

**SPRING
2019**

LOWER MYSTIC REGIONAL WORKING GROUP

Planning for Improved Transportation and
Mobility in the Sullivan Square Area



ACKNOWLEDGMENTS

This work was the result of more than two years of collaborative effort among the many stakeholders involved in planning for the future of the Sullivan Square area. This study was funded by \$550,000 in MassDOT planning funds and \$250,000 from the Encore Boston Harbor resort casino. These funds were used to pay for staff time from Metropolitan Area Planning Council (MAPC) and Central Transportation Planning Staff (CTPS), as well as facilitation consultants from the Consensus Building Institute, who were selected in a competitive procurement administered by MAPC.





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- City of Boston
- City of Everett
- City of Somerville
- MassDOT
- Metropolitan Area Planning Council

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- MA Gaming Commission
- Executive Office of Housing & Economic Development
- MassPort
- Office of Congressman Capuano
- Encore Boston Casino

TECHNICAL SUPPORT AND FACILITATION

- Central Transportation Planning Staff
- Metropolitan Area Planning Council
- Consensus Building Institute



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EXECUTIVE SUMMARY

The time has come to tackle the transportation crisis in Sullivan Square and its vicinity. Whether one is a resident or visitor, driver, biker, or pedestrian, bus rider or Orange Line commuter, traveling to and through the area is frequently congested, chaotic, and frustratingly unreliable. Yet despite these challenges, new development is increasingly attracted to the assets and opportunities that exist there. The area around Sullivan square is poised to be one of the state's premier growth centers, creating thousands of homes and producing millions in tax revenue.

Over the last two years, 11 public agencies with a variety of responsibilities have worked together to develop a comprehensive picture of future growth around Sullivan Square, and solutions to the area's travel woes. The Lower Mystic Regional Working Group concluded that the primary answer to overcoming the area's transportation challenges amidst its ongoing growth is the robust expansion of public transit services, to be supplemented by other transportation infrastructure improvements and coordinated with changes in local development policies that will support the modal shift from private vehicles to public transit, walking and cycling.

This report describes the process the Working Group used to evaluate dozens of options and select those with the best potential for improving travel conditions. It also identifies the next steps for putting the strategy into action through more detailed studies and the creation of funding mechanisms to pay for needed improvements. The problem is serious, the analysis is thorough, and the results are clear. Now is the time to make serious changes to improve Sullivan Square and its environs.

THE WORKING GROUP

In 2014, the Massachusetts Gaming Commission approved the Encore Boston Harbor proposal for a large gaming facility in Everett. The announcement created both excitement and concern in nearby neighborhoods and communities. Chief among the concerns was the impact that the resort, now known as Encore Boston Harbor, would have on traffic and congestion.

While the gaming facility will generate substantial new traffic in the area, there are numerous other developments that have been recently built, permitted, or planned, all of which will add more travel demand in the area. Cumulatively, these developments and districts could accommodate as many as 55,000 new jobs and 27,000 new homes, generating millions of dollars in state and local tax revenue while also helping to ease the region's housing crunch. The collective impacts, both positive and negative, would span multiple municipalities, and the corresponding transportation needs would not be effectively or efficiently addressed through project-by-project mitigation strategies. Serving this new growth requires a comprehensive, regional approach that treats each new development, including Encore Boston Harbor, as one component of the area's transformation.

The Lower Mystic Regional Working Group (Working Group) was called for by the Massachusetts Secretary of Energy and Environmental Affairs, Matthew Beaton, and established by Massachusetts Secretary of Transportation, Stephanie Pollack, to assess the impact that new projected growth in the Sullivan Square area may have on travel conditions, and to identify potential solutions.

The Working Group consists of the Massachusetts Department of Transportation; the cities of Boston, Everett, and Somerville; and the Metropolitan Area Planning Council (MAPC). These five stakeholders were designated as the decision-making body for the Working Group. Additionally, other parties – including the Executive Office of Housing and Economic Development, the Massachusetts Gaming Commission, the Office of the Attorney General, Massport, the Office of Congressman Michael Capuano, and Encore Boston Harbor – are active participants providing their input and knowledge.

THE PROCESS

The Working Group conducted a two-year planning process that analyzed numerous transportation infrastructure elements and policies aimed at reducing auto trips.

The process utilized a detailed quantitative modeling approach to test different scenarios of infrastructure and policies under future conditions in the year 2040.

The tested scenarios were then compared to both current conditions and future conditions without any of the transportation improvements, using metrics such as congestion at intersections, auto mode share, transit ridership, access to jobs, and greenhouse gas emissions. The analysis focused on the future development and transportation facilities in a five-square mile area spanning the Charlestown neighborhood of Boston as well as parts of Somerville and Everett. Transportation modeling services and facilitation were provided by the Central Transportation Planning Staff and the Consensus Building Institute, respectively.

The Working Group hosted two large public meetings, eight focus groups, an online survey, and an interactive website to solicit input from the public to help identify the transportation elements to study and model. This public input was combined with Working Group member ideas and staff technical analysis to identify various public transit, highway, and bicycle and pedestrian improvements for modeling. The analysis also tested parking policies designed to limit the number of auto trips generated by new development in the area. The scenarios were broken into eight model runs with a final modeled scenario that combined the most promising transportation elements. The scenarios also included a future development pattern that is much denser than today, while maintaining a similar demographic profile.

THE KEY FINDINGS

The Lower Mystic area is one of Massachusetts' biggest growth centers.

Planned residential and commercial growth could lead to 27,000 new households and 55,000 new jobs in the study area, with the gaming facility making up just a fraction of potential travel demand. Collectively, this future growth could meet 5% of the state's housing needs and accommodate 20% of projected statewide employment from 2010-2040, but not without challenges. That much growth could add almost 500,000 new daily trips to and from the study area by 2040 (a 34% increase from 2010), straining the transportation system in the future.

The most promising solution to traffic congestion is to reduce vehicle trips.

The study assessed various ideas for relieving roadway congestion in the Lower Mystic area, including multiple on- and off-ramp configurations and conversion of the I-93 HOV lane to general purpose use. While some of these options may provide localized congestion relief, it's not evident that they provide an overall net benefit to roadway conditions across the study area. The report's analysis indicates that the greatest benefits to traffic congestion can be achieved by reducing the amount of auto travel to and from the area, through a combination of improved transit services and transit-oriented parking policies.

The MBTA Orange Line is the backbone of mobility in this area.

The MBTA is currently purchasing new train sets and making improvements to increase frequency and capacity on the Orange Line by 40%. Even with these improvements, more service may eventually be needed if major developments and improved feeder bus service require more capacity than is already planned for. It is prudent to monitor development and ridership trends to ensure that capacity improvement efforts are underway well before the system is over capacity. It may be possible to achieve three-minute headways, attracting 24,000 new riders and reducing auto mode share by two percent in the study area.

Improved local bus service offers a large return on investment and a short implementation timeline.

Most of the study area is beyond walking distance to the Orange Line or commuter rail stops. Adding substantially more frequency to existing bus routes, while also speeding their trips through dedicated lanes and priority signals, could generate 100,000 new daily transit trips and reduce the number of car trips by 4%.

Bus rapid transit (BRT) in a dedicated right-of-way offers tremendous mobility and equity benefits at an intermediate cost and implementation timeline.

A promising option studied is a BRT line extending from the Silver Line terminus in Chelsea through Everett, with two branches connecting directly to Kendall Square and North Station. Using a mix of exclusive and priority lanes, this service could attract 36,400 riders daily, generate 5,200 new daily transit trips, and reduce auto mode share in the study area by 1 percent.

Land use policies are essential components of a sustainable transportation system.

The most significant benefits occur when new or substantially improved transit service is paired with transit-oriented parking policies such as market-rate commuter parking or the reduction of residential parking requirements. These strategies together could reduce, by 45,000, the number of single-occupant vehicle trips to and from the study area, resulting in a 5 percent reduction in auto mode share.

A complete walking and biking network requires new connections both large and small.

The study evaluated shared-use paths, complete streets improvements, and pedestrian bridges over the Malden and Mystic rivers. To be successful, these regional connections should be complemented by a pedestrian- and bike-friendly local street network.

THE RECOMMENDATIONS

To improve transit options and experience, reduce travel times, decrease traffic congestion, improve access to jobs, and enhance quality of life, the Working Group concluded that a systematic and holistic approach to transportation for this area is essential. The Lower Mystic Regional Working Group recommends the robust expansion of public transit services as the most meaningful solution and significant action that can be taken to ensure a more desirable transportation future for the study area. Specifically, the Working Group recommends investing in the Orange Line to reduce wait times and congestion; expanding local bus services to provide more diverse and reliable transit options; and investing in Bus Rapid Transit to connect the area to key job centers. To support the full utilization of these improved transit services, regional entities and municipalities should coordinate the expansion of transit with the adoption and implementation of local development plans and policies, such as reduced parking requirements, that support walkable, transit-oriented, mixed-use, mixed-income growth in the Study Area.

In addition, roadway improvements such as a redesigned Rutherford Avenue may help liberate capacity for additional bus and BRT service on roadways and highways. Other actions intended to work in concert with transit service expansion and local development policies include infrastructure improvements for complete streets, paths, and trails, exploration of increased funding from traditional and innovative sources, and processes to ensure ongoing collaboration and coordination among the Commonwealth, the MBTA, regional agencies, municipalities, and private land owners.

Figure 1. Study Area Improvements

STUDY AREA IMPROVEMENTS

To improve the transit experience, reduce travel times, decrease traffic congestion, improve access to jobs, and enhance the area's quality of life in the Study Area, the Lower Mystic Regional Working Group concluded:



Transit is Key

- Invest in the Orange Line to ensure capacity is sufficient to meet future demand
- Improve local bus services through additional routes, dedicated lanes, and priority signals
- Extend Bus Rapid Transit from Chelsea Station through Everett and Sullivan Square to Kendall Square and North Station.

Transit needs transit-oriented local development policies to flourish

- Substantially reduce the amount of parking in new residential developments within walking distance to transit
- Enact innovative transportation demand management policies to limit single-occupant vehicle commuter trips to and from major new job centers in the Lower Mystic area
- Ensure the Lower Mystic area remains accessible to people across the socio-economic spectrum, while minimizing displacement of current residents
- Create a regional Transportation Management Association (TMA)

Transit improvements can be complemented by additional road and path improvements

- Continue to develop the regional active transportation network with bicycle lanes and pedestrian paths and bridges
- Ensure all local roadways incorporate Complete Streets elements

Substantial but diversified investment is needed

- Seek comprehensive funding sources to implement this study's recommendations, including innovative means of financing
- Align developer transportation mitigation with this study's recommendations

Regional coordination is critical

- Continue Working Group coordination to ensure continued progress on implementation
- Jointly consider further study of Orange Line spur to Everett, I-93 northbound on-ramp at City Square, and modifications to the I-93 southbound HOV lane

IMMEDIATE **NEXT STEPS**

There is much work to be done to improve the transportation situation in the Lower Mystic Area. As noted above, transformation of the area will entail a wide variety of strategies—transit expansion, service improvements, transportation demand managements strategies, and land use policies—that will work synergistically to achieve a more sustainable future. These efforts must begin immediately, and should occur concurrently and in a coordinated fashion. In order to focus the short term efforts, the Working Group recommends the following immediate next steps for 2018 and 2019.

- Conduct a planning process to assess the feasibility and prepare conceptual designs for transit improvements recommended in this report. The process should further detail bus and BRT routes, model and refine interactions among local bus routes, bus rapid transit, and the Orange Line, and how they link and are sequenced with enactment of local parking and other transportation demand management policies.
- Coordinate these recommendations with other current and near-term future planning processes such as Focus 40, the MBTA Bus Service Delivery Plan, Rail Vision, MetroCommon2050 (MAPC's new regional planning process), and municipal planning efforts.
- Develop municipal plans to implement progressive and forward-looking parking policies for both residential and commercial uses.
- Identify ways to coordinate individual development project mitigation funds for regional investment, including transit, and/or designing a regional transportation mitigation process.
- Work to incorporate these recommendations, where appropriate, into future MEPA certificates for development in this area.
- Meet on a periodic basis to discuss and track implementation of these recommendations. A near-term priority will be coordinating around expected transportation-related construction in this region. Additionally, further explore and implement funding innovations that can address immediate needs and begin incremental improvements.



INTRODUCTION

In September 2014, the Massachusetts Gaming Commission voted to approve the Encore Boston Harbor proposal for a large gaming facility in Everett. The announcement created both excitement and concern in nearby neighborhoods and communities. Chief among the concerns was the impact that the resort, now known as Encore Boston Harbor, would have on traffic and congestion, especially in Sullivan Square and the Charlestown neighborhood of Boston. This area, which contains regionally significant transportation hubs and corridors, is already facing major challenges: I-93 is very heavily congested during rush hour, local roadways are congested, intersections such as Sullivan Square are hazardous for pedestrians, and the Orange Line is often so crowded at Sullivan Square that riders have to wait on the platform for a train with more capacity to arrive.

While Encore Boston Harbor will be a large trip generator, there are numerous other developments that have been recently built, permitted, or planned, all of which will add more travel demand to the region's mobility infrastructure.

These development areas include:

- Assembly Square redevelopment, Somerville
- Redevelopment in Sullivan Square and along Rutherford Avenue, Boston
- Commercial Triangle redevelopment, Everett
- Union Square redevelopment, Somerville
- Brickbottom redevelopment, Somerville
- Cambridge Crossing (formerly North Point), Cambridge

These development districts are consistent with adopted state, regional and municipal plans and policies. Several have received state-level environmental permitting and been assigned mandatory mitigation measures through the MEPA process. Cumulatively, these districts will create millions of square feet of new commercial space and tens of thousands of housing units.

Current plans could accommodate as many as 55,000 new jobs and 27,000 new homes, generating millions of dollars in state and local tax revenue while also helping to ease the region's housing crunch. The collective impacts, both positive and negative, would span multiple municipalities, and the corresponding transportation needs would not be effectively or efficiently addressed through project-by-project mitigation strategies.

Serving this new growth requires a comprehensive, regional approach that treats each new development, including Encore Boston Harbor, as one component of the area's transformation.

On August 28, 2015, the Massachusetts Secretary of Energy and Environmental Affairs (EEA), Matthew Beaton, issued a Massachusetts Environmental Policy Act (MEPA) certificate regarding the Encore Boston Harbor project. The certificate outlined a series of transportation commitments required of Encore Boston Harbor, which include a transit subsidy to the Massachusetts Bay Transportation Authority (MBTA) for the project's anticipated impacts on Orange Line operations, improvements to area intersections and corridors expected to experience a deterioration in traffic operations, the introduction of water transportation connections to parts of Boston, shuttle bus service to the Wellington and Malden Center Orange Line stations, and other transportation demand management interventions.

The certificate recognized that while these mitigation requirements will help to mitigate the impacts associated with the resort, they are insufficient to serve the growing transportation needs associated with all the development proposed or planned for the area. Therefore, the certificate also called for the establishment of a Regional Working Group to "assess and develop long-term transportation improvements that can support sustainable redevelopment and economic growth in and around Sullivan Square."

Pursuant to the MEPA certificate, the Secretary of Transportation convened the Lower Mystic Regional Working Group (Working Group) in November of 2015, to examine development and transportation in the area surrounding the Encore resort and Sullivan Square. As convened, the Working Group consists of MassDOT; the cities of Boston, Everett, and Somerville; and the Metropolitan Area Planning Council (MAPC). These five stakeholders were designated as the decision-making body of the Working Group. Additionally, other parties – including the Executive Office of Housing and Economic Development, the Massachusetts Gaming Commission, the Office of the Attorney General, Massport, the Office of Congressman Michael Capuano, and Encore Boston Harbor – are active participants providing their input and knowledge.

The certificate also called for a process to at a minimum:

- assess existing conditions, planned improvements and reviewed and permitted development
- identify planned development and potential build-out
- identify critical infrastructure and study alternatives
- consider funding resources and equitable allocation of project costs.

Technical services supporting the Working Group were provided by CTPS, a public agency which acts as the staff to the Boston Region Metropolitan Planning Organization (Boston MPO); MAPC; and the Consensus Building Institute (CBI). CTPS provided transportation modeling of future conditions. MAPC provided land use and socioeconomic projections and analysis. CBI acted as an independent facilitator to help guide the study process and enable the Working Group to make decisions.

The Working Group was imagined as a new type of forum for multi-jurisdictional planning to achieve several objectives.

One key objective is to minimize and mitigate traffic congestion in the study area.

As the focal point of transportation infrastructure in the study area, Sullivan Square's traffic woes are of particular importance for the residents of Charlestown and commuters from all modes. Not surprisingly, local concerns about traffic and congestion are common barriers to growth across the study area; the Working Group seeks to ensure that robust housing and economic development can occur without adversely impacting existing residents' mobility.

Another key objective was to bring new and progressive modeling and planning tools to bear to support data-driven decision making.

Through this process, the Working Group has viewed the area's needs through a multimodal framework. While reducing congestion is important, the ultimate measure of a transportation network is whether it provides residents and workers with good options for getting around to places they need to go. This objective of "accessibility"—ease of access to jobs, schools, friends, and shopping—leads to different approaches than one just aimed at reducing automobile delay. At the end of the section on scenarios, this report examines the accessibility benefits of a few of the studied scenarios.

Over the past two years, the Working Group has assessed existing conditions, inventoried planned and potential development in the area, identified a wide variety of policy interventions and infrastructure improvement options that could help to improve transportation conditions, tested those options using technical forecasting models, and selected a set of recommendations for implementing the most promising and practical ideas.

Recommendations do not become reality on their own. The MEPA permitting process that created the Working Group required only study of issues and did not require or mandate implementation actions or funding mechanisms. As such, another objective of this effort is to create implementation guidance and identify key next steps, as well as the roles of the various stakeholders. The project has also identified a suite of funding options, including those that extend beyond current transportation planning and funding processes.

This report summarizes the findings of the Working Group and recommendations for meeting this challenge. There is no silver bullet for solving the study area's transportation issues, nor will one party be primarily responsible; instead, an effort among multiple stakeholders is required to implement a variety of multimodal infrastructure and policy initiatives.

THE STUDY AREA

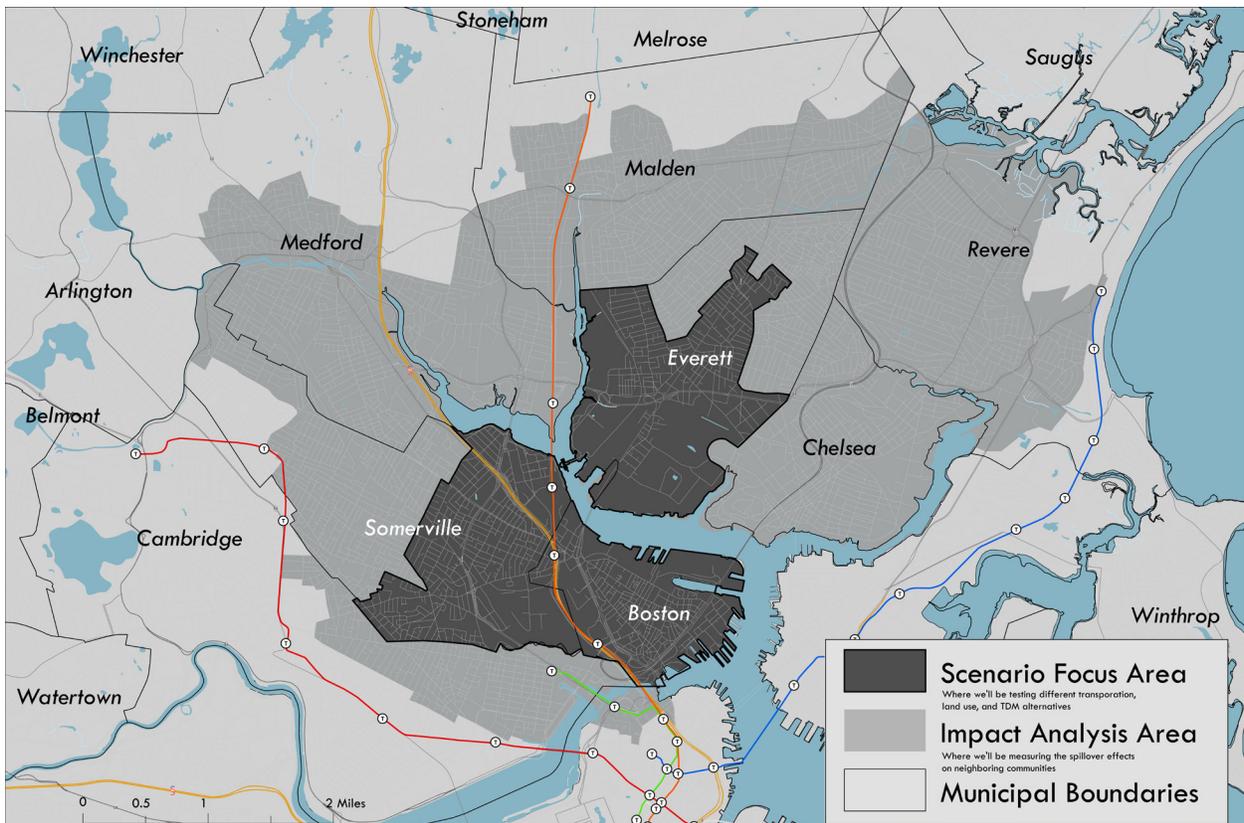
One of the Working Group's first tasks was to define the geographic scope of analysis. Working Group members were committed to a focused approach for the immediate area of concern, while also recognizing that transportation improvements would have spillover effects into nearby neighborhoods and communities. After some deliberation, the Working Group adopted a nested structure for the study area.

The Focus Area covers an area of roughly five square miles (3,500 acres) in the immediate vicinity of the Encore resort and Sullivan Square. The Focus Area includes most of the major development districts listed above and was also the focus for most of the transportation infrastructure improvements studied during the project. The Focus Area is also contained within the three participating municipalities.

Recognizing that the impacts of major redevelopment and transportation improvements may have spillover effects that will affect a larger area, the Working Group also defined a larger Impact Analysis Area, which includes the Focus Area along with other portions of the participating cities and five abutting municipalities.

The geographic units of the study areas are Transportation Analysis Zones (TAZs), which are small geographic areas to serve as the units of analysis for regional travel demand modeling. For the study area, these zones are generally one square mile in size, and are crafted to conform to the nearby transportation network and natural features. The entirety of the Boston MPO region is divided into TAZs.

Figure 2. Study Area Map



THE CHALLENGE FACING THE LOWER MYSTIC AREA TODAY AND TOMORROW

The study area is one of Massachusetts' most important economic assets. The cities of Boston, Everett and Somerville have made progressive and ambitious commitments to alleviate the regional housing shortage by planning and permitting new real estate development, have adopted local ordinances to ensure permanently affordable housing is produced by for-profit developers, and have directed major local funding to modernize local utility and transportation infrastructure in support of that growth. State policy and regional planning initiatives managed by MassDOT, MAPC and the Boston Region MPO all call for walkable, mixed-use, affordable growth in the Sullivan Square area.

There is no doubt that the transportation situation in the Impact Analysis Area is already challenging. There are an estimated 1.9 million daily trips to and from the area, and many more passing through on I-93 and other major transportation corridors. The Encore resort's MEPA filings project an additional 20,000 daily vehicle trips. For four hours every weekday morning, the average speed on I-93 southbound from Medford to Charlestown is less than 22 miles per hour. Of the 79 intersections analyzed in the Impact Analysis Area, 18 are already operating at a Level of Service of 'F' or worse during morning and/or evening commute times, which means intersection delays of 80 seconds or more. There are 925 crashes per year in the Impact Analysis Area, including 81 crashes involving bicycles or pedestrians.

The situation for transit riders and pedestrians is no better. Roughly 23,000 southbound commuters board the Orange Line between Oak Grove and Sullivan Square from 6 AM to 9 AM. As a result, morning rush hour Orange Line ridership exceeds capacity between the Sullivan Square and State Street Stations, meaning trains are overcrowded and sometimes result in passengers waiting for the next train to arrive so they can get on. Many of the nearly sixty bus routes in the area, which collectively serve 13,300 transit riders per day, are similarly overcrowded.

There are good reasons to believe that the transportation network will become even more stressed in the coming decades. In addition to Encore Boston Harbor, the area is likely to see a substantial amount of development between now and 2040. Numerous property owners and developers have proposed new housing and commercial development, attracted by the area's proximity to Downtown Boston, Kendall Square, and other destinations; the improved access provided by the Green Line Extension now under construction; as well as the substantial supply of low-density and somewhat underutilized industrial properties.

The municipalities in the area are also actively planning for further development through local area plans and rezoning efforts to guide new growth. Everett has completed a Lower Broadway rezoning and is currently beginning a redevelopment plan for the Commercial Triangle area. Somerville adopted a Comprehensive Plan under Massachusetts law in 2012 that identifies the Brickbottom, Inner Belt, and Union Square areas as sites for transformational development, and a master developer has already been chosen for Union Square. MAPC and Boston developed a preliminary plan for redevelopment of the Sullivan Square area to take advantage of redevelopment opportunities that may be unlocked by reconstruction and redesign of Rutherford Avenue. Overall this level of growth has many positives, including more housing and job opportunities for the region.

The following maps illustrate the intersection delay and level of service at key intersections during the morning rush hour. Level of service is a measure used to assess traffic flow based on traffic flow. The first map depicts the current conditions. The bottom map shows conditions in 2040, based upon projected growth and improvements already planned. Without additional interventions, traffic conditions will likely worsen between now and 2040.

Figure 3. Existing Conditions: Total Intersection Delay (AM Peak Period)

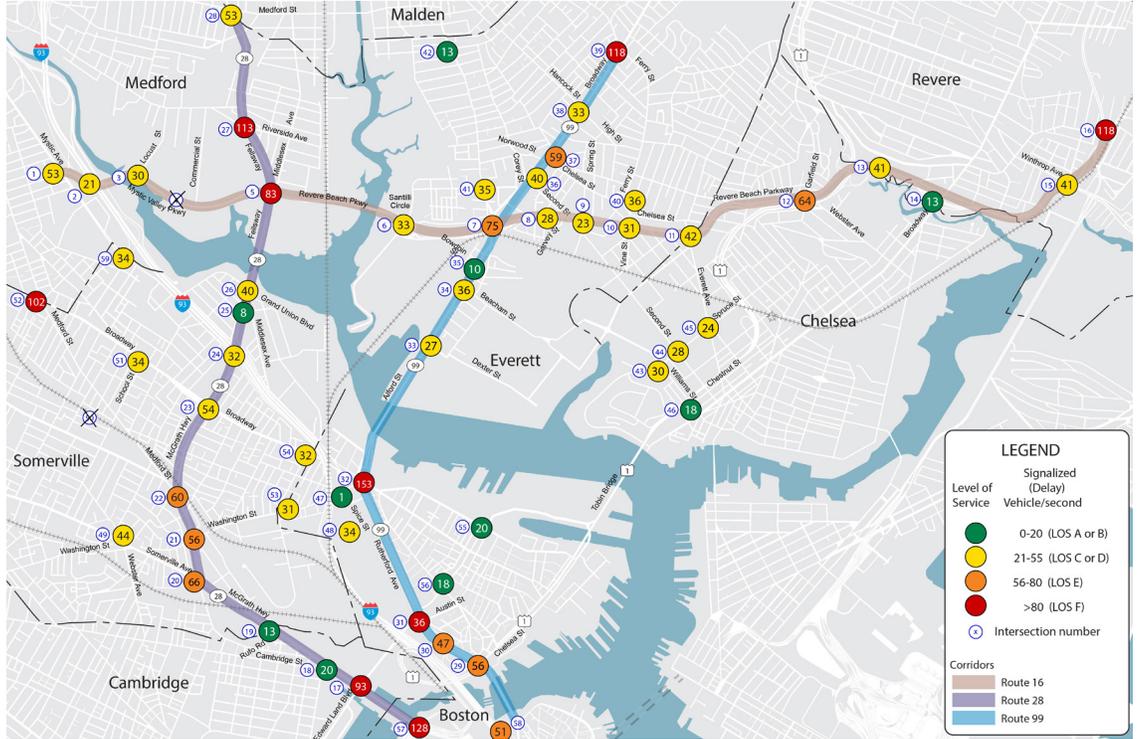


Figure 4. 2040: Total Intersection Delay (AM Peak Period)

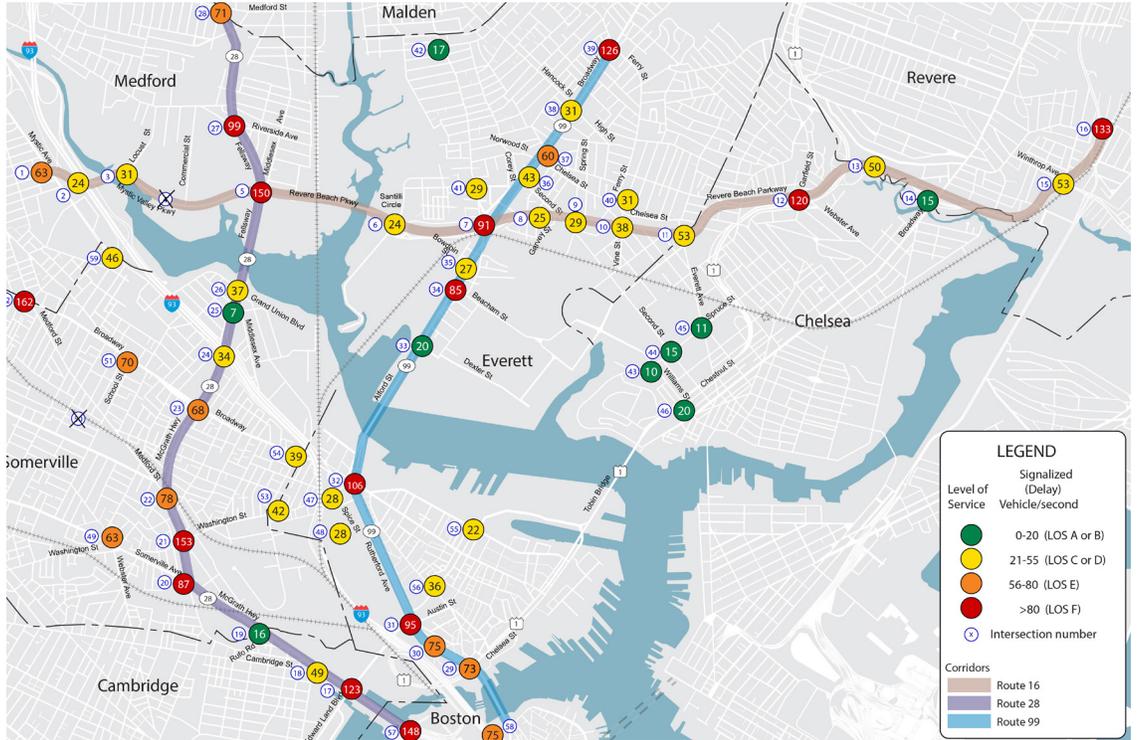


Figure 5. Residential and Commercial Pipeline

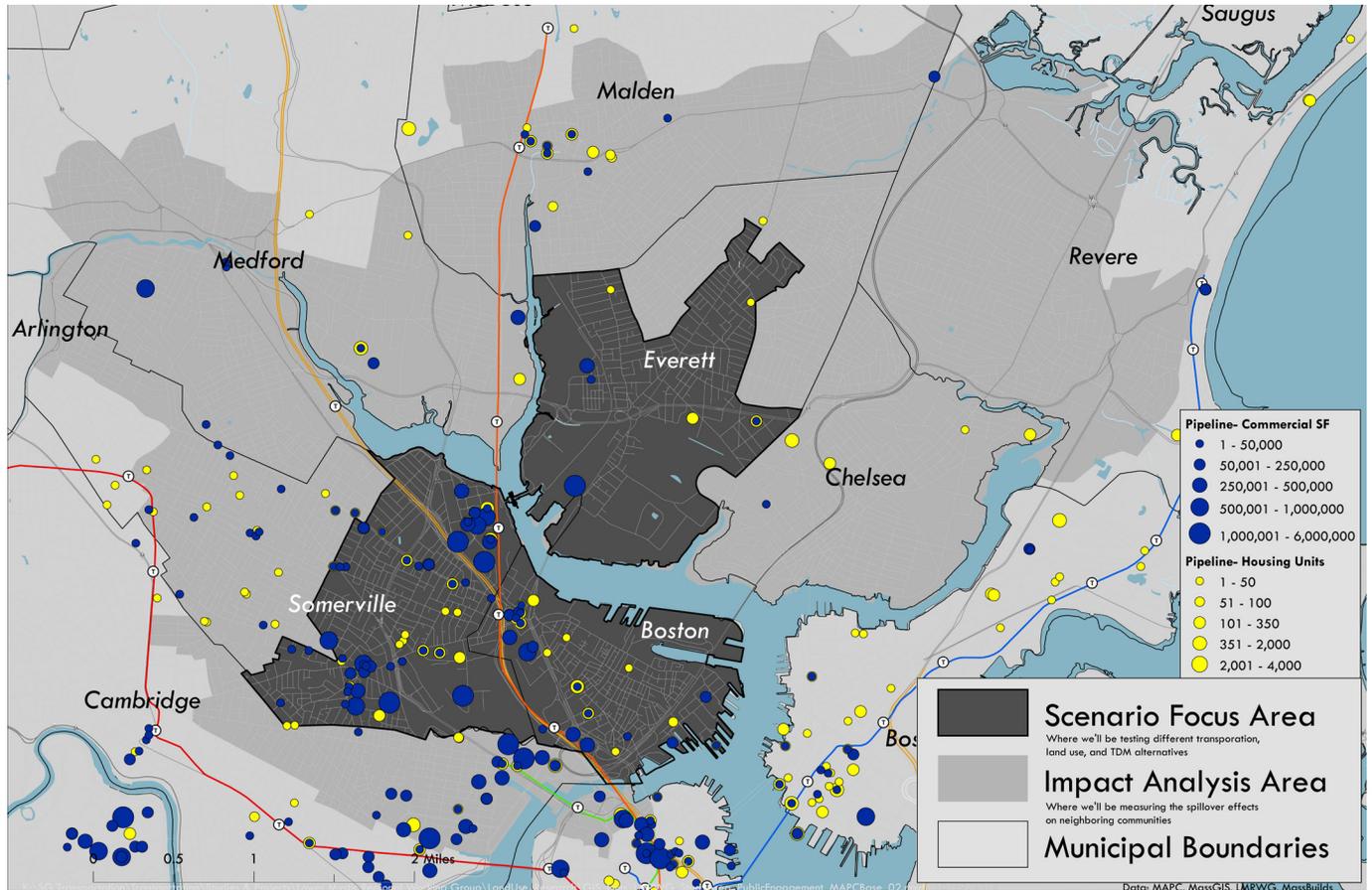


Figure 6. Potential Development Change (Planned Growth Scenario)

PROJECTONS FOR IMPACT ANALYSIS AREA: Potential Development Change

	Households	Population	Jobs	Total Daily Trips
2010	122,475	302,273	137,151	1,098,041
2040	174,982	395,998	212,445	1,473,547
Growth %	43	29	55	34

TRANSPORTATION IMPROVEMENTS ALREADY UNDERWAY

Fortunately, there are efforts already underway to address some of the area's transportation challenges.

*The MBTA has procured 152 new **Orange Line cars**, which will be fully operational by 2022, and is making signal and track improvements with the goal of increasing the frequency of train service on the Orange Line.*

Once the new cars are fully deployed, the Orange Line "headways" during peak periods (the time interval between each train) will be reduced to four and a half minutes, down from the current headways of six minutes. In combination with train cars that can carry more passengers and trains that will require less maintenance, the improvement in frequency will increase the capacity of Orange Line service by 40% during peak periods.

Pursuant to license requirements imposed by the Massachusetts Gaming Commission, Encore Boston Harbor will also be funding a series of transportation improvements to offset anticipated impacts from users of the gaming and resort facility. Refer to Appendix 3 for the Section 61 Findings for a detailed list of these improvements.

*The City of Everett has partnered with the MBTA to establish **dedicated bus lanes on Broadway (Route 99) from Glendale Square to the casino site.***

This project has required the elimination of roughly 200 parking spaces controlled by the City and reflects an unprecedented commitment to bus mobility and transportation equity in the metro region. Over the first 12 months of operations, the MBTA reports 20% travel time savings for the six bus routes using this corridor.

*The City of Boston is also advancing plans for reconstructing a narrower **Rutherford Avenue**, with a bike path, and a reconfiguration of the intersections in Sullivan Square.*

While the Working Group was in the early stages of its process, the City of Boston, after a thorough public engagement process separate from the Working Group, selected a preferred design for the Rutherford Avenue/Sullivan Square Project. This design seeks to accommodate both local and regional interests; improve access and safety for bicyclists and pedestrians; creates dedicated bus lanes; and allow for the redevelopment of Sullivan Square. The Working Group incorporated this design for Rutherford Avenue into all subsequent model runs and scenarios.

*The Boston MPO has programmed the **McGrath Highway and McCarthy Overpass in Somerville and Cambridge on its Long-Range Transportation Plan for construction as early as 2022.***

This corridor was originally built to serve regional commuting traffic between Boston and suburbs to the north. The current plans call for a four-lane cross section with six lanes at key intersections, with separated bike facilities and several pedestrian improvements.

*MassDOT will soon be reconstructing the **North Washington Street Bridge** between Charlestown and Boston's North End, to include separated cycle tracks, wider sidewalks, and the addition of a bus-only lane in the southbound direction.*

*The **Green Line Extension** through Somerville (currently under construction) is anticipated to be complete by the end of 2021.*

The project will extend the Green Line from Lechmere to Union Square along one branch and serve five stations in Somerville before terminating at College Avenue along a second branch. The project is anticipated to serve approximately 45,000 daily riders in 2030, allowing for the projected reduction of nearly 26,000 daily vehicle miles traveled from local and regional roadways.

