

2024 Exhibition of School
Planning and Architecture
Northeast Region

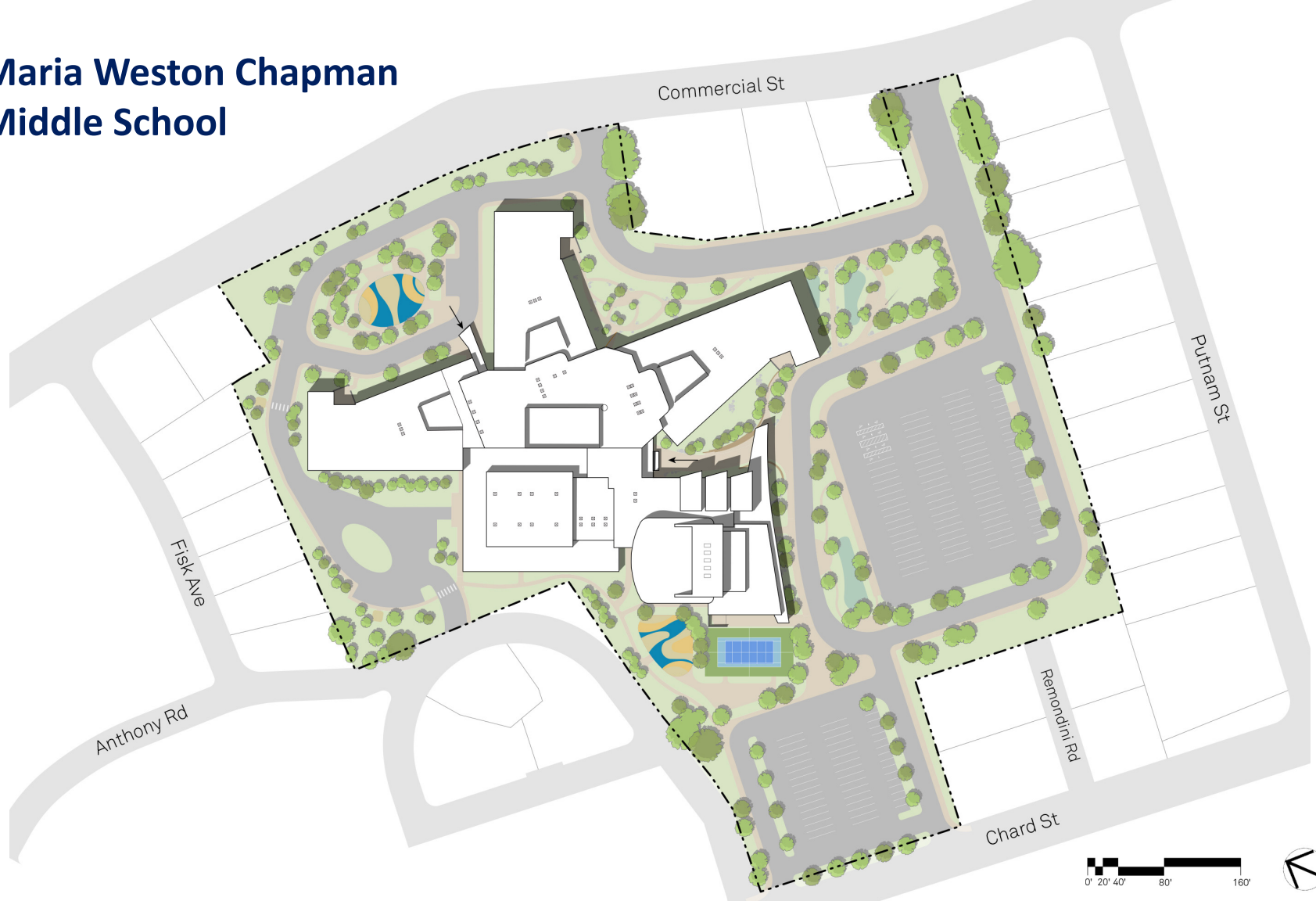
Maria Weston Chapman
Middle School
Weymouth Public Schools

Weymouth, MA

Maria Weston Chapman Middle School



Maria Weston Chapman Middle School



When the Town of Weymouth decided to build the largest middle school in Massachusetts, student equity, community benefits, and cost-effectiveness were key drivers.

Located on the South Shore of Massachusetts, just 15 miles from Boston along the MBTA Red Line, Weymouth is a coastal community with a prominent working-class population.

Weymouth Public Schools currently serves 5,641 students in grades PK-12. At the project's inception, there were nine elementary schools, two middle schools, and one high school.

Community Environment

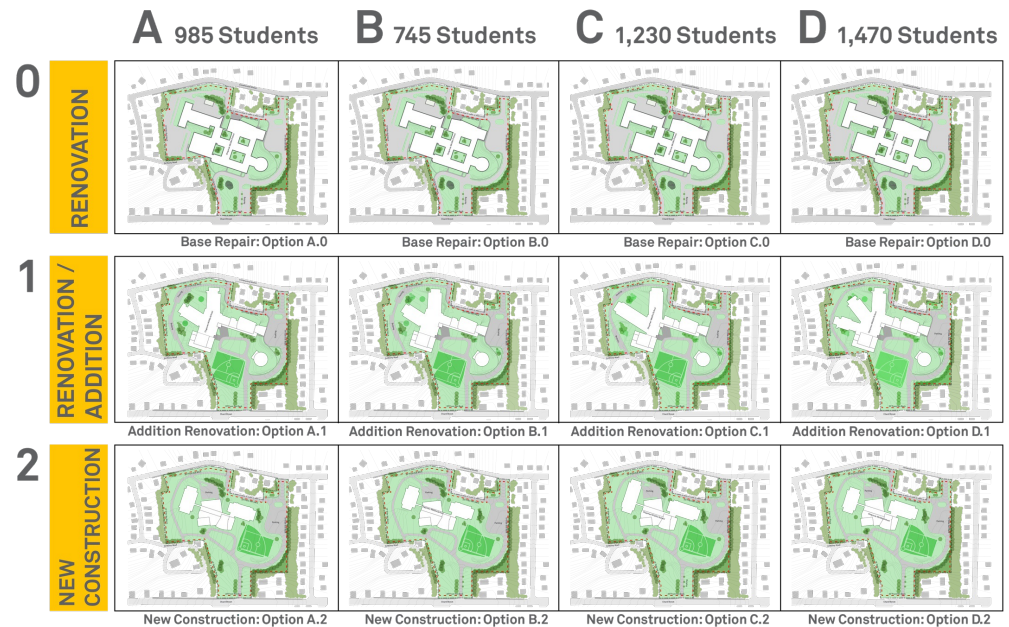
Built in 1961, the existing Chapman Middle School faced an array of physical and educational challenges, including structural deficiencies, inefficient and inoperable systems, and spaces that did not meet teaching and learning needs. The need for a new middle school left the community divided over whether to house all middle school students in one location or to remain with a two-middle school model.

