



Zoning & Planning Committee **Report**

City of Newton **In City Council**

Thursday, July 16, 2020

Present: Councilors Crossley (Chair), Danberg, Albright, Ryan, Wright, Krintzman, Leary, and Baker

Also Present: Councilors Kelley, Downs, Bowman, Lipof, Greenberg, Laredo, and Malakie

Planning & Development Board: Peter Doeringer (Chair) and Sonia Parisca

City Staff: Barney Heath, Director of Planning and Development; Gabriel Holbrow, Community Engagement Specialist; Zachery LeMel, Chief of Long-Range Planning; Cat Kemmett, Associate Planner; Jonathan Yeo, Chief Operations Officer; Nathan Giacalone, Committee Clerk

#88-20 Discussion and review relative to the draft Zoning Ordinance

DIRECTOR OF PLANNING requesting review, discussion, and direction relative to the draft Zoning Ordinance.

Action: **Zoning and Planning Held 8-0**

Notes: The Chair noted that the evening would be devoted primarily to discussions with local building professionals. There will be two builders who specialize in high performance energy efficiency standards who will demonstrate how advancing zoning regulation can facilitate greater sustainability. They will be joined by an architect who published on home accessibility who will use her expertise to show how Newton can address this need and another architect member of the focus group to share his observations on the process to date.

High Performance Home Builders

Rachel White is the CEO of Byggmeister, a Newton-based residential builder specializing in substantial renovations of older homes that achieve a high degree of building energy performance, far exceeding required standards of energy the retrofitting of older homes to avoid teardowns. These retrofits bring homes up to modern standards of energy efficiency. Her presentation is attached to this report.

Ms. White described common misconceptions about retrofitting older homes to high energy performance standards. It is not the case, she said, that new homes built to today's stretch code use less energy than older homes; most older homes can be successfully renovated to sharply reduce energy consumption.

Ms. White said that as the Council pursues zoning redesign, it should consider how to incentivize retrofitting old homes because improving the building envelope and HVAC systems can substantially lower energy use, repurposing a sound structure lowers the embodied carbon in the building and incentivizing preservation by allowing more units can deter teardowns. Ms. White explained that the embodied carbon of a house is the total amount of carbon that was used to produce, deliver, and install all of the materials needed to construct it.

Ms. White presented several examples of Byggmeister's work to illustrate these points. For example, a c.1938 Newton home had only some attic insulation, gas heat and hot water, and central air conditioning. By insulating properly, substituting electric high efficiency heat pumps via minisplits to provide heating and cooling and a solar array which produces 84 percent of energy consumed. This house performs better than stretch code requires. This home is approximately 50 percent smaller than the average new home in Newton and now has a HERS (Home Energy Rating Score) of 47 (which means it uses only 47% of the energy of a similar home built to meet code).

Ms. White ended her presentation with some suggestions for zoning ordinances. These included increasing fees for whole house demolitions (if legally possible), requiring carbon off-sets for demolition, and incentives for accessory apartments and multi-unit conversions.

Nick Falkoff is the General Manager of Auburndale Builders, a Newton-based builder which specializes in Passive House Design, which requires construction techniques to minimize energy demand, high efficiency all electric HVAC and appliances, and strict air quality control measures. His presentation focused on passive house design and is attached to this report.

Mr. Falkoff said that Auburndale Builders built the first net-zero home in Newton which generates enough energy to power both the house and two electric cars. He said that the Auburndale Builders main office was also converted to a net-positive building. Mr. Falkoff said that these projects could be used as models for future net-zero construction in Newton. Auburndale Builders also works closely with Green Newton to develop more energy positive principles.

Mr. Falkoff said that given the urgency to reverse climate change, Auburndale Builders recognizes the thin margin of error, so it attends many professional conferences and researches other cities' zoning codes to learn from the mistakes others have already made. He recommended Newton consider this approach and noted that both Somerville and Vancouver, Canada have developed zoning codes with a push for greener standards. Echoing a similar point made by Ms. White, Mr. Falkoff cited the importance of acting quickly as estimates say there is not much time left to reduce rising global temperatures. He also later addressed the practice of home deconstruction, which in contrast to demolition carefully dismantles the home so that its materials can be recycled. Mr. Falkoff suggested this may be something the code could incentivize.

Discussion

Q: What are some ideas for incentives to push retrofits and/or smaller houses?

A: One incentive would be to allow greater density at a multi-unit development in exchange for a commitment to better environmental standards.

Q: What are some ways that Newton could improve its environmental code?

A: Though Newton is off to a good start with environmental standards, it should do better long-term planning. The (State) stretch code has done a good job in driving efficiency, but it needs to also focus on lowering the total amount of energy usage.

Q: What would be the best aspects of the zoning code for the Committee to focus on to achieve its climate goals?

A: The Committee should focus on ways to incentivize preserving existing homes and preventing teardowns. This will result in less embodied carbon and help to keep house sizes controlled.

C: The Committee cannot challenge the City building code. It can only offer incentives and remove other barriers to efficiency such as setbacks for density and other accessory items. The Committee has been and should continue to consult Green Newton Building Standards Committee on these changes.

Q: What is the HERS score?

A: HERS is the Home Efficiency Rating Score and stretch code requires this rating on new building construction. Though not required on older homes and retrofits, the owners of the Newton cape renovated by Byggmeister chose to get it anyway. Not counting solar, this home received a HERS 47, making it more efficient than a new home built to the Stretch Code (HERS 55).

Q: How could these proposed zoning changes impact tax assessments?

A: There is no single answer for this as it depends on the reaction of the community and whether an increase in density and units is seen as desirable or undesirable. This reaction will determine how property values will change.

Q: How much did the homeowners pay on the Newton cape retrofit project? Is this a type of project that can be a feasible model for other homeowners?

A: The exact cost would need to be obtained from the homeowner. Conversion incentives are key to make these projects doable. Timing is another factor as there are opportunities in the life cycle of the home when renovations are desired/needed when it makes more sense to retrofit. This type of upgrade desired is also a factor as converting from gas heat with no AC is comparable to installing heat pumps.

Q: In order to promote renovations and retrofits, should the City enact a demolition prohibition?

A: No, reuse of housing should be incentivized but a total demolition prohibition is neither feasible nor the right solution. Though there are some older homes which are beyond saving, more can be retrofitted than people often realize.

Q: What is the embodied carbon for net-zero homes?

A: Embodied carbon analysis is new for the net-zero housing industry so there are few precise figures on this. However, these studies should be required in Newton.

Q: How many people live in the net-zero home designed by Mr. Falkoff?

A: The house is about 4,200 sq. ft. and is for two people. The proposed zoning can address this issue of new construction being larger and housing less people by allowing additional units.

C: To help preserve existing housing, the code could remove the elevator footprint from counting toward the total house footprint to encourage elevator use and facilitate aging in place.

A: FAR will not be used in the proposed zoning, but rather a system that is floor and context based. This can still be considered but aging in place also needs to study walkable proximity to amenities.

Q: What is the comparative efficiency between a retrofitted single-family home and a new two-family house constructed to meet passive-house design standards?

A: Efficiency is measure of energy use per square foot. In a hypothetical case of a 2,000 square foot single family home to a two-family home with two 1,000 square foot units, if they use the same energy than the two family is more efficient. The focus should move away from solely efficiency and instead increase multi-unit conversions as a real solution.

C: Vancouver as shown in Mr. Falkoff's presentation is a great example of how zoning can help people do more without cars. This is done through bringing amenities closer to where people live. It can also make city communities more accessible to those who wish to start families. The code can promote these conditions by allowing more duplexes through retrofit, not just as new builds.

Q: Are there any towns in Massachusetts that require embodied carbon studies or deconstruction?

A: The Northland and Riverside projects agreed to these studies through the special permit process and it is unclear how the proposed zoning ordinance could push these studies. The deconstruction model is new enough that there is not a large demand, so no towns require it.

Q: Are new houses being designed without air conditioning?

A: Generally, no, but passive house design can reduce air conditioning use to one tenth of conventional use.

C: Passive house is a technology of scale-a custom built high-end house will be more expensive to the homeowner than one built only to meet code, but if produced on a large scale for a development with many units then the increased costs are negligible.

C: A “teardown tax” may not be the best way to prevent teardowns due to legal challenges. The council should instead look to promoting reuse.

Q: What is the time value of carbon emissions?

A: In 2018 the Intergovernmental Panel on Climate Change said that the world has about 12 years to reduce warming to 1.5 degrees Celsius before it reaches the “no return point.” Reducing emissions now is more important than 20 years from now.

Accessible Home Environments

Next, Deborah Pierce, an architect who has been living in and working from Newton since the early 1980s, presented her work on housing accessibility. Her presentation is attached to this report.

Ms. Pierce said that as Newton continues through the zoning redesign process, it needs to focus its zoning on people and not just property. She said that current projections show Newton has an aging population and people are living longer. Zoning redesign needs to better take this reality into account. The increasing senior population will greatly change Newton in the years to come as most choose to age at home when possible. This corresponds with diminishing nursing home attendance, a trend accelerated by the COVID-19 pandemic. Ms. Pierce said that these conditions beg us to rethink the traditional “American home,” which the City is equipped with the resources to accomplish. She said that too much of the zoning conversation has been on preserving what Newton is rather than thinking “where should it go?”

Ms. Pierce said that the current dominant housing models are based on the post-World War II demographic, which was primarily made up of agile and growing families. This model does not apply to an aging population and Ms. Pierce said it needs to adapt. Identifying the accessibility issues will make it easier to properly renovate homes for an older demographic. Apartment life and communal villages are other emerging trends for seniors and others with accessibility concerns.

To promote more senior-friendly policy, Ms. Pierce described three core aspects:

Support Access Upgrades:

Ms. Pierce said that the proposed zoning should make it easier for seniors to modify their homes to easily age in place. This involves allowing typical age-friendly home upgrades such as ramps and lifts, attached garages, and a focus on one floor. Teardowns should be discouraged in order to preserve single-level homes, which are easier to modify for seniors and can also benefit families with young children. Not including elevators in square footage limitations and relieving setbacks for accessible egress should also be done.

Promote Housing Options:

In addition to modifying existing houses, the City needs to ensure that there are many options for seniors to choose from. These include smaller houses, Accessory Dwelling Units, construction of (stacked) flats instead of townhouses and the conversion of houses into multiple units.

Position for Leadership:

Visitability, the requirement that houses be accessible to wheelchair access for guests, is a popular trend in many areas. There are also other policies that Newton should pursue, such as de-prioritizing single-family homes. This would allow for a greater variety of housing options for seniors and increase the total number of housing units for everyone.

Ms. Pierce concluded her presentation by summarizing some examples of projects she has designed for accessibility. Her basic premise is to assume that everyone has disabilities, if not now then later, and if not them than their friends and family will. At a two-family house, Ms. Pierce redesigned the rear unit for general issues of aging with a bedroom and bathroom on the first floor to accommodate the owner. At another property, Ms. Pierce added indoor rails and improved the front porch to accommodate the owner's vision loss. To accommodate hearing loss at another house, Ms. Pierce designed for larger open spaces and a reduction of glare. Her hope is that by improving conditions for seniors, it will make it easier for them and other residents to remain living in Newton.

Councilor questions and comments

Q: What are the most important features to include to support aging in place?