Despite these major improvements in the pipeline, it is clear that more must be done to address current transportation challenges and to meet the needs of future development. Furthermore, it is essential to look at transportation improvements in a regional context, to avoid simply moving transportation problems elsewhere.



STUDY PROCESS

In order to address the study area's substantial transportation challenges and enable sustainable housing and economic growth into the future, the Working Group took a comprehensive approach to evaluate the collective impact of potential future developments and analyzed a wide range of potential solutions. Future transportation conditions were assessed against a variety of metrics—not just automobile congestion but also transit capacity, job accessibility, bike and pedestrian travel, greenhouse gas emissions, cost, and feasibility. The effort also incorporated input from diverse stakeholders, collected through various methods (meetings, surveys, focus groups) throughout the process.

Over the course of the project, the Working Group and its technical staff created over a dozen distinct 'scenarios' testing different assumptions about future development patterns, new transportation infrastructure projects, new transit services, and future transportation demand management policies. The group selected various combinations of ideas to model in order to consider the interactions among different choices, given that travelers alter their behavior based on a number of considerations. The Working Group chose a selection of the most promising improvements to compile into a final "package" of distinct infrastructure and policy improvements for implementation or further study. The Working Group also investigated methods of financing the desired infrastructure improvements through a variety of innovative methods.

TECHNICAL METHODS AND TOOLS

CTPS & MAPC provided technical support to the Working Group.

This process sought to advance the collaboration between and innovation among these two agencies key to Greater Boston's transportation planning. Transportation modeling is complex because it must seek to simulate the future behavior of hundreds of thousands of people, making individual choices, that collectively use and affect the multi-modal, transportation network. While conditions, costs, and decision factors may change in the future, these models nevertheless provide our most robust estimates of future behaviors and conditions. This section lists key inputs and methods employed during the study process.

MAPC collected information about recent housing and economic developments, projects in the development pipeline, and municipal area plans or rezoning proposals in the Focus Area and nearby neighborhoods. This work was accomplished through the open source development inventory contained in MAPC's tool www.massbuilds.com, as well as through in-person interviews with municipal planning staff and review of existing planning documents. These efforts were intended to quantify the amount, type, and timing of likely or potential future development in the area.

MAPC used its existing Land Use Allocation Model to create updated projections of population, households, and employment for the study area. This model is an econometric simulation of how households and firms compete for available real estate supply, and simulates the interactions between land use, transportation improvements, and new development as these forces transform the urban area. Information about future development served as an input to the model, effectively “seeding” it with information about developments in the pipeline and enhancing consistency between model results and anticipated growth. The land use projections include estimates of future year households (by size, number of workers, and income) as well as future employment (by sector).

The land use projections as well as the travel demand model (described below) use “TAZs” as the unit of analysis. TAZs are smaller geographic areas than municipalities, crafted to conform to the nearby transportation network and natural features as well as encompass the entirety of the Boston MPO region.

CTPS used its Regional Travel Demand Model to project the number of trips coming to, from, through, and within the Impact Analysis Area; the origins and destinations of those trips (at the TAZ level); the travel mode that is likely to be taken (automobile, transit, walking, etc.); and the particular route or service that they are forecast to choose (e.g., specific roadways or bus routes.) When predicting what mode will be used for a particular trip, the model accounts for the cost of travel (tolls, parking, transit fares) as well as the likely travel time and traveler characteristics, such as automobile ownership. The model uses a detailed representation of the roadway network that includes individual turning lanes, on-ramps and off-ramps, bus-only lanes, bus routes, and pedestrian/bike-only links. Transit service details include the location of specific stops and stations, schedules, and actual travel speed (which may differ from schedules if buses are traveling in congested conditions.) All these details can be modified to represent potential or proposed improvements to transportation infrastructure and services. This model is based on a household travel survey conducted in 2011 and uses industry-standard methods and TransCAD, a travel demand modeling software, to estimate travel demand and behavior. The model incorporates the most up-to-date information about roadways and transit services and is calibrated to match actual traffic counts as of 2016. Results from the model can be used to estimate total miles traveled; percent of trips by each mode; and the greenhouse gas emissions and other pollutants associated with automobile travel in the study area. The model is best suited for understanding trips at a regional level. Trips within a TAZ, as well as many bicycle and pedestrian trips, are not assigned to specific routes and segments; therefore, the benefits of bicycle and pedestrian improvements may be underestimated in the model.

To assess the impact of increasing congestion at individual intersections, CTPS used Synchro, a leading traffic analysis software package. Synchro simulates the movements of individual vehicles as they travel down a roadway or through an intersection, using outputs from the regional travel demand model as the basis for the routes that will be simulated. The model produces estimates of how long it takes for the average vehicle to pass through an intersection, accounting for the levels of traffic and anticipated signal timing. These results are reported for each intersection and each individual “turning movement” (straight, left turn, right turn), as “seconds of delay,” which are generalized into a “Level of Service” (LOS) grade from A through F. The highest Level of Service (A) means that the average vehicle experiences less than ten seconds of delay for a given turning movement. Level of Service F indicates delays of 80 seconds or more. Average travel speeds, length of intersection queues, and total travel time through the area are also estimated.

To identify problematic or dangerous intersections and entrance/exit ramps, CTPS used Transmodeler, a traffic simulation software that visualizes flow and signal operations. Like Synchro, Transmodeler simulates individual vehicles and is useful for assessing congestion on highways such as I-93 as well as the vehicle-to-vehicle interactions that take place at on- and off-ramps. The tool produces estimates of traffic flow, travel time, speed, and weaving/merging movements.

MAPC also implemented new tools to assess how potential improvements might affect economic opportunity for local residents and businesses. Using land use projections combined with the outputs of the regional travel demand model, MAPC estimated how many jobs a local resident could reach in a specified amount of time, and how many workers could get to employers in the Lower Mystic Impact Analysis Area. This “accessibility analysis” is intended to measure whether proposed changes would expand or diminish the number of work opportunities and labor markets available to area residents and employers.

Figure 7. Map of Transportation Analysis Zones



COMMUNITY ENGAGEMENT

Through surveys, public meetings, discussions with local stakeholder groups and organizations, and social media outreach, the Working Group sought input from a wide variety of stakeholders who live, work, or otherwise spend time in the Lower Mystic area.

The goals of the community engagement process included:

- Increasing community awareness regarding the Working Group's existence, activities, and goals
- Understanding the community's concerns, visions, and priorities related to moving around the Lower Mystic area
- Soliciting ideas to improve travel in the Lower Mystic area
- Informing the Working Group's choices about what to study and recommend



Photos from September 2017 Public Forum

The Working Group hosted seven focus groups in Boston, Everett, and Somerville in the winter and spring of 2017. Attendees at these meetings included residents, advocates, and other stakeholders in a smaller, discussion-style setting. The Working Group also hosted two large public forums, one in November 2016, attended by more than 70 participants, and a second in September 2017, attended by over 100 participants. These forums allowed a broad audience to solicit information and provide feedback through an open house format, formal presentation, small group discussions, and question-and-answer sessions. For those unable to attend the in-person events, the Working Group released an online survey in fall 2016, which received almost 400 responses.

The Working Group received wide-ranging feedback from community members. Several major themes emerged regarding challenges and opportunities for improving transportation and mobility in the Lower Mystic area. The breadth of feedback indicated that there was not perfect consensus among stakeholder groups about preferred strategies and recommendations. Some participants wanted major infrastructure improvements (e.g., new subway lines), while others focused on incremental improvements (e.g., increases in bus frequency). Some participants felt all improvements should be focused on transit and bicycle/pedestrian infrastructure, whereas others felt that vehicular roadway improvements should be prioritized.



However, several clear themes emerged from the community engagement process:

- Improvements for bicycle and pedestrian travel, including a major emphasis on improved safety;
- Expanding transit options and creating incentives to reduce automobile usage;
- Improving operations of travel routes for automobile commuters and reducing congestion on local roads;
- Improving and expanding transit service to under-served areas, particularly Everett.

A public survey was also distributed at the beginning of the study (See Appendix 10). The survey results showed strong consensus for strategies for reducing traffic, followed by improving pedestrian/bicycle travel, reconfiguring Sullivan Square street patterns, and improving the Orange Line. Notably, the lowest priority related to finding open on-street parking spaces easily.

Figure 8. Survey Question #1

KEY CHART: WHAT MAKES IT HARD TO GET AROUND THE SULLIVAN SQUARE AREA TODAY? CHOOSE TOP THREE (3)

Answered: 132

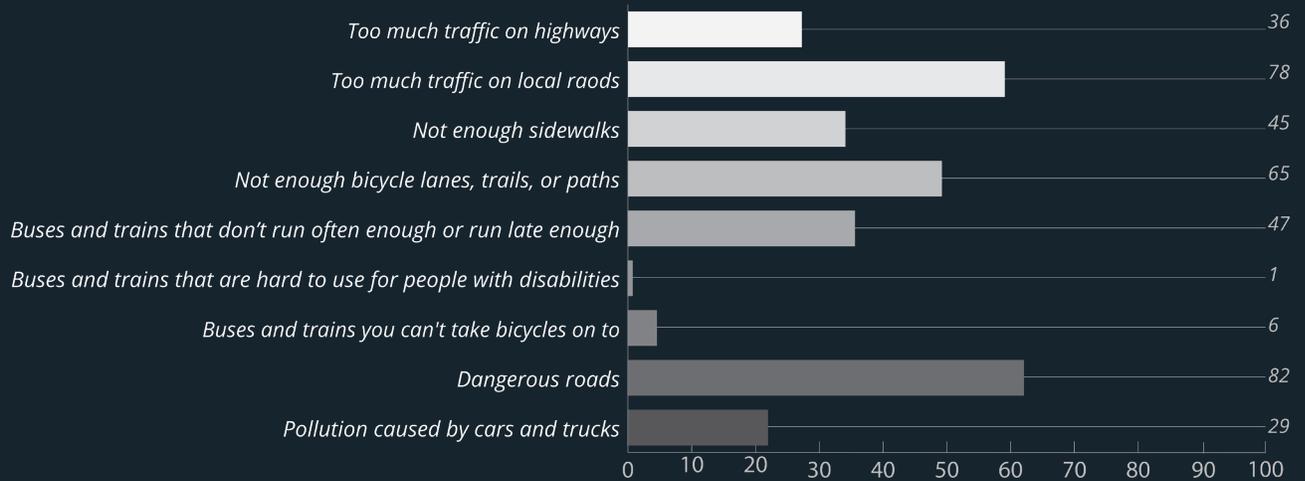


Figure 9. Survey Question #2

KEY CHART: WHAT WOULD YOU LIKE TO SEE BY 2030? CHOOSE TOP THREE (3)

Answered: 132

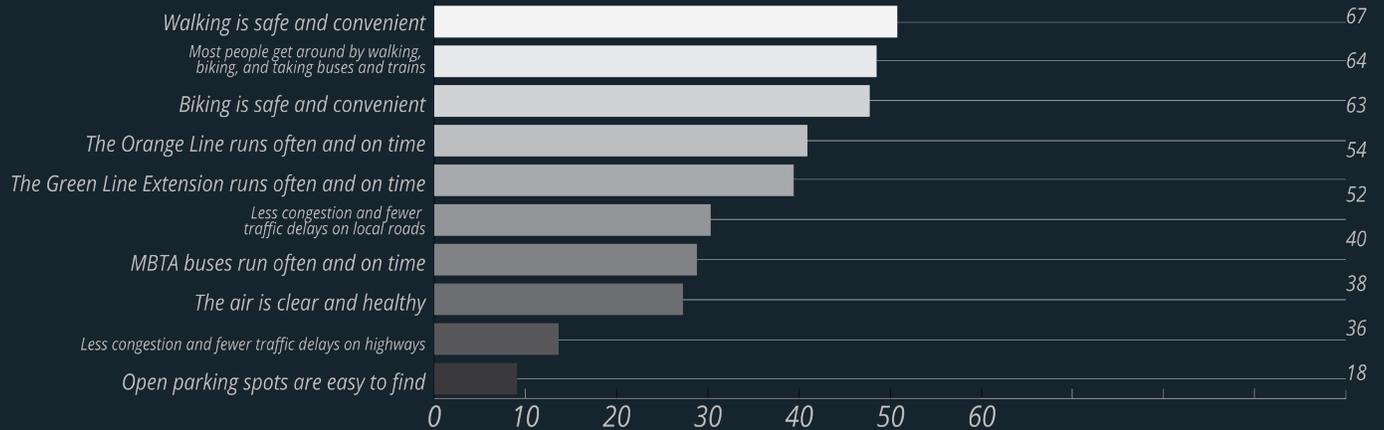
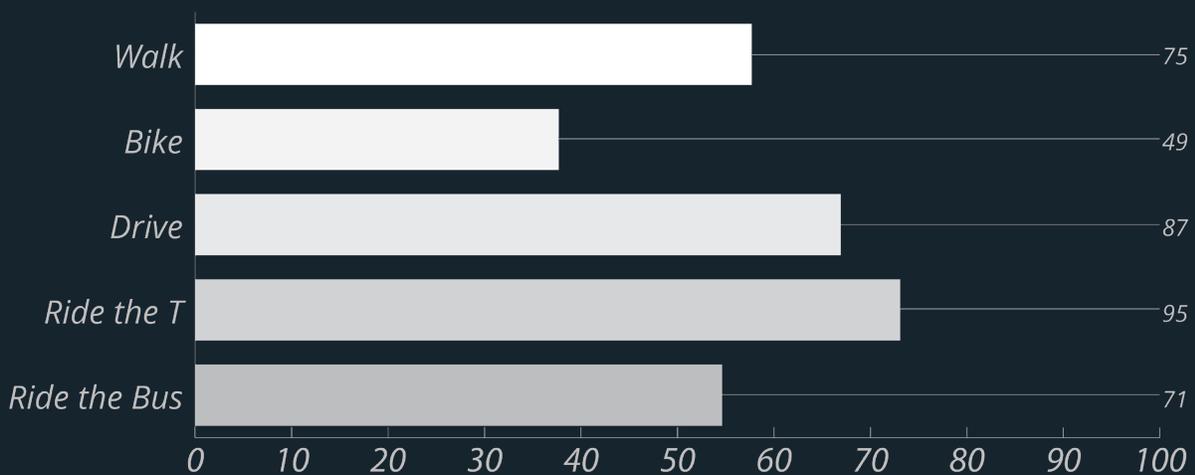


Figure 10. Survey Question #9

KEY CHART: HOW DO YOU MOVE AROUND THE SULLIVAN SQUARE AREA? SELECT ALL THAT APPLY.

Answered: 130 Skipped: 2



IMPROVEMENTS AND STRATEGIES THAT WERE TESTED

The community engagement process identified an abundance of ideas for transportation improvements, services, and policies that could change transportation conditions in the area for the better. The Working Group and technical staff also identified a wide range of ideas, all of which were qualitatively assessed for utility, cost, and feasibility. Unfortunately, not all these ideas could be rigorously modeled, so the Working Group undertook an internal process to select a set of improvements or policies to test and group into discrete scenarios. These ideas were incorporated into the travel model in addition to all of the ongoing transportation projects described earlier. This section describes each of the new infrastructure, policy, and service ideas that were tested as part of this process.

ROADWAY IMPROVEMENTS

Rutherford Avenue:

In 2012 Boston developed a new design for Rutherford Avenue and Sullivan Square, focused on an entirely at-grade street network. However, the 2014 decision by the Massachusetts Gaming Commission to license Encore Boston Harbor in nearby Everett, and the associated increase in projected corridor traffic, led the City of Boston to reconsider these plans. When the Working Group project commenced, the City of Boston was examining various alternatives for Rutherford Avenue and Sullivan Square. These alternatives utilize underpasses, create a solely surface road network, or support some combination of the two. Because that process was occurring concurrently with the Lower Mystic process, the Working Group technical staff tested two options as part of the first several model runs. The first option was the surface approach that had been previously incorporated into the most recent Long-Range Transportation Plan (LRTP) adopted by the Boston MPO in 2015; the second option included one northbound and two southbound underpass lanes to alleviate surface traffic at Sullivan Square, and a four-lane (two northbound, two southbound) underpass at the Austin Street intersection. In advance of these two model runs, the Working Group decided to defer to the City's decision-making process and to adopt the City of Boston's preferred alternative. In May 2017 the City of Boston announced it was proceeding with the "underpass option." Upon the City's decision, the Working Group incorporated this underpass design for Rutherford Avenue into all subsequent model runs.

New I-93 northbound on-ramp at City Square:

A new on-ramp to I-93 northbound could provide motorists from the City Square area of Charlestown and the North End of Boston an opportunity to directly get onto I-93 north instead of having to travel on Rutherford Avenue through Sullivan Square for I-93 northbound access. Technical staff tested multiple iterations of the on-ramp with varying location and access points in order to optimize operations. The initial ramp tested entailed a single ramp located across from City Square, utilizing an existing unused 'spur' that was never completed. Later iterations entailed a two-part ramp that could be accessed directly from City Square or adjacent to the entrance to the Route 1 North on-ramp.

I-93 northbound off-ramp at Sullivan Square:

A reconfigured off-ramp could provide a direct connection from I-93 north to Route 99 and the Alford Street Bridge, eliminating the need for Everett-bound motorists to travel through Sullivan Square. The concept that was tested entailed a new ramp passing over or in front of the existing transit station at Sullivan Square, and then connecting to Route 99 via a signalized intersection or flyover.

Converting the I-93 southbound high-occupancy vehicle (HOV) lane to a general traffic lane:

Currently the HOV lane is not utilized to its full capacity and converting this to a general purpose lane could provide an increase to I-93 southbound capacity. However, it would also have the negative effect of increasing travel times for buses and carpools currently using the HOV lane. A change in state environmental regulations would also be required to eliminate the HOV designation.

TRANSIT IMPROVEMENTS

Bus route improvements:

The Working Group assessed the benefits of improvements to existing bus routes 85, CT2, 87, 88, 90, 99, 104, 105, 106, 109, 110, and 112. Improvements were classified as either “minor change” (i.e., greater frequency) or “major change” (altering routes).

New bus routes:

A variety of new routes were tested, including limited stop service between Everett to downtown Boston, a new Lechmere to Kendall Square shuttle, a new Assembly Square to Lechmere route (Route 92A), and a new CT4 route, connecting the Sullivan Square and Kendall stations. These new bus routes could operate as MBTA services or as a private fleet as part of a Transportation Management Association.

Bus-only lanes:

Following the success of a recent pilot effort in Everett, the study evaluated potential impacts of permanent bus-only lanes on Broadway between Ferry Street and Alford Street Bridge in Everett and on First Street, Binney Street, and Third Street in Cambridge.

Improved Orange Line frequency:

This improvement would reduce peak period headways from four and a half minutes to three minutes on the Orange Line. Achieving three-minute headways would likely require an additional 78 cars beyond what has currently been ordered (230 total cars), as well as a new signal system, upgrades in power supply, and an expanded maintenance facility at Wellington.

New bus rapid transit services:

Everett currently lacks rapid transit options to Downtown Boston, Kendall Square, and the Seaport district. New bus rapid transit service could provide additional transit access between Everett, Cambridge, Charlestown, and Somerville. This idea would provide two additional routes. One would be a new service from Glendale Square in Everett, which is a major population center in the City, and would connect to North Station via Sullivan Square along Broadway and Rutherford Avenue. The second alignment would build off of the Silver Line (although service may be distinct from the Silver Line) from the Chelsea Station terminus and connect to Kendall Square and North Station, both via Sullivan Square using a combination of streets, dedicated bus lanes, and the commuter rail right-of-way.

Sullivan Square commuter rail stop:

A new commuter rail station at Sullivan Square would provide a new transfer point for North Shore commuters using the Newburyport/Rockport Commuter Rail line. It would create an opportunity to transfer to the Orange Line and the bus routes that serve Somerville and Cambridge, providing North Shore commuters potentially faster access to Assembly Square, a redeveloped Inner Belt in Somerville, and Kendall Square.

Orange Line spur from Sullivan Square through Everett:

This major infrastructure project would parallel the existing Newburyport/Rockport Commuter Rail ROW from Sullivan Station northward to Route 16 before entering a tunnel with a terminus near Glendale Square. Possible stations could be located at Everett Square, Sweetser Circle, Glendale Square, and Gateway Center. Because of the multi-billion dollar cost of creating this line, several permutations were tested by examining the effects of a different number of stations and length of the extension.

Rivers Edge Station:

A new Orange Line station was considered between Wellington and Malden Center.

Green Line Extension Phase II:

The Green Line Extension currently under construction was initially planned to extend all the way to the Mystic Valley Parkway in Medford. For cost and feasibility reasons the Green Line Extension is now planned to terminate at College Avenue. A station at Mystic Valley Parkway continues to be considered and is currently undergoing environmental review by MassDOT.

TRANSPORTATION DEMAND **MANAGEMENT POLICIES**

Transportation demand management (TDM) refers to a suite of policies intended to reduce travel demand by single occupancy vehicles. TDM measures can include subsidized transit passes, employee shuttle buses, incentives to travel by alternative means (carpool, transit, bike), providing showers and locker rooms at work, and other ideas which encourage residents and employees of an area to not travel using a single occupancy vehicle. Because it was not feasible to model all possible TDM measures, technical staff focused on a few key elements.

Reduced residential parking requirements:

The study evaluated the effect of lower residential parking supply for new residential development in the scenario focus area by creating a lower ratio of parking spaces to housing units. However, due to the difference in density, transit access, and current resident mode share, the ratio varied across the focus area municipalities and neighborhoods. Based on consultation with the municipal planning staff and current plans of each community, the technical staff assumed a range of 0.5 to 0.95 spaces per unit for new residential developments. In the Focus Area, the number of vehicles per household in new developments was changed from 1.03 in the Planned Growth scenario to 0.87 in Charlestown, from 1.23 to 1.13 in Everett, and from 1.10 to 0.81 in Somerville.

Charging market rates for commuter parking:

The Working Group wanted to test strategies to require new commercial developments to reduce the amount of free parking for employees. This idea was modeled after the City of Cambridge's Parking and Transportation Demand Management ordinance. As part of Cambridge's policy, developers must identify specific actions they will take to reduce auto trips to their site, which can include subsidized transit passes, providing a payment to employees who do not drive, charging market rate parking fees, or other measures. In order to model this type of policy, the study evaluated the effect of higher daily commuter parking prices in projected high growth zones in the Focus Area as a proxy. The sites include the Commercial Triangle in Everett, Union Square, Brick Bottom, and Assembly Row in Somerville, and Sullivan Square in Charlestown. The technical team researched comparable locations in Metro Boston,

WATER TRANSPORTATION

The need for improved water services was also raised. While the Working Group acknowledges water transportation as an emerging potential transportation mode, it was not included as one of the improvement scenarios due to the complexity of incorporating it in the regional travel demand model. The Encore resort, however, has committed to providing water transportation service as part of their MEPA certificate, and a separate process has begun to comprehensively study water transportation in the metropolitan Boston area.



with a focus on Kendall Square in Cambridge because of its proximity to the study area and development patterns that may serve as a template for commercial growth in the study area. Consequently, the technical staff applied a \$22 daily rate (in 2016 dollars) as a proxy for what the non-subsidized market rate may be in 2040 for both employees and visitors who drive to those areas.

Telecommuting/Flex commuting policies:

Telecommuting and alternative work schedules can reduce the number of work trips in the study area, especially during rush hour. The focus was on job sectors that may not require workers to be physically on site and assumed a quarter of commuters within these job sectors work remotely or off peak once per week. See Appendix 4 for additional details regarding this research.

ACTIVE TRANSPORTATION IMPROVEMENTS

Complete Streets:

Continued implementation of complete streets throughout the study on main roads (sidewalks, crosswalks, separated/traditional bicycle lanes, etc.).

Mystic River pedestrian bridge:

This bridge would connect Assembly Station and Encore Boston.

Rivers Edge pedestrian bridge:

This bridge would connect a potential Rivers Edge Station on the Medford/Malden line with Everett, across the Malden River.

LAND USE PROJECTIONS

Assumptions about future land use are a critical input into the travel demand model. MAPC prepared two distinct land use projections for modeling purposes. These projections varied in the amount, location, and timing of development in the study area. The first projection was a minor modification of the land use forecasts used for the most recent Long-Range Transportation Plan (LRTP) adopted by Boston MPO in 2015. The second projection – the planned growth scenario – incorporates even more recent information about planned development and municipal goals for development, thereby providing a more accurate picture of market trends and local visions. In both cases, most of the adjustments to the land use model inputs were concentrated in the Scenario Focus Area, though these changes also had ripple effects throughout the region due to the need to maintain a regional control total. These two scenarios are described below.

SCENARIO 1: THE MODIFIED LRTP LAND USE PROJECTION

The **Modified LRTP Land Use Projection** was a slight modification of the land use projections used for the 2015 LRTP. It is common practice for MassDOT studies to use the land use from the most recent LRTP as a starting point for modeling. In this case, MAPC modified the projections slightly based on information about recent development. Specifically, MAPC modified the distribution of housing and nonresidential growth within each of the three cities (Boston, Somerville, and Everett) without changing the total population, households, and employment forecast for each municipality in 2040. The Modified LRTP Land Use Projection entails a substantial amount of growth in the Scenario Focus Area: a 38% increase in households and a 36% increase in employment.

SCENARIO 2: THE PLANNED GROWTH LAND USE PROJECTION

The **Planned Growth Land Use Projection**, the scenario that the Working Group decided to use as the baseline to which to compare the other alternatives, incorporates newer and more extensive information about development in the pipeline and municipal plans for rezoning and redevelopment in the area. As described above in the section on technical methods, MAPC collected information about individual developments, estimated the development capacity (in terms of housing units and nonresidential square footage) of municipal local area plans, and input those assumptions into the Land Use Allocation Model. In contrast to the Modified LRTP projection, Planned Growth is not constrained by preexisting totals for each municipality, so these new assumptions in the Planned Growth projection about development activity and zoning capacity in the study area result in higher levels of growth for each municipality overall. Since the regional totals for population and employment growth remain fixed, the difference is made up for by reduced growth in other areas outside of the Lower Mystic study area. The exact distribution of growth within the Focus Area as well as adjustments elsewhere in the region is all determined by MAPC's land use allocation model based on development and zoning inputs; it is not specified directly by technical staff.

By relying on municipal goals for development without the constraint of municipal control totals, the Planned Growth projection anticipates a substantially higher level of growth than the Modified LRTP land use projection. Within the Scenario Focus Area, the Planned Growth projections anticipate an additional 27,000 housing units between 2010 and 2040—nearly doubling the number of households in the Focus Area—and enough commercial space for 55,000 new jobs, equivalent to 140% growth over 2016. In terms of household and employer characteristics, the Planned Growth projections anticipate a growth in smaller households, and about 80% growth in the number of workers living in the area. The largest employment gains would be in retail, leisure and hospitality.

The Working Group decided to use the Planned Growth projections as the land use conditions on which to model the alternatives described below. If the level of growth outlined in the Planned Growth projections occurs, the Lower Mystic Area would become one of Massachusetts' most significant housing and employment growth areas. The most recent statewide projections used by MassDOT anticipate a growth of 246,873 jobs statewide between 2010 and 2040, and MAPC has projected a need for approximately 500,000 housing units statewide over that same period. Our modeling indicates that the Focus Area alone could accommodate 22% of statewide employment growth and 5.4% of statewide housing unit growth over that thirty-year period.

Figure 11. Employment Change: Planned Growth Scenario 2010-2040

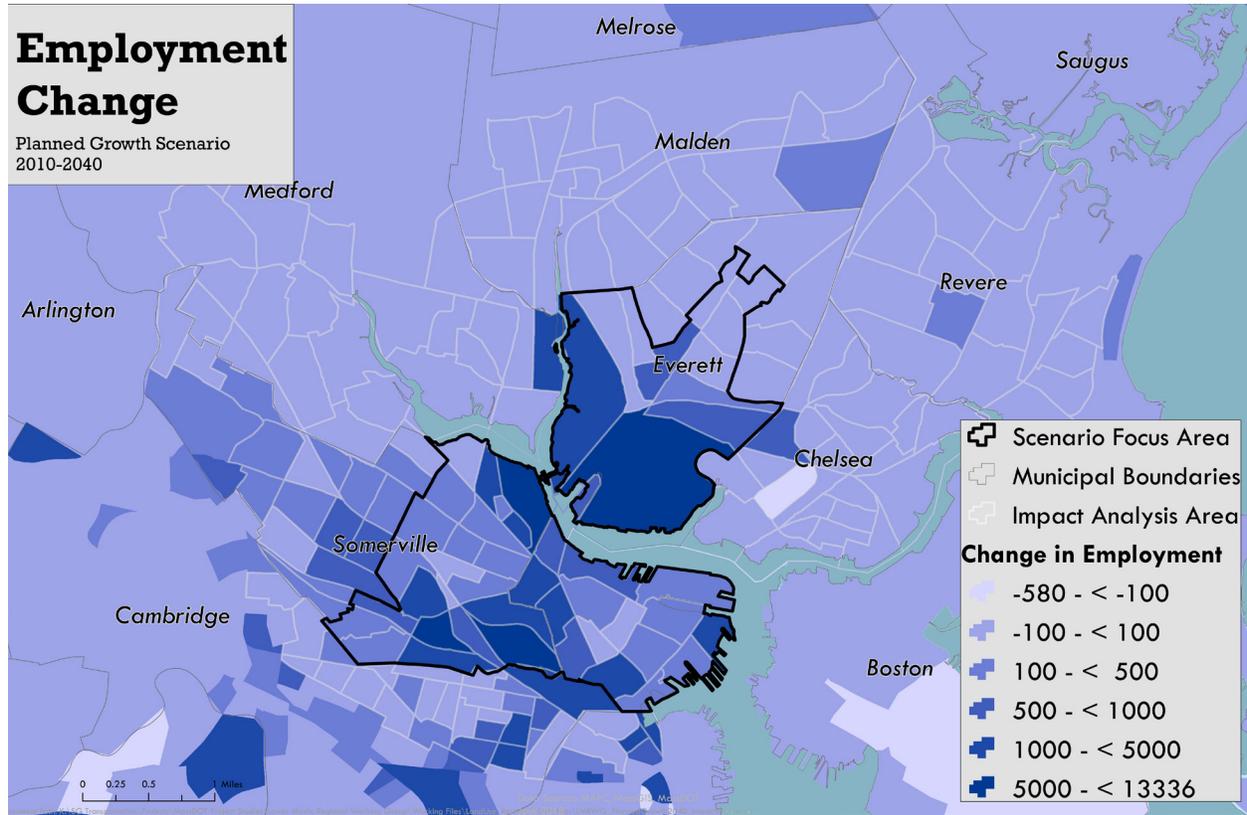
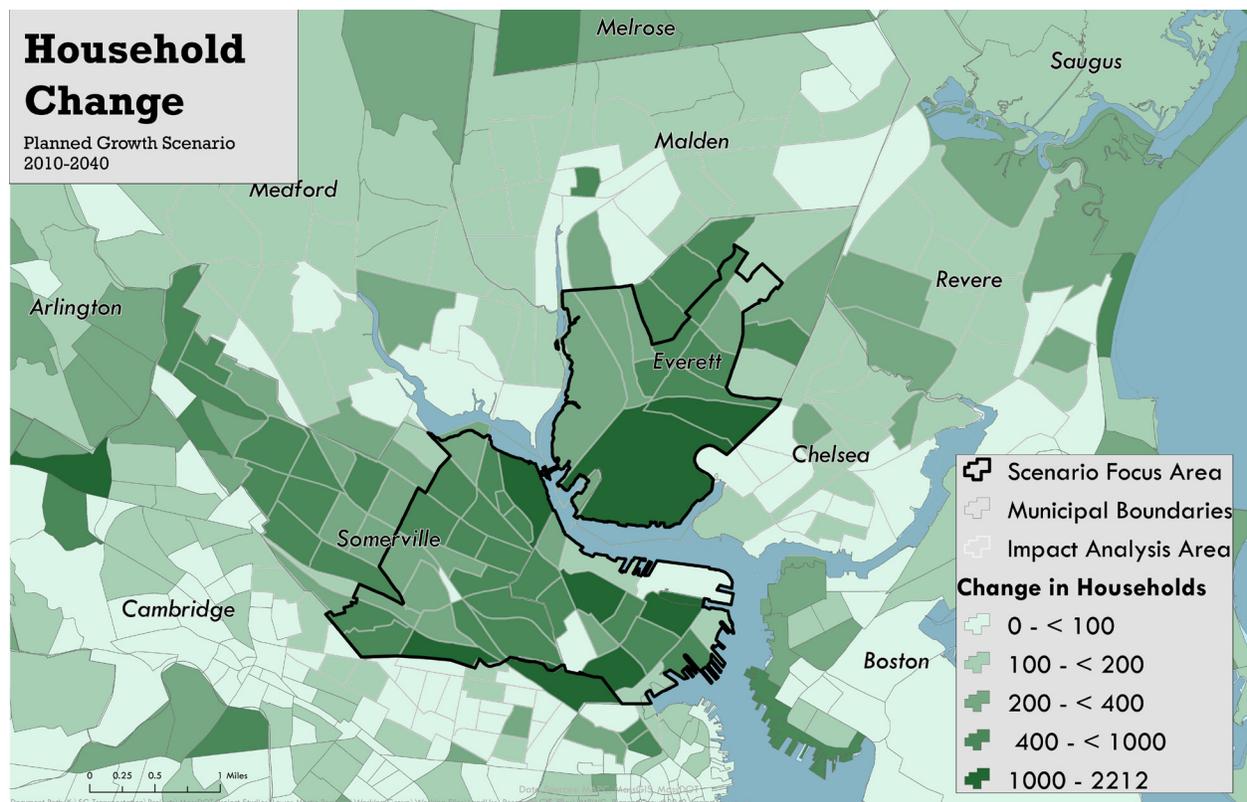


Figure 12. Household Change: Planned Growth Scenario 2010-2040



COMPREHENSIVE SCENARIOS

In order to better understand the interaction among land use, transportation improvements, and other policies, the Working Group developed and tested more than a dozen different “scenarios” of future conditions. Each scenario encompasses a specific set of assumptions about land use, transportation improvements, and policies selected to distinguish the impacts of individual interventions or reveal the interactions between different actions. Every scenario described here was evaluated using the regional travel demand model, and most were also assessed using the Synchro and Transmodeler tools that provide intersection-level detail. Due to time and budget constraints, the accessibility analysis was performed for only the base year (2016) and two future year scenarios.

The results from all of the scenarios were evaluated by the Working Group. Based on this information, the Working Group selected a set of the most promising options to incorporate into a final “package” scenario. The results of that final scenario indicate the improvements that could be achieved if all of the Working Group’s recommendations are adopted. This section summarizes the elements that were included in each scenario as well as general observations about the results.

BASELINE MODEL: **LONG-RANGE TRANSPORTATION PLAN “NO BUILD”**

This scenario uses the Modified LRTP Land Use projections and includes all of the transportation improvements that were incorporated in the Boston MPO’s 2040 LRTP, adopted in 2015. The LRTP is the long-range, comprehensive transportation planning document for the Metropolitan Boston region. It is common practice for MassDOT planning projects to use this baseline set of projects as the reference point for future modeling. Such scenarios are sometimes referred to as a “no-build” scenario, even though they may still anticipate building quite a lot. Transportation improvements included as part of the LRTP include improving headways (i.e., more frequency) on the Orange Line from six minutes to four and a half minutes during peak periods, the Green Line Extension Phase I, and Encore Boston Harbor mitigation measures. This scenario also included the surface option for Rutherford Avenue, as it had been programmed in the LRTP. See Appendix 5 for a comprehensive list of LRTP projects.

This model scenario indicates that travel demand is likely to increase substantially in the study area, and travel conditions are likely to become more challenging, with substantial increases in the total number of trips and the amount of auto travel. Congestion at the area’s intersections would deteriorate substantially. The number of trips taken by transit is likely to grow, though with limited increases in transit capacity it is likely that overcrowding on buses and trains will worsen.

SCENARIO 1:
PLANNED GROWTH
"NO-BUILD"

Scenario 1 uses the same set of transportation improvements assumed for Scenario 1 but incorporates the Planned Growth land use projection developed by MAPC based on the current development pipeline and municipal plans.

As described above, the Planned Growth projections include a substantially higher amount of both housing and commercial development in the Focus Area. As a result, it should come as no surprise that overall travel demand and congestion is higher than in the LRTP No-Build Scenario. Compared to the 2016 base year, the Planned Growth No-Build scenario would see growth of 375,000 trips to and from the Impact Analysis Area daily, an increase of 34% over 2016 conditions. With no additional mitigation above and beyond what is already planned, transportation conditions would worsen substantially. Vehicle miles traveled in the Impact Analysis Area would rise by 12% over 2016 levels, and 27 of the 79 major intersections would be at or below a 'F' Level of Service during the morning and/or evening commute (up from 18 in 2016). Orange Line ridership would increase by 22%. The Working Group agreed to use the Planned Growth conditions as the land use inputs for all of the subsequent scenarios modeled.

SCENARIO 2:
PLANNED GROWTH
NO-BUILD WITH SULLIVAN SQUARE UNDERPASS

Scenario 2 utilizes the same land use and transportation system assumptions as Scenario 1, but this scenario incorporates the City of Boston's proposal for underpasses at Sullivan Square and Austin Street.

Since the underlying land use assumptions are the same as Scenario 1, there are no differences in the amount of trip-making in the Focus Area. Results of the Synchro model show that the underpass approach does improve congestion somewhat at Sullivan Square, Austin Street, and City Square; with the underpass, all of those intersections would be operating at a level of service of 'E' or better. Across the entire study area, 25 of the 79 major intersections would remain at an 'F' level of service in the morning and/or afternoon commute. Results showed minor differences between Scenarios 1 and 2 with regard to area-wide traffic flows or congestion. As conditions along Rutherford Avenue saw some traffic relief, the model documented a 'backfilling' effect in which regional traffic is redirected to take advantage of the new capacity. As a result, the total VMT in the Focus Area is marginally higher with the underpass as compared to the surface option, by 0.95% to 1.14% during rush hours. Model results indicated no difference in conditions on I-93.

