



Pioneering the Small Home Revolution in Western Mass  
The small home project coordinated by Pioneer Valley Habitat for Humanity



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[www.pvhabitat.org](http://www.pvhabitat.org)

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*Any errors, misrepresentations or omissions in this report are accidental, and we appreciate your gracious understanding.*

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# Introduction



## Introduction

With the “Big Enough” Small Homes Project, Pioneer Valley Habitat for Humanity (Habitat) hopes to launch more families into the middle class by helping them to become first-time owners of small, simple, energy efficient homes with modest monthly costs to live in. Since 1989, our local Habitat has built 39 homes with low-income households in Hampshire and Franklin Counties and this project is a broadening of our standard practice of building two to four bedroom homes to focus on smaller one and two bedroom homes. We started this project by asking ourselves the radical question – can we build a house for \$50,000 in western Massachusetts? This is less than the current \$100,000-\$150,000 cost for building a typical Habitat home, and significantly less than the average \$287,000 to build a new home in the United States (Home Adviser, 2015).

To answer this question, we knew we had to explore more than just the cost of materials. We focused our exploration in four areas of inquiry: Zoning Regulations and Building Codes, Ownership and Finance, Design and Construction, and Cultural Expectations and Social Acceptability. Our home design solutions meet at the intersection of affordability, energy efficiency, and local aesthetic with a model that works for Habitat's end-user – earners at 60% or less of the area median income (AMI) – as well as one that meets the needs of homebuyers with means to pay more.

A single person earning minimum wage and working full-time earns about 30% of the AMI, putting the price tag for housing/homeownership affordability just above \$500/month. We considered how Pioneer Valley Habitat, DIY homebuilders, other non-profits and the for-profit housing market can find a path to creation of more affordable homes. We know that it is possible to build low-cost, high performance homes that are more compact than what is on the market in our area and that would allow a greater number of qualifying low-income families to own homes sooner -- indeed, at all. We invite you to read this report and explore the challenges and opportunities of our local small home revolution.

## Key findings

We set out to design and build a house for \$50,000 so that someone who could only afford \$550/month for housing costs could consider home ownership. With some combination of no cost land, favorable zoning, homeowner choices that are small and smart, clever financing and a DIY/community-built or factory-built approach, this is possible.

We found that for knowledgeable DIY homebuilders or volunteer build situations such as Pioneer Valley Habitat for Humanity, a small house of 400-600 square feet can be built for \$50,000-\$60,000 not including the utilities, site costs or land. Typically, this size house has a single bedroom or an open floor plan. This type of home will work regarding layout and space for a segment of the affordable housing market. We also found some factory built options working to build small and simple but integration of a zero net energy goal increases construction costs beyond \$50,000. Even these modest units will be unaffordable to a single person earning minimum wage and working full-time who earns 30% of the Area Median Income (AMI) unless the house unit price, the utilities, the site work, or the land is subsidized.

Community support for affordable housing can take many forms including funding for land acquisition, construction or programs that reduce the purchase price for homeowners. Down payment assistance with innovative first-time homebuyer mortgages is a key strategy to serving the lowest income buyers.

In addition to traditional programs to subsidize the initial purchase price of a single family home, another approach is to look at shared ownership options that allow for limited equity development and greater stability than renting. Working with a Community Land Trust or a municipal entity that could hold land with long term leases for affordable housing to be built would help to fill the cost gap for land. Limited equity cooperatives, such as those that are being used to create resident owned mobile home parks, also offer another option for sharing the infrastructure costs while allowing someone to build some equity through homeownership of a simple home.

Less investment will be needed for land acquisition by market or affordable housing developers if more land is made available for homes through small lot zoning. Small lot zoning can take many forms including infill in cities through accessory dwelling bylaws, flag lots, reducing lot size requirements, allowing zero lot line homes, or doing cluster development in more suburban and rural areas.

People love their privacy, pets, and being part of a community. For some a small house is not the answer as they cannot imagine living in a smaller space even if it means that they continue to rent rather than own their own home. It is important to remember that for small housing to have a positive impact on someone's life it must be a choice. Many members of our community live in substandard, overcrowded housing situations and may not be able to see a small home as an improvement even if it provides an opportunity to gain equity. Our outreach efforts indicated that there was strong interest in small homes from some and we would like to see how pilots of starter homes are received.

A small house is not for everyone looking an affordable housing solution but it is a solution for a portion of the population whose lives will be improved through affordable housing ownership.



*Small homes that have been built in southern New England. These and other small homes are inspiration for the small home revolution. Pictured on the right is a contractor built 400 sq ft home in Worcester and pictured on the left is a 400 sq ft Accessory Dwelling Unit (built in the backyard) in Hampshire County. See case studies at <https://www.pvhabitat.org/big-enough/>*



## **Project Goal**

Pioneer Valley Habitat's goal is to work with low-income people in Hampshire and Franklin Counties to build strength, stability and self-reliance through affordable homeownership. We propose, through the Big Enough Small Homes project, to investigate pathways to launch more families into the middle class through the creation of more opportunities for their becoming first-time homebuyers of small, simple, energy efficient homes.

## **Housing Need in Franklin and Hampshire counties in Massachusetts**

There are not enough small, affordable, efficient homeownership options for people who need or want them. The Pioneer Valley Planning Commission (PVPC) found that over 60% of households in Hampshire and Hampden counties consist of 1 or 2 household members (2014). Most new houses built are approximately 1,000 square feet larger than houses built 40 years ago, and house fewer people (Badger, 2015). The large new house size is in part a response to high land cost which is driven by large lot zoning; car culture which has allowed us to spread out on the landscape; the incentive of mortgage interest tax deductions (subsidy by government); and greater wealth of some (Badger, 2015 & Ehrenfreund, 2014). The high price of land drives builders to build larger more expensive houses to provide more profit to minimize the high risk of housebuilding. The creation of small housing units is needed to provide more housing options that are affordable and meet the needs of smaller sized households.

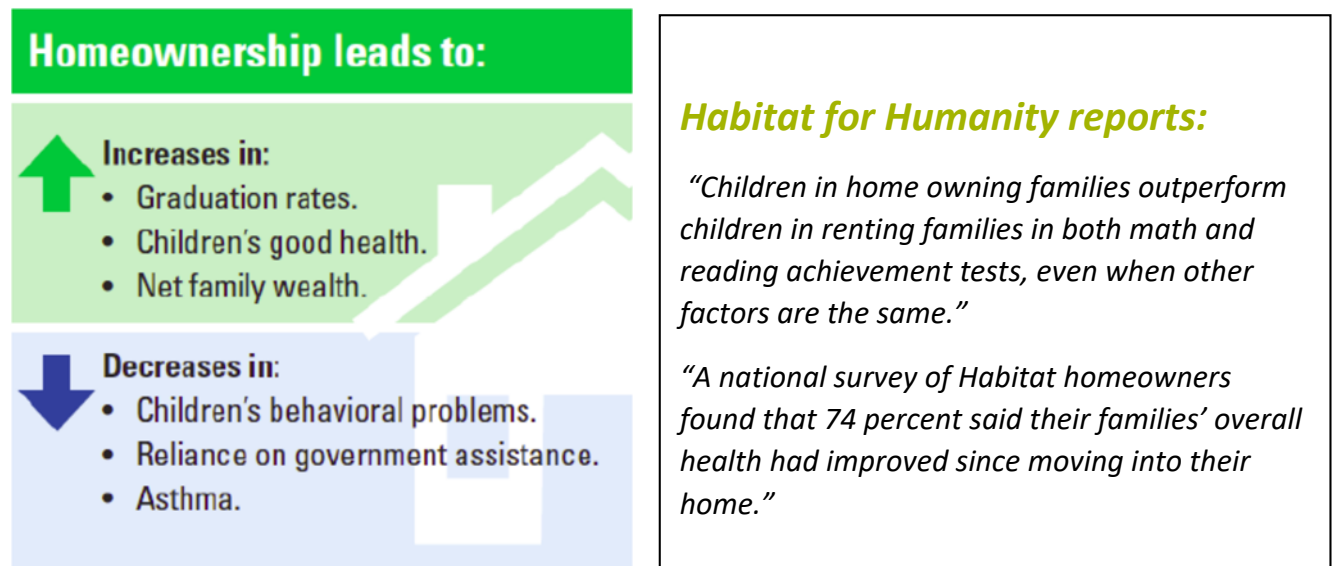
The demand for affordable homes exceeds the supply in western Massachusetts. The high need for affordable, healthy houses in Franklin and Hampshire counties is reflected in the hundreds of potential homebuyer households who have engaged with our Habitat affiliate looking to purchase their own home at an affordable price. It has become more difficult for many to purchase their own home. Home values in Franklin County rose 45% between 2000-2011, while incomes only rose by 28% (Franklin Regional Council of Governments [FRCOG], 2014). The continued increase in home values makes it more difficult to shift from renting to owning your own home. It has also become more difficult to secure a traditional mortgage with lending practices tightening under stringent regulatory oversight and increased debt of potential homebuyers.

Households spending more than 30% of their income on housing are typically considered to not have affordable housing. For homeowners this "housing cost" includes mortgage principal and interest, homeowners' association fees, property taxes, homeowner's insurance and sometimes utility costs. The Pioneer Valley Planning Commission states in their 2014 Housing Report, "More than 30 percent of homeowners and 50 percent of renters in the Pioneer Valley spend more than 30 percent of their income on housing related costs, which means that they are 'cost-burdened' and may have difficulty affording necessities such as food, clothing, transportation and medical care as well as saving for the future" (Pioneer Valley Planning Commission [PVPC], 2014). Often these families are forced to live in substandard housing that is not code compliant and is energy inefficient which drives up monthly costs. We think that the creation of more small affordable energy efficient homes in western Massachusetts will provide options that will help to change lives for the better.

## **Benefits of Homeownership**

For low income families the security of owning a home can change the trajectory of their lives. Shifting from rental or other substandard housing to living in their own affordable, efficient, well-built home allows for stability, security and strength for their family members. Academic

research and Habitat for Humanity surveys indicate that homeownership leads to improved health, more financial stability, higher grades, higher high school graduation rates, ability to save more, increased investment in education, and ability to make forward-looking choices (Habitat for Humanity International [HHI], 2016). These benefits impact not only homeowner families but shift familial situations over generations. Decision making around housing becomes their own: choosing to stay or move, whether to have pets, basically gaining the ability to make a house a home for their family. The Big Enough Project aims to make these homeownership benefits available to a broader group of potential homeowners.



Research summarized by Habitat for Humanity in their report, "Beneficial impacts of homeownership: A research summary" (Habitat for Humanity, 2015).

"The biggest difference overall is that general sense of security. Just knowing that it's ours, and we make all of the decisions – it's been really comforting for our family."

- **Lyndsay, Habitat Homeowner (HFHI, 2016).**

"Habitat allowed the 4-year-old me to dream, to know that I could achieve. It's truly been hard to express what having a Habitat home has done for my family, but I would not have gone on to a great four-year University, I wouldn't have the same aspirations, I wouldn't be as ambitious as I am without having had that home. That home blessed me with a wonderful life."

- **Adriana, who grew up in a Habitat home (HFHI, 2016).**

## Examples of innovation elsewhere

There are some good examples of small affordable innovative housing that inspired this project. Vermod, a modular housing company in Vermont, builds Zero Energy modular homes with a focus on replacing mobile homes. Their housing units are very energy efficient which reduces the energy load of heat, hot water and electricity to a level that can be powered with solar panels. They are made to be very resilient to extreme weather conditions as they initially replaced mobile homes destroyed by flooding. These units work well in Vermont which has significant subsidies to support homeowners buying them.



(Left) VERMOD Zero Energy Modular home at North Ave resident owned manufactured home community in Burlington, VT. (Right) \$20K Home Product Line from Rural Development Studio in Alabama.

Rural Development Studio is another inspiring project based in Alabama that aimed to bring good design to an underserved population. They are an undergraduate program of the School of Architecture, Planning and Landscape Architecture at Auburn University. Focused on “social justice architecture” they strive to design homes that can be built for \$20,000. Their house designs provide better housing alternatives that will appreciate in value rather than depreciate like a trailer home. These homes would not withstand the rigors of New England winters, but are still an inspiring example of the power of people centered design.

Please see the Case Studies posted at [www.pvhabitat.org/big-enough](http://www.pvhabitat.org/big-enough) for more information about these and other examples that inspired our project.

## Why \$50k?

The reality is that most people earning less than the median income cannot easily afford the dream of homeownership. In Hampshire County the median home price is \$255,200 (Zillow, July 2017) but someone earning the median income can only afford about a \$200,000 home today. Things are a little bit more affordable in Franklin County with the median home value of \$207,300 (Zillow, July 2017) – but this still means that people earning less than the median income are largely priced out of the market for homeownership.

We set our sights on a \$50,000 small home because that’s about what a single person earning minimum wage and working full-time in western Massachusetts could afford for a fixed rate mortgage at today’s rates (assuming one were even available). Programs like Habitat for Humanity’s down payment assistance or special mortgage programs increase affordability for homes in the \$100,000 to \$150,000 range. These programs require a minimum income of \$28,000 or \$30,000/year, not the \$22,000/year of a minimum wage worker. These workers usually live paycheck to paycheck so it’s important to educate them about the full cost of homeownership including maintenance, taxes, insurance, etc. so they can make an informed decision. Some will be ready for the chance to work towards the strength and stability of homeownership if it can be brought within their means.



### What can \$50,000 buy today?

In today's housing market without affordable housing subsidies can you buy a \$50,000 home in Hampshire or Franklin County? Yes and no.

**Fixer Upper.** Some buyers may be tempted by the low cost of a home in need of repair. A search on Zillow in September 2017 found 22 single family homes sold in the previous year for less than \$50,000 in Hampshire County and 18 in Franklin County. Most of these are being sold “as is”, often at a bank auction or sometimes as condemned houses sold for demolition and rebuilding. These homes, if suitable for rehab, are often bought by developers with the financial means to repair for rental or resale.

**May fall short:** A home in substantial non-compliance with health and building codes would be difficult to finance and often requires a cash purchase. Some buyers with construction skills may choose to go this route but they will need to get creative around financing and have additional financial resources to hire licensed professionals such as electricians, plumbers, and lead paint or asbestos remediation.

**Condominiums.** It is very rare to find a condo with this low a price tag. There was 1 townhome south of the Quabbin that sold in the last year for under \$50,000. No condos priced this low were found near the I-91 corridor with the infrastructure and job resources located along its length.

**May fall short:** Low income buyers need to be wary of the condo fee assessment which is in addition to a mortgage and may increase.

**Manufactured Homes.** Unlike some parts of the United States, Hampshire and Franklin counties have relatively few manufactured housing parks. Stigma around “trailers” and “mobile homes” is pervasive in our culture. The quality of both the homes and the parks varies widely. A search in September 2017 found that in the last 12 months 3 manufactured homes in Franklin County and 2 in Hampshire County were sold for less than \$50,000. Some of these appear to be

distressed properties, but a couple looked like viable options for a low-income household. A \$43,000 2 bedroom 1 bath 840 sq ft home in a resident owned park in Greenfield may be a reasonable option for some low-income households.

**May fall short:** Social stigma, poor construction especially prior to 1976, depreciating asset, uncertain land tenure in investor owned parks, higher interest rates and shorter terms for financing and additional cost of site rental fee.

**Tiny homes.** There is a lot of excitement about the idea of buying or building your own mobile tiny home for under \$50,000.

**May fall short:** Not legal as a permanent residence as there are no towns in our region that currently allow for year round living in a tiny house on wheels. May not be an appreciating asset as they are legally considered recreational vehicles to be road worthy. Financing will be more expensive since a loan will not be a long term mortgage, rather a personal loan on a recreational vehicle.

The current available options for a \$50,000 home may work for some but we know that there will be other homebuyers for whom these options will not work for social, physical, financial and other reasons. For these homebuyers we aim to build modest new construction with a lot of creativity, good design, and possibly with some community support. Can we build an affordable small house that is big enough to hold the dreams of a homebuyer, help build equity, meet local codes, and fit in the neighborhood?

### **Bringing good affordable housing options home to western Massachusetts**

We took the inspiration from existing small affordable house projects and adapted those ideas to the needs that we have in western Massachusetts. The elements that emerged as priorities for research and development for our project were as follows:

- **Zoning Regulations and Building Codes** – What needs to be done for small homes to comply with Massachusetts zoning, building and health codes?
- **Ownership and Finance** – What financing and ownership options work for first time home buyers and will help them gain housing stability and modest equity building in small homes?
- **Design and Construction** – How can we reduce costs to increase affordability while still maintaining durability and energy efficiency?
- **Cultural Expectations and Social Acceptability** – How can we design homes that people want and include features that meet realistic priorities while fitting into local neighborhoods in terms of style and materials?

# Building and Zoning Codes





## Zoning Regulations and Building Codes

To explore the feasibility of small homes in Hampshire and Franklin counties we needed to dive into the local and state regulations that affect what can be built today and where opportunities for innovation may be possible. Local zoning codes primarily regulate how a given section of land can be used and state building codes regulate the details of the structures. Regulations and codes around building, health, energy, plumbing, electrical are created for safety, health, and general welfare of citizens, the public and the environment and give parameters for the building project.

### Zoning is ours

Zoning is New England democracy at its finest and slowest – each city and town in Massachusetts creates their own zoning bylaws. Citizens may find out about the process that their municipality has in place for proposing and making updates to the zoning bylaws. It is possible to create more opportunities for affordable small housing options through zoning changes. Some model bylaws we would like to see adopted:

- Accessory Dwelling Units (detached by right in certain zones);
- Small Lot Zoning near infrastructure, especially village and city centers;
- Cluster Development/Open Space Subdivisions that balance a need for conserving green space with building housing; and
- 40R Smart Growth development overlay districts that encourage increased affordable housing and density in key areas for re-development.

### Regulations, codes and permits overview

**Zoning Regulations:** Zoning ordinances and by-laws are adopted by cities and towns to regulate the use of land, buildings, and structures to protect the health, safety and general welfare of present and future inhabitants. Zoning regulations are determined by a town's or city's governing bodies, informed by the citizens of that town or city. Each municipality in Massachusetts has unique zoning regulations. The Zoning Act or Chapter 40A enacted in 1975, states that one of the purposes of zoning regulation is to encourage housing for persons of all income levels.

**Air/Water/Waste Management Systems and Wetlands Protection:** The MA Department of Environmental Protection is responsible for protecting human health and the environment by ensuring clean air and water, the safe management and disposal of solid and hazardous wastes, and the preservation of wetland resources. Their role in building projects relates to permitting for septic and wells through the local board of health and, through local conservation commissions, establishing parameters around wetlands on property being developed.

**Public Water and Sewer:** If your city or town has public water and sewer the local Department of Public Works will inform the process of hook-up and issue permits to these public utilities.

**MA Building Code:** The MA building code designates minimum requirements to safeguard the public health and safety and general welfare regarding all building structures built or renovated. The building code is a law created at the state level based on international building code and international energy code. The building code is enforced by the local building inspector with inspections at different stages of the build. The building code includes parameters for structural strength, means of egress, stability, sanitation, adequate light and ventilation, energy conservation, safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations. The building department will issue a building permit, inspections at various stages of build-out and certificate of occupancy upon completion.

**Energy Efficiency Codes:** The Green Communities Act introduced in MA in 2008 an optional energy “stretch code” which aims to improve energy efficiency in building construction. The Stretch Code has been adopted by more than half of MA towns to date (Massachusetts Department of Energy Resources, 2017) and requires a more stringent HERS Index (Home Energy Rating System) rating. The Stretch Code can be harder to meet with new small units because they compare a house of the same size and dimensions with old energy codes to the house you are building today. It’s harder to save energy on a small house that doesn’t use much energy in the first place!

### Check the zoning first! A primer on development in Massachusetts

There is a lot to know when someone considers building a house in terms of zoning and codes. Getting familiar with codes and regulations for building in the city or town is a first step. It is also a good idea to bring the building project concept to the building inspector with questions to clarify at an early date in the project to answer questions.

When a potential homeowner is planning on building a house the experts that they will want to work with will depend on what they are going to do. One option is to hire a general contractor to handle everything. Another option is for them to be their own General Contractor if it is a house

### Amherst Zoning Solutions to address housing shortage.

*From Amherst Housing Market Study, Town of Amherst, MA March 2015*

- Increase density of units per acre
- Increase density of units per acre for inclusion of permanently affordable units
- Zoning for small 2-3 bedroom cottage-style units at a higher density
- Affordability Deed Restrictions
- As of Right Supplemental Apartments in Residential zoning districts
- As of Right Two Family homes in Residential zoning districts
- As of Right Multi-family development in specific zoning districts
- Special Permit for Infill dwelling units in Residential zoning districts with standard development regulations (example Amherst Article 4.6, Infill Development)
- Allowance of Congregate Housing or single room occupancy housing (Amherst 3.328)
- Allowance of existing lots in certain zoning districts to be divided into two lots with reduced area and width requirements to increase density of housing.
- Strong incentives for affordable unit creation (Amherst considering allowing generous density bonuses in exchange for a commitment of units of 60 percent AMI including single detached and multi-family development)
- Affordable Housing Permitting Guide - Clear procedures and requirements to remove the uncertainty of the permitting process and affordable unit creation process.



that they are building for themselves. In this case they will need to do all of the planning, management, scheduling of the build out and they will be very involved with the building inspector, architect, engineers, lender, and all of the licensed contractors needed to complete the job. They will need to make sure to cover cash flow for contractors during the building process.

When someone is going beyond building a single family house on a single lot it is important to bring the project idea to the appropriate permits manager or departments in the municipality where they want to build. Understanding town regulations, permits needed and how long the process will take is wise before a lot of time and/or money is put into developing a project.

Some local governments provide overviews of the process and permits needed when siting and building a house. Here a few western MA examples:

- Greenfield: [http://www.greenfield-ma.gov/files/2016\\_Guide\\_to\\_Development\\_Permits.pdf](http://www.greenfield-ma.gov/files/2016_Guide_to_Development_Permits.pdf)
- Northampton: <http://www.northamptonma.gov/987/Site-Building-Permits>

### How small can we build and create a legal living space?

The **building and health codes** in Massachusetts have minimum size requirements for elements of a house but not the overall house:

- The building code states one room must be minimum of 120 sq ft and no habitable room can have a dimension of less than 7' in either direction.
- The health code says one room must be a minimum of 140 sq ft.
- Health code also says a dwelling unit must have a minimum of 150 sq ft of habitable space for the first occupant and 100 sq ft additional for each additional occupant.
- Per health code, bedrooms must be a minimum of 70 sq ft for one person or 50 sq ft per person if more than one (i.e. 100 sq ft for 2 people).
- The building code also requires minimum distances for the placement of toilet, bath, shower, stairs and ceiling heights.

Local zoning or neighborhood deed restrictions may require minimum home sizes. Our research found that Montague requires a minimum home size of 500 sq ft but that minimum home sizes are not typical in western Mass (FRCOG, 2017).

Affordable home developers working with the Massachusetts Department of Housing and Community Development (DHCD) or the US Department of Housing and Urban Development (HUD) will face minimum size requirements. These requirements are especially important in mixed income developments to ensure that low-income residents are not getting units substantially different than their neighbors. Pioneer Valley Habitat for Humanity in working with DHCD on small projects has received permission for smaller footprint dwellings if appropriate.

## **Challenge: Access to land.**

One of the biggest challenges of low-cost new construction becoming low cost affordable homes is the cost of land. Land is a limited resource and the price of land is driven up when more people want to live in a place with limited parcels of land available.

Where building can take place is determined by many parameters. Land features including steep slopes, soils that drain poorly, limited access, ledge, and close proximity to wetlands or rare flora and fauna habitat further limit areas that can be built on. These features cannot be easily changed or can be expensive to address in construction and permitting.

Where buildings can be built is also determined by zoning requirements. Zoning ordinances and by-laws in Massachusetts regulate the use of land, buildings and structures and are designed to protect the health, safety and general welfare of the present and future inhabitants of our local communities. Zoning defines lot sizes, road frontage minimums, to a certain extent what can be built and in which districts certain types of buildings can be built. Many western MA towns require 1 acre or more of land for each house regardless of home size. There are many ways to create more affordable small lots or to build more affordably by adjusting zoning.

*“Many Hampshire County municipalities’ current zoning restricts development opportunities for multi-family, two-family, and smaller single family homes on smaller lots which tend to be more affordable,”* according to the PVPC Executive Summary Housing Report (2014).

## **Solution 1: Build in the backyard.**

**Accessory Dwelling Unit Bylaw:** Some towns allow the building of a second small home on a building lot that already has a single family house. Most require a special permit to build and require owner occupancy in one of the homes. This may complicate financing/ownership, but is worth considering. A number of western MA communities have some type of accessory dwelling unit (ADU) bylaw that allows for an apartment to be created within an existing single family home, and sometimes within an accessory structure such as a barn or garage. Greenfield allows detached ADUs by special permit in four zoning districts, and Shelburne allows detached ADUs by-right in two zoning districts. Both towns cap the size of the ADU (800-900 square feet) and require the property owner to live in either the single family home or ADU.

Increased adoption of bylaws allowing detached accessory dwelling units by right would help to increase access to land for small home building, but would need to be paired with creative ownership strategies (discussed later in this report) to create additional homeownership units rather than additional rental units.

Towns that currently allow detached accessory dwellings (check zoning for details!) include: Belchertown, Chesterfield, Easthampton, Granby, Greenfield, Hadley, Huntington, Northampton, Pelham, Shelburne Southampton, Ware, and Worthington

## **Solution 2: Create more small lots.**

**Small Lot Zoning:** Some existing homes have a large enough yard to allow for the division of land into two lots: one for the existing house and one big enough for a small house. A straightforward approach to supporting smaller homes in existing villages and downtown neighborhoods is to re-zone these neighborhoods for smaller lot sizes. This could be particularly appropriate in areas where the current dimensional requirements are larger than the historic development pattern, rendering many existing lots non-conforming. Reducing minimum lot size requirements would allow for small, individual lot infill on existing lots that were previously non-conforming, or on new lots created by dividing an existing, larger lot. New subdivision streets on remaining open land within village districts would be able to conform to the existing development pattern.

The Smart Growth Alliance of Massachusetts is promoting a bill called “**Great Neighborhoods**” this legislative session which would increase opportunities for multi-family housing in sensible locations, establish affordability requirements for developers, promote walkable/bikeable neighborhoods, protect open space and increase opportunities for accessory dwellings.

