

# FFY 2024 UPWP Universe of Proposed Studies

## Study Information

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
<b>ACTIVE TRANSPORTATION</b>					
A-1	Analysis of the Relationship between MPO Areas with Equity Concerns and Scores on Bicycle and Pedestrian Report Cards	<p>MPO staff developed the PRCA in 2017 and created the Bicycle Report Card in 2018. Using these tools, MPO staff will analyze the distribution of scores throughout the region to determine whether there is a relationship between the quality of the bicycle and pedestrian environment and facilities that are located within an area of the Boston MPO region with equity concerns.</p> <p>This project will begin with MPO staff studying more locations throughout the Boston region and scoring them using the PRCAs and Bicycle Report Card tools. After the data have been collected, MPO staff will analyze the regional distribution of bicycle and pedestrian scores to determine whether there is a relationship between the quality of conditions for pedestrian and bicycle travel and Boston MPO areas with equity concerns. The PRCA and Bicycle Report Card scores will be provided as a dataset and the relationship between conditions and areas with equity concerns will be communicated using StoryMap.</p>	\$80,000-\$100,000	Staff Survey	
A-2	Parking in Bike Lane: Strategies for Safety and Prevention	<p><b>Purpose:</b> The purpose of this study is to address the issue of vehicles parked in bike lanes in the Boston region. This poses a safety hazard for cyclists and pedestrians and creates a need for them to switch lanes. The study aims to research successful strategies and practices employed in other cities and municipalities to address the problem and recommend strategies that can be implemented in the Boston region.</p> <p><b>Approach/Methodology:</b> The study will begin with a comprehensive research phase that will analyze the approaches adopted by other cities (such as a New York proposal to pay people who report cars parked in bike lanes) in addressing the issue of vehicles parked in bike lanes. The research will include a review of existing policies and programs, as well as interviews with peers to better understand their approach and challenges. In addition, the study will engage with municipalities in the Boston region to understand existing policies, gather data on the problem in the region through data collection and surveys, and identify municipalities most interested in piloting the recommended approaches. The study will work with the selected municipalities to develop potential concepts and pilot the most promising one, ensuring the program is tailored to the needs of the region.</p> <p><b>Anticipated Outcome:</b> The anticipated outcome of the study is a report that summarizes the research findings, including successful strategies employed by other cities to address the issue of parked vehicles in bike lanes, and recommendations for potential approaches that can be piloted in the Boston region. The report will also include details on the piloted program and its feasibility and effectiveness, along with recommendations for scaling the program beyond the pilot phase.</p>		Ilana Strauss, Staff Survey	

76 Total study concepts

L RTP Goal Area Acronyms:

S = Safety SP/M = System Preservation and Modernization CM/M = Capacity Management and Mobility TE = Transportation Equity CA/SC = Clean Air/Sustainable Communities EV = Economic Vitality

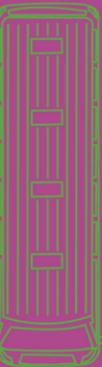
Abbreviations:

AADT = annual average daily traffic. BIL = Bipartisan Infrastructure Law. CBD = central business district. CMP = Congestion Management Process. CPT-HST = Coordinated Public Transit--Human Services Transportation. CTPS = Central Transportation Planning Staff. DMU = diesel multiple unit. EJ = Environmental Justice. EMU = electric multiple unit. ESG = Environmental, Social, and Governance. EV = Electric Vehicles. FHWA = Federal Highway Administration. FFY = federal fiscal year. TFA = Federal Transit Authority. GHG = Greenhouse Gas. GIS = Geographic Information System. HEV = high-emitting vehicles. ITI = Institute of Transportation Engineers. LRTP = Long-Range Transportation Plan. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MassGIS = Massachusetts Bureau of Geographic Information. MBTA = Massachusetts Bay Transportation Authority. MEPA = Massachusetts Environmental Policy Act. MPO = Metropolitan Planning Organization. NEPA = National Environmental Policy Act. NIMBY = Not In My Back Yard. NYC DOT = New York City Department of Transportation. PEV = Pedestrian Environmental Variable. PRCA = Pedestrian Report Card Assessment. ROW = right-of-way. RTA = regional transit authority. SOV = single occupancy vehicle. TAZ = transportation analysis zone. TDM = transportation demand management. TIP = Transportation Improvement Program. TMA = transportation management association. TOD = transit-oriented development. UPWP = Unified Planning Work Program.

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### Study Information (cont.)

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A-3		<p>There are stations throughout the MBTA system, which, despite being situated near high-density housing and/or employment facilities are not easily accessible on foot, wheelchair, or by bike, or require significant and unnecessary detours. The opening of the Quincy Adams Station demonstrates how simple improvements (in that case opening a gate that had been unnecessarily blocked off) can expand the walkshed of a station. Some of these problems are being resolved or have plans to be resolved in the process of other work such as the plan to open the southern exit of Massachusetts Avenue on the Orange Line as an entrance while improving ADA compliance or the plan to build a bridge over the mystic and add a northern entrance to Assembly Square Station. However, there are other stations where no such work is planned that could desperately use reexamination. Sullivan Square particularly jumps out as a station that turns its back to neighboring density, and walking to it from East Somerville requires a detour on busy roads and under a highway, which is not a particularly comfortable or safe feeling walk.</p> <p>This study should look at each MBTA station and its respective walkshed to identify barriers or gaps in the walk and bike network that if removed would improve access to the stations. Similarly the study should look at where secondary and tertiary entrances/exits could be added to stations in order to improve access in different directions.</p> <p>This study could be used to improve the overall utility of the MBTA by expanding the service area without needing to lay down any new track. It could also improve the lives of transit users by shortening their trips to stations and add foot traffic to businesses that, despite close proximity to the MBTA, do not currently see the generally associated benefits.</p>		Public Survey (anonymous)	
A-4		<p>There are an increasing number of protected and unprotected bike facilities as well as multi-use paths in the Boston area, however they are largely disconnected and do not form a coherent or contiguous network. These gaps are particularly pronounced around municipal boundaries due to a lack of comprehensive regional planning but they exist within municipalities as well. While there have been some plans made for regional path networks such as the Emerald network and Landline plans but these focus on multi-use paths and do not include other parts of the bicycle network such as on street bike lanes, or shared streets.</p> <p>It would be valuable to study the existing lanes and paths to develop an understanding of key gaps in the network, the barriers to closing them, and potential solutions to filling them. It would also be useful to do a regional assessment of how the different types of bike facilities feed into one another (or fail to) and how they do or do not promote safety and mobility for people on bikes.</p> <p>This study would ideally make it possible to more deliberately develop a regional bicycle network that is fully interconnected, intuitive to use, and consistent across the region.</p>		Public Survey (anonymous)	



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A-5		Separated bike/pedestrian paths are starting to come together on the north side of Boston, between the Minuteman Bikeway to the Northern Strand Trail. It would be great to see a comprehensive plan that identifies what is needed to provide safe non-motorized travel throughout as much of this region as possible, including connections with public transit stations and blue bikes.		Julie Wormser (Mystic River Watershed Association), Public Survey	
A-6		Comfort, safety, and level of service changes as street crossings are widened for travel lanes, bike lanes, parking, curbside dropoff, etc. Also, how does comfort level and willingness to walk next to travel lanes change and speed and/or volume on the adjacent street change.		Anne McKinnon, Public Survey	
A-7		<p><b>Pedestrian Safety:</b> Inventory, survey, and assess Inner Core and Suburban roadway and street Intersection and mid-block crosswalks for existing conditions and identify pedestrian safety deficiencies/threats needing remedial actions and/or facilities.</p> <p>Locations of pedestrian crossings (i.e., formal and informal desire lines) are frequent sites of pedestrian-vehicle conflicts, crashes, and injuries/fatalities. Such problem areas persist, despite attention given to pavement markings, traffic control lights, and other measures. Sometimes the situation is an uneven implementation of Complete Street design guidance; sometimes it is due to lack of context-sensitive common sense; other times vehicle speed or curb enforcement is not applied. Other times, pedestrians themselves act irresponsibly, are distracted from awareness of surroundings.</p> <p>A too-frequent problem occurs in (often retail) areas with dense curbside parking available to mixed sizes and types of vehicles. The common situation is with a crosswalk (even a marked one) which permits vehicle parking too close to a pedestrian's entry point to the crosswalk. In these cases, the view of the pedestrian to oncoming/upstream traffic is severely diminished or totally obstructed until the pedestrian is already walking perhaps 10' into the crosswalk...often too late for a driver to adjust. This situation is a pedestrian threat with any vehicle parked too close to the crosswalk, but is especially dangerous when a vehicle is large, such as SUVs, 'soccer mom vans', delivery vans/vehicles, trucks. Consistent and enforced remedy is needed in all such (municipal) crosswalk locations. To avoid unsafe perpetuation from debate or confusion, a suggestion is there should be a universal ban on any vehicle parking within 15' upstream from a crosswalk, mid-block, or intersection. To rely on each of the Commonwealth's 351 municipalities to adhere to implementing such a policy almost falls into the realm of fantasy. Once the type and degree of the problem situations are identified by CTPS, ultimately, this pedestrian safety measure would best come in the form of a statewide law from the Statehouse.</p>		John McQueen, Email	

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### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
A-8		<p>In partnership with community organizations and mobility justice advocacy groups (e.g., TransitMatters and WalkBoston), local municipalities, and the Boston MPO, we are seeking support to implement a mobility diary survey, which will document mode shares (walk, transit, bike, auto) for different trip purposes and particularly examine active mobility + public transit preferences among Metro Boston's communities of color. We aim to collect a sample of at least 2,000 participants representatively sampled from municipalities in the Metro Boston area. We aim to specifically ensure the representativeness of marginalized groups with the help of local organizations and agencies.</p> <p>This mobility diary is based on a state-of-the-art, smartphone-based, GPS-tracking, survey methodology. Participants are required to complete an initial online questionnaire regarding their socio-demographic information and mobility habits. After consenting to continue, they are asked to install an app that runs in the background for the duration of the study. The collected data are processed by machine learning algorithms that accurately detect trips and their respective modes of transport, resulting in an automated travel diary. This study method allows to record detailed daily activity patterns (i.e., where and why do people go to certain places and how do they get there) while accounting for demographic context. The app covers all relevant modes of transport, including emerging mobility solutions such as e-bikes, shared (e-) bikes and cars, kick-scooters and ride-hailing services.</p> <p>These collected data can be used for numerous transport and city planning applications. We can update existing data sources, specifically capturing post-pandemic behavior and the adoption of emerging mobility services. These data will further differentiate between demographic groups, enabling to address equity and justice-related research questions that cannot be answered with the currently available data. Concrete research questions we hope to address include:</p> <ul style="list-style-type: none"> <li>• Which population groups in Metro Boston have access to and engage in sustainable mobility practices, and through which types of modes?</li> <li>• What factors (demographics, land-use patterns, city design, etc.) determine such sustainable travel behavior?</li> <li>• What type of spatial movement patterns are particularly suited to be realized using sustainable transport modes?</li> <li>• How do the preferences of different population groups differ regarding the access to different sustainable transport modes, specifically active and public transport?</li> </ul>	\$150,000	Rounaq Basu (MIT-DUSP), Email	



