

# Demographic and Economic Projections for Transportation Planning in Massachusetts

*Methods, results, and implications*

Boston Region MPO

December 6, 2018

**Sarah Philbrick**

*Socioeconomic Analyst II*

*Metropolitan Area Planning Council*



# Introduction

Population & employment projections are essential inputs for transport models & plans

Current (2018) process created new projections for all regions, municipalities, and transportation analysis zones in Massachusetts

- Population (by age and labor force status)
- Households (by size, workers, and income)
- Employment (by sector)

Coordinated by MassDOT with:

- MAPC
- University of Massachusetts Donahue Institute (UMDI)
- Projections Committee of all Massachusetts MPOs and other agencies

# Statewide and Regional Projections

## *Methods and Findings*

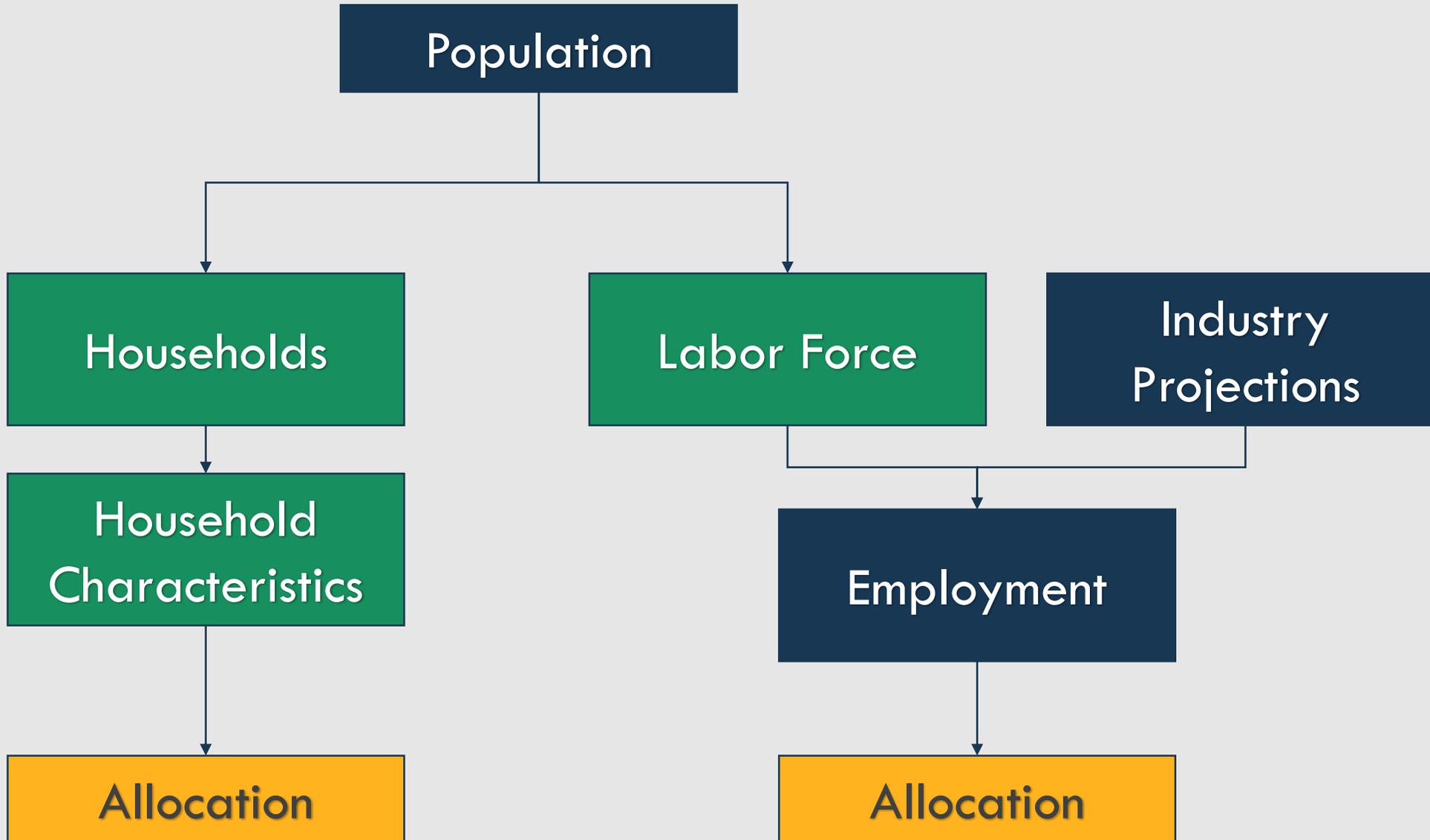
# Process & Approach: Principles

- Maintain internal consistency of population, households, labor force, and employment
- Rely on current/recent rates of births, deaths, migration, household formation, etc.
- Allocation informed by detailed info about development pipeline
- Output format must match transport model specifications

# Process & Approach: Methods

- Traditional Cohort Component: Births – Deaths + Migration
- Migration rates based on 2005 – 2011 period
- Calibrated to match 2015 municipal & regional population estimates
- “Benchmark” regions → municipalities → Metropolitan Planning Organization regions
- Households & Labor Force derived from population by age
- MA employment constrained by resident labor force and estimated in-commuters
- Regional Planning Agencies responsible for allocation to municipalities and transportation analysis zones