### **Learn more:**

MA Smart Growth Toolkit [http://www.mass.gov/envir/smart\\_growth\\_toolkit/](http://www.mass.gov/envir/smart_growth_toolkit/)

Great Neighborhoods Campaign & Legislation: <https://www.great-neighborhoods.org/>

## **Solution 3: Share the road.**

**Shared/Common driveways** can reduce the infrastructure cost of developing a small number of lots that otherwise would need individual driveways serving each lot. Individual driveways require more land and take up more of the usable space on the parcel. A shared driveway requires easements and shared management contracts for a clear understanding of maintenance and cost sharing process.

In Franklin County we found the following: seven communities with water and sewer allow for a common or shared driveway by special permit; common driveways can serve 2 to 4 lots, depending on the community; two communities only allow common driveways within an Open Space Development or Planned Unit Development scenario; and one community also has an alternative procedure within their subdivision regulations for a common private way serving up to 6 lots that does not have to meet the standards of a traditional subdivision road (FRCOG, 2017).

The development of new roadways is more expensive than building new driveways because they need to meet public standards for roads that often include wide paved areas, curbs and sidewalks.

## **Solution 4: Own the house and rent the land (and infrastructure).**

**Join an Existing Manufactured Home Community.** In this scenario homes are owned by individuals who pay a lot rental fee to the park for connecting to utilities. Parks sometimes have vacant plots or run down homes that need to be replaced with something more energy efficient. Resident owned options are also likely to have more stability and input for residents into the community. Learn more from <https://rocusa.org/>

**Join an Existing Community Land Trust.** Community Land Trusts are non-profit organizations that promote access to affordable housing and long-term stewardship of the land. In our area there are two: The Valley Community Land Trust in Franklin County and the newly formed Amherst Community Land Trust. Learn more about the model from the Grounded Solutions Network: <http://groundedsolutions.org/>

## **Solution 5: Create a new community of clustered homes.**

Individuals may band together with others or join an existing community land trust, affordable housing development, cohousing or cooperative group to build new homes in a cluster. When building new these groups need to be careful about the expense of building new subdivision roads, permits and legal costs. Working with an experienced developer will help to avoid unexpected expenses.

There are many variations of zoning bylaws which aim to cluster, create smaller lots, provide community resources, and protect open space. These include Cluster Developments (minimizing infrastructure development, increasing pedestrian access); Conservation Developments/Open Space Residential Design (protecting open space, recreational or agricultural lands and clustering development); Low Impact Development (minimizing built footprint impact); Traditional Neighborhood Development (dense mixed use).

Co-ownership can take several forms:

- Create a condominium association where the association owns the land and the condo unit owners own their homes.
- Create a limited equity housing cooperative that will own all the land and houses but individual owners will buy a share into the coop.
- Work with a Community Land Trust that will own the land and infrastructure and lease the lots to individual owners with 99 year leases

### **Learn more:**

- Cohousing Association, <http://www.cohousing.org/creating>
- Cooperative Development Institute, <http://cdi.coop/resource-center/housinggrocs/>
- Grounded Solutions Network, <http://groundedsolutions.org/>
- Community Associations, <http://communityassociations.net/massachusetts-resources/>
- Pocket Neighborhoods, <http://pocket-neighborhoods.net/>
- Open Space Design, [www.mass.gov/envir/smart\\_growth\\_toolkit/bylaws/model-osd-nrpz-zoning-final.pdf](http://www.mass.gov/envir/smart_growth_toolkit/bylaws/model-osd-nrpz-zoning-final.pdf)

## **Solution 6: Massachusetts Affordable Housing Regulations.**

The same challenges regarding access to land exist for non-profits like Pioneer Valley Habitat for Humanity as individual homebuyers, but additional solutions exist for working with zoning in MA for affordable housing developers.

**Chapter 40B** is a state statute, which enables local Zoning Boards of Appeals to approve affordable housing developments under flexible rules if at least 20-25% of the units have long-term affordability restrictions. Developers can typically build more units per acre utilizing the 40B statute. Communities can voluntarily work with developers on “friendly” 40B projects or can be forced to work with developers on 40B projects if the community’s housing stock is less than 10% affordable. “Over 48,000 units in almost 900 developments have been created under 40B statewide since the early 1970s. Of (these) ... 14,600 were homeownership units.”

**The Subsidized Housing Inventory** is used to measure a community's stock of low-or moderate-income ownership and rental housing for the purposes of M.G.L. Chapter 40B, the Comprehensive Permit Law. While housing developed under Chapter 40B is eligible for inclusion on the inventory, many other types of housing also qualify to count toward a community's affordable housing stock.

In addition to 40B’s mandatory requirements, towns may get state incentives for proactively approaching smart growth development and affordable housing:

- **The Smart Growth Zoning and Housing Production Act**, more commonly referred to as **Chapter 40R**, encourages mixed-income housing production in smart growth locations by providing flexible funding to municipalities that establish zoning overlay districts that satisfy certain minimum thresholds pertaining to location, residential density and affordability. A new element of the program is the “starter home” criteria (Fierro, 2017), which would allow smaller homes no larger than 1,850 square feet, on lots no larger than a quarter acre. An example of a 40R District is in Northampton at Village Hill.
- The Department of Housing and Community Development offers additional incentives to municipalities that adopt zoning districts promoting the Commonwealth’s strong interest in housing for working families of all incomes and in smart growth. For purposes of this policy, these zoning districts are called “**Compact Neighborhoods**.” This new tool complements Chapter 40R, the Commonwealth’s Smart Growth Overlay District statute. Compact Neighborhoods Policy has minimum density requirements of 4 units per acre for single family developments and 8 units per acre for multi-family developments (any structure with more than one unit) and requires 10% of the units to be affordable with no restrictions on age.

Another carrot for affordable housing development is Massachusetts **Community Preservation Act** (CPA). CPA allows communities to create a local community preservation fund for open space protection, historic preservation, affordable housing and outdoor recreation. Community preservation monies are raised locally through the imposition of a surcharge of not more than 3% of the tax levy against real property, and municipalities must adopt CPA by ballot referendum. To date, 172 municipalities in the state have adopted CPA (Community Preservation Coalition, n.d.).

**Learn More:**

- 40B Subdivisions <http://www.mass.gov/hed/community/40b-plan/>
- 40R Program <http://www.mass.gov/hed/community/planning/chapter-40-r.html>
- Compact Neighborhoods Policy  
<http://www.mass.gov/hed/community/planning/compact-neighborhoods.html>
- Community Preservation Act <http://www.communitypreservation.org/>

**Actions that state and local jurisdictions have taken to promote healthy, responsive, affordable, high-opportunity housing markets, including:**

- Establishing by-right development
- Taxing vacant land or donate it to non-profit developers
- Streamlining or shortening permitting processes and timelines
- Eliminate off-street parking requirements
- Allowing accessory dwelling units
- Establishing density bonuses
- Enacting high-density and multifamily zoning
- Employing inclusionary zoning
- Establishing development tax or value capture incentives
- Using property tax abatements

Housing Development Toolkit Report, September 2016, Obama Administration

# Financing Small Homes





## Ownership and Finance

Owning a home is a dream that many people have because they want increased stability in and control over their lives and the ability to build a secure financial foundation through home equity. Purchasing a home allows the homeowner the opportunity to gain equity over time. Instead of paying rent to someone else they are investing in their future. Homeowners also gain financial benefits including deducting the interest that they pay on their mortgage from their taxes. The emotional benefits include the security of making their own decisions about their living space, feeling the freedom to do as they want in their own home, feeling safe and secure.

### The value proposition: building equity

How much is enough, financially speaking? Different housing and homeownership options create different outcomes regarding equity. There is a spectrum:

- **Renting** – Renter has zero equity but they have the flexibility of being able to move and not being locked in financially for as long a period of time.
- **Limited equity co-op** – Provides 100% shared ownership with some equity available when equity investor leaves.
- **Manufactured Housing Park** – Homeowner owns their home, but not the land. If the land is sold they have to move their house, accept terms of new landlord or abandon it. They also have monthly park fees which can be expensive.
- **Community Land Trust** – Homeowner has equity in the house/improvements only and not the land. This usually includes a resale restriction on the price they can sell the house to maintain affordability. A long-term (99-year, renewable) lease provides secure land tenure.
- **Condominium** – Homeowner has equity in their unit and in a share of all the common parts of the condo. They have monthly condo fees to cover common expenses and future maintenance of all external aspects of buildings and property.
- **Deed restricted ownership** – For affordability reasons the resale price of the house is restricted and homeowner has to sell to another low to moderate income buyer. They gain equity but not much appreciation in value over time.
- **Fee simple ownership** – Homeowner owns the house, the land and it's unrestricted in value. Owner is responsible for the maintenance and upkeep of the house. In western MA most house values generally go up over time so this investment will likely grow.

(Side note: **Rent to own** – This situation is potentially predatory because the renter may not receive the full benefit of the landlord caring for the property and is at continuous risk of losing their investment because they are not yet owners).

### Why we aren't talking about tiny houses on wheels or “mobile” homes

Financing real property requires homes to be rooted in place. Fixed rate first time homebuyer mortgage loans are geared towards having a complete package: land + house. A tiny house on wheels is considered a recreational vehicle and does not qualify for low-interest long-term financing. For lending purposes, they are typically considered personal property and qualify for



personal loans or short-term RV loans. Tiny houses are thus not a vehicle for building equity and are not considered real property that appreciates in value.

Manufactured housing, or “mobile” homes, built to national HUD standards and not local codes, is also considered “chattel” not real property from most lenders. Although these homes may never move after the initial set, if a manufactured home is built on a permanent chassis to HUD codes, financing will be difficult. Financing for modular homes – those built off-site in a factory to local building codes – are easier to finance.

### **What are housing costs made up of?**

Overall homeownership costs are made up of the mortgage payment, interest payment, house insurance, and real estate taxes. When a potential homebuyer considers whether purchasing a house is affordable, they must weigh not only the monthly mortgage payment but also how much it will cost each month to live there. There will be utility bills including heat, hot water, electricity, phone, water and sewer (if public), and also costs for snowplowing and other landscaping costs and for maintenance and upkeep over time. Low income homeowners may struggle to pay for unexpected repairs that need attention quickly like a water heater that stops working.

### **The importance of energy efficiency to long term affordability**

A mortgage is only the beginning of the long term cost equation for homeownership. To mitigate costs over time, buying or building an energy efficient house is worth considering when possible. A homeowner will save money every year in utilities including heat, hot water and electricity if they live in an energy efficient home that is well insulated and air sealed. Some houses built today are Zero Net Energy which means that they produce with solar equipment as much electricity as they use for heat, hot water, and electricity. Over time the savings can be thousands of dollars for avoided utility costs. Homebuyers purchasing an existing home may contact MASS SAVE to better insulate and air seal the home. Purchasing the most efficient appliances and minimizing electricity usage will help as well.

### **Learn More:**

- <https://www.masssave.com/>
- <http://www.mass.gov/eea/energy-utilities-clean-tech/energy-efficiency/zero-net-energy-bldgs/>

### **Who can afford to buy a house in western MA?**

The reality is that homeownership is not an affordable option for many in Franklin and Hampshire Counties. The median home price in Hampshire County is \$255,200 but someone earning the area median income can only afford to spend \$200,000 on a home. August 2017 [www.Zillow.com/hampshire-county-ma/home-values/](http://www.Zillow.com/hampshire-county-ma/home-values/)

### **Pioneer Valley Habitat for Humanity Homeownership**

Habitat builds homes for people who can't afford to buy a home in our western MA area through traditional lending vehicles. Habitat homes are:

- Energy efficient, simple, decent homes
- Typically 2-4 bedrooms and 1,000-1,500 sf

- Built with volunteer and paid labor
- Sold to a low-income family with an affordable mortgage
- Sold for less than market prices – typically \$100,000-\$150,000.
- Permanently affordable (limited resale price)



*Habitat homes in Florence and Easthampton*

### What home is affordable if you make minimum wage?

What someone earns impacts what they can afford. Translating hourly wage to annual salary and computing from that what would be affordable monthly housing costs, we see that a person making minimum wage of \$11/hour at a full time job has an annual salary of about \$22,000 and is able to afford a home sale price of just over \$50,000 at current market lending rates.

Full Time Minimum Wage \$11 hour		
Housing Cost:		
Sales Price		\$52,000
Less 3% Down payment		\$1,560
<b>Total Amount Mortgaged</b>		<b>\$50,440</b>
Interest rate		4.00%
Amortization - Years		30
Monthly Principal & Interest Payments		\$240.81
Tax Rate - 2017 (Average of Greenfield & Northampton)		\$19.21
Estimated monthly property tax		\$83
Estimated Hazard insurance (\$6 per \$1,000 valuation)		\$26
Private Mortgage Insurance (PMI)		\$0
Condo/HOA fees (if applicable)		\$200
<b>Monthly Housing Cost</b>		<b>\$550</b>
Household Income:		
Sample Household size for 1 bedroom home		1 or 2
Full Time Min Wage \$11/hour		\$22,000
<b>Target Housing Budget</b>		<b>\$550</b>

### Can a low-income person get a loan for a manufactured or modular home?

Yes, but many local banks do not provide loans for manufactured homes (built to HUD standards in a factory) or homes that are placed in mobile home parks. Specialty lenders, like Priority Funding, are often needed for the purchase of a manufactured home (Priority Funding LLC, n.d.). Financing for modular housing on private land is generally the same as site built houses (see the glossary for the difference between mobile, manufactured and modular).

### Can you get a mortgage for a house on leased land?

The [UMass Five College Credit Union](#) has a program for providing mortgage loans on community land trust land. Other local banks may consider it for a portfolio loan.

## **Challenge: Financing construction and home ownership that is affordable.**

The initial costs of purchasing an existing home including down payment, closing costs, home inspection, appraisal fees, and moving expenses are a barrier for many. Down payments of less than 20% of the sales price or appraised value typically require the bank to include an additional insurance cost in the mortgage payment called private mortgage insurance (PMI).

When building a house, a construction loan requires a 20% down payment (or equity in the land that is going to build on). A construction mortgage is more likely to have a variable interest rate, balloon payments, or a higher interest rate. Construction loans are disbursed on a schedule as work is completed, so enough cash in hand is needed to buy materials and pay workers ahead of the construction disbursement dates. Once the house is built a typical mortgage will replace the construction mortgage.

It is also harder now to get a mortgage than it was a decade ago. “Between 2007 and 2012 originations have dropped by 90% for borrowers with credit scores between 620-680—countering this trend” (Timiraos, 2013).

## **Solution 1: Community Supported Projects.**

Low down payments, no private mortgage insurance and low-interest rates are reasons to leave the construction loan to the builder and just purchase a finished product. Programs like Habitat for Humanity will engage future homebuyers in construction through sweat equity. Non-profit housing developers usually take responsibility for the construction financing and sell the completed home, so that the low-income buyer only has to qualify for a loan on the finished product. (see Solution 2!)

Pioneer Valley Habitat for Humanity has traditionally offered a zero interest loan to all our homebuyer partners and is experimenting with other affordable mortgage options that give a homebuyer similar equity and payments as a zero interest loan. We plan to pilot a “zero equivalent” mortgage in 2018 or 2019. The zero equivalent mortgage would include a first mortgage from a local bank and a second deferred forgivable loan from Pioneer Valley Habitat for Humanity.

## **Learn More:**

Pioneer Valley Habitat for Humanity's homeownership program:

<https://www.pvhabitat.org/homeownership/>

How policy affects affordable housing development finance

<https://apps.urban.org/features/cost-of-affordable-housing/>

Communities may utilize **Community Preservation Act** Funds to help create more funding for affordable homeownership opportunities in their municipality. The Community Preservation Act helps provide funding for affordable housing through matching local tax revenues with state funds. About half of the MA municipalities have voted to adopt the CPA to leverage state funds to carry out municipal projects for affordable housing, open space protection, historic preservation, and outdoor recreation. Since the creation of the Act in 1990 more than 4,200 affordable housing units have been created with an additional 6,400 units supported. Community monies are raised locally through the imposition of a surcharge of not more than 3% of the tax levy against real property, and municipalities must adopt CPA by ballot referendum. The locally collected surcharge is partially matched by state funding. This is a way for affordable housing monies in a municipality to be leveraged and have more impact, but as more municipalities adopt CPA the matching funds have decreased per town (Community Preservation Coalition, n.d.).

The 16 towns in Franklin and Hampshire counties that have passed Community Preservation Act include: Northfield, Goshen, Conway, Deerfield, Whately, Sunderland, Leverett, Shutesbury, Hatfield, Hadley, Amherst, Pelham, Northampton, Easthampton, Belchertown, and Southampton.

- <http://www.communitypreservation.org/>
- [http://www.mhp.net/writable/resources/documents/071019\\_mhp\\_cpa\\_guidebook.pdf](http://www.mhp.net/writable/resources/documents/071019_mhp_cpa_guidebook.pdf)

Municipal Affordable Housing Trusts can help provide greater flexibility to act when opportunities arise:

[http://www.mhp.net/writable/resources/documents/municipal\\_affordable\\_housing\\_trust\\_guidebook.pdf](http://www.mhp.net/writable/resources/documents/municipal_affordable_housing_trust_guidebook.pdf)

## **Solution 2: First Time Homebuyer Mortgages.**

Several first-time home buyer programs exist that offer 95% to 100% financing for first-time home buyers, including the Massachusetts One Mortgage (My Mass Mortgage, 2017) and the USDA Rural 502 Direct Mortgage Loan program (United States Department of Agriculture Rural Development, 2015). In rural communities –including all of Franklin County and many towns in Hampshire County – the USDA Direct 502 Mortgage Loan program may be utilized to buy a finished house or a construction loan.

If a low-income buyer is not working with a developer but wants a new construction home, buying a manufactured home may make it easier to use a USDA construction loan because there

is less uncertainty in construction. If that manufactured home will be in a park, it will be necessary to get a lease of at least 35 years.

There is a strong need for additional affordable subsidized housing finance programs to help close the gap between what monthly payment is affordable by someone working a full time minimum wage job and what housing is available to purchase at that price. Down payment assistance programs and “Individual Development Accounts” (IDAs) can help low-income buyers finance a purchase by increasing the loan to value ratio. Most of these programs require attendance at a First Time Homebuyer workshop or program.

**Learn more:**

Below market-rate mortgage financing [www.masshousing.com](http://www.masshousing.com)

Massachusetts state sponsored affordable mortgages <https://www.mymassmortgage.org/>

USDA Direct 502 Mortgage Loan program <https://www.rd.usda.gov/programs-services/single-family-housing-direct-home-loans>

Individual Development Accounts <https://prosperitynow.org/issues/individual-development-accounts>

**Solution 3: Skip the bank. Borrow from friends, family or community groups.**

Many cultures around the world utilize lending circles to support each other. Sometimes this is because they have been left out of the conventional banking system and sometimes it is a deep cultural tradition. The beauty of a lending circle is that members give and members receive – it’s a system that strengthens community ties and helps many people get ahead. Before assuming a “crowd funding” approach it is important to first reflect on privilege and access to other resources. If borrowing from friends, family or neighbors, drawing up clear written agreements is advised.

**Learn More:**

Lending circles: <http://lendingcircles.org/> and <https://www.bostonglobe.com/business/2015/01/13/community-lending-circlesmainstream/gkgoWoIfTIS3z1bhkkjiP/story.html>

Create legal documents even if borrowing from friends to create clarity in the future.

<http://www.nolo.com/legal-encyclopedia/borrowing-from-family-friends-buy-29649.html>

# Design and Construction



## Design and Construction

Innovations in homebuilding toward energy efficient, compact homes with footprints that occupy very little real estate or are built in an affordable way offer new possibilities for exponentially increasing the number of homeownership opportunities among lower- and lower-middle-income families. Small homes that replace reliance on expensive, environmentally destructive fossil fuel-based systems with efficient equipment powered by solar for heating, hot water and electricity will minimize utility bills as well.

One of the biggest variables in new construction is the cost of site work and connecting to utilities like water, sewer, electric and natural gas. The high cost of land, site preparation costs and utilities is often the justification for not building small low-cost homes.

### Big Enough small house design program:

- 400 to 850 sq ft
- Keep the house shape simple – add function with small features (weather protection over doors, sun protection over windows for passive solar)
- Household size of 1 to 2 people
- Appropriate for all ages and abilities to visit and handicapped accessible if possible
- Demand is likely to be highest for those over 60, single parents and millennials
- Well insulated and solar orientated, zero net when feasible
- Appropriate for heating with a single mini-split head or electric resistance heat
- Utilizing techniques easy for volunteer labor or factory assembly
- Minimizing interior partitions, expensive things like cabinets (use shelves)
- Minimize circulation space – plan space well for maximum use
- Concentrate the plumbing to minimize the cost
- Ability to create private bedroom
- Well-designed multi-functional space
- Flooring simple and durable – ceramic tile, local hardwood, finished concrete, etc.
- Durable and non-toxic (low volatile organic compound (VOC) materials, good moisture management)
- Pier or slab foundation where feasible – no basement but secured to ground for resiliency to natural disasters
- Connect to town water/sewer or find good site for septic/well
- No garage, but yes to an attached or detached shed
- Washer and dryer hook ups
- Covered entry or simple porch
- Single family ownership – detached or attached (i.e. zero lot line duplex or stand-alone)
- Construction materials and labor for house \$50k or less (\$50k does not include land, utilities connections and site costs)



## The Pretty Good House

**Good design** A Pretty Good House looks good and feels comfortable. Good design is simple, so it's easier to build well. Chopping up a roof with dormers and peppering walls with bump-outs creates opportunities for ice dams and air leaks, and it requires extra labor and materials.

**Layout** Careful room planning for flexible use can allow a smaller home to work better than a larger home with a poor design.

**Orientation** Can you make space for PV on your roof without other tradeoffs? Where will the rain go? Can it be harvested? Will snow or rain from the roof block the entry?

**Energy modeling** Perform this during the design by working with a consultant or by using software such as the DOE's free web-based [ResCheck](#).

**Foundation** Basements can be cheap square footage, or they can be expensive unnecessary spaces. They're also prone to moisture problems.

**Air-sealing** Plan the air barrier for continuity. Trouble spots are where materials join (e.g., where foundation hits framing) or where planes don't align (e.g., where walls hit roof). The air-leakage rate should be no more than two air changes per hour at a 50 Pascal pressure differential.

**Insulation** Include sufficient framing depth for the desired R-value. Insulating sheathing requires thought about window, siding, and door installation. In my area (climate zone 6, coastal, 7000 heating degree days), R-10 under the slab, R-20 foundation walls, R-40 walls, and an R-60 roof are a good start. Understand seasonal vapor drive and how different materials can trap condensation and lead to mold or rot.

**Mechanicals** Get the orientation, shading, and insulation to where you can downsize the heat and air conditioning. These costs may break even. Consider a service core for plumbing and wiring to keep them out of exterior walls for energy efficiency and to group them for easy upgrades in the future.

**Air quality** Avoid products that contribute to poor indoor-air quality, but don't go crazy. The poison is in the dose: How much exposure will anyone have? Focus on the big sources of off-gassing, such as flooring and furniture.

**Windows** The best window insulates like a lousy wall. Skylights make even lousier roofs than windows do walls. Plan each to maximize natural light and minimize heat loss, and consider upgrading to triple glazing.

**Solar panels** The dropping cost of PV may be changing the equation. There may come a point where it's smarter to focus more on energy production than on energy saving.

**Universal design** Can your house accommodate people with limited mobility? Avoid floor-elevation changes, especially on the first floor. Can a ramp be put in later if needed?

**Reversibility** What happens if you repair or renovate the structure? Can you replace insulation and keep the thermal boundary intact? Can materials be replaced without damaging the substrates?

**Nonmonetary costs** Think about hidden environmental costs. Spray foam is a great insulator, and vinyl is a cheap and functional siding, but both products have environmental drawbacks. Bamboo flooring is eminently renewable, but it comes at a transportation cost. That doesn't mean you shouldn't use those products; just balance their costs and their benefits

*From Fine Homebuilding, "Is a Pretty Good House good enough? Issue 259 – Houses 2016"*  
<http://www.finehomebuilding.com/2016/04/11/is-a-pretty-good-house-good-enough>



## How many bedrooms can you fit in a \$50,000 house?

Although we would love to design and build small homes for \$50,000 that have more than one bedroom, to keep costs down we needed to minimize in all possible ways and still make the space functional. The concept plans that we designed and the house models that we identified for close to \$50,000 had either one bedroom or an open floor plan. For most of the people that we surveyed and health codes, a one-bedroom house would only work for 1-2 people. It is important when designing a house or choosing a site to consider options for possible future additions for a second bedrooms or work spaces.

## Examples of low-cost, durable homes already built

As part of the Big Enough project we have gathered some small home examples that fit the project base criterion. See <https://www.pvhabitat.org/big-enough/> for case studies highlighting the details of a number of projects that we laid out details regarding construction/design, cost, finance, regulatory frameworks.

**Challenge: Construction Costs are always more than you want them to be.**

Choosing to build a small house does not eliminate the need for professional services such as a lawyer, surveyor, architect, engineer, licensed plumber, licensed electrician, and general contractor that may need to be hired. A person can be their own general contractor for their own house, hire a general contractor to manage the whole building project or settle on a place in between depending on their skill sets, knowledge, and comfort level. The code requires the inclusion of basic features for health and safety - you can't skip the plumbing or electrical – and there are some minimum room sizes and required distances.

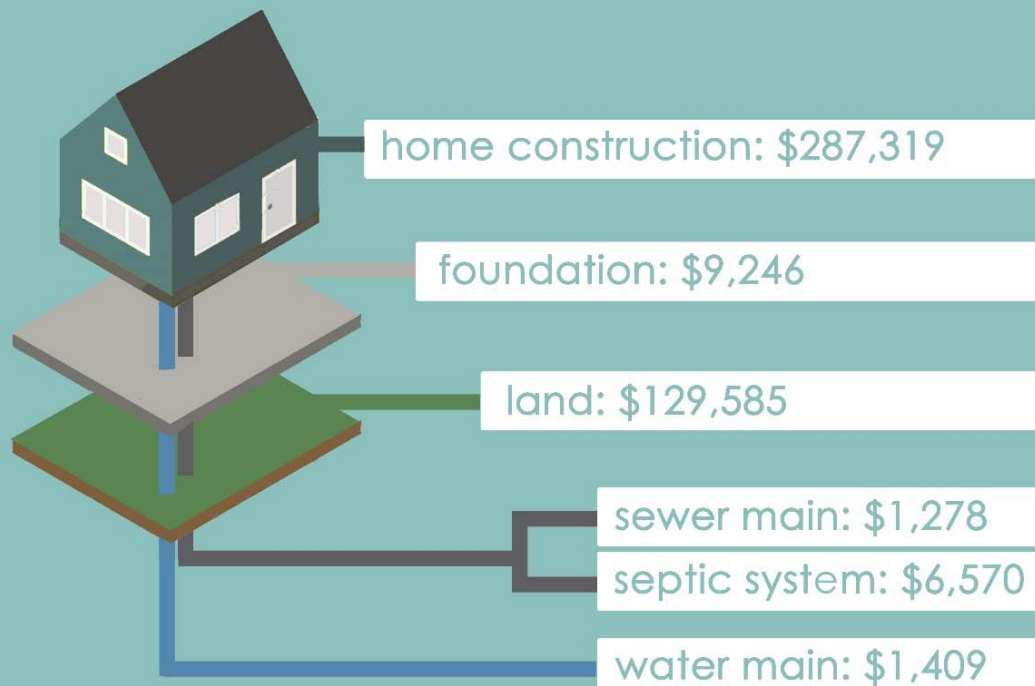
One of the greatest challenges to building small affordable houses in western MA is minimizing the cost of the installation of water and wastewater utilities. When building in a rural area not served by public water and sewer, the cost of the installation of a well and septic system can be tens of thousands of dollars and will vary significantly by site. In comparison the cost to connect to public water and sewer is typically a few thousand dollars which makes for an overall lower initial cost of a house.

*“One of the barriers in Franklin County to constructing additional higher density optimal location housing units is the lack sufficient public infrastructure for public water and sewer near downtowns and town centers. More than half of Franklin County’s town centers do not have public sewers and thus rely on septic systems which take up more land and require costly installations – which make the development of additional affordable housing less economically feasible for developers” (FRCOG, 2014).*

In Franklin County there are 11 out of 26 towns that have public water and sewer in at least part of the town.

Note: When creating new building lots on a new road, expect to spend thousands of dollars on engineering, surveying, as well as pavement, sidewalks, etc.

## average construction costs in massachusetts



Sources:

Home Advisor, 2017 <http://www.homeadvisor.com/cost/>

Davis, Morris A. and Jonathan Heathcote, 2007, "The Price and Quantity of Residential Land in the United States," Journal of Monetary Economics, vol. 54 (8), p. 2595-2620; data located at Land and Property Values in the U.S., Lincoln Institute of Land Policy <http://www.lincolniusti.edu/resources/>

### **Solution 1: Build Small.**

Most **zoning regulations** in Hampshire and Franklin Counties do not include a minimum house size requirement. Montague does require dwellings to be a minimum of 500 sq ft - but this is the only example of a minimum size requirement we have found.

Case studies we documented of small homes include:

- A contractor built house in Worcester that was 400 sq ft. It was built to the smallest size allowed while meeting all code requirements
- An accessory dwelling in Amherst that was just under 500 sq ft that was built from a "kit" by a local builder
- A zero net energy modular home in in VT

These homes all showed cost reductions through building smaller – but the open floor plan "kit" home was the lowest cost.

## Solution 2: Build Simple.

**Build fewer features.** Not everything that might be “standard” in the idea of a house is required by code. Here are some ideas for reducing cost:

No closets	Painted plywood or concrete floors
No garage	Fewer doors - hang curtains instead
No big porches	No kitchen cabinets - use shelves
No washer/dryer	Tile counters instead of pre-fabricated
No dishwasher	One bathroom, no tub (shower only)
No hallways	Electric heat in a well-insulated house

**Forgo a basement.** There are other options: crawlspace, slab or piers. Builders need to make sure to plan for utilities within the conditioned building envelope if there is not a basement for hot water heater, water pump, electrical box, and heating system.

- **Piers** will minimize concrete and excavation costs the most, but requires that the floor of the building be very well insulated because it will be exposed to air which can get colder than dirt in the winter. Plans for durability of the bottom of the structure must also be made. On a site with sandy soil you might be able to dig the holes for the piers with an auger instead of heavy machinery.
- **Slab on grade** foundations or "Alaskan" slabs will also use less concrete than a full basement. Insulation and moisture need to be carefully considered. Read more: <https://buildingscience.com/documents/insights/bsi-059-slab-happy>

**Build fewer corners.** A simple box is the easiest design to build. The more complicated the exterior gets with different roof lines and other flourishes the more likely costs are going to increase for construction. It also is easier to air seal and insulate a simple design.

## Solution 3: Build Smart.

**Don't re-invent the wheel.** Good architectural drawings are more than just floor plans. They are instructions on how to build to code and what materials to buy. To optimize the benefits of well thought out architectural plans, **resist the urge to customize.** Small changes to plans can have large unintended cost impacts or a ripple effect of changes to the overall design that will require more expensive professional services. Customize later with art and furniture and build a simple house. **Plan for clustering plumbing and mechanicals** near the kitchen and bathrooms for efficiency in space and cost.

**Plan ahead.** When building a house, it is best to start with a list of must haves, good to haves, trade-offs and can-do-with-outs. Understanding the reality of the budget of a house is essential from the start. Working to get accurate budget numbers from contractors will help a homebuilder see earlier in the process whether they need to adapt the design or elements that would be ideal to include. Choosing a design that allows for adding in additional features easily in the future creates flexibility over time. For example, if a future homeowner cannot afford a washer and dryer right away, they might plan a place in the bathroom where one could be added

someday. A well planned flexible floorplan helps create adaptable spaces and potential places for additions if needed in the future.

#### **Solution 4: Build Together .**

The lowest total cost projects we found in our case studies usually involved some amount of DIY or volunteer labor. Whether it was the students at Yestermorrow or the Habitat homeowner doing sweat equity alongside community volunteers, in a project with good oversight, DIY labor can save money. DIY labor can also COST extra money if DIY'ers don't have adequate technical information from architects, builders and trades people. To go DIY, take the time to get educated first. Consider taking classes at Yestermorrow or review NESEA case studies:

<https://yestermorrow.org/>

<http://www.nesea.org/search-case-studies>

#### **Solution 5: Build Complete.**

Instead of hiring professionals for custom work go modular/manufactured. Factory built housing takes advantages of economies of scale in purchasing and specialization of skills in construction. Be sure to think through the zoning, financing and social cultural impacts.

##### **Learn More:**

<http://vermodhomes.com/>

<http://www.noble-home.net/>

<http://www.kenthicksconstruction.com/east-branch-evolution/>

#### **Solution 6: Choose the right site.**

This is key to keeping project costs down. Choosing land with **town water and sewer** is likely to save money. Utility connections to town water and sewer are usually less expensive than septic systems and digging a new deep well. Call the local DPW to find out about water and sewer availability for each building site. Availability can vary town by town and street by street. Towns in Franklin County with public water & sewer in some locations: Ashfield, Buckland, Deerfield, Erving, Gill, Greenfield, Montague, Northfield, Orange, Shelburne and Sunderland.

Other potential budget busters: buried oil tanks or other environmental contamination, long-driveways, steep sites, underground ledge, unclear title, etc. One thing is not necessarily a deal breaker, but do the necessary due diligence and pick your battles!

# Social and Cultural



## Cultural Expectations and Social Acceptability

Homebuyers have visions of their ideal house. Some of these elements are essential for their functioning, comfort or feeling of home. While every homebuyer may not be able to have all of the elements in a new small affordable home that they would like, ideally the needs and wants that feel essential are included. Since each homebuyer has their own sense of essential needs and wants we surveyed potential homebuyers for Habitat small homes to see what desires emerged as essential in a small affordable house design. We conducted in-person interviews and online surveys with 50 potential homebuyer family units.

### Key elements

When considering designing and building small houses there are many cultural and social considerations to keep in mind, including:

#### Is the building style appropriate within the neighborhood?

Ideally, new construction is planned with an appropriate architectural style that blends with the style of the neighborhood and improves the feeling of the place. Consider what style the existing houses are and what the house will look like when it is built. Are the buildings one, two or three story? Are they finished with shingles, bricks, or metal? Simple details on a building can help to blend the building into the existing neighborhood. It is worth taking some time to consider the decisions that will impact the look and longevity of a new housing unit. Many software programs allow builders and dreamers to play with placement on the landscape prior to building.

#### Should the house stand-alone or share walls in a duplex or townhouse row?

Having shared walls does not work for some due to noise levels and lack of privacy. The benefits to having shared walls is reduced heat loss and potential cost savings in construction. Units with shared walls might be the only option to increase density within zoning regulations to make more housing opportunities available from a single piece of land.

#### Will there be private yards?

This partly depends on the amount of room on the lot and access due to overall design of the house and site. Some may feel that a fenced privately utilized yard is preferable but as long as there is access to outside space to a connection to the outdoors others may feel that is acceptable. Some homes may have fenced private yards and some may not.

#### Is there space for a garden and pets?

There was a strong desire in our survey results for garden space and the ability to have pets. Gardens allow us to be connected to our food source and the land wherever we are and are often culturally important for growing traditional vegetables and herbs.

#### Is there a place to park your car or is there public transportation?

We all need transportation for work and other activities. Typically, a home that provides parking will provide for two parking spaces. Sometimes housing in a more urban area depends on on-street parking. A site that has public transportation nearby offers the benefit of being more sustainable in the long run.

#### What are square feet expectations

The amount of room that we need varies based on how many people live in a space, what their sense of privacy is and their need for space around them as they go about their day. This is

complicated by the fact that the numbers of people living in a space can increase and decrease over time with major life events – aging, birth, death, marriage, divorce and other life situations. What works for a family unit this year may not work as well next year. A house that is built with the most flexible use of space and possibilities for adaptations will have the greatest possibility of accommodating more of these family changes. For the purposes of our Big Enough project we have looked to balance minimizing cost and maximizing livability in a small space.

### What is an ideal number of bedrooms?

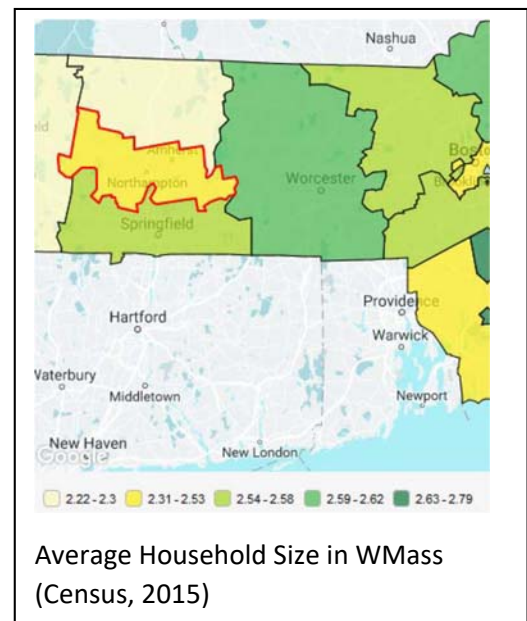
This may be determined by cultural and financial considerations. How many bedrooms can a family afford? How much privacy does each family member need? In some families there is a lot of shared space in their living situation due to need or preference. Do the children each have their own room or do they share a bedroom? Do one or more people work from home or have a home office? Where are those spaces created? Each family needs to decide for themselves what works for them given constraints on finances and space.

### Household Size & Demographics

*“The region continues to have a variety of household types in terms of size, age, income, and ability, which results in the need for a variety of housing options. Region-wide, we are seeing much smaller households than in decades past as more people choose to live alone, have no children or have fewer children. Consistent with national trends, over 60 percent of all households in the region consist of **one or two person households**. Our rural communities, in particular, have seen a great decrease in families with children and an increase of older, childless households.”* Pioneer Valley Planning Commission, Pioneer Valley Regional Housing Plan Executive Summary, March 2014.