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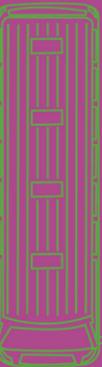
### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
<b>LAND USE, ENVIRONMENT, AND ECONOMY</b>					
L-1	Opportunities for the MPO to Support TOD	<p>This study will analyze and identify ways for the MPO to support TOD in the Boston region, through policy and/or investment. The FFY 2022 TDM study surfaced the idea of the MPO helping the Commonwealth enforce the MBTA Communities TOD zoning through TIP criteria revisions or similar policy options. This study would engage MPO members, policy experts, and others about the feasibility of this and other ways for the MPO to support TOD throughout the region.</p> <p>This would be primarily a policy study, with intensive engagement work among the MPO board, planning professionals, and other policy specialists. There may be some public engagement work as well. The study would likely involve interviews and focus groups and culminate in a series of MPO Board discussions. A report and discussions at the MPO Board.</p>	\$40,000-\$60,000	Staff Survey	
L-2	Stroads	<p>The term stroad was coined by the nonprofit Strong Towns to describe something that is in between a street and a road. Like a street, they are places where there is a lot of activity, where people interact with businesses, residences, etc. Like a road, they are high-speed and multi-lane. Stroads are expensive to build and are very dangerous. The idea of a stroad is relatively new, and this study would involve further research into this concept. It would also involve developing a methodology for identifying stroads in the Boston region and possibly presenting ways to transform stroads into either streets or roads. This study's methodology is primarily literature review and research on stroads, possibly getting into contact with representatives from Strong Towns, as well as working with the road inventory or some other data source that has detailed descriptions of roads in the Boston region.</p> <p>Criteria/methodology for identifying stroads in the MPO region and research of best practices for adapting stroads to streets or roads.</p>	\$40,000-\$80,000	Staff Survey	

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### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
L-3	Leveraging Lab Development	<p>The Boston Metro region continues to boast the highest concentration of scientific research and development jobs in the nation. As of 2019, the U.S. Bureau of Labor Statistics noted that the concentration of this industry was 12.30 times the national rate (U.S Bureau of Labor Statistics). This behemoth economic growth can either fund, support, and incentivize the creation of environmentally sustainable transit and community growth or lead to land development and use patterns that serve economic and not quality-of-life needs. The Boston Metropolitan Planning Organization should conduct a study to analyze the effect of this lab development on current transportation systems and devise strategies to leverage this sector to incent mode shift away from cars and towards multimodal, people-centric options.</p> <p><b>The goals of this proposal are to:</b></p> <ul style="list-style-type: none"> <li>• Acquire quantitative metrics/data about the anticipated effect of these developments on the future of the region's transportation</li> <li>• What changes to AADT should one anticipate for major roadways?</li> <li>• How many additional workers, commuters, and residents are expected to migrate to various biotech hubs?</li> <li>• Understand necessary policies and actions to incentivize mode shift in response to lab development, specifically in the creation of greenway and rail / transit facilities.</li> <li>• Incentivize biotech developers and companies to commit to multi-modal transportation projects.</li> <li>• Explore traditional tools (community benefit agreements, and linkage fees) and non-traditional tools.</li> </ul> <p><b>Methodology:</b></p> <ul style="list-style-type: none"> <li>• Conduct a literature review/case study investigation to identify best practices.</li> <li>• Study the current state of regional transportation in areas where labs operate.</li> <li>• Look at national examples. <ul style="list-style-type: none"> <li>○ California's tech hub and its use of company shuttle services is an example.</li> </ul> </li> <li>• Identify examples of public-private partnerships between lab / tech companies and regional transportation authorities.</li> <li>• Investigate Business Improvement Districts (BIDs) and Tax Incremental Financing (TIFs) to subsidize transportation solutions.</li> <li>• Conduct interviews to understand perspectives and needs. <ul style="list-style-type: none"> <li>○ Engage with local developers, transportation providers, and local communities.</li> </ul> </li> <li>• Map Regional Lab Development in case study areas. <ul style="list-style-type: none"> <li>○ Overlay projected population data with planned and/or prospective lab development.</li> <li>○ Identify key affected routes and anticipated commuting changes.</li> <li>○ Map commute data of alternative futures</li> <li>○ How would expansion of regional rail, bus only lanes, transit, etc. affect commuting data?</li> </ul> </li> </ul>	\$60,000-\$85,000	Livable Streets Alliance	



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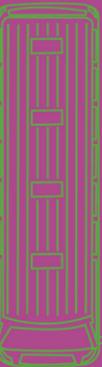
### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
L-3 (cont.)	Leveraging Lab Development	<p><b>Potential solutions to explore:</b></p> <ul style="list-style-type: none"> <li>• <b>Public-Private Financial Partnerships for Improving Transportation:</b> Public-private partnerships between government agencies and private businesses can also help fund public transportation initiatives. In these partnerships, private companies contribute financial or operational support in exchange for benefits such as advertising or naming rights.</li> <li>• <b>Tax Incentives:</b> By offering tax incentives, can the city government encourage businesses to contribute to the growth and sustainability of public transportation, making it a more attractive option for commuters and reducing the reliance on personal vehicles?</li> <li>• <b>Business Improvement Districts (BID):</b> Some cities have established BIDs, where local businesses voluntarily pay an assessment fee to fund various public services, including public transportation. How can we leverage the creation of BIDs for transportation?</li> <li>• <b>Creative Approaches:</b> outside of the traditional mechanisms listed above, what are new techniques to explore? Explore ways in which businesses and city governments work together to achieve mutually beneficial goals. By working together, both businesses and city governments can achieve their goals without sacrificing the needs of the other. This type of collaboration can lead to the development of sustainable, cost-effective, and efficient transportation systems that benefit everyone.</li> </ul> <p><b>Anticipated outcomes:</b></p> <p>This study will provide a multitude of outcomes:</p> <ul style="list-style-type: none"> <li>• Reveal anticipated vehicular traffic patterns changes upon the creation of lab development.</li> <li>• Outline recommendations for creating and incentivizing mode-shifts in these areas.</li> <li>• Provide concrete and implementable suggestions, solutions, and actions for transportation and planning agencies and advocates to bring to lab developers.</li> <li>• Provide data and quantitative analyses for Watertown/Charles River Area and other case study lab development clusters.</li> </ul> <p><b>Anticipated LivableStreets Alliance Involvement:</b> Advisory Team Capacity: Based on LivableStreets capacity, one member may be able to assist with research elements, while the rest of the team is available to serve in an advisory role.</p>	\$60,000-\$85,000	Livable Streets Alliance	

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### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
L-4	Creating Spaces for All: Integrating Greenways, Transit, and Housing Development	<p>Through LivableStreets' outreach and engagement in Greater Boston, we have talked to hundreds of people taking the bus, riding their bikes, walking, driving, and using the streetscape. Often these short conversations centering a bus lane, bike lane, transit changes, or greenways can turn into larger conversations centering fear of neighborhood changes. A major takeaway that continues to resurface is that for some, greenways, bus lanes, and bike infrastructure are a threat to neighborhood structure. In other words, these transit and mobility developments that many people support today have historically been viewed as the beginning of gentrification and displacement in communities across Greater Boston. In many ways residents are right in believing this. However, in recent years municipalities and cities have been implementing transit and mobility changes to get workers to new job hubs and account for growing cities. Through this lens, greenways are not only seen as ecological and recreational assets, but as infrastructure to get people moving to their desired locations. This view of greenways makes transportation more enjoyable, but can be seen as a vehicle created for people to pass through neighborhoods instead of created for the people who live there. The purpose of this study is to identify strategies and recommendations for how to better simultaneously build and implement greenways and transit together in a way that does not spur gentrification.</p> <p><b>Methodology:</b></p> <ul style="list-style-type: none"> <li>Literature review of case studies to identify best practices.</li> </ul> <p>This includes investigating zoning practices, transit-oriented development, and housing market strategies to identify mechanisms that might work for the Boston Metro region.</p> <p>Study the relationship between local economy, real estate market, and social + demographic patterns to gain a comprehensive understanding of the relationship between all three. We suggest the following examples:</p> <ul style="list-style-type: none"> <li>Kendall Square, Boston: investigating trains and greenways</li> <li>Chelsea, MA: investigating increases to bus services and open spaces</li> <li>Lawrence, MA: investigating commuter rail development and greenspaces</li> <li>Massachusetts Central Rail Trail/Minuteman Bike Path: investigating effect of greenspace/mobility path on increased property values.</li> <li>Chicago, IL: 606 Greenway investigating greenway that triggered large displacement</li> <li>Interview housing, greenspace, and transit departments at municipal agencies and institutions to identify ways to work across departments.</li> <li>Research city/municipal projects that successfully integrated transit, housing, and greenspaces</li> <li>Collect post process reflections on past projects</li> </ul>	\$60,000	Livable Streets Alliance	



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### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
L-4 (cont.)	Creating Spaces for All: Integrating Greenways, Transit, and Housing Development	<p><b>Potential solutions to explore:</b></p> <ul style="list-style-type: none"> <li>• Community engagement and participation: Provide techniques for local community and planning processes to place the needs and concerns of community members at its core.</li> <li>• Affordable housing: Prioritize the development of affordable housing along the greenway and transit corridors to ensure low-income residents are not displaced. The study should explore various solutions with teeth and not simply the suggestion of guidelines and best practices. Some solutions could include: <ul style="list-style-type: none"> <li>○ Transit Oriented Development with Inclusionary zoning: Use zoning laws to require developers to include a certain percentage of affordable units in new housing developments be built along transit hubs and greenways.</li> <li>○ Mixed-income development : Develop strategies to encourage mixed-income development along the greenway and transit corridors, so that the area remains affordable for low-income residents and working-class families.</li> <li>○ Alternative Housing Ownership: Explore housing ownership models that help to address the root causes of gentrification by promoting affordability and accessibility, and by creating community-based solutions to housing challenges. Some of these solutions include looking at models like Community Land Trusts (CLT), Cooperative-Housing Ownership, and/or rent to ownership models.</li> <li>○ Investigating changes to the operational structure of transportation departments to improve their integration of housing and greenway initiatives into their standard practices. This involves examining ways to enhance the functional organization of these departments to ensure seamless incorporation of these initiatives.</li> </ul> </li> </ul> <p><b>Anticipated outcomes:</b> LivableStreets anticipates the final deliverable of this research to be a report or slide deck.</p> <p><b>Anticipated LivableStreets Alliance Involvement:</b> Advisory Team Capacity: Check-ins once a month or every other month</p>	\$60,000	Livable Streets Alliance	
L-5		<p>More than 6 trillion US dollars are necessary in annual infrastructure commitment if we want to achieve the UN and COP 21 sustainable goals by 2050. This represents a burden of 50-75% delta over current budgetary trends. And yet, despite a notorious increase in capital, there is a lack of bankable projects to invest in. In contrast, recent years have witnessed an increasing demand for ESG investments. When we bring this to urban challenges, in particular transportation, the challenge is to attract private investors who see the benefits of ESG projects in tangible ways. In this project we aim to develop a framework to leverage ESG mechanisms over the project finance and funding structures, considering as stakeholders real estate developers, public officials, and planners. We project to develop this framework initially for a Transit-Oriented Development project, so that can contribute to closing the current sustainability crisis gap both from the infrastructure and the real estate side. The framework considers the green benefits and construction costs (greeniums) of certified projects, together with its CO2 offsets and capital costs discounts. The framework will be assessed under conservative, fair and optimistic scenarios and will shed light on which variables and policies deserve more attention regarding their elastic impact on key financial indexes. This way, a context-specific policy and green development strategy can be drawn to foster TOD developments.</p>		Fabio Duarte, Public Survey	

