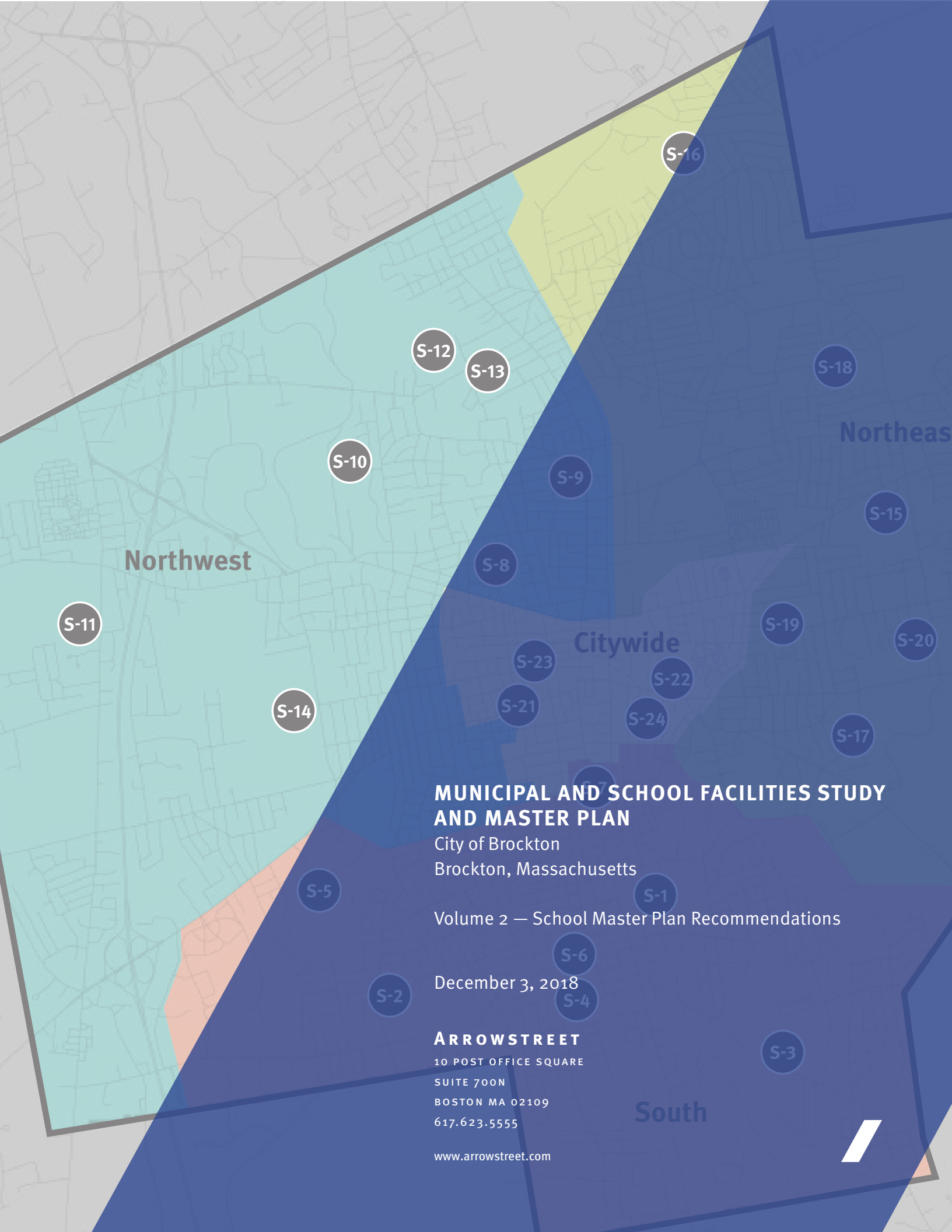

MUNICIPAL AND SCHOOL FACILITIES STUDY AND MASTER PLAN

City of Brockton
Brockton, Massachusetts

Volume 2 — School Master Plan Recommendations

December 3, 2018

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Volume 2 **SCHOOLS MASTER PLAN**

CONTENTS

ACKNOWLEDGEMENTS

This planning study was jointly managed by the Department of Planning and Economic Development and the School Department in the City of Brockton, Massachusetts.

The planning process for Volumes 1 and 2 of this study includes input, ideas, and feedback gathered from many School Administration staff that participated in Visioning Sessions, responded to surveys, participated in informal discussions, provided input during meetings, and offered data that shaped the findings contained in these reports.

The team was lead by:

MAYOR
Bill Carpenter

SCHOOL ADMINISTRATION
Kathleen A. Smith, Superintendent of Schools
Michael P. Thomas, Deputy Superintendent

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
Rob May, Director of Planning and Economic Development
Shane O'Brien, Staff Planner
Pam Gurley, Administrative Assistant

SCHOOL STUDY CONSULTANT TEAM
Arrowstreet Inc., Architecture and Planning
Frank Locker, Educational Planner
Ken Buckland, Urban Planner

During the planning process, the team referenced many preceding studies and reports that were provided to the consultant team. These previously conducted research and background resources were a springboard for this Municipal and Educational Facilities Master Plan.

The following preceding relevant documents were reviewed as part of this study:

2017—*State of the Schools*
Superintendent Kathleen A. Smith
2017—*A Blueprint For Brockton: Comprehensive Master Plan*
2016—*Brockton Public Schools Kindergarten Entry Age and Preschool Expansion*
2016—*Huntington and Goddard School Assessments*
2016—New England School Development Council (NESDEC) Brockton, MA Historical Enrollment
2015—*State of the Brockton Public Schools*
Superintendent Kathleen A. Smith
2014—*Brockton Public Schools Strategic Plan*
Superintendent Kathleen A. Smith
2014—*Whitman School Facility Assessment*

The over arching theme of these documents is that "Brockton will be valued and increasingly recognized as a high quality and affordable place to live, work, or visit because it offers all dimensions of a 21st century city". (A Blueprint for Brockton: Vision for Brockton, page 3, of the Comprehensive Master Plan)

While several of these planning efforts were directed towards downtown revitalization, this is the first plan undertaken for a comprehensive strategy towards municipal and educational facilities for the City of Brockton.

Section 1 EXECUTIVE SUMMARY

1.1 Introduction

INTRODUCTION

This Municipal and School Facilities Study and Master Plan is intended to understand the City of Brockton's current municipal and school building inventory, and develop recommendations for a Master Plan to address future growth, facility improvements, and long term visions to offer all dimensions of a 21st century city.

The study is divided into three phases which are documented in the following four Volumes:

SCHOOL FACILITY REPORT AND MASTER PLAN

Volume	Phase
1	Phase I—Inventory and Assessment
2	**Phase II—Project Definition** **Phase III—Recommendation**

MUNICIPAL FACILITY REPORT AND MASTER PLAN

Volume	Phase
3	Phase I—Inventory and Assessment
4	Phase II—Project Definition Phase III—Recommendation

This Volume 2 contains program recommendations for the school facilities.

1.2 Project Overview

SCHOOL FACILITIES

Volume 1 — School Facilities Assessment was a critical first step in this study to assess and define the City's current existing school building inventory, determine the conditions and programming needs for each of the buildings, and evaluate the capacity of the existing educational building portfolio in its entirety. With this tangible data, this Volume 2 — School Master Plan Recommendations, outlines observations for all twenty-four existing educational buildings, as well as describes a road map for renovating, maintaining, expanding, or replacing educational facilities in the Brockton Public School District.

The data collected throughout the study included enrollment projections, building size, programming opportunities, and offerings. To quantify the existing space conditions for each of the grade levels, floor plans and input from school leadership informed design challenges and possibilities throughout the school district.

The first phase of this study was to gather data and methodically quantify the needs of the Brockton Public School district facilities. The overall observations informed the design team that many of the schools are overcrowded using the MSBA guidelines. Additionally, as analyzed in Volume 1 — School Facility Assessment, nine (9) of the school facilities are in fair to good condition and require only on-going regular maintenance and capital improvements, twelve (12) facilities have potentially substantial building and system needs, and three (3) are in need of critical attention. Many have deferred maintenance that needs improvements, including substantial renovations, and/or system improvements.

SCHOOL DISTRICT ENROLLMENT HISTORY AND PREDICTIONS

The District provided historical and projected future enrollment numbers for the Brockton Public Schools from the New England School Development Council (NESDEC) for use in this study.

Based on the enrollment projections provided, Brockton is expected to have minimal change in student enrollment over the course of the next decade. Therefore, for the purposes of this study, enrollment projections are expected to be unchanged.

RECOMMENDATIONS

The following is a summary of recommendations made by the design team, which are further explored in Section 4 — Recommendation Options of this Volume:

HIGH SCHOOL STEM/ STEAM WING EXPANSION

Renovate Brockton High School while expanding the facility with a new STEM/ STEAM wing to support 21st Century Learning.

- Build a new 3- story addition to provide new STEM/ STEAM classrooms and other learning spaces to support a more robust approach to science and math curriculum
- Renovate the existing segments of the building ("houses") sequentially to allow swing spaces during construction
- Update facilities to meet current teaching and learning modalities

NORTH MIDDLE SCHOOL RENOVATION

Improve the North Middle School facilities to address building improvements.

- Building interior, exterior, and site renovations
- Address code improvements and accessibility throughout the facility
- Replace and upgrade existing building systems
- Remediate hazardous materials, if any

NEW K-5 ELEMENTARY SCHOOLS

Expand the K-5 district capacity by constructing two new Elementary Schools, each with a 600-student capacity, located in the southern portion of the City (the "South Zone").

- 1554 Main Street "Copeland Chevrolet" site would provide student enrollment relief from Gilmore Elementary School
- Build a new K-5 Elementary School on the "Carl Avenue" site, located behind the existing Edgar B. Davis School. Investigate conversion of the Edgar B. Davis School, the only K-8 school in the District, into a 6th - 8th grade middle school to alleviate over crowding.

DISTRICT WIDE RECOMMENDATIONS

The facility assessments performed by the team observed improvements that should be implemented at a majority of the schools throughout the district.

- Address safety conditions as part of a holistic and comprehensive security analysis
- Update building Mechanical, Electrical, Plumbing, and Fire Protection systems to improve performance and energy efficiency
- Implement sustainability improvements
- Retrofit existing lighting to updated fixtures, lamps, and switching
- Analyze existing bussing strategy and assess efficiencies and improvements to potentially reduce overall cost
- Improve parking lot surfacing and edging

1.3 Process

The process of collecting and understanding the current conditions of the educational facilities are found in Volume 1 — School Facilities Assessment. This data informed the recommendations found in this Volume 2— School Master Plan Recommendations.

Analysis in Volume 1:

- Current enrollment data and projections
- Existing floor plans and square footage allowance
- Academic space availability
- Community use opportunity
- District demographics
- Facility age, condition, and maintenance needs
- Building location and school zone
- Historical information
- Facility assessment report and improvement priority determination

In this Volume 2 — School Master Plan Recommendations, the design team explored the following:

STUDY OPTIONS

Using the observations, criteria, and knowledge derived from Volume 1, the team analyzed and studied several different options for a long term comprehensive improvements to facilitate 21st Century learning.

RECOMMENDATIONS

Section 4 of this report documents design opportunities that were developed and studied, which created recommendations on building improvements, renovations, maintenance, additions, and/or replacements in the Brockton Public School District.

SCHOOL FACILITY MASTER PLAN

A road map was created to outline the long term path for achieving the recommendations generated in this report.

1.4 Educational Visioning Summary

INTRODUCTION

As an initial step of this study, the School Department assembled a Visioning Team consisting of approximately twenty teachers, building and district administrators, to meet with the Study Team in a series of workshop style planning meetings. The purpose of these meetings was to review and discuss the current and future educational goals and needs for Brockton. Led by Frank Locker, Educational Planner, the three days of intense facilitated workshops informed, guided, and outlined the long-term development strategy for both educational principals and facility configuration for current and future schools in Brockton.

GUIDING PRINCIPALS

Guiding Principles were identified by the Visioning Team that express the values, beliefs, and concepts shared by the Team based on educational trends, best practices, and issues affecting the delivery of 21st century education. The following Guiding Principles present the essence of that inquiry. They are not intended as policy but address over arching themes identified by participants, and should serve as foundation principals for future school planning.

Guiding Principles:

- Prepare students for success in the 21st century, an emerging world of global competition, uncertain employment prospects, infinite access to information, and rapid change in technology
- Teach 21st century learning skills at the same time as traditional content
- Build relationships with students, families, and communities through school structure and programs
- Aspire beyond the Common Core and beyond the requirements of the Massachusetts Department of Elementary and Secondary Education
- Instill a life-long sense of wonder and purpose to create independent, life-long learners
- Provide communication, leadership, and staff professional development to continue shifting the educational model from one that is fairly traditional to one that reflects new modes of learning and teaching
- Make parents integral to learning. Support parents as learners through programs within the schools
- Minimize social and economic costs of bussing through careful location of Special Needs programs
- Build community. Encourage schools to become a social center of their neighborhoods and the city.

APPLYING VISIONING SESSIONS TO BROCKTON PUBLIC SCHOOLS

Each member of the Visioning Team approached the workshops with their individual experiences and perception of how to approach 21st century learning. Together, the Visioning Team collaborated on ideas and shared perspectives that informed the following themes for a more robust way of learning by creating instructional spaces, collaborative areas, and group gathering locations that support new ways of learning.

The Visioning Team reviewed facility implications that could improve teaching and learning in Brockton, and develop the following list of general recommendations:

- Create multiple activity areas within each classroom
- Encourage a variety of ways to display and present student work
- Provide breakout rooms and spaces for individual tutoring and small group instruction
- Locate open project areas near core classroom areas
- Provide flexible and student controlled furniture
- Design facilities to support collaboration
- Group students in Small Learning Centers (SLCs) to differentiate instruction and foster communication, collaboration, and improved social skills
- Provide teacher Planning Centers to encourage and support collaboration
- Create "hands-on" learning spaces, including STEM and STEAM labs and Maker Spaces
- Include outdoor learning and recreation spaces
- Review building security and safety issues

LEARNING MODALITIES

The Visioning Team members identified the following learning modalities as the most effective and appropriate ways for teachers to reach students with curriculum delivery:

Elementary Grades:

- Differentiated instruction to highlight student strengths and personalize the learning experience for each and every student
- Social/emotional learning by creating collaborative teaching and modeling opportunities while working with others on classroom assignments
- Small group/collaboration to build communication skills and the ability to work with others
- Computer-based efforts to encourage adaptive learning, problem solving, and computer integration

Middle Grades:

- Project-based instruction for real-world learning
- Interdisciplinary programs integrate traditionally separate content areas, ideally with multiple teachers synchronously teaming
- Service-based education for individualized needs, for example special education, language, etc.
- Making things/ prototyping, to engage, inspire, innovate, and problem solve

High School:

- Teaching problem solving skills through real life situations
- Service learning through volunteering
- Social/emotional learning by creating collaborative teaching and modeling opportunities

All Grades:
- Project-based instruction for real-world learning
- Interdisciplinary programs that integrate traditionally separate content areas, ideally with multiple teachers synchronously teaming
- Social/emotional learning by modeling: students learn better when they are in strong relationships with teachers and peers
- Computer-based to encourage adaptive learning for games, problem solving, and computer integration

SCHOOL ORGANIZATIONAL STRUCTURE

Visioning Team members reflected on model school organizational structures and developed the following recommendations and guidelines:

Pre-Kindergarten:
- Make Pre-K more available to the general population
- Create dedicated Pre-K centers for 3+ year olds that need separation
- Locate 4+ year old programs in all elementary buildings
- Create Special Education curriculum strands for continuity

Elementary School:
- Maintain grouping of students by grade
- Promote teacher looping, where a teacher remains with the same group of students for more than one school year, allow greater interaction between students and teachers

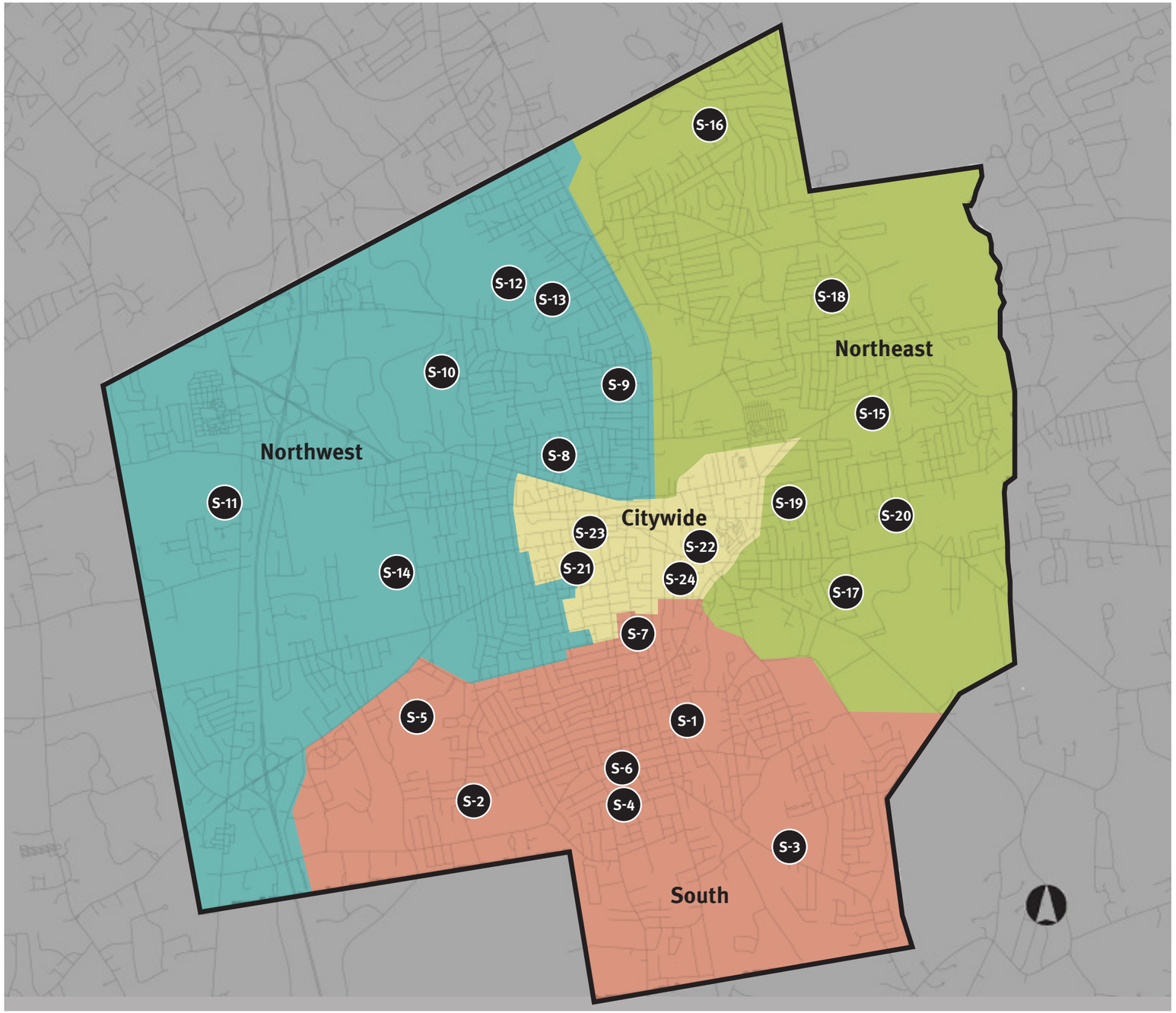
Middle School:
- Shift school organization to thematic interdisciplinary Small Learning Communities
- Support teacher looping

High School:
- Shift from a departmental organization to thematic interdisciplinary Small Learning Communities
- Support and facilitate full time, synchronous interdisciplinary teacher collaboration

OVERALL SCHOOL ORGANIZATION DIAGRAM

Brockton High School was chosen by the Visioning Team as the most appropriate building to discuss in more detail, discussing new ideas to re-plan the building or spaces within the building. Its essential features include:

- Maintain current organization based on 'Schools Within the School', each approximately 1300 students
- Align the Cafeterias with the Instructional Resource Centers (Learning Commons)
- Connect the interior spaces with outside learning spaces using appropriate furniture



1.5 Educational Facility Locations

Schools

S-1	Gilmore Elementary School	K - 5	150 Clinton Street
S-2	J. F. Kennedy School	K - 5	900 Ash Street
S-3	Edgar B. Davis School	K - 8	380 Plain Street
S-4	South Middle School	6 - 8	105 Keith Avenue
S-5	High School	9 - 12	700 Belmont Street
S-6	Huntington Alternative School	6 - 12	1121 Warren Avenue
S-7	Goddard Alternative School	Closed	20 Union Street
S-8	Barrett Russell Pre-Kindergarten Center	Early Childhood	45 Oakdale Street
S-9	Angelo School	K - 5	478 North Main Street
S-10	George School	K - 5	180 Colonel Bell Drive
S-11	Hancock School	K - 5	125 Pearl Street
S-12	Oscar Raymond School	K - 5	125 Oak Street
S-13	North Middle School	6 - 8	108 Oak Street
S-14	West Middle School	6 - 8	271 West Street
S-15	Mary E. Baker School	K - 5	45 Quincy Street
S-16	Brookfield School	K - 5	135 Jon Drive
S-17	Downey School	K - 5	55 Electric Avenue
S-18	Ashfield Middle School	6 - 8	225 Coe Road
S-19	East Middle School	6 - 8	464 Centre Street
S-20	Shaw School	Closed	315 Quincy Street
S-21	Arnone School	K - 5	135 Belmont Street
S-22	Plouffe Academy	6 - 8	250 Crescent Street
S-23	Champion High School at Keith Center	6 - 12	175 Warren Avenue
S-24	Adult Learning Center	Early Childhood	211 Crescent Street

Section 2 EXISTING SPACE ANALYSIS

2.1 Summary of Space Needs

INTRODUCTION

While Volume 1 – School Facilities Assessment studied the physical condition, qualities, and attributes of each of the educational facilities, this Volume 2 – School Master Plan Recommendations evaluates the quantitative educational adequacy of the District's school facilities inventory. The Study Team developed a space needs analysis using the Massachusetts School Building Authority (MSBA) guidelines as a common benchmark for capacity, size, classroom count, enrollment considerations, and community use. While the City of Brockton is not required to adhere to the planning standards established by the MSBA, it does provide a uniform basis to evaluate the existing schools as well as facilitates discussion with the MSBA should Brockton decide to apply for state funding through the MSBA program. These recommendations use measurable data of gross building square footage and classroom quantities to understand space needs throughout the District.

MASSACHUSETTS SCHOOL BUILDING AUTHORITY (MSBA)

The MSBA works in partnership with cities, towns, and regional school districts throughout Massachusetts to provide valuable resources for creating affordable, sustainable, and energy efficient school buildings throughout Massachusetts. The MSBA also collaborates with municipalities to invest in finding the right-sized, most fiscally responsible and educationally appropriate solutions to create safe, sound, and sustainable learning environments.

CAPACITY CRITERIA

Essential to this study, and the consequent recommendations found in this Volume, is the evaluation of the existing capacity of the current spaces on a district-wide, holistic level. In parallel, understanding the projected enrollment demands on the future facility inventory is essential to create, inform, and maintain the long term 21st Century Learning modalities. Educational space standards have evolved in recent years, and there is a new approach on how much space is needed for key learning environments, particularly enrichment and specialty programs, small break-out groups, dedicated spaces for individual support, and other teaching/ learning experiences. Please see Section 3 — Facility Concepts for further information.

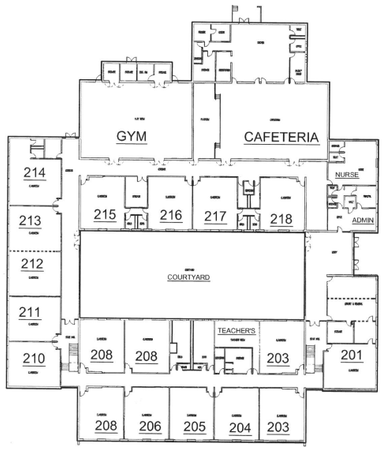
2.2 Floor Plan Comparison

South Zone Schools

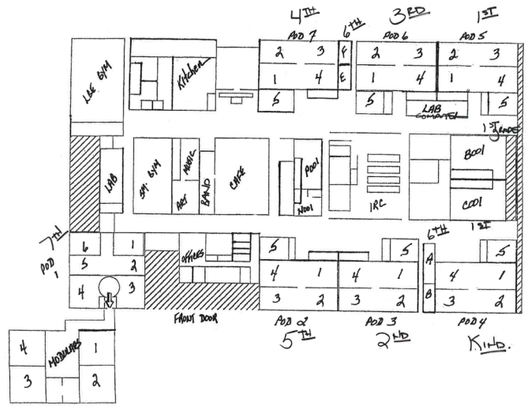
OVERVIEW

On the following pages are floor plan comparisons of the twenty-two operational educational facilities analyzed. Each of the floor plans, showing the first floor of each of the buildings, are similar in scale to one another. This demonstrates the large range of building sizes that currently exists throughout the district. Note that several of the schools are "twin schools" with similar size, layout, and building age, including :

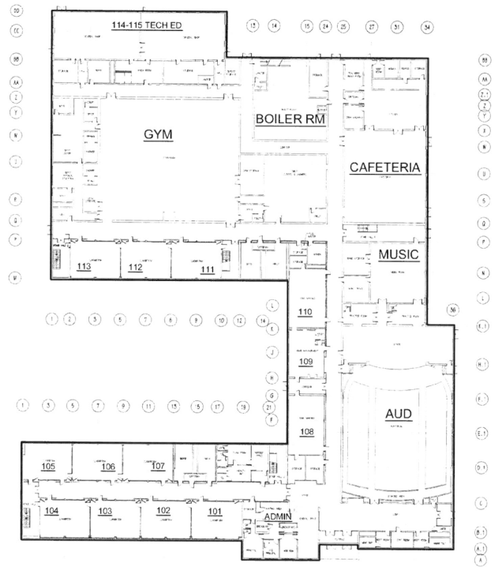
- Angelo School, Arnone School, and Plouffe Academy
- Mary E. Baker School and George School
- Oscar Raymond School and Edgar B. Davis School
- North Middle School and South Middle School



J.F. KENNEDY SCHOOL
(GRADES K-5)
900 Ash Street

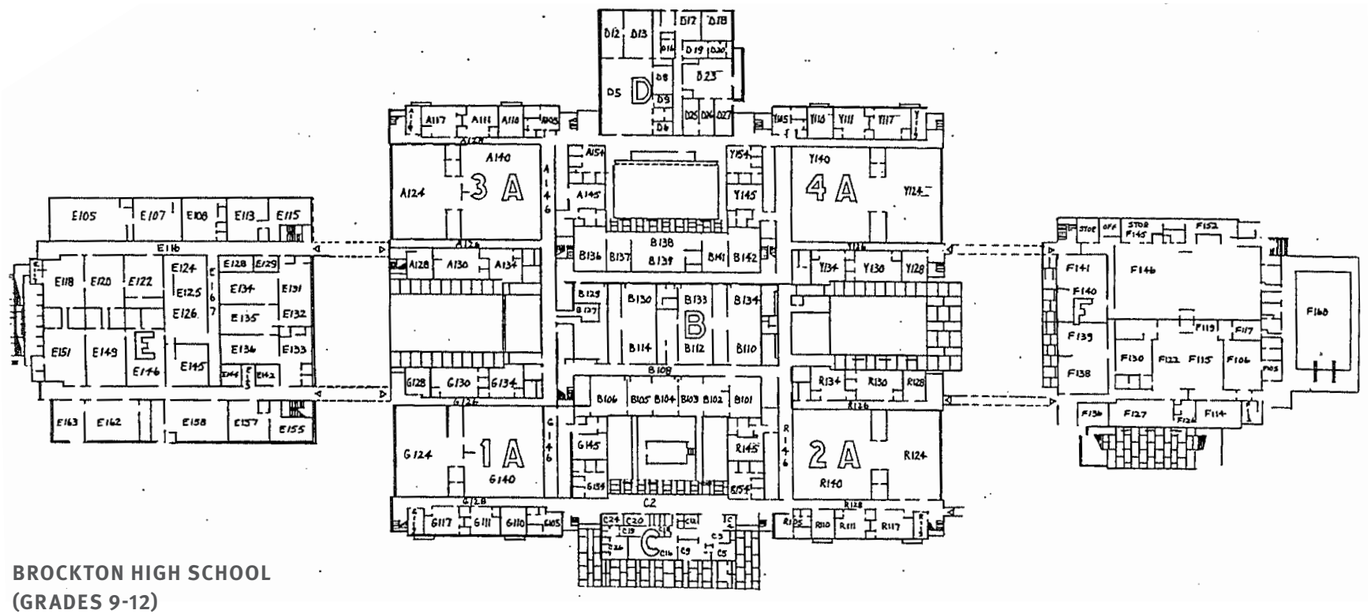


EDGAR B. DAVIS SCHOOL
(GRADES K-8)
380 Plain Street

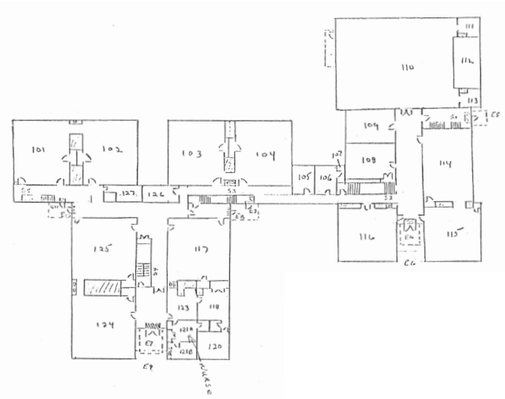


SOUTH MIDDLE SCHOOL
(GRADES 6-12)
105 Keith Avenue

GILMORE ELEMENTARY SCHOOL
(GRADES K-5)
150 Clinton Street

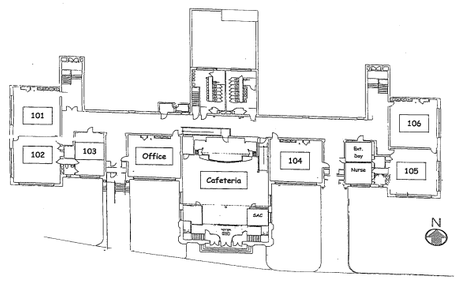


BROCKTON HIGH SCHOOL
(GRADES 9-12)
700 Belmont Street

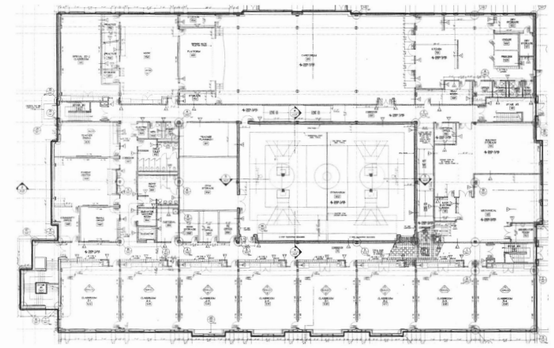


HUNTINGTON SCHOOL
(GRADES 6-12)
1121 Warren Avenue

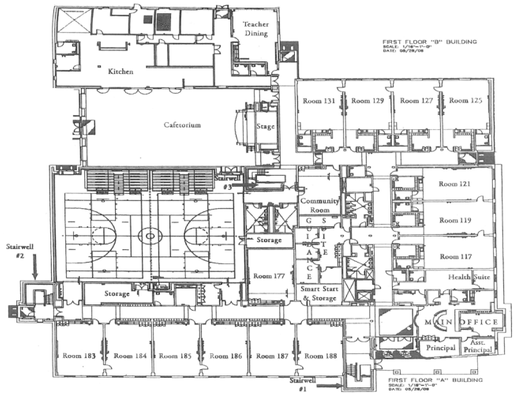
Northwest Zone Schools



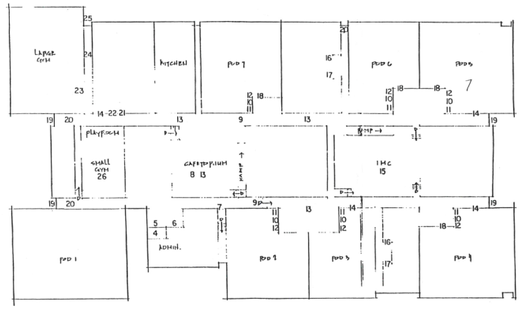
BARRETT RUSSELL PRE-KINDERGARTEN CENTER (EARLY CHILDHOOD EDUCATION)
45 Oakdale Street