# Projections Workflow

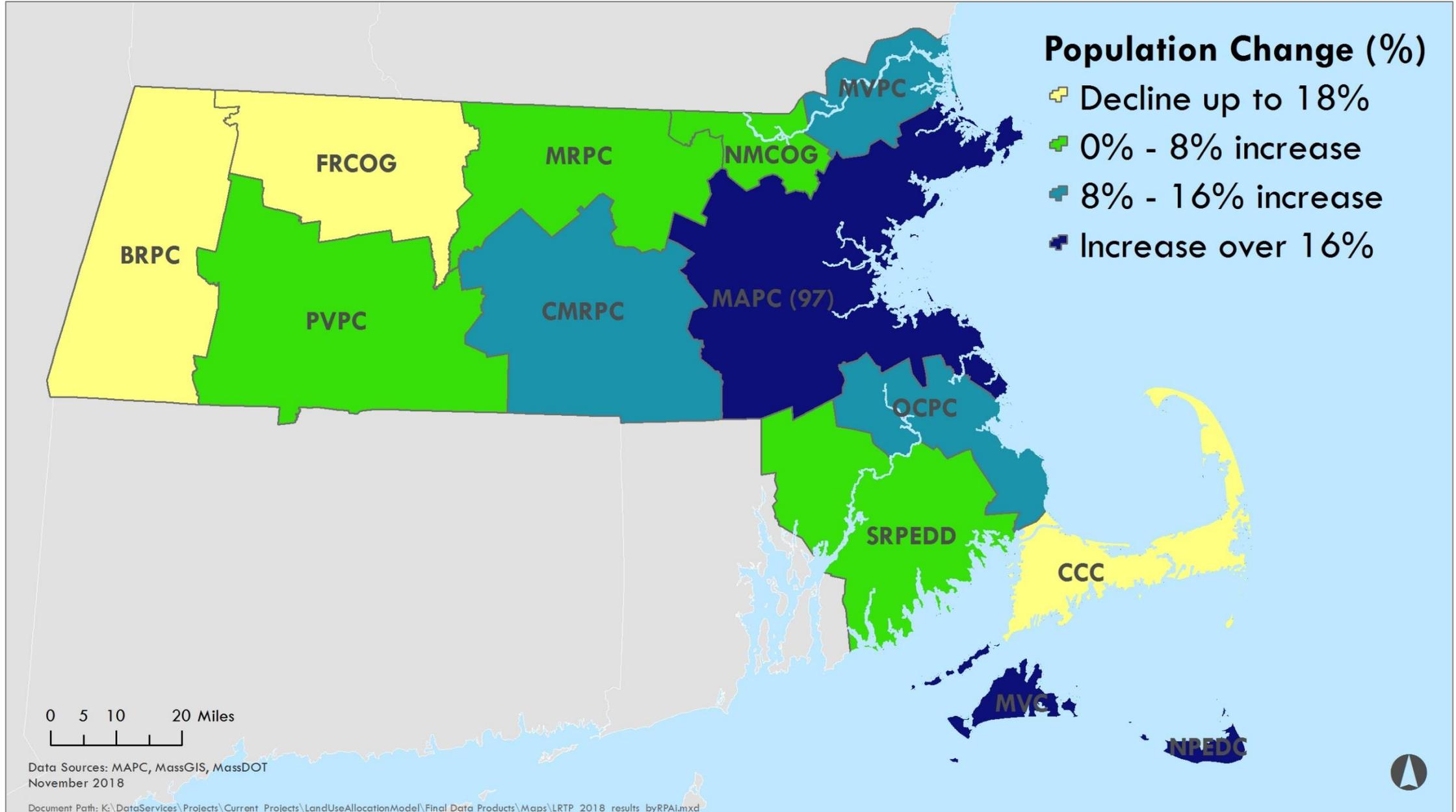


UMass Donahue  
Institute

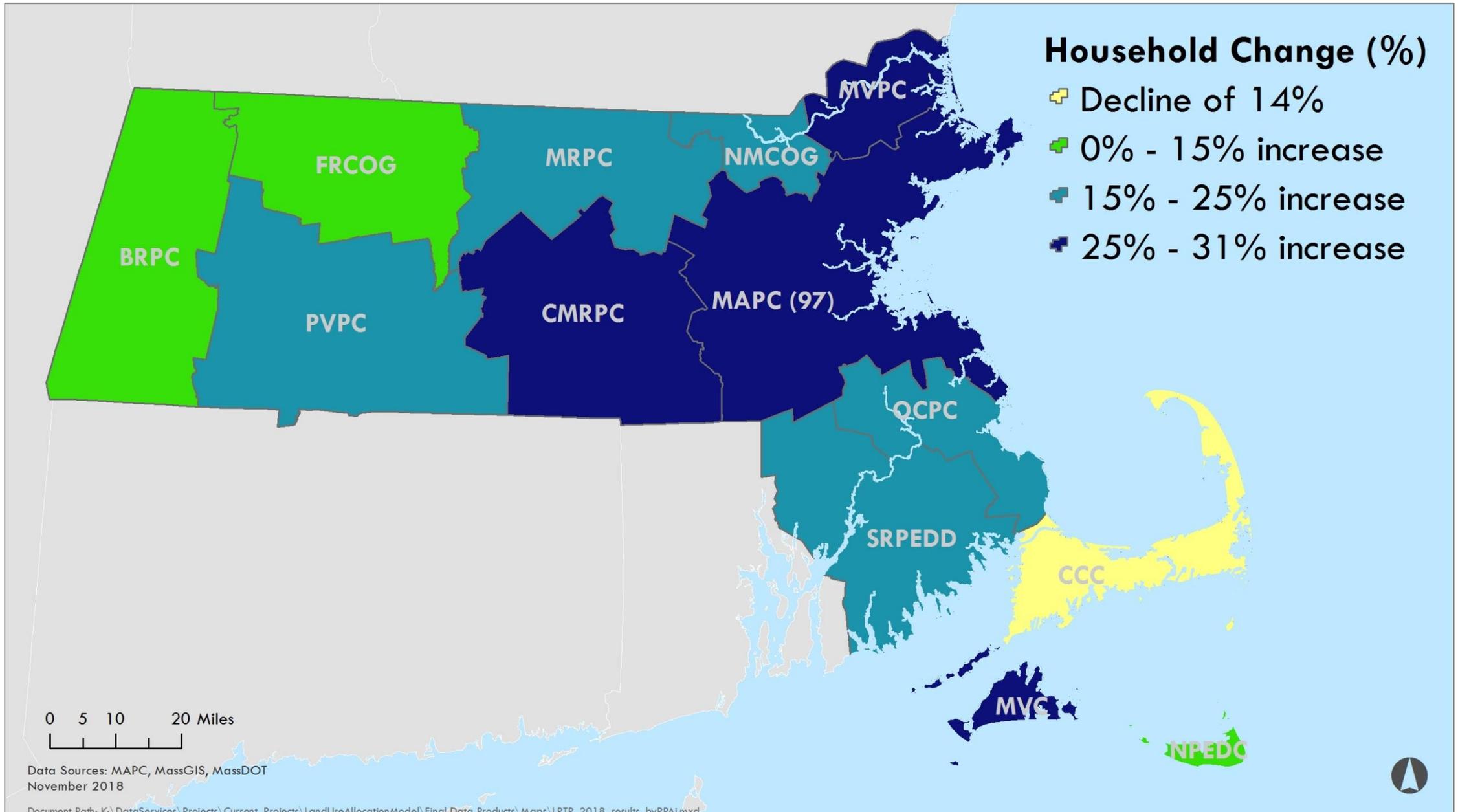
MAPC

Regional Planning  
Agencies

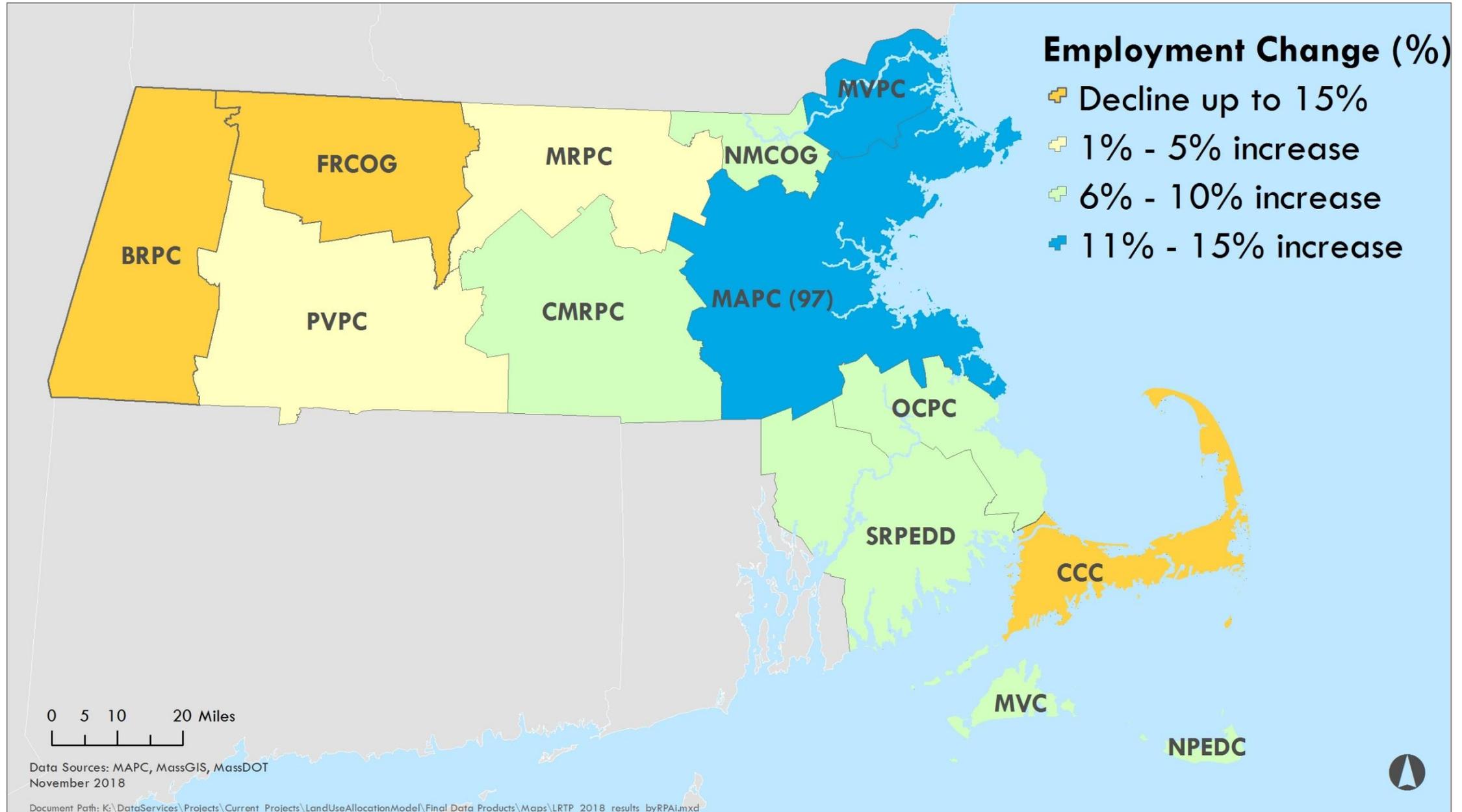
# Population change by region, 2010 - 2040



# Household change by region, 2010 - 2040



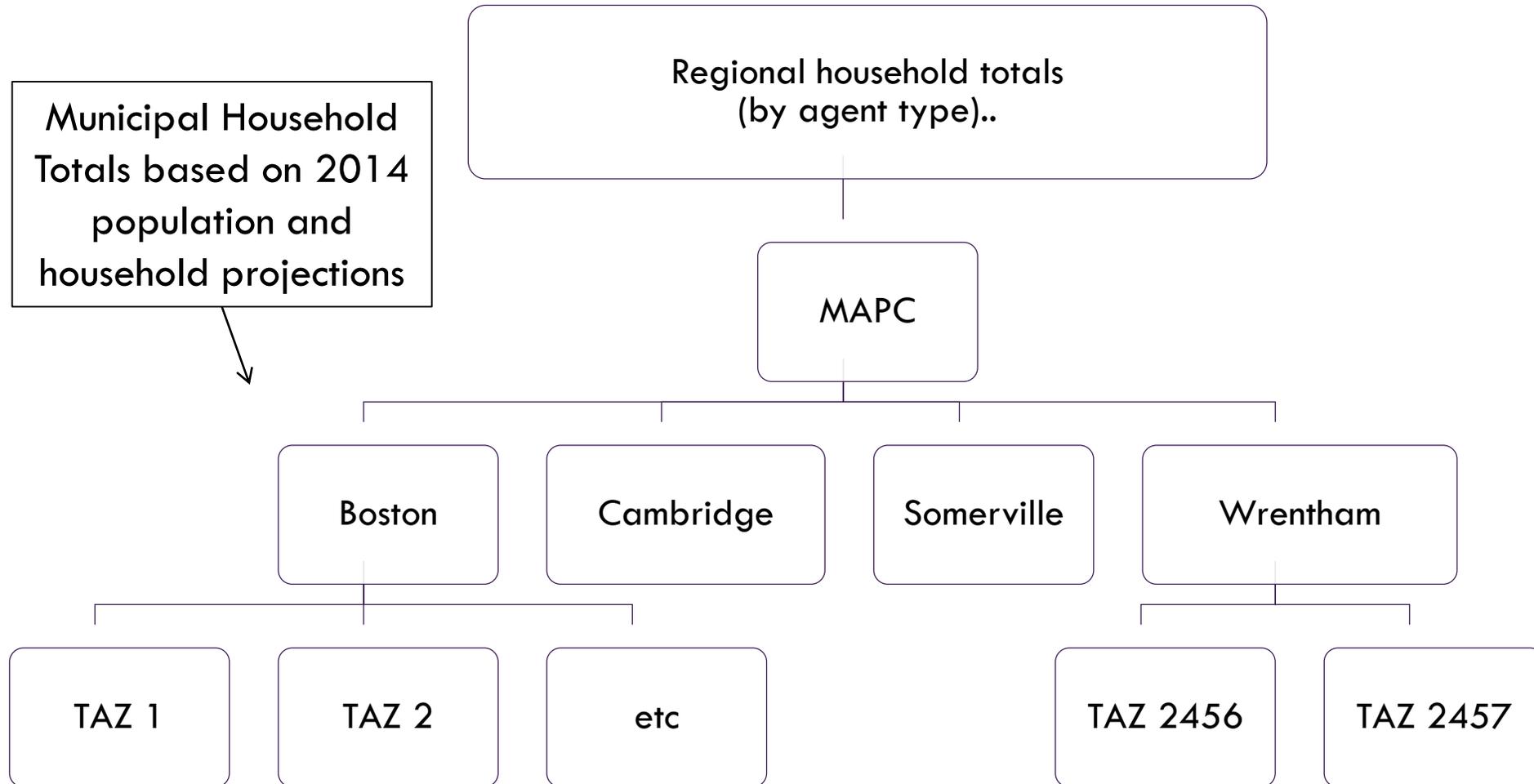
# Employment change by region, 2010 - 2040



