Regional Plan Update

Research Agenda – Initial Projects List

12/19/18

**Equity of Wealth and Health**

**Commercial displacement** – Through a scan of literature and existing work of our own, what are the different ways to define and understand commercial displacement? What role to small businesses, especially those owned by immigrants and people of color, play in the identity, economy, and health of neighborhoods and their residents? Is it possible to assess risk and occurrence of commercial displacement? How can these small businesses, continue to thrive in the region’s strong market without being displaced? Are there policies or interventions in other cities and regions for us to consider for further study? What are other regions and cities doing to research commercial displacement or to develop policies in response (discover through phone outreach)?

Methods: literature review, phone interviews

Research lead: Betsy Cowan

Research team: Raul Gonzalez, Sharon Ron, Seleeke Flingai

Advisory team: Public Health, Arts and Culture, Lizzi Weyant

Approximate hours: 60

***Status: Final deliverable completed; presentation of findings scheduled for 1/14/19***

***Hours spent: 80***

[***Scope***](file:///\\Data-001\Public\DataServices\Projects\Current_Projects\Regional_Plan_Update_Research\Displacement%20-%20Commercial\Scope\09122018%20-%20Commercial%20Displacement%20Research%20Project%20Scope%20Content.docx)

**The changing nature of work** – Industries and occupations of workers in Metro Boston have changed significantly over the last 25 years, and these changes have impacted workers' and working households' incomes and employment opportunities. There are fewer middle-wage occupations in the region now, and more low-wage and high-wage occupations. These trends are consistent around the nation, though Metro Boston has its own industry and occupational trends that make it unique (and in some senses, better off than much of the rest of the country.) What are experts saying at the national scale about the drivers and impacts of these changes? What about anticipated future changes? What policies or programs are needed now for workers who are underemployed, who are not making a sustainable wage to live in Metro Boston, or who have dropped out of the labor force entirely? Is the region’s educational system preparing students to work in the future workforce? As we think about the future of work in Metro Boston, are there any policies we can put in place or interventions that we can make proactively to prepare for coming changes, while ensuring opportunity and prosperity for our workforce and a healthy regional economy?

Methods: literature review and summarization of existing MAPC research/data (MassDOT projections, MMC Housing Taskforce, ULI Building for the Middle, etc.)

Project lead: Sarah Philbrick

Research team: Josh Eichen

Advisory team: someone from Land Use, Municipal Collaboration, and Public Health

Approximate hours: 100

Potential next steps of this research: What industrial and occupational changes are projected for the future? What is the gig economy and how has its proliferation impacted workers? What might automation mean for workers in different industries and occupations into the future?

***Status: Research in progress***

***Hours spent: 54 out of 116.5***

[***Scope***](file:///\\Data-001\Public\DataServices\Projects\Current_Projects\Regional_Plan_Update_Research\Nature%20of%20Work\ChangingNatureofWork_Scope_112918.docx)

**Mapping transportation access to jobs and activities** – Under current transportation network conditions, how long does it take to get to jobs and different activity centers (such as parks, community health centers, schools, etc.) from different places around the region? How does it differ among populations by race and income? By different modes? What is the best way to evaluate equity of access in the current system, understanding that while more transit is located in areas with lower-income populations and residents of color, these groups face transit inequities, such as longer commute times than their white and higher-income modal counterparts?

Methods: methods development and analysis

Research lead: Steve Gehrke

Research team: Transportation Research Intern

Advisory team: Travis Pollack, Lizzi Weyant, someone from Economic Development, Armin Akhavan and Ryan Qi Wang from Northeastern School of Civic and Environmental Engineering.

Approximate hours: 100

***Status: Research currently being scoped***

**Undoing the negative impacts of segregation** – Metro Boston remains highly segregated by race and income—many suburban municipalities in the region have done little to help reverse the patterns of segregation that were fostered through decades of discriminatory housing policies and practices, and while recent years have seen a resurgence in interest by wealthier and whiter residents to move into cities, which are predominantly communities of color and lower-income, these communities are now feeling the pressures of rising housing costs and displacement. What does the literature tell us about the impacts of segregation on the wellbeing of residents, in the form of educational attainment, health, income, and other outcomes? What have researchers identified as critical obstacles to reducing segregation and/or improving outcomes? Have other regions been more successful in reducing segregation? Under persistent segregation, have any been more successful in improving outcomes? If so, how, and are any of these strategies appropriate under Metro Boston’s conditions? We know that in Metro Boston local zoning and permitting decisions have led to and continue to exacerbate segregation, but it has proven difficult to make headway on reforming these laws and practices. Are there new approaches to understanding and tackling these issues, or other policies or practices that we might advocate for in Metro Boston to reduce segregation and its negative impacts?

