



Whitman Middle School

Community Forum #4 // April 13, 2023

Agenda

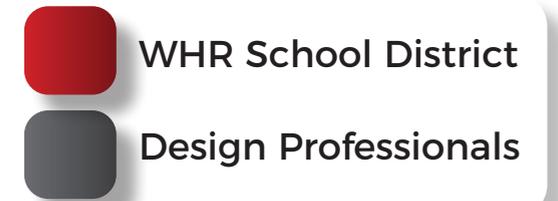
- // Project Schedule & MSBA Process Overview
- // Summary of Preferred Option
- // Intro. to NZE & Sustainable Design
- // Next Steps

The MSBA Process Flowchart

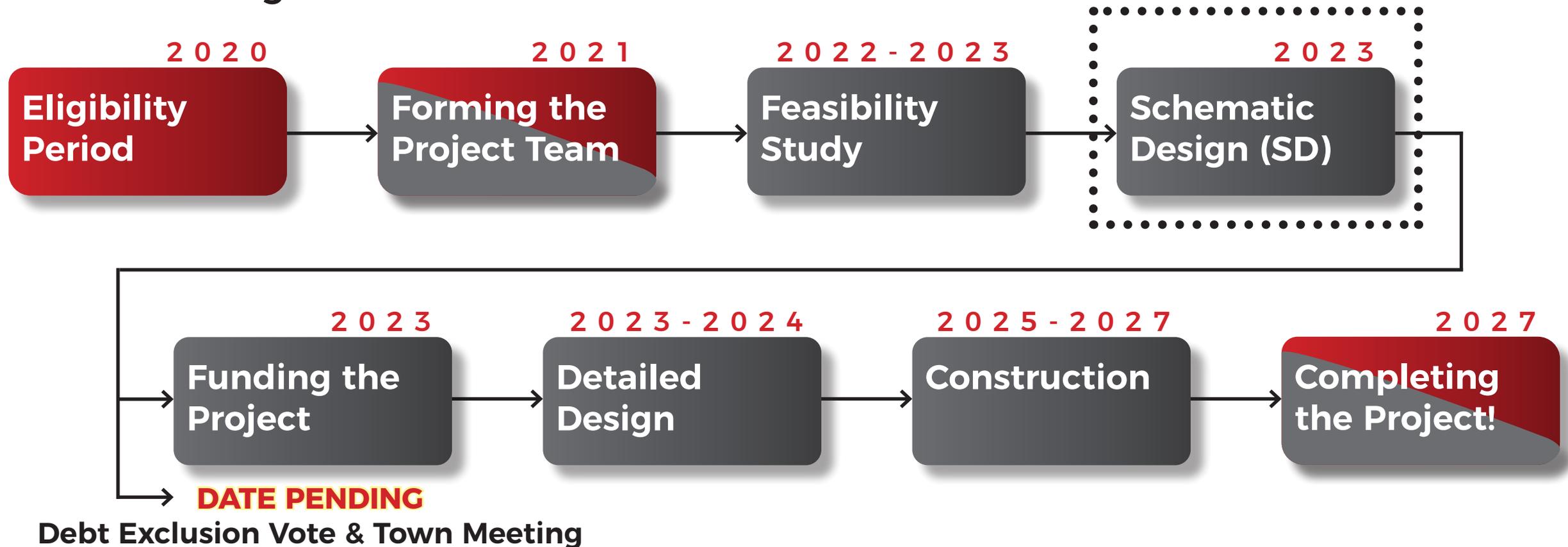
MSBA Masterplan Process



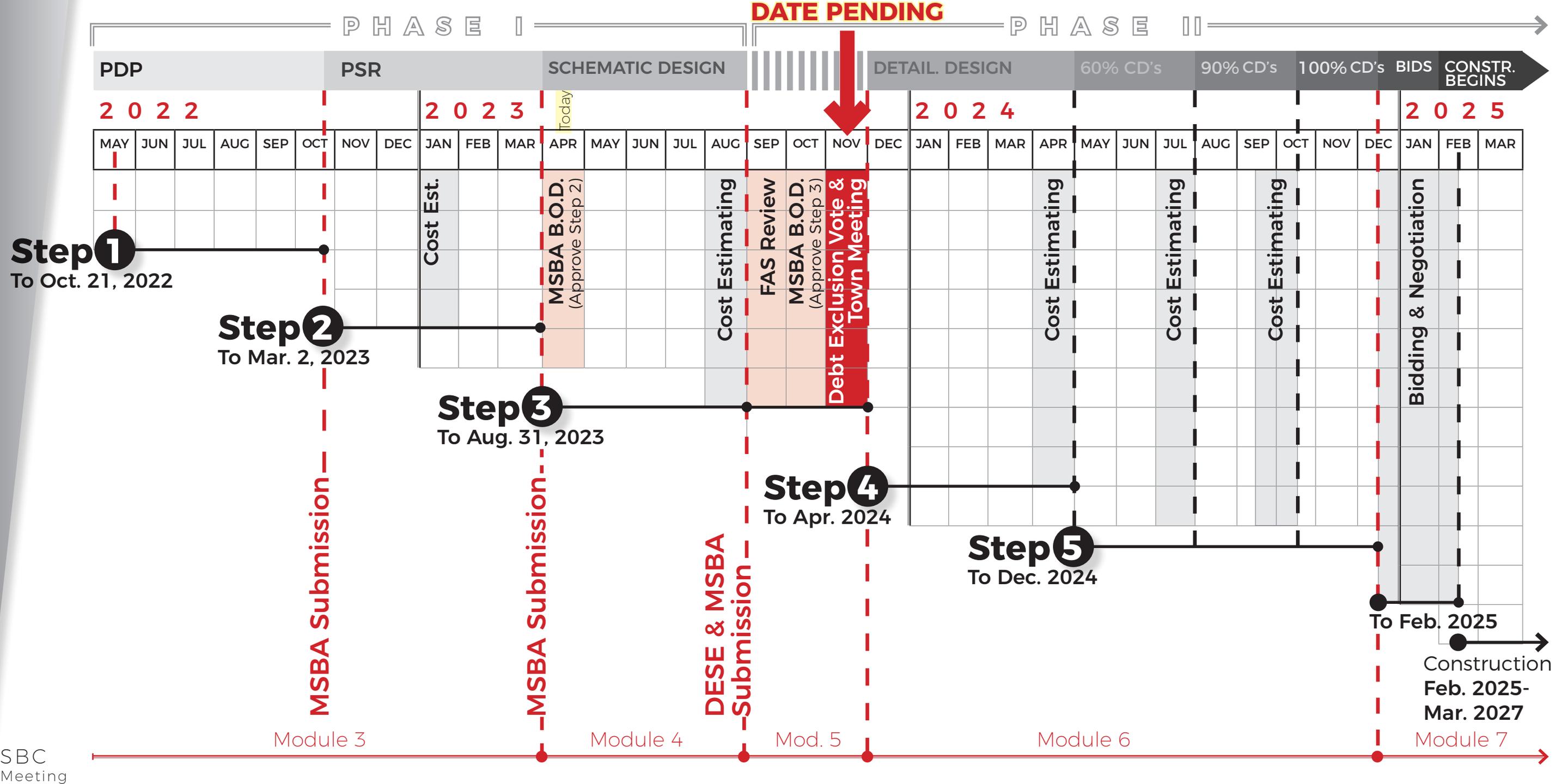
Roles



MSBA Building Process



WMS Project Schedule Overview



Previous Community Forums & Meetings

Available Online

For Recordings:

WHCA

**Whitman-Hanson
Community Access**

Website: whca.tv

YouTube: youtube.com/WHCA9TV

For Presentations:

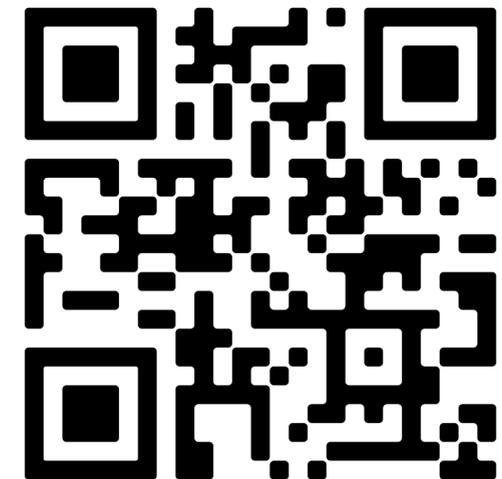
www.wmsproject.org



For News/Updates:

**escaneie para ficar informado
escaneo para quedar informada**

scan to stay informed



Recent Milestone: PSR Submission to MSBA

Thursday MAR. 2, 2023

Nearly 500 pages!



Whitman Middle School
Module 3: Preferred Schematic Report

March 2, 2023



Whitman-Hanson Regional School District
Jeffrey Szymaniak
610 Franklin Street
Whitman, MA 02382

Ai3 Architects, LLC

CONTENTS	
3.3.1 // INTRODUCTION	
1	Overview of Process
7	Project Directory
11	Updated Project Schedule
15	Summary of Final Evaluation of Existing Conditions
17	Summary of Final Evaluation of Alternatives
23	Summary of the District's Preferred Solution
25	MSBA Review & District Response to PDP Report
3.3.2 // EVALUATION OF EXISTING CONDITIONS	
45	Existing Conditions Evaluations & Floor Plans
51	Existing Site Analysis
54	Existing Electric Service
64	Existing Gas Service
72	Existing Communications Service
78	Existing Landscape Plan
82	Existing Site Aerial Survey
3.3.3 // FINAL EVALUATION OF ALTERNATIVES	
95	Overview
97	Option 3a: Addition/Renovation // Grades 6-8 (w/ Auditorium) 2-Story
98	Conceptual Site Plan
100	Conceptual Floor Plans
102	Conceptual Phasing
103	Site & Utilities Analysis
104	Structural Systems Narrative
106	Major Building Systems Narratives
119	Preliminary Cost Estimates
121	Option 7a: Addition/Renovation // Grades 5-8 (w/ Auditorium) 2-Story
122	Conceptual Site Plan
