

## MAKING ROOM

planning for those who are  
here and those on their way to  
the Connecticut River Valley

### Overview of the Situation



Organized by:  
Connecticut River Joint Commissions



**Who is CRJC?**

NH & VT State Commissions have met together since 1989 in a mission to preserve and protect the visual and ecological integrity, and sustainable working landscape of the Connecticut River Valley, and to guide its growth and development through grassroots leadership.

Over 150 citizens volunteer through participation as a Commissioner or representative for one of five Local River Subcommittees.

<https://www.crjc.org>

Both Commissions are advisory and have no regulatory powers, preferring instead to advocate and ensure public involvement in decisions which affect river and valley.

## A Bi-state discussion series

CRJC in collaboration with Antioch University New England, NOAA, the Upper Valley Adaptation Workgroup, and the City of Keene.



Feb 23rd 2:30-4pm

Overview of the Situation



March 29th 3:30-5pm

World Café Discussion (Lebanon NH)



Apr 20th 2:30-4pm

Programs, Funding, and Case Studies



May 16th to 17th

Local Solutions, Climate Migration Conference (Keene NH)

## Today's Agenda



Research and Planning Concepts

*Chris Campany & Olivia Uyizeye*



State Level Efforts

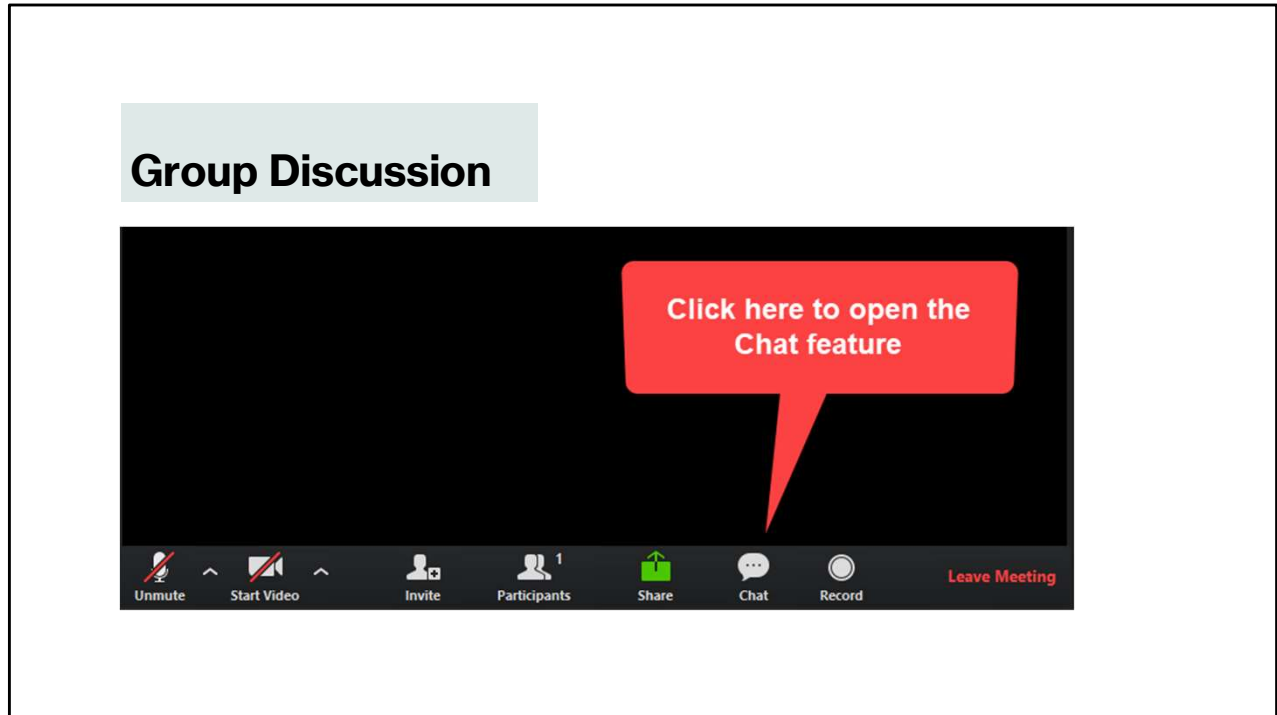
*Bronwyn Cooke & Ben Frost*



**Followed by Curated Discussion led by Marie Caduto & Jason Rasmussen**

**Who's in the room ?**





Due to the large group we have, please share your comments, questions, discussion in the chat for everyone to see. We will keep everyone muted. Our curators, Marie Caduto and Jason Rasmussen will be compiling and sharing out that input throughout the discussion. Although most of this will take part after presentations.

**“**  
**Climate migration is the voluntary or forced displacement of communities due to a climate induced stressor.**  
**– Vivek Shandas**  
Professor, Portland State University

**“**  
**The movement of people, development, and investment to areas that are less susceptible to environmental hazards.**  
**– Katherine Burgess**  
Vice President of Land Use and Development, Smart Growth America

## What is Climate Migration?

Alternatively, Climate refugees or Climate displacement *to capture the chaos or frothy nature after disasters – as called by Jake Bittle*

Climate is a factor among factors

Internal to a country is most likely

May include migration of investments or assets

Can be Voluntary or Forced

Not a common term used to self-identify

Place guideposts to the topic

Climate migration being the term of choice today, there are others with similar meaning, including climate refugees or climate displacement  
The variety of titles reflected in definitions and experiences

Read quotes

A few key dynamics in these names and definitions

Climate or natural hazard is the main factor when it threaten life, property.

Other related factors include unreliable power, increased insurance costs, and other impacts to quality of life or affordability.

Most often it results in movement within countries

That movement can include the transfer of personal asset but also larger investment

The movement of people may be forced or voluntary – often a combination of choice and need

This complexity of influences shows that the terminology is likely more an academic or planner term.

Less often used to self-identify.

References:

Definitions from National League of Cities - <https://www.nlc.org/wp-content/uploads/2022/04/CS-Domestic-Climate-Migration-and-US-Cities-Report.pdf>

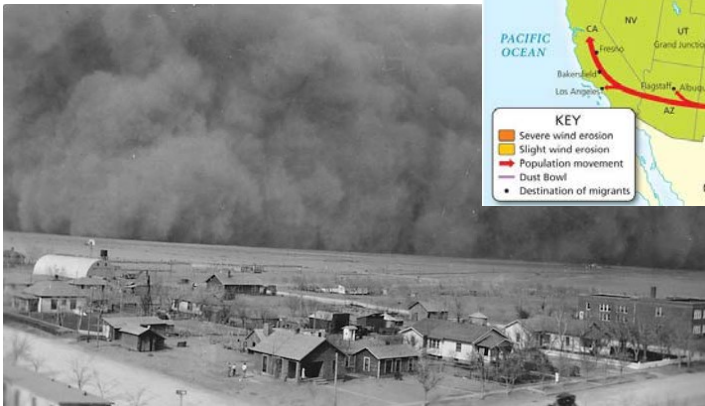
Climate Displacement by Jake Bittle. NPR interview -

<https://www.npr.org/2023/02/21/1158580464/climate-change-has-forced-thousands-to-relocate-in->

the-u-s



## Historical Precedent The Dust Bowl



A dust storm approaching Rolla, Kansas, May 6, 1935.  
(Image: Franklin D. Roosevelt Library Digital Archives)



<http://apushcanvas.pbworks.com/w/page/116705037/American%20Exodus%3A%20The%20Dust%20Bowl%20Migration>

Americans have dealt with climate disaster before.

Dust Bowl early 1900's

Settlers converted prairies with thin top soils to crops like corn, wheat and cotton.

drought. From 1929 to 1934, crop yields plunged by 60 percent, loss of income.

dust storms, some taller than skyscrapers

Lead to migration of 2.5 million people, mostly to the West, where newcomers unsettled communities and competed for jobs.

Colorado tried to seal its border

California, they were funneled into shanty towns.

Only after the migrants settled and had years to claw back a decent life did some towns bounce back stronger.

The places migrants left behind never fully recovered.

Other historical examples

Tendency to stay within or close to home region when displaced by a disaster (Katrina, Sandy, 9/11).

Although less documentation, examples do show the amplification of inequity due to a lack of appropriate infrastructure, such as that seen during Hurricane Katrina.

disproportionate impacts play out not only in those places hardest hit by disaster, but also those seeing an influx of people.

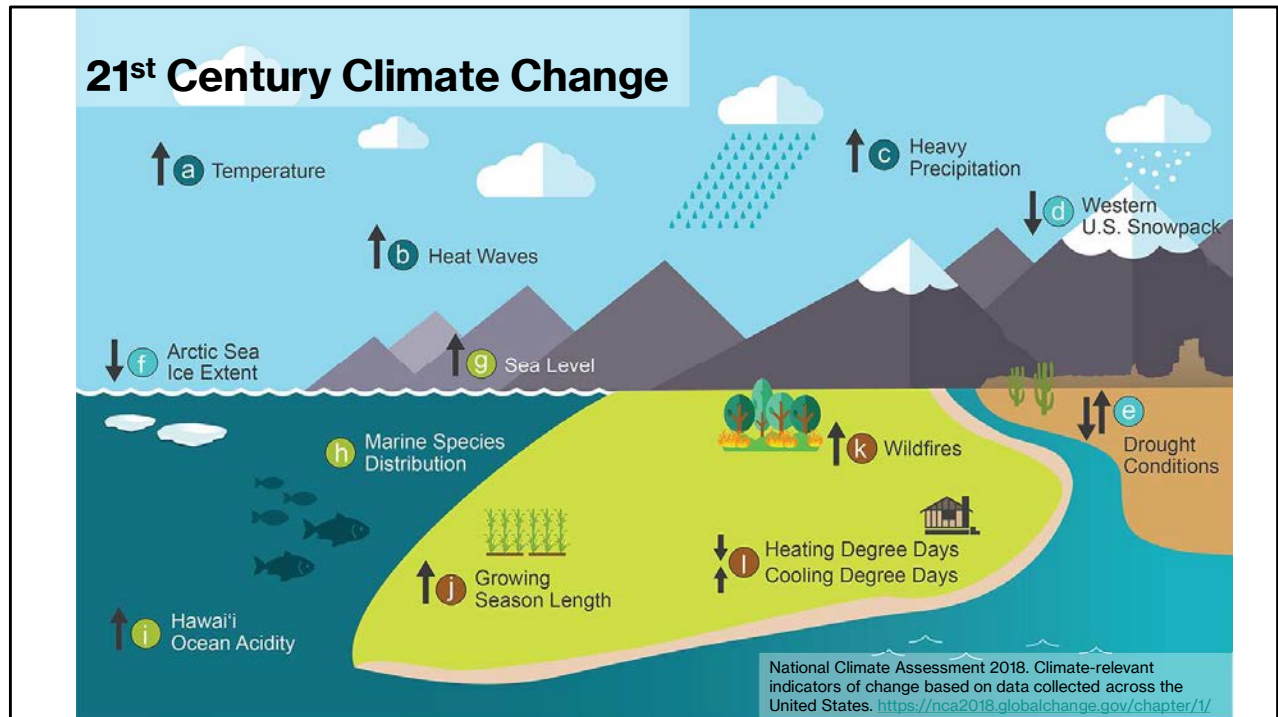
References:

Migration map -

<http://apushcanvas.pbworks.com/w/page/116705037/American%20Exodus%3A%20The%20Dust%20Bowl%20Migration>

DUST BOWL: <https://www.nytimes.com/interactive/2020/09/15/magazine/climate-crisis-migration-america.html>

NPR- <https://www.npr.org/2018/10/20/659074873/what-migrants-displaced-by-the-dust-bowl-and-climate-events-can-teach-us>



Big Ticket change (aka indicators of change) from the 2018 national climate assessment based on historical data collected across the United States.

Upward-pointing arrows indicate an increasing trend; downward-pointing arrows indicate a decreasing trend. Bidirectional arrows (e.g., for drought conditions) indicate a lack of a definitive national trend.

temperatures and related heat waves are increasing

Growing season is becoming longer while Rainfall is becoming more intense

More days will be seen over 65 deg where things like AC are needed, called cooling degree days. On the flip side fewer days are expected where heating is needed, called heating degree days.

Drought conditions do not show a definitive trend, New England is expected to see an increase, especially of flash droughts

wildfires are increasing, including smaller ones in New England

Snowpack and sea ice extent are decreasing

Sea level is increasing and oceans are acidifying by absorbing roughly a quarter of emitted GHG

Marine species are moving to deeper and more northern waters, including species along the northeast coast

**Atmosphere (a-c):**

- (a) Annual average temperatures have increased by 1.8°F across the contiguous United States since the beginning of the 20th century
- (b) length of heat waves has increased by over 40 days since the 1960s.
- (c) amount of annual rainfall becoming more intense and in short periods of time

**Ice, snow, and water (d-f):**

- (d) declines in snowpack in the western United States, also being observed to a lesser extent in New England.
- (e) currently no detectable change in long-term U.S. drought statistics. New England is expected to see more of what are called flash droughts.
- (f) annual minimum sea ice extent in the Arctic Ocean decreased at a rate of 11%–16% per decade

**Oceans and coasts (g-i):**

- (g) sea level along the U.S. coast increased by about 9 inches since the early 20th century
- (h) Fish, shellfish, and other marine species along the Northeast coast have, on average, moved northward and to greater depths toward cooler waters since the early 1980s
- (i) Oceans are absorbing more than a quarter of the carbon dioxide emitted to the atmosphere, increasing their acidity

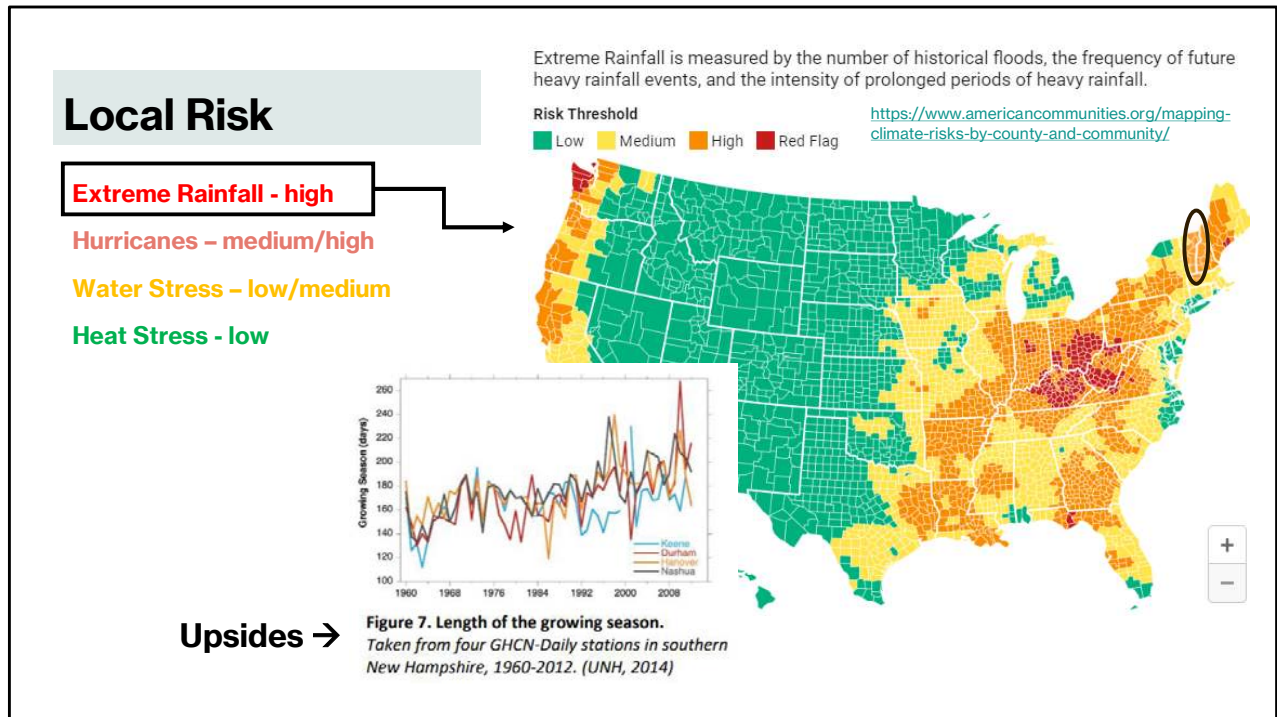
**Land and ecosystems (j-l):**

- (j) The average length of the growing season has increased across the contiguous United States since the early 20th century,
- (k) increase in large forest fires in the western United States and Interior Alaska over the past several decades ([CSSR, Ch. 8.3](#)).
- (l) proxy for energy demands for cooling or heating buildings. average daily temperature is higher than 65°F (cooling degree days) or lower than 65°F (heating degree days). heating needs decreased and cooling needs increase

The next National climate assessment expected late 2023

Reference:

NCA 2018 <https://nca2018.globalchange.gov/chapter/1/>



Lets take a moment to look at risk factors specific to the CRV

This information comes from Four Twenty Seven, sclimate risk data firm – based on historical data and projections out to 2040 by county

Local Risk :

- Extreme Rainfall** – High
- Hurricanes** – Medium to High
- Water Stress – Low to Medium
- Heat Stress – Low

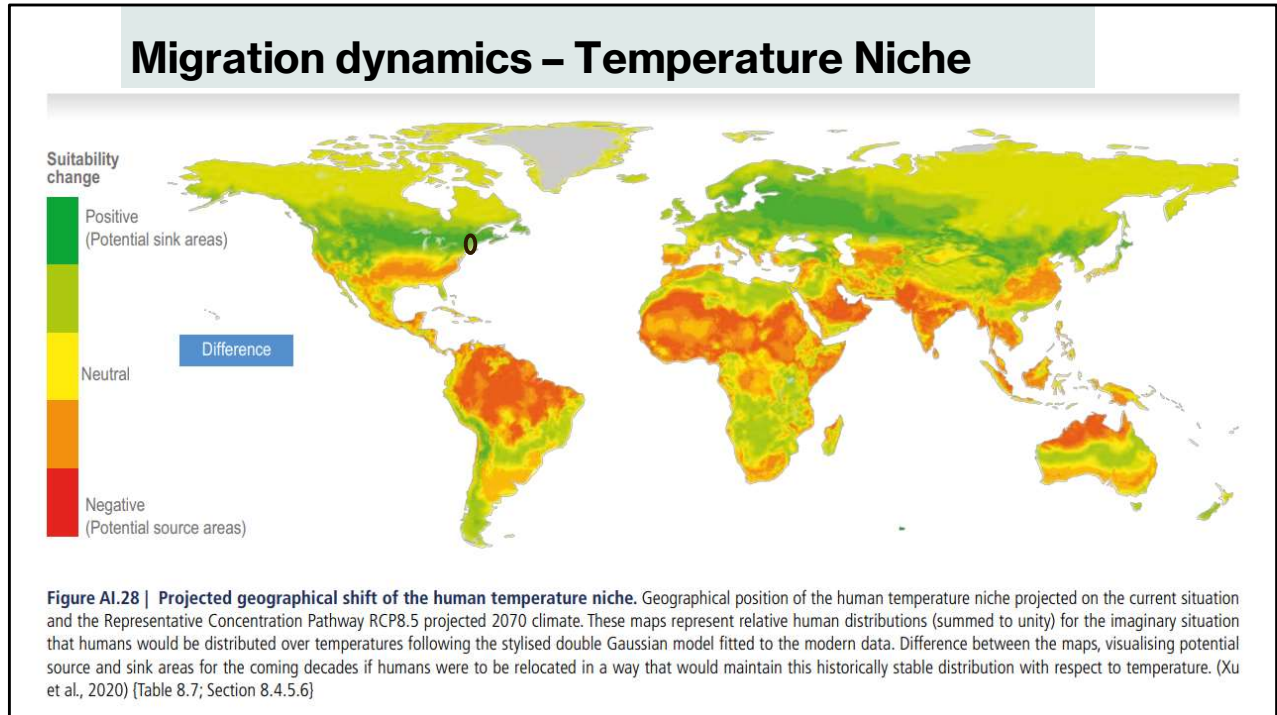
Zooming into extreme rainfall, you can see how the CRV lights up in orange across the board. Yet there are some resiliency upsides, just take the growing season. This graph is based on historical data Coming from the 2014 Climate change report for southern NH

References:

American Communities Project - <https://www.americancommunities.org/mapping-climate-risks-by-county-and-community/>

UNH Climate Change in Southern NH, 2014 -

<https://scholars.unh.edu/cgi/viewcontent.cgi?article=1002&context=sustainability>



our planet’s history of 4.5 billion years has us with a short period of flourishing, last 6 millenia Represents a Historical niche mainly attributed to temperature showed a 51-59 farhenheit mean annual temperature

Map shows how this temperature niche (called suitability) may change under the RCP8.5 or business as usual scenario.