A: Having a bedroom and bathroom on the first floor, direct connection to the garage, and ramps for easier circulation around the property.

Q: What are some short-term changes that can be made to the zoning to improve accessibility?

A: Speeding up approvals for access upgrades, and easing setbacks is one, and grade change maximums which conflict with ramps. Additional analysis will need to be done to identify more items.

Q: What is the approximate cost of an elevator?

A: A short-range lift will cost approximately \$18,000 while an elevator will cost closer to \$60,000.

Q: What cities and towns already have accessibility friendly zoning ordinances?

A: Brookline has been doing a good job with this. They sit down with the Planning Commission and are determined to make it work for the residents. One such project included putting a garage into the front setback to accommodate a child with cerebral palsy.

Q: Is there a clear preference for apartments or condos when older residents choose to downsize?

A: There is no clear answer as many prefer both, though there are some issues relating to two-family condos as residents can be at odds over improvements.

Q: What are universal design units?

A: These are units designed for general accessibility and the push to make homes more accessible for all human conditions.

C: The benefits of single-story ranch houses to accessibility are clear from how many can easily be turned into group homes.

C: Aging in place is a very different and new model as in the past, seniors have moved out when their situation required it. The proposed ordinance will need to accommodate aging-in-place without adversely affecting the neighbors.

Q: Why is a shorter driveway important if the garage is attached?

A: If the garage is attached, then a mudroom can include the grade change for the ramp. The closer the garage is to the front of the lot, the shorter the driveway needs to be. Shorter driveways are also easier to shovel in the winter, another accessibility factor.

Q: How can changes be made to the zoning with the interests of all neighbors in mind, rather than just the individual cases of a few homeowners?

A: Sensitively designed contextual modifications can add to property values. Tacked on afterthought changes that clearly appear so can have the opposite effect.

Q: What specific demographics are underserved and what is the best way to address their needs?

A: Currently only five percent of the population uses wheelchairs, and it is unknown how many baby boomers will need wheelchairs as they age. More easily enabling needed design features such as reducing glare for the sight impaired and preservation of single-story houses will help. These are changes that can be addressed through zoning.

Q: On buildings with elevators, how can they be prepared for a power outage?

A: They would need a generator, though this will add extra cost to the homeowner.

Architect's Opinion on Current Draft

The Chair then invited Marc Hershman to speak to the Committee. Mr. Hershman is one of the architects who has joined the building professionals focus group to consider zoning redesign. He said that he felt that the effort has gone off on a tangent with form-based zoning and that he thinks a hybrid model would be better. Mr. Hershman observed that the codes being discussed are based on those from cities focusing on visual character. Newton, unlike these other cities, has a more diverse housing stock and needs to work within that framework. He also felt that the house type classification was too restrictive. Mr. Hershman said that based on his many reviews of his past projects, the proposed zoning would leave the city with more nonconformities. However, he liked other aspects of it, such as the large-scale component additions allowed and the de minimis rules that would allow some extension into setbacks. He said that skilled architects will see beyond a prescriptive approach, but other developers may not.

Councilor questions and comments

C: Form based code should be discussed more in depth at a later meeting, but it does not stifle innovation. Many residents are afraid that neighborhoods are changing in a bad way with McMansions replacing existing homes and a form-based code may be the best way to control this. Also, this zoning redesign effort is also already pursuing a hybrid model.

A: If the goal is to allow homes to reasonably expand within their setbacks, this can be done better in a hybrid code rather than a form-based code.

The Chair clarified that House Types do not address style but set dimensional controls to define the allowable building envelope.

C: It would be helpful to the Committee if Mr. Hershman would share his case studies.

Development Standards

The Chair introduced the final subject for the evening, a proposal to utilize other Boards, commissions and committees, and personnel who regularly staff those bodies, to begin the work of updating and repairing numerous ordinances that pertain to a range of development standards. For example, the Land Use Committee, once Riverside is completed, is ready to discuss several ordinances that are so far out of date that waivers are routinely granted. These include the lighting, fence, and retaining wall rules. The committee could begin to work with staff to identify needed revisions and suggest amendments, Similarly, the Sustainability Team could work on stormwater management in light of recent MA required engineering standards, and the Urban Design Commission could be consulted on lighting and sign ordinances.

Chief of Long-Range Planning Zachery LeMel then presented (attached) on this topic.

He said that the Committee is still within schedule for the Article 3 review which were projected to conclude by the end of August 2020. However, his schedule shows that Article 2 and 4 reviews need to start soon and would also need to conclude by October for the Committee to focus its discussions on Article 8. Mr. LeMel said that by working collaboratively with other Committees and staff, the Committee work can begin with analyses by these other committees. By working “smarter,” ZAP can remain on schedule. He then reviewed a list of the discrete topics for Article 8, noting the goal of each and other boards, committees, and commissions who have specific expertise and could begin the work. These discrete topics include parking standards, signs, stormwater management, retaining walls/grading, sustainable site/building design, cultural arts, and outdoor lighting.

Committee Discussion

Councilor Lipof spoke as Chair of the Land Use Committee and confirmed that he would be happy to involve Land Use in discussing these discrete topics when appropriate. Other Councilors supported this opinion, saying that it would be better for Land Use to study and make recommendations on these topics prior to bringing the item before ZAP. It was clarified that each topic would have its own “working group” rather than a single working group to handle them all. It was also requested that the Planning Department provide the Council with a concise list of the

issues Mr. LeMel described. It was clarified that the review process on development standards ordinances would begin by identifying the shortcomings of each and tracking recommended amendments for the committees to consider.

Another committee member questioned whether some of the ordinances which are now outside of Chapter 30 should be incorporated into it. The Chair said this is the intention where possible.

When the Planning Department is presenting case studies, it should draw from all special permit applications rather than a few to compare the current and proposed ordinance.

Additional Questions

Q: Can there be any more case studies on the impact of the proposed new setback requirements?

A: These would be helpful to have and it is something for Planning to work on. Due to COVID isolation, walkthroughs have been disrupted as have large in person meetings. The plan is to come up with a revised set of language and materials to make the text user friendly enough to allow for easy knowledge of forms, almost to the point that will enable the user to do her own case study.

Q: What are the Planning Department's public office hours for zoning redesign?

A: These are held every other Wednesday. The schedule and access codes can be found through the Planning Department's webpage and Listserv. The Department would also be happy to share this information with the council to better distribute it to the public.

Q: Will the committee still hold the planned straw vote on residence districts in October?

A: The October target date for this straw vote is tentative and will be postponed if needed.

Q: Too few members of the public are aware of the extent of the work being done with zoning redesign. How will the committee gain enough public input beyond architect focus groups and limited attendance Zoom meetings?

A: There will be at least one evening for a public hearing as well as the current options for public input and a Committee of the Whole. Once a draft is released and it is seen how well the document can be communicated there will be a better idea how to adjust public outreach. Participation via Zoom has been exceptional.

Councilor Ryan motioned to hold item #88-20 which carried 8-0.

The meeting adjourned at 10:19PM.

Respectfully Submitted,

Deborah J. Crossley, Chair

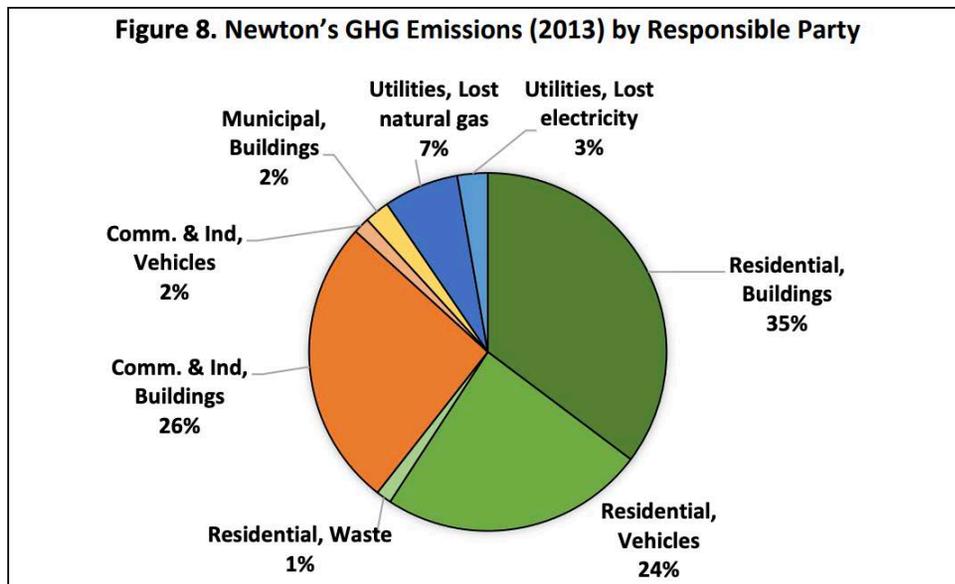
The climate case for encouraging reuse of existing homes

Zoning and Planning Committee Meeting presentation

Rachel White, Byggmeister

July 16, 2020

Residential sector carbon emissions



Common misconceptions about the pros and cons of retrofits v. new construction

1. New homes are better for the climate than existing homes
2. It isn't practical to retrofit existing homes to high performance energy standards
3. We need to focus on reducing emissions from operations (and can safely ignore upfront or embodied emissions)

Efficient new homes are not necessarily low energy or low emitting



Retrofits make sense for a wide variety of homes



Newton cape retrofit



- Built 1938
- Attic floor insulation
- No wall insulation
- Gas heat and hot water
- Central air conditioning

Newton cape retrofit

- Cellulose in walls
- Closed cell spray foam roof insulation
- Band joist air sealing
- Whole-house mini-split heat pumps
- Heat pump water heater
- 10.4 kw solar array (produces 84% of energy consumed)



Newton cape retrofit

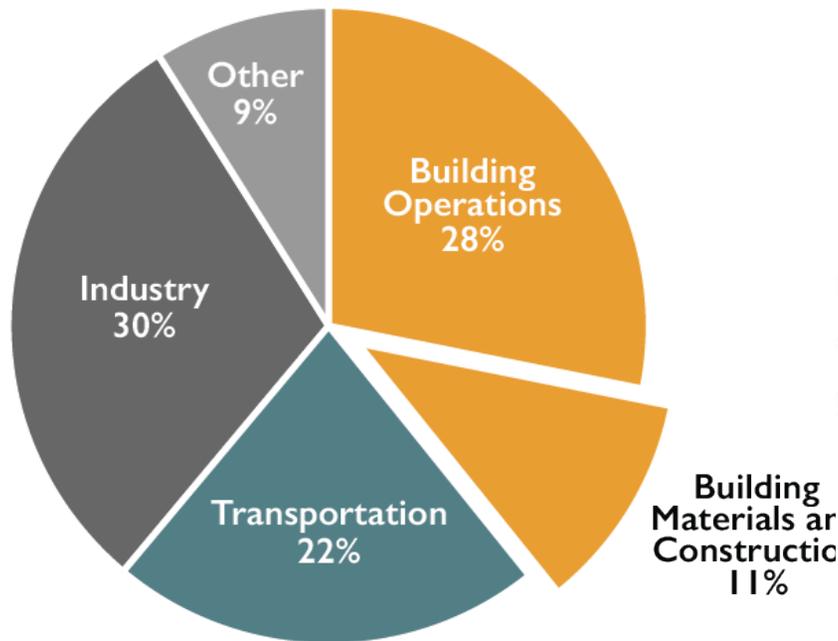
	Before	After	MA Average
Annual energy use (Mbtus)	150	47	109
Annual carbon emissions (Mt)	8.74	3.65*	6.65