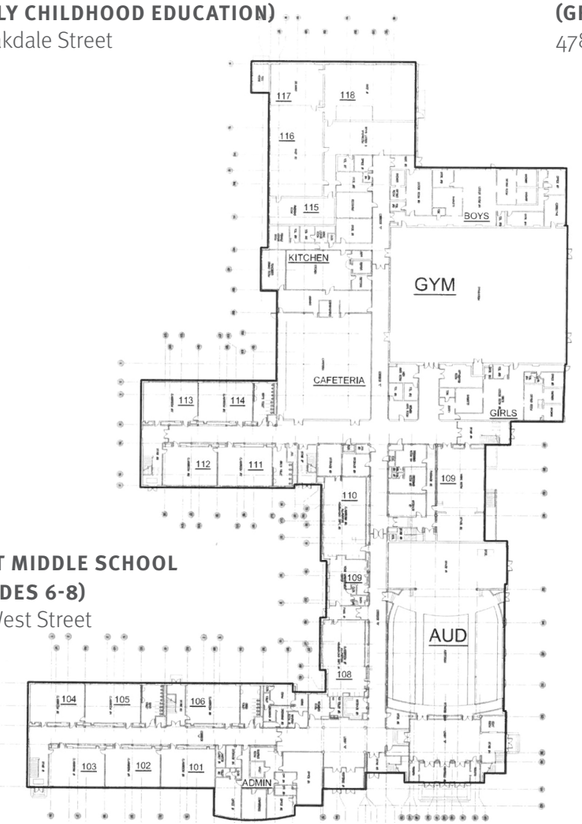
ANGELO SCHOOL (GRADES K-5)
478 North Main Street



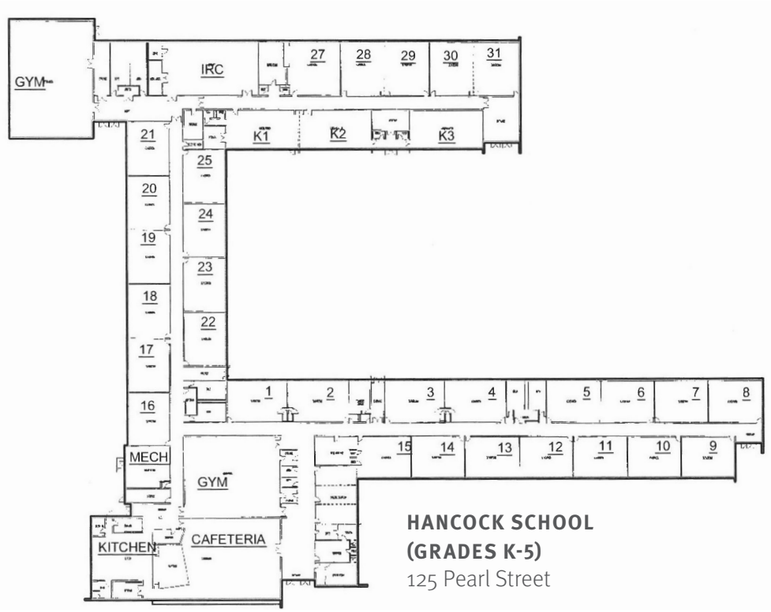
GEORGE SCHOOL (GRADES K-5)
180 Colonel Bell Drive



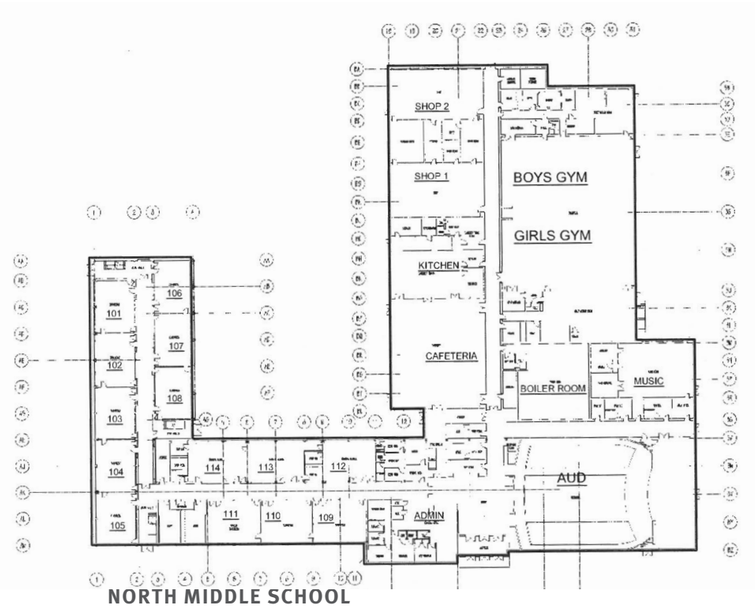
OSCAR RAYMOND SCHOOL (GRADES K-5)
125 Oak Street



WEST MIDDLE SCHOOL (GRADES 6-8)
271 West Street

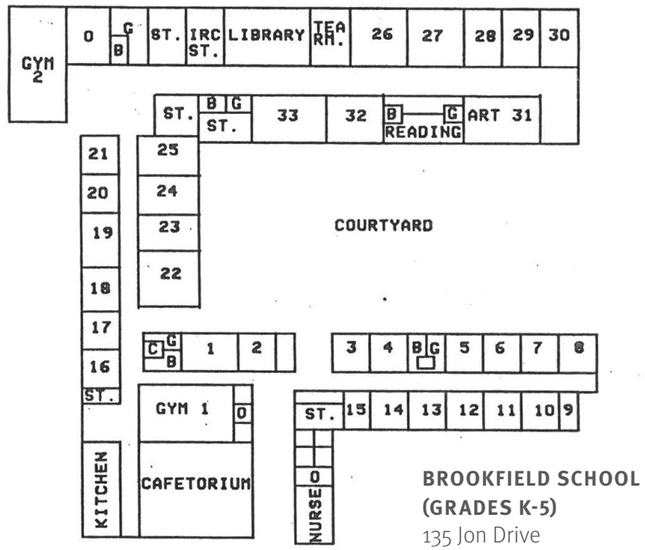


HANCOCK SCHOOL (GRADES K-5)
125 Pearl Street

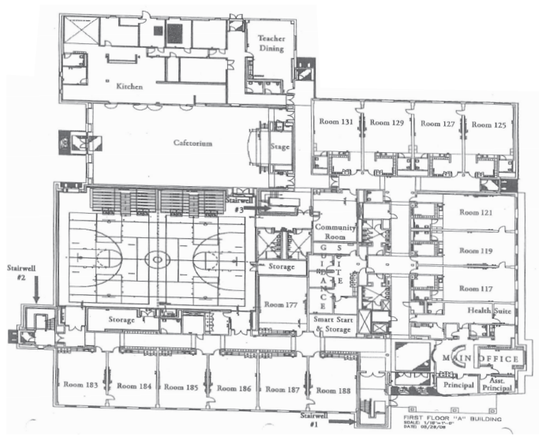


NORTH MIDDLE SCHOOL (GRADES 6-8)
108 Oak Street

Northeast Zone Schools

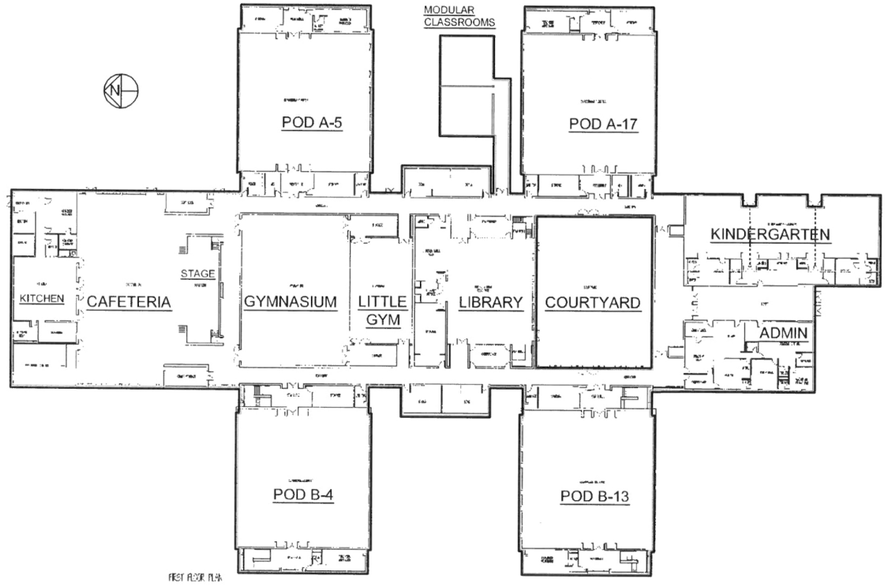


BROOKFIELD SCHOOL
(GRADES K-5)
135 Jon Drive

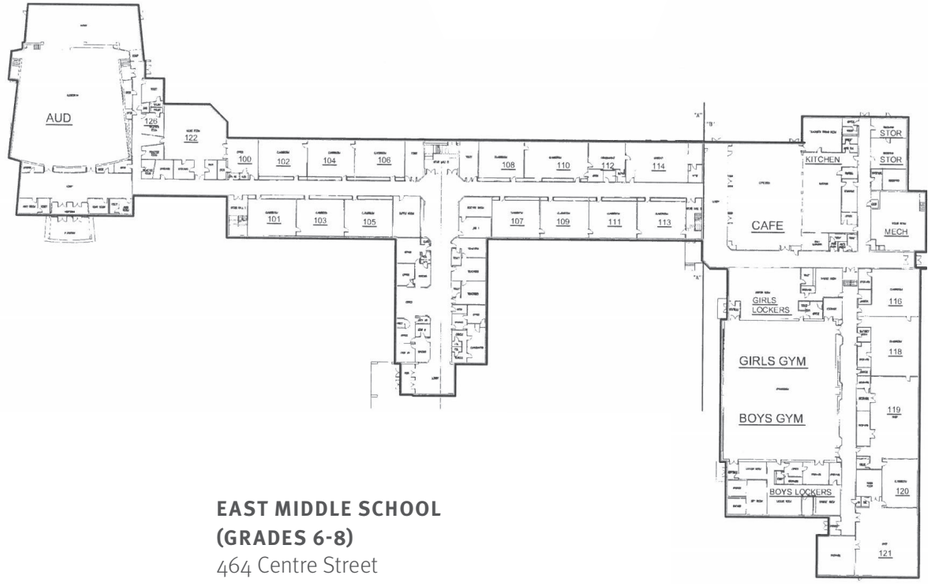


MARY E. BAKER SCHOOL
(GRADES K-5)
45 Quincy Street

ASHFIELD MIDDLE SCHOOL
(GRADES 6-8)
225 Cole Road

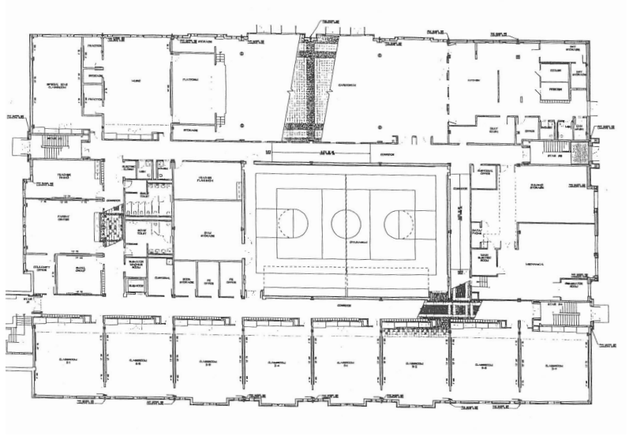


DOWNEY SCHOOL
(GRADES K-5)
55 Electric Avenue

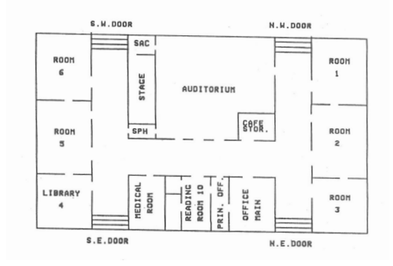


EAST MIDDLE SCHOOL
(GRADES 6-8)
464 Centre Street

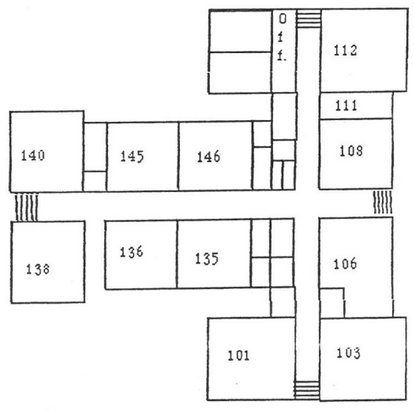
Citywide Zone Schools



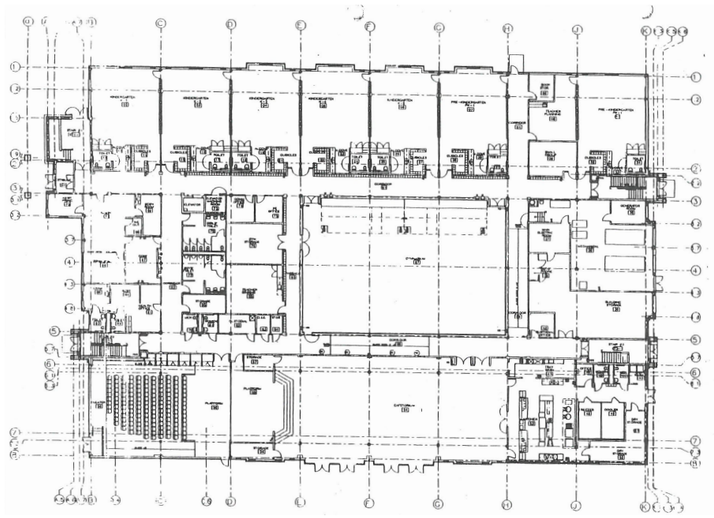
PLOUFFE ACADEMY
(GRADES 6-8)
250 Crescent Street



ADULT LEARNING CENTER
(EARLY CHILDHOOD EDUCATION)
211 Crescent Street



CHAMPION HIGH SCHOOL AT KEITH CENTER
(GRADES 6-12)
175 Warren Avenue



ARNONE SCHOOL
(GRADES K-5)
135 Belmont Street

2.3 Enrollment Capacity

INTRODUCTION

The design team analyzed the capacity of the educational facilities in Brockton using two different methods:

1. Capacity by the Gross Square Footage (GSF) of the building, including modulars
2. Capacity by the quantity of classrooms in the building

By reviewing each building using both metrics, a more comprehensive understanding about the capacity of the facility to support the enrollment has been developed.

MASSACHUSETTS SCHOOL BUILDING AUTHORITY (MSBA)

MSBA Educational Program and Space Standard Guidelines contain an itemized list of educational spaces and square footages that comprise a model program for elementary, middle, and high schools. The guideline for gross building area gross square feet (GSF) for the different levels of schools are as follows:

- Elementary School K-5th grade guideline range is 145 to 180 GSF per student
- Middle School 6th-8th grade guideline range is 145 to 180 GSF per student
- High School guideline range is 185 to 205 GSF per student

This MSBA space planning template can be found in Appendix A: MSBA Space Planning Templates.

The Visioning Team, during Workshop 3, itemized the ideal spaces for their individualized teaching needs using the Guiding Principals discussed during Workshops 1 and 2. The result of this discussion was compiled into the optimal square footage needs spreadsheets found in Appendix B: Brockton Right-sized Space Planning, itemizing the ideal sizing as expressed by the team for teaching, space needs, and building size.

CAPACITY BY THE GROSS SQUARE FOOTAGE (GSF) OF THE BUILDING, INCLUDING MODULARS

The capacity by GSF of the building metric evaluates how many students the building can support by looking at how many square feet are available to serve the enrollment, regardless of interior partitioning. The overall gross square footage used to determine capacity includes all parts of the permanent building and all temporary modular construction currently serving the facility. In the following table, each school is evaluated by dividing the total GSF of the building by the projected 2017/2018 student enrollment. The result is the GSF per student.

For this evaluation, Goddard School and Shaw School were not included since they are currently closed and do not have a student population. Additionally, the Early Childhood Education Schools, Barrett Russell Pre-K Center and the Adult Learning Center were omitted since MSBA guidelines begin at Kindergarten age and are not applicable to the Adult Learning Center.

CAPACITY BY THE GROSS SQUARE FOOTAGE (GSF) OF THE BUILDING, INCLUDING MODULARS

Elementary School

Middle School

High School

	EXISTING BUILDING GSF	2017/2018 ENROLLMENT*	CURRENT GSF/STUDENT	ENROLLMENT CAPACITY
MSBA Elementary School (K-5) Guideline Range is 145 to 180 GSF per Student			**145 to 180**	
Gilmore Elementary School	50,928	569	**90**	**OVERCROWDED**
Kennedy School	52,121	615	**85**	**OVERCROWDED**
Edgar B. Davis School (K-8)	127,711	923	**138**	**OVERCROWDED**
Angelo School	95,500	886	**108**	**OVERCROWDED**
George School	116,000	895	**130**	**OVERCROWDED**
Hancock School	69,661	640	**109**	**OVERCROWDED**
Raymond School	123,336	902	**137**	**OVERCROWDED**
Baker School	116,000	788	**147**	**AT CAPACITY**
Brookfield School	70,511	617	**114**	**OVERCROWDED**
Downey School	121,250	608	**199**	**UNDER ENROLLED**
Arnone School	95,500	750	**127**	**OVERCROWDED**
MSBA Middle School (6-8) Guideline Range is 145 to 180 GSF per Student			**145 to 180**	
South Middle School	103,500	522	**198**	**UNDER ENROLLED**
North Middle School	92,061	624	**148**	**AT CAPACITY**
West Middle School	110,318	668	**165**	**AT CAPACITY**
Ashfield Middle School	66,975	504	**133**	**OVERCROWDED**
East Middle School	96,516	486	**199**	**UNDER ENROLLED**
Plouffe Academy	95,500	712	**134**	**OVERCROWDED**
MSBA High School Guideline Range is 185 to 205 GSF per Student			**185 to 205**	
Brockton High School	545,000	4,120	**132**	**OVERCROWDED**
Huntington Alternative School	66,657	58	**1149**	**UNDER ENROLLED**
Keith Center —High School	88,864	155	**573**	**UNDER ENROLLED**

*Source: Enrollment data provided by the City of Brockton School Department

CAPACITY BY THE QUANTITY OF CLASSROOMS IN THE BUILDING

The capacity by classroom count metric evaluates how many students the building can support by looking at the number of classrooms the building has to serve the enrollment regardless of the current use for the spaces. Elementary School capacity is determined by multiplying the number of grade level classrooms by the number of students per classroom. Middle School and High School capacity is determined by the teaching stations while using the following utilization factor recommended by the MSBA.

- Kindergarten = 18 students/ classroom
- 1st–5th Grade = 23 students/ classroom
- 6th–12th Grade= 23 students/ classroom at an overall 85% utilization

The MSBA guidelines template was used to calculate the number of students the current classroom count could serve, including the temporary modular classrooms. For the High School and Middle School calculations, classrooms spaces over 850 SF were calculated into the classroom count, including Art rooms, Music rooms and Tech classrooms.

The following charts summarize the capacities of each building in the District using this alternate metric. If the current enrollment exceeds the calculated capacity, the capacity is shown in red and the building is considered over capacity.

CAPACITY BY THE NUMBER OF CLASSROOMS IN THE BUILDING – KINDERGARTEN

	CURRENT KINDERGARTEN CLASSROOMS			
	A	B	C	D	
	KINDERGARTEN STUDENT ENROLLMENT*	NUMBER OF KINDERGARTEN CLASSROOMS	AVERAGE KINDERGARTEN STUDENTS/ CLASSROOM	RECOMMENDED CLASSROOMS NEEDED	ADDITIONAL KINDERGARTEN CLASSROOM(S) NEEDED TO MEET MSBA GUIDELINES
			(C = A/B)	(D = A/18)	
Gilmore Elementary School	68	3	23	3.7	1
Kennedy School	90	4	23	5	1
Edgar B. Davis K-8 School (K)	88	5	18	4.8	0
Angelo School	95	5	19	5.3	1
George School	135	6	23	7.5	2
Hancock School	88	4	22	4.8	1
Raymond School	150	7	21	8.3	2
Baker School	137	6	23	7.6	2
Brookfield School	66	5	13	4	-1
Downey School	70	6	12	3.9	-2
Arnone School	104	6	17	5.7	0
				TOTAL CLASSROOMS NEEDED:	7

*Source: Enrollment data and room count provided by the City of Brockton School Department

Kindergarten School assumes **18** students or less students per General Classroom

CAPACITY BY THE NUMBER OF CLASSROOMS IN THE BUILDING – ELEMENTARY SCHOOL

	CURRENT ELEMENTARY SCHOOL (GR. 1-5) CLASSROOMS			
	A	B	C	D	
	GRADES 1-5 STUDENT ENROLLMENT*	NUMBER OF GRADES 1-5 GENERAL CLASSROOMS	AVERAGE GRADES 1-5 STUDENTS/ GENERAL CLASSROOM	RECOMMENDED CLASSROOMS NEEDED	ADDITIONAL GRADES 1-5 CLASSROOM(S) NEEDED TO MEET MSBA GUIDELINES
			(C = A/B)	(D = A/23)	
Gilmore Elementary School	501	20	25	21.8	2
Kennedy School	525	23	23	22.8	0
Edgar B. Davis K-8 School (1-5)	600	25	24	26.1	1
Angelo School	791	32	25	34.4	2
George School	760	36	21	33.0	-3
Hancock School	552	21	26	24.0	3
Raymond School	752	30	25	32.7	3
Baker School	651	30	22	28.3	-2
Brookfield School	551	26	21	24.0	-2
Downey School	538	25	22	23.4	-2
Arnone School	646	28	23	28.1	0
				TOTAL CLASSROOMS NEEDED:	2

*Source: Enrollment data and room count provided by the City of Brockton School Department

Elementary School assumes **23** students or less students per General Classroom

CAPACITY BY THE NUMBER OF CLASSROOMS IN THE BUILDING – MIDDLE SCHOOL

	CURRENT M.S. (GR. 6-8) TEACHING SPACES		MSBA RECOMMENDED M.S. (GR. 6-8) TEACHING SPACES			
	A	B	C	D	E	
	TOTAL 2017/2018 ENROLLMENT*	GRADES 6-8 TEACHING SPACES, INCLUDING SPECIALTY	GENERAL CLASSROOMS WITH MSBA TEMPLATE WITH 85% UTILIZATION	SPECIALTY CLASSROOMS WITH MSBA TEMPLATE WITH 85% UTILIZATION	TEACHING SPACES NEEDED TO MEET MSBA GUIDELINES	ADDITIONAL GRADES 6-8 TEACHING SPACES NEEDED TO MEET MSBA GUIDELINES
			(C = A/23 x .85)		(E = C + D)	(F = E - B)
Edgar B. Davis K-8 School (6-8)	308	12	11	10	21	9
South Middle School	522	36	19	13	32	-4
North Middle School	624	35	23	17	40	5
West Middle School	668	36	24	17	41	5
Ashfield Middle School	504	30	18	13	31	1
East Middle School	486	37	17	13	30	-7
Plouffe Academy	712	50	26	19	45	-5
				TOTAL CLASSROOMS NEEDED:		4

*Source: Enrollment data and room count provided by the City of Brockton School Department

Middle School assumes **23** students or less students per General Classroom x **85%** utilization

CAPACITY BY THE NUMBER OF CLASSROOMS IN THE BUILDING – HIGH SCHOOL

	CURRENT H.S. TEACHING SPACES		MSBA RECOMMENDED H.S. TEACHING SPACES			
	A	B	C	D	E	
	2017/2018 ENROLLMENT*	CURRENT GRADES 9-12 TEACHING SPACES, INCL. SPECIALTY*	GENERAL CLASSROOMS WITH MSBA TEMPLATE WITH 85% UTILIZATION	SPECIALTY CLASSROOMS WITH MSBA TEMPLATE WITH 85% UTILIZATION	TEACHING SPACES NEEDED TO MEET MSBA GUIDELINES	ADDITIONAL GRADES 9-12 TEACHING SPACES NEEDED TO MEET MSBA GUIDELINES
			(C = A/23 x .85)		(E = C + D)	(F = E - B)
Keith Center —High School	155	34	3	8	11	**-23**
Brockton High School	4,120	202	153	88	241	**39**
Huntington Alternative School	58	30	1	6	7	**-23**
				TOTAL CLASSROOMS NEEDED:		**-7**

*Source: Enrollment data and room count provided by the City of Brockton School Department

High School assumes **23** students or less students

The following is an estimate of total enrollment based on 2017/ 2018 school year enrollment* compared to MSBA guidelines for recommended students per classroom.

ELEMENTARY SCHOOL

GRADES K-5

	2017/18 Enrollment*	Capacity based on classrooms (MSBA)	Enrollment Delta	% Overage
Gilmore	569	425	144	134%
Kennedy	615	500	115	123%
Davis (K-5)	615	515	100	119%
Angelo	886	690	196	128%
George	895	800	95	112%
Hancock	640	565	75	113%
Raymond	902	600	302	150%
Baker	788	800	(-12)	99%
Brookfield	617	515	102	120%
Downey	608	600	8	101%
Arnone	750	750	0	100%
Total enrollment overage:			**1,137 students**	

*Source: Enrollment data provided by the City of Brockton School Department

MIDDLE SCHOOL

GRADES 6-8

	2017/18 Enrollment*	Capacity based on classrooms (MSBA)	Enrollment Delta	% Overage
Davis (6-8)	308	125	183	246%
South	522	525	(-3)	99%
North	624	505	119	124%
West	668	580	88	115%
Ashfeld	504	504	0	100%
East	486	486	0	100%
Ploufe	712	700	12	102%
Total enrollment overage:			**402 students**	

*Source: Enrollment data provided by the City of Brockton School Department

HIGH SCHOOL

GRADES 9-12

	2017/18 Enrollment*	Capacity based on classrooms (MSBA))	Enrollment Delta	% Overage
High School	4,120	3450	670	119%
Total enrollment overage: not including Alt HS			**670 students**	
Huntington	58	450	(-392)	13%
Keith	155	540	(-385)	29%

*Source: Enrollment data provided by the City of Brockton School Department

EXPANSION NEEDS SUMMARY BASED QUANTITY OF CLASSROOMS IN THE BUILDING

The capacity summary based on current classroom count, using MSBA Space Summary Guidelines per classroom count, is one indicator if the facility is currently under enrolled, at capacity, or over enrolled. The following categorizes each school based on the percentage the enrollment exceeds what the building can serve.

UNDER ENROLLED

ENROLLMENT IS UNDER 98% CAPACITY

1. Huntington Alternative School
2. Keith Center —High School

AT CAPACITY

ENROLLMENT IS 98% - 104% CAPACITY

1. South Middle School
2. Baker School
3. Downey School **
4. Ashfield Middle School **
5. East Middle School
6. Arnone School

SLIGHTLY OVERCROWDED

ENROLLMENT IS 105% - 120% OVER CAPACITY

1. Edgar B. Davis K-8 School ** (for grades K-5)
2. George School
3. Hancock School **
4. West Middle School
5. Brookfield School **
6. Brockton High School

VERY OVERCROWDED

ENROLLMENT IS 121% AND OVER CAPACITY

1. Gilmore Elementary School
2. Kennedy School **
3. Edgar B. Davis K-8 School ** (for grades 6-8)
4. Angelo School
5. Raymond School
6. North Middle School

Note that some schools are using modular classrooms to accommodate over enrollment.

****UTILIZING MODULARS**

SCHOOL CAPACITY INCLUDES MODULAR CLASSROOMS

1. Kennedy School (5 modular classrooms)
2. Edgar B. Davis K-8 School (4 modular classrooms)
3. Hancock School (1 modular classroom)
4. Brookfield School (2 modular classrooms)
5. Downey School (2 modular classrooms)
6. Ashfield Middle School (4 modular classrooms)

2.4 Functional Space Use and Community Use

Throughout the District there are examples of programs utilizing spaces that were programmed for functions they were not intended to serve, operating in temporary modular construction, or spaces that are no longer functioning for current educational delivery methods. The design team reviewed how spaces are functionally being used within the buildings, and have identified the following program deficiencies.

NO DEDICATED GYM SPACE

1. Barrett Russell Early Childcare Center
2. Goddard Alternative School

NO KITCHEN

1. Goddard Alternative School

KINDERGARTEN PROGRAM IN CLASSROOM WITHOUT ADJACENT TOILET ROOM

1. Barrett Russell Early Childcare Center

KINDERGARTEN CLASSROOM RE-PURPOSED AS REGULAR CLASSROOM (UNUSED TOILET ROOM)

1. Plouffe Academy
2. Gilmore Elementary School

INSUFFICIENT SCIENCE/ TECH CLASSROOMS FOR MIDDLE SCHOOL/ HIGH SCHOOL

1. Edgar B. Davis K-8 School
2. Ashfield Middle School
3. Plouffe Academy
4. Huntington Alternative School
5. Keith Center —High School

The Open Classroom configuration was an area of concern raised by school teachers and staff. Concerns identified include: poor acoustical separation between spaces; inadequate security measures; and makeshift spaces that are not well utilized.

OPEN CLASSROOM CONFIGURATION

1. Downey School
2. Edgar B. Davis K-8 School
3. Raymond School

COMMUNITY USE EVALUATION

	GYM	CAFETERIA	AUDITORIUM	1. ADEQUATE FOR COMMUNITY USE	2. LACKING FOR COMMUNITY USE
Elementary Schools					
Gilmore Elementary School	YES	YES		✓	
Kennedy School	YES	YES		✓	
Edgar B. Davis K-8 School	YES	YES		✓	
Angelo School	YES	YES			✓
George School	YES	YES		✓	
Hancock School	YES	YES		✓	
Raymond School	YES	YES		✓	
Baker School	YES	YES		✓	
Brookfield School	YES	YES		✓	
Downey School	YES	YES		✓	
Arnone School	YES	YES	YES		✓
Middle Schools					
South Middle School	YES	YES	YES		✓
North Middle School	YES	YES	YES	✓	
West Middle School	YES	YES	YES	✓	
Ashfield Middle School	YES	YES		✓	
East Middle School	YES	YES	YES		✓
Plouffe Academy	YES	YES			✓
High Schools					
Brockton High School	YES	YES	YES	✓	
Huntington Alternative School	YES	YES			✓
Keith Center —High School	YES	YES			✓
Early Childhood and Adult Education					
Barrett Russell Early Childhood Ctr		YES			✓
Adult Learning Center	N/A	N/A	YES		✓
Closed					
Goddard School		YES			✓
Shaw School					

1. ADEQUATE FOR COMMUNITY USE

Large open gathering spaces that can be reasonable separated from access to the majority of the school to allow for community use.

