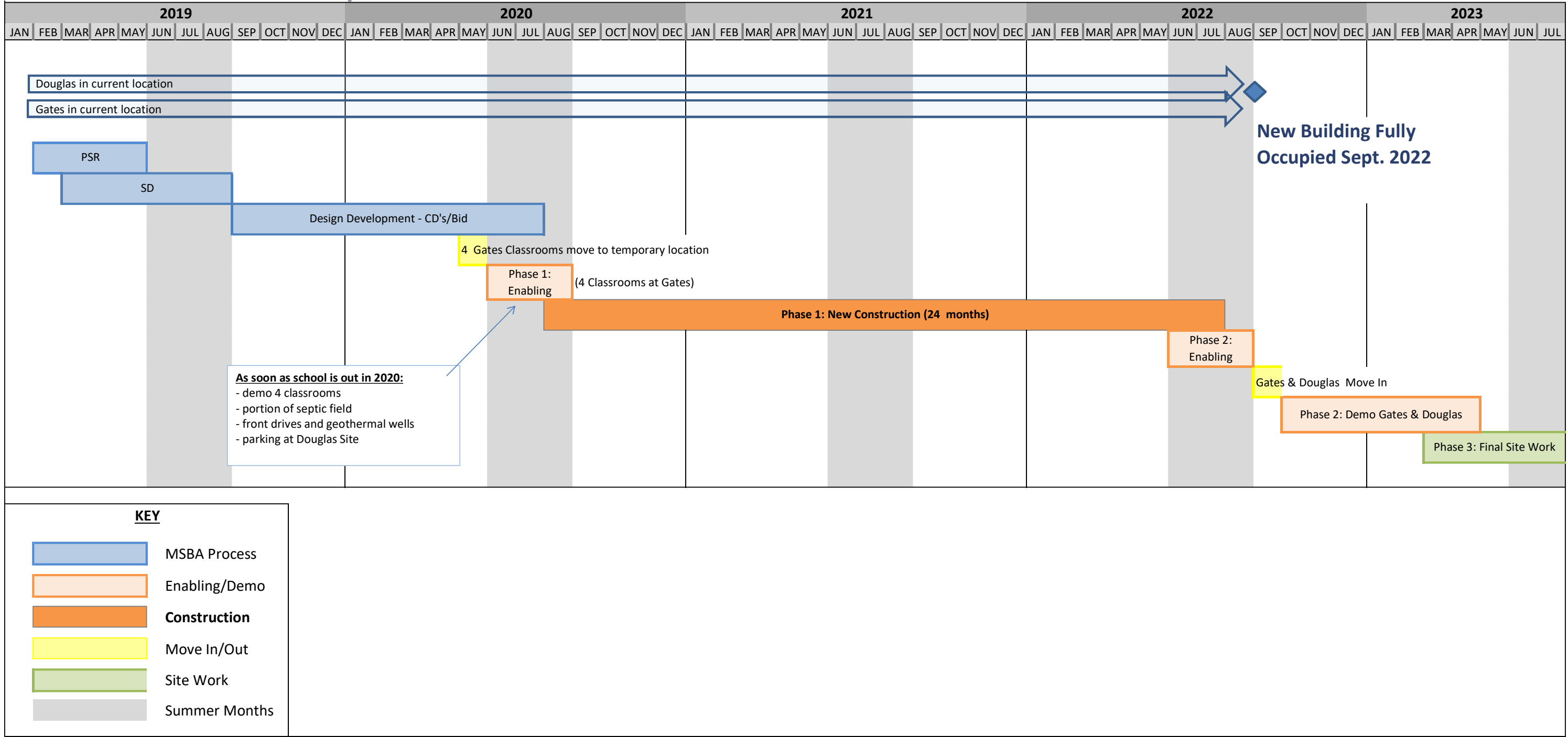
Total Cost of Net Zero (Initial Capital Investment): \$3.7M
AVG Annual Cost per Household (Tax Impact): \$16-\$24



Updated Cost Comparisons

	2018-19 Forums & Town Meeting Presentations	August 2019 (Current) Estimates
Total Project Costs	\$120M - \$130M	\$117.8M
Total Project Costs remaining after Feasibility Study (\$1.3M)	-	\$166.5M
MSBA Reimbursement (Maximum <i>Possible</i> Grant)	\$40M - \$60M	\$39.7M
MSBA <i>Estimated</i> Reimbursement Rate	35% - 45%	34.05%
AB Share of Total Costs	\$70M - \$80M	\$76.9M
Acton Share		\$65.3M
Acton SF Tax Impact	\$650 - \$850/ year	\$450 - \$600/ year
Boxborough Share	\$10M - \$12M	\$11.5M
Boxborough SF Tax Impact	\$450 - \$600/ year	\$300 - \$450/ year