The design team examined four enrollment configurations for both a single- and multi-middle school model, reviewing the two existing schools to determine their capacity and potential for addition/renovation, as well as cost implications and the impact on transportation and redistricting.

Ultimately, a single, new construction 6-8 middle school proved the most equitable and beneficial to the community, both educationally and fiscally.



Existing Chapman Middle School



Study options matrix

Community Environment

The decision to consolidate Weymouth's middle schools meant the new Chapman Middle School would be the largest in the Commonwealth. This proposition was initially met with concerns about size and scale, especially at the middle school level.

Of the 1,470-student population, 24.4% have a disability, 57% have high needs, and 44.8% come from low-income families, so it was imperative that the new facility be supportive and accommodating of Weymouth students' specific needs.

The design team led an open, transparent, and inclusive process involving more than 50 public opportunities for community input to ensure they understood the community's needs and values and that their voices were represented in the final design.

Community-identified challenges:

Budget, consensus across the community, accommodating traditional and non-traditional learning spaces, size

Community-identified opportunities:

Building spirit, embracing diversity, increasing the number of electives, sustainability

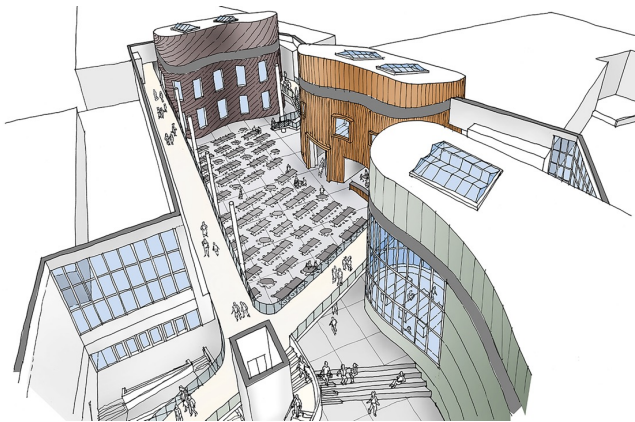


Community Environment

Two driving project goals emerged from these efforts: **foster student well-being** and **create a facility for the entire community**. The design responds to these goals and concerns throughout.

The heart of the school is the Town Square, a light-filled, double-height space that serves as a dining commons and gathering area during the school day and can be reconfigured to host meetings, presentations, and more after hours.

A community wellness suite with a separate community entrance and a gymnasium available for town sporting events also accommodate public use.