As described previously, when the City decided to adopt the underpass configuration through its community engagement process, the Working Group agreed to include it in all of the subsequent scenario modeling.

SCENARIO 3: BUS IMPROVEMENTS AND TRANSPORTATION DEMAND MANAGEMENT

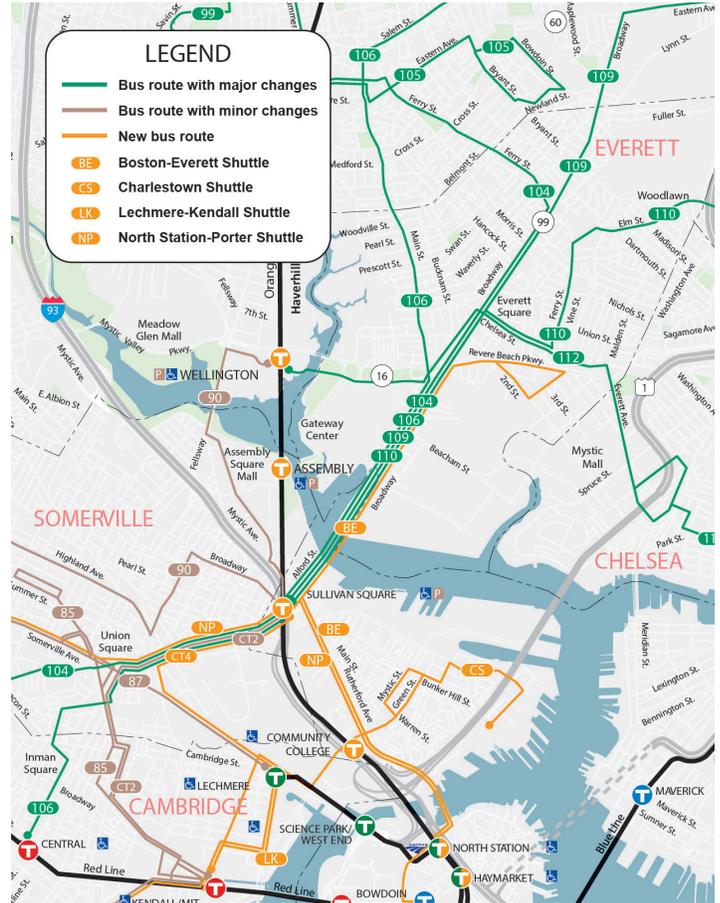
This scenario incorporated the Planned Growth land use projections and all of the No-Build improvements, along with improvements to existing bus routes, new bus routes, bus-only lanes, expansion of Complete Streets, and all of the transportation demand management policies described above (reduced residential parking requirements, market rate commuter parking, and telecommuting/flex commuting policies).

This scenario entails a substantial amount of new bus service. It would add 4,100 revenue miles per day over all the proposed service expansions (triple what is provided today), and an additional 560 revenue hours per day. Specific bus routes that were adjusted, added, or provided with bus-only lanes are described above. When the Working Group was determining what elements to include in this Scenario, the City of Boston had not yet made a final determination regarding its preferred configuration of Rutherford Avenue. Therefore, two scenarios were modeled: Scenario 3S, with the surface option, and 3U, with the underpass option.

The combination of increased transit service along with substantial TDM policies would result in significant mode shift: there would be an additional 150,000 transit trips daily, and 30,000 additional transit trips during rush hour. Model results project a 150% increase in bus ridership on targeted routes, with the most significant increases occurring on the Everett-to-Boston routes, the proposed CT4, and Route 110. The Orange Line would experience a 10% increase in boardings, with the largest increases occurring at Sullivan Square (50% increase) due to the large number of ‘feeder buses’ that provide connections to the rapid transit system at Sullivan Square. However, this increase in demand is likely to exceed capacity on the Orange Line at Sullivan Square and on some of the new bus routes. The share of trips made by walking and biking would increase by 1-2%, with the biggest changes occurring during off-peak times.

As a result of improved transit access and reduced automobile availability, automobile travel in the area is reduced, and intersection conditions are correspondingly improved. Comparison of the results from Scenarios 3S and 3U show that, as compared to the surface option, the underpass option reduces congestion and increases vehicle throughput on Rutherford Ave by 1.4% to 2.1%, but has little to no effect on congestion elsewhere in the Impact Analysis Area.

Figure 13. Proposed bus routes



SCENARIO 4:

PARKING RESTRICTIONS SENSITIVITY TESTING

Scenario 4 involved a pair of model runs that included most of the elements that were included in Scenario 3 but was structured so that the Working Group could isolate the impact and benefit of the parking policies that were included in that scenario assuming the same transit options. Scenario 4.1 included all the elements of Scenario 3U (underpass option), with the exception of the proposed market-rate pricing for commuter parking in the major employment growth areas. Scenario 4.2 included all the elements of Scenario 3U, with the exception of the reductions in residential parking availability and corresponding automobile ownership. With this approach, the technical team could determine what fraction of the improvements observed in Scenario 3 were attributable to the changes in the two different parking policies.

The results of these scenarios show that commercial parking pricing has the most significant effect on AM and PM transit mode shares, accounting for 40% to 70% of the mode shift observed in Scenario 3. Residential parking reduction policies account for about 10% of the shift to transit. Put together, these findings indicate that, in the absence of progressive parking policies, improvements to transit service in the area will have only 20% to 50% of their potential benefit. Parking policies can multiply the mode shift benefits of new transit service by a factor of two to five.

SCENARIO 5:

RAMPS AND LANES

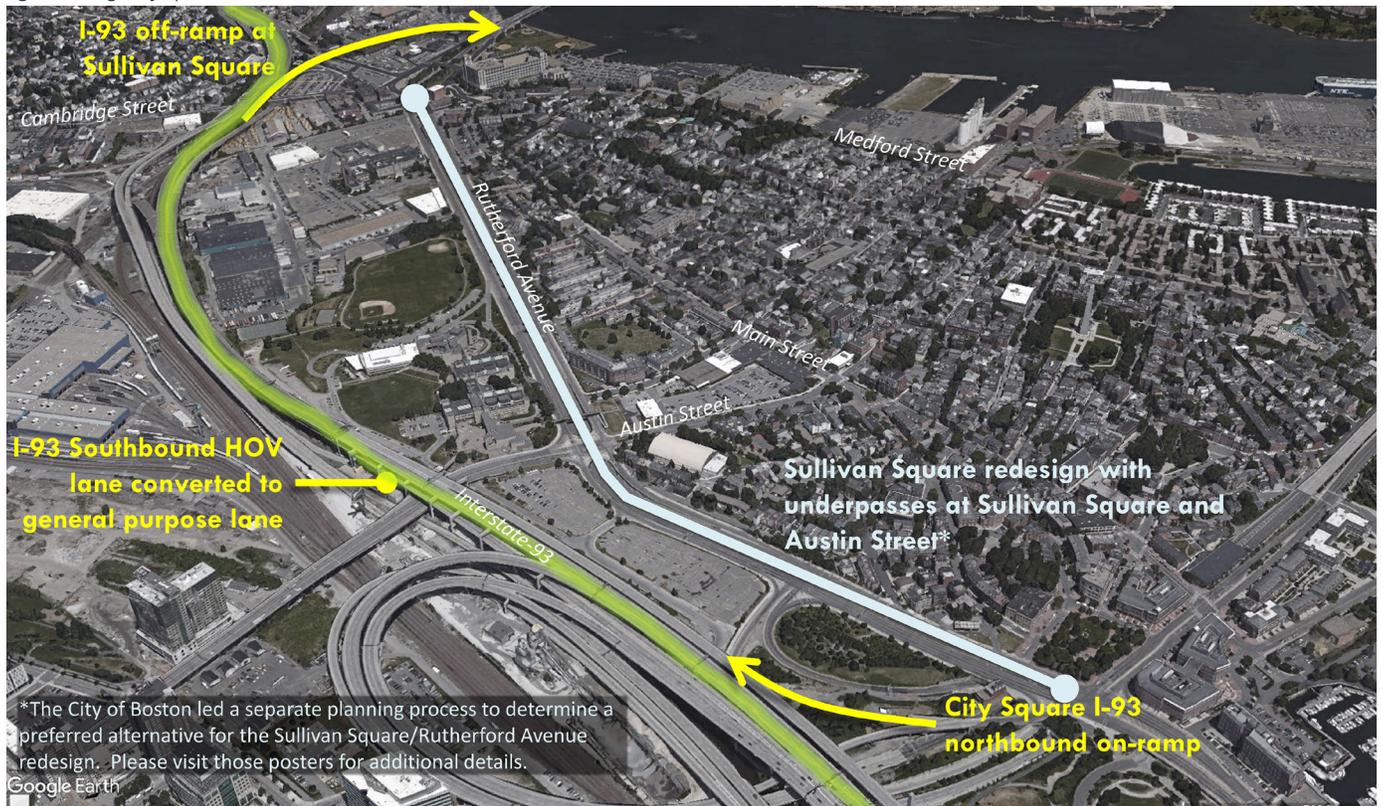
This scenario tested the benefits of three substantial roadway capacity projects: a northbound I-93 on-ramp at City Square, an I-93 off ramp at Sullivan Square connecting directly to Alford Street, and the conversion of the HOV lane on I-93 to a general purpose lane. A variant of this scenario (5.1) was also run, omitting the I-93 off-ramp at Sullivan Square.

The Synchro results from Scenario 5 demonstrated a moderate decrease in traffic delay in the Sullivan Square area during the morning peak periods; however, further south on Rutherford Avenue near City Square and also in Everett along Broadway between the Alford Street Bridge and Revere Beach Parkway, moderate increases in delays were observed. This suggests that the improved traffic flow in Sullivan Square moved the bottlenecks to other parts of the Focus Area. The evening peak period experienced similar traffic delays in Everett and near City Square with no change in Sullivan Square. The effects were similar for Scenario 5.1, although Sullivan Square saw a slight increase in delay during the AM peak hour.

Disaggregating the three components provides additional insight into the results. Although converting the HOV lane to a general purpose lane is relatively inexpensive, the modeling suggests that the effects would worsen traffic conditions through the Impact Analysis area, increasing delays in Sullivan Square and along Broadway. The Working Group noted that removing this HOV lane would likely increase the bus travel time for any buses traveling on I-93 South, the riders of which now benefit from a congestion-free HOV lane. There were no mode shift benefits, and the primary beneficiaries are to existing morning vehicle trips originating from points further north along I-93. There was some improvement in weaving and merging due to the conversion. The I-93 off ramp at Sullivan Square would improve traffic conditions in Sullivan Square but, in addition to its high cost and complexity, would have negative impacts on the area's future development given the land taken up for the ramp itself. There was also limited use, with primary benefits to existing PM vehicle trips.

Because of continued interested in the City Square on-ramp, additional modeling was performed to test multiple iterations, including eliminating the left-hand turn coming from the North End, moving the location of the ramp further north, and testing on-ramps at both locations that merge prior to joining I-93. The results from the latter test suggest a minor improvement along Rutherford Avenue and Sullivan Square, but additional study is needed to better quantify the benefit to Rutherford Avenue and potential impacts to I-93 as merging traffic onto the highway creates weaving.

Figure 14. Highway options



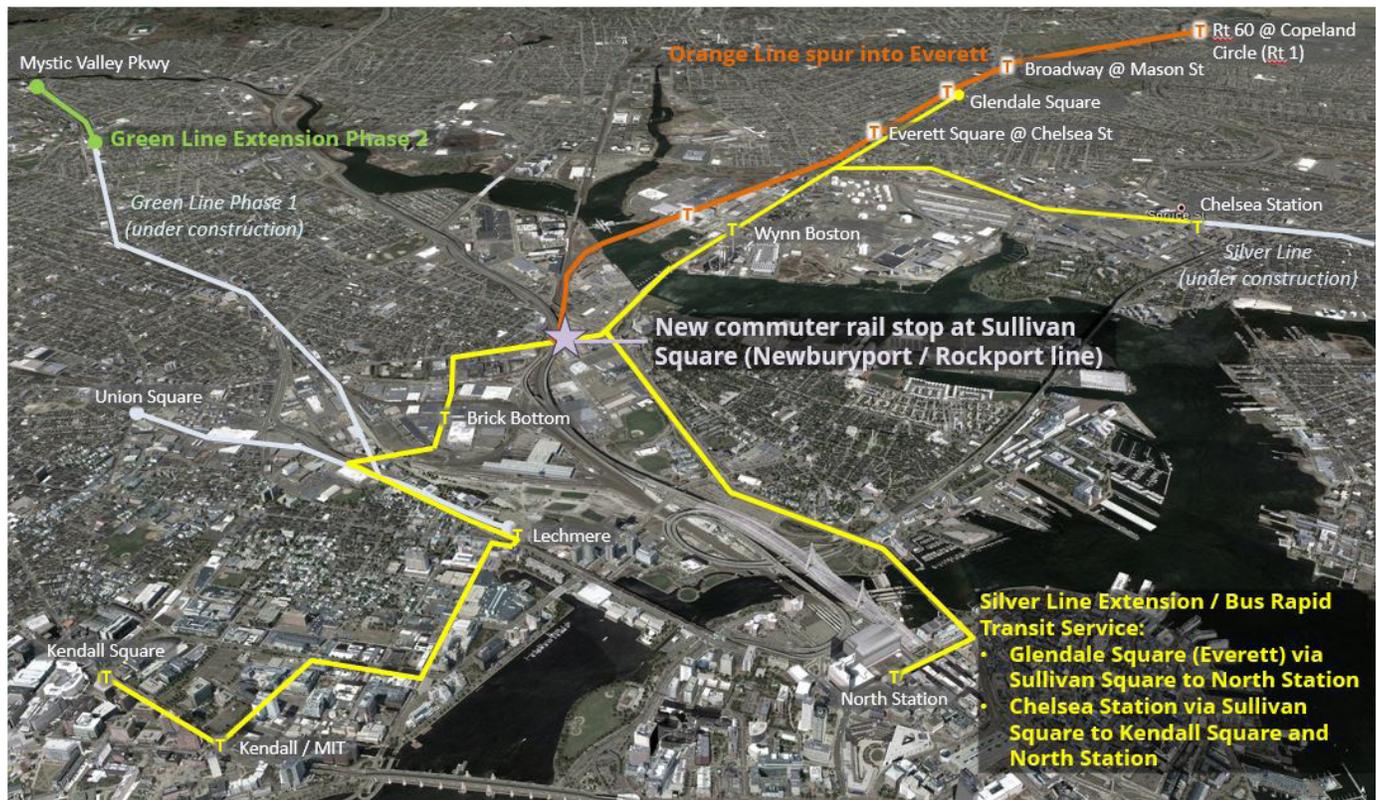
SCENARIO 6: BUSES AND TRAINS

This scenario examined the benefits of major fixed route transit expansions. Specifically, it included a bus rapid transit extension from the new Silver Line terminus at Chelsea Station and from Glendale Square in Everett to North Station and Kendall Square; the Green Line Extension Phase II to Mystic Valley Parkway (Route 16); and a new commuter rail stop at Sullivan Square. These results were tested with (6.1) and without (6.0) the residential and commercial parking constraints described above, to help assess the extent to which parking policy can help transit investments achieve their full potential.

The new bus rapid transit routes were well-utilized, with 28,000 boardings without parking restrictions and 36,000 boardings with the parking restrictions. Combined with the parking restrictions, these routes led to a 3% drop in automobile mode share in the impact analysis area (1% drop without parking change). These routes also reduced traffic delay in Sullivan Square and other key intersections throughout the Impact Analysis Area.

The new Mystic Valley Parkway station that would be constructed as an additional extension to the Green Line project was modestly utilized. Peak period boardings were 2,600 in Scenario 6, but since many of these riders were switching from bus trips, the net gain was only 390 new transit riders. With the parking restrictions, the model projects 4,000 boarding, including 1,600 new riders. There was little impact, however, on congestion in the Focus Area, including Sullivan Square.

Figure 15. Transit Options



The new commuter rail station resulted in 400-600 daily boardings (without and with parking restraints) and improves connectivity to buses heading to Cambridge and Somerville. As with the Green Line Extension Phase II, there was little impact on traffic improvements in Sullivan Square.

SCENARIO 7: RIDE, WALK, BIKE

This scenario assumed continued implementation of Complete Streets components throughout the study area on main roads, including 27 miles of sidewalk improvements and 42 miles of bike facilities (bike lanes and separated bike lanes) in the Focus Area, as well as safety improvements for pedestrian travel (e.g., crosswalks and accessibility improvements). It also included two larger infrastructure projects: a pedestrian bridge between Assembly Station and Encore Boston Harbor over the Mystic River, and another pedestrian bridge between a proposed Rivers Edge Station Orange Line station on the Medford/Malden line and Everett over the Malden River. The Rivers Edge Station was also modeled as part of this scenario, along with Orange Line headway improvements from four and a half to three minutes.

Figure 16. Select Bicycle/Pedestrian Connections

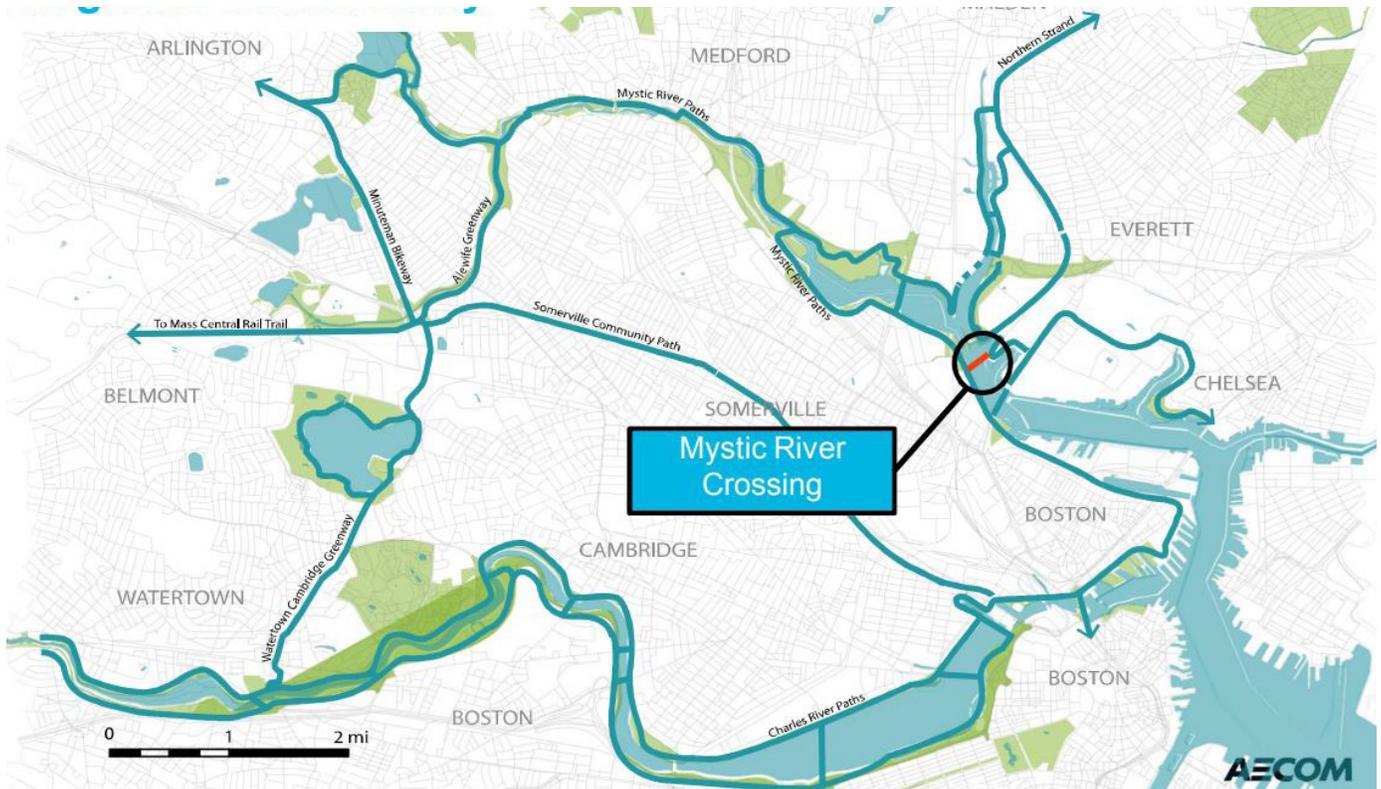


Figure 17. Example of Complete Streets



The Orange Line headway improvements had one of the greatest positive impacts among all the elements modeled as part of the study. According to the model, daily boardings increased by 12,100 and new transit trips increased by 8,000. It also led to a 2% reduction in automobile usage in the Impact Analysis area with reduced traffic delay in Sullivan Square and other locations.

Implementing Complete Streets – which were assumed in each scenario from Scenario 3, excluding the Ramps and Lanes Scenario – had minor effects on traffic conditions according to the model. New

daily transit trips increased by 200, presumably because transit became more accessible from pedestrians and bicyclists. Similarly, the pedestrian bridges increased new transit trips by a further 300 trips. There was a negligible effect on mode share; however, the Working Group acknowledged that such improvements have many benefits that cannot be modeled – safer biking and walking, and the ability to make more, shorter, non-motorized trips within TAZs, for instance.

The Rivers Edge Station resulted in 500 boardings, but Malden and Wellington Station experienced a slight decline in boardings as the Rivers Edge Station likely siphoned off some of these boardings.

SCENARIO 8: ORANGE LINE SPUR

This scenario included a potential spur of the Orange Line from Sullivan Square through Everett to Route 60 in Revere (including a structured commuter parking garage), coupled with headway improvements to three minutes along the main trunk of the line (resulting in six-minute headways along the Oak Grove and new spur branches). An Orange Line spur could create close to 40,000 new daily transit trips, including those from nearby communities traveling to a terminus near Route 1. According to the modeling, the potential spur could reduce automobile mode share by 5%, diverting approximately 35,000 daily automobile trips. Morning peak City Square and Broadway traffic would decrease by 2% and Sullivan Square traffic would reduce by 1%. Traffic on the Tobin Bridge would be reduced by 3%.

Technical staff estimated that the full extension could cost \$5 billion or more. In order to examine less costly options, the Orange Line Spur was modeled with two and three stations as well. In both of these models, automobile shares reduced by 4%. Again, traffic improved, although less along Broadway than with the five-

station model. This option, including its shorter variant, would cost billions of dollars to construct (this was the most expensive element tested in this study). The Working Group determined that, given budgetary constraints in today's environment as well as the MBTA's focus on maintenance, an Orange Line spur was less likely to be constructed in the near- to mid-term.

FINAL PACKAGE SCENARIO

Following the evaluation of Scenarios 1 through 8, the Working Group selected the most promising elements and combined them into a "package" scenario of the most feasible recommendations given previous modeling runs. This scenario includes the following elements (all previously described):

- Orange Line headway improvements to 3 minutes
- Two overlapping BRT routes extending from Chelsea Gateway to Kendall Square and from Downtown Everett/ Glendale Square to North Station, along the existing commuter rail right of way, with 10 minute headways on each branch.
- Selected local bus improvements (a subset of those modeled in Scenario 3) that complement but do not duplicate the proposed BRT service. The following routes would see improved frequencies and modified routes: 85, CT2, 87, 88, 90, 99, 104, 105, 106, 109, 110, and 112. This scenario also includes the bus-only lanes described previously.
- Transportation Demand Management and parking reduction strategies
- Active Transportation Improvements: Mystic River bicycle/pedestrian bridge, Northern Strand connection across Route 16, Malden River bicycle/pedestrian bridge, Somerville Community Path.
- New on-ramp to I-93 northbound from Rutherford Ave near City Square and at the existing Route 1 on-ramp and at City Square

This final package scenario demonstrates substantial improvement in transportation conditions as compared to the Planned Growth No-Build (Scenario 1). Overall, the number of person trips to and from the Impact Analysis Area is about 8% higher than in Scenario 1, and 45% higher than the 2016 base year conditions. The increase in person trips can be explained by the reduction in auto availability, which results in a higher number of local trips being made.

As a result of decreased auto availability and improved transit service, many more trips are made by transit. The transit share in the Impact Analysis Area is 36.5%—six percent higher than Scenario 1 and ten percent higher than the 2016 base year. Within the Scenario Focus Area closest to Sullivan Square, the transit mode share is projected to be 44% of all trips. Daily Orange Line ridership would be approximately 38,600 trips higher than in Scenario 1, and the three minute headways would provide the capacity sufficient to accommodate that additional demand without overcrowding the system. In the final package scenario, the new bus rapid transit is projected to see daily ridership of 13,400 trips on the route from Glendale Square to North Station, and 27,600 trips on the route from Chelsea Gateway to Kendall Square. Overall local bus ridership would be higher than Scenario 1 by 55,000 riders daily.

Conditions in the Package Scenario would improve for drivers as well. Only 21 major intersections would be at or below an "F" level of service, as compared to 27 in Scenario 1 (though still up from 18 failing intersections in 2016).

SUMMARY OF IMPROVEMENTS

The figure below breaks down the various elements modeled, highlighting approximate costs and several of the key metrics the Working Group used to assess the various improvements, including change in mode share, and the effects of traffic at key intersections, green house gases.

Figure 18. Comparing Options

2040 PERFORMANCE MEASURES	New Transit Trips	Capital Cost	Annual Operating Cost	Auto Share	Transit Share	Changes in McGrath Traffic Delay ¹	Changes in Broadway Traffic Delay ¹	Changes in Sullivan Sq. Traffic Delay ¹	Changes in City Sq. Traffic Delay ¹	GHG in Study Area (Kilograms)	Constructability ²
<i>Arrow indicates whether higher or lower values are more desirable</i>											
Bus Improvements & TMA Shuttles	102,000	\$ 205,000,000	\$ 23,572,000	-4%	4%	-1	0	-1	-1	-229,250	4
Bus Improvements & TMA Shuttles with TDM Policies ³	147,000	\$ 205,000,000	\$ 23,572,000	-5%	5%	-3	-1	-2	-2	-336,440	5
Bike/Pedestrian Improvements	200	\$ 10,000,000	\$ -	0%	0%	0	0	0	0	-500	3
Bike/Pedestrian Improvements with TDM Policies ³	300	\$ 10,000,000	\$ -	0%	0%	0	0	0	0	-700	4
Work from home	-200	\$ 10,000,000	\$ -	0%	0%	0	0	0	0	500	1
Work from home with TDM Policies ³	-400	\$ 10,000,000	\$ -	0%	0%	0	0	0	0	1,000	1
I-93 – Convert HOV To General Purpose	-200	\$ 100,000	\$ -	0%	0%	-1	1	1	0	500	5
I-93 – City Square Northbound On-Ramp	0	\$ 46,900,000	\$ 3,400	0%	0%	0	0	0	1	0	6
I-93 – Sullivan Square Northbound Off-Ramp	0	\$ 62,700,000	\$ 5,300	0%	0%	0	1	-1	0	0	8
Silver Line / Bus Rapid Transit Extensions	4,000	\$ 310,000,000	\$ 17,514,000	-1%	1%	0	-1	-1	-1	-9,500	6
Silver Line / Bus Rapid Transit Extensions using commuter rail right-of-way	5,200	\$ 312,000,000	\$ 31,800,000	-1%	1%	0	-1	-1	-1	-9,000	6
Silver Line / Bus Rapid Transit Extensions TDM Policies ³	8,000	\$ 310,000,000	\$ 17,514,000	-3%	2%	0	-1	-2	-2	-15,100	6
Green Line Extension to Mystic Ave	500	\$ 212,000,000	\$ 2,500,000	0%	0%	-1	0	0	0	-1,200	3
Green Line Extension to Mystic Ave with TDM Policies ³	2,000	\$ 212,000,000	\$ 2,500,000	-1%	1%	-1	0	0	0	-4,800	5
New Sullivan Sq Station on the Rock/Newb. Commuter Rail	100	\$ 26,400,000	\$ 29,500	0%	0%	0	1	0	0	-200	4
New Sullivan Sq Station on the Rock/Newb. Commuter Rail with TDM Policies ³	200	\$ 26,400,000	\$ 29,500	0%	0%	0	1	0	0	-500	5
Major Bike/Ped. (incl. ped bridge Assembly-Everett and Everett-Rivers Edge)	300	\$ 80,000,000	\$ 50,000	0%	0%	0	0	0	0	-700	3
New Orange Line Station at Rivers Edge	500	\$ 90,000,000	\$ 29,500	0%	0%	0	0	0	0	-1,200	5
Orange Line Headway Improvement (4.5 min. to 3 min.)	8,000	\$ 400,000,000	\$ 35,903,000	-2%	2%	-3	-1	-1	-1	-19,100	6
Orange Line Spur to Route 16 (2-Stations)	26,800	\$ 1,250,000,000	\$ 35,775,000	-4%	4%	-1	-2	-2	-2	-67,900	8
Orange Line Spur to Everett (3-Stations)	28,500	\$ 3,500,000,000	\$ 39,700,000	-4%	4%	-1	-2	-2	-2	-62,300	6
Orange Line Spur to Rte 1 (5-Stations)	38,500	\$ 5,000,000,000	\$ 49,980,000	-5%	5%	-1	-3	-3	-3	-91,700	10
Commuter rail station at Encore Boston on Rockport/Newburyport line	80	\$ 18,480,000	\$ 29,500	0%	0%	0	0	0	0	-200	4

¹ Multiple intersections were examined as part of the this Study. This metric examines the total delay experienced at specific intersections that comprise these four locations. The range in delay reduced was broken into seven groupings, ranging from reductions to increases (-3 to +3).

² Some project ideas could be constructed more easily and sooner than others. This qualitative metric gauges the ease by which a component could be implemented. The range is from 0, indicating easiest to implement, to 10, indicating the most difficult (note that these numbers do not imply years to construct).

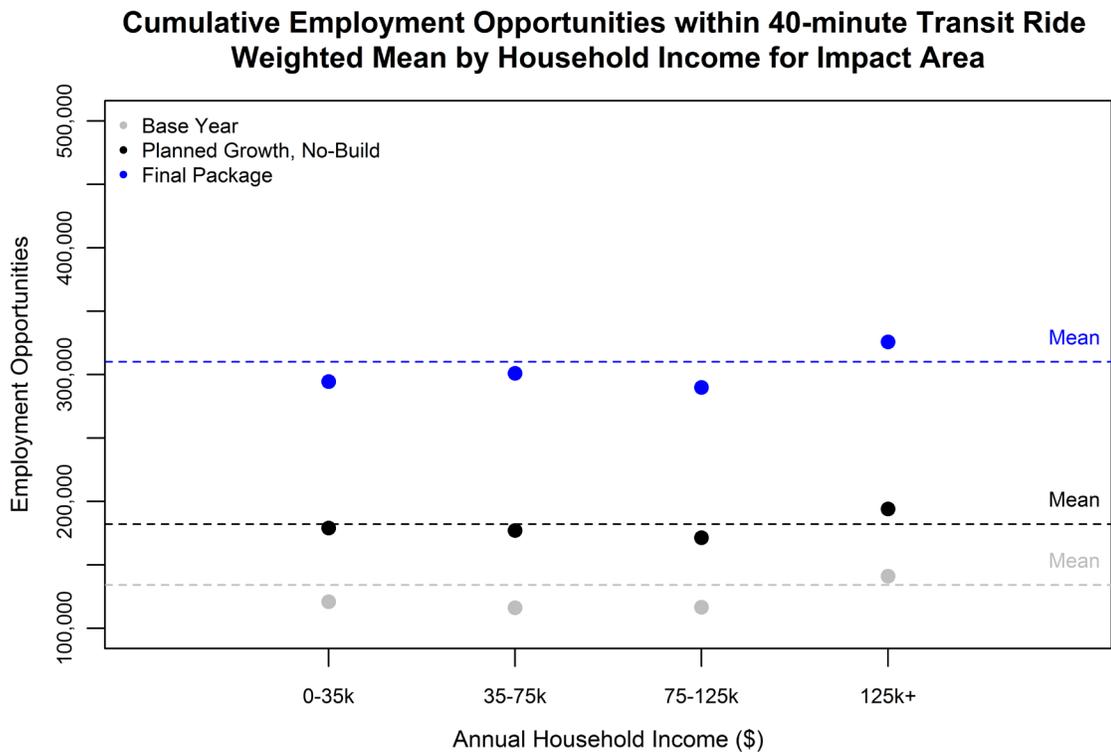
³ This measure is intended to illustrate the effects of incorporating Transportation Demand Management policies with transportation infrastructure improvements. Please see the TDM Policies station for more information.

ACCESS TO OPPORTUNITY MEASURES

The Working Group recognized early on that the effectiveness of a transportation system cannot be measured only by the speed of traffic and the frequency of buses, but by the extent to which the system connects residents to the places they need to go: jobs, schools, friends, health care, and more. Similarly, a high-functioning transportation system stimulates economic activity by ensuring that employers have access to a large labor pool of workers who can get to their place of work easily. To support the Working Group’s efforts to use these criteria, MAPC evaluated access to jobs and labor for workers and employees within the Impact Analysis Area under current conditions, the Planned Growth No-Build scenario, and the final Package Scenario. This analysis was conducted to assess the extent to which the set of recommendations advanced by the Working Group would improve economic opportunity.

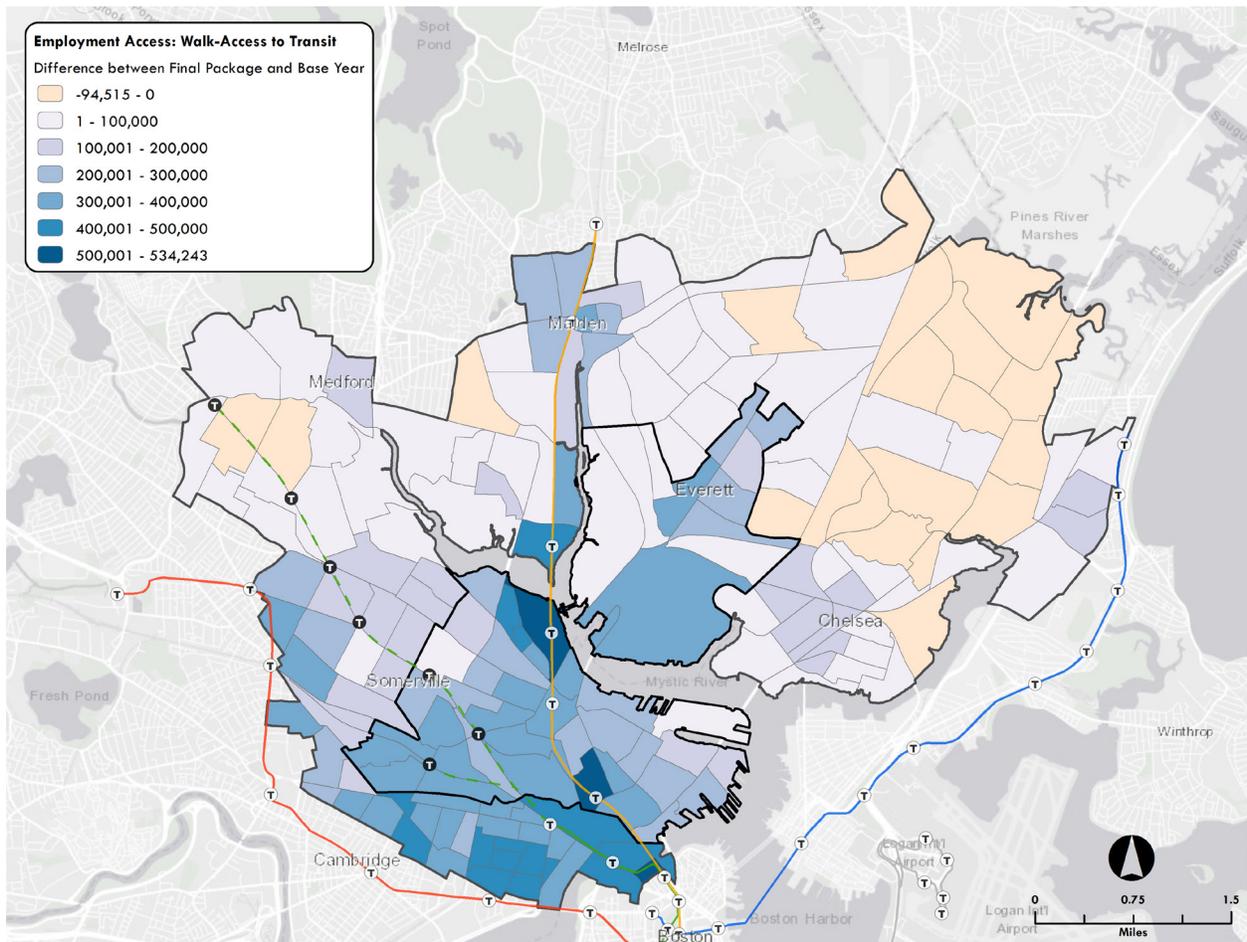
Specifically, MAPC estimated how many jobs (anywhere in the region) could be reached from each TAZ in the Analysis Area by two modes/thresholds: a 20-minute drive or a 40-minute transit commute (including walking and wait times). MAPC also evaluated how many workers (living anywhere in the region) could reach Analysis Area TAZs by the same mode/thresholds. This analysis was conducted for existing conditions and two of the 2040 scenarios, Scenario 2: the Planned Growth No-Build and Scenario 9: the Final Package. MAPC also evaluated the equity impacts of any accessibility changes by examining the changes for the four quartiles of income groups, using a weighted average of each TAZ.