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*Study Information (cont.)*

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<b>ROADWAY AND MULTIMODAL MOBILITY</b>					
M-1	Lab and Municipal Parking Phase II	<p>This year's UPWP includes a discrete study that focuses on Lab and Municipal Parking. The objective of this work is to expand upon MAPC's Perfect Fit Parking study, which focused on residential parking, to develop a methodology to study supply of and demand for parking at lab and life science facilities. The methodology will be defined during Phase I of this study. On-site data collection for a number of sites will be required. Phase II of the study would employ this methodology to study parking supply and utilization at lab and life science facilities across the region.</p> <p>A data set of parking supply and utilization at lab and life science facilities; recommendations for municipal planners regarding provision of parking at these facilities.</p>	\$60,000-\$80,000	Staff Survey	
M-2	Advanced Parking Management Systems Study for MBTA Lots	<p>This Intelligent Transportation Systems study will look at options to implement advance parking management systems for some of the MBTA Park and Ride lots. Advanced parking management systems will inform MBTA commuters in real time about lots that are full or underutilized. Any advanced parking management systems that have been implemented in the United States will need to be researched and documented in a brief literature review. Station locations will then be selected for this project. Analysis will need to be conducted for the selected locations.</p> <p>Advanced parking management systems example: sensors will be installed at MBTA parking lots that will track the number of vehicles parked in the lots. The real time parking utilization rate would be communicated to dynamic messaging signs along a roadway corridor that is parallel to a MBTA rail line corridor. These signs will inform commuters as to which stations have available parking. In addition to these signs, this study can examine the possibility of creating a cell phone application that display real time parking utilization at MBTA stations.</p> <p>Memorandum or report with a detailed implementation plan for advanced parking management systems</p>	\$40,000-\$60,000	Staff Survey	
M-3	Arterial Peak Period Contraflow Study	<p>In recent years, there have been major construction projects that have significantly affected mobility temporarily, such as the Tobin Bridge construction project. Projects such as this can make an already lengthy commute unbearable for residents. Meanwhile, it is not feasible to build our way out of congestion by adding new roadways, especially for non-recurring congestion. Instead of adding roadway capacity, maybe a good idea might be to shift roadway capacity into directions that people are traveling.</p> <p>One potential solution to alleviate temporary congestion caused by construction would be to explore contraflow movement on nearby arterials in the area. This study will examine contraflow operations on arterials during the peak period to see if this is a viable solution to mitigate congestion when regional construction projects take place. This study would address the capacity management and mobility goal from the Long Range Transportation Plan. Contraflow lane movement is when traffic for a roadway is exclusively directed in one direction during certain times of the day to accommodate the movement of more people to a common destination. Contraflow is commonly used when there are events with large gatherings, such as sporting events or concerts. Since during the peak period, people are often moving in the same direction, contraflow might help move more people during the peak period.</p> <p>This study will examine best practices of contraflow, and summarize some contraflow strategies to determine how well they can apply to locations in the Boston region. A modeling analysis can be conducted to see how efficient it is to implement contraflow along a corridor.</p>	\$60,000-\$80,000	Staff Survey	



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ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
M-4	Variable Speed Limits on Freeways	<p>In the Boston region, congestion is very prominent on freeways. Congestion can be caused by myriad factors, but a common cause could be lane management. One issue is that using uniform speed limits for every lane can cause traffic delays, as people driving cars typically vary their travel speeds based on the speed limit. Considering that each lane often have different characteristics, it could be best to assign variable speed limits for every lane. Speed limits can be displayed on Dynamic Messaging Signs (DMS) for every lane and can be adjusted for each lane depending on the real-time traffic patterns.</p> <p>This will be an engineering level study in which congestion patterns will be analyzed for each individual lane. In addition, other travel behavior will be analyzed such as weaving or changing lanes. This study will also incorporate Intelligent Transportation Systems (ITS) elements, as a variable speed limit system will require DMS signs, and an interactive process where speed limits can be changed in real time. If implemented, this system will need to be operated by a state level transportation entity, such as MassDOT. Modeling can also be used for this analysis.</p> <p>A memorandum or report will be written that will contain an analysis of the congestion mitigation benefits of implementing variable speed limits on freeways. Instructions for potentially designing a variable speed limit system will be included in the documentation. This deliverable will be presented to MassDOT.</p>	\$60,000-\$80,000	Staff Survey	
M-5	Develop a methodology for obtaining a good, if approximate, measurement of on-street parking spaces in Boston.	<p>There appears to be no data on the number of parking spaces available in Boston (or other communities, for that matter.) We have been able to get a crude handle on the number of off-street spaces available using screen-scraping techniques to extract data from parking garage/lot websites. However, we don't have a handle on even the approximate number of on-street parking spaces in Boston. The purpose of this study is to develop a methodology for obtaining a good, if approximate, measurement of on-street parking spaces in Boston, focusing on downtown Boston and the Seaport. The technique will exploit data from the statewide Road Inventory including data on the presence/absence of curbs, 2021 MassGIS ortho-imagery, possibly street-view imagery, and possibly some on-site data collection.</p> <p>This proposal is for a data-development project whose goal is to fill a gap in our knowledge of transportation ground-truth in Boston. The analytical techniques used in this study will exploit data from the statewide Road Inventory including data on the presence/absence of curbs, 2021 MassGIS ortho-imagery, possibly street-view imagery, and on-site data collection. An automated or semi-automated method for generating an estimate will be developed using spatial analysis techniques and run on a selected geographic subset of downtown Boston and/or the Seaport area. Field data collectors will then be used to collect actual ground truth data on the number of parking spaces in the selected area. The estimate will be compared with the ground truth data, and if time and funds allow, the automated/semi-automated technique will be refined based on the results of the comparison.</p> <p>A report (1) giving an estimate of the number of on-street parking spaces in a selected area of Boston using an automated or semi-automated technique, (2) the methodology employed to create the estimate, (3) a comparison of this estimate with ground truth data obtained from on-site data collection in the same geographic area, and (4) suggestions on the applicability of the technique for creating a city-wide measure of on-street parking spaces.</p>	\$40,000-\$60,000	Staff Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
M-6	Identifying Transportation Infrastructure Impacts from Managed Retreat	<p>This study will look at transportation infrastructure in the region that may be impacted by future policy choices to engage in managed retreat or intentional disinvestment from areas at significant risk from natural hazards (mainly coastal). It could look at areas at significant risk and develop maps or networks of transportation infrastructure that might need to be abandoned, and what might need to be done to compensate. For example, are there at-risk roadways or bike paths that provide not just local access, but through capacity? For more, see <a href="https://www.georgetownclimate.org/adaptation/toolkits/managed-retreat-toolkit/infrastructure-disinvestment.html?jurisdiction=11175">https://www.georgetownclimate.org/adaptation/toolkits/managed-retreat-toolkit/infrastructure-disinvestment.html?jurisdiction=11175</a>. This study would presumably include GIS analysis, outreach to hazard mitigation and resiliency professionals, and some traffic engineering analysis and modeling to determine impacts. A storymap would seem to be an appropriate format for a report on this topic.</p>	\$80,000-\$100,000	Staff Survey	
M-7	Opportunities for Highway Removal in the Boston Region	<p>Taking inspiration from the new federal Reconnecting Communities program, this study will identify opportunities for removing roadways, especially grade-separated or semi-separated highways, in the Boston region. The study will foreground environmental justice and creation of mode shift as the top priorities in examining what the transportation system should look like and how it should focus.</p> <p>This study will use both qualitative and quantitative approaches. It would engage municipalities and the public in thinking about which roadways would not be necessary in a clean-slate world, and which are currently imposing the heaviest EJ burdens. The study would develop a list of possibilities, then use technical tools to evaluate which roadways could be removed or heavily modified while still preserving mobility for people and goods (not necessarily by SOV). It might also develop a list of conceptual non-driving-mode improvements necessary to compensate for some roadway removals. It should not assume that all SOV capacity must be replaced.</p> <p>Outcomes include a report and list of candidate roadways for removal.</p>	\$100,000+	Staff Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
M-8	Exploring Roadway Pricing: Engagement with Local Stakeholders	<p><b>Context of the underlying problem:</b> While many roadway-pricing projects have been successful in reducing congestion, fund transportation projects, and address air quality, others have not been implemented for a variety of reasons. Concerns such as impacts on transportation equity populations, suburban and rural drivers, and business activities have been raised for some projects. Ongoing, substantive, and sincere public engagement and education efforts have meaningfully influenced roadway-pricing program design. Although roadway pricing has been implemented in many cities in the United States, studies have found that the public and many policymakers still have difficulty understanding the purpose and benefits of on the concept. However, once projects open there are few complaints and positive feedback.</p> <p><b>Potential solutions to explore:</b></p> <ul style="list-style-type: none"> <li>• MPO staff will identify key stakeholders in Massachusetts to communicate and build consensus on the benefits from roadway pricing.</li> <li>• The engagements efforts will include advocates or interest groups, business chambers of commerce, municipal officials, planners, and the public.</li> <li>• MPO staff will survey, host forums, and develop brochures on several topics such as pricing styles, benefits, transportation equity, business activities, air quality etc.</li> </ul> <p><b>Anticipated outcomes:</b> Staff will prepare a memorandum documenting the communications and engagement efforts. The findings will provide the MPO valuable public feedback on how to implement a future roadway-pricing scheme.</p>		Seth Asante, Staff Survey	
M-9	Effective On-Road Detection of High-Emitting Vehicles	<p><b>Purpose:</b> Targeted emissions reduction of high-emitting vehicles (HEV) is considered a highly cost-effective method for vehicle emission control and air quality improvement. While Massachusetts enforces an annual emissions test, the test often cannot reflect vehicle emissions when driving in the real world. In this case, remote sensing emissions measurement is introduced to supplement the mandatory emissions test. However, remote sensing instruments are costly and provide only snapshots of fleet emissions at limited locations. It is essential to have an effective, fast-response approach for screening on-road HEVs on our metropolitan's roads. Such an approach will benefit an efficient allocation of emissions test resources and improve regional air quality and road safety.</p> <p><b>Approach/Methodology:</b> Our study will first train a state-of-the-art computer vision-based detection model on an extensive vehicle image database labeled with vehicle make and model year. The model will be used on dash-board camera footage collected by multiple observer vehicles circulating in the Boston Metropolitan road network to determine potential HEVs, supplemented by existing traffic camera footage for validation. Each observer vehicle will also be equipped with a mobile air quality sensing platform for plume detection of the potential HEVs. On-road visual and plume detections will be combined for robust and fast-response HEV identification and screening. Our approach is highly scalable and generalizable, with practical and research values.</p> <p><b>Anticipated Outcome:</b> A scientific paper or report that documents our detection approach, the spatial distribution of HEVs in the Boston Metropolitan road network, and a regional estimation of HEV emission contributions.</p>		An Wang, Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

*Study Information (cont.)*

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
M-10		Measure compliance with existing safety laws. Questions: <ol style="list-style-type: none"> <li>1. What are the percent of drivers that comply with speed limits?</li> <li>2. Do drivers perceive speed limits as minimum speeds?</li> <li>3. Do drivers slow down when speeding to pass pedestrians (e.g., runners) and bikers on Mystic Valley Parkway?</li> <li>4. Can we close Mystic Valley Parkway to thru traffic on holidays and weekends? Will this slow the number of folks driving with excessive speed?</li> <li>5. Does this increase the usage of the road for bikers?</li> </ol>		Stephen Linder, Public Survey	
M-11		<p><b>Congestion (A):</b> Pilot Congestion Pricing on an entire key Roadway (e.g., Mass Pike, I-93) with published variable rate and mode/vehicle type pricing schedule covering 12-month, 24/7, M-Sunday. Concurrently, monitor pre and post program congestion/SOV diversions to corridor’s transit and rail options.</p> <p>Does a coordinated Congestion Pricing Program positively decrease a corridor’s single occupancy vehicle/SOV usage/trips and/or their timing as well as measurably decrease degree of Congestion (and incurred inherent GHG, costs, loss of time) on the priced route and on corridor at-large? What is the net income to MA derived from administering the program? How did the Congestion program change transportation usage, mode profile, and timing behavior within the corridor...e.g., SOV, Transit, Freight?</p>		John McQueen, Email	
M-12		<p><b>Congestion (B) and Management and Future of Urban and Suburban Curbs:</b> To what measurable extent do (relatively new and expanding) ‘commercial’ on-demand vehicle modes (e.g., Amazon Prime delivery, UPS, ride share/Uber and Lyft, Door Dash, Domino’s, taxis, etc.) create incremental Congestion and/or undesirable compromises to Safety or to at-large Quality of Life...in CBD, urban, and suburban highways, streets, neighborhoods?</p> <p>Congestion is a constant and growing problem in Greater Boston/Eastern MA, as is the persistent problem of ‘competition’ for curbside space (paid and unpaid, by all vehicle types, plus non-vehicle, pedestrian-oriented parklets ). Specifically, how have the commercial, on-demand, ‘convenience modes’ contributed and added to the city’s and region’s congestion? Do they reduce/replace SOV travel trips for same task? Will this dynamic increase, or was it a temporary outgrowth of COVID? (Probably in a separate, discreet study) How do the commercial on-demand vehicle modes factor into future problem and/or solutions for appropriate, context-sensitive allocation and formal management of curbside space for the best functional, equitable, safest and quality of life 24/7 outcomes? Use of technology to inventory and quantify existing use/conflict patterns, location’s available curb space, identify pedestrian threats (e.g., sightlines at crosswalk or intersection). Future use of technology to encourage/discourage curbside use by (transparent to user) dynamic pricing throughout the day via onboard GPS and data-rich chips that charge accounts for the linear curb space variable to vehicle use-type (e.g., ride share dropoff, delivery, freight, SOV/taxi stand, etc.)?</p>		John McQueen, Email	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
<b>TRANSIT</b>					
T-1	Effective ways to reduce school-related vehicle trips	<p>Over the last several decades, there has been a noticeable shift from parents allowing children to commute to school independently. Modes such as walking, biking, and taking the bus to school have been used less frequently, compared to dropping their children off at school. The effects of this shift have resulted in an increase of SOV travel; an increase in vehicle emissions; an increase of stress on commuting parents; potentially a decline in personal health (both parents and children spend more time sitting in a vehicle instead of walking and biking).</p> <p>The purpose of this project is to analyze ways to reverse the trend of parents driving their children to school. This a travel demand management study that has solutions, which will be analyzed in this study. These solutions could include:</p> <p>Bringing back robust school bus systems (Large school bus systems were common in many communities in the 1970s and 1980s and have since been decimated due to budget cuts and negative stigmas); the encouragement of biking and walking to school by conducting outreach, and improving infrastructure such as bike trails, sidewalks, and bike racks located near schools; the implementation of congestion pricing strategies, such as charging a curb access fee for dropping off children at or near school, in order to encourage parents to consider alternative means of transportation to commute their kids to school.</p> <p>This study would look at several funding mechanisms such as taxes, sponsorships or congestion pricing to provide funding for the solutions listed above. This study will analyze different strategies that will look at ways to alleviate congestion near schools. First, a literature review will be written to show studies that have previously been completed on this topic. Then, a brief analysis would be conducted to see what strategies best fit the Boston region. A memorandum will be written that would summarize each of the final strategies. The memorandum can then be presented to specific communities that have congested roadway locations near schools.</p>	\$60,000-\$80,000	Staff Survey	
T-2	Review and Analysis of Community Connections Shuttles	<p>This study would consist of a review of shuttle services funded through the MPO Community Connections program to gain a better understanding of the various successes and challenges of the MPO's shuttle programs. Further, the study could pull data from all available shuttles to break down cost per rider, usage rates, GHG reductions, and other interesting/useful data points. The study is intended for MPO members and municipalities to enable decision-making regarding the long-term viability of the Community Connections shuttle program.</p> <p>Literature review and data analysis of current and past funded shuttle programs by the MPO; types of services offered; technology used by service; mapping of current shuttle service areas; data analysis of ridership, air quality, and equity impacts of the services; financial analysis of shuttle services; implementation, startup, and funding of shuttle services; long-term funding and successes; current needs and issues; interviews with current shuttle operators.</p> <p>This study would be used to evaluate the current success of funding shuttle services through the Community Connections program and could enable further discussion on the future viability of the program and whether the program is good in terms of cost/benefit.</p>	\$40,000-\$60,000	Staff Survey	

