# ARLINGTON HIGH SCHOOL BUILDING PROJECT

# *Project Overview*

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# Process

**2015** Statement of Interest (SOI)

**2016** MSBA Invites Arlington to Eligibility Period

**2016** AHS Building Committee formed

**2018** Schematic Design

# Why we need a new High School

Growing enrollment – school now nearly at capacity


School on accreditation warning due to poor facility

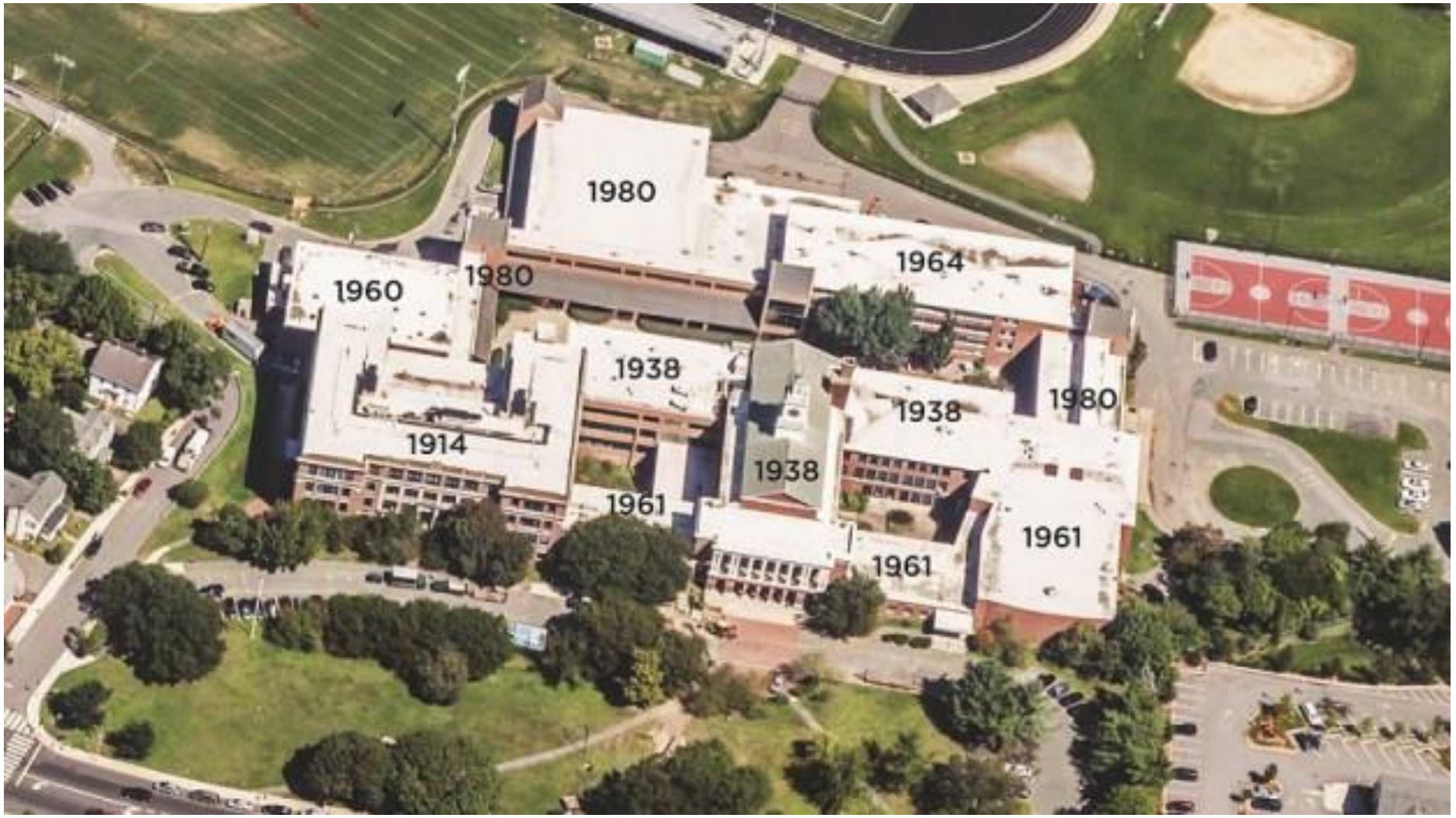

Deteriorating building in need of much repair

# The AHS Facility Today

More than just a High School

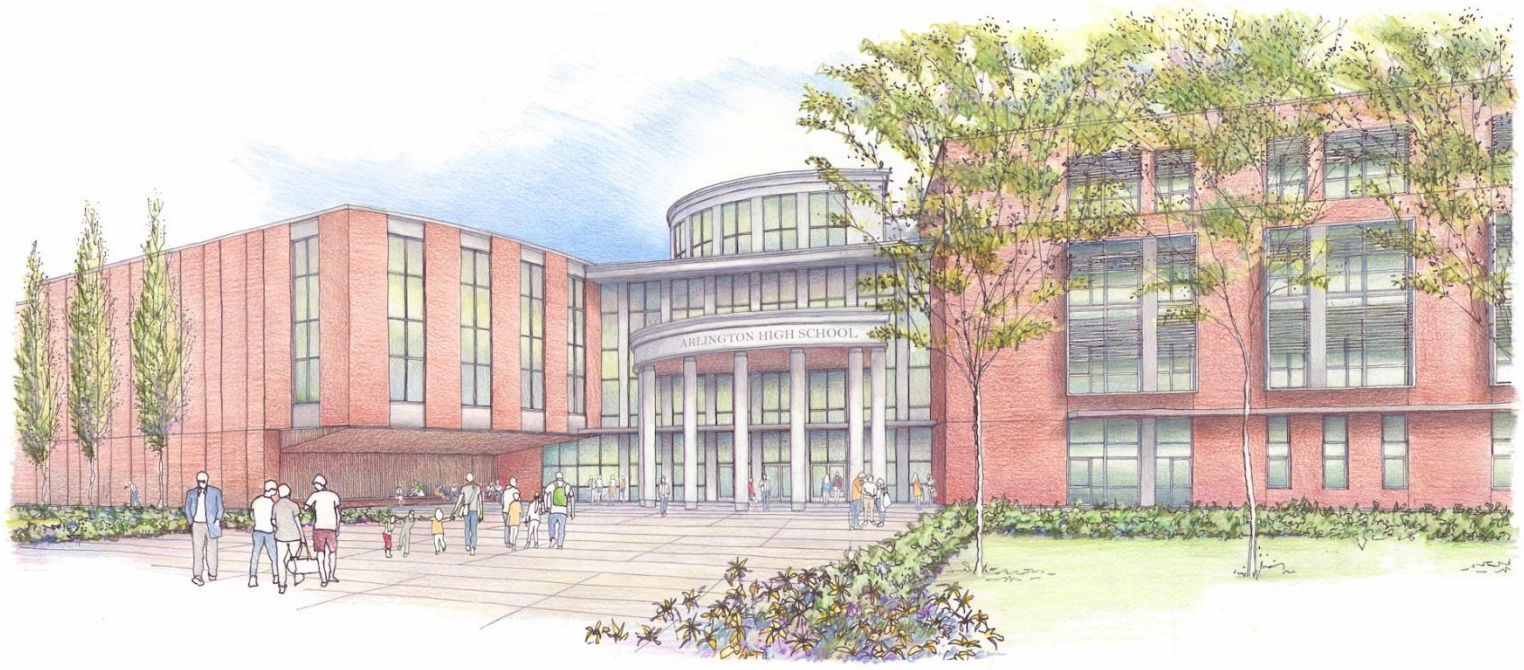
Only feasible site available

Last renovation done 38 years ago



# A New Facility

- More cost effective than renovation-addition options
- Minimizes disruption to school
- Faster construction
- First building open to students in 2022