Figure 19. Cumulative Employment Opportunities within 40-minute Transit Ride Weighted Mean by Household Income for Impact Area



The results show that the “Final Package scenario” would provide a substantial improvement to job and labor accessibility for workers and employers in the study area. Currently, the average worker in the Impact Analysis Area can reach approximately 800,000 job opportunities within a 20-minute drive, and 140,000 jobs within a 40-minute transit commute. For both automobile and transit commutes, households with incomes over \$125,000 per year have greater job access than do lower-income households. By 2040, the number of jobs in the Analysis Area would increase significantly, but under the “No-Build” conditions traffic congestion would actually result in a decline in job access via automobile, to only 785,000 jobs within a 20-minute drive. Access to jobs via transit within 40 minutes will increase somewhat to 180,000 jobs.

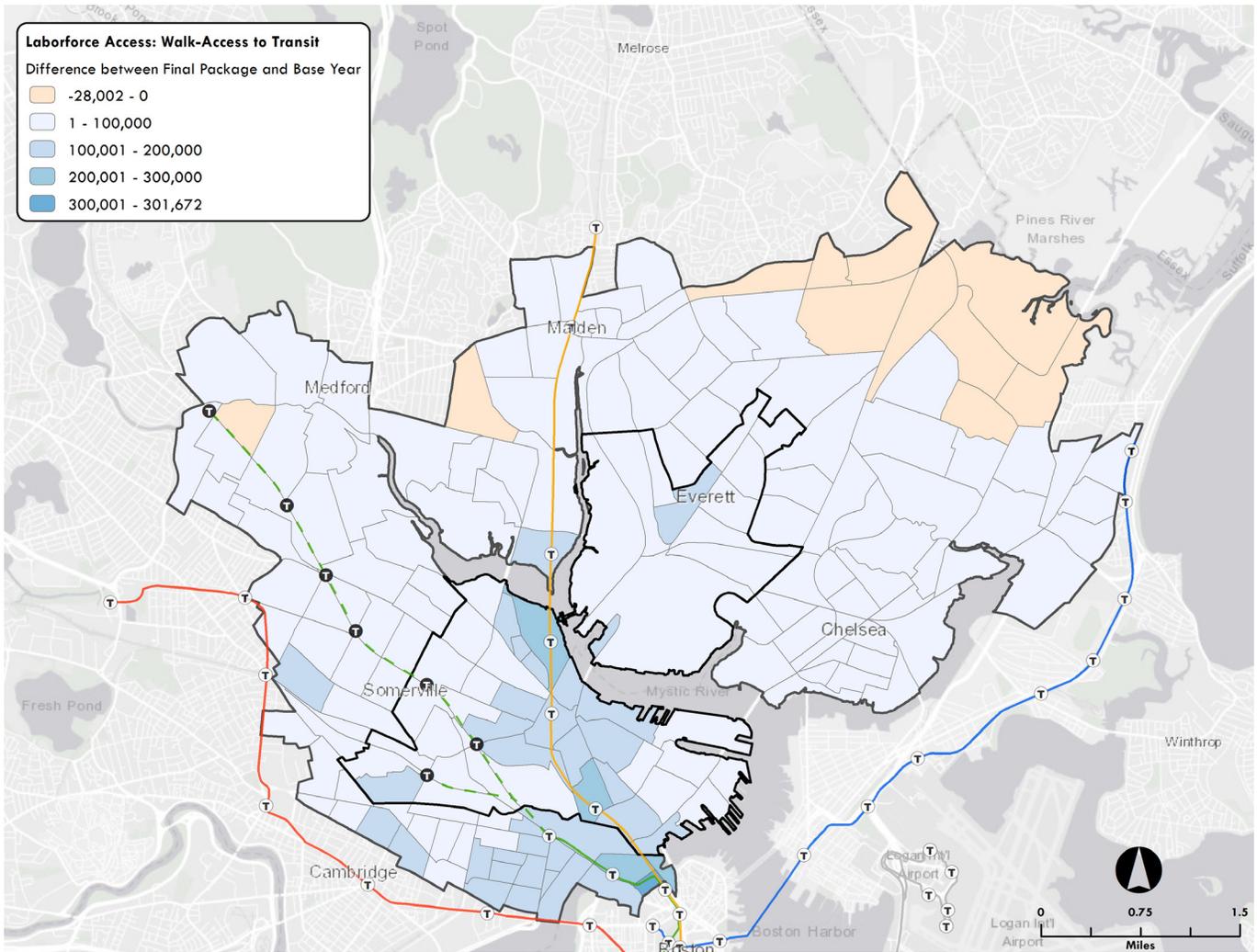
Figure 20. Employment Access: Walk-Access to Transit Map



MAPC analysis indicates that the Final Package scenario would provide substantial improvements to job accessibility. The average worker in the Analysis Area would be able to access 855,000 jobs via a 20-minute automobile commute and 310,000 via a 40-minute transit commute. While disparities in access across income categories would not be eliminated, they would not be made worse by the modeled improvements.

The improvements modeled in the Final Package scenario would broaden the labor pool from which employers in the Impact Analysis Area could draw workers. As a result of transit improvements and TDM measures, an additional 200,000 workers could reach job sites near Assembly Row and Community College in less than a 40-minute transit commute (as compared to Scenario 1). Employers near Sullivan Square would have access

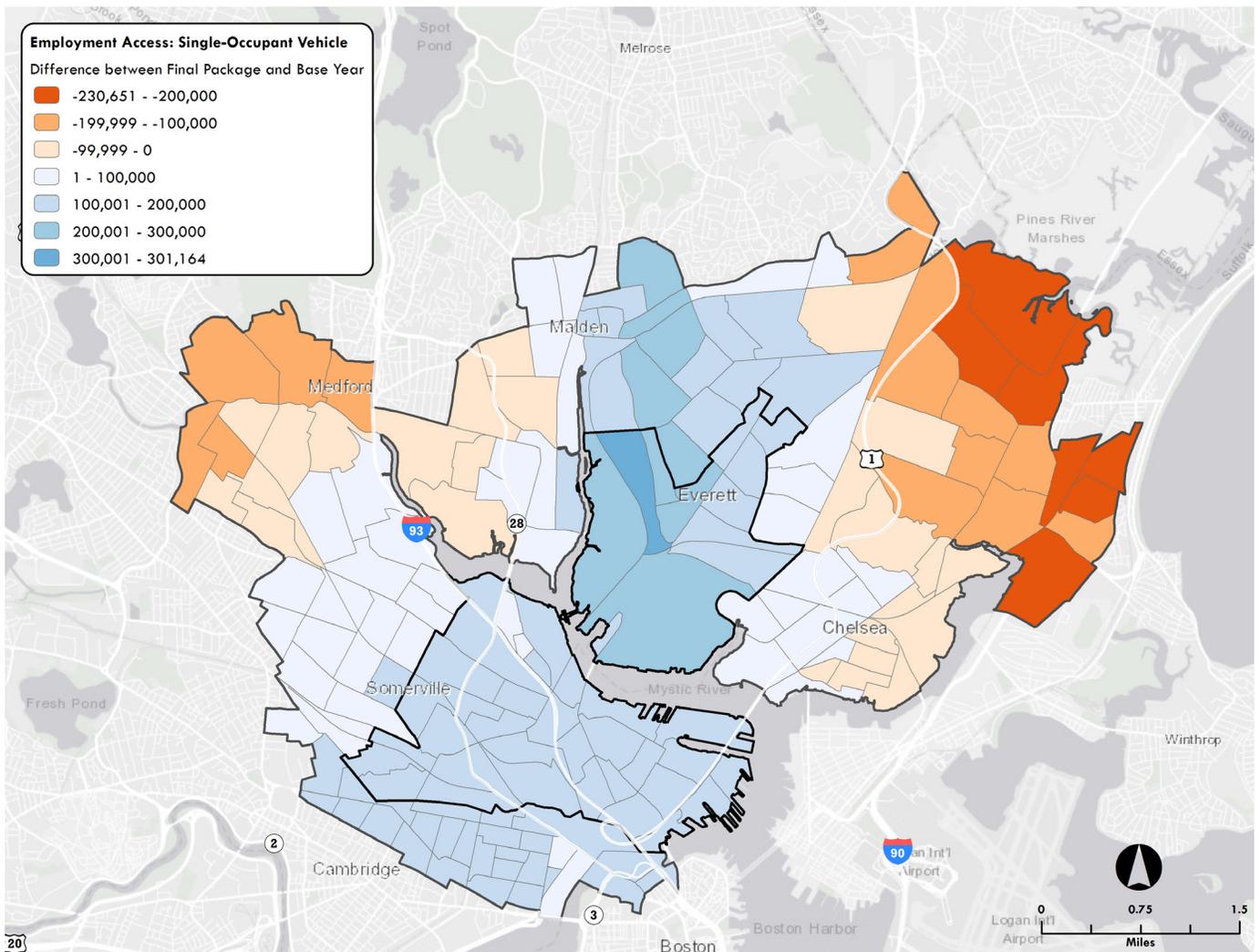
Figure 21. Labor force Access: Walk-Access to Transit Map



to an additional 50,000 workers within a 40-minute transit commute, as compared to Scenario 1. Job sites near Lechmere, Kendall, and North Station would see similar increase in the number of workers living within a 40 minute transit commute. As a result of this increased accessibility to labor via transit, this area would become an even more attractive area for economic development, as employers seek to locate in areas where they have maximum access to the region's skilled labor force.

These results demonstrate that the transportation improvements examined, especially the transit and TDM measures, would substantially improve access to opportunity and labor for workers and employers in the study area, and would not have a disproportionate negative impact on low-income residents.

Figure 22. Employment Access: Single Occupant Vehicle Map



FUNDING OPTIONS

Implementing the recommendations will require a variety of funding mechanisms, both traditional and innovative, and include state, municipal, and private sector resources. The following provides a brief overview of the various potential funding mechanisms decision makers could use to fund transportation infrastructure. Not all of the following funding options are appropriate for all infrastructure improvements, and several new ideas at the end of this chapter would require changes to Massachusetts laws or regulations. See Appendix 4 for additional information.

FEDERAL SOURCES

Two primary means of federal funding:

1. Formula Funding from the Federal Highway Administration (FHWA)
2. Federal Transit Administration (FTA) that is programmed by the Boston Metropolitan Planning Organization

Federal funding comes to the Boston region by two primary means: formula funding from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) that is programmed by the Boston Metropolitan Planning Organization, and occasional funding through various competitive federal discretionary funding programs. The primary pathway through which federal funding is allocated is through the Boston MPO, which is responsible for conducting the federally required metropolitan transportation planning process for the Boston area. For example, the MPO has invested \$158 million in federal funds to help finance the MBTA Green Line Extension in Cambridge, Somerville and Medford.

The federal government also provides grants through a number of discretionary programs. For example, the Better Utilizing Investments to Leverage Development program (formerly called Transportation Investment Generating Economic Recovery [TIGER]) grant program has provided approximately \$500 million per year across the country to support a variety of innovative transportation projects, including multi-modal and multi-jurisdictional projects that can be difficult to fund through traditional federal programs. MassDOT has applied for two TIGER grants in the study area in the past, neither of which were awarded funding. In 2015, MassDOT applied for TIGER funding to construct the Silver Line Gateway bus project from Logan Airport to Chelsea. In 2009, the City of Somerville applied for TIGER funding to help construct the Somerville Community Path extension.

STATE FUNDING SOURCES

State transportation capital funds are typically allocated by the Legislature and Governor via bonds that authorize how the funding can be used. MassDOT oversees most of this funding.

MassDOT's Capital Investment Program (CIP) outlines a process for prioritizing capital spending from multiple state and federal sources. The CIP organizes projects into three priorities: Reliability, Modernization, and Expansion. Investments focus first on fixing and modernizing existing transportation assets. Expansion projects, which include many of the Working Group's recommendations, comprise a smaller portion of available funds.

Operating funds for the MBTA are derived from several sources, including municipal assessments determined by formula. For fiscal year 2019, the City of Boston provides \$88 million annually to the MBTA, while Somerville provides roughly \$5.3 million and Everett provides \$3 million.

In addition to MassDOT, several state agencies administer grants that could be used to fund transportation infrastructure. The most significant is the MassWorks Infrastructure Program, administered through the Executive Office of Housing and Economic Development (EOHED).

MUNICIPAL SOURCES OF FUNDING

Municipalities have several options to fund certain transportation infrastructure. The state-administered Chapter 90 formula funding program for street and sidewalk repair is the most commonly used. For Fiscal Year 2019, the City of Boston received \$14.7 million in annual Chapter 90 allocations, while Somerville received \$1.1 million annually and Everett received nearly \$646,000.

Municipalities also commonly utilize federal Community Development Block Grant (CDBG) funds to help pay for certain transportation improvements. Again, street and sidewalk repairs are the most common application of CDBG funds.

Municipalities can also leverage their own tax resources by making direct payments from their general funds or issuing bonds to finance local infrastructure improvements. State law does not typically allow municipal governments to issue debt for capital investment on state property or for state projects. The City of Somerville has secured permission from the Massachusetts Legislature via Home Rule Petition to borrow for investment in certain state assets and projects, including a \$50 million contribution to project costs for the Green Line Extension.

Massachusetts law allows municipalities to pursue "tax increment financing," under which debt is issued against future projected tax revenues.

Tax increment financing tools are designed to capture incremental growth in tax revenues in order to pay for infrastructure improvements. District Increment Financing (DIF) is the locally driven public financing alternative available to all cities and towns in the Commonwealth. The City of Somerville has utilized DIF borrowings with great success in Assembly Square, where future incremental tax revenues were used as collateral to underwrite \$25 million in utility and street improvements.

DEVELOPER FUNDING

Contributions from the private sector for transportation infrastructure typically come in the form of mitigation for the impacts from new development. To date in Massachusetts, these contributions have been secured on a project-by-project scale by municipalities and state agencies. Municipalities do not have great flexibility under Massachusetts law to levy formula-based impact fees, and generally rely on discretionary land use permits and voluntary development agreements to secure private mitigation payments for infrastructure. The project-by-project approach does not facilitate the aggregation of contributions towards regional solutions.

STATE LEVEL MITIGATION (MEPA).

The Massachusetts Environmental Policy Act (MEPA) ensures that the environmental and transportation impacts of development projects and other activities that exceed MEPA review thresholds are appropriately mitigated by the developer. Common transportation-related thresholds which trigger MassDOT's Public/Private Development Unit's involvement of a development proposal include generation of 2,000 or more new daily trips; construction of 300 or more new parking spaces; the combination of 1,000 or more new daily trips and 150 or more new parking spaces; and the creation of five or more acres of impervious surface area.

In coordinating and consulting with developers and other project stakeholders, MassDOT works to ensure multimodal transportation goals are being advanced through the project. This includes the incorporation of transportation demand management measures and other strategies, such as the construction or reconstruction of bicycle and pedestrian facilities. Projects with larger anticipated impacts on nearby transportation systems—i.e. on roadways, bus, and rail transit routes—are often required to provide mitigation in the form of roadway reconstruction, intersection signalization and signal optimization, incorporation of transit facilities such as bus stops within or adjacent to the development site, and direct funding to transit agencies to improve services.

LOCAL MITIGATION.

Municipalities have their own development review processes and usually require that large developments conduct impact studies and mitigate impacts as a requirement to receive a building permit or other local approval. In Boston, for example, the city requires a development to have a Transportation Access Plan Agreement (TAPA) which consists of various agreed upon mitigation measures negotiated between the city and developer. In Cambridge, a development agreement with a large landowner in Kendall Square in 2016 was utilized to create a revenue stream to help fund \$6 million worth of service reliability improvements to the MBTA.

NEGOTIATED CONTRIBUTIONS (PUBLIC-PRIVATE PARTNERSHIP).

Although formalized processes, such as MEPA, are avenues for developers to contribute to the funding of transportation infrastructure, they can also negotiate directly with state and local governments to fund infrastructure. The Local Infrastructure Development Program is a tool available under current state law by which a landowner or group of landowners can endorse a voluntary tax surcharge on their property to help pay for infrastructure improvements benefiting the property.

MASSACHUSETTS GAMING COMMISSION & **ENCORE BOSTON HARBOR**

As part of both Encore Boston Harbor's gaming license and MEPA requirements, the resort is contributing a significant amount of transportation-related mitigation. Additionally, the Gaming Commission oversees a Community Mitigation Fund that is funded by all gaming operations in the Commonwealth.

ENCORE BOSTON HARBOR MITIGATION.

Encore is providing payments for a variety of infrastructure and TDM services as part of the commitments necessary to secure permissions to build. Over fifteen years, this includes \$57.5 million for road infrastructure, \$58.1 million for water transportation and shuttle buses, and \$7.3 million for Orange Line service improvements, and other improvements that total \$265 million.

COMMUNITY MITIGATION FUND.

As part of the effort to help offset impacts that may result from the development and operation of gaming facilities, in addition to project-specific mitigation, the Massachusetts Legislature created the Community Mitigation Fund as part of the Expanded Gaming Act. The Community Mitigation Fund is designed to help communities offset a wide range of such costs including local and regional education, transportation, infrastructure, housing, environmental issues and public safety. In 2017 the City of Everett received \$150,000 to support a bike sharing system and an additional \$150,000 to design exclusive bus lanes in the city. The City of Boston received \$250,000 to support its planning for the Rutherford Avenue corridor. The City of Somerville received two grants totaling \$250,000 to study and plan for improvements to Route 28 and Route 38.

COMMUNITY CASINO MITIGATION PAYMENTS.

Encore Boston Harbor has also entered into Host Community (with Everett) and Surrounding Community agreements to provide annual mitigation payments of \$5.25 million to Everett, \$2 million to Boston, and \$650,000 to Somerville. Such amounts are in addition to the value of annual real estate taxes received by Everett, pre-opening payments received by the communities, any payments related to the planned Rutherford Avenue and Sullivan Square long-term improvement project, and other mitigation such as vouchers to area businesses.

GAMING LICENSE MITIGATION "REOPENER."

In addition to the above commitments, Encore Boston Harbor is also required to use its best efforts to work with the MBTA, MassDOT, and DCR on any future plans to create mass transit opportunities that serve the Gaming Establishment and to consider making a reasonable contribution to the cost of implementation of such mass transit opportunities. The Gaming Commission has also reserved the right to modify or amend Encore Boston Harbor's mitigation requirements to avoid or minimize impacts to the environment.

INNOVATIVE IDEAS **FOR FUNDING AND IMPLEMENTATION**

One of the goals of the Lower Mystic Regional Working Group is to foster cross municipal coordination in addressing the impacts of new development in the Sullivan Square area on the transportation system and to seek out additional sources of funding. While not making any specific recommendations, this section explores new ideas to support this type of coordinated funding and implementation at the local level. These ideas are either non-traditional in Massachusetts or would require changes in state laws or regulations.

REGIONAL MITIGATION FUND.

Recently, Assembly Station on the Orange Line in Somerville and the Boston Landing Commuter Rail station in Brighton have exemplified the use of developer contributions to help fund one-time transit improvements such as infill stations. However, the ability for state or local mitigation processes to require multiple developers to pool funding for transportation investments with significant capital costs (beyond what is reasonable for one developer to fund) is limited.

A Regional Mitigation Fund, or some other type of developer contribution program, would enable developers to deposit mitigation funding into a pool for future transportation investments. This would allow large-scale capital construction projects to proceed when the travel demand for such an investment is reached and/or a certain funding contribution threshold is realized. Contributions to the fund could be limited to a pre-defined geographic area, such as a municipality or within a threshold distance of a roadway or transit station.

An agreement between the MBTA, the City of Cambridge, the Cambridge Redevelopment Authority, and developer Boston Properties to facilitate the approval for one million square feet of development in Kendall Square may serve as a model for this type of approach. See Appendix 7 for this agreement.

MITIGATION PAYMENTS DIRECTED TO MBTA FOR OPERATIONS.

Short of a pooled mitigation fund or negotiated agreement like the Kendall Square example above, opportunities exist to improve the process for new developments to provide funding to the MBTA to both mitigate service impacts and to increase MBTA service (or make it more reliable) to meet the mode share goal of the development. Encore Boston Harbor's payments for improved Orange Line service provide a strong example for this mechanism. See Appendix 8 for this agreement. Cities and towns, working with the MBTA, could identify a standard practice for how new developments will quantify their impact on MBTA service and contribute accordingly to mitigate that impact.

SPECIAL ASSESSMENT DISTRICT.

While the agreement in Kendall Square mentioned above is a good start in formalizing private commitments to future identified MBTA improvements, it could be challenging to structure such an agreement involving multiple property owners or multiple municipalities. It also only captures value from new development, not already existing land uses that would also benefit from new infrastructure. Some states allow local governments to create Special Assessment Districts, whereby the government entity (city, town, county) identifies the geographic boundaries of the district based upon the benefit of the infrastructure improvement. A special tax is levied on properties that would benefit from the public investment. Assessments typically require a majority vote of affected property owners in order to be implemented.

REGIONAL BALLOT INITIATIVE.

Municipalities in Massachusetts have limited ability to raise revenue through anything other than property taxes. In many parts of the country, transportation improvements are funded via ballot initiatives that link the new or increased tax to the improvement.

Allowing municipalities a broader range of opportunities to raise revenue through additional local taxes could provide funding for transportation improvements, but new legislation would be required to enable this.

SUPPLEMENTAL INFRASTRUCTURE FINANCING FOR TRANSPORTATION.

In the 2015-2016 legislative session, the Massachusetts State Legislature considered (but did not approve) a bill to create a new value capture mechanism called the Supplemental Infrastructure Financing for Transportation (SIFT) program (proposed Chapter 40X of the General Laws). Like DIF, SIFT would capture incremental growth in property tax revenues from the existing municipal levy. However, SIFT revenues would be dedicated to state or regional transportation projects. In order to facilitate the use of property tax increment for transportation projects, the proposed legislation would create a process for collaboration between municipalities and the project sponsor, such as the MBTA, a Regional Transit Authority (RTA), or MassDOT.

KEY FINDINGS

The Lower Mystic area is one of Massachusetts' biggest growth centers.

Substantial areas of underutilized industrial land and growing market demand for housing and commercial space near the core of the region suggest that development pressures here are likely to rise. Meanwhile, Boston, Somerville and Everett are developing plans to take advantage of this market interest to create more homes and jobs for local residents. If these plans are fully realized in the coming decades, the Scenario Focus Area could gain up to 27,000 new households and 55,000 new jobs, with the Encore Boston Harbor project representing just a fraction of the total. This future growth could meet 5% of the state's housing needs and accommodate 20% of projected statewide employment from 2010 -2040, but not without challenges. That much growth could add almost 500,000 daily trips to and from the study area (a 34% increase from 2010), straining the transportation system in the future.

Roadway and highway improvements alone produce few benefits for the study area.

The study assessed various ideas for relieving roadway congestion in the Lower Mystic area, including multiple on- and off-ramp configurations and conversion of the HOV lane on I-93 to a general purpose lane. Unfortunately, none of the roadway capacity improvements had an unequivocally positive effect on congestion relief. In some cases, the traffic bottleneck simply moved to a different part of the study area, pushing the problem from one neighborhood to another. New roadway connections may also attract drivers away from other congested areas, resulting in some benefit to the overall roadway network, but little relief for local drivers.

For example, a northbound off-ramp from I-93 to Alford Street improved traffic delay slightly at Sullivan Square but worsened congestion on Broadway in Everett. Converting the I-93 HOV lane to a general purpose lane improved highway speeds for commuters driving from northern suburbs, but worsened traffic delays in Sullivan Square. A new I-93 North on-ramp near City Square could slightly reduce traffic delays in Sullivan Square, but the impacts on Rutherford Ave and I-93 require further study to better understand.

Model results did show that with lower automobile ownership and more convenient transit options, many residents and workers would avoid driving for certain trips. The corresponding reduction in cars coming and going would result in a noticeable and widespread reduction in neighborhood traffic.

The MBTA Orange Line is the backbone of mobility in this area, and improved frequency of service will make or break the Lower Mystic study area.

The Orange Line is already crowded during peak periods. With substantially improved feeder bus service and major new development immediately adjacent to MBTA stations, there will be many more people riding the Orange Line. Morning rush-hour boardings north of Community College could increase by as much as 43%.

While the MBTA already plans to increase train frequency to four and a half minutes, it may not be enough. To accommodate the projected level of demand, according to the model using the Planned Growth projections, it could be necessary to run Orange Line trains as frequently as every three minutes during rush hour. In addition to meeting new local demand for transit trips, riders all along the Orange Line would benefit from more frequent, more reliable, and less crowded trains. These improvements could be enough to entice 24,000 new riders to take transit, system-wide, and the increased capacity would be sufficient to accommodate those new trips.

Improved local bus service offers a large return on investment and a short implementation timeline.

Most of the study area is beyond walking distance from the Orange Line or commuter rail stops. Buses are the principal transit option for most residents in the Impact Analysis Area, and the only option available to Everett residents. Some bus routes are currently over capacity. The bus improvements that were modeled—improved frequency, speed, coverage, connectivity, and reliability—provided substantial benefits, including faster travel times, less overcrowding, and improved access to jobs and opportunities. By attracting more residents and workers to take transit, a network of new and substantially improved bus services could serve 100,000 new daily transit trips, reducing automobile mode share by 4%.

While expanded local bus service does not require securing new rights-of-way or building rail lines and stations, it is not without capital expense. More frequent bus service requires a larger bus fleet, and corresponding storage and maintenance facilities. However, the MBTA's existing bus facilities are already at capacity, so a substantial expansion of the bus fleet would also require investments in new garages and maintenance facilities.

Bus rapid transit in a dedicated right-of-way offers tremendous mobility and equity benefits at an intermediate cost and implementation timeline.

For most transit riders in the study area—including all riders in Everett—a trip to Cambridge or downtown Boston requires at least one transfer, adding time and uncertainty to the trip. One of the most promising options studied was a bus rapid transit line from Everett with two branches connecting directly to Kendall Square and North Station. Using a mix of exclusive and priority lanes, this service could attract 36,400 riders daily, generate 5,200 new daily transit trips, and reduce auto mode share in the study area by 1 percent. By providing a direct trip to downtown, this service would also reduce Orange Line crowding.

Land use policies are essential components of a sustainable transportation system.

The study tested various land use policies and transportation demand management strategies to see what effect they have on travel patterns, transit use, and congestion. It found that the right land use policies substantially amplify the benefits of new transit investments. By attracting households and employers more inclined to use the new transit services, incentivizing alternative modes, and discouraging single occupancy automobile use when other options are available, these policies have a synergistic relationship with infrastructure and service investments.

The most significant benefits occur when new or substantially improved transit service is paired with transit-oriented parking policies such as market-rate commuter parking or reduction of residential parking requirements. By providing additional incentives to avoid driving and take transit instead, these two strategies together would reduce by 45,000 the number of single-occupant vehicle trips to and from the area, while allowing the same amount of housing and job growth. This reduction in automobile travel was found to be enough to measurably reduce traffic delay at Sullivan Square and the other major intersections that were studied, resulting in a 5 percent reduction in auto mode share in the study area.

While not explicitly modeled here, evidence from elsewhere also demonstrates other land use and TDM policies can reduce demand for automobile trips: a mix of uses so that employees and residents can walk to local destinations; higher densities so that there are abundant destinations nearby; higher levels of affordable housing for transit-reliant populations more likely to use the new services; discounted transit passes; alternative work schedules; and a compact, pedestrian friendly street grid so that residents and employees find it convenient and safe to walk to nearby destinations. These important principles can be advanced in a variety of ways: through local zoning and permitting, the MEPA process, and disposition policies for public land.

A complete walking and biking network requires new connections both large and small.

Improved pedestrian and bicycle facilities received a significant amount of support through the study's public engagement process. The area lacks a connected network of dedicated bike and pedestrian paths, and only a few local roads are fully "complete." These features are essential parts of a sustainable transportation system. Easy and safe connections to transit stops are needed to achieve maximum ridership, and regional connections can provide an alternative to transit or driving.

The study evaluated some potential improvements, including shared-use paths, Complete Streets improvements, and pedestrian bridges over the Malden and Mystic rivers. To be successful, these regional connections should be complemented by a pedestrian- and bike-friendly local street network, which can only be developed block-by-block.





RECOMMENDATIONS

The Lower Mystic Regional Working Group recommends that the Commonwealth, regional entities, and local jurisdictions implement plans and policies to support walkable, mixed-use, mixed-income growth in the Study Area, and continue to pursue strategies to align infrastructure improvements to support these growth policies.

The Working Group examined a range of infrastructure and policy alternatives to improve transportation, mobility and connectivity in and around Sullivan Square, including in the communities of Charlestown, Everett, and Somerville. As the Key Findings indicate, there is no singular solution to solving this area's transportation challenges. However, the Working Group concluded that a systematic and holistic approach to transportation for this area is essential to ensure a more desirable transportation future for the study area. No one action will address the numerous issues facing the study area. However, multiple actions sequenced deliberately and when considered together can improve the transit experience, reduce travel times, decrease traffic

Figure 29. Study Area Improvements

STUDY AREA IMPROVEMENTS

To improve the transit experience, reduce travel times, decrease traffic congestion, improve access to jobs, and enhance the area's quality of life in the Study Area, the Lower Mystic Regional Working Group concluded:



Transit is Key

- Invest in the Orange Line to ensure capacity is sufficient to meet future demand
- Improve local bus services through additional routes, dedicated lanes, and priority signals
- Extend Bus Rapid Transit from Chelsea Station through Everett and Sullivan Square to Kendall Square and North Station.

Transit needs transit-oriented local development policies to flourish

- Substantially reduce the amount of parking in new residential developments within walking distance to transit
- Enact innovative transportation demand management policies to limit single-occupant vehicle commuter trips to and from major new job centers in the Lower Mystic area
- Ensure the Lower Mystic area remains accessible to people across the socio-economic spectrum, while minimizing displacement of current residents
- Create a regional Transportation Management Association (TMA)

Transit improvements can be complemented by additional road and path improvements

- Continue to develop the regional active transportation network with bicycle lanes and pedestrian paths and bridges
- Ensure all local roadways incorporate Complete Streets elements

Substantial but diversified investment is needed

- Seek comprehensive funding sources to implement this study's recommendations, including innovative means of financing
- Align developer transportation mitigation with this study's recommendations

Regional coordination is critical

- Continue Working Group coordination to ensure continued progress on implementation
- Jointly consider further study of Orange Line spur to Everett, I-93 northbound on-ramp at City Square, and modifications to the I-93 southbound HOV lane

congestion, improve access to jobs, and enhance the quality of life for area residents. These actions include transit improvements; infrastructure improvements for roads, paths, and trails; exploration of increased funding from traditional and innovative sources; local policies to encourage density and mobility beyond vehicles; and processes to ensure on-going collaboration and coordination.

TRANSIT SERVICE IMPROVEMENTS

The three recommended transit actions are highly interactive with one another. For instance, increased bus and BRT ridership will place increased demand on the Orange Line. Some BRT service terminating in Kendall Square may take some pressure off of bus service and ridership to Sullivan Square as well as on the Orange Line itself. The extent and amount of bus service will need to be coordinated with the development of BRT services so one does not cannibalize ridership from the other. The Working Group determined it will be important to look further at these three actions in concert and consider their interactions, synergies, and trade-offs.

EXTEND THE BUS RAPID TRANSIT THROUGH EVERETT TO KENDALL SQUARE AND TO NORTH STATION

Bus rapid transit service on dedicated right-of-way could provide high quality transit service from Everett, Chelsea, East Boston, and Charlestown to North Station and Kendall Square. The Working Group identified the potential for service from the Chelsea Station (Silver Line) to Kendall Square via Sullivan Station, and another route extending from Glendale Square in Everett to North Station via Sullivan Station.

Implementation: The mobility benefits of BRT with dedicated right-of-way were demonstrated via modeling results and are a priority recommendation; however, the services were defined only at a conceptual level. Detailed analysis would be needed to determine the feasibility, utility, and cost of various alignment and service frequency options. Further study would be needed to advance this concept to a state where it can be designed and funded. The benefits of this type of service are best realized with sections of dedicated right-of-way for a bus lane. Sections of dedicated right-of-way could include the MBTA Newburyport commuter rail corridor and repurposing parking or travel lanes along Second Street and Broadway in Everett, Rutherford Avenue in Boston, and Washington Street and Inner Belt Road in Somerville. Further study could also determine if phased expansion of BRT service would be feasible, and if so, on what routes and stops.

Next step: MassDOT and the cities should work together to commission a feasibility study to assess routing alternatives, barriers, and capital and operational costs. The Working Group should be invited and empowered to serve as forum for execution of this feasibility study.

Key stakeholder(s): MassDOT, MBTA, Boston, Cambridge, and Somerville

Estimated Cost: Capital \$312 million and annual operating \$32 million

Funding Sources from Similar Projects: The Silver Line Chelsea extension was funded, at a cost of \$56.7 million, by the MBTA (approximately \$49.1 million) and MassDOT (\$7.6 million).

IMPROVE LOCAL BUS SERVICES

The Working Group evaluated a number of improvements to existing bus lines, including new routes, dedicated lanes, increased frequencies, and route alterations. As with the new bus rapid transit concepts, these changes were modeled conceptually.

Implementation: Bus improvements could proceed incrementally, particularly with respect to the timing of improved service frequencies along the Orange Line or future bus rapid transit in the study area. Therefore, a strategic roadmap would be needed to plan for phasing of the recommended bus improvements. This roadmap could have its start, in part, through the MBTA Bus Service Delivery Plan, which is beginning in spring 2018.

To maximize the effectiveness of bus services, bus-only travel lanes must be provided on local roads. Boston, Everett, and Somerville have served as regional leaders on this type of collaboration, and successful pilot projects and partnerships with the MBTA should be celebrated and expanded in the Lower Mystic study area. Partnership strategies for implementing Transit Signal Priority (TSP) technologies at key locally-controlled intersections should be scaled up quickly to maximize the benefit of any bus prioritization lanes like those on Broadway in Everett or Prospect Street in Somerville.

As with increased bus service in other communities, capacity constraints at MBTA bus garages may represent an impediment to certain types of service expansions. In these cases, the MBTA would need to explore opportunities for expansion of garages or new garage construction. The cities of Boston, Everett, and Somerville all host major MBTA garage facilities for bus and rail fleets. Working through the Metropolitan Mayors Coalition, the three cities should collaborate with the MBTA in seeking solutions to any new needs associated with solving regional congestion in and around Sullivan Square.

Next step: The bus improvements identified through this project should be evaluated, and, to the extent feasible, they should be incorporated into the MBTA's ongoing Service Delivery Plan.

Key stakeholder(s): MBTA, Boston, Cambridge, Everett, Somerville, and neighboring municipalities as appropriate

Estimated Cost: Capital \$205 million and annual operating \$23.5 million

Funding Sources from Similar Projects: City of Boston announced in 2018 that it intends to increase parking fines and will use some of the additional \$5 million in revenue to fund dedicated bus lanes, among other transportation improvements.

ENSURE ADEQUATE FREQUENCY AND CAPACITY OF ORANGE LINE SERVICE

The modeling suggests that improving the frequency on the Orange Line beyond the currently planned four and a half minutes (to be completed by 2022) could be necessary to accommodate increased demand associated with new development and feeder bus services. While the MBTA is currently in the process of procuring new trains, the agency's attention to Orange Line capacity should be maintained after that equipment is delivered, so that if development and ridership trends are on track to exceed the new capacity, efforts can be made well in advance to make the purchases and improvements necessary to increase capacity even more.

Implementation: The modeling of Orange Line headway improvements suggested that three-minute headways during peak periods would optimize the benefits of increased frequency, including supporting the increased demands from the proposed expansion of feeder bus service. Even incremental improvements toward that frequency would reduce crowding and improve travel times. However, substantial capital improvements are needed to make this happen. As a first step, MassDOT and the MBTA would be required to perform a complete feasibility analysis and assessment of the number of new cars, signal improvements, operational changes, and facility improvements needed to achieve increased frequencies. Additional transportation modeling would be needed to assess the incremental increases in demand likely to be caused by new development and feeder bus services, and a final headway improvement figure needed to meet that demand and/or allow improvements to be phased in over time. Once the necessary investments and phasing have been further assessed, MassDOT would be able to consider the frequency improvements alongside other priorities for inclusion into its capital planning process.

Next step: Develop scope and budget for feasibility analysis and identify funding sources to conduct that analysis

Key stakeholder(s): MassDOT/MBTA

Estimated Cost: Capital \$400 million and annual operating \$36 million

Funding Sources from Similar Projects: MBTA purchased 152 new Orange Line cars in 2014 at a cost of \$370 million, which will be fully operational by 2023. This project was completely state-funded to allow for vehicle assembly in Massachusetts.

LOCAL DEVELOPMENT POLICIES

The Working Group found that transit improvements and local land use policies can either mutually support one other or work against one another. While highlighting the importance of land use policy action by the three cities, the Working Group emphasized that the enactment of land use policies would work best if timed with the increase in transit availability to ensure that infrastructure investment and policy change work together. The Working Group recognizes that further detailing of and understanding about how TDM measures could be phased over time is essential for ensuring success of the overall approach.

SUBSTANTIALLY REDUCE THE AMOUNT OF PARKING IN NEW RESIDENTIAL DEVELOPMENTS WITHIN WALKING DISTANCE TO TRANSIT

Reducing the amount of residential off-street parking was shown in the model to have a tremendous impact on the number of trips made by single-occupant vehicles. For new residential development, parking requirements should be set at levels that attract car-free households and strongly discourage multiple-vehicle ownership. An emphasis on affordable units will also attract residents who are likely to own fewer vehicles and utilize transit more frequently, while also helping to reduce displacement.

Implementation: Each city should initiate a public process to reduce the residential parking requirements established in zoning and other regulations. The establishment of parking maximums should also be considered. This process would likely involve more analysis of current parking utilization (both on- and off-street) and the likely demand associated with new housing development. MAPC's "Perfect Fit Parking Program" is available to assist communities in conducting this research and analyzing the results. Since residential parking is often a divisive topic within communities, sufficient public engagement utilizing existing data would be necessary.

