ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
ACTIVE TRANSPORTATION					
New					
A-1	Low-Cost Complete Streets Pilot Projects for Rapid Implementation with Community Engagement	CTPS (TAD)	Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	35,000 - 75,000	**Purpose:** This project would assist communities with the planning/design work as well as before and after data collection and analysis for low cost, temporary/interim complete streets pilot projects. **Anticipated Outcome:** Increased implementation of low cost complete streets pilot projects; increased understanding of the potential benefits of complete streets improvements; community engagement opportunities facilitated by CTPS. Planning and design reports to accomplish low cost complete streets projects.
A-2	Before and After Studies of Protected and Conventional Bicycle Lanes	CTPS (TAD)	Safety Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	35,000 - 75,000	**Purpose:** This study would conduct detailed counts, analyze crash data, and survey people using the street and businesses to compare "before" and "after" conditions and public perceptions of new bicycle lanes. The effect of different types of bicycle lanes upon greenhouse gas emissions can be analyzed as well. **Anticipated Outcome:** Identify effects of the newly constructed bicycle lanes on bike counts, crashes, and mode split compared to existing conditions and relative to conditions on similar nearby streets that did not receive newly constructed bicycle facilities. Add to our understanding of to what degree the new bicycle facility attracts people who were not previously biking in the area and to what degree it attracts people who were already biking away from their former route to the new facility.
A-3	Study of Effectiveness of Reduced Speed School Zones on Marked Pedestrian Crossing Locations with School Zones	CTPS (TAD)	Safety Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$60,000	**Purpose:** This study would investigate the effectiveness of reduced speed school zones at marked midblock pedestrian and bicycle crossings and pedestrian and bicycle crossings at signalized and unsignalized intersections within school zones. **Anticipated Outcome:** Better understanding of the factors contributing to the effectiveness of reduced speed schools zones such as grade levels of students, school crossing guards, traffic characteristics, etc.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
A-4	Bicycle Level-of-Service Metric	CTPS (TAD)	Safety Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	35,000 - 75,000	**Purpose:** This project would help to understand the travel behaviors and comfort levels of cyclists within diverse environments and to be better able to accurately plan for transportation in the Boston region. **Anticipated Outcome:** Enhanced ability to calculate expected bicycle trips and to prioritize projects. This study would begin with a literature review of existing bicycle Level-of-Service (LOS) criteria to identify the data that CTPS staff should use when modeling cyclist trips within the Boston region. This process would be informed by communication with CTPS staff and entities at the local and state level in order to identify what data is currently available for calculating bicycle LOS in the Boston region. Depending on data availability, criteria for the LOS metric would be selected and used to evaluate Boston region bicycle LOS.
A-5	Study of Possible Places and Times for Car-Free Days	CTPS (Certification Activities)	Clean Air/Clean Communities Economic Vitality	35,000 - 75,000	**Purpose:** This study would aim to understand and analyze the appropriateness of instituting car-free days or locations. CTPS staff would work with selected municipalities (up to three) to analyze streets, days, and times (including different times of year) that car-free days would benefit the community and multi-modal transportation or recreation throughout the community. Aspects that could be analyzed to understand the possible costs and benefits of establishing a car-free street/day include: traffic and commuting patterns, air quality improvements, economic impact to businesses, and community support among others. **Anticipated Outcome:** Memorandum(s) describing the recommended approach to implementing car-free days/streets and an analysis of the costs and benefits that could be realized.