124	Conceptual Floor Plans
126	Conceptual Phasing
127	Site & Utilities Analysis
128	Structural Systems Narrative
130	Major Building Systems Narratives
143	Preliminary Cost Estimates
145	Option 4b: New Construction // Grades 6-8 (NO Auditorium) 3-Story
146	Conceptual Site Plan
148	Conceptual Floor Plans
150	Conceptual Phasing
151	Site & Utilities Analysis
152	Structural Systems Narrative
154	Major Building Systems Narratives
166	Preliminary Cost Estimates
167	Option 5b: New Construction // Grades 6-8 (w/ Auditorium) 3-Story
168	Conceptual Site Plan
170	Conceptual Floor Plans
172	Conceptual Phasing
173	Site & Utilities Analysis
174	Structural Systems Narrative
176	Major Building Systems Narrative
188	Preliminary Cost Estimates
189	Option 8b: New Construction // Grades 5-8 (NO Auditorium) 3-Story
190	Conceptual Site Plan
192	Conceptual Floor Plans
194	Conceptual Phasing
195	Site & Utilities Analysis
196	Structural Systems Narrative
198	Major Building Systems Narrative
210	Preliminary Cost Estimates
211	Option 9b: New Construction // Grades 5-8 (w/ Auditorium) 3-Story
212	Conceptual Site Plan
214	Conceptual Floor Plans
216	Conceptual Phasing
217	Site & Utilities Analysis
218	Structural Systems Narrative
220	Major Building Systems Narrative
232	Preliminary Cost Estimates
233	Permitting Requirements - All Options
235	Construction Cost Estimates - All Options
301	Summary of Preliminary Design Pricing
3.3.4 // PREFERRED SOLUTION	
303	Updated Educational Program
363	Grade Configuration
369	Architectural Response to Educational Program
369	Option 9b: New Construction // Grades 5-8 (w/ Auditorium) 3-Story
372	Conceptual Diagrams
374	Conceptual Floor Plans
376	Conceptual Site Plan
379	Conceptual Site Sections
380	Site Plan Diagrams
382	Space Summary
388	Sustainability Documents
391	Budget - Construction & Total Project Cost
393	Budget Statement
394	Project Schedule for Preferred Solution
3.3.5 // LOCAL ACTIONS & APPROVAL CERTIFICATION	
397	Local Actions and Approvals Letter
399	School Building Committee Agendas & Minutes
401	School Committee Agendas & Minutes