Project Schedule



Questions and Feedback

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Acton-Boxborough School Building
Project



Space Summary Template

Rev. April 2019

Proposed Space Summary- Elementary Schools

Douglas & Gates Elementary Schools	Existing Conditions- Douglas			Existing Conditions- Gates			Existing Conditions- Pre School		
ROOM TYPE	ROOM NFA ¹	# OF RMS	area totals	ROOM NFA ¹	# OF RMS	area totals	ROOM NFA ¹	# OF RMS	area totals
CORE ACADEMIC SPACES			16,147			16,823			7,667
<i>(all classrooms of different sizes separately)</i>									
Pre-School Classroom w/ toilet							1,278	6	7,667
Kindergarten w/ toilet	1,023	2	2,040	1,069	2	2,138			
General Classroom - Grade 1-6	947	13	16,101	865	16	13,685			
STE Room - Grade 3-6									
STE Storage									
Small Group Room / Reading									
Small Group Room / Math									
English Language Education									
SPECIAL EDUCATION			4,432			1,695			0
<i>(all rooms of different sizes separately)</i>									
Self-Contained SPED / Special Education Resource Program									
Self-Contained SPED / Special Education Resource Program- toilet	625	6	3,748						
Pre-School Self-Contained Classroom w/ toilet									
CASE Collaborative Classroom w/ toilet									
Resource Room									
Small Group Room / Learning Center	182	2	364	663	2	1,326			
Small Group Room / Speech and Language	320	1	320	114	1	114			
OT/PT				165	1	165			
OT/PT Breakout									
Sensory Space									
IEP Team Chairperson									
IEP Team Meeting Conference Room									
Pre-School IEP Conference Room									
Psychologist									
BCSA									
ART & MUSIC			1,701			4,714			0
Art Classroom - 25 seats	883	1	883	866	1	866			
Art Workroom w/ Storage & kiln									
Music Classroom / Large Group - 25-50 seats	818	1	818	943	2	1,886			
Music Practice / Ensemble									
Instrument Storage									
Multipurpose Art/Music Room				491	4	1,963			
HEALTH & PHYSICAL EDUCATION			2,371			3,976			0
Gymnasium									
Health & Wellness	2,223	1	2,223	3,785	1	3,785			
Gym Storeroom	148	1	148	48	4	191			
Health Instructor's Office w/ Shower & Toilet									
MEDIA CENTER			809			1,443			0
Media Center / Reading Room - Level 2	809	1	809	481	3	1,443			
Media Center / Reading Room - Level 3									
Book Library									
DINING & FOOD SERVICE			4,919			6,778			0
Cafeteria / Dining	2,307	1	2,307	3,393	1	3,393			
Breakfast Lunch									
Large Storage	770	1	770	544	1	544			
Chair / Table / Equipment Storage				122	2	244			
Kitchen	1,433	1	1,433	1,997	1	1,997			
Staff Lunch Room				690	1	690			
MEDICAL			369			178			0
Medical Suite Toilet	49	1	49	25	1	25			
Nurses' Office / Waiting Room	320	1	320	145	1	145			
Examination Room / Resting									
ADMINISTRATION & GUIDANCE			1,869			1,414			476
General Office / Waiting Room / Toilet	318	1	318	223	3	670			
Pre-School Office / Waiting Room / Toilet									
Teachers' Mail and Time Room									
Duplicating Room / Copy Room									
Records Room									
Principal's Office w/ Conference Area	188	1	188	157	1	157			
Principal's Secretary / Waiting									
Assistant Principal's Office	122	1	122	102	1	102			
Supervisory / Spare Office									
Pre-School Director							476	1	476
Conference Room	607	1	607	278	1	278			
Guidance Office / Counseling	244	1	244	76	2	152			
Guidance Storeroom				55	1	55			
Teachers' Work Room	380	1	380						
CUSTODIAL & MAINTENANCE			213			397			0
Custodian's Office	56	1	56	131	1	131			
Custodian's Workshop	52	3	157	21	2	42			
Custodian's Storage				224	1	224			
Recycling Room / Trash									
Receiving and General Supply									
Storeroom									
Network / Telecom Room									
OTHER			0			0			0
Other (specify): Mother's Room									
Total Building Net Floor Area (NFA)			34,411			36,320			8,143
Proposed Student Capacity / Enrollment			476			428			
NON-PROGRAMMED SPACES									
Other Occupied Rooms (list separately)									
Unoccupied MEP/FP Spaces									
Unoccupied Corsets, Supply Rooms & Storage Rooms									
Toilet Rooms									
Circulation (corridors, stairs, ramps & elevators)									
Remaining									
Total Building Gross Floor Area (GFA) ²			48,324			55,933			11,138
Grossing factor (GFANFA)			1.40			1.54			1.37