A-6	Inventory of the Bicycle and Pedestrian Environment	CTPS (TAD)	Safety Clean Air/Clean Communities Capacity Management/Mobility	75,000 - 100,000	**Purpose:** Create a regional inventory of bicycle and pedestrian infrastructure. The inventory would include current and planned work in order to consider the current environment and factor future infrastructure improvements into consideration when conducting studies. **Anticipated Outcome:** The inventory would consist of a comprehensive spreadsheet and a geodatabase that would document the location of each feature within the Boston region. The inventory would include information such as the width, date of installation, and condition of sidewalks, paths, bike lanes, and other facilities, differentiating between types of bicycle and pedestrian infrastructure and indicating future plans for improvement. The inventory would additionally include information regarding location, type, and quality of bike racks, curb cuts, pedestrian detectable warning strips, crosswalks, pedestrian crossing signals and push buttons, pedestrian refuge islands and medians, benches, street trees, lighting, and other features. The spreadsheet and geodatabase would be downloadable from the Boston Region MPO website and the data would be displayed on the website as an interactive map.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Evolve					
A-7	The Impact of a Connected, High Quality Bicycle Network on GHG Emissions and Mode Shift	CTPS TAD	Clean Air/Clean Communities	35,000 - 75,000	**Purpose:** This study comes out of the GHG Reduction Strategies Study completed in 2015. This project would estimate the impact of a connected, high quality bicycle network on GHG emissions and mode shift, also looking at the safety, equity, mobility, and health benefits. **Anticipated Outcome:** Currently the MPO funds bicycle improvements as part of individual projects and shorter segments of off-road bicycle paths. This study would look at a bicycle network in high-density areas at various levels of deployment ranging from quarter-mile intervals to one-mile intervals in a grid system, which was initially defined in the bicycle improvements strategy from the GHG Reduction Strategies Study. Other variations of a comprehensive bicycle network strategy could be considered in this study as well.
A-8	Bicycle and Pedestrian Crash Clusters Analyses	CTPS (TAD)	Safety Capacity Management/Mobility	$40,000	**Purpose:** This study would review bicycle and pedestrian crash clusters developed by MassDOT Highway Division and the Boston Region MPO and select as many as three clusters for study. **Anticipated Outcome:** MPO staff would work with the municipalities and other stakeholders to propose cost-effective and low-cost improvements to increase safety for bicyclists and pedestrians at those locations.
Another Chance					
A-9	Closing Gaps in the Boston Region Bicycle Network	FFY 2016 Universe (B-1)	Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$55,000	**Purpose:** This study would build off of the work of the Bicycle Network Gaps: Feasibility Evaluation study, which began by identifying the status of the eleven highest priority gaps that were highlighted in the 2014 Bicycle Network Evaluation. This project would follow-up on that study by conducting more detailed feasibility evaluations of up to three identified high-priority gaps. The first phase of this project was conducted during FFY 2015. **Anticipated Outcome:** One or more memoranda documenting the results of the study and recommendations for selected locations. The identified recommendations could ultimately becomes projects that are funded by federal, state, local, or other sources.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
A-10	Municipal Pedestrian Network Studies	FFY 2016 Universe (B-3)	Safety Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$40,000	**Purpose:** Through this project, MPO staff would provide support to several municipalities in the MPO region that are interested in exploring opportunities to improve their communitywide pedestrian network. **Anticipated Outcome:** Using municipal inventories of sidewalks and other data resources, MPO staff will work with communities to conduct an assessment of existing pedestrian transportation connections, including sidewalks, paths, and crosswalks, and will identify opportunities to improve these connections. These analyses will be coordinated with work done by the Metropolitan Area Planning Council (MAPC), MassRIDES (through the Massachusetts Safe Routes to School Program), and other stakeholders, when appropriate. The results of these assessments and recommendations could be used to support community-level Complete Streets improvement programs and projects, which could be funded with federal, state, local, or other funding.
LAND USE, ENVIRONMENT, AND ECONOMY					
New					
B-1	Shopping Behavior by Mode of Arrival	CTPS (TSP)	Capacity Management/Mobility Economic Vitality	35,000 - 75,000	**Purpose:** This study aims to add to our understanding of the impact of new development on the transportation system by analyzing the spending behavior of individuals who arrive at commercial and retail areas by various modes (automobile, transit, bicycle, and pedestrian). These developments may vary depending on the mix of stores (supermarkets, boutiques, etc.) as well as by the proximity to other land uses (residential, office space, etc.) **Anticipated Outcome:** Information for transit advocates, businesses, developers, and municipalities about spending behavior based on mode. Conclusions from this study could add to our understanding of how to mitigate the impacts of new development on the transportation system.
B-2	Impacts of SIP Commitments on Regional Air Quality	FHWA	Clean Air/Clean Communities	35,000 - 75,000	**Purpose:** This study would investigate the air quality impacts of transit projects included in the State Implementation Plan as transportation control measures during the environmental review process for the Central Artery/Third Harbor Tunnel project. **Anticipated Outcome:** An understanding and approach to analysis of the impact of SIP commitments on regional air quality. The study would also shed light on the effectiveness of using legal commitments as a strategy for ensuring implementation of transportation projects and priorities for attaining and/or maintaining compliance with the National Ambient Air Quality Standards.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Renew					
B-3	MassDOT Park and Ride Monitoring	CTPS (TAD)	Capacity Management/Mobility	$12,278	**Purpose:** Every few years, MassDOT park-and-ride lots are monitored, and parking utilization is reported through the MPO. Because MassDOT park-and-ride lots have not been monitored since 2011, they need to be monitored again. **Anticipated Outcome:** The monitoring process entails surveying each lot for parking capacity, parking utilization, and license plate numbers. The license plate numbers will be used to track origin-destination movement. Once the surveying has been completed, staff will write a short memorandum to explain the findings.
Evolve					
B-4	On-Street Parking Utilization Data Collection	DOT (Scott Hamwey)	Capacity Management/Mobility	35,000 - 75,000	**Purpose:** This study would build off of the work CTPS is currently doing on prioritizing roadway segments for bus lanes by doing on street parking utilization data collection along the highest priority bus corridors. Since the implementation of any bus lanes might come at the expense of on-street parking, it would be helpful to know the demand for that parking by time of day. It would also help to have information on parking regulations by block for those priority corridors. **Anticipated Outcome:** Understanding of the possible parking impacts that could result from the implementation of bus lanes.
B-5	Value of Time by Trip Purpose: Use of Mode Choice Estimation Model	CTPS (Ed Bromage)	Capacity Management/Mobility	35,000 - 75,000	**Purpose:** Many decisions in our modeling process are based on value of time. Basically, how a person perceives the value of time spent in a vehicle, verses walking or waiting time. Currently, in out model, we have various values of time based on the trip purpose. Such as a work trip has a higher value of time than a none-work trip. But within each trip purpose, our process is insensitive to income groupings. This proposed research would develop a much more detailed value of time structure based on household income as well as trip purpose. The benefit of having this information would greatly improve our ability to forecast how people make decisions regarding the use of toll roads, HOT lanes, mode choice, and the value of out-of-pocket costs. **Anticipated Outcome:** The value of time (dollars per minute) by trip purpose associated with the household income level at the trip origin. This would improve our modeling ability to predict how changes in costs impact travel mode and route selection. As we look at new toll roads, we would be able to calculate how toll roads impact various income groups.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Another Chance					
B-6	Methodologies and Tools for Understanding Transportation, Population, Housing, and Economic Displacement	FFY 2016 Universe (E-4)	Transportation Equity Economic Vitality	$85,000	**Purpose:** Through this project, staff would work on developing methodologies or approaches that the MPO could use to better project economic displacement as a result of transportation projects. **Anticipated Outcome:** Through this project, staff would identify, through a literature review and other methods, techniques for accounting for displacement through the regional travel demand model, the land use model, or other approaches. These techniques could be tested on a project programmed in the Long Range Transportation Plan (which would serve a hypothetical example). MPO staff could also attempt to do some before-and after comparisons on a past large-scale transportation project to better understand displacement. Deliverables may include a memorandum documenting techniques and the results of sample analyses. Ultimately, these results could inform MPO project selection and performance-based planning.
B-7	Transportation Mitigation of Major Developments: Review of Existing Strategies	FFY 2016 Universe (E-6)	System Preservation Transportation Equity Capacity Management/Mobility Economic Vitality	$60,000	**Purpose:** This project would build off of the MPO's Core Capacity Constraints study (included in the FFY2015 UPWP) that focus on examining strategies to mitigate the impacts new developments may have on the region's transportation system. **Anticipated Outcome:** Through this particular study, inspired by the discussion of transportation mitigation strategies at the January 8, 2015 MPO meeting, MPO staff would explore major land use developments that have occurred in the recent past (perhaps 15 years), along with transportation mitigation measures that were incorporated into the development process. These would include measures to address the impacts that that the new development would have on the transportation system, such as the increased travel demand on nearby rapid transit or bus routes. MPO staff would then track the implementation of these measures and try to assess results. Through this process, MPO staff may be able to make recommendations for improvements to transportation mitigation-related processes and regulations and to the types of mitigation measures required by permitting agencies.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
B-8	Energy and Electric Vehicle Use in the MPO Region	FFY 2016 Universe (E-8)	Clean Air/Clean Communities	$35,000	**Purpose:** Through this project, MPO staff would gather information and develop a profile of energy use for transportation in the MPO region. MPO staff would focus in particular on energy use trends that pertain to electric vehicles. **Anticipated Outcome:** This project would inventory the distribution and location characteristics of charging stations, the characteristics of the electric vehicle fleet in the Boston region (such as the proportions of electric vehicles that are owned by households as compared to institutions institutions), and analyze trends in the availability and use of these vehicles. Other activities may include an analysis of levels of consumption for different fuel types. This information may be useful to the MPO in future plan development and performance-based planning activities.
