

Draft

Municipal Sustainable Building Guidelines



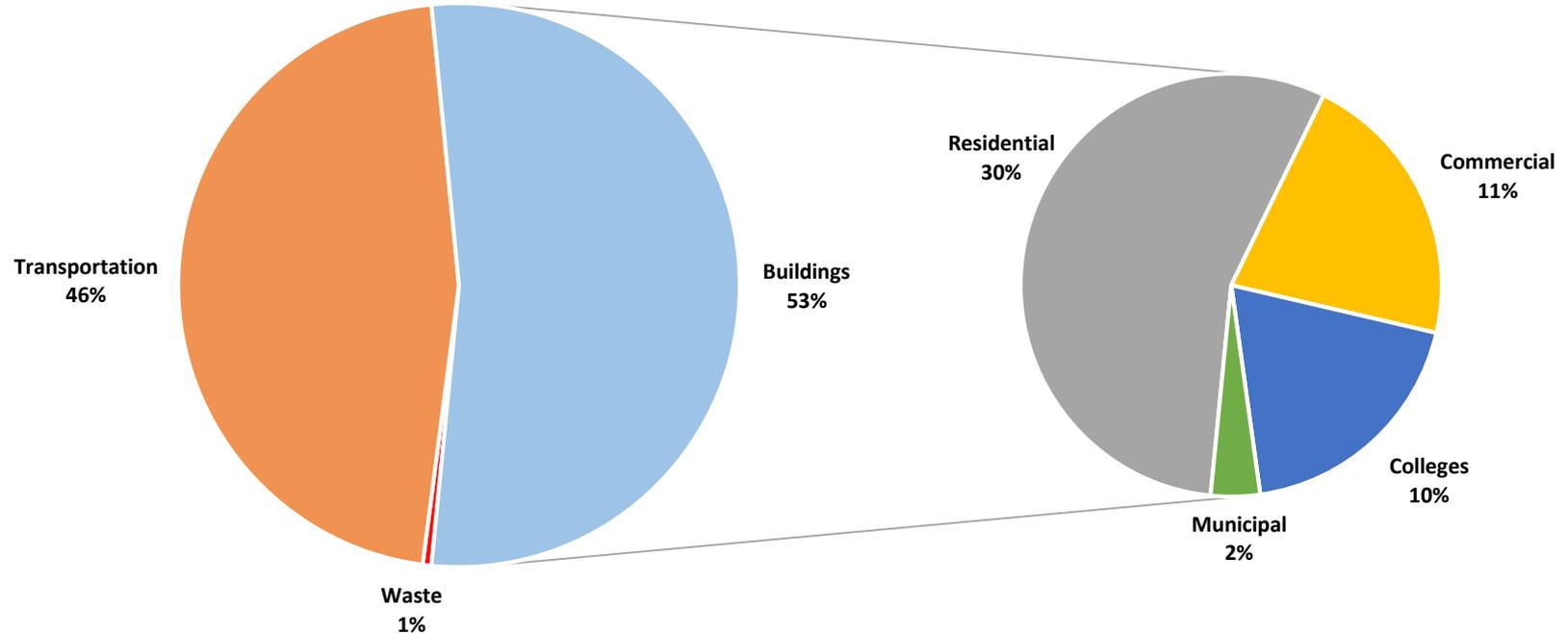
**Sustainable Energy Committee Presentation to
The Green Collaborative
January 21, 2020**



SEC Climate Change Objective:

25% reduction in Wellesley greenhouse gas (GHG) in 2020 from 2007 base.

Wellesley 2018 Greenhouse Gas Emissions



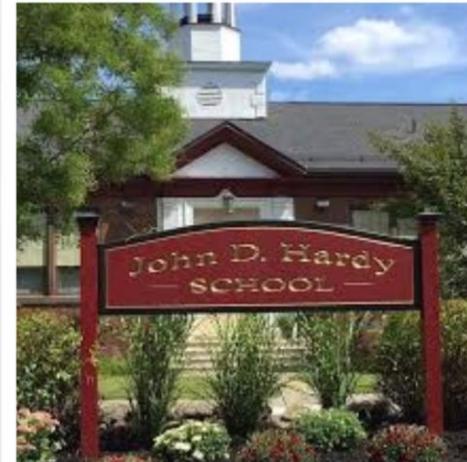
Sustainable Buildings are:

- **Healthy and comfortable**
- **Resilient and adaptable**
- **Integrated with environment**
- **Conserve energy and water**



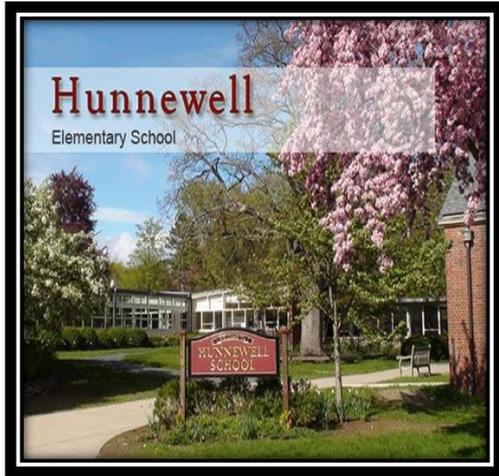
Green building is the practice of increasing the efficiency with which buildings and their sites use energy, water, and materials to minimize

Ensure that municipal buildings and private development on Town-owned land are sustainable



For feasibility, design, construction and operation

New construction



Major reno = 15,000+ sq. ft.
w/extensive mechanical &
envelope upgrades



Private development on
Town-owned land

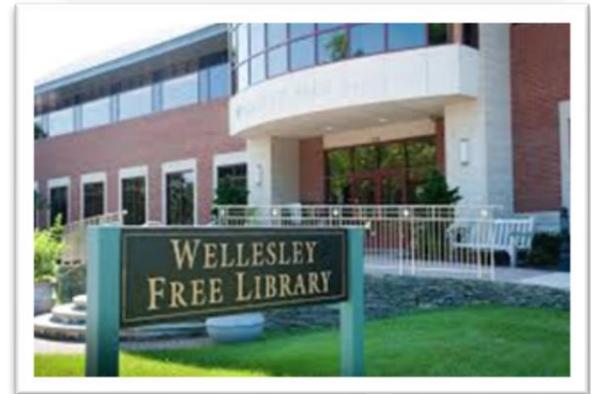


Plus building additions 10,000+ sq.ft.

Implementation = Proponents + Goals + Timing + Process

Early Implementation by Municipal Building Proponents

- **Board of Selectmen**
- **Wellesley Public Schools**
- **Wellesley Free Library Board of Trustees**
- **Municipal Light Board**
- **Department of Public Works**
- **Natural Resources Commission**
- **Recreation Commission**



Key Elements of the Guidelines

- **LEEDv4 + Low Energy Use Intensity + NZE + NPV**
- **Commitment at very earliest planning stages**
 - **RFQs seek sustainable building experts**
- **Sustainability peer review/commissioning**
- **Sustainable operator and user practices**

Augments process in *PBC Proponent User Manual*

Minimum = LEED Silver Certifiable

Aspire to LEED Platinum

LEED Criteria

Integrative process	1
Location and transportation	15
Sustainable sites	12
Water efficiency	12
Energy and atmosphere	31
Materials and resources	13
Indoor environmental quality	16
Innovation	6
Regional priority	4
Total points	110

LEED CERTIFICATION REQUIREMENTS

In order to achieve LEED certification, projects must earn points in these categories:



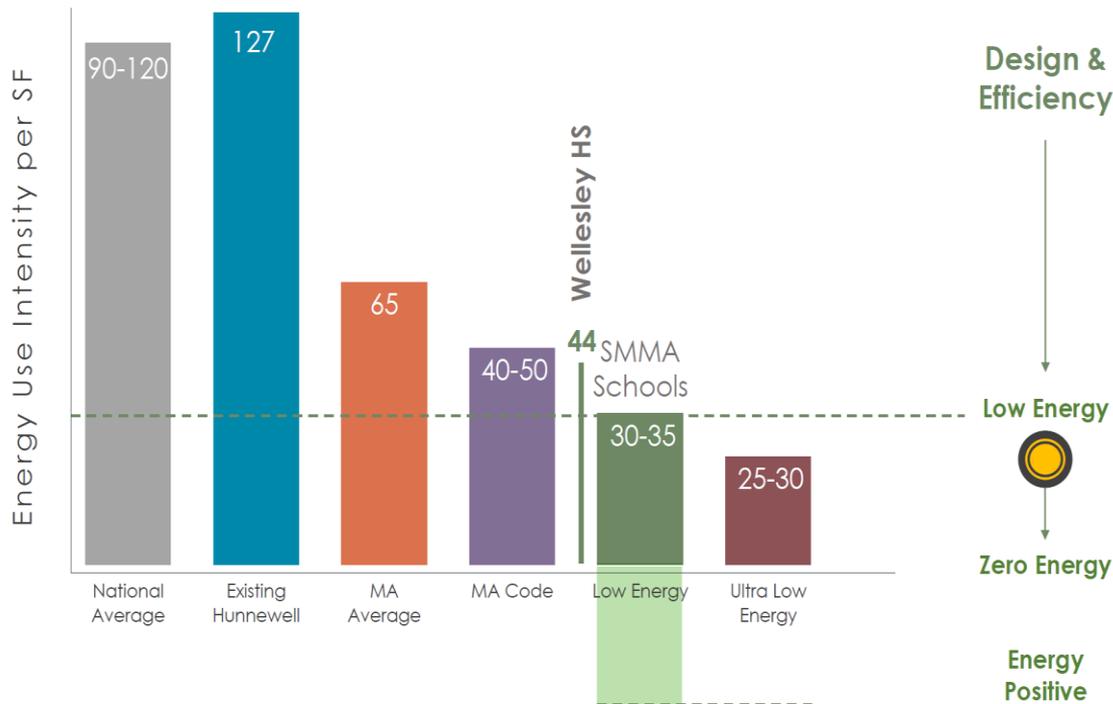
Source: www.usgbc.org

LEED gold 60-79 points **LEED Platinum** 80+ points

Closer Look at Energy Use Intensity

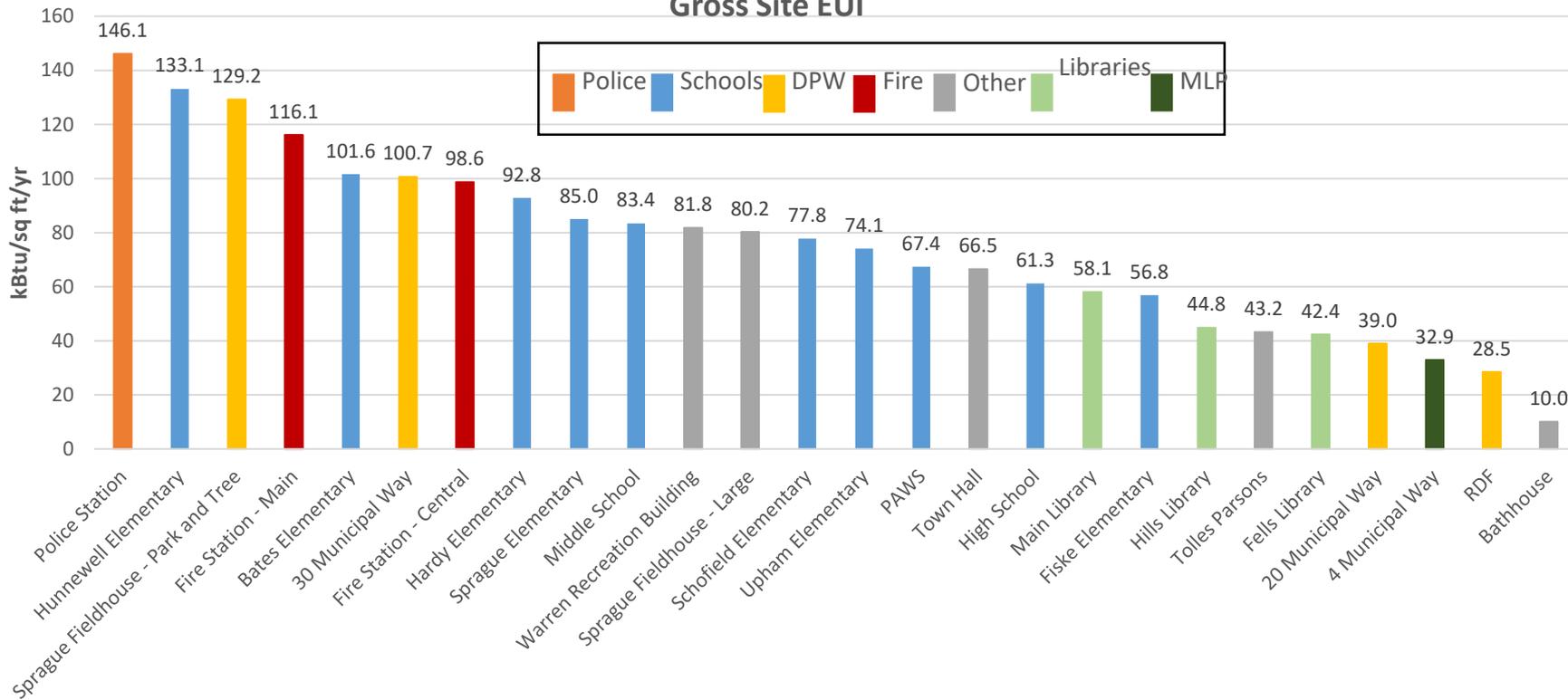
- EUI = “mileage rating” for buildings
- EUI = kBTU/sq.ft./year