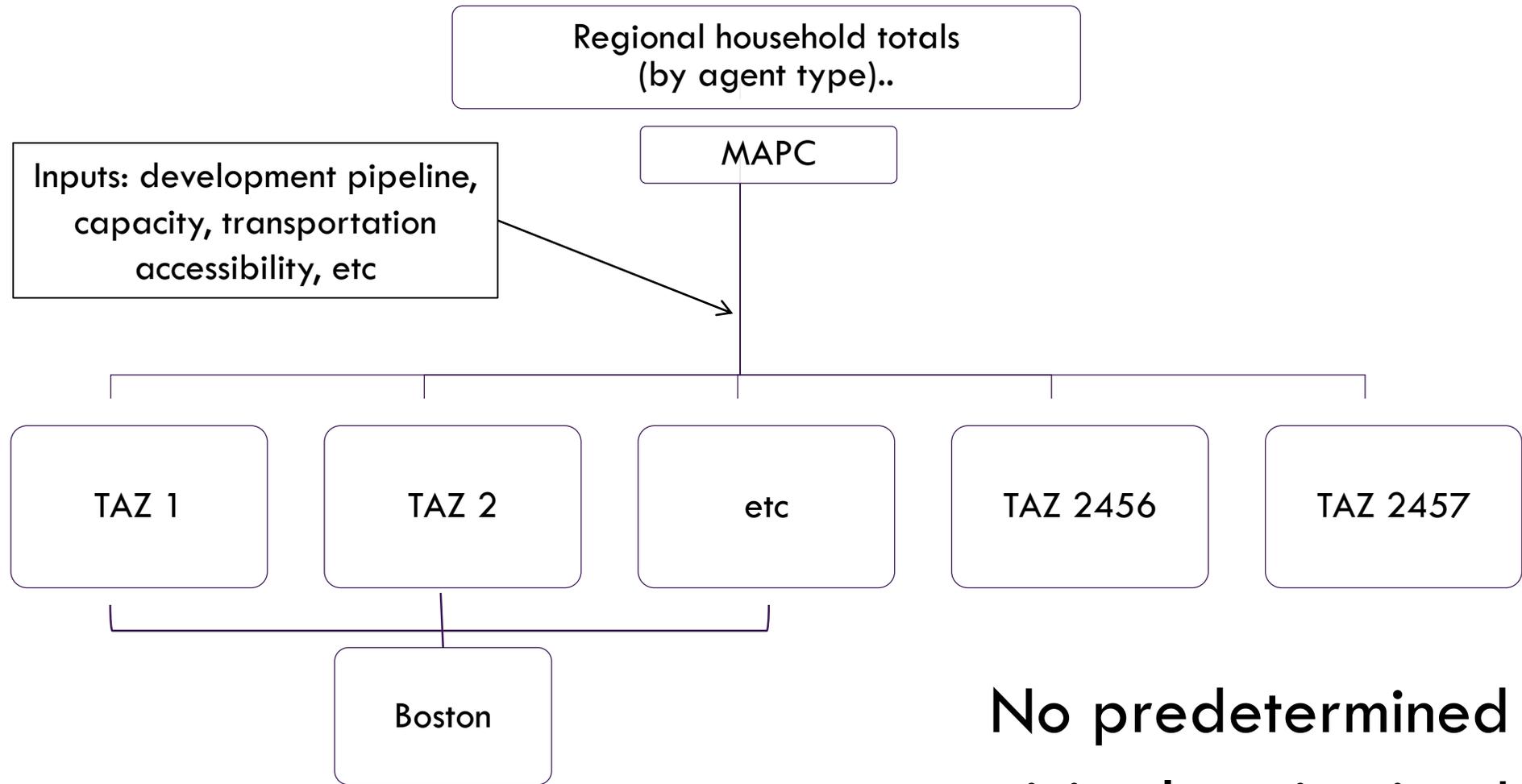
# **Allocation to Municipalities and Analysis Zones**

## *Methods and Results*

# Zonal Allocation, 2015 LRTP projections (households)



# Zonal Allocation, 2018 Methods



**No predetermined municipal projections!**

# Municipal input: July 24<sup>th</sup> - August 17<sup>th</sup>



# ALERT

*Input for projections needed now!  
Aug 17 deadline*



Dear Amanda Linehan,

MAPC's population, housing, and employment projections inform transportation funding decisions and many other planning efforts that affect your city or town, and the time for municipal input into those projections is now.

---

**The main way for your municipality to influence these projections is to provide information via Massbuilds, and the opportunity to do so ends August 17, 2018.**

---

At your soonest convenience, please update your municipality's housing and commercial development information so we can meet upcoming state and federal deadlines. Massbuilds already includes information about thousands of projects regionwide, but it is important that you ensure that it is up to date and complete.

Many more details are provided below, including links to helpful videos, and MAPC is always available to answer questions or assist you. Thank you very much for your contributions to this important effort.

**Quick Links:**  
[MassBuilds](#)  
[Directions for Providing Input](#)  
[How to Register](#)  
[More Help](#)

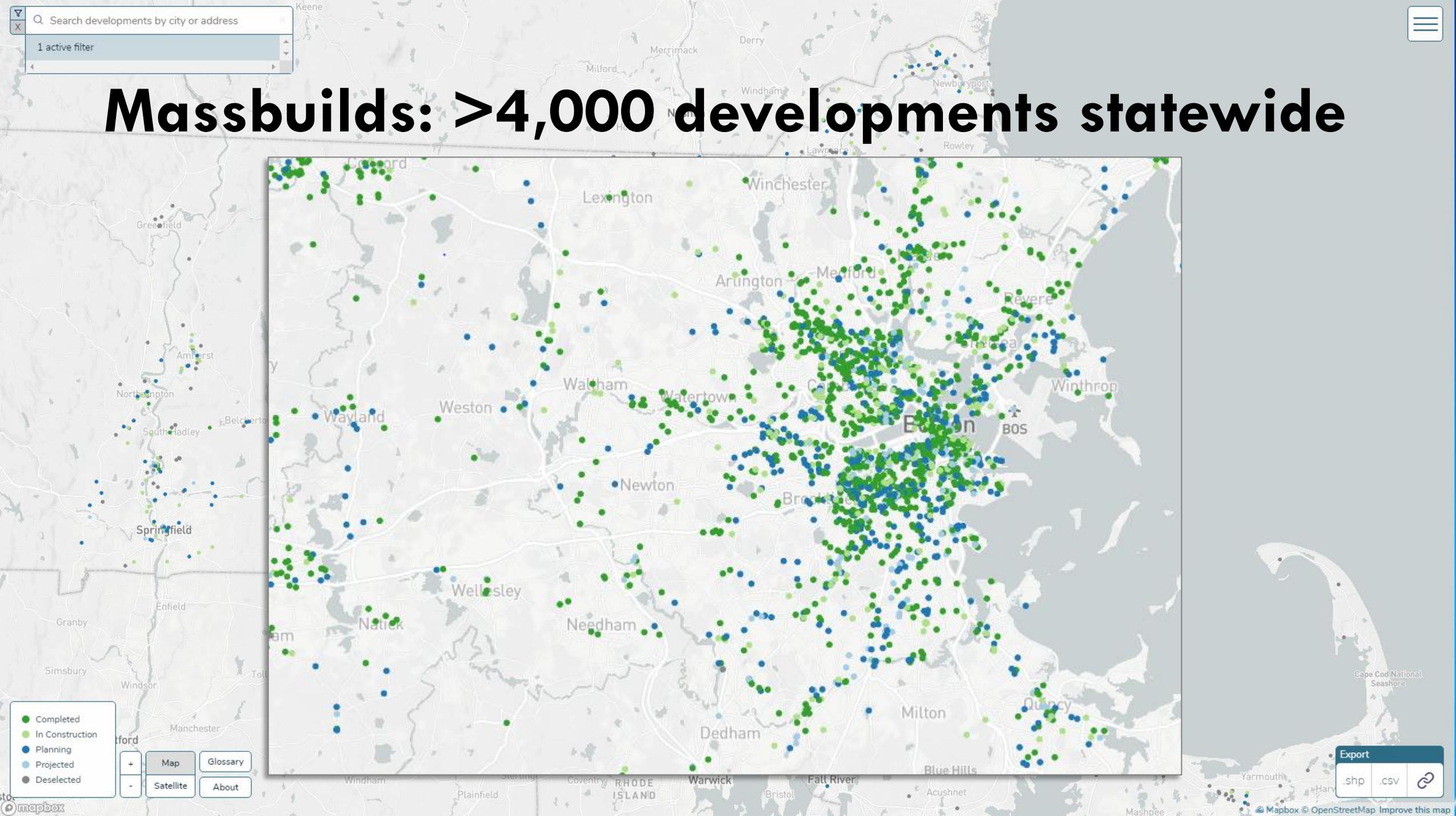
Sincerely,  
Tim Reardon  
Director of Data Services

## Learn More

### What is MAPC asking you to do?

**Massbuilds**, MAPC's collaborative inventory of past, present, and future real estate development in Massachusetts, already includes information about thousands of recent and planned developments in the region, compiled based on prior municipal input and MAPC's own research.