Methods: literature review and collection/study of HMDA data

Research lead: Sarah Philbrick/Seleeke Flingai

Research team: Someone from Land Use, Housing, Economic Development, Public Health

Advisory team:

Approximate hours: 100

Potential next steps of this research: analysis of segregation in Metro Boston; continued policy intervention research

***Status: Research not yet started***

**Homes for All**

**Residential Displacement** – Through a scan of existing literature, what are the different ways to define residential displacement and neighborhood change? What are the definitions that are most relevant to our research? What have other researchers discovered to better understand mechanisms of neighborhood change and displacement risk at local and regional scales? Have researchers identified reproducible methods better identifying who has been displaced and the impacts that displacement has had on them? Might any of their quantitative methods help us better understand displacement and displacement risk in Metro Boston? How are researchers tying their quantification of displacement to policy strategies? Are there policy strategies or recommendations for us to consider for further study?

Methods: literature review

Research lead: Seleeke Flingai

Research team: Alex Bob

Advisory team: someone from Housing, Public Health, Arts and Culture, Lizzi Weyant

Approximate hours: 50

Potential next steps of this research: Development of a method to understand risk of displacement in Metro Boston and the role such an analysis might play in advocating for zoning reform and funding allocation; continued research into the policies and practices that have been successful in reducing displacement in other regions and cities. Primary research through survey, focus group, or facilitated discussion, with those directly impacted by displacement, and/or organizations and advocates working to curb displacement.

***Status: Final deliverable completed; presentation of findings scheduled for 1/3/19***

***Hours spent: 102***

[***Scope***](file:///\\Data-001\Public\DataServices\Projects\Current_Projects\Regional_Plan_Update_Research\Displacement%20-%20Residential\Documentation\Scope\20180822%20-%20Research%20Project%20Scope%20draft%204.docx)

**Understanding available housing data and applying it to a housing submarket typology** –We (MAPC) have more data available to us than ever before to help us answer critical questions about the housing market, such as how housing development of different types impacts housing costs in surrounding neighborhoods; how quickly housing stock of different characteristics is turning over through sales, and by what price margins; how the affordability for households of varying characteristics to rent or buy in different places has changed over time; and where evictions are concentrated or contributing to severe housing instability. Before we dive into any one question too specifically, however, we need to spend some time understanding the nuances of the data sources we now possess. The five main data sources we now have—MAPC’s Rental Listings Database, the Warren Group’s housing sale transactions, CoStar business listing database, MAPC’s MassBuilds database, and the Eviction Lab’s Eviction Database—each have their own strengths and limitations. In order to ground our evaluation of each dataset, we will assess its applicability to a particular research question: how can we use this data, along with other readily available data, to classify the MAPC region into housing submarkets? An analysis of housing submarkets—which will classify similar areas in the region based on housing, economic, transportation, and demographic characteristics—will set a framework for future housing research to be able to focus in on a particular submarket or submarkets with characteristics that are relevant to specific housing inquiries, such as better understanding populations vulnerable to displacement in submarkets with characteristics that suggest displacement pressures might be present. It will also allow us to target policy responses tailored to specific types of places facing particular challenges.

Methods: study of new housing data; methods development and execution

Project lead: Seleeke Flingai

Research team: Sarah Philbrick, Steve Gehrke, Research and Planning Intern

Advisory team: someone from Housing, Economic Development, Public Health

Approximate hours: 200

***Status: Research starting now***

***Hours scoped: 230***

[***Scope***](file:///\\Data-001\Public\DataServices\Projects\Current_Projects\Regional_Plan_Update_Research\Understanding%20Available%20Housing%20Data\20180925_SCOPE_Understanding-available-housing-data.docx)

**Impacts of housing development on surrounding areas** – While the severe lack of housing development in Metro Boston over the last several decades, coincident with strong job growth over the last decade, has led to an extremely tight market with historically low vacancy rates in the homeowner and renter markets, there has been growing concern over the local impact of new housing construction—especially of market rate or ‘luxury’ buildings, and especially in neighborhoods experiencing or anticipating the pressures of displacement. The concern is that new market rate housing developments lead to increases in rent and/or home sale prices in the surrounding neighborhood or blocks, thus initiating or exacerbating displacement. Because developing more housing in the region is necessary to temper the current strain in the market, and to accommodate a growing population; and because advocating for more robust housing development is core strategy of MAPC, it is critical that we understand the impact on surrounding neighborhoods of building different types of housing in different types of places. Once we understand this relationship, we can take a more nuanced approach to our communication and advocacy for policy and best practices to reduce displacement and accommodate healthy growth. First, however, we have to determine whether it is possible for us to measure this impact. What have researchers found about this impact in other areas done this at the local, neighborhood, municipal, and/or regional scale? Can we find or develop a method to use our Rental Listings Database, MassBuilds database, and other data sources to measure the impact of development in Metro Boston?