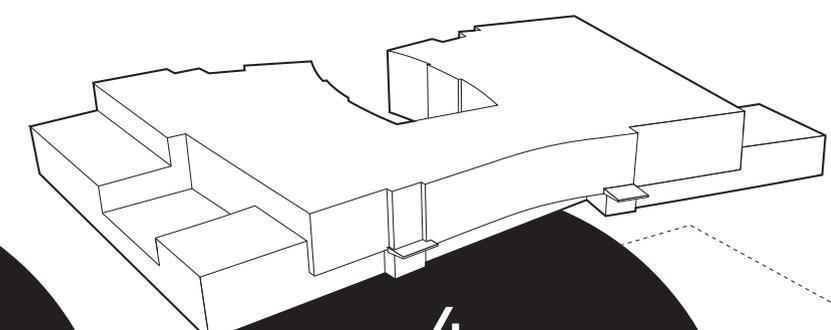
End of Report

Summary of Preferred Option



Preferred Option 9b

New Construction // Grades 5-8 w/ Auditorium



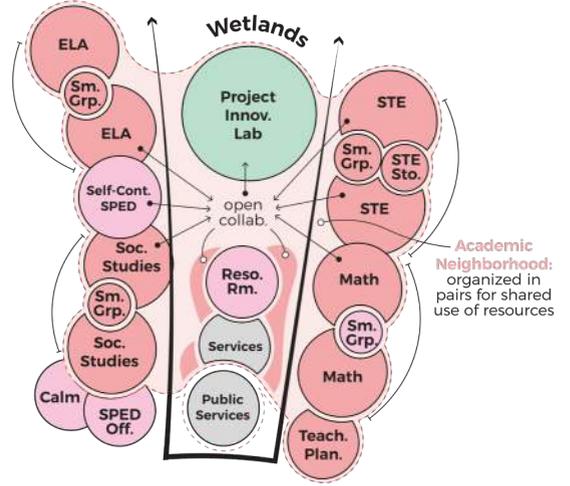
PREFERRED OPTION VS. BASE REPAIR/CODE UPGRADE ONLY

	Total Gross Square Feet	Square Feet of Renovated Space (cost*/sf)	Square Feet of New Const. (cost*/sf)	Site, Building, Takedown, Haz. Mat. Cost*	Estimated Total Const.** (cost*/sf)	Estimated Total Project Costs	Approx. Town Share
Option 1 Base Repair/ Code Upgrade	105,004 sf <i>existing building</i>	105,004 sf (\$86.81/sf)	N/A	\$36.3 mil	\$45.4 mil (\$432.68/sf)	\$56.8 mil	\$50.0-\$56.0 mil
***Option 9b (5-8) New Con. (w/ Auditorium) 3-Story	139,459 sf	N/A	139,459 sf (\$656.92/sf)	\$11.8 mil	\$103.4 mil (\$741.76/sf)	\$129.3 mil	\$66.8-72.8 mil

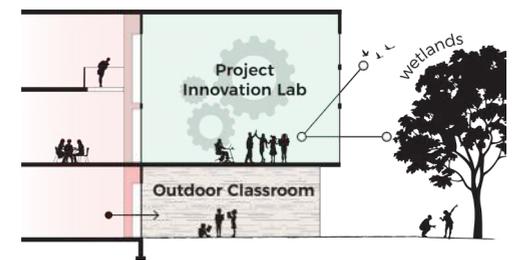
*Marked Up Construction Costs // ** Does not include construction contingency // ***District's Preferred Solution
Estimated Total Project Costs include 25% for soft costs; does not include add-alternates.

How the Preferred Schematic Option aligns with the Educational Program:

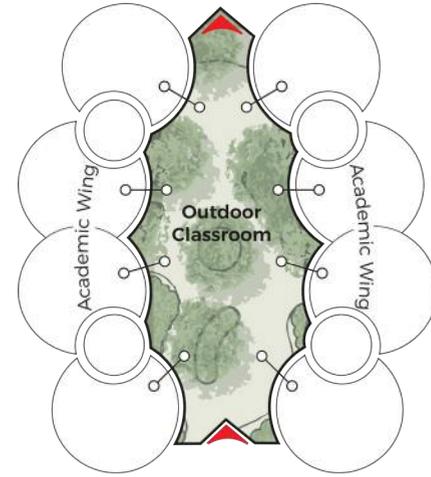
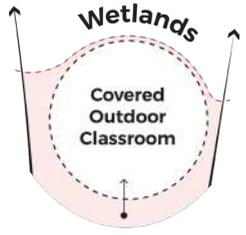
- // Conceptual floor plan organization accounts for **flexibility & adaptability**
- // Creates environments to support **collaboration**
- // Organizes grade-levels into **academic neighborhoods**



- // Offers separation of grade-levels without isolation
- // **Integrates special education** into the general learning areas
- // Classrooms within the academic neighborhoods are paired
- // Supports interdisciplinary instruction with hands-on, **project-based learning**
- // Small group rooms between classroom pairs in academic neighborhoods