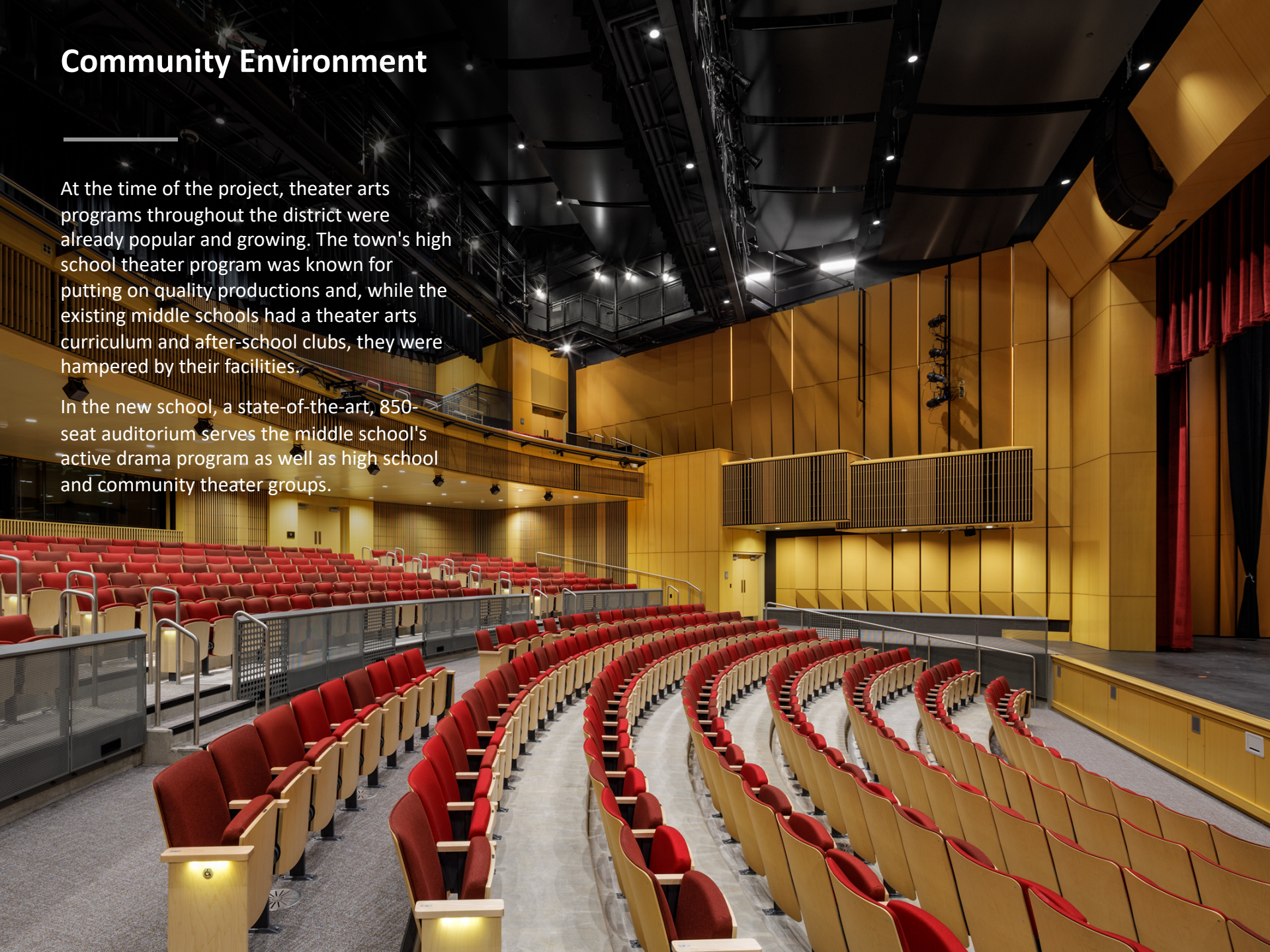
Community Environment



Community Environment

At the time of the project, theater arts programs throughout the district were already popular and growing. The town's high school theater program was known for putting on quality productions and, while the existing middle schools had a theater arts curriculum and after-school clubs, they were hampered by their facilities.

In the new school, a state-of-the-art, 850-seat auditorium serves the middle school's active drama program as well as high school and community theater groups.

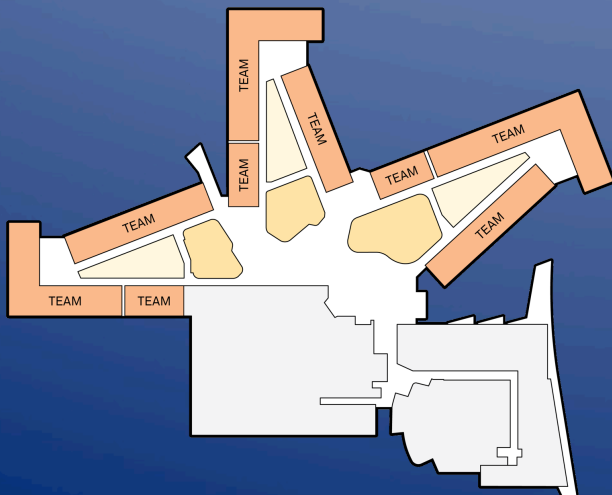


Learning Environment

Social-emotional wellness

In response to concerns about size, educational planning and academic teaming spaces were structured to form concentric rings of support around each student. The space organization strategy progressed from the whole school to grade levels, and then to smaller academic neighborhoods.

Three academic wings radiate off the Town Square, separating students by grade. To further break down the scale of the large school, neighborhoods within each academic wing create small learning communities that provide a "home base" for students and ensure their needs are met with expanded resources, focused attention, and supervision.

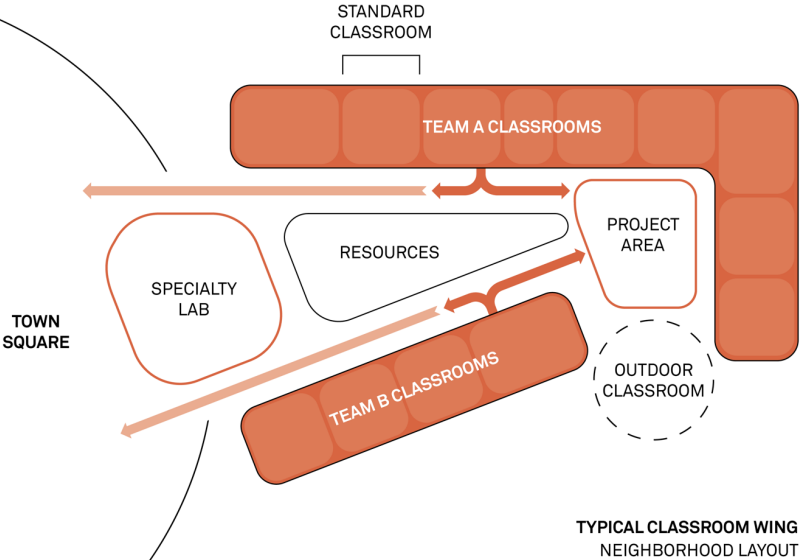


Learning Environment

Social-emotional wellness

Teaching teams are the central planning units that structure each neighborhood. A team is comprised of educators—two for a 6th-grade team and five for a 7th- or 8th-grade team—as well as an embedded academic support teacher and classroom. The neighborhoods provide a range of space types, from breakout areas to flexible, open collaboration zones, to facilitate group work and self-directed learning.

