

From Vision to Action—Applying Future Scenarios to Inform Local Initiatives

2018 RCP Network Gathering
UMass Amherst

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E. Heidi Ricci

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Overview

Jonathan Thompson, Harvard Forest
Intro - New England Landscape Scenarios 2060

Heidi Ricci, Mass Audubon, Shaping the Future of Your Community Program

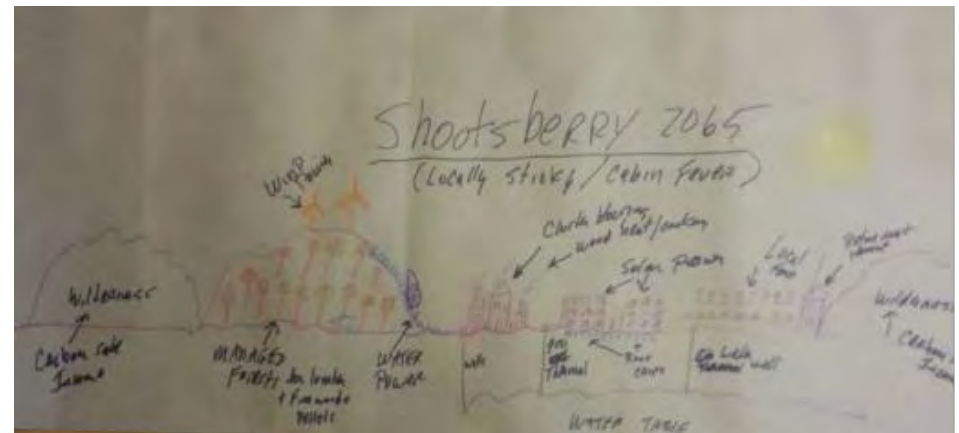
- **Land and Water – Future in a Changing Climate**
 - Valuing natural lands for resiliency and ecosystem services
- **Applying Future Scenarios – Informing and motivating action**
 - Sprawl
 - Imperviousness and water
 - Resilient Lands
- **Regional Partnership Applications**
 - Narragansett Bay Watershed
 - Resilient Taunton Watershed Network
- **Discussion**



1. *HOW MIGHT OUR LANDSCAPE CHANGE OVER THE NEXT 50 YEARS?*
2. *WHAT ARE THE POSSIBLE CONSEQUENCES FOR ECOSYSTEMS AND PEOPLE?*
3. *WHAT ACTIONS COULD HELP SUSTAIN IMPORTANT ECOSYSTEM FUNCTIONS AND SERVICES IN THE FACE OF CHANGE?*

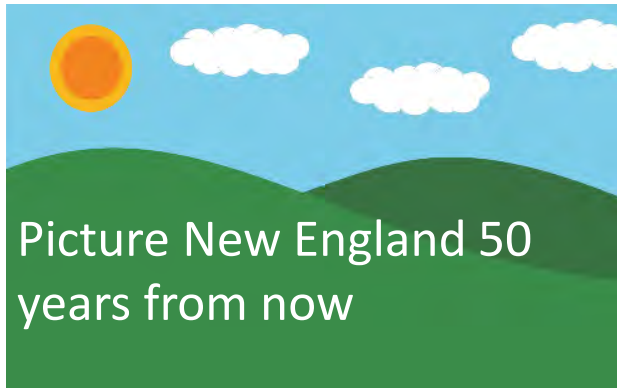
New England Landscape Futures

- Co-designed land-use scenarios with informed stakeholders from throughout the region
- More than 50 phone interviews
- Day-long workshops in each New England State
- Many interactive webinars

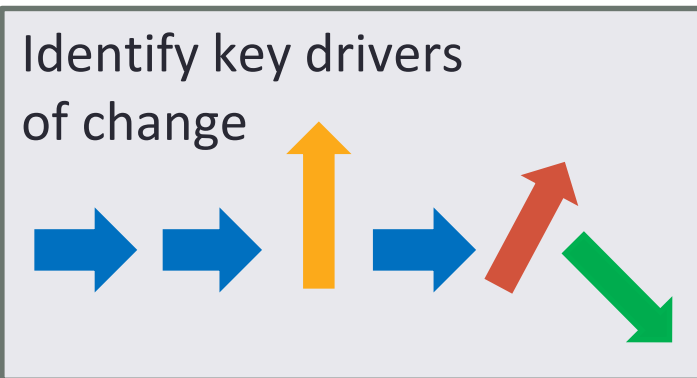


The Scenario-building Process

(1)



(2)



(3)

Rank drivers by
impact & uncertainty

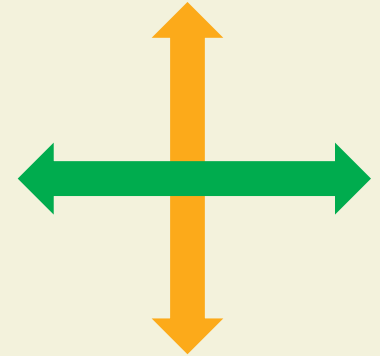
high

medium

low

(4)

Create
scenario
logic and
matrix

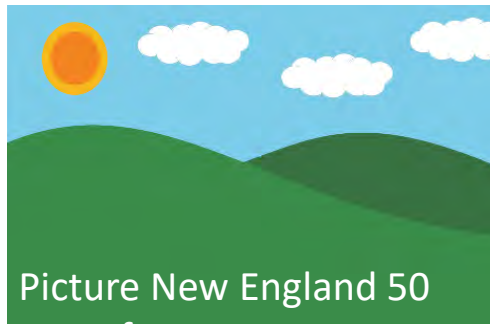


(5)

Develop scenario
narratives

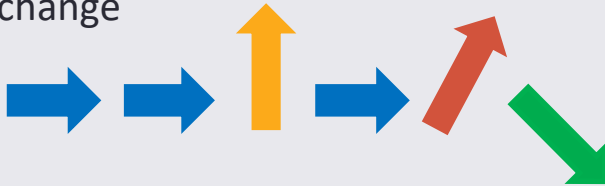


(1)



(2)

Identify key drivers of change



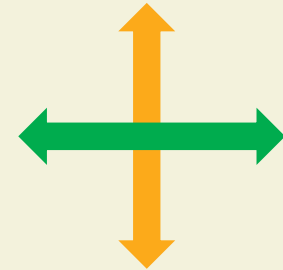
(3)

Rank drivers by
impact & uncertainty

high
medium
low

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Create
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(5)