# Massbuilds: >4,000 developments statewide

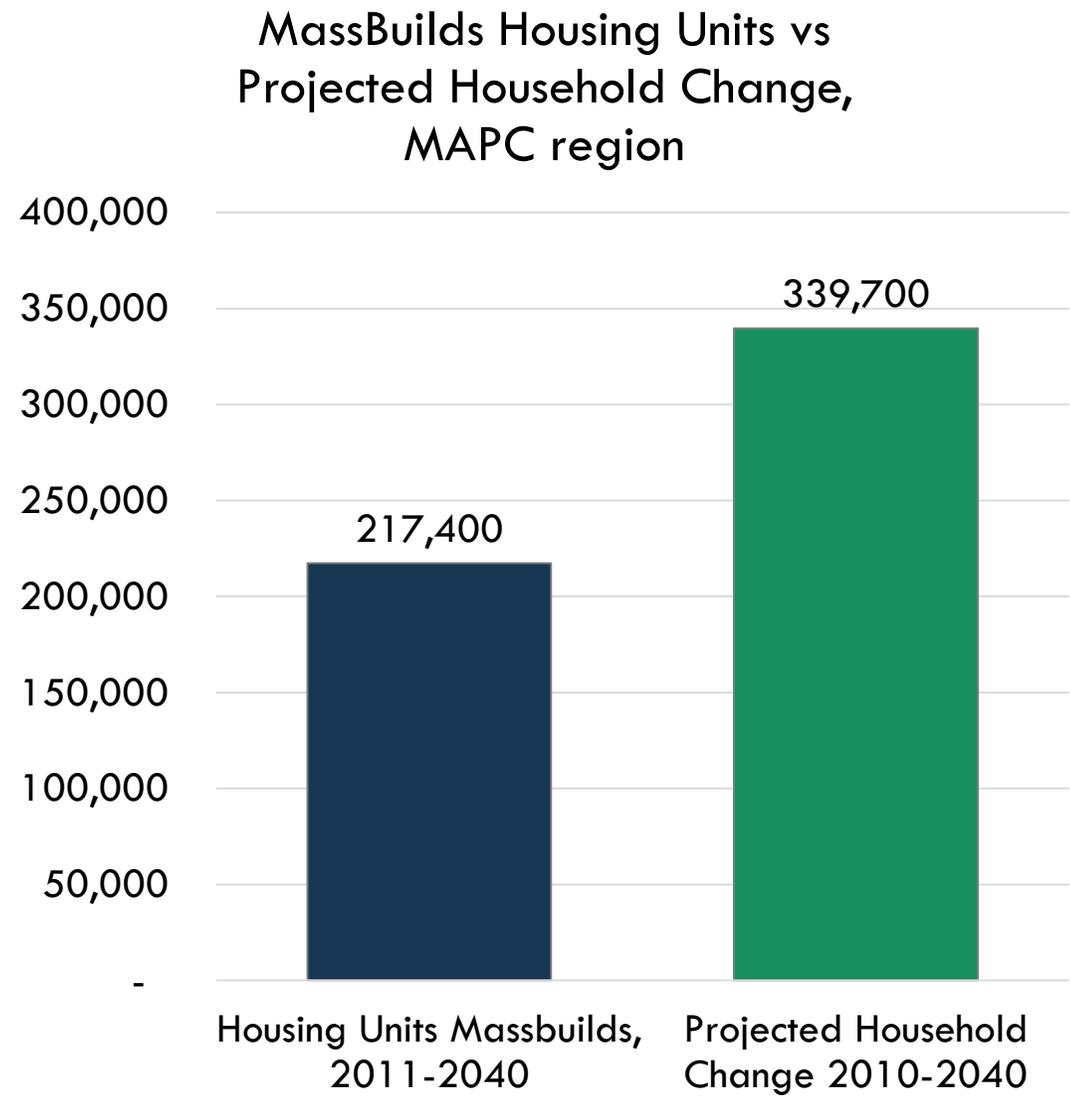


Search developments by city or address  
1 active filter

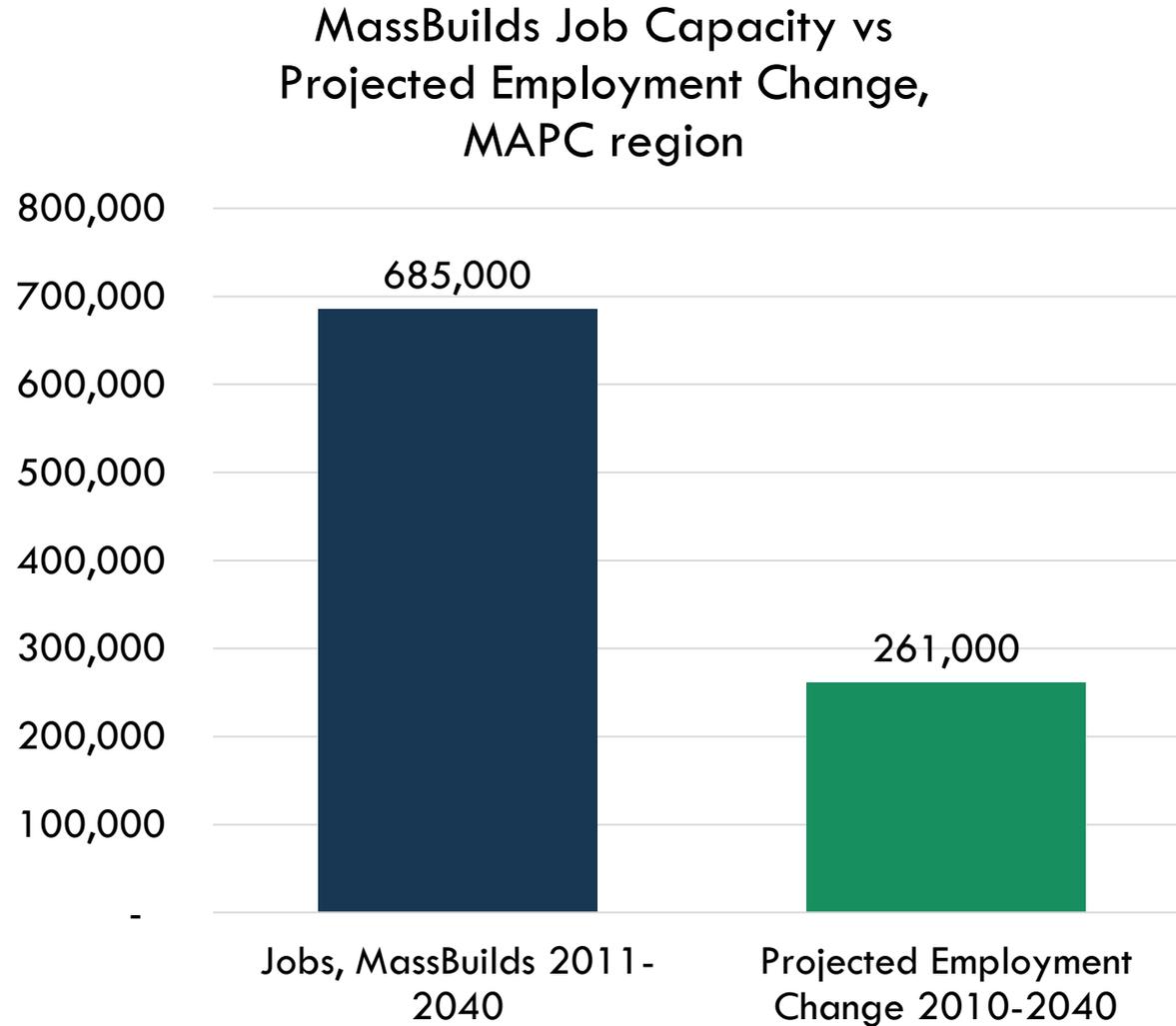
- Completed
  - In Construction
  - Planning
  - Projected
  - Deselected
- Map Glossary  
Satellite About

Export  
.shp .csv

# Housing units completed since 2010 or in the pipeline: 65% of projected new households



>200 million square feet of commercial space completed since 2010 or envisioned before 2040; more than 2.5 X amount needed for projected job growth



# MAPC Region *Highlights*

# 2040 Projections: MAPC (97)

	2010	2040	Net change	Percent change
Population	3,088,000	3,704,500	616,500	20%
Households	1,216,500	1,582,500	366,000	30%
Employment	1,823,500	2,084,500	261,000	14%

# Significant household shifts within MAPC region

Household Types with Large Growth

No child households over 45 making under 35k (>90%)

Two person households over 65 making 35k-150k (+88%)

Parents under 35 with children making under 75k (+72%)

No child 3-4 person households making over 35k, householder under 45 (-76%)

