Update on EVI Demand Modeling

Massachusetts EV Infrastructure Coordinating Council

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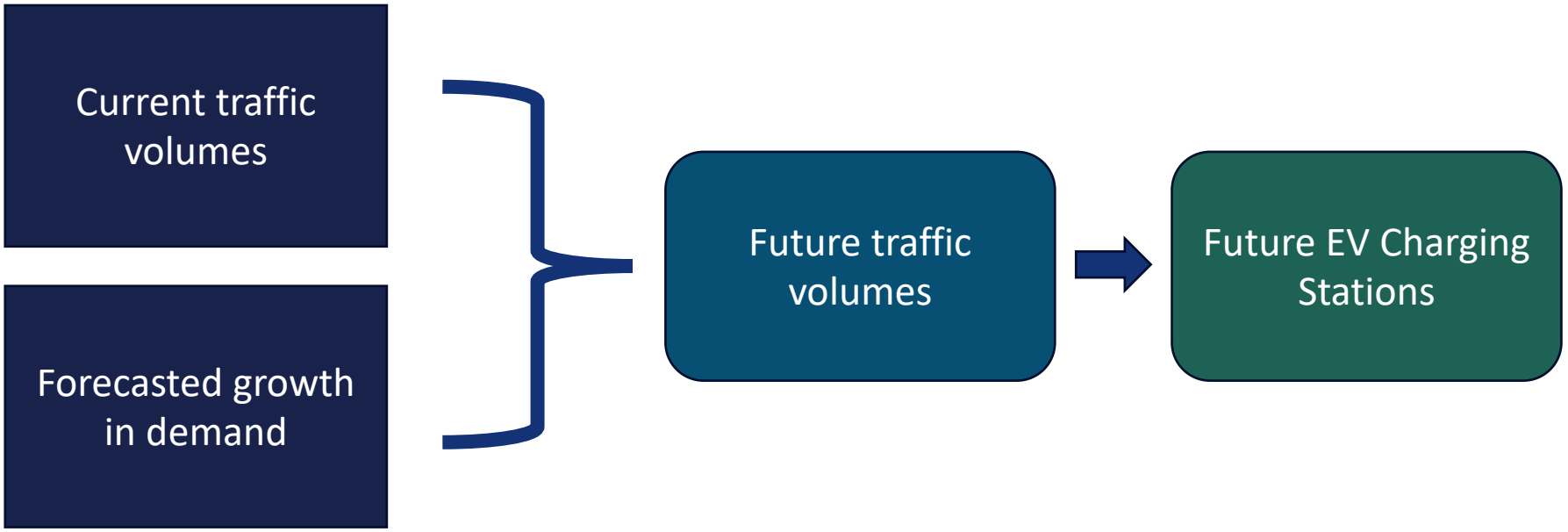
Agenda

- Travel analysis
- EV charging infrastructure demand
- EV charging locations
- Next steps

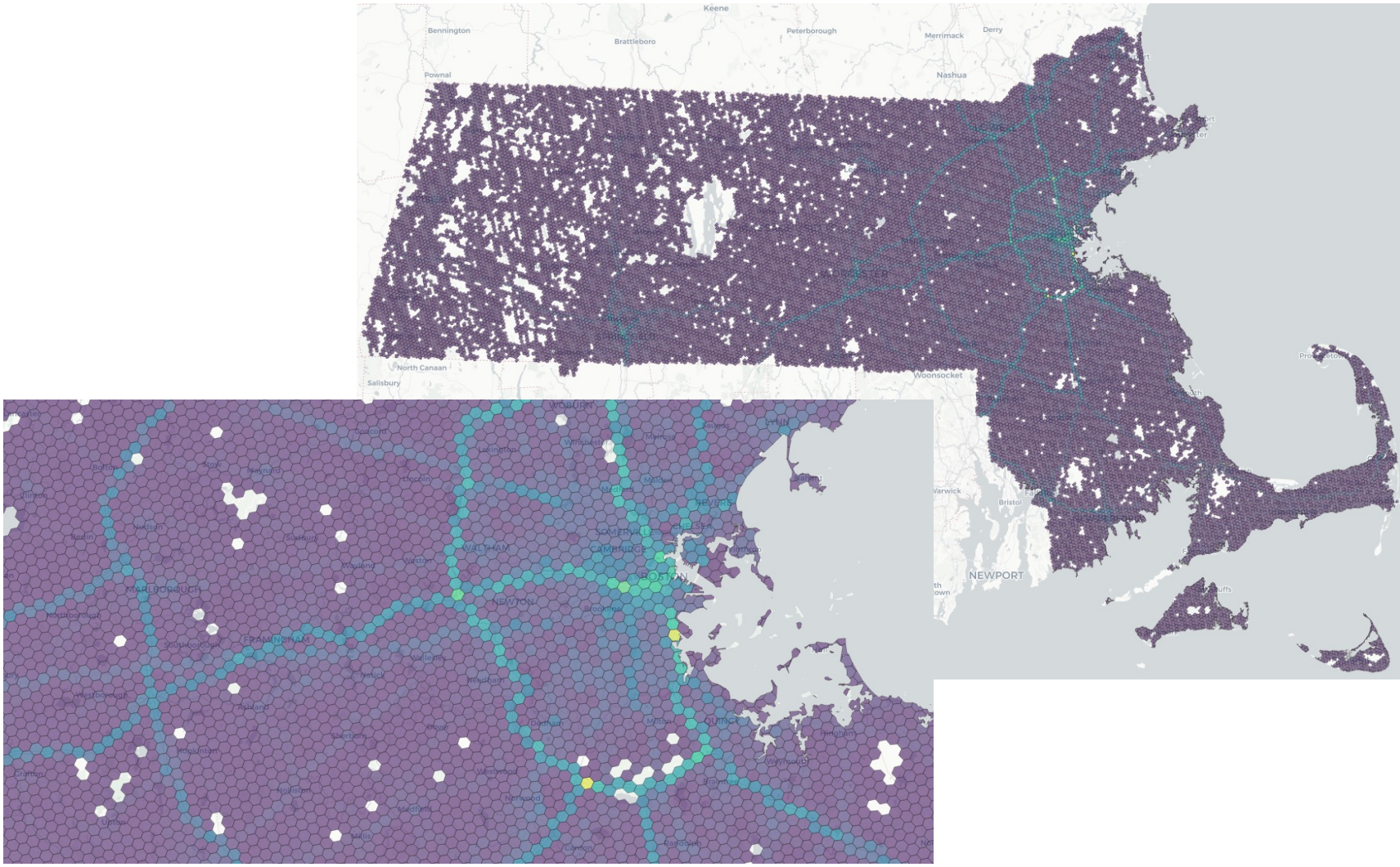
Travel Analysis

Travel Analysis - Summary

- Purpose
  - Summarize observed traffic volume data during typical and peak conditions (Traffic Count Analysis)
  - Summarize information on expected future demand to inform the projected growth in EV charging stations (Demand Forecasts)



2030 Forecasted Average Roadway Volumes



Charging Infrastructure Demand

Charging Demand for 980,000 EVs

As of late 2022, MA had about 66,000 BEVs and PHEVs.
Modeling for 2050 CECP projects ~980,000 light duty EVs in 2030 (high proportion BEVs).
This fleet will utilize a wide range of charging types:

Location	PEV Count	Charger Type	Port Count	EV/Port Ratio	Source	Today's Stock
Single-Family	740,000	Level-2	460,000	1.6	EVI Pro Lite	
		Level-1	180,000	4.1	EVI Pro Lite	
Multi-Family	240,000	Level-1	7,000	34.3	EVI Pro Lite	
		Level-2	17,000	14.1	EVI Pro Lite	
Workplace	980,000	Level-2	23,000	42.6	EVI Pro Lite	
Public	980,000	Level-2	35,000	28.0	Observed Ratios^	5,332
		DCFC	10,000	98.0	Observed Ratios*	637

^: EVI Pro Lite suggests about 30,000
*: EVI Pro Lite suggests about 2,000

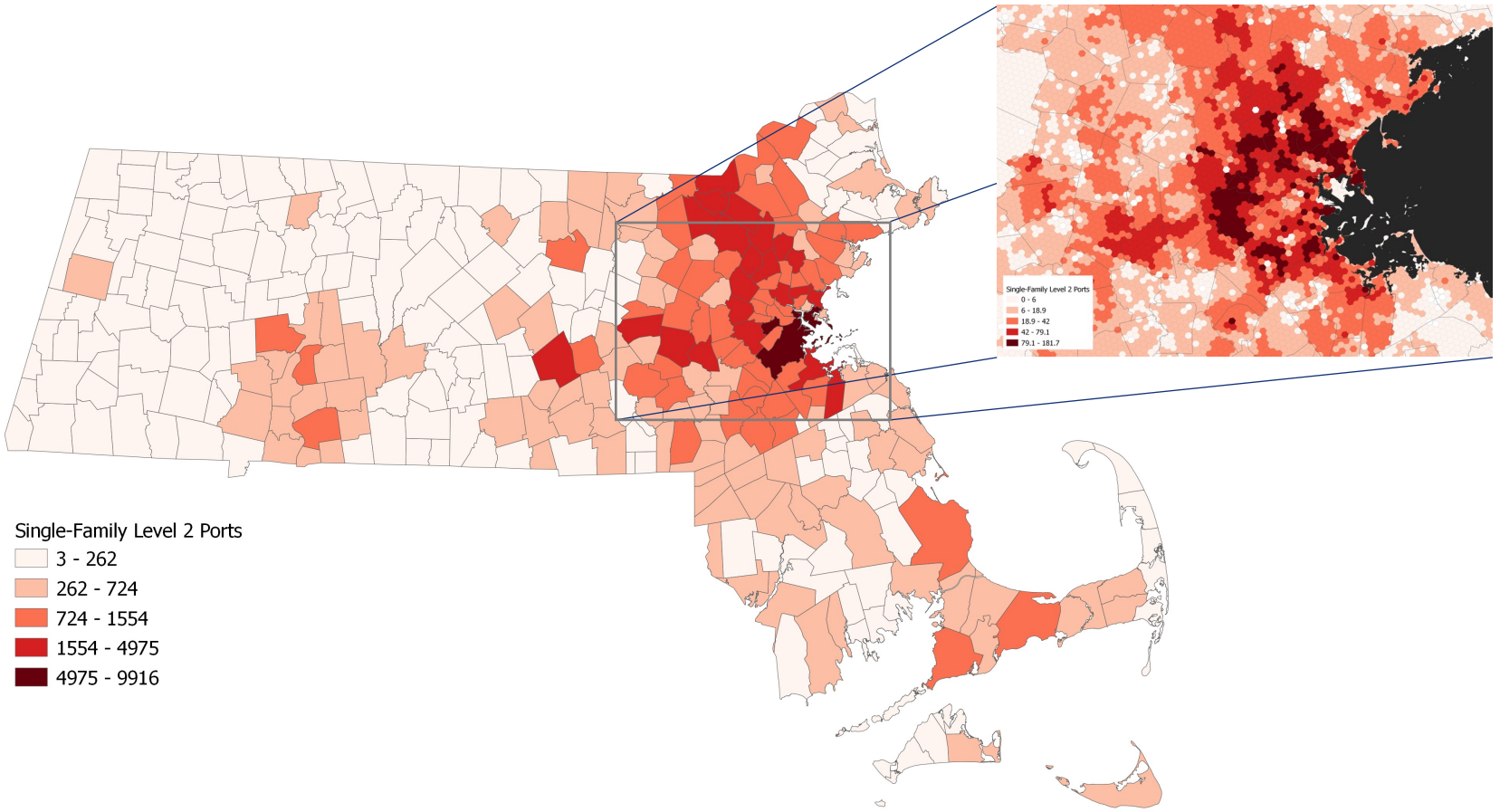
Geographic Distribution of Charging Demands

Factors driving EVI locations

Variable	Factors Considered
2030 PEVs	Total EVs forecasted by 2030; EV sales from 2016-2020; Total new vehicle sales 2016-2020
2030 PEVs (single family)	2030 PEVs; Number of SF and MF units in 2030 (VE state model); Number of SF and MF from ACS; MF/SF adoption proclivity
2030 PEVs (multi-family)	*Same as single family*
2030 Traffic (VMT)	2021 Traffic (VMT); Population Growth (2020 to 2030)
L1 and L2 Chargers (single-family)	2030 PEVs (single-family)
L1 and L2 Chargers (multi-family)	2030 PEVs (multi-family)
L2 Workplace Charging	Workers in 2030 (VE State Model); Current number of workers (LODES); Commuting Mobility Type (ACS)
L2 Public Charging	Proximity to existing L2 Chargers; Density of amenities; 2030 Traffic (VMT); Density of multi-family units
DCFC Public Charging	Proximity to existing DCFC; 2030 Traffic (VMT); Density of amenities; Proximity to highway exit ramp; Density of multi-family housing

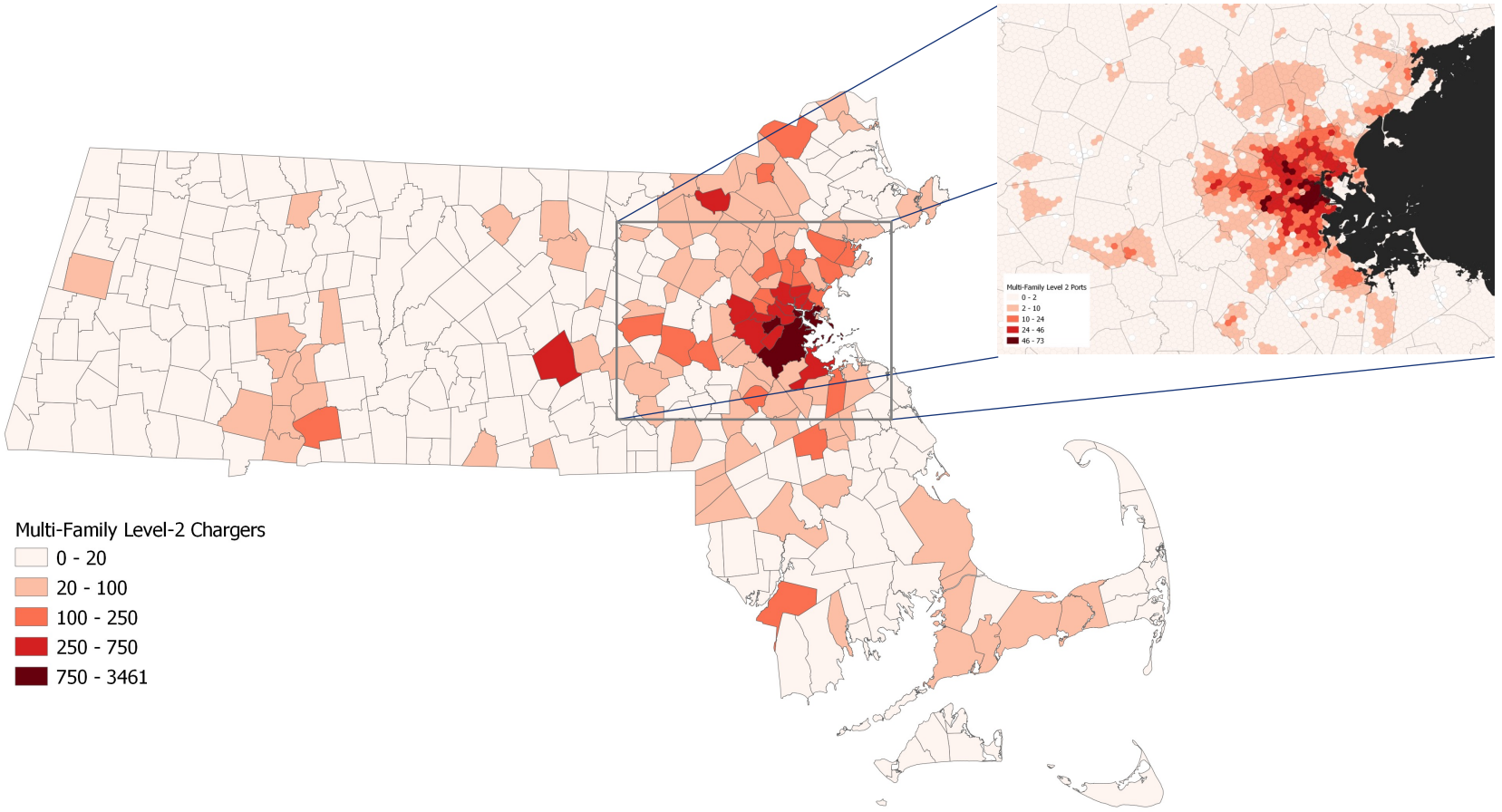
Single-Family Home Charging: Level-2

Total Ports: 180,000



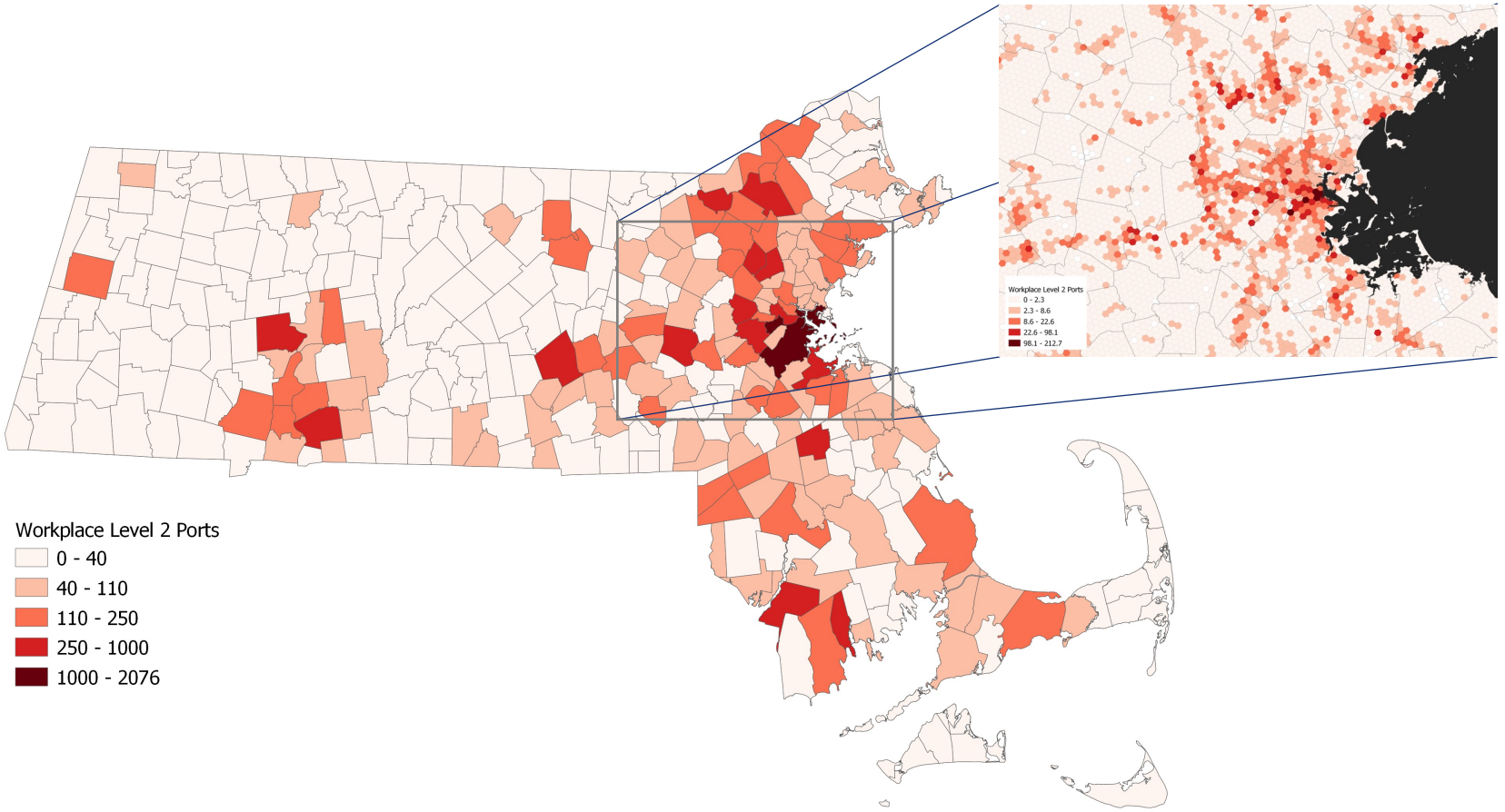