PROPOSED								
Existing to Remain/Renovated			New			Total		
ROOM NFA¹	# OF RMS	area totals	ROOM NFA¹	# OF RMS	area totals	ROOM NFA¹	# OF RMS	area totals
	0				56,680			56,680
			1,200	7	8,400	1,200	7	8,400
			1,200	8	9,600	1,200	8	9,600
			955	36	34,380	955	36	34,380
			1,080	2	2,160	1,080	2	2,160
			120	2	240	120	2	240
			300	2	600	300	2	600
			300	2	600	300	2	600
			350	2	700	350	2	700
	0				16,710			16,710
			955	4	3,820	955	4	3,820
			60	4	240	60	4	240
			1,200	2	2,400	1,200	2	2,400
			1,150	2	2,300	1,150	2	2,300
			300	6	1,800	300	6	1,800
			300	6	1,800	300	6	1,800
			1,250	1	1,250	1,250	1	1,250
			250	1	250	250	1	250
			300	3	900	300	3	900
			250	1	250	250	1	250
			250	3	750	250	3	750
			250	1	250	250	1	250
			150	3	450	150	3	450
			250	1	250	250	1	250
	0				7,110			7,110
			1,000	2	2,000	1,000	2	2,000
			110	2	220	110	2	220
			1,200	2	2,400	1,200	2	2,400
			230	2	460	230	2	460
			955	2	1,910	955	2	1,910
	0				9,470			9,470
			6,000	1	6,000	6,000	1	6,000
			2,960	1	2,960	2,960	1	2,960
			300	1	300	300	1	300
			210	1	210	210	1	210
	0				5,125			5,125
			2,825	1	2,825	2,825	1	2,825
			1,800	1	1,800	1,800	1	1,800
			250	2	500	250	2	500
	0				11,992			11,992
			6,973	1	6,973	6,973	1	6,973
			432	1	432	432	1	432
			941	1	941	941	1	941
			374	1	374	374	1	374
			2,452	1	2,452	2,452	1	2,452
			400	1	400	400	1	400
	0				710			710
			45	2	90	45	2	90
			580	1	580	580	1	580
			100	1	100	100	1	100
	0				6,140			6,140
			405	2	810	405	2	810
			355	1	355	355	1	355
			35	2	70	35	2	70
			105	5	525	105	5	525
			110	2	220	110	2	220
			300	2	600	300	2	600
			125	2	250	125	2	250
			125	2	250	125	2	250
			138	2	276	138	2	276
			300	1	300	300	1	300
			250	4	1,000	250	4	1,000
			300	2	600	300	2	600
			0	0	0	0	0	0
			180	5	900	180	5	900
	0				2,990			2,990
			150	1	150	150	1	150
			350	1	350	350	1	350
			Varies	7	660	Varies	7	660
			20	5	100	20	5	100
			300	1	300	300	1	300
			600	1	600	600	1	600
			430	1	430	430	1	430
	0				100			100
			100	1	100	100	1	100
	0				116,227			116,227
	% of GFA		% of GFA		58,532	% of GFA		58,532
	#DIV/0!		0%		0	0%		0
	#DIV/0!		0%		0	0%		0
	#DIV/0!		0%		0	0%		0
	#DIV/0!		0%		0	0%		0
	#DIV/0!		2%		3,198	0%		0
	#DIV/0!		1%		1,151	0%		0
	#DIV/0!		2%		4,155	0%		0
	#DIV/0!		21%		36,908	0%		0
	#DIV/0!		8%		13,122	33%		58.5
					174,768			174,768
	#DIV/0!				1.50			1.8

[illegible]

¹ **Individual Room Net Floor Area (NFA)** Includes the net square footage Includes the net square footage; Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms

² Total Building Gross Floor Area (GFA) Includes the entire building gross floor area. Includes the entire building gross square footage measured from the outside face of exterior walls.