Next steps: Collect parking utilization data and begin a public process for modifying requirements. Scrutinize current development proposals and strongly encourage developers to reduce on-site parking. Promote the neighborhood benefits of lower parking ratios to the surrounding community.

Key stakeholder(s): Boston, Everett, Somerville, MAPC

DEVELOP AND ENACT EVIDENCE-BASED TRANSPORTATION DEMAND MANAGEMENT POLICIES TO LIMIT SINGLE-OCCUPANCY VEHICLE TRIPS TO JOBS.

Cities should employ a variety of policies that encourage alternative modes of travel to work, especially in future high-growth areas. The modeling indicated that the most impactful way to achieve this objective is to limit commercial parking and eliminate employer-subsidized free parking. Other strategies, such as subsidized transit passes, can complement commercial parking reduction strategies.

Implementation. The modeling utilized a method of applying anticipated future market-rate prices to commercial parking in high growth areas. Requiring employers to create a parking and transportation demand management plan, similar to Cambridge's ordinance, would provide a menu of options to achieve a reduction in single-occupant vehicle trips to work. The most prominent strategy is a combination of limitations on the amount of new parking created as part of new development sites and a requirement that parking be priced at market rates for employees. Another way of accomplishing this reduction in parking is for employers to pass along the cost saving of not building or leasing parking spaces to their staff by providing a financial incentive for employees to not drive and park. This type of commuter benefit program is sometimes referred to as "parking cash-out" and is currently offered by large employers in Kendall Square such as the Massachusetts Institute of Technology. Less effective, but still worthwhile, options include discounted transit passes, emergency ride home services, bicycle commuter amenities, telecommute options, and other incentives. See Appendix 9 for City of Cambridge's Parking and Transportation Demand ordinance.

Next step: The cities should begin the process of adopting new city policies to limit commercial parking. The cities may wish to have further, in-depth discussions with the City of Cambridge to apply lessons learned from their program.

Key stakeholder(s): Boston, Everett, Somerville

STRIVE TO ENSURE THE LOWER MYSTIC AREA REMAINS ACCESSIBLE TO PEOPLE ACROSS THE SOCIO-ECONOMIC SPECTRUM.

Policies should be enacted that limit displacement and ensure inclusive neighborhoods so that vulnerable population groups have access to transit, jobs, and housing. In addition to ensuring equitable access to transportation choices, these policies will also allow the area to attract and retain car-free households which will have less impact on local roadway congestion.

Implementation: The cities should continue to utilize land use policies that promote local accessibility, sufficient density, a mix of uses, and affordable and workforce housing. These policies should involve the preservation of existing subsidized housing, as well as the production of new housing that is affordable to a wide range of income groups.

Next step: Assess existing land use and housing policies, especially affordable housing requirements and incentives, and adjust as necessary. The municipalities can work together through the Metropolitan Mayors Coalition Housing Task Force and utilize the assistance of Governor Baker's Housing Choice Program, with the engagement of the Department of Housing & Community Development, MassHousing, and other agencies.

Key stakeholder(s): Boston, Everett, Somerville, MAPC

OTHER INFRASTRUCTURE IMPROVEMENTS

The Working Group concluded that continued development of an active transportation network and Complete Streets would be a significant driver of improved mobility in the study area. These improvements would increase bicycle and pedestrian mode share for standalone trips; accommodate more frequent, shorter non-motorized trips for shopping and other activities as vehicle use decreases; and work in synergy with transit development by improving first- and last-mile pedestrian and bicycle access.

CONTINUE TO DEVELOP A REGIONAL “ACTIVE TRANSPORTATION” NETWORK

The Working Group recommends continuing to fill in the gaps to create a high-quality, shared-use path system throughout the Lower Mystic area and surrounding communities. Foremost among these improvements is a pedestrian/bicycle bridge over the Mystic River, connecting Assembly Row to the Encore resort. A recent study of this bridge estimated the cost at \$22.6 million and identified the need for the expansion of the head house at the Assembly Orange Line station to create an entrance on the Draw 7 Park side of the station. Other connections which could be developed over time include a pedestrian/ bicycle bridge across the Malden River between Everett and Medford, the Somerville Community Path Extension from Washington Street to Cambridge Crossing, and a connection of the Northern Strand Path across Route 16 to Chelsea. While all of these projects will have only limited impact on congestion, they will enhance mobility options in the study area and advance other goals, such as encouraging more biking and walking and expanding recreational connections, all of which can improve public health.

Implementation: Responsibilities for developing these regional networks belong to a variety of public agencies, including the Department of Conservation and Recreation, MassDOT, and individual cities and towns. These parties should advance the planning, design, and construction of critical missing links through the Boston MPO’s project development process.

Next step: Continue with the study and design process for the Mystic River pedestrian bridge and continue with the planning, design, and construction as needed for other identified links.

Key stakeholder(s): Encore Boston Harbor, Massachusetts Gaming Commission (administrator of the Community Mitigation Fund), Everett, Somerville, Department of Conservation and Recreation, MassDOT, Boston MPO, MAPC

Estimated Cost: Capital \$80 million and annual operating \$50,000

ENSURE ALL LOCAL ROADWAYS ARE COMPLETE STREETS

Complementing an off-road shared-use path network should be safe and comfortable on-road pedestrian and bicycle facilities. Facilities should be context-specific and may include sidewalks, bicycle lanes, buffered bicycle lanes, separated bicycle lanes, traffic-calming strategies, and intersection safety improvements.

Implementation: Using local and state resources, each municipality should continue to construct high quality, safe, comfortable, and accessible facilities on municipally-owned roads.

Next step: Implement municipal complete streets policies and prioritization plans

Key stakeholder(s): Boston, Everett, Somerville

Estimated Cost: Capital \$10 million

DIVERSIFIED AND SUBSTANTIAL FUNDING

The Working Group recognizes that few of these actions can take place without funding, while at the same time acknowledging transportation dollars are in high demand, especially for new initiatives. Thus, the Working Group recommends pursuing both existing and innovative sources of funding to expedite action in the Study Area.

ALIGN DEVELOPER TRANSPORTATION MITIGATION WITH THIS STUDY'S RECOMMENDATIONS

In order to accomplish all of the objectives in these recommendations, and to ensure a sustainable future for Sullivan Square and the surrounding areas of Boston, Somerville, and Everett, it would be necessary for all funders to contribute to the effort. Increased use of developer mitigation investments, not only from MEPA-eligible projects, but from locally permitted projects as well, can help ensure adequate funding is available for improvements above and beyond existing state and federal sources.

Implementation: Mechanisms to regionally coordinate or pool development mitigation funds to support the infrastructure recommendations should be pursued.

Next step: Everett, Somerville, Boston, MassDOT, MBTA, and MAPC would coordinate and discuss timing and appropriate mechanisms to carry out implementation steps.

Key stakeholder(s): Boston, Everett, Somerville, MassDOT, MBTA, MAPC

SEEK COMPREHENSIVE FUNDING SOURCES TO IMPLEMENT THIS STUDY'S RECOMMENDATIONS

As noted above, existing federal and state funding sources can only provide a partial solution to implementing the recommendations. Additional funding mechanisms should be explored and developed, especially as other regional and statewide needs will affect availability of federal and state funds and the pace of investment. These additional mechanisms could include utilizing value capture techniques (while recognizing the importance of funding regular municipal services), as well as creating new funding sources through local or regional ballot initiatives.

Implementation: Establish priorities and begin the process of seeking state and federal funds. Hold conversations with local, regional, and state leaders about additional funding tools.

Next step: Everett, Boston, Somerville, MassDOT, and MBTA would coordinate and discuss timing and appropriate mechanisms to carry out implementation steps.

Key stakeholder(s): Boston, Everett, Somerville, MAPC, MassDOT, MBTA, Gaming Commission

PROCESS AND COORDINATION

Lastly, the Working Group recognizes that continued coordination is essential for moving these recommendations forward in a holistic way, taking into account timing, sequencing, funding sources, technical feasibility, and other factors. Thus, the Working Group recommends these two process measures.

CREATE A REGIONAL TRANSPORTATION MANAGEMENT ASSOCIATION (TMA)

A TMA, whether a newly-created entity or an expansion of an existing one, can play a critical role in ensuring that employer-funded transportation services provide maximum benefit for employees and the broader community. A regional TMA or consortium of more localized TMAs in this area could work with the participating municipalities and proponents of major developments in all three cities to conduct service planning, joint procurement and service delivery, and other coordinated efforts. A focus of employer-funded shuttles and mobility services should be on filling gaps that the MBTA is unable to fill after an evaluation of potential new service.

Implementation: The cities would work together and develop a coordinated strategy that ensures future development and large employers participate in the TMA. Encore Boston Harbor is obligated under its state permits to establish a TMA. Another nascent TMA in Assembly Square has been recently formed and may serve as an instructive case for study and documentation. The potential exists for these two entities to form a nucleus of coordinated, demand-side mobility management efforts in the Lower Mystic.

Next Step: Initiate a process to explore the structure and function of a multi-municipal TMA focused on the study area, involving a wide variety of stakeholders including development proponents and existing TMAs nearby.

Key stakeholder(s): Boston, Everett, Somerville, and other communities, as applicable; major existing employers and proponents of new developments.

CONTINUE WORKING GROUP COORDINATION TO ENSURE CONTINUED PROGRESS ON IMPLEMENTATION

The Working Group should meet periodically to discuss immediate and longer-term next steps, progress, and coordination for the various initiatives identified in these recommendations.

Implementation: MAPC should coordinate convening the Working Group and any other relevant stakeholders on a periodic basis.

Next step: MAPC to convene Working Group once or twice per year.

PROJECTS FOR **FUTURE CONSIDERATION**

As the Working Group modeled and analyzed the different alternatives, several infrastructure elements were deemed to be worthy of study as part of future planning efforts but were not included in the recommendations section below because of cost, feasibility, or inconclusive modeling results.

ORANGE LINE SPUR ORIGINATING AT SULLIVAN SQUARE

The Working Group analyzed several versions of an Orange Line spur extending from the existing Sullivan Square station. All three iterations (an extension to Route 1, an extension just to Glendale Square, an extension just to Route 16) that were tested showed robust ridership and reductions in auto mode share from 4 to 5 percent. However, the large cost of the spur alternatives, ranging from \$1.25 billion to \$5 billion in capital cost with annual operating costs between \$35 million and \$50 million, made the Working Group believe that this level of investment was much longer term in nature and needed further conceptual study. Additionally, a spur line off the Orange Line would reduce the overall frequency of service for stations north of Sullivan Square, as a percentage of trains are diverted to service the new spur line. The overall cost, feasibility, and impact on the entire Orange Line need additional study to advance this concept. In the meantime, the City of Everett requests that actions are not taken to preclude an Orange Line spur in the future. Specifically, the city requests that the MBTA reserve space at Sullivan Square station to accommodate a conjoining spur line as improvements are made to the station, that space for an expanded train bridge over the Mystic River be maintained, and that the commuter rail corridor west of the casino maintain space for additional rail tracks in the future.

I-93 ON-RAMP AT CITY SQUARE

The Working Group analyzed several highway improvements, and the most promising at relieving congestion to Rutherford Avenue and Sullivan Square was a new I-93 on-ramp in the City Square area at the intersection of Rutherford Avenue and the ramp to Route 1, potentially with a connecting ramp that starts at the I-93 south on ramp close to the North Washington Street and Chelsea Street intersection. The modeling results showed this type of on-ramp could improve some intersections but worsen conditions for others along Rutherford Avenue. It may also attract motorists from other corridors who perceive the new on-ramp as a faster route to access I-93 north. Additionally, the weaving impacts of a new on-ramp merging onto I-93 need additional analysis. While conceptually an attractive idea to move traffic off of Rutherford Avenue that is traversing the corridor to access I-93 north at exit 29 in Somerville, it needs additional study to better quantify the benefits to Rutherford Avenue and potential impacts to I-93.

I-93 SOUTHBOUND HOV LANE CONVERSION

The Working Group also explored converting the I-93 southbound high-occupancy vehicle (HOV) lane to a general traffic lane because currently the HOV lane is not utilized to its full capacity. While the Working Group remains strongly committed to encouraging multiple occupancy vehicle use, the HOV lane could be studied across a range of options, including but not limited to a dedicated bus lane, a general traffic lane, a pilot general traffic lane during the Washington Bridge Construction, and/or a pilot for various demand management mechanisms.

IMMEDIATE NEXT STEPS

With new development occurring, it's an exciting time to live and work in the Lower Mystic Area. Future projects must be cognizant of the relationship between the improvement of transit options and transportation demand management measures to decrease single-occupancy vehicle use. Advancement should be commensurate between these areas to maximize the synergies between them. Given that not all recommendations can be advanced simultaneously, the Working Group recommends the following immediate next steps for 2018 and 2019.

- Conduct a planning process to assess the feasibility and prepare conceptual designs for transit improvements recommended in this report and how they link and are sequenced with enactment of local parking and other transportation demand management policies. This report should further detail bus and BRT routes, model and refine interactions among local bus routes, bus rapid transit, and the Orange Line. Attention should also be given to the Orange Line capacity necessary to accommodate growth in development and transit ridership in the area and along the line as a whole.
- Coordinate these recommendations with other current and near-term future planning processes such as Focus 40, the MBTA Bus Service Delivery Plan, Rail Vision, and municipal planning efforts.
- Develop municipal plans to implement appropriate parking policies for both residential and commercial uses.
- Identify ways to coordinate individual development project mitigation funds for regional investment, including transit, and/or designing a regional transportation mitigation process.
- Work to incorporate these recommendations, where appropriate, into future MEPA certificates for development in this area.
- Continue to meet on a periodic basis to discuss and track implementation of these recommendations.

Oak Grove
Oak Grove

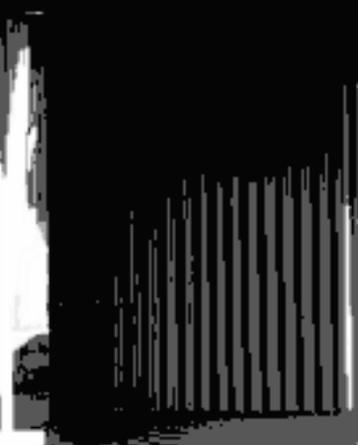
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LINE

OUTBOUND/OAKGROVE

TRAIN SERVICE



LIST OF APPENDICES

Appendix 1: Technical memorandum summarizing each modeling scenario.

Appendix 2: Matrix summarizing modeling results

Appendix 3: Encore Resort Section 61 Findings

Appendix 4: Funding options research memorandum

Appendix 5: Telecommuting research memorandum

Appendix 6: List of current Long Range Transportation Plans

Appendix 7: Developer agreement example: Kendall Square Transit Enhancement Program Memorandum of Understanding

Appendix 8: Developer agreement example: Encore-Orange Line Operations

Appendix 9: TDM ordinance example: Cambridge Parking and Transportation Demand Ordinance

Appendix 10: Lower Mystic Regional Working Group Community Engagement Survey



CENTRAL TRANSPORTATION PLANNING STAFF

Staff to the Boston Region Metropolitan Planning Organization

DRAFT TECHNICAL MEMORANDUM

DATE: Ongoing
TO: Ethan Britland, MassDOT OTP
FROM: Mark Abbott and Scott Peterson
RE: Lower Mystic Regional Working Group: Alternative Descriptions

The Lower Mystic Regional Working Group (LMRWG) is developing and studying transportation improvements that can support sustainable redevelopment and economic growth for the Lower Mystic River area. This area includes parts of Boston, Everett, and Somerville and is centered on the transportation hub of Sullivan Square (see Figure 1). The study area has seen considerable growth in traffic, transit, and both commercial and residential development in recent years which is expected to continue.

To accommodate this future growth, the LMRWG will analyze the impacts of planned development in the area and test various transportation infrastructure and policy proposals to address these impacts for all modes (i.e. pedestrian, bicycle, vehicle, and transit) in the study area. Up to twelve alternatives will be run and analyzed to test various infrastructure and policy improvements using the Boston Region MPO's Regional Model. A calibrated model set, which includes detailed transportation data of the study area, has been created to test these alternatives.

Currently, the technical staff of the Working Group (CBI, CTPS, MAPC, and OTP) has identified eight infrastructure and policy alternatives to test and analyze, as shown in Table 1. (Please see Appendix A for a matrix of alternatives presented to the LMRWG Committee on 3/6/17.) Table 1 also provides a brief description and estimated cost of each alternative. The cost estimate is an ongoing effort and could be updated as further information is provided.

The staff has coordinated and reviewed the proposed alternatives with various stakeholders and the MBTA. Some of the alternatives include sensitivity analyses to provide a closer look at various components of the alternative. This memorandum describes each of the proposed alternatives, including the Future No Build. Each of the alternatives was developed with the aim of assessing the individual and collective benefits of component projects

Lower Mystic Regional Working Group
Study Areas -- DRAFT for staff review

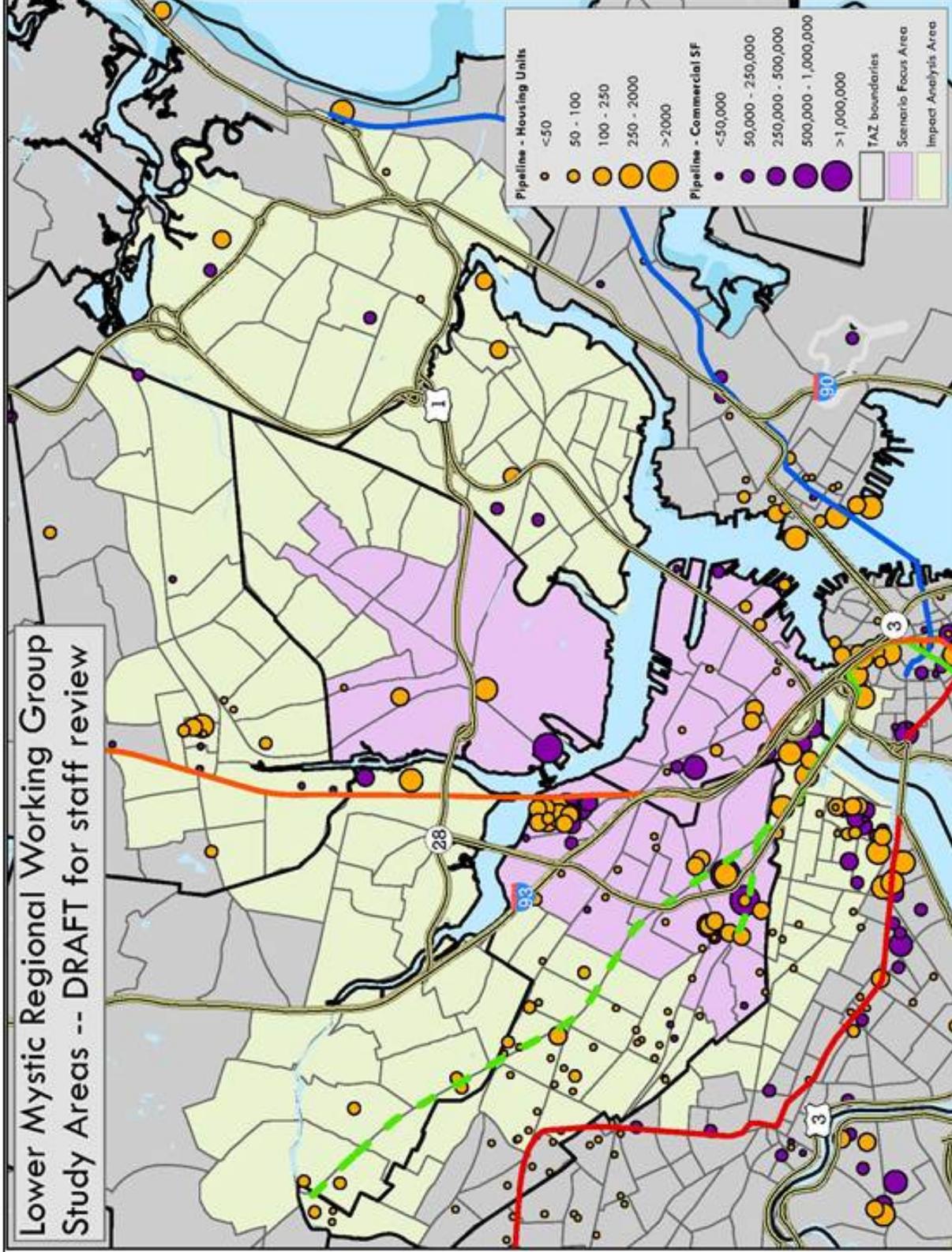


FIGURE 1
Study Area

Lower Mystic Regional
Working Group

Table 1 – Summary of Alternatives

Alternative	Description	Cost
“0”: No-Build	<ul style="list-style-type: none"> No-build LRTP 	N/A
1: Planned Growth	<ul style="list-style-type: none"> A revised land use scenario developed by MAPC. 	N/A
2: Sullivan Square/ Rutherford Avenue Redesign	<ul style="list-style-type: none"> Grade separation at Sullivan Square: one northbound and two southbound underpass lanes to alleviate surface traffic at Sullivan Square. Grade separation at the Austin Street: underpass will be maintained but modified to two-lanes in each direction, northbound and southbound. 	<ul style="list-style-type: none"> \$142,000,000
3: TDM/Infrastructure Light	<ul style="list-style-type: none"> Low-cost bus-improvements (new buses and maintenance facility), bicycle and pedestrian improvements, telecommuting, flexible work schedules, residential parking constraints and commercial parking price increases (to \$22/day) in some TAZs. 	<ul style="list-style-type: none"> \$174,100,000
4.1: TDM/Infrastructure Light with Sensitivity Testing	<ul style="list-style-type: none"> Same as above but tests constraining ONLY residential parking to assess its separate impact. 	Same as Alt. 3
4.2: TDM/Infrastructure Light with Sensitivity Testing	<ul style="list-style-type: none"> Same as above but tests ONLY commercial parking price increases to assess its separate impact. 	Same as Alt. 3
5: Ramps and Lanes	<ul style="list-style-type: none"> A new I-93 on-ramp at City Square. An extended I-93 off-ramp at Exit 28 to bypass Sullivan Square. Converting the existing southbound HOV lane to a general purpose express lane. 	<ul style="list-style-type: none"> \$48,400,000 \$64,700,000 \$1,000,000 to \$2,000,000
5.1: Ramps and Lanes	<ul style="list-style-type: none"> Same as above but eliminates the extended I-93 off-ramp at Exit 28 to bypass Sullivan Square. 	<ul style="list-style-type: none"> \$48,384,000 \$1,000,000 to \$2,000,000
6: Buses and Trains	<ul style="list-style-type: none"> Green Line Extension Phase II to Mystic Valley Parkway (Route 16). New commuter rail stop at Sullivan Square. Silver line Extension from new Chelsea station and Glendale Square in Everett to North Station and Kendall Square. 	Work in Progress
6.1: Buses and Trains	<ul style="list-style-type: none"> Same as above but includes residential parking constraints and commercial parking price increases (to \$22/day) in some TAZs. 	Work in Progress
7: Ride, Walk, and Bike	<ul style="list-style-type: none"> Separated bike/pedestrian facilities through parts of the study area connecting to regional trails, pedestrian bridges over the Mystic and Malden Rivers, and the addition of an infill “Rivers Edge” Orange Line Station. Orange Line headway improvements to 3 minutes 	Work in Progress
8: Orange Line Spur	<ul style="list-style-type: none"> A new Orange Line branch rapid transit service that would parallel the existing Newburyport/Rockport Commuter Rail ROW from Sullivan Square Station to Route 16 before entering a tunnel with a terminus near Route 60 and five new stations 	<ul style="list-style-type: none"> \$3,200,000,000

A preferred alternative or alternatives for the study area can be created using the best ideas and lessons learned from the alternatives described in this memo and those that may still be developed.

Alternative “0”: No Build LRTP

The No Build Long Range Transportation Plan alternative reflects conditions associated with the Boston Region MPO’s 2040 LRTP. It includes the LRTP’s projected land use and identified transportation projects. There are a total of 114 projects; 68 highway related projects, 42 transit related projects, and four bike and pedestrian projects. (See Appendix B for a list of the LRTP’s major infrastructure projects.)

This alternative also includes State Implementation Plan (SIP) mitigation projects — the Green Line extension with added off-peak service, the Fairmount Line with added shuttle buses from Andrew Square to Boston Medical Center, and added bus service on Route 31 serving Dorchester and Mattapan.

The Wynn Boston Harbor Casino’s final Section 61 mitigation requirements are included as well. Wynn is required to provide roadway network and MBTA transit system improvements, funding for a Sullivan Square/Rutherford Avenue redesign, a DCR Gateway Park bike and pedestrian connector over the Mystic River, and Transportation Demand Management measures.

Alternative 1: Planned Growth Scenario

The Planned Growth Scenario is a revised 2040 land use scenario developed by MAPC. This scenario differs from the land use used in Alternative “0” — No Build LRTP scenario in order to provide a more current view of demographic growth, specifically in the LMRWG scenario focus area (parts of Boston, Everett, and Somerville). MAPC worked with the cities of Boston, Somerville, and Everett to ensure this scenario reflects current plans, recent rezoning, and stated growth objectives. Unlike the “No Build LRTP” scenario, this scenario does not maintain municipal control totals for households and employment. This land use alternative maintains a regional control total for the 101 communities within the Boston Region MPO for households and employment. Also, unlike the “No Build LRTP” scenario, Planned Growth does not discount planned and projected developments in the study area. However, there is still continued competition with other zones and municipalities for a limited quantity of future development in the region.

The Working Group decided Alternative 1 — Planned Growth Scenario is the baseline alternative that will be used to compare the rest of the alternatives with.

This alternative represents newer/more detailed growth data and more accurately projects the future development within the study area.

Alternative 2: Sullivan Square/Rutherford Avenue Redesign

The City of Boston is currently conducting a study to reexamine Sullivan Square and Rutherford Avenue due to the area's continued growth and the Wynn Boston Harbor Casino project. As part of their study and the LMRWG study, the city would like an alternative tested that differs from the current proposed project in the LRTP (At-grade alignment).

The proposed Sullivan Square redesign would have a surface street grid system, with seven signalized intersections as shown in Figure 2¹. The major difference between the LRTP and this alternative is maintaining an underpass. The new proposal has one northbound and two southbound underpass lanes to alleviate surface traffic at Sullivan Square. At the Austin Street intersection with Rutherford Avenue, the underpass will also be maintained but modified to two lanes in each direction, northbound and southbound as shown in Figure 3¹. The proposed cost² of this alternative is \$142 million.

The City of Boston, on May 18, presented to the public that they will precede with an underpass alternative for Sullivan Square and Rutherford Avenue. Based on the City of Boston's decision, the Working Group will include this alternative as a future condition in any subsequent alternatives. However to meet the study's schedule, the Working Group decided to model Alternatives 3 and 4 with both the LRTP At-Grade design and the Underpass design.

Alternative 3: TDM/Transit Light

This alternative would examine low-cost bus improvements, bike and pedestrian improvements, and transportation demand management (TDM) policies such as those associated with residential and commercial parking in addition to telecommuting/flexible work schedules. This alternative packaged complementary ideas that could work towards providing alternative mode choices for the study area.

In order to meet the study's schedule both the LRTP At-Grade design and the Grade Separated design options were modeled for Alternative 3.

The bus improvements would include improvements to existing routes (85, CT2, 87, 88, 90, 99, 104, 105, 106, 109, 110, and 112), shown in Figure 4. Most routes serving Everett would have their southern termini realigned from Wellington

¹ Conceptual graphics provided by the City of Boston.

² Estimate provided by City of Boston in 2017 costs.

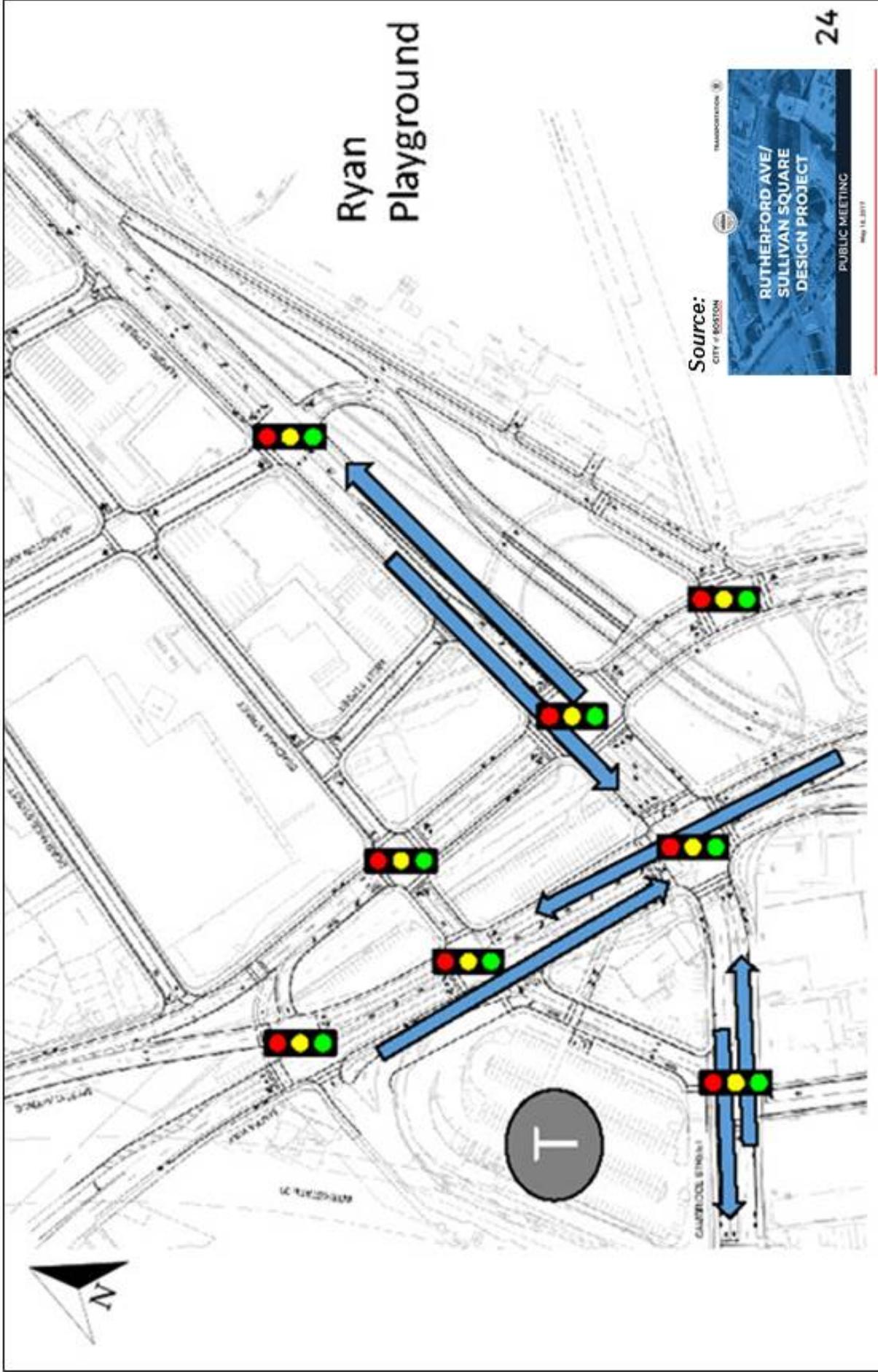
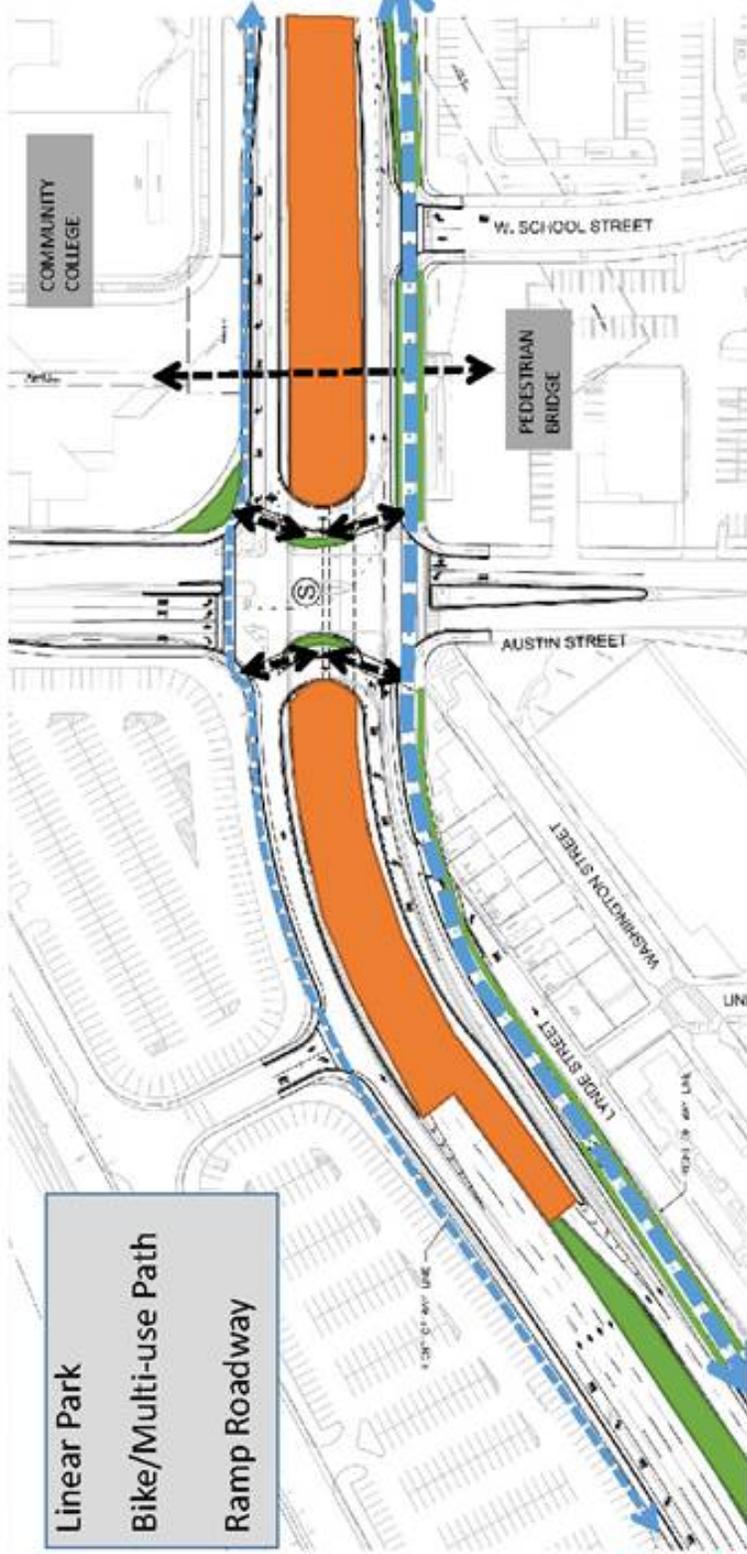


FIGURE 2 Sullivan Square Grade Separation



Linear Park
 Bike/Multi-use Path
 Ramp Roadway



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Source:
 CITY OF BOSTON



FIGURE 3
 Austin Street Grade Separation



CTPS



FIGURE 4
MBTA Bus Routes

*Lower Mystic Regional
Working Group*

Station to Sullivan Square Station. Some Somerville routes would be realigned to better serve Kendall and Assembly Squares. Route 112's eastern terminus would be rerouted to serve Logan Airport. New bus routes would provide limited stop service between Everett to downtown Boston, a new Lechmere to Kendall Square shuttle, a new Assembly Square to Lechmere route (Route 92A), and a new CT4 route, shown in Figure 5, connecting Sullivan Square and Kendall, and possible TMA shuttle buses. In addition, bus only lanes would be included on Broadway between Ferry Street and the Alford Street Bridge in Everett and on First Street, Binney Street, and Third Street in Cambridge. Additionally, stop consolidation on some existing routes and installing Transit Signal Priority (TSP) on all routes will improve run times and reliability.

Pedestrian and bike improvements in this alternative are intended to examine benefits associated with MassDOT's Complete Streets initiative by modeling improvements to existing street corridors that promote and encourage walking and biking.

The estimated cost for this alternative is \$174,100,000. This included the cost of approximately 145 new buses associated with bus route improvements, three miles of bus lanes, and a new 145 bus maintenance facility to accommodate the new buses.