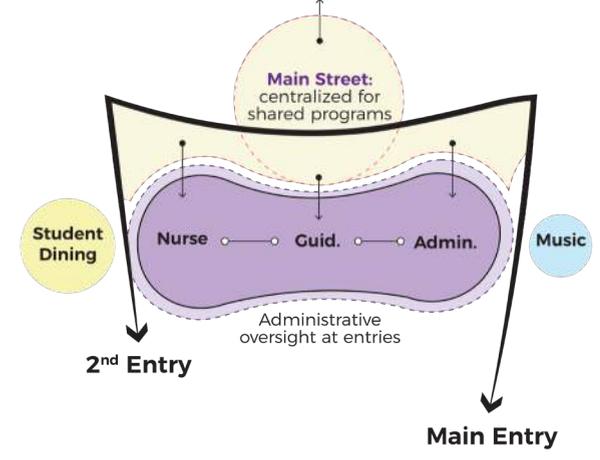
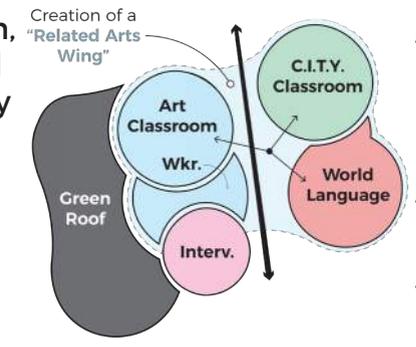
- // **Open collaboration** spaces are central to each academic neighborhood
- // Science classrooms are nearest to the **wetlands** for direct correlation
- // Includes a **teacher planning/collaboration** space per grade-level
- // Makes use of corridor spaces within neighborhoods so that they aren't narrow, solid and disconnected



- // Conceptual floor and site plans create **strong connections to the outdoors** and biophilic design
- // Art classroom could have outdoor access by use of a green roof

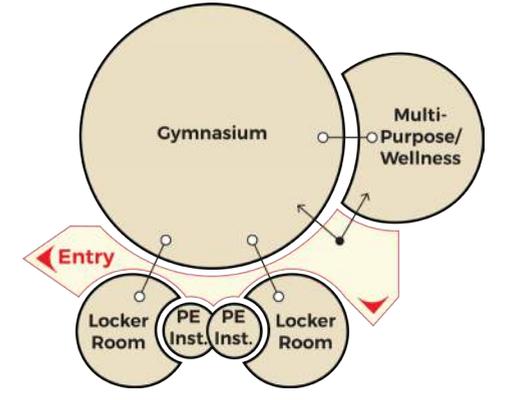
- // Building organization **promotes community use** by placing shared/public spaces at the front of the building for access and oversight
- // Strong **indoor/outdoor connections** through direct access, transparency, natural daylight, and views
- // **Related arts wing** created so students of different grade levels don't have to access another neighborhood regularly

- // Administration, guidance, and nurse centrally located to provide **campus oversight**
- // Concept of **"Main Street"** and a linear layout for clear circulation
- // Centrally located **student commons** with direct access to student services, like guidance

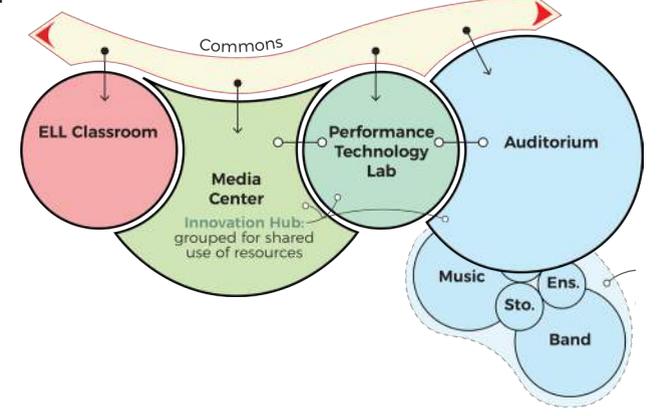


- // Library/Media Center represents center of the school and agencies create an **"innovation hub"**
- // Includes an **auditorium** to support performance and drama programs
- // There is an overlapping of academic spaces such as **views** from dining into project innovation lab to put project-based **learning on display**

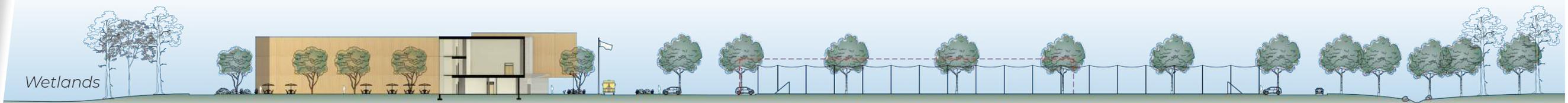
- // Building organization promotes community use with clear separation between shared spaces and academics
- // Overall **compact footprint** for conservation of site green space
- // **Access to outdoors** from gym, multipurpose room, and commons



- // Plan includes a health classroom with close proximity to the gym
- // Site plan replicates existing number of **recreational fields**
- // Music and band at building front for **after-hours use** with access to outdoors



**Whitman MS
Preferred
Schematic**



- Add-Alternate Scope
- Outline of Existing
- Emergency Access
- Parent Drop-off
- Bus Drop-off
- Main Entry



Existing Parking Spaces = 159
Proposed Parking Spaces = 180

Vehicular barrier gate

Field parking

(1) Multi-use field:
 • sod turf, 6" sandy loam soil mix, sand gravel; base to meet grades
 • 2" sand silt drains with perforated piping drainage system
 • irrigation included

20' safety netting w/ split rail fencing

Wetlands

Green Space

Outdoor classroom w/ boulder seating, stone dust paving, & cedar shade structure

Daylight stream

Re-do (1) Town field as add-alternate

(3) Multi-use fields:
 • sod turf, 6" sandy loam soil mix, sand gravel; base to meet grades
 • 2" sand silt drains with perforated piping drainage system
 • irrigation included

Existing path

Broom finished concrete

Outdoor classroom w/ seating & native planting

Covered outdoor classroom

Setback line
Property line

Rain garden

Wetlands

Basketball & hardscape play

(1) field included in base bid (space will be needed during construction)