Methods: methods development and analysis

Project lead: Seleeke Flingai

Research team: someone from Housing, Sarah Philbrick Research and Planning Intern

Advisory team: someone from Land Use, Public Health, Economic Development, Steve Gehrke

Approximate hours: 100

Potential future research: Given that we can identify the impact of new housing development, can we understand its connection to displacement? Is new housing development causing the displacement of residents in surrounding homes?

***Status: Research not yet started***

**Climate Change Mitigation and Resilience**

**Adoption of hybrid and electric vehicles** – What can the Massachusetts Vehicle Census tell us about recent trends in adoption of hybrid and electric vehicles in Massachusetts? What has been the rate of adoption over the last 5-10 years? What are the geographic and temporal patterns of adoption? Can we identify socioeconomic and environmental predictors of adoption? What might these findings tell us about achieving the state goal of having 300,000 zero emission vehicles on the road by 2025? Can our findings help identify policy solutions for more rapid adoption?

Methods: quantitative methods development and analysis

Research lead: Steve Gehrke

Research team: Susan Brunton, Transportation Research Intern

Advisory team: Meg Aki, Alison Felix

Approximate hours: 100

Potential next steps of this research: Analysis of results from the state’s mandatory survey electric vehicle purchasers through the state incentive program to see if the results of this survey complement or add context to the information from the MAVC; continued policy research.

***Status: Research nearly complete***

***Hours spent: 95.5 out of 132***

[***Scope***](file:///\\Data-001\ds$\DataServices\Projects\Current_Projects\Transportation\EV_Adoption\documents\research_proposal_ev_20180809.docx)

**Building energy consumption/demand and GHGs** – In Massachusetts, 28% of emissions come from residential and commercial buildings and 20.5% come from consumption in the electricity sector, according to MassDEP’s 2015 update to the state’s greenhouse gas inventory. It is essential that we better understand this consumption, yet, the utility data publicly available for Massachusetts is not granular enough to do so. At present, utility data is only available on the municipal level, and is only disaggregated by residential, commercial, industrial sectors. Data may not be available all together for smaller communities, where information is protected for customer privacy.

This project will focus on accessing historical electricity and natural gas consumption data, ideally at the building or parcel level. The project team will explore viable opportunities to gain access to consumption data from investor owned utilities and municipal electric and gas utilities. Where data is not available, the project team will evaluate options for refining MAPC’s existing methodology for estimating energy consumption. If data is obtained, the project team will work to tie it to property records and then generate descriptive statistics. They will also share the information with Boston University Institute for Sustainable Energy as a dataset that can help expand the Climate Free Boston energy model to a regional energy model. The project team will also investigate what oil consumption data is currently available to the public through parcel data, ACS, and other sources, and improve its overall understanding of the sector by collecting information on aggregate oil sales and oil providers in Massachusetts. This research will lay the groundwork to pursue historical oil consumption data at the building or parcel level in the future.

Methods: data collection and analysis

Project lead: Lily Perkins-High and Meg Aki

Research team: Brooks Winner, Nicole Sanches, Cara Goodman

Advisory team: Cammy Peterson, Patrick Roche

Approximate hours: 100

Potential next steps of this research: Use the data to build out the regional model from Carbon Free Boston. Expand data-sharing policy recommendations for investor-owned utilities. Disseminate data sharing agreement with municipal light plants.

***Status: research being scoped***

**The social and economic impact of disruptive climate events** – With a changing climate and rising seas, Greater Boston is likely to continue to experience disruptive storm and flooding events with more frequency over the coming years and decades. These events—which come with various combinations of wind, rain, snow, coastal flooding, and inland flooding—make it more difficult for workers in Greater Boston to get to work. Whether they simply make commutes slower, or interrupt the ability to commute at all, these storms impact the ability of hourly-wage workers to get paid, and they hurt the bottom line of companies and the regional economy.