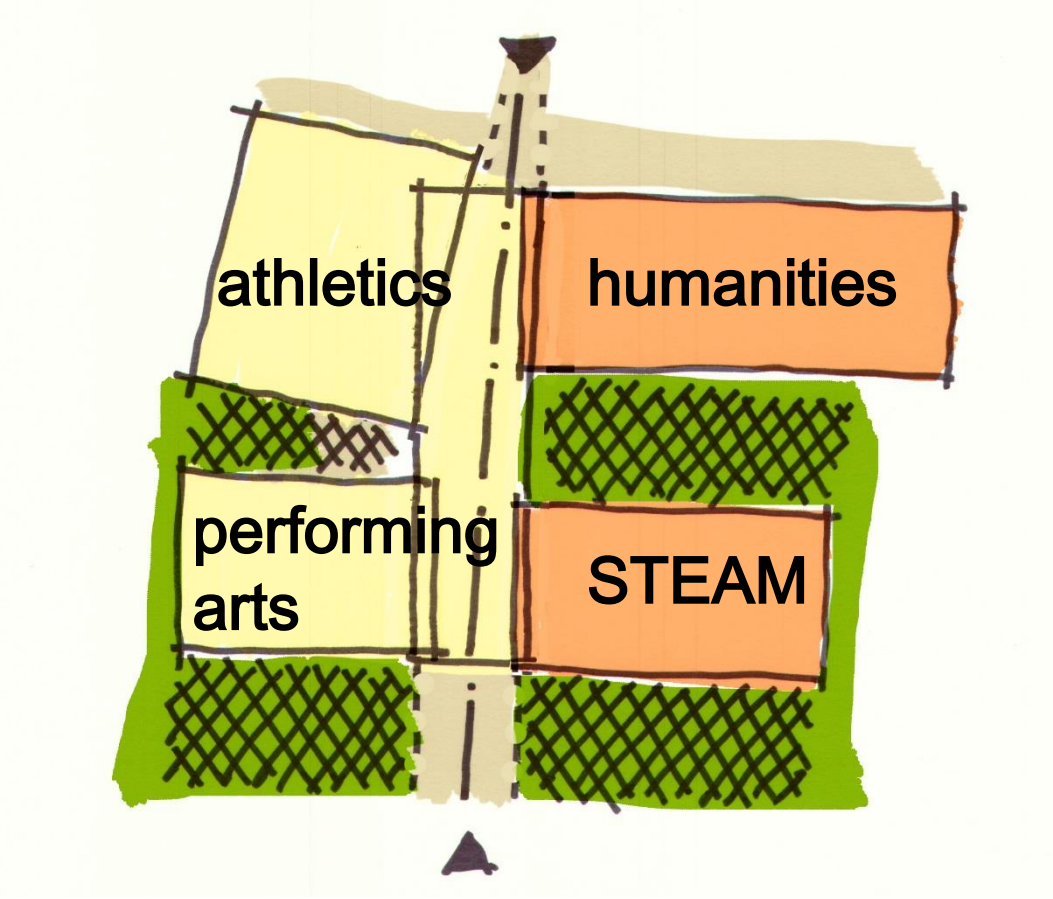


# Town Committees

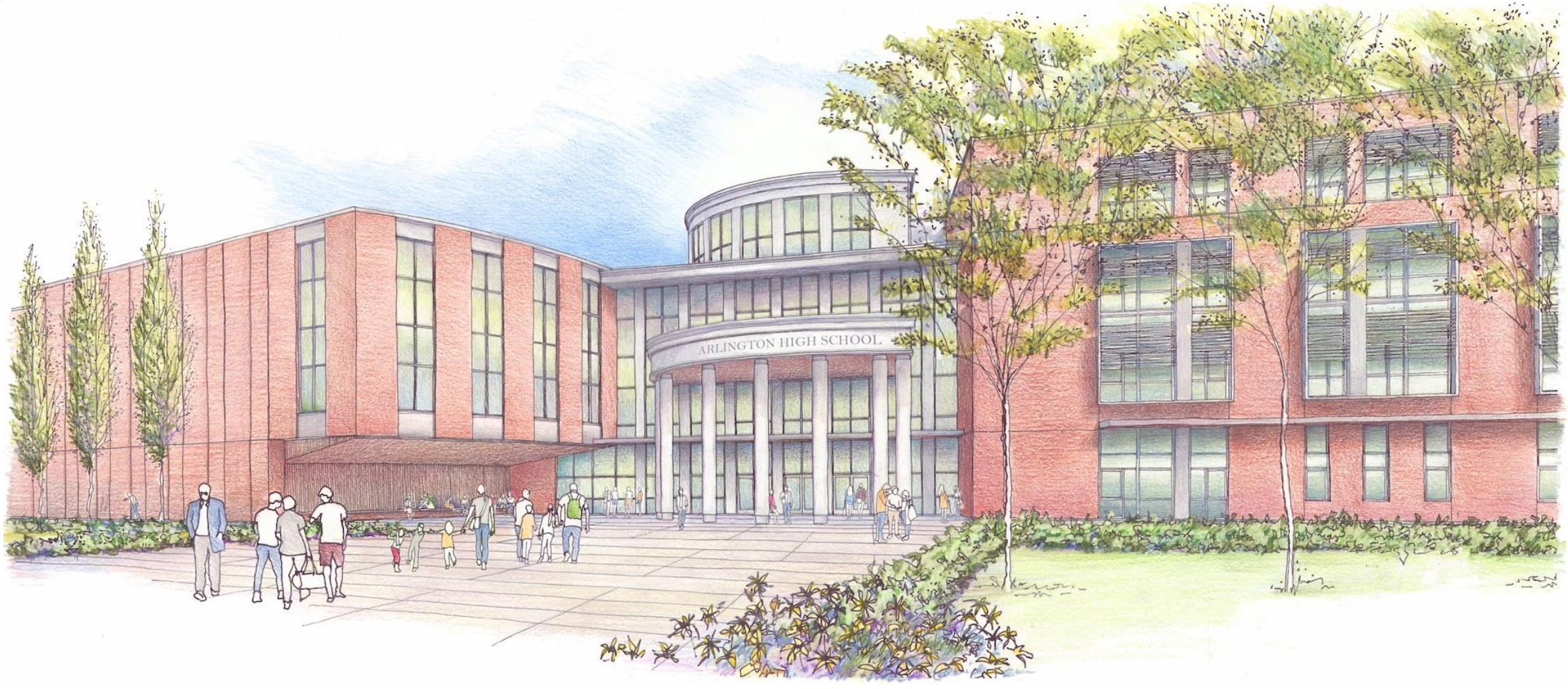
- Building Committee members are meeting with various Town Committees to share information and gather feedback
- To-date, the following Town Committees have voted unanimous support for the project:
  - Finance Committee
  - Capital Planning Committee
  - Permanent Town Building Committee