Very high scenario, not the most probably.

Although models are challenging and not a crystal ball, we can see potential trends at a coarse level. how it may influence migration the global scale, generally northward

This research also points out that by 2070 it is possible that more than **three billion people** will live in regions considered “*near un-liveable*” with the average temperature **beyond** 84 degrees Fahrenheit,

people who live in the South and the Southwest decide to move north in search of a better economy and a more temperate environment.

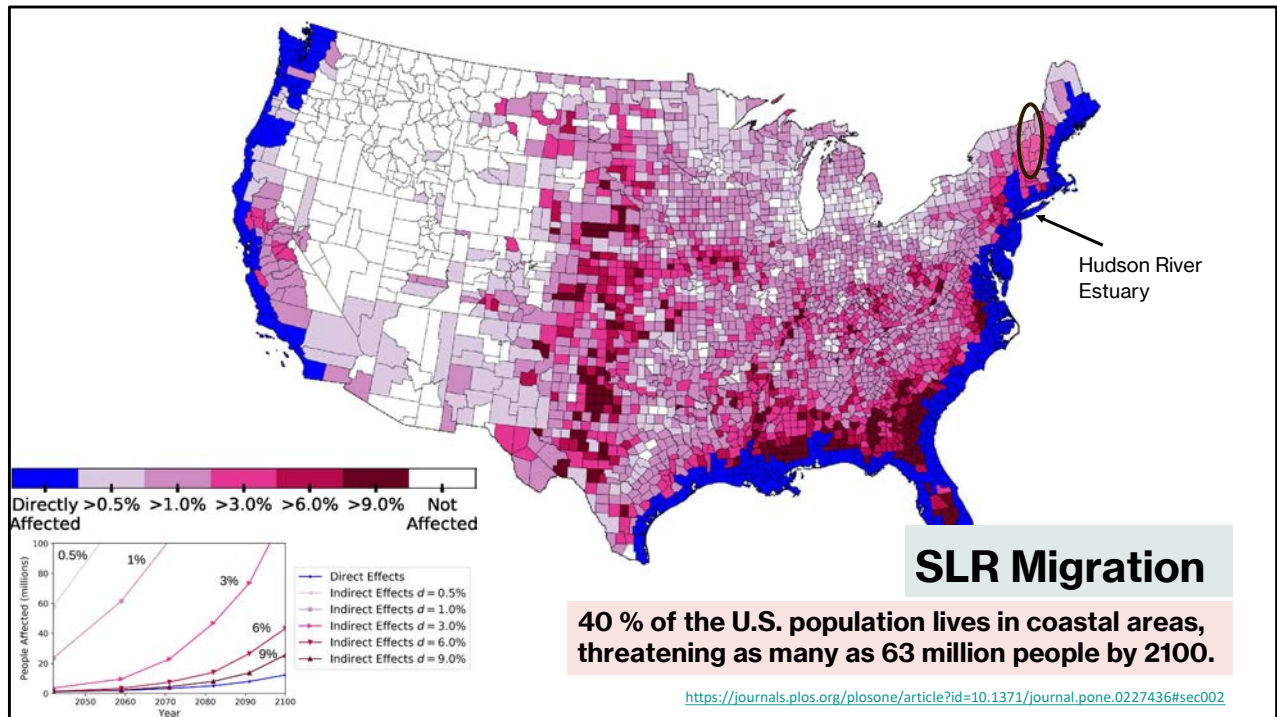
NY times article paints the picture “Once-chilly places like Minnesota and Michigan and Vermont will become more temperate, verdant and inviting.”

References

IPCC 2020, Global to Regional Atlas -

[https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\\_AR6\\_WGII\\_Annex-I.pdf](https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-I.pdf)





The migration system is socio-environmental system defined by the structures and processes in place, in part defined by the ties between places. This harkens back to most migration happening within a country or even a region of a country before elsewhere. When part of the connected system experiences a disturbance event, the out-migration impacts all communities, as people redistribute

Sea level rise is likely to be of particular impact to CRV  
 40 percent of the population of the U.S. lives in coastal areas including northeast population centers of New York and Boston  
 New fact to me, the Hudson river is part of an estuary that feels the ocean's tide 153 miles upstream, extending SLR impacts to more inland communities

**the business-as-usual scenario we discussed earlier, 1.8 m SLR for 2100**  
 the number of *extra* migrants, rather than established baseline, greater than some percentage of that county's population.  
 five different values of *d*: 0.5%, 1%, 3%, 6%, and 9%.  
 CRV counties range from 1-6%

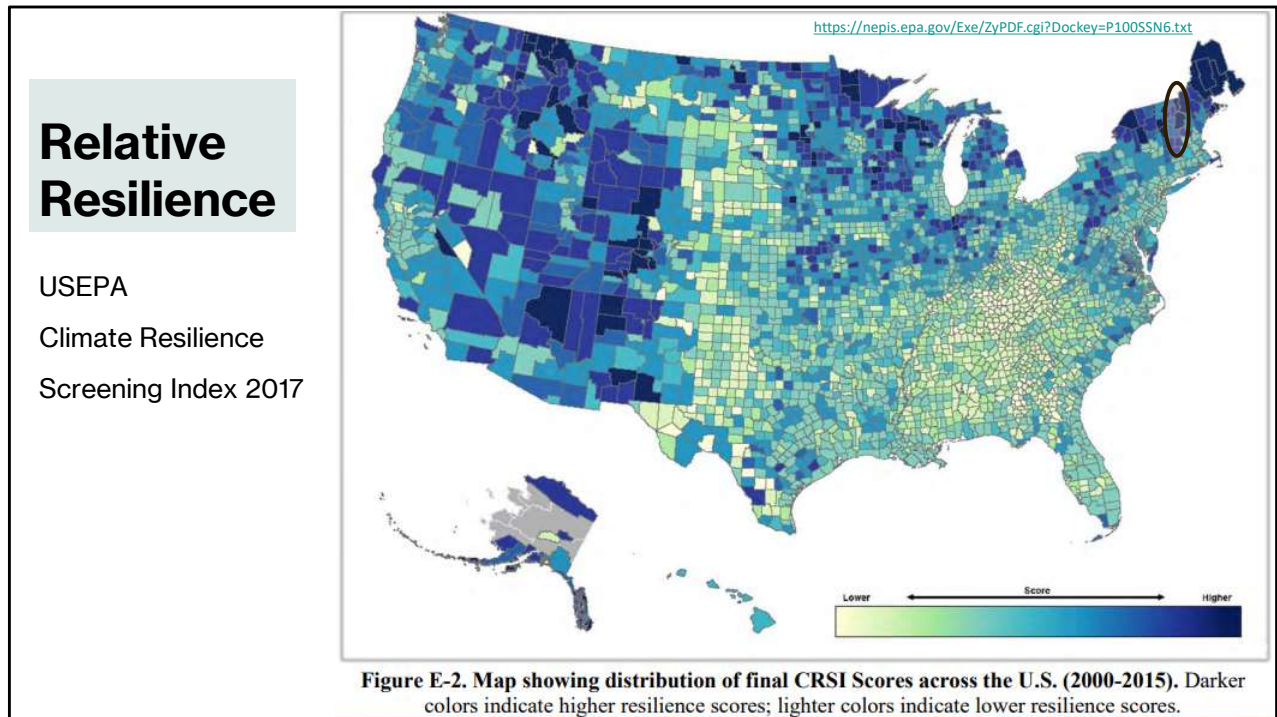
Messaging, not just precision, is part of the value of this kind of study. Other factors will also play a role, such as—employment opportunities, who has the means, actions to keep people out, for example.



Reference:

SLR Migration Trends (Robinson, et al., 2020):

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0227436#sec002>



Taking a moment to look at the broader resilience of communities, in addition to their risk

Climate Resilience Screening Index (CRSI)

a conceptual roadmap that factors in influences of county and community on vulnerability and recoverability

Composite index of 27 indicators that touch on 5 domains – natural environment (extent & condition), society (demographics, trade services, public health, social services, etc.), built environment (infrastructure such as roads, energy systems, water supply), governance (collaboration of government/NGO/private), risk (to climatic events)

Again the CRV and New England lights up with darker blue colors, as well as areas in northern NY, around the great lakes, and more out west.

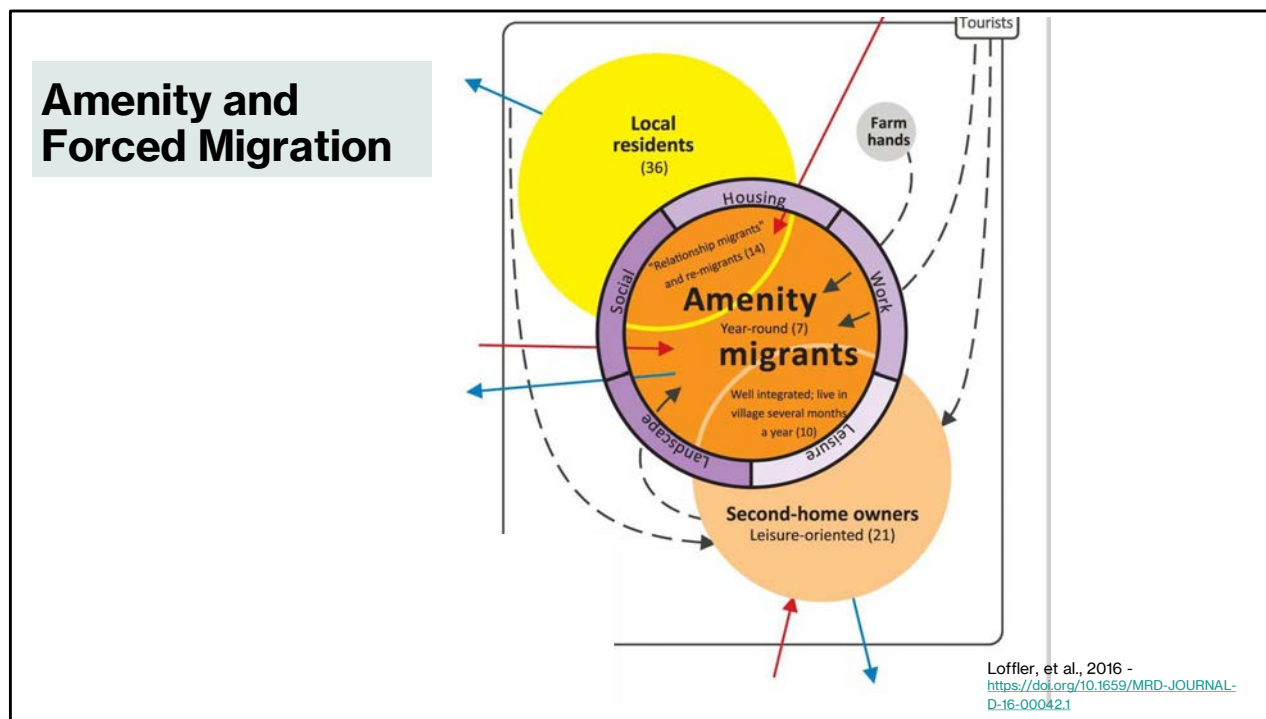
It is notable to me the higher prevalence of lighter colors as you move east across the country, which may indicate greater likelihood of bottleneck or overwhelm

References:

EPA CRSI - <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100SSN6.txt>

FEMA National Risk Map - <https://hazards.fema.gov/nri/map>

NYTimes Article, 2020 - <https://www.nytimes.com/interactive/2020/09/15/magazine/climate-crisis-migration-america.html>



Much of what we have talked about so far related more to forced migration. When folks for safety, financial, or infrastructure reasons must move. Another type of migration is more voluntary, or perhaps represents family with the resources for advanced planning.

These types of migrants may be called amenity migrants, affinity, or even the gentrifying leading edge. And are not just related to climate migration.

The figure shown here comes from a theoretical model for amenity migration in communities of the Alps. Although a very different community, the dynamics resonate with how we already see amenity migration in CRV with rich amenities such as the outdoors, recreation, and sense of rurality, which may align with with some as a lifestyle preference

In general, the figure highlights how amenity migrants often resettle in regions in which they have relationships, settling near friends or family. They may also be seasonal workers or second home owners, where a gradual building of Personal networks or sense of belonging can reduce barriers to a future more permanent move

While the directionality of these flows is both in an out of a community, with climate migration, the potential is for the in flow to be greater than the out. See the dynamics during the COVID-19 pandemic, with second home owners moving in permanently (or semi-permanently), and also buying up more of the housing stock, the driving up of prices we all

saw during this time is part of what we refer to as the gentrifying leading edge, where populations with capital resources invest, creating possibility for tension with exiting residents

Reference:

Amenity Migration in the Alps, Loffler et al., 2016 - <https://doi.org/10.1659/MRD-JOURNAL-D-16-00042.1>

**nhpr** News from New Hampshire and 10207 Support

### As Climate Change Drives Migration To N.H., Towns Face Tension And Opportunity

New Hampshire Public Radio | By Annie Ropelak  
Published January 11, 2021 at 11:21 AM EST

▶ LISTEN • 4:48

Doug and Judith Saum are two of New Hampshire's climate migrants. They moved to escape the health effects of increasing Western wildfires.

### California fire pushes family to Vermont

Elle Holden prepares to open a box of "fire treasures", which are the burnt remains of their family's California home. After fleeing one of the most destructive fires in California, the Holden family was not so severely affected by climate change and chose Vermont. The few things the Holdens rescue from the dairy barn — a burnt trombone, plant hanger, piano brackets, a jewelry box, a ladle... Charles Krupa

### As Climate Fears Mount, Some in U.S. Are Deciding to Relocate

The Springs Fire encroaching on a house in Camarillo, California in 2013. DAVID MCNEW / GETTY IMAGES

As wildfires worsen and sea levels rise, a small but growing number of Americans are choosing to move to places such as New England or the Appalachian Mountains that are seen as safe havens from climate change. Researchers say this phenomenon will intensify in the coming decades.

By MICHAEL CASEY  
Associated Press  
Published: 8/6/2022 2:09:29 PM

BY JON HURDLE - MARCH 24, 2022

## Could CRV be a climate destination?

So this is all hypothetical right? There are some early indicators in the CRV

New stories are popping up both locally and nationally, pointing often to parts of the upper CRV  
One quote from an article read...

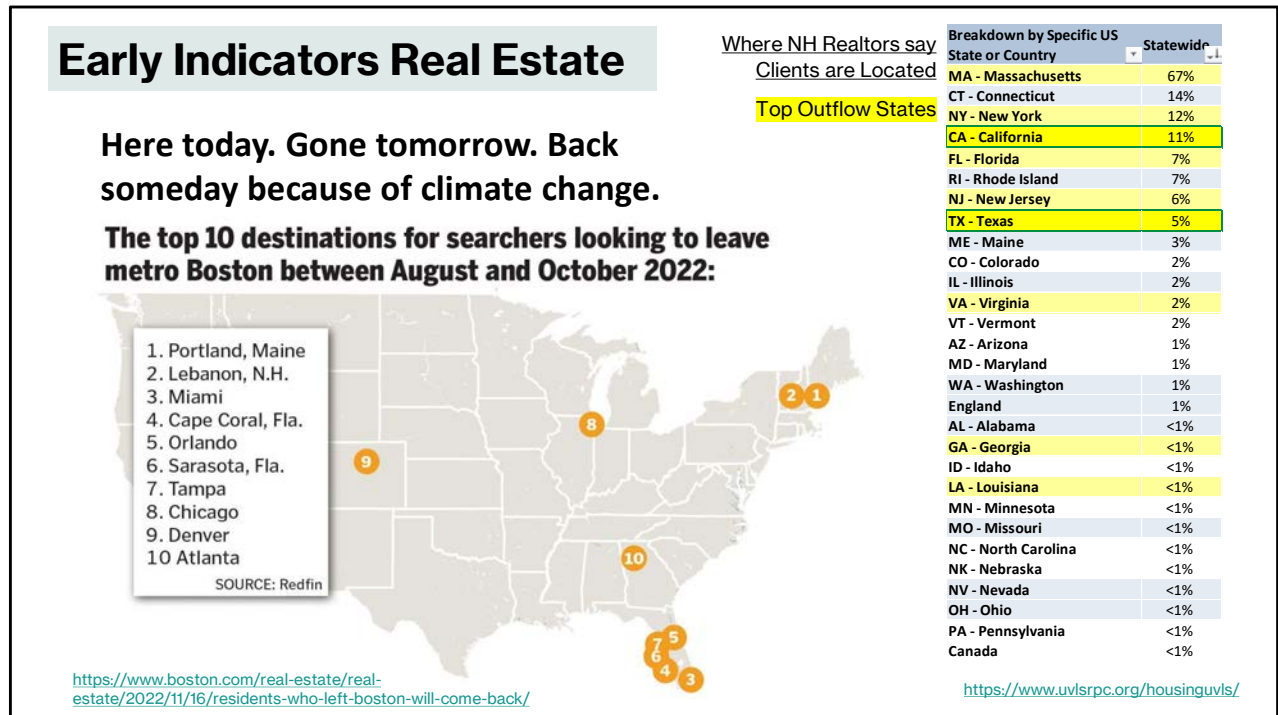
"We have so many open jobs, and we have been trying to think of ways to entice more people and to keep the people who are already here, But we don't have the housing stock. So we're not ready."

References:

NHPR, 2021 - <https://www.nhpr.org/climate-change/2021-01-11/as-climate-change-drives-migration-to-n-h-towns-face-tension-and-opportunity>

Yale360, 2022 - <https://e360.yale.edu/features/as-climate-fears-mount-some-in-u.s.-are-deciding-to-relocate>

Associated Press, 2022 - <https://apnews.com/article/wildfires-science-california-vermont-climate-and-environment-c447df812838d6046e363fdf46a64c6c>



Data is also showing some alignment with these concepts and trends  
 UVLS Realtors survey - out-of-state buyers/clients geographically located.  
 Yellow highlights are top 10 outflow states due to climate impacts that were mentioned.  
 For UVLS realtors, CA portion was event higher,

MA declined in population during the pandemic. With the Suffok county including boston losing more than 20,000 people  
 Headed to? Portland and Lebanon next.

While we want to be careful to notdraw too much from conditions during the COVID 19 pandemic, it is reasonable to think that for those who do not stay, they may choose this place again due to another types of shock.