Planning for a Zero Energy School



EUIs for Wellesley Municipal Buildings

Gross Site EUI



Closer Look at ZNE

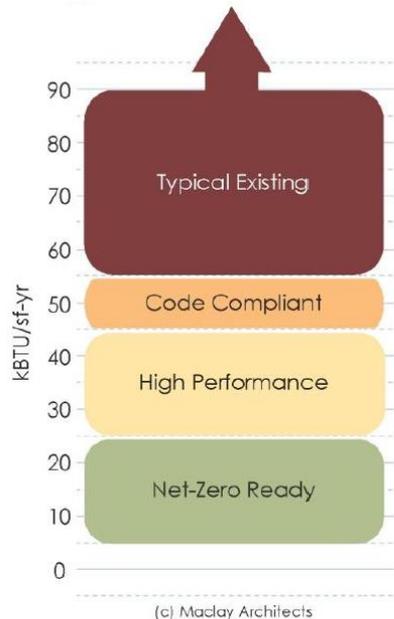
Energy Conservation

+

High Efficiency Systems

+

Renewable Generation



Energy Use Intensity
(EUI)



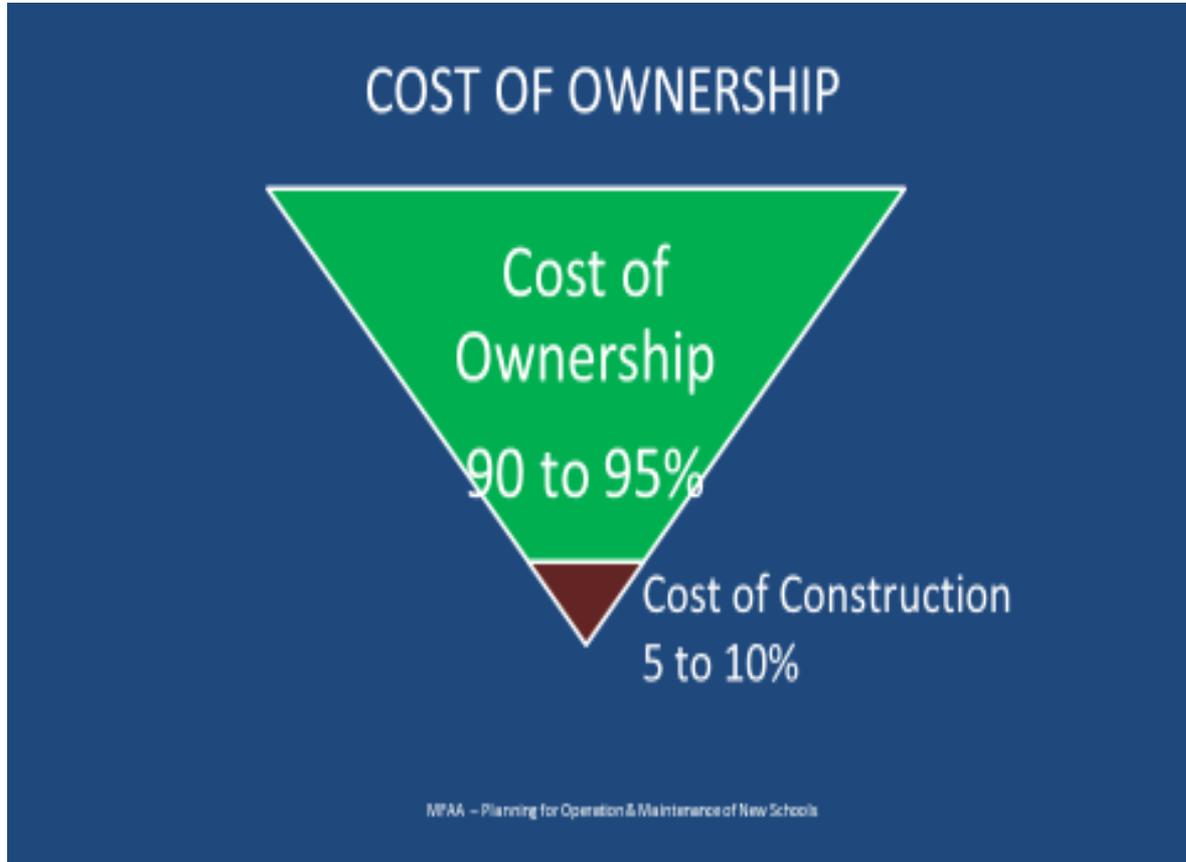
Heat Pumps
(COP 2.3-3.0)



