

## MEMORANDUM

**To:** Barney Heath, Director of Newton Department of Planning and Development,  
Zachery LeMel, Newton Chief of Long-term Planning  
Deb Crossley, Chair of the Zoning and Planning Committee of Newton City Council

**From:**

- **Working Group on Climate and Zoning Redesign:** *Halina Brown, Newton Citizens Commission on Energy; Cory Alperstein, Jay Walter, Green Newton Building Standards Committee and Engine 6; 350.Mass-Newton; Barbara Brussel-Glaser, former City Councilor, Jim Purdy, Green Newton.*
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**Date:** November 11, 2020

**Topic:** Zoning redesign and Climate Action Plan

**Note:** This document replaced the October 6th Memorandum

### Executive Summary

Newton's revised zoning ordinance could be a critical and effective tool to reduce Newton's per capita GHG emissions, in line with the Newton Climate Action Plan (NCAP). The adopted NCAP explicitly recommends that the City use the zoning ordinance to advance energy efficiency and reduce GHGs from both buildings and transportation. However, the current draft of the zoning ordinance does not explicitly discuss energy efficiency or GHG emissions. This memo contains our recommendations for changes that would better align the zoning ordinance with the NCAP. Its goal is to minimize the per capita energy consumption in new dwellings, support the growing electric vehicle infrastructure, and reduce the number of automobile trips.

Five broad strategies underpin the recommendations for specific actions.

1. Encourage production of smaller and more diverse dwellings by encouraging duplexes, triple family houses, conversions of large single-family houses to multi-unit houses, cluster housing, rear lot development, and accessory apartments.
2. In special permits, incentivize highly energy efficient building methods by conditioning the square footage of houses.
3. Further limit the size of new single-, two-, and three-family houses and townhouses to achieve energy goals of the Climate Action Plan.
4. Require electric vehicle charging infrastructure in all types of new construction in order to encourage a rapid transition of Newton automobile fleet toward electric vehicles.
5. Allow multi-unit construction within a half mile of major transportation corridors in order to reduce the number of automobile trips.

Our recommendations regarding climate action support other priorities for the City: more housing and more diverse housing, social justice, transit-oriented growth, and a relief for the housing crisis in the region. We recognize that the details will matter, and that many still need to be developed. We encourage City Councilors and/or City staff to request the analysis required to design the details.

Time is of the essence. Every year without a sea change in the kind of dwellings that are created and the kind of construction methods that are deployed in Newton locks us into growing GHG emissions for many decades while providing no relief to the housing crisis in Newton and the region. We therefore urge the Planning Department and the City Council to adopt the proposed strategies and as many specific recommendations as possible as soon as possible, and to move swiftly toward implementation. We are looking forward to working together to get that accomplished.

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### A. Introduction

One of principal goals stated in the draft of the revised zoning ordinance is to “promote economic and environmental sustainability” and to support the Newton Climate Action Plan. The draft zoning proposal presented by the Planning Department to the Zoning and Planning Committee of the City Council (ZAP) at its August 13<sup>th</sup> meeting, does not directly discuss energy consumption or greenhouse gas emissions. The purpose of this memorandum is to include the goals of Newton Climate Action Plan in the ongoing discussions. The recommendations we offer for ZAP’s consideration, if implemented, will reduce the per capita energy use and greenhouse gas (GHG) emissions in Newton in support of the City’s NCAP responsibilities. (Different recommendations may belong in different parts of the city Code).

The recommendations in this memorandum, if implemented, will also advance the second principal goal of the draft zoning plan to “facilitate an increase and diversity of housing opportunities.”

#### *Why the zoning ordinance and why now?*

The Newton Climate Action Plan, adopted unanimously in November 2019 by the City Council, aims to make Newton carbon neutral by 2050. That is a great challenge for its residents, as 33% of all GHG emissions come from residential housing and 29% from transportation. Zoning

reform presents an unparalleled opportunity to reduce per-capita GHG emissions from the residential and transportation sectors. Such an opportunity is unlikely to present itself for years or decades to come.