References:

Metro Boston migration dynamics - <https://www.boston.com/real-estate/real-estate/2022/11/16/residents-who-left-boston-will-come-back/>

UVLSRPC RHNA 2023 - <https://www.keystothevalley.com/current-projects/uvlsrpc-housing-needs-assessment/>

Top outflow states - <https://mashable.com/article/sea-level-rise-climate-migration-austin>

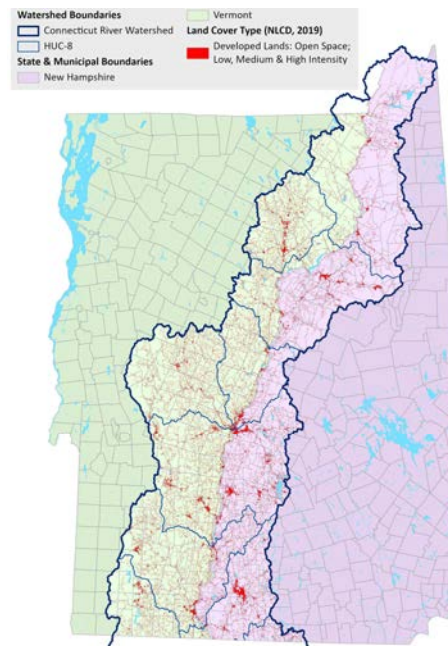
## The Upper Connecticut River Watershed

When you share a watershed, you are collective stewards of the health of this place which sustains and nourishes you

**93** NH communities

**114** VT communities

**53** on the mainstem



Centering on the upper watershed, which we also here call interchangeably with the CRV, when we think about the potential for migration, we have to think about the health of our collective watershed. For here we are collective stewards that we seek to sustain and nourish to protect our natural resources, our communities, and ourselves.

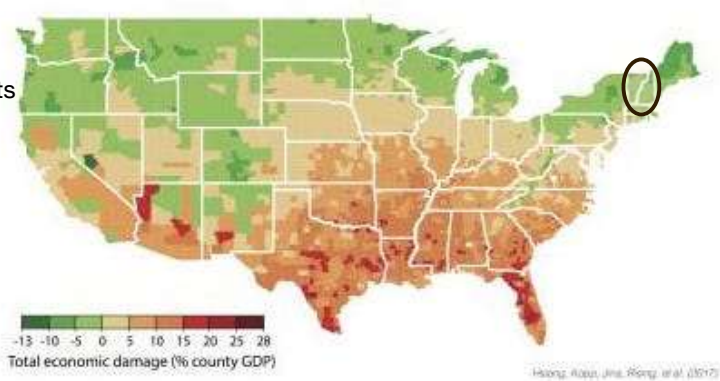
The stressors and responses faced in one can have a neighborly and watershed effect. Although still not a contained system, the watershed follows natural interactions more closely than political boundaries. we are impacted in our regional community.



## Change with Opportunity

**New residents provide...**

- Diversification of population & mindsets
- Workforce & Volunteer needs without displacement
- Impetus for resilient land use
- Local economic investment
- Housing development at scale



└─→ Need to get the planning right

Now I don't think we need to tell anyone how change is hard, but opportunity exists among these dynamics.

Receiving communities or more glamorously names climate destinations, can benefit from the economic, social, and cultural contributions new residents bring.

This maps gives us a glimpse at the economic opportunity.

Using business as usual scenario for annual damage 2080-2100 where negative damage to county GDP or the green is economic benefit, and CRV is green.

Looked at 6 economic categories - agriculture, crime, health, energy demand, labor, and coastal communities

The risks and related fear spur us as humans to respond. At one time it was to run, now one response may be to plan and implement actions early. Facing this change through effective planning allows for the greatest potential opportunity to residents here now

References:

The cost of climate change. Hsiang, et al., 2017 -

<https://www.science.org/doi/10.1126/science.aal4369>

Urban Institutes - <https://housingmatters.urban.org/feature/why-cities-need-prepare-climate-migration>

## Resilient Traditions

Sustaining human vibrancy  
for 13,000 years  
Intact village centers  
Overcoming past challenges



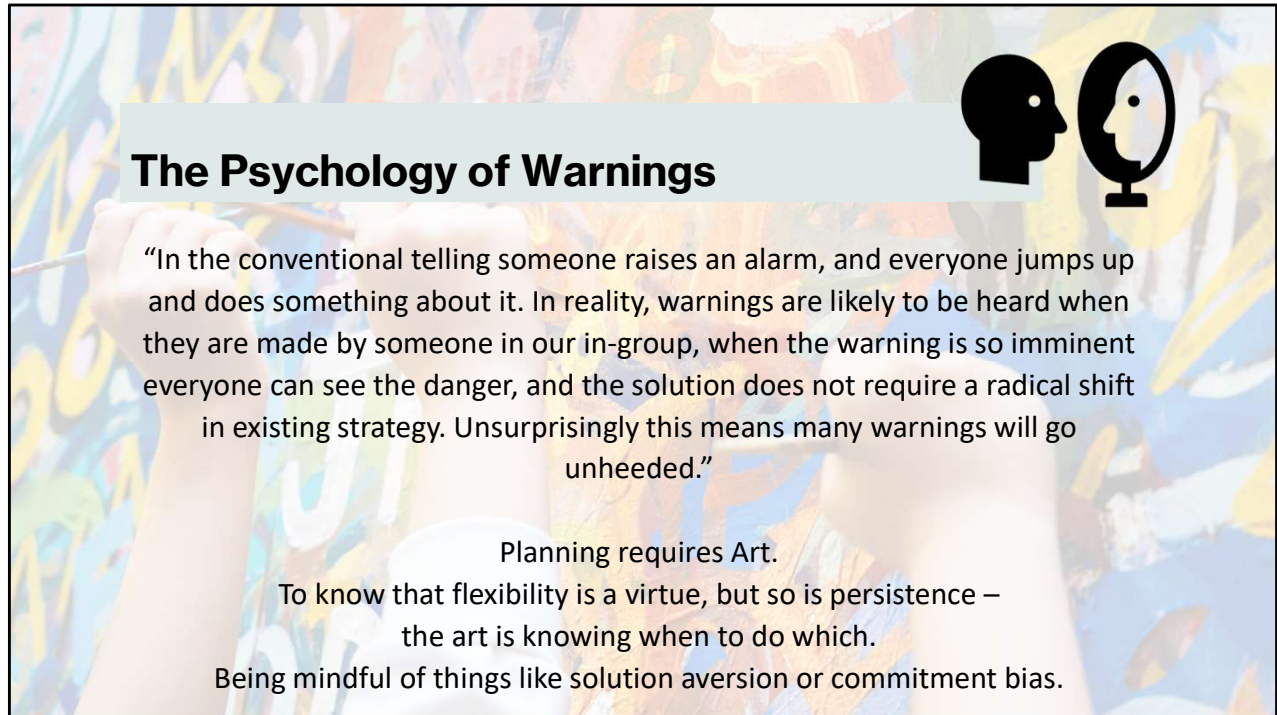
We have a lot of history and tradition of people living this this place to learn from and be in conversation with

Sustaining humans since the ice age, 13,000 years

Rural economy is local and regional

Our River has overcome challenges in the past – a river that ran colors

And the intact village and downtowns from early European settlers are intact, providing a foundation for resilience we can be grateful for and seek to protect



## The Psychology of Warnings

“In the conventional telling someone raises an alarm, and everyone jumps up and does something about it. In reality, warnings are likely to be heard when they are made by someone in our in-group, when the warning is so imminent everyone can see the danger, and the solution does not require a radical shift in existing strategy. Unsurprisingly this means many warnings will go unheeded.”

Planning requires Art.  
To know that flexibility is a virtue, but so is persistence –  
the art is knowing when to do which.  
Being mindful of things like solution aversion or commitment bias.

All this talk is great, but human psychology is not on our side for long term planning. We are not great at it.

Read quote

While psychology makes me nervous, it also gives practical tools to respond. Unfortunately, this is more of an art than a science when applied to planning. For those of you who are artists, I am jealous. It is a kind of social wisdom that will help us to be flexible in our outreach and communication, yet also be persistent when needed.

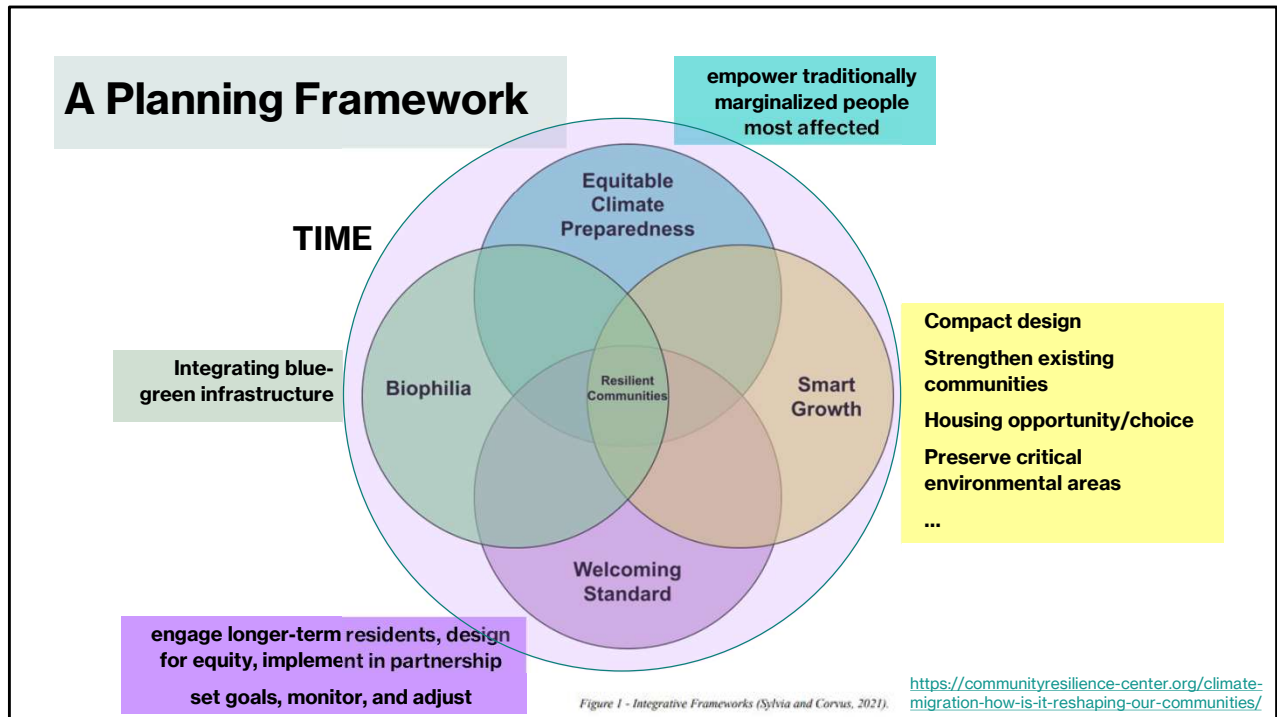
Some specific dynamics that may come up are..

Solution aversion relates to the effect when if someone doesn't like a solution, that person may often reject not just solution but the deny the problem to begin with.

Commitment bias happens when someone commits to a particular strategy and then don't want to back out. All that work "can't have been for nothing"

References:

Hidden Brain Podcast episodes How to Open Your Mind and You Don't Need a Crystal Ball.



As part of a student project with AUNE student in 2021, Meghan Sylvia and Jo Corvus presented a potential framework for the CRJC to approach climate migration planning

There are four lenses to guide us in identifying short-term and long-term solutions

The first is Biophilia - In planning, biophilia is the act of creatively integrating blue and green spaces into the built environment, with an emphasis on restoring and protecting natural systems and ecosystem services,. Biophilia also brings residents closer to nature, and makes it a part of their everyday multisensory experience

The next one is Smart Growth – which offers a planning framework based on 10 principles of sustainable development.

Mix land uses, Compact building design, range of housing opportunity/choice, walkable neighborhoods, sense of place, preserve open space, farmland, critical environmental areas, strengthen/direct development to existing communities, transportation choices, development decisions predictable, fair, cost effective; community/stakeholder collaboration

The third is the Welcoming Standard – which is a roadmap to support communities in becoming more inclusive and enable partnership and recognition in shared values and capabilities of residents and newcomers.

The four core strategies for increasing impact and sustainability of a welcoming community include engaging longer-term residents; set goals, monitor impact, and adjust as needed; design for equity and inclusion; and implement in partnership

The last lens is Equitable Climate Preparedness - As communities plan for climate change, a planning strategy is used that empowers traditionally marginalized people most affected by climate change to shape decisions.

One more I would like add to this framework is a balance with time. We do not have the luxury to do things perfectly, rather we much seek to do our best within some time constraints, especially given the nature of climate change in particular.

#### References:

Framework - [https://www.communityresilience-center.org/wp-content/uploads/2021/09/CRV\\_Planning-for-Migration.pdf](https://www.communityresilience-center.org/wp-content/uploads/2021/09/CRV_Planning-for-Migration.pdf)

## **Planning Matters**

*Focal Points for Today*

Local Governance

Land Use

Housing

Infrastructure

## Local Governance

- Towns can **choose** to have a plan, follow state planning goals, adopt zoning (including flood hazard) or otherwise implement plans, and engage in state regulatory frameworks
- Absence of county government means no aggregator of taxes to plan and implement intermunicipal projects.
- Federal programs are generally not designed with Vermont or New Hampshire in mind. Tend to assume county government. Regional at the federal scale tends to assume multiple counties or even parts of multiple states.

Vermont and New Hampshire are a “Dillon Rule” states as opposed to “Home Rule”.

**Dillon's Rule** takes a narrow approach to local authority, essentially stating that local governments only have the powers expressly granted to them by the state.

**Home Rule** gives local governments greater autonomy and limits the power of states to interfere in local affairs.

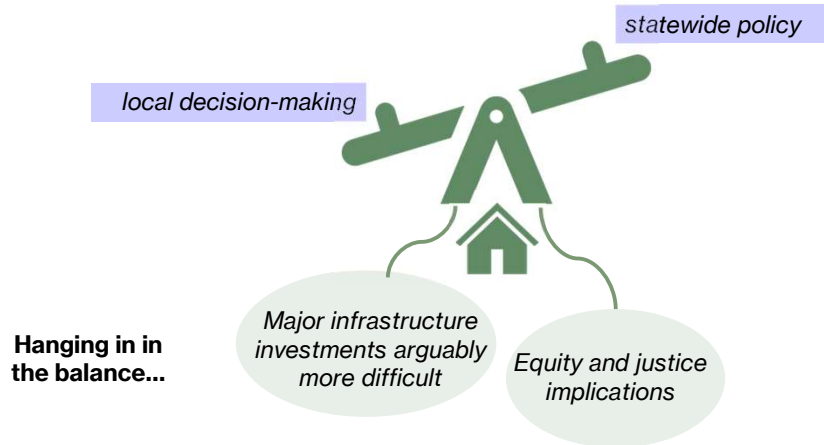
County government – few autonomous functions.

Regional planning commissions provide a link between local, state, and federal government.

237 towns, 10 cities, 5 unincorporated towns, 4 gores

Gore: an unincorporated area of a county that is not part of any town, has limited self-government, and may be unpopulated

## Governance Challenge? Local & State Balancing Act



How does a state effectively execute statewide policy (i.e., housing, greenhouse gas reduction and mitigation, climate adaptation and resilience, land use regulation and development policy generally, etc.), and achieve related goals and outcomes, if it has to rely on highly-decentralized decision-making?

Patchwork quilt of applied state policy: dependent upon local political and operational capacity.

Has major equity and justice implications

Line between deferring to local decision-making versus letting the legislature and administration off the hook for actually implementing statewide policy.

Major infrastructure investment in things like community wastewater and drinking water, flood hazard and stormwater mitigation, housing, habitat and working lands conservation arguably more difficult.



## Land Use

- Policy and regulation largely left to municipal governments.
- In New England, general absence of county government means funding and capacity to execute inter-municipal and county-scale projects is extremely limited; grant-dependent.
- Municipal political and operational capacity to prevent development in high-risk areas – both flood hazard and fluvial erosion risks; preservation of lands for floodwater attenuation.
- Need to make existing settlements more flood-resilient while improving upstream and downstream floodwater attenuation.
  - More grant dependence influenced by capacity limitations.
- Dispersed settlement pattern will make greenhouse gas emissions strategies difficult to achieve.
- Increased clearing and impervious surface change stormwater dynamics.

Vermont's principal land use planning policy goal – Compact settlement

### **24 V.S.A. § 4302 – Purpose & Goals of Municipal & Regional Planning & Development**

...this chapter shall be used to further the following specific goals:

(1) To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

(A) Intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.


(B) Economic growth should be encouraged in locally designated growth areas, employed to revitalize existing village and urban centers, or both, and should be encouraged in growth centers designated under chapter 76A of this title.

(C) Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.

(D) Development should be undertaken in accordance with smart growth principles as defined in subdivision 2791(13) of this title.

## Housing

### Keys To The Valley HOUSING COST BURDEN BY TENURE

 **33%** Of all households are cost burdened with renters more impacted than owners.

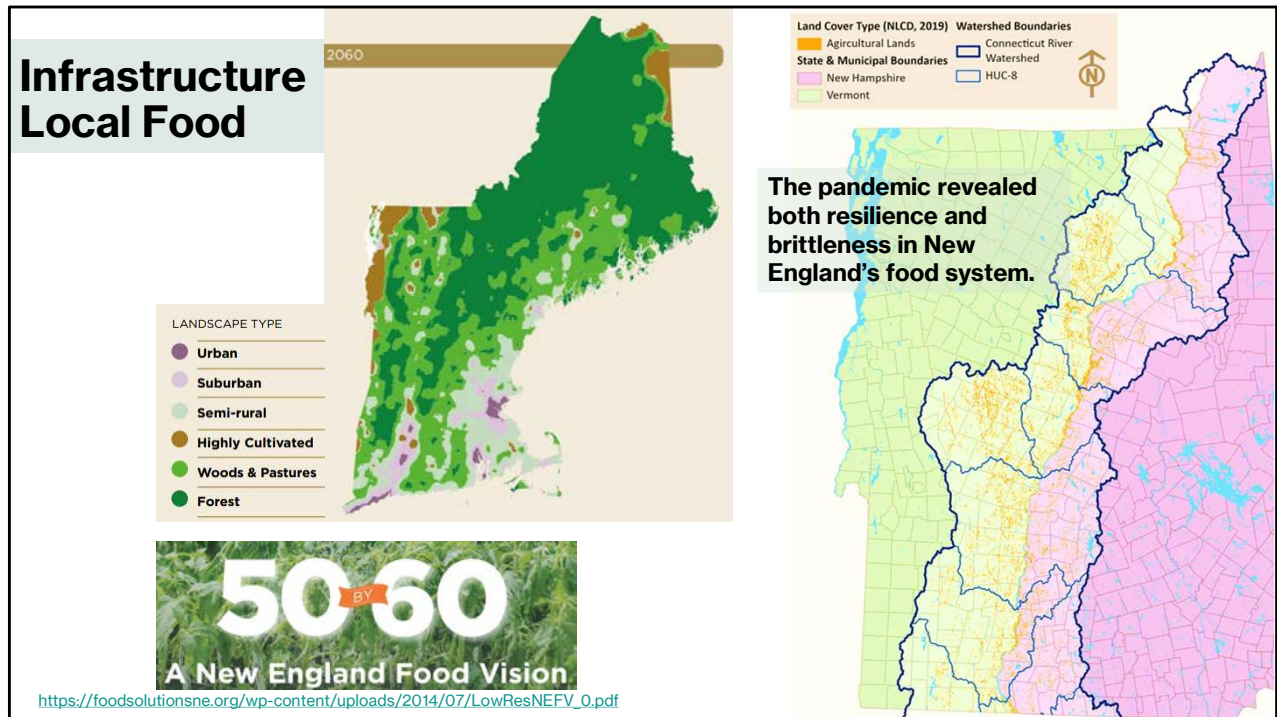


Description: Cost burdened households.  
Source: 2017 ACS 5-year estimates. Find out more at [www.keystothevalley.com](http://www.keystothevalley.com)

“Climate change doesn’t care about our NIMBY-ism,”

*Parag Khanna, the founder and CEO of Climate Alpha*

References:  
Keys to the Valley -



Federal and state policies must invest in a more diversified and decentralized local and regional food system. Current policies drive concentration and centralization, which reduces food system resilience.

1. Short term, FEMA and other federal and state agencies must continue and expand emergency funding for critical food system institutions. As the economic crisis continues throughout 2020 and beyond, food insecurity will continue to be a major challenge. Longer term, policymakers must focus on economic prosperity for all so that food insecurity is minimized.

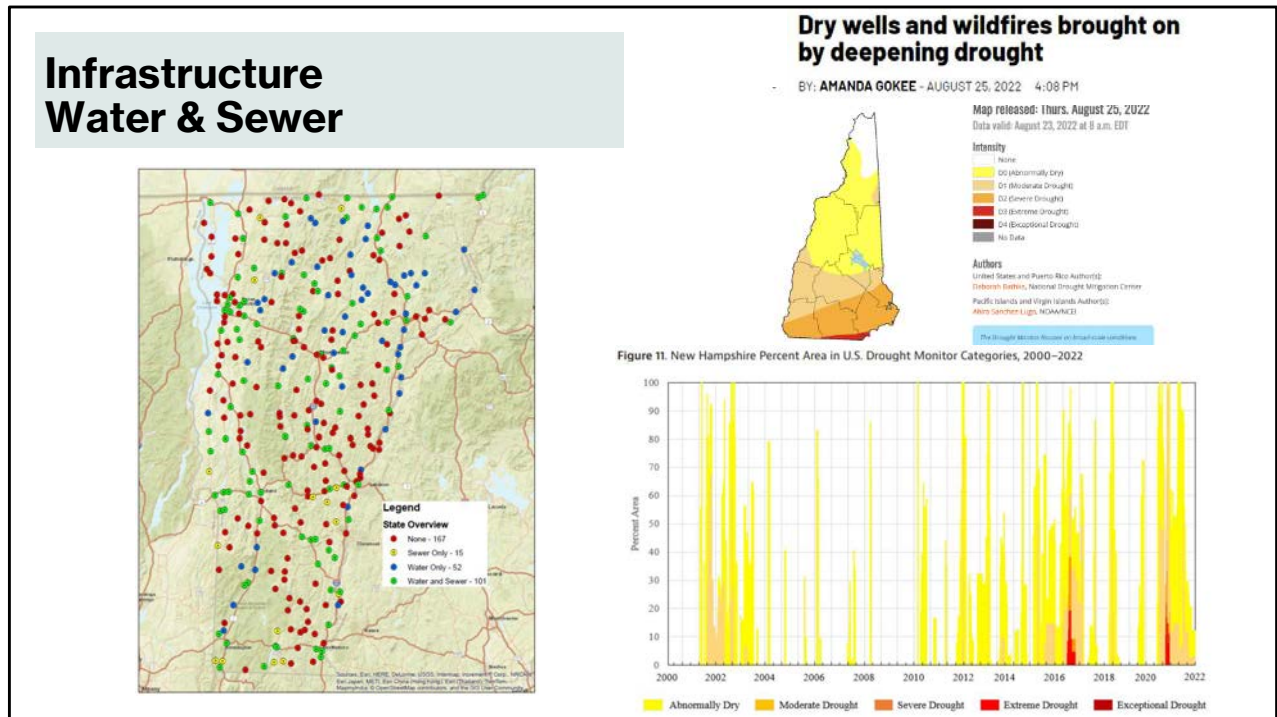
[https://globalresilience.northeastern.edu/app/uploads/2020/09/GRI\\_COVID-19\\_SI-Report-2020-1.pdf](https://globalresilience.northeastern.edu/app/uploads/2020/09/GRI_COVID-19_SI-Report-2020-1.pdf)

*A New England Food Vision* calls for our region to reach a bold goal of 50 by 60 building the capacity to produce at least 50% of our food by 2060 while supporting healthy food for all, sustainable farming and fishing, and thriving

[https://foodsolutionsne.org/wp-content/uploads/2014/07/LowResNEFV\\_0.pdf](https://foodsolutionsne.org/wp-content/uploads/2014/07/LowResNEFV_0.pdf)

Farmland, developed land, and forest are found in a range of mixtures across the landscape. The landscape types and percentages shown here are broad estimates, but taken together they reflect over 70% of the land in forest, some increase in “smart” development, and 6 million acres of farmland. Several hundred thousand acres of intensively cultivated land can be found in small pieces within cities and suburbs. In semirural areas there is room for more fruit and livestock production as well. The woods and pasture part of the landscape, along with places within the heavily forested area, provide scope for several million acres of dairy and beef production. Parts of New England that have remained devoted to agriculture, such as Aroostook County, the Champlain Valley, and the Connecticut Valley, become even more highly cultivated.

Losing land to development. Smaller scale farms.



in the absence of community wastewater or water systems...

On-site systems in existence as of 2007 are “grandfathered,” but small lot sizes and septic-well “shadowing” make any expansion of wastewater or water demands challenging if not impossible. In many if not most of the state’s villages without community water or wastewater it would be difficult to add a single new dwelling unit due to small lot sizes and septic-well “shadowing.” Similarly, expansion of existing businesses, especially markets, restaurants, inns, etc. is difficult if not impossible.

Further complicated by frequent proximity of settlements to streams and rivers.

Takeaway – not only is the expansion of compact settlements difficult, but the retention of EXISTING homes and businesses is at risk.

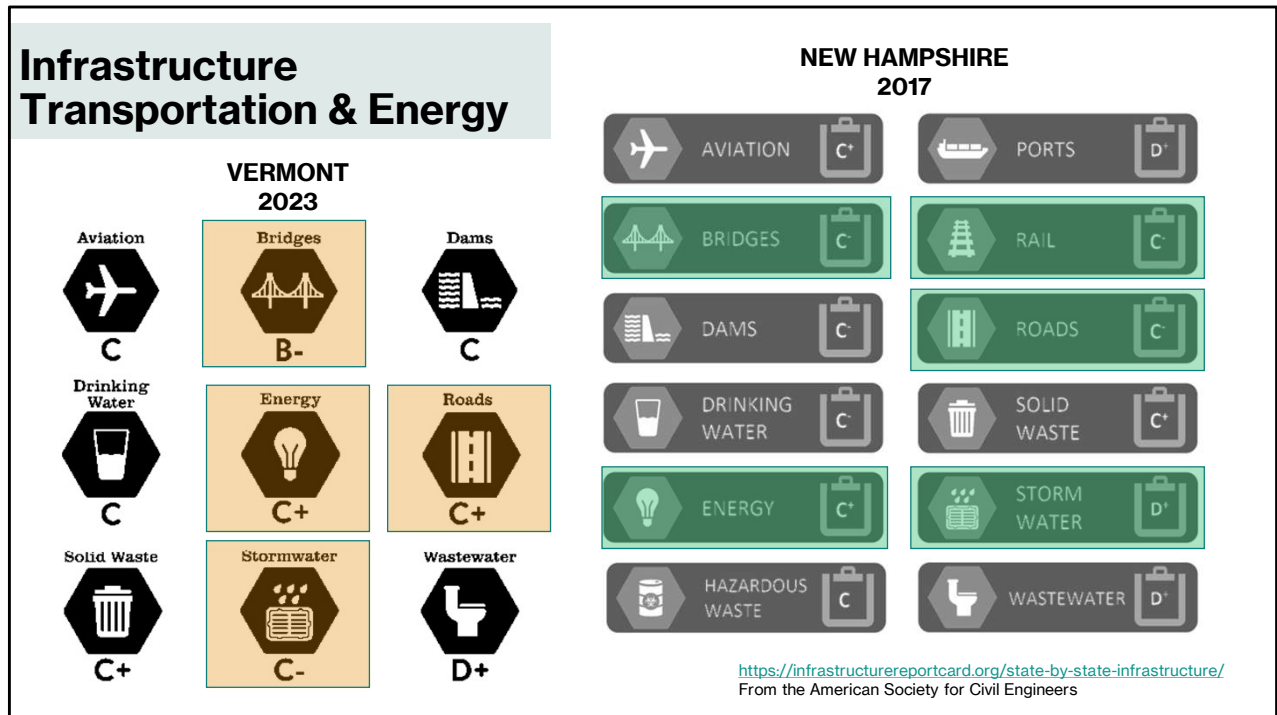
**Current-day compact settlement – retention, infill, expansion, new – is dependent upon basic wastewater and water infrastructure necessary to make it possible regardless of what a plan or bylaw/ordinance says.**

NH State Hazard mitigation plan

General call out, except on drought more specified under local planning and regulations

Gathering and analyzing water and climate data to gain a better understanding of local climate and drought history.

Urinary diversion systems, Composting Toilets



There are some links to transportation planning and climate migration. These are more my thoughts about how we should be thinking about the two. 1) transportation options and access need to be at the center of the relocation of people. It should be appropriate to the needs of the migrants as well as the community character. Ie what kinda of transportation modes do people moving to the area use from their home location? How can we use climate migration as a mechanism to augment public transit, accessible streets, and active transportation. 2) immediate, local climate displacement (which is similar to intra-climate migration) from flooding or any other climatic hazard needs updated contingency and emergency plans to ensure the safe transport of people and route planning in extreme weather events.

UVLSRPC LRTP will be looking at this planning focus

2040 VT Long-Range Transportation Plan

“Vermont’s planning goals, (24 V.S.A. § 4302) require that all state agencies are responsible for supporting and reinforcing Vermont’s historic settlement pattern of compact village and urban centers separated by rural countryside. The statute further clarifies that all public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of an area.”

Consider how densification, improved public transportation and economic development in focused areas could reduce local emissions and create a more sustainable, walkable community. Ensure that new and existing residents have access to sustainable transportation options; invest in

public transportation, bike lanes and pedestrian-friendly neighborhoods.

<https://www.nlc.org/wp-content/uploads/2022/04/CS-Domestic-Climate-Migration-and-US-Cities-Report.pdf>

<https://infrastructurereportcard.org/wp-content/uploads/2016/10/Report-2023-VT-IRC-FINAL-WEB.pdf>

<https://infrastructurereportcard.org/wp-content/uploads/2021/07/2017-NH-Report-Card-hq-with-cover.pdf>

**A EXCEPTIONAL: FIT FOR THE FUTURE** The infrastructure in the system or network is generally in excellent condition, typically new or recently rehabilitated, and meets capacity needs for the future. A few elements show signs of general deterioration that require attention. Facilities meet modern standards for functionality and resilient to withstand most disasters and severe weather events. **B GOOD: ADEQUATE FOR NOW** The infrastructure in the system or network is in good to excellent condition; some elements show signs of general deterioration that require attention. A few elements exhibit significant deficiencies. Safe and reliable with minimal capacity issues and minimal risk. **C MEDIOCRE: REQUIRES ATTENTION** The infrastructure in the system or network is in fair to good condition; it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies in conditions and functionality, with increasing vulnerability to risk. **D POOR: AT RISK** The infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of significant concern with strong risk of failure. **F FAILING/CRITICAL: UNFIT FOR PURPOSE** The infrastructure in the system is in unacceptable condition with widespread advanced signs of deterioration. Many of the components of the system exhibit signs of imminent failure.

Managed Retreat Toolkit - <https://www.georgetownclimate.org/adaptation/toolkits/managed-retreat-toolkit/introduction.html?chapter>

Honestly, I think more of the broader discourse around climate migration alludes to needing more research and tools for practitioners to use, so even just saying “the interactions between climate migration and transportation are not well understood. However, we have identified a linkage between them. I.e. we need to understand how to plan for displacement by flooding within our own region. We need to be sensitive to people’s transportation preexisting transportation options and post-flooding transportation options when helping to support people remaining in our region as well as coming to our region. How can we use climate migration as a mechanism to augment public transit, accessible streets, and active transportation...(and everything I mentioned over teams as well).”

#### Vermont Comprehensive Energy Plan Guiding Goals

First Goal: “Ensure an affordable and stable cost of living through improving the energy fitness of Vermont homes, strategic electrification, focusing development in compact villages and urban centers, and substituting fossil fuels with renewable alternatives that have lower long-term costs.”

#### Vermont Global Warming Solutions Act of 2020 (Act153)

“The Plan shall include specific initiatives, programs, and strategies that will:

- (1) reduce greenhouse gas emissions from the transportation, building, regulated utility, industrial, commercial, and agricultural sectors;
- (2) encourage smart growth and related strategies;...”

#### NH Climate Action Plan, 2009

Overarching Strategy 5: Encourage Appropriate Land Use Patterns That Reduce Vehicle-Miles Traveled  
Overarching Strategy 7: Protect Natural Resources (Land, Water, and Wildlife) to Maintain the Amount of Carbon Fixed and Sequestered

NH State Hazard mitigation plan, 2013

General call out, except on drought more specified under local planning and regulations

Gathering and analyzing water and climate data to gain a better understanding of local climate and drought history.

Erosion damage can be mitigated by regulating how development occurs in hazard areas

[https://www.nh.gov/safety/divisions/hsem/HazardMitigation/documents/fema\\_mitigation\\_ideas\\_fina1508.pdf](https://www.nh.gov/safety/divisions/hsem/HazardMitigation/documents/fema_mitigation_ideas_fina1508.pdf)



## What Can Communities Do?

*A new experience for  
the now generation(s)*

*“Nearly all the measures with respect to climate change in the region are about resiliency and prevention instead of growth.”*

**Starting points** Assess Infrastructure Risks and Needs. Incorporate New Technologies.

Start community outreach, planning, policy

- Housing and Land Use Policies
- Capital Improvement Plans & Asset Management
- Regional & Master Plans
- Natural Resource Inventories & Conservation Plans
- Climate, Stormwater, Transportation, Hazard Mitigation Plans

<https://www.boston.com/real-estate/real-estate/2022/11/16/residents-who-left-boston-will-come-back/>

# Land Use for Smart Growth

Bronwyn Cooke  
Department of Housing & Community Development  
February 23<sup>rd</sup>, 2023

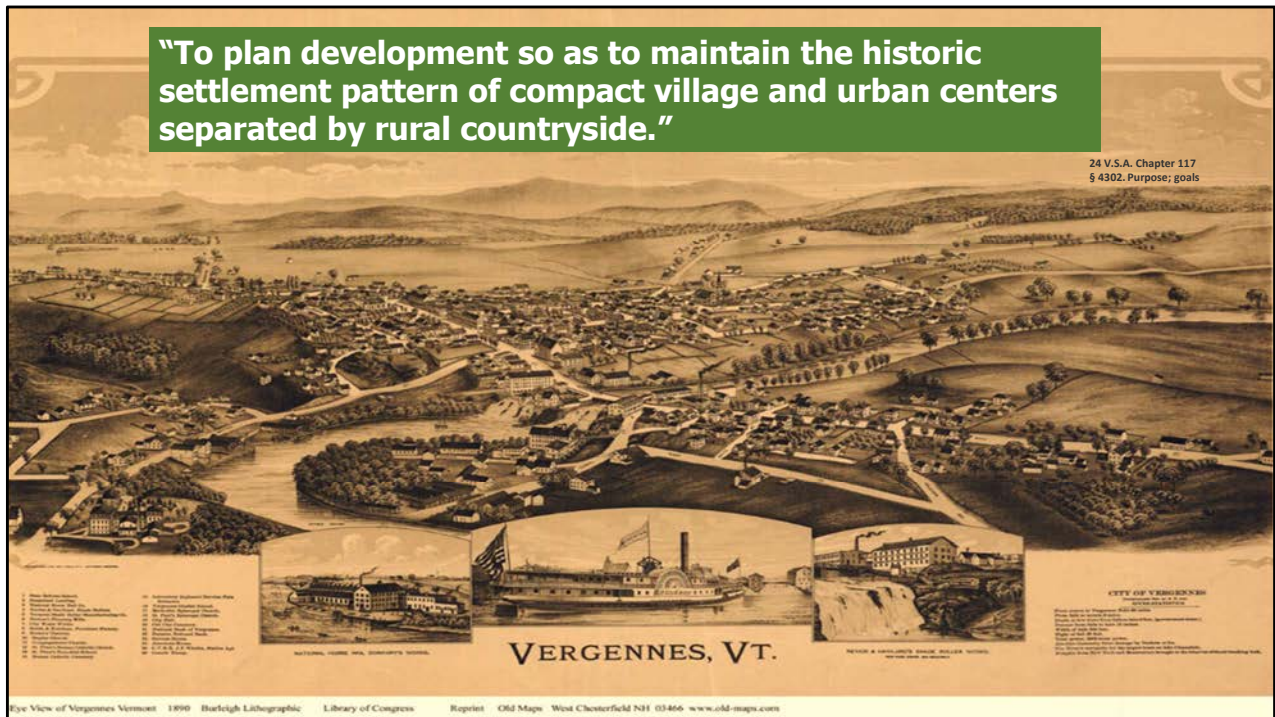


Table setting for what our land use framework/development patterns means for making room for climate migration

***What is our development  
pattern in theory?***

**“To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.”**

24 V.S.A. Chapter 117  
§ 4302. Purpose; goals



Historic settlement patterns is “what makes Vermont, Vermont”

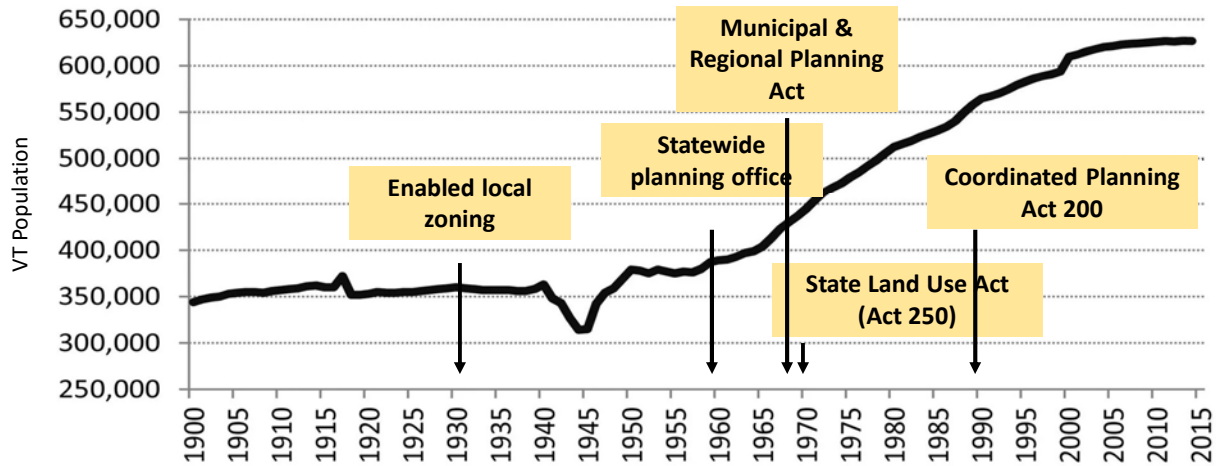
This isn't just about historic preservation. There's a real functional benefit to this type of land

Directing more development to our centers

- Supports housing choices that are close to jobs, shops and educational opportunities.
- more pedestrian and bike-friendly ways of getting around
- Saves money by reducing long-term infrastructure maintenance costs.
- Protects our environment and our scenic and working landscapes
- saves energy
- Reduces pollution, creates cleaner water and air
- Promotes healthy lifestyles
- Encourages community involvement/cohesion/connections.

# 100 Years of Planning

(the cliff notes)



Source: US Census Bureau

This land use goal has Almost 100 years of planning behind it

zoning was first enabled in the 1930s, gave a little boost to some amount of coordination/planning for growth at the local scale

1960 – unprecedented growth – unprepared for it – started to see more engagement in planning - when land use goal became official

Push back on linear, highway strip development - loss of traditional rural centers

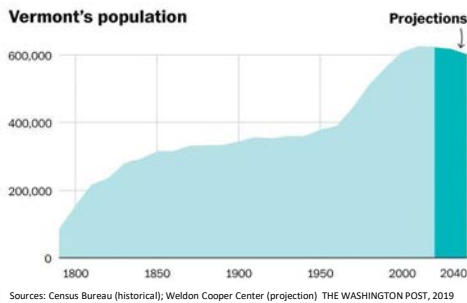
- 1962 – Gov established planning office to organize state, regional and local planning efforts around growth management
- 1964 – legislature created an interagency committee on Natural Resources, recognizing the relationship between land use and growth and our wild places/natural resource.
- 1964 – Gov creates scenery preservation council – perhaps best known for billboard ban
- 1968 – municipal and regional planning act – required regional plans – gave municipalities option to create muni planning commissions – made planning a requirement if muni wanted to regulate

1970 – Act 250 – created state land use planning and regulation – development review criteria

1988 – Coordinated Planning Act - created a set of 14 planning goals – required state, regional, muni plans to be consistent with these goals (unless the planning body determines a goal is not relevant or attainable)

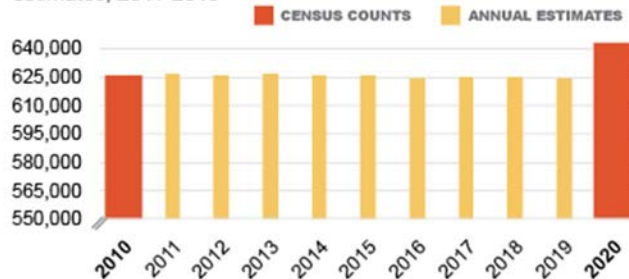
Quick note on population - Population growth/development of the 60's may have caught Vermont planners off guard

# Expectations vs. Reality



“But the 2020 Census will probably confirm that Vermont peaked during this decade”

**Vermont gained over 17,000 people from 2010 to 2020** Population counts, 2010 and 2020; annual population estimates, 2011-2019



Data source: U.S. Census Bureau  
©2021 Public Assets Institute

I think we're in the phase of another era, where going to see some population growth

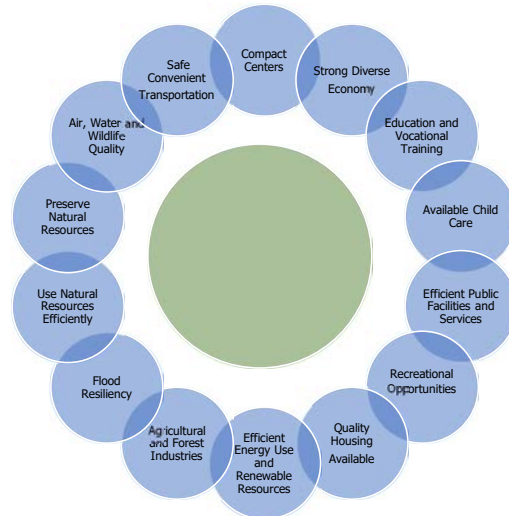
Projections in 2019 predicted population *decline*  
But we've starting to see that trend is changing

May be in a time that's a lot like the 60s, and we have an opportunity to shape this growth to best achieve land use goals

Don't want planners 5/10/20 years from now saying we didn't plan for, or weren't prepared for growth

<https://www.washingtonpost.com/us-policy/2019/03/02/rise-fall-most-european-state-union/>

# Coordinated Planning



Planning framework has a lot of frames

- 14 goals
- 3 different scale of authority

Well intentioned, but sometimes acts to stagnate or act against the kind of growth we need/want to see



# Planning Incentives

## The 5 Designations



### Civic and Commercial Core Designations



**Village Centers: 152** (Est. 2002)



**Downtowns: 23** (Est. 1998)



**New Town Centers, 2** (Est. 2002)



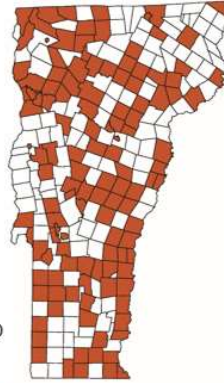
### Add-On Designations to a Core Designation



**Neighborhood Development Areas, 5**  
(Est. 2013)



**Growth Centers, 6** (Est. 2006)



Land Use planning and regulatory framework is our stick  
Carrot approach is...

Incentives

Designation program

- There are 5 - Village Centers, Downtowns, New Town Centers, Neighborhood Development Areas, and Growth Centers.

- participation rewarded with benefits like tax credits, streamlined permitting for new housing, active transportation improvement funding, priority consideration for other state grant programs

Also offer grants and technical support

- to complete good planning projects (comprehensive plan, capital improvement plan, recreational access plan etc.)
- Modernize bylaws
- These act like a feeder program for the designation

***What is our development  
pattern in practice?***

# Not Always Smart



- Wildlands and Woodlands Farmlands and Communities 2017

Still seeing land use/development patterns that aren't meeting goals

State and local Land use protections has made it easier to build in greenfields, disincentivizes infill development

We know there are benefits to channeling development into our traditional centers.

But it does tend to be more expensive than building in greenfields due to increased land costs, contaminated soils, coordinating infrastructure and shared facilities, staging construction in tight locations, greater need for creative design solutions, and meeting the concerns of a larger number of neighboring landowners.

How and to who these benefits and costs accrue isn't aligned to be supporting land use/development pattern goals.

This sets the stage for sprawl.... increased parcelization and forest

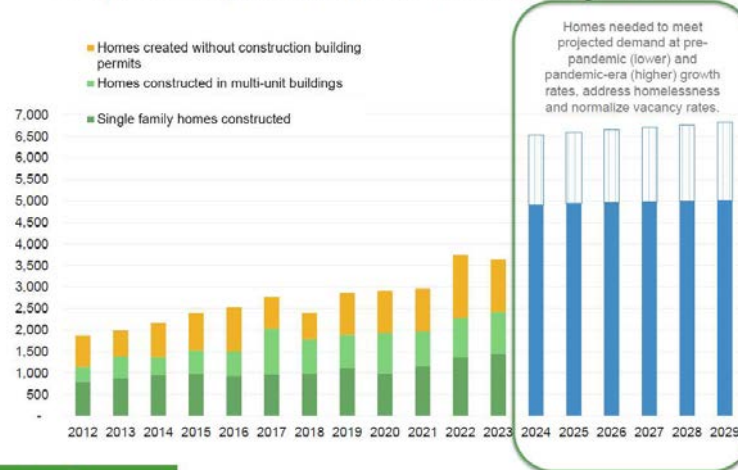
fragmentation.

- Local land use policy can be exclusionary
  - Favors building of single family homes on large lots (most expensive way to build, unless land is super cheap)
  - Disallows higher unit density, multifamily (most affordable way to build, and meets other goals)
  - Where higher unit density is allowed, appeals based on everything from “community character” to “nesting endangered turkey vultures”

Vermont's regulatory framework has allowed low density growth in places where low land costs, and less oversight, deliver less expensive sale prices, but drive long-term costs to water quality, wildlife, farmers, foresters, and all Vermonters who have to commute long distances to meet their daily needs

# Not Always Growth

## 30,000-40,000 homes needed by 2030



17% of homes are seasonal/vacation homes, meaning some past construction aren't permanent residences

1

Housing development has not kept up with demand

- Total number of homes
- diversity of home types to reflect shifts in housing needs
  - Shifts in household size
  - Aging population – access to health care/transportation
- Location of homes

STRs have become the scape goat for housing crisis but...

Increase in housing demand driven by

1. Growth in the # of new Vermonters expected; (60% of the total)
2. Housing everyone who is unhoused; (6% of the total)
3. Replacing the homes lost
  - VT housing stock is old – 1/4 were built before

1940, less than 1% after 2014

4. Added homes needed to achieve a healthy vacancy rate (25% of the total)

# About Our Historic Centers...



## Related challenge

- Our historic settlement patterns/centers are important to our culture, brand and economy
- But they were often built along river corridors
- Consequently, many of Vermont's historic downtowns and villages are at-risk from floods.
- Local and regional flooding occurs almost every year and costs individuals, businesses, municipalities and the state millions of dollars

This is one way in which our historic settlement pattern doesn't necessarily serve us well.

***Course Correction  
Making Room for  
Residents***



# Legislation

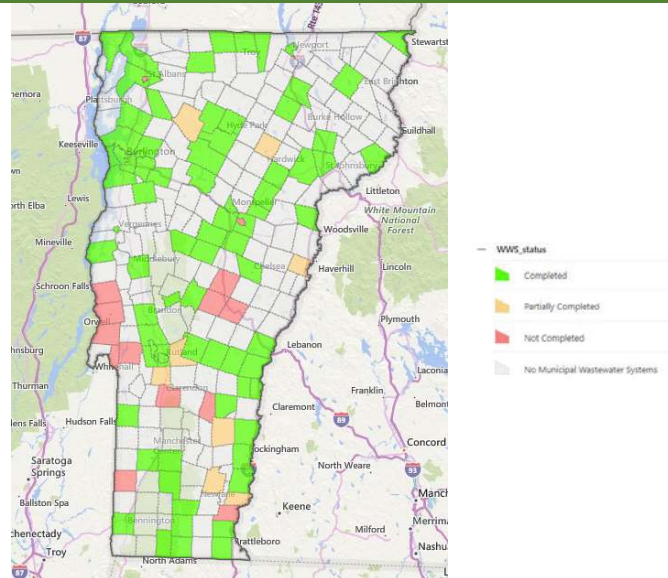


## Legislation to correct exclusionary zoning practices

- Requires minimum density by right in areas served by water and sewer
- Precludes parking requirements ( parking can still be built, but cannot be required by municipal code)
  - Really needs to go hand in hand with mixed-use, amenity-dense, walkable communities
  - Close ties to transportation policy

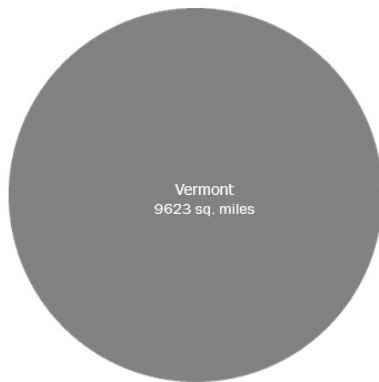
# Consistent Mapping

## Development Ready Areas

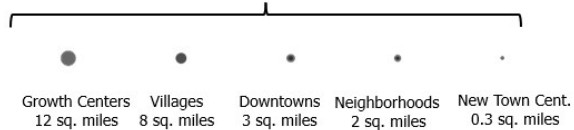


Coordinated/consistent mapping of development ready areas  
wastewater in particular

# Incentive Program Reform



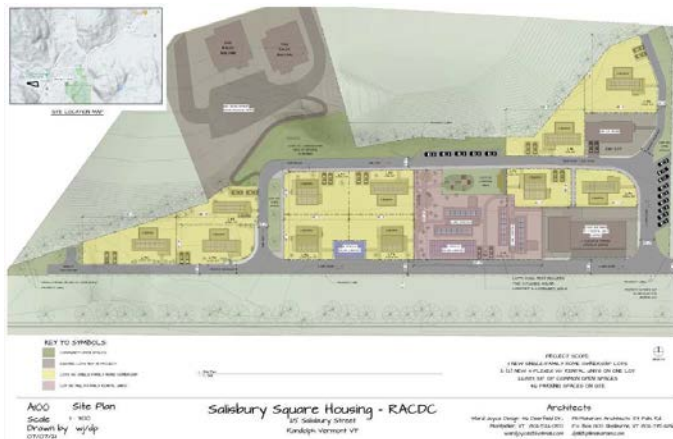
Area of Designated Centers  
is 1/400 total area of Vermont



## Designation program reform

- Land area in designated areas small
- Certainly, still room for infill there, but need to re-evaluate program to ID and make room for growth that meets goals

# Funding New & Rehabilitated Housing



VHIP – incentivize rehabilitating existing housing

- Grants of up to \$50,000 to turn vacant units habitable – must be rented at or below HUD fair market rent for 5 years

Neighborhood development partnership

- What can we accomplish if we coordinate investment in building new neighborhoods

housing investments

water/wastewater infrastructure and investments

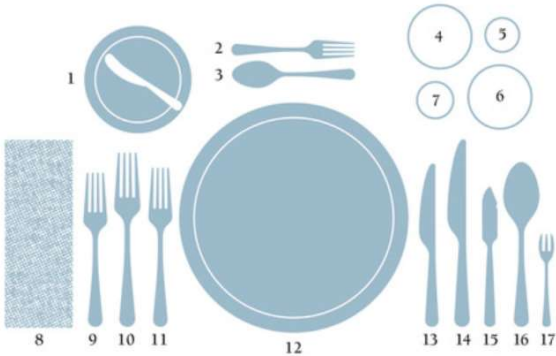
transportation infrastructure and investment

energy supply infrastructure and investment

If we coordinate, can we better achieve land use and planning goals?

better achieve leveraging of private investment?

# Table Set



Bronwyn Cooke  
Bronwyn.cooke@vermont.gov



# MAKING ROOM

## *Planning for Climate Migration*

Connecticut River Joint Commissions



February 2023

[NHHousing.org](http://NHHousing.org)

# NH HOUSING'S MISSION & IMPACT

We promote, finance, and support housing solutions for the people of NH



## NEW HAMPSHIRE HOUSING HAS...

- Helped more than 50,000 families purchase their own homes
- Providing financing to create 16,000+ multifamily housing units
- Provided direct assistance to tens of thousands of households

## ABOUT NEW HAMPSHIRE HOUSING

- Established in 1981 by state legislature as a self-sustaining public corporation; not a state agency—we receive no state operating funds
- Governed by a 9-member Board of Directors appointed by Governor and Executive Council



# RESEARCH | PLANNING | ADVOCACY

## Is Your Community Talking About Housing?



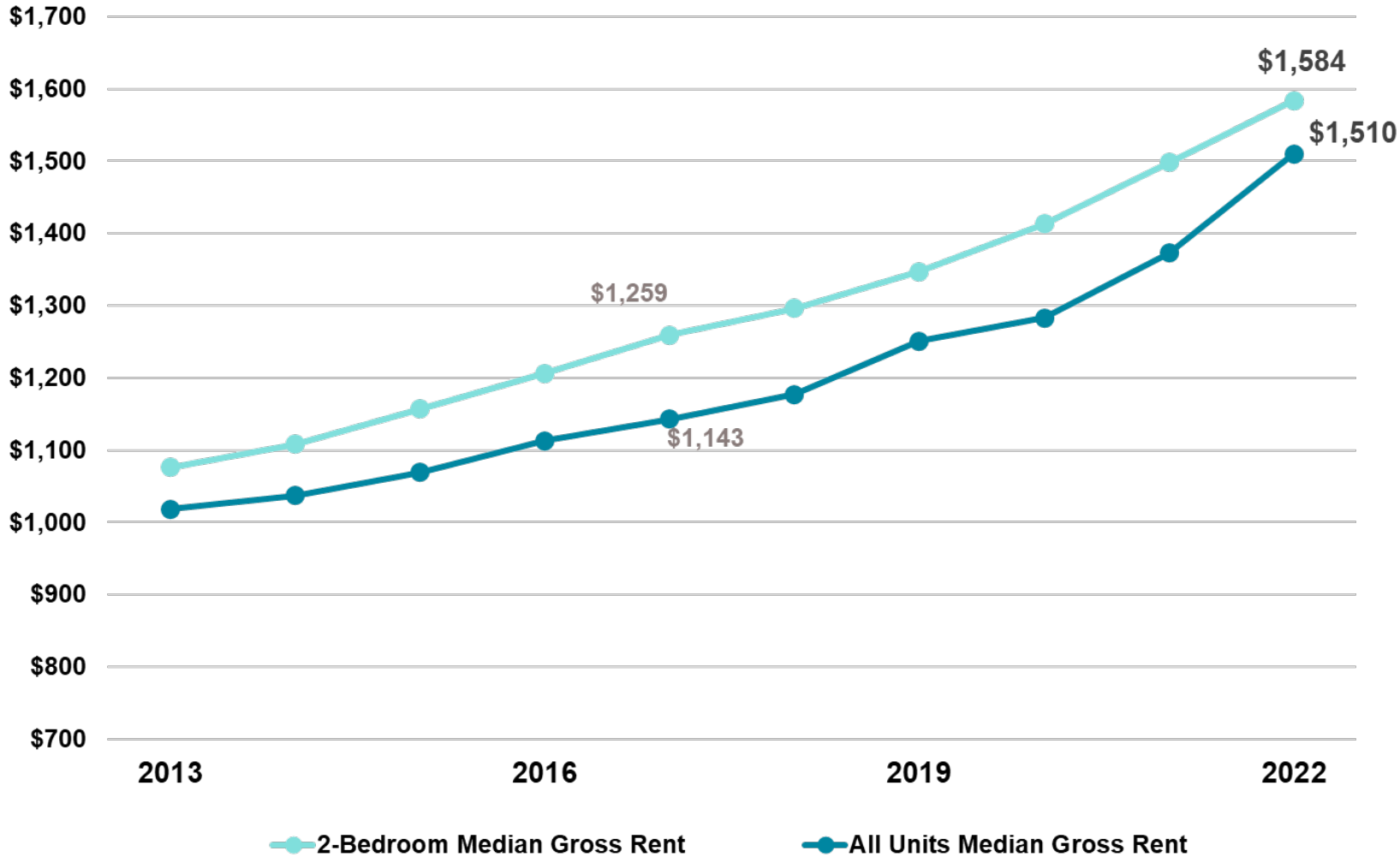
- InvestNH Municipal Planning & Zoning Grants
- Housing studies and reports
- Housing advocacy/technical assistance and grants
- Housing planning reports (state & federal)
- Conferences focused on housing issues and policies