³ Remaining Includes exterior walls, interior Includes exterior walls, interior Includes exterior walls, interior partitions, chases, and other areas not listed above. Do not calculate this area, it is assumed to equal the difference between the Total Building Gross Floor Area and area not accounted for above.

Architect Certification	<p>I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.</p>
	<p>Name of Architect Firm: _____</p>
	<p>Name of Principal Architect: _____</p>
	<p>Signature of Principal Architect: _____</p>
	<p>Date: _____</p>

MA CHPS Checklist



NE-CHPS v3.2
Project Workplan

CT Douglas ABRSD
7/20/2019

Y ? N

10	13	2	Integration and Innovation	25
4		II 1.0- Prereq	Integrated Design	4
2		II 1.1	Enhanced Integrated Design	2
1		II 2.1	District Level Commitment	1
	1	II 3.1	School Master Plan	1
	1	II 4.1	High Performance Transition Plan	1
1		II 5.0- Prereq	Educational Display	1
1		II 5.1	Demonstration Area	1
2		II 6.1	Educational Integration	2
3		II 7.1	Climate Change Action/ Carbon Footprint Reporting	3
3		II 8.0- Prereq	Crime Prevention through Environmental Design	3
4		II 9.1	Innovation	4
2		II 10.1	Biophilic Design	2

9	11	0	Operations & Metrics	25
2	2	OM 1.0- Prereq	Facility Staff and Occupant Training	4
	2	OM 2.1	Post Occupancy Transition	2
3		OM 3.0- Prereq	Performance Benchmarking	3
	4	OM 4.1	High Performance Operations	4
1		OM 5.0- Prereq	Systems Maintenance Plan	1
	2	OM 6.0- Prereq	Indoor Environmental Management Plan	2
	2	OM 7.1	Green Cleaning	2
1		OM 8.0- Prereq	Integrated Pest Management Plan	1
	1	OM 9.0- Prereq	Anti-Idling Measures	1
	2	OM 10.1	Green Power	2
2		OM 11.0- Prereq	ENERGY STAR Equipment and Appliances	2
	1	OM 12.1	Computerized Maintenance Management System	1

40	15	11	Indoor Environmental Quality	70
8		EQ 1.0- Prereq	HVAC Design - ASHRAE 62.1	8
2		EQ 1.1	Enhanced Filtration	2
3		EQ 1.2	Dedicated Outdoor Air System	3
2		EQ 2.0- Prereq	Pollutant and Chemical Source Control	2
1		EQ 3.0- Prereq	Outdoor Moisture Management	1
2		EQ 4.1	Ducted Returns	2
5		EQ 5.1	Construction Indoor Quality Management	5
1		EQ 5.2	Construction Moisture Management	1
	1	EQ 6.1	Post Construction Indoor Air Quality	1
2		EQ 7.0- Prereq	Low Emitting Materials	2
3	2	EQ 7.1	Additional Low Emitting Materials	5
	1	EQ 8.1	Low Radon	1
4		EQ 9.1	Thermal Comfort - ASHRAE 55	4
1		EQ 10.1	Individual Controllability	1
1		EQ 10.2	Controllability of Systems	1
4		EQ 11.0- Prereq	Daylighting: Glare Protection	4
3	2	EQ 11.1	Daylight Availability	5
1	2	EQ 12.0- Prereq	Views	3
3		EQ 13.1	Electric Lighting Performance	3
3	2	EQ 13.2	Superior Electric Lighting Performance	5
3	4	EQ 14.0- Prereq	Acoustical Performance	7
	1	EQ 15.1	Low-EMF Wiring	1
	2	EQ 15.2	Low-EMF Best Practices	2
	1	EQ 16.1	High Intensity Fluorescent Fixtures	1

32	17	0	Energy	68
6		EE 1.0- Prereq	Energy Performance	6
13	8	EE 1.1	Superior Energy Performance	40
	3	EE 2.1	Zero Net Energy Capable	3
4		EE 3.0- Prereq	Commissioning	4
1		EE 3.1	Additional Commissioning Qualifications	1
1		EE 3.2	Building Envelope Commissioning	1
1		EE 3.3	Enhanced Commissioning	1
1		EE 4.0- Prereq	Environmentally Preferable Refrigerants	1
	2	EE 5.1	Energy Management System	2
	2	EE 5.2	Advanced Energy Management System and Submetering	2
	2	EE 6.1	Natural Ventilation and Energy Conservation Interlocks	2
2		EE 7.0- Prereq	Local Energy Efficiency Incentive and Assistance	2
1		EE 8.1	Variable Air Volume Systems	1
1		EE 9.1	Renewable Energy Performance Monitoring	1
1		EE 10.1	Electric Vehicle Charging	1