## FFY 2024 UPWP Universe of Proposed Studies

*Study Information (cont.)*

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-3	Carsharing Overview and Opportunities in the Boston Region	<p>This would be a research project to inform the MPO and its partners (municipalities, transportation agencies, and others) about the challenges and opportunities related to carsharing in the Boston Region. I would suggest this study be done through a combination of literature review with policy recommendations that could lead to a future car share guidebook for municipalities to explore best practices, suggestions on funding for programs, or additional research topics to further understand the potential benefits and challenges of car share.</p> <p>Carshare has potential to reduce vehicle-miles traveled, increase access for equity populations, reduce vehicle-miles traveled and greenhouse gas emissions, as documented by multiple regional, national, and international studies. Expanding carshare opportunities could help the Boston Region MPO and the State as a whole to reach set greenhouse gas reduction targets, as well as reduce the overall amount of vehicle-miles traveled on the MA road network. Carshare could also be used as a tool to provide equity communities with access to places that are inaccessible/difficult to access by public transportation.</p> <p>Example studies in other regions include the Carshare Parking Pilot Program, published by NYC DOT in April 2021, reported that for every one Carshare vehicle available, four vehicles were removed from NYC streets. Further, the pilot program reported that vehicle-miles traveled and greenhouse gas emissions among carshare members were reduced by 7% and 6%, respectively over the pilot period. Other national research reports that a singular carshare vehicle can take nine to 13 privately owned vehicles off the road.</p> <p>This study could build off of previous studies noted below.</p> <ul style="list-style-type: none"> <li>• <i>Destination 2040</i> Need Assessment</li> <li>• Needs Assessment mapped car sharing access in Boston Region</li> <li>• Doc also noted that a significant amount of research remains to be done regarding car share</li> <li>• Greenhouse Gas Reduction Strategy Alternatives: Cost-Effectiveness Analysis (2016)</li> <li>• Recommended car sharing for further study for Travel Demand Management benefits</li> <li>• Shared-Use Mobility Services (2017)</li> <li>• Overview of car sharing with literature review</li> <li>• Promising Greenhouse Gas Reduction Strategies for the Boston Region (2018)</li> <li>• Noted that November 2015 GCC report, Reducing Greenhouse Gas Emissions from Transportation: Opportunities in the Northeast and Mid-Atlantic projected a cost of \$40 - \$7,486 per metric ton of GHG for reduction efforts.</li> <li>• Noted several carshare programs outside the Boston Region and gave overview of each program</li> <li>• Managing Curb Space In The Boston Region (2021). Notes car sharing as a potential use for the curb.</li> </ul> <p>I would suggest this study be done through a combination of literature review with policy recommendations that could lead to a future car share guidebook for municipalities to explore best practices, suggestions on funding for programs, or additional research topics to further understand the potential benefits and challenges of car share.</p>	\$20,000-\$40,000	Logan Casey, Staff Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-3 (cont.)	Carsharing Overview and Opportunities in the Boston Region	<p>Potential topics for a literature review could include topics such as:</p> <ul style="list-style-type: none"> <li>• Overview of Carsharing, Types of Businesses and how they operate Carshare Business Models (this has already been covered by the Shared-Use Mobility Services study in 2017, but could be updated)</li> <li>• For-Profit/Non-Profit</li> <li>• Business to Consumer/Peer-to-Peer Business Models</li> </ul> <ul style="list-style-type: none"> <li>• Boston Car Share brands</li> <li>• Good2Go - Boston based Non-Profit Carshare</li> <li>• GetAround and ZipCar - For-Profit Car Share Companies operating in multiple areas of Massachusetts</li> <li>• Turo - Peer-to-Peer car sharing platform</li> </ul> <p>Carsharing programs available in the region, documenting their programs, coordination efforts, and successes</p> <ul style="list-style-type: none"> <li>• Boston <ul style="list-style-type: none"> <li>◦ Car Share Boston, <a href="https://www.boston.gov/departments/transportation/car-share-boston">boston.gov/departments/transportation/car-share-boston</a></li> <li>◦ Good2Go, <a href="http://evgood2go.org">evgood2go.org</a></li> </ul> </li> <li>• Cambridge <ul style="list-style-type: none"> <li>◦ Cambridge Carshare, <a href="https://www.cambridgema.gov/CDD/Transportation/gettingaroundcambridge/bycar/carshare">https://www.cambridgema.gov/CDD/Transportation/gettingaroundcambridge/bycar/carshare</a></li> </ul> </li> <li>• Salem <ul style="list-style-type: none"> <li>◦ Carshare Service (run by GetAround) <a href="https://www.salemma.gov/traffic-and-parking-department/pages/community-carshare-program">https://www.salemma.gov/traffic-and-parking-department/pages/community-carshare-program</a></li> </ul> </li> <li>• Overview of available data surrounding carshare in the Boston region (number of vehicles available, utilization rates, % of cars that are EVs, etc.)</li> <li>• Amenities offered to facilitate carshare services <ul style="list-style-type: none"> <li>◦ Special parking permits/dedicated parking spaces</li> <li>◦ Specialized parking markings and signage</li> <li>◦ Dedicated charging equipment for electric vehicles</li> <li>◦ Discounts for low-income users</li> <li>◦ Review of available related studies and summation of possible benefits and issues faced by car share</li> </ul> </li> </ul>	\$20,000-\$40,000	Logan Casey, Staff Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-4	Investigating the effect of rapid transit closures on highway volumes	The purpose of this study is to investigate the affect of the closure of rapid transit lines on the traffic volumes, speeds, and travel times of vehicles on nearby highways. It will use the shutdown of the Orange Line in the fall of 2022 as a case study. It will make use of data from MassDOT's continuous-loop traffic counters on I-93 north of Boston (in the vicinity of Wellington Station), and speed and travel-time data from INRIX for road segments in this area. The existence of these data sets allows us to compare traffic volumes, vehicle speeds and travel times before, during, and after the Orange Line shutdown. From this comparison, we'll be able to determine if the Orange Line shutdown may have forced more traffic onto I-93, and if so to what extent. This understanding will help inform planning for future shutdowns of rapid transit lines. We will use traffic count data from MassDOT continuous-loop counters on I-93 north of Boston in the Wellington Station area, and speed and travel time data from INRIX for the corresponding road segments. Data from these sources for time periods before, during, and after the Orange Line shutdown and compared.	\$20,000-\$40,000	Staff Survey	
T-5	Toward Regional Transit Fare and Service Integration	<p>This study would be an extension of the current MBTA Mobility Integrations study. Other regions have found success unifying multiple transit operators under a single fare schedule and enhancing interagency coordination on service, scheduling, and infrastructure. Such integrations make transit more user-friendly by simplifying payment and provide a more cohesive transit network that encourages connections across a greater geographic area. These integrations may also make the transit system more equitable by enhancing service options for workers in transit-critical communities, who often have longer commutes that cross geographic, agency, and modal boundaries. This study would seek to determine best practices for initiating and implementing these integrations, and potentially identify specific considerations, concerns, and opportunities relevant to Greater Boston.</p> <p>This study would primarily involve identifying and researching regions where these kinds of intermodal and interagency integrations have been successful. This would include researching policy documentation, studying which integrations were implemented and how, and identifying challenges or missteps to avoid if such integrations are to take place in Greater Boston. If time and budget allow, this could also involve interviewing individuals from these regions/agencies (similar to the Mobility Integrations interviews). Current fare policies and service integrations among Greater Boston RTAs would also be examined. Interviews might also be applicable to this portion of the project to identify potential venues for this collaboration to take place and any specific concerns that agencies may have.</p>	\$40,000-\$60,000	Staff Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-6	Feasible Corridors for Elevated Rapid Transit	<p>While it is relatively uncommon in the United States outside of legacy systems such as New York and (most notably) Chicago, elevated rapid transit construction within existing public right-of-way is fairly commonplace in much of the rest of the world. Most proposals for expansion of rapid transit in the Boston area have assumed at-grade or tunneled construction. The former makes transit less reliable; the latter, much more expensive. Modern elevated structures are less visually imposing and much quieter than those built in the early 1900s. This study proposes to identify corridors in the Boston area where (a) new rapid transit capacity may be needed and (b) sufficient right-of-way exists to build elevated rail or BRT. Elevated rather than submerged construction could save time and money on projects such as the Red-Blue Connector.</p> <p>This study would presumably draw on past planning work, the LRTP, and potentially some modeling to identify transit demand corridors. It would then require some GIS and potentially field work to identify the geometry of public ROW for elevated construction. This study would result in a report for the MPO and partner agencies.</p>	\$80,000-\$100,000	Staff Survey	
T-7	Guidebook to Accessible Road Design	<p>This study would produce a guidebook like those CTPS has produced in the past that would provide clear guidance on how to build street infrastructure that meets accessibility regulations and expectations. It would outline the bare minimum compliance to regulations; how to go above and beyond; and intersections between different modes and accessibility needs (bike lanes, bus lanes, street crossings, and the like). This study could be included in the Multimodal Mobility Program.</p>		Sandy Johnston, MBTA	
T-8	Station Access Prioritization and Guidance	<p>This study stems from the need to (1) improve access to transit stops and stations, especially by biking, walking, and rolling and (2) to develop a pipeline of new potential TIP projects across the region. It would</p> <ul style="list-style-type: none"> <li>• review past studies and research on station access;</li> <li>• develop a set of questions to ask and things to evaluate when analyzing station access and discussing projects;</li> <li>• research access needs across the region to produce a list of potential station access improvement areas;</li> <li>• discuss with municipalities how best to convey station access needs and their role in developing improvement projects, including how to get them into the TIP pipeline; and</li> <li>• select two to four specific locations and develop conceptual improvements.</li> </ul> <p>This study could lay the groundwork to developing a large “universe” of station access projects and developing an approach to prioritizing the locations or helping to identify challenges to implementing improvement projects (for example, a complex intersection owned by MassDOT that would need major redesign). The final work produce could take the form of an interactive map product or Storymap, or a guidebook/report. This study could be included in the Multimodal Mobility Program.</p>		Sandy Johnston, MBTA	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-9	Review of and Lessons From Transit Capital Construction Costs Research	In recent years there has been significant examination in the transit world of the problem of rising capital construction costs. This is particularly significant in light of investments being made as part of the Bipartisan Infrastructure Law (BIL), as well as the need to rehab significant parts of the MBTA's legacy infrastructure; invest in resiliency; and prepare for fleet electrification. We propose a study focused on examining recent research and findings on this topic and making high-level recommendations to the MBTA and other relevant stakeholders for how to streamline construction and lower costs. Sources could include the NYU Transit Costs Project and Eno Center report on the same topic. The study could also include interviews with experts in the field and people working on capital construction at the MBTA and other agencies.		Sandy Johnston, MBTA	
T-10	Demographic Change and Transit Propensity in Eastern MA	<p>Planners often use demographic data, among other tools, to project how people will travel around our area of responsibility. Typically, we expect that people in wealthier areas will use transit less, and that there is a significant difference in both demographics and land use between cities and suburbs. And while it is true that the Boston area is highly segregated, it is also true that American suburbs are changing and diversifying rapidly.</p> <p>In addition, the COVID-19 pandemic forced transit agencies to reconsider who their core markets are and who best to serve them. This study would seek to contextualize the pandemic-era shifts within a broader story of demographic change, and push planners to question (or reconfirm!) longstanding assumptions about who lives where and what they need.</p> <p>This study partially follows up on the work done in the FFY 2022 UPWP study <i>An Exploration of Destination Access and Transportation Cost Analyses</i>. Among other things, that study examined demographic change from the 2010 Census to the 2020 Census, and used 2020 Census data to examine destination access for protected populations. We propose expanding the analysis to include the 2000 Census, giving a longer-term view of demographic change over time, and exploring the ability to use destination access tools and past transit schedule data to examine change in destination access over time. In turn, this analysis would be used to analyze the impact those changes might have on demand for transit. More details can be requested from MBTA staff.</p>		Sandy Johnston, MBTA	
T-11	Review of Bus Lane Benefits and Impacts	MBTA and municipalities in the Boston region have rolled out a significant number and mileage of bus lanes over the last several years. This study would review the benefits and impacts of those lanes, including things such as benefits to riders and riders; impacts to travel of other modes; safety impacts and benefits for all modes; parking provision and use; cost or benefit to local businesses; and other considerations as defined by stakeholders. The analysis could be broken down by type of bus lane (side-running; shared with bikes; center running; etc).		Sandy Johnston, MBTA	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-12		<p>There are various parts of the urban area of metro Boston. On top of this, there are rail lines passing through some of those areas without stopping, therefore burdening these communities with infrastructure they do not have access to. Some of these areas, including Mount Hope and Newton Corner, previously had transit stations that have been removed.</p> <p>I would suggest studying potential infill station locations on the MBTA rapid transit and commuter rail lines. These infill locations could be areas of existing housing and/or employment density, areas that could be redeveloped to have more of such density, or near essential facilities such as hospitals or colleges. All rail lines should be included in the scope of the study. Walksheds (of maximum 10-15 min) for existing and potential stations should be considered to minimize gaps as well as unnecessary overlap. Other factors to consider should include existing and potential ridership in the missing service areas, prioritizing environmental justice communities and communities of color currently lacking service due to systemic disinvestment, and how new stations would relate to the existing bus network and the bus network redesign.</p> <p>Anticipated outcomes would be maximizing utility of existing transit lines, improving transit access in underserved communities, making it easier to take more trips without a car from and to more places, and adding transit accessibility to facilities offering essential services.</p>		Public Survey (anonymous)	
T-13		<p>In our Boston Metro region (and our state), we do not have an overarching comprehensive transportation plan that notes where we believe there should be fixed route service, where there should be demand services, where there should be point-to-point services, and who should run these. The result is an array of disparate services that are urged to regionalize themselves and collaborate themselves, though often times so many separate town borders and agency differences makes this challenging. In addition, this plethora of diverse transportation options, actually still leaves us with many gaps and inefficiencies. We should map out the MOST IDEAL transportation network, including its frequencies and also map out the MOST IDEAL plan for how we deal with the inevitable gaps in the network. This work should also lead to a better CPT-HST plan and enhance so many other planning efforts. Even MBTA Bus Network Redesign does not really indicate the most ideal network, rather it just seems to be based on what can they most easily achieve within limited resources. In addition to better planning processes, we can then best identify the FUNDING mechanisms to carry out this plan and identify when we may be able to pool resources, blend and braid funds, and consider any legislative changes, if necessary.</p> <p>This is for the entire Boston MPO region, which includes many transit authorities and also an array of services in between. Such planning would also help us identify how we would deal with overlap in these areas and also gaps in services.</p> <p>I would also recommend that in this process, we look at the integration of paratransit with other demand response services.</p>		Susan Barrett, Public Survey	
T-14	Platform Screen Doors	Study and analysis of heavy rail systems in North America/Globally that utilize full or partial platform screen door. Study will include an inventory of properties utilizing Platform Screen Doors, and a case study of a legacy system similar to the MBTA that implemented full or partial platform screen doors at a time other than its initial construction.		Amira Patterson, Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-15	Shuttle Inventory in and around Boston	<p>In the past decade the number of private shuttles offering regularly schedule service in and around Boston has increased. This study will take an inventory of what private shuttles are currently operating on the public ways of Boston and surrounding communities, as well as create a map showing where they go? This inventory should also state who is funding said shuttles, their principal origins and estimations, if they are open to the public or not, and other relevant information. Furthermore, this study should touch on the issue of allowing the public onto private shuttles and what, if any, impediments are in place to make it difficult for public use.</p>		Amira Patterson, Public Survey	
T-16		<p><b>Context of the underlying problem:</b> The rapid and sustained increase in remote work in the wake of the COVID-19 pandemic has dramatically altered commuting patterns and resulted in a precipitous decline in transit ridership. This presents a long-term threat to the financial viability of transit agencies around the country who depend on fare revenue for a significant portion of their operating and/or capital funding. In the face of budgetary shortfalls, these agencies are often left with no alternative but to cut service, which in turn makes transit less attractive, leading to even less fare revenue. In order to avoid entering this type of downward spiral of service cuts and ridership losses, which ultimately would impair the economic, sustainability and equity of the entire Boston region, a new approach to transit service delivery is needed. Research has shown that we are experiencing perhaps the most significant shift in the commuting patterns of large US cities in many decades, and our transit agencies will need to adapt if they are to remain the backbones of sustainable and equitable urban transportation systems.</p> <p><b>Potential solutions to explore:</b> While a large share of commuting trips may have disappeared for good, people still have a need and desire to travel. Shifting service delivery to capture non-work trips would help to boost ridership and achieve the region's climate goals. The MPO could study several potential changes to MBTA service delivery oriented around serving non-work trips:</p> <ul style="list-style-type: none"> <li>• Explore on-demand transit service in outlying residential areas. This service model can be quite cost-effective for serving low-demand areas while providing a new sustainable mobility option to connect people from their homes to neighborhood town centers or major transit hubs.</li> <li>• Providing increased service during off-peak hours (especially evenings and weekends) to serve leisure and household errand trips by remote workers and those with atypical work schedules that would otherwise be made by car.</li> <li>• Introduce flexible discounted fare products that would make transit cost-effective for people engaged in some amount of remote work (e.g., hybrid work fare card with unlimited trips for 10 weekdays per month, or weekender fare card that provides unlimited trips on weekends).</li> </ul> <p><b>Anticipated outcomes:</b> The goal of this study would be a better understanding of the effect of innovative schedule, geographic coverage, and fare product changes on the long-term financial health of the MBTA (or other regional transit agencies). The study results could inform future pilot projects that pave the way to ridership recovery and ultimately a better transportation system that serves the new needs of residents in the Boston area.</p>		Nick Caros, Public Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-17		The MBTA is struggling to deal with existing service and deferred maintenance challenges. Multiple fixed rail subway and surface routes are at risk of coastal flooding. It would be great to understand the upper limit of how much the MBTA is able to elevate tracks and portals before it becomes prohibitively expensive and/or there are other barriers (like highway overpasses). When is this expected to happen, and how should we prepare to move away from existing trains?		Julie Wormser (Mystic River Watershed Association), Public Survey	
T-18		<p>I think the MPO should study and outline where it makes the most sense to have FIXED ROUTE TRANSIT (rail, bus) throughout the entire MPO area. Then outline WHO should run it (MBTA, RTAs, or other entities) and we need a coherent logic for this. (Right now, we have services pop up to fill gaps, but as all services take money, drivers, etc, can't we have a more unified system rather than one that is so fragmented? )</p> <p>Outside of this FIXED ROUTE network, that would also hopefully layout reasonable IDEAL frequencies, we would then have a more coordinated plan on how to deal with the gaps in between. For example, instead of the plethora of separately operated demand services, could there be a shared demand service (for when it is truly needed) that we can buy into? I think if this existed, then rather than dispatching vehicles based on who is in a program, we would dispatch them based on proximity to the rider and destination. This would create better service and it should be more efficient.</p> <p>In summary, I think we need an actual transportation services plan for the entire Boston MPO region. This plan also needs to take into consideration how we account for transfers out of the service area or in places where maybe service is operated by different entities.</p> <p>Thank you!</p> <p>Susan</p>		Susan Barrett, Public Survey	
T-19		Estimate of state/federal/local subsidies for federally aid eligible highways, tolled highways, commuter rail, heavy rail, light rail, private bus shuttle, intra-state bus, transit bus (RTA and MBTA), biking, walking, etc in the Boston area and/or statewide. The purpose of this is to understand how much of each C31 trip is subsidized by various levels of government, safe in the understand that no trip is unsubsidized to a certain extent.		Brian Kane, Public Survey	
T-20		<b>Statewide Paratranist:</b> What would the cost implications be if RTAs stopped running parallel paratransit service, and it was operated statewide instead? What FTA and State impediments are there, and what would the estimated capital and operating costs be for such a program? In addition, what savings (cap and ops) could the MBTA generate if it ceded this mode to another entity?		Brian Kane, Public Survey	
T-21		<b>Spin Off Commuter Rail/Ferry:</b> (This is purely for information)- What are the pros and cons of spinning off the Commuter Rail/Ferry modes of service from the MBTA? If an independent Rail/Ferry authority were created, what would be the financial impact on the remaining MBTA (bus, subway, paratransit) in terms of revenue (fare, parking, other operating), service, and integration. What are the options for an independent Rail/Ferry Authority to integrate with other passenger rail/ferry providers in the Commonwealth (Cape Rail, Berkshire Rail, Downeaster, Lake Shore Limited, New Haven-Springfield, East-West Rail, etc.)? What governing model might this entity utilize, and what national models are there to follow?		Brian Kane, Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-22		Commuter/Regional Rail Safety Oversight: What is the similar entity that provides safety oversight at a local level to the MBTA's commuter/regional rail system? What is the legal authority for this, what activities do they carry out, and what are some better alternatives/models/approaches for improving Commuter Rail safety in the MBTA area?		Brian Kane, Public Survey	
T-23		Please provide more connections (with better frequency) to/from public transportation sites to condo settlements and neighborhoods. The town of Natick, with its several stops, is a good example. As more and more of us are letting go of cars, the provision of parking lots at the transportation hubs is not enough. Thanks.		Gail Gilliland, Public Survey	
T-24		Is it possible to coordinate commuter rail and RTA services effectively when they both are likely to be only hourly (at least in the off-peak hours)? Is it possible to move commuter rail to a clock-face schedule throughout the day? On most lines, MBTA has moved to a clock-face schedule in off peak hours, but has not maintained the consistent schedule in the peak hours when additional trains are operated. Are the benefits of commuter rail - RTA coordination greater than the costs to current users caused by shifts in schedule necessary to create the coordination? Are the RTA's the best providers of the service to/from the commuter rail stations, or would it be more cost effective for commuter rail to perform such a service? Should the coordinated service be branded differently from the current brands? Would a micro-transit operation or a subscription service be more effective than a fixed route service outside the current hours that the RTA's operate fixed route service? How should the added costs of coordinated service be funded? What are the impacts and benefits of joint fares? Should a commuter rail - RTA trip be priced at a discount to the sum of the individual fares? How should the joint fare be split between MBTA and the RTA's? What institutional barriers are there to coordination between agencies? Are any legislative or regulatory changes needed? Are there differences in the infrastructure, transportation needs, and networks that result in coordination making sense in certain hubs, but not in others? Do RTA's have sufficient staff to effect and monitor the coordinated services? Are there obvious experiments in coordination which should be performed? Prior to making system wide changes, experiments at individual cities could test concepts.		Andrew Jennings, Email	
T-25		<p><b>Context:</b> For a variety of reasons with which we are all familiar, increasing the use of transit is a goal of the BRMPO; but which parameters have larger impact on transit use? The new Travel Demand Model (TDM) contains many parameters, with some being new and some being different versions of parameters that were used in the previous TDM.</p> <p><b>Proposed Study:</b> This would be a basic research study to explore which parameters and combinations of parameters have larger effects on transit usage (with a focus on EJ communities and/or communities with large populations of minorities and/or those with low incomes). The study would explore parameters that easily come to mind but it would also explore combinations of parameters that would not ordinarily come to mind.</p> <p><b>Anticipated Outcomes:</b> Discovery/confirmation of the parameters and combination of parameters that have larger impacts on transit use could help in the design and selection of projects that increase the use of transit. It could also provide insight as to how to design projects that minimize the negative effects on the use of transit.</p>		Len Diggins, Email	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
T-26		<p>Pilot Deployment of EMUs or DMUs on Commuter Rail Line</p> <p>Will reasonable but robust frequency supplemental EMU/DMU service availability significantly change usage behavior toward transit/rail/last-mile bike, away from single occupancy vehicle/SOV usage? Will EMU/DMU service decrease roadway congestion in its area of deployment? Over 18-hour periods, not only 'rush hours'?</p>		John McQueen, Email	
T-27		<p>Survey local residents of RTA towns regarding their perceived and real functional obstacles to using existing RTA-type/local Transportation options for their daily/regular trips locally and regionally (e.g., from Sudbury to Burlington/North Shore Mall, to doctors/Hospital in Peabody or Beverly, etc).</p> <p>Identify the demand, breadth, scope, mode types, trip types, and program costs plus the type of town and pan-regional unified policies and funding needed to establish and sustain high-to-moderate levels of dependable, frequent intra-town and inter-town/destination service as a model for a town's Transportation Committee or MAPC. This asks: What would it take to achieve a dependable urban-like network system or non-SOV-based 1-3-seat-ride Transportation delivery to residents of municipalities, essentially inside the corridor outside Rte.128/I-95 and inside I-495? Can such a unified, uniform vision come close to reality unless and until the current fragmented, municipally-run/dependent disjointed operating governance and funding (stemming from Massachusetts' Home Rule framework) is changed? Does such a service delivery vision need to be managed and operated entirely by a single government agency (MA or Fed)? Surveys of residents could potentially be a mandatory part of a town's annual census (would inclusion into census need prior town meeting approval?).</p>		John McQueen, Email	
T-28					
T-29					
<b>RESILIENCE</b>					
R-1	Modeling Evacuation Routes	<p>Use flood risk data to determine what infrastructure might fail at a given risk level; model transportation flows when that infrastructure is unavailable. The MA Coastal Flood Risk Model would be used to identify infrastructure at risk of flooding. The Travel Demand Model networks would be updated to reflect the infrastructure unavailable during floods to examine how travel patterns would change in response. Anticipated outcomes include a report of findings, and potential identification of key evacuation routes.</p>	\$80,000-\$100,000	Staff Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
R-2	Strategies for Environmental Outreach and Engagement	<p>The MPO is well-positioned to connect different types of stakeholders around shared interests and facilitate collaboration throughout the region on transportation planning topics, including the key goal areas of climate resiliency and equity. To bring more representation of environmental, EJ, and resiliency topics and perspectives into our work, it is important to understand the various efforts and interests currently operating in this space, and to build relationships with practitioners and other interested parties. A first step to building these connections and expanding collaboration on environmental and resiliency themes is to determine the most effective engagement strategies for the MPO to pursue. Doing so would support the current UPWP's themes of resiliency, equity, and uncertainty by bringing environmental practitioners to the table who have not historically been engaged in MPO work. This study would support and advance both the resiliency and engagement programs, which currently lack capacity to build in this work at the program level. Surveys and interviews to connect with local environmental advocacy and environmental justice groups as well as municipal-level environmental departments to understand how resiliency practitioners would like to be engaged in MPO work.</p> <ul style="list-style-type: none"> <li>• Literature review and interview methodology to evaluate environmental engagement strategies employed by other MPOs in Massachusetts and elsewhere.</li> <li>• Invite environmental stakeholders to existing MPO events such as RTAC or Transit Working Group meetings to assess different engagement platforms.</li> <li>• Equitable engagement approaches such as compensation in order to reach a more diverse range of stakeholders.</li> </ul> <p>Report outlining the benefits and obstacles associated with different approaches to environmental engagement, a list of Boston Region groups and departments interested in engaging with the MPO, and recommendations on environmental engagement best practices, strategies, and platforms to be utilized by MPO staff in future work.</p>	\$20,000-\$40,000	Judy Taylor and Stella Jordan, Staff Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
R-3	MPO Support for Transportation Network Electrification	<p>This would be a research project to inform the MPO and its partners (municipalities, transportation agencies, and others) about the challenges and opportunities related to electrifying various aspects of the region's transportation system (electric automobiles, trucks, bikes, and transit vehicles). The goal would be to guide the MPO as it makes investments to meet objectives in its Clean Air and Healthy Communities Goal area. This research could cover:</p> <ul style="list-style-type: none"> <li>• Processes involved in investing in and maintaining charging stations or e-bike locks</li> <li>• Roles that municipalities, transit agencies, state or federal agencies, and the private sector play in electrifying the transportation system (particularly in Massachusetts)</li> <li>• Ways that MPOs around the United States have supported the electrification of the transportation systems (use of federal funds, projects and programs implemented, etc.)</li> <li>• Equity considerations related to electrifying the transportation system</li> <li>• Commonwealth plans for supporting electrification of the transportation system, and how the MPO could be involved in implementing these plans.</li> <li>• Explore existing charging facilities for distribution, availability, methods used to themselves (websites, Google search), types of plugs, charging speed, cost, and other rules of service.</li> <li>• Analysis to identify current gaps in access to charging infrastructure</li> <li>• Implications of electrification for utilities/impacts to the grid</li> <li>• Review of the air quality benefits of electrification</li> </ul> <p>The output of this study could be a report similar to Connected and Autonomous Vehicles and the Boston MPO—A First Look (2017) and Promising Greenhouse Gas Reduction Strategies for the Boston Region (2018). This report would be geared towards helping MPO members understand key issues related to transportation system electrification. Depending on the results of this research, future studies could support the development of guidebooks.</p>	\$50,000	Michelle Scott, Judy Taylor	
R-4		<p>The saltwater portion of the Mystic River (Amelia Earhart Dam between Somerville and Everett) down through the north side of Boston Harbor is under tremendous development pressure, both through existing proposals in Charlestown, Somerville, and Everett, and a desire by private landowners to convert state-zoned designated port areas to commercial and residential developments. The mayor of Everett and Encore Casino are trying to site the New England Revolution soccer stadium where the Mystic Generating Station now sits (and is about to be decommissioned). All of this has huge implications for old cities with poor access to public transit and interstate highways. It would be great to understand the regional implications and solutions for all this development before it happens.</p>		Julie Wormser (Mystic River Watershed Association), Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
<b>TECHNICAL SUPPORT and OTHER</b>					
O-1	Analysis of Public Restroom Access and the Impact on Transportation Choices in the Boston Region	<p>The lack of reliable access to public restrooms in the Boston region may potentially serve as a limiting factor to the number of trips completed by foot or via bicycle in the MPO area. Predictable access to a safe bathroom is especially important for women completing daily trips, suggesting that perhaps more women would commute and run errands by walking or bicycling if they knew restrooms would be available to them when needed. A study of current bathroom access in the Boston region and the impact that access has upon travel choices may help transportation practitioners expand the proportion of trips completed with minimal greenhouse gas emissions.</p> <p>This study would feature two key elements: (1) An inventory of public restrooms in the Boston region and (2) a survey of the public to assess the impact of public restroom access on their transportation decisions. The inventory should take into consideration hours and dates of restroom operation and could include the creation of a database for the public to access to better plan trips in the Boston region. Ideally, findings from the survey and inventory would be used to create inputs for the regional model to illustrate how trips in the region could change if more public restrooms were available throughout the year to people traveling in the Boston MPO area. An additional component to study could assess the distribution of public restrooms throughout the Boston region versus the proportion of public restrooms in equity areas.</p> <p>The public restroom inventory would be a dataset that could be developed into an interactive database for the MPO's website. The findings from the survey and regional model outputs could be summarized and illustrated in StoryMap format.</p>	\$80,000-\$100,000	Staff Survey	
O-2	Evaluating the Effectiveness of Public Engagement	<p>A major rift is emerging in the planning world over philosophies of public engagement. One intellectual stream is calling for slow project development and painstaking, patient public engagement, on the theory that it is both more equitable and more likely to satisfy opposition and lead to smoother implementation. Another points out that most project opponents are unlikely to change their minds and argues that all engagement does is provide more veto points to NIMBYs operating in bad faith, delaying needed positive outcomes, and potentially endangering rather than saving projects. This study would use documentation of past TIP projects to try to determine patterns and decide if one of these arguments is more correct than the other. While these hypotheses are difficult to test, I am unaware of any research actually quantitatively trying to test the first hypothesis in particular. The second has seen significant popular press and academic attention, such as <a href="https://www.politicsofhousing.com/neighborhood_defenders/">https://www.politicsofhousing.com/neighborhood_defenders/</a>, albeit mostly rooted in the housing rather than the transportation world. This study would involve review of public outreach efforts associated with past TIP projects, both implemented and not, and comparison to project timelines, delays, cost increases, failures, and the like.</p> <p>Anticipated outcomes include an estimate of what the most effective way to advance projects is; a discussion of values around process and balancing process against outcomes; and a report to the MPO and other interested parties.</p>	\$60,000-\$80,000	Staff Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
O-3	Are We Achieving Our Goals?	<p>This study will attempt to analyze whether the MPO and other transportation agencies in Eastern Massachusetts are achieving the goals they set out for themselves, and if not, what policies and programming would be necessary to achieve said goals. The study will review the general, strategic, and long-range plans put out by the MPO, the MBTA, MassDOT, Massport, and any other relevant agencies for the past 20 years, and document the goals set in them over time. It would then attempt to analyze whether those goals were met. For places where outcomes fall short of goals, the study will attempt to analyze, at a high level, what differences in actually implemented policy and investment would've been necessary to meet the goals. It will then relate these lessons to the new LRTP and impute any lessons learned from past experience. One key question will be whether the fiscally constrained program and policies laid out in the LRTP and other current plans are sufficient to meet stated goals. This would primarily be a literature review study but would require some quantitative work to analyze past outcomes.</p> <p>This study would primarily be a literature review study nt would require some quantitative work to analyze past outcomes.</p>	\$60,000-\$80,000	Staff Survey	
O-4	Propagation of Uncertainty Across Modeling	<p><b>Purpose:</b> The Boston MPO is working with a new set of tools for decision-making under uncertainty in transportation modeling. One of the primary sources of uncertainty is the interaction between changes in transportation and land use, particularly with changing in work habits and transportation technology. Getting a better understanding of how uncertainty propagates through these two systems will help decision makers have a better handle on the potential magnitude of impacts as well as policies that maintain regional priorities under a variety of circumstance. This project is contingent, however, on the ability to quickly link transportation model runs at the MPO and UrbanSim runs at MAPC.</p> <p><b>Approach:</b> Partnering with MAPC and their land use modeling team, the Boston MPO performs a series of scenario discover experiments to examine the propagation of uncertainty between land use and transportation system. The Boston MPO selects three significant areas of uncertainty, such as automated vehicles, work from home, and migration rates. The study examines each of them individually and together using a scenario discovery approach before modeling their combined implications. Subsequently, the joint modeling team would work to test a variety of policy and investment packages to understand the circumstances under which various approach perform better or worse.</p> <p><b>Anticipated Outcome:</b> A two-part report on the outcomes of the scenario discovery exercise. The first part focuses on the key uncertainties that the models determine to have the greatest influence on transportation and land use outcomes. The second part covers which policy solutions are robust across the scenario and which work under limited circumstances.</p>		Daniel Engelberg, Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
O-5	L RTP Critical Analysis	Paths to a Sustainable Region was published in 2011 with a 2035 timeline horizon. The MBTA Advisory Board proposes a critical analysis of this document. Based on what we, the MPO, approved in 2011, what has come to pass, what has not, what was way off, what was spot on, and what assumptions were correct versus wrong. The purpose is to learn what we can do better as part of the 2050 LRTP to ensure that we do not keep repeating the same errors or producing the same LRTPs over and over again.		Amira Patterson, Public Survey	
O-6	MPO Governance Models	A review of governance models of MPOs around New England and the United States. The Boston MPO is often told that it is unique in its governance model. To help ground a possible future MOU review, as well as the ongoing Operations Plan efforts, a review of other governing models of MPOs is warranted. What other models are used by other MPOs in areas similar to Boston? What are the strengths and weaknesses of these models, compared to our own? What, if any, does the research literature say about best practices and models of governance/structure?		Amira Patterson, Public Survey	
O-7		A study about how studies fail to deliver any meaningful transit expansion, so highway-oriented land use patterns persist outside of a small urban enclave in the capital city, and the original inner fourteen pre-MBTA municipalities.		Fred Moore, Public Survey	
O-8		How the public process is just a time sink that gives leverage to the NIMBYs, and discourages advocacy through lead times that span beyond one's natural life expectancy with a low probability of fruition. (highways excepted of course)		Fred Moore, Public Survey	
O-9		A scorched earth Texas style widening of Route One from Charlestown to Danvers, in violation of the Central Artery MOU per the settlement to improve transit in tandem with this long completed project, citing the foot dragging for the legally binding transit improvements, that continue to languish, or prove inadequate.		Fred Moore, Public Survey	
O-10		North South Rail Link to connect North Station and South Station. Badly needed connection.		Karen Molloy, Public Survey	
O-11		Are there simple alterations to registration, insurance, and titling regulations that would permit households with low need of a personal motor vehicle to share a vehicle with other low-use neighbors. Eliminating low-use vehicles would immediately free up curb space in high-density neighborhoods, give an opportunity to eliminate obsolete polluting and inefficient vehicles often used as low-use vehicles and, thereby, improve air quality and save money of sharing households as long as legal insurance and regulatory are understandable and manageable to the everyday person. I feel it would be desirable to make sure that everyday people could avoid having to use a predatory app based in order to save the planet by decreasing automotive use.		Ralph Walton, Public Survey	
O-12		<b>Legal Requirements:</b> What are the pending effects of recent federal and state climate legislation (Roadmap, Clean Energy, GW Solutions, BIL, IRA, etc.) and newish state/federal regulations on the MBTA's future fleet procurements? What are the requirements that pertain to the MBTA's fleets, and what steps must the MBTA take over the coming decades to comply with these laws and regulations.		Brian Kane, Public Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