# Housing Market Trends

# NH MEDIAN GROSS RENTAL COST



## 2-BEDROOM

1-year change ▲ 6%

5-year change ▲ 26%

## ALL UNITS

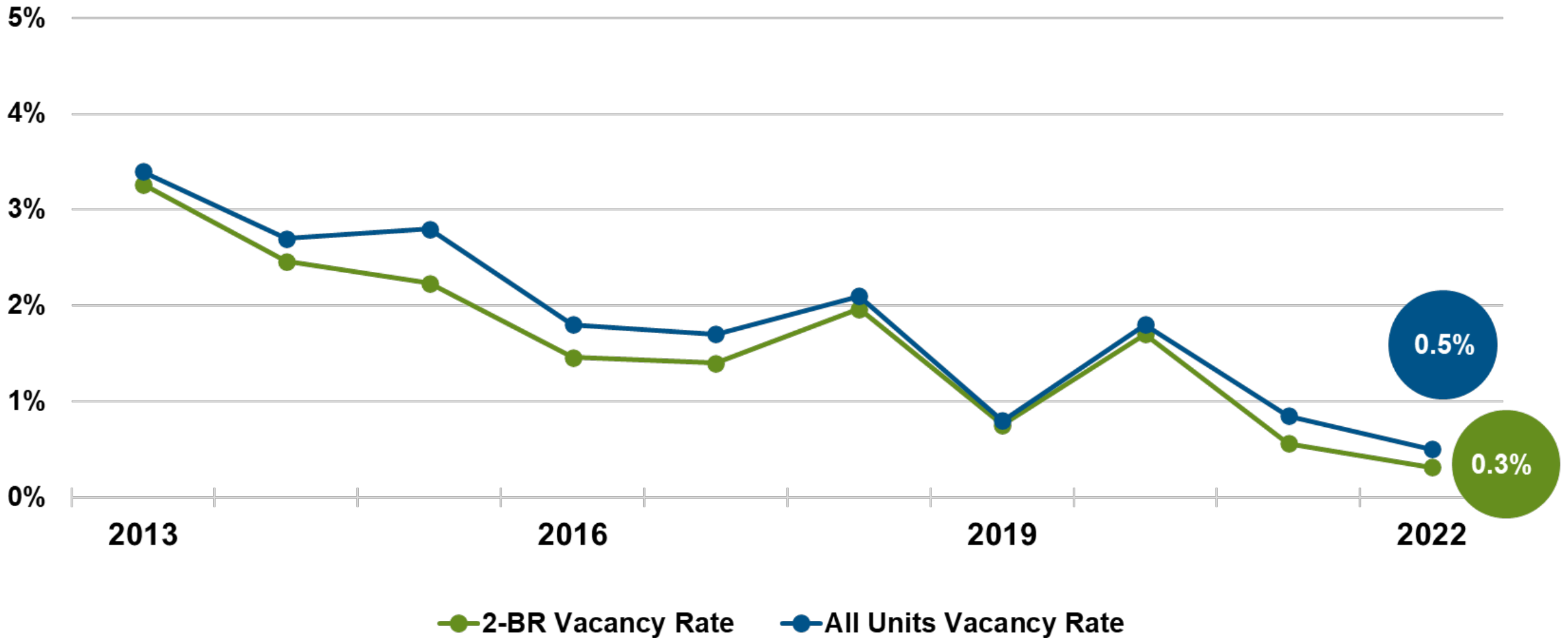
1-year change ▲ 10%

5-year change ▲ 32%



Source: New Hampshire Housing Annual Residential Rental Cost Survey

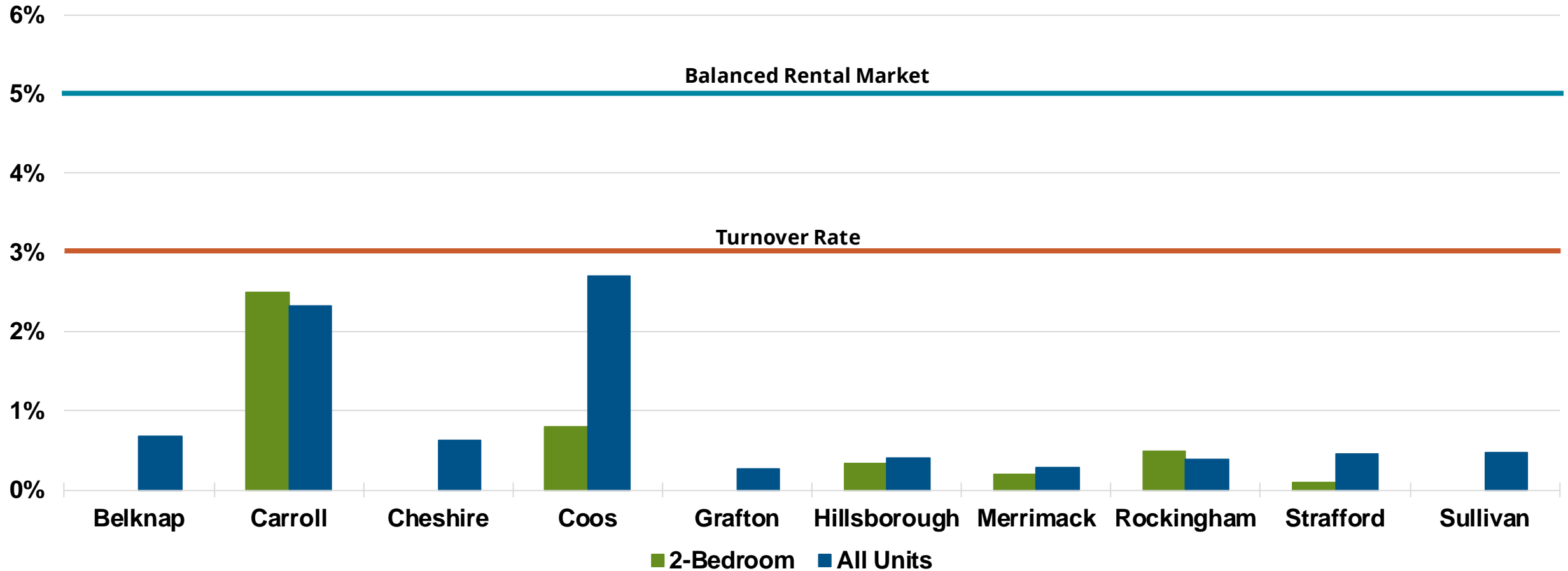
# VACANCY RATE OF NH RESIDENTIAL RENTAL UNITS



Source: New Hampshire Housing Annual Residential Rental Cost Survey

# VACANCY RATE BY NH COUNTY

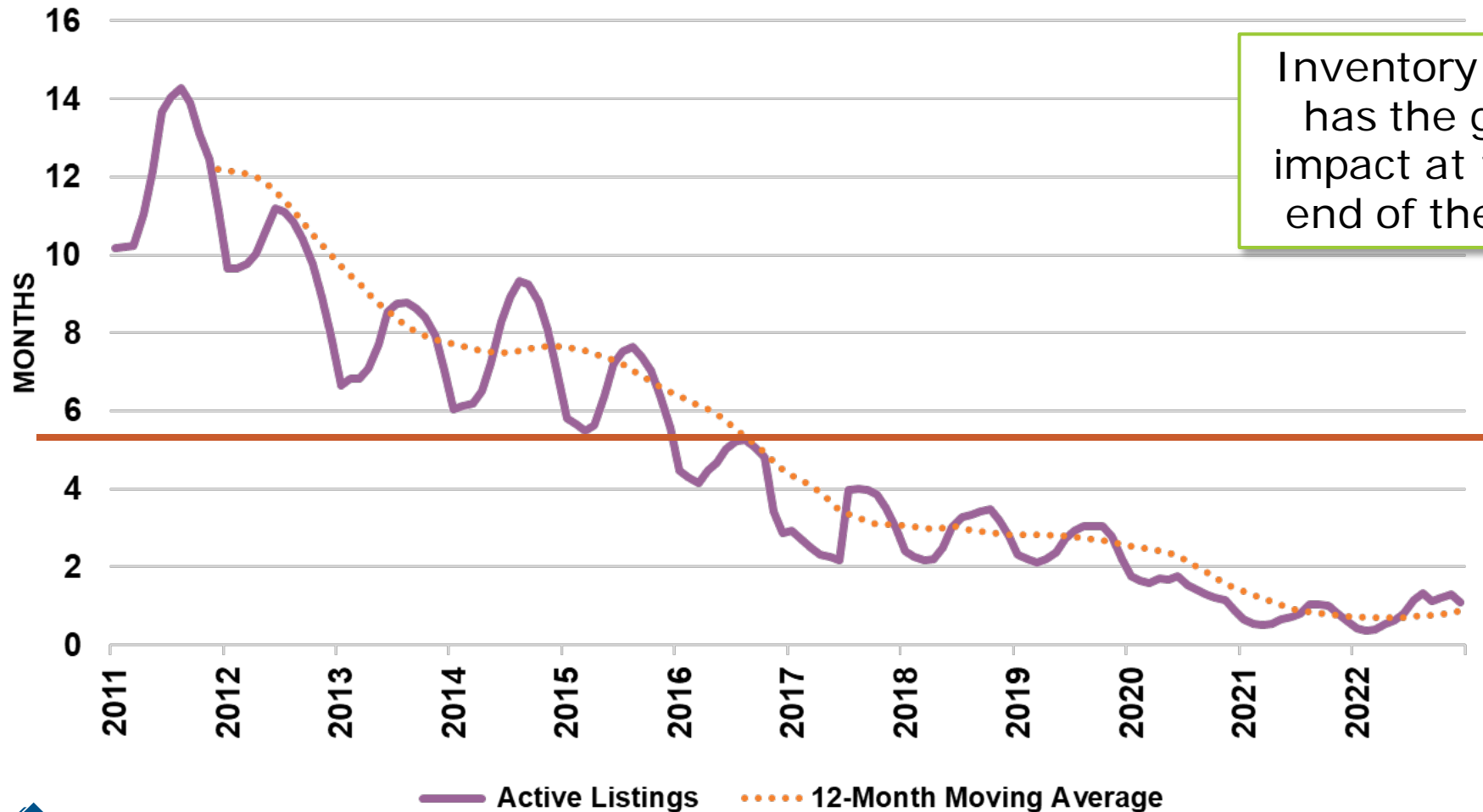
All counties experiencing low vacancy rates



Source: New Hampshire Housing Annual Residential Rental Cost Survey

# NH SINGLE-FAMILY HOUSING INVENTORY

Months to absorb active listings at prior 12 months' sales pace



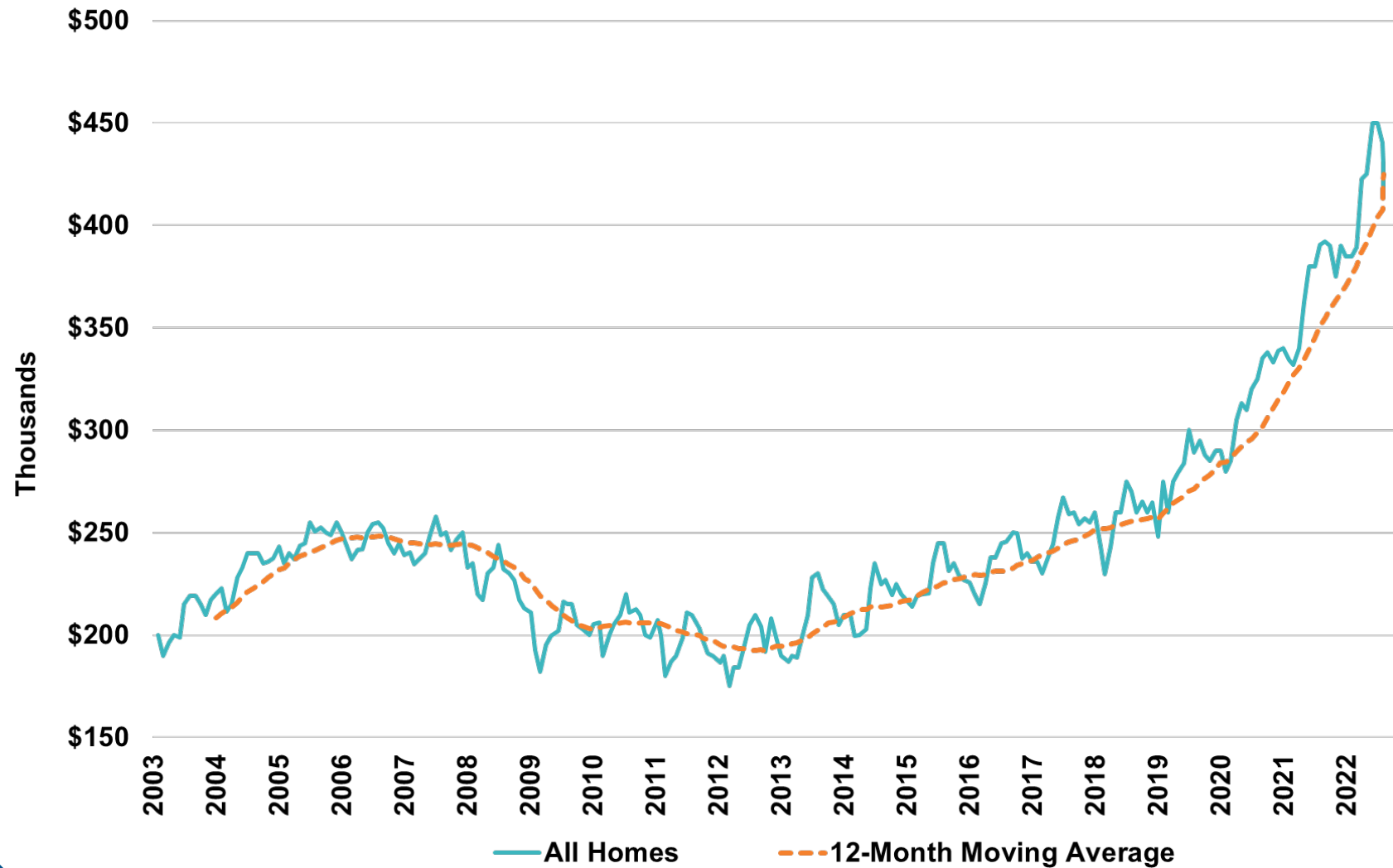
Inventory shortage has the greatest impact at the lower end of the market

Less than 6 months of inventory is considered a ***seller's market.***



Source: NNEREN

# NH SINGLE-FAMILY MEDIAN SALES PRICE



December 2019 **\$290K**

December 2022 **\$430K**

**↑ 48%**



Source: NNEREN

# Realtors warn of competitive housing market as more out-of-state buyers flock to New Hampshire

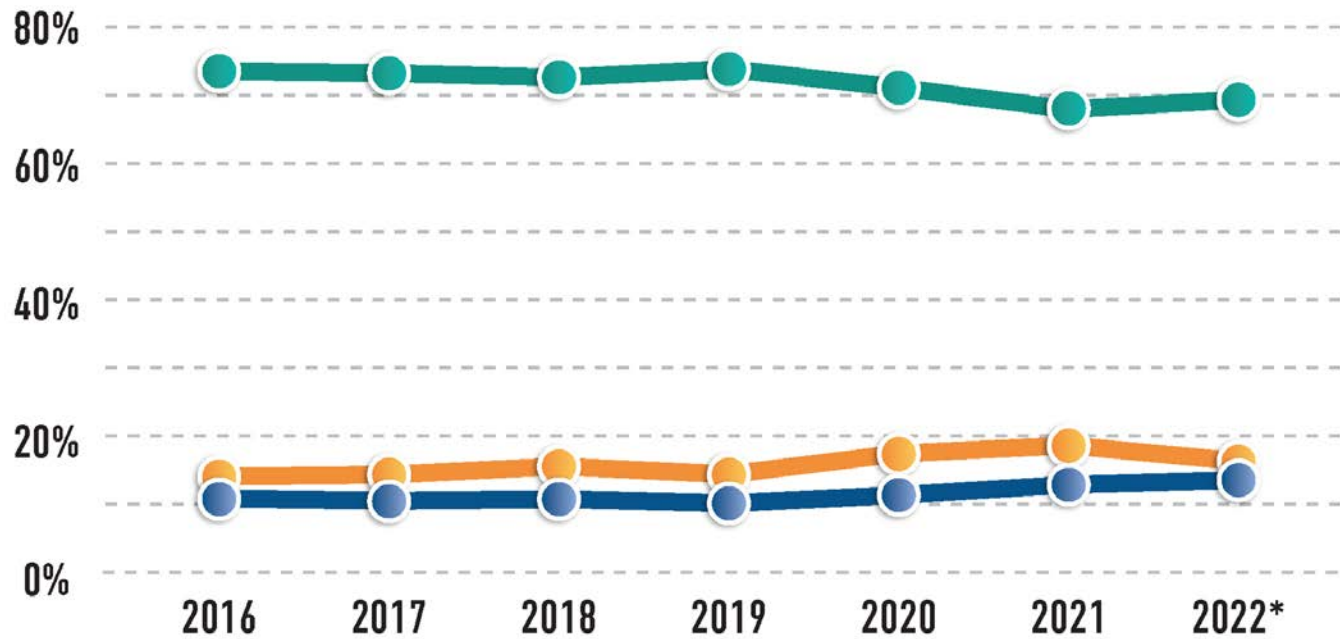
Realtor says under 1,000 homes for sale in entire state

Share



Updated: 4:50 AM EST Feb 20, 2023

# WHERE DO NH BUYERS COME FROM?



Percentage of overall NH home sales

Modest increase in buyers from “away”

Most buyers are local to their own markets



New Hampshire



Massachusetts



All other states/countries



\* through October 7, 2022  
Source: Warren Group; NH Housing





# Housing Market Challenges and Aspirations

# HOUSING CHALLENGES: How Did We Get Here?

- **Economic conditions & influences**
  - Supply, demand, interest rates
  - Education debt, childcare costs, wages
- **Demographic Shifts**
  - Smaller families, increase in single person households
  - Desire to age in place
  - Demand for similar housing options among younger and older generations
- **Local resistance to housing development**
- **Land use regulations that are restrictive and exclusionary**

# HOUSING & CONSERVATION

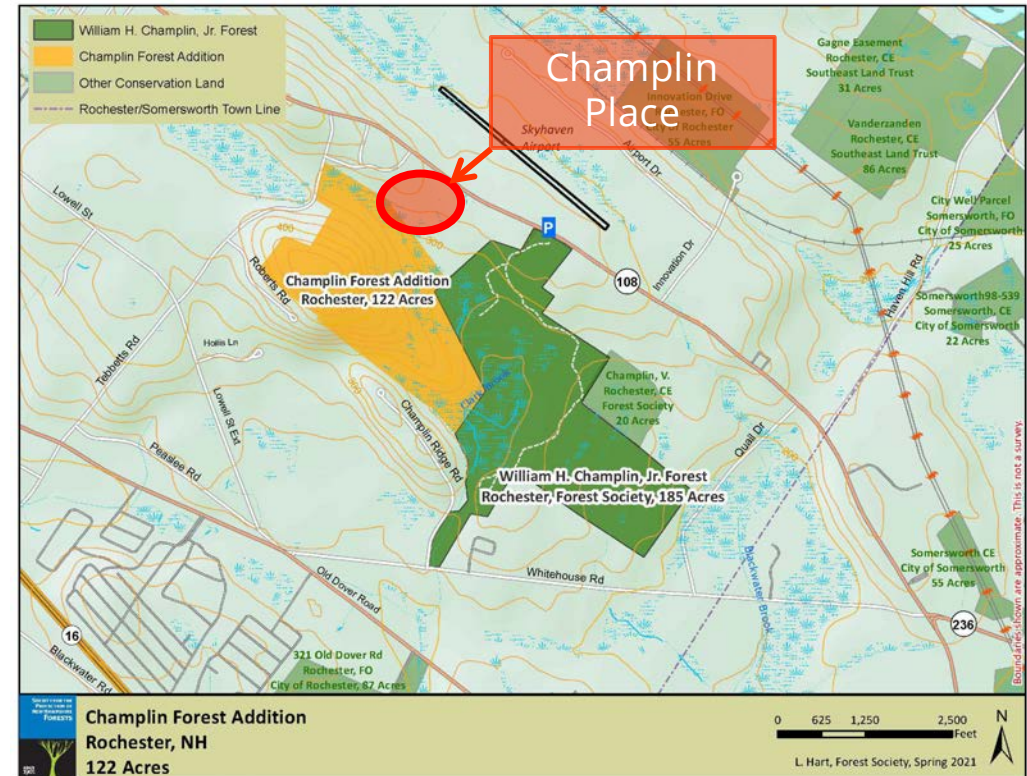
- Not opposing forces
- Share a common foe (sprawl)
- Planning for housing without planning for conservation (and vice versa) ensures the two will be in conflict
- The key is be thoughtful about **where**
- Density can be good for our economies and can be good for the environment



# HOUSING AND CONSERVATION PARTNERSHIP

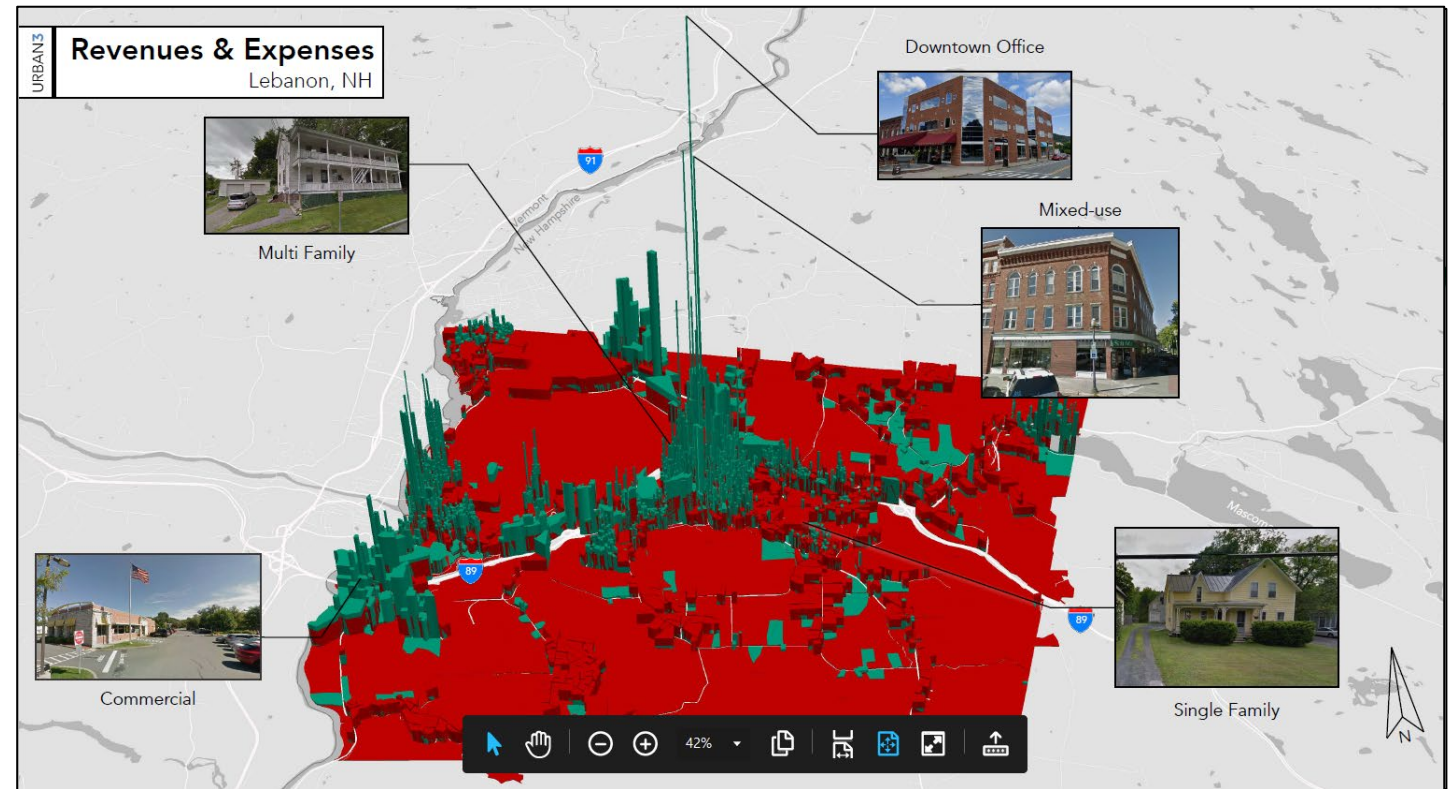
## Champlin Place & Champlin Forest, Rochester