2. LACKING FOR COMMUNITY USE

Open gathering spaces not ideally sized, located, directly accessible from the exterior, readily available after-hours, or well situated with other program spaces

Section 3 FACILITY CONCEPTS

3.1 Introduction

The Visioning Team developed concepts for Brockton's future schools. The concepts are defined through:

- *Flexible Learning Spaces*, creating spaces that support future school learning activities including alternative approaches to furniture to enable group and individual learning needs
- *Safety and Security*, showing strategies to achieve these essential needs in 21st century buildings learning environments
- *Overall School Organization Diagram,* capturing essential concepts of school organization

3.2 Flexible Learning Spaces

The Visioning Team identified the following needs as most appropriate to support future teaching and learning in Brockton.

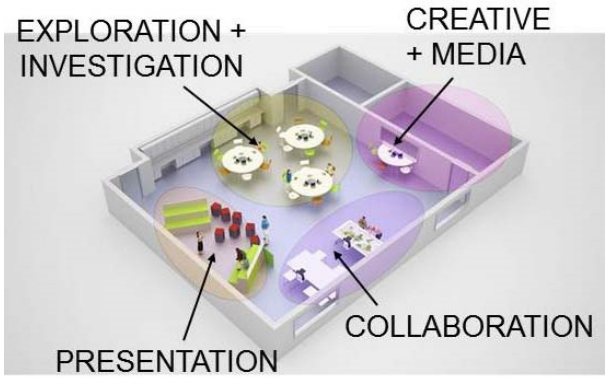
GROUP LEARNING CENTERS

(Formerly known as Classrooms)

The traditional classroom of desks in rows with teachers at the front of the classroom are becoming increasingly out dated. Classrooms to support 21st century education need to become group learning centers, capable to easily and quickly be reconfigured to support both individual and group learning activities.

- Student desks that are able to be grouped for collaboration
- Visual connection to corridor and breakout space to allow individual and small group learning while still be supervised by teachers.

GROUP LEARNING CENTERS, CONTINUED



- Multiple activity areas within each room
- Many ways to display student work

- Modular, re-configurable student desks

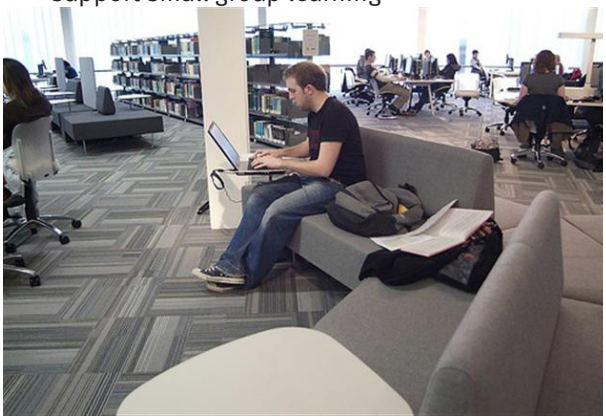
- Furniture on wheels

- Modular, re-configurable student desks

Examples of new types of learning spaces include the following:

- Breakout spaces and instructional modules to support small group learning

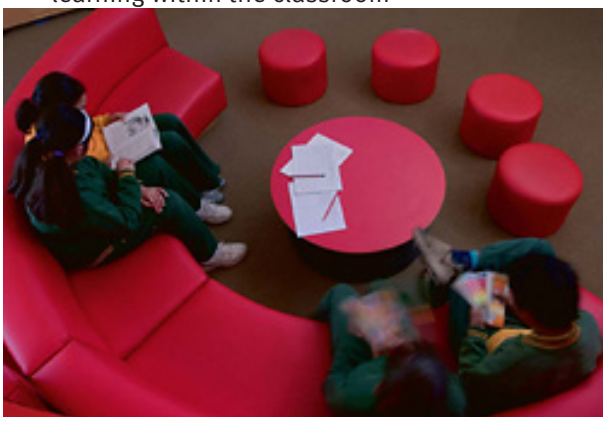
- Maker Spaces to allow hands on experimental learning



- Furniture to support use of technology

- Flexible movable desks to allow different types of learning within the classroom

- Presentation spaces to support larger group learning and student presentations



- Group discussion areas

3.3 Safety & Security

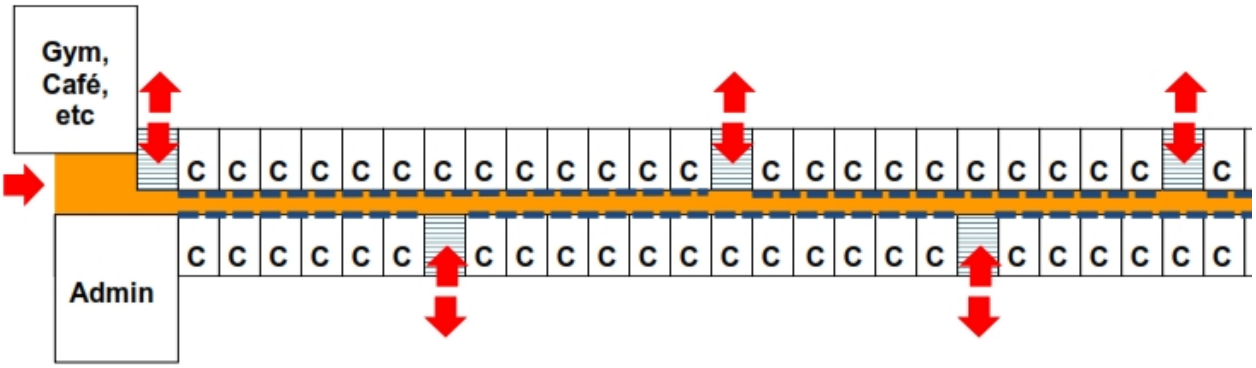
Traditional concepts of safety and security have been developed based on schools traditional buildings.

21st century school planning concepts, organized as Small Learning Communities, offer safety and security surpassing that of traditional buildings, because the planning considers human movement, visibility, response time, and escape routes.

20TH CENTURY SCHOOLS

Featuring:

- No entry protection
- No observation of corridors
- Lock down by classroom
- No escape



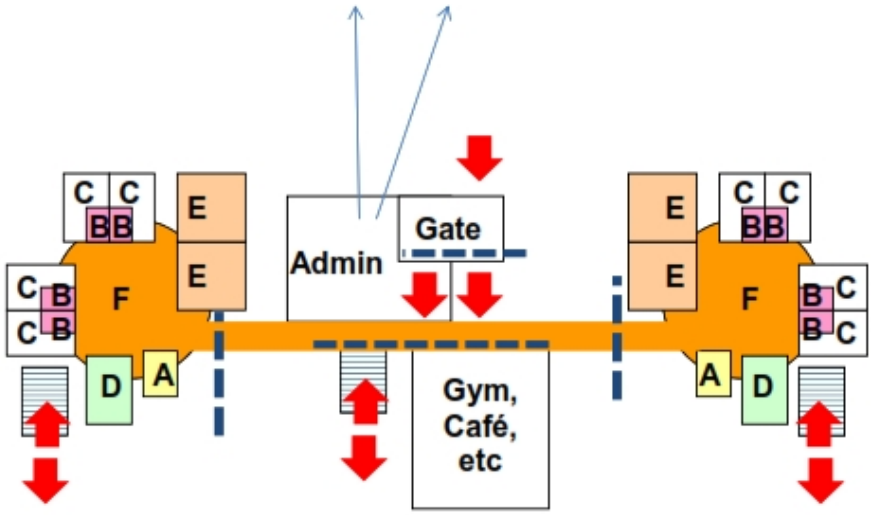
21ST CENTURY SCHOOLS

The diagram below illustrates the general planning approach to support 21st century learning requirements. Educational spaces include classroom sized spaces (E) and small group learning areas (B and C) grouped around flexible learning areas (F). These "neighborhood" learning areas then provide flexible spaces for multiple teacher collaboration. Classrooms can be grouped by grade or by subject, allowing interage or interdisciplinary learning. Common areas such as gym, cafeteria, media commons, and other resources can be centrally located as shared resources.

SECURITY

Inherent in the adjacencies and organization of spaces is the opportunity for improved security feature

- Vista over entry and site
- Controlled entry point: gatekeeper
- Observation of corridors
- Lock down by suites of spaces
- Planned escape route



KEY TO SPACES:

A. Support spaces
B. Breakout spaces
C. Small group learning centers
D. Administration, near entries
E. Educational spaces
F. Flexible learning commons

3.4 Representative Overall School Organization Diagram

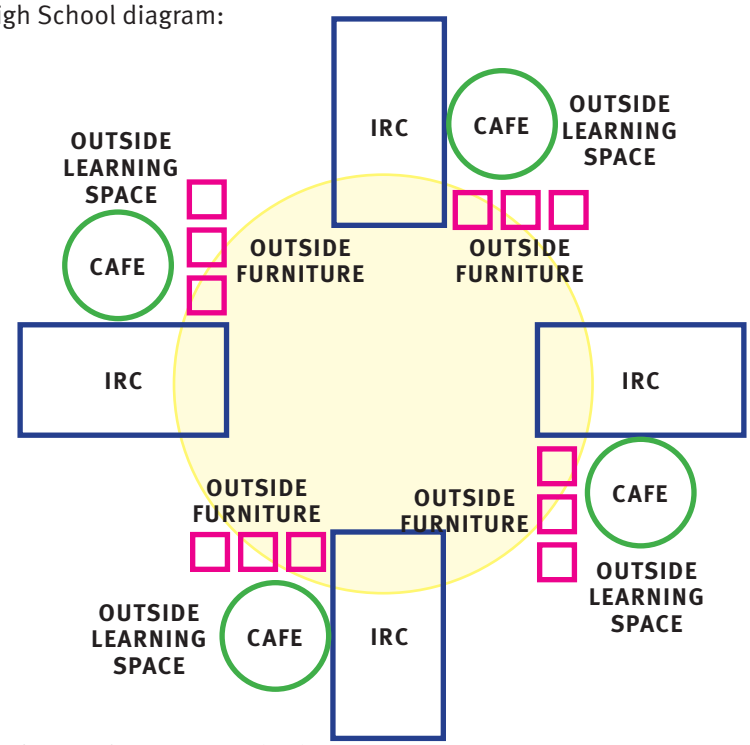
Workshop participants guided Frank Locker in drawing an overall school organization diagram.

Brockton High School was chosen by the Visioning Team as the most appropriate building to re-plan.

ITS ESSENTIAL FEATURES INCLUDE:

- Maintain the current organization based on 'Schools Within the School', each approximately 1300 students
- Align the Cafeterias with the Instructional Resource Centers (IRC's - Learning Commons)
- Connect the interior spaces with outside learning spaces with appropriate furniture

Overall Brockton High School diagram:



Section 4 RECOMMENDATION OPTIONS

4.1 Observations and Recommendations

Using the guiding principals for 21st century learning, Brockton School leadership input, and the comprehensive inventory assessment of the existing educational facilities, this study proposes a road map for school building improvements and capital investment. It should be noted that these recommendations represent planning level recommendations and are based on current considerations and factors. Each option and solution should be further reviewed and studied to respond to the myriad of conditions and variables that are always evolving in the City of Brockton.

GENERAL OBSERVATIONS

1. The City of Brockton has a substantial inventory of buildings that are strategically located throughout the city. Each facility provides strong support for the educational goals and values that are part of the community identity.

2. There are several facilities observed to have deferred maintenance concerns which will need attention in the immediate future to maintain full operation.

3. Using the MSBA guidelines, the design team determined that student overcrowding is evident throughout the school district. Nine of the eleven Elementary Schools are overcrowded when determining capacity based on building gross square footage (GSF).

4. While modulars are typically intended to have a short life span and be used for a temporary solution to overcrowding, one-fourth of the schools in the district are using modulars to resolve enrollment issues. Some of these modulars have been in place for over 20 years and have exceeded their life expectancy.

5. Due to the age of some of the facilities and evolving guidelines for learning and teaching environments, the facilities do not currently reflect 21st century educational programming needs.

6. Brockton has benefited from several building system improvement projects under the MSBA Accelerated Repair Program at a majority of the school buildings. These upgrades improve MEP/FP operation of the buildings. However, further efforts are still recommended to increase energy efficiency and systems performance.

7. During several of the building assessments, security, safety, and visibility were raised as concerns needing attention. A more comprehensive safety and security study is recommended.

GENERAL RECOMMENDATIONS

1. To address the overcrowding, the design team recommends increasing the school capacity by building several new schools to alleviate the student enrollment deficiencies.

2. Create a comprehensive program of capital improvements to address building maintenance, including systems upgrades for long term energy and sustainability improvement.

3. Include improvements to existing educational facilities to incorporate the Guiding Principals and learning/ teaching modalities identified by the District educational team.

SUMMARY OF KEY RECOMMENDATIONS

There were several big moves and improvements that were identified during this study, which are further explored in this section:

1. Brockton High School was identified as the first educational building to integrate a STEM/ STEAM wing expansion to support 21st century learning. The building addition could serve as swing space, allowing needed renovations to occur throughout the remainder of the High School building.

2. North Middle School was identified as the next 'compass' Middle School in need of renovation. (The City of Brockton identifies North Middle, East Middle, South Middle, and West Middle as the 'compass' schools.) South Middle was recently renovated by adding new finishes, an elevator, fire suppression system, and other accessibility upgrades to the facility. North Middle is similar in size, configuration, and age to South Middle School, and is need of a full and substantial renovation.

3. To address the student enrollment and current overcrowding throughout the district, the design team recommends adding two new 600 capacity K-5 Elementary Schools to the district. While the North Middle School renovation recommendation mentioned above (Recommendation #2) is located in the Northwest quadrant of the city, the newly proposed elementary schools are suggested to be located in the South Zone. This distribution of renovation/ new construction delivers the city improvements to different concentrations throughout the district.

OTHER GENERAL CONSIDERATIONS

Additionally, the following are several observations and suggestions that could be considered as part of a phasing, swing space, and/ or enrollment fluctuation strategy:

- The Goddard Alternative School (closed in 2017) is available to provide additional classroom space as either permanent or temporary swing space. Estimated capacity is approximately 150 students based on overall building area and number of classrooms.

- While Downey School and Ashfield Middle School are quantified and calculated as meeting MSBA space capacity demands, this is only being achieved by use of modular classrooms. Consideration should be given to replace temporary classrooms with permanent classrooms.

- The Huntington Alternative School and the Keith Center currently house the Alternative Pathways to Graduation programs. Based on the analysis of number of classrooms, the buildings are under utilized and could support more students.

    - Potentially move the students at the Keith Center to the Huntington School to consolidate activities and resources. This would allow the renovation of the Keith Center to create additional enrollment capacity.

- The design team recommends a replacement or substantial renovation of Downey School based on building capacity, overcrowding, open classroom layout, obsolete building systems, and modular classrooms to satisfy enrollment.

- This total overage of enrollment for the Middle school population is 402 students. The Keith Center classroom count can serve a total of 540 students based on MSBA criteria. The Huntington Alternative School can serve approximately 450 students based on classroom count. The current student enrollment for 2017/18 School Year is 58 students. The building is being under utilized.
    - › With programming modifications, the Keith Center or the Huntington School could be re-purposed to become a Middle School
- The school district Information Technology system is currently operating and located in the High School. School leadership suggests that this be relocated to provide a more secure location, return the space back to the High School program, and establish a designated location for the I.T. system. Two options to consider:
    - › Consolidate with the proposed Police/ Fire Public Safety headquarters to provide a more secure, robust, and consolidated I.T. facility.
    - › Re-purpose the decommissioned Goddard School, or similar location.

FACILITY ASSESSMENT OVERVIEW

The following are the result of observations from the design team based on the facility assessment of each of the educational facilities. For a further detailed analysis about each of the educational buildings, see Volume 1 — School Facilities Assessment.

GOOD CONDITION:

Barrett Russell Early Childhood Center
Angelo School
Arnone School
Mary E. Baker School
Brookfield School
George School
Plouffe Academy
South Middle School
Brockton High School

MODERATE CONDITION:

Adult Learning Center
Edgar B. Davis School
Gilmore Elementary School
Hancock School
Kennedy School
Oscar Raymond School
Ashfield Middle School
East Middle School
North Middle School
West Middle School
Huntington Alternative School
Keith Center

RECOMMEND SUBSTANTIAL IMPROVEMENT OR REPLACEMENT:

Downey School
Goddard Alternative School (Closed)
Shaw School (Closed)

4.2 Recommended District-Wide Upgrades

During the facility assessment site visits of the twenty-four educational facilities, and discussions with faculty and staff, there were several capital investment improvement opportunities and themes that could be considered holistically throughout the district.

SAFETY AND SECURITY

It was observed that several of the school locations have older style doors that are not suitable for security in lock-down conditions. As part of a comprehensive analysis of school building security, the City should perform a thorough review of the door hardware to ensure doors close and lock securely during an emergency event. Additionally, all schools should be evaluated holistically regarding creating a single entry point location and front lobby visibility, among other security standards.

BUILDING SYSTEMS

A majority of the building systems are inefficient, outdated, and have not been upgraded to current standards and improved energy performance. This leads to poor performance and system failures that affect the district's ability to deliver education, as well as result in higher maintenance and operating costs. A thorough examination of current operating costs compared to system improvement and upgrade costs should be evaluated in order to maximize energy efficiency. Specific system evaluations and recommendations are beyond the scope of this study.

SUSTAINABILITY

An example of an opportunity to consider a more environmental approach is in regards to the current styrofoam trays used to serve meals in all schools, except the Barrett Russell Pre-K Center. The negative environmental impact, expense to purchase, needed storage requirements for the tray supply, and additional operating cost for the custodial efforts to dispose of the trays should be weighed against reinstating the dish washing rooms that have since been decommissioned. While we realize that using styrofoam trays is a district-wide practice, the long-term effects of this practice should be addressed.

LIGHTING

A majority of the buildings currently appear to be using fluorescent lamps with outdated housing for the lighting fixtures. There have been many advances in recent years in regards to lighting that improves the lamp life, energy efficiency, and color output. The design team recommends that the district research available rebate incentives offered through Mass Save programs available through the utility companies for the opportunity to reduce energy consumption and operating costs.

BUSSING STRATEGY

Bussing is a major cost to the City and contributes to additional traffic congestion and transportation time for the students. While the scope of this study does not include a detailed analysis of bussing, it is recommended that a comprehensive analysis of bussing distances, a traffic study, and corresponding costs, be further evaluated.

PARKING LOTS

It was observed and reported that many of the school parking lots and drive ways throughout the city need repair to address potholes, damaged curbing, uneven surfacing, poor drainage, and crumbling conditions. These hazardous conditions should be repaired systematically to reduce potential liability to the City.

4.3 Recommended Improvements by School

The following charts reflect areas that need improvement in each of the schools facilities. This information is expanded upon in Volume 1 — School Facilities Assessment. A check mark (✓) indicates an area identified to be in need of improvement.

	Site		Building							Program	
EARLY CHILDHOOD AND ADULT EDUCATION	Parking Lot	Landscaping	Safety and Security	Exterior (Roof, Facades)	Interior Finishes	Building Systems	ADA/ MAAB Compliance	Fire Suppression	Replace or eliminate Modular Classroom(s)	Storage needs and Building Configuration	Overcrowded based on MSBA Recommendations
Adult Learning Center	✓					✓		✓	n/a	✓	n/a
Barrett Russell Early Childhood Center								✓	n/a	✓	n/a
ELEMENTARY SCHOOLS											
Angelo School									n/a		✓
Arnone School									n/a		✓
Mary E. Baker School									n/a		
Brookfield School	✓							✓	✓		✓
Edgar B. Davis School (K-8)	✓		✓	✓				✓	✓	✓	✓
Downey School	✓	✓	✓		✓	✓		✓	✓	✓	
George School									n/a		✓
Gilmore Elementary School	✓							✓	n/a	✓	✓
Hancock School	✓				✓	✓		✓	✓		✓
Kennedy School	✓							✓	✓		✓
Oscar Raymond School	✓		✓	✓	✓			✓	n/a	✓	✓

A check mark (✓) indicates an area identified to be in need of improvement.

	Site		Building							Program	
MIDDLE SCHOOLS	Parking Lot	Landscaping	Safety and Security	Exterior (Roof, Facades)	Interior Finishes	Building Systems	ADA/ MAAB Compliance	Fire Suppression	Replace or eliminate Modular Classroom(s)	Storage needs and Building Configuration	Overcrowded based on MSBA Recommendations
Ashfield Middle School	✓	✓			✓			✓	✓		✓
East Middle School	✓				✓			✓	n/a		
North Middle School	✓				✓			✓	n/a		
Plouffe Academy									n/a		✓
South Middle School	✓			✓					n/a		
West Middle School	✓				✓	✓		✓	n/a	✓	
HIGH SCHOOLS											
Brockton High School	✓							✓	n/a		✓
Huntington Alternative School	✓	✓	✓	✓	✓	✓		✓	n/a		
Champion High School at Keith Center	✓	✓						✓	n/a		

4.4 High School STEM/STEAM Wing Expansion

BUILDING OVERVIEW

Brockton High School is located in the South Zone neighborhood and serves the general high school population for the city. It is reportedly the largest high school in Massachusetts with an enrollment of 4,120 students for the 2017/2018 school year. (Enrollment data and building area information provided by the City of Brockton School Department.) The curriculum offers a traditional, comprehensive, educational program including languages, electives, vocational training, engineering, and an operating restaurant.

The three-story building, built in 1970, is located on a flat site, surrounded by asphalt parking. The existing 545,000 Gross Square Foot (GSF) building is divided into seven individual buildings, connected by pedestrian bridges and corridors. At the center of the building is the science building core. Surrounding each corner of the "core" building are four buildings known as "Houses". Each 'House' contains 9th through 12th grade general classrooms. A student is currently assigned a 'house' throughout their High School education.

Students take general academic classes within their respective 'House' while using other portions of the building for shared resources such as the gymnasium, auditorium, and technical classes.

At the north end of building is the gymnasium, 25-yard swimming pool, and fitness areas, connected to the main building and houses by two bridges at the second level. Similarly, the Fine Arts wing and 1,600-seat capacity Theater are at the south end, also connected by two bridges. Each house has its own cafeteria and resource center (or library).

BUILDING CONDITIONS

The building has had deferred maintenance and is in need of significant repairs and renovations. Improvements are necessary to maintain the building and adapt the educational spaces to 21st century learning modalities and desired growth of the STEM/ STEAM program. There is significant wear and tear on the interior of the facility, resulting in need of considerable interior renovations to provide adequate learning spaces with sufficient classroom space and daylight. The building should be tested for hazardous materials and if discovered, will need to be properly remediated prior to any future renovation and repairs.

The large theater space is often used to serve community and district activities. The sound system, seating, and finishes are past their life expectancy and would benefit from a full renovation to improve the user experience. Additionally, for the population, there do not appear to be adequate quantities for the restrooms.

Further information about the building condition can be found in Volume 1 — School Facilities Assessment.

BUILDING AND PROGRAM RECOMMENDATIONS

Aligning the existing High School facilities with 21st century learning was discussed as a priority by school leadership during the visioning sessions, and was communicated to be an essential component of advancing the Educational Master Plan for the Brockton School District.

School leadership have identified the following core educational improvements to prepare students for 21st century learning, including:

- Career readiness
- Improved STEM/ STEAM facilities
- Maintain the current "Schools Within the School" organization
- Align the Cafeterias with the Instructional Resource Centers (Learning Commons)
- Connect the interior spaces with outside learning spaces

To accomplish these goals, the design team recommends adding a new STEM/STEAM addition onto the building. This also offers the opportunity to create much needed swing space within the existing facility envelope, allowing renovations and improvements to occur building by building.

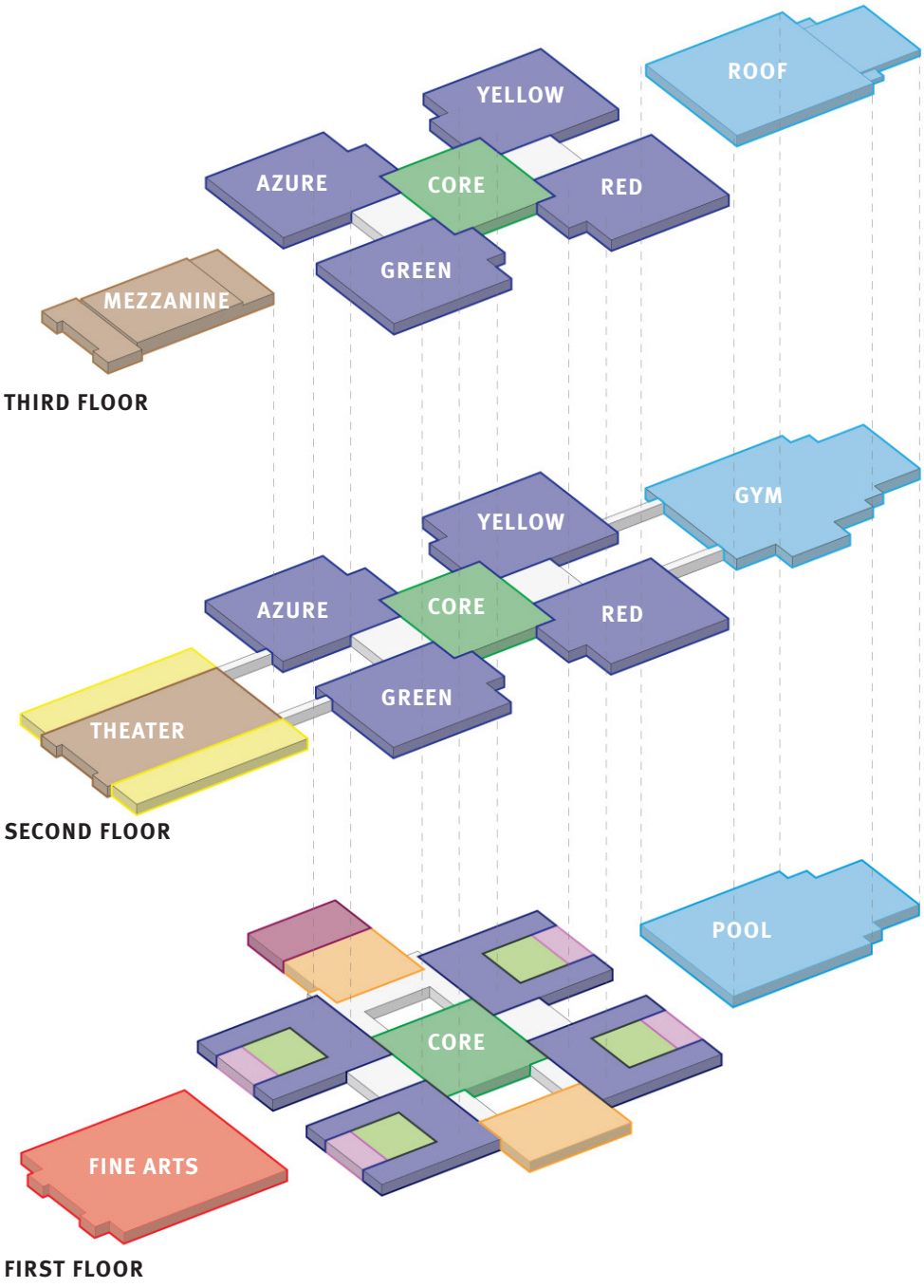
The road map for the High School expansion would be as follows:

1. Build a new 3-story, approximately 62,000 SF addition with 45 STEM/ STEAM classrooms, west of the Fine Arts wing
2. Move the existing 'core' science lab program into the newly constructed STEM/ STEAM addition.
3. Remove lab benches and science furniture/ casework from existing 'core' science labs to create classrooms for swing space.
4. Renovate 'house' by 'house', using the 'core' classrooms as swing space.
5. Once all houses have been renovated using the visioning guiding principals, learning modalities, and school organizational structure, transform the 'core' into a central cafeteria space.
6. Re-purpose the existing cafeteria and media labs to small, flexible, learning commons and Instructional Resources Centers (IRCs) for learning teams, places for collaboration, communication, creativity, and critical thinking. These spaces should have connection to the adjacent outdoors.

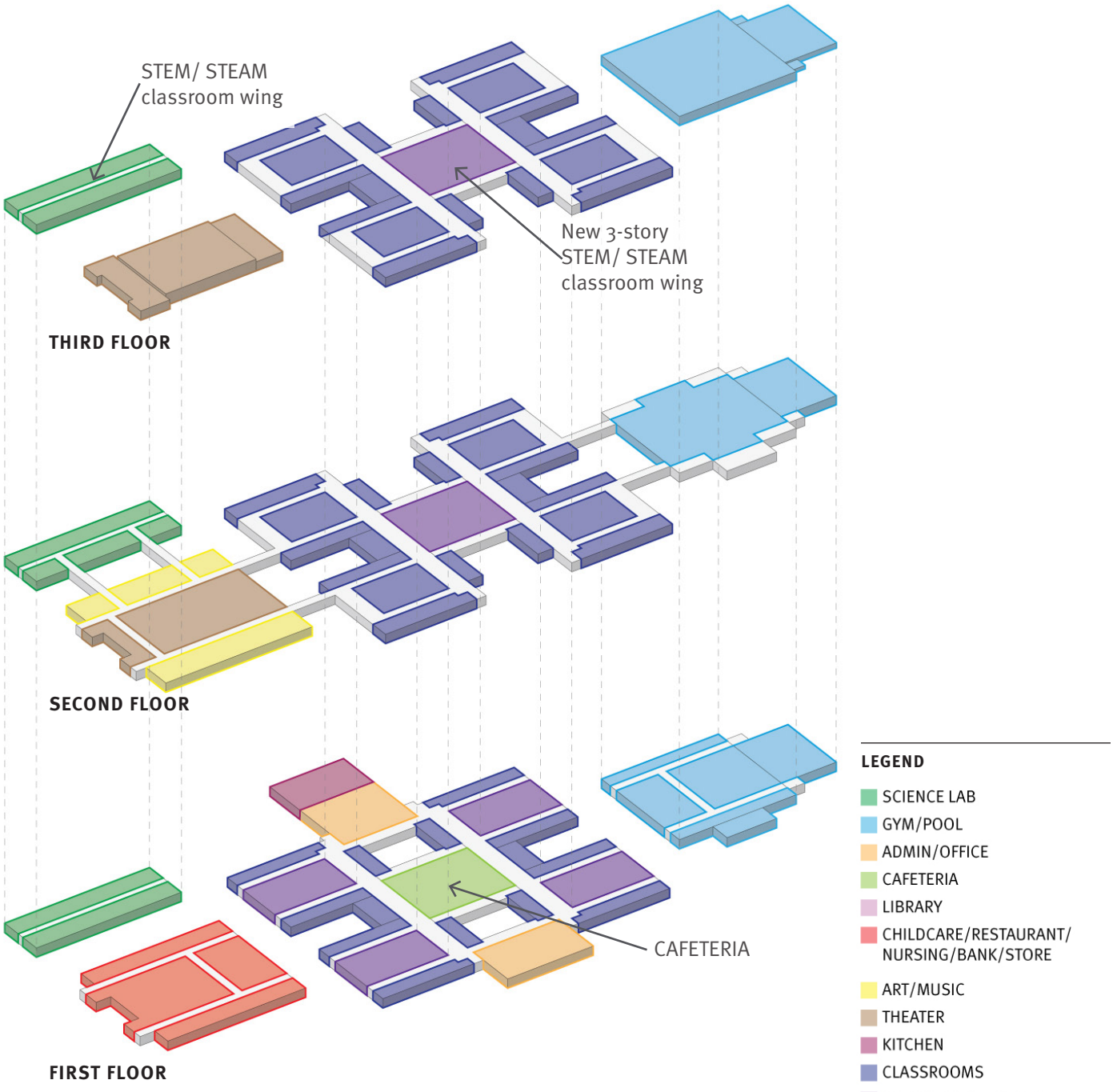
During the design process, the design team recommends that the City of Brockton undertake a comprehensive traffic and parking study for the site. Included in the analysis should be a determination if the parking counts are adequate at Brockton High School, and/or if remote parking would be beneficial when higher than usual parking events occur.