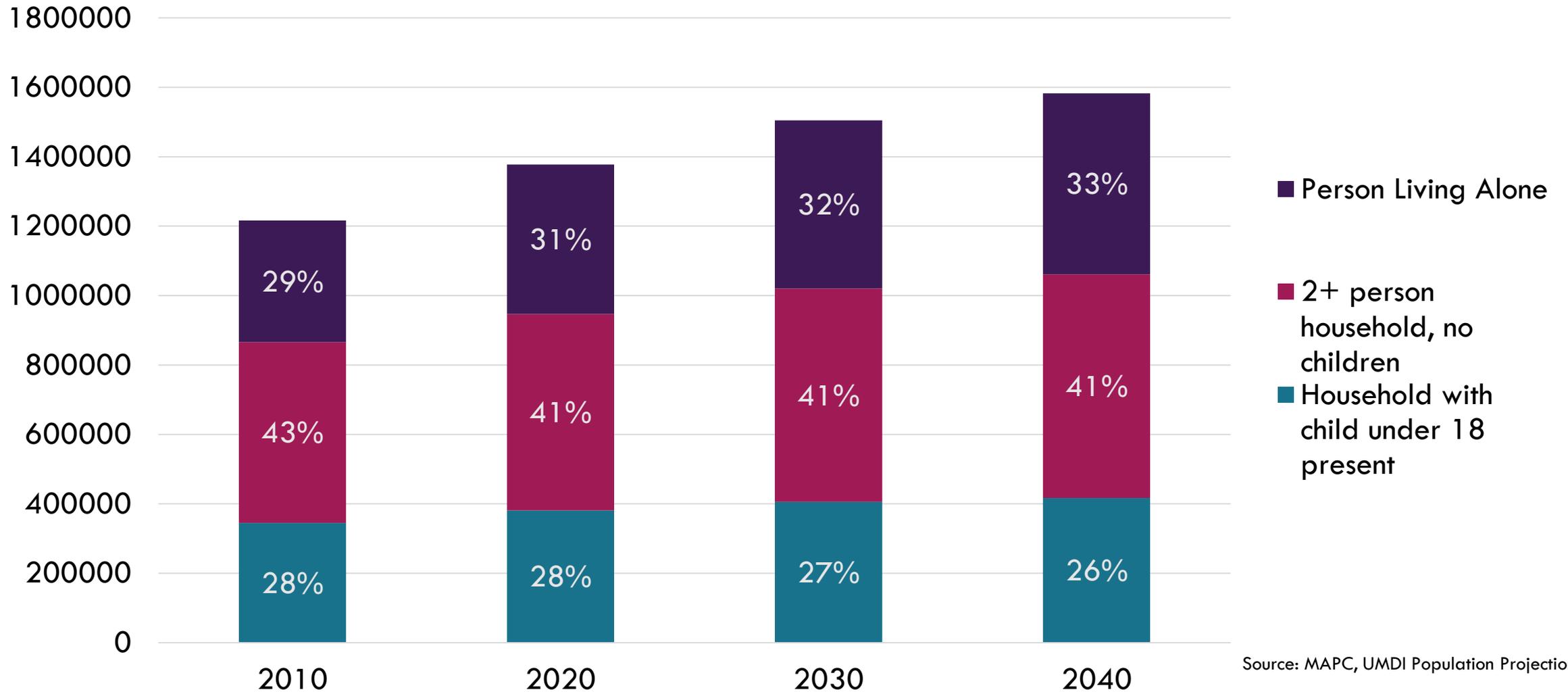
Single parents with one child (-41%)

Single householder under 45 making under 35k (-12%)

Household Types with Large Decline

# Families with children will comprise a declining share of total households

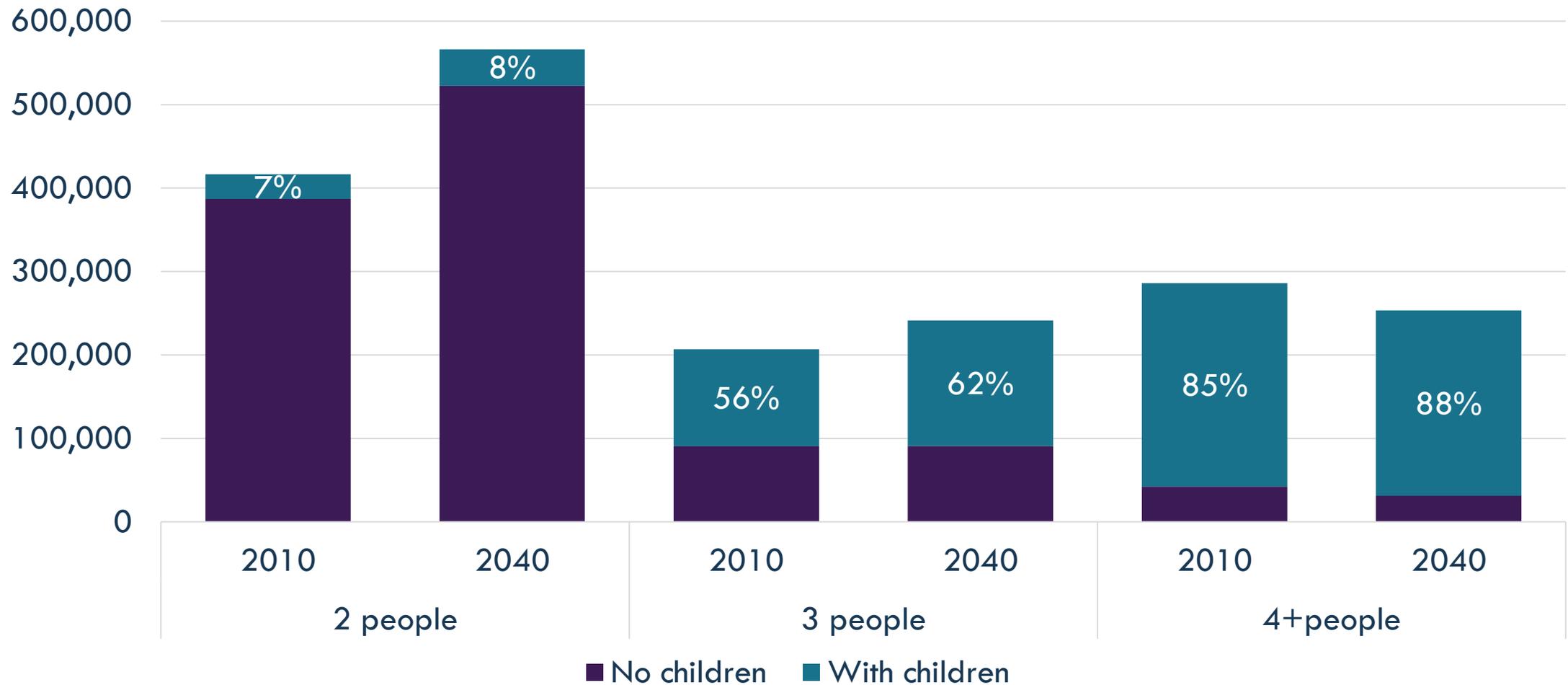
Households by Household Type, MAPC (97), 2010 - 2040



Source: MAPC, UMDI Population Projections

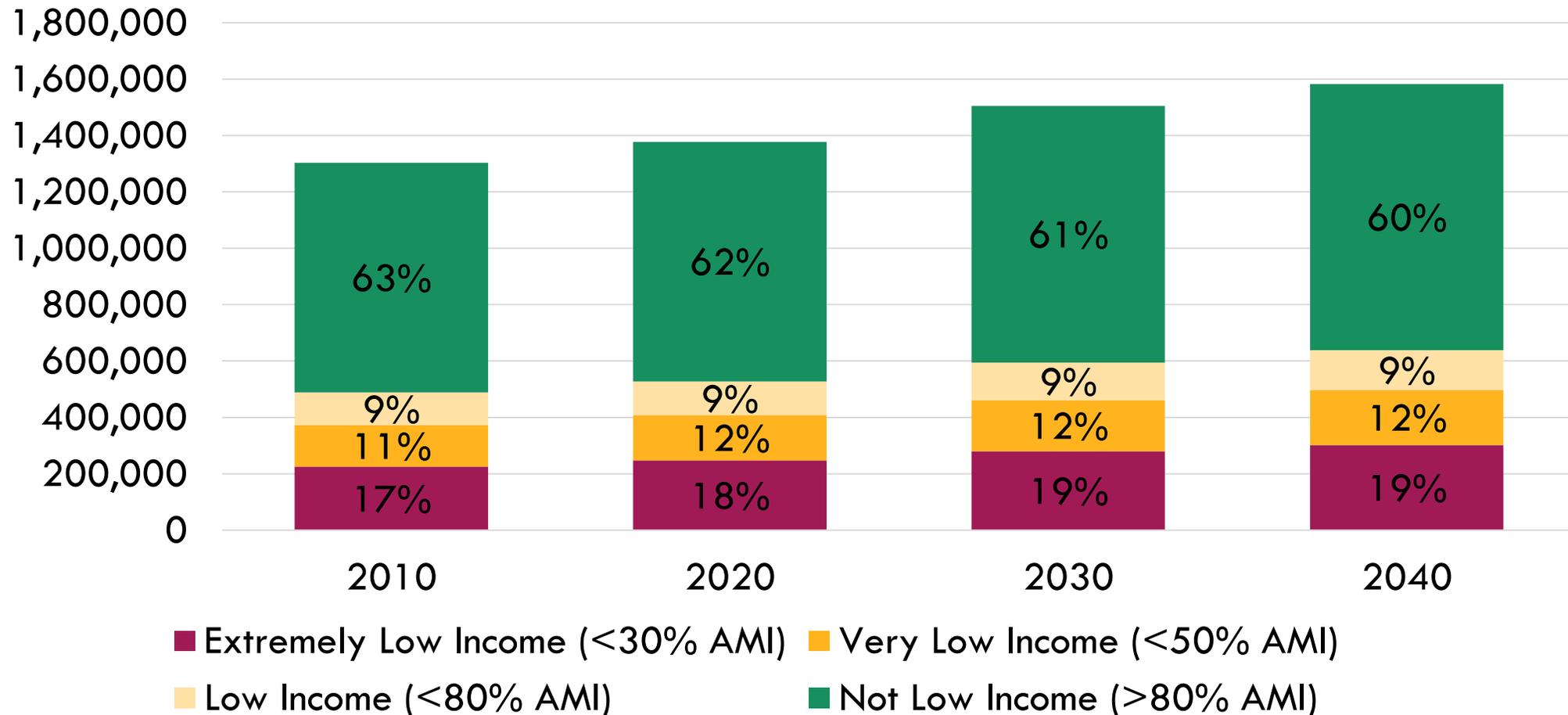
# Fewer large households (especially large families); many more single person households