# Educational Vision

- 21st century learning
  - upgraded science labs
  - improved classroom layouts
  - new Discourse Lab
- Collaborative hands-on learning
  - enlarged makerspaces
  - central Library/Media Center
- Award-winning arts program
  - updated 900 seat Auditorium
  - larger art, band and chorus rooms
  - upgraded Black Box theater
- Health and well-being
  - larger gym with walking track
  - enhanced outdoor learning areas and courtyards
  - improved athletic fields



# The New AHS



# Building and Site Features

- Traditional exterior look and feel
- Central spine with four distinct wings
  - STEAM (Science, Technology, Engineering, Arts & Math), Humanities, Performing Arts, Gymnasium
- Increases active open space on campus
  - New outdoor amphitheater, eco garden courtyard, green roof, improved athletic fields, direct access to Minuteman Bikeway
  - Retains 2/3 of front green
- Sustainable design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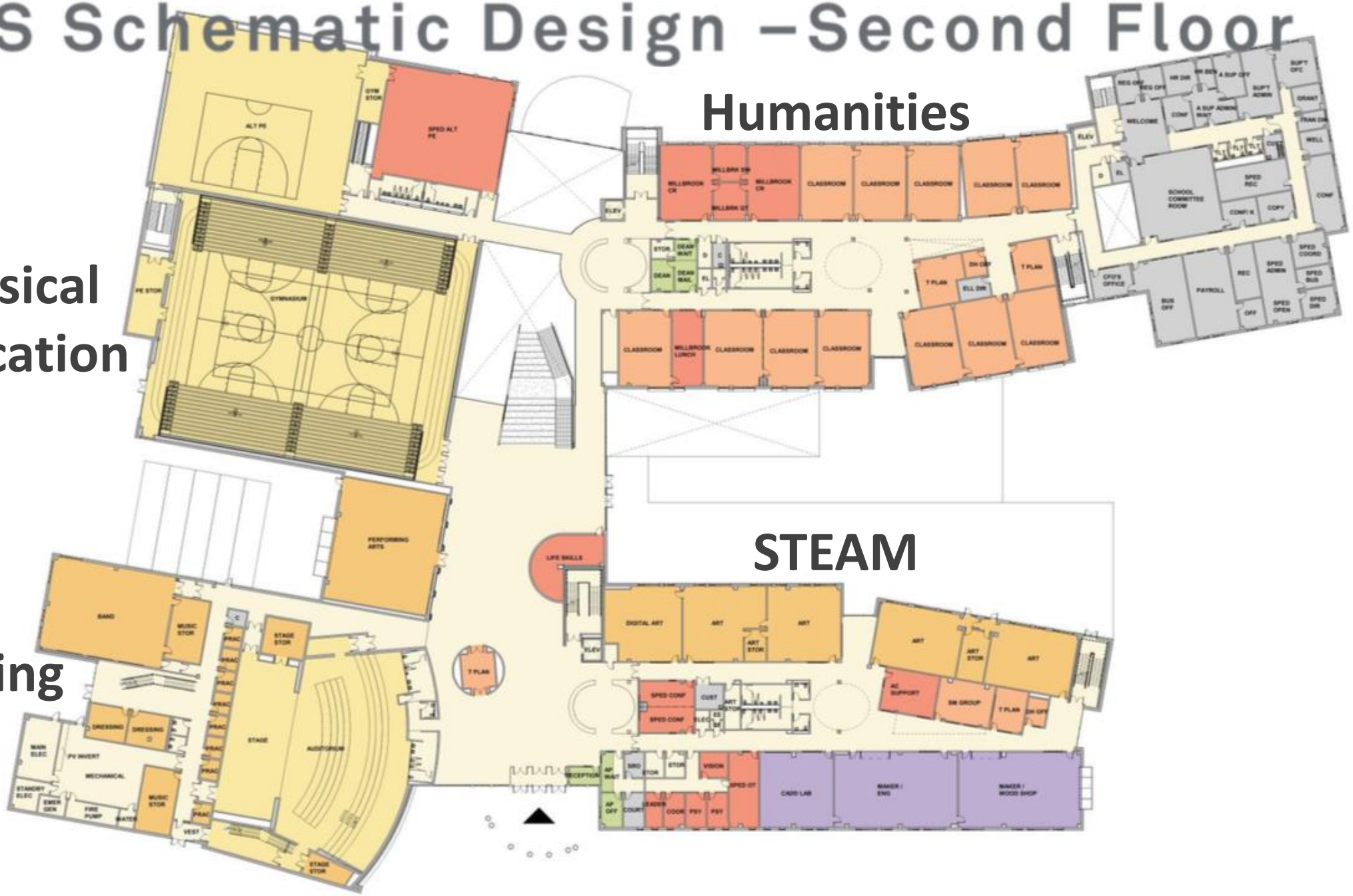
Arlington, MA