Dumpster w/ enclosure

Outdoor dining w/ fixed tables & chairs

Re-located concessions stand

Re-do (3) Town fields as add-alternate

Preferred Option 9b

New Construction // Grades 5-8 w/ Auditorium



Blakely Elementary School
Bainbridge Island, WA

Preferred Option 9b

New Construction // Grades 5-8 w/ Auditorium

Floor Plan 2



Examples of built-in open collaboration areas within academic neighborhoods



Example of occupiable roof portion



Preferred Option 9b

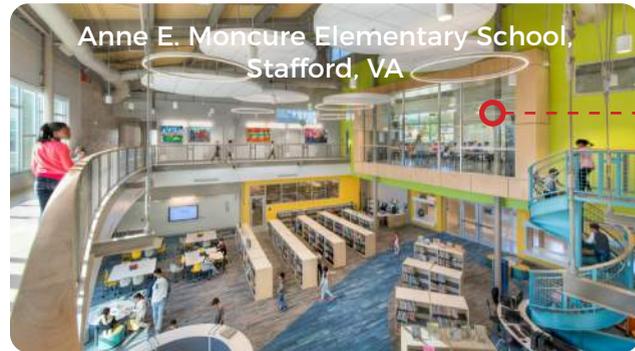
New Construction // Grades 5-8 w/ Auditorium



Preferred Option 9b

New Construction // Grades 5-8 w/ Auditorium

Floor Plan 3



Examples of visual connections, like into the media center or centralized resource rooms



Presence and shared use of dining plaza at building corner



Preferred Option 9b

New Construction // Grades 5-8 w/ Auditorium



Preferred Option 9b

The Preferred Option promotes sustainability by...

On-Site
Renew.
Energy*



Protect
Existing
Wetlands



Stormwater
Control/
Bioretention



Green
Roof
Area



Solar
Roof
Area*



Energy
Efficient
Orientation



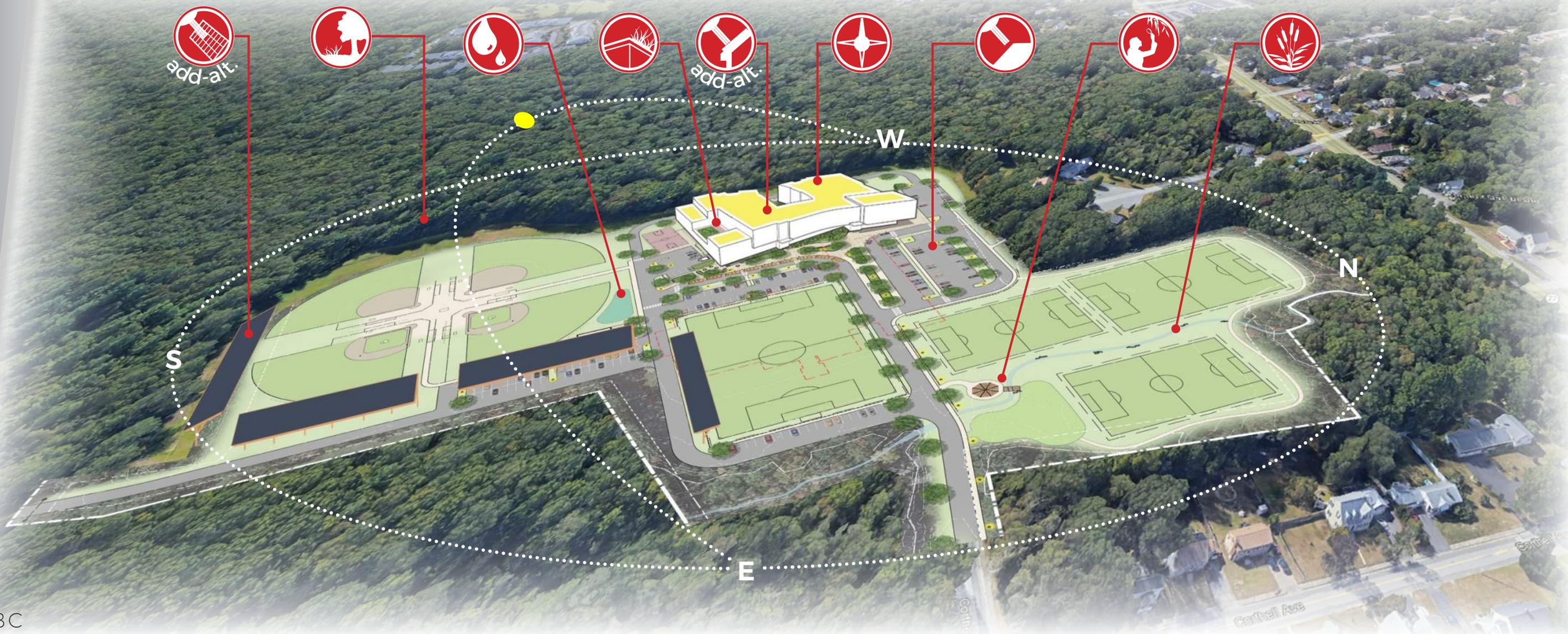
Reduced
Heat
Island



Outdoor
Learning
Areas



Restore
Natural
Features



*Renewable energy (solar) systems were carried as add-alternates in the January 2023 cost estimates.