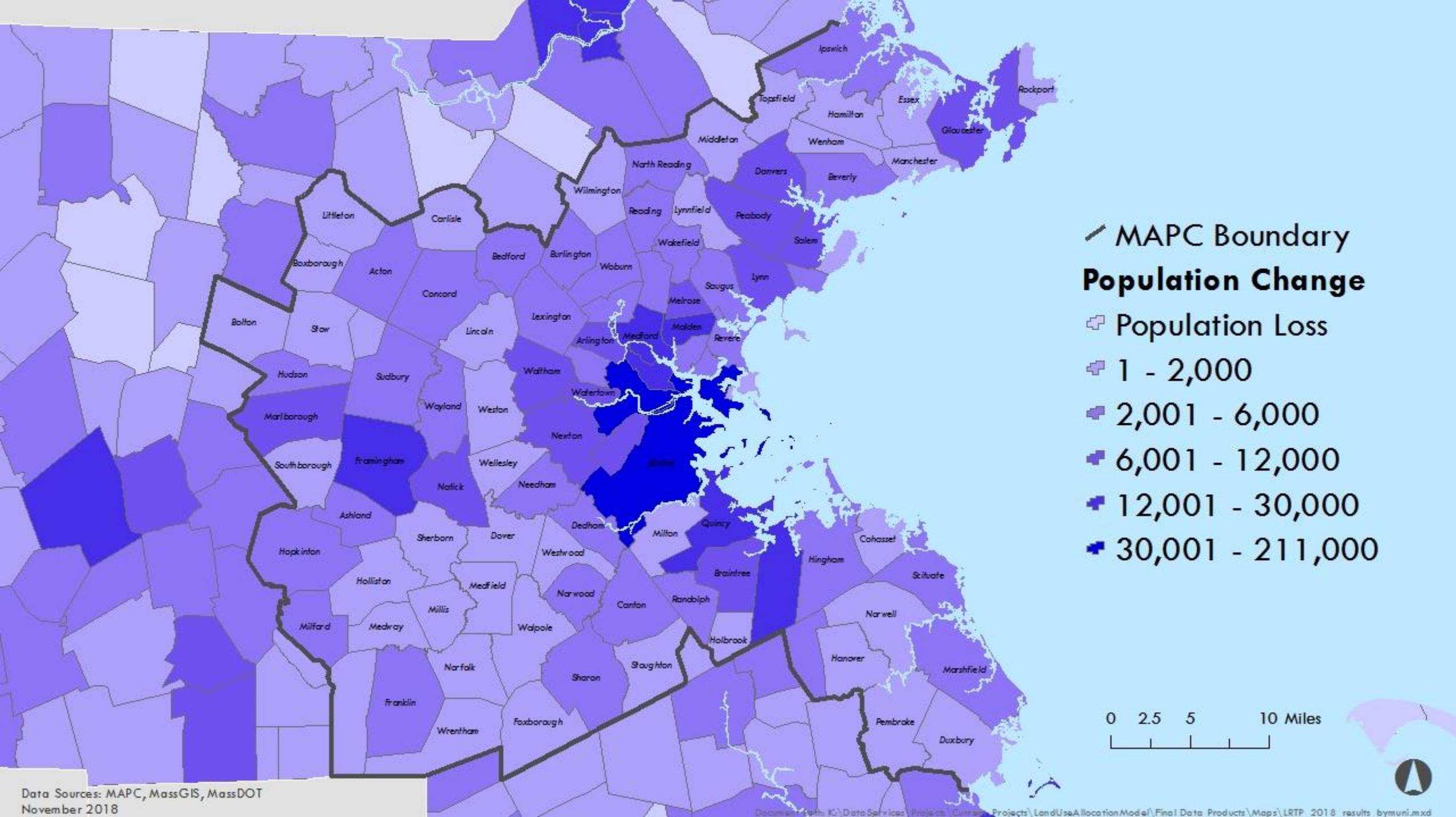
Households by Size and Type, 2010-2040, MAPC (97)



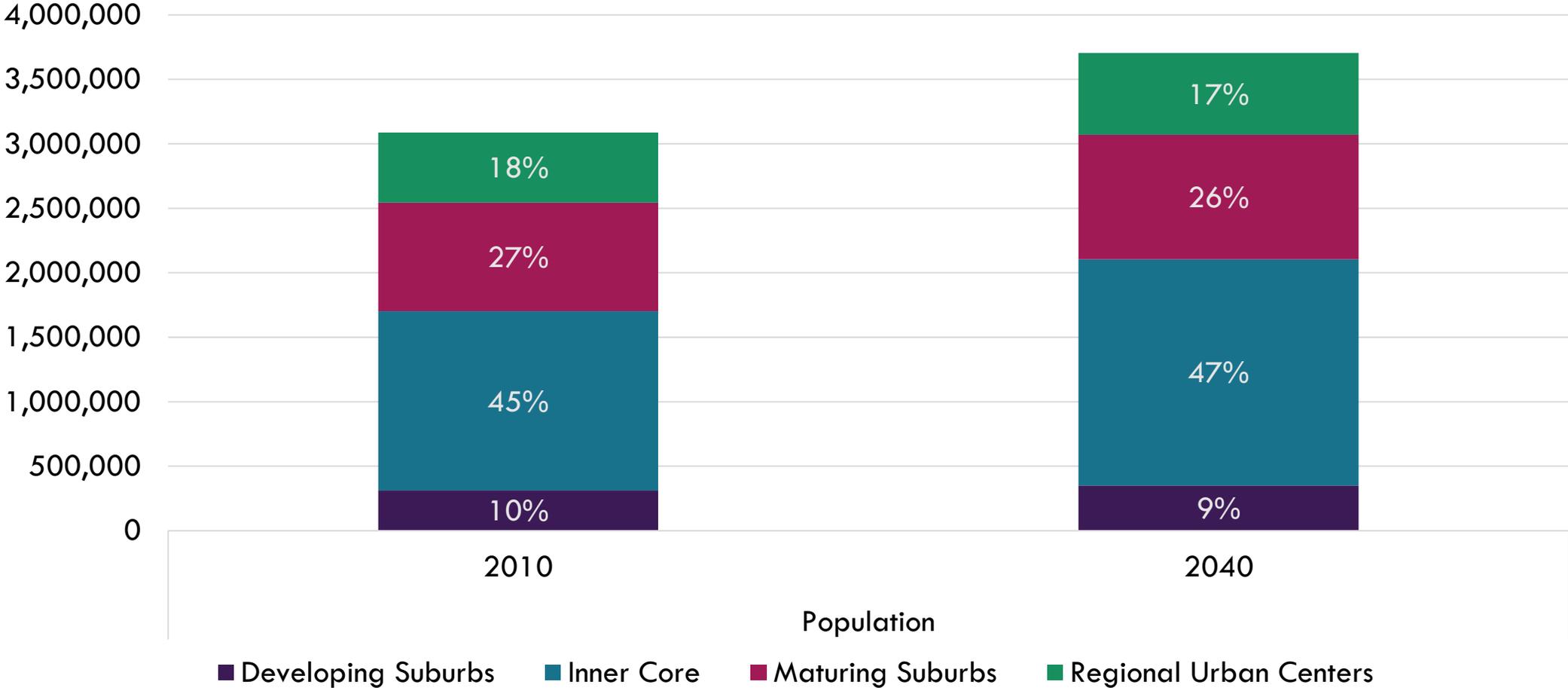
# Lowest income households projected to comprise a larger share of total households