- Easterseals sold 120 acres to the Forest Society, retaining 21 acres
- Champlin Place is new construction of a 65-unit age-restricted project with supportive services
- Forest Society is hosting a trail hike February 24<sup>th</sup> to mark expansion of the William Champlin Forest



# DENSITY IS AN ECONOMIC WIN-WIN

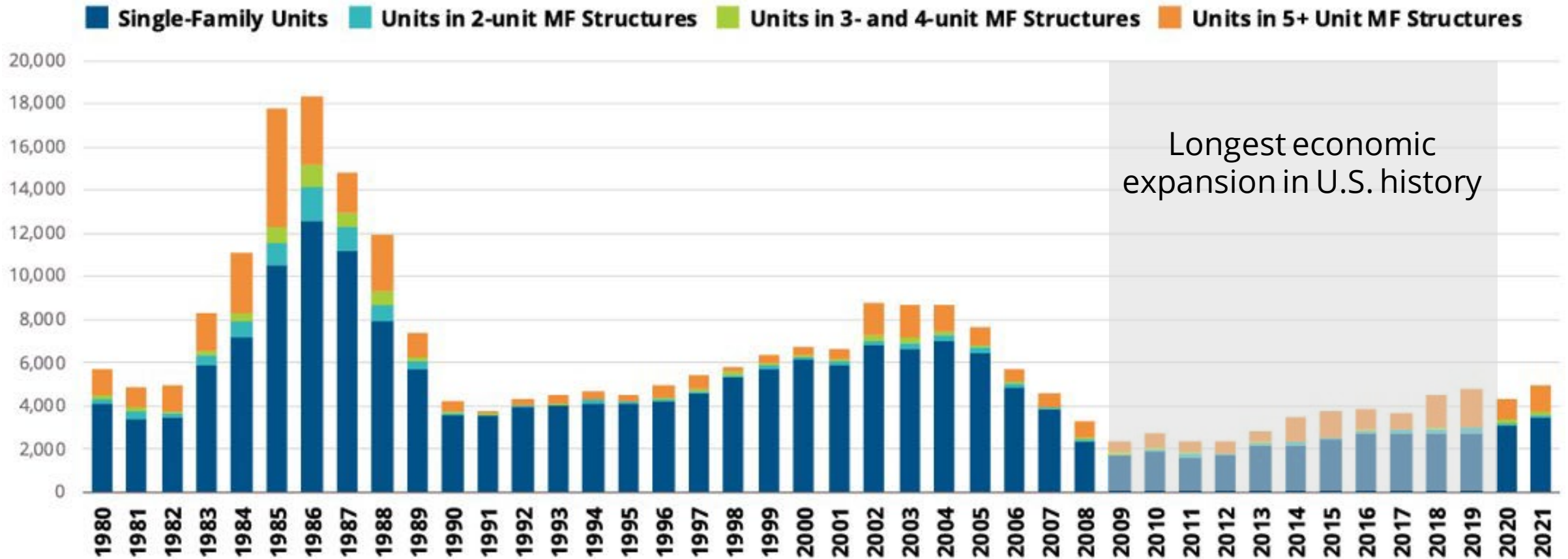
- Sprawl is expensive...roads, water, sewer, services ... all cost money
- Mixed-use and multifamily development have the highest value per acre; single family has the lowest
- Most communities generate net revenue from their downtowns



Source: NH Department of Revenue Administration; Urban3 Land Value Analysis for New Hampshire Housing



# NH BUILDING PERMITS ISSUED 1980 - 2021

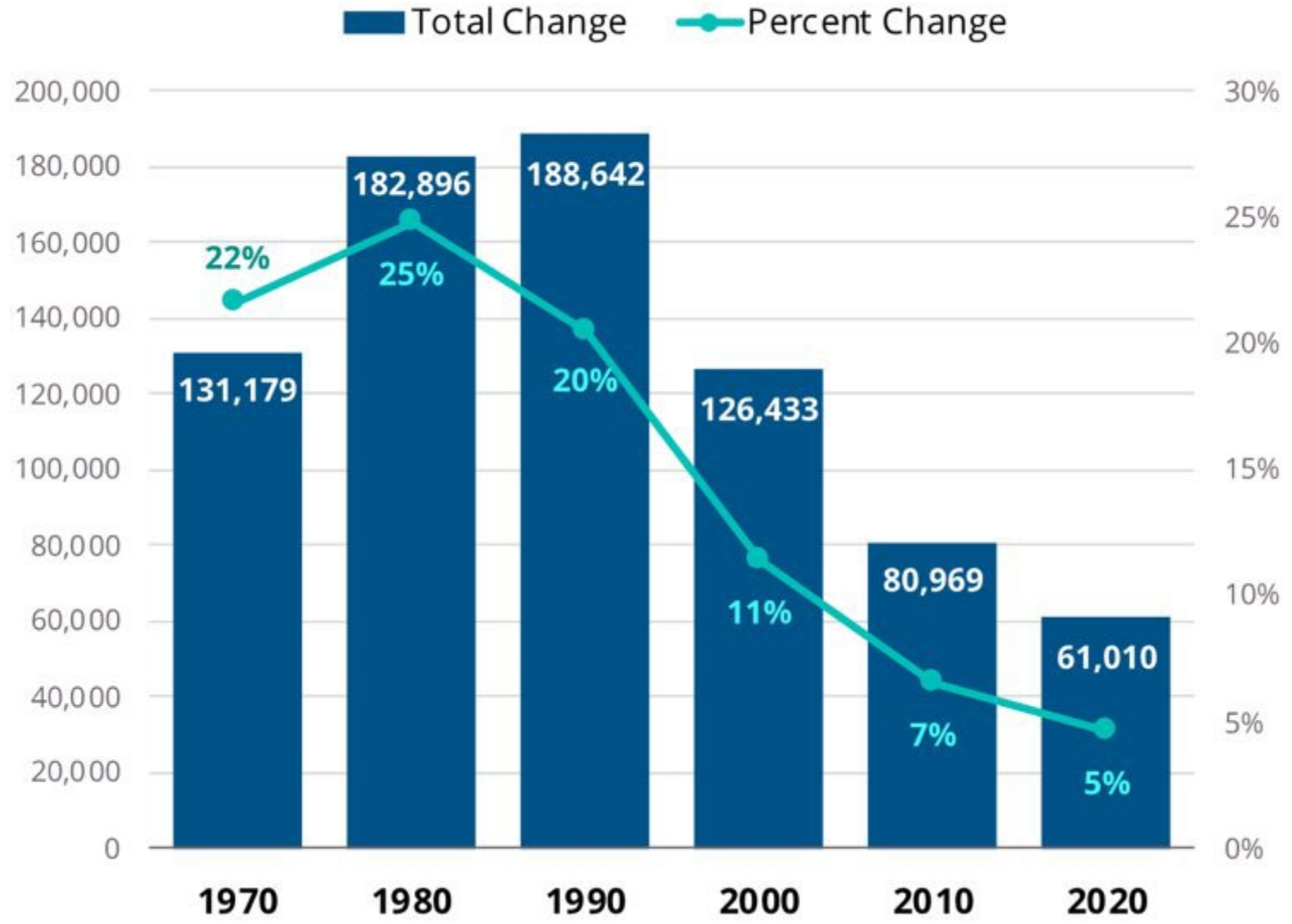


Source: NH Office of Planning and Development



# Housing Market Needs

# NH POPULATION CHANGE, 1970-2020



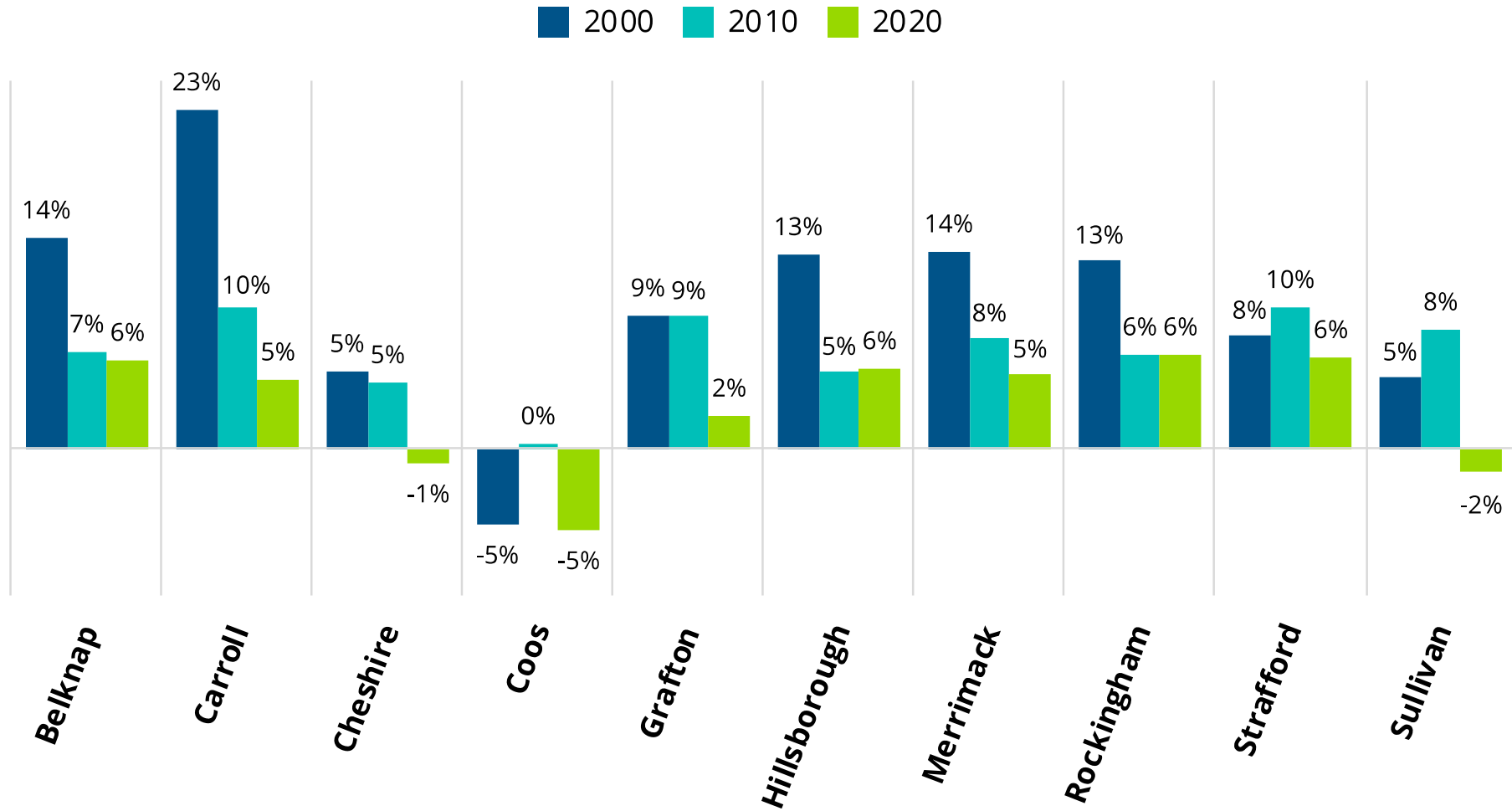
**Change in Population by Decade, 1970 to 2020**



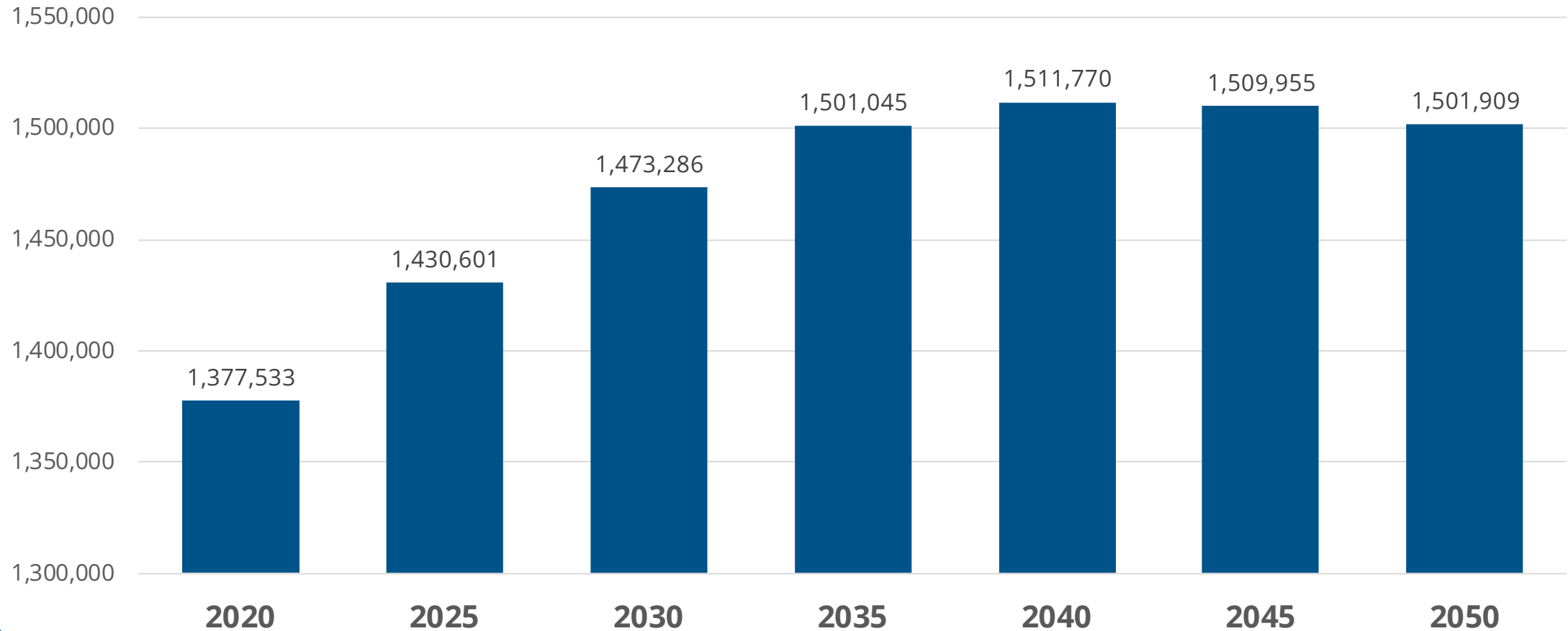
Source: U.S. Census Bureau, and Root Policy Research.