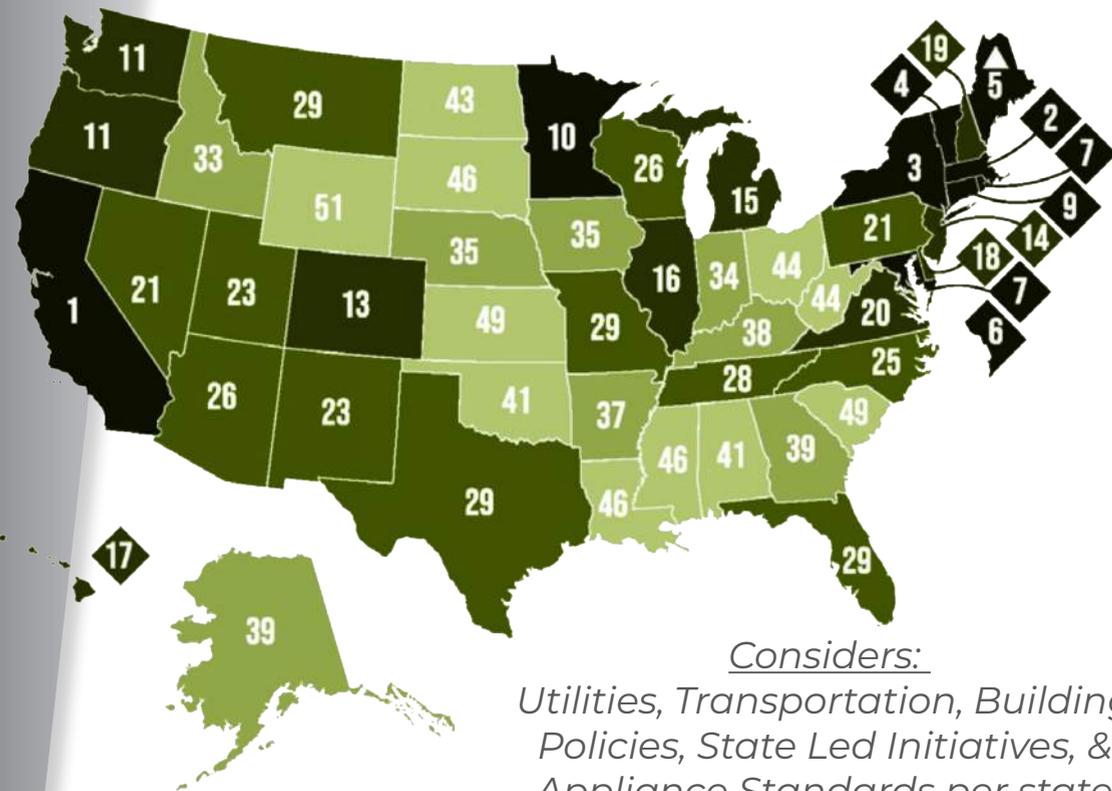
Intro. to NZE & Sustainable Design



Whitman: A Green Community

2022 US Scorecard for Energy Efficiency

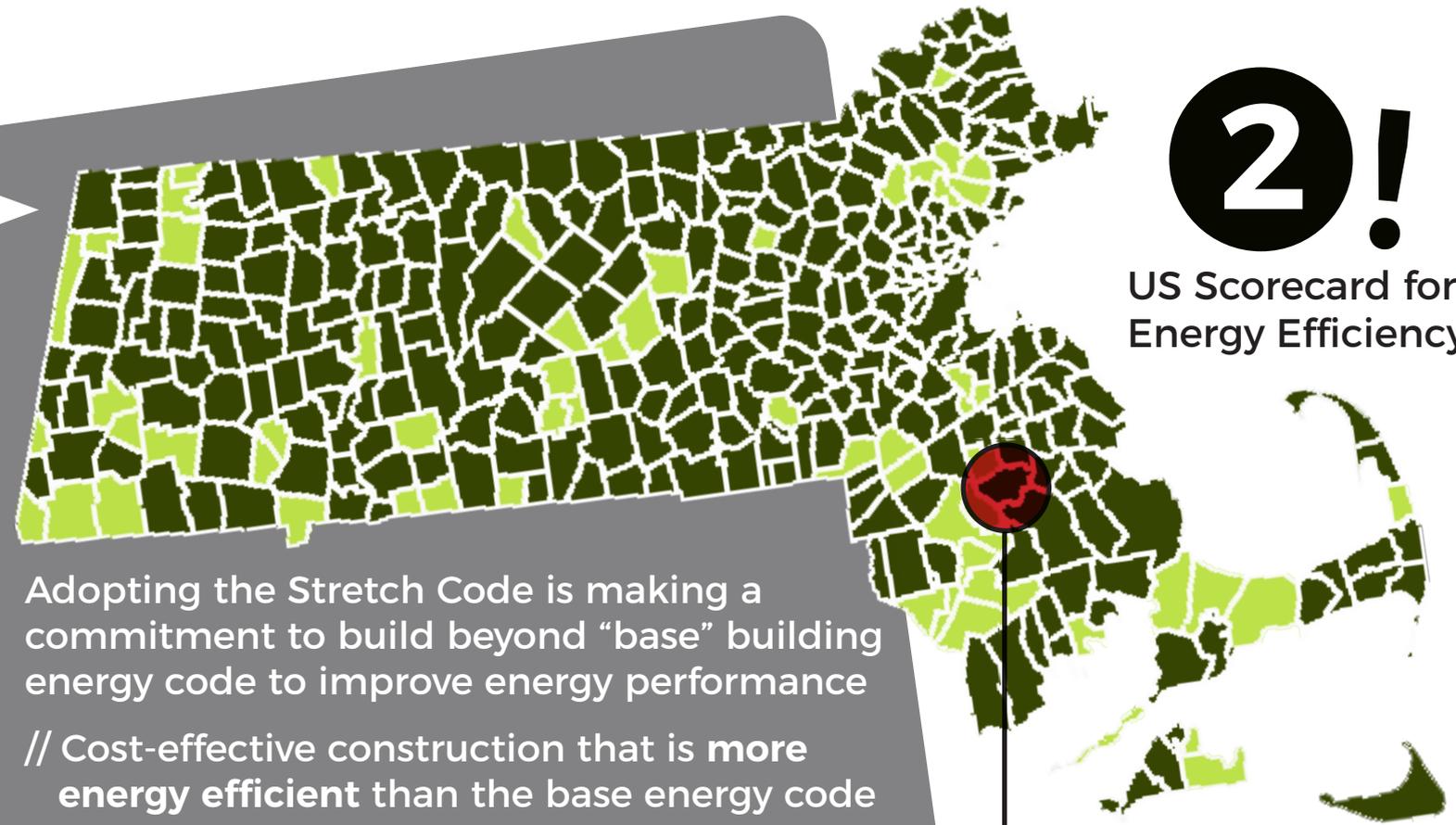
American Council for an Energy-Efficient Economy (ACEEE)