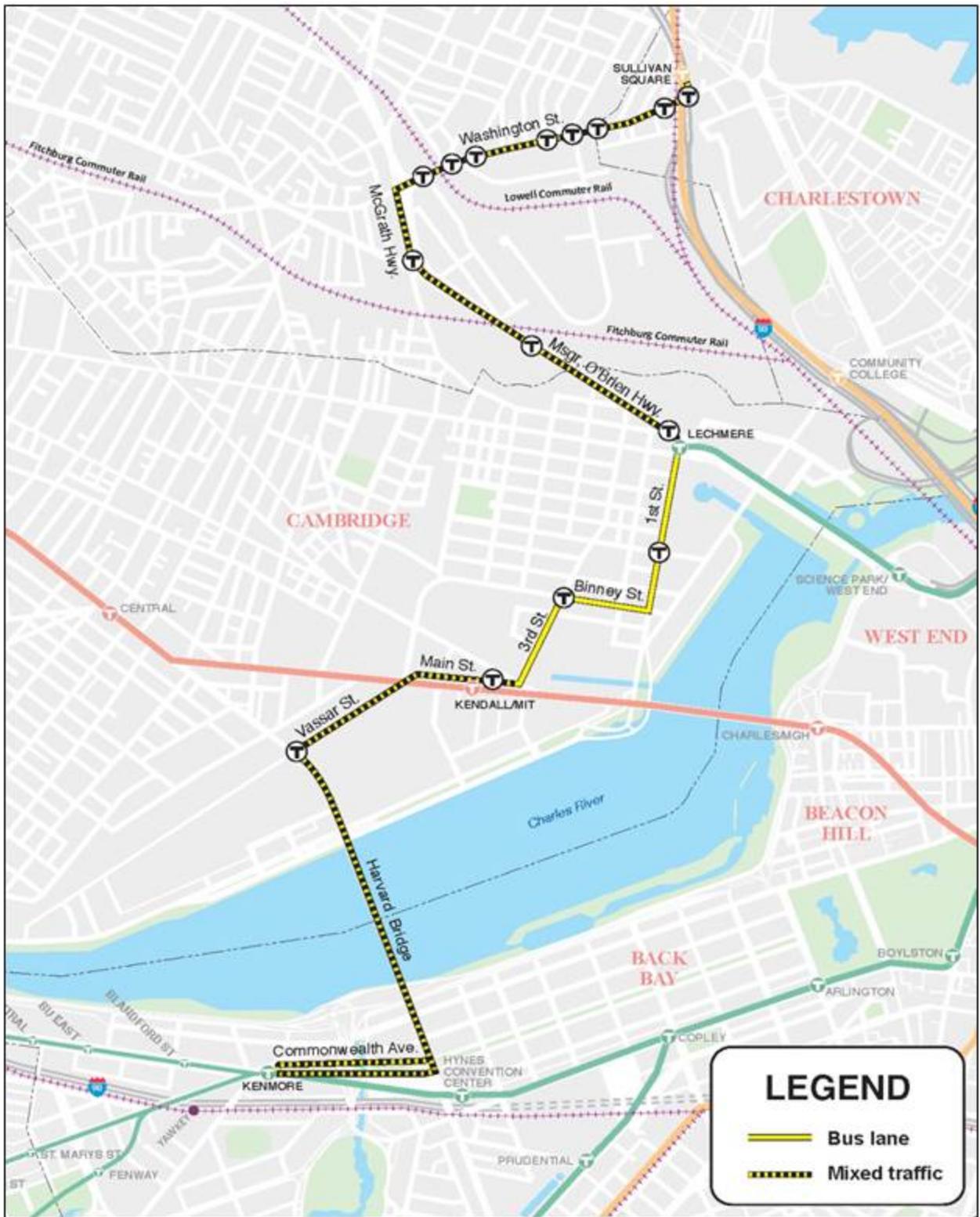
The TDM policies would concentrate on commercial and residential parking and telecommuting/flexible work schedule. The commercial parking policy would reduce the parking demand for employees, steering them to walk, bike, take transit, car pool, or not take a trip. (See Appendix C for MAPC's summary on Proposed Parking Constraint Policy.) This policy would apply a \$22 daily market-rate for employee parking. This rate is based on daily market-rate garages in the Kendall Square area. This daily parking rate would be applied to 17 model zones in the following geographic areas:

- Union Square
- Brick Bottom
- Assembly Row
- Sullivan Square
- Everett Commercial Triangle

Residential parking restrictions would reduce the number of vehicles available to households within the study area, forcing people to either walk, bike, take transit, car pool, or forego taking a trip. These reductions were based on conversations with Boston, Somerville, and Everett about their plans for residential parking.

The work at home/flexible work hours are TDM strategies that would reduce a percentage of all work trips in the study area and remove them from the modeling

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LEGEND

- Bus lane
- Mixed traffic

CTPS  **FIGURE 5**
Proposed CT 4 Bus Route *Lower Mystic Regional Working Group*

process. The focus will be on job sectors that do not require workers to be physically on site, assumes 25% of commuters within these job sectors work remotely or off peak once per week. (See Appendix D for MAPC's summary on Telecommuting and Flexible Work Schedules.)

Alternative 4.1 and 4.2: TDM Strategies with Sensitivity Analysis of Commercial and Residential Parking

Alternative 4 is a sensitivity analysis of the parking restrictions associated with Alternative 3. The bus, pedestrian, and bicycle improvements included in Alternative 3 would be included in the two variations of Alternative 4. Alternative 4.1 includes reducing the demand of employee parking by increasing parking daily-rates and leaving the residential parking unrestricted. Alternative 4.2 includes reducing the residential parking availability and maintaining existing parking costs for all model zones. This sensitivity test will help isolate the benefits of reducing demand for commercial parking and reducing residential parking availability.

The City of Boston has presented that they will proceed with an underpass option for Sullivan Square and Rutherford Avenue. However to meet study's schedule, both the LRTP At-Grade design and the Underpass design modeled for Alternative 4 and 4.1.

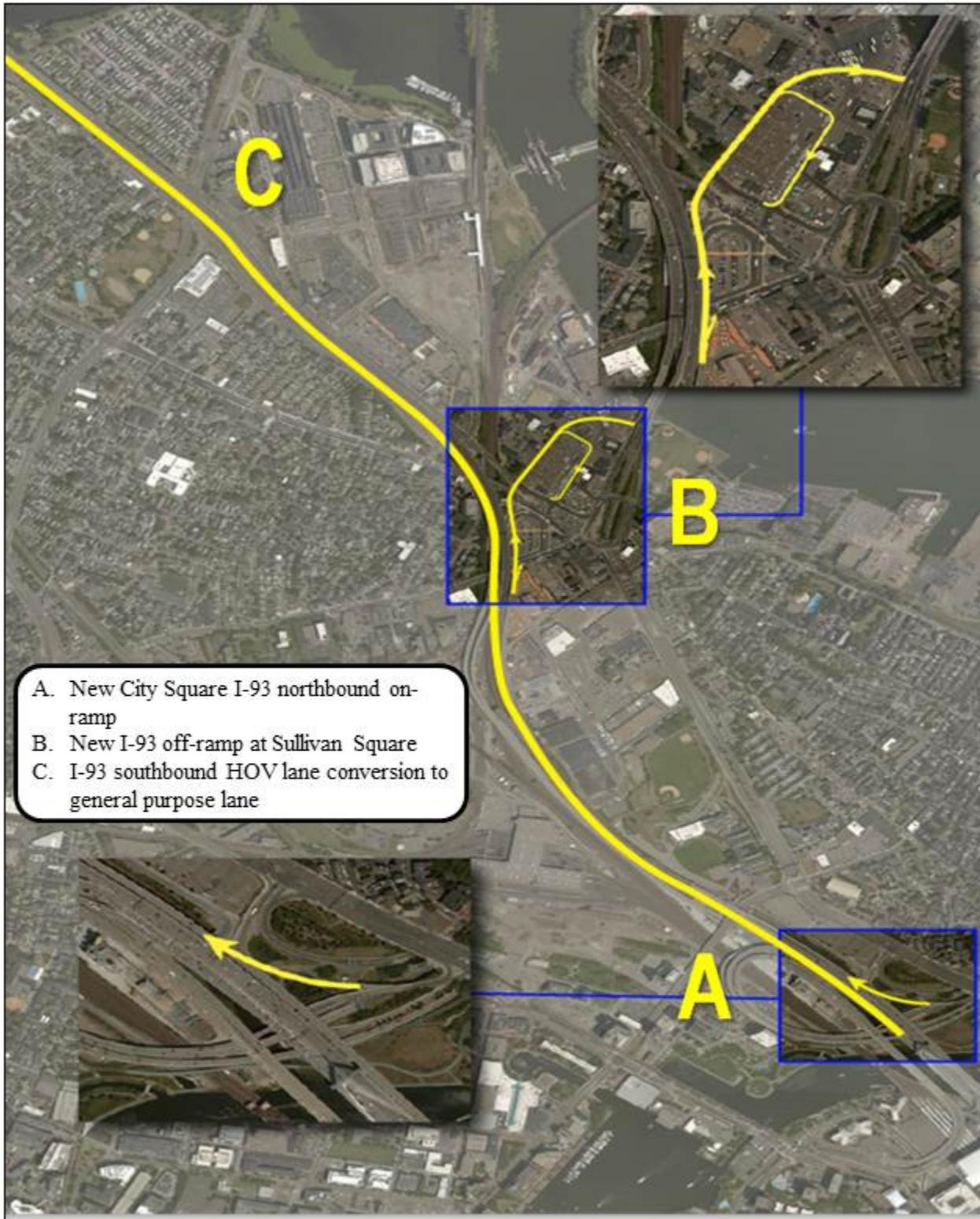
Alternative 5 and 5.1: Highway Focus

This alternative examines three highway infrastructure improvements that are shown in Figure 6; a new I-93 northbound on-ramp from City Square in Charlestown, a new I-93 off-ramp at Sullivan Square, and converting the I-93 southbound high-occupancy vehicle (HOV) lane to a general purpose lane. In Alternative 5, all three will be modeled together to determine their benefits/impacts. (See Appendix E for a cost estimate and additional figures prepared by MassDOT.)

The new City Square on-ramp to I-93 northbound would provide motorists from the City Square area of Charlestown and the North End of Boston an opportunity to directly get onto I-93 north instead of having to travel through Sullivan Square for I-93 northbound access. The estimated cost for this on-ramp is \$48,400,000³

The I-93 northbound off-ramp at Sullivan Square would provide a direct connection from I-93 to Route 99 and the Alford Street Bridge; eliminating the need for motorists to travel through Sullivan Square. There are number of issues related to this alternative including potential impacts to the transit station,

³ Cost Includes construction engineering, design engineering, contingency, and temporary traffic control and does not include ROW or any Environmental mitigation costs. Costs of structures are assumed at \$600 per Square Foot.



- A. New City Square I-93 northbound on-ramp
- B. New I-93 off-ramp at Sullivan Square
- C. I-93 southbound HOV lane conversion to general purpose lane

CTPS



FIGURE 6
Alternative 5: Ramps and Lanes

*Lower Mystic Regional
 Working Group*

compatibility with ongoing redevelopment of the area, and the requirement of a tunnel or viaduct to carry traffic directly to Route 99. The estimated cost for this on-ramp is \$64,700,000³.

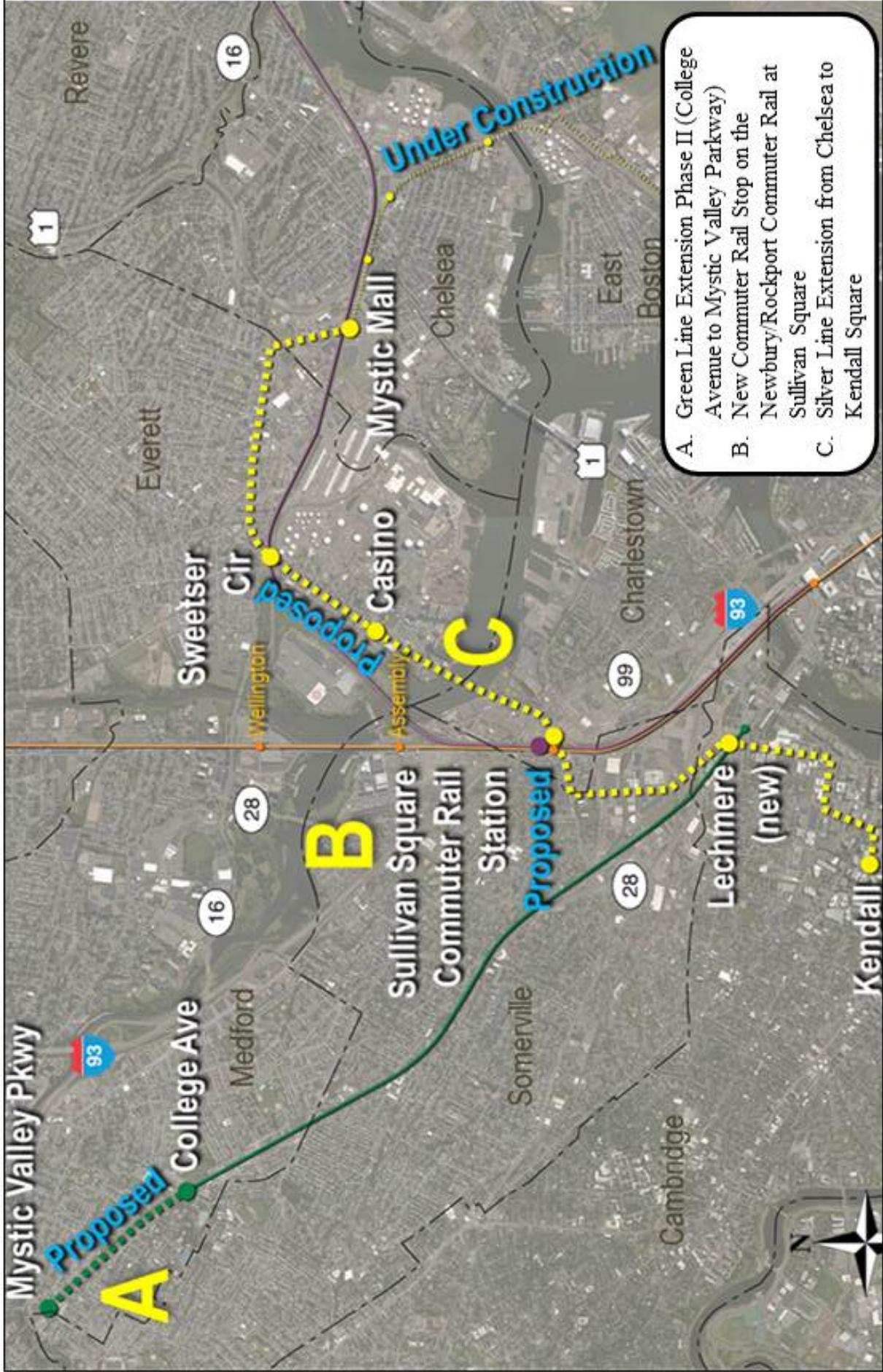
The last modification to the highway system converts the existing I-93 southbound HOV lane to a general-purpose lane. Currently the HOV lane is under-utilized and converting this to a general purpose lane would provide an increase to I-93 southbound capacity. This is estimated to cost between \$1,000,000 and \$2,000,000.

Alternative 5.1 removes the proposed I-93 northbound off-ramp at Sullivan Square. The off-ramp is being removed to examine the effects on traffic volumes along Rutherford Avenue and also because of the numerous impacts to Sullivan Square and its' potential redevelopment.

Alternative 6 and 6.1: Transit Focus

This alternative examines major transit improvements in the study area and includes the Green Line Extension Phase II, improved Orange Line service, a new Commuter Rail stop at Sullivan Square, and extending the Silver Line from Chelsea to Kendall Square. Figure 7 shows the proposed improvements. The following are descriptions for each of the transit improvements:

- Extension of the Green Line from College Avenue to the Mystic Valley Parkway.
- A new Commuter Rail stop on the existing Newburyport/Rockport Commuter Rail line at Sullivan Square would provide a new transfer point for North Shore commuters. It provides an opportunity to transfer to the Orange Line and the bus routes that serve Somerville and Cambridge. It would also allow North Shore commuters to access Assembly Square, the redeveloped Inner Belt in Somerville, and Kendall Square.
- The Silver Line Extension from the new station in Chelsea has several alignments which could not only serve East Cambridge, Charlestown, and Somerville, but also potentially increase transit service for Everett residents. The proposed extension would provide new service from Everett's population center near Glendale Square and the new Chelsea Silver Line station to Kendall Square and North Station. The proposed route would essentially be two new routes. Figure 8 provides a detailed map of proposed routes. (See Appendix F for a preliminary examination of the right of way along Newbury/Rockport Commuter Rail prepared by MassDOT.)



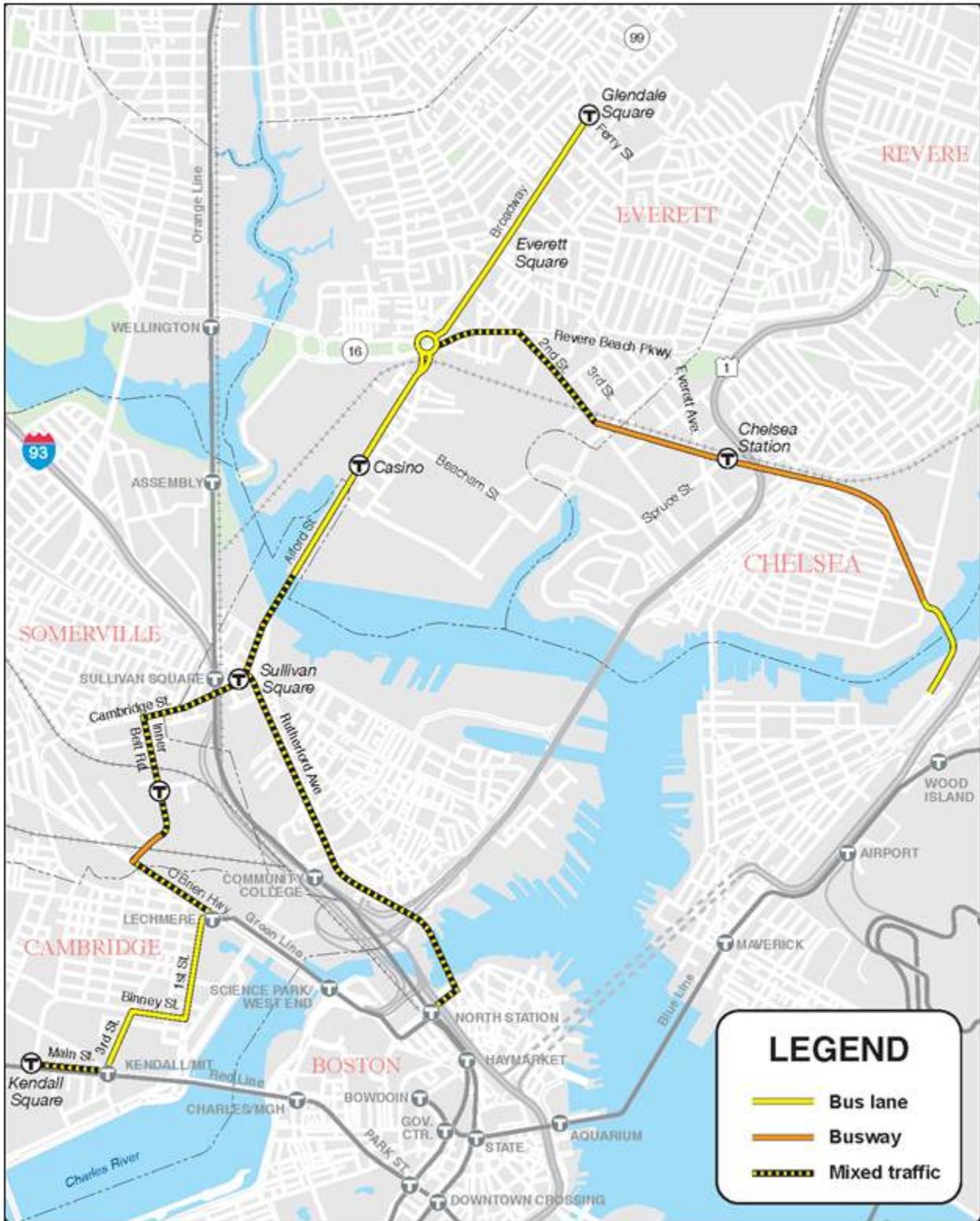
- A. Green Line Extension Phase II (College Avenue to Mystic Valley Parkway)
- B. New Commuter Rail Stop on the Newbury/Rockport Commuter Rail at Sullivan Square
- C. Silver Line Extension from Chelsea to Kendall Square



CTPS

Lower Mystic Regional Working Group

FIGURE 7
Alternative 6: Buses and Trains



CTPS



FIGURE 8
Proposed Silver Line Extension

*Lower Mystic Regional
 Working Group*

The first route would utilize the new station in Chelsea and the existing Silver Line's articulated buses. The route would travel along Second Street to Route 16, and then take Route 16 to Broadway. The service would then travel along Broadway to Sullivan Square and down Rutherford Avenue to North Station.

The second Silver Line Extension route would connect Glendale Square with Kendall Square; via Broadway, Sullivan Square, the new Inner Belt Bridge and Inner Belt, and then the bus lanes south from Lechmere on First Street, Binney Street, and Third Street. The construction of a new bridge connecting Inner Belt Road and Lechmere station, and passing over the railroad tracks, is a key component of this alternative. Currently the railroad tracks present a barrier between Inner Belt Road and the Green Line Extension.

Alternative 6.1 will include the TDM policies examined in Alternative 3 that concentrate on commercial and residential parking. This sensitivity analysis will examine how much greater a benefit the improved transit service can provide by forcing single occupant vehicles to change modes by the reduction of parking.

Alternative 7: Comprehensive Bicycle and Pedestrian Improvements and New Rivers Edge Orange Line Station

Alternative 7 would examine comprehensive bicycle and pedestrian improvements and a new Orange Line Station at Rivers Edge, between Wellington Station and Oak Grove. The new Rivers Edge station and pedestrian/bike bridge are connected elements, in that the bridge is needed to connect Everett (and specifically a redevelopment site) with the station.

The bicycle and pedestrian improvements would include new bike/pedestrian bridges over the Mystic River at Assembly Square and the Malden River at the new Rivers Edge Orange Line station. It would also examine new shared-use paths within the study area.

This station however would increase dwell times and headways along the Orange Line. There could also be capacity issues with the addition of a new station. The construction of the new station may also impact the Haverhill Commuter Rail.

This alternative would also improve peak period headways on the Orange Line from 4½ minutes to 3 minutes. In order to achieve the 3 minute headways an additional 78 cars would be needed beyond what is currently ordered (230 total

cars), as well as a new signal system, upgrades in power supply, and an expanded maintenance facility at Wellington.

Potential Alternative 8: Orange Line Spur to Everett

Alternative 8 would examine the benefits of creating an Orange Line spur through Everett. This major infrastructure project would parallel the existing Newburyport/Rockport Commuter Rail ROW from Sullivan Station northward to Route 16 before entering a tunnel with a terminus near Route 60 at Copeland Circle. Possible stations could be located at Route 60 at Copeland Circle, Broadway at Mason Street, Glendale Square at Ferry Street, Everett Square at Chelsea Street, and Gateway Center at the Wynn Everett Casino. Figure 9 provides a graphic showing the alignment of the proposed Orange Line Spur.

This alternative would also examine the possibility of decreasing Orange Line headways to accommodate the necessary trains to serve the new spur and maintain existing service on the main branch. The estimated cost for the Orange Line Spur is \$3,200,000,000.

This option includes:

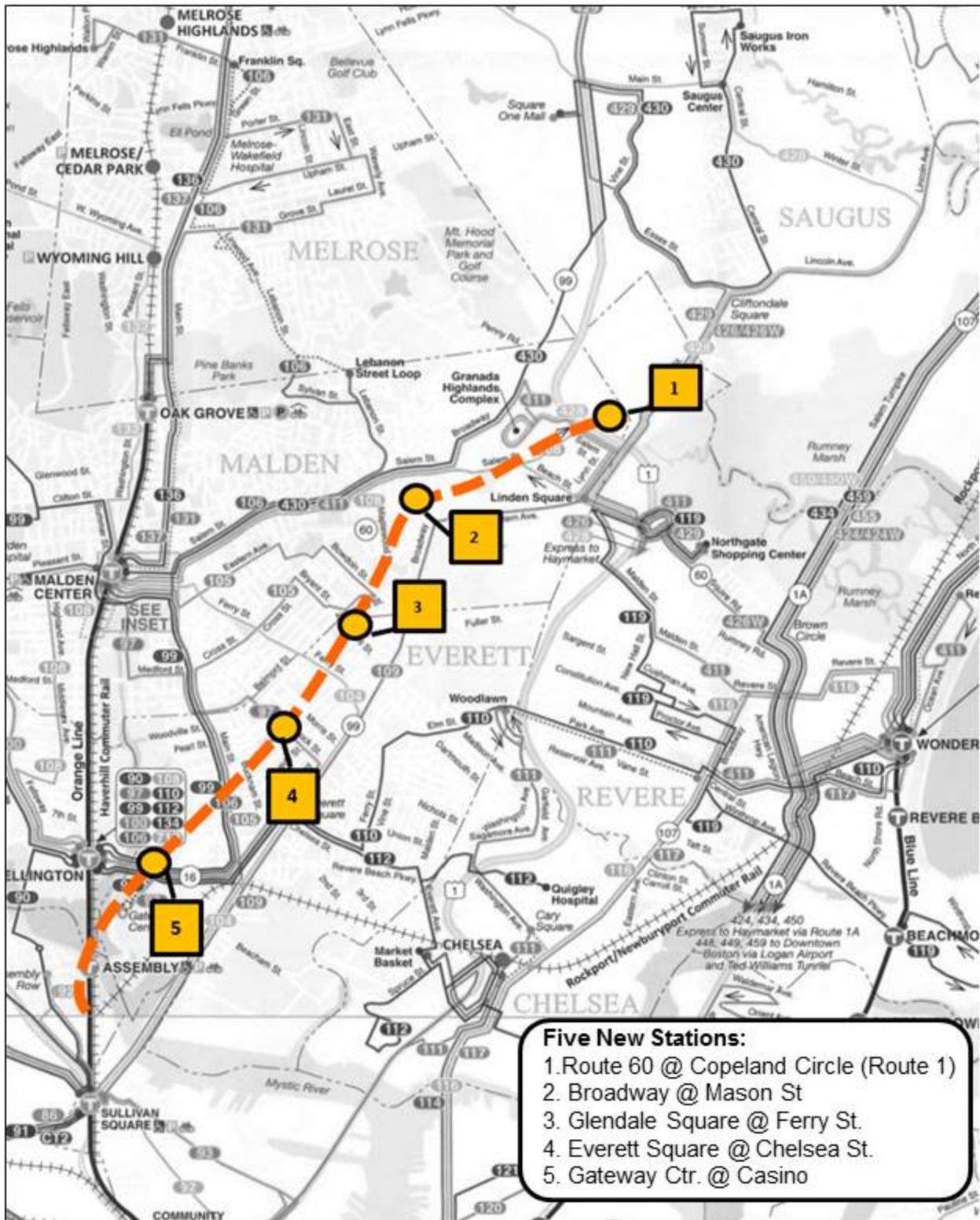
- Possible increases to peak period headways
- A new vehicle storage facility at Glendale Square or additional storage space at Wellington
- Reconfiguration of Sullivan Square station for larger platforms to reduce crowding concerns and a new junction for the spur tracks (approximately \$100 million)
- 132 additional cars with 26 spare cars for a total of 158 new cars

An additional option would be to operate the spur as an Orange Line shuttle between Glendale Square and Sullivan Square. This would allow for maintaining current operations on the mainline from Oak Grove to Forest Hills. The shuttle option includes:

- A new vehicle storage facility at Glendale Square
- Reconfiguration of Sullivan Square with right-of-way concerns
- 84 additional cars with 14 spares for a total of 98 new cars

MSA/msa

Enclosed: Appendix



CTPS



FIGURE 9
Proposed Orange Line Spur
To Route 60 (Copeland Circle)

*Lower Mystic Regional
 Working Group*

APPENDIX

APPENDIX A

Overview of Alternatives

	NB	Alt. 1	Alt. 2	Alt. 3S	Alt. 3U	Alt. 4.1S	Alt. 4.1U	Alt. 4.2S	Alt. 4.2U	Alt. 5	Alt. 5.1	Alt. 6	Alt. 6.1	Alt. 7	Alt. 8
MAPC LRTP Land Use	X														
MAPC Planned Growth Scenario		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LRTP Transportation Projects	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sullivan Sq & Rutherford Ave Redesign (Surface)	X	X		X		X		X		?	?	?	?	?	?
Sullivan Sq & Rutherford Ave Redesign (Underpass)			X		X		X		X	?	?	?	?	?	?
Parking - Residential				X	X	-	-	X	X				X		
Employee				X	X	X	X	-	-				X		
Bus Improvements				X	X	X	X	X	X						
TMA Shuttle				X	X	X	X	X	X						
Bike/Pedestrian				X	X	X	X	X	X			X	X	X	
TDM - Work at Home				X	X	X	X	X	X						
I-93 Improvements (Convert HOV to GP)										X	X				
I-93 Improvements (City Square NB On-Ramp)										X	X				
I-93 Improvements (Sullivan Square NB Off-Ramp)										X					
Silver Line Extension (Chelsea to Kendall Sq)												X	X		
GLX2												X	X		
New Sullivan Sq Station on the Rock/Newb. CR												X	X		
Major Bike/Ped. (Ped Bridge Assembly To Everett)														X	
New Orange Line Station at Rivers Edge*														X	
Orange Line Spur to Everett															X

*Includes improved headways on Orange Line.



APPENDIX B

Major Infrastructure Projects to be Completed by 2040 in the Preferred LRTP* Build Scenario	Location
Route 128 Additional Lanes	(Needham & Wellesley)
Ramp Construction on I-95 (NB) and Improvements on Canton St/Dedham St	(Canton, Norwood, & Westwood)
Middlesex Turnpike Improvements from Crosby Dr north to Manning Rd, Phase III	(Bedford & Billerica)
Reconstruction of Melnea Cass Boulevard	(Boston)
Reconstruction of Rutherford Ave, from City Sq to Sullivan Sq	(Boston)
Intersection Improvements at Rte 126 & Rte 135/MBTA & CSX Railroad	(Framingham)
Reconstruction of I-90 and I-495 Interchange	(Hopkinton & Westborough)
Route 4/225 (Bedford St) and Hartwell Ave	(Lexington)
Bridge Replacement, Rte 27 (North Main St) over Rte 9 (Worcester St) and Interchange Improvements	(Natick)
Reconstruction of Highland Ave, Needham St & Charles River Bridge, from Webster St to Rte 9	(Newton & Needham)
Construction of New Connection from Burgin Parkway over the MBTA	(Quincy)
McGrath Boulevard Project	(Somerville)
Green Line Extension Project (Phase 1), Lechmere Station to College Ave/Union Sq	(Somerville & Cambridge)
Reconstruction & Widening on Rte 18 (Main St) from Highland Pl to Rte 139	(Weymouth & Abington)
Reconstruction of Montvale Ave, from I-93 Interchange to Central St	(Woburn)
Bridge Replacement, New Boston St over MBTA	(Woburn)
All Electronic Tolling	(MA)
New Balance / Boston Landing Commuter Rail Station	(Boston)
Full time Yawkey Stop	(Boston)
Improved headways on Orange Line Due to New Vehicles	(Malden, Somerville, & Boston)
Silver Line to Airport to Chelsea	(Boston & Chelsea)
Winn Casino Mitigation	(Everett)
Four New Fairmount Commuter Rail Stations	(Boston)

* LRTP is the Long Range Transportation Plan

APPENDIX C

LMRWG Proposed Parking Constraint Policy Summary by MAPC

Parking Availability

Research Topic:

MAPC will provide CTPS information regarding the effects of parking availability on vehicle usage, both from residential uses, as well as commercial (employers) uses in the study area. This research will help the Lower Mystic Regional Working Group better understand the impact of changes in parking availability on vehicle usage within the study area. The mechanisms for modeling the effects of limiting parking vary for these two land uses and, therefore, are treated separately. This memo provides explanation on commercial parking.

Summary of relevant background information:

- TRB's scenario modeling predicts that in Boston's future (2050) the percent of non-car owning individuals will increase from 4.6% (2010) to 5.0-8.2% (2050) in all scenarios except a "tech triumph"
- Employer paid parking leads to more vehicle usage in commuting.
 - In Washington DC (2014) it was found that the price of parking has more of an effect than public transportation benefits, showers/lockers, and bike parking at work on the choice to drive to work.
 - In Portland, one study (2001) predicted that a daily parking charge of \$6 in the Portland CBD would result in 21 fewer cars driven for every 100 commuters.
 - A report from 1993 showed more than 75% of people who drive to work in US cities use parking by their employers, and 90% don't pay to park

Summary of relevant research:

Through various discussions MAPC and CTPS agreed that the best modeling method for limiting commercial parking was through a pricing mechanism. MAPC examined transportation demand management (TDM) measures in Kendall Square as a benchmark for various neighborhoods within the study area. Among Kendall Square's potential TDM measures is "Market-rate parking fee charged directly to employees or patrons." Because the guidance does not specify an actual minimum rate, MAPC surveyed daily rates for existing garages in the Kendall Square area to understand the existing market rate.

Name	Address	Daily Rate (8-10 hours)
Parking @ Kendall Square	350 Kendall Street	\$23
301 Binney Street Garage	301 Binney Street	\$30
650 Kendall Square South Garage	540 Kendall Street	\$25
One Kendall Square Garage	389 Binney Street	\$30
Cambridge Center North Garage	10 Cambridge Center	\$35
SP Plus Corporation	800 Technology Square	\$25
Cambridge Center West Garage	77 Ames Street	\$35
Cambridge Center East Garage	4 Cambridge Center	\$35
Boston Marriot Cambridge	50 Broadway	\$43
ABM Parking Services	55 Franklin St	\$30
ABM Parking Services	30 Pilgrim St	\$22
Network Parking Company	80 Landsdowne St	\$22

The range of the 12 garages listed above is \$22-43 with an un-weighted average of \$30 and median of \$27.50.

Recommendation

MAPC recommends utilizing a rate of \$22, i.e., at the bottom of the range for parking at Kendall Square, to key TAZs within the study area, including:

- Union Square
- Brick Bottom
- Assembly Row
- Sullivan Square
- Everett commercial area

The expectation is that this price would suggest a realistic market price in the above neighborhoods, given future potential development. It expected to be high enough to manage parking demand but not so high as to be an unrealistic reflection of the future state of these areas.

APPENDIX D

Telecommuting / Flexible Work Schedules

Research topic:

MAPC will provide CTPS information regarding the effect of telecommuting (i.e., working remotely) and flexible work schedules (i.e., adjusting commuting times to off-peak periods) on vehicle usage. The research will attempt to understand how often employees telecommute, which days are most common, the differences by industry, and whether there are any projections for whether this type of working environment will increase into the future.

Recommendation:

MAPC presented a draft recommendation of estimating 18% of jobs in appropriate sectors throughout the region would telecommute / have a flexible work schedule once per week. This number was based upon research showing today's trends. Based upon discussion with the Working Group, MAPC has revised the recommendation to:

- a) Only focus on those jobs from commuters traveling into the Focus Area
- b) Using a percentage slightly beyond today's current trend of 18%. A higher percentage reflects the use of telecommuting / flexible work as an explicit TDM strategy

Based upon the above, MAPC recommends an assumption that 25% of commuters working in the Focus Area applied to relevant sectors (described below). This results in 925 fewer trips on a typical weekday.

Background Information:

Summary of relevant research and methodology:

- According to CTPS research, approximately 18% of employed workforce telecommutes once per week. Information is not available about the Boston workforce in particular.
- On average, a telecommuter is college-educated, 49 years old, and earns an annual salary of \$58,000 while working for a company with more than 100 employees.
- A USDOT study estimates that telecommuting has the potential to double compared to current levels by 2030
- The DOT study also found that up to 8% of workers have a compressed work week (i.e., working 40 hours in 4 days)
- Statistics regarding flexible work schedules (i.e., working off peak times) have been more difficult to capture. Typically, managerial and professional jobs are more likely to allow for these schedules.
- Statistics regarding days telecommuters work from home or the actual number of days were not available
- To determine jobs in professional services and managerial work, we use 11 employment sectors created by aggregating 2 digit NAICS codes. These sectors are are: 1) Construction, 2) Education and Health Services, 3) Financial Activities, 4) Public Administration, 5) Information, 6) Retail, Leisure, and Hospitality, 7) Manufacturing, 8) Natural

Resources and Mining, 9) Other Services, 10) Professional and Business Services, and 11) Trade Transportation and Utilities. Additionally, these sectors are broken into 3 types of employment: retail, service, and basic. For the purposes of this analysis, we assumed that the service workers of sectors 3-Financial Activities 4-Public Administration and 10-Professional and Business Services were eligible for telecommuting.

Case study example

Encouraging flexible work schedules can be done in multiple ways. For example, as part of Kendall Square's TDM requirements, encouraging flexible work and telecommuting is one of a menu of options that an employer can utilize assist with TDM.

The city of Houston has an alternative, opt-in program to encourage these behaviors. In 2007, the city sponsored the Flex in the City program as an opportunity for Houston area employers to try flexible work options. Employers were asked to adopt an additional flex option that eliminated at least one peak commute between September 17-28, 2007, during which time employers measured the effect on productivity—when the right employees, in the right jobs, practice the right flexible work option(s). At the same time Houston measured the effects on mobility. By moving a relatively small number of cars off the roads during peak congestion periods, a measurable improvement in mobility could be realized. A savings of 906 peak-commute hours were experienced as a result of the 2006 Flex in the City on both the North and Southwest Freeways. The program has continued and the city offers technical assistance and promotion to help interested employers encourage these habits.