# NH POPULATION CHANGE – REGIONAL VARIATION

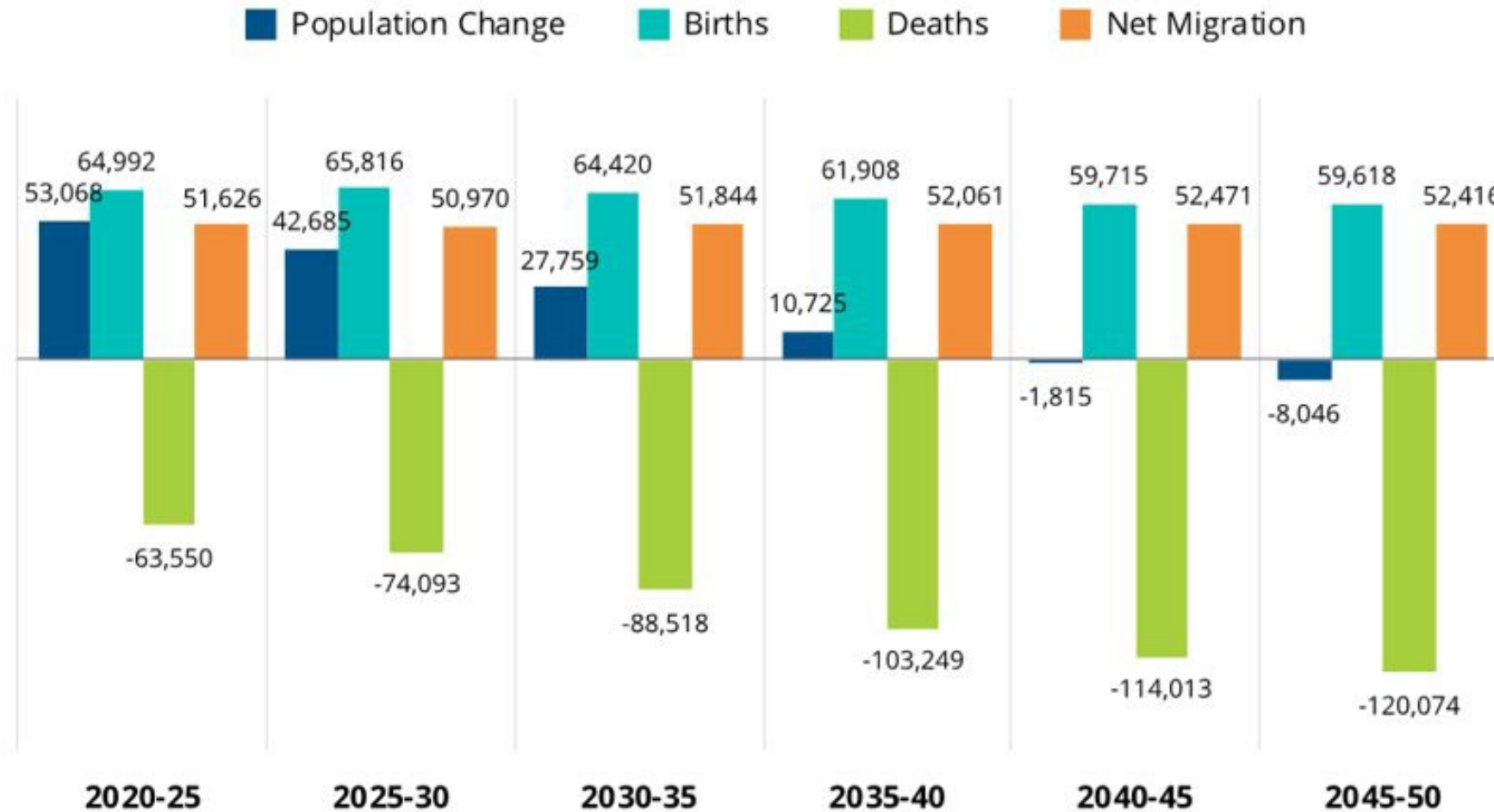


# NH PROJECTED POPULATION CHANGE, 2020-2050



Source: NH Office of Planning and Development

# NH PROJECTED POPULATION, COMPONENTS OF CHANGE



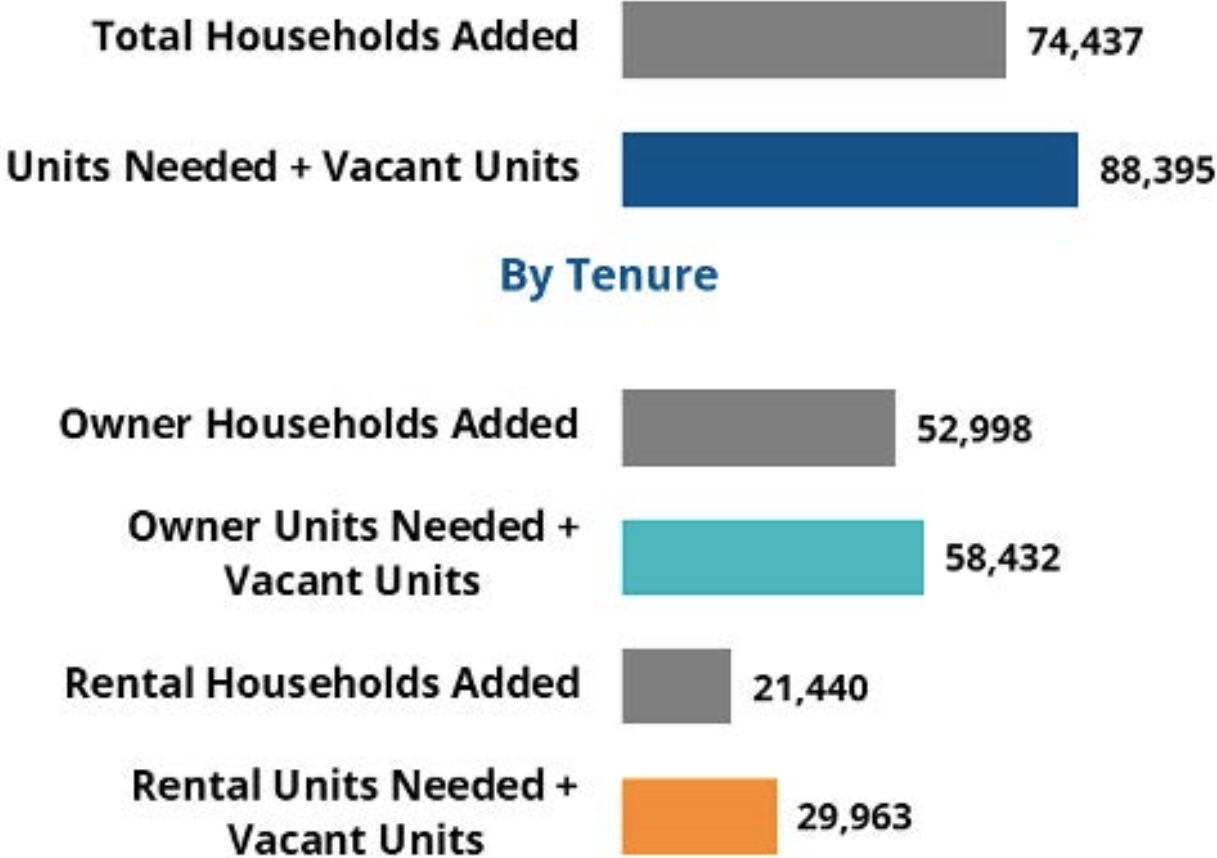
Source: NH Office of Planning and Development, Root Policy Research

# HOW MUCH HOUSING DOES NH NEED TODAY?

## Statewide Housing Needs Assessment for NH Housing by Root Policy Research

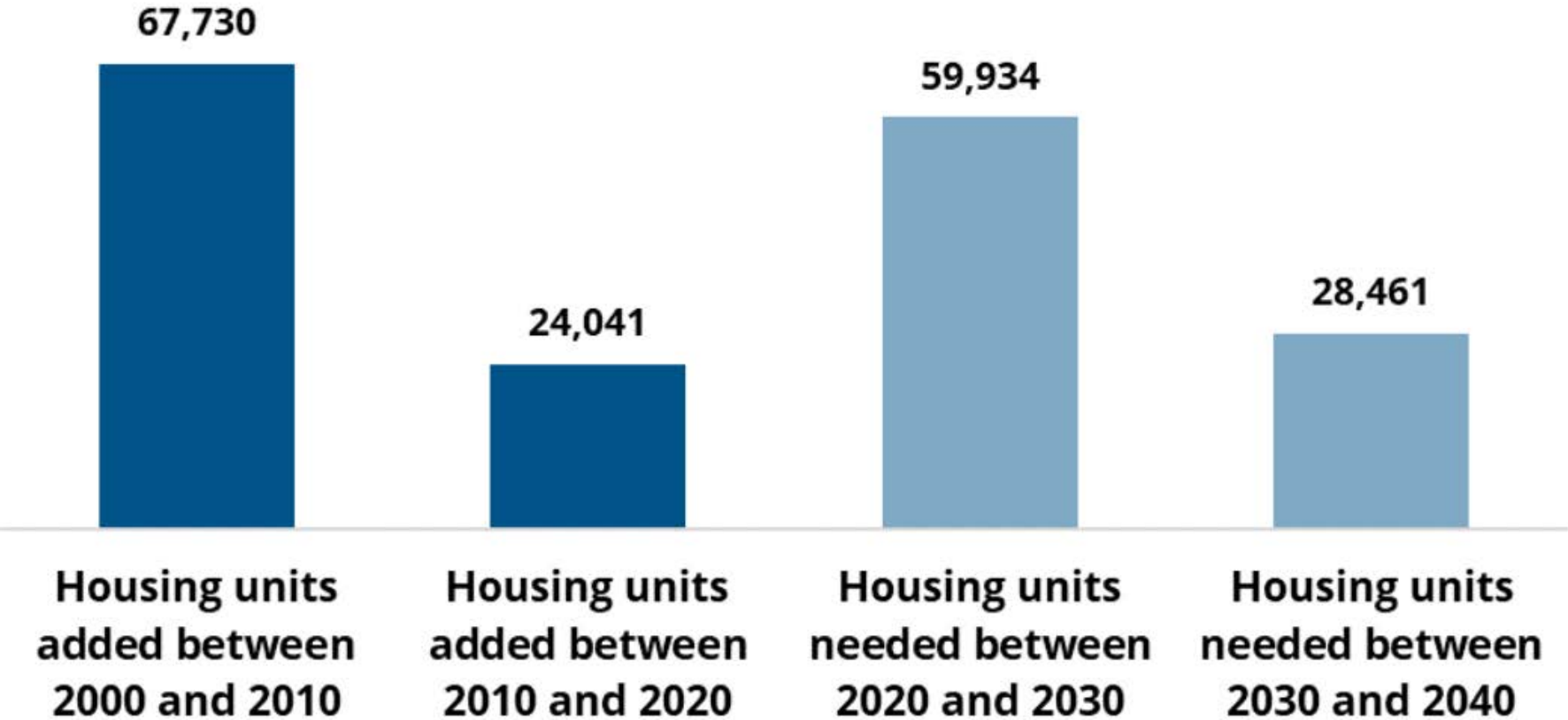
- Existing gap of **23,670 units**
  - **12,764 owner units**
  - **10,905 rental units**
- Includes 11,748 units needed to reach a 5% rental vacancy rate, 2% ownership vacancy rate
- Doesn't factor in housing production in 2021 or 2022

# NH PROJECTED HOUSING NEED THROUGH 2040



# HOW MUCH HOUSING DOES NH NEED?

## Historical Production v. Projected Need



*Doesn't account for vacation homes and STRs: add 20,000 units*

*Doesn't account for changes in migration patterns*



Source: RLS Demographics; 2000, 2010, and 2020 Decennial Census; 2010 and 2020 5-Year ACS estimates; NH Housing Residential Rental Cost Survey; Root Policy Research



# Policy Solutions for Housing

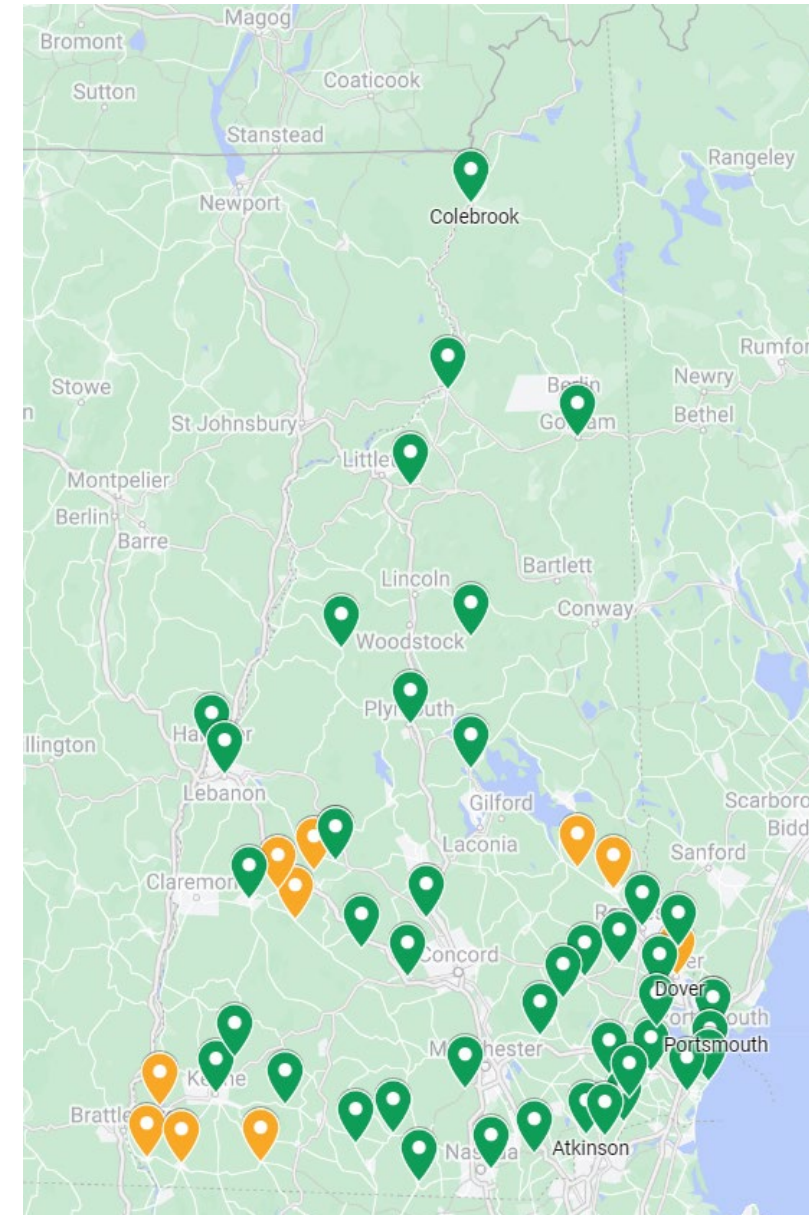
# WHAT HAS NH DONE?

- Workforce Housing Law, 2008
  - All municipalities must allow a “reasonable and realistic opportunity” for the development of workforce housing
- Accessory Dwelling Unit Law, 2016
  - Municipalities required to allow attached ADUs
- Housing Appeals Board, 2020
  - Alternative to trial court providing accelerated and less expensive appeals of local decisions on housing development



# WHAT IS NH DOING?

- InvestNH - \$100 million ARPA funds for housing production
  - Includes \$5 million for Municipal Planning & Zoning Grants
    - 5 *Community Housing Navigator grants*
    - 47 *Housing Opportunity Planning grants (so far)*
    - [www.nhHOPgrants.org](http://www.nhHOPgrants.org)
    - *"Housing Academy" for grantees – strong focus on community engagement*
- Pending Legislation
  - Housing Champion Designation
  - Historic Housing Tax Credit
  - Affordable Housing Fund appropriation
  - Homeownership Innovations Fund
  - Four-plex requirement (killed 2/23/2023)



# WHAT IS NH DOING?

- **NH Zoning Atlas**

- Collaboration of St. Anselm College's Center for Ethics in Society, NH Housing, and NH Office of Planning and Development
- Allows for analysis of regulatory patterns statewide and by community
- May be paired with other datasets, such as parcel layers, natural conditions, and building footprints
- Available for planners, researchers, *anyone who cares*
- Launching this spring

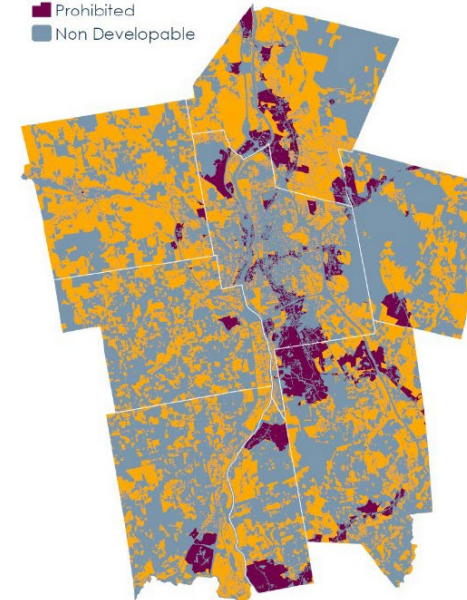
Single Family Zoning

Allowed  
Prohibited  
Non Developable



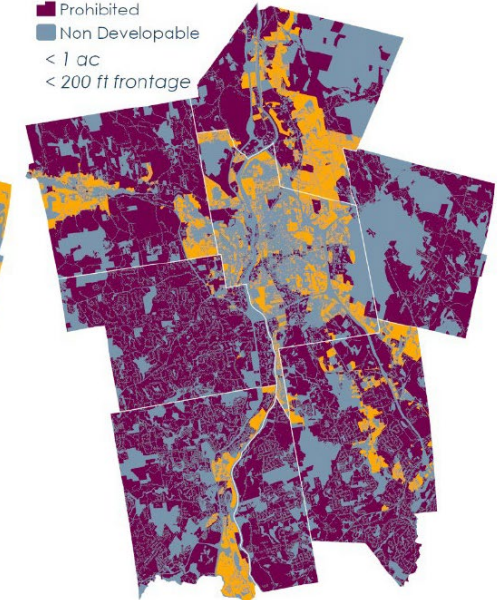
Single Family Potential

Allowed  
Prohibited  
Non Developable

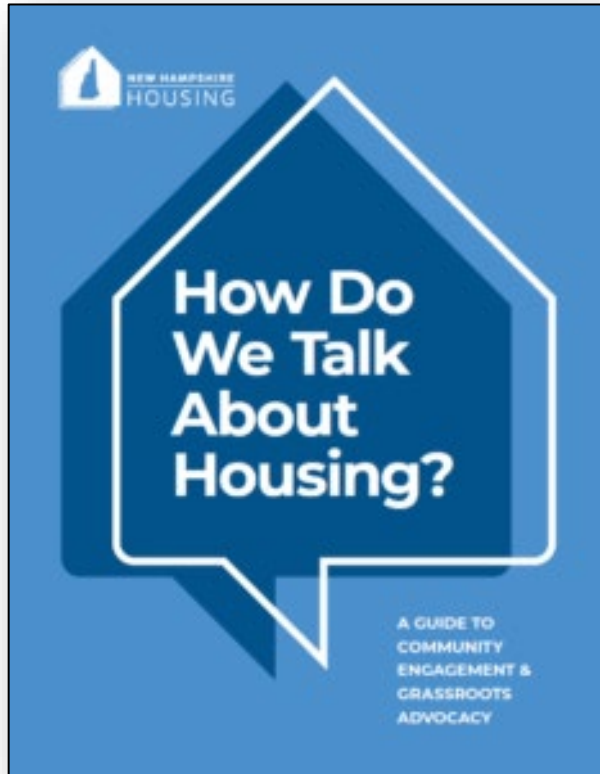


Small Lot Single Family Potential

Allowed  
Prohibited  
Non Developable  
< 1 ac  
< 200 ft frontage



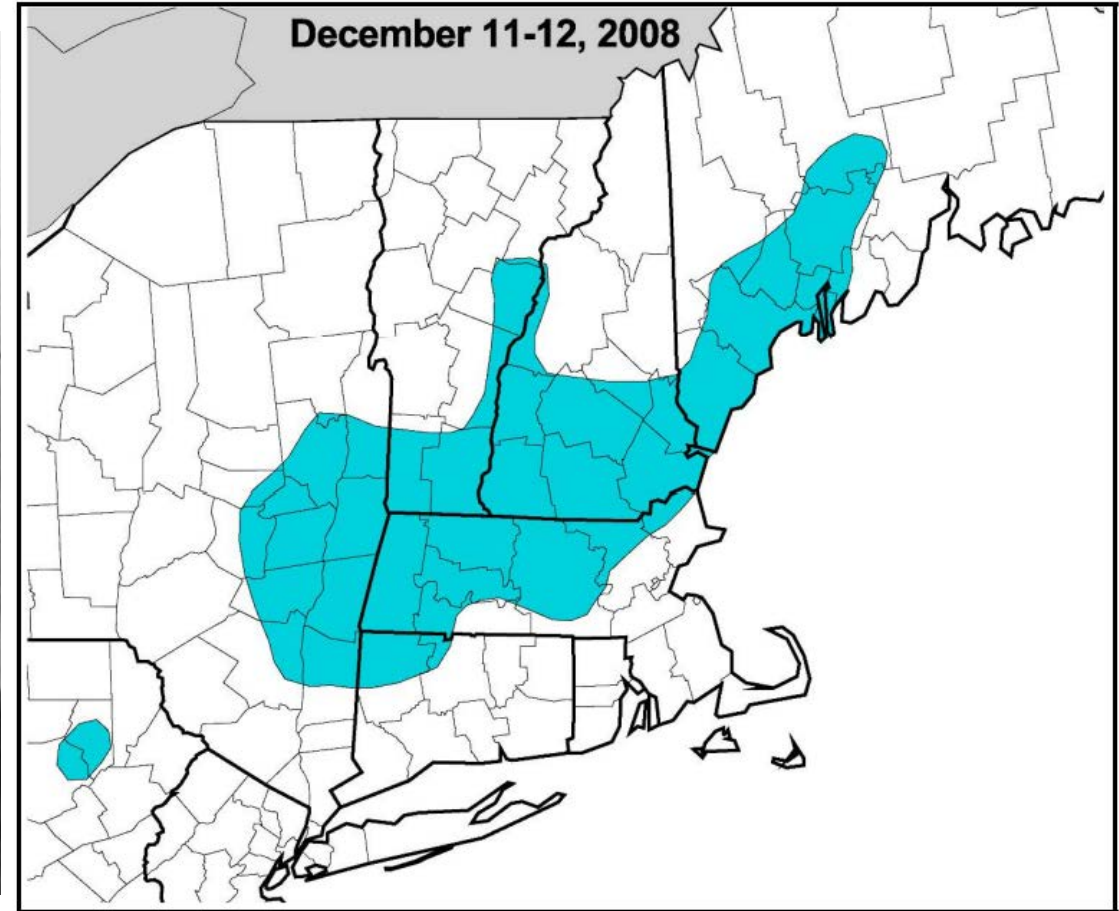
# TALK ABOUT HOUSING



- Get personal! The key to solving our housing crisis is to talk with each other, person to person about housing
- Share your housing story, build a local coalition, and engage the community
- New Hampshire Housing created the *How Do We Talk About Housing?* guide
- Focus on relationships and coalition-building strategies



# CLIMATE CHANGE HAPPENS HERE, TOO



Blizzard of 1978 – Scituate, MA  
2008 Ice Storm

# Q&A



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