The purpose of this research is to quantify and better understand the commuting patterns of people in Greater Boston, and the impact that weather has on speed of travel. Ultimately, the goal is to understand the magnitude of impact that individual storm and/or flooding events have on workers’ wages and the regional economy. Northeastern University has access to a very large database of location information for individuals, sourced from cell phone GPS data, that has a record of the location of each individual every two seconds. In partnership with Northeastern, we would extract useful data from this huge database, clean it, and investigate its use for further study. If possible, we hope to identify the home and work locations of residents, based on their movement patterns at different times of day, and measure their commute speeds on typical days and during storms. We would identify the dates of specific storms by referencing historical weather data. The data that Northeastern has access to covers one year, from September 2016 to September 2017.

Methods: Data cleaning, methods development, and analysis

Project lead: Steve Gehrke

Research team: Armin Akhavan

Advisory team: Seleeke Flingai, Caitlin Spence, Raul Gonzalez, Darci Schofield, Anne Herbst

Approximate hours: 200

Potential next steps of this research: Investigate whether we can isolate different groups of residents and workers based on home and work locations, travel times, and other factors. If we can identify groups that might be hourly-wage workers, for example, then we can make some assumptions to get to an estimate of lost wages during different types of storm events.

***Status: not yet started***

**Inclusive Growth and Mobility**

**Integration of a Dockless Bikeshare System and Investigation of the Travel Patterns of its Cyclists** – Spurred by technologic innovation, a new wave of bikeshare systems has rapidly spread across the United States. Dockless bikeshare systems, which permit cyclists to pick-up and drop-off bikes in a defined service area, were formally introduced to the Boston region in April 2018 when Lime deployed 1,500 bikes. This dockless system supports cycling as an active travel option in several inner core communities not served by the region’s dock-based system, Blue Bikes, which has progressively expanded service since its introduction in July 2011. Together, these distinct bikeshare systems are quickly becoming integrated within the region’s established transportation landscape, which will continue to be redesigned as new shared-mobility options (e.g., dockless scooters, electric-bikes) are introduced. The study of travel patterns of cyclists using this new dockless system, which facilitates a bicycle redistribution that more closely matches supply and demand, presents a unique opportunity to recognize how more sustainable demand-responsive mobility options may be complementing rapid transit services and building a resilient multimodal transportation network.

Methods: Data analysis

Project lead: Steve Gehrke

Research team: Armin Akhavan

Advisory team: Transportation, Public Health

Approximate hours: 100

Potential next steps of this research:

***Status: research being scoped***

**Dynamic and Representative Governance**

**Municipal workforce and leadership** – The demographics of Metro Boston are shifting ever more rapidly with an aging Baby Boomer generation and younger generations that are more racially and ethnically diverse than ever before. These demographic shifts have implications for the region’s municipal workforce. It is not a stretch to say that municipal leadership and, to some degree, staff, tends to skew older, whiter, and more male than the general public. This means that the coming wave of Baby Boomer retirement may have a particularly large impact on the municipal workforce. It also means that municipalities may have the opportunity to proactively build a more racially, ethnically, and gender diverse workforce as they fill jobs vacated by retiring Baby Boomers. Through a scan of literature and preliminary analysis of available data, such as American Community Survey microdata, we would like to more accurately understand the demographic characteristics of Metro Boston’s municipal workforce and leadership, so that we can better understand what workforce challenges and opportunities face the region’s municipalities. Available data can give us a more detailed understanding of the demographic and economic characteristics of municipal workers at the regional scale. It can’t, however, give us the same detail for individual municipalities. For that level of detail, and to answer any questions we can’t glean from available data, we will devise a survey instrument. We will prepare a series of questions to ask municipal leadership, such as what are the demographic characteristics of themselves and their staff, and are they thinking about the coming demographic shifts and the challenges and opportunities they present.

Methods: analysis of available data; literature review; survey development

Research lead: Seleeke Flingai

Research team: Lauri Zivkovich, Research Intern

Advisory team: Josh Eichen, Karen Adelman, Land Use

Approximate hours: 100

***Status: Research scoped but not yet started***

***Hours scoped: 93***

[***Scope***](file:///\\Data-001\Public\DataServices\Projects\Current_Projects\Regional_Plan_Update_Research\Municipal%20Workforce%20and%20Leadership\20181001_SCOPE_Municipal-workforce-and-leadership.docx)

**Municipal leadership representation** **survey** – Building off the results of the literature and data scan in the prior project, we will administer the devised survey of questions for the leadership of the region’s 101 municipalities.

Methods: survey implementation

Project lead: Seleeke Flingai/Lauri Zivkovich/Government Affairs

Research team:Land Use, Economic Development

Advisory team: Community Engagement, Karen Adelman, Economic Development

Approximate hours: 200

Potential next steps of this research: Analyze survey results, tie to recommendations

***Status: Research not yet started***