APPENDIX E

Alternative 5: Ramps and Lanes

Lower Mystic Study - Cost Estimate

On-Ramp		I-93 Northbound On-Ramp		
Ramp	Length (ft)	Width (ft)	Type of Roadway	Estimated Cost
I-93 On Ramp	1800	28	Bridge	\$ 30,240,000.00
Total Estimated Cost		\$30,240,000.0		

Off-Ramp Alternative - 1		Off-Ramp from I-93 Northbound Mainline		
Ramp	Length (ft)	Width (ft)	Type of Roadway	Estimated Cost
I-93 NB Off Ramp	2350	28	Bridge	\$39,480,000.0
	450	36	At-Grade	\$340,800.0
	900	6	Sidewalk	\$150,000.0
Unsignalized Intersection	N/A	N/A	At-Grade	\$150,000.0
Signalized Intersection	N/A	N/A	At-Grade	\$300,000.00
				\$40,420,800.0
Total Estimated Cost		\$70,510,800.0		

Off-Ramp Alternative - 2		Off-Ramp from Cambridge Street Off-Ramp		
Ramp	Length (ft)	Width (ft)	Type of Roadway	Estimated Cost
I-93 NB Off Ramp	2350	28	Bridge	\$39,480,000.0
	450	36	At-Grade	\$340,800.0
	900	6	Sidewalk	\$150,000.0
Unsignalized Intersection	N/A	N/A	At-Grade	\$150,000.0
Signalized Intersection	N/A	N/A	At-Grade	\$300,000.00
				\$40,420,800.0
Total Estimated Cost		\$70,510,800.0		

Ramp	Estimated Cost
I-93 NB On Ramp	\$30,240,000.0
I-93 NB Off Ramp Alt -1 or 2	\$40,420,800.0
Sub Total	\$70,660,800.0
Construction Engineering 15%	\$10,599,120.00
Design Engineering 15%	\$10,599,120.00
Contingency 25%	\$17,665,200.00
Temporary Traffic Control 5%	\$3,533,040.00
Total Estimated Cost *	\$113,057,280.00

***NOTES :**

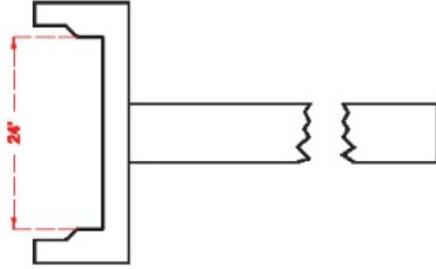
Total Estimated Cost does not include ROW costs or any Environmental mitigation costs.
 Cost of structures are assumed at \$600 per Square feet.

Proposed On-Ramp to I-93 NB from N Washington Street

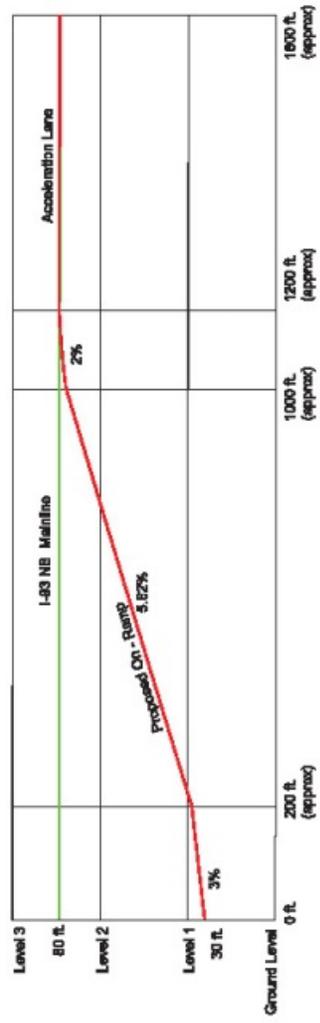
Plan View



Typical Bridge Section



Profile View



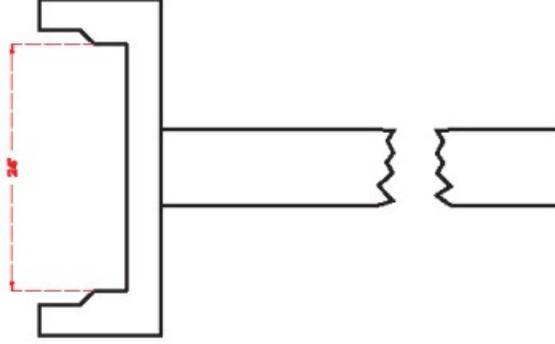
NOT TO SCALE
PREPARED BY : HIGHWAY DESIGN SECTION

Alt-2 Proposed Off-Ramp from I-93 NB to Alfred Street via Dornance St

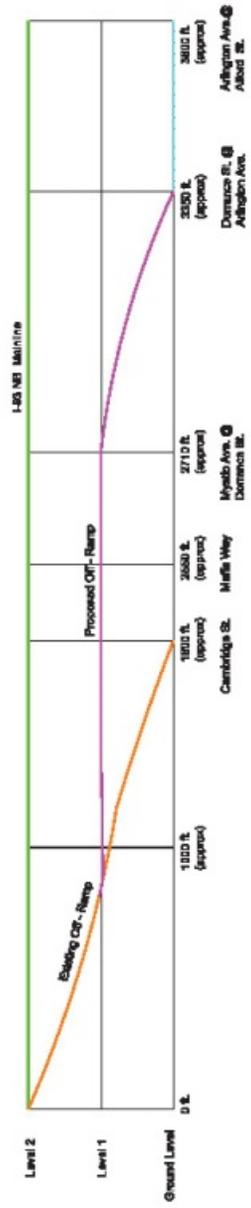
Plan View



Typical Bridge Section



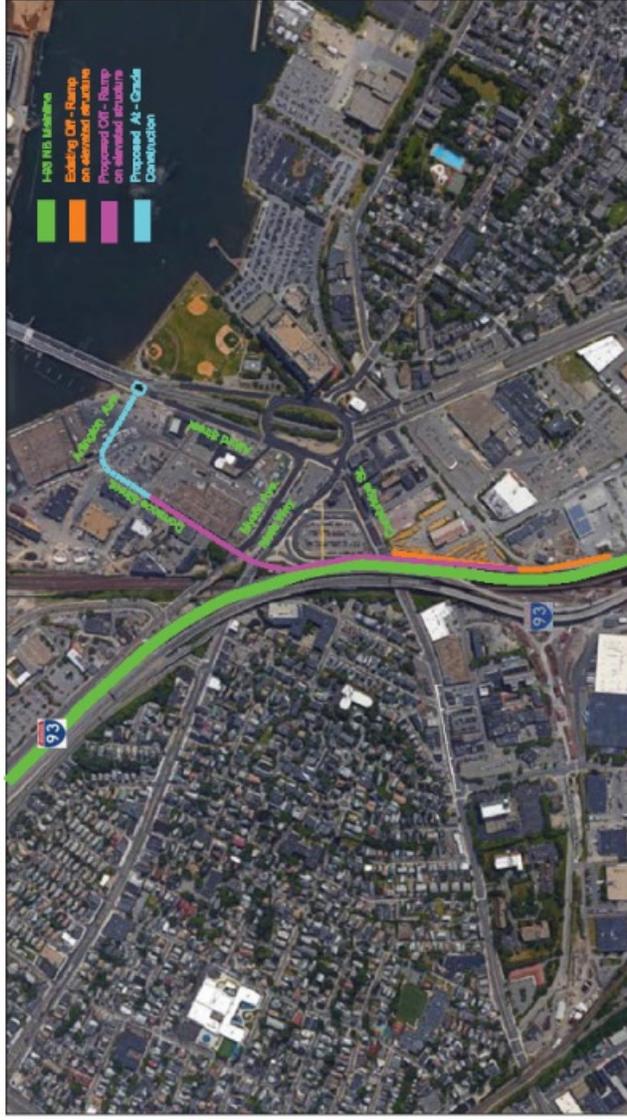
Profile View



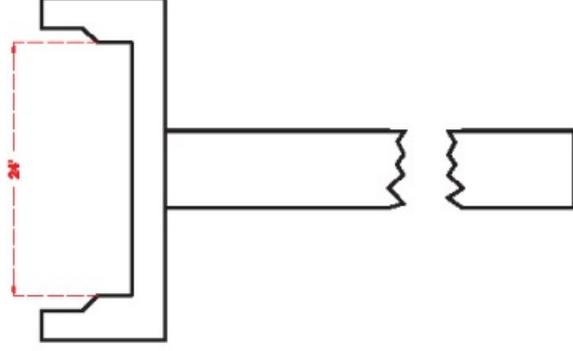
NOT TO SCALE
 PREPARED BY : HIGHWAY DESIGN SECTION

Alt-1 Proposed Off-Ramp from I-63 NB to Alford Street via Dorrance St

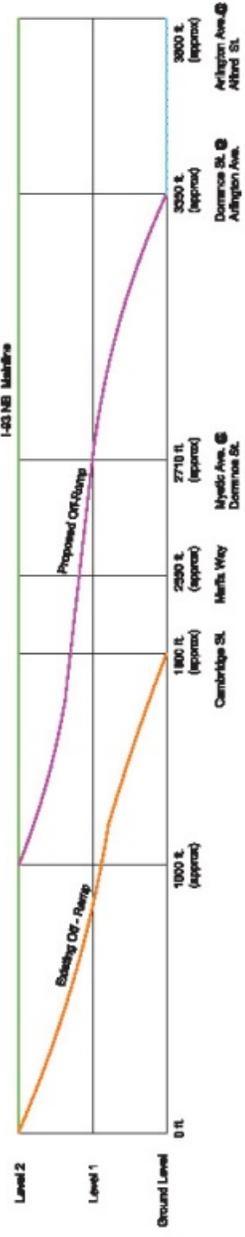
Plan View



Typical Bridge Section



Profile View



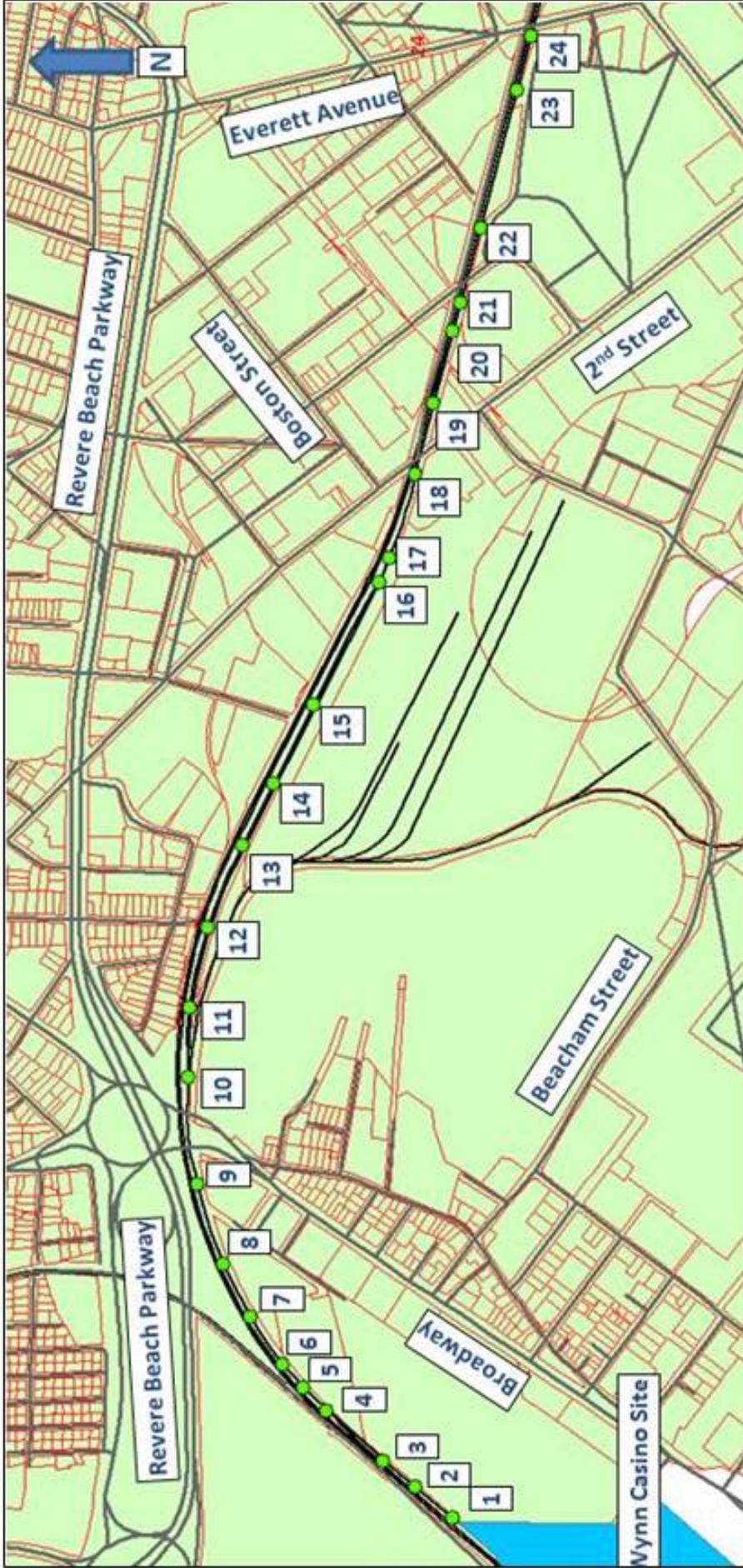
NOT TO SCALE
PREPARED BY : HIGHWAY DESIGN SECTION

APPENDIX F

Alternative 6: Newbury/Rockport Commuter Rail Potential Right of Way Analysis

As part of the development of the conceptual Silver Line Extension from the new Chelsea Station, it was suggested by a Working Group member that a portion of the service could run along the Newburyport/Rockport Commuter Rail right-of-way (ROW) instead of on Route 16 and Broadway in general traffic. In order to better understand the feasibility and potential impacts, a conceptual exercise was conducted using MassGIS data for rail lines and parcels to determine the approximate ROW availability between the existing Newburyport/Rockport Commuter Rail tracks (which were assumed to stay in the current location) and the edge of the adjacent parcels on the southern/eastern side of the tracks. This area includes freight rail, which in some places is double-tracked and includes spur lines.

Approximately 1.5 miles of ROW was examined from the Wynn Casino site in the south to Everett Avenue in Chelsea in the north. As the shows, the distance in feet between the outbound Commuter Rail track and the southern/eastern parcel edge varies from approximately 30 feet to 120 feet. Subtracting to account for a required 12-foot offset between the Commuter Rail Line and a potential busway, the available ROW varies from approximately 18 feet to 108 feet. Using the Silver Line Gateway Study as a proxy, thirty feet of ROW was assumed to be required for a suitable bi-directional busway, which would include two 12-foot lanes and two three-foot shoulders. Based on these assumptions of required width/offset and without moving the Commuter Rail tracks, there would not be sufficient ROW at Stations 1 through 4 or 21 through 24. While there maybe sufficient ROW between Stations 5 and 20 for a busway, as noted earlier this ROW space is currently occupied by the freight rail tracks. Additionally, potential station stops would necessitate additional ROW, which have not been included in this conceptual exercise.



Reference Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Total ROW for All Rail Lines (feet)	72	60.9	79.2	83.8	101	127	221.8	UNL	UNL	65.6	50.7	59.3	110.9	160.1	153.2	84	87.8	83.4	80.7	72.1	68.6	67.2	66.7	66.7
Distance Between Southern Parcel Edge and Closest CR Track (feet)	39.1	32.6	32.7	42.2	48.2	52.3	55	55.2	58.6	57	60	65.1	69.7	69.2	119.9	117.9	59.1	49.1	43.5	42.7	33.2	30.9	30.5	46
Distance Between Southern Parcel Edge and 12 Foot Offset of Closest CR Track (feet)	27.1	20.6	20.7	30.2	36.2	40.3	43	43.2	46.6	45	48	53.1	57.7	57.2	107.9	105.9	47.1	37.1	31.5	30.7	21.2	18.9	18.5	34

UNL - ROW extends into Sweetest Circle and includes road infrastructure

* Provided by MassDOT OTP

Newbury/Rockport Commuter Rail ROW Analysis

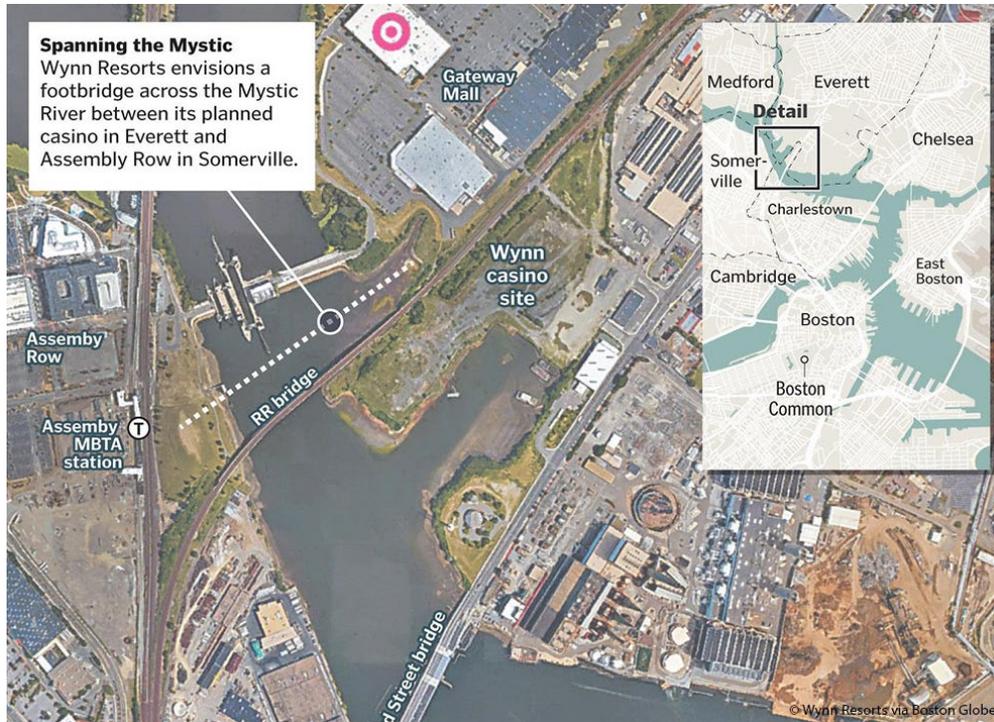
Lower Mystic Regional Working Group



CTPS

APPENDIX G

Pedestrian Bridge



Rivers Edge Station



SOURCE: Massachusetts Department of Transportation

Lower Mystic Regional Working Group Daily Performance Measures Compared to the No-build

2040 Performance Measures by Project Components	Alternative	Auto Ownership Decrease	Person Trip Increase	Transit System				Cost		Study Area Mode Shares			Roadway Travel by Communities in the Study Area								AQ	Constructability	
				New Transit Trips	Unlinked Transit Trips	New Transit Service Use	Transit Capacity (Qualitative)	Capital Cost	Operating Cost	Auto Shares	Bike/Ped Shares	Transit Shares	VMT Changes in Boston	VMT Changes in Everett	VMT Changes in Somerville	VMT Changes in Medford	VMT Changes in Revere	Changes in McGrath Traffic Delay	Changes in Broadway Traffic Delay	Changes in Sullivan Sq. Traffic Delay	Changes in City Sq. Traffic Delay		GHG (kilograms)
Bus Improvements & TMA Shuttles	Alt. 3	no	no	102,000	124,000	N/A	2	\$ 205,000,000	\$ 23,572,000	-4%	0%	4%	-2%	-3%	-2%	-1%	0%	-1	0	-1	-1	-229,250	4
Bike/Pedestrian Improvements	Alt. 3	no	no	200	300	N/A	0	\$ 10,000,000	\$ -	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-500	3
Bus Improvements & TMA Shuttles & TDM Parking	Alt. 3.1	yes	yes	147,000	165,000	N/A	3	\$ 205,000,000	\$ 23,572,000	-5%	0%	5%	-3%	-4%	-2%	-2%	-1%	-3	-1	-2	-2	-336,440	5
Bike/Pedestrian Improvements & TDM Parking	Alt. 3.1	yes	yes	300	400	N/A	0	\$ 10,000,000	\$ -	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-700	4
Work at Home	Alt. 3	no	no	-200	-300	N/A	0	\$ -	\$ -	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	500	1
Work at Home & TDM Parking	Alt. 3.1	yes	yes	-400	-600	N/A	0	\$ -	\$ -	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	1,000	3
I-93 Improvements (Convert HOV to general purpose)	Alt. 5	no	no	-200	-200	N/A	0	\$ 100,000	\$ -	0%	0%	0%	0%	0%	0%	0%	-1%	-1	1	1	0	500	5
I-93 Improvements (City Square NB On-Ramp - no left turn)	Alt. 5	no	no	0	0	N/A	0	\$ 46,900,000	\$ 3,400	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	1	0	6
I-93 Improvements (Sullivan Square NB Off-Ramp)	Alt. 5	no	no	0	0	N/A	0	\$ 62,700,000	\$ 5,300	0%	0%	0%	0%	-1%	-1%	0%	0%	0	1	-1	0	0	8
Silver Line Extensions (Chelsea to Kendall Sq) & (Everett to N.Station)	Alt. 6	no	no	4,000	5,200	28,000	2	\$ 310,000,000	\$ 17,600,000	-1%	0%	1%	-1%	-2%	-1%	0%	0%	0	-1	-1	-1	-9,500	6
Green Line Extension to Mystic Ave	Alt. 6	no	no	500	700	3,000	-1	\$ 212,000,000	\$ 2,500,000	0%	0%	0%	0%	0%	0%	0%	0%	-1	0	0	0	-1,200	3
New Sullivan Sq Station on the Rock/Newb. CR	Alt. 6	no	no	100	200	500	0	\$ 26,400,000	\$ 29,500	0%	0%	0%	0%	0%	0%	0%	0%	0	1	0	0	-200	4
Silver Line Extensions & TDM Parking (Chelsea to Kendall Sq) & (Everett to N.Station)	Alt. 6.1	yes	yes	8,000	10,400	36,000	2	\$ 310,000,000	\$ 17,600,000	-3%	1%	2%	-1%	-2%	-1%	0%	0%	0	-1	-2	-2	-15,100	5
Green Line Extension to Mystic Ave & TDM Parking	Alt. 6.1	yes	yes	2,000	2,800	5,000	-1	\$ 212,000,000	\$ 2,581,000	-1%	0%	1%	0%	0%	-1%	-1%	0%	-1	0	0	0	-4,800	5
New Sullivan Sq Station on the Rock/Newb. CR & TDM Parking	Alt. 6.1	yes	yes	200	300	700	1	\$ 26,400,000	\$ 29,500	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-500	5
Major Bike/Ped. (inc. ped bridge Assembly To Everett)	Alt. 7	no	no	300	400	N/A	0	\$ 80,000,000	\$ 50,000	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-700	3
New Orange Line Station at Rivers Edge	Alt. 7	no	no	500	600	1,200	-1	\$ 90,000,000	\$ 29,500	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-1,200	5
Orange Line Headway Improvement (4.5 min. to 3 min.)	Alt. 7 & 8	no	no	24,000	36,000	24,000	3	\$ 400,000,000	\$ 35,903,000	-2%	0%	2%	-1%	-2%	0%	0%	0%	-3	-1	-1	-1	-59,100	6
Orange Line Spur to Everett (3-Stations) (6 min. to 3 min. into trunk)	new	no	no	28,500	60,000	36,000	2	\$ 3,500,000,000	\$ 39,700,000	-4%	0%	4%	-2%	-3%	-1%	0%	0%	-1	-2	-2	-2	-67,900	8
Orange Line Spur to Rte 1 (5-Stations) (6 min. to 3 min. into trunk)	Alt. 8	no	no	38,500	86,000	44,000	2	\$ 5,000,000,000	\$ 48,980,000	-5%	0%	5%	-3%	-3%	-2%	0%	-2%	-1	-3	-3	-3	-91,700	10

Lower Mystic Regional Working Group

Daily Performance Measures Compared to the No-build

2040 Performance Measures by Project Components	Alternative	Auto Ownership Decrease	Person Trip Increase	Transit System				Cost		Study Area Mode Shares			Roadway Travel by Communities in the Study Area								AQ	Constructability	
				New Transit Trips	Unlinked Transit Trips	New Transit Service Use	Transit Capacity (Qualitative)	Capital Cost	Operating Cost	Auto Shares	Bike/Ped Shares	Transit Shares	VMT Changes in Boston	VMT Changes in Everett	VMT Changes in Somerville	VMT Changes in Medford	VMT Changes in Revere	Changes in McGrath Traffic Delay	Changes in Broadway Traffic Delay	Changes in Sullivan Sq. Traffic Delay	Changes in City Sq. Traffic Delay		GHG (kilograms)
Orange Line Spur to Rte 16 (2-Stations) (6 min. to 3 min. into trunk)	new	no	no	26,800	55,900	32,600	2	\$ 1,250,000,000	\$ 35,775,000	-4%	0%	4%	-2%	-3%	-1%	0%	0%	-1	-2	-2	-2	-62,300	6
Silver Line Extensions (Chelsea to Kendall Sq) & (Everett to N.Station) using CR ROW	new	no	no	5,200	6,800	36,400	2	\$ 312,000,000	\$ 31,800,000	-1%	0%	1%	-1%	-2%	-1%	0%	0%	0	-1	-1	-1	-9,000	6
New Casino Station on the Rock/Newb. CR	new	no	no	80	160	400	0	\$ 18,480,000	\$ 29,500	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	-200	4

What is considered in determining desirability

Desirable		na	na	High is more desirable	na	na	Maximize use but stay under capacity	Low value is desirable	Low value is desirable	Low value is desirable	High value is desirable	High value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Low value is desirable	Lower value means desirable (sooner)
Desirable Value				147,000			3	\$ 100,000	\$ 3,400	-5%	1%	5%	-3%	-4%	-2%	-2%	-2%	-3	-3	-3	-3	-336,440	1
Undesirable		na	na	Low is undesirable	na	na	Over capacity or under utilized	High value is undesirable	High value is undesirable	High value is undesirable	Low value is undesirable	Low value is undesirable	High value is undesirable	Higher value means undesirable (longer)									
Undesirable Value				-400			-3	\$ 3,500,000,000	\$ 39,700,000	0%	0%	0%	0%	0%	0%	0%	0%	0	1	1	1	1,000	10

Performance Measure Descriptions

		An increase in 0-vehicle households leads to an increase in trip making over all.	An increase in 0-vehicle households leads to an increase in trip making over all. All of these trips becomes walk, bike, and transit trips.	New transit trips represent the net increase in new linked transit trips.	Unlinked transit trips represent the change in boardings across all modes.	This metric identifies the number of people using the proposed service.	In order to understand each components impact on transit capacity a qualitative scale was developed, with a negative # showing problems and positive number showing improvement	This represents the cost to plan, design, and build each project in 2016 dollars.	This represents the cost to operate the project for 1 year in 2016 dollars.	These metrics compare the number of person trips using the three modes examined in this analysis for the study are; auto, transit, and bicycle/pedestrian.	These metrics measure the vehicle miles traveled by community in order to understand where traffic flows changed due to the component being examined.	Multiple intersections were examined as part of the LMRWG Study. This metric allocates specific intersections to the corridors above and sums the total delay experienced at each of those intersections into one cumulative measure. The range in delay reduced was broken into seven groupings, ranging from reductions to increases.	This measure shows the change in Green House Gases (GHG), using CO2 as a proxy. Most other pollutants track in the same direction as this metric, so it can be used as a proxy for CO, Nox, VOC, and PM as well.	Some project ideas can be constructed more easily and sooner than others. This qualitative metric will attempt to gauge whether this is a short-term or long-term solution. Short-term being under 10 years, while long-term projects taking more than tens years.
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**MASSACHUSETTS GAMING COMMISSION
SECTION 61 FINDINGS ISSUED
PURSUANT TO M.G.L. c. 23K AND M.G.L. c. 30, § 61**

PROJECT NAME: Wynn Everett
PROJECT LOCATION: 1 Horizon Way in Everett, Massachusetts
PROJECT PROPONENT: Wynn MA LLC
EOEEA NUMBER: 15060
APPROVAL SOUGHT: Category 1 Gaming License

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**MASSACHUSETTS GAMING COMMISSION
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I. INTRODUCTION

Pursuant to the Massachusetts Environmental Policy Act, G.L. c. 30, §§ 61-62I, G.L. c. 23K, § 15(12), 301 CMR 11.12, and 205 CMR 120.02, the Massachusetts Gaming Commission (the “Commission”) finds that, with the implementation of the measures identified in the Project Proponent Wynn, MA LLC’s (“Wynn’s”) Final Environmental Impact Report (“FEIR”) submitted to the Executive Office of Energy and Environmental Affairs (“EOEEA”) on June 30, 2014, the Secretary of EOEEA’s (the “Secretary’s”) Certificate regarding the FEIR dated August 15, 2014 (the “FEIR Certificate”), the Supplemental Final Environmental Impact Report submitted February 17, 2015 (“SFEIR”), the Secretary’s Certificate regarding the SFEIR dated April 3, 2015 (the “SFEIR Certificate”), the Second Supplemental Final Environmental Impact Report (“SSFEIR”) dated July 15, 2015 (the “SSFEIR”), the Secretary’s Certificate dated August 28, 2015 regarding the SSFEIR (the “SSFEIR Certificate”), and including, without limitation those measures summarized below, that all practicable and feasible means and measures have been taken to avoid or minimize potential damage to the environment from Wynn’s proposed category 1 gaming establishment as defined in G.L. c. 23K, § 2 (the “Project” or the “Gaming Establishment”).

II. PROJECT SITE

According to the SSFEIR Certificate, the project site known as 1 Horizon Way in Everett, Massachusetts (“Project Site”) is a waterfront parcel totaling approximately 33.9 acres located in Everett adjacent to the Mystic River. Approximately 25.6 acres are upland, surrounded by shoreline and the remnants of marine structures, and approximately 8.3 acres are below the mean high water mark on the Mystic River. The Project Site includes approximately 1,600 linear feet (“lf”) of shoreline along flowed tidelands. A small area of the Project Site is used as a materials storage yard and includes a 5,200 square feet (“sf”) construction trailer/office.

Historic uses of the Project Site include a Monsanto chemical manufacturing facility. The Project Site is classified as a disposal site subject to G.L. c. 21E and the Massachusetts Contingency Plan (“MCP”). The Project Site is contaminated and contains high levels of arsenic and lead in soils and groundwater. Contaminated sediments have also been identified in the area of the Project Site within the Mystic River.

The Project Site is bordered to the west by the tracks of the Massachusetts Bay Transportation Authority (“MBTA”) Newburyport commuter rail line. The upland portions of the Project Site are bounded by Horizon Way (which intersects with Route 99), and commercial and institutional properties. Most of the soils on the Project Site are disturbed and comprised of fill material. Along the shoreline of the Mystic River is a mix of deteriorated stone seawalls, loose gravel and boulders, and rotted timber piers and pilings. The shallower portions of the shoreline also contain debris and remnants of timber structures.

Access to the Project Site is via Horizon Way, which forms an unsignalized intersection with Broadway (Route 99) in Everett. The Project Site is located in an urban, commercial/industrial area that has suffered from economic disinvestment during the latter part of the twentieth century when manufacturing, import, and fishery activities declined. Surrounding land uses are primarily commercial/retail, with local businesses (e.g., an auto dealership, chain restaurants, and an auto repair shop) and infill residential structures nearby. Proximate uses include Boston Water and Sewer Commission (“BWSC”) and Massachusetts Water Resources Authority (“MWRA”) properties, the MBTA’s Everett Shops maintenance facility (“Everett Shops”) to the north, and the Gateway Center and Gateway Park to the west. The Department of Conservation and Recreation (“DCR”) owns and operates parkways in the vicinity of the Project Site, including Revere Beach Parkway, the Fellsway, and Mystic Valley Parkway. In addition, DCR owns and operates the Mystic River Reservation and the Amelia Earhart dam, a flood control structure located on the Mystic River in the vicinity of the Project Site.

The Project Site is bordered by the Mystic River to the south and an embayment to the east. The embayment is approximately 350 to 500 feet wide from shoreline to shoreline (from the Project Site to the upland east of the embayment containing operations of the MWRA and BWSC). The embayment contains a former channel, reportedly constructed in the mid-1800s. Records indicate the channel to be about 1,000 feet long with a width of 100 feet, and an original draft of 20 feet below the mean low water mark. The channel flares out at the northern end to about 250 feet wide. The channel has since shoaled and the present depth does not exceed 13 feet below the mean low water mark. Waters adjacent to the channel banks are shallower than the central portion of the channel. The eastern side of the embayment is a mud flat with surface grades from the mean low water mark to about three above it. The mud flat contains a variety of debris, including several abandoned timber barges.

III. PROJECT DESCRIPTION

The Project consists of the redevelopment of the 33.9 acre Project Site as a destination resort casino. As described in the SSFEIR Certificate, the Project will include a total of 3,096,700 sf,¹ including, without limitation, the following amenities:

Amenity	Gaming Positions	Rooms	Square Feet
Gaming area	4,580		190,461
Hotel		629	621,774
Retail			52,632
Food and beverage			54,680
Lobbies, lounge, atrium garden and other “front of house” areas			58,548
Back of house facilities			411,058
Spa and gym			15,405
Convention/meeting rooms			37,068

Included within the Project’s total square footage, Wynn proposes to construct a parking structure below the Gaming Establishment (including under the retail portion of the Project), with two below-grade levels and one at-grade level to provide self-serve and valet parking spaces for patrons and employees. Employee parking will be accommodated at off-site locations, at the 2,930 on-site parking spaces shared with patrons and 800 off-site parking spaces for employees. Wynn will provide shuttle service to and from the Project Site.

The Project includes remediation and restoration of the Project Site. The proposed shoreline work includes the installation of a vertical steel pile bulkhead, the placement of stone revetments and the installation of pile-supported walkways, the removal of abandoned and deteriorated structures and remnants, salt marsh restoration and re-vegetation of the shoreline. Waterside work includes dredging of approximately 15,000 cubic yards (“cy”) of sediment over approximately 41,480 sf to provide an adequate water depth of six feet below the mean low water mark to accommodate water transportation vessels. Coastal bank and salt marsh

¹ In the SSFEIR itself, the total square footage of the Project has been reduced to 2,933,839± sf primarily because the number of parking spaces has been reduced in the SSFEIR from 3,400 to 2,930. The latter number of parking spaces is reflected in the SSFEIR Certificate.

restoration is proposed within 69,000 sf area landward of high tide at the southwestern edge of the Project Site.

Access to the Project Site is proposed via a new boulevard-type driveway located approximately 150 feet north of Horizon Way. It will intersect the west side of Lower Broadway (Route 99) just north of Horizon Way opposite Mystic Street. This access requires the acquisition of land (approximately 1.758 acres) from the MBTA consisting of three non-contiguous parcels that are currently part of Everett Shops as shown on SSFEIR Figure 1-8. Wynn proposes to relocate the current unsignalized entrance driveway to the MBTA maintenance facility to the north on Lower Broadway to the signalized intersection at Beachem Street. A secondary access for deliveries and employees will be provided via a service road that would follow the periphery of the Everett Shops property and connect with Route 99 across from Beacham Street in Everett.

The proposed Project will include extensive outdoor landscape and open space amenities including a 20 foot wide harborwalk with connections to the extensive public open space network along the Mystic River; overlooks to view restored coastal bank vegetation and salt marsh; a public gathering area with an outdoor park; a pavilion, waterfront features, water transportation and transient vessel docking facilities. Off-site improvements include the construction of a pedestrian connection to the DCR Gateway Park, as well as transportation, pedestrian, and bicycle accommodations.

IV. MEPA HISTORY

Wynn filed an Expanded Environmental Notification Form (“EENF”) for the Project on May 31, 2013 and a Draft Environmental Impact Report (“DEIR”) on December 16, 2013. The Secretary issued a certificate approving the DEIR on February 21, 2014. Wynn submitted the FEIR on June 30, 2014. On August 15, 2014, the Secretary issued the FEIR Certificate requiring Wynn to submit an SFEIR limited to traffic and transportation issues and a Response to Comments, but otherwise approving of the description of environmental impacts and mitigation measures in the FEIR. Wynn submitted the SFEIR on February 17, 2015.

On April, 3, 2015, the Secretary issued the SFEIR Certificate requiring Wynn to submit the SSFEIR limited to the following scope:

1. An explanation of and remedy for the premature conveyance of land from MassDOT/MBTA and its acceptance by Wynn prior to the completion of MEPA review.
2. Wynn’s commitment to a specific dollar amount for an annual operating subsidy to the MBTA to support service and capacity improvements on the MBTA Orange Line.
3. Clarification of the SFEIR’s Traffic Impact Assessment and supplemental data and analysis.

4. Revised Draft Section 61 Findings that incorporate commitments associated with the three requirements listed above.
5. Responses to Comments that provide clear specific responses to the issues raised.

The SFEIR Certificate otherwise approved of the description of environmental impacts and mitigation measures in the SFEIR. It also noted that the Commission has issued a Category 1 gaming license to Wynn, effective November 18, 2014 (the “License”) pursuant to Chapter 194 of the Acts of 2011 and G.L. c. 23K (the “Gaming Act”) and that this License was conditional on completion of the MEPA review process. This conditional License did not constitute Agency Action under MEPA or its implementing regulation (301 CMR 11.02, Agency Action (c)). *See* SSFEIR Certificate, pp.7-8.

According to the SSFEIR (§ 1.3.6 and Appendix B), on April 15, 2015, Wynn and its affiliate, Everett Property, LLC (collectively, the “Wynn Parties”), entered into an escrow agreement with the MBTA (the “Escrow Agreement”) pursuant to which Wynn executed a quitclaim deed to return the portions of the Everett Shops the Secretary had deemed were prematurely conveyed by MassDOT/MBTA. The Wynn Parties and MBTA also executed an agreement terminating an Easement Agreement conveyed by MassDOT/MBTA at that time. The MBTA placed the purchase price paid by the Wynn Parties for the portion of Everett Shops in question (\$6,000,000) in escrow. Specifically, the SSFEIR (§ 1.3.6) provided as follows:

The escrow agreement provides, in pertinent part, that the conveyance of the property shall be deemed to have not taken place unless and until the Secretary of Energy and Environmental Affairs has determined that, for the Project located on the Proponent’s adjacent land that includes work or activities on the MBTA Everett Shops property: (1) no Environmental Impact Report is required; or (2) a single or final Environmental Impact Report is adequate and sixty (60) days have elapsed following publication of notice of the availability of the single or final Environmental Impact Report in the Environmental Monitor in accordance with 301 CMR 11.15(2), provided that the MBTA shall reconsider and confirm or modify the conveyance of the property pursuant to the Deed and any conditions following MEPA review.