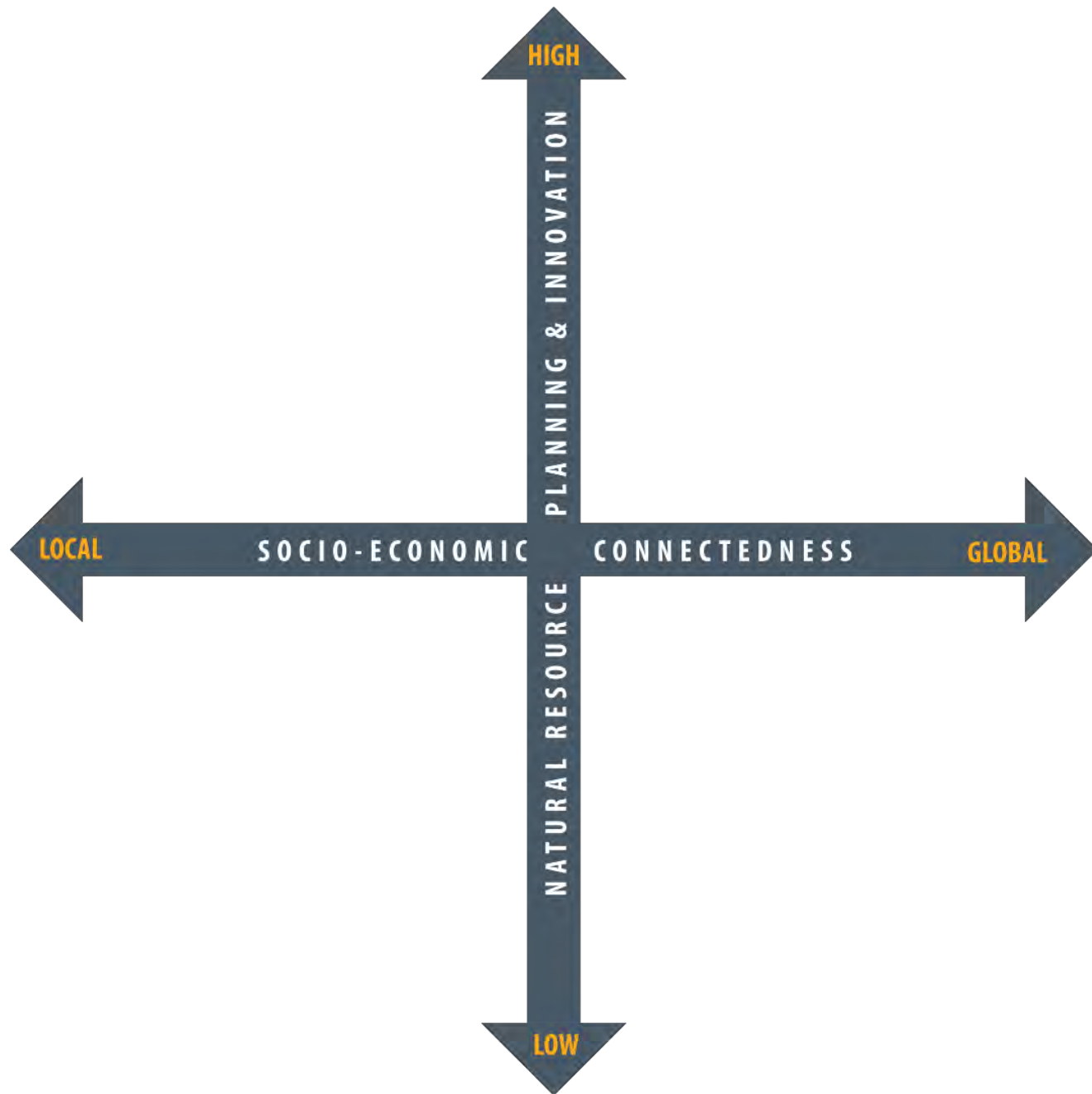
Develop scenario
narratives

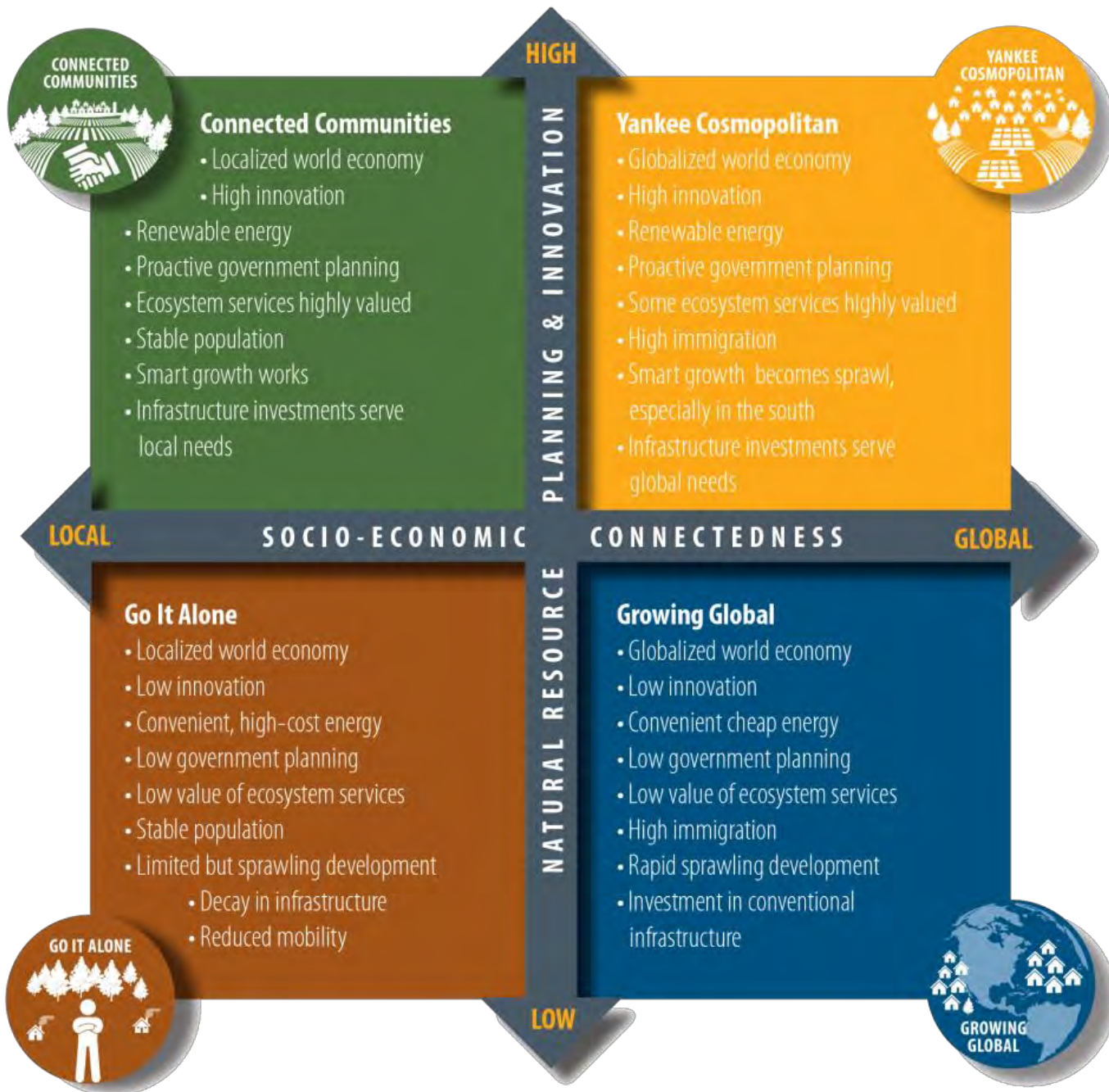


(6)

Contrast scenario with
recent land-use
trends







Connected Communities

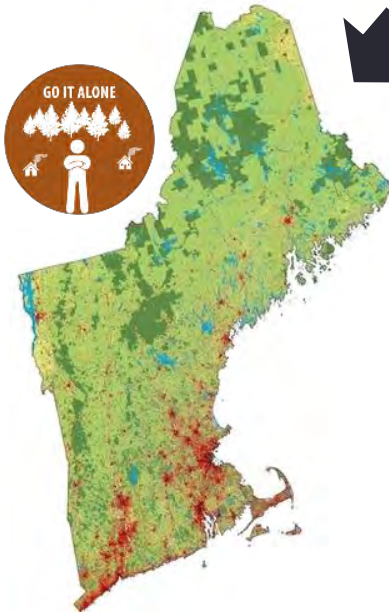
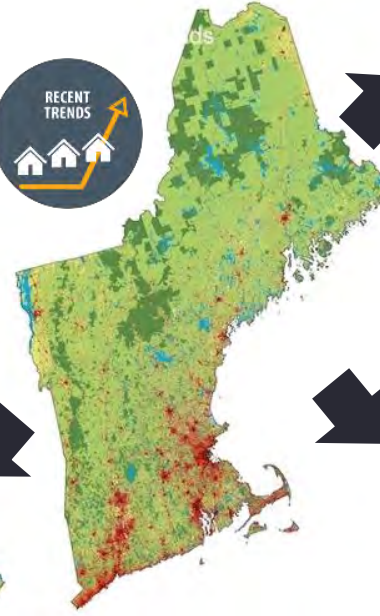
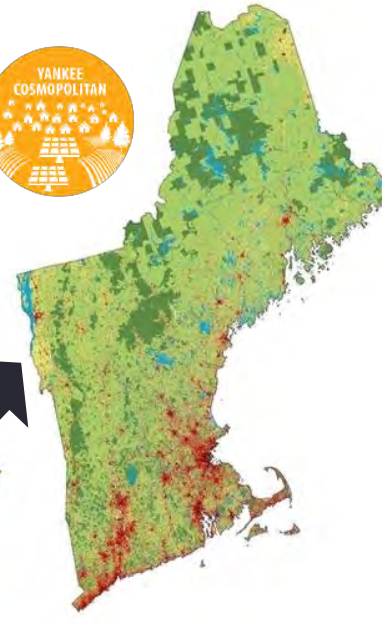
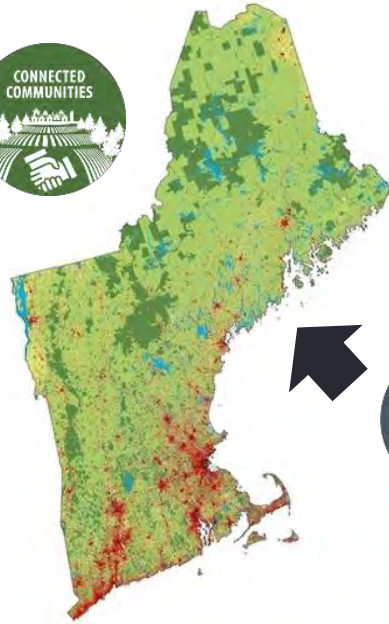
Yankee Cosmopolitan

2010



Go It Alone

Growing Global



Applying Land Use Trends and Scenarios to inform local and regional action

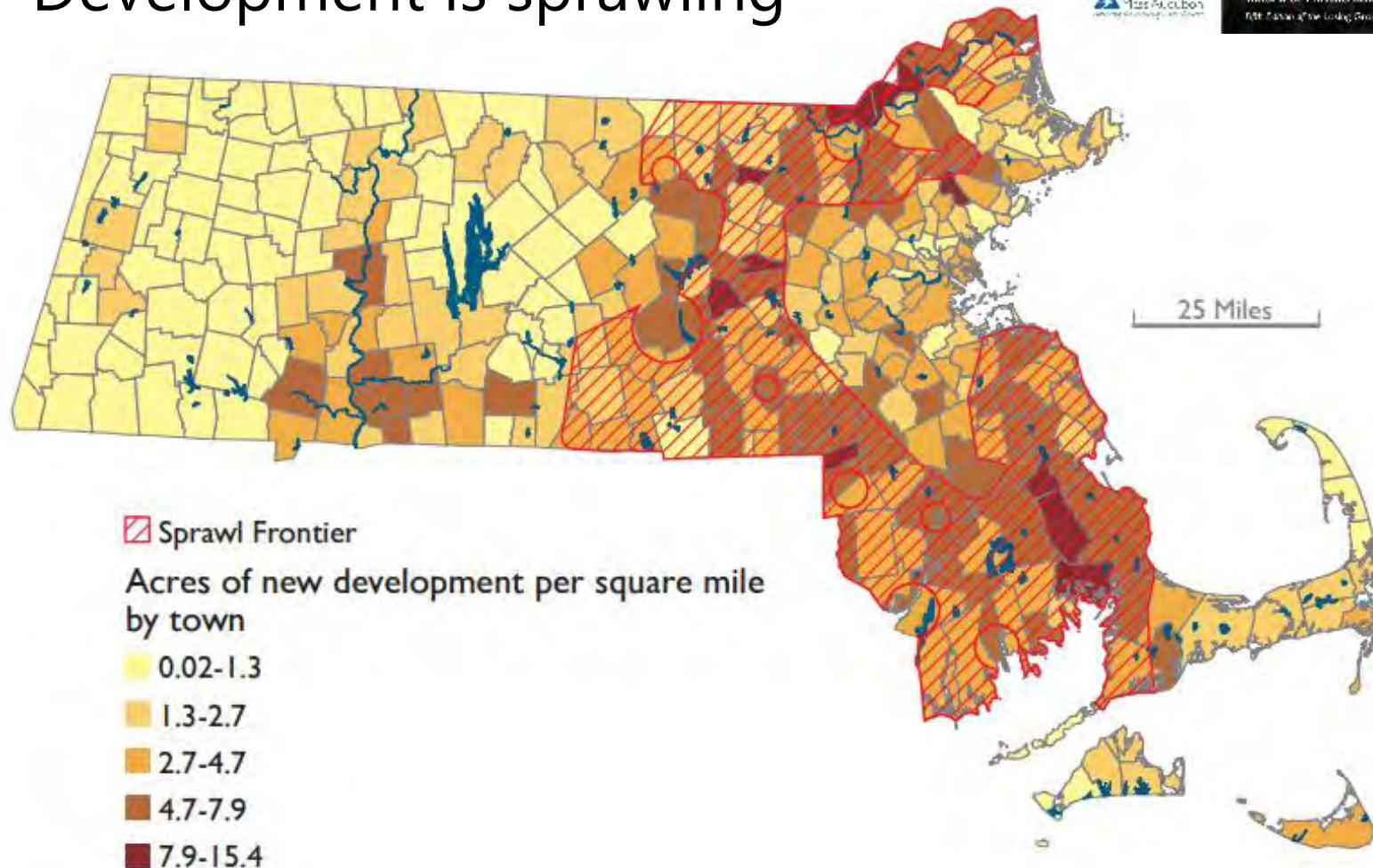


What's the problem?

Development is sprawling



Mass Audubon
Conservation Science Center



Shaping The Future of Your Community Program

Created in 2009 to implement *Losing Ground* recommendations

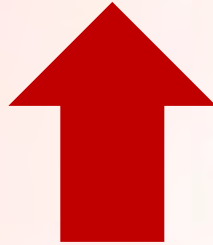
Assists the fastest-developing communities chart a more **sustainable future** through customized community workshops and direct assistance



Shaping the Future of Your Community

Our climate is already changing

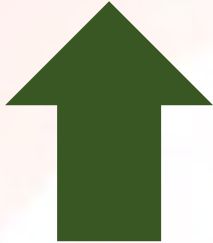
Temperature:



2.9°F

Since 1895

Growing Season:



11 Days

Since 1950

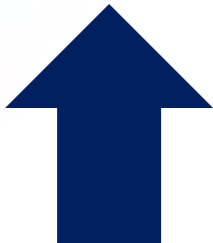
Sea Level Rise:



11 inches

Since 1922

Strong Storms:

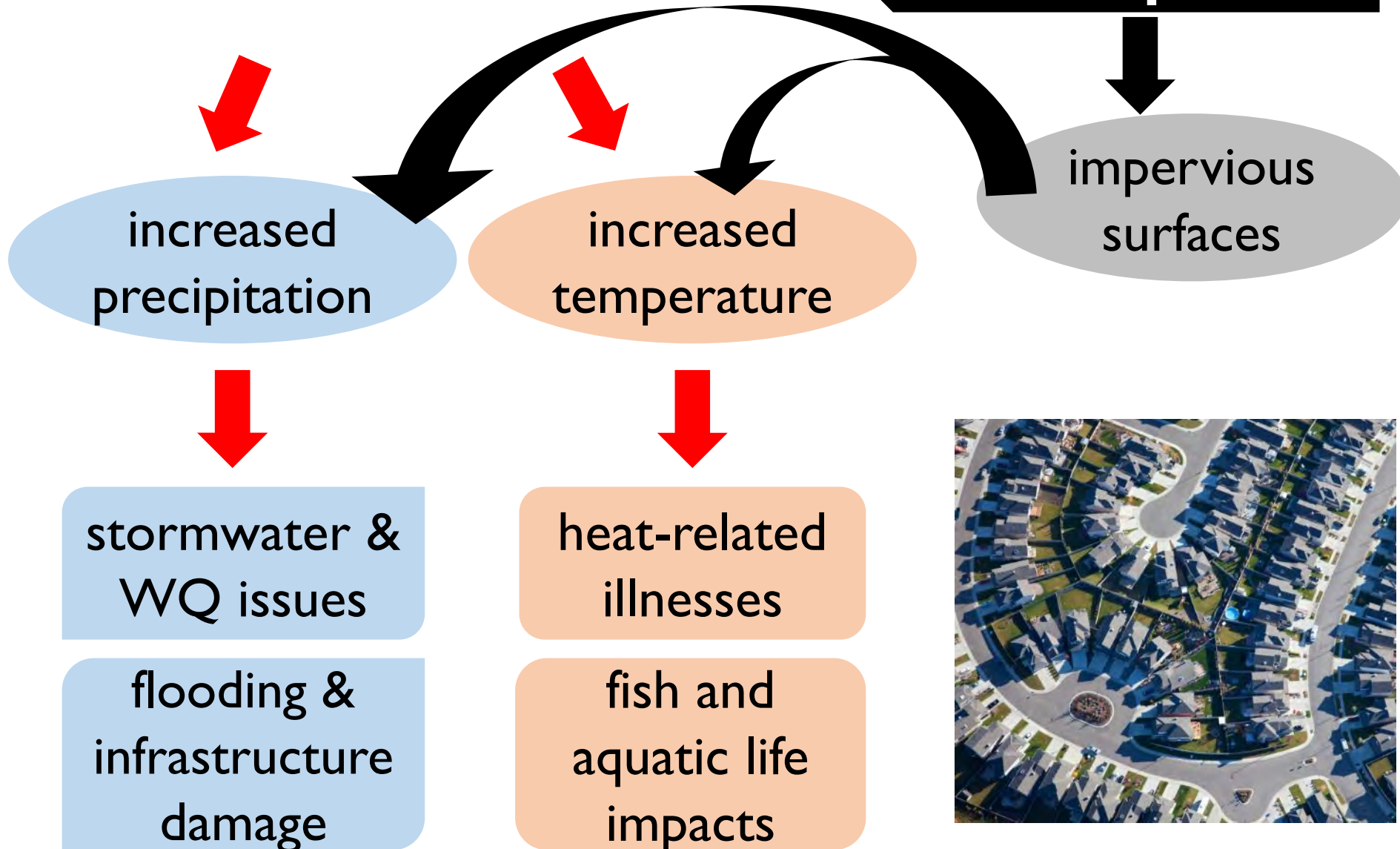


55%

Since 1958

Climate change

**Sprawling
Development**



Forests for Resiliency and Values

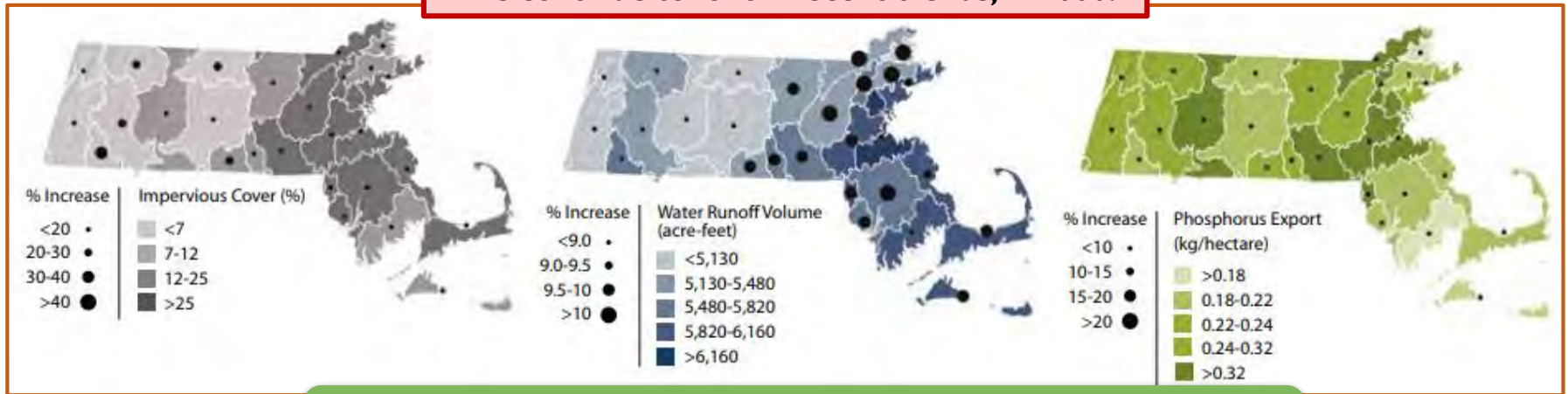
- Carbon sequestration
- Clean Water
- Flood prevention
- Habitat
- Tourism
- Recreation
- Health
- Property Values
- Quality of Life



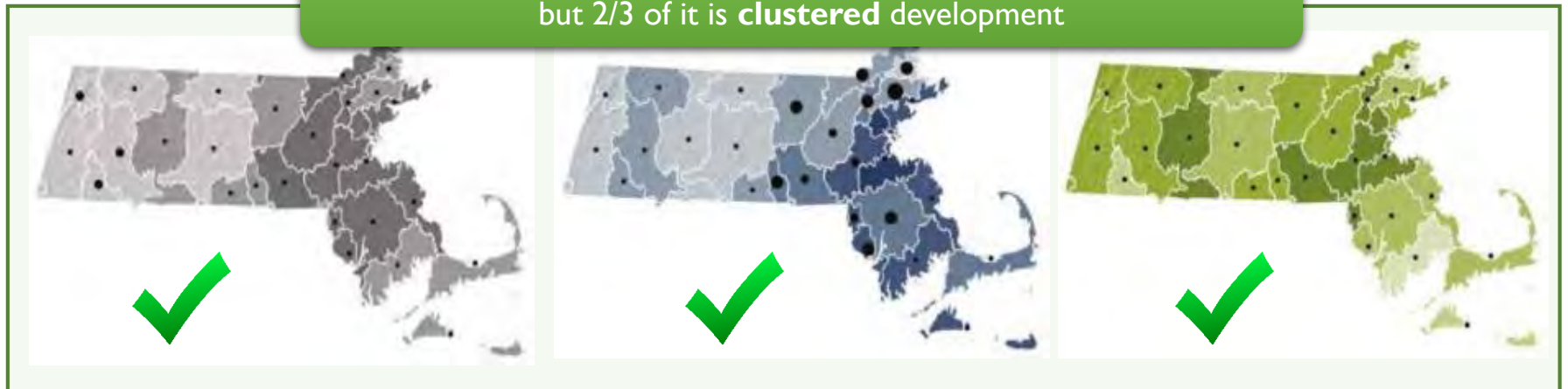
The Value of Green:

Imperviousness, Runoff, Nutrients

If we continue to follow recent trends, in 2060:

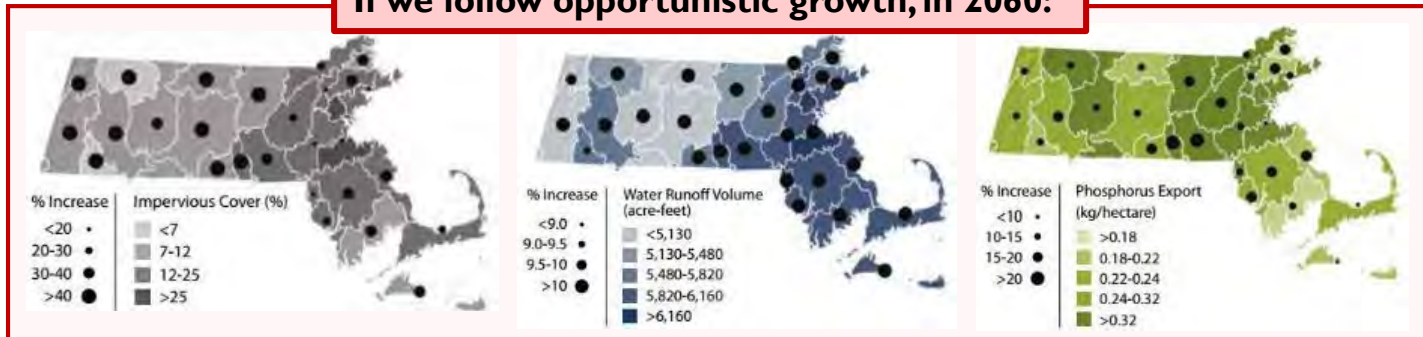


These allow for nearly the **same amount of development**,
but 2/3 of it is **clustered** development

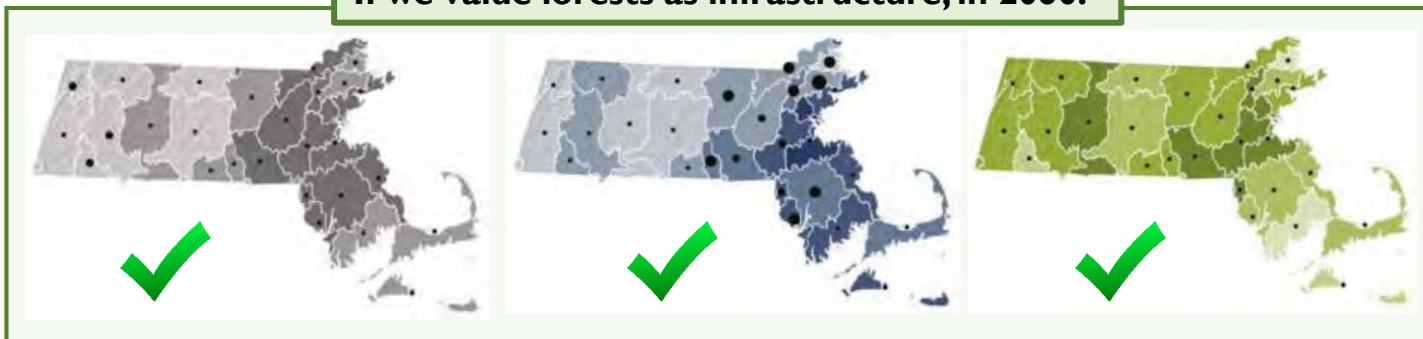


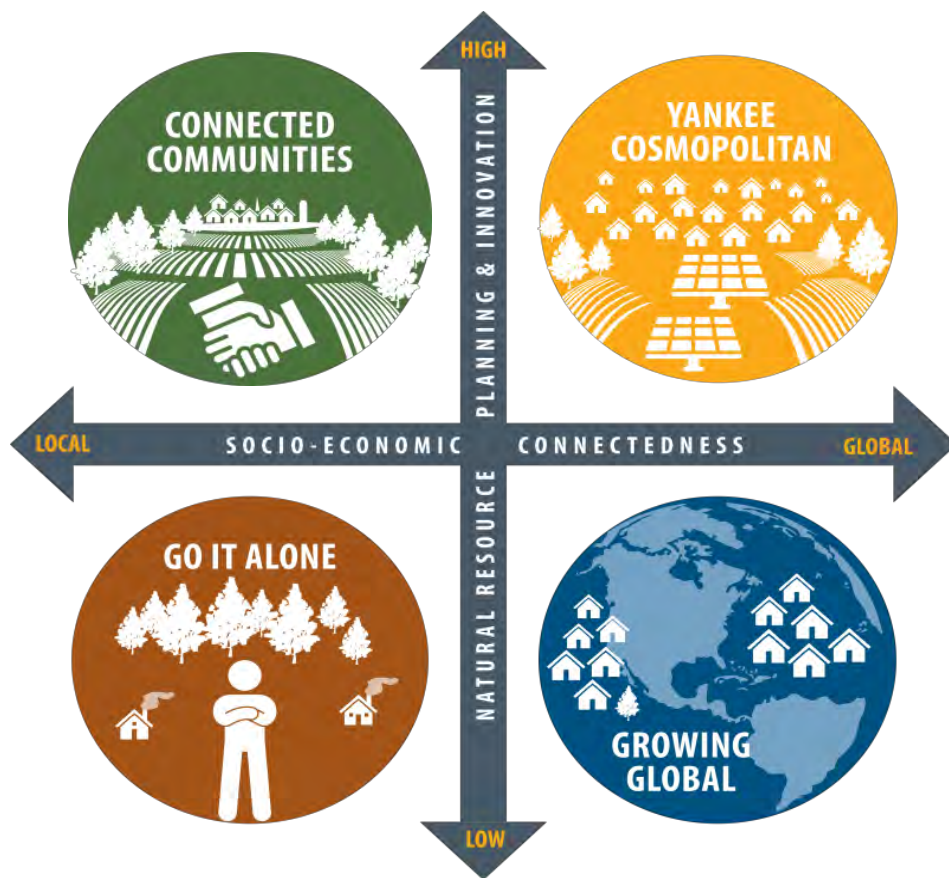
The Value of Green: Imperviousness, Runoff, Nutrients

If we follow opportunistic growth, in 2060:

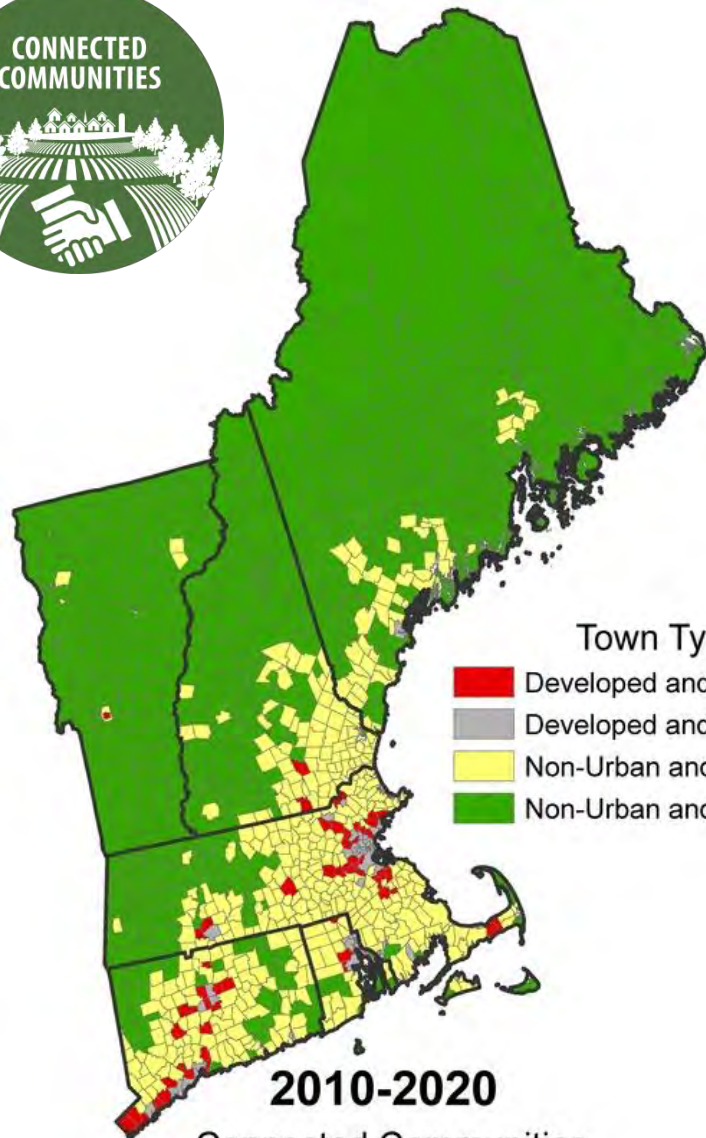


If we value forests as infrastructure, in 2060:





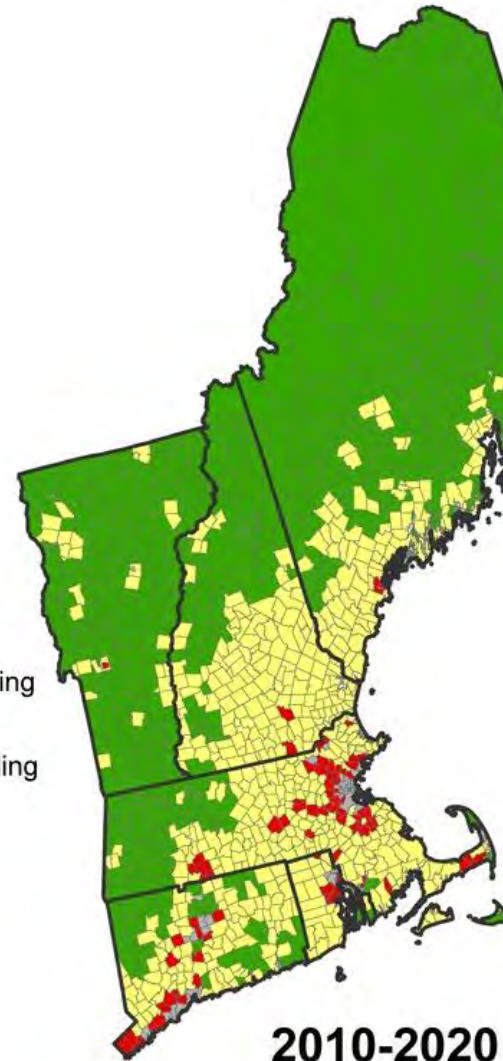
Sprawl



2010-2020
Connected Communities

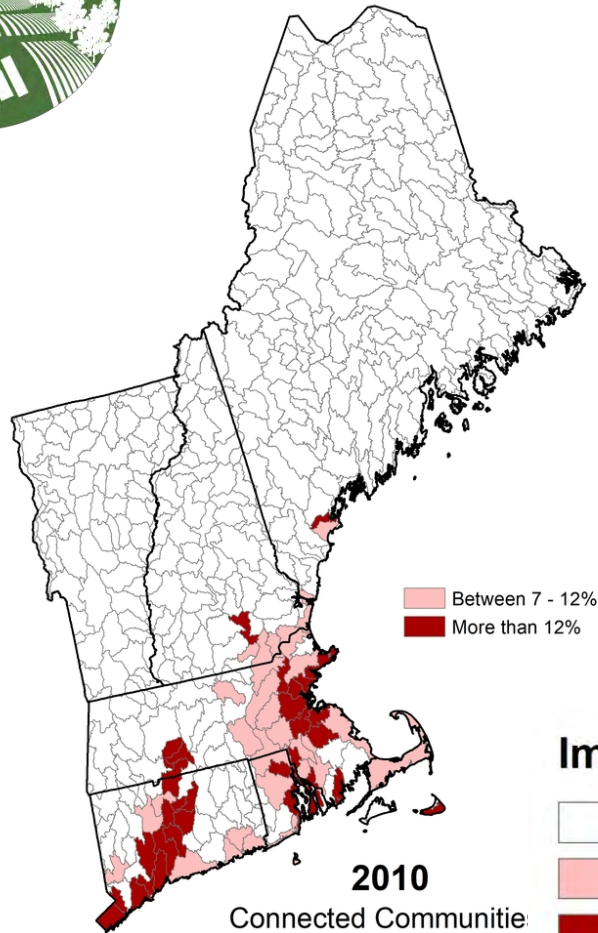
Town Type

- Developed and Sprawling
- Developed and not Sprawling
- Non-Urban and Sprawling
- Non-Urban and not Sprawling

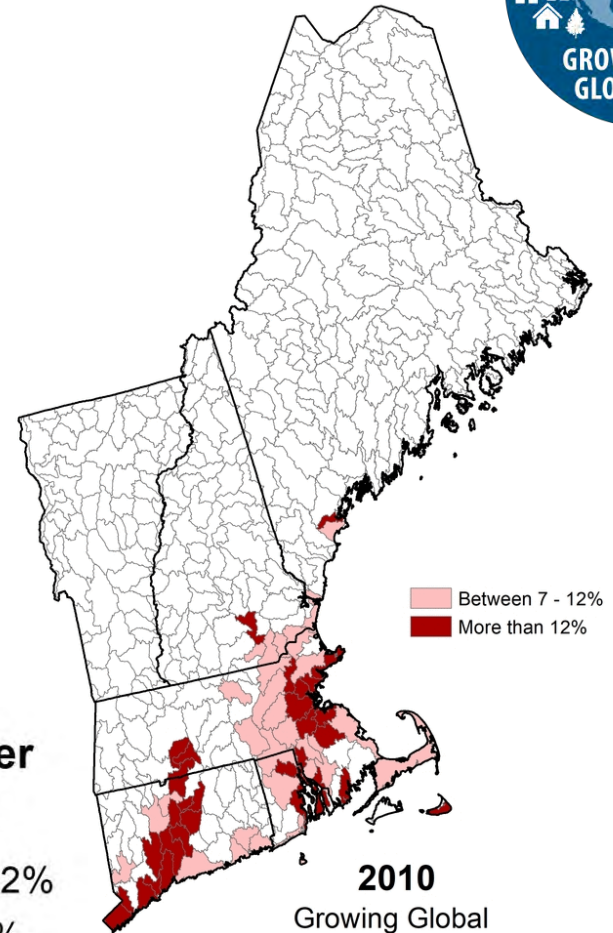
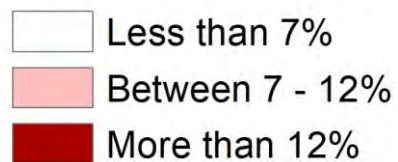


2010-2020
Growing Global

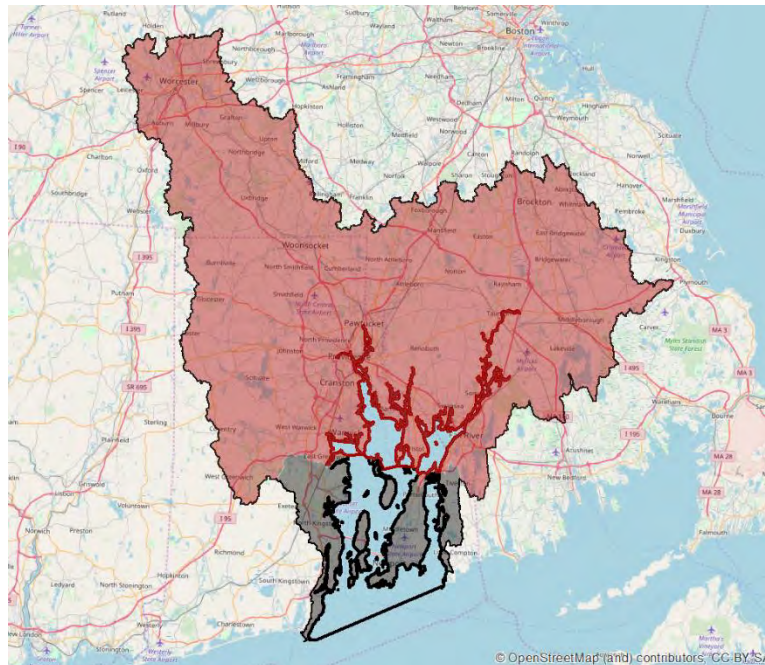
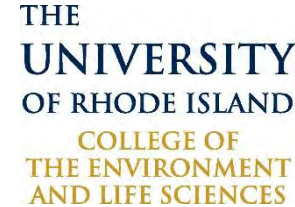
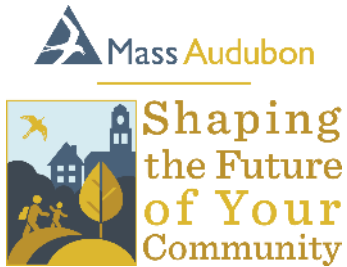
Impervious Surfaces