*Considers:
Utilities, Transportation, Building
Policies, State Led Initiatives, &
Appliance Standards per state*

- Ranks 1-10
- Ranks 11-20
- Ranks 21-30
- Ranks 31-40
- Ranks 41-50
- ☆ Rising States

MA Stretch Energy Code Adoption by Community



Adopting the Stretch Code is making a commitment to build beyond “base” building energy code to improve energy performance

// Cost-effective construction that is **more energy efficient** than the base energy code

// May choose to adopt the stretch code in lieu of the base building energy code

- Adopted the MA Stretch Code (79%)
- Unadopted the MA Stretch Code (21%)

Whitman adopted the Stretch Code in **2016** and is a designated **Green Community** by the Dept. of Energy Resources (DOER)

Energy Goals & How to Achieve Them

Nearly 40% of all CO2 pollution comes from power plants burning fossil fuels

STRETCH CODE UPDATES:

In July 2023, the new Stretch Code updates will automatically go into effect for all communities that have previously adopted the Stretch Code.

- // Primarily includes new limits on the energy used for building heating and cooling systems
- // Exterior envelope requirements for continuous insulation & reduction/elimination of thermal bridging
- // Projects 5 stories or less must be solar ready (involves leaving at least 40% of roof area available for future PV and installation of electrical conduits)
- // To achieve Net-Zero Energy, renewable production must be on site (ownership vs. a PPA does not matter; just need to prove installation of the system)



Producing electricity on site is more attainable today than ever before, for both **technology** and **cost**. Schools with this capability are great **resources** for communities and the municipality at large.



Reducing demand is another way of practicing **sustainability**, or meeting the needs of the present without compromising the needs of the future. Maintain **ecological balance** by only using as much energy as required.

Additionally, the MA Board of Building Regulations & Standards (BBRS), is required to update its building code every three years to be consistent with the International Energy Conservation Code (IECC).



Fossil fuels are non-renewable resources; there is a finite amount that will **eventually deplete**. The burning of fossil fuels increases a building or site's carbon footprint, a source of **climate change**.

TEDI EUI NZE

THERMAL ENERGY DEMAND INTENSITY

A measure of envelope performance, air infiltration, & ventilation energy recovery

HEATING TEDI (kBtu/sf/year) vs. COOLING TEDI (kBtu/sf/year)

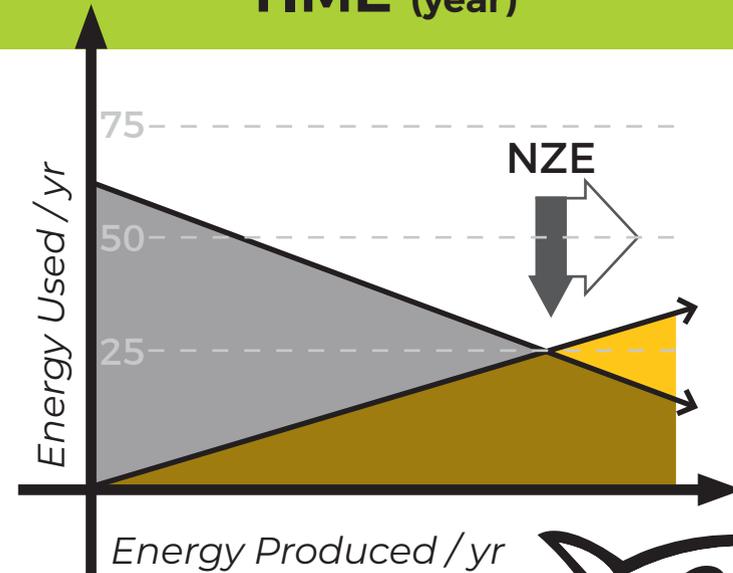
Size of School	Heating TEDI Limit	Cooling TEDI Limit
> 125,000 sf	2.2	12
75,000 sf - 125,000 sf	$2.7 - 4e^{-6} \times sf$	$2.7 - 1.6e^{-4} \times sf$
< 75,000 sf	2.4	20

Energy delivered to the building (heating) vs. Energy removed (cooling)

ENERGY USE INTENSITY

A measurement of a building's energy efficiency calculated as:

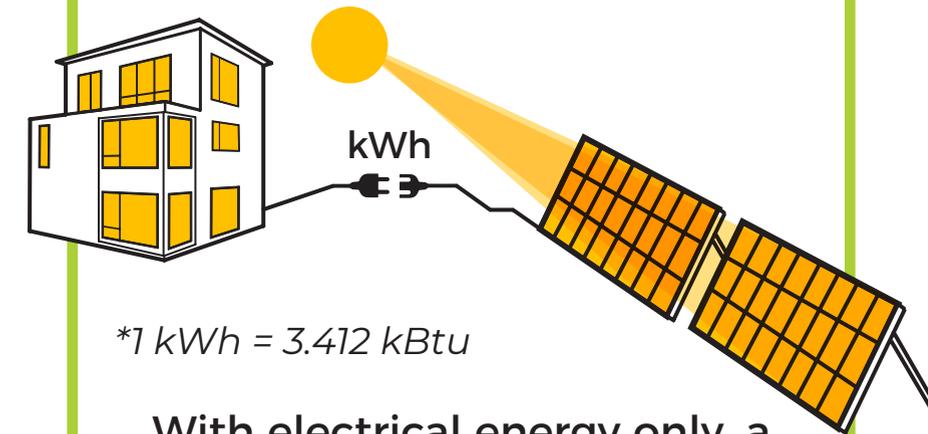
$$\frac{\text{ENERGY USED (kBtu)* / AREA (SF)}}{\text{TIME (year)}}$$



NET-ZERO ENERGY

When the total amount of **energy used** by the building annually is less than or equal to the amount of renewable **energy produced** on site

ENERGY USED ON SITE (kWh)*
less than \leq or equal to
ENERGY PRODUCED ON SITE (kWh)