Pursuant to the terms of the Escrow Agreement, in the event the MBTA determines that the transaction requires no modifications or conditions or other mitigation, the escrow agent will return the Quitclaim Deed and Termination of Easement Agreement to the Proponent and the money to the MBTA. In the event the MBTA determines that the transaction requires modifications or conditions or other mitigation, the parties are obligated to work in good faith to document such required modifications, conditions or mitigation commitments after which the escrow agreement will return the Quitclaim Deed and Termination of Easement Agreement to Proponent and the money to the MBTA and record any such modifications. In the event that the parties cannot agree to any required modifications, conditions or other mitigation, the escrow agreement will file the Quitclaim Deed and Termination of Easement Agreement and return the money to Proponent.

Pursuant to the terms of the Escrow Agreement, the Proponent has agreed that it shall not commence any pre-construction or construction activities on the MBTA Everett Shops property until such time as the escrow is dissolved.

On June 1, 2015, Wynn met with representatives from MassDOT, the MEPA Office, EOEEA, the Commission, the City of Everett and the City of Somerville regarding long-term improvements to the Rutherford Avenue corridor. The City of Boston declined to attend this meeting. However, representatives from Wynn and the City of Boston later met on June 10 and June 18, 2015 to discuss improvements to the Rutherford Avenue corridor.

On July 15, 2015, Wynn submitted a Second Supplemental FEIR for the Project addressing the issues required by the SFEIR Certificate. The SSFEIR included an updated Project description and associated plans, an updated Transportation Impact Analysis, revised mitigation based on additional analysis and comment letters, and provided conceptual plans for proposed improvements. The SSFEIR included a separate chapter summarizing proposed mitigation measures and included draft Section 61 Findings for each State Agency that will issue permits for the Project.

On August 28, 2015, the Secretary issued the SSFEIR Certificate which concluded that the SSFEIR “submitted on this project **adequately and properly complies** with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00).” SSFEIR Certificate, p.1, emphasis in original. The Secretary determined that Wynn adequately addressed the issues required by the SFEIR Certificate and that “[o]utstanding aspects of the Project that require additional analysis can be addressed during local, State and federal permitting, review and approval processes.” *Id.*

In the SSFEIR Certificate, the Secretary noted the measures taken by Wynn and MassDOT/MBTA to “remedy the premature conveyance of the land” under MEPA and that, “[a]s directed [by the Secretary in the SFEIR Certificate], the Proponent has provided separate draft Section 61 Findings for MassDOT (i.e. Vehicular Access Permit) and the MBTA (i.e. Land Transfer).” *Id.*, pp.12-13. The SSFEIR Certificate concluded that the MassDOT and MBTA Section 61 Findings “will be finalized during permitting, any associated modifications to the sale will be recorded, and copies of the Section 61 Findings will be filed with the MEPA Office.” *Id.* p. 13.

The SSFEIR Certificate also noted that Wynn had “made significant commitments to minimize and mitigate traffic impacts,” including “an unprecedented commitment” to mitigate impacts on the MBTA’s Orange Line operations in the form of an approximately \$7.4 million subsidy over a 15-year period. As also noted in the SSFEIR Certificate, both MassDOT and the Metropolitan Area Planning Council (“MAPC”) reviewed Wynn’s traffic analysis and mitigation plans and determined, consistent with their review protocols, that those plans would be effective to mitigate the Project’s impacts on existing transportation infrastructure. The Secretary also found the methodology for the transportation analysis in Wynn’s EIR submittals was “consistent with that which was required of each of the Casino proposals [in the Commonwealth], including MGM Springfield (EEA #15033); Project First Light (EEA #15159), and the proposed Mohegan Sun project in Revere (EEA #15006).” SSFEIR Certificate, p. 7.

V. PROJECT IMPACTS

The Project's potential environmental impacts are associated with the creation of 19.42 acres of impervious surfaces, alteration of wetland resource areas, 311,830 gallons per day ("GPD") of water use, generation of 283,482 GPD of wastewater, and dredging of 15,000 cy of sediments over an area of approximately 41,480 sf.

The Project will generate approximately 31,844 new (unadjusted) average daily vehicle trips ("adt") and 37,916 new (unadjusted) adt on a Saturday. When adjusted for mode share, the Project is estimated to generate approximately 20,130 adt on a Friday and 23,982 adt on a Saturday.

Wynn's proposed acquisition of portions of the Everett Shops property from the MBTA for the Project and the construction of the Project's access are expected to require the relocation of the Everett Shops' main gatehouse to the north opposite Beachem Street. As shown on SSFEIR Figure 1-15, Wynn proposes that a 10-foot wide, 60-foot long layover area be added to the Everett Shops driveway's eastbound approach to allow a larger vehicle to wait while another enters Everett Shops as part of this relocation. Wynn also proposes new loading docks be added to Everett Shops as part of the relocation. As explained in the SSFEIR, the proposed relocation of this main access is not expected to negatively affect maneuverability for MBTA vehicles at Everett Shops.

According to the SSFEIR, the MBTA has obtained an independent appraisal of the impact of Wynn's proposed purchase on the value of the three Everett Shops parcels. That appraisal concluded that "the sale of these parcels will not have a negative impact on the use of the larger property by the MBTA. In fact, the sale of the parcels will facilitate construction of a new traffic light controlled intersection with Broadway which will facilitate better access to the remaining MBTA property." SSFEIR, pp.1-7.

According to the SSFEIR, the amount of additional ridership the Project is expected to add to the MBTA's Orange Line would not, on its own, cause the Orange Line to operate beyond the MBTA's Service Delivery Policy capacity standards for most time periods and locations. Assuming no further improvements to Orange Line service and operations prior to 2023, if the Project is built and becomes operational, Orange Line service is expected to be beyond the MBTA's Service Delivery Policy capacity standards for four hours a week, including three weekday non-peak hours in which the Orange Line service is currently not in compliance with the Service Delivery Policy and a fourth hour on Saturday (12-1 p.m.) in which service would be in non-compliance with the Service Delivery Policy by less than one additional passenger per train.

The Project is subject to MEPA review and required the preparation of a Mandatory EIR pursuant to 301 CMR 11.03(1)(a)(2), 11.03(3)(a)(5), 11.03(6)(a)(6) and 11.03(6)(a)(7) because it requires State Agency Actions and it will create 10 or more acres of impervious area, create a new non-water dependent use occupying one or more acres of waterways or tidelands, generate 3,000 or more new adt on roadways providing access to a single location, and provide 1,000 or

more new parking spaces at a single location. The Project is also subject to the EOEEA Greenhouse Gas (“GHG”) Emissions Policy and Protocol dated May 5, 2010.

As described in the FEIR Certificate, Wynn analyzed potential historic and archaeological resources as part of the FEIR and determined that the Project will not adversely impact any historic resources on or in the vicinity of the Project Site. There are also no archaeological resources that will be impacted by the Project due to the fact that the majority of the land portion of the Project Site is fill and has been substantially disturbed. In its comment letter on the DEIR, the Massachusetts Historical Commission (“MHC”) determined that the Project would have “no adverse effect” on historic resources in the vicinity of the project.

The Project is not subject to the enhanced analysis provisions of the EOEEA Environmental Justice Policy (the “EJ Policy”). Although the Project is located in and adjacent to communities with designated environmental justice populations, it does not exceed the MEPA thresholds for solid waste or air quality that trigger a requirement for enhanced analysis under the EJ Policy. The EOEEA has also not required Wynn to conduct any further analysis under Executive Order No. 552 on Environmental Justice (November 20, 2014). Nonetheless, the Commission finds that the proposed Project will make significant positive environmental justice contributions to the host community of Everett and the surrounding area. These positive contributions include without limitation the rehabilitation and revitalization of a contaminated former chemical manufacturing site and its abutting riverfront, the creation of open space amenities including a 20 foot wide harborwalk with connections to the extensive public open space network along the Mystic River, the use of environmentally-sensitive design in all aspects of the Project as described below, and the creation of significant numbers of new jobs arising out of and related to the construction and operation of the proposed facility. The Commission finds that these jobs will directly and substantially benefit disadvantaged persons in the local community.

VI. REQUIRED GOVERNMENTAL PERMITS AND APPROVALS

According to the SSFEIR Certificate the Project is expected to require the following permits and approvals or review by the following federal, state, and local agencies, in addition to the License from the Gaming Commission:

Agency	Permit(s)
MassDOT	Vehicular Access Permit (Category III); Non-vehicular Access Permit; Traffic Signal Regulation
MassDOT, Rail and Transit Division/MBTA	Land Disposition and Easement Agreements; Agreements and approvals necessary to construct improvements and to operate within MBTA transit stations and agreements and approvals necessary to relocate bus stops; funding to support Orange Line capacity; and improvements to MBTA stations.

Agency	Permit(s)
MassDCR	Construction and Access Permit
MWRA	8M Permit
MassDEP	Chapter 91 Waterways License; Chapter 91 Dredging Permit; Notification of Construction/Demolition; Air Plan Approval or Environmental Results Program Certification; Section 401 Water Quality Certification; and Asbestos Removal Permit (if required).
City of Everett Conservation Commission (or a Superseding Order of Conditions (SOC) from MassDEP if the local Order is appealed) ²	Order of Conditions
City of Boston Transportation Department & Public Improvements Commission	Approval for Off-Site Roadway Improvements
U.S. Army Corps of Engineers (“ACOE”)	Section 404 Clean Water Act Permit and Section 10 Permit
Federal Aviation Administration	Determination of No Hazard to Air Navigation ³
U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System (“NPDES”) Construction General Permit

The Project may also require approval for modification to I-93 and other portions of the National Highway System from the Federal Highway Administration. If so, the Project may be subject to review pursuant to the National Environmental Policy Act) and the National Historic Preservation Act. The Project may also require Federal Consistency Review by Coastal Zone Management. It also requires review by the Massachusetts Port Authority (“Massport”) for certain mitigation measures proposed on Massport property.

VII. EXECUTED MITIGATION AGREEMENTS

Pursuant to G.L. c. 23K §§15(8) - (10), Wynn entered into the following mitigation agreements (each individually a “Mitigation Agreement” and collectively the “Mitigation Agreements”):

² Depending on the extent of dredging or remediation work, an Order of Conditions from the Boston Conservation Commission may be required as well.

³ The SSFEIR Certificate also references air space review by the Massachusetts Aeronautics Commission which may take place as part of the FAA’s review.

1. The Host Community Agreement with the City of Everett dated April 19, 2013 (approved by local referendum pursuant to G.L. c. 23K, § 15(13), on June 22, 2013);
2. Surrounding Community Agreements with the following municipalities:
 - a. The City of Boston (“Boston”), dated January 27, 2016;⁴
 - b. The City of Cambridge (“Cambridge”), dated April 22, 2014;
 - c. The City of Chelsea (“Chelsea”), dated June 9, 2014⁵
 - d. The City of Malden (“Malden”), dated November 12, 2013;
 - e. The City of Medford (Medford”), dated April 11, 2014; and
 - f. The City of Somerville (“Somerville”), dated June 12, 2014.⁶
3. Neighboring Communities Agreements with the following municipalities:
 - a. The City of Lynn (“Lynn”), dated January 28, 2014; and
 - b. The City of Melrose (“Melrose”), dated January 28, 2014;
4. The Impacted Live Entertainment Venues Agreement including with the Massachusetts Performing Arts Coalition, dated January 20, 2014; and

⁴ By written decision dated May 15, 2014, the Commission determined that the “Wynn gaming establishment is located solely in Everett. Accordingly, by definition, the City of Boston is not a host community to that project.” On May 15, 2014, the Commission voted to formally deem the City of Boston a surrounding community to the Wynn Project (May 15, 2014 Tr. 123-124). After Boston declined to participate in the Commission’s binding arbitration process under 205 CMR 125.01, the Commission voted on August 7, 2014, to “deem the city of Boston to have waived its surrounding community status with respect to the application for a Category 1 casino license filed by Wynn MA, LLC.” (August 7, 2014 Tr. 195-96). Subsequently, Boston and Wynn executed and submitted to the Commission the Surrounding Community Agreement dated as of January 27, 2016. On February 4, 2016, the Commission voted to accept the Surrounding Community Agreement, to reinstate Boston as a surrounding community to Wynn’s proposed Category 1 Gaming Establishment in Everett, and to determine that the terms of the Surrounding Community Agreement will replace Sections 3 and 4 of the conditions in Wynn’s conditional License related to Boston. *See* Vote Regarding Litigation Release and Surrounding Community Agreement dated February 4, 2016.

⁵ Pursuant to 205 CMR 125.01(6)(c), Wynn participated in binding arbitration with Chelsea. The Arbitrator issued a Report and Final Arbitration Award dated June 9, 2014, selecting Wynn’s Best and Final Offer (“BAFO”) to Chelsea and thereby specifying its terms as the surrounding community agreement between Wynn and Chelsea. The provisions of Wynn’s BAFO to Chelsea attached to the Report and Final Arbitration Award dated June 9, 2014, were incorporated by reference as conditions in the conditional License.

⁶ Pursuant to 205 CMR 125.01(6)(c), Wynn also participated in binding arbitration with Somerville. An Arbitration panel issued a Report and Final Arbitration Award dated June 9, 2014, selecting Wynn’s BAFO and thereby specifying its terms as the surrounding community agreement between Wynn and Somerville. Wynn and Somerville subsequently executed the Surrounding Community Agreement referenced in the text.

5. The Massachusetts State Lottery effective as of September 5, 2014.

Subject to the caveats listed below regarding the MEPA Section 61 Conditions, the Commission incorporates by reference the provisions of each of the above Mitigation Agreements into these Section 61 Findings as conditions to be included in the License for the Gaming Establishment issued pursuant to 205 CMR 120.02. Nothing in these Section 61 Findings shall prevent the reopening of any Mitigation Agreement pursuant to its terms or pursuant to 205 CMR 127.00; provided, however, that in the event any Mitigation Agreement is reopened, the Commission in its discretion expressly reserves the right to modify or amend these Section 61 Findings and the conditions set forth in the License to continue to ensure that all feasible measures are taken to avoid or minimize impacts of the Project and damage to the environment.

VIII. MEPA SECTION 61 FINDINGS AND CONDITIONS

A. Scope of Commission Section 61 Findings

In the Secretary's Certificate on the SSFEIR, the Secretary noted that "the subject matter of the [the Commission's] Agency Action is sufficiently broad ... such that it is functionally equivalent to broad scope jurisdiction" because "the Gaming License ... addresses a broad range of environmental issues - sustainability, energy efficiency, renewable energy, and traffic- and extends to mitigation of environmental impacts on host and surrounding communities." The Secretary also concluded that while MEPA jurisdiction is limited to the subject matter of required or potentially required permits "the subject matter of the Gaming License confers broad scope jurisdiction and extends to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations."

As a result, the Commission's Section 61 Findings include detailed conditions to mitigate this broad range of environmental issues, incorporate the Mitigation Agreements to further mitigate environmental impacts on host and surrounding communities, and incorporate Section 61 Findings of other State Agencies to comprehensively address these issues as set forth below.

B. Enhanced Public Participation in Commission Section 61 Findings

In the SSFEIR Certificate (pp. 3-4), the Secretary required "enhanced public review during ... development of [the Commission] 61 Findings." The Commission has complied and will comply with these enhanced requirements as follows:

1. In these Section 61 Findings, the Commission has considered and revised as appropriate, the draft Section 61 Findings included in the SSFEIR.
2. In these Section 61 Findings, the Commission has included and included by reference the Section 61 Findings from all other State Agencies including, but not limited to, MassDOT's Section 61 Findings. See below.
3. In preparing these Section 61 Findings, the Commission engaged Green International and City Point Partners as consultants, whose representative made a public presentation at the Commission's open meeting on March 22, 2016 at 1:00 PM and who

have provided recommendations regarding additional conditions that should be added to the Commission’s draft and Final Section 61 Findings.

4. The Commission posted a March 17, 2016 preview draft of the Section 61 Findings and the consultants' report on the MGC website on March 18, 2016; posted the Commission’s draft of the Section 61 Findings on the MGC website after the meeting on March 22, 2016; and solicited written comments on the draft Section 61 Findings on or before April 11, 2016 at 4:00 PM.
5. On March 29, 2016, at 5:00 PM MGC held a public hearing on the draft Section 61 Findings at the Boston Convention and Exhibition Center, 415 Summer Street, Boston.
6. These Section 61 Findings incorporate public comments received at the Commission’s public hearing on March 29, 2016, and prior to the close of public comments on April 11, 2016, .
7. Upon the completion of the above process, the Commission will incorporate its Final Section 61 Findings into the Gaming License and the Commission will file the Final Section 61 Findings with the MEPA Office.
8. The Commission will conduct a regular quarterly review concerning compliance with the Commission’s Final Section 61 Findings and the conditions of the Gaming License.

C. Mitigation Measures in Section 61 Findings of Other State Agencies

In the Secretary’s Certificate on the SSFEIR, the Secretary instructed that the Commission’s “Section 61 Findings shall include or include by reference the Section 61 Findings from all other State Agencies including, but not limited to, MassDOT's Section 61 Findings.” To date, the following State Agencies have issued draft or final Section 61 Findings for the Project:

Agency	§ 61 Findings	Date	Env. Monitor
MWRA	Final	1/12/16	1/20/16
Massport	Draft	1/21/16	2/10/16
MassDEP	Draft	1/22/16	
MassDOT, MBTA and DCR ⁷	Final	4/6/16	4/7/16

Subject to the limitations listed below regarding the MEPA Section 61 Conditions, the Commission incorporates these Section 61 Findings by other State Agencies (and any final Section 61 Findings by these other State Agencies pursuant thereto) into the Commission’s Section 61 Findings. Wynn shall comply with the detailed mitigation measures provided by the

⁷ These combined Section 61 Findings are referred to herein as the “MassDOT/MBTA/DCR Section 61 Findings.”

final Section 61 Findings issued by each other State Agency with jurisdiction to take Agency Action with respect to the Project including, without limitation, MassDEP, MassDOT, MBTA, MassDCR, Massport and MWRA. Wynn shall also comply with all applicable and lawful terms and conditions of any final federal, state, or local permit or approval required for the Project.⁸

D. Limitations Regarding MEPA Section 61 Conditions

The Commission in its discretion expressly reserves the right to take, and nothing herein shall prevent the Commission from taking, further action with respect to these Section 61 Findings, the License for the Gaming Establishment, and/or any conditions contained in these Section 61 Findings or the License for the Gaming Establishment, pursuant to 205 CMR 127 or otherwise. Without limitation, to continue to ensure that all feasible measures are taken to avoid or minimize impacts of the Project and damage to the environment the Commission in its discretion expressly reserves the right to modify or amend its Section 61 Findings as a result of any Section 61 Findings or final Agency Action issued or finalized by other Agencies after the Commission's Section 61 Findings. If the terms of (a) any other Agency's Section 61 Findings or final Agency Action, (b) any other governmental permit or approval, (c) any denial of any other governmental permit or approval, (d) any process required to obtain such permit or approval, or (e) any provision of any of the Mitigation Agreements listed above, conflict with the Commission's Section 61 Findings or the mitigation measures set forth below, or render such mitigation measures infeasible or impossible, Wynn shall notify the Commission of that conflict for resolution by the Commission pursuant to G.L. c. 23K and 205 CMR 120.01 and 120.02. Pursuant to G.L. c. 23K, § 10(c), the Commission reserves its rights to determine which infrastructure improvements onsite and around the vicinity of the Gaming Establishment, including projects to account for traffic mitigation as determined by the Commission, shall be completed before the Gaming Establishment shall be approved for opening.

E. Mitigation Measures for the Project under the FEIR, SFEIR, and SSFEIR

Wynn shall comply with the following detailed measures to mitigate the Project's impacts specified in (a) the FEIR and the FEIR Certificate, (b) the SFEIR and the SFEIR Certificate, and (c) the SSFEIR and the SSFEIR Certificate including, without limitation, the mitigation measures described in the following sections of the FEIR, SFEIR, and SSFEIR:

- (1) Measures described in SFEIR Chapter 3, and SFEIR Tables 3-2: Proposed DEP Mitigation Measures by Wynn MA LLC, 3-3: Proposed DCR

⁸ By complying with the Secretary's SSFEIR Certificate and by incorporating and requiring compliance with the final Section 61 Findings by other State Agencies (and their resulting final permits and approvals), the Commission neither assumes control over nor takes responsibility for matters that, by statute and regulations, are committed to the jurisdiction, control and expertise of other State Agencies. However, the Commission does exercise its own discretion and authority under the Gaming Act and MEPA and their respective regulations to issue its own Section 61 Findings and to incorporate its final Section 61 Findings into the Gaming License.

Mitigation Measures by Wynn MA LLC, and 3-4: Summary of Proposed Mitigation Measures by Wynn MA LLC;

- (2) Measures to mitigate impacts on wetlands, waterways and water quality set forth in FEIR Chapter 3, FEIR Section 13.4.1, and FEIR Tables 13-1 and 13-3, Proposed Wetlands, Waterways and Water Quality Mitigation Measures;
- (3) Measures to mitigate air quality impacts set forth in FEIR Chapter 5, FEIR Section 13.4.5, and FEIR Tables 13-1 and 13-3;
- (4) The transportation demand management (“TDM”) program strategies for patrons and employees as noted in FEIR Chapter 4;
- (5) Measures to mitigate greenhouse gas impacts and promote sustainable development set forth in FEIR Chapter 6, FEIR Section 13.4.6, and FEIR Tables 13-1 and 13-3, Greenhouse Gas Emission Mitigation Measures;
- (6) Measures to mitigate storm water impacts set forth in FEIR Chapter 7, FEIR Section 13.4.4, and FEIR Tables 13-1 and 13-3, Stormwater Mitigation Measures;
- (7) Measures to mitigate impacts on water supply set forth in FEIR Chapter 8, FEIR Section 13.4.2, and FEIR Table 13-1, Proposed Water Use Mitigation Measures;
- (8) Measures to mitigate wastewater impacts set forth in FEIR Chapter 9, FEIR Section 13.4.3, and FEIR Tables 13-1 and 13-3, Proposed Wastewater and Sewer Mitigation Measures;
- (9) Measures to mitigate solid and hazardous wastes impacts set forth in FEIR Chapter 10 and FEIR Section 13.4.7 (Brownfields Remediation);
- (10) Measures to mitigate impacts on historic and archaeological resources set forth in FEIR Chapter 11;
- (11) Measures to mitigate construction-related impacts set forth in FEIR Chapters 12 and 13;
- (12) Measures to mitigate impacts on open space set forth in FEIR Chapter 2.3.8 and FEIR Section Table 13-4; and
- (13) Measures identified in SSFEIR Chapter 4.

In addition, Wynn shall comply with all measures to mitigate transportation impacts set forth in FEIR Chapter 4, FEIR Section 13.3, FEIR Tables 13-2 and 13-4, Table of Proposed Transportation Mitigation Measures, SFEIR Chapter 3 and SFEIR Table 3-1: Proposed

Transportation Mitigation Measures by Wynn MA LLC, and SSFEIR Chapter 4 as supplemented and amended in the SFEIR, SSFEIR and FEIR, SFEIR and SSFEIR Certificates, and shall comply with any additional conditions that the Commission imposes in the License pursuant to 205 CMR 120.02(1)(a).

With respect to the foregoing requirements, in the event of a conflict regarding a particular mitigation measure described in the FEIR, the Secretary's FEIR Certificate, the SFEIR, the Secretary's SFEIR Certificate, the SSFEIR and/or the Secretary's SSFEIR Certificate, the mitigation measure described in the later document in the MEPA process shall control.

F. Project-Specific Mitigation Measures and Off-Site Improvements

The environmental review process culminating in the SSFEIR and the SSFEIR Certificate, and the Section 61 Findings issued by the other State Agencies listed above require detailed and specific mitigation measures and off-site improvements to avoid or minimize the impacts of the Project and damage to the environment within the scope of MEPA and its implementing regulations.⁹ The Commission incorporates by reference the mitigation measures specified by the Section 61 Findings of these State Agencies having expertise in their respective areas of subject matter jurisdiction. The Commission also incorporates by reference Mitigation Agreements listed above which mitigate other impacts on the host and surrounding communities from the development and operation of a gaming establishment within the scope of the Gaming Act and its implementing regulations. Without limitation, the Commission incorporates by reference the acknowledgement and agreement of the City of Boston in § 1.2 of the Boston SCA regarding mitigation of the transportation impacts of the Project.¹⁰ The Commission finds pursuant to G.L. c. 30, § 61 and 301 CMR 11.12(5), and based on the results of the MEPA process that, subject to the mitigation measures imposed as conditions by the Commission's Section 61 Findings herein, all feasible measures have been taken to avoid or minimize impacts of the Project and damage to the environment.

Specifically and without limitation, as conditions of the Commission's Section 61 Findings, the Commission hereby requires that Wynn shall implement, and shall be fully responsible for the costs of implementing, the following mitigation measures according to the following schedule:

⁹ See, e.g., MassDOT/MBTA/DCR Section 61 Findings (§§ V and VII), MWRA Section 61 Findings (at page 5), Massport Section 61 Findings (¶ B), and DEP Section 61 Findings (DEP's Written Determination and Draft Special Conditions on Waterways Application, page 7, and Combined 401 Water Quality Certification, page 5).

¹⁰ Section 1.2 of the Boston SCA stipulates that, while the Project will result in additional vehicular traffic that may burden the transportation infrastructure in Boston, particularly in the Sullivan Square area in the neighborhood of Charlestown, Boston acknowledges and agrees that "Wynn's mitigation under the Massachusetts Environmental Policy Act ('MEPA') and its payments to Boston under this [Surrounding Community] Agreement will mitigate any transportation impacts of the Project" and that "such mitigation will adequately mitigate all such impacts."

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
1. EVERETT MITIGATION		
	<p>In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall:</p>	
<p>Revere Beach Parkway (Route 16)/Mystic View Road/Santilli Highway/Route 99 Connector Improvements (Santilli Circle)</p>	<ul style="list-style-type: none"> • Modify the approach from Frontage Road into the rotary to allow for two formal lanes. • Widen circle at Santilli Highway approach to allow for three travel lanes. • Provide improved pedestrian and bicycle connection from Frontage Road to Mystic View Road. • Reconfigure channelizing island on south side of rotary near Mystic View Road. • Provide traffic signal improvements at the signalized locations around the traffic circle. • Provide landscaping improvements to the center of the circle. • Provide new guide signage and pavement markings.¹¹ <p>These geometric and traffic signal improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Santilli Circle Conceptual Improvement Plan (Figure 2-24A, B, C, and D)” included in the SFEIR, as revised in accordance with the revised conceptual plans entitled, “Proposed Modifications to SSFEIR 2023 Build</p>	<p>Prior to opening.</p>

¹¹ The SSFEIR Certificate indicated that Wynn will perform a Road Safety Audit (“RSA”) during 25% design to identify safety improvements to be implemented as mitigation where feasible, incorporate RSA recommendations into final design where feasible, and coordinate with MassDOT to identify funding source for implementation of RSA recommendations. Since that time, as set forth below, Wynn has conducted the RSA and recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of Wynn. As set forth in the table below, these Section 61 Findings require that Wynn fund the approved road safety improvements which constitute feasible mitigation measures for the Project and which are included in the final design resulting from the RSA recommendations.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Condition at Santilli Circle & Santilli Highway (Figure 1 & 2)” included in a Technical Memorandum dated March 3, 2016 to be reviewed and approved by MassDOT, with such refinements thereto as are approved by MassDOT through the 100 percent design submission.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent (Wynn) has conducted a Road Safety Audit (“RSA”) at Santilli Circle due to its inclusion in a- Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at Santilli Circle, the Proponent shall incorporate in the conceptual design plans for Santilli Circle all the potential safety enhancements with “low” and/or “medium” costs and with “short-term” and/or “mid-term” timeframes as listed in the RSA Report in Table 3: Potential Safety Enhancement Summary--Santilli Circle.</p>	
<p>Revere Beach Parkway (Route 16)/Broadway/Main Street (Sweetser Circle)</p>	<ul style="list-style-type: none"> • Reconstruct circle and approaches to function as a two-lane modern roundabout. • Reconfigure the existing Broadway (Route 99) northbound approach to allow for three travel lanes providing free flow access to Route 16 eastbound. • Provide shared use path on northwest side of rotary to improve bicycle access. • Install new signage to provide direction to bicyclists on how to navigate the rotary safely. • Provide landscaping and improvements on the north side of the circle. • Maintain pedestrian signal across Route 16 eastbound exit from rotary. <p>These improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Sweetser Circle Conceptual Improvement Plan (Figure 2-25A, B, and C)” included in the SFEIR, with such refinements thereto as are approved by MassDOT through the 100 percent design submission.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the</p>	<p>Prior to opening.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Proponent (Wynn) has conducted a Road Safety Audit (RSA) at Sweetser Circle due to its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at Sweetser Circle, the Proponent shall incorporate in the conceptual design plans for Sweetser Circle all the potential safety enhancements with “low” and/or “medium” costs and with “short-term” and/or “mid-term” timeframes as listed in the RSA Report in Table 4: Potential Safety Enhancement Summary--Sweetser Circle.</p>	
<ul style="list-style-type: none"> • Route 99 (Broadway)/ Horizon Way (Site Driveway) • Route 99 (Broadway)/ Lynde Street • Route 99 (Broadway)/ Thorndike Street • Bow Street/Mystic Street • Bow Street/Lynde Street • Bow Street/Thorndike Street • Beacham Street/Robin Street • Route 99 (Broadway)/ Bowdoin Street • Route 99 (Broadway)/ Beacham Street intersection (service driveway) 	<ul style="list-style-type: none"> • Construction of the site driveway and signalization of the Route 99 (Broadway)/Horizon Way intersection. • Reconstruct Lower Broadway as a 4-lane boulevard with turn lanes at major intersections. • Upgrade/replace/install traffic control signals. • Reconstruct or construct sidewalks and bicycle lanes where required. • Install street trees and lighting. • Improve and provide access MBTA bus stops along Lower Broadway. • Installation of technology along Broadway/Alford Street (Route 99), near project entrance, to allow for signal prioritization. <p>Without limitation, these improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Lower Broadway/ Alford Street (Route 99) Improvement Plan (Figures 2-12A, B, and C)”) and refinements thereto through the 100 percent design.¹²</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent (Wynn) has conducted a Road Safety Audit (“RSA”) along this corridor</p>	<p>Prior to opening.</p>

¹² As these various intersections are not under MassDOT jurisdiction, the determination of appropriate mitigation measures (if necessary) and the determination appropriate design and construction details will be made between Wynn and Everett as stated in the MassDOT/MBTA/DCR Section 61 Findings.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>due to its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at the intersections along this corridor, the Proponent shall incorporate in the conceptual design plans for the corridor all the potential safety enhancements with "low" and/or "medium" costs and with "short-term" and/or "mid-term" timeframes as listed in the RSA Report in Table 3: Potential Safety Enhancement Summary-Lower Broadway.</p>	
<p>Broadway/Norwood Street/Chelsea Street¹³</p>	<p>Optimize traffic signal timing, phasing and coordination.</p> <p>This intersection is not under MassDOT jurisdiction. The determination of appropriate design and construction details at this intersection should be made between Wynn and the City of Everett.</p>	<p>Prior to opening.</p>
<p>Lower Broadway Truck Route</p>	<ul style="list-style-type: none"> • Upgrade Robin Street and Dexter Street to serve as a truck route. • Provide full depth reconstruction of the existing roadway to accommodate heavy vehicles. • Reconstruct Robin Street and Dexter Street to include heavy-duty pavement, corner radii improvements, sidewalk reconstruction (where present), drainage system modifications (minor), signs and pavement markings. 	<p>Prior to opening.</p>
<p>Ferry Street/Broadway (Route 99)¹⁴</p>	<p>Retime and optimize traffic signal.</p>	<p>Prior to opening.</p>
<p>Intersections not under MassDOT jurisdiction</p>	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, the following intersections are not under MassDOT jurisdiction. If necessary, the determination of any appropriate mitigation measures and/or design and construction details at</p>	<p>Prior to opening.</p>

¹³ See prior footnote.

¹⁴ See prior footnote.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>these intersections should be made between Wynn and Everett.</p> <ul style="list-style-type: none"> • Route 99 (Broadway)/2nd Street/Corey Street Intersection • Route 99 (Broadway)/Mansfield Street/Church Street Intersection • Route 99 (Broadway)/High Street/Hancock Street Intersection • Route 99 (Broadway)/McKinley Street/Cameron Street/Lynn Street Intersection • Tileston Street/Oakes Street/Main Street Intersection • Waters Avenue/Linden Street/Main Street Intersection • Peirce Avenue/Bellingham Avenue/Main Street Intersection 	
Other Intersections	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible means to avoid or minimize the project's traffic impacts at the following locations that Wynn could be required to implement:</p> <ul style="list-style-type: none"> • Route 16 (Revere Beach Parkway)/Garvey Street/2nd Street Intersection • Route 16 (Revere Beach Parkway)/Spring Street Intersection • Route 16 (Revere Beach Parkway)/South Ferry Street Intersection • Route 16 (Revere Beach Parkway) Vine Street Intersection • Route 16 (Revere Beach Parkway) Vale Street Intersection • Route 16 (Revere Beach Parkway)/Everett Avenue Intersection 	N/A
2. MEDFORD MITIGATION		
	<p>In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall:</p>	
Mystic Valley Parkway (Route 16)/Fellsway (Route 28)/Middlesex Avenue (Wellington Circle)	<ul style="list-style-type: none"> • Upgrade/replace traffic signal equipment/signs/pavement markings. • Optimize traffic signal timing, phasing and coordination. • Widen Route 28 northbound to provide an additional left turn lane. • Widen Route 16 westbound to provide an additional through lane in the middle of the intersection. • Reconstruct non-compliant sidewalks and accessible ramps around the 	Prior to opening.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>intersection to improve pedestrian access.</p> <ul style="list-style-type: none"> • Provide landscape improvements. <p>Without limitation, these improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Wellington Circle Conceptual Improvement Plan (Figure 2-67A, B, and C)” included in the SFEIR, with such refinements thereto as are approved by MassDOT through the 100 percent design submission.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent (Wynn) has conducted a Road Safety Audit (RSA) at this intersection due to- its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at this intersection) the Proponent shall incorporate in the conceptual design plans for this intersection all the potential safety enhancements with "low" and/or "medium" costs and with "short-term" and/or "mid-term" timeframes as listed in Table 4: Potential Safety Enhancement Summary-Wellington Circle.</p>	
Mystic Valley Parkway (Route 16)/Mystic Avenue (Route 38)	<ul style="list-style-type: none"> • Implement traffic Signal retiming and optimization. • Implement ADA Improvements. <p>As set forth in the MassDOT/MBTA/DCR Section 61 Findings, prior to any site occupancy, the Proponent (Wynn) will implement these improvements at this intersection in accordance to conceptual and 100 percent plans to be submitted to and approved by MassDOT and DCR. This plan will be refined as the design progresses to the 100 percent level.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent has conducted a Road Safety Audit (RSA) at this intersection due to its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has</p>	Prior to opening.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at this intersection, the Proponent shall incorporate in the conceptual design plans for this intersection all the potential safety enhancements as listed in the RSA Report in Table 4: Potential Safety Enhancement Summary-Mystic Valley Parkway/Route 16/Connector Road and Mystic Valley Parkway/Route 38/Harvard Street.</p>	
<p>Mystic Valley Parkway (Route 16)/Route 16 Southbound Connector</p>	<ul style="list-style-type: none"> • Implement traffic Signal retiming and optimization. • Implement ADA Improvements. <p>As set forth in the MassDOT/MBTA/DCR Section 61 Findings, prior to any site occupancy, the Proponent (Wynn) will implement these improvements at this intersection in accordance with conceptual and 100 percent plans to be submitted to and approved by MassDOT and DCR. This plan will be refined as the design progresses to the 100 percent level.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent has conducted a Road Safety Audit (RSA) at this intersection due to its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts at this intersection, the Proponent shall incorporate in the conceptual design plans for this intersection all the potential safety enhancements as listed in the RSA Report in Table 4: Potential Safety Enhancement Summary – Mystic Valley Parkway/Route 38/Harvard Street.</p>	<p>Prior to opening.</p>
<p>Mystic Valley Parkway (Route 16)/Route 16 Southbound Connector</p>	<ul style="list-style-type: none"> • Perform RSA at this intersection. • Coordinate with MassDOT to implement recommended safety improvements. 	<p>Prior to opening.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Wellington Circle Study	Provide \$1.5 million to MassDOT toward a transportation study to develop alternatives for a long-term fix of Wellington Circle.	Prior to opening.
Intersections not under MassDOT jurisdiction	As stated in the MassDOT/MBTA/DCR Section 61 Findings, there are no additional feasible means to avoid or minimize the project's traffic impacts at the following locations that the Proponent (Wynn) could be required to implement: <ul style="list-style-type: none"> • Route 28 (Fellsway West)/Fulton Street Intersection • Route 28 (Fellsway West)/Route 60 (Salem Street) Intersection • Route 28 (Fellsway)/Central Avenue/Medford Street Intersection • Route 28 (Fellsway)/Riverside Avenue Intersection 	Prior to opening.
Other Intersections	As stated in the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible means to avoid or minimize the project's traffic impacts at this location that Wynn could be required to implement: <ul style="list-style-type: none"> • Route 16 (Mystic Valley Parkway)/Locust Street Intersection • Route 16 (Mystic Valley Parkway)/Commercial Street Intersection 	N/A
Other Mitigation under Surrounding Community Agreement	In addition to the MEPA mitigation measures described above, Wynn shall comply with the requirements of the Medford Surrounding Community Agreement (“Medford SCA”). Without limitation, subject to the terms and conditions thereof, Wynn shall pay to Medford the Transportation Hub Payment under Section 1.2 and the annual Public Safety Payment under Section 2.2 thereof.	Ongoing pursuant to schedule set forth in the Medford SCA.
3. MALDEN MITIGATION		
Other Mitigation under Surrounding Community Agreement	In addition to the multimodal improvements to MBTA’s Malden Center Station and other MBTA property described below pursuant to MEPA, