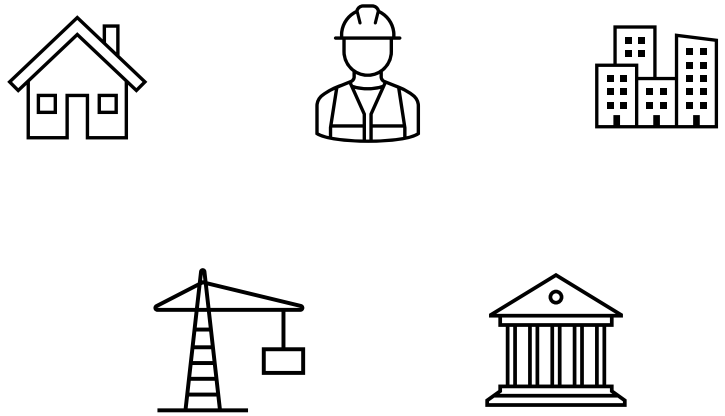
Building Sector Decarbonization



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SRPEDD
Southeastern Regional Planning & Economic Development District

EA Engineering, Science, and Technology, Inc., PBC

UMass Dartmouth

April 30, 2025

10:00am – 12:00pm EST

Agenda

- ✓ Introductions
- ✓ Climate Pollution Reduction Grant (CPRG) Overview
- ✓ Building Sector Relevant Metrics
- ✓ Clean Energy Workforce Planning
- ✓ Demographic Characteristic Considerations
- ✓ Open Discussion
  - ✓ Trends
  - ✓ Measures Presented
  - ✓ Needs from the region
  - ✓ Past experiences with climate policy
- ✓ Next Steps

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Introductions

- Name
- Organization
- Role
- What area or region you typically work in
- Why you attended today