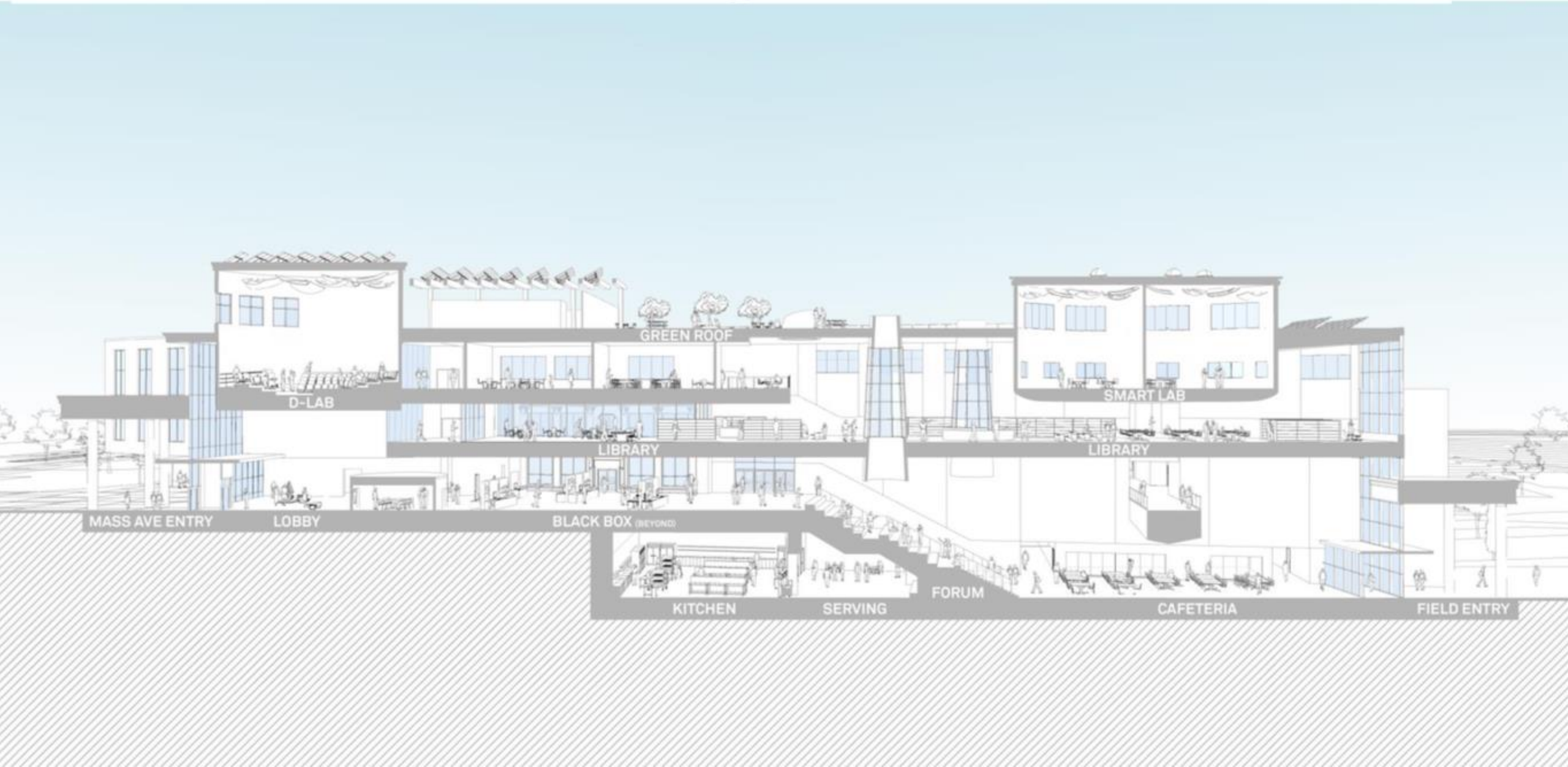
**SCHEMATIC DESIGN SITE PLAN**

HMFH ARCHITECTS

# AHS Schematic Design –Second Floor



# AHS Schematic Design Central Spine



# Sustainability Goals

- Make sustainability integral to building design
- Target net-zero energy operation
- Design for an all-electric building
- Use of geothermal and photovoltaic technology
- Part of Accelerate Performance Program
- A lifecycle analysis will be performed prior to making decisions

# Cost: The Big Picture

- High Schools are costly
  - They are large, and require specialized spaces
- The Boston area construction market is expensive
  - Currently experiencing a building boom
  - 4% annual construction cost escalation and no end in sight
- AHS' specific factors
  - Enrollment growth – 22% in past decade
  - AHS is not a 'typical' high school - ranked 9$^{th}$ in the state
  - Complex site – grade, phased project, contamination
  - Additional education-related spaces are included

# Cost Reductions Already Made

| Cost Cutting Measure | Amount | Effect |
|---|---|---|
| **Selection of Design Option 3A – New Building** (vs. renovating original buildings) | **$25M** | **Reduces overall project cost** (MSBA reimbursable, non-reimbursable components) |
| **Relocation of Comptroller, Facilities and IT offices** | **$5M - $8M** | **Reduces overall project cost** (non-reimbursable MSBA component) |
| **Reduction in scope of project** | **$7.6M** | **Reduces overall project cost** (MSBA reimbursable, non-reimbursable components) |
| **Proactive Building Maintenance Budget** | **1-2%** | **Potential MSBA reimbursement increase** |
| **LEED (Leadership in Energy & Environmental Design) Certification** | **2%** | **Potential MSBA reimbursement increase** |
| **Construction Manager at Risk approach** | **1%** | **Potential MSBA reimbursement increase** |
| **Accelerate Performance partnership** | **$200,000+ in energy rebates** | **Reduces lifecycle costs of building** |

# Budget

- $291.4M project total
  - Estimated Arlington share: ~$205M
  - Estimated MSBA share: up to $86.4M
  - The MSBA will determine their contribution to the project on April 10.
- Mass. School Building Authority (MSBA) partnership
  - Strict process ensures that districts are building educationally appropriate and fiscally responsible facilities.
- Project cannot exceed $291.4M
- Value Engineering will continue up until the end of the project

# High School Benchmark Analysis

| | Arlington HS* | Waltham HS (Vocational Included) | Belmont HS* (Upper Middle Included) | Saugus HS-MS (Upper Middle Included) | Somerville HS (Vocational Included) |
|---|---|---|---|---|---|
| Total Project Cost | $291.4M | $381M | $295M | $160M | $255M |
| Total Project Cost Escalated to AHS Schedule | $291.4M | $381M | $338M | $189M | $291M |
| Construction Cost Per Sq. Ft. | $571 | Unknown | $584 | $533 | $597 |
| Design Enrollment | 1,755 | 1,830 | 2,215 | 1,360 | 1,590 |
| Project Cost Per Pupil | $166,086 | $208,356 | $152,599 | $138,862 | $183,196 |

*Analysis escalated to AHS schedule. Schematic Design figures are only available for Arlington and Belmont at this time. Waltham, Saugus and Somerville data is from the PSR.

# Non-AHS Space Decisions

- Town Offices
  - Comptroller => Town Hall
  - IT, Facilities => New DPW facility
- Remaining educationally-related spaces
  - Menotomy Preschool
  - School District Administration
  - Community Ed.
  - School/Town Payroll
  - LABBB Special Education Collaborative

# Construction Timeline

July 2020 Construction Begins

January 2022

July 2023

Sept. 2024 Construction Complete

| 18 months | 18 months | 14 months | 8 months |
|---|---|---|---|

**Phase I:**
- Existing school remains intact
- CONSTRUCT: Performing Arts & STEAM (Science, Tech., Eng., Arts & Math) Wings
- **Students remain in current facility**

**Phase II:**
- COMPLETE and OCCUPIED: Performing Arts & STEAM wings
- CONSTRUCT: Lobby, cafeteria, library, rear wing (humanities, preschool, district admin)
- **Students in new Performing Arts & STEAM wings**

**Phase III:**
- COMPLETE and OCCUPIED: Humanities, preschool, district admin, cafeteria, library, lobby
- CONSTRUCT: Gymnasium
- **Students in new school (except gymnasium)**

**Phase IV:**
- Construction complete
- Site work remains

Total Project Estimate: 4 years, 10 months

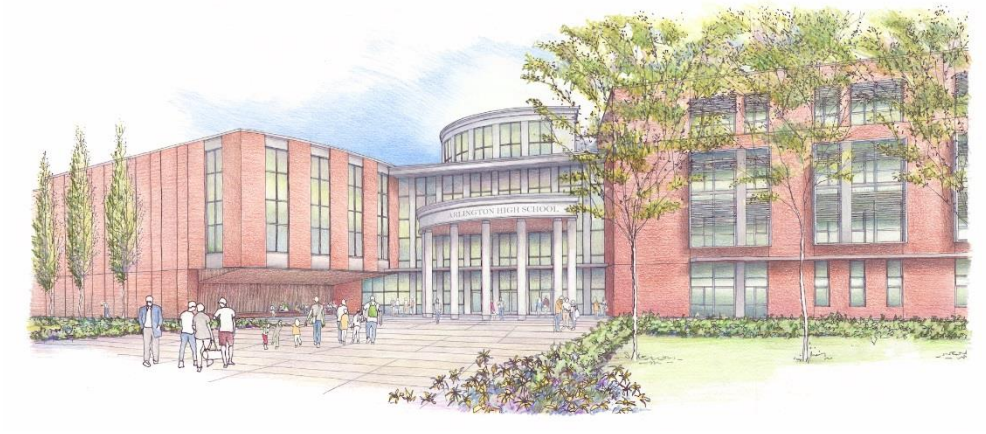
*Note: Estimate subject to change when Construction Manager is hired*