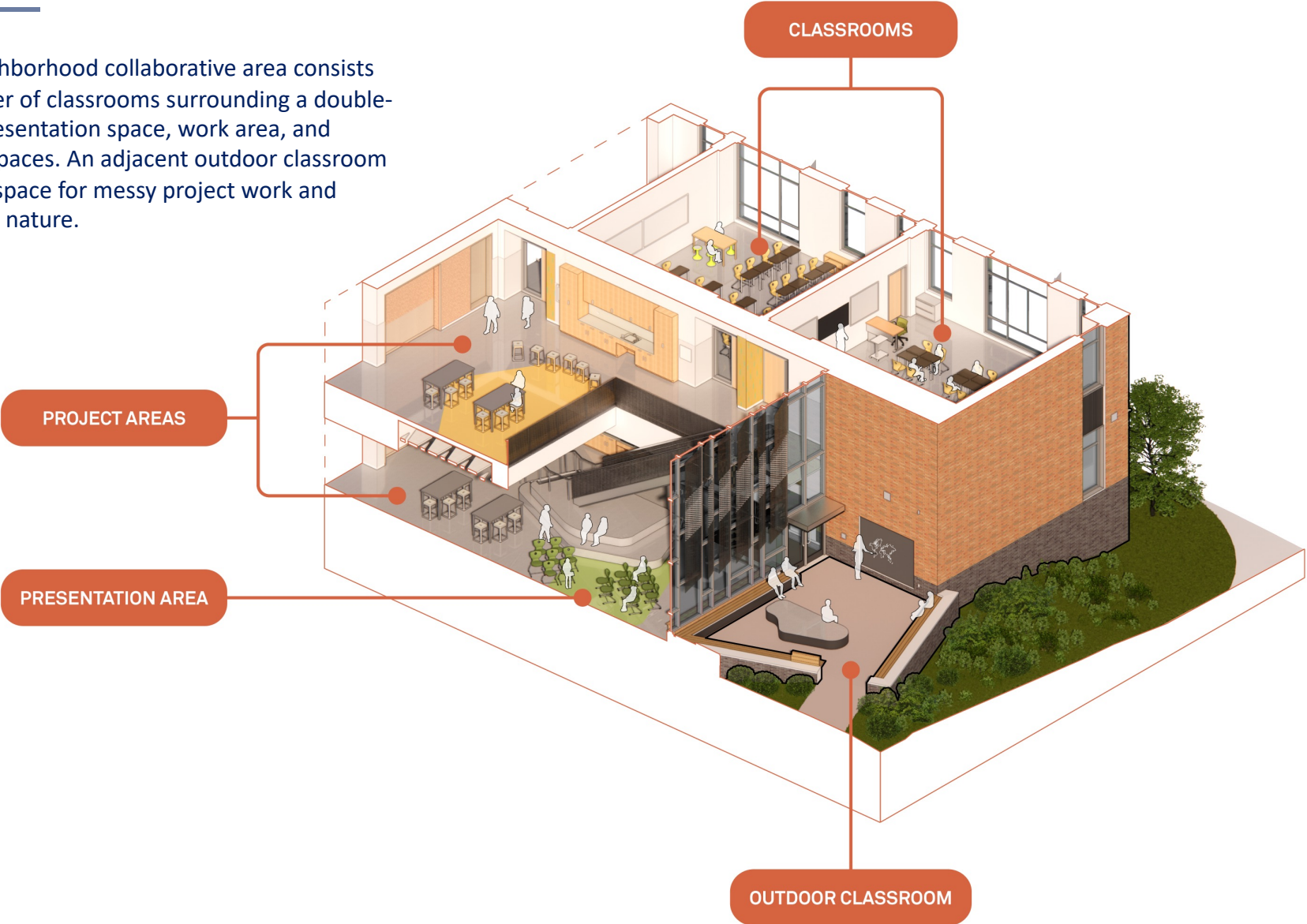
Special education (including full-immersion programs) is integrated within the teams, promoting equity and belonging for all students.



Learning Environment

Varied learning environments

Each neighborhood collaborative area consists of a cluster of classrooms surrounding a double-height presentation space, work area, and support spaces. An adjacent outdoor classroom provides space for messy project work and lessons in nature.



Learning Environment

Varied learning environments



Learning Environment

Varied learning environments



$$E = \frac{p^2 c^2}{2m}$$
$$\frac{d^2 \psi}{dx^2} + k^2 \psi = 0$$
$$\psi(x) = A e^{ikx} + B e^{-ikx}$$
$$\psi(0) = 0 \Rightarrow A + B = 0$$
$$\psi(L) = 0 \Rightarrow A e^{ikL} + B e^{-ikL} = 0$$
$$A (e^{ikL} - 1) = 0$$
$$A = 0 \text{ or } e^{ikL} = 1$$
$$kL = n\pi \Rightarrow k = \frac{n\pi}{L}$$
$$E_n = \frac{\hbar^2 k^2}{2m} = \frac{\hbar^2 n^2 \pi^2}{2mL^2}$$
$$\psi_n(x) = \sqrt{\frac{2}{L}} \sin\left(\frac{n\pi x}{L}\right)$$

Learning Environment

Hands-on, career-based education

As a feeder for Weymouth High School and its robust career technical education (CTE) programs, the new grade 6-8 school's curriculum and layout are centered around its unique "exploratories"—elective tracks that focus on modern, STEAM-driven paths in CTE, ranging from robotics and fabrication to culinary arts and broadcast media.