Climate Pollution Reduction Grant (CPRG) Overview

Program Goals:

Through the Inflation Reduction Act of 2022, Congress provided tools to pursue greenhouse gas (GHG) pollution reductions, including the Climate Pollution Reduction Grants (CPRG) program.

In implementing this program, EPA seeks to achieve three broad objectives:

1. Tackle damaging climate pollution while supporting the creation of good jobs and lowering energy costs for families.
2. Accelerate work to address environmental injustice and empower community-driven solutions in overburdened neighborhoods.
3. Deliver cleaner air by reducing harmful air pollution in places where people live, work, play, and go to school.

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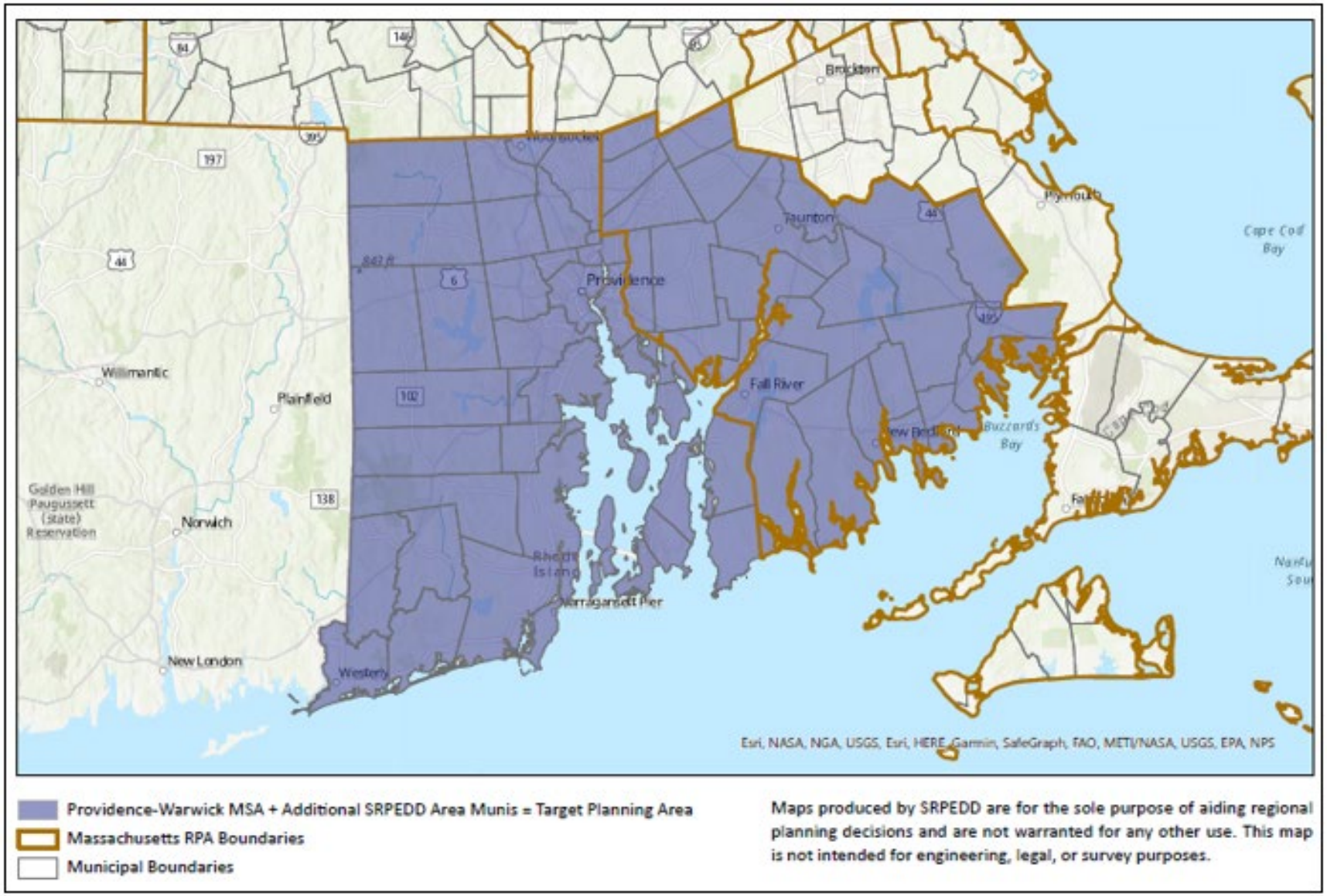
Climate Pollution Reduction Grant (CPRG) Overview

What is an MSA?

Delineated by the Census Bureau, MSAs represent "a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core."

Figure 1: Providence-Warwick MSA CPRG Planning Area



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Climate Pollution Reduction Grant (CPRG) Overview

Comprehensive Climate Action Plan (CCAP) Requirements:

- A GHG inventory
- GHG emission projections
- GHG reduction targets
- Quantified GHG reduction measures
- A benefit analysis for the full geographic scope and population covered by the plan
- A low-income and disadvantaged communities benefits analysis
- A review of authority to implement
- A plan to leverage other federal funding
- A workforce planning analysis

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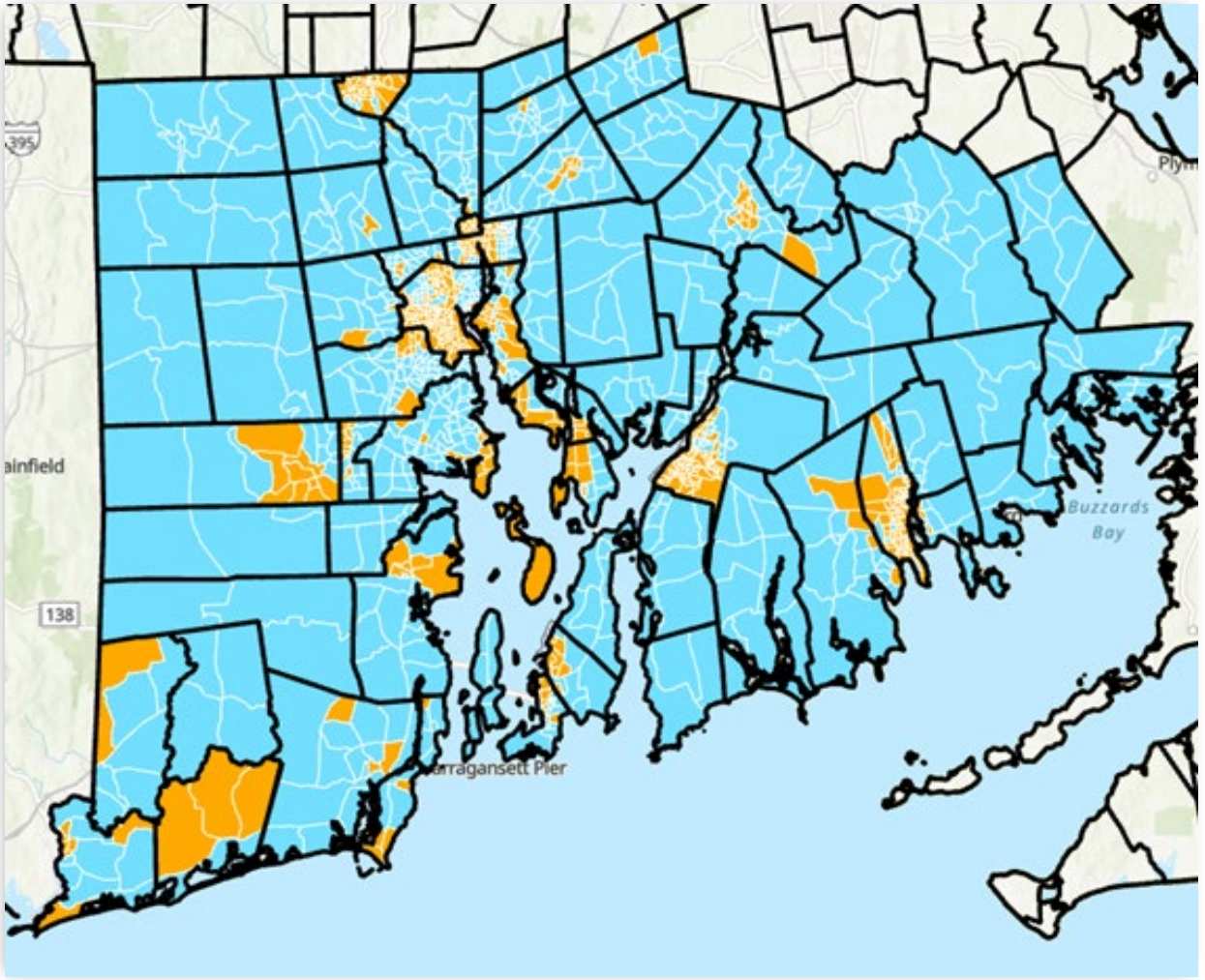
Demographic Characteristics

- This plan will analyze distribution of benefits across demographic groups
- Map of our Low-Income and Disadvantaged Communities
- Want to avoid harming communities that have previously been overlooked
- Barriers to entry for low income and disadvantaged groups; racial wealth gap, stagnating wages/salaries, high demand for affordable housing and low supply in certain communities. Moving towards proposals to build affordable housing and multi-family units.
- Source for tables on the next slide: NLIHC 2025 Gap Report, pg.33



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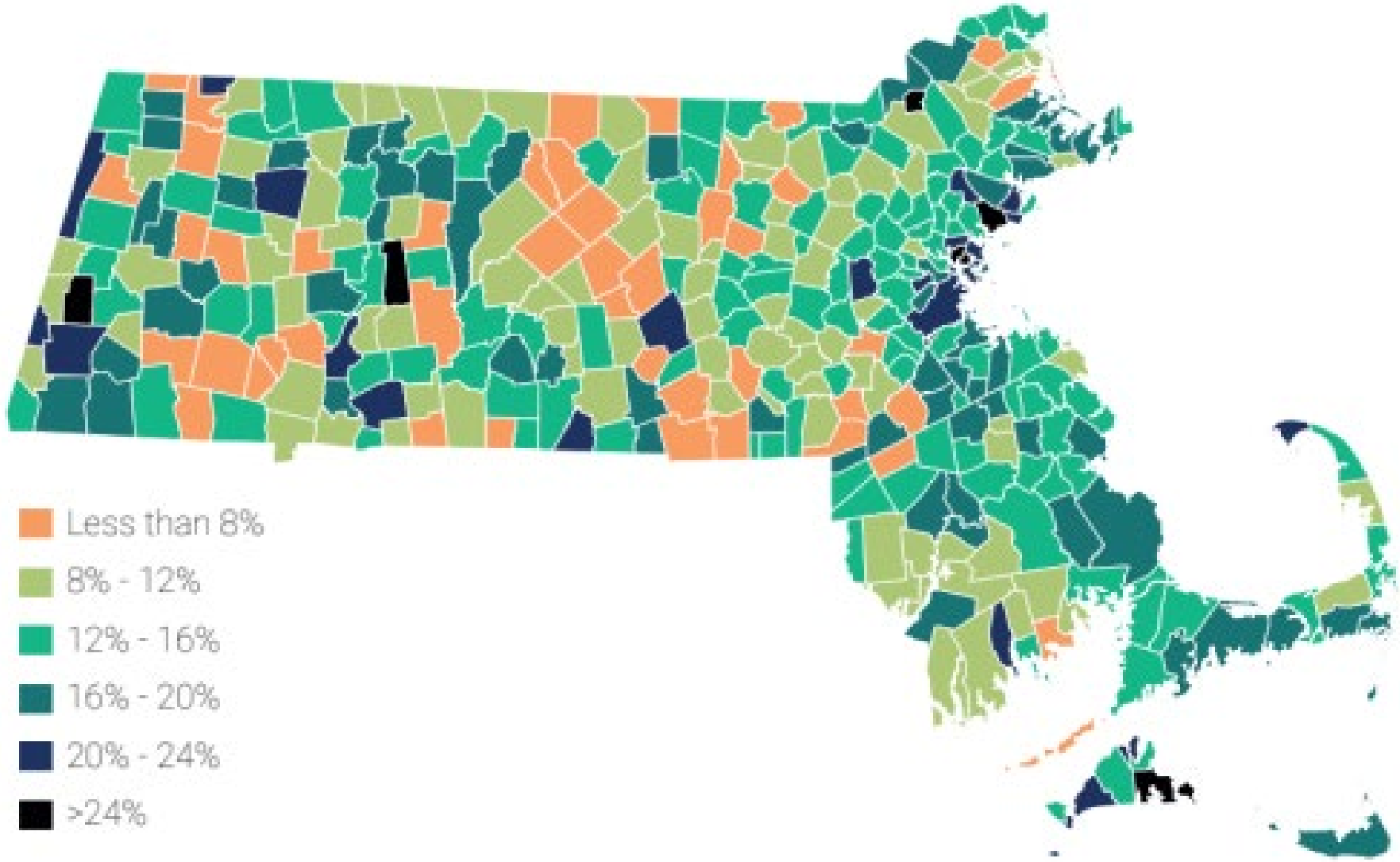
Metropolitan Area	Surplus (Deficit) of Affordable and Available Unit – at or below ELI	Affordable and Available Units per 100 Households at or below Threshold – at or below ELI	% Within Each Income Category with Severe Housing Cost Burden – at or below ELI
Providence-Warwick Area, RI-MA	-45,796	41	66%

Metropolitan Area	Surplus (Deficit) of Affordable and Available Unit – at or below 50% AMI	Affordable and Available Units per 100 Households at or below Threshold – at or below 50% AMI	% Within Each Income Category with Severe Housing Cost Burden: 31 – 50% AMI
Providence-Warwick Area, RI-MA	-43,258	62	29%

Metropolitan Area	Surplus (Deficit) of Affordable and Available Unit – at or below 80% AMI	Affordable and Available Units per 100 Households at or below Threshold – at or below 80% AMI	% Within Each Income Category with Severe Housing Cost Burden: 51 – 80% AMI
Providence-Warwick Area, RI-MA	N/A	94	6%

Metropolitan Area	Surplus (Deficit) of Affordable and Available Unit – at or below 80% AMI	Affordable and Available Units per 100 Households at or below Threshold – at or below 80% AMI	% Within Each Income Category with Severe Housing Cost Burden: 51 – 80% AMI
Providence-Warwick Area, RI-MA	N/A	100	2%

PERCENT OF HOUSEHOLDS PAYING MORE THAN 50% OF INCOME FOR HOUSING, 2018 - 2022



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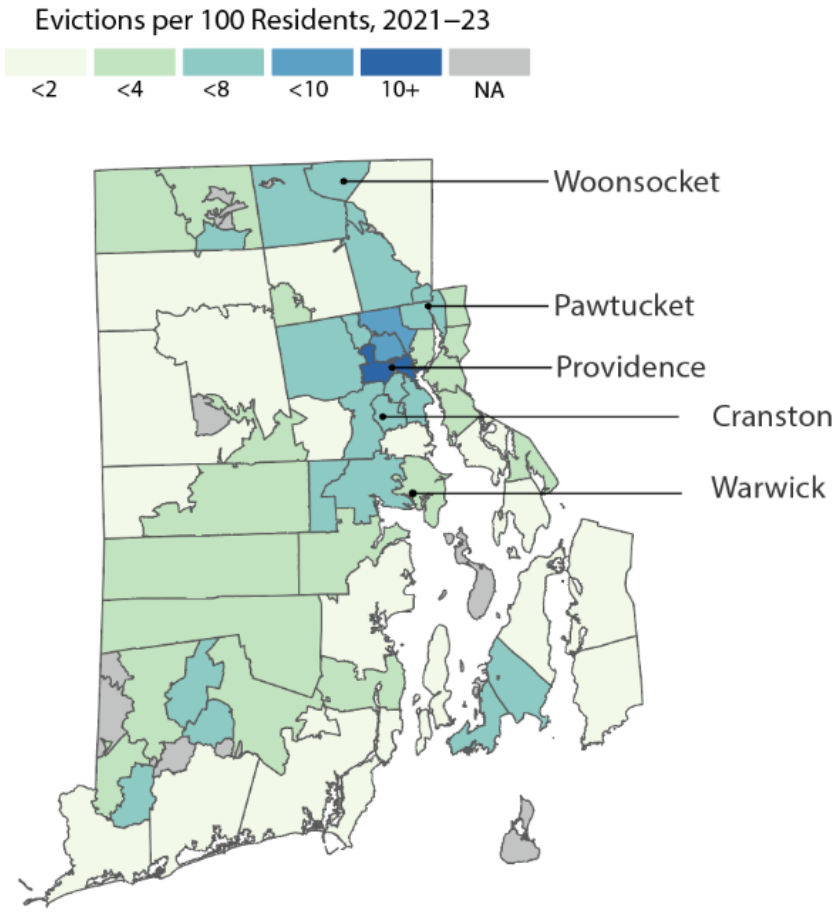
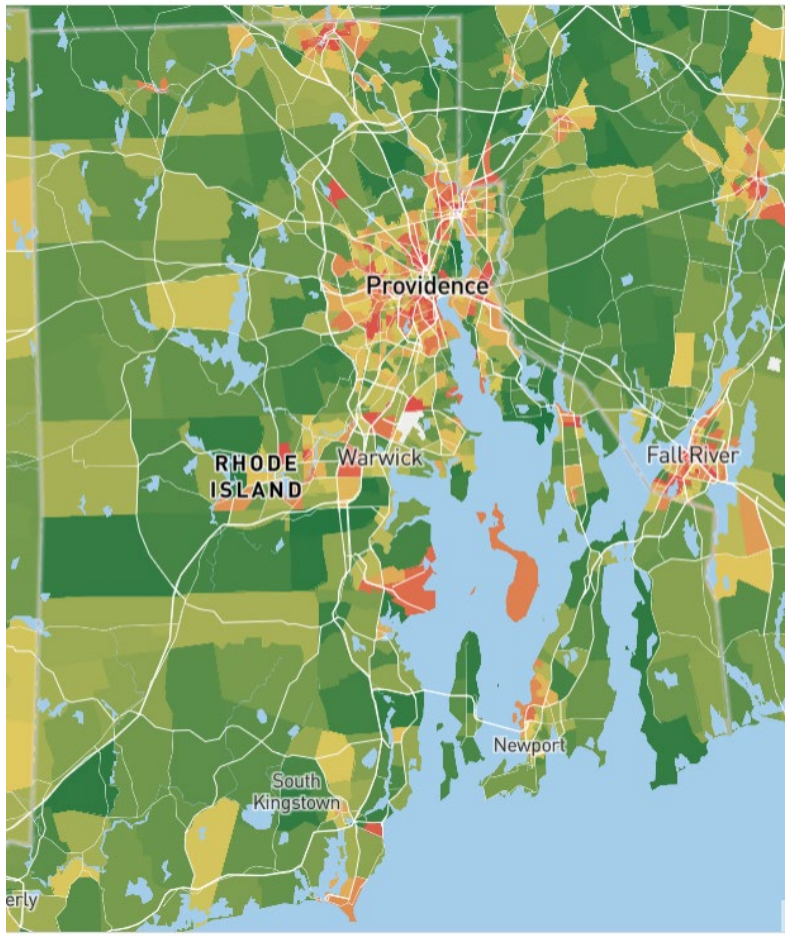
Rhode Island Housing Considerations

Who is Most at Risk in Rhode Island?

Eviction rates vary significantly by zip code, with highest rates affecting the areas surrounding Providence





Household Income Key

High	Average	Low

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Building Stock Age

- Most insulation building codes began after 1980
- Average age of RI buildings are 57 (1972)
- Average age of MA buildings are 58 (1971)

Building Stock	Built 200 or later	Built 1980-1990	Built 1960-1979	Built before 1960
RI	11%	21%	22%	46%

Data from the Rhode Island 2024 Integrated Housing Report
Data from the DOER 2022 Stretch Energy Code Study

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Building Sector Measures

B1. Fund and streamline incentive programs for building decarbonization in design and construction.

Potential Project Examples:

- **Distribute energy-efficient and net-zero building designs**
- **Educate locals about green building certifications (e.g. LEED, Passivhaus)**
- **Promote education and weatherization guidance pertaining to building envelopes: sealing air leaks, smart IoT thermostats, improving insulation, and upgrading components such as doors, windows, and roofing. Preparation for Weatherization (Solar for All)**
- **Specifically reducing heat loss through best practices**

B2. Fund and streamline energy efficiency incentive programs.

Potential Project Examples:

- **Finance low-carbon heating and cooling systems**
- **Fund residential and municipal heat pump conversions and any prerequisite electrical system upgrades, prioritizing low-income and disadvantaged homeowners and renters.**
- **Encourage enrollment in demand response programs**
- **Supplement energy efficiency audit programs to fund all-inclusive home audits that consider safety, efficiency & electrification potential**
- **Create a fund and training series specifically for builders who need help with stretch code compliance; make this application as easy and simple as possible.**

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Building Sector Measures

B3. Promote climate resilient zoning & building code regulations

Potential Project Examples:

- **Only since the 80s have insulation standards have started to emerge**
- **Provide templates and model examples for energy-efficient and net-zero building designs.**
- **Encourage the pursuit of green building certifications (e.g. LEED) through local zoning and building code regulations.**
- **Promote weatherized building envelopes in local zoning and building code regulations.**
- **EX: Required insulation codes within Rhode Island and upgrading the aging building stock with these codes**

B4. Visit with communities about BER bylaws and best practices & fund their tracking/reporting

Potential Project Examples:

- **Develop and implement something similar to MA's Green Communities program and MEI platform in all 39 RI municipalities. So far only some of them, like Providence, have implemented an energy tracking systems. Providence's Office of Sustainability uses the U.S. EPA's ENERGY STAR Portfolio Manager to monitor energy consumption in city facilities and publishes annual municipal energy reports.**

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Building Sector Measures

B5. Fund and incentivize sustainable building materials and carbon-neutral construction practices, locally -- to decarbonize the building supply chain.

- **Restrictions on the Red List from the Living Building Community Project; beyond Hazardous Materials in the building code**
- **Sourcing local distributors of materials and creating inventories for their most sustainable products**

Potential Project Examples:

- **Provide a list of suppliers known to satisfy ESG/sustainability criteria.**
- **Provide a list of suppliers known to NOT satisfy ESG/sustainability criteria.**

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Building Sector Workforce Planning: *Massachusetts*

- **Net-Zero Affordable Housing**
  - Projected to create 320,000 direct jobs
  - Estimated to cost $69 billion
- **Heat Resilience & Green School Upgrades:**
  - Projected to create 14,000 jobs
  - Estimated cost of up to $3 billion
  - Focus on school retrofits, insulation, and HVAC efficiency improvements
- **Thermal Utility Networks**
  - Projected to produce 15,000 jobs
  - Estimated to cost $5.12 billion

Community Workforce Focus:

- Pre-apprenticeships and vocational programs funded through MassCEC and Mass Save prioritize Environmental Communities (Fall River, New Bedford).
- Diman Vocational School and YouthBuild New Bedford provide training for HVAC, solar, and weatherization roles.

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Building Sector Workforce Planning: *Rhode Island*

Net-Zero Affordable Housing

- Projected to create 60,000 jobs
- Estimated to cost $17 billion
  - $12 billion construction and upkeep
  - $5 billion for weatherization

Net-Zero School Retrofits:

- Projected to create around 11,200 over 8 years (1,400 a year)
- Estimate to cost up to $2.45 billion

Clean Heat & Electrification:

- $25 million program launched in 2023
- Prioritizes low and moderate income households for electrification upgrade and energy savings

Community Workforce Focus:

- **Groundwork RI**: Trained 62 adults in 2023 in environmental remediation, green infrastructure, and HVAC
- **RI Builders Assoc. & Partners**: 26-week pre-apprenticeship in carpentry, weatherization, and HVAC
- **Building Futures**: Ongoing pipeline into union jobs; emphasis on underserved youth communities.

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Trends

- Effects from COVID-19: many people are spending more time than ever at home due to WFH policies
- Solar panels on roofs are a common sight in our region
- Heating or cooling one's home has become increasingly expensive in MA and RI
- Most people's salaries/wages have not kept pace with the increased cost of housing

- There is a housing shortage in RI
  - According to the Housing 2030 Plan, RI needs to build 15,000 homes by 2030 to meet demand. (Housing advocates have stated RI needs approximately 35,000 homes over by 2035.)
  - According to NLIHC, the current deficit – for extremely low-income households – is 25,000 homes. In RI, only 47 rental homes are affordable and available for every 100 extremely low-income households.

- There is an even more severe housing shortage in MA
  - According to A Home for Everyone, MA needs to build 222,000 homes by 2035 to meet demand.
  - According to NLIHC, the current deficit – for extremely low-income households – is 183,000 homes. In MA, only 44 rental homes are affordable and available for every 100 extremely low-income households.

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Buildings

Massachusetts and Rhode Island GHG Inventory

Sector	Emissions (MMT CO2e)	% of Gross Emissions	% of Emissions in Respective Sector
Electricity Consumption	2.540	17.11%	
Building Heating	4.945	33.32%	
Residential Heating	3.177	21.41%	64.25%
Commercial and Industrial Heating	1.768	11.91%	35.75%
Transportation	6.189	41.70%	
Highway Vehicles	5.841	39.35%	94.37%
Transit	0.006	0.04%	0.10%
Non-Road Sources	0.343	2.31%	5.53%
Industrial Processes	0.854	5.75%	100.00%
Total Waste	0.314	2.12%	
Municipal Solid Waste	0.143	0.97%	45.67%
Wastewater	0.171	1.15%	54.33%
Natural & Working Lands	-1.413	-	
Gross Emissions	14.843		
Net Emissions	13.431		

Massachusetts Details

Sector	Emissions (MMT CO2e)	% of Sector Emissions
Electricity Consumption	0.810	100.00%
Massachusetts Residential	0.367	45.26%
Massachusetts Commercial	0.444	54.74%

Sector	Emissions (MMT CO2e)	% of Gross Emissions
Building Heating	2.072	100.00%
MA Single Unit Detached FO	0.434	20.95%
MA Single Unit Attached FO	0.021	1.02%
MA Multi-unit FO	0.074	3.58%
MA Residential NG	0.738	35.60%
MA Commercial FO & NG	0.805	38.85%

FO: Fuel Oil; NG: Natural Gas

Massachusetts Community Electricity Aggregation (CEA)
SRPEDD region participation in green electricity opt-in
2020: 0.001%
2023: 3.831%

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Building Sector: Workforce Development Needs

- Where are there gaps in education in the building sector – including architecture, construction, engineering, real estate, affordable housing nonprofits, and housing authorities?
- What kinds of jobs are needed to support green building designs and the transition to building decarbonization?
- What experience is helpful for professionals who work in this sector?

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Open Discussion

1. What are the priorities in your field of work for building sector decarbonization?
2. What climate-minded programs are effective? Which ones are missing the mark?
3. What needs are you experiencing regionally?
4. Are there new innovations you would hope to integrate that you have not been able to yet?
5. What programs have you integrated into Low Income and Disadvantaged Communities that have worked or not worked?

B1. Fund and streamline incentive programs for building decarbonization in design.	B2. Fund and streamline energy efficiency incentive programs (for systems).
B3. Promote climate resilient zoning & building code regulations	B4. Visit with communities about BER bylaws and best practices & fund their
B5. Fund and incentivize sustainable building materials and carbon-neutral construction practices, locally -- to decarbonize the building supply chain.	

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Key Resources To Further Your Knowledge

- MA Housing Plan + Statewide Housing Needs Assessment
- RI Housing Plan
- NLIHC 2025 Gap Report
- NLIHC 2025 Massachusetts Housing Profile
- NLIHC 2025 Rhode Island Housing Profile

Next Steps

If your work relates to the building sector:

https://www.surveymonkey.com/r/sectorcprgpvd

If you are a municipal official:
https://www.surveymonkey.com/r/JBF6FXF

If you are a member of the public:
https://www.surveymonkey.com/r/KXSM7BN

If you have other thoughts or concerns, please feel free to email amatthews@srpedd.org

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Thank you!

Please visit the project page at: srpedd.org/CPRG/

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