# Next Steps

| | | |
|---|---|---|
| **February** | Submitted scope & budget to MSBA | |
| **April** | MSBA approval | 120 days for local funding |
| **2019 -2020** | Design Development | |
| **2020 - 2025** | Construction | Jan. 2022<br>New Auditorium, STEAM |

# Thank you

- We have a chance to shape the future
- Meets 21st century Educational Vision
- Addresses enrollment growth
- Best project for Arlington



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# Cost Escalation

| Project | Completion Date | Construction Cost | Construction Cost Escalated to AHS Timeline | Total Escalated Cost with Soft Cost Factor (1.3) |
|---|---|---|---|---|
| Newton North HS | 2010 | $166M | $286M | $371M |
| Thompson School | 2013 | $15M | $23.2M | $30.1M |
| Gibbs School | 2018 | $19M | $22.9M | $29.8M |
| Minuteman Regional HS (~600 students) | 2020 | $121M | $144M | $186M |

Refer to http://www.arlington.k12.ma.us/administration/ahsfacilities/pdfs/cost/msbaprojbenchmarks01-14-19.pdf for more detail.

# Cost Factors

- Strong High School
  - Ranked 9th in the state, the school's educational program is strong and broad and the new building needs to maintain that program.
- Construction cost escalation
  - The construction market is competitive with 4% annual growth and no end in sight.
- Complex site
  - Building on a compact, complicated site with an operating school and contamination will be more costly.
- Non-AHS spaces
  - A few education-related offices and programs are included in the new school.
- Enrollment
  - Today's building strains to house the current enrollment of 1,400 students and cannot accommodate enrollment growth.

# Parmenter School

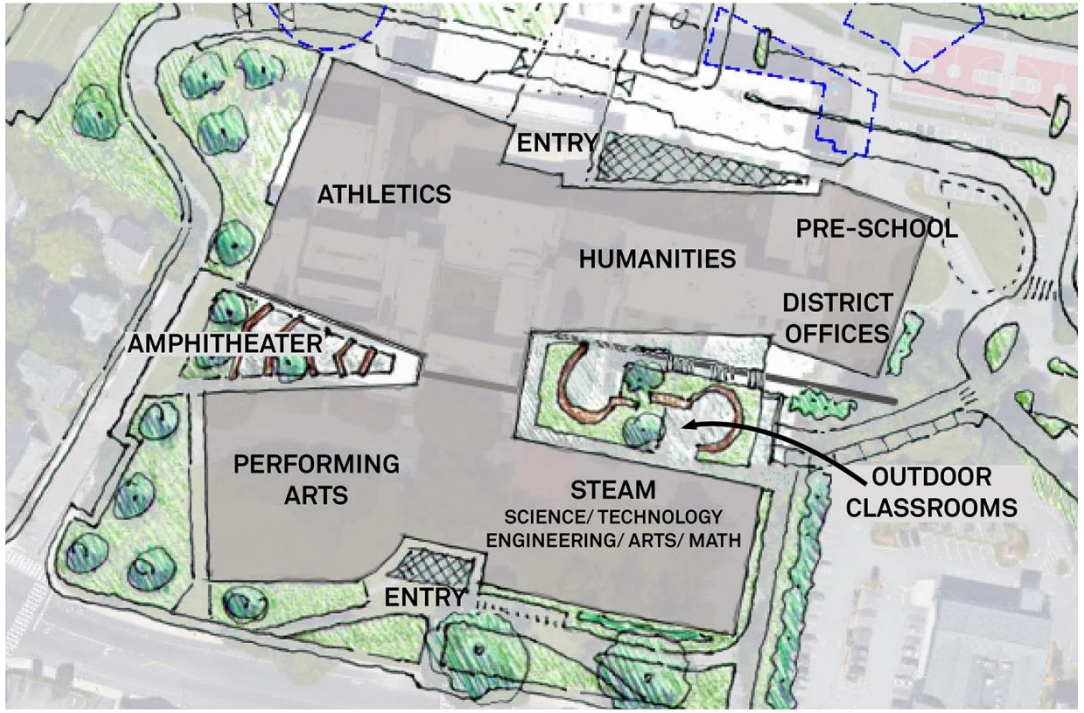
- Former elementary school – closed 1983
- Leased to Arlington Children's Center (ACC) for 30+ years
- HMFH studied feasibility of Parmenter as:
  - Temporary location for Preschool
  - Permanent location for Preschool
  - Permanent location for District Administration

# Parmenter School - Considerations

- Classrooms are smaller than MSBA guidelines unless use ACC space; acceptable for temporary location but not permanent
- Permanent relocation would require ACC moving elsewhere
- Requires upgrades
  - Elevator, new furnace, electrical upgrades
- ACC's lease runs until 2024
- Even if used ACC's portion of the building, it would not include enough classrooms for growing Menotomy Preschool program
- District Admin spaces at AHS provides 'future-proof' solution for enrollment growth

# Design Concept Decision

- Renovation-only option ruled out
  - Reno-only = no additions
  - Could not accommodate program or student growth
- Multiple concepts considered: renovation/addition and new
- New construction design concept chosen after careful consideration
- Many on committee originally favored renovation/addition