Learning Environment

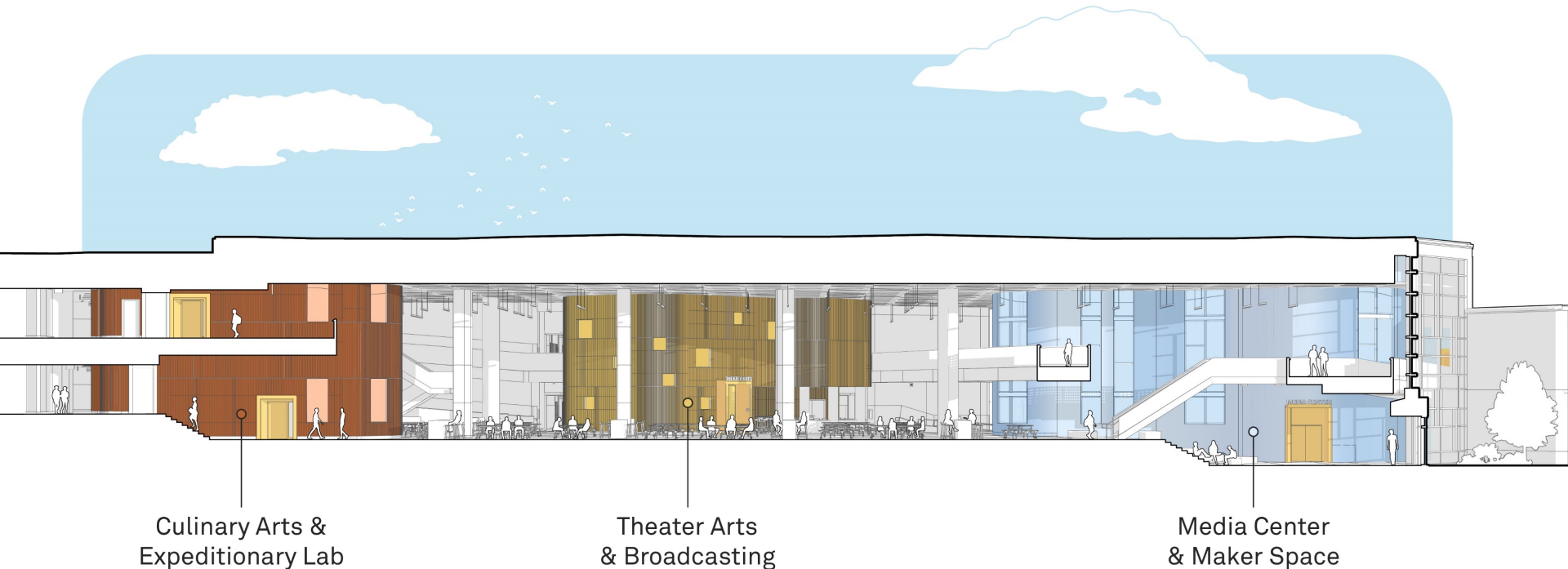
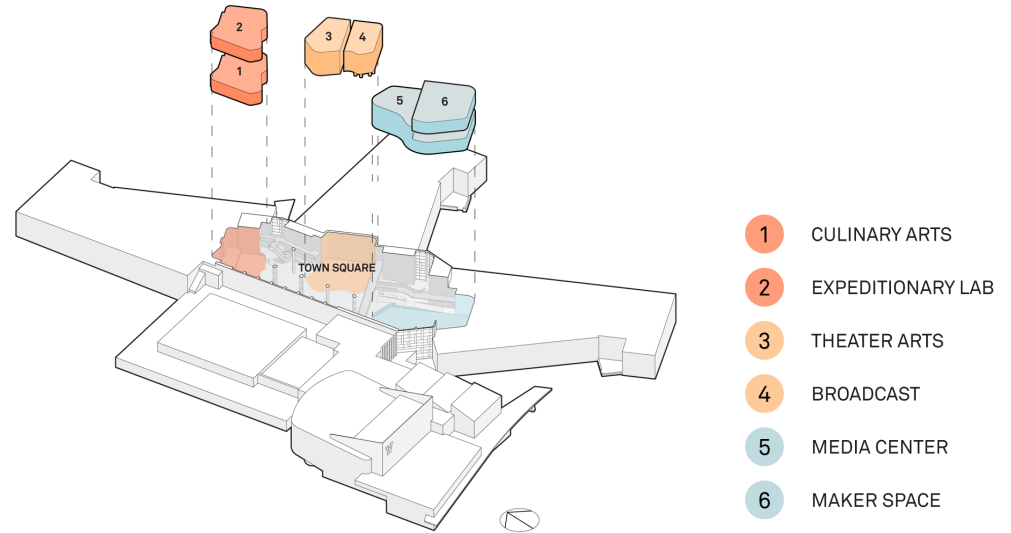
Hands-on, career-based education



Physical Environment

Hands-on, career-based education

These programs are housed within three distinct tower-like, top-lit structures—or pods—that utilize their unique and expressive architectural forms to represent the flexible and collaborative nature of the interior spaces. Positioned at the entrance to each of the three academic wings extending off the cafeteria, the exploratory labs shape the organic layout of the Town Square.

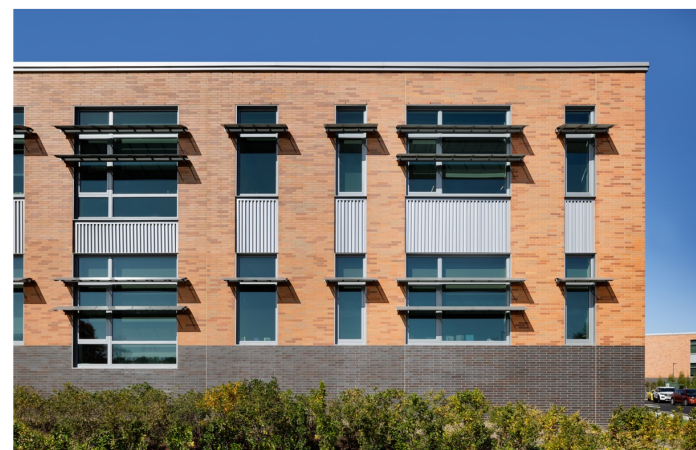
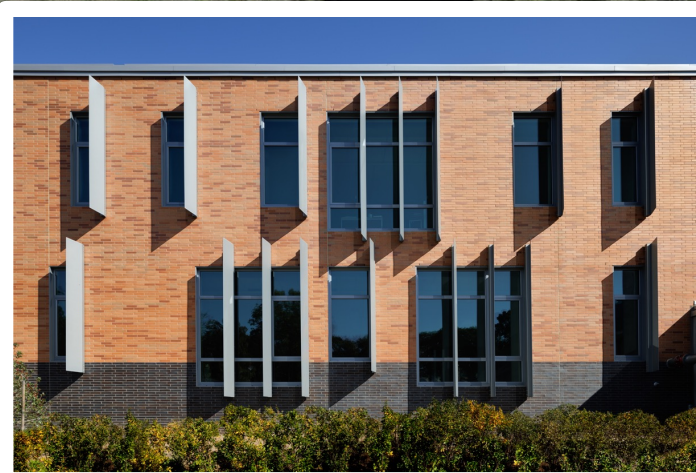
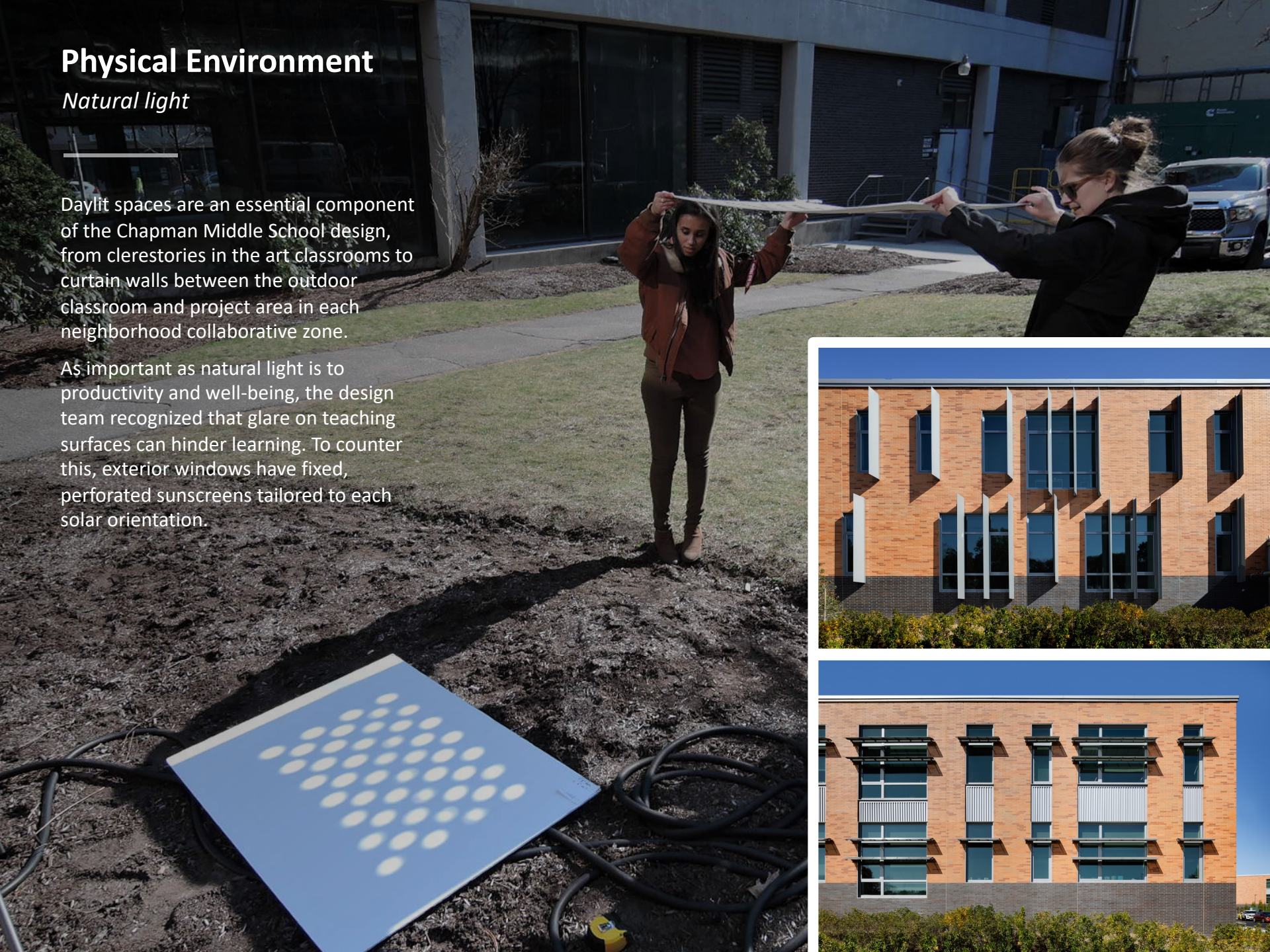