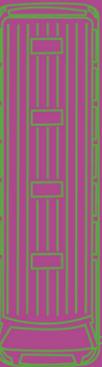
ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
<b>TRANSIT EQUITY</b>					
TE-1	Estimating the Magnitudes of Transportation Equity Populations in a Roadway Pricing Program in the Boston Region	<p>Context of the underlying problem: Many metropolitan areas in the United States are looking to reduce chronic traffic congestion, improve air quality, and increase transportation choices in central business districts through roadway-pricing strategies. However, charging fees (variably priced) that rise and fall with the level of congestion and vehicle weight raises concerns among many people that transportation equity populations might be unfairly priced off roads. Transportation is an important, often critical, link to education, paid work, recreation, health care, culture, and many other aspects of quality living. This study will explore how transportation equity populations would be impacted if a pricing strategy is implemented in the MPO region.</p> <p>Potential solutions to explore:</p> <ul style="list-style-type: none"> <li>• Identify congested zones/corridors in the MPO region that might be considered for roadway-pricing (cordon or priced lanes) program.</li> <li>• Evaluate the magnitudes of equity populations that would be affected from a roadway pricing strategy in those zones or corridors</li> <li>• Identify possible discounts and incentives that could be considered for transportation equity populations</li> </ul> <p>Anticipated outcomes: Staff will prepare a memorandum describing the congested zones or corridors in the Boston region and the magnitudes of transportation equity populations that would be affected from the pricing strategies. The findings will allow the MPO and its constituent municipalities, and other entities, to be better informed and prepared to meet the challenges of transportation equity in a road-pricing strategy.</p>		Seth Asante, Staff Survey	