# Enrollment

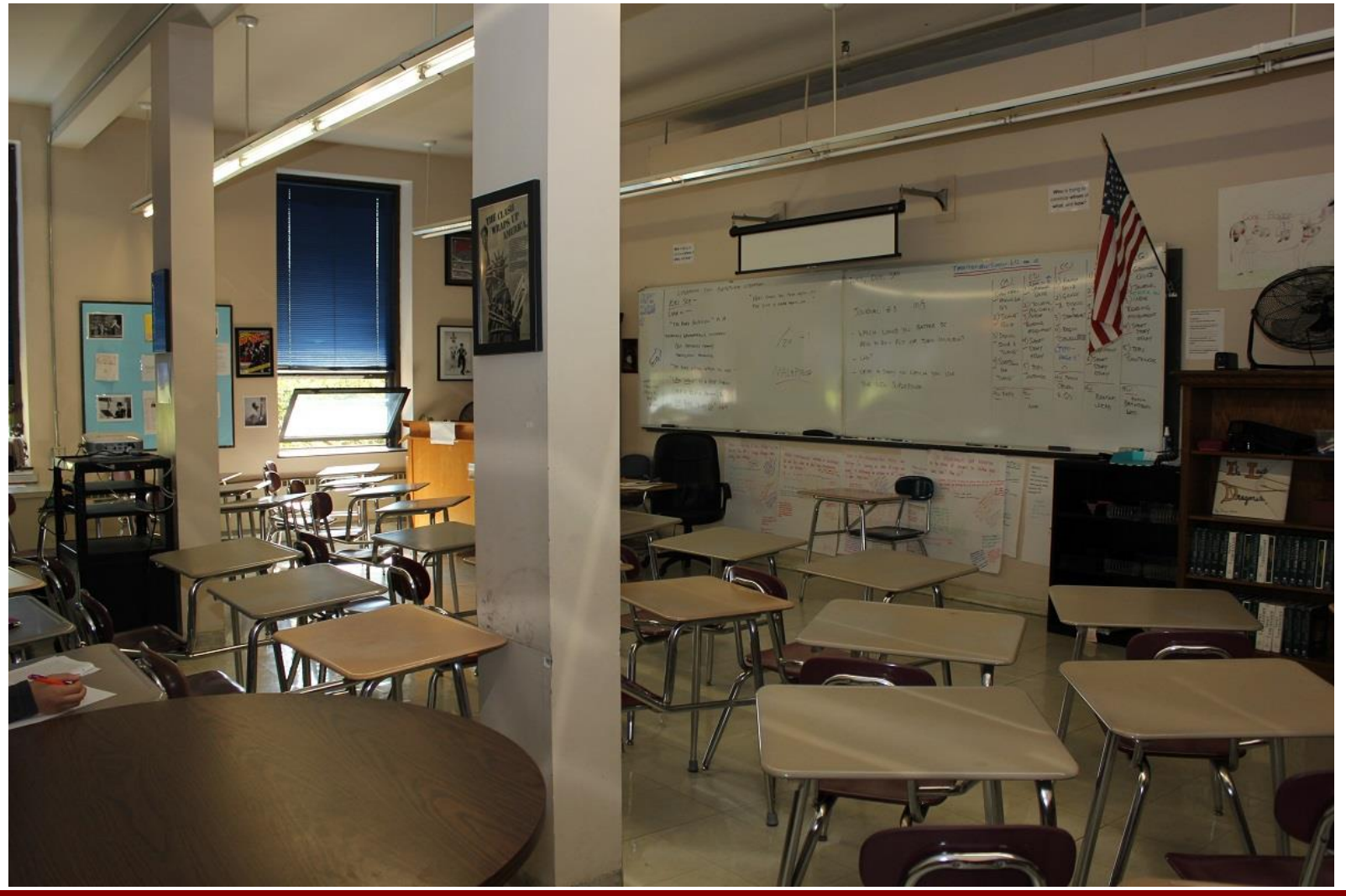
- 1,755 design enrollment
  - Dictates # of homerooms
- Goal is to ensure large enough common spaces to accommodate growth
  - Library, Gym, Auditorium, Cafeteria, etc.
- 4,300 => ~6,000 Arlington students in last 15 years

# Other Uses and Challenges

- Menotomy Preschool
  - Integrated preschool, ~100 students
- LABBB Collaborative
  - Partnership with Lexington, Belmont, Bedford and Burlington
- Arlington Community Education
- Town/School offices
  - IT, Facilities, Comptroller, Payroll
- Education-related operations
  - School District offices
- Compact site of only 22 acres

# AHS Today – Deteriorating & Aging Facility

# AHS Today – Educational Limitations



# AHS Today – Small, Dated Science Labs

# AHS Schematic Design Site Perspective

# Site Features

- Increases active open space
- New outdoor amphitheater, eco garden courtyard and green roof
- Improves athletic fields
- Direct access to the Minuteman bikeway, additional bike racks
- Improves sidewalks and pedestrian access
- Retains Mass. Ave. trees & 600’ of green frontage with 80’+ setback
- Sustainable design

# Site Features – Accessibility

- Elevators
  - From 1 to 3
- Auditorium
  - Accessible access and seating
- Parking
  - Additional accessible spaces

# Site Features - Transportation

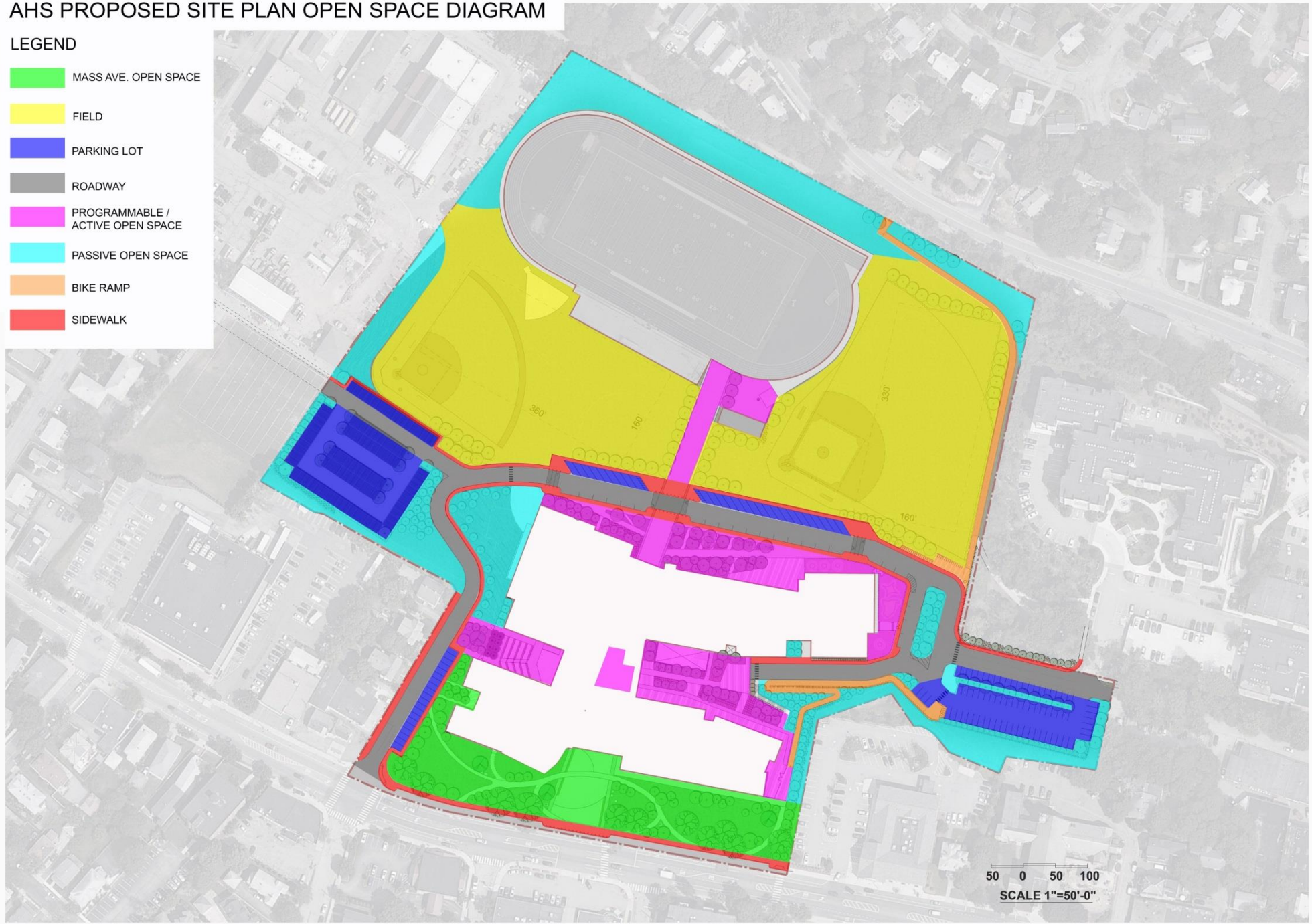
- Direct access to the Minuteman bikeway
  - Doubling the amount of bike racks (60 => 120)
- Improved sidewalks
  - Existing: 9,026 sf; New: 31,176 sf
- Improved pedestrian access
  - Vehicle traffic moved away from building
- Improved vehicle flow and drop-off around the building
  - Maintain right of way to Grove St.
- Parking lots to East and West of building
  - 227 spaces, some charging stations

