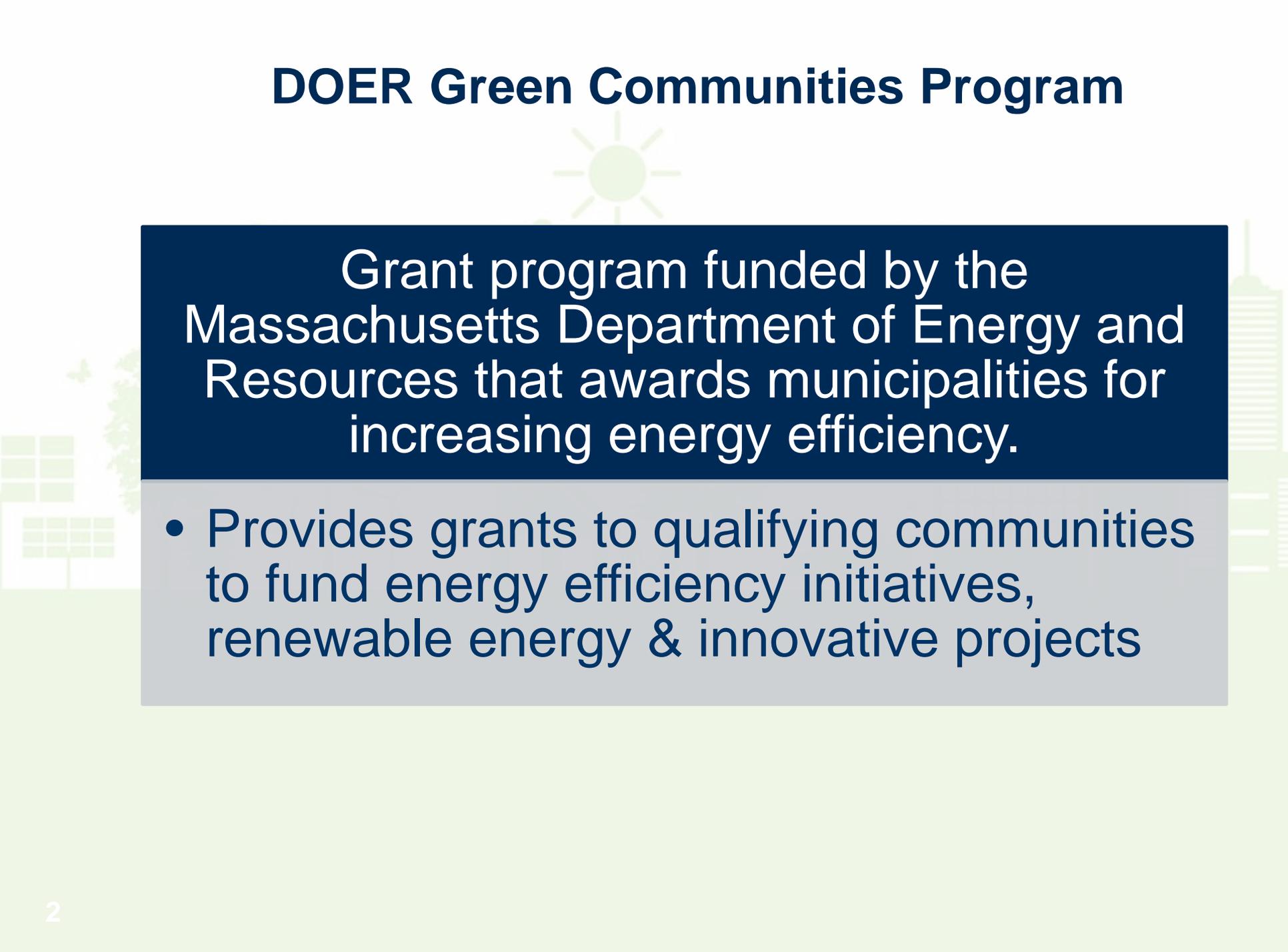


# **Yarmouth Stretch Code Adoption**

**Presented To:**

**Board of Selectmen  
March 27, 2018**

# DOER Green Communities Program



Grant program funded by the Massachusetts Department of Energy and Resources that awards municipalities for increasing energy efficiency.

- Provides grants to qualifying communities to fund energy efficiency initiatives, renewable energy & innovative projects

# Green Communities Designation and Grant Program

Designation requires meeting 5 energy efficiency criteria

Yarmouth Eligible for \$180K Grant  
Future Grants up to \$250,000  
Per Municipality Per Grant Cycle

# Green Communities Grants

## Grant Availability for Green Communities

- To date \$85 million in grants to 210 communities
- Last year \$14 million in grants for energy to 72 designated communities.

Community	Year	Population	Grants
Mashpee	2010	14,048	\$446,093
Provincetown	2011	2,980	\$178,462
Truro	2011	2,009	\$331,931
Wellfleet	2014	2,751	\$260,423
Middleborough	2017	23,980	\$197,655

# Green Communities Qualification Criteria

Adopt as-of-right siting, in designated locations, for RE/AE generation, R&D, or manufacturing

- Adopted ATM 2010

Adopt expedited (12 month) application/permitting process

- Completed

Establish an energy use baseline with a plan to reduce baseline by 20% in 5 years

- Baseline Established, Energy Plan in Progress

Purchase only fuel-efficient vehicles

- Fleet Study 2017

Require new residential construction and new commercial and industrial real estate construction to minimize life-cycle energy costs (**Adopt Stretch Code - 780 CMR 115, Appendix AA**)

- **ATM 2018 Vote**

# Criteria 5 - Minimize Life Cycle Costs

Require all new residential construction and all new commercial and industrial real estate construction to minimize, to the extent feasible, the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.

The DOER recommended way for cities and towns to meet this requirement is by adopting the BBR **Stretch Code** (780 CMR 115.AA) an appendix to the MA State Building Code.

- The **Stretch Code** must be adopted as a warrant article or a general bylaw by its Town Meeting.



# What is the Stretch Code?

The stretch code is an initiative adopted by 216 towns across Massachusetts

- Requiring buildings to meet higher energy efficiency standards.

The stretch code “performance approach”

- Evaluates the overall efficiency of the building as opposed to requiring minimum efficiency targets for each design element

Energy efficiency is measured by a building’s HERS index

- Nationally-recognized industry standard for calculating energy performance

# What is the Stretch Code?

Applies to New Residential Construction

- Renovations normally triggering building code requirements are essentially the same in base and Stretch Code communities.

Not Residential Additions

- Not subject to Stretch Code.

Applies to New Commercial Construction

- Over 100,000 sq. ft. & Supermarkets, Labs & warehouses over 40,000

## Stretch Code MIS-conceptions

***“Stretch Code is new and experimental.”***

- **No**- It is based on Energy Star for Home, 20+ years and many towns have over 7 years experience

***“Stretch Code requires tight unhealthy homes”***

- **No**- Building science has evolved. The Base Code already requires stringent air sealing

***“We will give up our “local control” if we adopt it”***

- **No**- There is no local control over the State wide Building Code. Your town can opt-out of the Stretch Code anytime.

# Stretch Code MIS-conceptions

*“Town residents will be required to update their existing homes”*

- **No**- The New Stretch Code only applies to NEW residential construction and NEW commercial construction > 100,000 sq ft
- **Additions, Renovations & Repairs are EXEMPT from the Stretch Code**

# The Stretch Code is No Longer Much of a Stretch

- **January 1, 2017 – NEW Base Energy Code (IECC 2015) and an associated NEW Stretch Code which is almost NO Stretch at all. New Residential Construction requires a HERS Rating of 55.**
- **Basic difference in cost is for a HERS Energy Rater which is required by Stretch Code for new residential construction.**
  - **Costs between \$750 and \$1250 for typical single family home.**
  - **Incentives and rebates can defray most or all of this cost.**

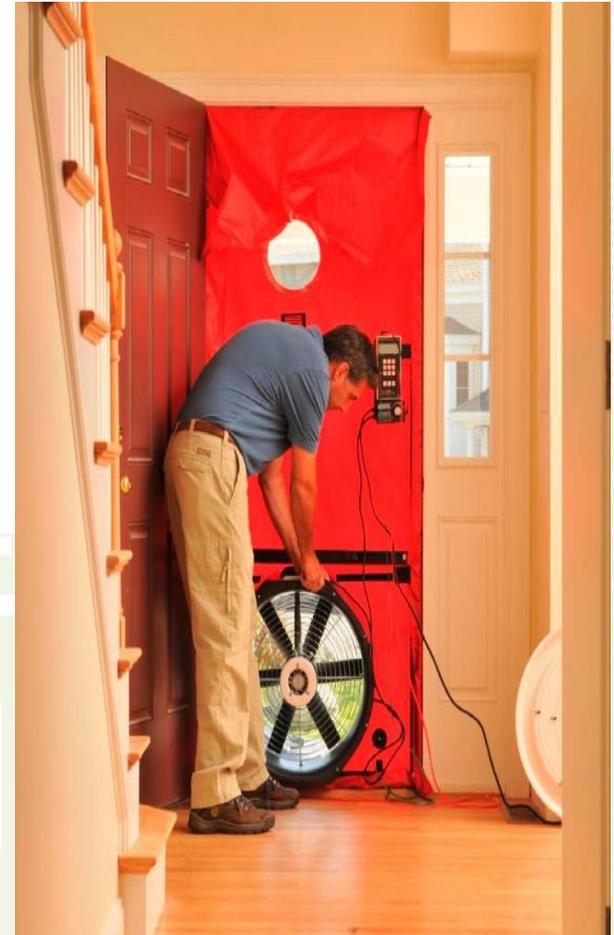
# What is HERS Process?

**Review Building Plans via Computer Modeling**

**In-Process Inspections**

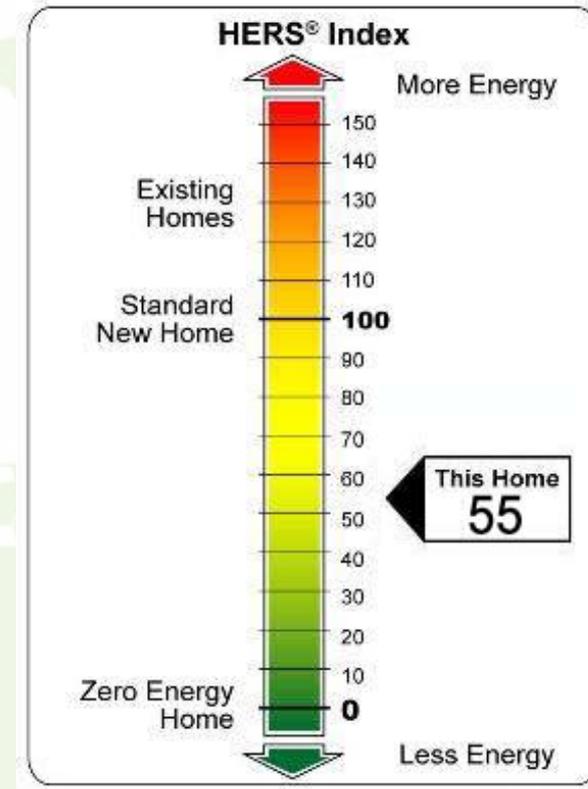
- **First Inspection - Duct Tightness Test**
- **Second Inspection - Insulation**
- **Final Inspection - Blower Door Test**

**Finalize energy model based on verified performance and equipment**



# What is a HERS Rating? (Home Energy Rating System)

- **Annualized energy analysis**
  - Heating, Cooling, Water Heating,
  - Lighting and Appliances....
  - On site power generation-renewable energy
- **Reference Home**
  - Based on IECC **2006** Code (International Energy Conservation Code) Defined as 100 Points
  - 1 percent change in consumption = 1 point
- **2018 Base Code Home**
  - Typically at a 62
- **2018 Stretch Code Home**
  - **HERS 55 means about**
  - **11% more efficient than Base Code home**



# Residential Incentives

Almost the same  
as the Stretch  
Code

Over 44% of new  
homes in MA

Builder  
incentives/rebates

Single and Multi-  
Family “Pay for  
Savings”  
program offering  
up to \$10,000

Based on final  
performance

HERS rater  
modelling

Single and Multi-  
Family \$50-\$350

Lighting – free  
LEDS



# 9<sup>th</sup> Edition Stretch Code Modeling Analysis

2550 sq.ft. 3 BR Single Family Home with Oil Heat  
Worcester, MA



HERS Index (ERI)	
Target	55
Example Base	70
Example Stretch	54

## Costs and Benefits to Meet Stretch Code

	COSTS		BENEFITS	NET	
BUILDER	Adjustments + HERS Rater Fee		Utility Rebates <sup>1</sup>	Cost Compared to Base Code	
	+\$(4,011)		-\$1,593	\$(2,418)	
HOMEBUYER	Change to Downpayment <sup>3</sup>	Change to Annual Mortgage Payment <sup>2</sup>	Estimated Reduced Energy Cost per Year <sup>2</sup>	Year 1 Cash Flow	Year 2+ Cash Flow
	+\$(241)	+\$(192)	-\$697	\$262	\$505

1 – Incentives are determined using the Blended Savings Approach calculator. Savings compared to MA reference home.

BSA Incentive =  $\$0.35 \times \text{kWh savings} + \$35 \times \text{MMBtu savings} + \$3000 \times 0.xx \text{ percent savings (single family home)}$

2 – Energy costs are based on 19 cents/kWh, \$0.97/therm, \$2.88 gal propane, \$2.58 gal oil. Savings are compared with Base Code home