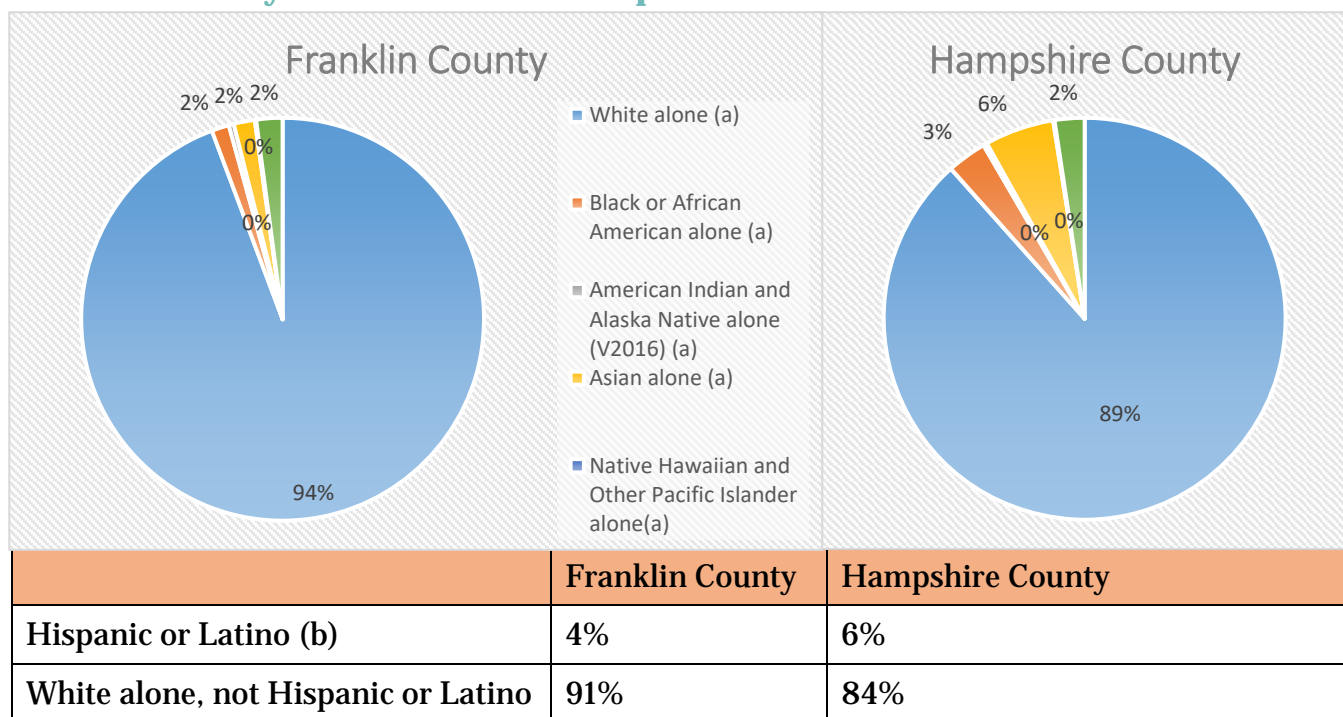
The quote above is from a plan for Hampshire and Hampden counties. See the map for a visual illustration of smaller household size in our rural communities like Franklin County.

The smaller household size in western MA indicates a need for additional small house units. A smaller house size means less initial cost, monthly housing expense, upkeep and cleaning.





## Race & Ethnicity in Franklin and Hampshire Counties



### Notes

(a) Includes persons reporting only one race

(b) Hispanics may be of any race, so also are included in applicable race categories

It is important as we promote to building of small houses to take into consideration race, ethnic, and cultural needs and differences including the need for social space in the kitchen, need for privacy for religious reasons, need to fit into the neighborhood, need for self-expression, need for ownership and need for safety.

### Challenge: Meeting diverse social and cultural expectations and needs.

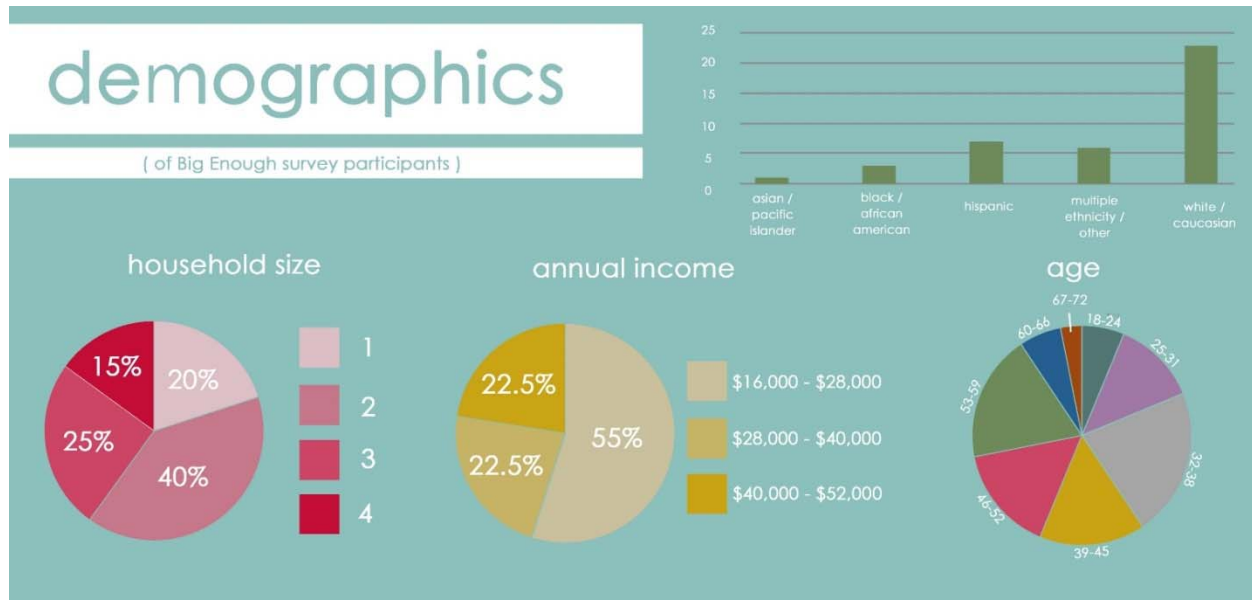
When we are discussing building small homes, who is included and who is left out of the conversation? What cultural biases and systemic barriers might limit someone's interest or ability to be at the table? Are there differences in who wants a small home based on a person's or a family's history with housing and homeownership? It is important to remember that there is no single solution for what is "big enough."

### Solution 1: Ask people what is important to them.

We interviewed or surveyed over 50 people about what cost-saving strategies for small homes are acceptable, unacceptable or a benefit. We are presenting the survey results from the 41 people who met our basic survey eligibility criteria of having incomes between \$16,000 and \$52,000, a first time homebuyer and a family size of 1 to 4. We excluded survey results that were



substantially incomplete. We offered the survey and interview in both Spanish and English; only 1 person completed the survey in Spanish. We have not surveyed enough people to know if differences in race or ethnicity impact the desire for small homes or specific features. But here is a breakdown of the demographics of those we surveyed:



### *Findings from our surveys and interviews*

It is important to note that 60% of the people surveyed had a household size of 1-2 which could potentially work for a small house with one bedroom depending on the family structure. (Some of these families are couples for whom a one bedroom could work and some are single parents with teenagers who stated that a one bedroom would not work for them). Fifty-five percent of the survey respondents landed in the \$16,000-28,000 income range which is where the minimum wage full time worker who can afford a \$50,000 house lands with \$22,000 income/year. The ages of the respondents were very diverse with no one group making up a majority of those interested in small houses. Within our sample, people of all ages were potentially interested in owning a small affordable house.

We found a correlation between household income and the number of times a respondent had moved. For example, participants who made between \$16,000 and \$28,000 annually were twice as likely to have moved between five and ten times than those participants who made between \$42,000 and \$50,000 annually.

Participants identified a number of reasons for enjoying where they currently live. Among the most common responses were: quiet / safety; access to nature / wildlife / recreation; and a sense of community. Participants earning \$16,000 - \$28,000 annually were more likely to report that the most valuable thing about their current living situation was quiet / safety. Participants earning \$40,000 - \$52,000 annually were more likely to report that proximity to amenities was what they enjoyed most about where they currently live. The most common reasons participants do not enjoy where they currently live include: unaffordable rental payments; landlord / neighbors; and the aesthetics or layout of their current unit. These were consistent across all three income brackets represented.

What they like least about where they live now	
Landlord/neighbors	9
Unaffordable	7
Aesthetics/layout	7
Unsafe/uncomfortable	6
No privacy	3
Unstable	2
Location	2
Noisy	1
Poor internet/telephone	1
No response to question	3
<b>Total Responses</b>	<b>41</b>

What they like most about where they live now	
Quiet/Safe	11
Wildlife/Nature/Recreation	8
Community	7
Good for kids	3
Affordable	1
Ability to update home	1
No response to question	3
<b>Total Responses</b>	<b>41</b>

**We asked if survey respondents would buy this Brattleboro infill house pictured below for \$50,000 if the monthly payments were affordable (no more than 30% of income).**



#### **Brattleboro infill house**

400 sq ft, loft bedroom with kitchen and bathroom underneath and open ceiling above living room. Built in the backyard of another house as an accessory dwelling unit, has its own separate small yard and a shared driveway.

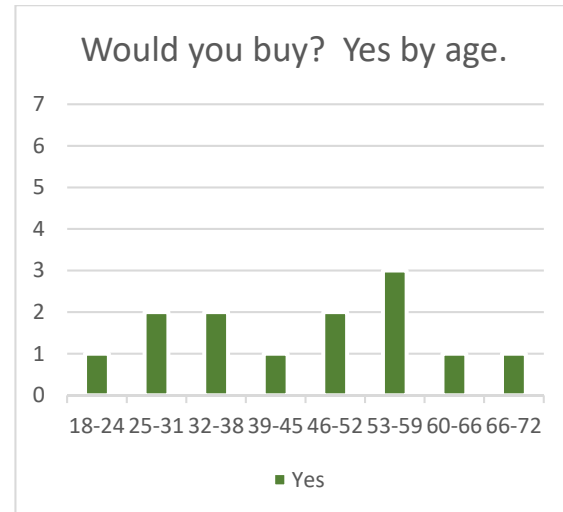
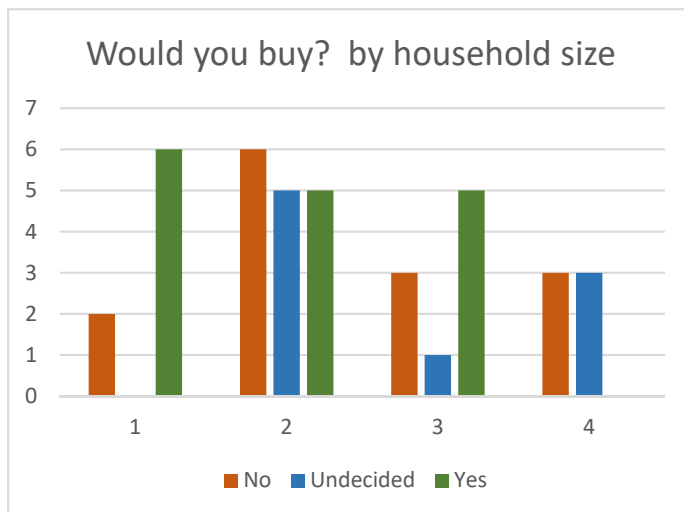
#### **Here are their responses:**

- **Yes** - 16 (Comments summary: Affordable, works for 1-2 people but not more, would make it work)
- **No** - 14 (Comments summary: Not enough space, Family size too large/Need more bedrooms/Need privacy (have kids), Not handicapped accessible)
- **Undecided** - 9
- **No answer** – 3

For the most part, the trend as to whether a respondent would purchase the Brattleboro infill house was evident in each income bracket. There was, however, a noticeable deviation from this response trend among participants who earn between \$40,000 and \$52,000 annually. These participants were generally much less likely to find the value in the small Brattleboro home. Of those participants in other income brackets who reported that they would not buy the house, a majority justified their answer by stating that the house was too small for their needs. A lack of accessibility in the home also seemed to present challenges.

Would you buy? by income	\$16,000 - \$28,000	\$28,000 - \$40,000	\$40,000 - \$52,000	Grand Total
No	8	2	4	14
Undecided	4	2	3	9
Yes	9	5	2	16
<b>Grand Total</b>	<b>21</b>	<b>9</b>	<b>9</b>	<b>39</b>

When looking at how the number of household members affected survey respondent's interest in purchasing the Brattleboro Accessory Dwelling Unit house we see that households of 1-3 people had the most interest and families of 4 largely found it to be too small. Whereas there was broad interest across age groups.





**Solution 2: Make information about housing more accessible.**

We hope this project will help make information about building small homes more accessible for those who want to help create small house options for themselves and others. We have begun posting our findings on our website and have created a Facebook group as a starting point for this conversation.

<https://www.pvhabitat.org/big-enough/>

<https://www.facebook.com/groups/BigEnough/>

Other local non-profits have great resources on finding rental and homeownership opportunities, such as Way Finders. They provide information in multiple languages and for people at many stages of trying to find housing. <https://www.wayfindersma.org/>

While not necessarily building small, these other local organizations are also working on increasing access to homeownership opportunities:

Valley CDC: <http://valleycdc.com/homeownership-services/>

Hilltown CDC: <http://www.hilltowncdc.org/>

Rural Development Inc: <https://www.ruraldevelopmentinc.org/>

Amherst Community Land Trust: <http://www.amherstcommunitylandtrust.org>

### **Solution 3: Community support for diverse housing options.**

Promoting diverse housing options helps to limit the perpetuation of the dynamics of privilege and exclusion that are part of our history of housing. In cities with skyrocketing home prices grassroots organizations have formed to promote the idea of “Yes In My Back Yard” as a social justice and climate solution that is pro-development. Choosing smart growth strategies for construction of house options for people with a variety of needs helps lessen the impact of sprawl and increase access to homeownership.

Learn more: <https://yimbyaction.org/> and [http://yimby.wiki/wiki/Main\\_Page](http://yimby.wiki/wiki/Main_Page)





## Grounded Solutions

As you can tell from this report, the intersection of our four areas of inquiry overlapped and intertwined as we sought to break down the variables that make the idea of small affordable homes into a reality. But while the pathway may be varied, we think there are some good grounded solutions that this process has directed us to.