# Site Features – Outdoor spaces

- Retain Mass. Ave. trees & 600’ of green frontage with 80’+ setback
- Increased active open space
- New outdoor amphitheater, eco garden courtyard and green roof
- Improved athletic fields
- Sustainable design

# AHS EXISTING SITE PLAN OPEN SPACE DIAGRAM

# AHS PROPOSED SITE PLAN OPEN SPACE DIAGRAM



# Open Space Comparison

**ARLINGTON HIGH SCHOOL OPEN SPACE COMPARISON**

| CATEGORY | EXISTING | PROPOSED | CHANGE | CHANGE IN % |
|---|---|---|---|---|
| **Building Footprint** | **128368** | **144020** | **15652 SF** | 12.2% |
| | 128368 | 144020 | | |
| **Mass Ave. Open Space** | **91282** | **63489** | **-27793 SF** | -30.4% |
| | 91282 | 63489 | | |
| **Ball Field and Recreational Field** (existing includes 28,597 SF of practice field on future DPW site) | **271297** | **249482** | **-21815 SF** | -8.0% |
| Baseball field and surrounding area | 107292 | 129376 | | |
| Softball field and surrounding area | 108739 | 120106 | | |
| Peirce Practice field | 55266 | | | |
| **Parking** | **61344** | **58324** | **-3020 SF** | -4.9% |
| | 61344 | 58324 | | |
| **Roadway** | **85268** | **63689** | **-21579 SF** | -25.3% |
| | 85268 | 63689 | | |
| **Programmable / Active Open Space** | **38136** | **75985** | **37849 SF** | 99.2% |
| Courtyard | 29301 | 19355 | | |
| Open space abutting building | 0 | 26303 | | |
| Pre-school play | 2662 | 7117 | | |
| Sports field related | 6173 | 11270 | | |
| Outdoor amphitheater | 0 | 9193 | | |
| Roof Deck | 0 | 2747 | | |

# Open Space Comparison

**ARLINGTON HIGH SCHOOL OPEN SPACE COMPARISON**

| CATEGORY | EXISTING | PROPOSED | CHANGE | CHANGE IN % |
|---|---|---|---|---|
| Programmable / Active Open Space | 38136 | 75985 | | |
| Passive Space | 167469 | 122327 | | |
| **Overall Roadway and Parking** | **146612** | **122013** | **-24599 SF** | -16.8% |
| Parking | 61344 | 58324 | | |
| Roadway | 85268 | 63689 | | |
| **Overall Pedestrian / Bicycle Space** | **9026** | **45550** | **36524 SF** | 404.7% |
| Sidewalk | 9026 | 31176 | | |
| Bike Ramp | 0 | 14374 | | |

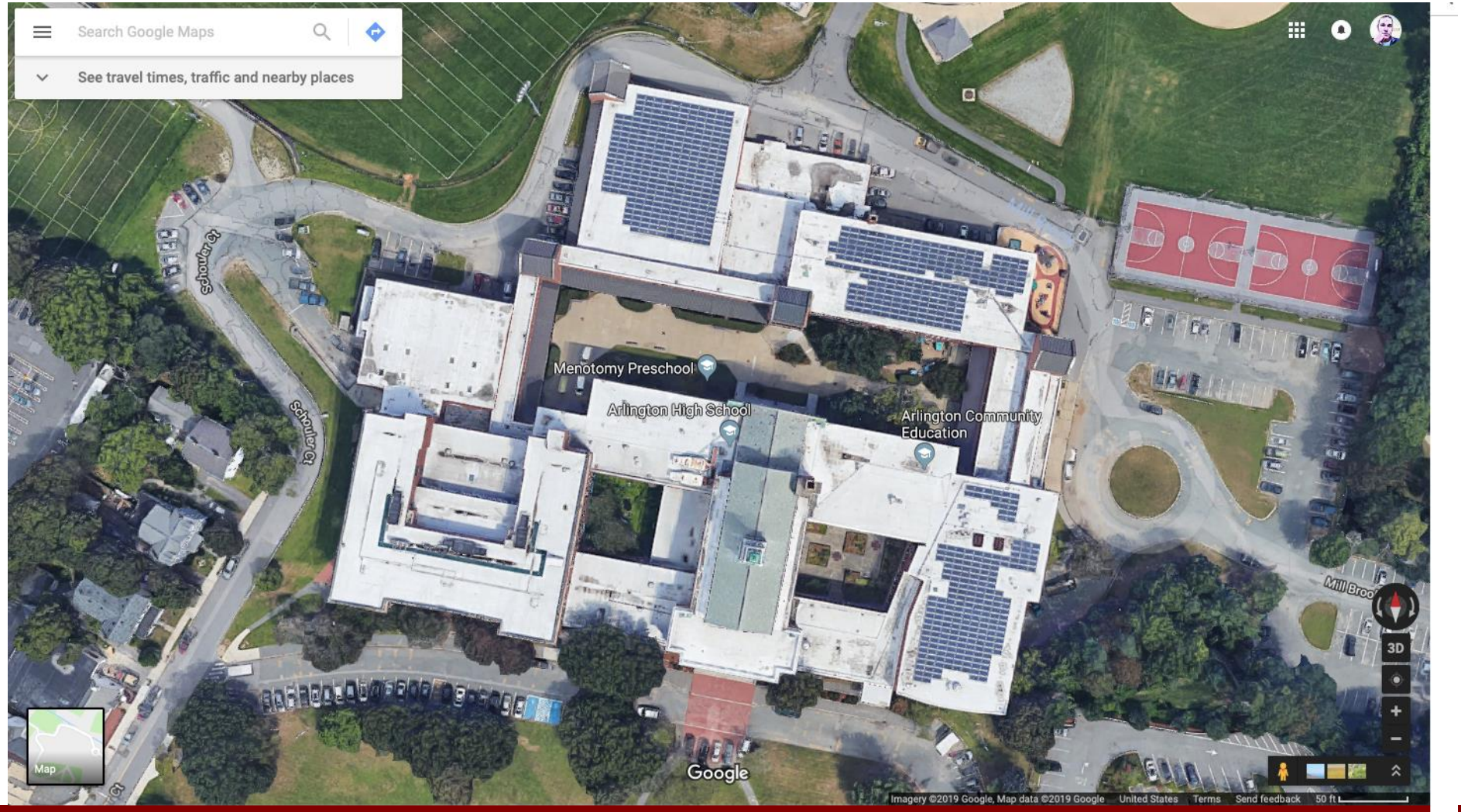
# Accelerate Performance Program Overview