- EUI = 25kbtu/sf
- HERS 47 not counting solar = more efficient than new home built to stretch code
- approx. 50% smaller than average new home in Newton

*Homeowner is signed up for 100% Newton Power Choice.
If electric emissions treated as 0, annual emissions would .21 metric tons

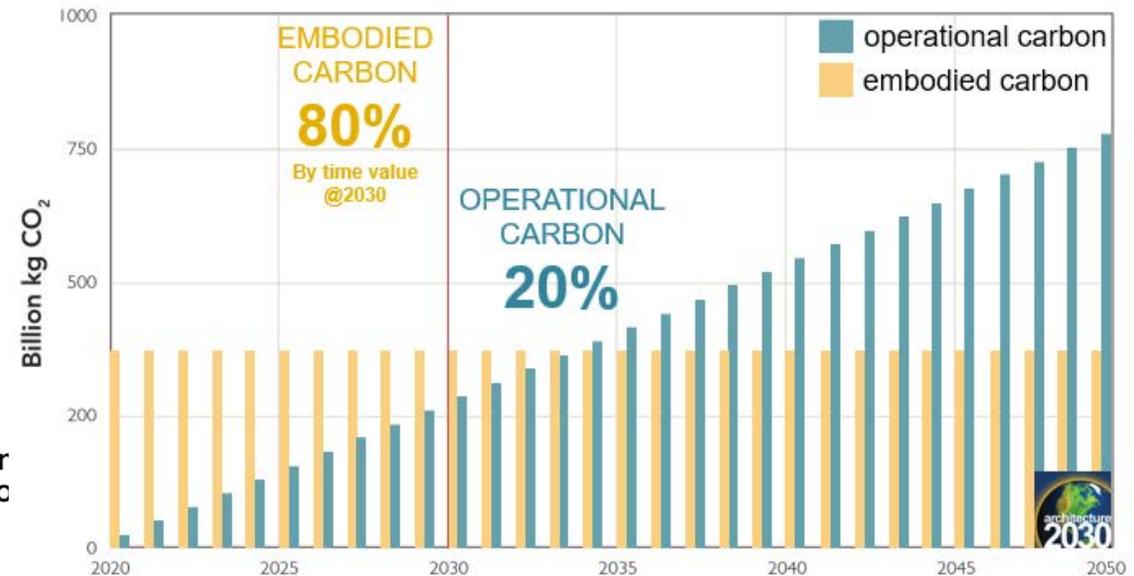
Embodied emissions are as important as operating emissions

Global CO₂ Emission by Sector



Total Carbon Emissions of **All Global New Construction** from 2020-2050

Business as Usual Projection



Source: © 2018 2030, Inc. / Architecture 2030. All Rights Reserved. Data Sources: UN Environment Global Status Report 2017; EIA International Energy Outlook 2017

<https://architecture2030.org/>

<https://buildingtransparency.org>

Summary

- In many cases a retrofit is better for the climate than building new
 - Esp. when we consider the time value of carbon emissions
- “Moderate” energy retrofits are practical for much of our existing housing stock
 - Modest air sealing and insulation upgrades
 - Conversions to heat pumps
 - On-site solar
- Efficient does not necessarily mean low operating energy or emissions

Take-aways for zoning redesign

- Increase fees for demolition permits for tear-downs (if legally permissible)
- Require embodied carbon off-sets for demolition
- Encourage accessory apartments in existing houses
- Encourage multi-unit conversions in existing houses
 - Reduce RU factor and establish bonus for higher performance

#88-20



SHPDC

STUDIO FOR HIGH - PERFORMANCE
DESIGN & CONSTRUCTION



AUBURNDALE
BUILDERS

HIGH PERFORMANCE HOMES



Newton's 1st Net-Zero designed by Zero Energy Design built by
Auburndale Builders

This house makes enough energy to fuel the house & electric cars

#88-20

We converted this concrete building into a Net-Positive building that makes more energy than it uses



EVERSOURCE

Account Number: 2081 109 1014

Customer name key: ADAM

Statement Date: 06/22/20

Service Provided To:
ADAMS HOLDING LLC

**Svc Addr: 151 ADAMS ST REAR
NEWTON MA 02458**

Rate A9-GENERAL-NON DEMAND Cycle 13

Service from 05/18/20 - 06/17/20 30 Days

Next read date on or about: Jul 20, 2020

Meter Number	Current Read	Previous Read	Current Usage	Reading Type
2747156	89690	90817	-1127	Actual

Monthly kWh Use

Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	364	913
Jan	Feb	Mar	Apr	May	Jun	
1054	664	0	0	0	0	

Contact Information

Emergency: 800-592-2000

#88-20

No Payment Due

Electric Account Summary

Amount Due On 06/15/20	-1,626.15
Last Payment Received	\$0.00
Balance Forward	-\$1,626.15
Current Charges/Credits	
Electric Supply Services	\$0.00
Delivery Services	\$8.00
Other Charges or Credits	-\$256.24
Total Current Charges	-\$248.24
Total Amount Due	-\$1,874.39

Total Charges for Electricity

Supplier (DIRECT ENERGY NEWTON POWERCHOICE)

Meter 2747156		
Generation Service Charge	0 kWh X .11750	\$0.00
Subtotal Supplier Services		\$0.00

Delivery

(Rate A9-GENERAL-NON DEMAND) (Prorated)

Meter 2747156

We have good guidelines from Green Newton on how these buildings should be built :

[Green Newton Recommends Green Building Principles for City of Newton](#)

- 1. Minimize Building Operating Energy**
- 2. Minimize Embodied Carbon**
- 3. Buildings Must be All-Electric and Off the Natural Gas Grid**
- 4. Minimize the Carbon Footprint for Transportation to and from Buildings**

- Integrating net-zero carbon goals into zoning guidelines is already happening in other cities
- It seems we need to look to other successful models of Zoning integrated with Net-Zero Building
- As practitioners of building low-carbon building homes with all electric systems - my team and I do not have time to learn from just our own mistakes- we need to learn from the mistakes of others who have tested new technologies and seen what works and what does not work
- We attend a lot of conferences, tour innovative projects and seek out the best consultants to guide us through processes we do not have experience with - I recommend our city does the same
- I have only been involved with this zoning discussion for a short time and apologize if the following examples have already been brought up - I do not intend this to be a criticism of any consultants who are currently working on this as I do not know who they are

Somerville - Dan Bartman City Planner and Stephen Moore at Icon Architecture are local resources

https://phmass.org/somerville-includes-passive-house-in-new-zoning-plan/

Somerville Includes Passive House in New Zoning Plan

Passive House is now ingrained into the City of Somerville's development policy. The City Council approved the new Somerville Zoning Ordinance in December.

This plan provides Passive House certification as qualification for density bonuses in residential projects. It also requires Passive House certification, or Living Building certification, in certain Master Planned Districts, including areas around the future Green Line station in Union Square.

Senior City Planner **Dan Bartman** was quoted in a *Tufts Daily* article saying, "Essentially, every new apartment building has the ability [to increase] the amount of dwelling units they can provide if they build a more sustainable building. We offer the exact same density bonus for buildings that are 100% affordable, and we've had really good feedback from people already expressing interest in doing one or the other."

The plan includes Passive House certification as part of the requirement for a Net Zero Ready building along with requiring no on-site combustion for HVAC systems or cooking equipment. By being a Net Zero Ready building, projects are able to achieve the density bonuses.

Read more about Somerville's new zoning policy on their [dedicated site here](#).



Upcoming Events

NAPHN Passive House 2020 Virtual Conference

June 24 - July 29

PHMass July – Internal & Solar Heat Gain in Multifamily: Passive House Solutions

July 14 @ 6:00 pm - 7:30 pm

New Gravity Housing Conference

August 5 - August 7

NESEA BuildingEnergy Boston

August 13 - August 14

Using PHPP in Passive House Design

August 18

[View All Events](#)

News

- Massachusetts Takes the Lead on Passive House
- A Surge in Affordable Multifamily Passive House

And what seems to be the leader in North America - Vancouver is already transitioning to Zero Emissions buildings by 2030

Green Vancouver	Your government	About Vancouver	Parks, recreation, and culture	Home, property, and development	People and programs	Streets and transportation	Doing business
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Find city information, services and more... 

 This page may be out of date as we respond to COVID-19. Get the latest updates, service changes, and community supports at vancouver.ca/covid19.

Home > Green Vancouver > Zero emissions buildings

Green Vancouver

- Climate Emergency Action Plan
- Greenest City Action Plan
- **Zero emissions buildings**
 - Build a Passive House
 - Building catalyst tools
 - Multi-family building energy resources and programs
- Zero Waste 2040
- Climate Change Adaptation Strategy
- Neighbourhood Energy Strategy
- How we are greening City operations

Print 



Zero Emissions Buildings

A zero emissions building (ZEB) is highly energy efficient and uses only renewable energy.

We plan to transition to zero emissions buildings in all new construction by 2030. To achieve this, we're setting limits on emissions and energy use in new buildings, and will reduce these limits over time.

What energy will zero emissions buildings use exactly?

[Learn more about our strategy to achieve 100% renewable energy in all](#)

Monte Paulsen at RDH worked for 20 years to develop and implement the Vancouver guidelines

Through RDH he is available to consult for the city of Newton

There is a lot we can learn from his experience



In a recent Vancouver Courier article, RDH's Passive House Specialist, Monte Paulsen provided his take on the new Nelson Street Passive House project and what it will be capable of achieving in terms of energy efficiency.

Standing at 60 stories tall, the building once complete, will be the tallest Passive House project in the world and will be a prominent addition to the Vancouver skyline. The project's developer, Henson Development, aims to create an example of modern and sustainable housing for the rest of the world to see. RDH is serving as the Building Enclosure Consultant and the Energy Performance Consultant on a project team that includes Nelson Developments, WKK Architects, IBI Group, Integral, and others.

One strength of the project highlighted by Monte, is the fact that when built to the Passive House design the units will require little to no heating, thus vastly reducing the building's green house gas emissions.

"In practice, most of these apartments will remain warm in winter with no additional heat, while remaining comfortably cool in summer due to a combination of natural ventilation and a very small degree of light cooling."