13	8	0	Water	21
5		WE 1.0- Prereq	Minimum Reduction in Indoor Potable Water Use	5
	4	WE 2.1	Reduced Potable Water Use for Sewage Conveyance	4
4		WE 3.0- Prereq	Irrigation and Exterior Water Budget- Use Reduction	4
2		WE 4.1	Reduced Potable Water Use for Non-Recreational Landscaping	2
	1	WE 5.1	Reduced Potable Water Use for Recreational Landscaping	1
1		WE 6.0- Prereq	Irrigation Systems Commissioning	1
	2	WE 7.1	Rainwater Collection and Storage	2
	2	WE 8.1	Water Management System	2

8	9	5	Sites	22
2			SS 1.0- Prereq Site Selection	2
2		1	SS 2.1 Environmentally Sensitive Land	3
		1	SS 3.1 Minimize Site Disturbance	1
	1		SS 4.1 Construction Site Runoff Control and Sedimentation	1
	1		SS 5.1 Post Construction Stormwater Management	1
	2		SS 6.1 Central Location	2
		1	SS 7.1 Located Near Public Transportation	1
1			SS 8.1 Joint-Use of Facilities	1
	1	1	SS 9.1 Human-Powered Transportation	2
		1	SS 10.1 Reduce Heat Islands - Landscaping and Sites	1
	1		SS 11.1 Reduce Heat Islands - Cool Roofs and Green Walls	1
	1	1	SS 12.1 Avoid Light Pollution and Unnecessary Lighting	2
		1	SS 13.1 School Gardens	1
		1	SS 14.1 Use Locally Native Plants for Landscape	1
2			SS 15.0- Prereq Site and Building Best Practices	2

7	6	5	Materials and Waste Management		19
2		MW 1.0- Prereq	Storage and Collection of Recyclables		2
2		MW 2.0- Prereq	Minimum Construction Site Waste Management		2
1		MW 2.1	Construction Site Waste Management		2
	2	MW 3.1	Single Attribute- Recycled Content		2
	1	MW 4.1	Single Attribute- Rapidly Renewable Materials		1
		MW 5.1	Single Attribute- Certified Wood		1
		1	MW 6.1	Single Attribute- Materials Reuse	1
2		MW 7.1	Multi- Attribute Materials Selection		2
	2	MW 8.1	Building Reuse- Exterior		2
		1	MW 9.1	Building Reuse- Interior	1
	1	MW 10.1	Health Product Related Information Reporting		1
	1	1	MW 11.1	Locally Produced Materials	2

119	79	23	Total	Possible Points: 250
Verified 110 to 159 points CHPS Verified Leader 160 to 250 points				

MSBA Reimbursement Rate Chart

District’s Anticipated Reimbursement Rate with Incentive Points

The District is currently anticipating to receive the following Incentive Points.

Category	Reimbursement Points
Reimbursement Rate before Incentives (per MSBA)	45.95
Maintenance (per MSBA)	1.75
CM @ Risk (Invited after discontinuation of point)	0
Newly Formed Regional School District	0
Major Reconstruction or Reno/ Reuse	0
Overlay Zoning District -c. 40R or c. 40S	0
Overlay Zoning 100 Units or 50% units for one, two, and three family units	0
Energy Efficiency- “Green Schools”	2
Model Schools	0
Total Incentive Points	3.75

Septic Vs. Sewer Discussion

	Septic	Sewer
Initial capital outlay	\$550K	\$550K
Annual projected operating expenses	\$1K	\$15K
Net Zero Water “payback” in years	130 years	26 years

Summary of Costs Ineligible for Reimbursement

	Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible
77	Asbestos Cont'g Floor Mat'l Abatement	\$528,000	\$528,000
85	Scope Excluded Site Cost		\$2,912,155
86	Construction Trades Subtotal (NOTE INCL VE)	\$70,979,464	\$3,440,155
87	Contingencies (Design and Pricing)	\$7,453,514	\$361,249
88	D/B/B Sub-Contractor Bonds	\$1,055,883	\$51,175
89	D/B/B Insurance	\$1,182,589	\$57,316
90	D/B/B General Conditions	\$7,878,827	\$381,862
91	D/B/B Overhead & Profit	\$0	\$0
92	GMP Insurance	\$0	\$0
93	GMP Fee	\$2,111,767	\$102,351
94	GMP Contingency	\$2,111,767	\$102,351
95	Escalation to Mid-Point of Construction	\$2,482,020	\$120,296
96	Overall Excluded Construction Cost		\$30,917,871
97	Construction Budget	\$95,255,831	\$35,534,626
110	<i>Furniture, Fixtures and Equipment</i>	\$1,680,000	\$492,000
111	<i>Technology</i>	\$1,680,000	\$492,000
112	FF&E Subtotal	\$3,360,000	\$984,000