- Pilot program with Eversource and National Grid
- Provides us with **FREE** technical support and additional financial incentives
- Adopt aggressive, but realistic, energy use targets early in the design process
  - Site energy use intensity (EUI) at least 25% lower than code compliant building
  - Targeting ~40% reduction
- Achieve desired energy performance at no or low incremental cost

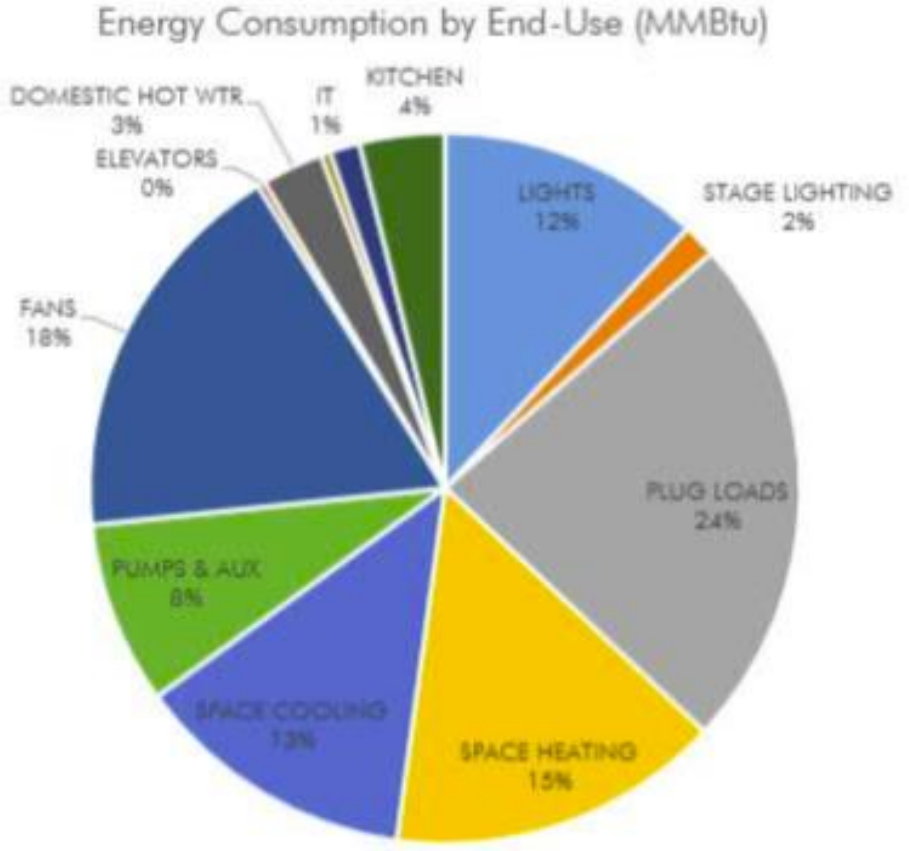
# Some Key Energy Features

- Passive design (very efficient building envelope)
- Reduce lighting and plug loads
- Ground source heat pumps for efficient heating and cooling
- Rooftop solar (~2x what is currently at AHS)
  - Ground-mounted where feasible (e.g., over parking)
- Good energy management & user engagement
- Also:
  - Minimize energy use “after-hours”
  - Design for ease of maintenance / low maintenance costs

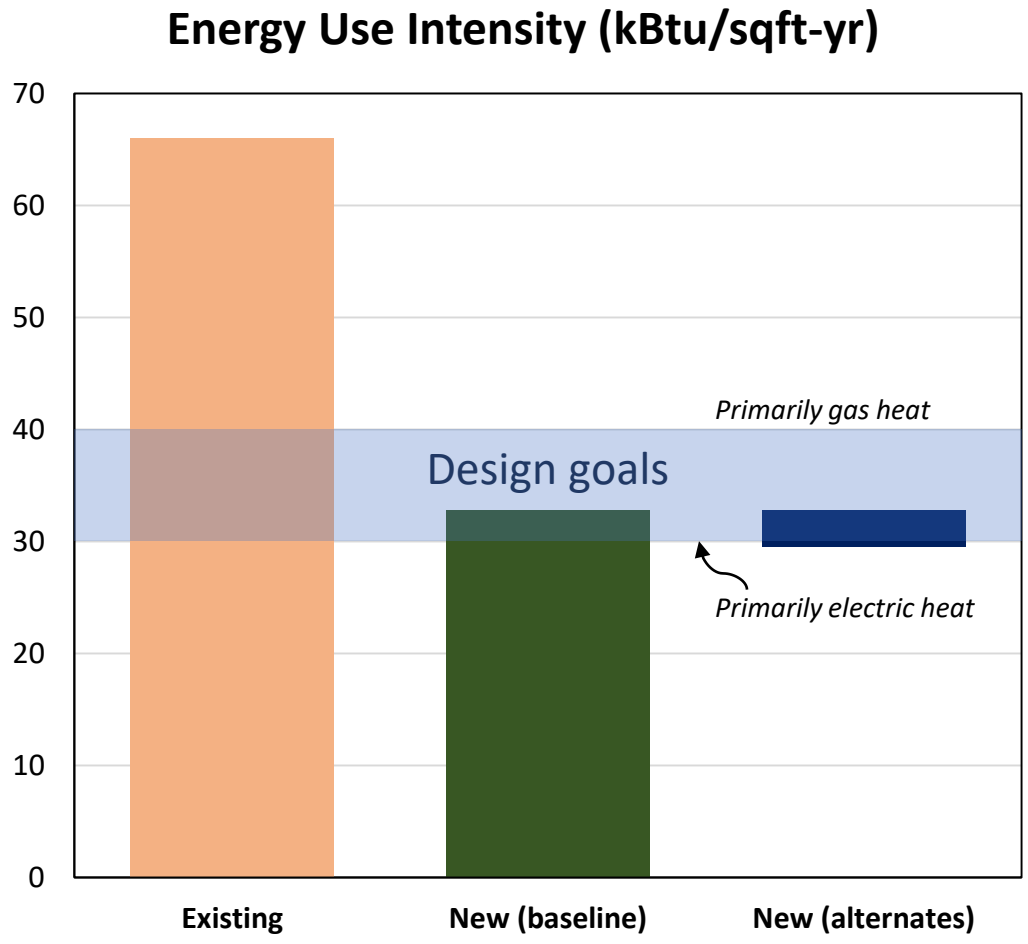
# Existing Rooftop Solar



# Preliminary Energy Modeling




Total “Baseline” energy use



# Some other sustainability features & goals

- Direct access to Minuteman Bikeway
  - Provide some covered bicycle parking
- Plan ahead for electric vehicle future
- >75% diversion of construction & demolition debris from landfills (goal of 95%)
- Salvage & donate old furniture
- 100% recovery of food waste from cafeteria
- Low-flow water fixtures
- No-irrigation landscaping

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