3 – 30-year mortgage assumes 10% down payment at 4% APR

# 9<sup>th</sup> Edition Stretch Code Modeling Analysis

2550 sq.ft. 3 BR Single Family Home with Oil Heat  
Worcester, MA



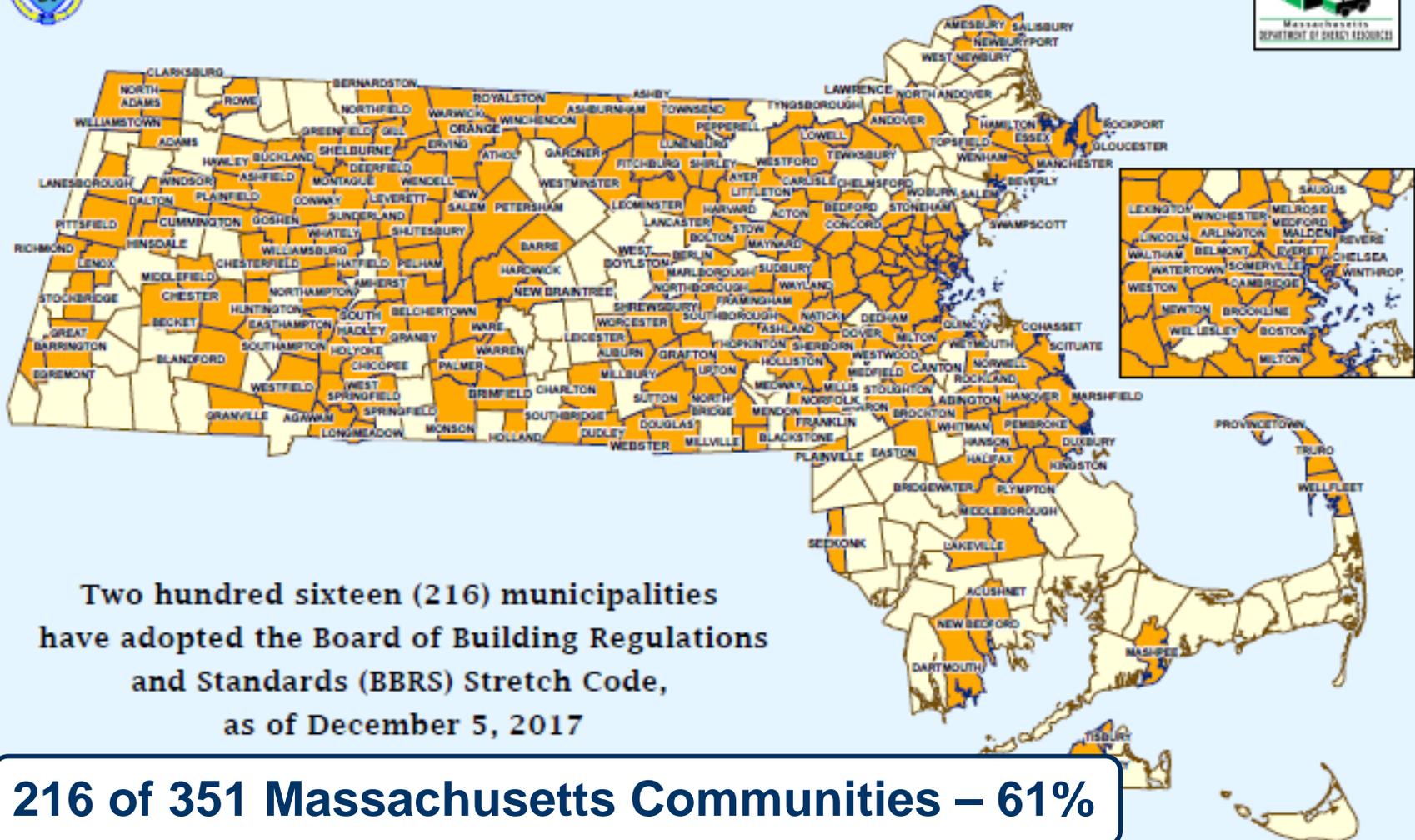
## Breakdown of Construction Costs to Meet Stretch Code

FEATURE	Base Code	Stretch Code	Construction Cost
HERS RATING	70	54	\$500
WINDOWS (U-VALUE/SHGC)	.30/.30	.27/.30	\$500
HEATING	83% oil furnace	96% oil furnace	\$1,759
COOLING	13 SEER	15 SEER	\$392
DHW	0.95 EF Tank Electric	3.24 EF Heat Pump DHW	\$660
DUCT LEAKAGE TO OUTSIDE	4 CFM25 / 100 CFA	2 CFM25 / 100 CFA	\$200
FOUNDATION	Unconditioned, uninsulated basement	<i>No change required</i>	\$0
FLOOR	R38 fiberglass Grade 1	<i>No change required</i>	\$0
WALLS	R21 fiberglass Grade 1	<i>No change required</i>	\$0
HIGH EFFICACY LIGHTING	100% CFL	<i>No change required</i>	\$0
CEILING – FLAT	R-50 blown in cellulose	<i>No change required</i>	\$0
DUCT INSULATION	R-8	<i>No change required</i>	\$0
<b>TOTAL</b>			<b>\$4,011</b>

# Stretch Code Communities



## Stretch Code Adoption, by Community



## Next Steps

# Present Article at Annual Town Meeting to Adopt Stretch Code

**ARTICLE:** To see if the Town will vote to accept Appendix 115.AA of the Massachusetts Building Code, 780 CMR, the “Stretch Energy Code”, **including amendments or modifications thereto**, regulating the design and construction of buildings for the effective use of energy, effective January 1, 2019, a copy of which is on file with the Town Clerk, or take any other action relative thereto.



# Questions