High School Expansion Proposed Approach

High School Existing Programming



High School Proposed Programming



4.5 North Middle Renovation

There are four "compass" schools in the City of Brockton: North Middle, East Middle, South Middle, and West Middle. Each of these were constructed in the 1950's, and are similar in size, program, and classroom count.

North Middle school is similar to South Middle School with minor modifications. South was renovated in 2003, with several building improvements including adding an elevator, retrofitting the sprinkler/fire alarm system, renovating bathrooms, and adding a new science lab. Additionally, the previous stationary desk classroom furniture was replaced with new learning tables.

In 2012, as part of the MSBA Accelerated Repair Program, North Middle received a new roof and boilers. North Middle was identified by the School Building Committee to be the next "Compass" school to be renovated.

Pending further evaluation, it does not appear that North Middle School needs additional classroom or other building additions. Existing spaces should be evaluated and reconfigured as appropriate to educational programming needs.

There are several areas of improvement that are recommended to be addressed during a renovation:

BUILDING EXTERIOR AND SITE

- Update landscaping
- Address field drainage to resolve flooding
- Repair sidewalks with ramps and other accessibility improvements to meet ADA and Massachusetts requirements

BUILDING CODE ACCESSIBILITY IMPROVEMENTS

- Add ramps
- Renovate bathrooms to provide ADA clearances
- Add elevator to access all floors
- Replace door hardware for ADA compliance
- Improve or replace stair and ramp handrails for ADA compliance

BUILDING SYSTEMS

- Add sprinkler/ fire protection system
- Improve electrical and telecommunication systems to meet technology needs
- Increase plumbing counts for the population capacity
- Replace heating system for improved delivery throughout the building
- Upgrade lighting for energy efficiency

INTERIOR IMPROVEMENTS

- Replace or upgrade interior finishes
- Renovate the auditorium

- Replace interior wood doors and hardware for improved security, accessibility, and operation
- Update bathroom fixtures, finishes, and accessories

OTHER BUILDING IMPROVEMENTS

- Abate possible hazardous materials
- Determine if seismic upgrades are required
- Investigate building envelope conditions and potential energy improvements
- Address entry points for sight lines, safety, supervision, and security concerns

INTEGRATE 21ST CENTURY LEARNING INTO THE RENOVATION IMPROVEMENTS

- Create break out spaces and Small Learning Communities (SLC's)
- Make spaces for student presentations and work display
- Develop STEM/STEAM programs with supporting environments
- Integrate outdoor learning spaces

4.6 New K-5 Elementary Schools

As further described in Section 2 — Existing Space Analysis of this report, the current elementary school population (K-5) is overcrowded by approximately 1,140 students. Based on guidance provided during the Educational leadership team, this study recommends construction of two elementary schools to maintain consistency with other district schools, and reduce over crowding across the system.

The City identified two sites that could be made available for the siting of two new, 600 student, K-5 elementary schools. Initial "test fit" studies were performed on each site to evaluate building location, massing, circulation, parking, and playground/ open space needs. See diagrams 1 - 6 on the following pages. Note that additional investigations should be performed for each site, including soil testing, zoning and traffic analysis, site acquisition costs, and other similar issues.

1531 MAIN STREET "COPELAND CHEVROLET" SITE

The site is currently a parking lot and car dealership, located along the North-South corridor of MA Route 28. This location is centrally located and would potentially help alleviate enrollment overcrowding at the nearby Gilmore Elementary School. The design team determined the following zoning for this site:

- The site is in the C-2: General Commercial Zone Designation
- There are no building setbacks to the front and side. Since the site is abutting a residential district to the rear, then there is a setback requirement of not less than 20 feet.
- There are no Floor Area Ratio regulations
- The City's GIS mapping database indicates the rear of the site is wetlands, and has a Title 5 Septic System setback, which represents a buffer zone and minimum setback requirements. This area should be taken into consideration when siting a new building

"CARL AVENUE" SITE/
BEHIND THE EXISTING EDGAR B. DAVIS SCHOOL

An existing woodland area located behind the Edgar B. Davis School is the other option for a new elementary school site. The Edgar B. Davis School is currently the only K-8 school in the Brockton School district. Building on the adjacent land would create an Elementary School and Middle School campus. An access road connecting the existing Davis school with the proposed new K-5 elementary school would ease parent drop-off to the consolidated site.

- The site is in the R-1-C: Single-Family Residential Zone Designation
- The maximum building height can not be greater than 2-1/2 stories or 35 feet
- The front, side, and rear setbacks are 30 feet
- Lot coverage is a maximum of 25%
- This site also has a Title 5 wetlands setback towards the rear

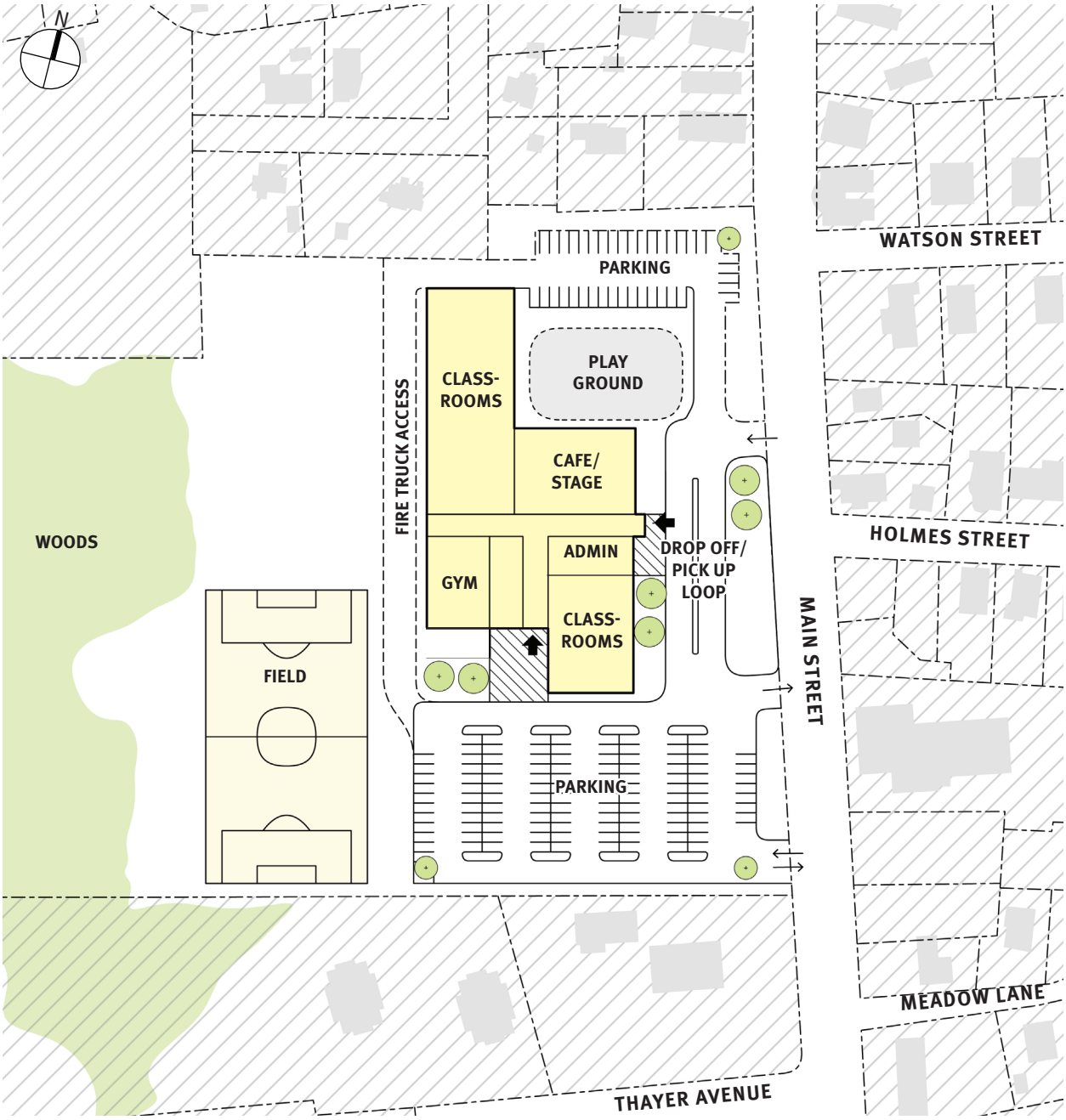
The floor plan diagrams on the following pages show three different options for an approximate 90,000 SF building placed on each of the sites:

- 'Option A' is a compact 2-story footprint which reduces the building footprint, leaving more of the site available for fields, parking, and other uses. The option creates two separate classroom wings with a centralized Cafetorium and Gym. There is one main access point at the entry, and another entry at the gym.
- 'Option B' is an 'L-shape' configuration with one central entry point. The floor plan allows for certain community program spaces, such as the Gym and Cafetorium, be sectioned off from the remainder of the building, so that these programs can be used after school hours without allowing access to the entire building.
- 'Option C' places the school along the southern portion of the site, isolating the northern parking zone from the drop-off loop. The floor plan creates creating two separate classroom wings with a centralized Cafetorium and Gym.

Based on preliminary analysis, both sites appear to have sufficient space to support new 600 student schools with appropriate parking and play space for a K-5 Elementary School program. As previously noted, further investigation and analysis is recommended to verify the existing site conditions and develop a preferred site and building configuration.

1531 MAIN STREET
Diagram 1: Option A
COPELAND CHEVROLET SITE

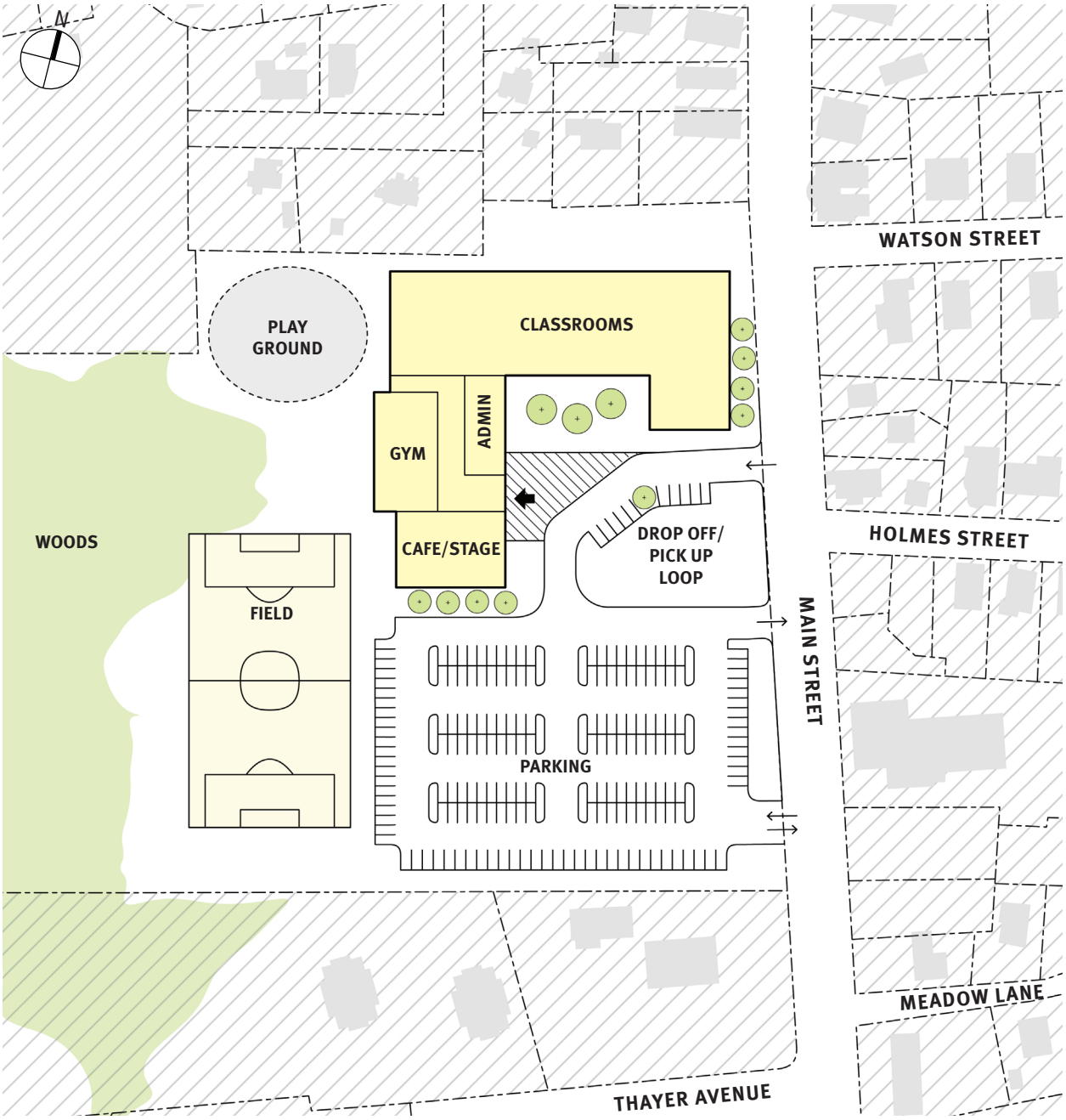
SCALE 1”=150’



- School is a 2-story building approx. 90,000 SF that faces onto Main Street for car/bus access.
- Separate staff and visitor parking.
- Fields at rear of site.

1531 MAIN STREET
Diagram 2: Option B
COPELAND CHEVROLET SITE

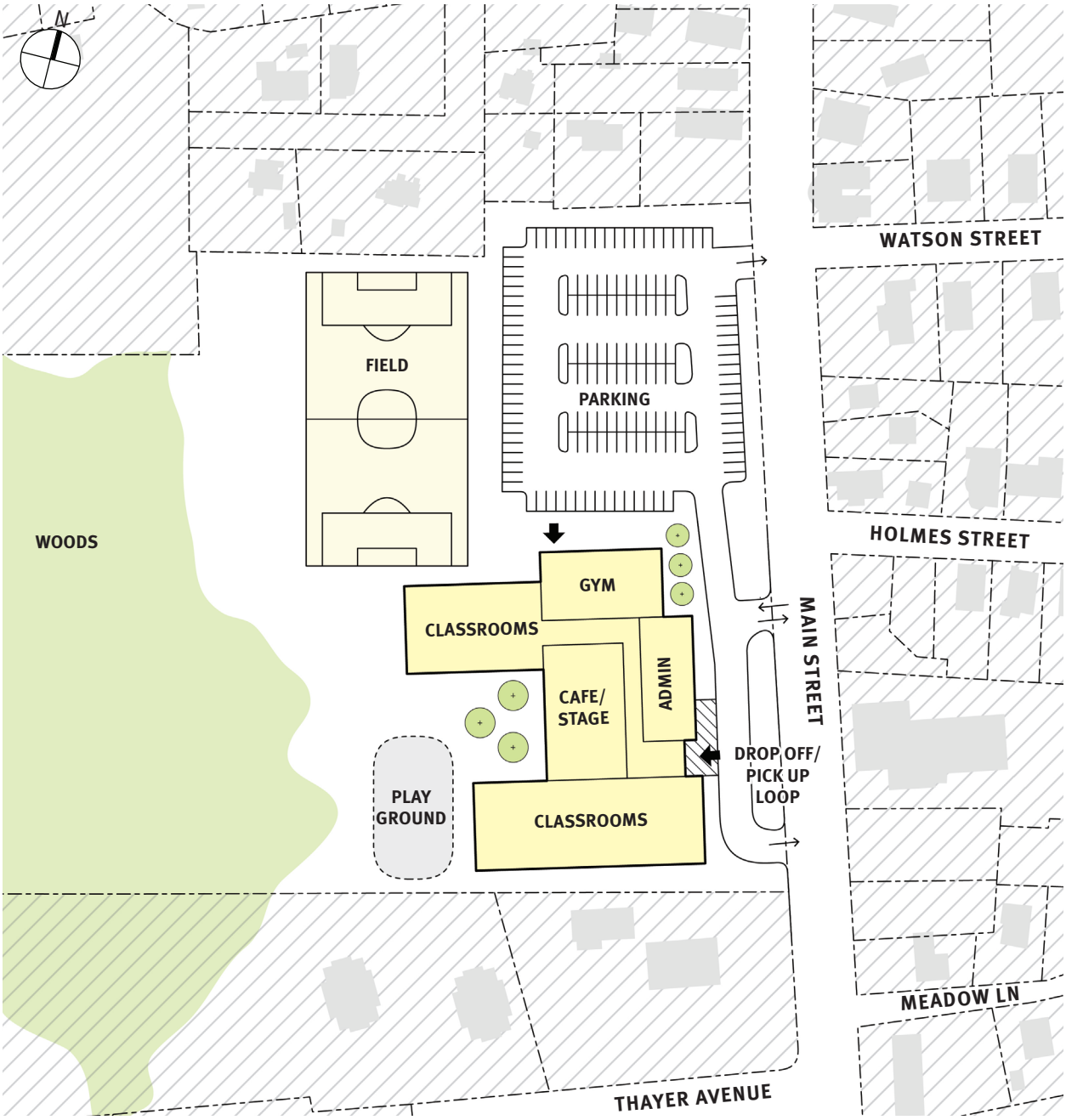
SCALE 1"=150'



- School is a 1 and 2-story building approx. 90,000 SF that faces onto Main Street for car/bus access.
- One concentrated parking zone.
- Field and playground at rear of site.

1531 MAIN STREET
Diagram 3: Option C
COPELAND CHEVROLET SITE

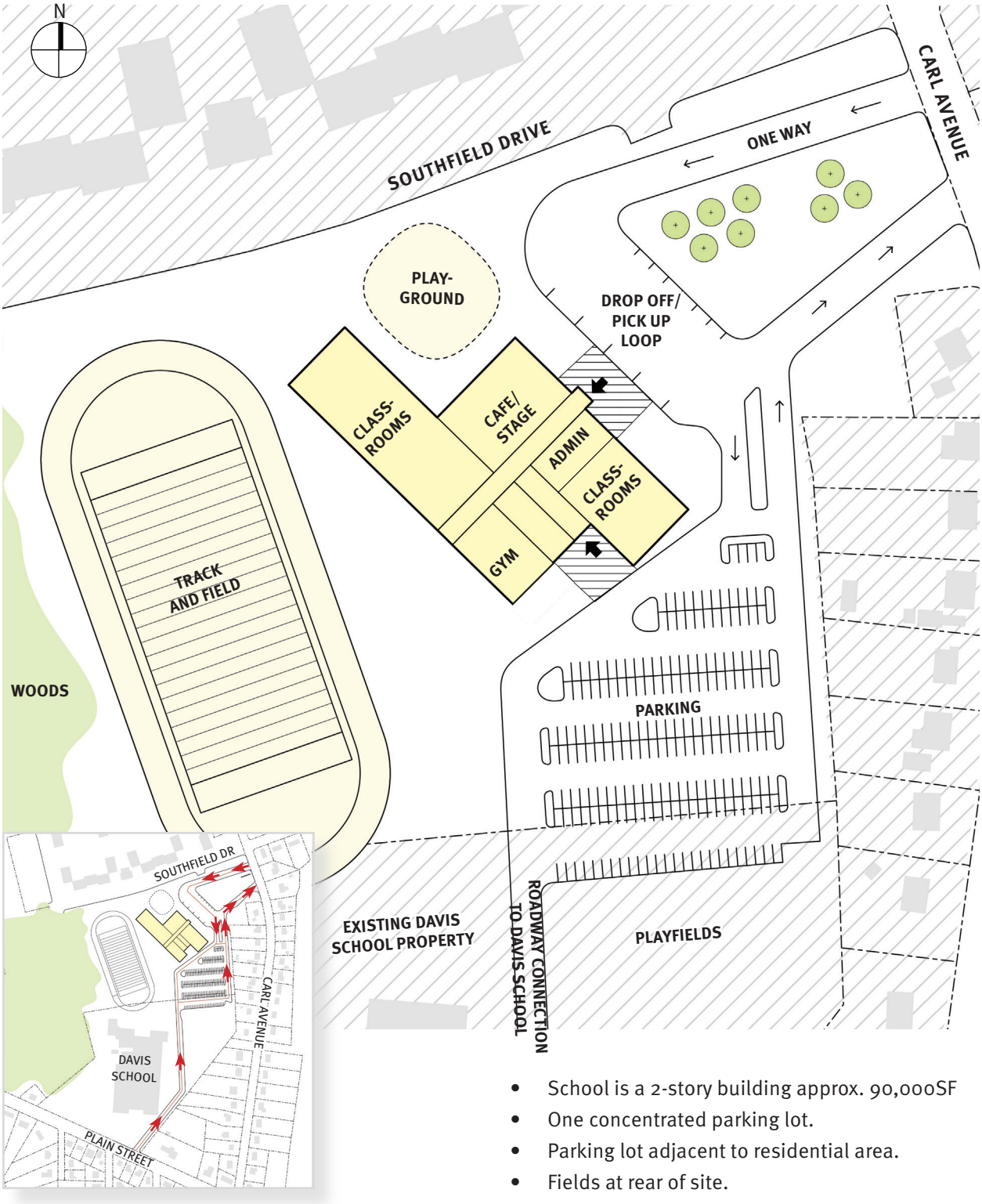
SCALE 1"=150'



- School is a 2-story building approx. 87,500 SF toward south of site.
- One concentrated parking zone.
- Field and playground at rear of site.

CARL AVENUE
Diagram 4: Option A
BEHIND EXISTING DAVIS SCHOOL

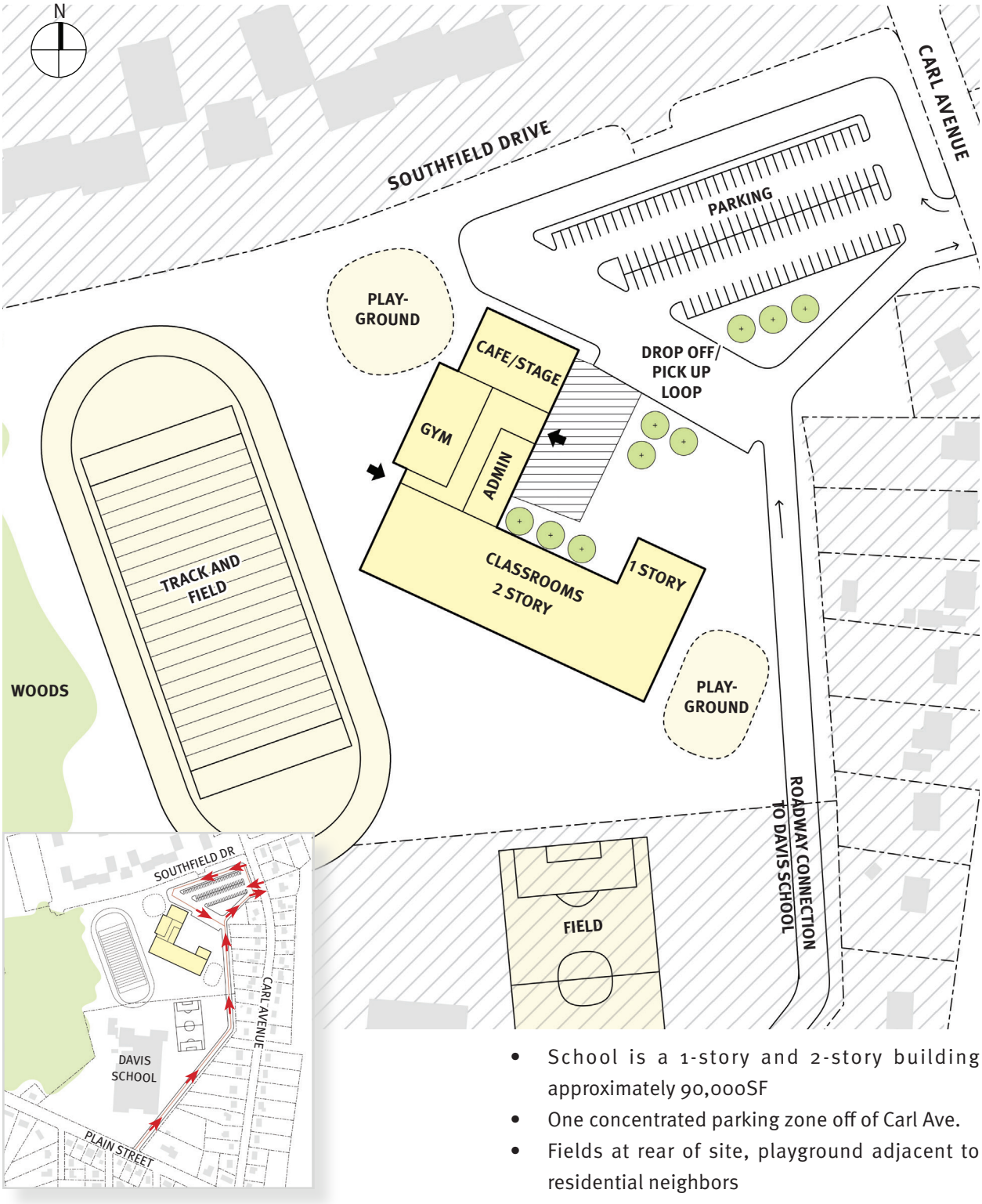
SCALE 1"=150'



- School is a 2-story building approx. 90,000SF
- One concentrated parking lot.
- Parking lot adjacent to residential area.
- Fields at rear of site.

CARL AVENUE
Diagram 5: Option B
BEHIND EXISTING DAVIS SCHOOL

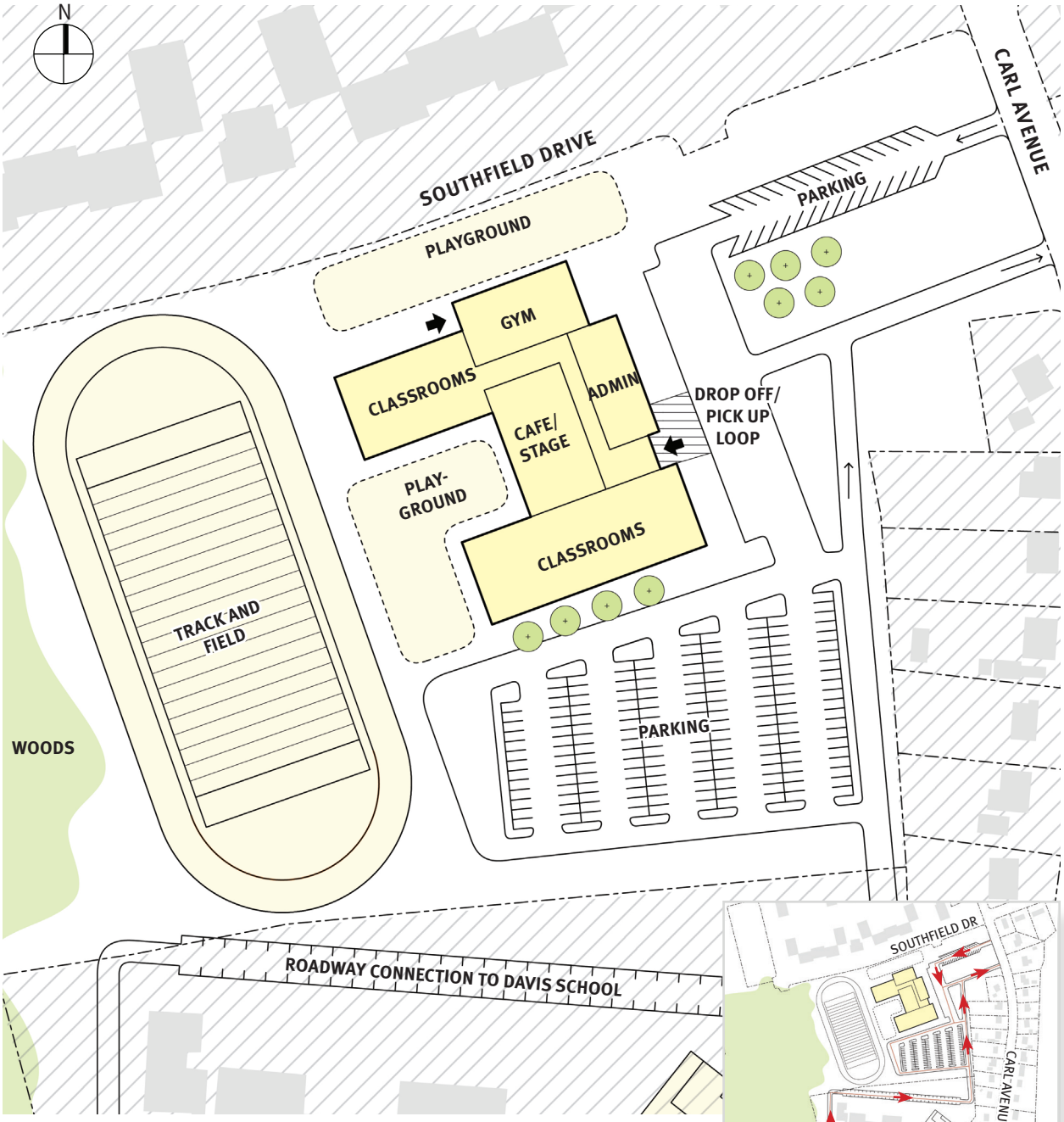
SCALE 1"=150'



- School is a 1-story and 2-story building approximately 90,000SF
- One concentrated parking zone off of Carl Ave.
- Fields at rear of site, playground adjacent to residential neighbors

CARL AVENUE
Diagram 6: Option C
BEHIND EXISTING DAVIS SCHOOL

SCALE 1"=150'



- School is a 2-story building approx. 87,500SF
- Separate staff and visitor parking.
- Fields at rear of site.

APPENDICES

APPENDICES

Appendix A: MSBA Space Planning Templates

The following Appendix A is directly from the MSBA website and is the basis used to determine right sized educational spaces.