Climate-related changes in the zoning code will take years to fully manifest their impact in the form of GHG reductions. Therefore, the recommendations we propose are an urgent investment in Newton's future. If we do not act now, each year another 100+ homes will be demolished and replaced with large single family and townhouses with a few occupants, all dependent on fossil fuels. If we do not act now, we will be locking in the high emissions of greenhouse gasses for another hundred plus years, adding to our tremendous challenge instead of being part of the solution.

### *Sustainability and social policies*

The zoning redesign process is an opportunity to re-envision Newton as a vibrant, economically diverse, welcoming, and resilient 21<sup>st</sup> century city. Zoning has often been used as a tool of exclusion and inward-looking indifference to the broader societal needs of this region. We therefore join the Newton Planning Department in its efforts to reverse some of these past practices in Newton.

Many social justice advocates are concerned that climate protection policies compete with social justice goals by driving up the cost of housing construction. This memorandum should dispel this perception. Many of our recommendations seek to reduce the per-capita GHG emissions in Newton by creating *more compact and energy efficient housing* characterized by *low utility bills*. The recommendations, if implemented, will contribute to creating more of the missing middle-income housing throughout Newton and the region without appreciably raising the construction and operating cost of new housing.

The recommendations show that the two goals—climate protection and social justice—can mutually support each other.

## B. The Newton Climate Action Plan (NCAP)

The Climate Action Plan calls for making Newton carbon neutral by 2050. For the existing residential housing stock, which contributes 33% to total GHG emissions, the Plan calls for minimizing energy consumption by 20% through insulation and air sealing, and for phasing out all uses of fossil fuels in favor of electric heating, cooling, hot water, and cooking. For new construction, the Plan calls for minimizing GHG emissions through highly energy efficient buildings and electrification.

For the transportation sector, which contributes 29% of total emissions, the Plan calls for eliminating by 2050 all greenhouse gas emissions. To that end the Plan calls for minimizing single-occupancy short automobile trips, and for increasing biking, walking, and using public

transit, in addition to telecommuting and ride sharing. The Plan also calls for gradual phasing out of gasoline-powered private automobiles in favor of electric vehicles (EVs).

Moving the needle for existing buildings will require the City to incentivize significant action by the private sector. Overall, the Plan calls for using the zoning code to pursue the above objectives. Below are the NCAP recommendations regarding buildings and transportation that involve zoning.

E.3.2. Explore opportunities for requiring a standardized, broadly accepted, building energy performance scorecard, to be obtained by a potential seller and disclosed to potential buyers.
D.3.1. Work with City Council to amend the Zoning Ordinance to require new construction and major renovations seeking a Special Permit maximize energy efficiency, maximize the use of renewable energy including thermal energy, and use electricity for heating and cooling.
D.3.2. Work with City Council to require that all new construction and major renovations analyze the costs, benefits, and GHG impacts of maximizing energy efficiency; utilizing electric heating, cooling, and hot water; and using renewable energy, including thermal energy.
D.3.5. Work with City Council to adopt Zoning Ordinances that encourage additional, appropriate low-carbon, housing near public transportation.
C.4.1. Work with City Council to develop a Transportation Demand Management (TDM) program to reduce single-occupancy vehicle trips through amendments to the Zoning Ordinance.
C.4.2. Work with City Council to explore reducing or eliminating the minimum parking requirement in the Zoning Ordinance and instead setting a maximum on parking allotments.
C.4.3. Create and encourage the use of safe bicycle and pedestrian facilities for commuters and residents.

## C. Recommendations for Residential Buildings

### Minimize energy use and GHG emissions in new construction

There are three options for reducing per capita GHG emissions from new residential construction: smaller dwellings, more energy efficient construction, and replacement of fossil fuels with (renewable) electricity. Our recommendations address the first two factors. They promote construction of well built, durable, compact, and highly energy efficient houses in the size range that is typical for Newton, which a century from now will continue using minimal amount of energy and not emit any greenhouse gases.

This memo uses the term “*passive house*” as a placeholder to denote a highly energy efficient construction. While the City Council may consider a certified Passive House (PH) as a desirable objective for new construction, other metrics can also be used, such as low HERS rating or net

zero building. We recommend a further discussion of that issue. For comparison, passive houses have HERS scores in the range of approximately 20-25.