### Utilize the DIY / Habitat Model

This model focuses on keeping the budget for materials to \$50K for an energy efficient small house that can be built with organized volunteer labor, using affordable/free land, and is financed with a first time homebuyer mortgage. This model works for someone who is willing and able to do the work themselves or bring in family and friends who can help to do the construction work, has access to land and the means to borrow short term for materials. This model also works with non-profit organizations such as Pioneer Valley Habitat for Humanity who depend on skilled and unskilled volunteers to provide labor to build homes for low income homebuyers and are in a position to receive gifts of land from municipalities and private individuals.

### Increase Access to Land

#### Community Ownership of Land

The creation of additional **Community Land Trusts** (CLTs) or land banks will help to increase access to land for affordable homes as it reduces the cost of the land in the housing equation.

Grounded Solutions Network: <http://groundedsolutions.org/>

Equity Trust: <http://equitytrust.org/>

#### Update zoning

The adoption of small lot and accessory dwelling unit bylaws in more municipalities can make more land viable for construction. Additional small lots typically make the most sense near downtown areas with access to transportation, services, and food. Zoning changes to reduce frontage and acreage requirements in town centers and village areas within towns can provide for additional affordable lots. A zoning bylaw allowing for the building of **Accessory Dwelling Units** in backyards increases the density of housing and can help create more affordable housing units because it increases access to land.

Creating more small housing lots and an increased number of building locations hopefully will translate into more affordable land cost for affordable small houses to be built. A consideration for any of these zoning update solutions is creating a deed restriction requirement for small house sq ft.

#### Create more incentives for affordable clustered developments

Offering incentives including expedited permitting, by right approval with site plan review, and property tax breaks to developers can help to encourage more affordable housing units in a municipality.

## Manufactured Home Parks/Village Communities

We propose a **Manufactured Housing version 2.0** with the following factors as a solution:

- More municipalities adopt bylaws to allow resident owned or non-profit owned Manufactured Home Parks which could be called “Village Communities”. Resident owned or non-profit owned Manufactured Parks create a secure land ownership model with long term leases for the homeowners. This puts the decision making around how long an owner of a manufactured home wants to live there in the homeowner’s hands, addressing the problem of uncertain tenure. In a resident owned community land and community resources are co-owned and managed.
- The **energy efficiency** of the mobile homes built in factories to meet HUD codes is increased to meet MA building code. Standard HUD code requirements for mobile homes (built on a chassis, not permanently fixed) are less stringent regarding energy efficiency than local building code. Energy efficient homes allow for more affordable places for people to live.
- **Creating a manufactured home factory in Massachusetts** that builds well-built, resilient, energy efficient housing units would create an accessible option for upgrading manufactured units or creating new manufactured home villages. Currently manufactured housing facilities are located at a distance from Massachusetts and having a factory in Massachusetts will lessen the distance of delivery and thus the cost of the manufactured housing unit. [Pros - Build in controlled environment, bulk purchasing of supplies, keeps transportation cost down. Cons – Expensive to set-up / Overhead - Need someone to start factory or adapt a current factory.]

Taking land out of the equation brings the first cost of the unit down. In these Community Villages the homeowner pays a lease fee for the land and commonly held resources.

## Planned Implementation Initiatives

### Habitat Pilot

Pioneer Valley Habitat for Humanity plans to pilot modular and DIY friendly small homes in Northampton. We will be building a small home on a small lot in Florence, MA. It is envisioned to be ~600sf with a single story that can easily incorporate some unskilled labor.

### Conceptual designs for the Habitat small home pilot program

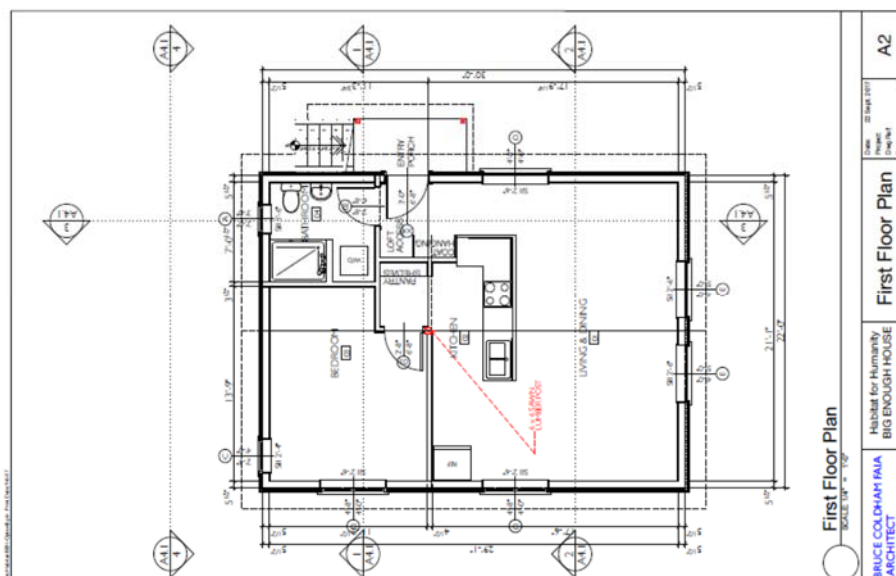
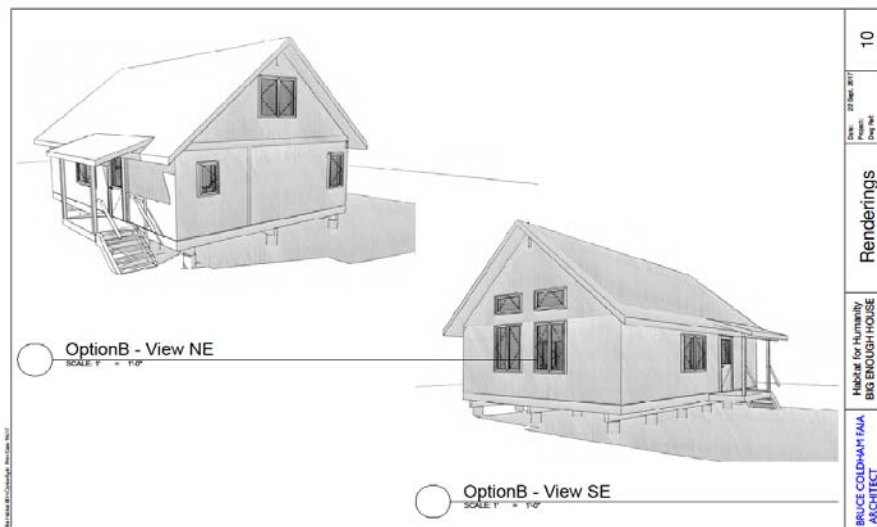
We are grateful to have worked with two skilled architects who designed the following initial small home concept plans. The following two designs were created as part of the Big Enough Project for possible build out by PV Habitat. The Big Enough Solutions Lab participants and a team of architects, builders and energy efficiency specialists have given feedback on these designs. They may be updated in the future to take into consideration lot requirements including amount of frontage, lot size, entrance requirements and solar access.

PV Habitat for Humanity hopes to utilize these and other designs as we initiate the build-out of some smaller homes in the next few years.



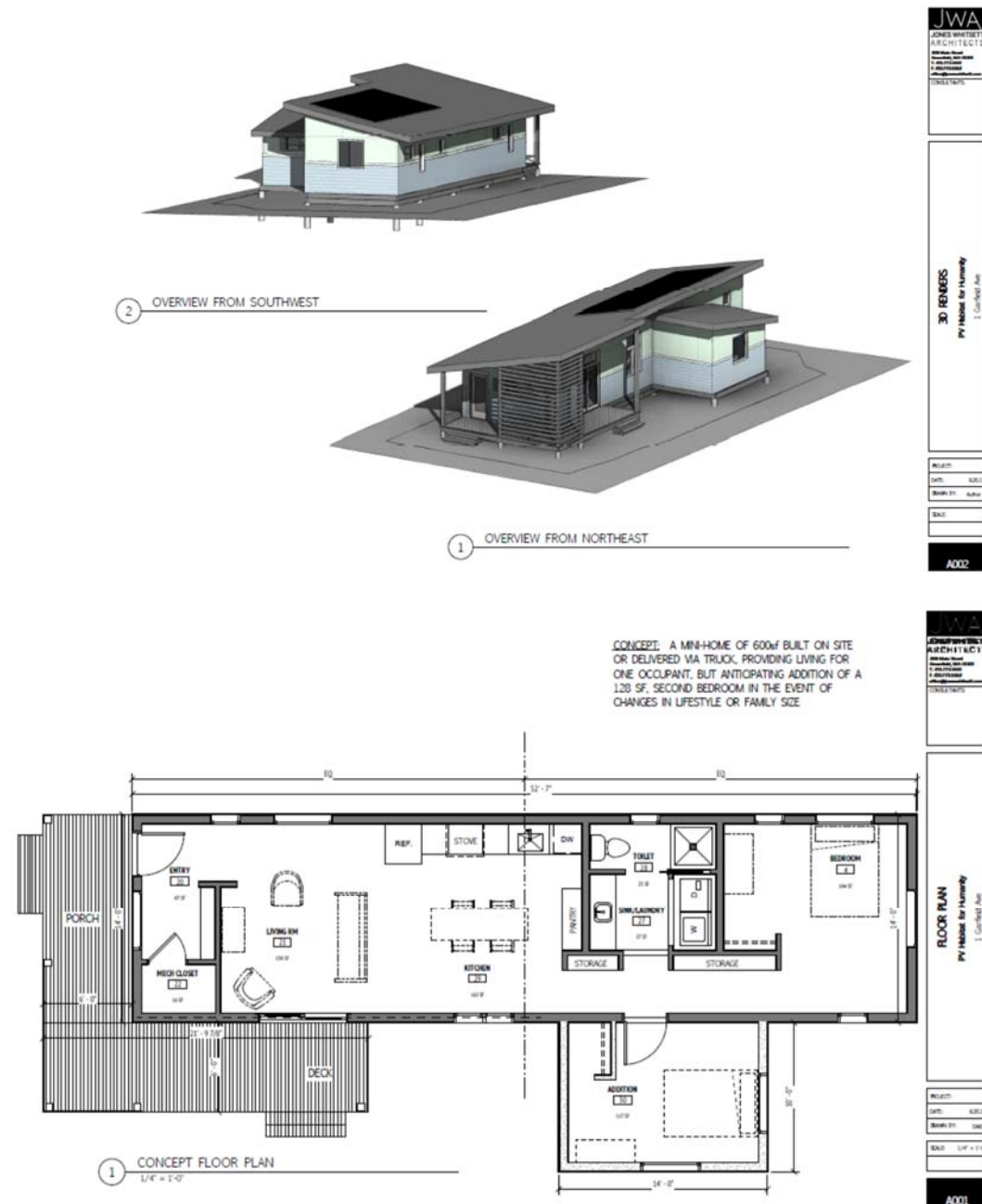
## Plan I - Bruce Coldham

The **Removing Barriers house** designed for 1-2 people, includes fewer interior partition walls, no closets, hand dug piers for foundation, open layout, and is community built. Bruce's strategies to meet the \$50,000 construction cost outcome for the 650 sq ft home included: 1. Make home small; 2. Shift work from subcontractors to Habitat volunteers; and 3. Encourage homeowners to accept a more open floor plan with lower level of finishes. One of the strategies employed was to minimize interior doors and create private spaces with bookshelves and portable dividers. The estimated cost for this 650 sq ft home on public water and sewer is \$53,650 for the construction budget not including site work, land or labor. See <https://www.pvhabitat.org/big-enough/> for the Project Memo for materials and budget details and additional plan details.



## Plan II - Dorrie Brooks representing Jones Whitsett Architects

Dorrie was presented with the challenge of designing a 600 sf house for 1-2 people with ability to be manufactured offsite which limits the width to 14' and the height to 10.5' for highway travel. This challenge was proposed to open up the possibility of manufacturing small units as part of the small house grounded solutions package. The small lot in Northampton that a house designed with Jones Whitsett will be built on is also quite narrow. A 128sf potential future addition is planned for changes in lifestyle or family size.



## City of Northampton

### *Just Big Enough -- Green housing for ALL Architectural Design Competition*

In partnership with Big Enough small house project, AIA Western MA and supported by Boston Society of Architects Foundation and PV Habitat for Humanity, a small house design contest has been announced with proposals due January 22, 2018 and a design exhibition February 6-10, 2018 at APE Gallery, Main Street, Northampton.

The focus is on the design of three different units: a one bedroom, two bedroom, and three bedroom ranging from 500-800sf for the smallest and 800-1000sf for the largest unit. The design contest is part of a city-sponsored limited development project with three affordable single family homes out of a development of 12 units near conservation land and a future bike path.

Go to <http://www.northamptonma.gov/1834/Just-Big-Enough-competition> to check out the city of Northampton's recent announcement of their "Just Big Enough" design context for three small homes from 500-1,000sf.

## Conclusion

The need and desire for more affordable housing in western MA is present. We know how complex home construction projects are. Western Massachusetts has a wealth of people who care about creating affordable, energy efficient, well-made homes. It will take a village to create a village of small affordable homes clustered and scattered throughout our communities. We have discovered that there is hope as we have explored many potential pathways forward. Building more affordable small homes is possible with the focused expertise and effort of interested residents, municipalities, non-profit and for-profit affordable housing developers. If we are able to work in partnership and individually to prioritize the development of additional small homes of many styles and building types we can help to meet the need and desire for more affordable small homes in western Massachusetts.

There will not be just one solution through one large project but many creative solutions spearheaded by many different individuals, companies, organizations and municipalities. As we move forward we hope to see a continuation of partnerships to jumpstart the small home revolution in western MA including zoning updates, tax benefits, planning priorities, and financial incentives. It will take leadership, innovation and focused effort to advance the manifestation of small affordable home revolution in western Massachusetts but through the best efforts of many we hope that we will fulfill this vision together.

## Additional Resources

You will find the following additional resources posted at

[www.pyhabitat.org/big-enough](http://www.pyhabitat.org/big-enough)

1. Small home case studies
  - a. [Brattleboro Vermont Tiny Infill House](#)
  - b. [Rural Design Studio Case Study](#)
  - c. [Worcester Tiny House Contractor Built Case Study](#)
  - d. [Burlington VT, Zero Energy Modular \(ZEM\) Cottage](#)
  - e. [Laurel Park Cottage Community Case Study](#)
  - f. [Noble Kit Home Case Study](#)
  - g. [Yestermorrow VT Bump House Case Study](#)
2. Glossary of Terms (also included in this document)
3. FAQ
4. Facebook discussion group: <https://www.facebook.com/groups/BigEnough/>
5. Franklin Regional Council of Governments: Summary of Franklin County research findings
6. What is big enough? Overview presentation for DIY'ers 9-1-17
7. Summary of September 22, 2017 Solutions Lab
  - a. Solutions Lab Group Memory
  - b. Thank you video
  - c. Solutions Lab Day Of Handout 9-20-17
  - d. Bruce Coldham Concept Plan A
  - e. Bruce Coldham Concept Plan B
  - f. Bruce Coldham Concept Memo
  - g. Dorrie Brooks JWA concept plan
  - h. Solutions Lab Presentation

## Glossary of Terms

**Accessory Dwelling Unit (ADU):** A self-contained apartment that is either attached to a principal dwelling or in a separate structure on the same property. Typically, the principal dwelling is an owner-occupied single family house. ADU's are sometimes called "in law" apartments.

**Affordable housing:** Housing for someone earning less than 80% of the Area Median Income that they can afford. Housing is considered affordable if you spend less than 30% of your income on housing (for homeownership this is mortgage principal, interest, taxes, insurance and any mandatory association fees).

**Allowed by right:** Project meets all zoning requirements and does not require special permits or variances, just building permits (Greenfield Department of Planning and Development [GDPD], 2017).

**Building Permit:** Issued before construction begins a Building Inspector will conduct final review of zoning, building and construction to ensure compliance local and state requirements (GDPD, 2017).

**Cluster development:** Building homes on smaller lots so the same number of homes is clustered on a smaller portion of the total available land. The remaining land, which would have been allocated to individual home sites, is now converted into protected open space and shared by the residents of the subdivision and possibly the entire community. The main objective of cluster development is to allow residential, or even commercial, development while still protecting the area's environmental features, allowing for more open space, and protecting farmland and the character of rural communities.

**Chapter 40B:** A Massachusetts statute, which enables local Zoning Boards of Appeals to approve affordable housing developments under flexible rules if at least 20-25% of the units have long-term affordability restrictions.

**Chapter 40R:** Otherwise known as The Smart Growth Zoning and Housing Production Act, is a Massachusetts statute which encourages mixed-income housing production in smart growth locations by providing flexible funding to municipalities that establish zoning overlay districts that satisfy certain minimum thresholds pertaining to location, residential density and affordability.

**Cohousing:** Cohousing is an intentional community of private homes clustered around shared space. Each attached or single family home has traditional amenities, including a private kitchen. Shared spaces typically feature a common house, which may include a large kitchen and dining area, laundry, and recreational spaces. Shared outdoor space may include parking, walkways, open space, and gardens. Neighbors also share resources like tools and lawnmowers (The Cohousing Association of the United States, 2017). Households have independent incomes and private lives, but neighbors collaboratively plan and manage community activities and shared spaces. The legal structure is typically a Home Owners Association, Condo Association, or Housing Cooperative.

**Community Land Trust:** A model for affordable housing whereby a community-based non-profit owns land and leases it to homeowners with a 99-year renewable lease. This increases access to land and removes the land from speculation.

**Compact development:** aims for a more efficient use of land through higher-density planning. It can be applied in new urban development as well as redevelopment projects such as infill or brownfield development. Benefits of compact development include: reducing sprawl; reducing dependency on private car use; creating walkable environments; increasing economic efficiency in delivering basic urban services (Town of Greenfield, 2014).

**Cottage Housing:** is a new model of clustered single family housing that provides a transition between single family housing neighborhoods and higher density areas, creating a development pattern that maximizes land values, reduces infrastructure costs and provides housing next to services (Town of Greenfield, 2014).

**Density bonuses:** a zoning tool that permits developers to build more housing units, taller buildings, or more floor space than normally allowed, in exchange for provision of a defined public benefit, such as a specified number or percentage of affordable units included in the development (Town of Greenfield, 2014).

**Energy Efficient Housing:** An energy-efficient home retains the best quality living environment for its occupants living while minimizing the consumption and waste of energy” (Sustainable Housing Foundation, n.d.).

**Grandfathered use:** When legal non-conforming use was in place prior to adoption of zoning ordinance it is allowed to continue as long as it exists or is redeveloped within 2 years or demolition or abandonment (GDPD, 2017).

**Green Building:** Practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s life –cycle from siting to design, construction, operation, maintenance, renovation, and deconstruction.

**Home Energy Rating System (HERS) Rater:** Someone who analyzes the energy use of your planned building project before construction and then inspects and tests the home to see that it meets energy efficiency standards.

**Home Energy Rating System (HERS):** HERS is the industry standard by which a home’s energy efficiency is measured. It’s also the nationally recognized system for inspecting and calculating a home’s energy performance. A HERS rating of 75 or less is required for new 1-4 unit residential homes in MA and all new construction projects in Stretch Code communities in MA must achieve a HERS score of 55.

**Inclusionary zoning:** a tool that can be used by municipalities to ensure adequate affordable housing is included in the normal course of real estate development. It requires a portion of the housing units in certain real estate developments to be reserved as affordable to low- and moderate-income households (Town of Greenfield, 2014).

**Infill development:** Building in areas that already have significant development vs. clearing natural spaces for construction. For small homes, this may mean looking for “back yards” or empty lots in existing neighborhoods big enough to create a new building lot or an ADU.

**Manufactured Home:** A manufactured home is any home factory-built in the U.S. to the HUD Title 6 construction standards (commonly known as ‘the HUD-code’). The HUD-code took effect June 15, 1976. A manufactured home is built on a permanent chassis to ensure transportability. However, typically a manufactured home is not moved from its initial installed site (NADA Guides, 2017).

**Mobile Home:** NADA Guides (2017) defines a mobile home as a factory-built home that is 1) built before June 15, 1976, and 2) not built to a uniform building code (The Tiny Life, 2017) (HUD would list it as a Manufactured House or Home).

**Modular homes:** A modular home is any home factory-built to a local state code. A modular home can be built as an “on-frame” or “off-frame” modular. On-frame will be built on a permanent chassis, whereas, the off-frame modular will be built with removal of the chassis frame in mind. An off-frame modular will usually require additional cranes to assist with home placement. Modular homes are, more often than not, attached to private land. These might also be considered *Prefabricated Buildings* and can only be installed by a Construction Supervisor Licensed Contractor. These are State/Board of Building Regulations and Standards (BBRS) approved. The BBRS will have received a 3<sup>rd</sup> party inspector’s stamp from the manufacturer. Building inspectors do have jurisdiction inside the building. In zoning, modular buildings are not treated like mobile homes (NADA Guides, 2017).

**Non-toxic:** Not containing or caused by a toxin or poison or not capable of causing harm.

**New Urbanism:** An urban design movement which promotes environmentally friendly habits by creating walkable neighborhoods containing a wide range of housing and job types. This planning and development approach is based on the principles of how cities and towns had been built for centuries: walkable blocks and streets, housing and shopping in close proximity, and accessible public spaces. New Urbanism focuses on human-scaled urban design. Houses designed with New Urbanism in mind often include livable porches where you are able to interact with passersby on the street (Congress for the New Urbanism, n.d.).

**Site Plan Review:** Sometimes uses are allowed by right with a site plan review. In this case the use cannot be denied but there is a careful review process of the site plan documents, drawings, and any engineering required. Conditions can be placed in the approval about site plan elements. The site plan documents show the building footprint(s), the lot boundaries, landscape features and engineering details (GDPD, 2017).

**Small homes:** Small homes range anywhere between 400 to 1500 square feet depending on the number of inhabitants and their lifestyles. In most cases, though, 400 to 1000 square feet is what most people in the tiny housing world consider small but it’s all really a matter of opinion (Tiny House Talk, n.d.). For this project we are generally discussing homes in the 400-900 sq. ft. range. The average home size in the Northeast in 2010 was 2,613 sq. ft. (United States Census Bureau, n.d.).

**Small Lot Zoning:** Zoning that allows for greater density than typical suburban growth patterns and is often more consistent with historic development patterns of downtowns and villages. This zoning may allow for less frontage or acreage required per dwelling. Specific examples may include “flag lots” or other infill lots, zero lot line development, no frontage or



acreage requirements, setting lot size per square feet of units instead of size by number of units, bonus densities, [cottage housing development](#) or other strategies that look at use intensity. The city of Northampton featured small lot zoning in their “[Small lot, big ideas](#)” design competition.

**Smart Growth:** Strategies that focus the creation of new homes in areas with infrastructure (sewer, water, transportation) and services (shopping, jobs, etc.). For more Smart Growth Terms check out this page:  
[http://www.mass.gov/envir/smart\\_growth\\_toolkit/pages/glossary.html](http://www.mass.gov/envir/smart_growth_toolkit/pages/glossary.html)

**Special permit:** Under zoning ordinance specific uses are allowed by special permit only. The special permit granting authority has the right to say yes or no, so it is not guaranteed that a special permit for the proposed use will be issued. Conditional approval may be granted with requirements (GDPD, 2017).

**Stationary house:** House built on a permanent foundation, crawl space or on permanent piers approved by a building inspector.

**Subdivision approval:** When project requires the subdivision of a parcel of land into additional lots or parcels or the construction of new street a Subdivision Approval is typically required from the Planning Board (GDPD, 2017).

**Sustainable Housing:** Homes that are designed to reduce the overall environmental impact during and after construction in such a way that we can meet the needs of the present without compromising the ability of future generations to meet their own needs (Sustainable Housing Foundation, n.d.).

**Tiny house movement:** A social movement where people are choosing to downsize the space they live in. The typical American home is around 2,600 square feet, whereas the typical small or tiny house is between 100 and 400 square feet. Tiny houses come in all shapes, sizes, and forms, but they enable simpler living in a smaller, more efficient space. People are joining this movement for many reasons, but the most popular reasons include environmental concerns, financial concerns, and the desire for more time and freedom.

**Variance request:** The standard for requesting a variance is very stringent and most towns will not provide “use” variances. To get a variance you must show that “owing to circumstances relating to the soil conditions, shape, or topography of such land or structures and especially affecting such land or structures but not affecting generally the zoning district in which it is located, a literal enforcement of the provisions of the ordinance or by-law would involve substantial hardship, financial or otherwise, to the petitioner or appellant, and that desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of such ordinance or by-law.” See [G. L. c. 40A, § 10](#) (GDPD, 2017).

**Visitability:** an international movement to change home construction practices so that virtually all new homes, whether or not designated for residents who currently have mobility impairments, offer three specific accessibility features:

- At least one zero-step entrance on an accessible route leading from a driveway or public sidewalk;

- All interior doors providing at least 31 3/4 inches (81 cm) of unobstructed passage space; and
- At least a half bathroom on the main floor (Town of Greenfield, 2014).

**Yestermorrow:** [Yestermorrow Design/Build School](#) teaches over 100 hands-on workshops a year in design, construction, woodworking, and architectural craft and offers a variety of courses concentrating in sustainable design. Our intensive, hands-on courses are taught by top architects, builders, and craftspeople from across the country. For people of all ages and experience levels, from novice to professional.

**YIMBY (Yes In My Back Yard):** A grassroots movement to promote the creation of new affordable housing through smart growth strategies in response to the “Not In My Back Yard” (NIMBY) attitudes that developers often face when new housing is planned.

**Zero-lot-line Development:** A development option where side yard restrictions are reduced and the building abuts a side lot line. Overall unit-lot densities are therefore increased. Zero-lot-line development can result in increased protection of natural resources.

**Zero-Net Energy:** a Zero-Net Energy building is one that is optimally efficient, and over the course of a year, generates energy onsite, using clean renewable resources, in a quantity equal to or greater than the total amount of energy consumed onsite (Town of Greenfield, 2014).

**Zero-Net Ready:** A building is designed to be ultra-efficient with a well-insulated and air-sealed shell. Efficient mechanicals are utilized with the goal of being net-zero energy at some point in the future. The design ensures efficient solar power production is possible with the installation of solar panels in the future (Zimmerman, n.d.).

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### **Other Interesting Resources:**

Housing Works - <https://www.housingworks.org/>

I'M HOME Conference – <https://www.prosperitynow.org/2017-im-home-conference-materials>

Community that Works: A Model that Works - <http://community-that-works.org/model/>

Community that Works: Pedestrian Neighborhood Zoning - <http://community-that-works.org/tools/pedestrian-neighborhood-zoning/>