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### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
TE-2	Applying Conveyal to TIP Project Scoring	<p>This study would create a process and a baseline set of resources that could be used to score TIP projects using the Conveyal destination access analysis application. It would be geared towards helping the MPO select projects that will help it achieve objectives in its Access and Connectivity goal area.</p> <p>Staff would build on experiences using Conveyal for the Identifying Transportation Inequities in the Boston Region Baseline Inequities Study while exploring new ways to use this tool, particularly to represent projects and how they might affect the destinations people in the region can access within a given time frame. Staff could conduct a literature review to understand how other planning agencies have used Conveyal to assess project benefits and impacts. Staff would then use lessons and ideas from this review to set up a Conveyal deployment that reflects assumptions about the roadway and transit network for a specific timeframe (e.g. a five-year TIP development cycle). Next, staff would explore ways to reflect projects of various types (complete streets, intersection improvements, etc.) in Conveyal and run analyses to show how destination access outcomes metrics would change if a project or a group of projects were implemented. Staff would document approaches for representing projects in Conveyal and identify destination access metrics and parameters that could be helpful to incorporate into updates to the MPO's TIP criteria and scoring processes. Staff would also develop methodology adapted from the Identifying Transportation Inequities study to analyze access for different demographic groups. Throughout this project, staff could consult with MassDOT OTP staff, the Conveyal development team, and other RPAs in Massachusetts about how to use Conveyal to assess project benefits and impacts.</p> <p>Outcomes could include:</p> <ul style="list-style-type: none"> <li>• A deployment of Conveyal that includes Open Street Map and GTFS inputs to represent the transportation network</li> <li>• Test results from Conveyal analyses that reflect candidate TIP projects</li> <li>• Documentation of a methodology to analyze proposed TIP projects in Conveyal</li> <li>• Potentially a short memo describing lessons learned during the process and considerations of how to use these tools as part of project scoring.</li> <li>• A presentation for the MPO describing the study process and the kinds of Conveyal outputs that can be used in project scoring</li> </ul>	\$70,000	Michelle Scott, Betsy Harvey, Logan Casey, Ethan Lapointe	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
TE-3	Transportation, Climate, and Health Equity Study	<p><b>Purpose:</b> Transportation, climate, and health are increasingly intertwined as the impacts of climate change accelerate. And while those relationships are conceptually understood, it is often difficult for regional and local decision-makers to understand their implications for their specific jurisdictions. More so, those impacts can be very different from one location to the next. These differences are particularly relevant for marginalized communities known to be more impacted by the effects of climate change. Such questions will be increasingly fundamental as the Boston MPO prioritizes equity in its long-range planning investments.</p> <p><b>Approach:</b> The Boston MPO partners with three local jurisdictions likely to experience different impacts from increasing climate change. The MPO supports each of these jurisdictions in inventorying the current and expected health impacts from the transportation system in light of increased temperatures, sea level rise, rainfalls, and riverine flooding. Finally, the MPO convenes all the jurisdictions to produce a report on likely impacts and best practices that other jurisdictions can also use.</p> <p><b>Anticipated Outcome:</b> A report detailing the specific impacts for the jurisdictional partners and broader takeaways for the region.</p>		Daniel Engelberg, Public Survey	
TE-4	Equity Measures in Modeling and Project Selection	<p><b>Purpose:</b> The Boston MPO has invested significantly in its modeling capabilities over the last several years. Deeper research into measurement of transportation equity will help the modeling and project selection apply this modeling suite to this priority for transportation investment decisions.</p> <p><b>Approach:</b> The study will have three phases. First, Boston MPO staff will review how other MPOs are approaching measuring equity impacts using modeling and related tools, as well as the recent literature on measures of transportation equity and justice. Second, Boston MPO staff will work together with equity stakeholders to determine the best set of measures that the current set of tools can produce. Finally, the modeling team will build tools to automatically produce selected equity measures from model results.</p> <p><b>Anticipated Outcome:</b> A report summarizing equity measures used in MPOs across the country and proposing measure for the Boston MPO. An additional modeling toolset that produces the equity measures from completed model runs.</p>		Daniel Engelberg, Public Survey	

## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
TE-5	Identify transit options that match transportation-underserved workers with transportation-underserved employers, in transportation-underserved areas.	<p><b>Objective:</b> The goal of this proposed study is to ensure that Massachusetts offers transportation services that provide (1) environmental/energy/congestion benefits, (2) livability benefits (social and economic justice), (3) mobility equity, and (4) improved public and economic health. To achieve these, we are recommending that UPWP conduct a study of transit options designed to match transportation-underserved workers with transportation-underserved employers, in transportation-underserved areas. The desired outcome is a set of models: well-researched, evidence-based, practicable examples for municipalities to use according to their unique circumstances.</p> <p><b>Context:</b> Transportation-underserved areas include rural and suburban communities with weak links to commuter rail and public transit (MBTA and/or RTAs). Also, in these communities, Chapter 40B and 40R requirements have resulted in substantial affordable developments, where those who need to work may have to rely on their own cars. Adding to residents who are financially vulnerable (especially single parents) are those students who are working while seeking credentials for secure employment, and retirees, whose pensions/Social Security may not be sufficient (e.g., the housing-cost burdened). Such residents are actually or potentially transportation-underserved workers.</p> <p>Operating in transportation-underserved areas are transportation-underserved employers. Not only in-town retail businesses but also large corporations in rural/suburban areas have difficulty finding and keeping employees.(1) In Massachusetts, entry-level jobs in the healthcare sector are an example: personal care aides, homecare aides, nurses/aides. Other entry-level jobs that are hard to fill include support staff and workers in food preparation and service. The goal is not simply to provide transportation to low-level workers but to assure that growth can occur because transportation nodes include education/training sites, dependent care sites (child care and adult day), and other sites that help workers not only keep jobs but gain skills.</p> <p><b>Proposed Study Details:</b> The UPWP study would be guided by the fundamental transportation principle of coverage, i.e., the study would incorporate coverage goals to ensure equity in the target region(s) and, hence, in the Commonwealth.(2) The study would focus on the transportation-underserved, across residents, businesses, and geographic areas; that is, transportation-underserved workers, employers, and municipalities (see details below).</p> <p>Transportation-underserved workers are those</p> <ul style="list-style-type: none"> <li>• already engaged in job-designed education/training/apprenticeships;</li> <li>• seeking a job (may include the prior group);</li> <li>• seeking transition from part- to full-time employment (e.g., students);</li> <li>• working second, third, and/or weekend shifts; and</li> <li>• returning/needing to work (e.g., single heads of household, retirees).</li> </ul> <p>The goal of the proposed transit network is to help fill high demand jobs such as personal care aides, home health aides, nursing assistants, school support staff, and food prep and serving. Illustrations from BLS.gov data on MA employment include examples of certificate and/or entry-level jobs. NOTE: health services and education are the two biggest employers in the state (see details below).</p> <p><b>Transportation-underserved employers include:</b></p> <ul style="list-style-type: none"> <li>• healthcare and related institutions (support staff, nursing assistants, home health aides);</li> <li>• major education/community/social service institutions (support and para-staff [e.g., substance abuse, behavioral, mental health counselors]; social and human service assistants; teacher aides and administrative support);</li> <li>• major food preparation and serving related institutions (food prep and serving, including fast food; wait staff; support staff);</li> <li>• major building/grounds cleaning and maintenance businesses (janitors/cleaners; land-scaping/groundskeeping); and</li> <li>• major personal care and service businesses (personal care aides; hairdressing, cosmetologist).</li> </ul> <p><b>Transportation-underserved geographic areas:</b> In many municipalities—rural towns and certain areas of suburban communities outside dense cities—transportation planning and service operations face variable and generally sparse population density. Commuting for non-drivers and access to jobs in evenings and on weekends are difficult. A number of rural towns offer no public transportation; in other towns, parking for commuter rail is constrained; and in most municipalities there are few walking/biking routes from residences to likely employment destinations. The MAGIC region of the state, for example, has been defined as a transportation desert. That appellation applies to a number of other similar regions.</p>		Alice Sapienza, Public Survey	



## FFY 2024 UPWP Universe of Proposed Studies

### Study Information (cont.)

ID	Project Name	Project Purpose and Outcome	Estimated Budget	Source	Staff Comments
TE-5 (cont.)	Identify transit options that match transportation-underserved workers with transportation-underserved employers, in transportation-underserved areas.	<p><b>Potential Solutions:</b> By incorporating the guiding principle of coverage in the study of transportation underserved (above), the UPWP study should provide the following innovative design solutions:</p> <ul style="list-style-type: none"> <li>a. Primary design innovation: inclusion of employment-supporting nodes in an origin-employment-destination transit model</li> <li>b. Secondary design innovation: transit providers chosen to be predominantly hybrid or EVs (environmental/energy benefits); fares/subsidies encourage predominance of shared rides (reduction of congestion); integration with MBTA and RTAs (increase energy/congestion reduction benefits).</li> <li>c. Tertiary design innovation: Financial sustainability by multiple means of funding.</li> </ul> <p>Each potential solution is described in more detail below.</p> <p>The primary innovation is design of an Origin-Support-(Employment) Destination transit net-work model. There is compelling evidence that the workers who are this study's focus cannot succeed only with transportation to and from their jobs.(3) For instance, single-parent heads of household, workers such as students at second/third/weekend shift jobs, individuals returning to work, and retirees may also need dependent-care (child care, adult day care) sites, in order to hold a job or move from part-time to full-time employment with benefits. Thus, UPWP's primary innovation is creation of a transit network that enlarges the origin-destination model to include support nodes. In addition to dependent care sites, such nodes might include "layover stops" on certain days at grocery stores, pharmacies, banks for brief errands on the way home. They could also include designated education/training sites, at specific times, so that workers could gain/improve skills and students would have reliable transportation from school to work.</p> <p>The secondary innovation is design of environmental/energy/congestion benefits model. Participation as transit providers would require vendors to use hybrid/EV fleets as much as possible. Rider fees and subsidies would be designed to ensure predominance of shared rides. And, reliable integration with MBTA, commuter rail, and RTA fixed route schedules would further increase these benefits.</p> <p>The tertiary innovation is design of financial sustainability via multiple means of funding. Innovative transit systems like the one proposed require innovative financial support. Coverage goals, because they seek to assure equity as well as efficiency, will require subsidies. The origin-support-destination transit network can become financially sustainable by a variety of means:</p> <ul style="list-style-type: none"> <li>• Employer contributions (a stable, reliable workforce reduces the organizational costs of turnover, hiring, training)</li> <li>• Carbon offsets (by use of hybrid/EV)</li> <li>• Municipal contributions (town and cities with visible mobility for all are attractive to residents as well as businesses [4] )</li> <li>• Sliding scale rider fees</li> <li>• Transportation gift cards, coupons, etc.</li> <li>• Mass transit assessments</li> <li>• Grants</li> </ul> <p><b>Anticipated Outcomes:</b> The proposed UPWP study will produce models—well-researched, evidence-based, practicable examples for numerous municipalities to use and modify according to their unique circumstances. Because the principle of coverage informs the models, operationalizing them should help cities and towns to close systemic gaps in service, improving social and economic justice and providing greater mobility equity. Because the models are well-researched and evidence-based, operationalizing them should begin to improve data on public and economic health of the cities and towns. And, because the models are practicable, operationalizing them should show immediate environmental energy/congestion benefits.</p> <p><b>NOTES:</b> (1) Transit Means Business, Metropolitan Planning Council, Chicago, 2019.                      (2) "Public transport faces an increasingly intense conflict between patronage goals and coverage goals. Broadly speaking, patronage goals seek to maximize patronage of all types, while coverage goals lead to the provision of service despite low patronage, for example, to achieve social inclusion objectives. The conflict between these goals follows inevitably from the underlying structure of the public transport product, including both its costs and geometry. The tradeoff between patronage and coverage is [a value judgment] and the decision about how to balance social versus patronage goals [must be] made consciously rather than inadvertently, with a clear understanding of the consequences of the choice." By Jarrett Walker, McCormick Rankin Cag-ney, Level 13, 167 Macquarie Street, Sydney, NSW 2000, Australia © 2008 Elsevier Ltd.                      (3) See: <a href="http://fortune.com/2015/03/05/employees-loyalty-marriott/">http://fortune.com/2015/03/05/employees-loyalty-marriott/</a>                      (4)World Health Organization, Global age-friendly cities: a guide. 2007.</p>		Alice Sapienza, Public Survey	