Physical Environment

Natural light

Daylit spaces are an essential component of the Chapman Middle School design, from clerestories in the art classrooms to curtain walls between the outdoor classroom and project area in each neighborhood collaborative zone.

As important as natural light is to productivity and well-being, the design team recognized that glare on teaching surfaces can hinder learning. To counter this, exterior windows have fixed, perforated sunscreens tailored to each solar orientation.



Physical Environment

Site elements

The Chapman Middle School site was developed around whole-child needs and community access, with a half-mile walking circuit connecting age-appropriate play areas and natural site elements that support the physical education curriculum.

Along the fitness loop are three exercise stations and two structured fitness areas, one that features a multi-game court and the second created according to Universal Design principles.



Planning Process

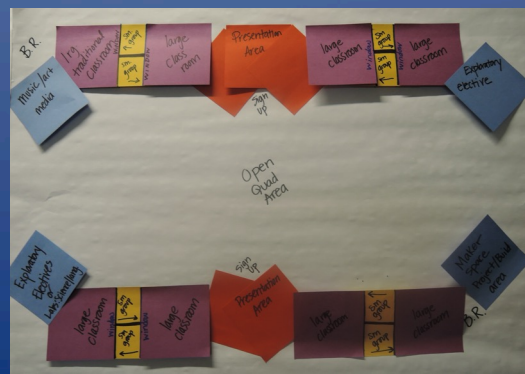
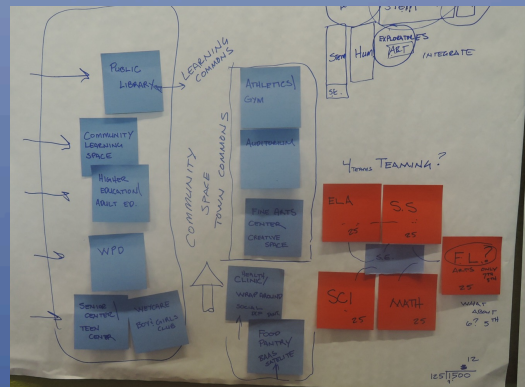
Interactive visioning

Nearly 100 meetings with stakeholders took place before the final design was complete, including 30 building committee meetings, six public forums, three project visioning sessions, two sustainability workshops, an online survey, and meetings with parents, teachers, and public safety officials.

During these sessions, participants worked in teams to create layouts to help inform the organizational strategy of the new school. This exercise sparked key ideas for the project, including:

- The school as a community resource
- A layout designed for team teaching
- Clear separation between public and private spaces

Stakeholder planning diagram examples from the visioning sessions are included to the right.



Planning Process

Revolutions in learning

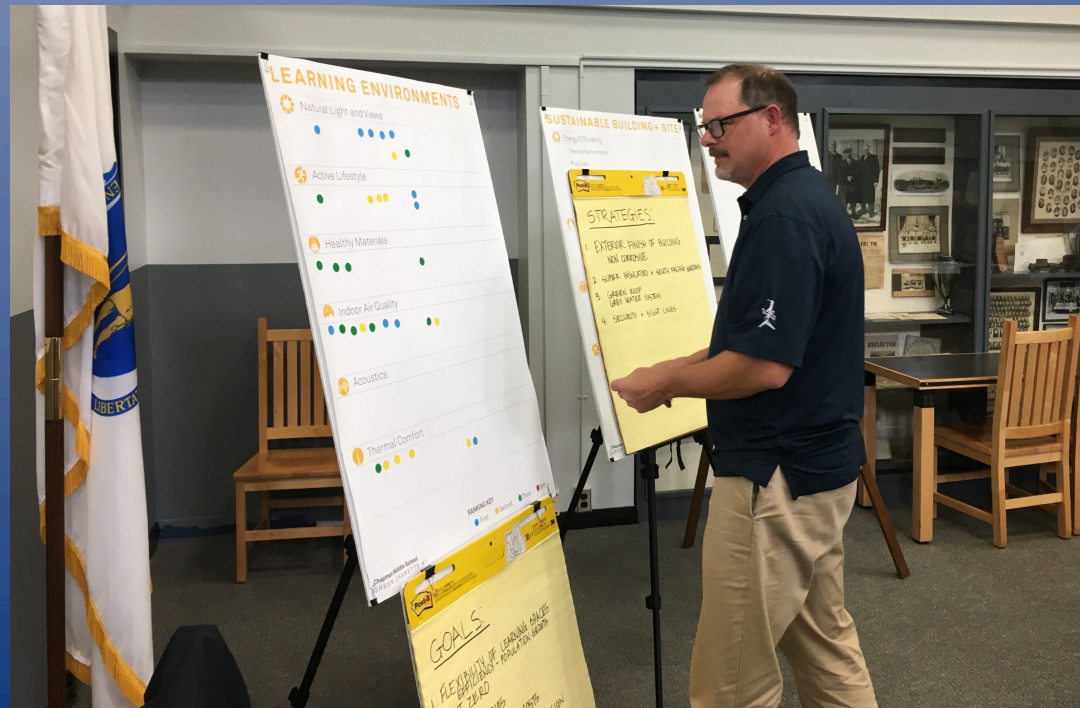
The Chapman School planning process incited a shift in Weymouth Middle School education. Teachers, faculty, and students recognized the need to leave behind a siloed, lecture-based curriculum and embrace a more collaborative, process-based education that supports the whole student.

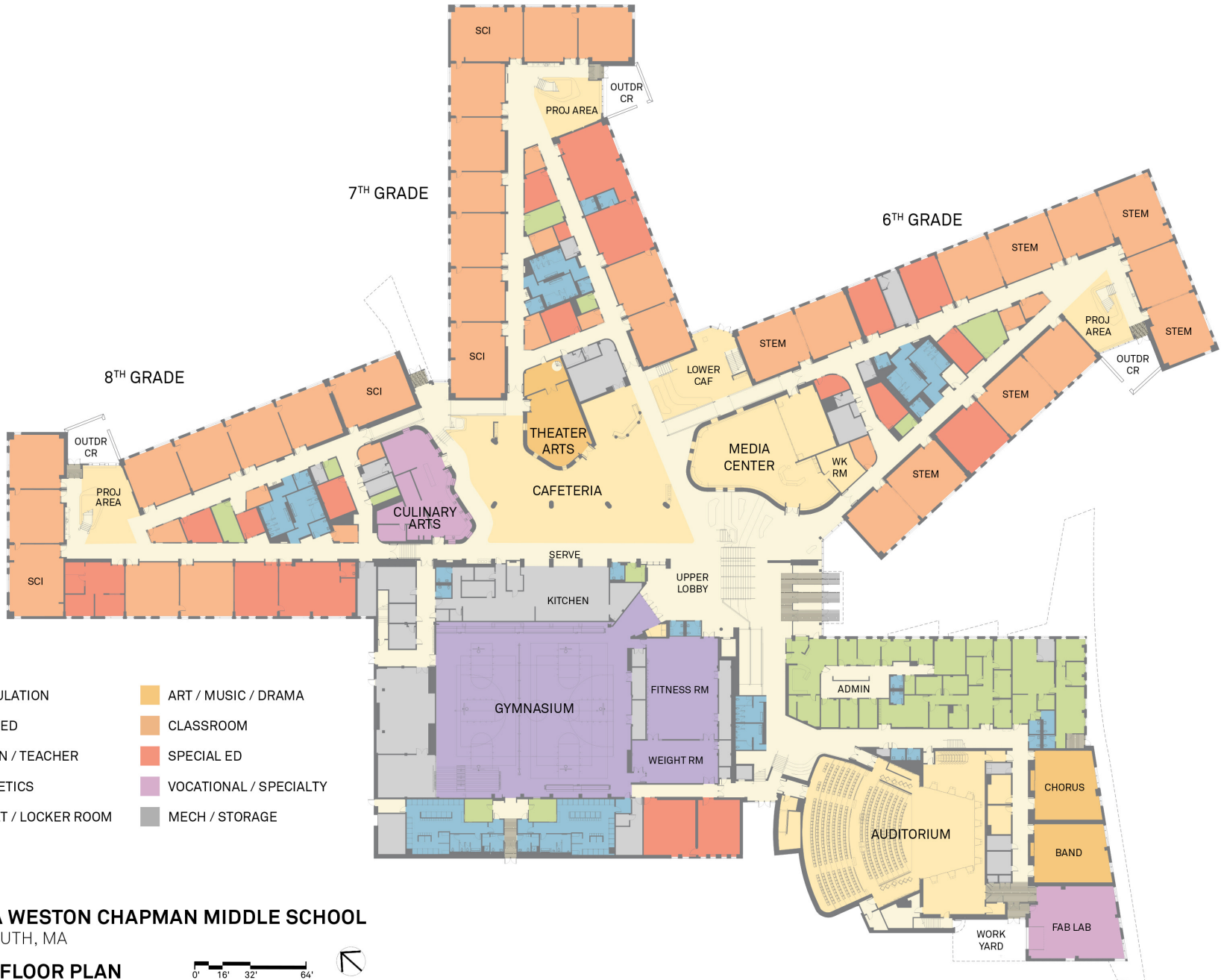
The team collaborated with these groups through various avenues, from one-on-one meetings to large-group interactive work sessions, to determine how the facility could realize the educational goals.