Proposed Space Summary — Elementary Schools

Date: Enter Date Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			0			0			0			0		0	0	
(List classrooms of different sizes separately)																
Pre-Kindergarten w/ toilet													1,200		-	1,100 SF min - 1,300 SF max
Kindergarten w/ toilet													1,200	0	-	1,100 SF min - 1,300 SF max
General Classrooms - Grade 1-6													950	0	-	900 SF min - 1,000 SF max
SPECIAL EDUCATION			0			0			0			0			500	
(List rooms of different sizes separately)																
Self-Contained SPED													950	0	-	900-1,300 SF equal to surrounding classrooms
Self-Contained SPED - toilet													60	0	-	
Resource Room													500	0	-	1/2 size Genl. Clrm.
Small Group Room / Reading													500	1	500	1/2 size Genl. Clrm.
ART & MUSIC			0			0			0			0			0	
Art Classroom - 25 seats													1,000	0	-	assumed schedule 2 times / week / student
Art Workroom w/ Storage & kiln													150	0	-	
Music Classroom / Large Group - 25-50 seats													1,200	0	-	assumed schedule 2 times / week / student
Music Practice / Ensemble													75	0	-	
HEALTH & PHYSICAL EDUCATION			0			0			0			0			6,300	
Gymnasium													6,000	1	6,000	6000 SF Min. Size
Gym Storeroom													150	1	150	
Health Instructor's Office w/ Shower & Toilet													150	1	150	
MEDIA CENTER			0			0			0			0			2,020	
Media Center / Reading Room													2,020	1	2,020	
DINING & FOOD SERVICE			0			0			0			0			3,000	
Cafeteria / Dining													0	1	-	2 seatings - 15SF per seat
Stage													1,000	1	1,000	
Chair / Table / Equipment Storage													200	1	200	
Kitchen													1,600	1	1,600	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room													200	1	200	20 SF/Occupant
MEDICAL			0			0			0			0			310	
Medical Suite Toilet													60	1	60	
Nurses' Office / Waiting Room													250	1	250	
Examination Room / Resting													100	0	-	
ADMINISTRATION & GUIDANCE			0			0			0			0			1,865	
General Office / Waiting Room / Toilet													300	1	300	
Teachers' Mail and Time Room													100	1	100	
Duplicating Room													150	1	150	
Records Room													110	1	110	
Principal's Office w/ Conference Area													375	1	375	
Principal's Secretary / Waiting													125	1	125	
Assistant Principal's Office													120	0	-	
Supervisory / Spare Office													120	1	120	
Conference Room													250	1	250	
Guidance Office													150	0	-	
Guidance Storeroom													35	1	35	
Teachers' Work Room													300	1	300	

Elementary Schools continued on next page

Proposed Space Summary — Elementary Schools , continued

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									Date: Enter Date Enter Submittal			
				Existing to Remain/Renovated			New			Total			MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CUSTODIAL & MAINTENANCE			**0**			**0**			**0**			**0**			**1,900**	
Custodian's Office													150	1	150	
Custodian's Workshop													375	1	375	
Custodian's Storage													375	1	375	
Recycling Room / Trash													400	1	400	
Receiving and General Supply													200	1	200	
Storeroom													200	1	200	
Network / Telecom Room													200	1	200	
OTHER			**0**			**0**			**0**			**0**			**0**	
Other *(specify)*																
Total Building Net Floor Area (NFA)			**0**			**0**			**0**			**0**			**15,895**	
Proposed Student Capacity / Enrollment															**0**	
NON-PROGRAMMED SPACES					% of GFA	**0**		% of GFA	**0**		% of GFA	**0**				
Other Occupied Rooms (list separately)																Non-Programmed space areas are
																required to be included in the
																following submittals:
																Schematic Design Submittal
Unoccupied MEP/FP Spaces																Design Development Submittal
Unoccupied Closets, Supply Rooms & Storage Rooms																60% Construction Documents
Toilet Rooms																90% Construction Documents
Circulation (corridors, stairs, ramps & elevators)																Final Construction Documents
Remaining[3]						**0**			**0**			**0**				
Total Building Gross Floor Area (GFA)[2]			**0**									**0**			**-**	
Grossing factor (GFA/NFA)			**#DIV/0!**			**#DIV/0!**			**#DIV/0!**			**#DIV/0!**			**0.00**	

[1] **Individual Room Net Floor Area (NFA)** 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 square footage measured from the outside face of exterior walls

[3] **Remaining** 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

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 and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: _____

Name of Principal Architect: _____

Signature of Principal Architect: _____

Date: _____

Proposed Space Summary — K - 8 Schools

Date: Enter Date Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**0**			**0**			**0**			**0**		**0**	**0**	
(List classrooms of different sizes separately)																
Pre-Kindergarten w/ toilet													1,200		-	1,100 SF min - 1,300 SF max
Kindergarten w/ toilet													1,200	0	-	1,100 SF min - 1,300 SF max
General Classrooms - Grades 1-5													950	0	-	900 SF min - 1,000 SF max
General Classrooms - Grades 6-8													950	0	-	850 SF min - 950 SF max
Science Classroom / Lab													1,200	0	-	1 period / day / student
Prep room													80	0	-	
SPECIAL EDUCATION			**0**			**0**			**0**			**0**			**500**	
(List rooms of different sizes separately)																
Self-Contained SPED - Grades 6-8													950	0	-	850-950 SF equal to surrounding classrooms
Self-Contained SPED - Grades K-5													950	0	-	900-1,300 SF equal to surrounding classrooms
Self-Contained SPED - Grades K-5 toilet													60	0	-	
Self-Contained SPED - Grades 6-8 toilet													60	0	-	
Resource Room - Grades 6-8													500	0	-	
Resource Room - Grades K-5													500	0	-	
Small Group Room / Reading													500	1	500	1/2 size Genl. Clrm.
ART & MUSIC			**0**			**0**			**0**			**0**			**200**	
Art Classroom - Grades 1-5													1,000	0	-	assumed schedule 2 times / week / student
Art Classroom - Grades 6-8													1,200	0	-	assumed use - 50% population 2 times / week
Art Workroom w/ Storage & kiln													150	0	-	
Band / Chorus - 100 seats													1,500	0	-	
Music Classroom / Large Group - 25-50 seats													1,200	0	-	assumed schedule 2 times / week / student
Music Practice / Ensemble - Grades 1-5													75	0	-	
Music Practice / Ensemble - Grades 6-8													200	1	200	
VOCATIONS & TECHNOLOGY			**0**			**0**			**0**			**0**			**0**	
Tech Clrm. - (E.G. Drafting, Business)													1,200	0	-	Assumed use - 25% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)													2,000	0	-	Assumed use - 25% Population - 5 times/week
HEALTH & PHYSICAL EDUCATION			**0**			**0**			**0**			**0**			**#DIV/0!**	
Gymnasium													6,000	1	6,000	6000 SF Min. Size
Gym Storeroom													150	1	150	
Health Instructor's Office w/ Shower & Toilet													#DIV/0!	1	#DIV/0!	
Locker Rooms - Boys / Girls w/ Toilets													1,000	2	2,000	
MEDIA CENTER			**0**			**0**			**0**			**0**			**#DIV/0!**	
Media Center/Reading Room													#DIV/0!	1	#DIV/0!	
DINING & FOOD SERVICE			**0**			**0**			**0**			**0**			**3,600**	
Cafeteria / Dining													0	1	-	2 seatings - 15SF per seat
Kitchen													1,600	1	1,600	1600 SF for first 300 + 1 SF/student Add'l
Chair / Table / Equipment Storage													200	1	200	200 SF for first 300 + .333 SF/student Add'l
Staff Lunch Room													200	1	200	200 SF for first 400 + .25 SF/student Add'l
Stage													1,600	1	1,600	
MEDICAL			**0**			**0**			**0**			**0**			**310**	
Medical Suite Toilet													60	1	60	
Nurses' Office / Waiting Room													250	1	250	
Examination Room / Resting													100	0	-	

K-8 Schools continued on next page

Proposed Space Summary — K - 8 Schools, continued

Date: Enter Date Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
ADMINISTRATION & GUIDANCE			0			0			0			0			#DIV/0!	
Principal's Office w/ Conference Area													375	1	375	
Principal's Secretary / Waiting													125	1	125	
Assistant Principal's Office - AP1													#DIV/0!	1	#DIV/0!	
Assistant Principal's Office - AP2													#DIV/0!	0	#DIV/0!	
General Office / Waiting Room / Toilet													#DIV/0!	1	#DIV/0!	
Conference room													#DIV/0!	1	#DIV/0!	
Teachers' Mail and Time Room													100	1	100	
Duplicating Room													#DIV/0!	1	#DIV/0!	
Records Room													#DIV/0!	1	#DIV/0!	
Supervisory / Spare Office													#DIV/0!	1	#DIV/0!	
General Waiting Room													100	1	100	
Guidance Office													150	0	-	
Guidance Storeroom													#DIV/0!	1	#DIV/0!	
Teachers' Work Room													300	1	300	
CUSTODIAL & MAINTENANCE			0			0			0			0			#DIV/0!	
Custodian's Office													150	1	150	
Custodian's Workshop													#DIV/0!	1	#DIV/0!	
Custodian's Storage													375	1	375	
Storeroom													200	1	200	
Recycling Room / Trash													400	1	400	
Receiving and General Supply													200	1	200	
Network / Telecom Room													200	1	200	
OTHER			0			0			0			0			0	
Other *(specify)*																
Total Building Net Floor Area (NFA)			0			0			0			0				
Proposed Student Capacity / Enrollment															0	Enter grade enrollments below
																Elementary Enrollment typically (K-5)
																Middle/Jr. High Enrollment typically (6-8)
NON-PROGRAMMED SPACES					% of GFA	0		% of GFA	0		% of GFA	0				
Other Occupied Rooms (list separately)																Non-Programmed space areas are
																required to be included in the
																following submittals:
																Schematic Design Submittal
Unoccupied MEP/FP Spaces																Design Development Submittal
Unoccupied Closets, Supply Rooms & Storage Rooms																60% Construction Documents
Toilet Rooms																90% Construction Documents
Circulation (corridors, stairs, ramps & elevators)																Final Construction Documents
Remaining[3]						0			0			0				
Total Building Gross Floor Area (GFA)[2]						0			0			0				
Grossing factor (GFA/NFA)															1.50	

[1] **Individual Room Net Floor Area (NFA)** 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 square footage measured from the outside face of exterior walls

[3] **Remaining** 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.

Proposed Space Summary — Middle Schools

Date: Enter Date Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			0			0			0			0			0	
(List classrooms of different sizes separately)																
Classroom - General													950	0	-	850 SF min - 950 SF max
Small Group Seminar (20-30 seats) / Resource													500	0	-	
Science Classroom / Lab													1,200	0	-	1 period / day / student
Prep Room													80	0	-	
SPECIAL EDUCATION			0			0			0			0			500	
(List classrooms of different sizes separately)																
Self-Contained SPED													950	0	-	850-950 SF equal to surrounding classrooms
Self-Contained SPED Toilet													60	0	-	
Resource Room													500	0	-	1/2 size Genl. Clrm.
Small Group Room / Reading													500	1	500	1/2 size Genl. Clrm.
ART & MUSIC			0			0			0			0			200	
Art Classroom													1,200	0	-	assumed use - 50% population 2 times / week
Art Workroom w/ Storage & kiln													150	0	-	
Band / Chorus - 100 seats													1,500	0	-	assumed use - 50% population 2 times / week
Music Practice / Ensemble													200	1	200	
VOCATIONS & TECHNOLOGY			0			0			0			0			0	
Tech Clrm. - (E.G. Drafting, Business)													1,200	0	-	Assumed use - 25% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)													2,000	0	-	Assumed use - 25% Population - 5 times/week
HEALTH & PHYSICAL EDUCATION			0			0			0			0			8,400	
Gymnasium													6,000	1	6,000	
Gym Storeroom													150	1	150	
Health Instructor's Office w/ Shower & Toilet													250	1	250	
Locker Rooms - Boys / Girls w/ Toilets													1,000	2	2,000	
MEDIA CENTER			0			0			0			0			2,680	
Media Center / Reading Room													2,680	1	2,680	
DINING & FOOD SERVICE			0			0			0			0			3,600	
Cafetorium / Dining													0	1	-	2 seatings - 15SF per seat
Stage													1,600	1	1,600	
Chair / Table / Equipment Storage													200	1	200	
Kitchen													1,600	1	1,600	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room													200	1	200	20 SF/Occupant
MEDICAL			0			0			0			0			310	
Medical Suite Toilet													60	1	60	
Nurses' Office / Waiting Room													250	1	250	
Examination Room / Resting													100	0	-	
ADMINISTRATION & GUIDANCE			0			0			0			0			2,400	
General Office / Waiting Room / Toilet													300	1	300	
Teachers' Mail and Time Room													100	1	100	
Duplicating Room													200	1	200	
Records Room													200	1	200	
Principal's Office w/ Conference Area													375	1	375	
Principal's Secretary / Waiting													125	1	125	
Assistant Principal's Office - AP1													150	1	150	
Assistant Principal's Office - AP2													150	0	-	
Supervisory / Spare Office													150	1	150	
Conference Room													350	1	350	
Guidance Office													150	0	-	
Guidance Waiting Room													100	1	100	
Guidance Storeroom													50	1	50	
Teachers' Work Room													300	1	300	

Middle Schools continued on next page

Proposed Space Summary — Middle Schools , continued

Date: Enter Date Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CUSTODIAL & MAINTENANCE			**0**			**0**			**0**			**0**			**1,775**	
Custodian's Office													150	1	150	
Custodian's Workshop													250	1	250	
Custodian's Storage													375	1	375	
Recycling Room / Trash													400	1	400	
Receiving and General Supply													200	1	200	
Storeroom													200	1	200	
Network / Telecom Room													200	1	200	
OTHER			**0**			**0**			**0**			**0**			**0**	
Other *(specify)*																
Total Building Net Floor Area (NFA)			**0**			**0**			**0**			**0**			**19,865**	
Proposed Student Capacity / Enrollment															**0**	
NON-PROGRAMMED SPACES					% of GFA	**0**		% of GFA	**0**		% of GFA	**0**				
Other Occupied Rooms (list separately)																Non-Programmed space areas are required to be included in the following submittals:
Unoccupied MEP/FP Spaces																Schematic Design Submittal
Unoccupied Closets, Supply Rooms & Storage Rooms																Design Development Submittal
Toilet Rooms																60% Construction Documents
Circulation (corridors, stairs, ramps & elevators)																90% Construction Documents
Remaining[3]						**0**			**0**			**0**				Final Construction Documents
Total Building Gross Floor Area (GFA)[2]						**0**			**0**			**0**			**0**	
Grossing factor (GFA/NFA)															**0.00**	

[1] **Individual Room Net Floor Area (NFA)** 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 square footage measured from the outside face of exterior walls

[3] **Remaining** 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

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 and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: _____

Name of Principal Architect: _____

Signature of Principal Architect: _____

Date: _____

Proposed Space Summary — High Schools

Date: 12/25/2017 Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			0			0			0			0			1,150	
(List classrooms of different sizes separately)																
Classroom - General													850	1	850	825 SF min - 950 SF max
Teacher Planning													100	1	100	
Small Group Seminar (20-30 seats)													500	0	-	
Science Classroom / Lab													1,440	0	-	3 x85% ut=20 Seats-1 per /day/student
Prep Room													200	0	-	
Central Chemical Storage Rm													200	1	200	
SPECIAL EDUCATION			0			0			0			0			0	
(List classrooms of different sizes separately)																
Self-Contained SPED													950	0	0	825-950 SF equal to surrounding classrooms
Self-Contained SPED Toilet													60	0	-	
Resource Room													500	0	-	1/2 size Genl. Clrm.
Small Group Room													500	0	-	1/2 size Genl. Clrm.
ART & MUSIC			0			0			0			0			3,700	
Art Classroom - 25 seats													1,200	0	-	Assumed use - 25% Population - 5 times/week
Art Workroom w/ Storage & kiln													150	0	-	
Band - 50 - 100 seats													1,500	1	1,500	Assumed use - 25% Population - 5 times/week
Chorus - 50 - 100 seats													1,500	1	1,500	
Ensemble													200	1	200	
Music Practice													75	0	-	
Music Storage													500	1	500	
VOCATIONS & TECHNOLOGY			0			0			0			0			3,200	
Tech Clrm. - (E.G. Drafting, Business)													1,200	1	1,200	Assumed use - 50% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)													2,000	1	2,000	Assumed use - 50% Population - 5 times/week
HEALTH & PHYSICAL EDUCATION			0			0			0			0			16,200	
Gymnasium													12,000	1	12,000	
PE Alternatives													3,000	1	3,000	
Gym Storeroom													300	1	300	
Locker Rooms - Boys / Girls w/ Toilets													0	1	-	5.6 sf/student total
Phys. Ed. Storage													500	1	500	
Athletic Director's Office													150	1	150	
Health Instructor's Office w/ Shower & Toilet													250	1	250	
MEDIA CENTER			0			0			0			0			3,650	
Media Center / Reading Room													3,650	1	3,650	
Computer Lab																
AUDITORIUM / DRAMA			0			0			0			0			2,650	
Auditorium													0	1	-	2/3 Enrollment @ 10 SF/Seat - 750 seats MAX
Stage													1,600	1	1,600	
Auditorium Storage													250	1	250	
Make-up / Dressing Rooms													300	2	600	
Controls / Lighting / Projection													200	1	200	

High Schools continued on next page

Proposed Space Summary — High Schools, continued

Date: 12/25/2017 Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
DINING & FOOD SERVICE			**0**			**0**			**0**			**0**			**2,900**	
Cafeteria / Student Lounge / Break-out													0	1	-	3 seatings - 15SF per seat
Chair / Table Storage													300	1	300	
Scramble Serving Area													600	1	600	
Kitchen													1,600	1	1,600	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room													400	1	400	20 SF/Occupant
MEDICAL			**0**			**0**			**0**			**0**			**410**	
Medical Suite Toilet													60	1	60	
Nurses' Office / Waiting Room													250	1	250	
Interview Room													100	1	100	
Examination Room / Resting													100	0	-	
ADMINISTRATION & GUIDANCE			**0**			**0**			**0**			**0**			**2,920**	
General Office / Waiting Room / Toilet													300	1	300	
Teachers' Mail and Time Room													100	1	100	
Duplicating Room													200	1	200	
Records Room													200	1	200	
Principal's Office w/ Conference Area													375	1	375	
Principal's Secretary / Waiting													125	1	125	
Assistant Principal's Office - AP1													150	1	150	
Assistant Principal's Office - AP2													150	0	-	
Supervisory / Spare Office													120	1	120	
Conference Room													450	1	450	
Guidance Office													150	0	-	
Guidance Waiting Room													100	1	100	
Guidance Storeroom													100	1	100	
Career Center													300	1	300	
Records Room													100	1	100	
Teachers' Work Room													300	1	300	
CUSTODIAL & MAINTENANCE			**0**			**0**			**0**			**0**			**2,075**	
Custodian's Office													150	1	150	
Custodian's Workshop													250	1	250	
Custodian's Storage													375	1	375	
Recycling Room / Trash													400	1	400	
Receiving and General Supply													300	1	300	
Storeroom													400	1	400	
Network / Telecom Room													200	1	200	

High Schools continued on next page

Proposed Space Summary — High Schools, continued

Date: 12/25/2017 Enter Submittal

FILL IN SCHOOL NAME HERE	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
OTHER			**0**			**0**			**0**			**0**			**0**	
Other (specify)																
Total Building Net Floor Area (NFA)			**0**			**0**			**0**			**0**			**38,855**	
Proposed Student Capacity / Enrollment															**0**	
NON-PROGRAMMED SPACES					% of GFA	**0**		% of GFA	**0**		% of GFA	**0**				
Other Occupied Rooms (list separately)																Non-Programmed space areas are
																required to be included in the
																following submittals:
																Schematic Design Submittal
Unoccupied MEP/FP Spaces																Design Development Submittal
Unoccupied Closets, Supply Rooms & Storage Rooms																60% Construction Documents
Toilet Rooms																90% Construction Documents
Circulation (corridors, stairs, ramps & elevators)																Final Construction Documents
Remaining[3]						**0**			**0**			**0**				
Total Building Gross Floor Area (GFA)[2]						0			0			0				
Grossing factor (GFA/NFA)																

Appendix B: Brockton Right-Sized Space Planning

The following Appendix B was reviewed during Visioning Session Workshop 3 with Frank Locker, Educational Planner, and was a result of school leadership holisticallay right sizing the educational facilities throughout Brockton.

Space Planning — Pre-K Schools

Brockton Public Schools — Pre-Kindergarten

Name Laurie Silva, Kellie Jones & Olga Garrigan — **NOTATED** — 27th June workshop

DRAFT following workshop review

Frank Locker Educational Planning

12th July 2017

Pre-K Planning Grant:

Expand 1 public Pre-K at Barrett — **Add 1 Community Classroom at Brockton Day Nursery**

Add Head Start (HS) in the Barrett — **Add slotting availability in Family Child Care Systems**

Mixed model to equate to: Public Pre-P-1/2 day school year (children of teachers and students); HS-full day school year; Community & family child care full day full year

PROPOSED SCHOOL MODELS	90 Students: aligned w/an elementary school							180 Students							270 Students						
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS
CORE ACADEMIC SPACES			**3,700**			**90**				**7,400**			**180**				**11,100**			**270**	
Pre-Kindergarten w/ toilet	1,200	3	3,600	15	2	90	2 sessions	1,200	6	7,200	15	2	180	2 sessions	1,200	9	10,800	15	2	270	2 sessions
2 session model								Laurie notes that 15 children per CR may not be economically sustainable; BPS might need 20													
Supplies	100	1	100					100	2	200					100	3	300				
SPECIAL EDUCATION			**2,460**			**16**				**7,005**			**48**				**13,025**			**120**	
~~Self-Contained SPED~~ Inclusion	950	2	1,900	8	2	16		950	6	5,700	8	2	48		950	12	11,400	10	2	120	
		Olga had placed "2" here but I do not think she understood the basic Classroom was above, as all Spl Ed kids are "inclusion" unless 'Substantially Separate." She did not note the need for the latter.																			
Self-Contained SPED - toilet	60	1	60					60	8	480	12				60	10	600	10			
		Ditto on Toilets. Toilets are in the (much larger) CRs above.							Not clear why this is different from above.												
Speech Therapist	125	0	-					125	1	125					125	1	125				
OT/PT w/eqpt	200	1	200					200	1	200					200	1	200				
Sensory Rooms (available to all students)	200	1	200					200	2	400					200	3	600				
Language Assessment Testing	100	1	100					100	1	100					100	1	100				
ART & MUSIC			**150**			**0**				**150**			**0**				**150**			**0**	
Materials Supply	150	1	150					150	1	150					150	1	150				
HEALTH & PHYSICAL EDUCATION			**1,000**			**0**				**1,650**			**0**				**2,150**			**0**	
Motor Skills Rooom~~/OT/PT~~/ Adaptive PE	1,000	1	1,000	15		0		1,500	1	1,500	30		0		2,000	1	2,000	45		0	
Equipment Storage	150	0	-					150	1	150					150	1	150				
MEDIA CENTER			**100**							**150**							**200**				
Curriculum Materials Resource Ctr	100	1	100					150	1	150					200	1	200				
DINING & FOOD SERVICE			**125**							**1,075**							**1,125**				
Cafeteria / Dining	675	0	-				use school's	675	1	675					675	1	675				
Warming Kitchen	250	0	-					250	1	250				1/2 students; 1 serving	250	1	250				1/2 students; 1 serving
Staff Lunch Room	125	1	125					150	1	150					200	1	200				
MEDICAL			**260**							**310**							**360**				
Medical Suite Toilet	60	1	60					60	1	60					60	1	60				
Nurses' Office / Resting	200	1	200					250	1	250					300	1	300				

Pre-K Schools continued on next page

Space Planning —
Pre-K Schools, continued

Brockton Public Schools — Pre-Kindergarten

Name Laurie Silva, Kellie Jones & Olga Garrigan — NOTATED — 27th June workshop — DRAFT following workshop review

Frank Locker Educational Planning — 12th July 2017

Pre-K Planning Grant:

Expand 1 public Pre-K at Barrett — **Add 1 Community Classroom at Brockton Day Nursery**

Add Head Start (HS) in the Barrett — **Add slotting availability in Family Child Care Systems**

Mixed model to equate to: Public Pre-P-1/2 day school year (children of teachers and students); HS-full day school year; Community & family child care full day full year

PROPOSED SCHOOL MODELS	90 Students: aligned w/an elementary school							180 Students							270 Students						
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	# SESSIONS	TOTAL # STDNTS	COMMENTS
ADMINISTRATION & GUIDANCE			**485**							**910**							**1,460**				
General Office / Waiting Room / Toilet	300	0	-					300	1	300					300	1	300				
Records Room	110	1	110					110	1	110					110	1	110				
Director's Office w/ Conference Area	375	1	375					375	1	375					375	1	375				
Director's Secretary / Waiting	125	0	-					125	1	125					125	1	125				
Conference Room	250	0	-				use school's	250	0	-					250	1	250				
Work Room	300	0	-				use school's	300	0	-					300	1	300				
CUSTODIAL & MAINTENANCE			**0**							**550**							**650**				
Custodian's Storage	150	0	-				use school's	150	1	150					200	1	200				
Storeroom	200	0	-					200	1	200					250	1	250				
Network / Telecom Room	200	0	-					200	1	200					200	1	200				
OTHER			**0**							**1,060**							**1,060**				
Parent Room	900	0	-				use school's	900	1	900				meetings, training	900	1	900				meetings, training
Toddler Alcove	100	0	-					100	1	100					100	1	100				
Toilet	60	0	-					60	1	60					60	1	60				
Outdoor Playground Developmentally Appropriate																					
ENROLLMENT CAPACITY																					
Student Seats in Capacity Teachng Stations						**106**							**228**							**390**	
Utilization						100%							100%							100%	
Enrollment Capacity						**106**							**228**							**390**	
BUILDING STATISTICS																					
Total Building Net Floor Area (NFA)			**8,280**							**20,260**							**31,280**				
Student Capacity/ Enrollment TARGET			**90**							**180**							**270**				
Total Building Gross Floor Area (GFA)			**16,200**							**32,400**							**48,600**				
SF /Student			**180**							**180**							**180**				
Grossing Factor (GFA/NFA)			**1.50**							**1.50**							**1.50**				

Space Planning — Elementary Schools

Brockton Public Schools Elementary Schools

Name Olga Garrigan, Michael mckenna, Nicole Ford, Ines Enos, John Snelgrove

NOTATED 27th June workshop

DRAFT following workshop review

Frank Locker Educational Planning

12th July 2017

PROPOSED SCHOOL MODELS	600 Students						800 Students						1000 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
CORE ACADEMIC SPACES		**26**	**26,750**		**598**			**35**	**35,950**		**805**			**43**	**39,350**		**989**	
Pre-Kindergarten w/ toilet	1,200		-				1,200		-				1,200		-			
Kindergarten w/ toilet	1,200	5	6,000	23	115		1,200	6	7,200	23	138		1,200	8	9,600	23	184	
General Classrooms - Grade 1-5	850	21	17,850	23	483		850	29	24,650	23	667		850	35	29,750	23	805	
Breakout/ Extended Learning Area	500	4	2,100			1 each SLC (5 CRs)	500	6	2,900									
			100 SF taken from each CR . Supplement with 1.55 Gross SF markup yields 775SF each															
Teacher Planning	200	4	800				200	6	1,200									
			Arrange in shared collaboration offices, each serving 2 to 3 SLCs, each with 10-15+- teachers each															
SPECIAL EDUCATION			**5,670**		**0**				**8,310**						**10,320**			
Self-Contained SPED	950	4	3,800	12	48	1 location	950	6	5,700	12	72	1 location	950	7	6,650	12	84	1 location
Self-Contained SPED - toilet	60	2	120	10			60	6	360				60	7	420			
				Not clear why 10 students in a toilet														
~~Resource Room~~ Sensory Rm-Varies by building	500	2	1,000	8	0	Pull out/ push in; in SLCs	500	3	1,500	8	0	Pull out/ push in; in SLCs	500	4	2,000	8	0	Pull out/ push in; in SLCs
~~Small Group Room / Reading~~ Speech	500	1	500	8	0	Pull out/ push in; in SLCs	500	1	500	8	0	Pull out/ push in; in SLCs	500	2	1,000	8	0	Pull out/ push in; in SLCs
OT w/equipment	250	1	250				250	1	250				250	1	250			
ART & MUSIC			**5,000**		**0**				**5,075**						**5,225**			
Art Classroom - 25 seats	1,000	2	2,000	25	0	1 location	1,000	2	2,000	25	0	1 location	1,000	2	2,000	25	0	1 location
Art Workroom w/ Storage & kiln	150	2	300				150	2	300				150	2	300			
Music Classroom / Large Group - 25-50 seats	1,200	2	2,400	50	0	1 location	1,200	2	2,400	50	0	1 location	1,200	2	2,400	50	0	1 location
Music Practice / Ensemble	75	4	300	4	0		75	5	375	4	0		75	7	525	4	0	
HEALTH & PHYSICAL EDUCATION			**6,300**		**0**				**6,300**						**6,300**			
Gymnasium	6,000	1	6,000	92	0	1 location	6,000	1	6,000	92	0	1 location	6,000	1	6,000	92	0	1 location
Gym Storeroom	150	1	150				150	1	150				150	1	150			
Health Instructor's Office w/ Shower & Toilet	150	1	150				150	1	150				150	1	150			
MEDIA CENTER			**3,370**						**4,270**						**5,170**			
Media Center / Reading Room	3,370	1	3,370			1 location	4,270	1	4,270			1 location	5,170	1	5,170			1 location
DINING & FOOD SERVICE			**8,050**						**9,667**						**11,283**			
Cafeteria / Dining	4,500	1	4,500				6,000	1	6,000				7,500	1	7,500			
Stage	1,000	1	1,000				1,000	1	1,000				1,000	1	1,000			
Chair / Table / Equipment Storage	400	1	400				467	1	467				533	1	533			

Elementary Schools continued on next page

Space Planning —
Elementary Schools, continued

Brockton Public Schools Elementary Schools

Name Olga Garrigan, Michael mckenna, Nicole Ford, Ines Enos, John Snelgrove NOTATED 27th June workshop Frank Locker Educational Planning