Impervious Cover

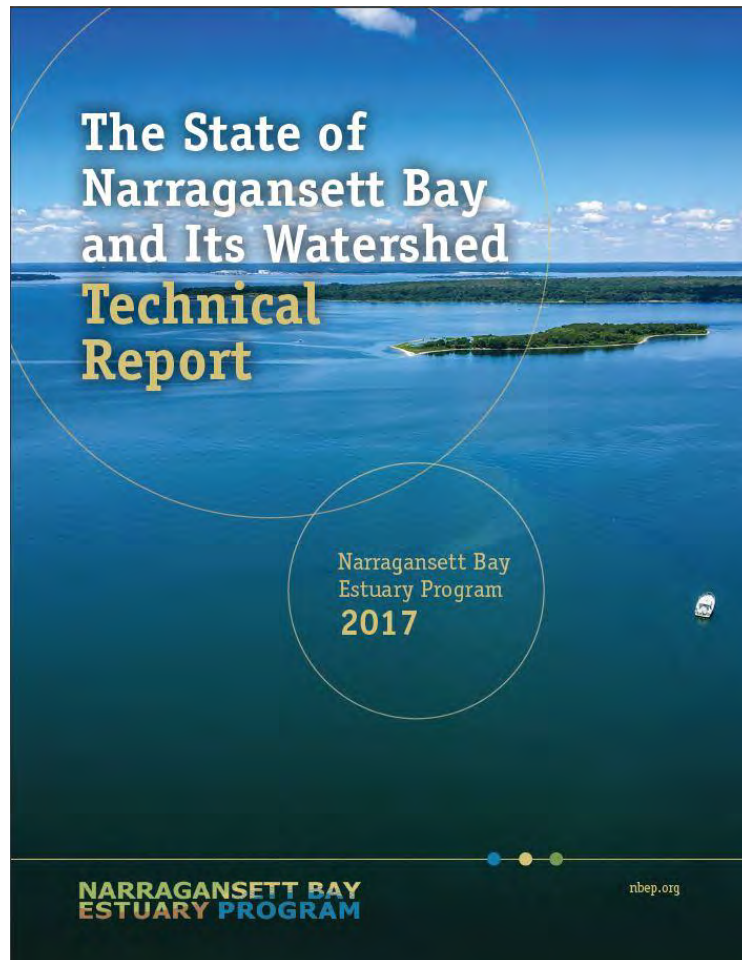


Integrating Ecosystem Services Values in the Narragansett Bay Watershed



massaudubon.org/naturesvalue

Status and Trends in the Narragansett Bay Watershed – And Possible Futures



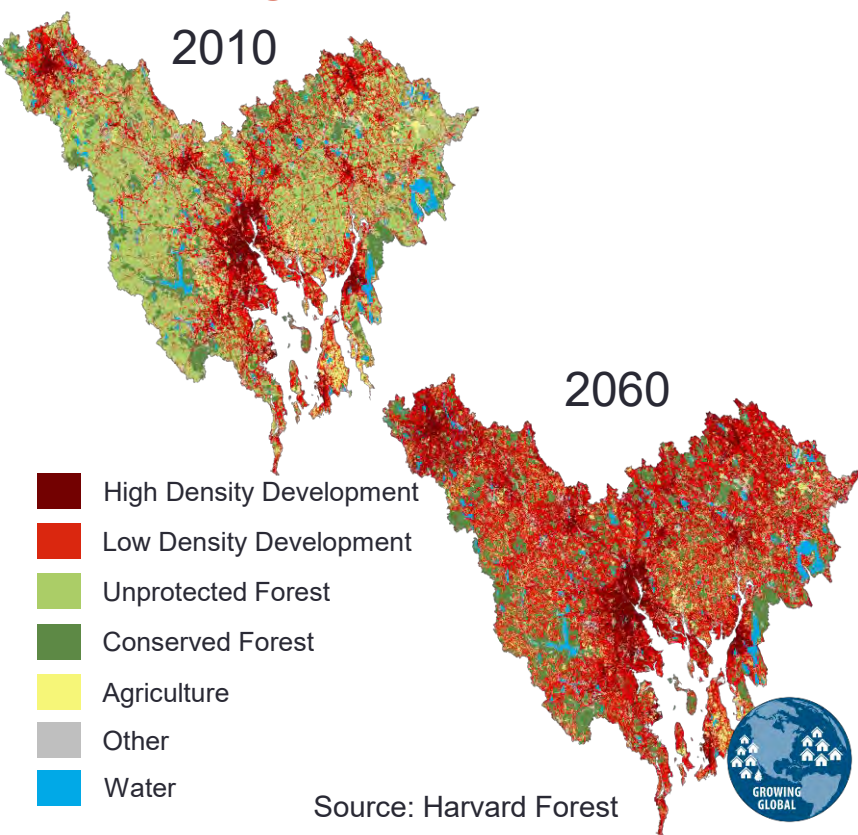
AN ECONOMIC EVALUATION OF THE NARRAGANSETT BAY WATERSHED

EMI UCHIDA, PROFESSOR, DEPT OF ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS
UNIVERSITY OF RHODE ISLAND (euchida@uri.edu)



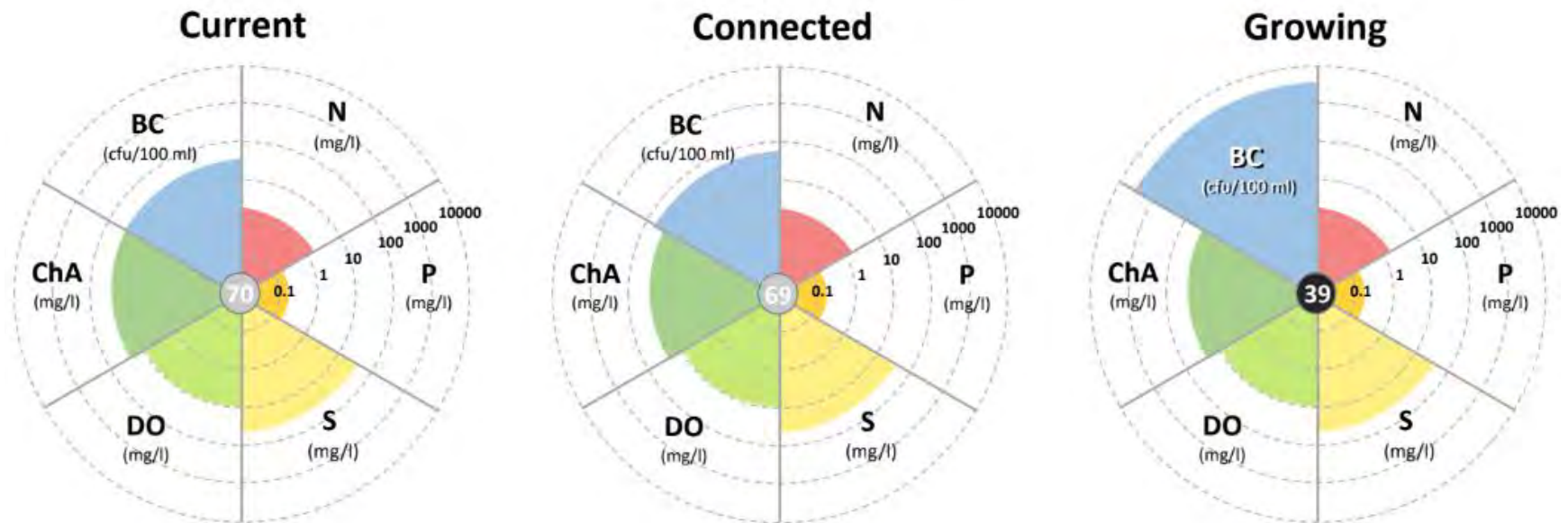
Harvard Forest

NARRAGANSETT BAY

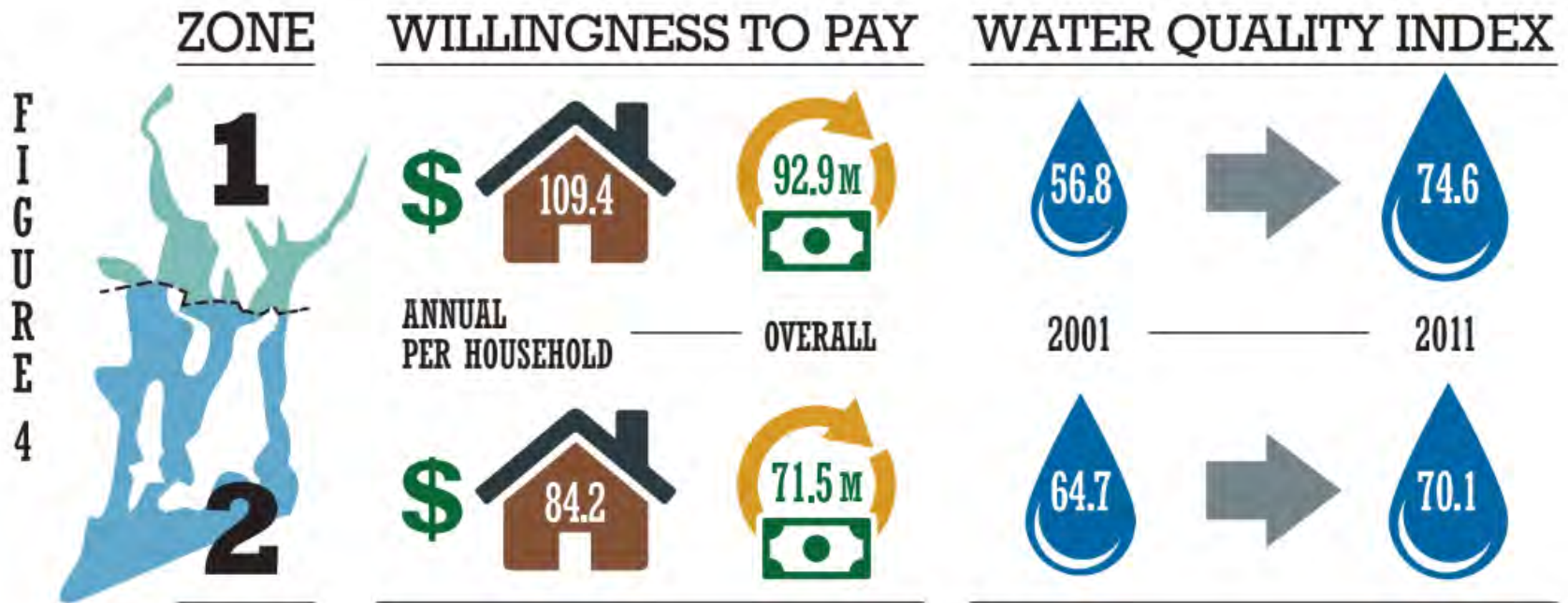


2060 scenarios	Urban	Forest	Ag
Connected Communities	34%	46%	8%
Growing Global	57%	22%	9%
Go It Alone	39%	42%	7%
Recent Trends	41%	40%	7%
Yankee Cosmopolitan	50%	32%	6%
Current (2010)	31%	50%	7%

Integrating Ecosystem Services Values in the Narragansett Bay Watershed



Integrating Ecosystem Services Values in the Narragansett Bay Watershed



Resilience: The capacity to absorb disturbance and reorganize while retaining the same basic function, structure and identity.