Multi-Family Home Charging: Level-2

Total Ports: 17,000



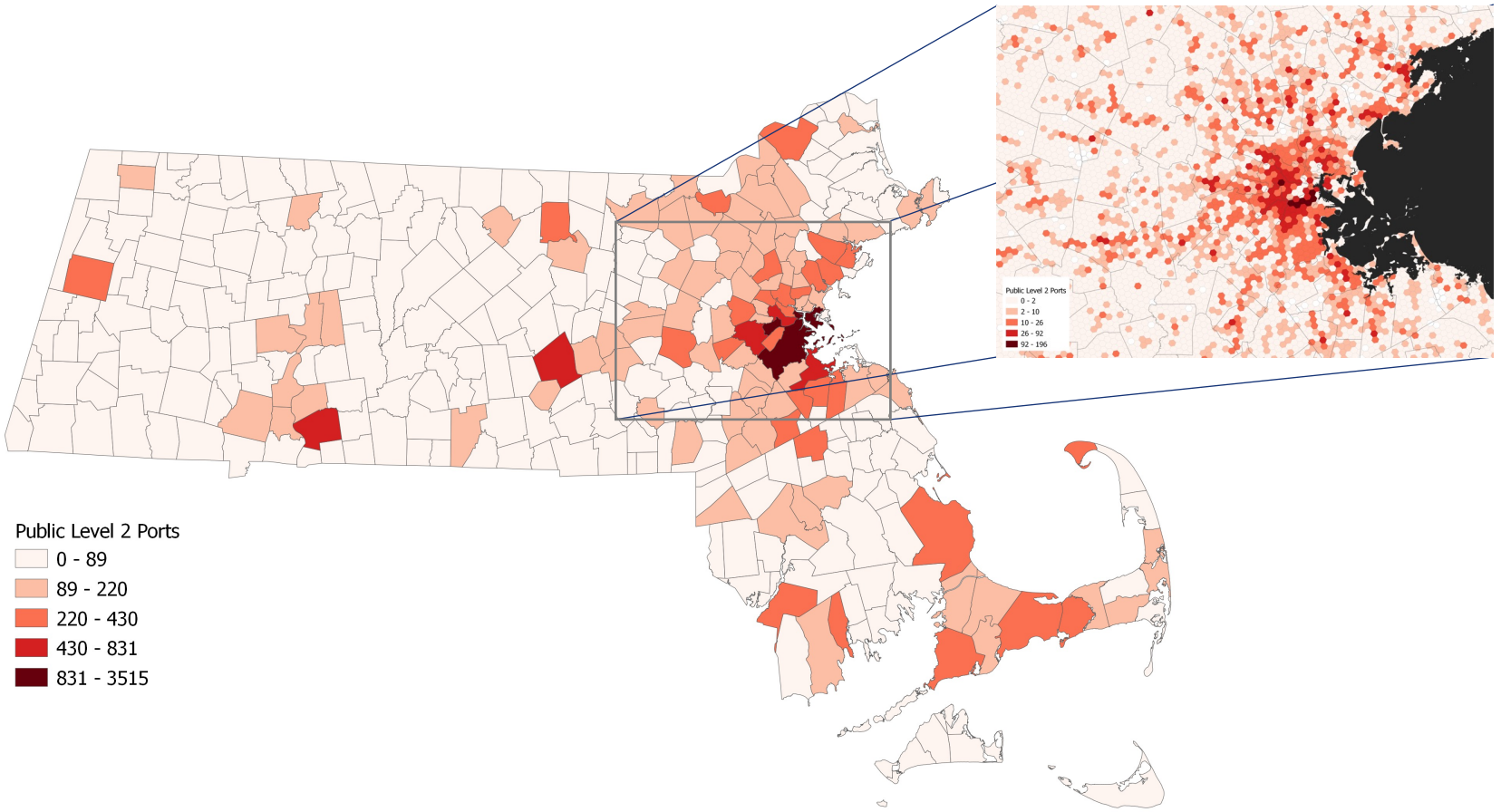
Workplace Charging: Level-2

Total Ports: 23,000



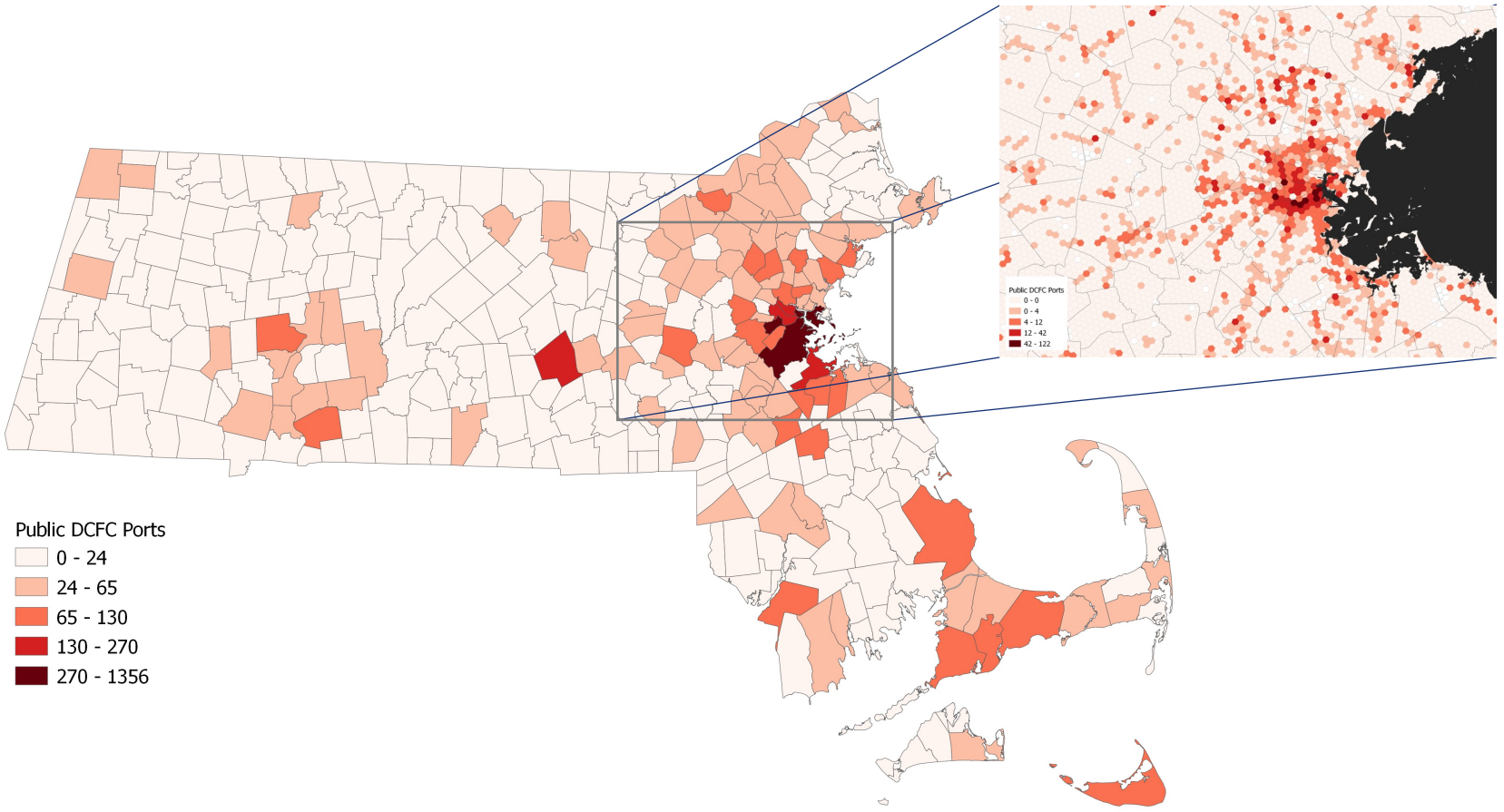
Public Charging: Level-2

Total Ports: 35,000



Public Charging: DCFC

Total Ports: 10,000



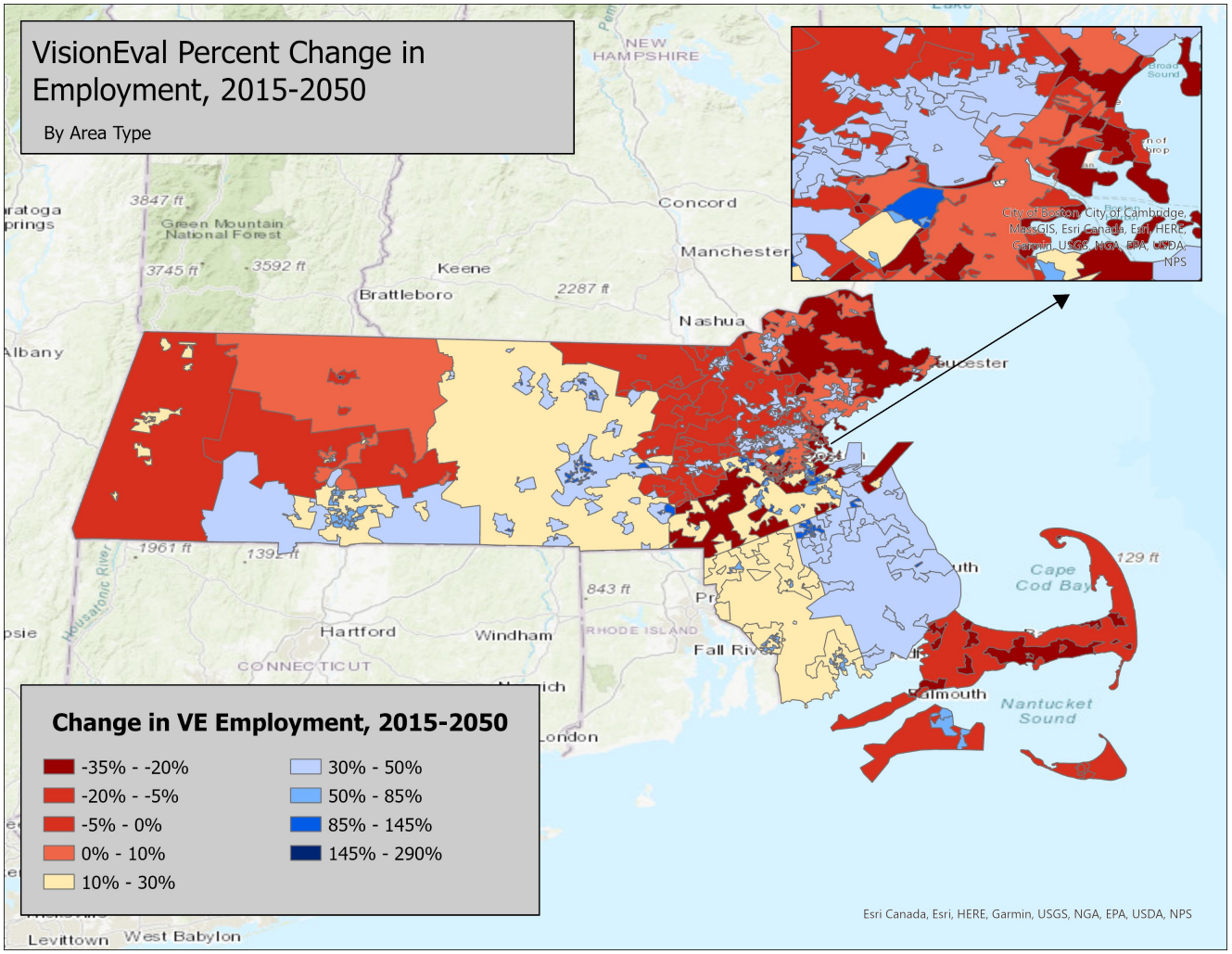
Next Steps

Next Steps

- Refine EVI demand
- Refine EVI locations
- Detailed assessment of long-distance travel DCFC demand
- Understand grid impacts of different EVI distributions
  - L2 vs. DCFC
  - DCFC in more small groups vs. fewer larger concentrations
- Policy recommendations, business model evaluation

Backup slides

Forecasted Growth - Employment



Forecasted Growth - Population