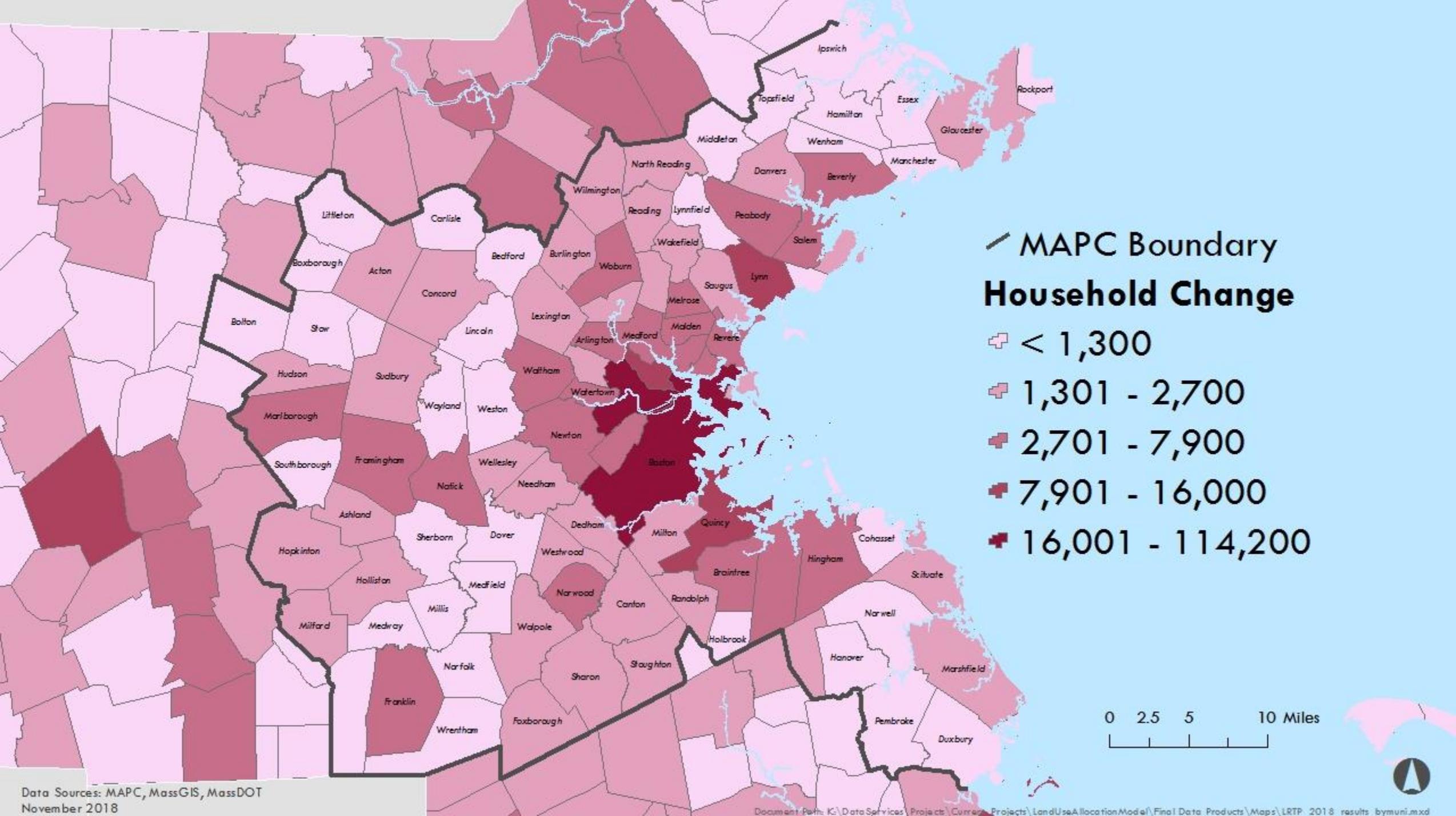
Projected Households by Income  
(as percent of Area Median Income), Boston MPO





Population by Community Type, MAPC (97)



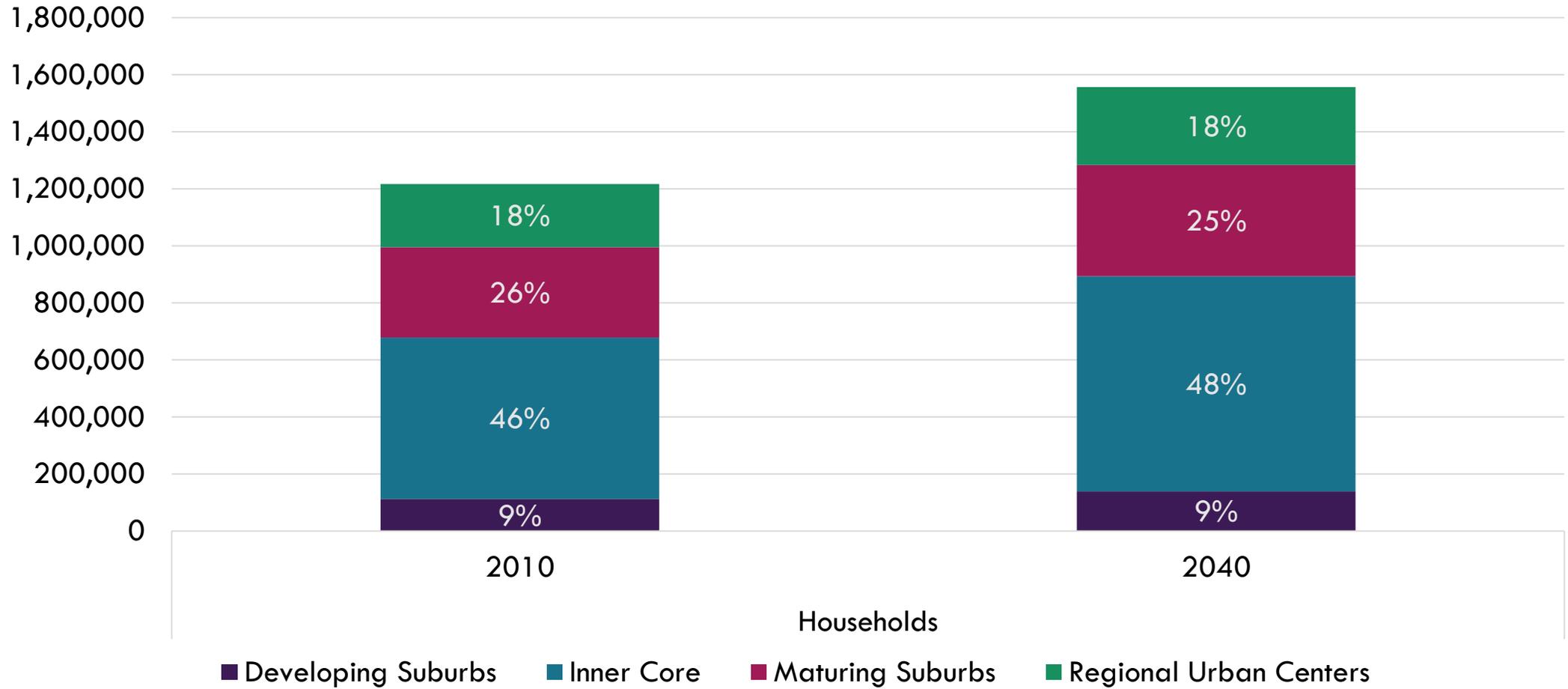


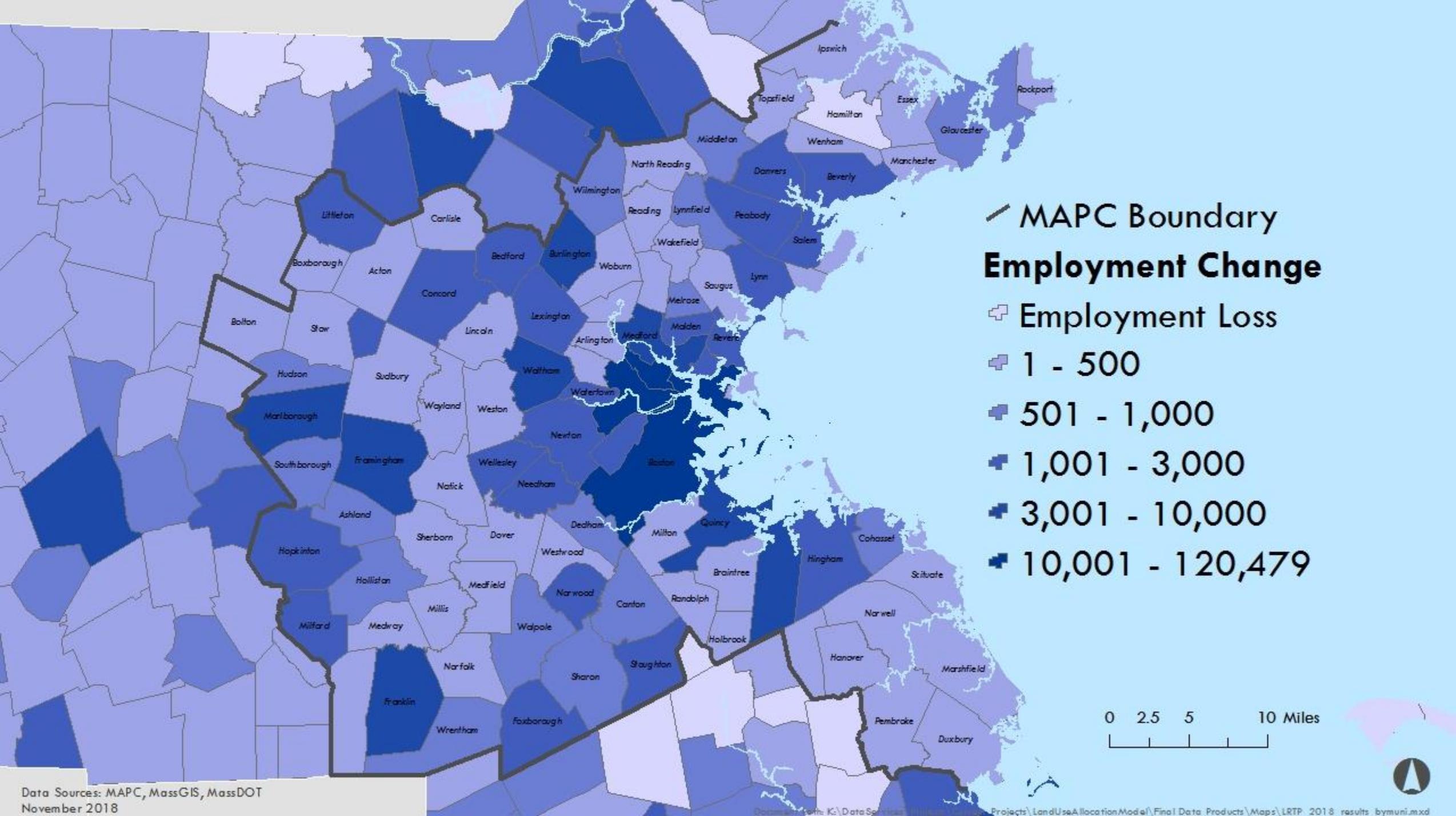
MAPC Boundary  
**Household Change**

- ☐ < 1,300
- ☐ 1,301 - 2,700
- ☐ 2,701 - 7,900
- ☐ 7,901 - 16,000
- ☐ 16,001 - 114,200