One other thought-

It appears that these zoning changes will impact the short and long term property values and tax assessments of the impacted properties

If we expect there will be legal challenges from any property owners that are adversely affected - perhaps the city can invest in expert consultations from others who have already successfully integrated energy requirements with their zoning and stay ahead of the legal challenges (\$40,000? in added consulting fees now vs legal expense/ zoning delays later that impact the whole city)

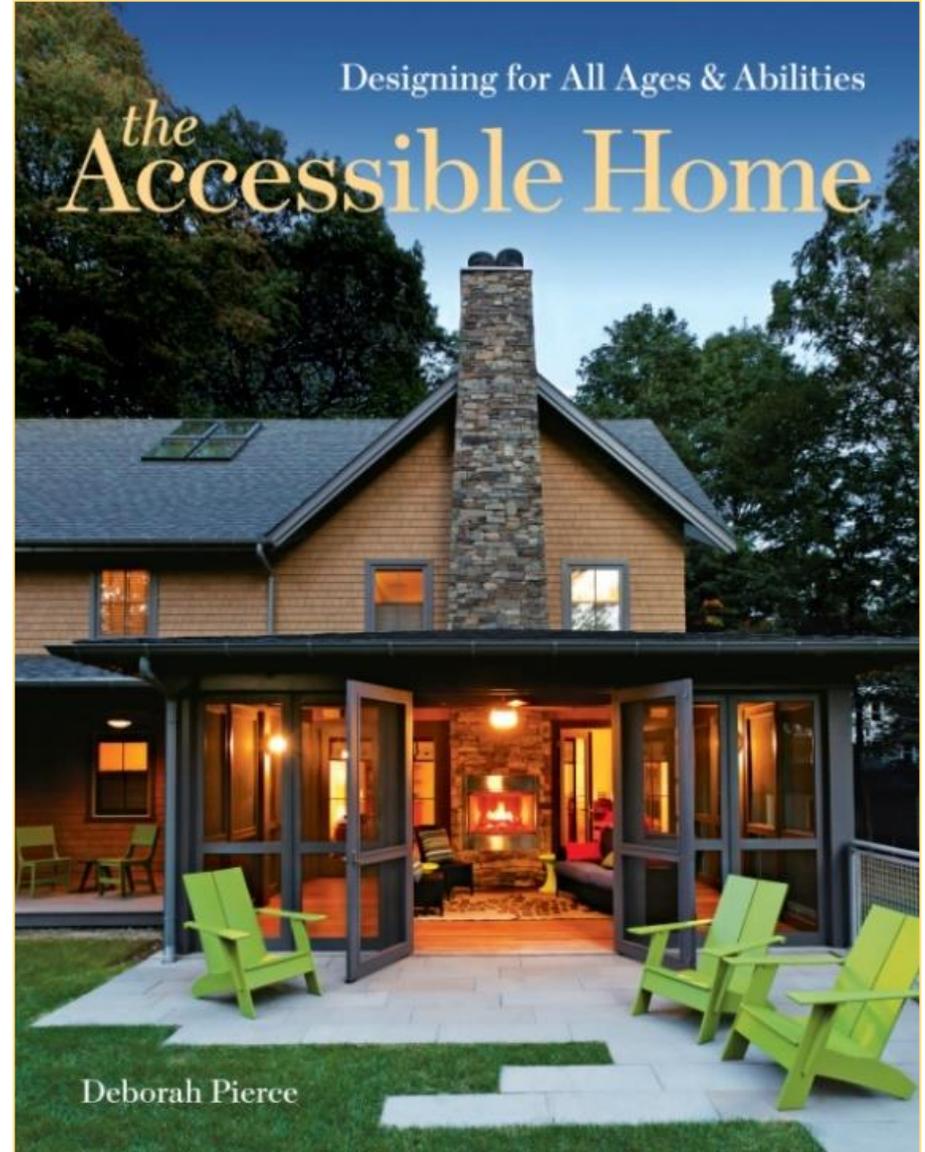
Zoning for Changing Demographics

Presentation to ZAP

Deborah Pierce

16 July 2020

Pierce Lamb Architects – Since 1980



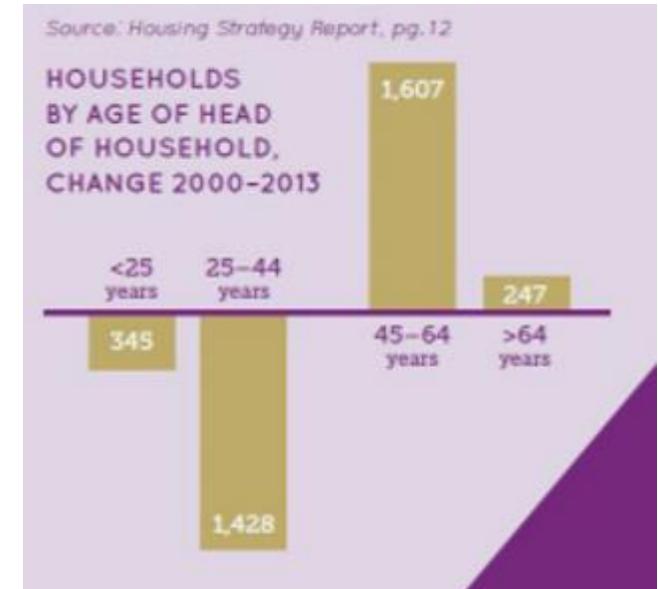
Zoning drivers over history

YEAR	ZONING CONTEXT
1922	Formalize existing land use : commercial, industrial, residential districts.
1940	Differentiate districts within use areas. Add dimensional controls .
1953	Tighten requirements to reduce allowable density .
1987	Control development in commercial and institutional districts.
2003	Add Inclusionary Zoning - requirements for Affordable Housing .
2007	Comprehensive Plan.
2016	Newton Housing Strategy, Census-data informed : smaller families, more singles, older heads-of-household.

Trends in Zoning focus on PEOPLE rather than BUILDINGS or LAND.

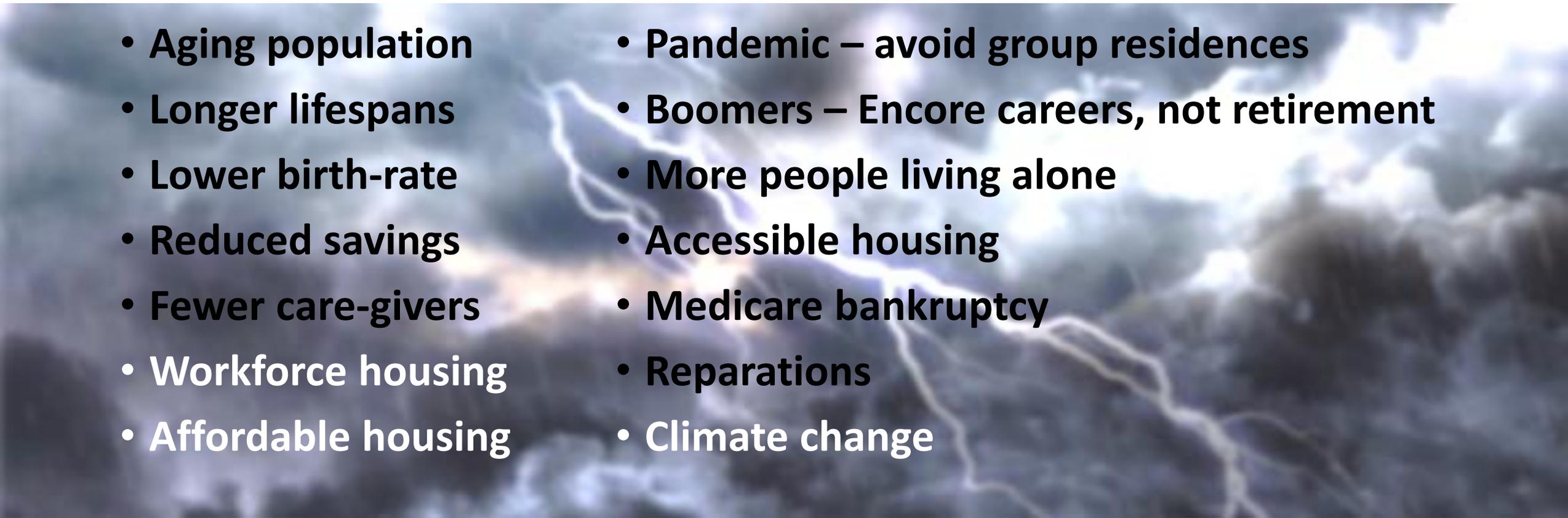
Newton Demographics

YEAR	Newton	MA	USA
Householders living alone	24.70%	28.90%	27.70%
Singles 65+	12.30%	11.10%	9.90%
1+ householders over 60 years	40.80%	36.30%	27.70%



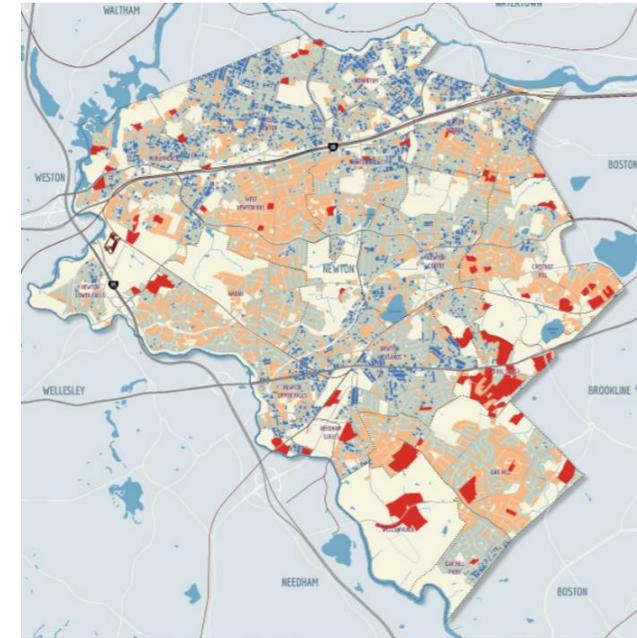
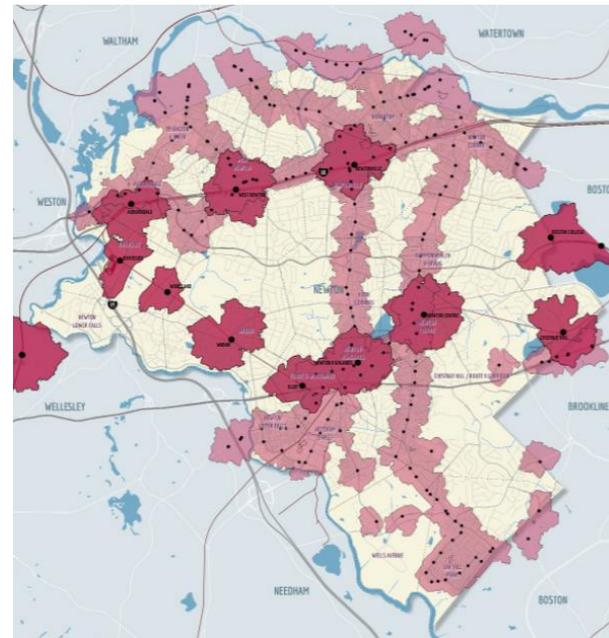
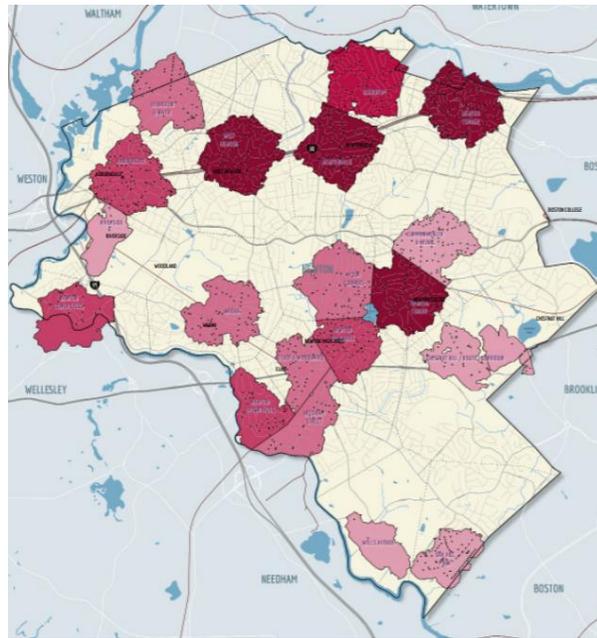
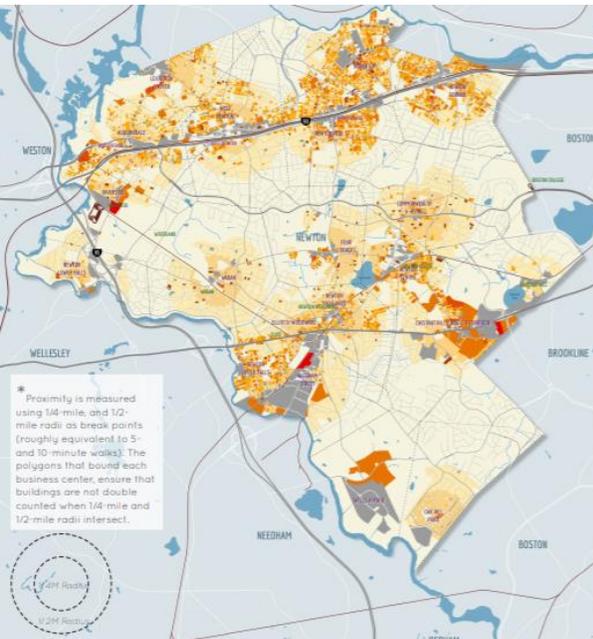
Seniors are a large and growing part of Newton's population.

Perfect Storm

- 
- Aging population
 - Longer lifespans
 - Lower birth-rate
 - Reduced savings
 - Fewer care-givers
 - **Workforce housing**
 - **Affordable housing**
 - Pandemic – avoid group residences
 - Boomers – Encore careers, not retirement
 - More people living alone
 - Accessible housing
 - Medicare bankruptcy
 - Reparations
 - **Climate change**

New realities need new prototypes.

Distribution of land/building characteristics



2/multi-family

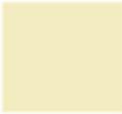
Walkability

Near public transit

House sizes

Traditional analyses are more descriptive, not prescriptive.

Pattern Subsets

 Neighborhoods:
68% Newton area

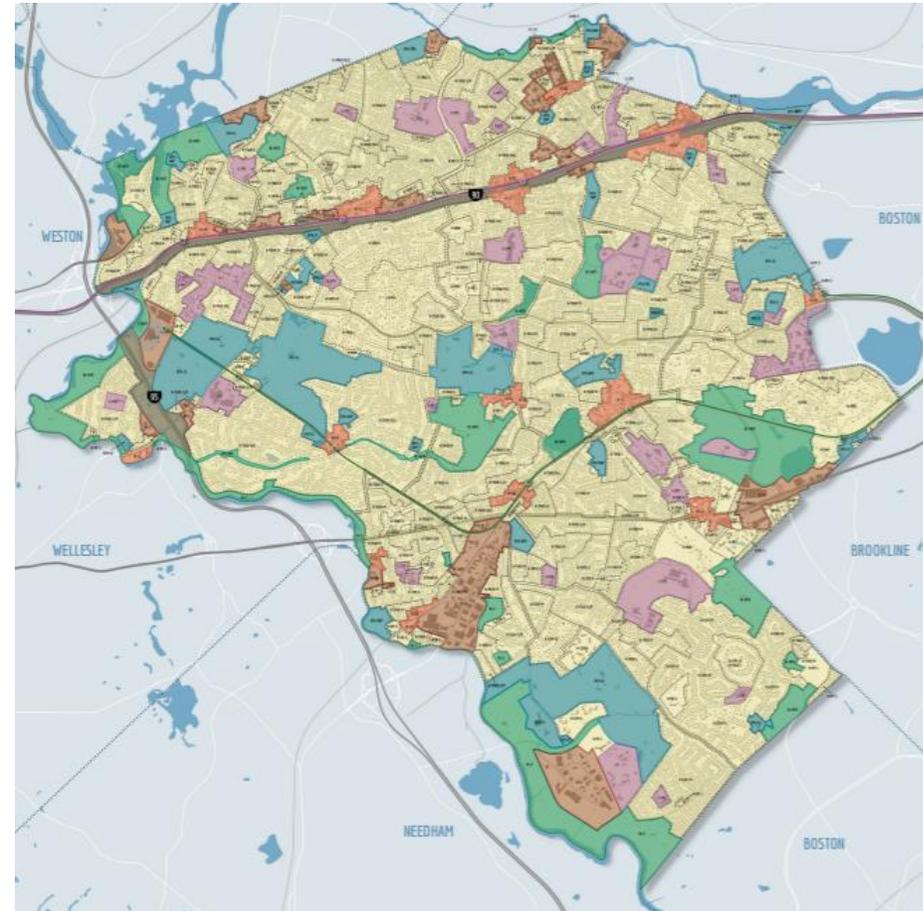
 Village Center:
2% Newton area

 *Commercial Cluster*

 *Campus*

 *Recreation & Public Use*

 *Natural/ Landscape*



Residential accessibility is needed throughout the city.

Re-Imagine Housing

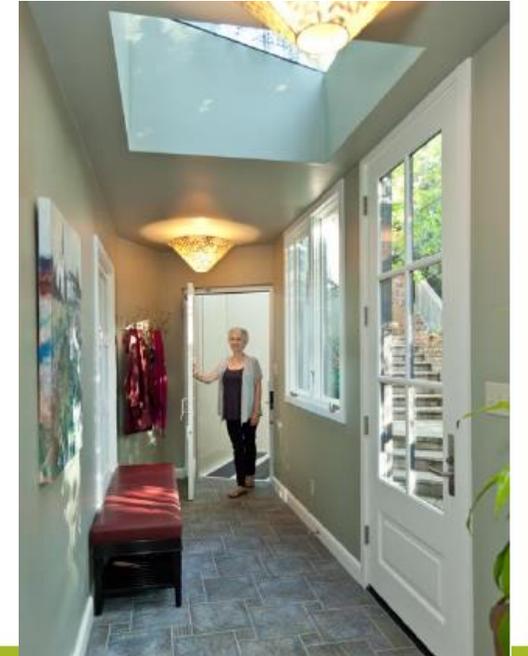
The industry has largely focused on developing a more contemporary version of homes from 20, 30, 40, 50 years ago.

Homes for agile, growing families simply **do not work** for aging adults and smaller households!



Trend 1

REMODEL FOR AGING



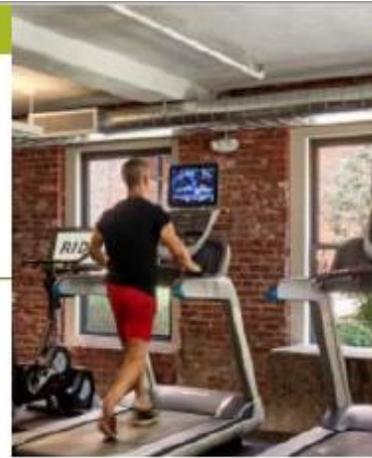
Retrofit existing housing stock.

Trend 2

APARTMENT LIFE

- Lofts
- Senior-friendly apartments
- Luxury senior lofts
- Affordable senior housing
- Assisted living

Provide options
for down-sizing.



Trend 3

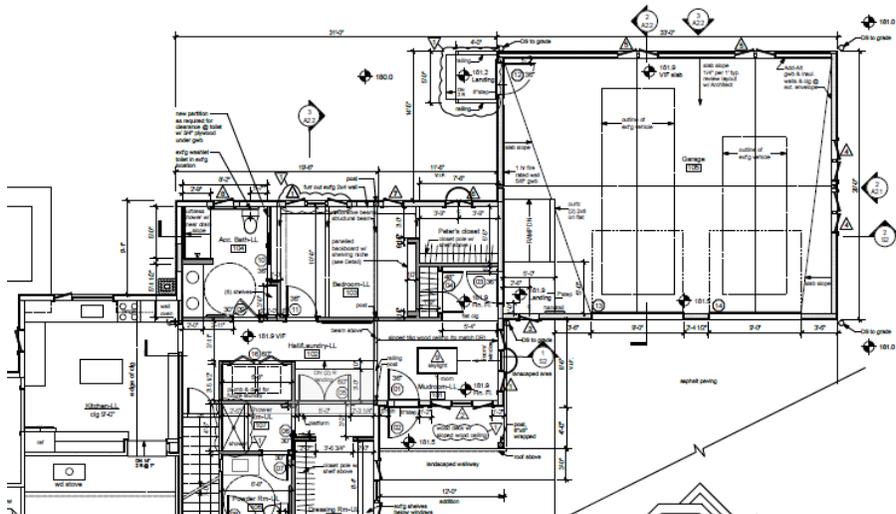
COMMUNAL VILLAGES

- 55+ retirement community
- Co-housing
 - Resident-initiated
 - Developer-initiated

Support aging in community.



Senior-friendly policy:



1. Supports access upgrades
 - Speedy approvals
 - Prioritize functional circulation
 - Ease dimensional requirements

2. Promotes housing options
 - Small houses
 - ADU's
 - Flats, not townhouses
 - Building conversions
 - Small-scale multi-family
 - Foster community
 - Throughout the City

3. Positions Newton for leadership
 - Visitability
 - Prioritize 2+ family homes

Support Access Upgrades

Streamline Access-Upgrade Approvals Process

Typical age-friendly upgrades:

- Exterior ramps and lifts
- Expanded building footprint
- Bed/bath additions at floor-1
- Bring laundry out of basement
- Elevator additions
- Zero-step decks & landings
- Attached garages
- Grading - prioritize ramps & paved walkways over stairs
- Shorter driveways



Support Access Upgrades

Protect Single-Level Homes & Neighborhoods

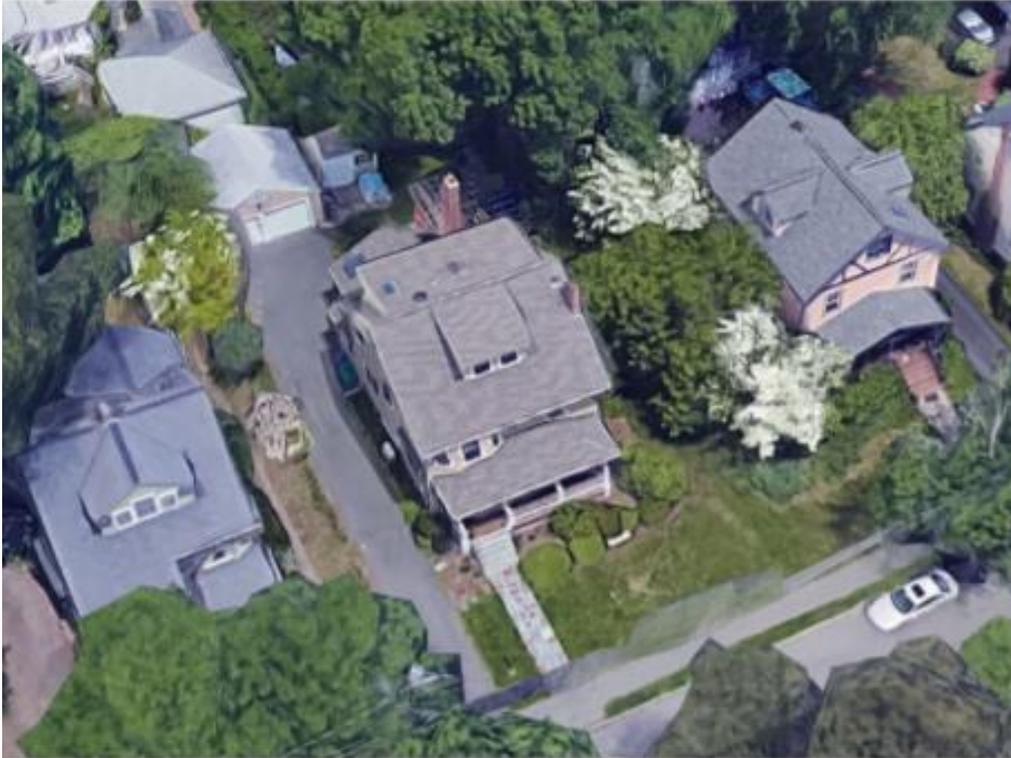


- Discourage tear-downs
- Designate “accessibility districts”
- Incentivize smaller house types



Promote Housing Options

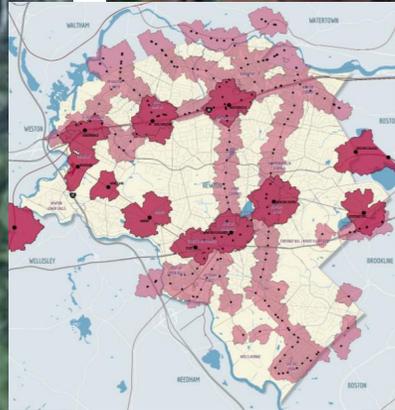
Enable Conversions of Single-Family Houses



- Ease restrictions around multi-unit conversions
- Allow multi-unit conversions in ALL house types

Promote Housing Options

Increase housing opportunity near transit points



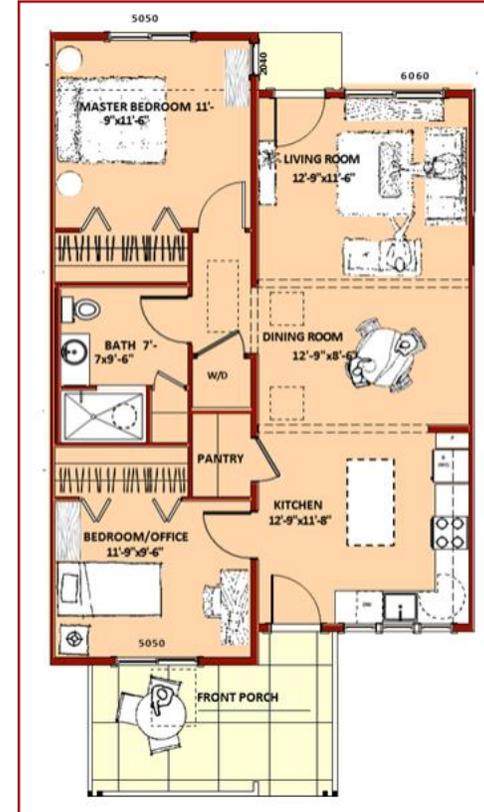
Sections 3.1.2 - 3.1.6 Residential districts:
Allow multi-family in all districts within 1/2
mi of train stops, 1/4 mi of express bus stops.

Promote Housing Options

Build Small Houses

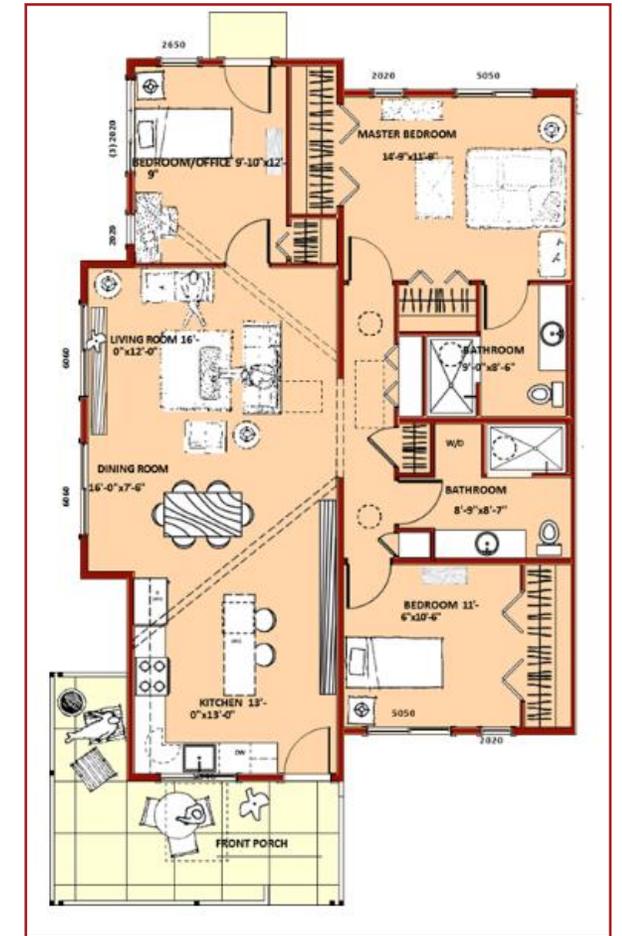


- Smaller dimensional requirements
- Accessory apartments



2BR, 1 Bath, 910 SF

3 BR, 2 Bath, 1325 SF



Promote Housing Options

Build Flats and Elevator Buildings



- Zoning needs to accommodate buildings large enough for elevators.
- Incentivize small and mid-size multi-unit housing

Ease Special Permit requirements for Multi-family housing

Promote Housing Options

Convert Industrial Space



Utilize existing resources

#88-20



Promote Housing Options

Develop New Housing Prototypes

- Quads
- 5-10 unit buildings
- Small-scale multi-family
- Mid-market affordability



Position for Leadership

Incentivize Visitability

1. Accessible Entrances
2. Ground floor bathroom
3. Door/hall widths

Allow prominent ADU entranceways.
Support grading/paving changes.



- Bollingbrook IL
- Austin TX
- Urbana IL
- Pima County, AZ
- Atlanta GA
- Tuscon AZ
- Vermont
- Maryland



Be Bold – de-prioritize single family homes

Oregon

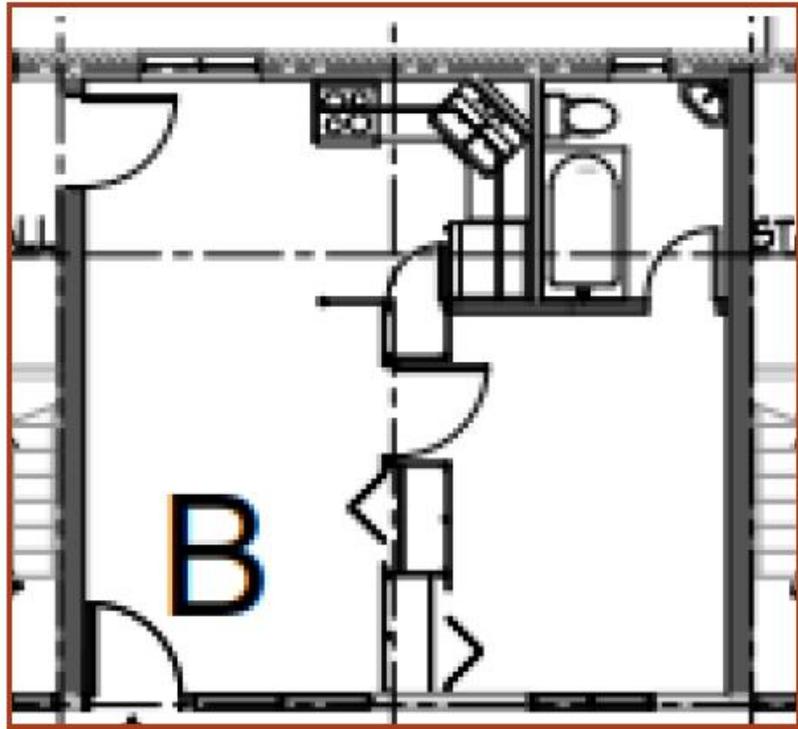
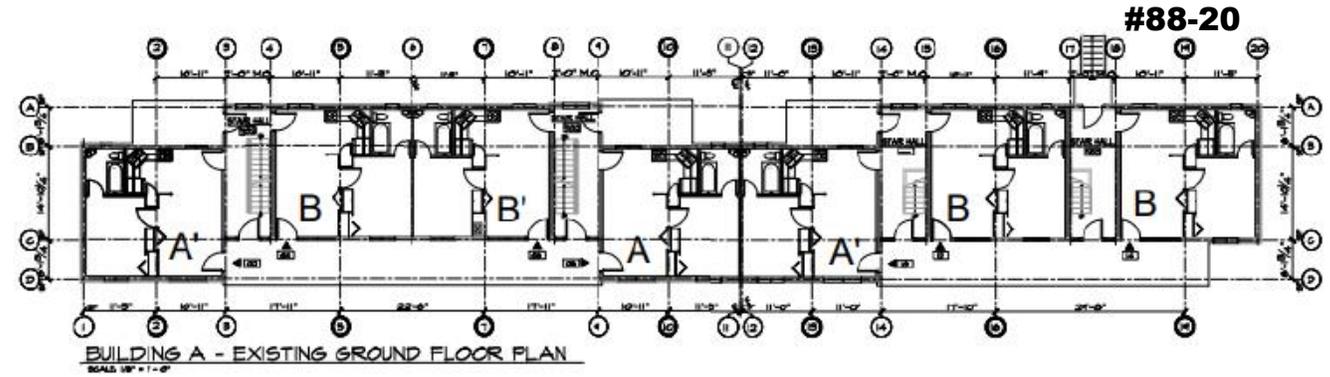
Oregon [H.B. 2001](#), August 2019, requires that cities 25,000+ allow multifamily units on land previously limited to single-family homes.

Cities of 10-25,000 must allow duplexes on sites previously designated for single-family use only.

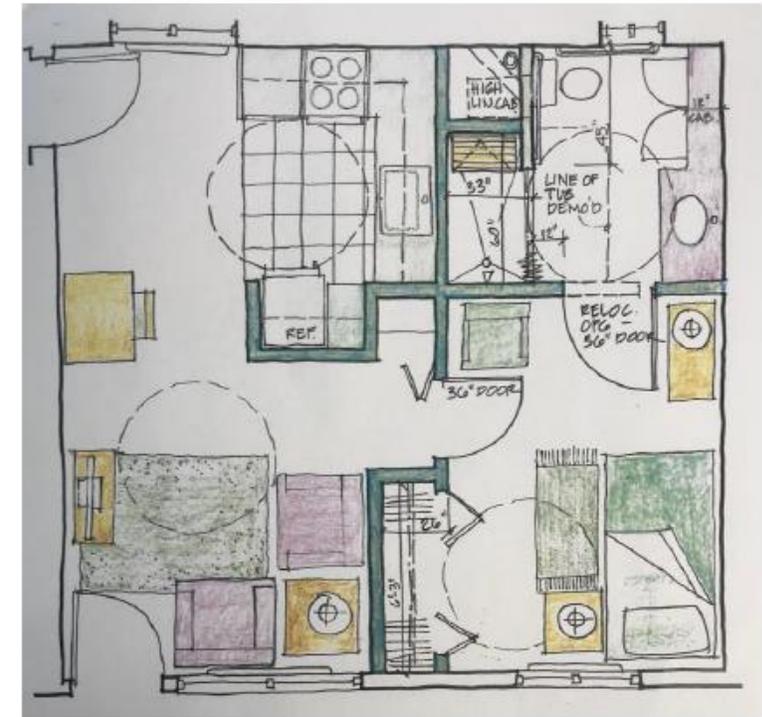
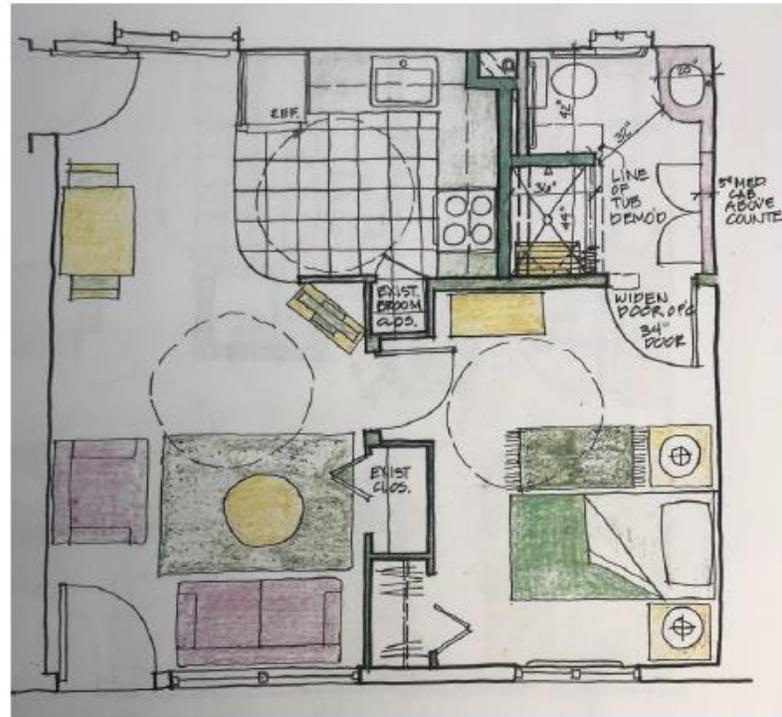
Minneapolis, MN

End single-family throughout the city.

Senior Housing Mod
Assume everyone has disabilities. They do.



Pleasant Street Apartments
Marlborough MA



UD Consultant to Tise Design Associates, 2017

Allyson

General issues of aging



*Make rear unit
of 2-family
accessible.*



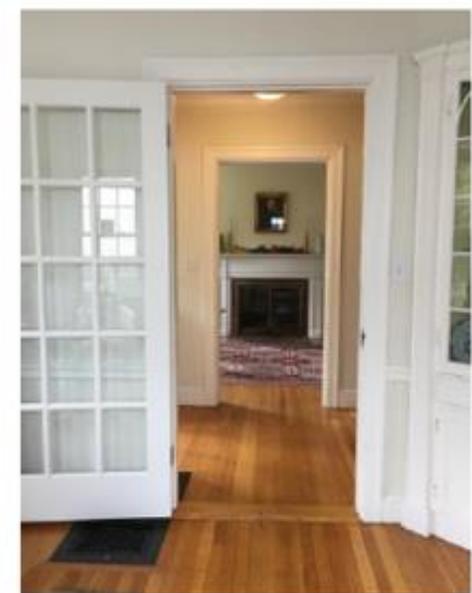
Ryck & Jenn

Progressive Vision Loss

Design safe clear circulation



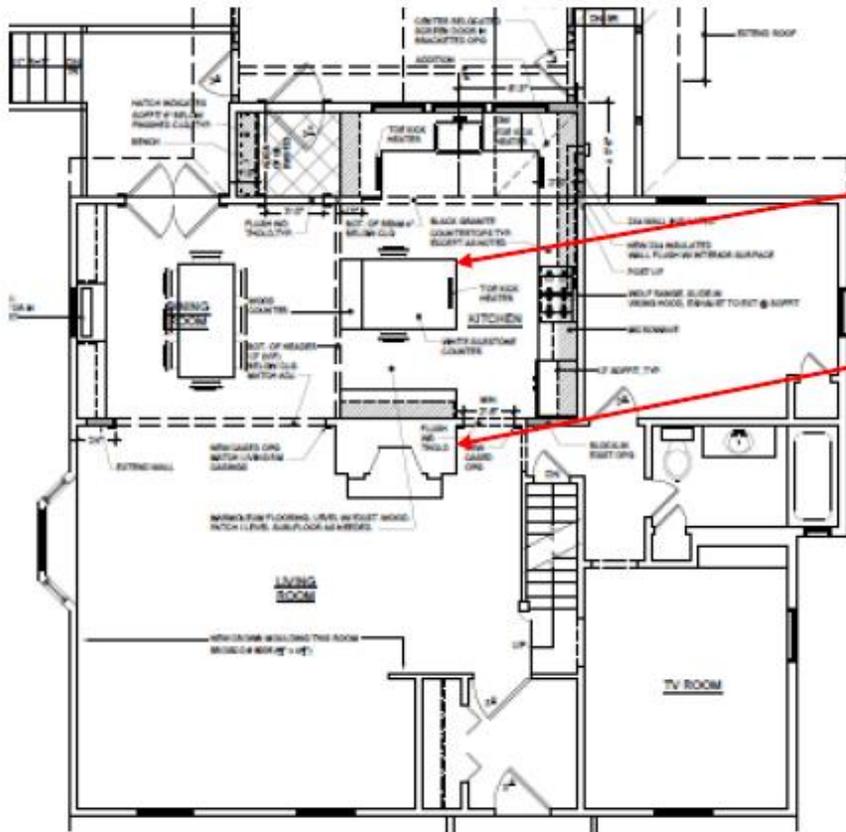
- Design generous safe landings
- Create sturdy level walking surfaces
- Add handrails



Peggy & Bob

Progressive Hearing Loss

Maximize visibility

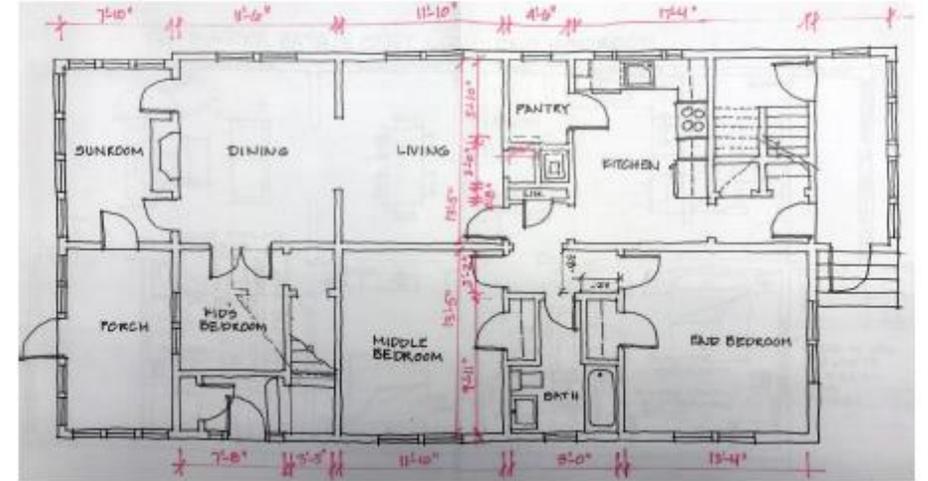


- Eliminate walls.
- Island kitchen.
- Coffered ceilings.
- Relocate and eliminate doorways.

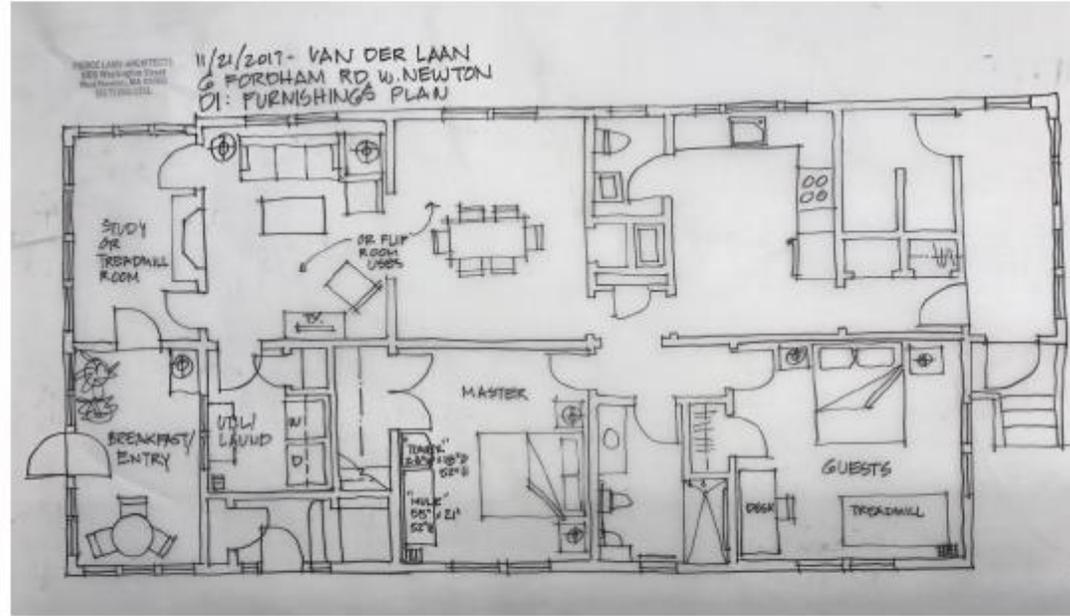
Carrie & Mark

Knee/shoulder/cardio impairments

*Create responsive
bathrooms & laundries.*



Before



Deb & Steve

General issues of aging

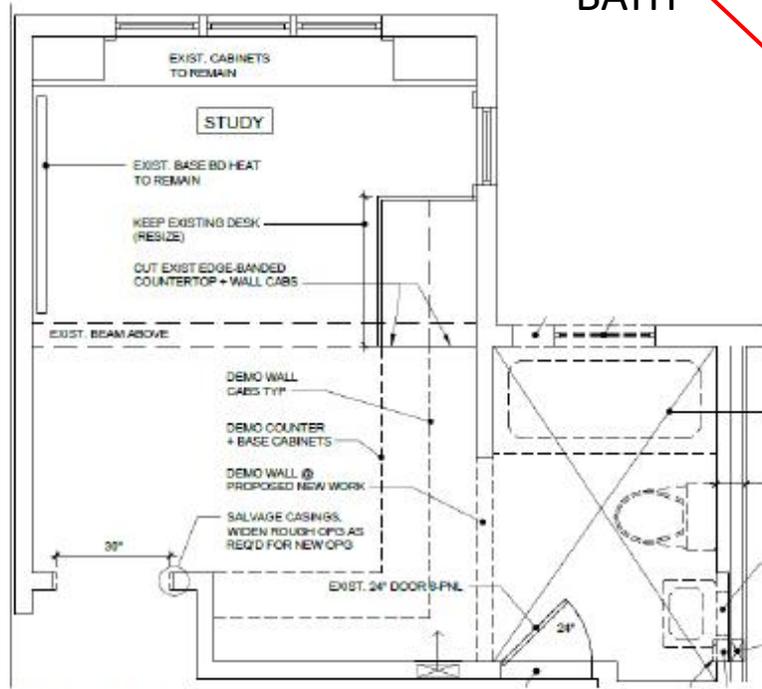
*Create options
for changing
conditions*



Bambi & Michael

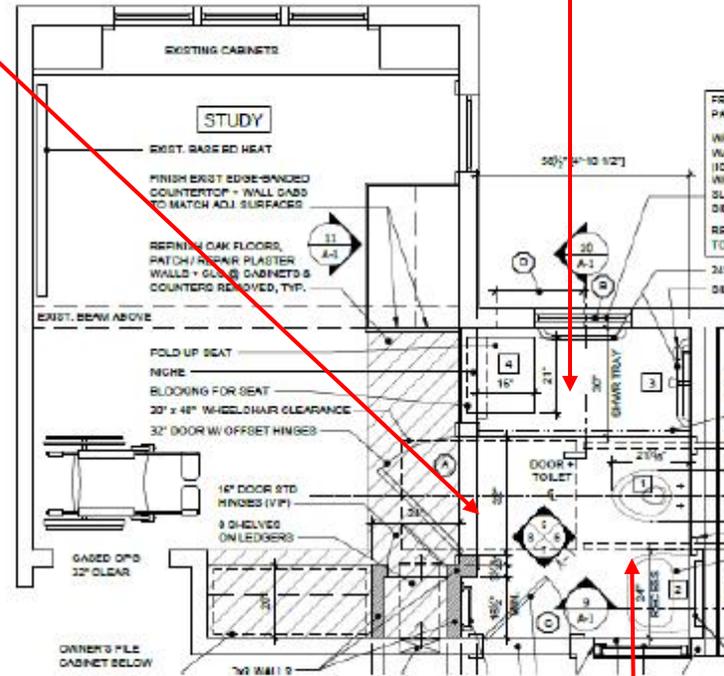
General aging issues

Provide bed-bathroom at main level.



Before

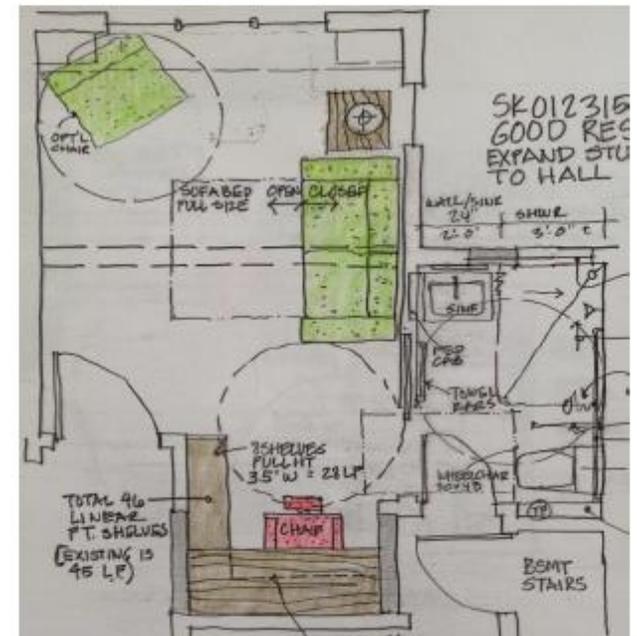
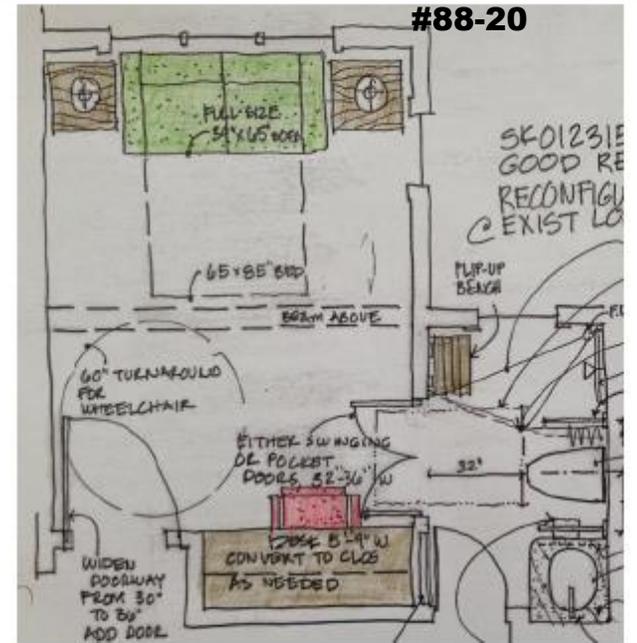
LINK BEDROOM-
BATH



After

NEW FIXTURES,
GRAB-BARS

SWAP TUB
FOR SHOWER

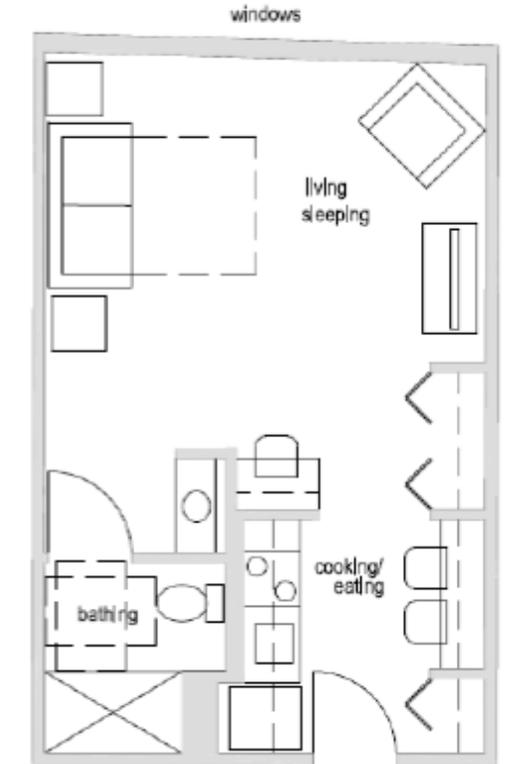


New England Center for Homeless Veterans

Prioritize access, self-care, social/recreation uses.



Shelter & Transitional Housing



Apartment Prototypes

UD Consultant to
Tise Design Associates
2016





Zoning Redesign - Discrete Topics

Article 8 – Development Standards

07.16.20 – ZAP Committee

Presentation Tonight

- **Zoning Redesign Timeline**
- **Why look at these Discrete Topics**
- **What are these discrete topics**



Zoning Redesign Timeline

Where We are Now

#88-20

City Council Term 2020 - 2021

Articles	Mar - 20	Apr - 20	May - 20	Jun - 20	Jul - 20	Aug - 20	Sep - 20	Oct - 20	Nov - 20	Dec - 20	Jan - 21	Feb - 21	Mar - 21	Apr - 21	May - 21	Jun - 21	Jul - 21	Aug - 21	Sep - 21	Oct - 21	Nov - 21	Dec - 21	
Art. 3 - Residence Districts	█	█	█	█	█																		
Art. 2 - General Standards				█	█	█																	
Art. 4 - Village Districts					█	█	█	█	█														
Art. 8 - Development Standards								█	█	█	█												
Art. 9 - Use Regulations									█	█	█	█											
Art. 10 - Non-Conformities													█	█	█								
Art. 11 - Administration																█	█	█					
Art. 5 - Public Use & Recreation Districts																	█	█	█				
Art. 6 - Single Purpose Districts																	█	█	█				
Art. 7 - Overlay & Master Plan Districts																		█	█	█			
Art. 12 - Definitions																			█	█			
Art. 1 - Introduction																				█	█		
Overview/Wrap-Up																						█	
City Council Vote																							█



- Notes
- The draft Zoning Map will be discussed within the appropriate Articles
 - Parallel community engagement and outreach accompany each Article discussion
 - This timeline is an estimate and subject to change



Why Look at these Discrete Topics

Keep us on Schedule

#88-20

City Council Term 2020 - 2021

Articles	Mar - 20	Apr - 20	May - 20	Jun - 20	Jul - 20	Aug - 20	Sep - 20	Oct - 20	Nov - 20	Dec - 20	Jan - 21	Feb - 21	Mar - 21	Apr - 21	May - 21	Jun - 21	Jul - 21	Aug - 21	Sep - 21	Oct - 21	Nov - 21	Dec - 21	
Art. 3 - Residence Districts	█	█	█	█	█	█																	
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Overview/Wrap-Up																						█	
City Council Vote																							█



Notes

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Utilize Experts

- **City Staff:**
 - **Planning (current, envr., transportation, econ. dev.)**
 - **Engineering/DPW**
 - **Inspectional Services**
- **Boards and Commissions**
 - **Land Use Committee**
 - **UDC**
 - **EDC**

What are these Discrete Topics

Transportation Standards (sec. 8.1)

- **Vision/Goal**
 - **Rationalize and streamline parking regulations**
- **Experts**
 - **Transportation, Current, and Environmental Planning, DPW, and ISD**
 - **Land Use Committee**

Signs (sec. 8.2)

- **Vision/Goal**
 - **Allow for reasonable and effective means for advertisement while ensuring building transparency and high visual quality**
- **Experts**
 - **Current planning**
 - **Urban Design Commission**

Stormwater Management (sec. 8.3)

- **Vision/Goal**
 - **Align zoning with Climate Action Plan**
- **Experts**
 - **Engineering/DPW, Environmental and Current Planning, ISD**
 - **Land Use Committee**

Retaining Walls/Grading (sec. 8.5) ^{#88-20}

- **Vision/Goal**
 - **Limit use and visual impact of retaining walls**
- **Experts**
 - **Engineering/DPW, Environmental and Current Planning, ISD**
 - **Land Use Committee**

Sustainable Site/Building Design (sec. 8.4 and 8.6)

- **Vision/Goal**
 - **Align zoning with Climate Action Plan**
- **Experts**
 - **Environmental and Current Planning, ISD, Engineering/DPW**
 - **Land Use Committee**

Cultural Arts (sec. 8.7)

- **Vision/Goal**
 - **Align zoning with Arts and Culture Plan**
- **Experts**
 - **Cultural Development, Economic Development, Current Planning**
 - **Economic Development Commission**

Outdoor Lighting (sec. 8.9)

- **Vision/Goal**
 - **Develop lighting requirements needed to make it safe for pedestrians and vehicles, addresses light pollution, and energy efficiency**
- **Experts**
 - **Transportation, Current, and Environmental Planning, DPW, and ISD**
 - **Land Use Committee**

Discussion

Thank You!