Landscape Complexity

Number of microclimates are found in the area

Landscape Connectivity

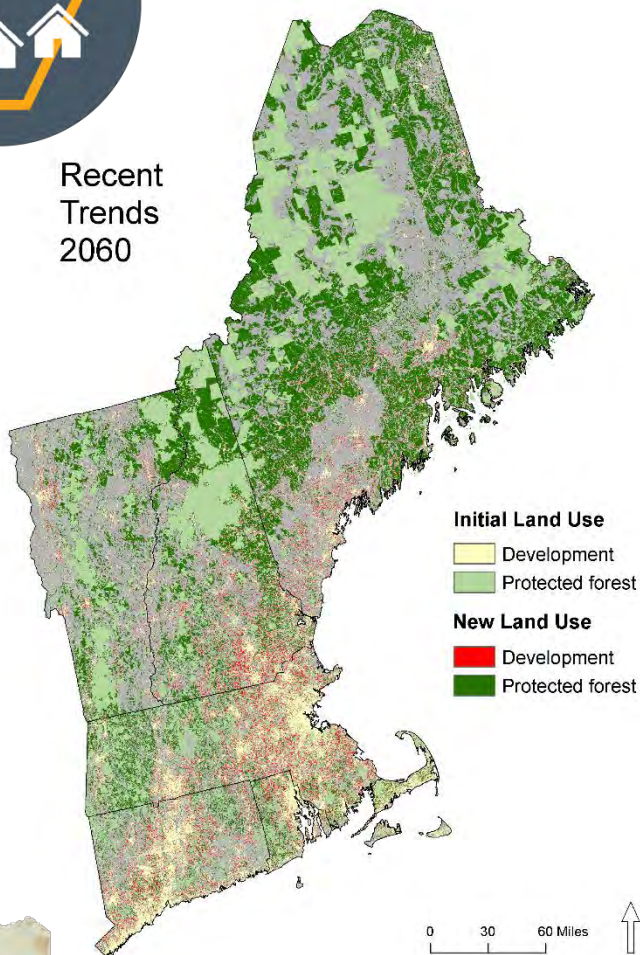
Possibility for individuals and populations to move among these microclimates



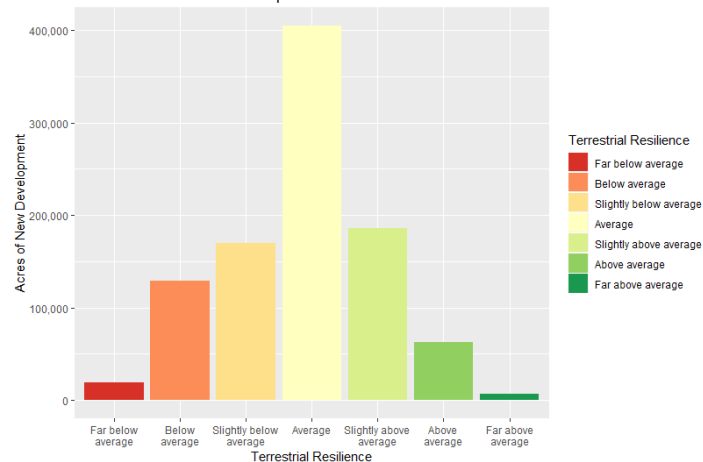
James C. Engberg



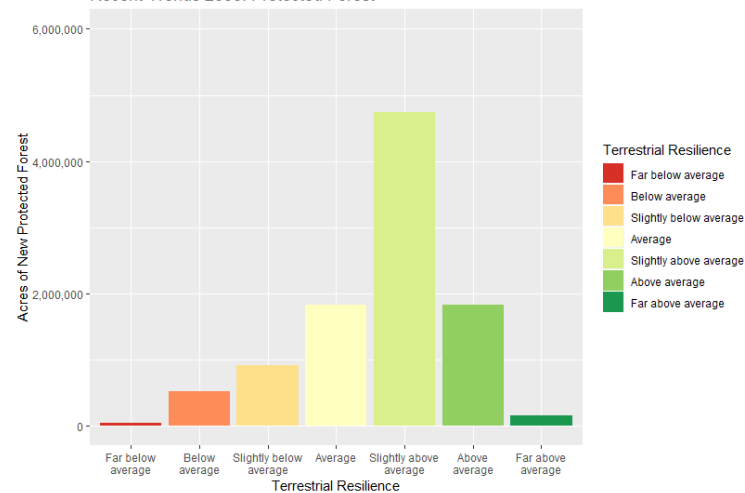
Recent Trends 2060



Recent Trends 2060: Development

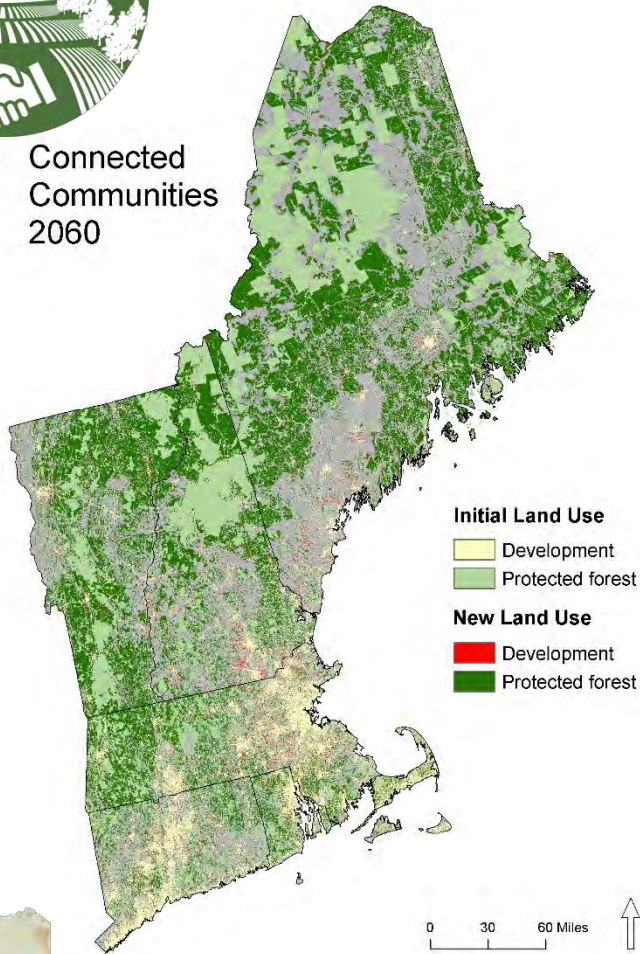


Recent Trends 2060: Protected Forest

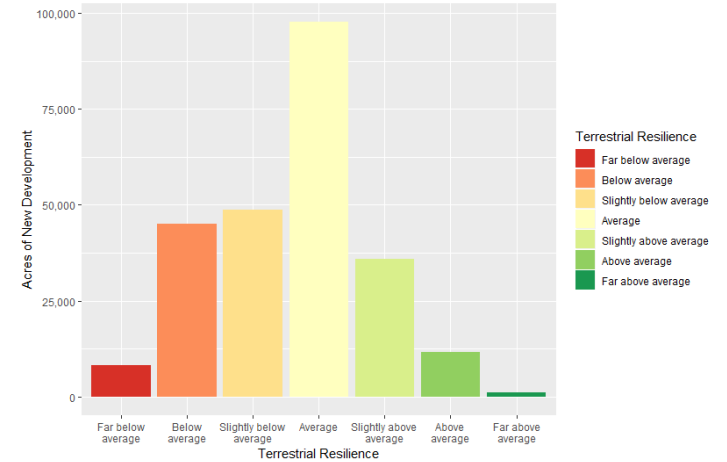




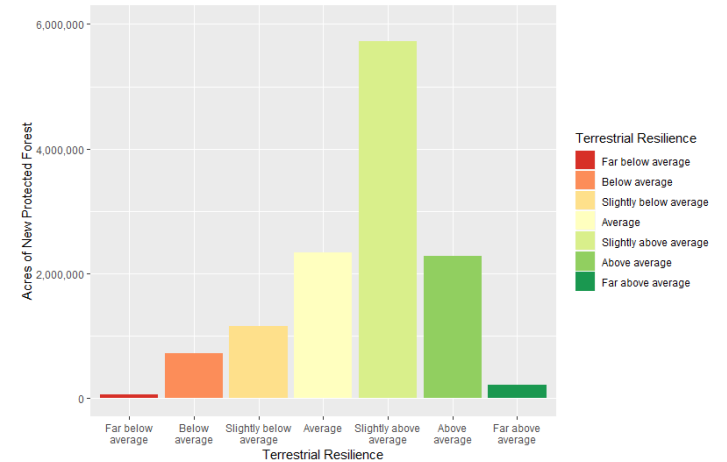
Connected Communities 2060



Connected Communities 2060: Development

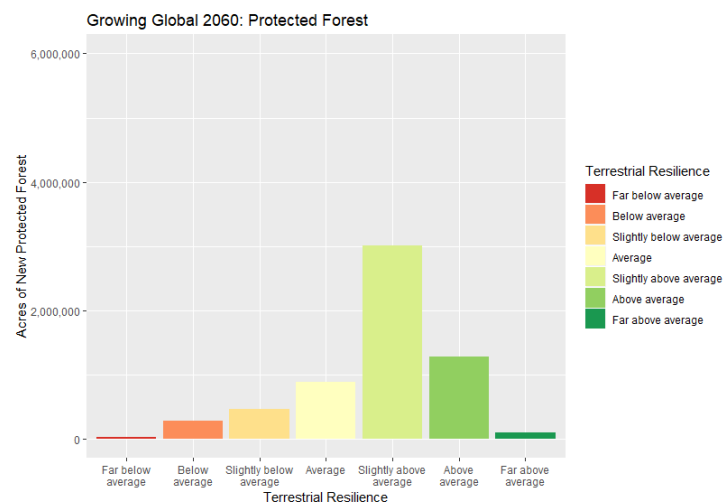
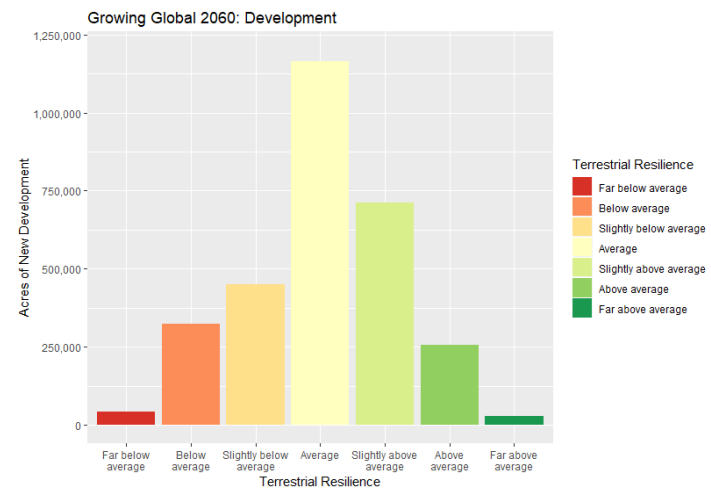
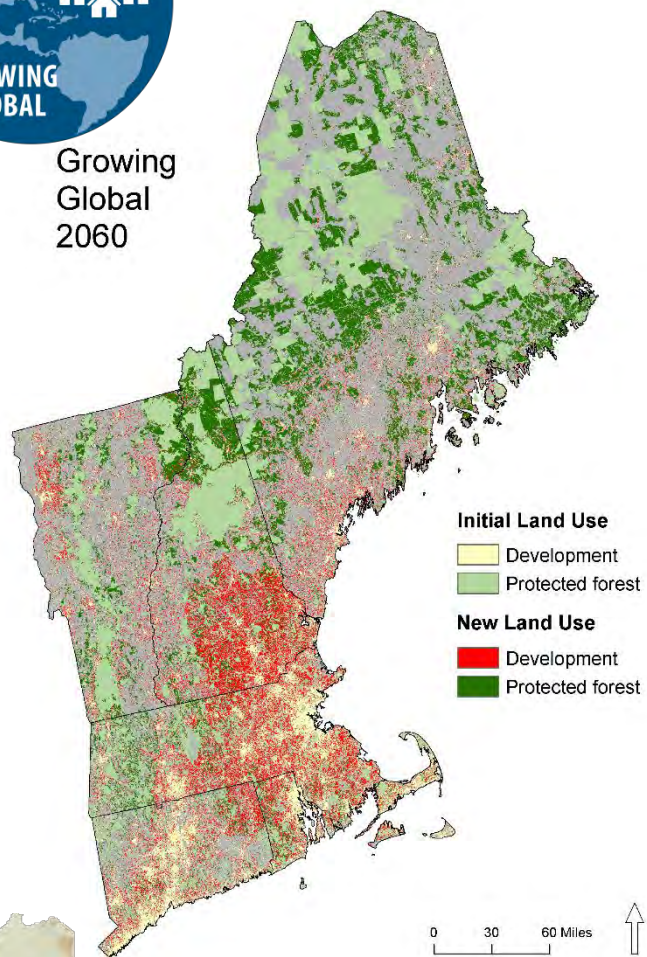