Households by Community Type, MAPC (97)



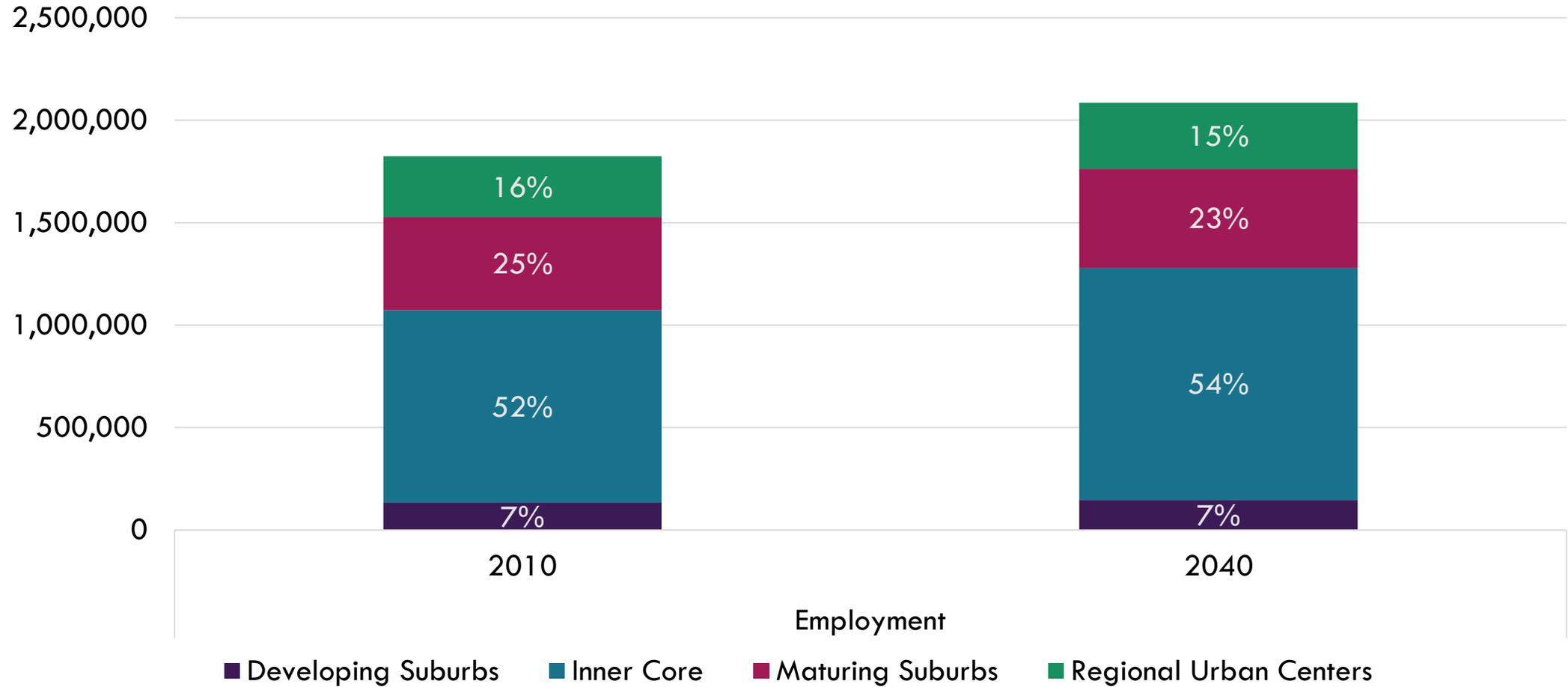


 MAPC Boundary  
**Employment Change**

-  Employment Loss
-  1 - 500
-  501 - 1,000
-  1,001 - 3,000
-  3,001 - 10,000
-  10,001 - 120,479



Employment by Community Type, MAPC (97)



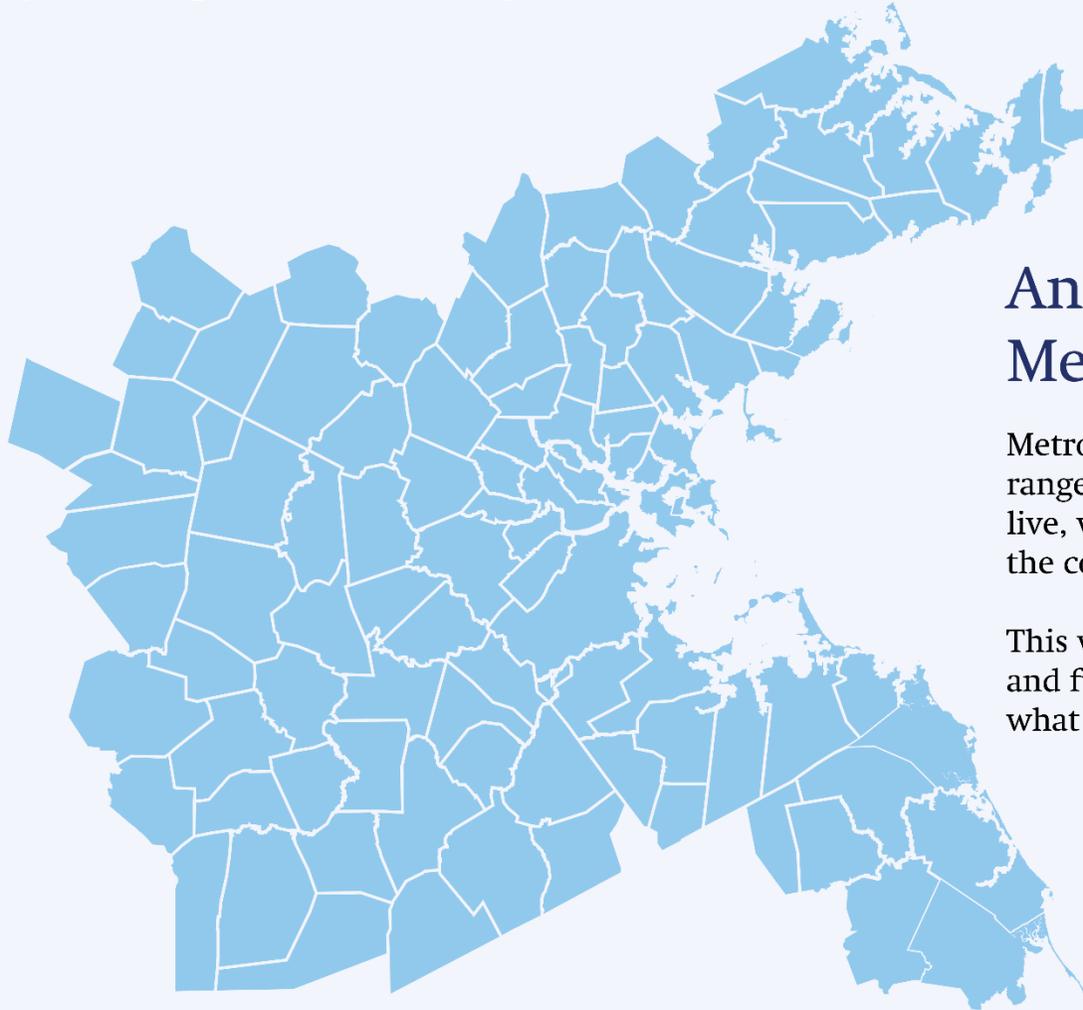
# Additional Considerations

- Fully integrated land use—transportation model still in development. For the time being, land use inputs generally held constant for different transportation scenarios (e.g., Build vs. No-Build). Can be altered on a project-by-project basis, within reason.
- Status quo approach does not assume any major changes in migration patterns, headship rates, labor force participation, income distribution, etc.
- Additional demographic & land use scenarios to be developed through MAPC's MetroCommon regional planning process now underway ([www.metrocommon.mapc.org](http://www.metrocommon.mapc.org))

**MetroCommon x 2050**

## MetroCommon × 2050

*Greater Boston's next long-term regional plan, led  
by the Metropolitan Area Planning Council (MAPC)*



## Announcing MetroCommon 2050

MetroCommon, Greater Boston's next long-range regional plan, will let those of us who live, work, and play here imagine and create the common future we want — together.

This will mean considering regional needs, and furthering regional solutions. That is what MetroCommon 2050 is all about.



## Our Common Challenges and Opportunities

We'll be tackling the most pressing issues: equity of wealth and health, climate mitigation and resiliency, housing, growth and mobility, and dynamic, inclusive, and collaborative governance.



MetroCommon × 2050  
*Shaping our Region Together*

## The more participation, the better the plan will be!

There will be many ways for you and your constituents to get involved.

To keep up with all the news and big ideas,  
visit [MetroCommon.mapc.org](http://MetroCommon.mapc.org) today!



# Thank You

**Sarah Philbrick**

*Socioeconomic Analyst II*

**sphilbrick@mapc.org**