120	Scope Items Excluded or Otherwise Ineligible	\$36,568,626
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Systems Lifecycle Cost Analysis / Mechanical System Payback Summary with Hybrid Geothermal Option



Douglas Elementary School - Mechanical System Payback Summary

Baseline	System	Gross Capital Investment*	Annual Elec. Cons. (kWh)	Annual Gas Cons. (MBTU)	Annual Electric Cost	Annual Gas Cost	Combined Utility Cost	Annual Utility \$/s.f.	Annual kBTU/s.f. (EUI)	Annual Maint. Cost	15 Year Exterior Equipment Replacement Cost	Annual CO2 Emissions (mTONS)	Combined Annual Expense	Combined Expense Savings**	Total Life-Cycle Savings***	Discounted Payback (Years)****
-	1. Hot water coil heating/chilled water coil cooling VAV AHU system with energy recovery and terminal VAV boxes with hot water reheat coils 2. Code-efficient gas-fired non-condensing boiler plant 3. High-efficiency (code) water-cooled chiller plant with cooling tower	\$10,643,800	2,020,046	2,865.0	\$242,405	\$36,051	\$278,456	\$1.57	55.1	\$46,710	\$175,000	960.0	\$325,166	-	-	-

Option	System	Gross Capital Investment*	Annual Elec. Cons. (kWh)	Annual Gas Cons. (MBTU)	Annual Electric Cost	Annual Gas Cost	Combined Utility Cost	Annual Utility \$/s.f.	Annual kBTU/s.f. (EUI)	Annual Maint. Cost	15 Year Exterior Equipment Replacement Cost	Annual CO2 Emissions (mTONS)	Combined Annual Expense	Combined Expense Savings**	Total Life-Cycle Savings***	Discounted Payback (Years)****
1	1. Displacement ventilation diffusers with passive chilled beam cooling/heating radiation 2. Hot water coil heating/chilled water cooling VAV ventilating units with energy recovery with terminal VAV boxes with CO2 controls 3. Geothermal wells with high-efficiency water-to-water source heat pump chillers	\$12,838,650	1,409,139	0.0	\$169,097	\$0	\$169,097	\$0.96	27.2	\$35,460	\$0	563.7	\$204,557	\$120,609	\$2,732,400	20
2	1. Displacement ventilation diffusers with passive chilled beam cooling/heating radiation 2. Gas-fired heating/dx cooling VAV ventilating units with energy recovery with terminal VAV boxes with CO2 controls 3. High efficiency gas-fired condensing boiler plant 4. High efficiency water-cooled chiller plant with cooling tower	\$9,073,210	1,239,201	1,824.0	\$148,704	\$22,954	\$171,658	\$0.97	34.2	\$37,460	\$175,000	592.5	\$209,118	\$116,048	\$4,635,005	Instant*****
3	1. Variable refrigerant flow (VRF) terminal evaporator units with air-cooled condensing units 2. Air-cooled dx heat pump heating/cooling 100% O.A. ventilating units with energy recovery with terminal VAV boxes with CO2 controls serving VRF units 3. Air-cooled dx heat pump heating/cooling VAV AHU systems with energy recovery with terminal VAV boxes with CO2 controls serving the cafetorium	\$9,331,350	1,704,508	0.0	\$204,541	\$0	\$204,541	\$1.16	32.9	\$75,960	\$1,900,000	681.8	\$280,501	\$44,665	-\$1,363,213	Instant*****
4	1. Displacement ventilation diffusers with passive chilled beam cooling/heating radiation 2. Hot water coil heating/chilled water cooling VAV ventilating units with energy recovery with terminal VAV boxes with CO2 controls 3. Geothermal wells with high-efficiency water-to-water source heat pump chillers 4. Supplemental electric boiler plant	\$12,208,150	1,426,031	0.0	\$171,124	\$0	\$171,124	\$0.97	27.5	\$36,960	\$0	570.4	\$208,084	\$117,082	\$3,237,454	15