ROADWAY NETWORK PERFORMANCE					
New					
C-1	Producing "Balanced Traffic Volumes"	CTPS (TMD)	System Preservation	35,000 - 75,000	**Purpose:** Balanced traffic flow maps are important internally to CTPS staff as they are used extensively in the modeling work, and in project planning and forecasting. Similarly, State agencies, communities, and consultants involved in transportation planning and traffic engineering work would also find this data useful. These maps rely heavily on traffic count information which is often inconsistent when comparing up-stream and down-stream counts. Using maximum entropy trip table estimation procedures, a set of balanced counts can be developed which smooth out the count inconsistency. To conduct this project, CTPS would develop a 3 year count program to collect data on all limited access highways and ramps. CTPS would develop a computer program to clean and upload the raw data for use in the trip table estimation process. CTPS would then use matrix estimation procedures in the current regional model to develop the balanced traffic flows. **Anticipated Outcome:** Balanced traffic flows which could then be used to develop an interactive web application which would display the average weekday traffic volumes. Traffic volumes could be displayed for 4 time periods as follows: AM peak period (6-9AM), midday period (9AM to 3PM), PM peak period (3PM to 6PM), and off peak (6PM to 6AM). The flows would be shown for mainline segments and ramps. The application would allow users to download period and hourly details. Volumes would be total volumes, although truck shares may be presented. Ultimately, this would provide an updatable process for collecting, processing, and distributed balanced traffic flow information.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Renew					
C-2	Addressing Safety, Mobility, and Access on Subregional Priority Roadways: FFY 2017	FFY 2016 Universe (A-1)	Safety System Preservation Transportation Equity Capacity Management/Mobility Economic Vitality	$110,000	**Purpose:** Identify priority arterial and bottleneck locations and recommend low-cost improvements. **Anticipated Outcome:** An enhanced understanding of approaches to improve safety and mobility for all modes. Communities can contact CTPS for roadways to be considered for study.
C-3	Safety and Operations Analysis at Selected Intersections	FFY 2016 Universe (A-3)	Safety System Preservation Transportation Equity Capacity Management/Mobility Economic Vitality	$65,000	**Purpose:** The purpose of this project is to examine mobility and safety issues at major intersections on the region's arterial highways, where, according to the MPO's crash database, many crashes occur. These locations are also congested during peak traffic periods. The resulting bottlenecks can occur only at single large intersections, but usually spill over to a few adjacent intersections along an arterial. These intersections may also accommodate multiple transportation modes, including buses, bicyclists, and pedestrians. **Anticipated Outcome:** This study would build directly on the results of the monitoring of delays and safety along arterial roadways that the Congestion Management Process (CMP) produces, and the resulting recommendations would be "management and operations" improvements. Municipalities in the region are very receptive to this type of study, as these studies give them an opportunity to begin looking at the needs of these locations, starting at the conceptual level, before they commit funds for design. Eventually, if a project qualifies for federal funds, the study's documentation is also useful to Massachusetts Department of Transportation (MassDOT).

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
C-4	Low-Cost Improvements to Express-Highway Bottleneck Locations	CTPS (TAD) (also in FFY 2016 Universe as A-4)	Safety System Preservation Capacity Management/Mobility Economic Vitality	$50,000	**Purpose:** Build on previously conducted analysis of several express-highway bottleneck locations (Low-Cost Improvements to Bottlenecks Phase I and Phase II). These studies were very well received by the Massachusetts Department of Transportation (MassDOT) and the FHWA. Some of the recommendations from those studies already have been executed, and the FHWA has interviewed MPO staff about the successful implementation. **Anticipated Outcome:** Identification of low-cost methods to reduce congestion, increase safety, and improve traffic operations in the Boston Region.
C-5	Priority Corridors for Long-Range Transportation Plan Needs Assessment	CTPS (TAD) (also in FFY 2016 Universe as A-2)	Safety System Preservation Capacity Management/Mobility Economic Vitality	$110,000	**Purpose:** These planning studies develop conceptual plans recommending improvements for specific arterial segments. **Anticipated Outcome:** Cities and towns are able to review the requirements of a specific arterial segment, starting at the conceptual level, before committing design and engineering funds to a project. If the project qualifies for federal funds, the study's documentation also may be useful to the Massachusetts Department of Transportation (MassDOT), and the municipalities.
Evolve					
C-6	The Effects of Induced Demand upon Transportation System Efficiency	CTPS (TAD)	Clean Air/Clean Communities	35,000 - 75,000	**Purpose:** In this UPWP project, CTPS can explore the concept of induced demand and its ramifications upon transportation projects such as intersection improvements and capacity expansion. The effect of induced demand upon other types of transportation projects could be considered as well. Specifically, the project would include the following: • Definition of induced travel and induced demand • Context of induced travel/demand in different planning contexts • Determination of when induced travel/demand be included in transportation analyses • Determination of the magnitude of induced travel/demand for different types of transportation projects and land uses • Determination of how induced demand can be incorporated into the travel demand model **Anticipated Outcome:** Better understanding of the ability of system efficiency improvements, such as capacity expansion and intersection improvements to achieve long-term GHG emission reduction and congestion relief.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Another Chance					
C-7	Planning for Connected and Autonomous Vehicles	FFY 2016 Universe (A-7)/also interest from Somerville	Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$25,000	**Purpose:** This project would involve research into the overarching issues that the Boston MPO region needs to understand and plan for around Automated and Connected Vehicle technologies. Some of the questions that could form the body of research include: • What research exists already? • How are other states, regions, municipalities approaching being prepared for these technologies? • How might these technologies affect transportation planning (i.e. the need for off-street parking) and modeling in the future? • What is the current thinking around the potential penetration level of these new technologies? • Could scenario planning provide a useful approach to understand how best to plan for these technologies? • What are the best next steps for the region in terms of being prepared for these technological changes? **Anticipated Outcome:** This project would be an important first step to understanding the transportation planning consequences of AV/CV technologies and how the MPO and region can be prepared.
C-8	Safety Improvements at Express-Highway Interchanges	CTPS (TAD) (also in FFY 2016 Universe as A-5)	Safety System Preservation Transportation Equity Capacity Management/Mobility Economic Vitality	$60,000	**Purpose:** Continue to address the 2013 MassDOT Top-200 High-Crash Locations and Highway Safety Improvement Program (HSIP) crash clusters in the Boston Region MPO. Many of these are express-highway interchanges and some of them do not need complete rebuild which are costly, but rather low-cost improvements that address safety and operations. **Anticipated Outcome:** The study would review the Top 200 Intersection Clusters and HSIP crash clusters to identify candidate locations. MPO staff would develop low-cost safety and operational improvements.
SAFETY AND SECURITY					
New					
D-1	Study of Promising GHG-Reduction Strategies	CTPS TAD	Clean Air/Clean Communities	35,000 - 75,000	**Purpose:** Based on recommendations from the 2016 study completed by staff that provided information about cost-effective greenhouse gas reduction strategies, staff is proposing to study a subset of the fourteen promising strategies that the MPO can fund, study or advocate for in order to understand implementation at the regional level and determine their GHG reduction and cost-effectiveness potential. **Anticipated Outcome:** Examples of potential strategies that the MPO can fund and which could be studied in more detail include transit expansion or service improvement, teleworking, and parking management. The study could also look at the equity, safety, and mobility impacts of these strategies.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
D-2	Improvements to MPO All-signals Database - focus on municipal data for 164 cities and towns in the Boston Region Transportation Model Area	Kathy Jacob	System Preservation Capacity Management/Mobility	$50,000	**Purpose:** This project would standardize the existing traffic signals data to the new MassDOT database scheme and enhance the municipal signal portion by requesting signals databases from municipalities and incorporating them into the CTPS all-signals data layer, and/ or verifying the old municipal data using the improved mapping available on the internet. **Anticipated Outcome:** Updated database for the Boston Region.
Another Chance					
D-3	Improvements to MPO All-Signals Database	FFY 2016 Universe (C-2)	System Preservation Capacity Management/Mobility	$30,000	**Purpose:** This project would build upon the outcomes of the "Roadway Network Inventory for Emergency Needs: A Pilot Study," focusing specifically on improving data on signals on key routes in the Pilot Study area (Boston and surrounding cities). If study resources allow, attention could be expanded to include signals on key routes in environmental justice areas outside the Pilot Study area. It would develop common standards for staff to use to classify signal types and characteristics. The key difference between this study and D-3 is that this study focuses on key routes in environmental justice areas outside the Pilot Study area. **Anticipated Outcome:** Updated signals database.
TRANSIT					
New					
E-1	Collecting Better MBTA Survey Data	CTPS (TAD)	Capacity Management/Mobility	35,000 - 75,000	**Purpose:** As technology advances, opportunities improve for gathering data of a better quality and in a greater quantity. The MBTA strives to serve the needs of its users and often relies on surveys to determine how the MBTA might improve its service. Current MBTA survey formats provide a great deal of information, but there may be additional avenues that the MBTA could pursue in order to compile robust user data. The MBTA application that allows users to purchase tickets on their smart phones could provide a quick and easy means by which the MBTA could gather data on a constant basis. After a user purchases a ticket, the application could prompt the user to provide the mode or modes by which he or she reached the station, the distance traveled to the station using each travel mode, and his or her demographic information. This study would explore ideas such as this one and many more. **Anticipated Outcome:** The project would begin with a literature review of existing data collection methods. This would be followed by an assessment of the feasibility of using each approach for MBTA surveys. Finally, this project would recommend approaches that the MBTA should take when conducting surveys in the future.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
E-2	A Review of Paratransit Travel Patterns in the Region	CTPS (TSP)	Transportation Equity Capacity Management/Mobility Economic Vitality	35,000 - 75,000	**Purpose:** Throughout the MPO region, people use paratransit services such as THE RIDE. Some of their travel patterns may overlap with the existing fixed-route network, and other travel patterns might be accommodated through minor adjustments to existing transit service. In the past, the MBTA offered free CharlieCards to THE RIDE users to lower the barrier of entry to the fixed-route system for the trips they can make using the fixed-route system. Depending on the available data, knowing where the users of these special CharlieCards make trips on the fixed-route system and where they use THE RIDE may provide valuable insights to system improvements. **Anticipated Outcome:** Identify the travel patterns of THE RIDE users, quantify some service issues that prohibit people from fully using fixed-route services, and making recommendations to existing service that may improve access to the fixed route system.
E-3	A Review of Interlining at the MBTA	CTPS (TSP)	Capacity Management/Mobility	35,000 - 75,000	**Purpose:** This study's goal would be to review some of the issues with interlining and discover the conditions where interlining may and may not be operationally beneficial. It would include a review of the MBTA's practices for scheduling running time and using interlining/automatic run cutting compared with use of these practices at peer agencies. **Anticipated Outcome:** The results of this study would provide the MBTA with parameters they could use to fine-tune how they schedule their services--reaping the benefits of interlining when it makes sense yet providing reliable and resilient service.
E-4	Using GTFS to Find Shared Segments with Excessively Irregular Headways	CTPS (TSP)	Capacity Management/Mobility	Less than 35,000	**Purpose:** The goals of this study would be to use existing data to provide schedule improvements for MBTA buses and to document reasons behind irregularities in the existing schedule. **Anticipated Outcome:** By mining the MBTA's GTFS data, we can discover the distribution of headways at a stop over time, discovering segments that have excessively irregular headways or segments where multiple bus routes are scheduled to overlap. In many of cases, there may be a reason for the irregular combined headways. This project would document these reasons.
E-5	Low-Cost Improvements to MBTA Service	CTPS (TSP)	Transportation Equity Capacity Management/Mobility Economic Vitality	Less than 35,000	**Purpose:** This study would explore some of the operational problems experienced by the MBTA. These range from poor queuing negatively impacting loading speeds to inefficient loading within vehicles affecting the capacity of trains. **Anticipated Outcome:** The study would recommend low-cost solutions to help solve these problems.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
Evolve					
E-6	MBTA Park and Ride Dashboard	CTPS (TAD)	Clean Air/Clean Communities Capacity Management/Mobility	35,000 - 75,000	**Purpose:** CTPS staff conducted a parking inventory of bicycle and vehicle spaces at MBTA stations in 2012. A study to update this data has been proposed for the 2017 fiscal year. In order to make this data more accessible to the public, CTPS staff would create a dashboard for the Boston Region MPO website using the 2012 study data as well as data from the future study that updates the current information. **Anticipated Outcome:** Dashboard for the Boston Region MPO website that displays the number of bicycle and vehicle parking spaces at MBTA stations, utilization rates of bicycle and vehicle parking spaces at each MBTA station, and the types of parking facilities provided for bicycles and vehicles at each MBTA station.
E-7	MBTA Bicycle Parking/MBTA Park and Ride Lot Monitoring (including nearby private lots and on-street parking)	CTPS (TAD)	Capacity Management/Mobility	$80,000	**Purpose:** Two hundred and seventy-nine (279) MBTA stations would need to be surveyed for bicycle parking data. Additionally, the MBTA parking lots, which have not been surveyed since 2013, also would need to be updated. The parking lots for this iteration of the park and ride lot survey will include any parking near stations that commuters use, including MBTA lots, private lots, and on street parking. Because it is less costly to make a single visit to stations that offer parking for both modes, this collection effort will combine the data for both bicycle and automobile parking. This task will also include talking to communities to see what the parking trends for each station are and to see if the communities have recommendations of their own. This study would also look at the pricing and management structure of all of the publicly- and privately-owned parking lots at and near MBTA stations. **Anticipated Outcome:** Update the demand and supply of parking at MBTA stations and catalogue the institutional structure that shapes pricing for parking in the lots.
Another Chance					
E-8	Potential Uses for Unused and Underused ROW	FFY 2016 Universe (F-4)	Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$55,000	**Purpose:** Through this study, MPO staff would inventory and map the un- or underused rail right-of-way (ROW) in the region, then suggest possible transportation uses for the ROW. Options for alternative uses could include the creation of bicycle and/or pedestrian routes, or routes for new transit service. **Anticipated Outcome:** The deliverable could be a memorandum describing the study process, recommendations for a few specific locations, and maps of the region describing the used and underused ROW.

ID	Project Name	Origin	LRTP Goal Area(s)	Cost Range	Project Purpose and Outcome
E-9	Non-Fixed Route Transportation Services: Lessons for Transit Agencies	FFY 2016 Universe (F-2)	Clean Air/Clean Communities Capacity Management/Mobility Economic Vitality	$90,000	**Purpose:** In a past study, CTPS used taxi origin-destination data, along with other data sources, to determine where transit dollars might be best spent to improve the MBTA's early-morning service. This proposed study will go beyond the scope of the previous study and will include all-day taxi data and other non-fixed-route service origin-destination data to determine where the fixed-route transit system is inadequately serving potential riders and where improvements could be made. This study will focus on areas with concentrated taxi or other point-to-point service origins and destinations, as these are the areas with the most potential for supporting fixed- route transit service. The study area for this project will include Boston and Cambridge. **Anticipated Outcome:** Understanding of improvements that could be made to the fixed-route transit service.
OTHER TECHNICAL SUPPORT					
Renew					
F-1	MPO Staff Generated Research Topics	FFY 2016 Universe (G-1)	Potentially all goal areas	$30,000	**Purpose:** This program would support staff work on a topic that relates to metropolitan transportation planning and something the MPO produces, and that is of great interest to the staff member. The topic may not be covered by a UPWP ongoing program or discrete project, and so would need this more-open avenue for advancement. MPO staff members would complete an application, which would be reviewed by MPO managers and directors, for some MPO funding to do independent research on a topic of professional interest and potential use in the metropolitan transportation- planning program. **Anticipated Outcome:** This program could bring forth valuable information for the MPO's consideration and would support staff's professional development. The opportunities afforded to staff through this program could yield highly creative solutions to transportation-planning problems.
Another Chance					
F-2	Future of Transportation Data Collection	FFY 2016 Universe (G-2)	Potentially all goal areas	$55,000	**Purpose:** This study would review the transportation data sources traditionally gathered using human capital and would explore whether there are cost-effective ways to automate those processes. To complement this review, the study would also identify areas in the transportation field where human-based data collection is more beneficial than machine-based data collection, and where. where automated data collection methods cannot be used. **Anticipated Outcome:** Enhanced understanding of the most cost-effective and efficient ways to collect transportation data. Ability to adjust our approaches to data collection based on the findings.