Connected Communities 2060: Protected Forest



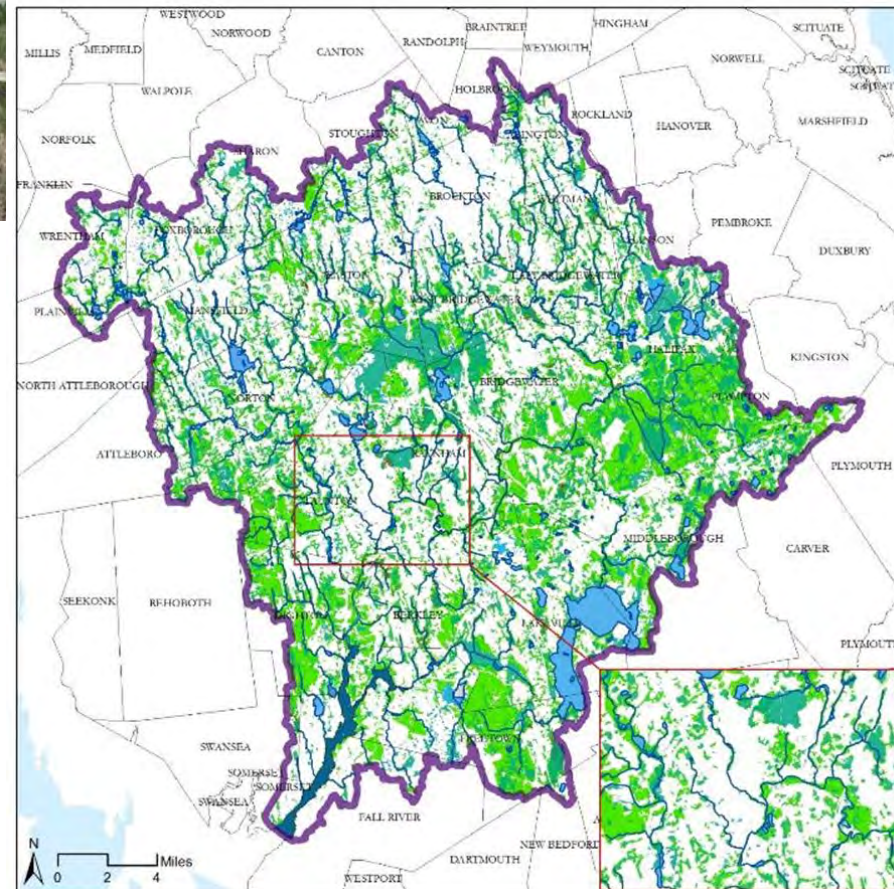


Growing
Global
2060



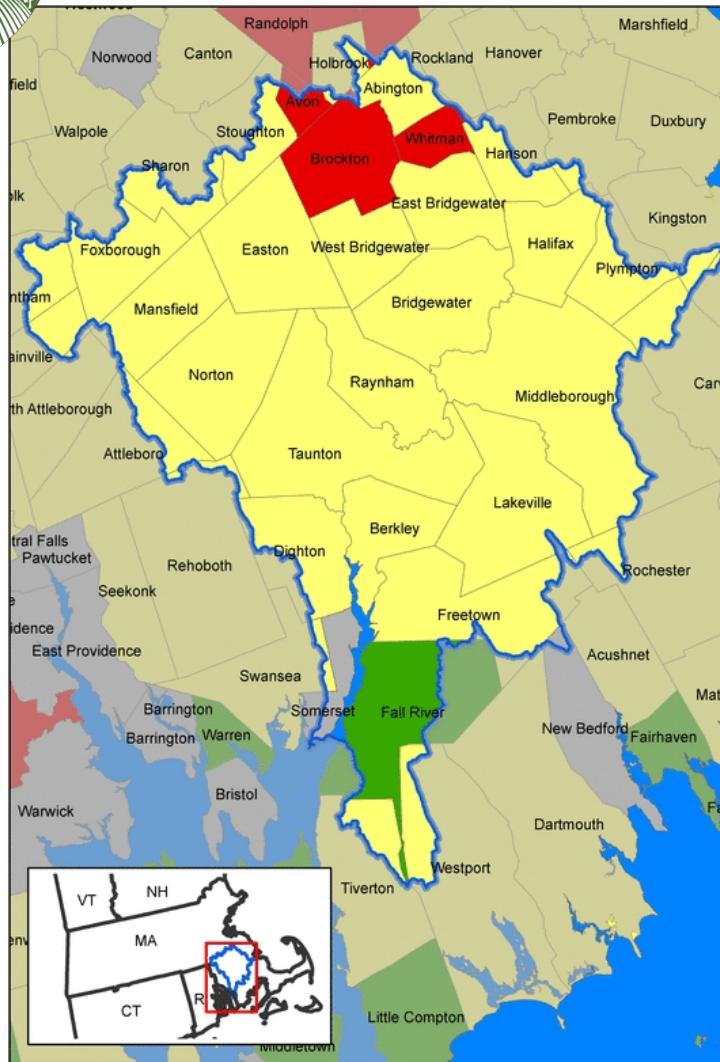


The RTWN was formed in 2014 and is an award-winning collaboration of 19 organizations and agencies who care about the future health and resilience of the Taunton River Watershed and believe that nature-based solutions have economic, social, and ecological benefits.