DRAFT following workshop review 12th July 2017

PROPOSED SCHOOL MODELS	600 Students						800 Students						1000 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
Kitchen	1,900	1	1,900			2 servings	1,900	1	1,900			2 servings	1,900	1	1,900			2 servings
Staff Lunch Room	250	1	250				300	1	300				350	1	350			
MEDICAL			**610**						**710**						**710**			
Medical Suite Toilet	60	1	60				60	1	60				60	1	60			
Nurses' Office / Waiting Room	250	1	250				250	1	250				250	1	250			
Examination Room / Resting	100	3	300				100	4	400				100	4	400			
ADMINISTRATION & GUIDANCE			**2,585**						**2,935**						**3,135**			
General Office / Waiting Room / Toilet	450	1	450				550	1	550				650	1	650			
Teachers' Mail and Time Room	100	1	100				100	1	100				100	1	100			
Duplicating Room	150	1	150				150	1	150				150	1	150			
Records Room	110	1	110				110	1	110				110	1	110			
Principal's Office w/ Conference Area	375	1	375				375	1	375				375	1	375			
Principal's Secretary / Waiting	125	1	125				125	1	125				125	1	125			
Assistant Principal's Office	120	1	120				120	1	120				120	1	120			
Supervisory / Spare Office	120	1	120				120	1	120				120	1	120			
Conference Room	250	1	250				250	1	250				250	1	250			
Guidance Office	150	2	300				150	3	450				150	3	450			
Guidance Storeroom	35	1	35				35	1	35				35	1	35			
Teachers' Work Room	450	1	450				550	1	550				650	1	650			
CUSTODIAL & MAINTENANCE			**2,200**						**2,400**						**2,600**			
Custodian's Office	150	1	150				150	1	150				150	1	150			
Custodian's Workshop	375	1	375				375	1	375				375	1	375			
Custodian's Storage	375	1	375				375	1	375				375	1	375			
Recycling Room / Trash	400	1	400				400	1	400				400	1	400			
Receiving and General Supply	300	1	300				367	1	367				433	1	433			
Storeroom	400	1	400				534	1	534				667	1	667			
Network / Telecom Room	200	1	200				200	1	200				200	1	200			
OTHER			**1,060**						**1,060**						**1,060**			
Parent Room	900	1	900			meetings, training	900	1	900			meetings, training	900	1	900			meetings, training
Toddler Alcove	100	1	100				100	1	100				100	1	100			

Elementary Schools continued on next page

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Space Planning —
Elementary Schools, continued

Brockton Public Schools Elementary Schools

Name Olga Garrigan, Michael mckenna, Nicole Ford, Ines Enos, John Snelgrove NOTATED 27th June workshop Frank Locker Educational Planning

DRAFT following workshop review 12th July 2017

PROPOSED SCHOOL MODELS	600 Students						800 Students						1000 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
Toilet	60	1	60				60	1	60				60	1	60			
ENROLLMENT CAPACITY																		
Student Seats in Capacity Teachng Stations					**598**						**805**							
Utilization					100%						100%							
Enrollment Capacity					**598**						**805**							
BUILDING STATISTICS																		
Total Building Net Floor Area (NFA)			**#VALUE!**						**68,367**						**74,833**			
Student Capacity/ Enrollment TARGET			**600**						**800**						**1000**			
Total Building Gross Floor Area (GFA)			**87,000**						**116,000**						**145,000**			
SF /Student			**145**						**145**						**145**			
Grossing Factor (GFA/NFA)			**#VALUE!**						**1.70**						**1.94**			

Space Planning — Middle Schools

Brockton Public Schools Middle Schools

Name Olga Garrigan, Troy Kieltyka, Soraya De Barros

NOTATED 27th June workshop
DRAFT following workshop review

Frank Locker Educational Planning
12th July 2017

PROPOSED SCHOOL MODELS	600 Students						1000 Students						Other?					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
CORE ACADEMIC SPACES			**38,390**		**805**				**65,183**		**1,342**				**0**		**0**	
Classroom - General	850	27	22,950	23	621	interdisciplinary Small Learning Communities	850	45	38,250	23	1,035	interdisciplinary Small Learning Communities				23	0	
Breakout/ Extended Learning Area	500	5	2,700			1 each SLC (5 CRs)	500	9	4,500									
			100 SF taken from each CR . Supplement with 1.55 Gross SF markup yields 775SF each															
Teacher Planning	200	5	1,000				200	9	1,800									
			Arrange in shared interdisciplinary collaboration offices, each serving 2 to 3 SLCs, each with 10-15+- teachers each															
Small Group Seminar (20-30 seats) / Resource	500	3	1,500				500	5	2,500									
Science Classroom / Lab	1,200	8	9,600	23	184		1,200	13	16,000	23	307					23	0	
Prep Room	160	4	640				160	13	2,133									
SPECIAL EDUCATION/ESL			**7,890**		**32**				**8,900**		**40**				**0**		**0**	
Self-Contained SPED	950	4	3,800	8	32		950	5	4,750	8	40					8	0	
Olga: Number of Self-Contained varies by building																		
Self-Contained SPED Toilet	60	4	240				60	5	300									
Inclusion		3						3										
Inclusion normally happens in General Classrooms																		
ESL-ELA Small Group/ Reading/ Flexible	500	2	1,000				500	3	1,500									
Resource Room	500	4	2,000				500	3	1,500									
~~Small Group Room / Reading~~ Speech	500	1	500				500	1	500									
OT/PT w/Eqpt Storage	350	1	350				350	1	350									
ART & MUSIC			**3,050**		**0**				**4,800**		**0**				**0**		**0**	
Art Classroom	1,200	1	1,200	23	0		1,200	2	2,400	23	0					23	0	
Art Workroom w/ Storage & kiln	150	1	150				150	2	300									
Band / Chorus - 100 seats	1,500	1	1,500	100	0		1,500	1	1,500	100	0					100	0	
Music Practice / Ensemble	200	1	200				200	3	600									
VOCATIONS & TECHNOLOGY			**6,400**		**0**				**6,400**		**0**				**0**		**0**	
Tech Clrm. - (E.G. Drafting, Business) STEM	1,200	2	2,400	23	0		1,200	2	2,400	23	0					23	0	
Tech Shop - (E.G. Consumer, Wood) Maker Space	2,000	2	4,000	23	0		2,000	2	4,000	23	0					23	0	
HEALTH & PHYSICAL EDUCATION			**8,400**		**0**				**8,400**		**0**				**0**		**0**	
Gymnasium	6,000	1	6,000	46	0		6,000	1	6,000	2,384	0					46	0	
Gym Storeroom	150	1	150				150	1	150									

Middle Schools continued on next page

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Space Planning —
Middle Schools, continued

Brockton Public Schools Middle Schools

Name Olga Garrigan, Troy Kieltyka, Soraya De Barros

NOTATED 27th June workshop
DRAFT following workshop review

Frank Locker Educational Planning
12th July 2017

PROPOSED SCHOOL MODELS	600 Students						1000 Students						Other?					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
Health Instructor's Office w/ Shower & Toilet	250	1	250				250	1	250									
Locker Rooms - Boys / Girls w/ Toilets	1,000	2	2,000				1,000	2	2,000									
MEDIA CENTER			**3,830**						**6,130**						**0**			
Media Center / Reading Room	3,830	1	3,830				6,130	1	6,130									
DINING & FOOD SERVICE			**8,650**						**12,283**						**0**			
Cafetorium / Dining	4,500	1	4,500			1 location	7,500	1	7,500			1 location						1 location
Stage	1,600	1	1,600				1,600	1	1,600									
Chair / Table / Equipment Storage	400	1	400				533	1	533									
Kitchen	1,900	1	1,900			2 servings	2,300	1	2,300			2 servings						2 servings
Staff Lunch Room	250	1	250				350	1	350									
MEDICAL			**610**						**710**						**0**			
Medical Suite Toilet	60	1	60				60	1	60									
Nurses' Office / Waiting Room	250	1	250				250	1	250									
Examination Room / Resting	100	3	300				100	4	400									
ADMINISTRATION & GUIDANCE			**3,490**						**4,500**						**0**			
Receptionist Area ~~General Office~~ / Waiting Room / Toilet	400	1	400				600	1	600									
Teachers' Mail and Time Room	100	1	100				100	1	100									
Duplicating Room	200	1	200				200	1	200									
Records Room	200	1	200				200	1	200									
Principal's Office w/ Conference Area	375	1	375				375	1	375									
Principal's Secretary / Waiting	125	1	125				125	1	125									
Assistant Principal's Office - AP1	150	1	150				150	1	150									
Assistant Principal's Office - AP2	150	1	150				150	2	300									
Supervisory / Spare Office	150	1	150				150	1	150									
Conference Room	350	1	350				350	1	350									
Guidance Office/ School Adjustment Counselor	150	4	600				150	6	900									
SAC primarily away from office																		
~~Guidance~~ Waiting Room	100	1	100				100	1	100									
Guidance Storeroom	50	1	50				50	1	50									
Teacher's Work Rm/ Duplicating Room: 1 per 2 SLCs	200	3	540				200	5	900									

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Space Planning —
Middle Schools, continued

Brockton Public Schools Middle Schools BROCKTON Public Schools

Name Olga Garrigan, Troy Kieltyka, Soraya De Barros

NOTATED 27th June workshop
DRAFT following workshop review

Frank Locker Educational Planning
12th July 2017

PROPOSED SCHOOL MODELS	600 Students						1000 Students						Other?					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTAL # STDNTS	COMMENTS
CUSTODIAL & MAINTENANCE			**2,075**						**2,475**						**0**			
Custodian's Office	150	1	150				150	1	150									
Custodian's Workshop combined w/ Office above	250	1	250				250	1	250									
Custodian's Storage	375	1	375				375	1	375									
Recycling Room / Trash	400	1	400				400	1	400									
Receiving and General Supply	300	1	300				433	1	433									
Storeroom	400	1	400				667	1	667									
Network / Telecom Room	200	1	200				200	1	200									
OTHER			**1,060**						**1,060**						**1,060**			
Bilingual/ ESL/ Spl Ed Meeting Rm/ Parent Room	900	1	900			meetings, training	900	1	900			meetings, training	900	1	900			meetings, training
~~Toddler Alcove~~ Coach/ Facilitator alcove	100	1	100				100	1	100				100	1	100			
Toilet	60	1	60				60	1	60				60	1	60			
ENROLLMENT CAPACITY																		
Student Seats in Capacity Teachng Stations					**837**						**1,382**							
Utilization					100%						100%							
Enrollment Capacity					837						1,382							
BUILDING STATISTICS																		
Total Building Net Floor Area (NFA)			**83,845**						**120,841**									
Student Capacity/ Enrollment TARGET			**600**						**1,000**									
Total Building Gross Floor Area (GFA)			**103,714**						**160,000**									
SF /Student			**173**						**160**									
Grossing Factor (GFA/NFA)			**1.24**						**1.32**									

Space Planning — High Schools

Brockton Public Schools High School

Name Diane Davis (Spl Ed), Tracey Willa, Jonathan Shapiro, Nick Lee, Sarah Richards Frank Locker Educational Planning

12th July 2017

PROPOSED SCHOOL MODELS	BHS 4500 Students						ALTERNATIVE HIGH SCHOOL 150 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS
CORE ACADEMIC SPACES			**217,060**		**4,510**				**7,350**		**252**	
Classroom - General	800	152	121,600	23	3,496	4 Houses w/Interdisciplinary Small Learning Communities (SLCs) in each	800	7	5,600	23	161	
Breakout/ Extended Learning Area	500	30	15,200			1 each SLC (5 CRs)	500	1	700			
			50 SF taken from each CR + 50SF taken from Teacher Planning. Supplement with 1.55 Gross SF markup yields 775SF each									
Teacher Planning	50	152	7,600				50	7	350			
			Arrange in shared interdisciplinary collaboration offices, each serving 2 to 3 SLCs, each with 10-15+- teachers each									
Small Group Seminar (20-30 seats) / Resource	500	9	4,500	13	117		500	1	500	13	91	
Science Classroom / Lab	1,440	39	56,160	23	897		1,440	0	-			
Prep Room	200	39	7,800				200	0	-			
Central Chemical Storage Rm	200	1	200				200	1	200			
Existing Planetarium	2,000	1	2,000	150								
Existing Greenhouse	2,000	1	2,000	23								
SPECIAL EDUCATION			**31,380**		**96**				**1,710**		**8**	
Self-Contained SPED	1,150	8	9,200	12	96	Central location	1,150	1	1,150	8	8	
	Dianne Davis: larger rooms to include de-escalation areas											
Self-Contained SPED Toilet	60	8	480				60	1	60			
Resource Room	500	12	6,000	8		In interdisciplinary SLCs	500	0	-			
Small Group Room	500	12	6,000				500	0	-			
Team Meet Room Central; IEP Conf Rm	500	1	500				Use Admin Conference Room					
Team Meet Room house based	250	4	1,000									
Therapy Rooms: OT/PT/Speech	250	4	1,000				100	1	100			
Testing Room	200	4	800				100	1	100			
De-escalation Rooms	150	8	1,200				100	1	100			
Emotional Intelligence Rm w/ISS space	300	4	1,200									
Adaptive Physical Education Room	1,000	4	4,000				Use Gym					
Adaptive Physical Storage Rm							200	1	200			

High Schools continued on next page

Space Planning — High Schools

Brockton Public Schools High School

Name Diane Davis (Spl Ed), Tracey Willa, Jonathan Shapiro, Nick Lee, Sarah Richards Frank Locker Educational Planning

12th July 2017

PROPOSED SCHOOL MODELS	BHS 4500 Students						ALTERNATIVE HIGH SCHOOL 150 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS
ART & MUSIC			**18,800**		**243**				**5,050**		**39**	
Art Classroom - 25 seats	1,200	8	9,600	25	200	Central location	1,200	1	1,200	25	25	
Art Workroom w/ Storage & kiln	150	8	1,200				150	1	150			
Band ~~50 100~~ 150 seats	2,400	1	2,400	150	21	Central location	1,500	1	1,500	50	7	
Chorus ~~50 100~~ 150 seats	2,000	1	2,000	150	21	Central location	1,500	1	1,500	50	7	
Ensemble	200	1	200				200	1	200			
Music Practice	75	22	1,650				75	0	-			
Music Storage	500	1	500				500	1	500			
TV Studio w/ Live Rm (Studio), ClassRm, Control-Mix Rm,	1,250	1	1,250									
VOCATIONS & TECHNOLOGY			**51,200**		**736**				**0**		**0**	
Tech Clrm. - (E.G. Drafting, Business)	1,200	16	19,200	23	368	STEM Lab	1,200	0	-	23	0	
Tech Shop - (E.G. Consumer, Wood)	2,000	16	32,000	23	368	Maker Space	2,000	0	-	23	0	
						In interdisciplinary SLCs						
HEALTH & PHYSICAL EDUCATION			**85,200**		**368**				**17,040**		**46**	
Gymnasium	12,000	3	36,000	92	276	12 stations (1 station = 1/2 basketball ct	12,000	1	12,000	46	46	4 stations
PE Alternatives: cardio, weight, yoga, team sports	3,000	4	12,000	23	92	All PE at central location	3,000	1	3,000			
Gym Storeroom	300	2	600				300	1	300			
Locker Rooms - Boys / Girls w/ Toilets	25,200	1	25,200				840	1	840			
Phys. Ed. Storage	500	2	1,000				500	1	500			
Athletic Director's Office	150	1	150				150	1	150			
Health Instructor's Office w/ Shower & Toilet	250	1	250				250	1	250			
Existing Swimming Pool 6 lanes use existing Locker Rms	10,000	1	10,000									
MEDIA CENTER			**28,025**						**3,650**			
Media Center / Reading Room	28,025	1	28,025			In each House	3,650	1	3,650			

High Schools continued on next page

Space Planning — High Schools

Brockton Public Schools High School BROCKTON

Name Diane Davis (Spl Ed), Tracey Willa, Jonathan Shapiro, Nick Lee, Sarah Richards Frank Locker Educational Planning

12th July 2017

PROPOSED SCHOOL MODELS	BHS 4500 Students						ALTERNATIVE HIGH SCHOOL 150 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS
AUDITORIUM / DRAMA			**31,200**						**3,688**			
Existing Auditorium: 1500 seats	12,000	1	12,000				1,000	1	1,000			
Existing Balcony: 300 seats	3,000	1	3,000									
Existing Stage	5,000	1	5,000				1,600	1	1,600			
Existing Auditorium Storage	7,500	1	7,500				288	1	288			
Make-up / Dressing Rooms	300	2	600				300	2	600			
Controls / Lighting / Projection Existing Technical Lighting/ Sound	200	1	200				200	1	200			
Existing Loading Dock/ Elevator Access	400	1	400									
Existing Little Theater: 150 seats	2,500	1	2,500									
DINING & FOOD SERVICE			**31,550**						**3,650**			
Cafetorium / Dining	22,500	1	22,500			In each House; align w/Media Center	750	1	750			3 seatings
Stage	1,275	1	1,275				300	1	300			
Chair / Table / Equipment Storage	600	1	600				600	1	600			
Kitchen	5,800	1	5,800			3 servings	1,600	1	1,600			3 servings
Staff Lunch Room	1,375	1	1,375				400	1	400			
MEDICAL			**3,210**						**410**			
Medical Suite Toilet	60	1	60				60	1	60			
Nurses' Office / Waiting Room	250	1	250				250	1	250			
Interview Room	100	11	1,100				100	0	-			
Examination Room / Resting	100	18	1,800			Central location	100	1	100			
ADMINISTRATION & GUIDANCE			**12,433**						**3,020**			
General Office / Waiting Room / Toilet	2,250	1	2,250			Central location	300	1	300			
Teachers' Mail and Time Room	100	1	100			Central location	100	1	100			
Duplicating Room	200	1	200			Central location	200	1	200			
Records Room	200	1	200			Central location	200	1	200			
Principal's Office w/ Conference Area	375	1	375			Central location	375	1	375			
Principal's Secretary / Waiting	125	1	125			Central location	125	1	125			
Assistant Principal's Office - AP1	150	1	150			Central location	150	1	150			

High Schools continued on next page

Space Planning — High Schools

Brockton Public Schools High School BROCKTON

Name Diane Davis (Spl Ed), Tracey Willa, Jonathan Shapiro, Nick Lee, Sarah Richards Frank Locker Educational Planning

12th July 2017

PROPOSED SCHOOL MODELS	BHS 4500 Students						ALTERNATIVE HIGH SCHOOL 150 Students					
ROOM TYPE	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS	ROOM NFA[1]	# OF RMS	AREA TOTALS	#STDNTS PER CR	TOTL # STDNTS	COMMENTS
Assistant Principal's Office - AP2	150	9	1,350			In each House	150	0	-			
Supervisory / Spare Office	120	1	120			Central location	120	1	120			
Conference Room	450	1	450			Central location	450	1	450			
Guidance Office	150	23	3,450			In each House	150	1	150			
Guidance Waiting Room	100	1	100			In each House	100	1	100			
Guidance Storeroom	100	1	100			In each House	100	1	100			
Career Center	1,275	1	1,275			Central location	300	1	300			
Records Room	588	1	588			Central location	100	1	100			
Teachers' Work Room	400	4	1,600			In each House	250	1	250			
CUSTODIAL & MAINTENANCE			**5,000**						**2,075**			
Custodian's Office	150	1	150				150	1	150			
Custodian's Workshop	250	1	250				250	1	250			
Custodian's Storage	375	1	375				375	1	375			
Recycling Room / Trash	400	1	400				400	1	400			
Receiving and General Supply	1,275	1	1,275				300	1	300			
Storeroom	2,350	1	2,350				400	1	400			
Network / Telecom Room	200	1	200				200	1	200			
OTHER			**160**						**160**			
Parent Room	900	1	900			meetings, training	900	1	900			meetings, training
Toddler Alcove	100	1	100				100	1	100			
Toilet	60	1	60				60	1	60			
ENROLLMENT CAPACITY												
Student Seats in Capacity Teachng Stations					**5,953**						**345**	
Utilization					85%						85%	
Enrollment Capacity					**5,060**						**293**	
BUILDING STATISTICS												
Total Building Net Floor Area (NFA)			**515,218**						**47,803**			
Student Capacity/ Enrollment TARGET			**4,500**						**150**			
Total Building Gross Floor Area (GFA)			**706,500**						**33,750**			
SF /Student			**157**						**225**			
Grossing Factor (GFA/NFA)			**1.55**						**0.71**			

Appendix C: Educational Vision

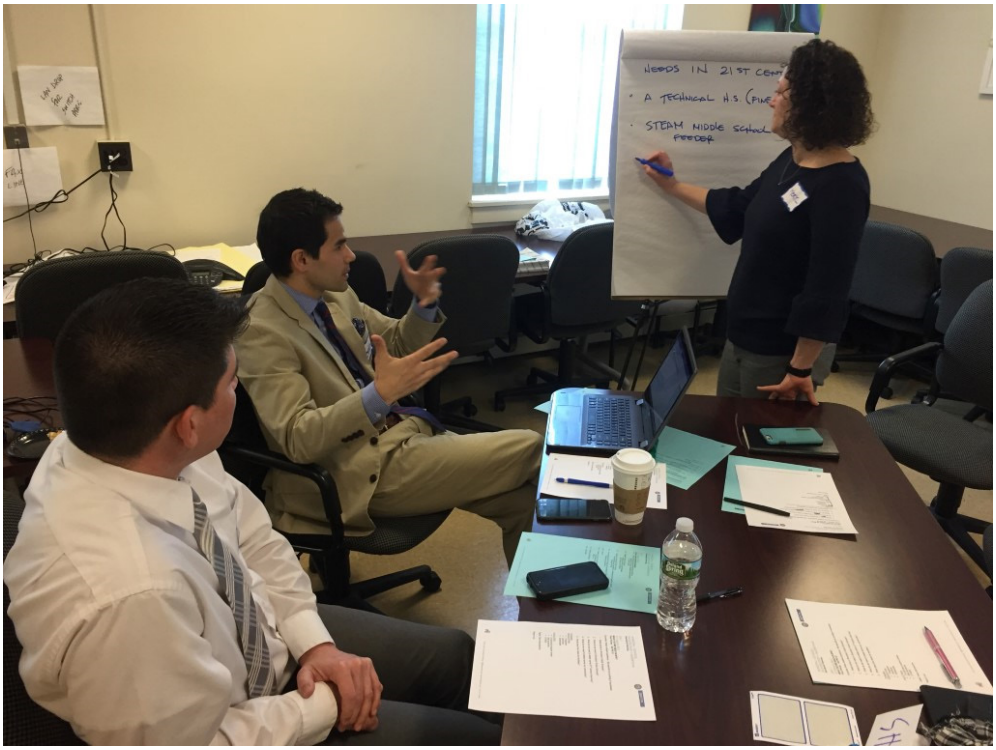
INTRODUCTION

The following Educational Vision is a summary of the three days of intensely facilitated workshops led by Frank Locker, Educational Planner.

VISION COMPONENTS

The Educational Vision for Brockton's future schools is described here through several components:

- *Guiding Principles* establish broad parameters for educational delivery, school structure, and facilities
- *Learning Modalities* identifies the most effective and appropriate ways for teachers to reach students with curriculum delivery
- *School Organizational Structure* defines preferred approaches to the overall relationships of people and programs



GUIDING PRINCIPLES

The Guiding Principles presented here were created to express the values, beliefs, and concepts developed by the Visioning Team which examined educational trends, best practices, and issues affecting the delivery of 21st century education. These Guiding Principles present the essence of that inquiry. They are not policy but they address the over arching themes identified by participants. They may serve as a foundation for the future schools. As such, they are intended to form the basis of future educational delivery and facilities planning. Staff professional development is crucial to the successful implementation of the educational concepts outlined here.

- Provide communication, leadership, and staff professional development to continue shifting the educational model from one that is fairly traditional to one that is highly transformed
- Prepare students for success in the 21st century, an emerging world of global competition, uncertain employment prospects, infinite access to information, and rapid change in technology
- Teach 21st century skills at the same time as traditional content
- Build relationships with students, families, and communities through school structure and programs
- Establish a program of staff professional development to support the educational deliveries outlined here
- Aspire beyond the Common Core and beyond the Massachusetts Department of Elementary and Secondary Education to do what is best for student learning, and to instill a life-long sense of wonder and purpose. Create independent, life-long learners
- Make parents integral to learning
- Support parents as learners through programs and places within the schools
- Minimize social and economic costs of busing through careful location of low incident programs
- Brockton Public Schools have many good programs. Scale up the most effective and appropriate
- Build community through every master planning decision

EDUCATIONAL DELIVERY

Educational Delivery addresses guiding themes required to provide a 21st century high-performing educational experience for all Brockton students.

Instructional Models

- Employ project-based learning on a regular basis
- Group students in small learning teams to differentiate instruction and foster communication, collaboration, and improved social skills, and foster differentiated instruction
- Grow student Emotional Intelligences through daily learning activities
- Organize teachers in teaching teams

Instructional Models, continued

- Explore synchronous, same time-same place teaching with larger student groups
- Create a school and community culture that values flexibility for change
- Position students to learn 21st century skills, especially the "four C's", collaboration, communication, creativity, and critical thinking, while simultaneously meeting standard curriculum goals
- Integrate the curriculum by interrelating traditionally separate content areas, ideally with multiple teachers synchronously teaming
- Differentiate instruction to personalize the learning experience for each and every student
- Make all learning active and applied by following the Rigor, Relevance, and Relationships model
- Pilot innovative deliveries such as making things to learn for planned future large scale implementation

Technology Integration

Our world is dependent on technology implementation in all aspects of life. Students must be provided with the technological skills and knowledge which will enable them to function successfully in a global context. Technology should include:

- Wireless capability in all spaces in future school buildings
- Create places and learning goals for students to learn using new technology, including documentation of oral presentations, and the production of videos, story boards, and apps
- Technology must not be viewed as a curriculum add-on, but rather as an effective tool to be utilized in meaningful instruction that is relevant and rigorous.

EDUCATIONAL STRUCTURE

Educational Structure establishes the organizational patterns necessary to group students and teachers in the most effective ways.

Organization

- Create interdisciplinary curriculums by integrating traditionally separate content areas, ideally with multiple teachers synchronously teaming
- Differentiate instruction to personalize the learning experience for each and every student
- Pilot innovative deliveries such as making things to learn for planned future large scale implementation, especially in the secondary years
- Respect students' Multiple Intelligences though groupings, differentiated instruction and student choice
- Explore alternatives to traditional classroom concepts through piloting of activity centers instead of home base or subject-area classrooms, enhancing student access to better and more sophisticated tools than are available in traditional classrooms

Relationships

- Organize schools as Small Learning Communities to support formation of relationships
- Foster student collaboration to build communication skills and the ability to work with others
- Create opportunities for students to grow socially and emotionally while working with others in classroom assignments
- Support synchronous, same time same place teaching, especially in the middle and high school years

Curriculum

- Build 21st century skills while meeting traditional curriculum goals
- Create regular opportunities for students to improve their oral communication skills
- Develop STEM (Science, Technology, Engineering, and Math) and STEAM (add the Arts) programs at all schools

Schedules

- Create common planning time for all teachers
- Institute strategic scheduling changes to empower the concepts outlined in this Vision. The school schedules must empower flexibility and collaboration

FACILITY IMPLICATIONS

- Conceive practical, effective facilities planning concepts to support the school organizational concepts identified in the Vision
- Design facilities to be flexible, able to support multiple learning modalities, teaching styles, and program change over time
- Meet safety and security needs through thoughtful school building planning, in both new construction and renovation
- Develop spaces arranged in clusters, Small Learning Communities (SLCs)
- Select furniture that supports collaboration, different learning modalities, and is substantiated by brain research
- Create Teacher Planning Centers to foster collaboration, interdisciplinary teaching, and greater knowing of students by teachers
- Create spaces that support more “hands-on” learning, including STEM and STEAM labs and Maker Spaces
- Integrate outdoor learning and recreation spaces in the building designs
- Create presentation spaces to honor and encourage frequent student and expert visitor presentations
- Create building plans that offer security and safety despite constant visitors, many of whom will be active participants in student learning

FACILITY IMPLICATIONS, CONTINUED

- Organize elementary schools as lower elementary and upper elementary, in units of three or four grade levels, whether as separate buildings or as Schools Within Schools
- Create fewer but larger elementary schools without resorting to busing or increased busing, but in doing so create small school feel through multiple Small Learning Communities

LEARNING MODALITIES

The Visioning Team members considered twenty-one learning modalities, ranging from traditional lecturing and direct teaching to independent study, and ranked them in order of appropriateness.

The most commonly cited most effective modalities are:

ELEMENTARY

- Differentiated instruction
- Social/emotional
- Small group/collaboration
- Direct instruction
- Computer-based

MIDDLE

- Project-based
- Interdisciplinary
- Service-based
- Making things/prototyping

ALL GRADES

- Project-based
- Interdisciplinary
- Social/emotional
- Computer-based

SCHOOL ORGANIZATIONAL STRUCTURE

Visioning Team members reflected on model school organizational structures. These are the most appropriate structures for the future schools.

PRE-KINDERGARTEN

- Make Pre-K more available to the general education population by increasing capacity and convenience of locations
- Plan for universal Pre-K
  - Full day for 4 yrs olds
  - 1400 students per year
- Create a few substantially separate Pre-K centers for 3+ year olds
- Locate in all neighborhood elementary buildings
- Create/maintain Special Ed strand continuities

ELEMENTARY SCHOOL

- Maintain grouping of students by grade
- Promote teacher looping to create greater knowing of students by teachers

MIDDLE SCHOOL

- Shift school organization to thematic interdisciplinary SLCs, such as a STEM Academy or an Integrated Arts Academy, to offer students real choice related to their interests
- Support teacher looping

HIGH SCHOOL

- Shift from a departmental organization to thematic interdisciplinary SLCs, such as a STEM Academy or an Integrated Arts Academy, to offer students real choice related to their interests
- Support and facilitate full time, synchronous interdisciplinary teacher collaboration, offering integrated curriculums and collaboration role models for students

Notes from the Workshops can be found in the next Appendix section of this Volume.

Appendix D: Notes from Workshops

DAY 1

AGENDA

The first Visioning Workshop was held on 21st March 2017. Notes of all activities follow:

- Master Planning Process
- Snapshot of Brockton Public Schools
- What Works at Brockton Public Schools? What could be Better? What Is Needed?
- Review of Current Programs, Services, Deliveries and School Organizational Structure

MASTER PLANNING PROCESS

Presentation by Kathleen Smith, Superintendent:

- Long Beach, CA is a role model for Facilities Master Planning
  - Issues at Long Beach:
    - › Need for Community Rooms
      - + Parent and community engagement
      - + Grade configuration was challenged:
        - » K-8? 6-8?
      - + Demographic bulges were accounted for
- Brockton plan is being developed with the City
  - Expect to see economic development with new schools

Presentation by Larry Spang, Arrowstreet:

- January start of the process
- Spring investigation of:
  - Facilities
  - Physical qualities
- Report to be submitted in spring
- Summer and Fall
  - Wrap up recommendations
  - When to get public input?
  - Road map for future

SNAPSHOT OF BROCKTON PUBLIC SCHOOLS

Presentation by Michael Thomas:

- Brockton High School:
  - 1970
    - › Was 6,000 kids
    - › Now 4,400 kids
  - Worked
  - Outdated, especially labs
  - Not enough land to build on site
    - › 4-5 years' renovation project
    - › $100 – 150M

Presentation by Michael Thomas, continued

- ES—K–5
  - 1 at K-8
  - MS—6–7–8
  - HS—9–10
  - Need more Preschool
- Average building age = 50 years
- Move learning into 21st Century
- BHS is center of community
- BHS—summer activities
  - Pool
  - Camp
- What hours of operation?
  - Closing at 2:00 is waste of money
- Facilities got lots use—therefore—age fast

WHAT WORKS AT BROCKTON PUBLIC SCHOOLS?
WHAT COULD BE BETTER? WHAT IS NEEDED?

The challenge was:

What do we need in BPS?
Your focus: All PK–12

Consider these related questions. Be specific by building if necessary.

1. What works in Brockton Public Schools?
2. What do we need in Brockton Public Schools?
3. What do we need to better serve 21st century learning?
4. What do we need to better serve our community?
5. What does this mean for facilities?

Consider:

EDUCATION

- Programs
- Services
- Schedules

FACILITIES

- Functional program areas
- Site functions
- OTHER

Table Team discussions.
Report out.

TABLE TEAM 1
Needs (bold = most important)

- Works (1)
  - Extended day in elementary sites
  - Facilities are utilized extensively past the school day hours—community use
  - The 3-tiered transportation system works well
  - The Adult Learning Center serves the enrollees well
  - School choice within the zones
  - STEM pathway at the high school
  - **Alternative—graduation programming options**
  - **Parent Information Center being centrally located and its function**

- What we need (2)
  - Pre-K programming
  - Equity in after school support
    - › Funding challenge
    - › Programs in the schools
    - › Academic support
  - Extended day needs more slotting available - staffing challenge
  - BPS schedule
    - › Change the tiers
    - › BHS start later (last)
    - › Elementary start 1st
    - › Then Middle school
    - › Then High school
  - **Bilingual and special education programs are scattered, so students are having to be transported throughout the entire city**
    - › 25% of the entire student enrollment is bilingual
  - There is a large wait list for the Adult Learning Center
    - › Over 1,200 each year
    - › More $
  - Edison Academy
    - › Adequate resources needed
    - › And staffing
    - › Located at BHS 3:00 – 8:30 PM
    - › Also 3,4,5
- 21st Century learning (3)
  - BHS—challenge meeting 21st Century skills with 4,400 students in one building
  - **The BHS structure poses challenges to support the bringing of technology**
    - › **Structural/wiring etc…modifications needed**
  - Concern
    - › Elementary level mostly newer schools, therefore resourced better for technology
    - › Then move to Middle and High school
      - + With older buildings not as equipped for 21st Century learning
- Community (4)
  - Extended day
    - › Need more slotting
    - › Staffing issue
  - **Increased marketing of the availability of school facilities for community usage —under utilized**
  - **Adult Learning Center (anything involving adults) needs to increase capacity**
  - Need to understand the demographics of the community better and how to serve them
    - › “Family connections”
    - › Parenting classes for ELL in more schools
  - Marketing to the community of what we offer—ie —alternative pathways/enrichment/etc…

- Facilities (5)
  - **Renovation of our older facilities particularly the BHS**
  - BHS needs a new wing for the STEM pathway
  - Air quality issues especially in older facilities
  - High classroom enrollment – need more space and staff
  - **Separate building of designated space separately for Edison Academy**
  - **Classroom space for universal Pre-K programming**
  - Need classroom space for Spl Ed programming and facility designed to meet their needs
    - › Need some interior ramps
  - **Field House**
    - › **Indoor Track needed**
    - › **Wellness Facility for staff**

TABLE TEAM 2

Needs

- Works (1)
  - **Facilities has skilled workforce in house repair and renovations**
  - Arts
  - Admin/personnel structure
  - Student population size for middle school
  - **Alternative pathways to graduation**
    - › **Therapeutic day school/IEP**
      - + **Middle school/high school···⁘6-12**
      - + **Goddard School**
    - › **Keith Center**
      - + **FDA—Frederick Douglas Academy**
    - › **Champion HS (overage/under-credited)**
  - **Pathways drop-out prevention**
  - **Edison Academy**
    - › **Night school**
    - › **High school**
    - › **450 kids**
- Needs in BPS (2)
  - **Improved traffic flow**
  - **Community Center(s)**
    - › **Adult education**
    - › **Multi-services**
  - Better electrical capacity/bandwidth
  - **More staffing/teachers**

- Losing critical servicing
- Need to get student to device ratio 1;1 (not happening due to funding and space)
- Need clearer/more regulated schedules—no custom—need more conforming to 21st Century

- 21st Century learning (3)
  - **A technical High School**
    - › **Balance opportunities for kids**
    - › **Left engineering/STEM**
  - STEAM middle school feeder
  - Maker Spaces
  - Professional development/better focused training
    - › Training centers with video conference
  - Make common areas (not used Libraries) and make it a common Maker Space
    - › 3D printers
    - › Interactive boards
    - › Prototype space
  - Equity lacking in 21st Century technology
- Community (4)
  - Turning schools into Community Centers
  - Dedicated space for after-hours use - all ages/ whole family
    - › Cyber Café
    - › Student Centers
    - › Tutor Centers
    - › Auditorium
  - Need better fields for community

REVIEW OF CURRENT PROGRAMS, SERVICES, DELIVERIES, + SCHOOL ORGANIZATIONAL STRUCTURE

The challenge was:

PROGRAM REVIEW

Identify a focus if needed:

elementary / middle / high

Here is a starter list of topics, covering types of learners, learning modalities, and programs currently at our schools. This list is not complete. Brainstorm with your table team to add others that are worth exploring.

TOPICS: LEARNERS, MODALITIES, + RELATIONSHIPS

1. Students with special needs: Special Education
2. Students with special needs: Gifted + Talented
3. Pre-Kindergarten
4. Students who we think will ultimately drop out of school
5. Students who are bored/disengaged with school
6. Physical education
7. Music
8. Art
9. Family/consumer science
10. STEM, STEAM
11. After/before school enrichment
12. Summer programs
13. Interdisciplinary learning in core courses

14. Interdisciplinary career tech and academic
15. Applied learning in core courses
16. Teacher teaming/synchronously teaming in core courses
17. Others of your choice

Each table will pick two of these topics to review. All items are to be addressed.

ISSUES:
On your flipchart(s), record your table team's answers to the following questions:

1. Identify the number + the topic
2. Is this topic something we are serving right now at our schools?
3. If so, how/where/in what way do we currently serve the topic?
4. Is this topic important? How much?
5. How well do we serve the topic?
6. Should we improve our programs/service/organization focused on this topic? Yes or No?
7. If "Yes", how do we do that? If "No", why not?
8. Identify facilities implications of your improvement concepts

Report out

Table Team choices:

- TT1 choice #1
  - 1+2+BL = Spl Ed and G/T and Bilingual
- TT1 choice #2
  - 4+5 bored + drop outs
- TT2 choice #1
  - STEM/STEAM K-12
- TT2 choice #2
  - o 13+14 interdisciplinary

NOTE: The bold items below were deemed most important by the Table Teams:

#1 Students with special needs: Special Education

#2 Students with special needs: Gifted + Talented

TABLE TEAM 1
PROGRAM REVIEW

- 1 bilingual/Special Ed/ gifted and talented—2 schools, at middle school IB model
- 2 Definitely serving these populations and there is a placement process for each
- 3 Students are bused in varying locations for service
- 4 Very important topic—great deal of "moving parts" go into serving the needs of each population
- 5 There has been a high influx of Spl Ed and bilingual students which has proven to be a challenge
  - Struggle with mainstreaming at the BHS level
  - Issue of space, staff, resources (bilingual)
  - BHS facility issues for Special Ed
  - Not enough rooms and limited by access
  - Must be designated spaces

- 5-8 elementary/4 middle/BHS – could better serve our bilingual students by being more strategic on where the programs are placed
- 5 Gifted and Talented operate and is serviced well
- 6 Yes
- 7 Davis
  - Change to bilingual K-8
  - More strategic placement of bilingual programs
  - BHS needs more space
  - Their numbers have grown in both populations
  - More coming in then going out
  - Same facility issue
  - Lack of appropriate designation for the Spl Ed youth
- 8 See citations above

#4 Students who we think will ultimately drop out of school

#5 Students who are bored/disengaged with school

TABLE TEAM 1

PROGRAM REVIEW

- 1 #4 and 5 ⇢students drop-out issue and those bored and disengaged
- 2 Yes, we are serving both
  - Have a system in place for identification of possible student drop-outs
  - Serving bored as well
    - › Multiple pathways designed/implemented
- 3 Possible drop-out we're serving in every school
  - Bored issue
  - Issue in every school
  - Specific programming for high school students with pathways
- 4 Very important
- 5 We need to serve better, as we tend to have these groups conform
- 6 Yes
- 7 Based on brain research
  - Physical education at the start of the day and through the day
  - Educate the creative side of the student
  - Roll down the age and grade for identifying possible drop-outs and providing interventions
  - Modify instructional methodology
- 8 Need of additional "play space"
  - Become more creative with existing space

#10 STEM, STEAM

TABLE TEAM 2

PROGRAM REVIEW

- 1 #10 STEM/STEAM
- 2 Limited capacity
- 2/3 BHS
  - Engineer Program
  - Bio-tech Lab

- Multiple specialized programs
- K-12 Discovery Ed
- Middle
  - › Tech Ed
  - › Silo – science labs (middle)
- Elementary
  - › Science curriculum with Discovery Ed

- 4 Important – future
- 5 Limited – based on grant
- 6 Yes
- 7 Increase number of opportunities/classes
- 8 Tech High School
  - Need dedicated space
  - Middle
    - › Science labs
    - › Bio/Robotics Lab
    - › Space
  - Elementary—as of now no physical space. We don't know what we want, but we need something

#13 Interdisciplinary learning in core courses

#14 Interdisciplinary career tech and academic

TABLE TEAM 2

PROGRAM REVIEW

- 1 #13/14—interdisciplinary
- 2 Small—very little teacher-initiated STEM grant at high school
- 3 High school (limited). Isolated in elementary
- 4 For certain instances
- 5 Not well
- 6 Moderate improvements. We can certainly do better
- 7 Where applicable—curriculum instructors — find programs/resources
- 8 Flexible space when needed—use space we already have

REVIEW AND REFLECTION

Observations from whole group discussion:

- We do things well in small doses
  - Grants
  - Teacher initiatives
- How do we deploy on big scale?
- If it works well, how do we extend it?

DAY 2

AGENDA

The second Visioning Workshop was held on 4th April 2017. Notes of all activities follow:

- Master Planning Issues
- School Organizational Structure
- Pre-K Concepts
- Defining Student Success in Life

Master Planning Issues

Workshop participants were given this challenge:

MASTER PLANNING

- Developmental ages
- School size
- Grade groupings

Identify any focus:

- Elementary
- Middle
- High
- All PK–12

Consider students and education, not existing buildings.

Discuss these issues:

DEVELOPMENTAL AGES:

- Identify any natural developmental breaks/ thresholds in the PK-12 continuity

PK K 1 2 3 4 5 6 7 8 9 10 11 12

GRADE LEVELS:

- What is the minimum number of grades that should be in a school/building? Why?
- Is there a maximum number of grades we should have in a school building? Why?
- What are the advantages/disadvantages of larger school buildings?
  - Educational
  - Social
  - Operational (management and cost)
- What are the advantages/disadvantages of smaller school buildings?
  - Educational
  - Social
  - Operational (management and cost)
- Identify ideal grade groupings:

PK K 1 2 3 4 5 6 7 8 9 10 11 12

Consider students, education, and community, not existing buildings.

Discuss in your small group Table Teams

Report out

Their responses were:

TABLE TEAM 1

DEVELOPMENTAL AGES: ELEMENTARY

- Identify any natural developmental breaks/ thresholds in the PK-12 continuity

{PK K 1 2 3 4 {5} 6 7 8} {9 10 11 12}

GRADE LEVELS:

- What is the minimum number of grades that should be in a school/building? Why?
  - Min grade levels 3 (lose community aspect focus too narrow)
- Is there a maximum number of grades we should have in a school building? Why?
  - Max grade levels (dependent on how school is resourced—needs of student population)
- What are the advantages/disadvantages of larger school buildings?
  - Disadvantages
    - › Educational
      - + Lack of interaction with staff
      - + Harder to create cohesive vision
      - + Easier for student to get lost
    - › Social
      - + Lack of community feel
    - › Operational (management and cost)
  - Advantages
    - › Educational
      - + Potential
      - + More resources within buildings
    - › Social
    - › Operational (management and cost)
      - + Operational cost
      - + More space
- What are the advantages/disadvantages of smaller school buildings?
  - Advantages
    - › Teachers see student grow K-?
    - › Community feel
    - › Connection to students and families
    - › Could be difficult to separate student personalities
    - › Less transition time (movement around building)
  - Disadvantages
    - › Space
- Identify ideal grade groupings:

{PK K 1 2} {3 4 5} {6 7 8} {9 10 11 12}

DEFINITION OF SCHOOL SIZES:

	SMALL	LARGE
ES	400–500	700+
PK–8	500–600	800+
MS	300–400	500+
HS	1000–2000	2500+

TABLE TEAM 2

DEVELOPMENTAL AGES:

1 Identify any natural developmental breaks/ thresholds in the PK-12 continuity

{PK K 1 2} {3 4 5} {6 7 8 9} {10 11 12} 13

GRADE LEVELS:

- What is the minimum number of grades that should be in a school/building? Why?
  - Three
    - › Less doesn't develop ownership
    - › Program planning
    - › Curriculum continuity
    - › Stability
- Is there a maximum number of grades we should have in a school building? Why?
  - Four
    - › Larger creates bigger developmental range
- What are the advantages/disadvantages of larger school buildings?
  - Advantages
    - › Building resources
    - › Specialized programs
    - › Diversity
    - › Cheaper to operate
    - › Teacher/staff support and collaboration
    - › Works with appropriate amount of space
  - Disadvantage
    - › Less familiarity
    - › Change moves slower
    - › Some students overwhelmed/overlooked
    - › Instruction less specialized
- What are the advantages/disadvantages of smaller school buildings?
  - Advantages
    - › More defined sense of community
    - › Teacher communication about students and curriculum
  - Disadvantage
    - › Possibility of lack of diversity
    - › Potential for social stagnation
    - › More for more building
    - › Consistent programs could be lacking
- Identify ideal grade groupings:
  - Bridge year options if not ready for transition shown in red

{PK K 1 {2} {3 } 4 {5} {6} 7 8 {9} {10} 11 12 13}

DEFINITION OF SCHOOL SIZES:

	SMALL	LARGE
ES (Pre K–2)	≤200	350+
PK–8 (3/5)	250	400+
MS (6–9)	400	500+
HS (10–12) 13+ optional	600	1000+

TABLE TEAM 3

DEVELOPMENTAL AGES AND

IDEAL GRADE GROUPINGS

- Identify any natural developmental breaks/ thresholds in the PK-12 continuity

{PK K 1 2} {3 4 5} {6 7 8} {9 10 11 12}

GRADE LEVELS:

- What is the minimum number of grades that should be in a school/building? Why?
  - Three
    - › Allows for relationship building with the family and child
    - › Less transitioning issues
    - › At least 3 grades—Pre-K could stand alone because of their developmental needs
    - › Other possibility is a Pre-K–grade 2 allowing for more continuity—also works better for families with multiple children
    - › Pre-K classrooms in each Pre-K–2 building —preferred model
- Is there a maximum number of grades we should have in a school building? Why?
  - Four
    - › Number of age ranges coming together developmentally, socially, academically
    - › This would be the maximum that could survive well
    - › The number of students in the building would max out
- What are the advantages/disadvantages of larger school buildings?
  - Advantage
    - › Educational
      - + Meaning if more grades there is more continuity of meeting educational needs
    - › Social
      - + The greater diversity of the populations
    - › Operational
      - + More resources on site potentially
      - + More centralized services
  - Disadvantage
    - › Educational
      - + Possibility of larger class sizes
      - + Challenge for staff to really know their populations
      - + More behavioral issues likely
    - › Social
      - + A student could get “lost” in the larger setting
      - + Potential for more behavioral issues
    - › Operational
      - + Possible safety concerns with the larger 3’s
      - + What are the advantages/disadvantages of smaller school buildings? = less grade

- Advantage
  - › Educational
    - + Community sense of
    - + Staff know students and families better
    - + PD can be more focused and specialized
  - › Social
    - + Developmentally grouped
  - › Operational (management and cost)
    - + Possible educational strand in every building
- Disadvantage
  - › Educational
    - + More transitions with less grades
  - › Social
    - + More transitions
  - › Operational
    - + Busing
    - + More services in every building

- Identify ideal grade groupings:
  - Same as above

{PK K 1 2} {3 4 5} {6 7 8} {9 10 11 12}

DEFINITION OF SCHOOL SIZES:

	SMALL	LARGE
ES	300	800
PK	850	1000
MS	300	800
HS	2000	4400

TABLE TEAM 4

DEVELOPMENTAL AGES: ELEMENTARY

- Identify any natural developmental breaks/ thresholds in the PK–12 continuity

{PK} {K 1 2} {3 4 5} {6 7 8} {9 10 11 12}

GRADE LEVELS:

- What is the minimum number of grades that should be in a school/building? Why?
  - Three
- Is there a maximum number of grades we should have in a school building? Why?
  - Four
- What are the advantages/disadvantages of larger school buildings?
  - Advantage
    - › Educational
      - + Cross grade level/content sharing
    - › Social
      - + Better for parents with multiple kids
    - › Operational (management and cost)
      - + Lower operational cost (potentially)
  - Disadvantage
    - › Educational
      - + Safety
    - › Social
      - + Less opportunity for community feeling/ individualized attention

- What are the advantages/disadvantages of smaller school buildings?
  - Advantages
    - › Educational
      - + More opportunities for individualized attention and instruction
      - + Less discipline problems
    - › Social
      - + More of a community feeling
    - › Operational (management and cost)
      - + Easier for administration to get into all classrooms daily—awareness
      - + Less scheduling problems
  - Disadvantage
    - › Social
      - + More travel for families with multiple siblings
    - › Operational (management and cost)
      - + Cost more operational costs
      - + More building
      - + More administration
- Identify ideal grade groupings:

{PK} K 1 2} {3 4 5} {6 7 8} {9 10 11 12}

DEFINITION OF SCHOOL SIZES:

	SMALL	LARGE
ES	400	1000
PK–8	800	1200
MS	500	1000
HS	1000	4300
Pre-K	200	400

School Structure

This was the challenge:

SCHOOL STRUCTURE
Identify any focus:

- Elementary
- Middle
- High
- All PK–12

DEVELOP A DETAILED ORGANIZATIONAL CONCEPT
Create the most appropriate concept for the future from an educational point of view.

- Rank the following, from (1=) most appropriate to least appropriate
- Analyze your most appropriate one:
  - Elaborate on the structure to give it more definition
  - Combine possibilities if desired
  - Identify the Pros and Cons
  - What would you do to mitigate the Cons?

ELEMENTARY SCHOOL ORGANIZATIONAL MODELS

A. Grade level classroom groupings
   a. Multi-age classroom groupings
   b. Multi-grade classrooms

B. Teachers "teaming," sharing students but separately teaching curriculum specialties

C. Thematic Vertical/Multi-grade SLCs

D. Any of above with teachers looping

E. Any of above with synchronous teacher teaming, sharing students in real time

F. Other

MIDDLE SCHOOL ORGANIZATIONAL MODELS

A. Departmental model

B. Grade Level Small Learning Communities (SLCs), all teachers teaming (coordinating curriculum but not same-time-same-place teaching)

C. Vertical/Multi-grade SLCs

D. Thematic Vertical/Multi-grade SLCs

E. Any of above with teachers looping

F. Any of above with synchronous teacher teaming, sharing students in real time

G. Other

HIGH SCHOOL ORGANIZATIONAL MODELS

A. Departmental model

B. Interdisciplinary Small Learning Communities (SLCs)

C. Thematic interdisciplinary SLCs, such as a STEM Academy or an Integrated Arts Academy

D. Any of above except with Freshman House, followed by one of the organizations above

E. Any of above with teachers looping

F. Any of above with synchronous teacher teaming, sharing students in real time

G. Other

Their responses were:

TABLE TEAM 1 / SCHOOL STRUCTURE
ELEMENTARY FOCUS

- **Rank the following, from (1=) most appropriate to least appropriate**
  - NOTE: regarding the "X/Y" immediately below, the first number indicates lower elementary; the second indicates upper elementary
  - A Grade level classroom groupings
    - › Upper #1 Lower #1
  - B Multi-age classroom groupings
    - › 5/4
  - C Multi-grade classrooms
    - › 7-6

- D Teachers "teaming," sharing students but separately teaching curriculum specialties
  - › 7/2
- E Thematic Vertical/Multi-grade SLCs
  - › 6/5
- F Any of above with teachers looping
  - › 3/2
- G Any of above with synchronous teacher teaming, sharing students in real time
  - › 4/3
- H Other
  - › None

- **Analyze your most appropriate one:**
  - A Elaborate on the structure to give it more definition
    - › Students grouped by grade level
    - › Teachers of grade level are housed in same physical space in building (hallway) which provides opportunity for collaboration
  - B Identify the Pros and Cons
    - › Pros
      - + Professional collaboration
      - + Focus on standards of 1 grade level
      - + Placed in developmentally appropriate groupings
    - › Cons
      - + Teacher is only with students 1 year
      - + Teach all subject areas
      - + One teaching style for students
  - C What would you do to mitigate the Cons?
    - › Looping when appropriate staffing
    - › Departmentalization in upper grades, teachers specialized

TABLE TEAM 2 / SCHOOL STRUCTURE
HIGH SCHOOL FOCUS

- **Rank the following, from (1=) most appropriate to least appropriate**
  - A Departmental mode
    - › 4
  - B Interdisciplinary Small Learning Communities (SLCs)
    - › 3
  - C Thematic interdisciplinary SLCs, such as a STEM Academy or an Integrated Arts Academy
    - › 1
  - D Any of above except with Freshman House, followed by one of the organizations above
    - › 5
  - E Any of above with teachers looping
    - › 6
  - F Any of above with synchronous teacher teaming, sharing students in real time
    - › 2
  - G Other
    - › 7

- **Analyze your most appropriate one:**
  - A Elaborate on the structure to give it more definition (C and F)
    - › Generalized 9th/10th core courses
    - › Specialized programs 11th/12th
      - + Health
      - + Ed. Tech
      - + Arts
      - + Science
      - + Voc. Tech
      - + Language
      - + Computer science
    - › Liberal arts
  - C Identify the Pros and Cons
    - › Pros
      - + College and career ready and focus
      - + Engaging students in their education
      - + Work release/study
      - + Service learning
      - + Apprenticeships
      - + 21st Century skills
    - › Cons
      - + Space/resources
      - + Supervision
      - + Switching tracks
      - + Scheduling
      - + Staffing
      - + Inconsistent interest
      - + Certification
      - + Open campus safety
  - D What would you do to mitigate the Cons?
    - › College model for teaching

TABLE TEAM 3 / SCHOOL STRUCTURE
MIDDLE SCHOOL FOCUS

- **Rank the following, from (1=) most appropriate to least appropriate**
  - A Departmental model
    - › 5
  - B Grade Level Small Learning Communities (SLCs), all teachers teaming (coordinating curriculum but not same-time-same-place teaching)
    - › 3
  - C Vertical/Multi-grade SLCs
    - › 2
  - D Thematic Vertical/Multi-grade SLCs
    - › 1
  - E Any of above with teachers looping
    - › 4
  - F Any of above with synchronous teacher teaming, sharing students in real time
    - › 1
  - G Other
    - › 6

- **Analyze your most appropriate one:**
  - A Elaborate on the structure to give it more definition
    - › Themes—students and family choice/vocational/science or STEM/technology/arts
    - › Interdisciplinary team teaching with project-based learning
    - › Theme exploration 6th grade
    - › Exposure
  - C Identify the Pros and Cons
    - › Pros
      - + Student and family choice driven
      - + More motivational and engaging for youth
      - + More creative and invigorating for staff
      - + "Real Life" learning model
    - › Cons
      - + How to make it inclusive of all populations (Spl Ed and bilingual)
      - + How do you distribute amongst the themes?
      - + Need for common planning is a must
  - D What would you do to mitigate the Cons?
    - › School must be big enough to support a variety of options and specialized populations
    - › Limited choice model with students and parents ranking top 3 choices
    - › Build in structure for common planning with extending school day/year

TABLE TEAM 4 / SCHOOL STRUCTURE
MIDDLE SCHOOL FOCUS

- **Rank the following, from (1=) most appropriate to least appropriate**
  - A Departmental model
    - › 7
  - B Grade Level Small Learning Communities (SLCs), all teachers teaming (coordinating curriculum but not same-time-same-place teaching)
    - › 5
  - C Vertical/Multi-grade SLCs
    - › 2
  - D Thematic Vertical/Multi-grade SLCs
    - › 2
  - E Any of above with teachers looping
    - › 2
  - F Any of above with synchronous teacher teaming, sharing students in real time
    - › 6
  - G Other
    - › 1

- **Analyze your most appropriate one:**
  - A Elaborate on the structure to give it more definition
    - › G = C = D = E

- C Identify the Pros and Cons
  - › Pros
    - + Level of ability individualized for all students
    - + Themes of vocations
    - + Looping provides advantage of teachers knowing students
    - + Fluidity for student placement or movement
    - + Older students can mentor younger students
  - › Cons
    - + Input from a variety of teachers from several schools for incoming 6th graders
    - + Looping can be an issue (weak teacher/behaviors)
    - + Possible lowering of expectations for kids at lower levels
    - + New way of teaching parent/student/teacher buy-in
    - + Class size/schedule
- D What would you do to mitigate the Cons?
  - › Vertical meeting with elementary/middle school
  - › Address weak teachers/behavior issues
  - › Expectations—PD for teachers
  - › Sell program o need for some students (option for families)
  - › Creative with scheduling

PRE-K CONCEPTS

This was the challenge:

PRE-KINDERGARTEN SERVICES BREAKOUT GROUP

- **Confirm Current Programs**
  - Characterize current enrollments, locations, services offered, staffing, transportation
- **Critique Current Programs**
  - What are the Pros?
  - What are the Cons?
- **Conceive Future Programs**
  - What do we need to do to make Pre-K in BPS more appropriate?
  - Consider enrollment goals, need, funding, community relations, transportation, locations, existing private infrastructure, school structure, other
  - Is it stand-alone or aligned with any elementary grades?

Record your thoughts.

Report out to the whole group.

A BREAKOUT GROUP ADDRESSED THE ISSUES. THEIR COMMENTS INCLUDED:

PRE-K

- **Confirm Current Programs:**
  - Current enrollment—306
  - Gilmore Pre-K (*moving to Barrett Russel)
  - Mix of inclusion, sub-separate and city resource, half day/full day

- 1 half day at Adult Learning Center—approximately 20 kids while parents take classes
- Transportation for special education students —approx 90 peer models—own transport

- **Critique Current Programs:**
  - Pros
    - Servicing special education students
    - Get kids in school earlier
  - Cons
    - Under-utilized building
    - Do not have enough opportunities for Pre-K (K entry age)
- **Conceive Future Programs:**
  - Pre-K more available to general education population
  - Universal Pre-K—4 yrs old (full day)—1400 students per year
  - Handful of sub separate 3+ year old
  - Neighborhood elementary buildings and special education strand continuity
- Low incident programs
  - T+6 and 1B—Plouffe Academy (MS) Angelo (ES)
  - Dual language
    - Spanish
    - Portuguese
  - SEI
    - Structured English immersions
    - New comer language

Workshop participants were given this challenge:

DEFINE STUDENT SUCCESS IN LIFE

- Define success in life for our students.
- What do our students need from us to be successful in life?

DEFINE THE KIND OF PLACE OUR FUTURE SCHOOL SHOULD BE:

- Identify what educators should be doing.
- Identify what students should be doing in school.
- And out of school.

Their responses were:

TABLE TEAM 1
DEFINE STUDENT SUCCESS IN LIFE

- **Define success in life for our students, after they leave formal education**
  - Think critically
  - Solve problems logically
  - Communicate effectively
  - Act as a productive and engaged member of society
  - Have confidence in themselves
  - Make healthy choices
  - Be college and career ready
- **What do our students need from us to be successful in life?**
  - Need to be emotionally supported
  - Hold accountable for behavior and academics
  - Prepared for college and career

DEFINE THE KIND OF PLACE OUR FUTURE SCHOOLS SHOULD BE:

- **Identify what educators should be doing**
  - Provide programs and opportunities for becoming well rounded students
- **Identify what students should be doing in school**
  - Act as productive member of school and community
- **And out of school**
  - Service learning
  - Volunteering

TABLE TEAM 2 / HIGH SCHOOL FOCUS
DEFINE STUDENT SUCCESS IN LIFE

- **Define success in life for our students, after they leave formal education**
  - "Real life" knowledge and skills
  - Career focus
  - Financially independent
  - Caring participant in society
  - Responsible/independent
  - Persistent/confident
- **What do our students need from us to be successful in life?**
  - Strong foundation
  - Problem solving and independent thinkers
  - Real life experience
  - Accountable standards reflective of real world situations
  - Exposure to multiple experiences

DEFINE THE KIND OF PLACE OUR FUTURE SCHOOLS SHOULD BE:

- **Identify what educators should be doing**
  - Have more input to decisions in schools
  - New approach to engage students in their learning and future
    - › Possibly through Project Based Learning
  - Model and assess 21st Century skills
- **Identify what students should be doing in school**
  - Students should take ownership of their learning/future
  - Student in driver's seat
  - Become advocates for their own needs

TABLE TEAM 3
DEFINE STUDENT SUCCESS IN LIFE

- Define **success in life for our students, after they leave formal education**
  - Employed
  - Healthy
  - Happy
- **What do our students need from us to be successful in life?**
  - Exposure to opportunities and experiences
  - Taught skills— resiliency/social emotional/ academic/problem solving/etc

DEFINE THE KIND OF PLACE OUR FUTURE SCHOOLS SHOULD BE:

- **Identify what educators should be doing**
  - Teach problem-solving skills in real life situations
  - NOT teaching just to the test
  - Passionate in working with the whole child in building relationships
- **Identify what students should be doing in school**
  - Students should be actively engaged in the educational process and have a youth voice
- **And out of school**
  - Community service
  - Volunteerism
  - Active participant in the community

TABLE TEAM 4
DEFINE STUDENT SUCCESS IN LIFE—
21ST CENTURY TECHNOLOGY SKILLS

- **Define success in life for our students, after they leave formal education**
  - Rewarding career (skills and knowledge)
  - Well rounded person
    - › Agency—contributing positively to community(ies) and kindness
    - › Collaboration and consensus building skills, problem-solving skills
    - › Life skills
    - › Viewpoints from multiple perspectives
    - › Reflection
  - Analyzing actions/situations with a critical lens
  - Good moral compass/breaking a cycle
  - Read, write, listen, speak for a variety of purposes and audiences
- **What do our students need from us to be successful in life?**
  - Resources, building, equity
    - › Program
    - › Classes
    - › Buildings
  - Respect
  - Social/emotional/learning
    - › Model
    - › Explicitly
    - › Teach
  - Feel valued, loved and cared for
  - Best instruction/efforts
  - Meet them where they are
  - Teachers knowledgeable on 21st century technology
    - › Construct, use instead of educator

DAY 3

AGENDA

The third Visioning Workshop was held on 13th April 2017. Notes of all activities follow:

- **School in 2037**
- **21st Century Schools Presentation**
- **Learning Modalities**
- **Future Furniture**
- **Safety + Security**
- **Representative Overall School Organizational Diagrams**

School in 2037

The Visioning Team participants had looked into the long-term future as homework. This was the challenge:

DEFINE SCHOOL IN 2037

Answer as many of these questions as needed to create your concept of future school:

- **What will students at our schools be doing in 20 years?**
  - What is "a day in the life of a student?"
  - If they can learn content through the internet, why come to school?
- **What will faculty/staff at our Schools be doing in 20 years?**
  - What is "a day in the life of a teacher?"
  - What is the teacher role?
- **Community?**
  - How will the community be involved in the school?
  - How will the school be involved in the community?
- **Facilities: What does this imply for facilities?**

Their thoughts in general discussion were:

WHY COME TO SCHOOL?