We applaud the Planning Department's proposal to restrict the size of dwellings for by-right construction to 50 to 80% of the existing housing stock. At the same time, we recommend further deliberation on whether the currently specified by-right sizes, which are based on existing housing stock and not on the goals of the NCAP, are too generous and should be reconsidered. The existing housing stock was largely created in the era when energy consumption and its climate impacts were not considered to be critical social issues.

Further reducing a size limit would have two advantages: prevent the increase in the GHG emission in Newton that generally comes with more and larger dwellings; and create leverage in the special permit process to offer additional square footage in exchange for highly energy efficient construction, and without preempting the State Building Code. A further size reduction would encourage construction that is at a scale comparable to the existing building stock in Newton. Our research conducted for the Citizens Climate Action Plan indicates that 77% of all single-family houses in Newton are 3000 sf or smaller, and a 97% of duplexes are 2700 sf or smaller (for both dwellings combined) (See Figure 1 in Section F).

A special permit to build larger than the by-right sizes would be conditioned on building to a Passive House (PH) or similar standard. We recommend adoption of a *prescriptive special permit path* which would use a standardized building area bonus as an incentive for climate-ready construction. A by-right construction might be expanded with a special permit incentive of an additional specified floor area if the new home or substantial renovation was a built to a high energy efficiency performance standard. HERS rating, already required in all new projects and major renovations, can serve as a metric. For example, to prevent an increase in energy consumption when a 3500 sf house is increased by 25% (to 4375 sf) would require reducing its HERS rating by 20%, from 55 (required by the Building Code) to 44. We hope that the Zoning Code goes significantly further in granting the special permit size bonus by requiring a *reduction* in energy consumption of the enlarged house, as compared with the smaller version, toward the passive house or comparable performance standard.

The City might also consider developing a *point system for sustainability features* for proposed projects, to be used for granting such "rewards" as area bonus or expedited permitting. For example, if you get more than X points for climate-readiness, you get a bonus of Y sq. ft. without needing to go to the full special permit process. The feasibility and effectiveness of such a system requires further study since it is unclear if it would be within the scope of Zoning Ordinance.

### Reuse the existing housing stock

The carbon and energy embodied in Newton's existing buildings is substantial, and the zoning ordinance can encourage effective use of these materials and existing buildings. To use existing buildings effectively, the ordinance could provide additional incentives for energy efficient multi-unit conversions and rear lot developments.

We recommend allowing smaller units (less than 1200 sf) within conversions, and allowing more than one ADU per lot, for buildings which meet high energy efficiency standards. Requiring a deconstruction and required materials re-use for demolitions should be encouraged in teardowns to minimize embodied carbon impacts.

### Detailed items for consideration.

- Condition all Special Permits for new construction on adopting the passive house performance standard or other comparable performance metrics, such as net zero energy or HERS rating below that required by the Building Code. The Passive House is a recognized (though not required) energy efficiency standard in the State Building Code.
- By special permit, allow two external ADUs on a property if the energy performance of the units meets the PH performance standard.
- For multi-unit conversions and new multi-unit construction, allow dwelling units to be 1050 sf (from the currently proposed 1200 sf) if they adopt highly efficient construction methods: PH for new construction and yet-to-be-determined appropriate standard for conversions.
- To encourage creation of more smaller dwelling units in the areas close to transportation routes, allow multi-unit conversions in *all single-family house types*. To encourage the construction of smaller units in multi-unit conversions provide a sliding scale values that are appropriate for the different sized house types. This would allow multi-unit conversions in smaller houses.
- For multi-unit conversions, do not count egress paths and elevators as part of a building's maximum allowable area.
- To encourage the creation of accessory apartments in existing housing, remove the area limitations for internal Accessory Apartments. Allow homeowners to completely build-out existing outbuildings. Ease the reporting requirements for accessory units.

- To encourage rear lot development, ease the dimensional requirements for rear lot development including the setback and lot area requirements. Remove the site line requirement for rear buildings.
- For all teardown and demolitions of more than 50% require de-construction instead of mechanical demolition of the old structure.
- Conduct a study on a feasibility of further reduction in the upper limit on the square footage of new houses constructed by right.

### Special Permits

Several of the recommendations listed in the preceding sections would require the applicant to request a special permit. The criteria for reviewing such a special permit would include reducing GHG emissions in construction and operation of a building. This has been already done for large (20,000 sf or more) projects, for which the review criterion 5 has adopted some of the Green Newton Building Standards Committee’s recommendations.

Newton is an outlier in Massachusetts by allowing its City Council to administer its Special Permits. Typically, the Zoning Board of Appeals or the Planning Board is the permit granting authority. This approach reduces the long delays, uncertainty, and political nature of Newton’s special permitting process. We applaud the Planning Department for recommending an alternative special permit granting authority for small residential projects. But who that is and what the new rules would look like have yet to be determined.

### Summary of potential process

- All special permits requested for a relief from dimensional or area requirements in the residential sector should be conditioned upon including a building performance standard (PH or other accepted standards) that will ensure higher energy performance.
- Simplify and streamline the special permit process by creating an alternative Special Permitting Authority for all residential projects. Members of the permit granting authority should be versed in “best practice” environmental building methodology to help guide applicants toward more sustainable projects.

## D. Minimize GHG emissions from transportation

The Newton Climate Action Plan calls for gradual replacement by 2050 of all gasoline-powered cars with electric vehicles (EVs), and for less driving by Newton residents, especially in single occupancy vehicles.

The zoning ordinance can steer and facilitate these changes by improving the EV charging network, enabling residents to walk and bike to local destinations and public transit services,



supporting the use of public transit for commuting to work, and by removing barriers to reduced car ownership. We applaud the Planning Department for encouraging greater density near village centers and transportation hubs.

The future of private mobility is unknown at this time but if the recent past is a guide it will certainly be different than today. Car sharing services became extremely popular in the past 3-4 years, then declined during the Covid 19 pandemic. Self-driving cars are a distinct possibility in the near future. Traditional buses may change routes or become replaced with smaller and more nimble mini busses with flexible routes. With ongoing rapid technological advances, we cannot predict the next 5 years, much less the next 30 years. The zoning policy should therefore focus on creating *conditions* for any future reductions in the use of single occupancy private automobiles.

- In special permit applications require that all new construction and major remodeling projects include installation of a conduit for future installation of an EV charger and assure that the electric service has sufficient capacity for EV level 2 charger and for heat pumps.
- Allow by-right multi-family zoning within half a mile distance from the public transportation hubs and from major streets where crosstown automobile traffic concentrates.

## E. Conclusions

We recognize that the details will matter. We encourage City Councilors and/or City staff to request the analysis required to design the details. We are also, of course, open to other ideas for how incentives could be implemented. The zoning ordinance is a policy about land use and the types of buildings we want in Newton for years and decades to come. It is the most effective tool for influencing those building characteristics which determine long-term energy use and GHG emissions. It is also an effective tool for guiding housing density and, indirectly, automobile traffic. In short, it is an effective and timely tool for implementing the main provisions of the Newton Climate Action Plan.

Our recommendations seek to make maximum use of the zoning code to implement NCAP. The recommendations regarding climate action align nicely with other priorities for the City: more housing and more diverse housing, social justice, transit-oriented growth, and a relief for the housing crisis in the region.

Time is of the essence. Every year more than a hundred buildings are demolished and replaced with very large and energy inefficient houses. This locks us into growing GHG emissions while providing no relief to the housing crisis in Newton and the region. We therefore urge the Planning Department and the City Council to adopt as many of these recommendations as possible as soon as possible, and to move swiftly toward implementation. We are looking forward to working together to get that accomplished.

## F. Background research and status of the issue in current draft proposal

Minimize GHG emissions from new construction.

***Status of the issue in the current draft.*** The current zoning code proposal regulates the size of buildings through limitations on the building footprint, height, and architectural details of buildings, as well as lot coverage. The form-based zoning develops house type footprints and area standards based on the survey of existing housing in Newton as of 2016 as described in the Pattern Book. But the plan does not directly consider the size of dwellings from a sustainability perspective.

The currently proposed plan will incentivize a larger number of small units through conversions of single- to multi-unit buildings. The current plan allows the construction of very large homes: townhouses, duplexes and triplexes with 3500 sf dwelling units, or single-family houses described in the plan as types A, B, and D (6000, 3500 and 2300 sf of living space, respectively).

***Why energy efficient construction.*** Energy efficiency of a building envelope is a determining factor in the energy use for a home's operational life. Building inefficient houses which needs to be retrofitted later on is much more expensive than building them to high energy efficiency standards in the first place. For that reason, zoning should seek to increase energy efficiency of new construction as much as possible, within the legal constraints of the state building code.

Under the current Massachusetts Building Code, a Home Energy Rating System (HERS) score of 55 must be achieved for all new residential construction and major renovations. The code's 2019 Amendments allow (but does not require) the use of the Passive House performance standard as an alternative to HERS of 55. Building to the much stricter performance standard of "Passive House", with a typical HERS rating of 20-25, could reduce energy demand of a housing unit by more than 50% relative to a similar unit built to code, and reduce the cost of utilities accordingly.

A growing number of Passive House units are being built in Massachusetts, including Newton. Currently, Newton has 676 Passive House residential units either in existence or planned (the

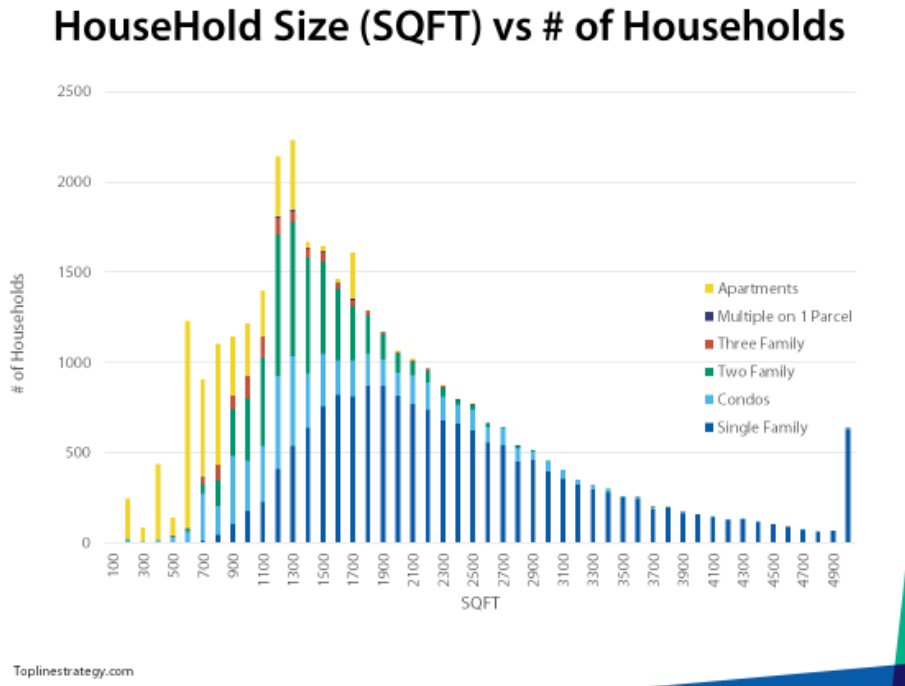
majority in Northland and Riverside). With a growing number of Passive House units on the market, their cost in larger commercial buildings is now comparable to the cost of building to code. For single family houses the cost premium is in the 0-2% range.

***Size matters.*** Next to energy efficiency of building envelope, the size of a dwelling unit is one of the main determinants of its energy consumption and associated GHG emissions. Research conducted by the Oregon Department of Environmental Quality has shown that reducing the square footage of a house by half reduces its GHG emissions by close to 40%. It also showed that a dwelling unit which is part of a multi-unit structure consumes less energy than a free-standing dwelling of the same size. Putting these two factors together -- halving the size and embedding the dwelling in a 12-unit building -- cut the energy use by as much as 50%, according to the above research.

In the above research, the calculations of GHG emissions were based on a lifecycle assessment over 70 years and included both *embodied* and *operating* energy. The embodied energy of the building materials and construction process represented approximately 15% of total lifecycle energy consumption. (<https://www.oregon.gov/deq/FilterDocs/ADU-ResBldgLCA-Report.pdf> ; <https://www.oregon.gov/deq/FilterDocs/2050-ResidentialGreenBuilding.pdf> ).

Our research indicates that 77% of all single-family houses in Newton are 3000 sf or smaller, and a 97% of duplexes are 2700 sf or smaller (for both dwellings combined) (Figure 1). Houses larger than the limit would, through the special permit process, be built to the PH performance standard.

**FIGURE 1 (from the Citizens Climate Action Plan for Newton**  
<http://www.newtonma.gov/civicax/filebank/documents/100188>)



Some U.S. cities have introduced into their zoning ordinances limits on residential house sizes. Our incomplete research provides several examples:

**Austin** Texas passed in 2006 the so-called “McMansion Ordinance”, which significantly limits the size of new structures. For example, if someone wants to build a new duplex or single-family structure on a lot where a structure has been or will be demolished or relocated, the new structure is limited to the greater of a) the 0.4 to 1 floor-to-area ratio; b) 2,500 square feet; or c) 20% more square feet than the existing or pre-existing structure.

<https://www.austinchronicle.com/columns/2006-03-10/346218/>

A full copy of the McMansion Ordinance can be found at [www.ci.austin.tx.us](http://www.ci.austin.tx.us).

In **Portland** Oregon on August 12, 2020, the City Council passed in a 3-1 vote a new zoning ordinance “Residential Infill Project”. The new law establishes size limits for residential buildings (1-8 units) on small lots and allows for greater density by right. Portland uses a “bonus” on the floor area ratio as a way to reward the creation of affordable housing.

<https://www.portland.gov/bps/rip>; [https://www.portland.gov/sites/default/files/2020-08/exhibit\\_b\\_volume\\_2\\_code\\_commentary\\_adopted1\\_0.pdf](https://www.portland.gov/sites/default/files/2020-08/exhibit_b_volume_2_code_commentary_adopted1_0.pdf)

[https://www.theurbanist.org/2020/08/12/portland-passes-sweeping-zoning-reform/?utm\\_source=Supporters&utm\\_campaign=8e32fe9cb4-](https://www.theurbanist.org/2020/08/12/portland-passes-sweeping-zoning-reform/?utm_source=Supporters&utm_campaign=8e32fe9cb4-)

For Newton we propose a similar approach by allowing a bonus for being *climate ready*. If you get more than X points for climate-readiness, you get a bonus of X sq. ft. or whatever without needing to go to the full special permit process, etc.

**In Chilmark** on Martha's Vineyard in 2013 residents overwhelmingly passed an ordinance that calls for an extra layer of review and a special permit from the zoning board of appeals for new houses 3,500 square feet per three acres, and limits total living area to 6,000 square feet. Homeowners are allowed 250 square feet per additional acre. Existing homes that already exceed the threshold will be given a one-time exception to increase the total living area by five per cent.

On the Outer Cape, in 2018 **Truro's** Planning Board voted to limit the size of houses in the Seashore area. Under the proposal, a house on a three-acre lot—the minimum size building lot in the Seashore District—could have by right no more than 3,600 square feet of livable floor area. An additional 200 square feet of floor area would be allowed per additional acre of land. **Wellfleet** has a limit of 2,800 square feet in gross floor area, with 3,600 possible with accessory buildings, according to town records.

Smaller houses would be a natural fit with the currently existing houses in Newton. 77% of single-family houses in Newton are 3000 sf or smaller and 97% of duplexes are 2700 sf or smaller (for both units). In other words, the climate-motivated preference for limits on the size of newly constructed houses are entirely consistent with the types of houses we have come to love in our Garden City: well-proportioned and in harmony with the landscape.

**In summary**, the energy savings from simultaneously reducing the size and raising energy performance can be large. For example, a back of the envelope calculation shows this: if a 6000sf PH building with 4 units is built instead of a 6000 sf single-family dwelling built in compliance with the building code, the energy demand of each dwelling in the 4-unit house could be as low as 15% of the energy demand in the large single-family dwelling.

#### [Reuse and retrofit the existing housing stock](#)

**Status of the issue in the current draft.** The current rules around accessory apartments in Article 9 are so restrictive that they discourage their use as a viable way for existing homes to be remodeled for extended families, in-home caregivers or additional rental unit income. We support the current proposal for RU area reductions to 900 sf from 1250 sf for creating more affordable housing units.

The current proposal allows multi-unit conversions in only House Type ‘A’, the largest houses in the City. Most houses in the City would not qualify.

The current proposal allows by-right building of rear and side extensions up to 25% of the building type footprint area for both new construction and remodeling. If the bonus were only allowed in remodeling it would keep the size of new houses down and incentivize remodeling existing houses.

The current rules for rear lot development (Section 3.5.1 in the proposed zoning plan) require the lots to be so large that few qualify. Then the setback restrictions are so restrictive that rear lot development is rarely viable. Rear lot development can add density while maintaining the current streetscape and preserving our current housing stock.

**Why de-construction.** The requirement for de-construction instead of demolition, which will make demolition more expensive, create *disincentives* to indiscriminate mechanical demolishing of houses slated for replacement. Reusing the existing housing instead of demolishing and replacing will also reduce wasting the *embodied* energy in existing buildings, which is now widely recognized as an important factor in GHG emissions from building construction. The research conducted by the Oregon Department of Environmental Quality (see section C.1.c) attributes approximately 15% of a lifecycle energy consumption of a single-family house to its embodied energy. (<https://www.oregon.gov/deq/FilterDocs/ADU-ResBldgLCA-Report.pdf> ; <https://www.oregon.gov/deq/FilterDocs/2050-ResidentialGreenBuilding.pdf> ).

De-construction requirements have been adopted by several cities. Our ongoing research has so far identified the following examples:

Portland OR, <https://www.portland.gov/bps/decon> . The deconstruction requirement has created a thriving construction salvage business in Portland.

<https://www.oregon.gov/deq/FilterDocs/ADU-ResBldgLCA-Report.pdf> ;  
<https://www.oregon.gov/deq/FilterDocs/2050-ResidentialGreenBuilding.pdf>

Vancouver,

San Antonio TX, [Deconstruction and Salvage Initiative](#)

Milwaukee <https://city.milwaukee.gov/ImageLibrary/Groups/ccCouncil/District-4-Bauman/PDFs/DeconstructionOrdinance.pdf>

Cook County IL, <https://stage-drupal.cookcountyil.gov/service/demolition-permitting>

<https://www.sanantonio.gov/Portals/0/Files/HistoricPreservation/Deconstruction/CookCountyDemolitionDebrisDiversionOrdinance.pdf?ver=2018-10-15-173740-230>

### Minimize GHG emissions from transportation.

We commend the City for reducing the restrictions on multi-family buildings in the areas currently zoned for only single-family houses. We also commend the City for relaxing minimum parking requirements and for requiring bicycle parking in various locations. That will open an opportunity for increasing the number of multi-unit dwellings to be within a walking or biking distance from transportation routes and nodes.

The proposal uses the term “transportation routes” without specifying its meaning. It could mean T and express bus stops, or it could mean major streets where most of crosstown traffic takes place. We use the term “transportation routes” to denote major streets where crosstown traffic concentrates.

On average, a car in Newton travels 40 miles per day at 23 miles/gal fuel economy. On average, each Newton household owns 1.7 vehicles. Although there are no data on the destinations of the car trips, it is reasonable to assume that probably half of the mileage is for local short trips under 5 miles, including getting to and from public transit nodes.

Ideally, during the next three decades Newton residents would replace their SUVs with more energy efficient compact cars, replace gasoline-powered cars with EVs, discover the joy of bicycling on short local trips, and drive less in single occupancy vehicles. These changes will depend on voluntary private decisions, but the zoning ordinance can steer and facilitate them in several ways: by improving the infrastructure for EV charging, by enabling residents to walk and bike to local destinations, by supporting the use of public transit for commuting to work and traversing Newton, and by removing barriers to reduced car ownership.