© Maclay Architects

Usually Photovoltaics
(sized for annual load)

Sustainable Building Costs



Sustainable Building Costs: Hunnewell School

- Zero net ready, all-electric - EUI of 26.4kBTU/sq.ft./yr
- Construction Cost \$45 million (\$589/sq.ft.)
- Capital premium (above current Code) for ZNE ready = 4.8%
- ZNE Ready energy cost premium = 1%
- Solar limited to 40% by roof and site

Codes regularly updated:

2021 ICC code update
raises energy efficiency
another 10%+



Energy costs volatile:

Subject to policy
changes and world
politics.

Sustainable Building Costs: Town Hall Annex

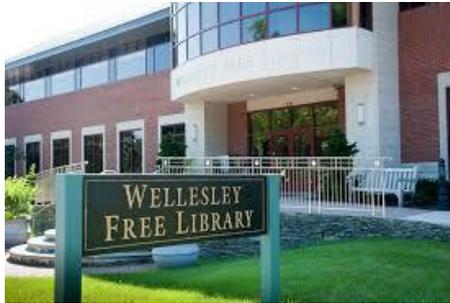
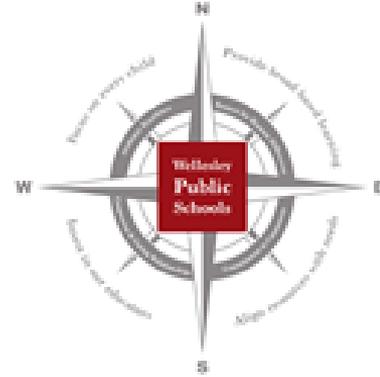
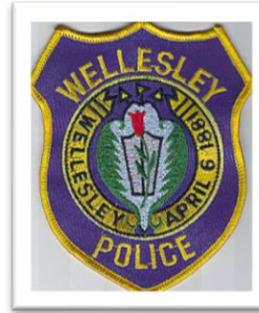
- **Total Project Cost:** \$11,951,403 (\$627/sq.ft.) EUI = 0
- **Upfront premium (above Code) for ZNE Ready** = 2.4% = \$284,326
- **Upfront premium (above Code) for ZNE** = 7% = \$783,526
- **30 yr. NPV analysis ongoing**

Annex will showcase sustainable design

- Full Solar
- Natural materials
- Mass Timber construction with the use of Cross Laminated Timber



Guideline "Road Show"



Town of Wellesley
SUSTAINABLE ENERGY COMMITTEE



HEALTH
DEPT.

BOS

FMD

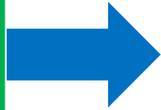
Recreation

DPW



Next Steps for Guidelines

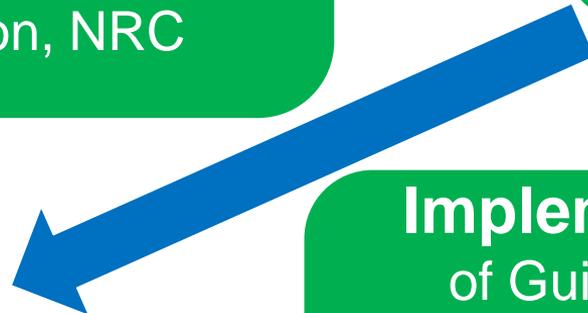
Public Hearing
Jan. 29
7pm
Town Hall



Voting
by building proponents:
BOS, Schools, MLP,
DPW, Library Trustees,
Recreation, NRC



Signing
by boards &
committees in
favor



Presentation
of Guidelines at
ATM 2020 by SEC



Implementation
of Guidelines by
proponents during
feasibility, design,
construction and
operation

Green Building Policies in other MA Towns

- Amherst: **ZNE Bylaw**
- Arlington: **muni LEED**
- Cambridge: **muni LEED and ZNE**
- Boston: **muni LEED and ZNE**
- Brookline: **ZNE Schools Study Subcommittee**
- Watertown: **commercial solar ordinance**



**King Open School Cambridge
Net Zero Emissions**

Thank you!

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