“The architects have done an amazing job listening to what the essence of a middle school is and transforming it into these neighborhood areas throughout the school. This breaks down an extremely large school into localized learning communities where students feel like they are in a very small school within the larger school.”

Matthew Meehan

Former Principal, Chapman Middle School

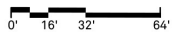


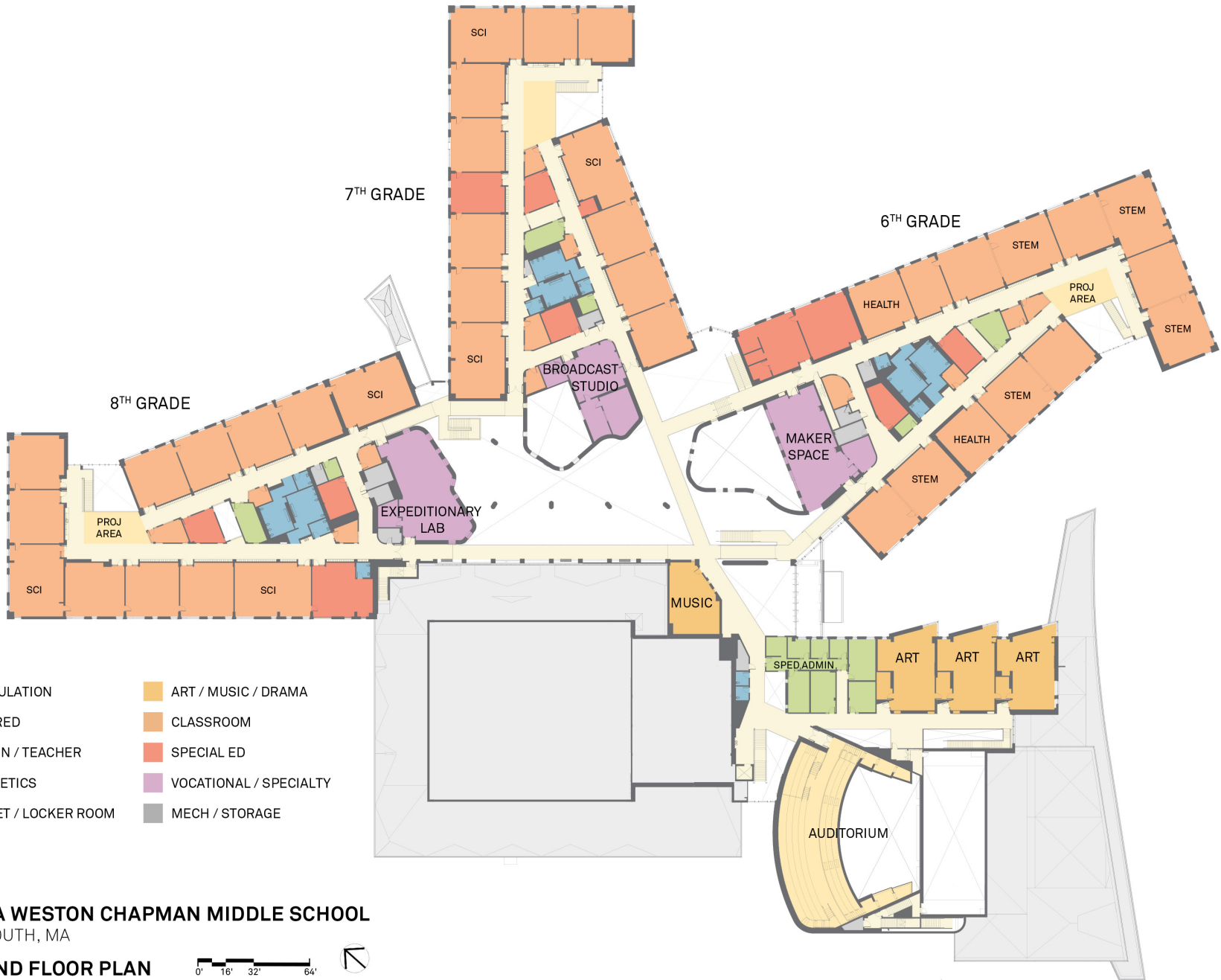


- | | |
|---|---|
| CIRCULATION | ART / MUSIC / DRAMA |
| SHARED | CLASSROOM |
| ADMIN / TEACHER | SPECIAL ED |
| ATHLETICS | VOCATIONAL / SPECIALTY |
| TOILET / LOCKER ROOM | MECH / STORAGE |

MARIA WESTON CHAPMAN MIDDLE SCHOOL
WEYMOUTH, MA

FIRST FLOOR PLAN





MARIA WESTON CHAPMAN MIDDLE SCHOOL
WEYMOUTH, MA

SECOND FLOOR PLAN



Exhibition of School Planning and Architecture

Project Data

Submitting Firm :	HMFH Architects
Project Role	Architect
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Joint Partner Firm:	N/A
Project Role	N/A
Project Contact	N/A
Title	N/A
Address	N/A
City, State or Province, Country	N/A
Phone	N/A
Planner on Record:	HMFH Architects
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Construction Firm:	Bond Building Construction
Project Role	Construction Manager
Project Contact	Brendan O'Malley
Title	Project Executive
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Phone	(617) 387 3400

Exhibition of School Planning and Architecture

Project Details

Project Name	Maria Weston Chapman Middle School
City	Weymouth
State	Massachusetts
District Name	Weymouth Public Schools
Supt/President	Robert Wargo
Occupancy Date	09/01/2022
Grades Housed	6-8
Capacity (students)	1,470
Site Size (acres)	9.2 acres
Gross Area (sq. ft.)	252,000 sf
Per Occupant(pupil)	171.5 sf/student
Gross/net please indicate	gross
Design and Build?	N/A
If yes, Total Cost:	N/A
Includes:	N/A
Project Costs	
If no,	
Site Development:	\$19,999,977
Building Construction:	\$128,585,641
Fixed Equipment:	\$4,013,884
Other:	
Total:	\$164,235,130