Commonwealth of Massachusetts

Executive Office of
Energy and Environmental Affairs

Electric Vehicle Infrastructure Coordinating Council

Public Hearing

Acknowledgement and Resources

The State recognizes that there is significant uncertainty at the moment and that issues other than electric vehicle (EV) charging may be front of mind for people

This council is tasked with exploring ways that the state can improve the network of electric vehicle charging infrastructure; thus, this public hearing will focus on that topic

We recommend the following resources for questions and concerns related to recent federal actions:

- Impacted federal workers, including impacted veterans, are encouraged to visit this website for additional resources: https://www.mass.gov/federal-workers
- Resources for immigrants in Massachusetts can be found here: https://www.mass.gov/info-details/resources-for-immigrants-in-Massachusetts

Agenda

Review of Existing State EV Programs

- Presentation
- Feedback Activity

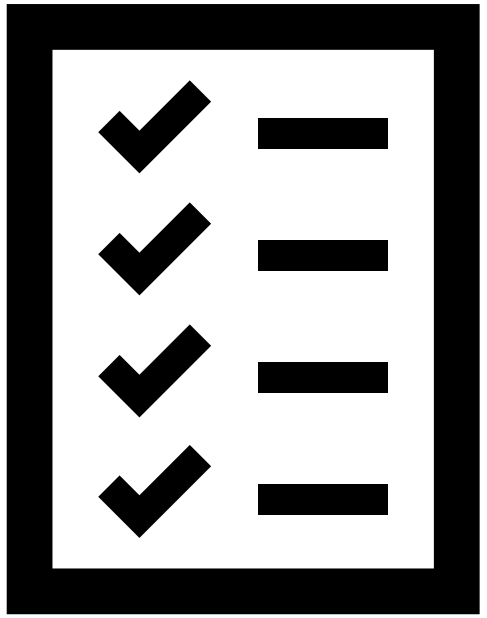
Early Technical Analysis Results

- Presentation
- Feedback Activity

Review of Second Assessment Outline

- Presentation
- Feedback Activity

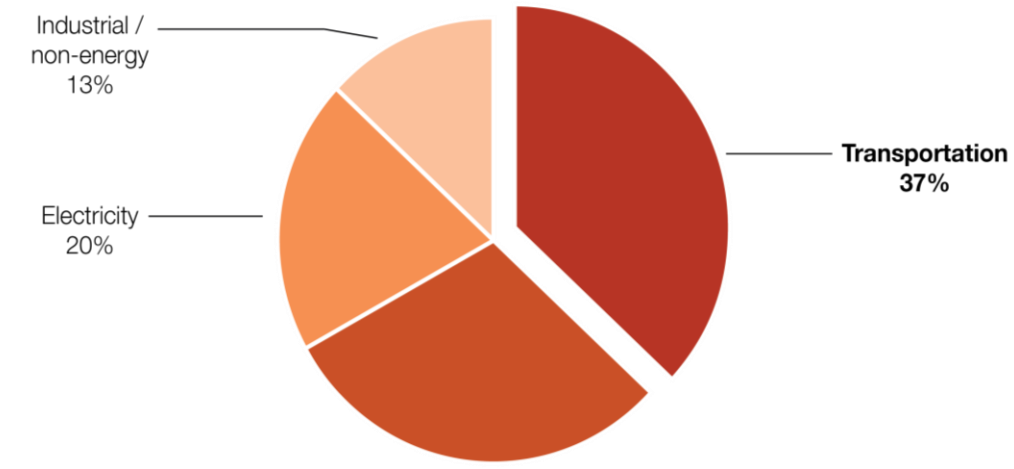
Public Comment



Statewide Transportation Emissions

- Reducing greenhouse gas emissions improves local health and mitigates climate change
- The Commonwealth is required to reduce statewide emissions to net zero by 2050 (Chapter 21N of the General Laws)
- The Clean Energy and Climate Plans (CECP) for 2025/2030 and 2050 Plans lay out a strategy to achieve required emissions reductions from the transportation sector
- To achieve the 2025 transportation sector emissions sublimit, the Commonwealth set a goal of 200,000 EVs on the road and 15,000 public and workplace charging stations in 2025
- To achieve the 2030 transportation sublimit, the Commonwealth set a goal of 900,000 EVs on the road in 2030

Figure. — Sources of greenhouse gas emissions across Massachusetts (2020 data)



Source: Commonwealth of Massachusetts, Clean Energy and Climate Plan for 2025 and 2030, June 30, 2022

Background

- Electric Vehicle Infrastructure Coordinating Council (EVICC)
  - Established by the Legislature in August 2022
  - Tasked with developing strategies to enable an equitable, interconnected, accessible, and reliable EV charging network in Massachusetts
  - Strategies developed and provided to the Legislature as part of a formal assessment (Assessment) every two years
- The First Assessment was filed on August 11, 2023
- The Second Assessment is due on August 11, 2025

EVICC Members

Member	Agency / organization
Chair: Assistant Secretary Josh Ryor	Executive Office of Energy and Environmental Affairs
Senator Mike Barrett	Chair, Joint Committee on Telecommunications, Energy, and Utilities
Representative Mark Cusack	Chair, Joint Committee on Telecommunications, Energy, and Utilities
Commissioner Dave Rodrigues	Division of Standards
Aurora Edington	Department of Energy Resources
Hank Webster	Department of Environmental Protection
Katherine Eshel	Massachusetts Bay Transportation Authority
Rachel Ackerman	Massachusetts Clean Energy Center
Commissioner Staci Rubin	Department of Public Utilities
Chris Aiello	Department of Transportation
Mark Fine	Executive Office of Administration and Finance
Eric Bourassa	Metropolitan Area Planning Council
TBD	Executive Office of Economic Development

State Electric Vehicle Programs + Initiatives

NEVI: What is it?

- NEVI is short for the National Electric Vehicle Infrastructure Formula Program
- It was established by the Bipartisan Infrastructure Law (BIL) which was signed by President Biden on November 14, 2021
- NEVI provides funding to states to build electric vehicle (EV) charging infrastructure
  - Stations every 50 miles (or less) on Alternative Fuel Corridors (AFCs)
  - There also must a station be within 25 miles of a state border.
  - Stations within 1 mile of the AFC
  - Capable of charging at least 4 EVs at 150kW simultaneously
  - Reliable: 97% uptime

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NEVI: Where in the process are we?

1

NEVI Plan Developed, Submitted, Approved

2

Secure EV Charging Station Developers and Enter Agreements

3

Identify Sites, Design, and Permitting

4

Construction

5

Operations and Maintenance

WE ARE HERE

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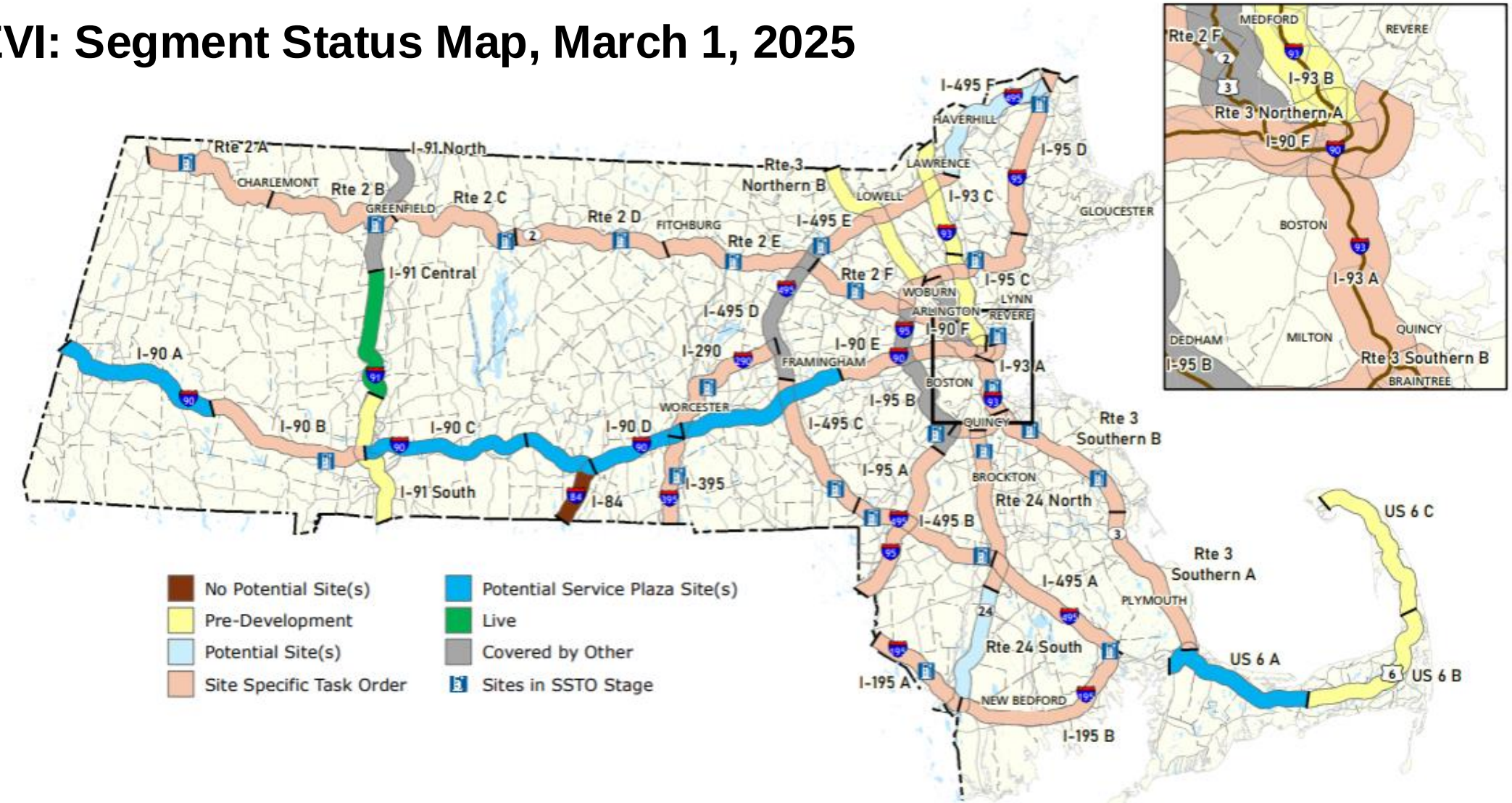
NEVI: Segment Status Map, March 1, 2025



Source: MassGIS, MassDOT, USDOT HEPGIS

March 2025

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MassDOT Service Plazas: Current EV Charging

Mass Pike:

- Framingham (W) - 2 Ports Autel
- Natick (E) - 2 Ports Autel
- Charlton (W) - 2 Ports Autel, 8 Ports Tesla
- Charlton (E) - 2 Ports Autel, 8 Ports Tesla
- Lee (W) - 2 Ports Autel
- Lee (E) - 2 Ports Autel

Off-Pike:

- Barnstable - 2 Ports ChargePoint
- Lexington - 2 Ports Chargepoint, 8 Ports Tesla
- Newton- 2 Ports ChargePoint, 8 Ports Tesla
- Bridgewater (W) - 2 Ports ChargePoint
- Bridgewater (E) - 2 Ports ChargePoint

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MassDOT Service Plazas: Future EV Charging

- MassDOT launched procurement process for new Service Plaza operators in September of 2024, with selection expected Spring 2025
- The procurement documents include EV charging requirements that seek a robust and continuous EVSE buildout by the next service plaza operator(s).
- The current documents include the following provisions:*
  - By January 1, 2027, four EV charging stations for medium- and heavy-duty vehicles along I-90
  - By January 1, 2028, all Service Plazas will have at least four direct-current, fast chargers (DCFCs)
  - By January 1, 2035, sufficing charging stations to ensure no queue during non-holidays
- MassDOT will be making some interim EVSE upgrades in 2025

*Current provisions are subject to modification in the final service plaza operator agreements and are dependent on sufficient electric grid capacity

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Massachusetts Electric Vehicle Incentive Program (MassEVIP)

Workplace & Fleet Charging (WPF)

- Provides incentives for employers and fleet operators to acquire level 2 EV charging stations
- Workplaces must have 15+ employees on-site and fleet vehicles must be garaged in MA
- Rolling program, up to $50,000 per address or 60% of eligible costs

Multi-Unit Dwelling & Educational Campus Charging (MUDC)

- Provides incentives for owners of multi-unit dwellings to acquire level 2 EV charging stations
- Open to multi-unit dwellings with 5+ units or campuses with 15+ students on-site
- Rolling program, up to $50,000 per address or 60% of eligible costs
- Charging stations must be accessible to all students/staff/residents

Public Access Charging (PAC)

- Helps property owners and managers with publicly accessible parking acquire level 2 EV charging stations
- Rolling program, up to $50,000 per address or 80% of eligible costs (up to 100% of eligible costs for government property)
- Charging stations must be accessible to the public, minimum 12 hrs/day, 7 days/week

Fleets

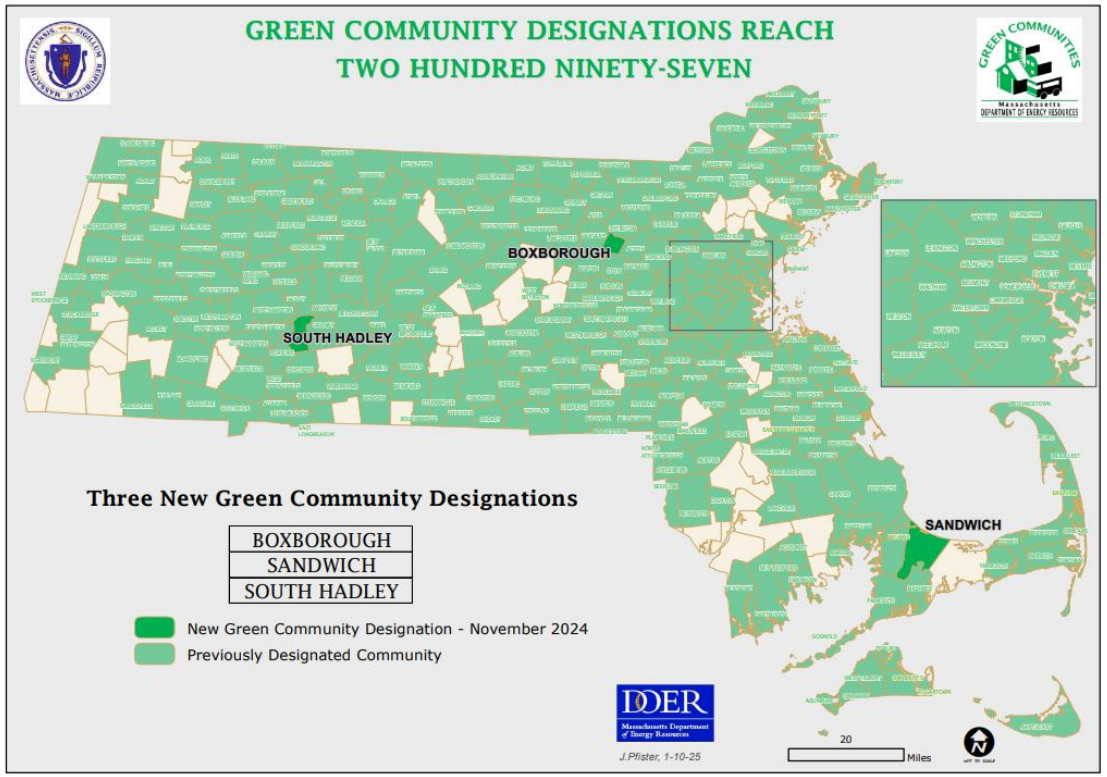
- Helps Massachusetts cities, towns, state agencies, and public colleges and universities acquire EVs for their fleets
- Rolling program, all-electric and plug-in hybrid vehicles up to 10,000 lbs
- Government fleets only

Email questions to massevip.massdep@mass.gov

Department of Energy Resources (DOER) Grants

- **Green Communities EV Charging Grants for Municipalities**
  - Installation of publicly accessible and/or fleet EV charging station
  - Maximum of $7,500 per charging station
  - Nearly $1.2 million provided by Green Communities for municipally owned charging stations since 2013

- **Leading By Example Fleet EVSE Deployment Grants for State Entities**
  - Provides grants to state entities to purchase fleet charging equipment, electrical upgrades/infrastructure, prewiring of additional parking spaces, and more



Utility Programs

- **Eversource**, **National Grid**, and **Unitil** provide incentives for EV charging, including make-ready infrastructure and both level 2 and DCFC, under the following categories:
  - Residential;
  - Public and workplace;
  - Multi-unit dwelling; and
  - Fleet customers.

- Eversource, National Grid and Unitil are collectively approved to spend nearly $400 million over 4 to 5 years.

- Some of Massachusetts' 41 publicly owned **Municipal Light Plants (MLPs)** also offer EV charging incentives.

- Eversource, National Grid and Unitil submit annual reports to the Department of Public Utilities (DPU) and currently have changes to their EV programs and funding amounts under review (D.P.U. 24-195, 24-196, 24-197).

- Some categories of funding have reached capacity. Reach out to your utility for more information.
  - Eversource – Commercial; Eversource – Residential
  - National Grid – Commercial; National Grid – Residential
  - Unitil
  - MLPs served by Energy New England and/or MMWEC

Massachusetts Offers Rebates for Electric Vehicles (MOR-EV)

Program Parameters	MOR-EV Cars	MOR-EV Pickup Trucks and Class 2b Vehicles	MOR-EV Class 3-8 Vehicles
Applicant Eligibility	• MA resident, or business/ non-profit in MA	• Same as cars but includes educational, local, tribal, municipal, and state government entities in MA	• Same as cars but includes educational, local, tribal, municipal, and state government entities in MA
Vehicle Eligibility	• Total MSRP of $55k or less	• Pickups must be between 6,000 and 10,000lbs • Any other body type must be between 8,501 and 10,000lbs • Total MSRP of $80k or less	• Must have a weight greater than 10,000lbs • Maximum MSRP ranges based on category
Rebate Structure	• Point-of-sale or post purchase	• Post purchase	• Two step voucher reservation process
Rebate Offerings	• Standard New: $3,500 • Used*: $3,500 • MOR-EV+ Adder*: $1,500 • Trade-In Rebate: $1,000	• Pickup/Class 2b rebate: $7,500 • MOR-EV+ Adder*: $1,500	• Class 3-8 rebates: range from $15,000 to $90,000 • Environmental Justice Adder: additional 10% of rebate value

*Income Eligible Offerings

Massachusetts Clean Energy Center (MassCEC) Programs

Mass Fleet Advisor Program

- Provides free technical advisory service to:
  - Private Fleets
  - Non-profit fleets
  - Public fleets within MLPs
- Services include, but are not limited to: in-person site assessment for EV charging stations, solar and/or battery storage; total cost of ownership analysis; procurement support
- For more information, go to Massfleetadvisor.org; Sign up for the Program here
- Eversource, National Grid and Unitil have similar program for public fleets in their territories

Innovative EV Charging Programming

- MassCEC was awarded $38 million by EVICC to run 4 innovative programs:
  - On-street charging solutions
  - Vehicles-for-Hire charging solutions
  - Medium- and Heavy-Duty mobile charging
  - Vehicle-to-Everything demonstrations
- For more information, visit here

EV Consumer Webpages Program at MassCEC

EV Webpage Scopes Covered

- Scope 1: Residential Consumer - LIVE

Launching soon:

- Scope 2: Commercial and Private Entities
- Scope 3: Vehicle Dealers
- Scope 4: Municipal Light Plant Residents
- Scope 5: Customer Support for Residential Consumers

EV Webpage Content Covered

- The webpages will provide information, tools, and resources on the following topics:
  - EV models, operation, and availability
  - EV charging installation and operation
  - State and federal EV and EVSE incentives, rebates, and tax credits
- Webpages will be translated into Spanish, Mandarin, Cantonese, Portuguese, and Haitian Creole
- Resources will include:
  - Frequently Asked Questions, Public EV Charging Map, Customer Testimonials, Informational Videos, Vehicle Finder Tool, and MOR-EV Participating Dealerships

Public Feedback

Early Technical Analysis Results

EV Charger Deployment Overview

- Evaluation of the type and location of EV chargers needed to meet state's goals through 2035
  - Focus on multi-family dwellings with on-street parking, EJ communities, and medium duty/heavy-duty EVs
  - Compare the pace of EV charger deployment since last assessment to state's goals

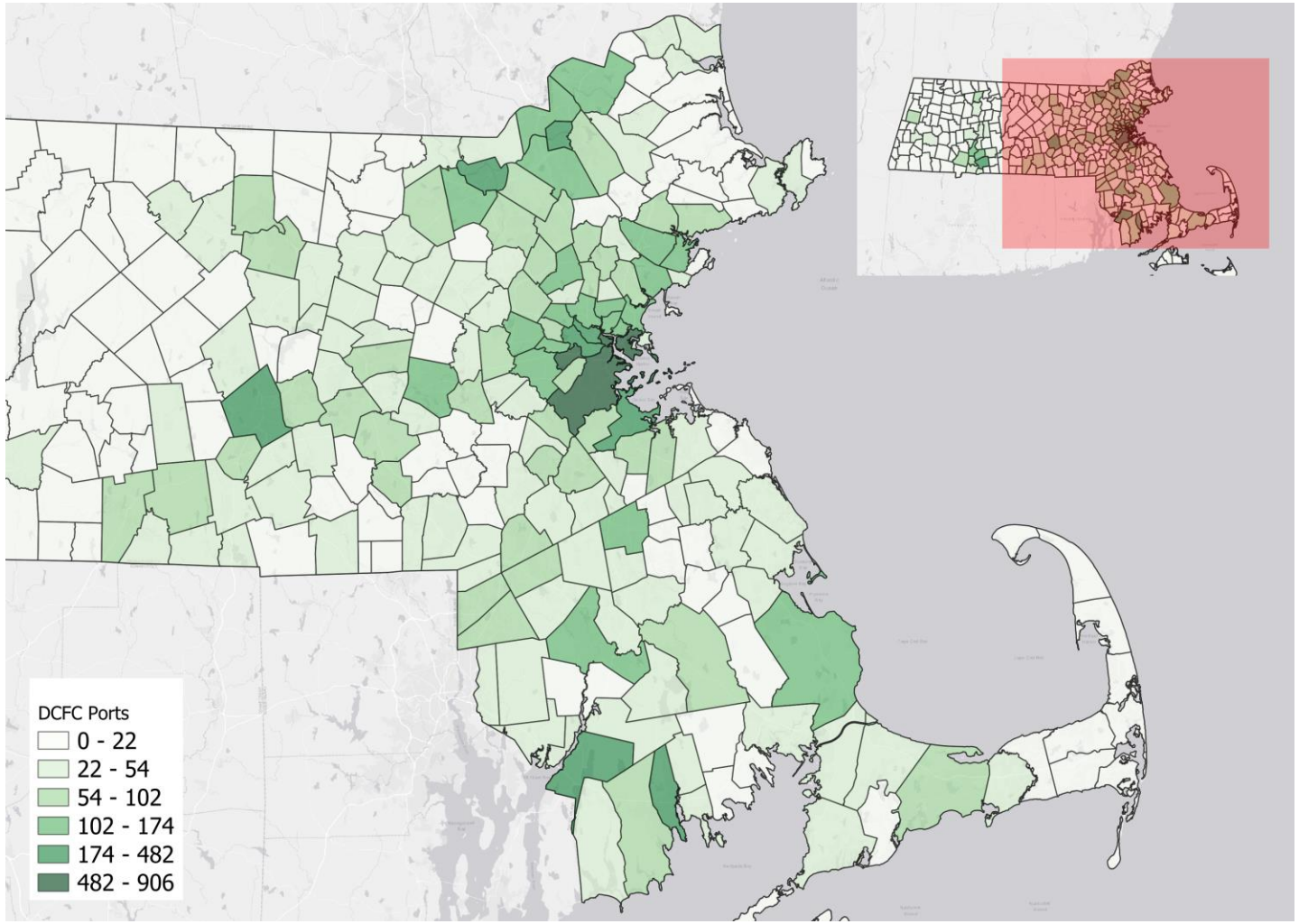
- Location and type of EV charger needs are informed by:
  - Projected traffic patterns and volumes
  - Demographic data (population, employment, etc.)
  - Vehicle sales and electrification forecasts
  - Housing characteristics (single-family homes vs. multi-family homes with on-street parking)
  - Existing chargers and EV registrations
  - Locations of food amenities, stores, and restrooms for public chargers
  - Trucking depots and rest stops

- Additional information on the methodology is include in the Appendix

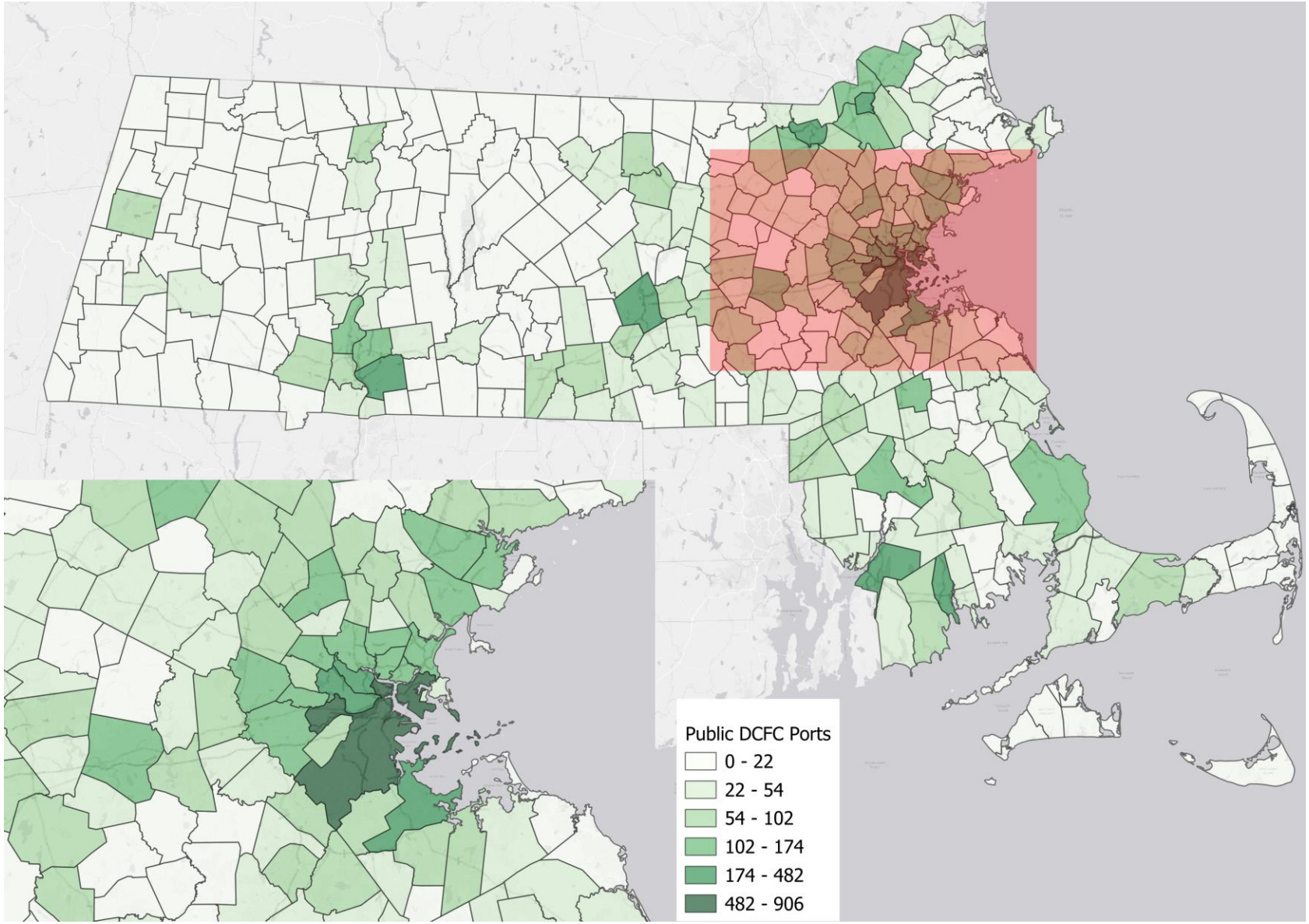
- The following slides show **preliminary results**

Synapse
Energy Economics, Inc.

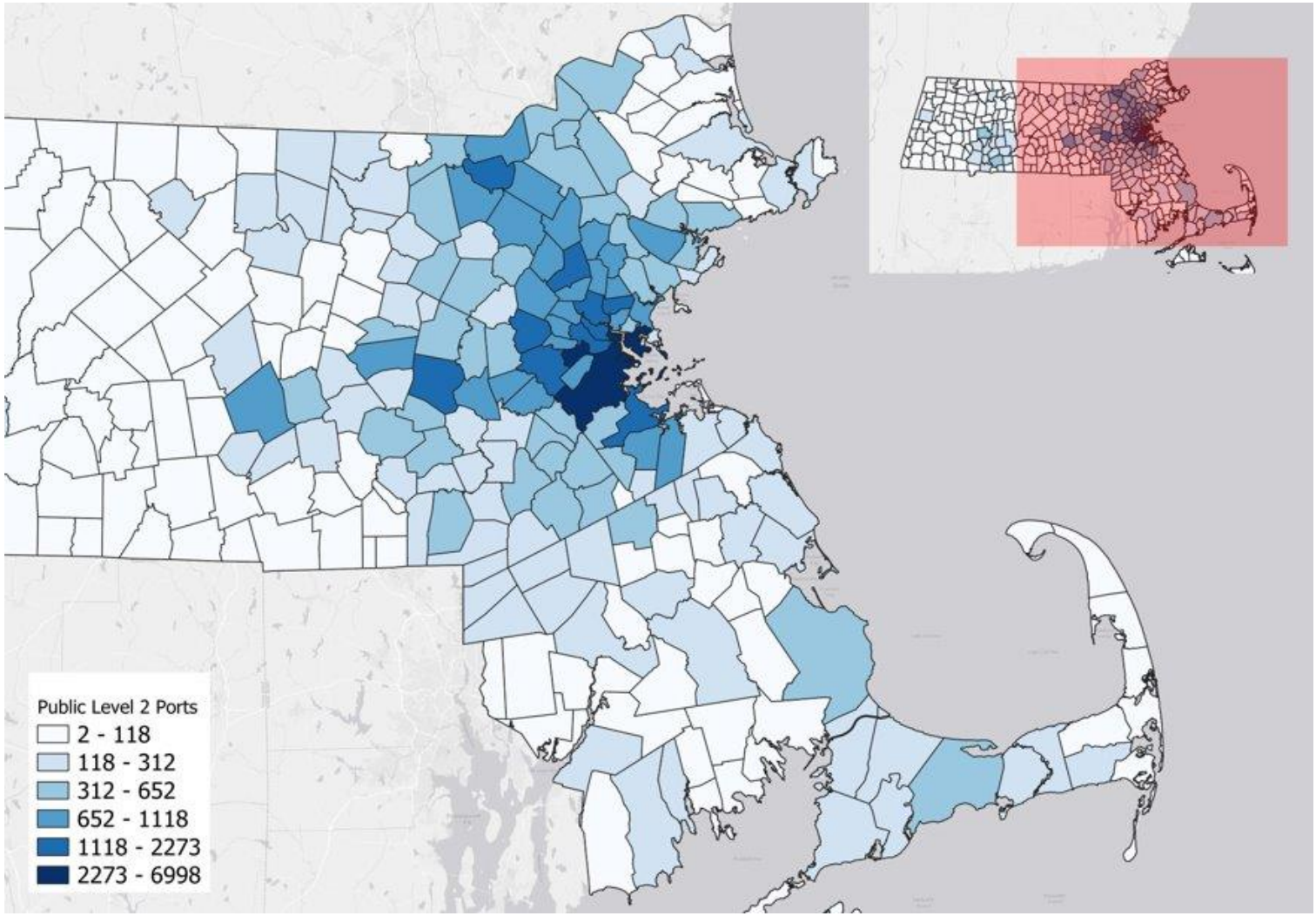
Public DCFC Projections 2035 (Regional)



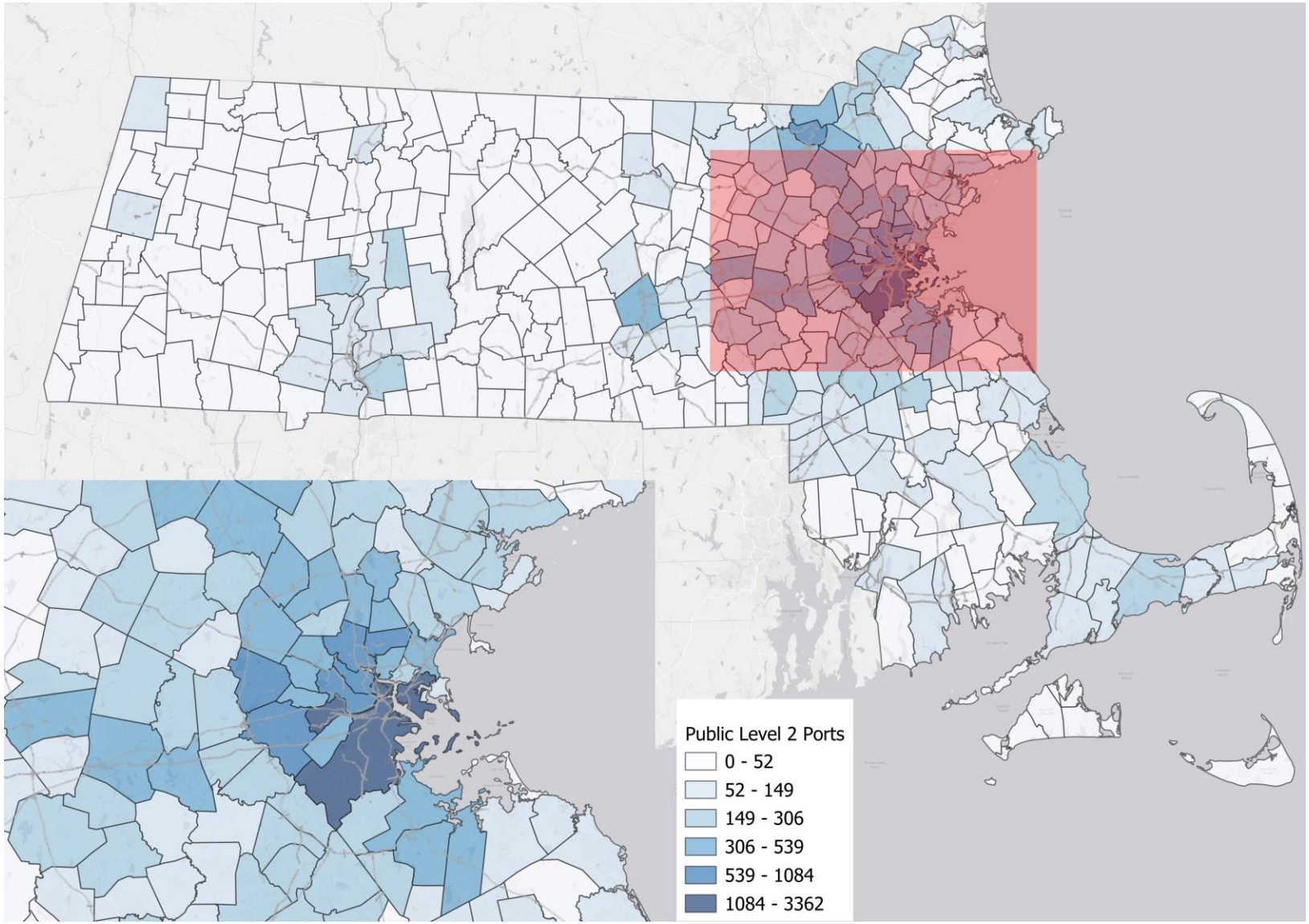
Public DCFC Projections 2035 (Statewide)



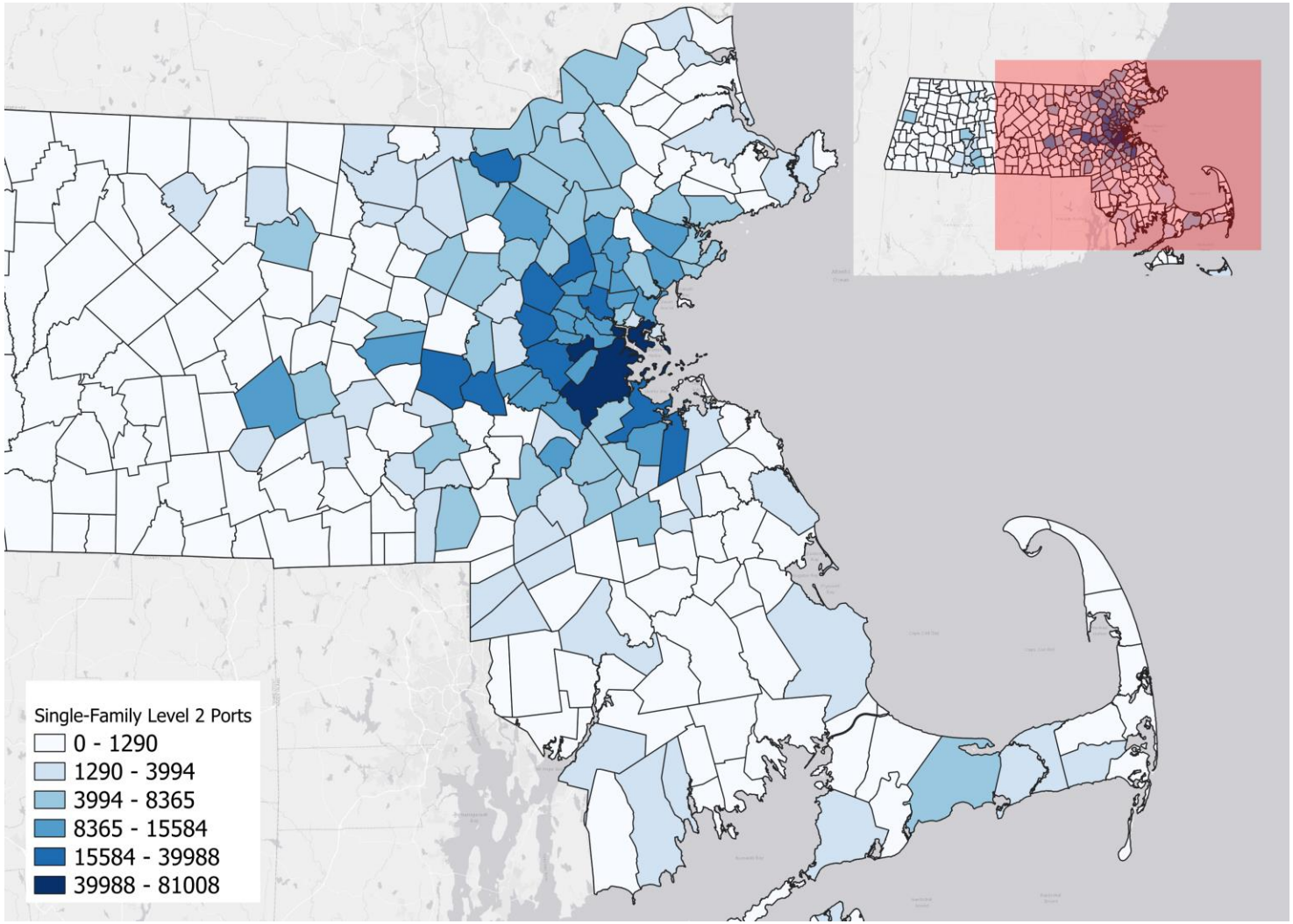
Public Level 2 Projections 2035 (Regional)



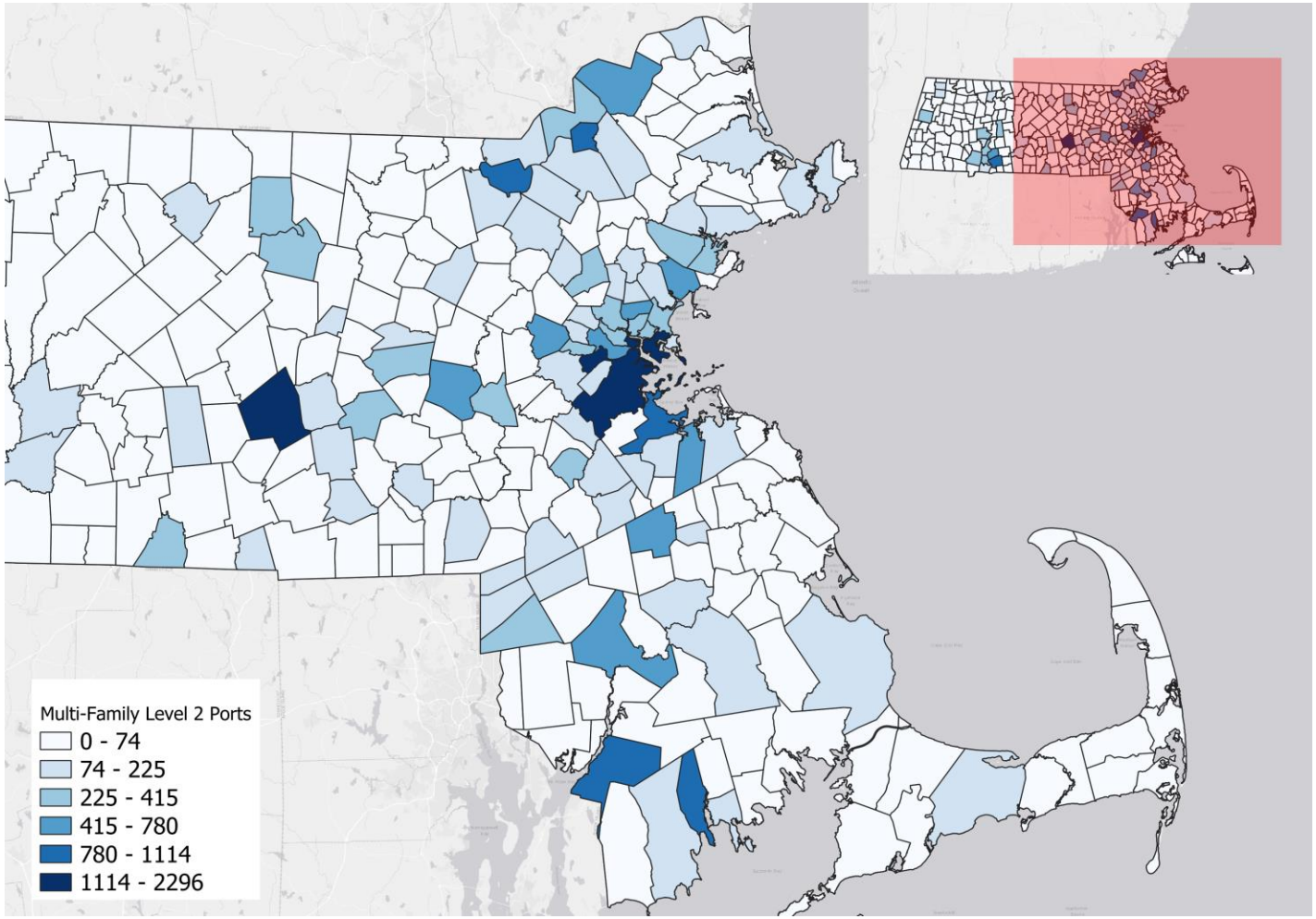
Public Level 2 Projections 2035 (Statewide)



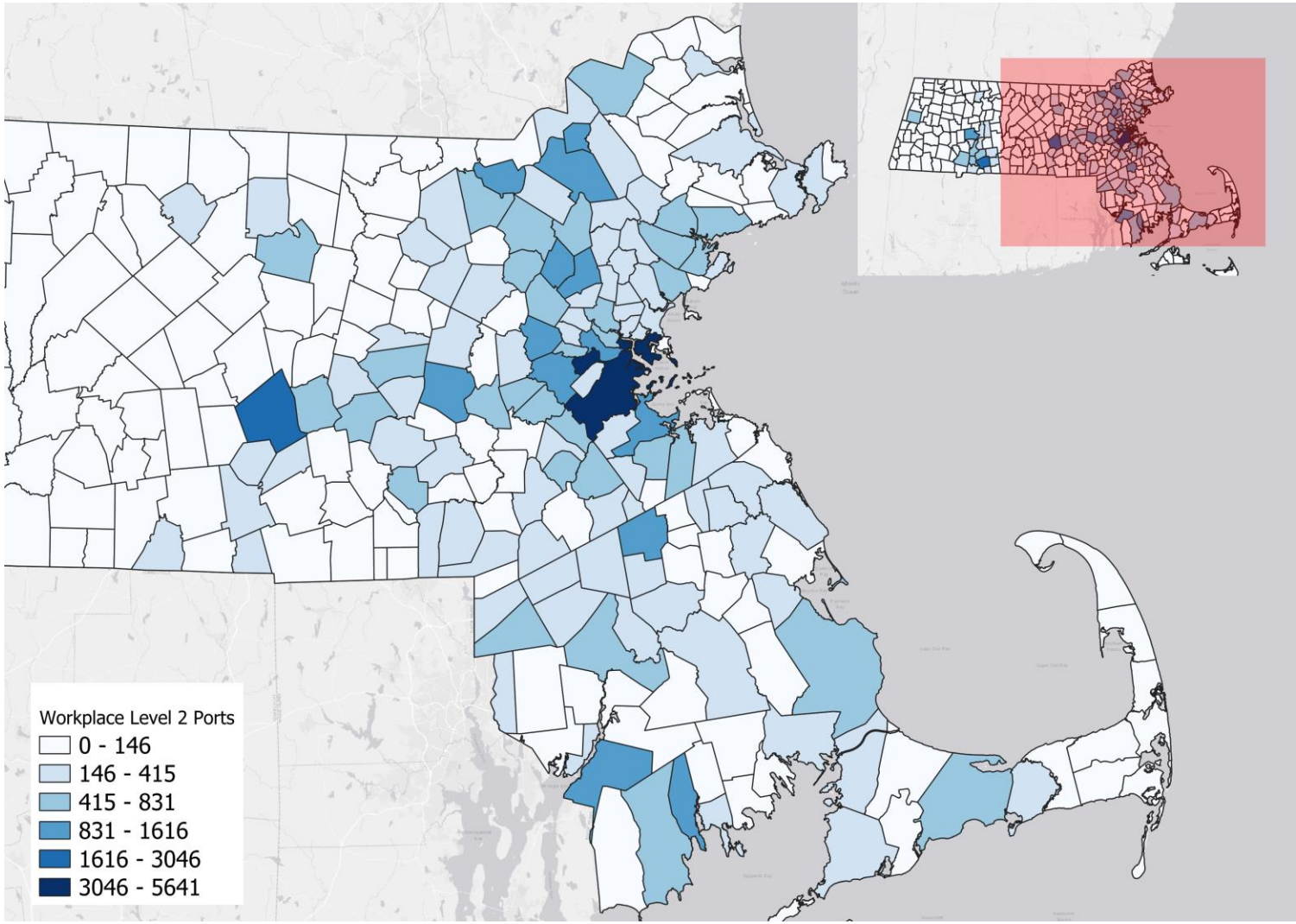
Single Family Level 2 Projections 2035 (Regional)



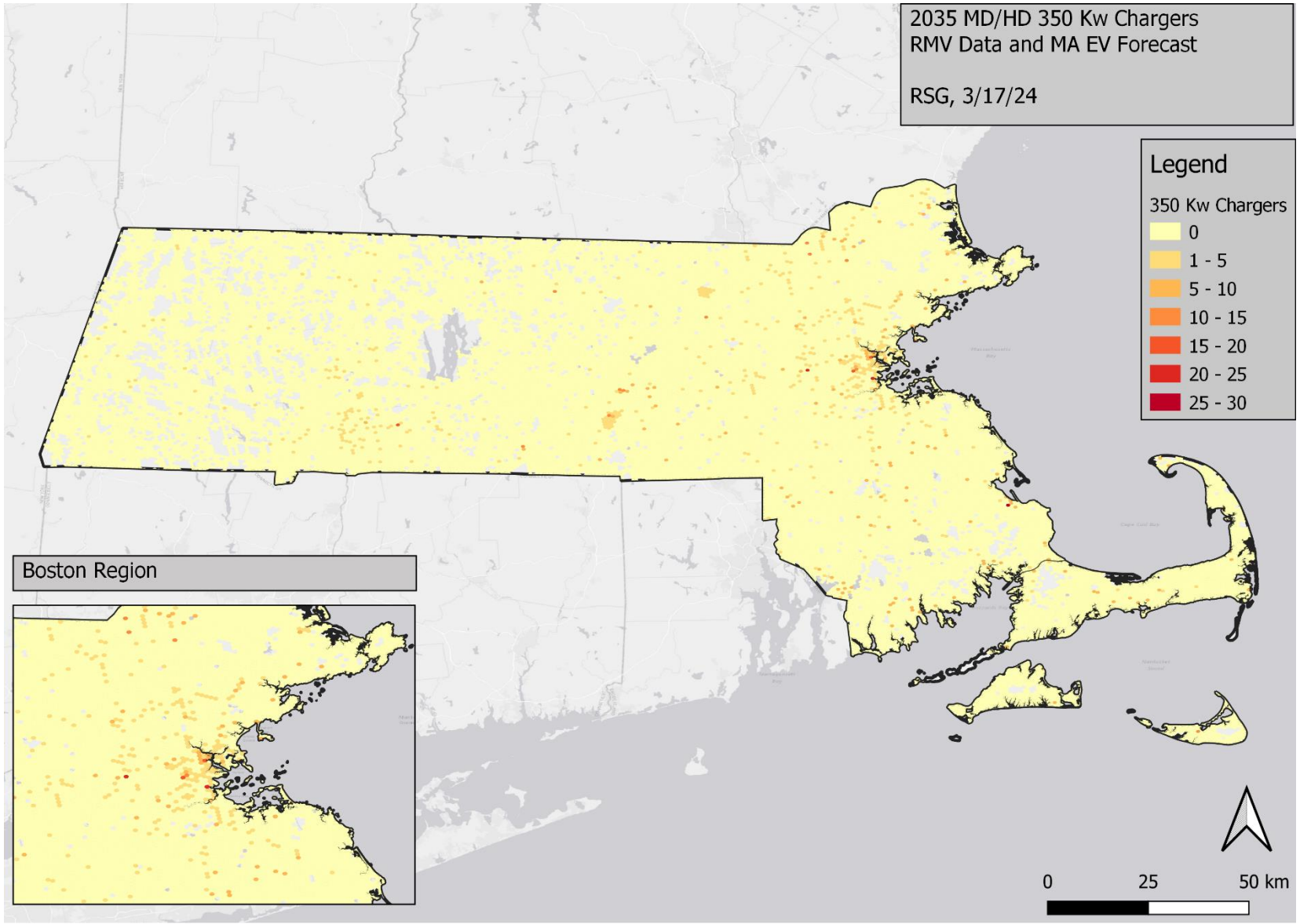
Multi-Family Level 2 Projections 2035 (Regional)



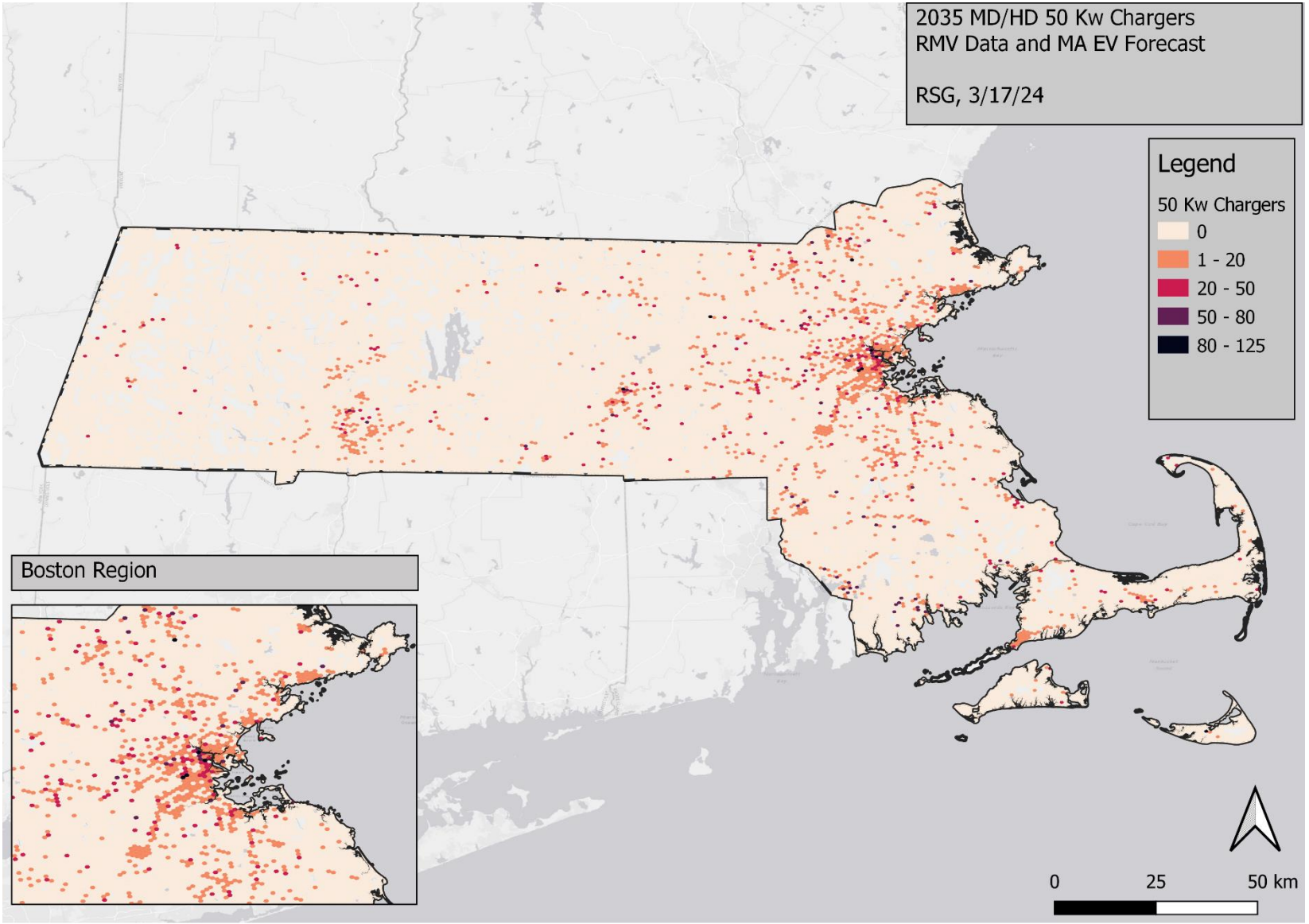
Workplace Level 2 Projections 2035 (Regional)



Truck Charger Locations: DCFC (Statewide)



Truck Charger Locations: Level 2 (Statewide)

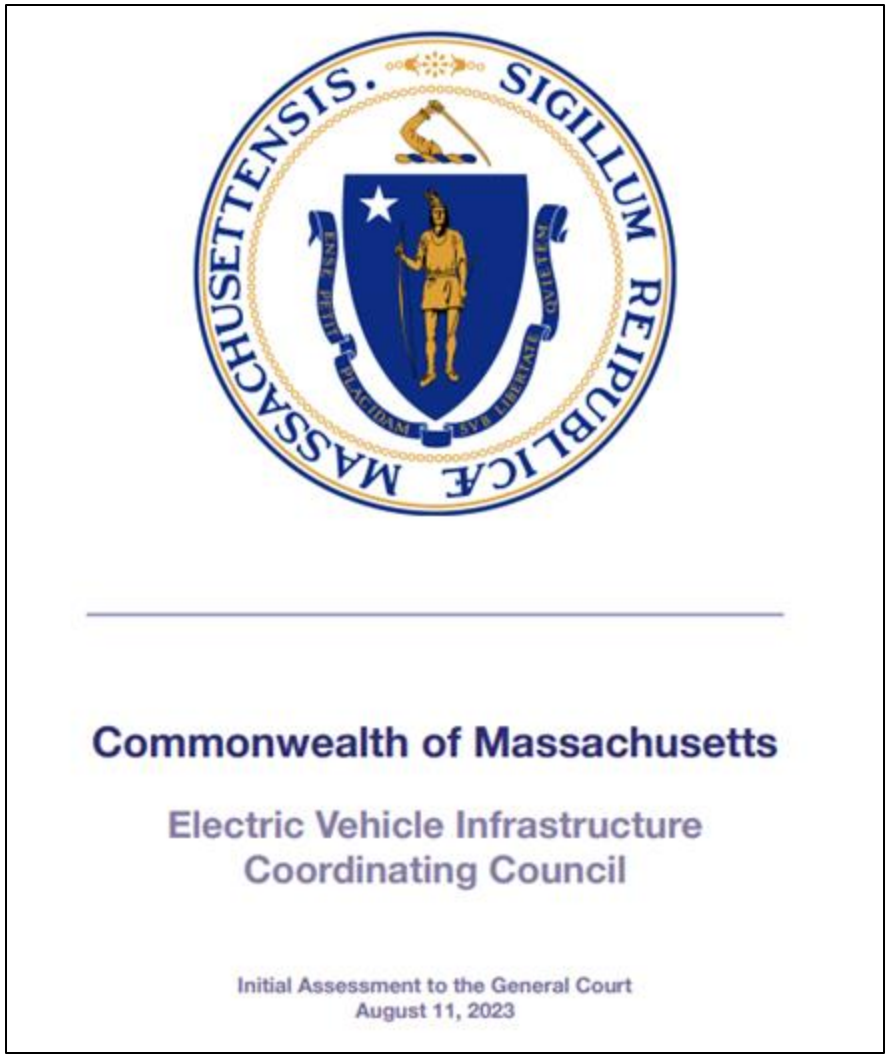


Public Feedback

Review of Second EVICC Assessment Outline

First EVICC Assessment

- Key takeaways from the first EVICC Assessment included:
  - Additional EV charging infrastructure is needed to meet the Commonwealth's 2030 climate goals
  - Customer charging experience needs improvement
  - Massachusetts should prioritize charger access for "garage orphans," renters, and rural communities
  - A lack of grid capacity poses challenges to deploying the needed amount of EV chargers
  - The State should better promote its EV charger incentive programs and availability of EV charging
- Actions EVICC or EVICC members have taken to address these takeaway are included in the Appendix
- The Second EVICC Assessment is due on August 11, 2025



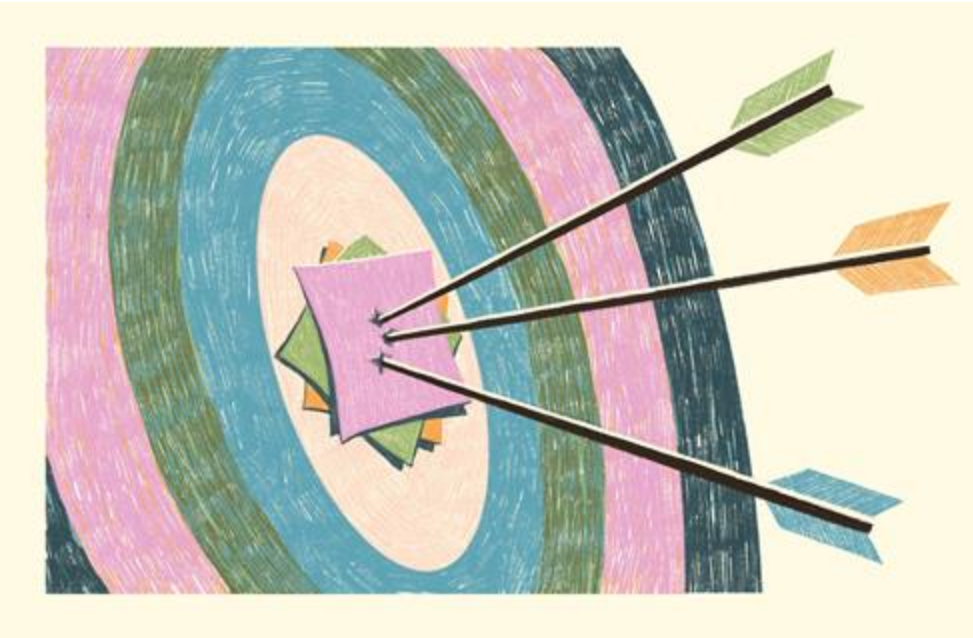
Second Assessment Objectives

- The Second Assessment will provide **a clear roadmap** for how Massachusetts plans to deploy the necessary EV charging infrastructure to meet the state's climate goals and other policy objectives **through 2035**

- The Second Assessment will build on the work of the First Assessment to provide more granular analysis and recommendations, as time, resources, and data availability allow

Second Assessment Objectives (cont.)

- **The Assessment will provide this roadmap by clearly laying out:**
  - The *current state* of EV charging in Massachusetts;
  - The likely *endpoint* to meet the Commonwealth's policy goals; and,
  - *EVICC's recommendations on how* to get from here to the desired endpoint.



- **Each recommendation will identify:**
  - Which *state agency* or *agencies* will support / lead implementation; and,
  - The role of *local/regional governments*, *private companies*, and *electric utilities*.

- **The Assessment will also highlight:**
  - The interrelation with the state's Clean Energy and Climate Plan (CECP) for 2025 and 2030; and,
  - The role of EVICC in coordinating recommendation implementation.

Overview of Second Assessment Outline

1. Executive Summary: Clearly conveys plan to meet 2030/2035 EV charger needs and EVICC's recommendations
2. Purpose and Context: EVICC background; policy background; and development of Second Assessment
3. Current EV Charging Programs and Initiatives
4. EV Charger Deployment
5. Electric Grid Impacts and Managed Charging
6. Consumer Charging Experience
7. EV Charging Technology and Business Model Innovation
8. Summary/Conclusion
9. Appendices
    - EV charger needs projections methodology
    - One-page summary of existing state EV programs by program type
    - Educational materials for EV charging customers and EV charger site hosts
    - EJ Community Siting Guide
    - Summary status of recommendations from First Assessment
    - Information on non-infrastructure EV programs and initiatives (e.g., MOR-EV, Accelerating Clean Transportation (ACT) School Bus, state employee domicile EV policy, etc.)

Public Feedback

General Public Comment

Second Assessment Timeline

- February 2025: Detail Assessment outline released
- March & April 2025: Public Hearings
- May 2025:
  - Assessment analysis completed
  - Agencies complete assigned sections
- June-July 2025:
  - EVICC members review draft Assessment
  - Draft Assessment released for public comment
- August 11, 2025: Second EVICC Assessment completed
- August 2025: Public webinar on Second Assessment

Stay Involved

- Provide Comments on Draft EVICC Assessment
- Attend the Monthly EVICC Meetings
  - First Wednesday of every month; 1-3/3:20pm
- Visit the EVICC Website
  - Website includes meeting schedule, past meeting notes, the First Assessment, and other resources
- Sign-Up for the EVICC Email List

Thank You

Appendix

First Assessment Takeaways and Actions

- Additional EV charging infrastructure is needed to meet the Commonwealth's climate goals
  - Massachusetts has a suite of incentive and other programs to support EV charger deployment
- Customer charging experience needs improvement
  - Massachusetts Division of Standards is developing regulations to inspect and test EV chargers for accuracy; Massachusetts Executive Office of Energy and Environmental Affairs (EEA) will develop reliability regulations
- Massachusetts should prioritize charger access for "garage orphans," renters, and rural communities
  - Massachusetts Clean Energy Center (MassCEC) created a program to assist municipalities with curbside charging
  - "Right to Charge" legislation passed for condo owners (Sections 85 and 86 of 2024 Climate Act)
  - EEA Office of Environmental Justice and Equity created siting guide for Environmental Justice communities
- A lack of grid capacity poses challenges to deploying the needed amount of EV chargers
  - EVICC is working with a consultant to complete an analysis of fast chargers for multi-unit buildings and long-distance trips, and associated grid impact
- The State should better promote its EV charger inventive programs and availability of EV charging
  - MassCEC launched new, one-stop webpage for state EV programs and information
  - The presence of EV chargers can now be advertised on state highway signs

EV Charger Deployment Methods & Approach

Travel Analysis

Light duty vehicle travel demand

- The Massachusetts statewide travel demand model estimates trips generated by households in the state, and calculates the resulting vehicle miles traveled (VMT) on the road network by personal vehicles
- The model includes estimates for 2019 and 2050 based on estimates of household population growth
- Interim year estimates of VMT (interpolating between 2019 and 2050) were made based on interim forecasts of household population by town for 2030 and 2035.

Multi-Family Housing with On-Street Parking

Estimating EV chargers in areas with multi-family housing with on-street parking involves analysis of parking availability

- Availability of off-street parking at multi-family housing affects the ability of residents to access private charging
- High-density multi-family areas with limited home charging access are target areas for public charging

Forecasting Multi-Family Housing Locations in 2030 and 2035

- Current multi-family housing is mapped for all property parcels in the state
- Population and household forecasts by town were used to estimate the locations of new multi-family housing in 2030 and 2035

Forecasting Parking Availability at Multi-Family Housing

- Town parking inventory studies, survey data, and other research was used to establish rates of off-street parking availability at different types of multi-family housing (this includes factors such as neighborhood population density)
- These rates of off-street parking availability were applied to the forecasts of multi-family housing in 2030 and 2035 to produce future parking availability data

Light-Duty Plug-In EV Estimates

Plug-In EV Estimates (Battery EVs (BEV) and Plug-in Hybrids (PHEV)) for 2030 and 2035

State-Level PEV Forecasts

- Relied on Massachusetts Clean Energy and Climate Plan for 2050 for state-level PEV projections.

Town-Level PEV Allocation

- Distributed projected statewide PEV estimates across towns based on new EV sales data from 2022-2023.

Grid-Level PEV Allocation

- Refined town-level PEV estimates to a 1-km hexagonal grid based on total vehicle sales.
- Used grid-cell-level housing forecasts to estimate how PEVs would be split between single-family and multi-family households.

Charging Demand for Private and Workplace Chargers

Single-Family and Multi-Unit Charging (Level 1 & Level 2)

- For single-family homes, chargers allocated proportionally based on single-family PEV registration forecasts.
- For multi-unit homes, chargers allocated proportionally based on the forecasted number of PEVs owned by households in multi-unit homes (with off-street parking capacity).

Workplace Charging (Level 2):

- Allocation based on projections of the estimated number of estimate the number of workers that drove vehicles to work for each grid cell (based on location of employment).

Charging Demand for Public Chargers

Public Charging (Level 2)

- Grid-level allocation using Caret EVI Planner software, prioritizing areas with:
  - High business density (amenities for charging dwell time), off-street parking for multi-family housing out to 2 miles, and projected traffic patterns.
- Existing L2 charger density factored in to prevent oversaturation.

Public Charging (DCFC)

- Multi-Family Housing Demand:
  - Town-level allocation based on the proportion of multi-family units in each town, grid-level placement prioritizes high-density multi-family areas with limited home charging access, and proximity to existing DCFCs.
- Long-Distance Travel Demand:
  - Town-level DCFC allocation based on share of highway/interstate exits with high long-distance trip frequency, chargers placed within 1 mile of highway exits, favoring locations with limited existing DCFC coverage, and proximity to existing DCFCs.

Truck Electrification Estimates

Forecasts of Electrification of the Medium and Heavy-Duty Truck Fleet

- Currently, there are roughly 400 electric trucks operating in Massachusetts
- This is forecast to increase significantly: around 25,000 vehicles in a fleet of 275,000 by 2030, and 75,000 vehicles in a fleet of 300,000 by 2035
  - Based on Massachusetts's Clean Energy and Climate Plan (CECP)

Demand for Truck Charging

Long distance truck charging demand

- Medium and heavy-duty truck travel in 2030 and 2035 is forecasted using the Massachusetts statewide travel demand model, a tool used for transportation planning
- This provides estimates of vehicle miles traveled by trucks on the road network in the state which is used to identify routes with high demand for charging
- The vehicle miles traveled estimates take into account long-haul trucking to, from, and traveling through Massachusetts on the highway network as well as local trucking within the state
- Priority charging locations were identified, such as truck rest stops, gas stations and other locations with truck parking close to the sections of the highway network with high amounts of truck travel

Demand for Truck Charging

Depot-based truck charging demand

- Registry of Motor Vehicles data were used to identify the depot locations of Massachusetts based trucks
- The forecasts of electric trucks in the truck fleet were allocated to current trucking depot locations to estimate 2030 and 2035 electric truck locations
- Estimated charger requirements per electric truck were used to allocate chargers to depot locations.

Combined long-distance and depot-based charger requirements

- Information on existing truck charging locations was used to remove existing truck chargers from the estimates of 2030 and 2035 requirements
- The remaining, new long-haul and depot-based charger locations were summarized into a 1-km hexagonal grid covering the state

Preliminary Results

Public DCFC Projections 2035

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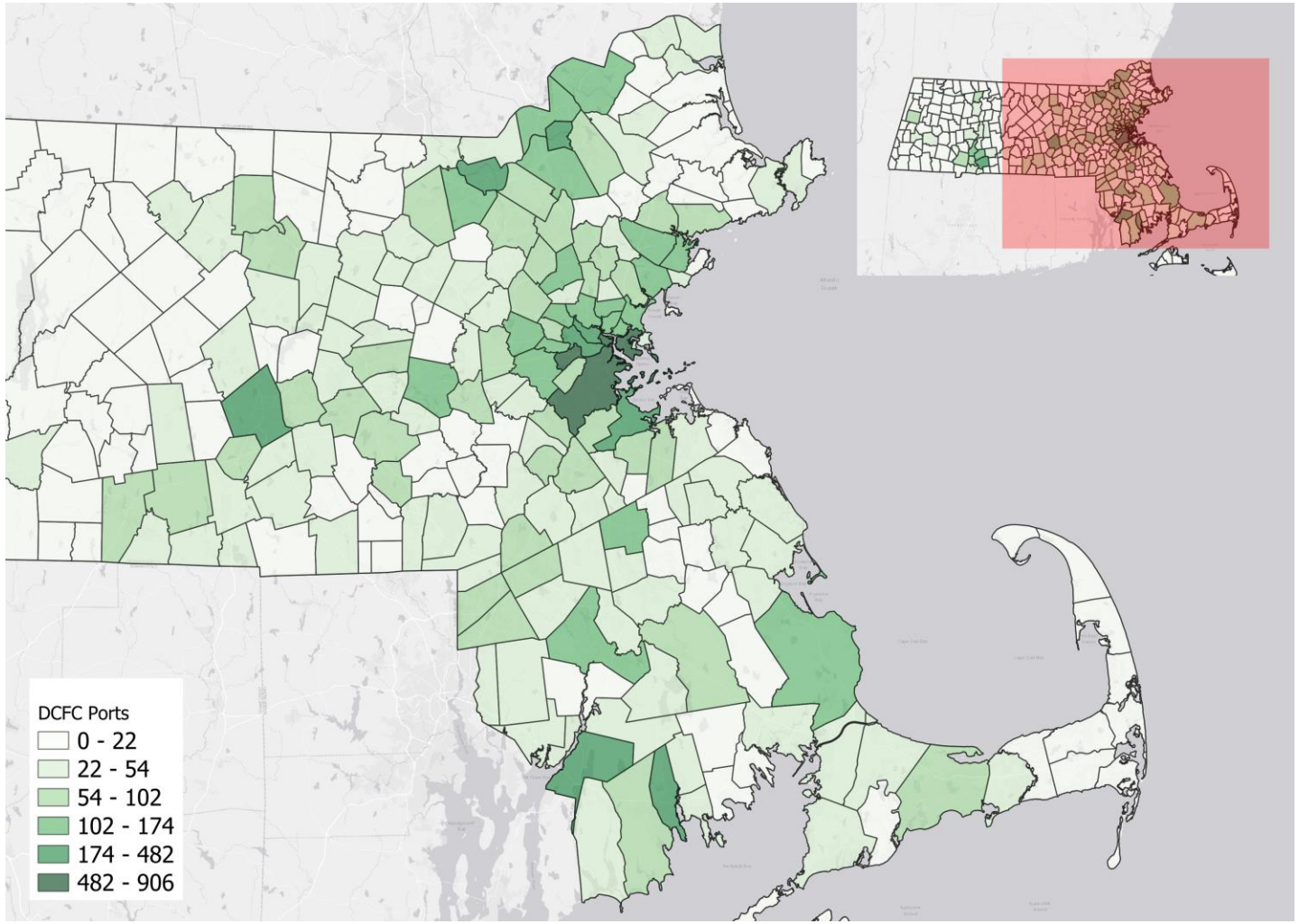

Public DCFC Projections 2035

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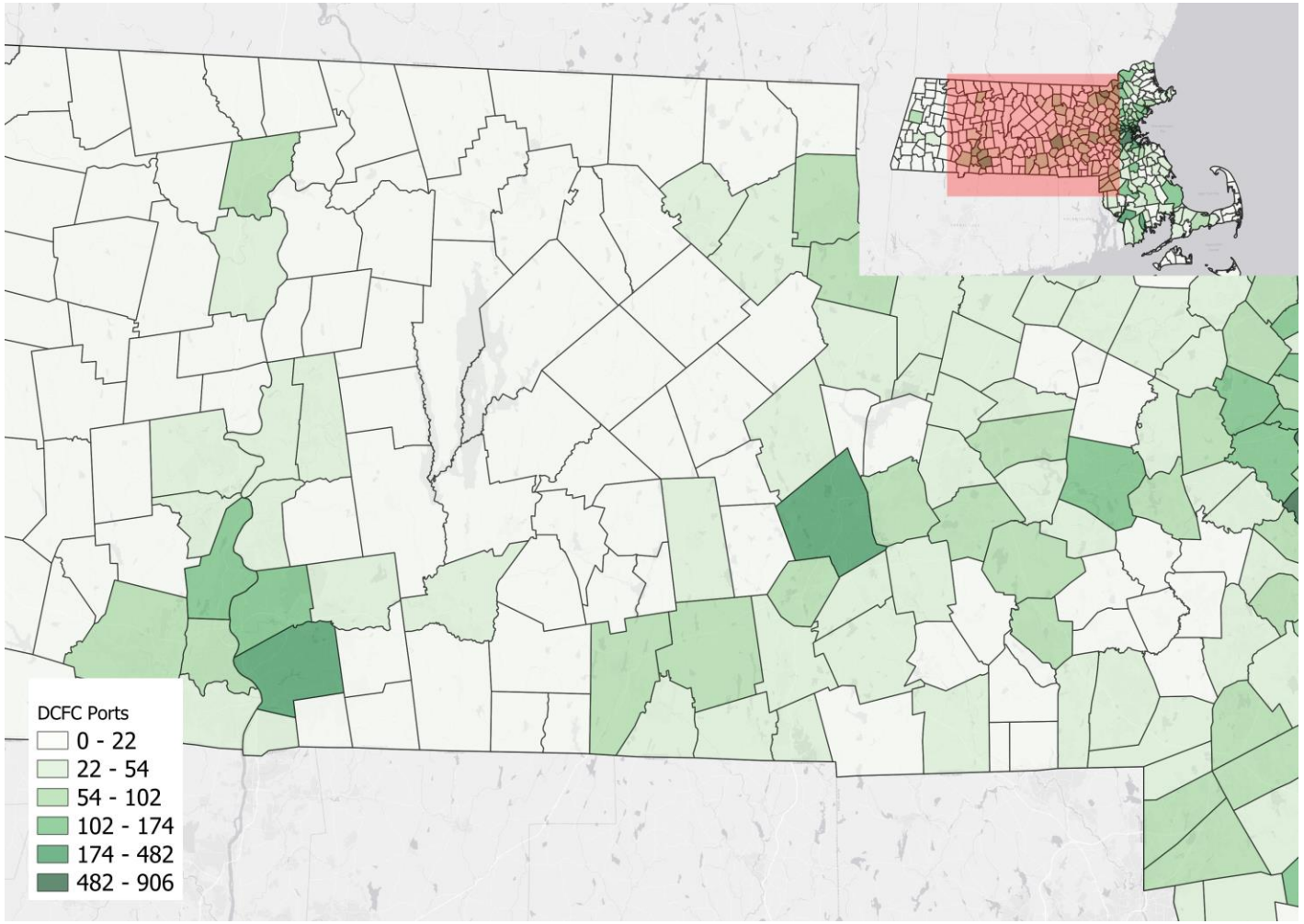

Public DCFC Projections 2035

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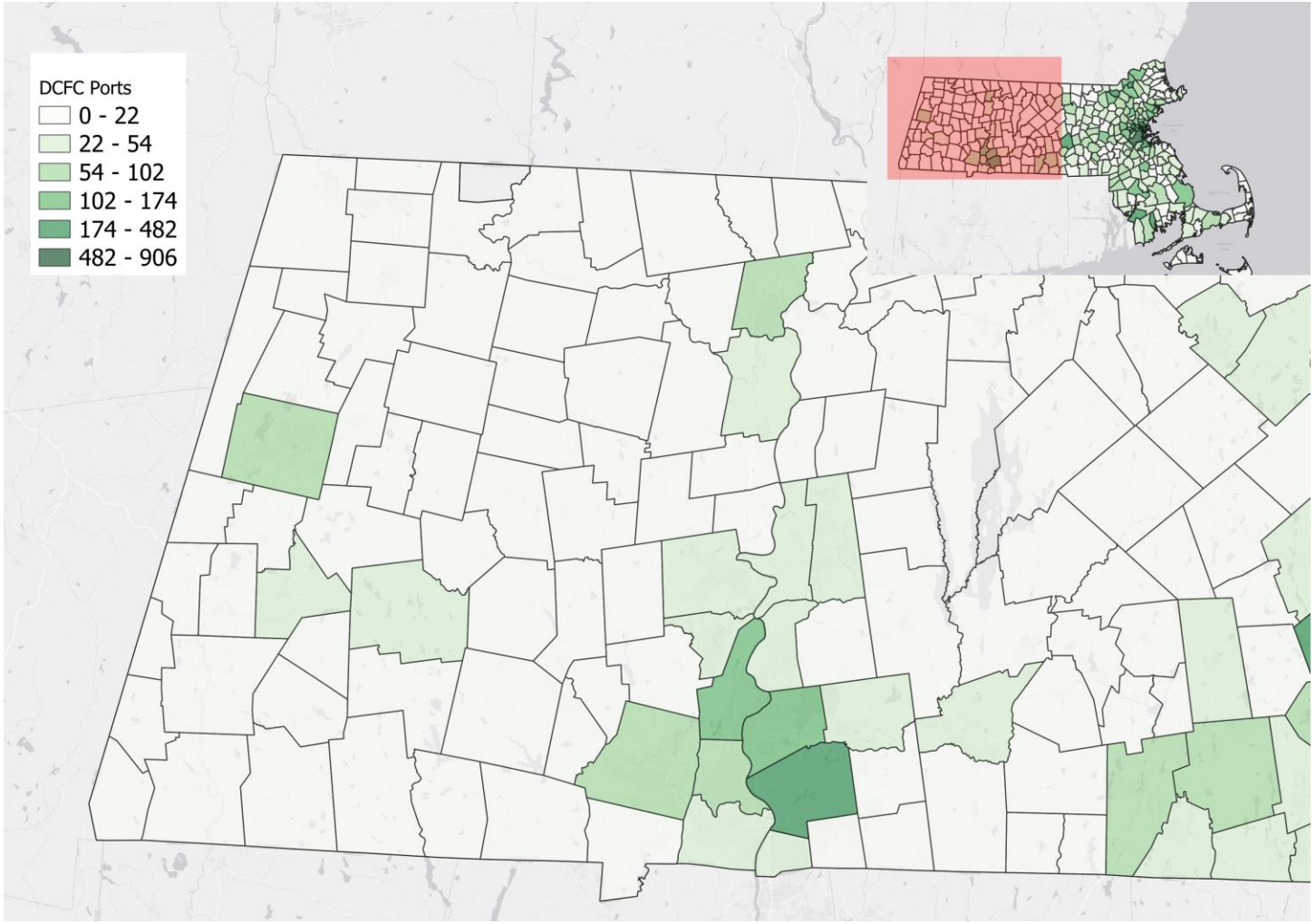

Public L2 Projections 2035

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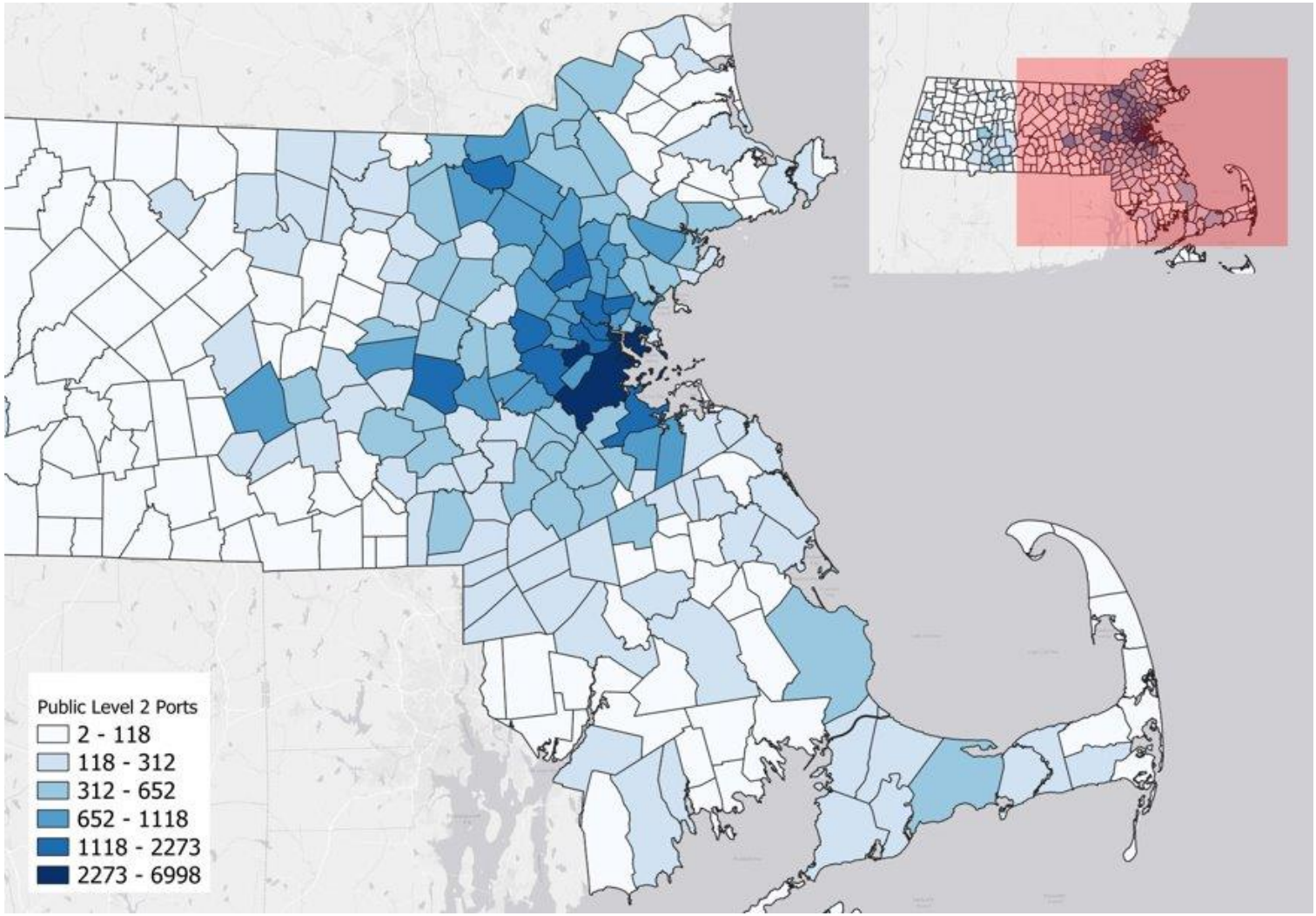

Public L2 Projections 2035

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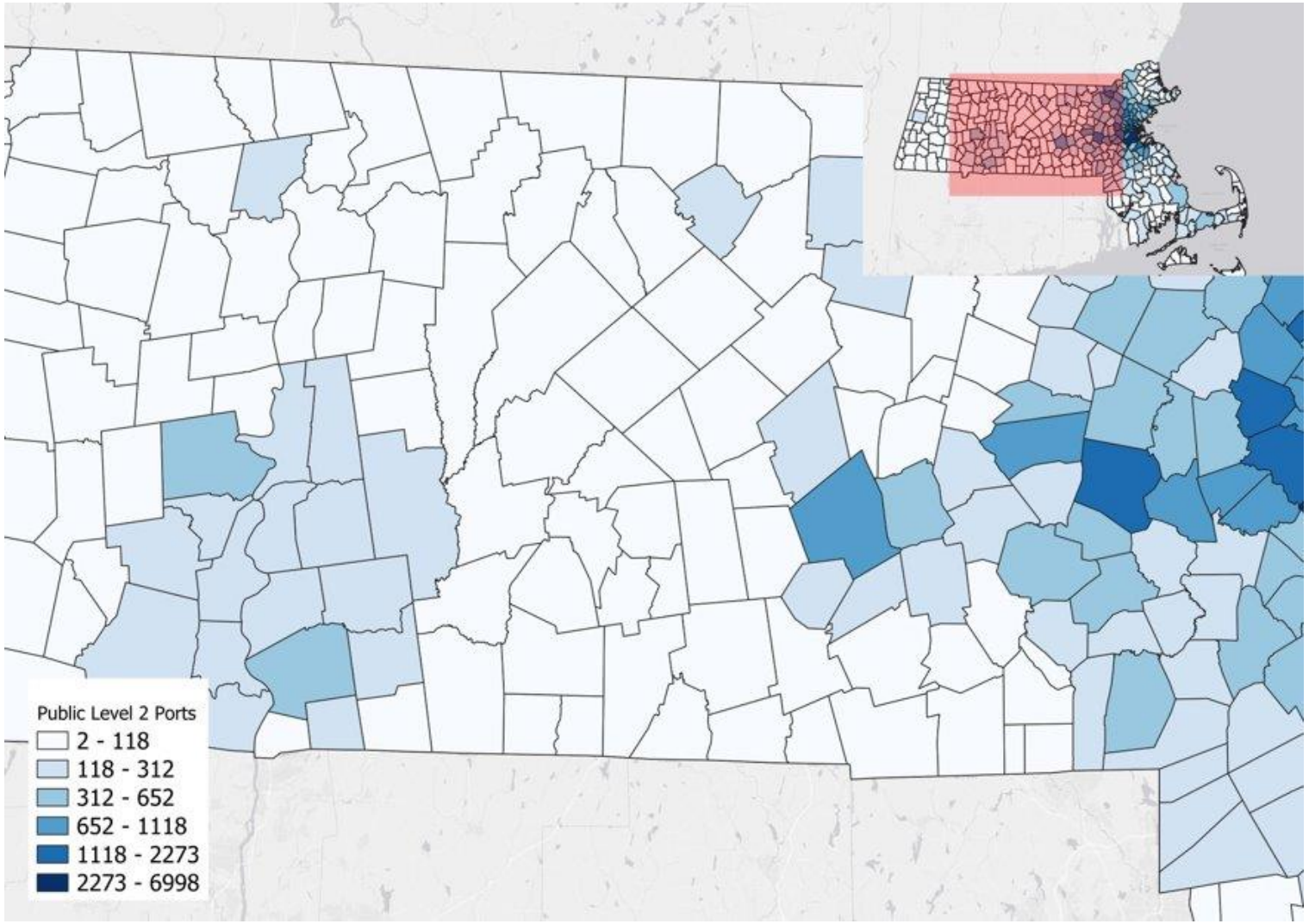

Public L2 Projections 2035

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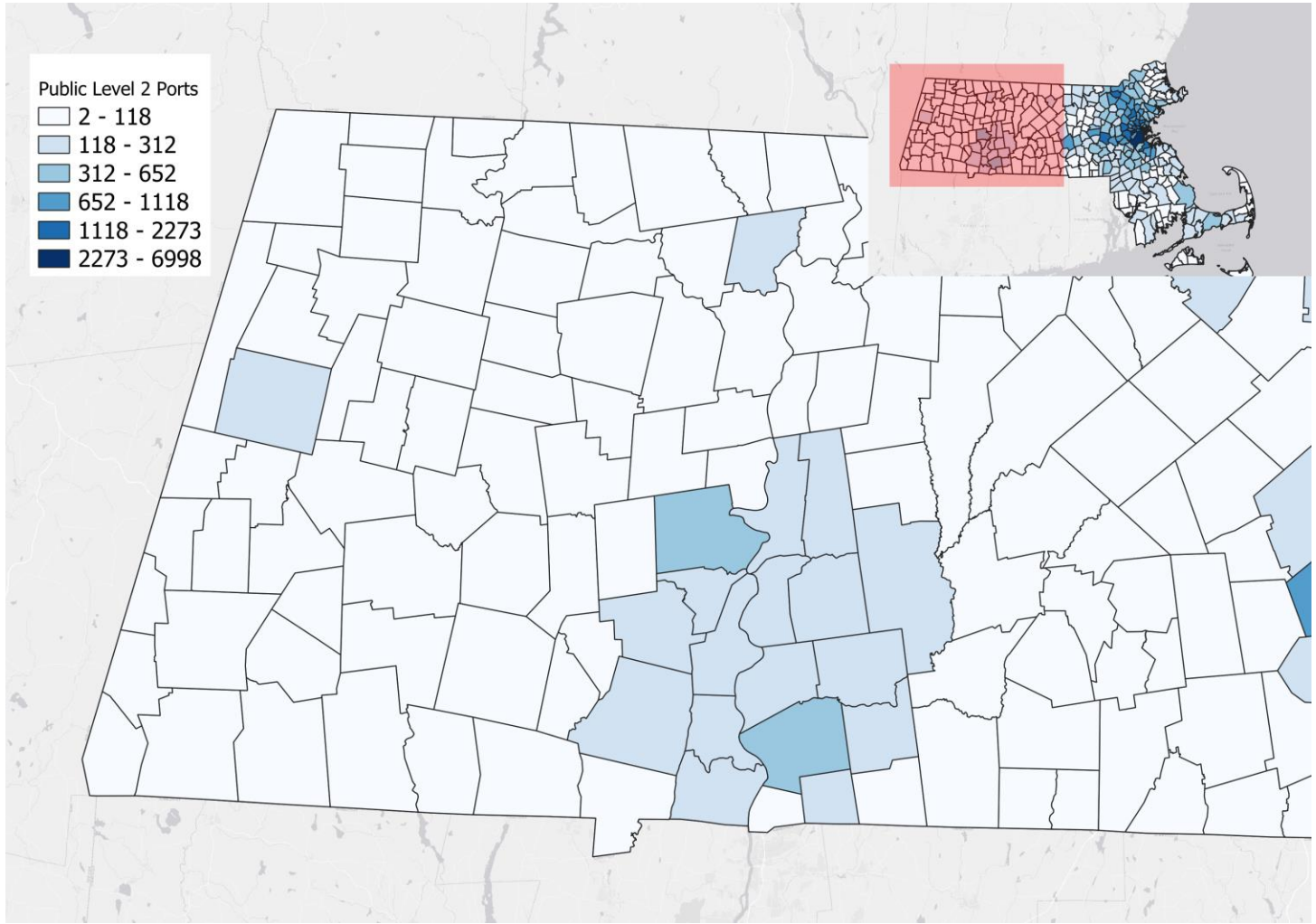

Single Family Level 2 Projections 2035

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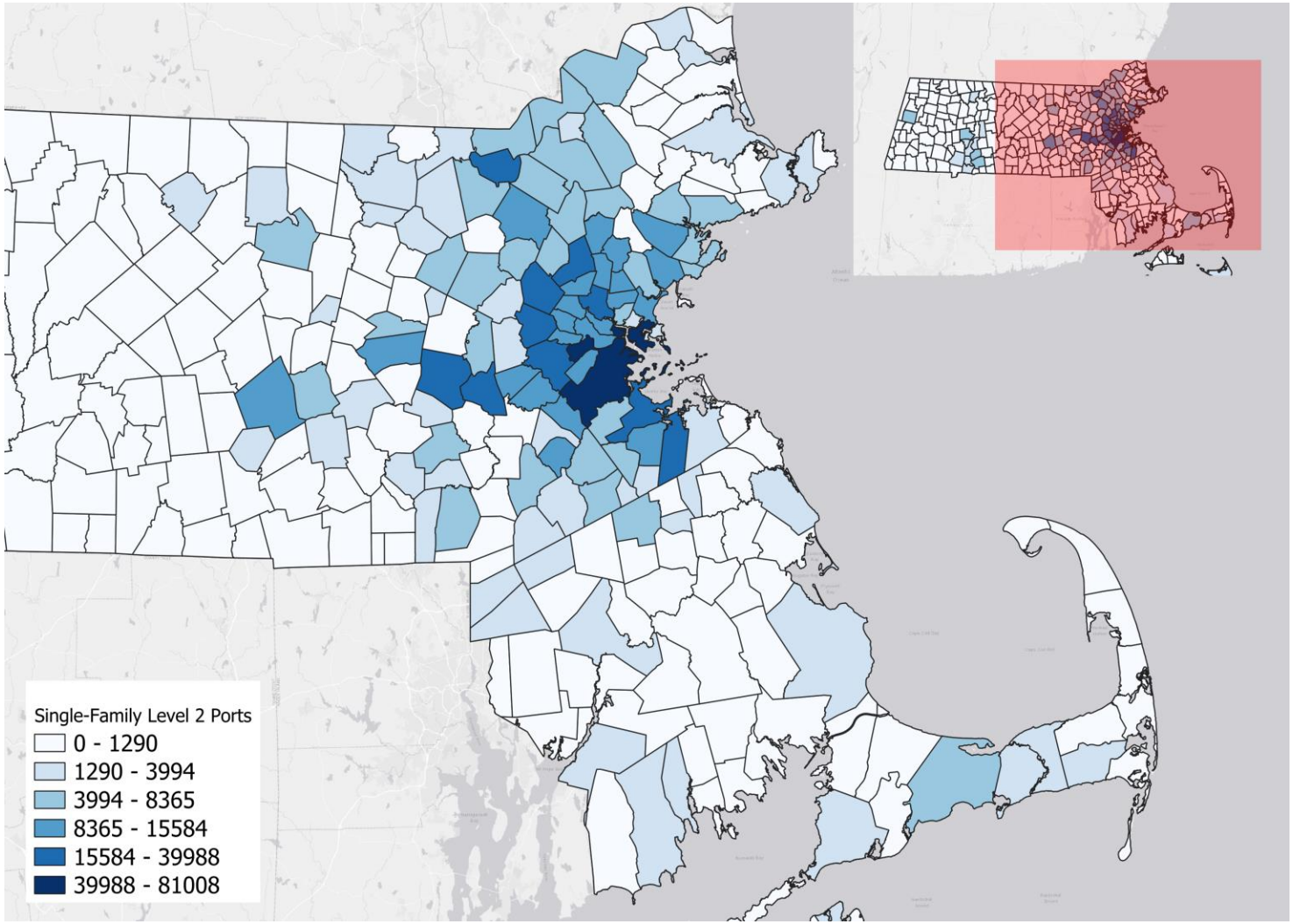

Single Family Level 2 Projections 2035

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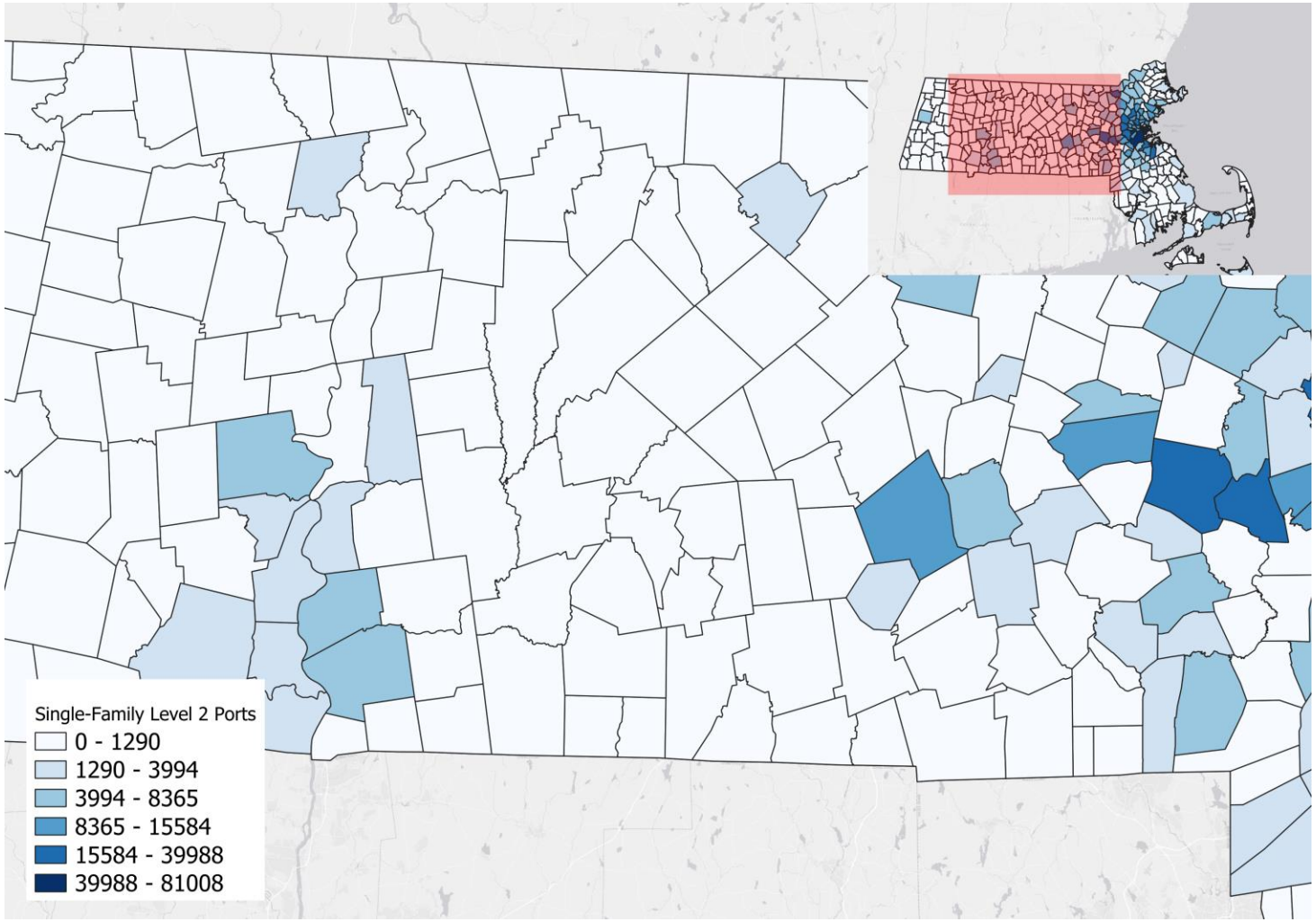

Single Family Level 2 Projections 2035

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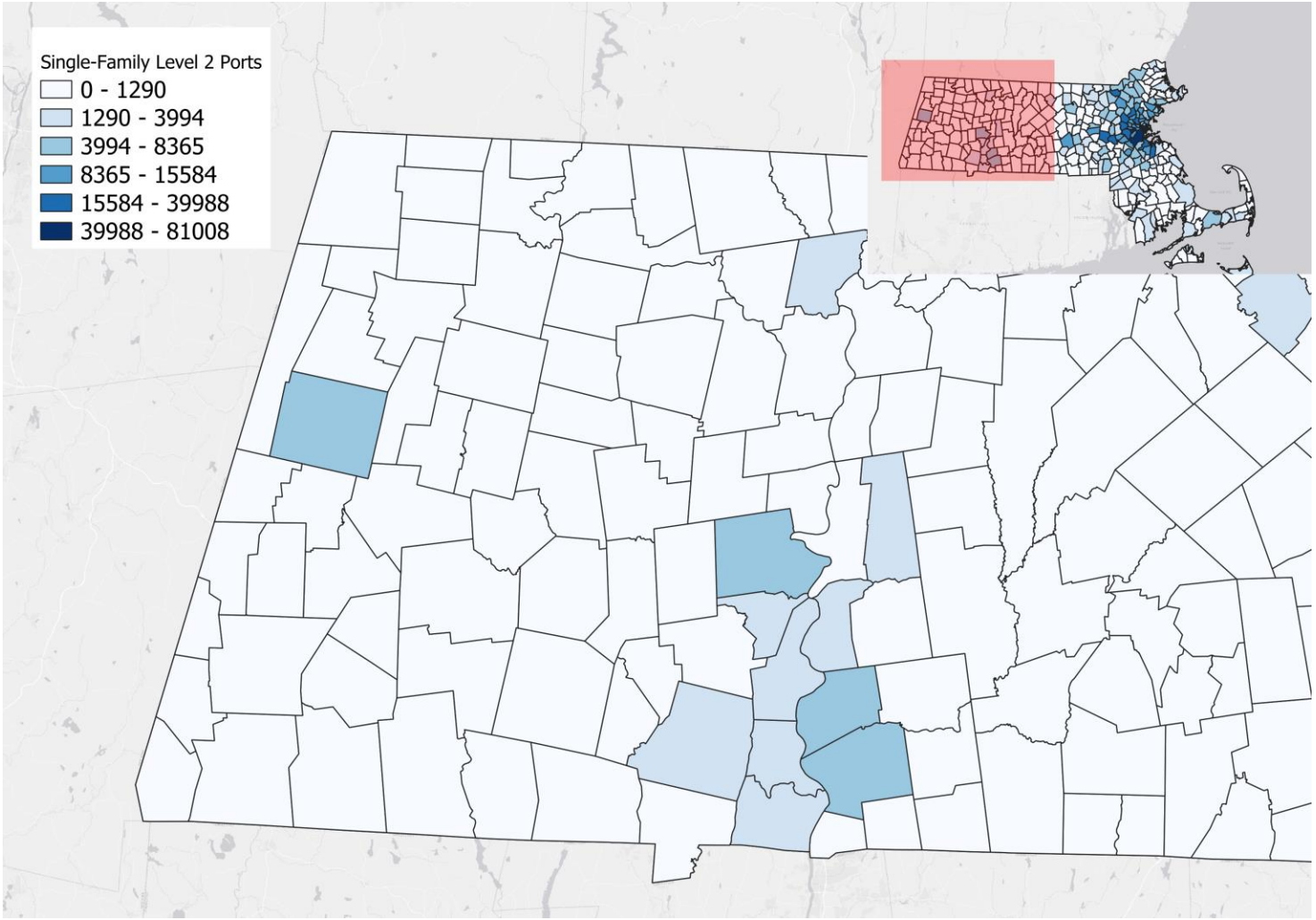

Multi-Family Level 2 Projections 2035

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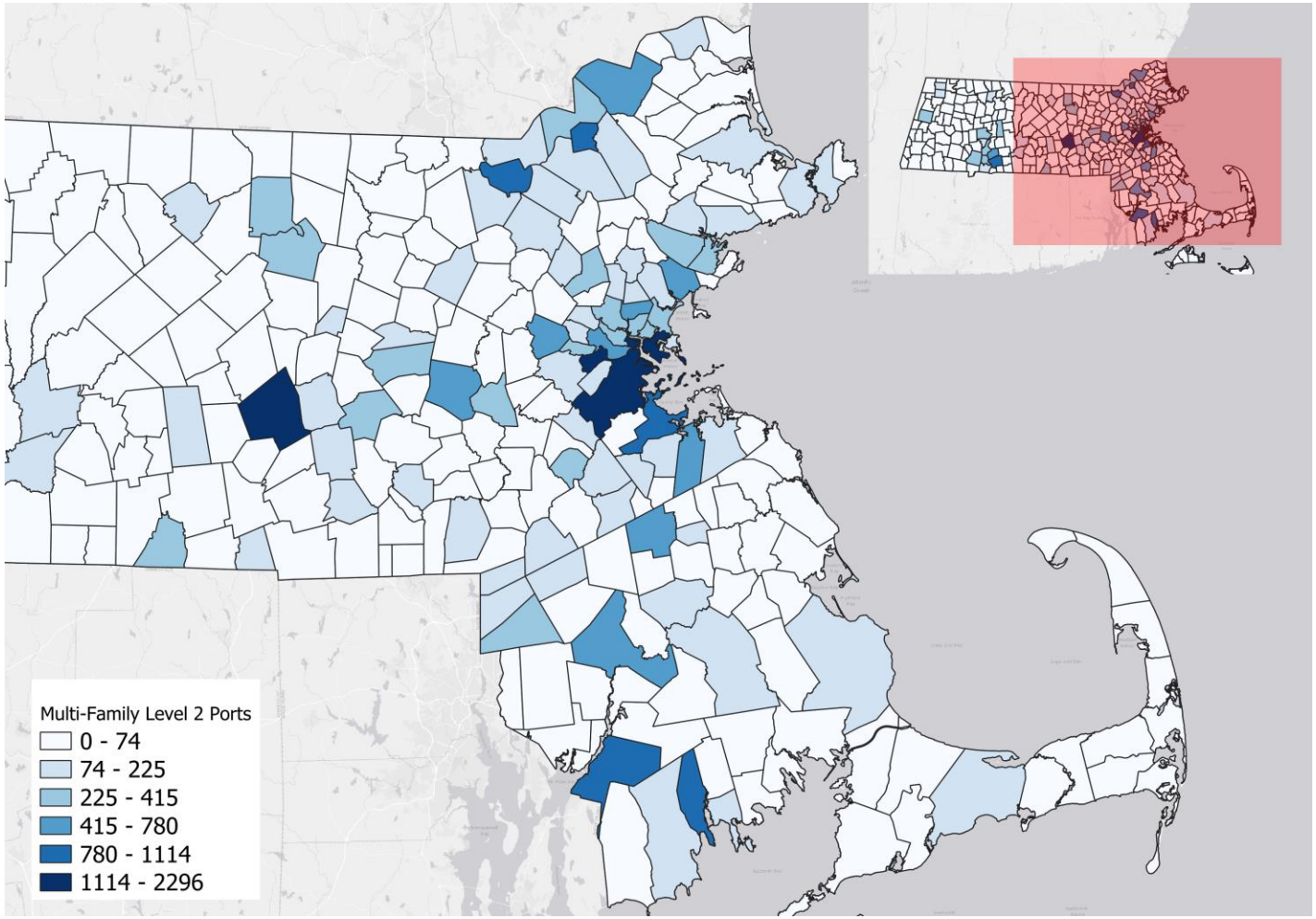

Multi-Family Level 2 Projections 2035

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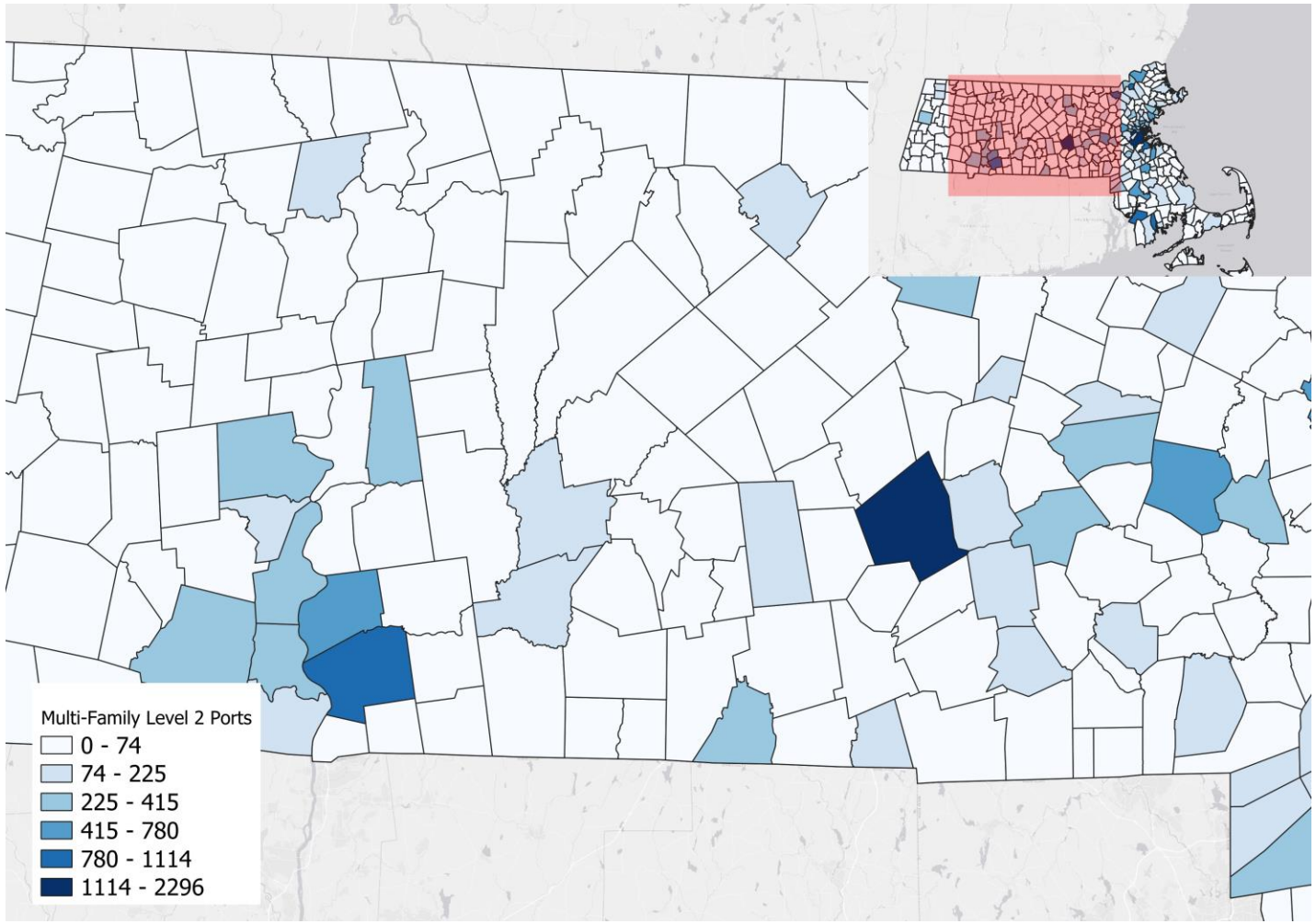

Multi-Family Level 2 Projections 2035

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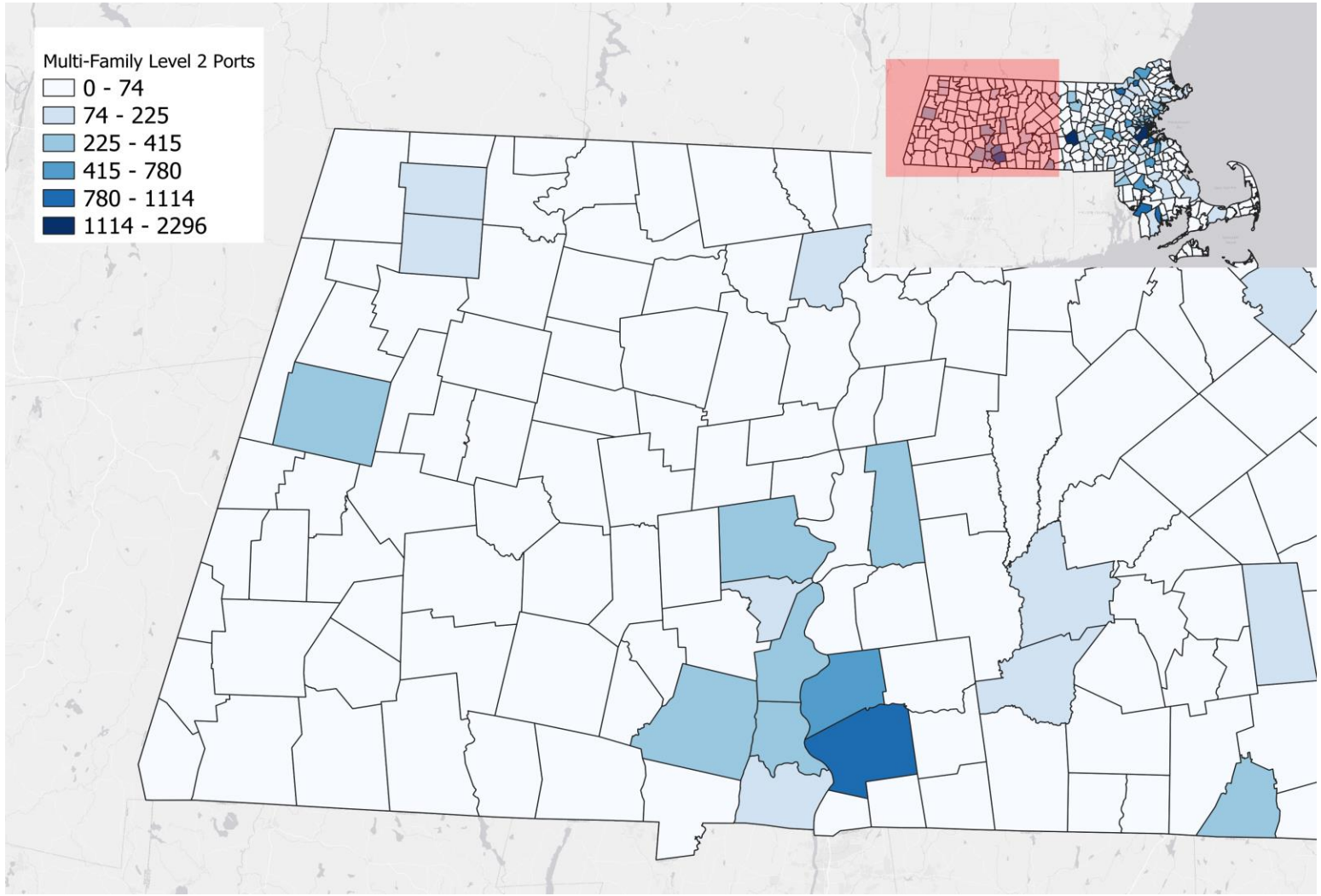

Workplace Level 2 Projections 2035

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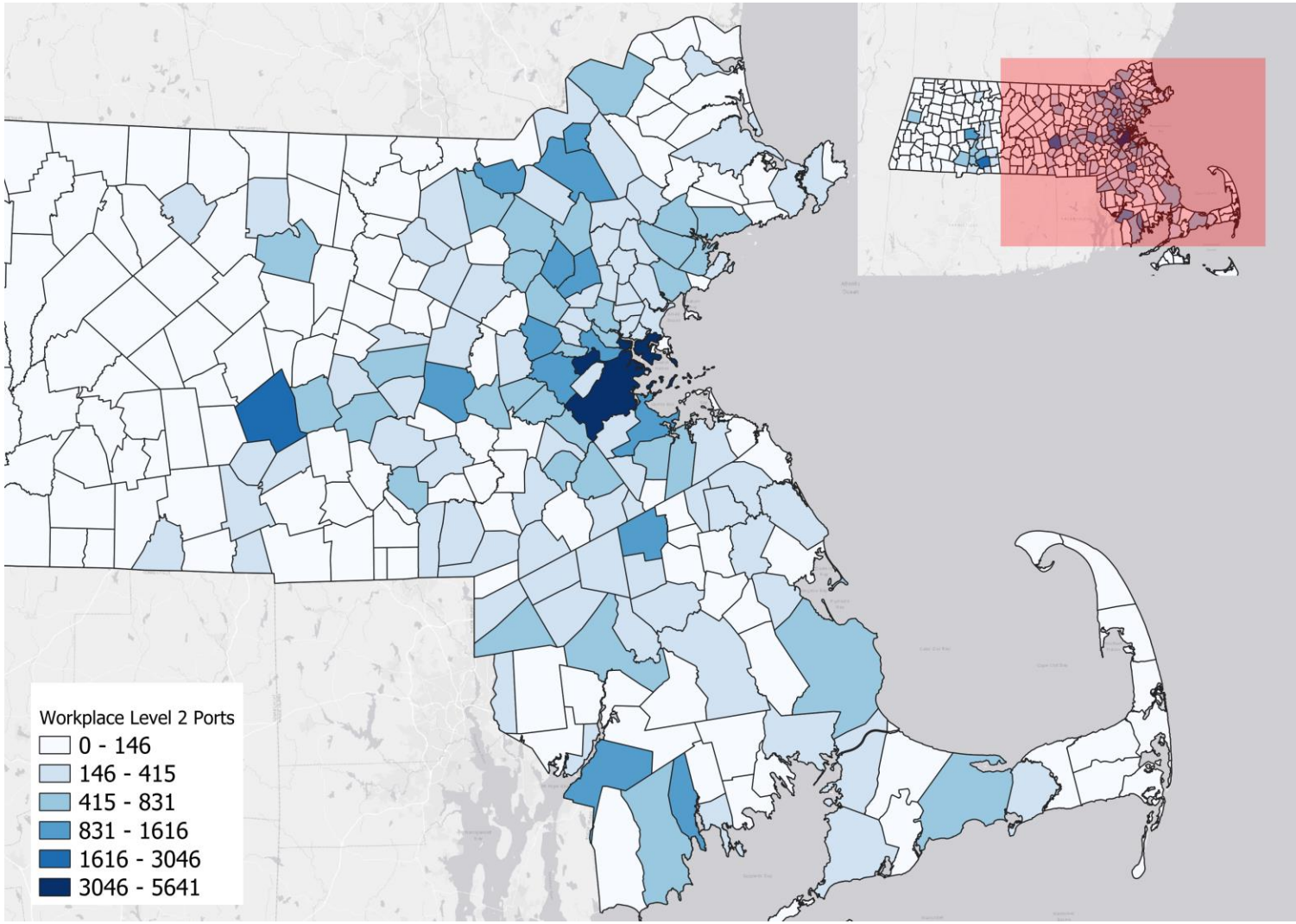

Workplace Level 2 Projections 2035

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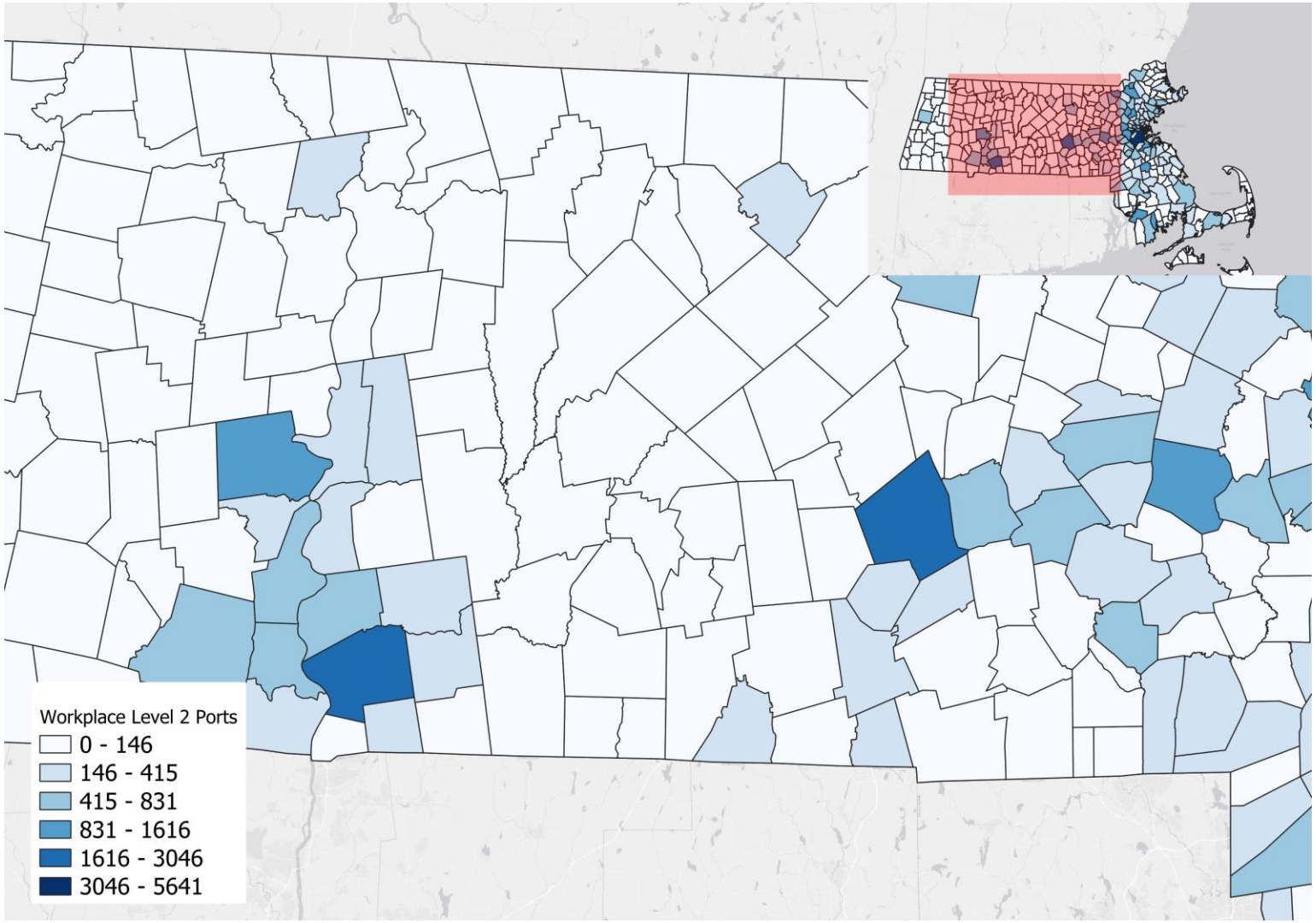

Workplace Level 2 Projections 2035

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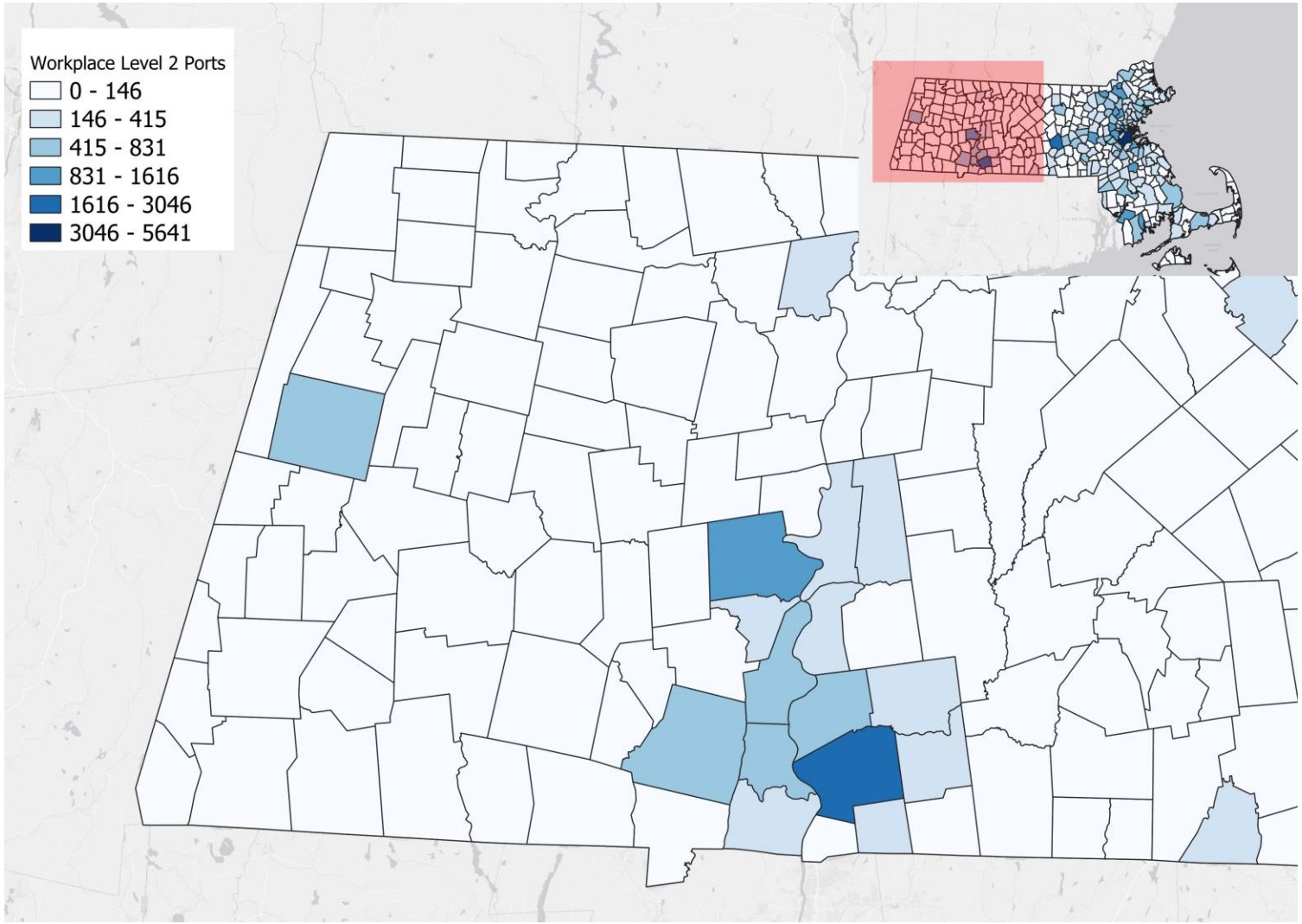
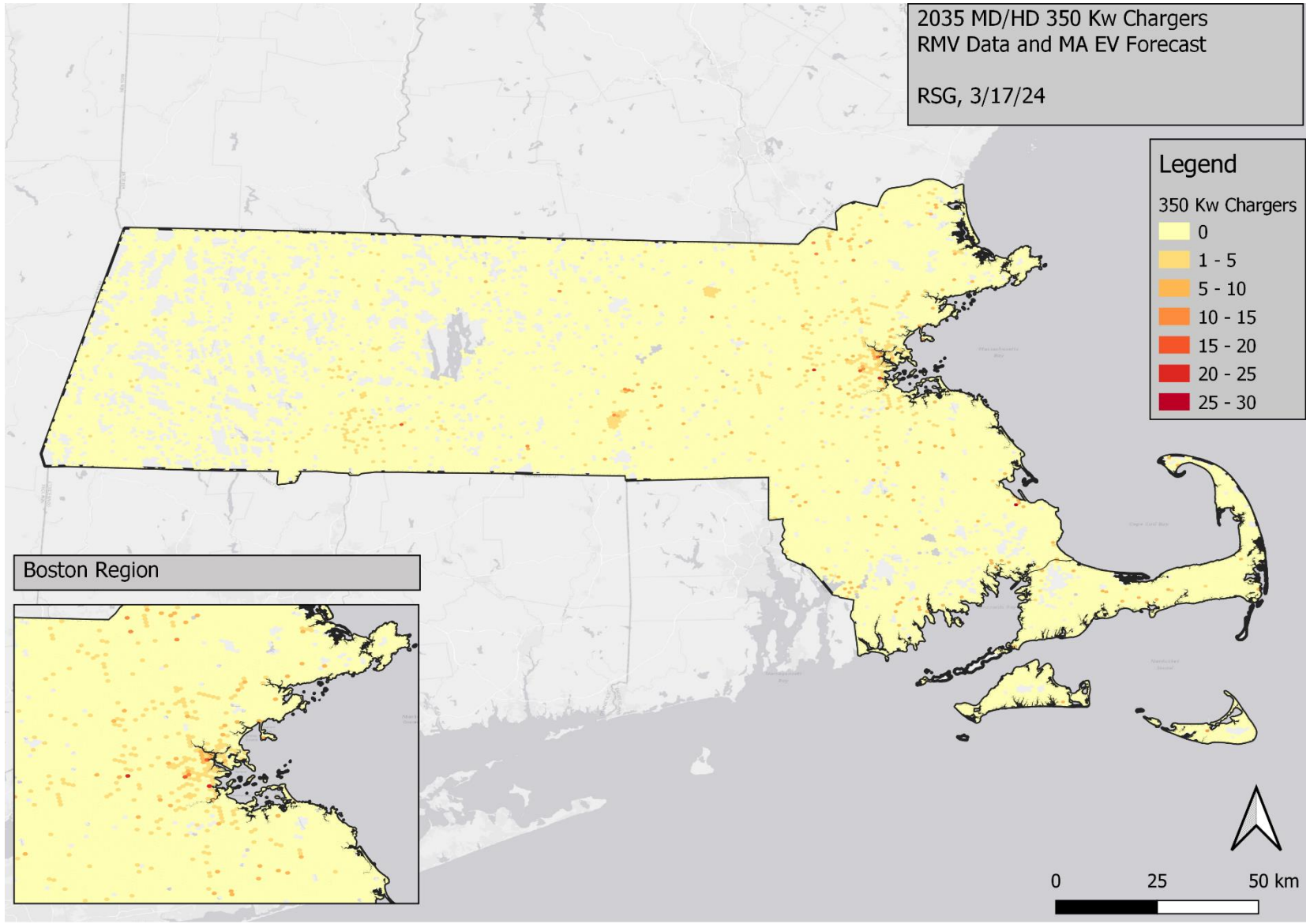


Truck Charger Locations: DCFC



Truck Charger Locations: Level 2