With electrical energy only, a building can eliminate fossil fuel use entirely

New Stretch Code energy efficiency measurement tool

→ TEDI is "demand" while EUI is "consumption" →

25:
Typical target EUI to achieve NZE

How Everything Comes Together

RENEWABLE ENERGY SYSTEM:

// The building is **not directly served** by the renewable energy produced; this still goes to the grid before the grid distributes it back to the building for power

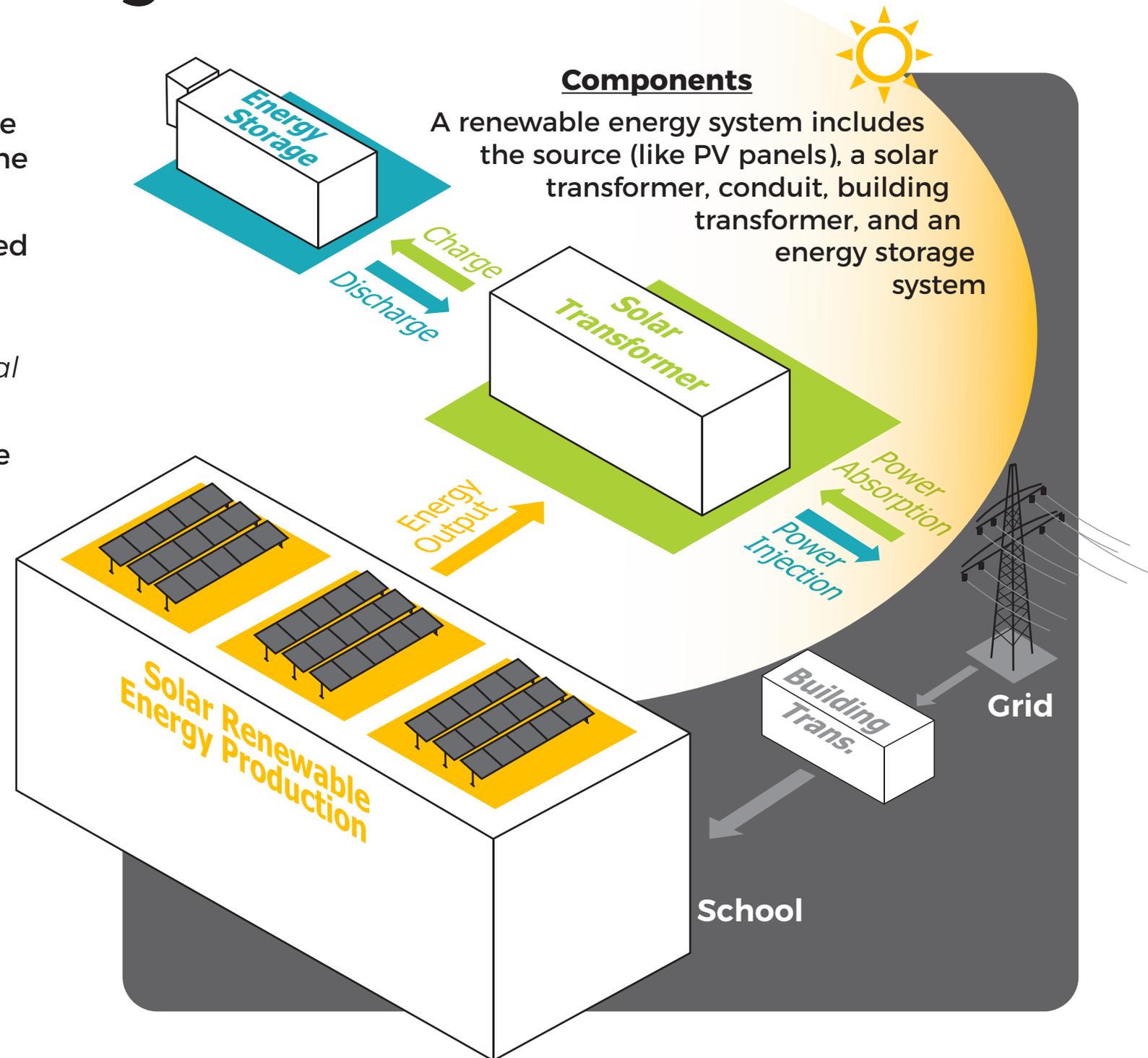
// Similarly, power from the ESS is not directly supplied to the building, it goes to the grid

The stored power contributes to Massachusetts overall, not just the municipality, but the financial return drives the incentive

// The ESS is **not a substitute** for the generator on site because stored electricity from the ESS cannot be directly sent to the building

// National Grid will determine if nearby electrical service is capable of taking the medium voltage that would be produced by a renewable energy system at Whitman Middle School

This will be determined by an Interconnection Study in later phases of the project



Upcoming Milestones

Dates & Content

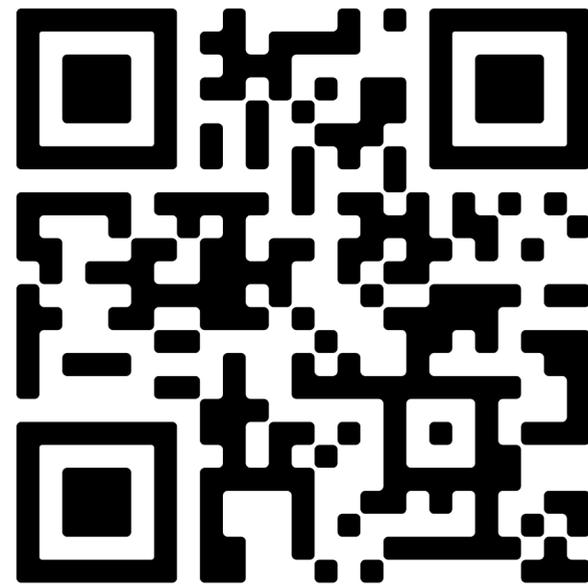
Building Committee

APR 25, 2023

**Whitman-Hanson Reg. HS
Media Center @ 4:30 pm**

[For all interested Community Members]

Visit
wmsproject.org
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Questions?

Thank you