- Learning through interactions with peers
- Socialization
- Inter-social development
- Social/emotional
- Need modeling
- Need peer interactions
  - › Social media not enough
- Collaborative skills
- Need differentiated learnings
- Need instruction
- Jobs in future technology-based
- Adult relationships with teacher
- After school activities:
  - › Sports
  - › Clubs
  - › Arts

- This keeps kids in school
- Safe Place
  - › School becomes a home
- Positive peer pressure
- Agency
- Kids get out of comfort zone:
  - › Diversity
  - › Special Needs
- Other people challenge thinking
- Critical thinking
  - › Changing conventions

INDIVIDUAL THOUGHTS WERE:

WHAT WILL STUDENTS AT OUR SCHOOLS BE DOING IN 20 YEARS?

- **What is a day in the life of a student?**
  - Tech-based, vocation/skills-based
  - Combination of technology, peer-to-peer interaction, problem solving, direct instruction, and independent goal setting & growth
  - Project-based, real-world learning
- **If they can learn content through the internet, why come to school?**
  - Social/emotional learning, peer interaction. Tech still needs to be monitored. Students will always need to be directly instructed
  - To learn collaborative skills that are needed in the real world
  - Vygotsky & Krashen highlight that much learning occurs through interactions with peers and with an adult. Also, schooling is essential for socialization and interpersonal development

WHAT WILL FACULTY/STAFF AT OUR SCHOOLS BE DOING IN 20 YEARS?

- **What is "a day in the life of a teacher?"**
  - Guidance for student learning, tech-based
  - Many innovative goals & projects, facilitating cooperative problem solving, utilizing technologies, and direct instruction
  - Overseeing student inquiry, organizing the topics the students pursue, guiding their independent learning
- **What is the teacher role?**
  - More to guide than to instruct directly
  - Facilitator for students in the zone of professional development
  - Facilitating discussions, guiding student inquiry

COMMUNITY

- **How will the community be involved in our schools? How will the community use our school?**
  - Heavily involved!
  - Evening/afternoon classes, adult ESOL, community events
  - Students could do some of their learning "in the role" by utilizing a co-op-style learning experience
  - Members of the community could come in and work with our students as experts in their field

- **How will our schools be involved in our community? Will learning happen there? How?**
  - Offering programs for vocation track/internships at an earlier age
  - Interesting – at secondary level, could individual goals and interests be supported through community-courses and internships?
  - Legal implication – safety & security personnel to work in evening/weekends and off campus

FACILITIES

- **What does this imply for facilities?**
  - Technology! Training!
  - Legal implication – safety & security personnel to work in evening/weekends and off campus
  - Flexible campus for older students, more technology available (product & bandwidth, etc)

21ST CENTURY SCHOOLS PRESENTATION

Frank Locker presented on the changing values, goals, and deliveries that characterize the most progressive thinking about schools in the United States, and worldwide, today. Key points included:

- 20th vs 21st century schools:
  - The 20th century was a century of creating efficient schools; the 21st century has been a century of looking for effectiveness in schools
  - 20th century was the century of the teacher; 21st century is the century of the learner
  - The teacher used to hold all the information; now the teacher is the guide
- Research in learning informs us of many effective educational practices
  - Some are gaining popularity
  - Others are not yet in general practice
- Learning is more effective when students apply their learning immediately
- The Multiple Intelligence Theory explains why different students learn best in different ways
- 21st Century Skills Framework offers a clear concept of skills students need for success in our rapidly changing global economy. It establishes:
  - Core, subject-based learning is not sufficient any more
  - Learning relevant 21st century survival skills is just as important, perhaps more important. These include:
    - › Learning and innovation skills
    - › Life and career skills
    - › Information, media, and technology skills
- Craig Jerald was cited as researching the most important traits that business and industry really want – professionalism/work ethic
- Learning should be interdisciplinary, bridging the gaps between subject areas
- Learning should be infused with 21st century themes. These include:
  - › Global awareness
  - › Financial, economic, business and entrepreneurial literacy
  - › Civic literacy
  - › Health literacy
- Learning is a social activity. Students learn better when they are in strong relationships with teachers and peers
- The Relevance and Rigor Framework of the International Center for Leadership in Education correlated Bloom's Taxonomy with application, offering a concise understanding of effective learning
- Teachers' work is supported through strong relationships with other professionals
- Schools are looking for more community connections to improve student learning
- Flexible furniture is needed to bring the student the support to learn in a variety of modalities

INDIVIDUAL RESPONSES

Visioning Team members scored the importance of the different issues outlined while Frank was presenting. They were asked "How important are these issues to teaching and learning at our future schools?"

The following two pages contain a compilation of their scores. Individual comments follow:

	VERY IMPORTANT	IMPORTANT	DON'T KNOW	MAYBE NOT	NOT IMPORTANT	SCARY TO ME
Future of Work	11	1				2
Student Engagement	10	3				
Student Talk at Dinner	4	4	4	1		
Learning Pyramid	6	6				
Gardner: Multiple Intelligences	5	6	2			1
Emotional Intelligence	12	1	1			
Creating Innovators	7	3	1			1
Integrate Arts in Core Learning	5	7	1			
Environmental Sciences/Sustainable Living/ STEM/STEAM/Engineering	11	2				
Daggett: Relevance + Rigor Framework	6	5	2			
21st Century Skills	10	3				
Jerald's Research on 21st Century Education	4	6		1		1
Project Based Learning, Africa, Café Paresien	9	4				

	VERY IMPORTANT	IMPORTANT	DON'T KNOW	MAYBE NOT	NOT IMPORTANT	SCARY TO ME
Deeper Learning	4	6				1
Making Things to Learn	5	6				
Corridors + Classrooms	5	3	1		3	
Small Learning Communities	8	2				
20th Century Safety + Security	5	2	2	2	1	
21st Century Safety + Security	9	2	1			
Flexible, Varied, Brain Based Furniture	8	4				
21st Century Learning Spaces	8	2				
Teacher Planning Centers	4	8		1		
The End of the Library as we Know it Today	3	6	1	1		
The End of the Cafeteria as we Know it Today	2	8		1		
Flexibility for Change	7	3		1		
Teacher Collaboration	7	4		1		
Forest Avenue School K–2 Center	2	3	5		1	
New Tech High	4	5	1		1	
End of the Classroom as we know it today	9	2	1			

INDIVIDUAL COMMENTS

Comments from individual Visioning Team members in response to the presentation issues are as follows:

Issue: Future of Work

- Hope
- If schools don't change, many students will be left behind
- Skills, training
- I don't have knowledge of the skills needed in the professions
- Schools need to prepare for the future
- Future security

Issue: Student Engagement

- Collaboration
- Without engagement, students do not learn
- Important for motivation

Issue: Student Talk at Dinner

- They should want to learn
- Kids learn more when they are excited
- I agree about enthusiasm in school and about learning, but not dinners or metrics
- If students want to talk about their learning, then they are engaged and excited
- Many do not do dinner with family

Issue: Learning Pyramid

- Teachers as facilitators
- Understand how kids learn

Issue: Gardner: Multiple Intelligences

- Important to highlight student strength
- Need to understand implications more
- Differentiated instruction
- Some recent research (ie, Pinker) indicates multiple intelligences have no factor
- Must drive education practices

Issue: Emotional Intelligence

- **See "Other"
- Not all students learn these at home
- Critical to human development
- Many students have experienced trauma
- Students need to learn to work with others
- Healthy life

Issue: Creating Innovators

- Give the opportunity
- **See "Other"
- "Scary to me" because on the state and levels here is a strong push for covering material, then allowing the experience
- Innovation advances society & technology, solves global issues
- Future depends on this
- Assessment & accountability factors
- Imperative for critical thinking

Issue: Integrate arts in core learning

- Could be beneficial for differentiating instruction
- Enhances learning
- Fosters creativity

Issue: Environmental Sciences/Sustainable Living/ STEM/STEAM/Engineering

- **See "Other"
- "Scary" because poorer districts like Brockton are being left behind
- Critical to the future
- What does this look like at all levels?
- It's what the future is!

Issue: Relationships: Dunbar's Law, "Magic of 150"

- Human interaction is our core
- Building relationships essential to resiliency and engagement
- Students have so much technology and parents are always on phones. Interpersonal relationships suffer

Issue: Learning, Blended Learning, Computer Games Learning

- No experience
- It is their future
- Gaming = engagement
- Options for blended learning enables both social and independence

Issue: Daggett: Relevance + Rigor Framework

- Already doing
- Seems to be making a difference

Issue: 21st Century Skills

- Extremely important
- 4 Cs are skills needed for the future
- There is immense research that indicates a great economic need for languages and bilingual working staff
- Imperative for success

Issue: Jerald's Research on 21st Century Education

- May inform need to change what we teach and how we teach
- Studies & evaluations help guide future schools

Issue: Project Based Learning, Africa, Café Paresien

- This ties in with 13, 14. If we are going to achieve 13 and 14, Project Based Learning (PBL) is essential
- Kids learn through experience and peer interaction
- These projects resonate with students and puts students in charge of their learning
- And inquiry-based learning
- Connected to many of the prior elements, ie, relevance, relationships, etc
- Students are much more engaged and are able to integrate all the content learning into a project that is interesting and relevant
- PBL is meaningful to all

Issue: Deeper Learning

- PBL (Project Based Learning) seems to work. Standardized testing scares me
- Students need to be able to apply their knowledge to real-world problem solving
- Meaningful learning is key

Issue: Making Things to Learn

- I like this approach. Design is so important to technology and future. Promotes innovation
- This would engage and inspire children
- Real-life experiences

Issue: Corridors + Classrooms

- Needs to be cluster, less linear
- **See "Other"
- This is vital to a student's learning!
- Future facilities need to change to support learning and 4 Cs
- Flexible learning space is important
- Classrooms need to be designed to support learning and be less isolating
- School design fosters culture and learning

Issue: Small Learning Communities

- Limits movement
- Flexible learning spaces help diverse learning & teaching styles
- Flexible learning space is important

Issue: 20th Century Safety + Security

- Safety issues
- Very vulnerable
- Doesn't seem safe
- Security is paramount
- Outdated

Issue: 21st Century Safety + Security

- Allows for more
- Safety is a modern concern
- Fosters and facilitates learning

Issue: Flexible, Varied, Brain Based-Furniture

- Comfortable learning environment
- If we are going to move toward 21st century learning + PBL, these (21, 22) are extremely important
- Multi-purpose allows for more flexible learning
- Flexible furniture is great!
- Fosters and facilitates learning

Issue: 21st Century Learning Spaces

- Creative/innovative
- If we are going to move toward 21st century learning + PBL, these (21, 22) are extremely important
- Promotes exploration, imagination, and innovation
- Flexible learning spaces work well
- Fosters and facilitates learning

Issue: Teacher Planning Centers

- Looks like prison/visiting room
- Will work if there is time given for teachers to use this
- Happy teachers make happy students. Teacher collaboration is important
- Important for collaboration
- Extremely important for collaborative planning and interactive instruction

Issue: The End of the Library as We Know It Today

- Too much movement through Common Area
- Would require completely new building
- Needs to be more active space
- Our Library is currently closed
-

Issue: The End of the Cafeteria as We Know It Today

- Too much stimulation
- Needs to be more usable
-

Issue: Flexibility for Change

- Keep up with society
- Would run into same problem - that we are all in new environment
- Ways of teaching and learning change over time

Issue: Teacher Collaboration

- Size
- Need to move away from old methods for teaching
- How do you teach collaboration working in isolation
- Interdisciplinary instruction!

Issue: Forest Avenue School K–2 Center

- Depends on size of school
- Cool space
- Love it!

Issue: New Tech High

- District too big
- Technology needed for our future strong evaluations
- Interdisciplinary units are becoming more popular
- Love it!

Issue: End of the classroom as we Know it Today

- Have to see it
- Better meets the needs of the 21st century. "Futurize"
- This is important but requires a huge shift in mindsets
- Configuration needs to change for flexible learning

Issue: Other

- Question:
  - Any plan or thoughts about chemical use reduction or sanitation?
  - Health concerns around Flu Season and spreading of germs
  - Removal of carpeting
- Tony Wagner – Creating Innovators. Curriculum not important – school experience is
- 45% of college students drop our
- *This all works only if teachers embrace becoming facilitators of leaning + expert learners and not the disseminators of knowledge and all
- Teachers need to change

LEARNING MODALITIES

This was the challenge:

IDENTIFY YOUR FOCUS:

- Elementary
- Middle
- High

Following is a list of learning modalities. Which are most appropriate? Which ones should we be using most at our future schools? Which ones the least?

PERSONAL REFLECTION:

- Personally rank them in order of appropriateness for learning
- Focus on the **4 most** and the **2 least** appropriate
  - Appropriateness implies extensive application

GROUP CONSENSUS DISCUSSION:

- Debate with your Table Team members. Persuade them if you can
- When you vote no need to pay attention to your table mates

VOTE:

- Make changes, if any, to this sheet and submit

LEARNING MODALITIES:

- Direct teaching
- Lecture (sustained direct teaching)
- Seminar instruction
- Teacher team/synchronous collaboration
- Independent study
- Small group work/student collaboration

- Peer tutoring/teaching
- Internships
- Service learning
- Project-based learning
- Making things, proto-typing
- Interdisciplinary learning
- Thematic/integrated learning
- Integrated arts learning
- Social/emotional learning
- Student presentations
- Computer-based: adaptive learning, games
- Blended learning/flipped classroom
- Distance learning
- Technology with mobile devices
- Technology with desktop devices
- Other

Individuals reflected on the modalities, and then discussed them with their Table Teams. Several issues were noted in those discussions:

- Take Differentiated Instruction* off the list as it is not viewed as a modality
- Add Culturally Responsive Teaching
  - Culture norms, ie, eye contact

The most appropriate Modalities, as decided in Table Team discussions, are:

ELEMENTARY:

- Differentiated instruction
- Social/emotional
- Small group/collaboration
- *Direct instruction
- Computer-based

MIDDLE:

- Project-based
- Interdisciplinary
- Service-based
- Making things/proto-typing

ALL GRADES:

- Project-based
- Interdisciplinary
- Social/emotional
- Computer-based

FUTURE FURNITURE

Frank Locker shared a presentation showing a wide range of furniture selections for Classrooms, Breakout spaces, and Maker Spaces. Three participants reviewed the presentation and responded by recording their opinions about which selections are most appropriate for teaching and learning in future Brockton schools, focusing on elementary, middle, and high school years. The challenge and the results are shown below, with notations as follows:

- E = elementary school
- M = middle school
- S = secondary school

NOTE: FKa = formerly known as

FUTURE FURNITURE

Identify your focus:

- Elementary
- Middle
- Secondary

Record your quick responses to the slide show in the five columns below: (*FKa = Formerly known as)

	APPROPRIATE	MOSTLY	DON'T KNOW	MAYBE	NOT APPROPRIATE
Classrooms (GLC)		M		S	E
FKa Classrooms (GLC)	M	E S			
Classrooms		M		E	S
Classrooms: Step 1		M		E S	
Classrooms: Step 2	M	E		S	
Classrooms: Step 3	E M			S	
FKa Classrooms: Step 4	E	M S			
FKa Classrooms: Step 5	E	M S			
FKa Classrooms: Video			E		
FKa Classrooms: Wheels	E M	S			
FKa Classrooms: Modular	E M S				
FKa Classrooms: Variety		E M			S
FKa Classrooms: Variety	E M	S			
FKa Classrooms: LearnLab	S	M	E		
FKa Classrooms: Rounds	M	E S			

	APPROPRIATE	MOSTLY	DON'T KNOW	MAYBE	NOT APPROPRIATE
FKa Classrms: Stand Up			E M S		
FKa Classrooms: Node	M	S			E
FKa Classrms: Bean Bags		E M			S
Breakout Spaces: Booths	E M		S		
Breakout Spaces: Modules	E M	S			
Breakout Spaces: Sprawl	E	M			S
Breakout Spaces: Student	E M S				
Breakout Spaces: Electronic	M S	E			
Breakout Spaces: Movable	M S	E			
Breakout Spaces: Presentation	E M S				
Breakout Spaces: Informal	E M				
Breakout Spaces: Group	E S	M			
Breakout Spaces: D School	M S			E	
Breakout Spaces: D School	M S			E	
Maker Space: D School	S	M		E	

REMARKS:

- **Classrooms (GLC)**
  - Isolating (E)
- **FKa Classrooms (GLC)**
  - Flexible organization (E)
  - More practical & appealing (M)
- **Classrooms**
  - Has a place for direct instruction (E)
- **Classrooms: Step 1**
  - Direct instruction only (E)
  - Standard (M)
- **Classrooms: Step 2**
  - Promotes face-to-face viewing (E)
  - Encompasses group interactions (M)
- **Classrooms: Step 3**
  - Promotes flexible needs (E)
  - Multi-use for learning group (M)
- **FKa Classrooms: Step 4**
  - Elementary needs/movement (E)
  - Concerned about over stimulation (M)
- **FKa Classrooms: Step 5**
  - Students need to see their work (E)
- **FKa Classrooms: Video**
  - Maybe too much transition for elementary (E)

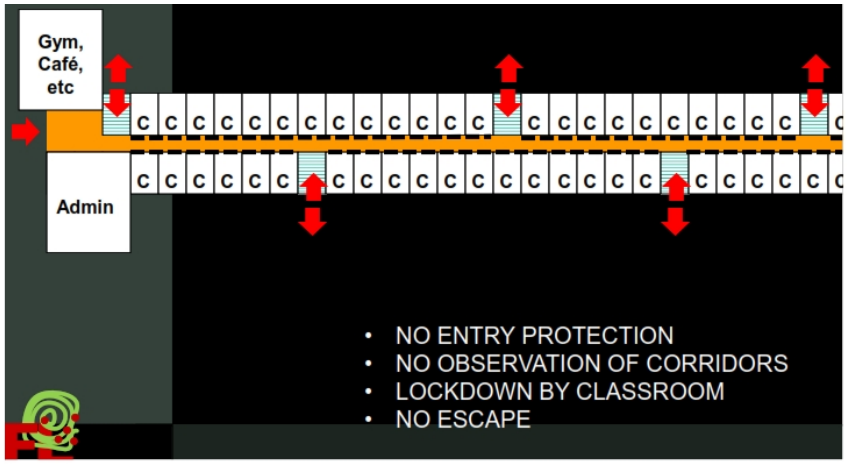
- **FKa Classrooms: Wheels**
  - Flexible use of furniture (E)
  - Conducive to learning (M)
- **FKa Classrooms: Modular**
  - Movement based on need (E)
  - Allows flexibility (M)
- **FKa Classrooms: Variety**
  - Needs multiple adults for safety + security of kids (E)
  - Over stimulation (M)
- **FKa Classrooms: Variety**
  - Creative atmosphere (M)
- **FKa Classrooms: Learn Lab**
  - Don't know how appropriate for elementary (E)
  - Creative atmosphere & student observation or group discussion (M)
  - Great for the HS level (S)
- **FKa Classrooms: Rounds**
  - Harder for flexibility for elementary (E)
- **FKa Classrooms: Stand Up**
  - For those who need it (E)
  - Good option (M)
- **FKa Classrooms: Node**
  - Not for elementary students (E)
  - Good flexibility (M)
- **FKa Classrooms: Bean Bags**
  - For Reading Centers, etc (E)
  - Good option—not 100% (M)
- **Breakout Spaces: Booths**
  - For a part of elementary class (E)
  - Promotes learning & collaboration (M)
- **Breakout Spaces: Modules**
  - Great for interventions (E)
  - Good option (M)
- **Breakout Spaces: Sprawl**
  - For elementary reading/projects (E)
  - Good option—antibacterial (M)
- **Breakout Spaces: Student**
  - My favorite! Flexible, creative learning (M)
- **Breakout Spaces: Electronic**
  - For older elementary grades/centers (E)
  - Good option (M)
- **Breakout Spaces: Movable**
  - Teacher coordination needed for use (E)
  - Allows flexibility (M)
- **Breakout Spaces: Presentation**
  - Teacher coordination needed for use (E)
  - Kids will like freedom of movement - M

- **Breakout Spaces: Informal**
  - Teacher coordination needed for use (E)
  - Kids will like freedom of movement (M)
- **Breakout Spaces: Group**
  - Teacher coordination needed for use (E)
  - Good option (M)
- **Breakout Spaces: D School**
  - Would need modification for elementary (E)
  - Nice organization (M)
- **Breakout Spaces: D School**
  - Would need modification for elementary (E)
  - Nice organization (M)
- **Maker Space: D School**
  - Would need modification for elementary (E)

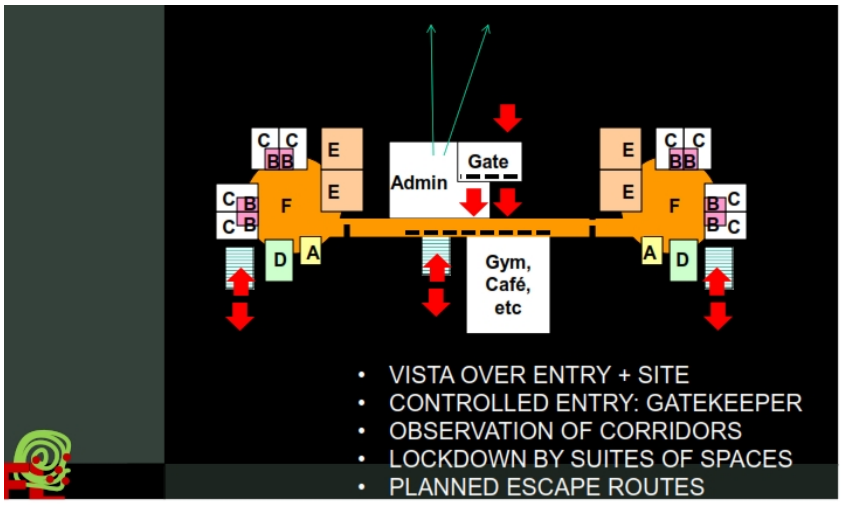
SAFETY + SECURITY

The following diagrams show traditional 20th Century concepts of safety and security, based on long narrow corridors and isolated classrooms, in contrast to 21st century concepts based on suites of learning spaces.

SAFETY + SECURITY IN 20TH CENTURY SCHOOLS



SAFETY + SECURITY IN 21ST CENTURY SCHOOLS



Brockton High School was chosen by the Visioning Team as the most appropriate building to re-plan. During the discussion, the following issues were raised:

- Lockers:
  - They take up the wall space in Corridors making it hard to open Classrooms to the Corridor
  - Other way of doing business?
  - Do we need all we have, where we have them?
- Community schools are needed:
  - Brockton may have to fund spaces for evening use, including:
    - › Auditorium
    - › Maker Space
    - › Art Gallery
    - › Photo Lab
    - › Gyms

Its essential features include:

- Maintain the current organization based on Schools Within the School, each approximately 1300 students
- Align the Cafeterias with the Instructional Resource Centers (Learning Commons)
- Connect the interior spaces with outside learning spaces with appropriate furniture

Appendix E: Reading and Videos

READING

1. Charles Fadel, Deep Dives in 21st Century Curriculum, Massachusetts ASDC Magazine
http://www.mascd.org/wp-content/uploads/2012/07/2008-Summer-Perspectives.pdf

2. Charles Fadel, What should Students learn in the 21st Century?
http://josseybasseducation.com/teaching-learning/what-should-students-learn-in-the-21st-century/

3. Craig Jerald, Defining a 21st Century Education, Center for Public Education
http://www.cfsd16.org/public/_century/pdf/Defininga21stCenturyEducation_Jerald_2009.pdf

4. Frank Locker, Swiss Cheese Schools, EdFacilities.com
http://www.ncef.org/content/swiss-cheese-schools

5. Judy Helm and Lillian Katz, Young Investigators, Project Approach in the Early Years,
http://www.amazon.com/Young-Investigators-Approach-Childhood-Education/dp/0807751537/ref=sr_1_1?ie=UTF8&qid=1401882477&sr=8-1&keywords=judy+helm

6. Wired Magazine: How a Radical New Teaching Method Could Unleash a Generation of Geniuses
http://www.wired.com/business/2013/10/free-thinkers/all/

VIDEOS

General

1. Humans Need not Apply
https://www.youtube.com/watch?v=7Pq-S557XQU

2. 21st Century Education in New Brunswick, Canada
http://www.youtube.com/watch?v=EjJg9NfTXos

3. 21st Century Schools: Renewable Education
http://www.youtube.com/watch?v=8Hxbt-0ojd8

4. Ken Robinson, Changing Educational Paradigms
http://www.youtube.com/watch?v=zDZFcDGpL4U

5. Ken Robinson, How Schools Kill Creativity
http://www.ted.com/index.php/talks/view/id/66

6. Stephen Heppell, 21st Century Schools
http://dangerouslyirrelevant.org/2009/05/21stcenturyschoolsvideo.html

7. PBS News Hour piece on Kahn Academy
http://www.youtube.com/watch?v=1kly25zVbco

8. James Paul Gee, Learning with Video Games
http://www.edutopia.org/james-gee-video-games-learning-video

9. Randy Nelson, Pixar Films, Learning and Working in the Collaborative Age
http://www.youtube.com/watch?v=yM083wBthR8&feature=related

10. Social Innovation Student Symposium 2015
https://www.youtube.com/watch?v=P1yTuXhTrAs

11. Most Likely to Succeed
https://www.youtube.com/watch?v=iez92IQUHdc

12. Tony Wagner, Trailer for Most Likely to Succeed
https://www.youtube.com/watch?v=AYwCkCecwNY

13. Tony Wagner, Creating Innovators
https://www.youtube.com/watch?v=6W90Eqp1yi4

14. Tony Wagner, Play, Passion, Purpose
https://www.youtube.com/watch?v=hvDjh4l-VHo

15. Tony Wagner, One Simple Idea Could Repair Our Education System
https://www.youtube.com/watch?v=hvDjh4l-VHo

Project-Based Learning

1. Buck Institute, Project-Based Learning Explained
http://www.youtube.com/watch?v=LMCZvGesRz8

2. Seymour Papert (Professor at MIT, early researcher in artificial intelligence), Project-Based Learning
http://www.edutopia.org/project-based-learning-overview-video

3. Eeva Reeder's 10th Grade Geometry Class
http://www.edutopia.org/mountlake-terrace-high-school

4. Larry Rosenstock, Project Based Learning at High Tech High
https://www.youtube.com/watch?v=6rv_rmJYorE

5. Charles R Drew Charter School, Atlanta
STEAM + Project-Based Learning: Real Solutions from Driving Questions
http://www.edutopia.org/practice/steam-project-based-learning-real-solutions-driving-questions

Design Thinking + Making Things to Learn
1. IDEO Shopping Cart
https://www.youtube.com/watch?v=M66ZU2PCIcM

2. Harvard University Graduate School of Design on Design Thinking, a learning approach that recognizes design, embraces problem solving, and critical thinking, but also fosters risk taking and creative thinking.
http://designthinkingmovie.com/

Appendix F: Sustainability Guidelines

There are three key areas that are part of building performance; sustainability, resilience, and wellness. Sustainability refers to resource use reduction, such as reducing energy, water and waste, and limited impact on the environment. Resilience considers the ways in which a building is designed to respond to an unplanned shock or change climate, such as flooding, extreme heat/cold, sea level rise, etc. Wellness looks at how a building supports the health of occupants. This is done in several ways including through active design, biophilia, and the indoor environment. Below we will explore a deeper look at building performance strategies that can be implemented in each of these three categories.

Sustainability

There are several ways in which a building, whether existing or new, can limit its impact on the surrounding environment. One way is reducing the heat island through use of high albedo (light in color) roof and site surfaces, as well as, planting vegetated areas on roofs and sites. Buildings should also allow for natural infiltration of stormwater into the ground. This is achieved by increasing vegetated and pervious paving areas on site and new buildings should also maximize the amount of open space on site. Buildings should also implement strategies to reduce light pollution through the use of site lighting fixtures that place light on the ground where it is needed, not into the sky, and interior lighting levels can be dimmed when not in use. Although not applicable to existing buildings, when new construction is considered it should be done on previously developed land, preserving native land and habitats.

ENERGY

Buildings can reduce energy, and thus fossil fuels use, from the transportation and building sectors. Transportation energy can be reduced by providing safe pedestrian and bicycle routes between the site and public transportation, bicycle parking on site, limited car parking, electric vehicle charging, and, when selecting a site for new construction, choose one that is located in a dense area with access to amenities and public transportation. Brockton's Energy Reduction Plan and the 2014 Investment Grade Audit have set a good direction for reducing energy in existing municipal buildings. For new construction buildings, there is an opportunity to significantly reduce energy loads, as the design from the beginning should include an integrated design process,

occupant engagement, high-performing envelope, efficient mechanical, electrical and plumbing systems, and operations focused on measurement and verification.

WATER

Water use reduction is important because there is a finite amount of potable water available on the planet. Buildings should look to minimize the amount of potable water used for outdoor activities such as irrigation, indoor use such as for sinks and toilets, and for process use such as cooling towers. Systems and fixtures should be selected to be the most efficient and use the least amount of water to operate. Water reuse can also be considered so that new potable water is not used. This can be done through rainwater reclamation.

WASTE

Waste reduction is important both during construction, as well as, once a building is in operation. Construction related waste can be reduced in two ways. First, the design should limit the amount of new materials that are needed and materials should be selected that have recycled or bio-based content. Second, construction waste should be collect for reuse or recycling. Operational waste should be minimized by implementing both recycling and compost processes.

Resilience

From weather events to new normal conditions, the climate is continuously changing. Buildings need to be designed to be resilient in their response to future shock or change climate. Both existing and new buildings should be evaluated to understand what the potential impacts will be for that particular site and program. Not all areas are subject to flooding, not all building types need to be occupied during emergencies. Once a building is evaluated for future impacts, systems should be designed appropriately to address those impacts. For example, if a building is important to remain open but knows that the local power substation is subject to flooding the building should consider a generator or solar energy storage. If a building is subject to flooding, critical infrastructure should be located on a level above the flood elevation. If a building is used to shelter in place, it should have operable windows. If a building is intended to be a community resource in heat events, it should contain cooling stations.

WELLNESS

Wellness

North Americans spend 90% of their time indoors, therefore, buildings play a significant role in the health of people. One design strategy to impact wellness is Active Design. Active Design refers to design that encourages occupants to get up and move. Some examples include making stairs more inviting than elevators through increased visibility, nice finishes, and daylight. Other examples include providing showers to encourage bicycle commuters and including fitness spaces for people to work out. A second design strategy is biophilia, the inclusion of the natural environment into the built environment. Biophilia creates a sense of happiness and wellbeing in occupants. Biophilia is achieved through ample daylight, views to exterior green space and sky, and natural materials on the interior such as vegetation, wood and stone. Another strategy is creating a good indoor environment which considers acoustics, thermal comfort, lighting/daylighting, air quality, and flexibility and diversity of spaces. Indoor air quality involves providing fresh ventilation utilizing Direct Outside Air Systems, increased ventilation rates, and CO_2 sensors are key components good air quality. Materials used within the building also impact air quality. Interior finishes and furnishings should be selected that meet the California Dept. of Public Health strict emissions testing and are free from chemicals listed on the Declare Red List or other equivalent list. Lastly, wellness can be promoted through access to healthy food and water. Water should be available throughout the building. Healthy food choices should be considered either within the building or within close proximity. If close by there should be information about where it is located.