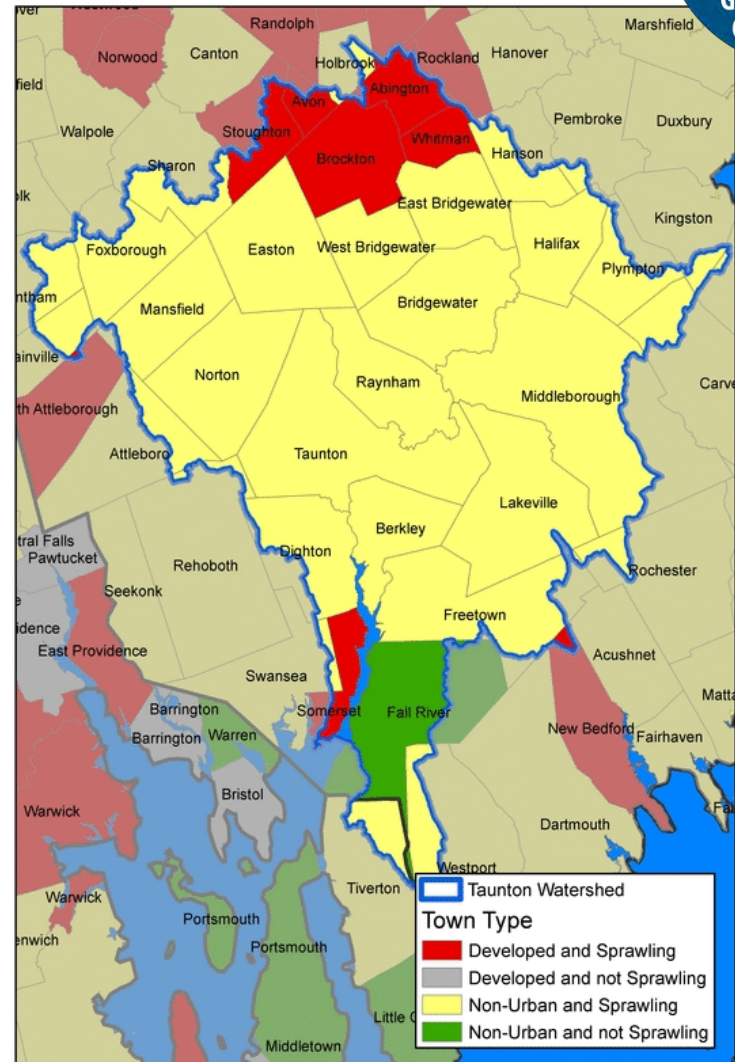




Sprawl in the Taunton Watershed

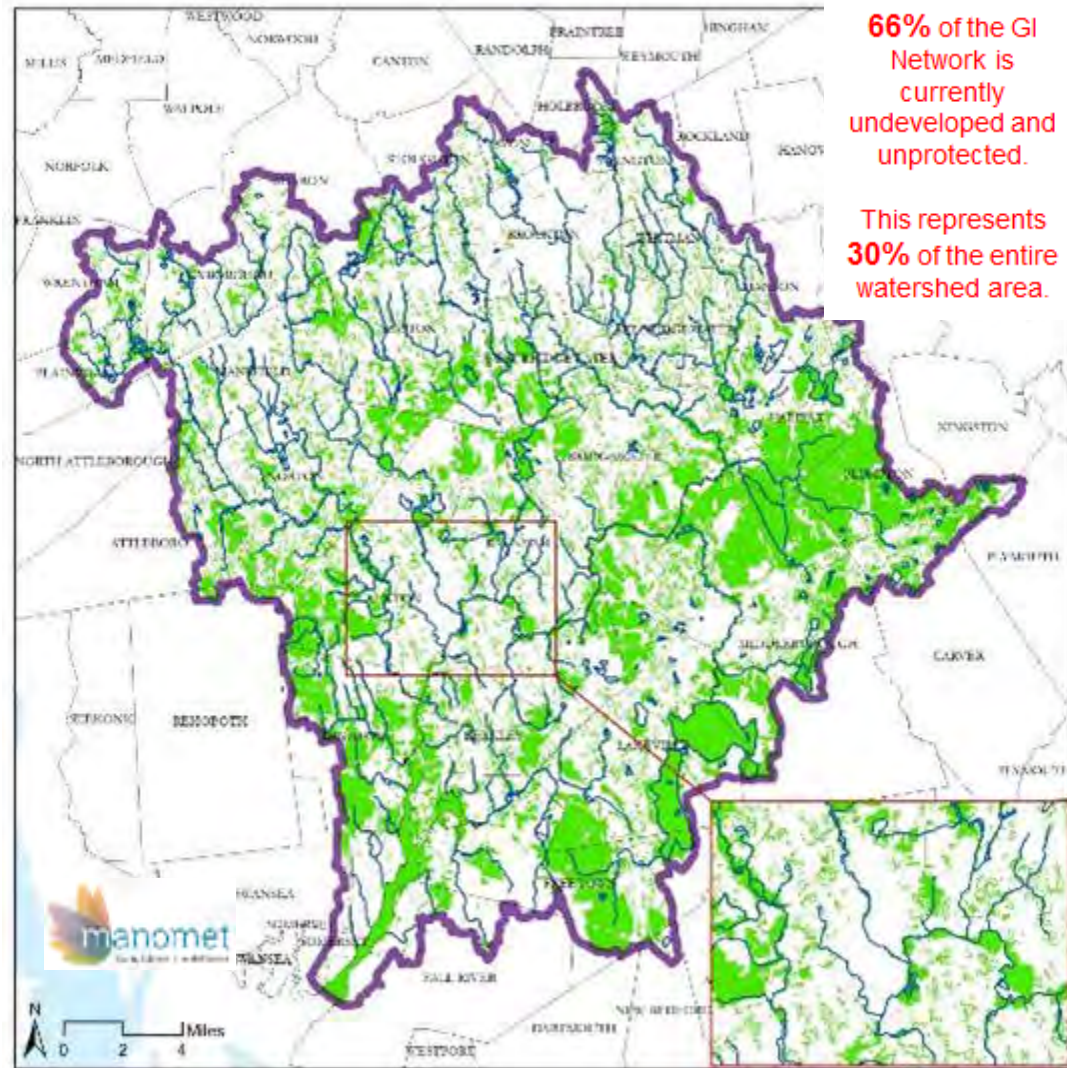


2010-2020
Connected Communities



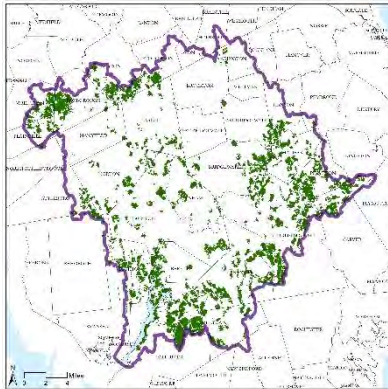
2010-2020
Growing Global

Taunton Watershed Green Infrastructure Map

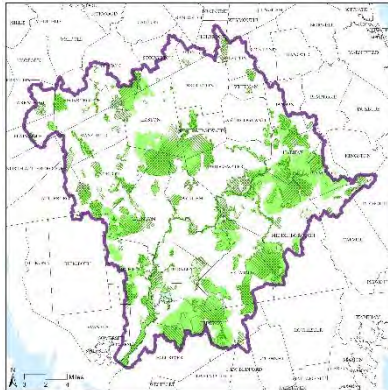


Green Infrastructure Network Components...

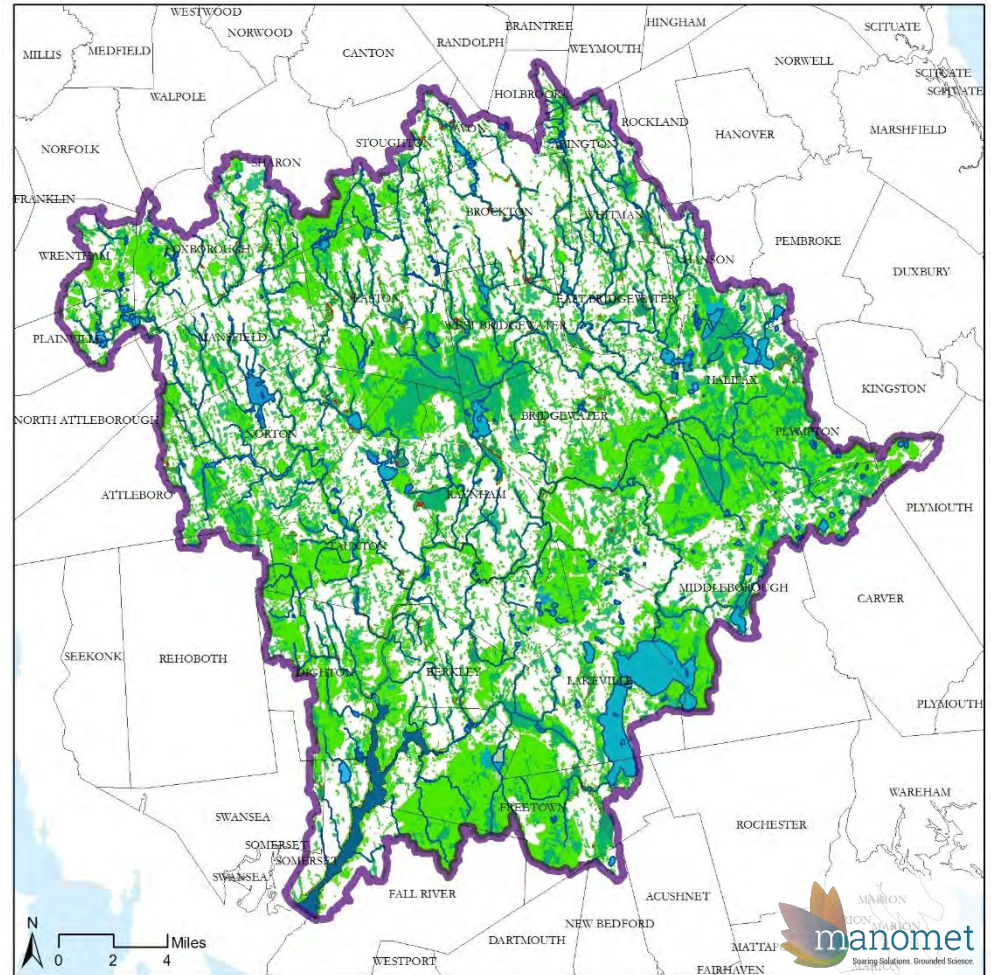
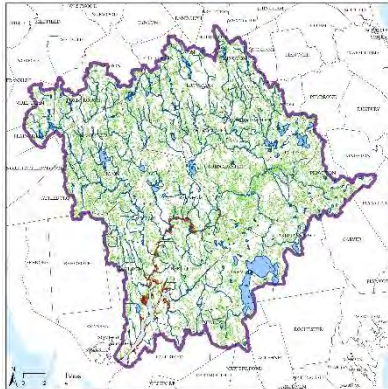
Areas of
Above
Average
Resilience



BioMap2 Core &
Critical Natural
Landscape



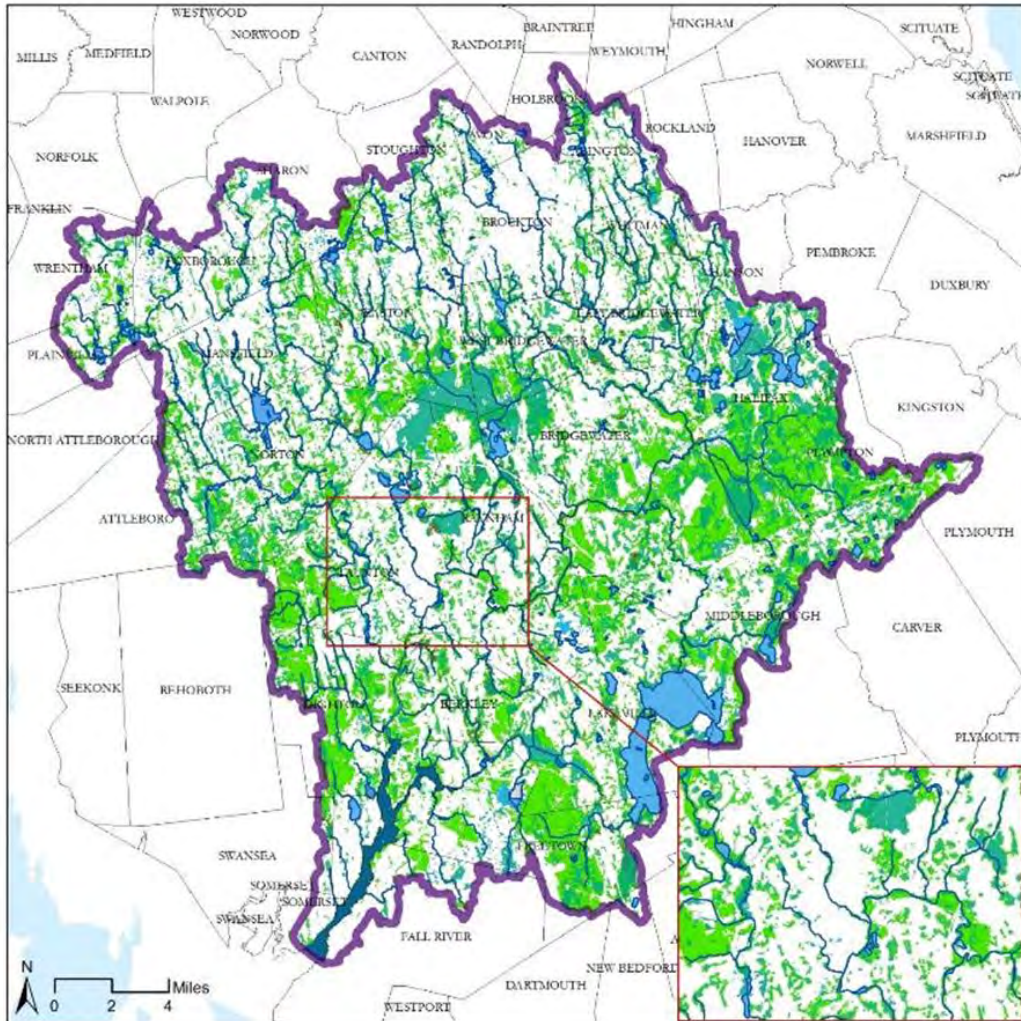
Areas within 100ft
of Surface Waters,
Wetlands, and
Flood Zones; Areas
<= 4m elevation
(vulnerable to sea
level rise)



Legend

Green Infrastructure Network	Town Boundaries	Surface Waters & Wetlands	Estuarine and Marine Deepwater
100-yr and High Risk Coastal Flood Areas	Taunton Watershed Boundary	Freshwater Pond, Lake, or Stream	Estuarine and Marine Wetland
	Major Streams	Freshwater Wetland	Other

What would happen to the Taunton Watershed Green Infrastructure lands under future scenarios?



Catalyzing Transformative Change: *planning together for resilient communities through nature-based solutions*



1. Document and share the RTWN model of collaborative partnerships and metrics beyond the watershed
2. Offer peer-to-peer training opportunities throughout the region
3. Develop case studies on best practices and projects
4. Provide technical assistance to communities by reviewing bylaws and regulations to encourage nature-based solutions
5. Research and summarize potential restoration projects and assist with funding to implement



Peer-to-peer training & sharing best practices between states



Municipal Vulnerability Preparedness (MVP)

State and local partnership to build resiliency to climate change

1. Engage Community

2. Identify CC impacts and hazards

3. Complete assessment of vulnerabilities & strengths

4. Develop and prioritize actions

5. Take Action

Review bylaws and regulations to encourage nature-based solutions

Factors	Conventional	Better	Best	Community's Zoning	Community's Subdivision Rules & Regulations	Community's Site Plan Review	Community's Stormwater/LID Bylaw/Regulations
GOAL 1: PROTECT NATURAL RESOURCES AND OPEN SPACE							
Soils managed for revegetation	Not addressed	Limitations on removal from site, and/or requirements for stabilization and revegetation	Prohibit removal of topsoil from site. Require rototilling and other prep of soils compacted during construction	(Not applicable)			
Limit clearing, lawn size, require retention or planting of native vegetation/naturalized areas	Not addressed or general qualitative statement not tied to other design standards	Encourage minimization of clearing/ grubbing	Require minimization of clearing/grubbing with specific standards				
Require native vegetation and trees	Require or recommend invasives	Not addressed, or mixture of required plantings of native and nonnative	Require at least 75% native plantings				
GOAL 2: PROMOTE EFFICIENT, COMPACT DEVELOPMENT PATTERNS AND INFILL							
Lot size	Required minimum lot sizes	OSRD/NRPZ preferred. Special permit with incentives to utilize	Flexible with OSRD/NRPZ by right, preferred option				



How does the RTWN model work?

(this is our most commonly received question)

- **Step 1:** Get together a great group of people
- **Step 2:** Determine what your region needs most
- **Step 3:** Share the load - Figure out what everyone's good at and has resources
- **Step 4:** Create goals
- **Step 5:** Work together and move the needle!



Thank you!

E. Heidi Ricci

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www.massaudubon.org/shapingthefuture

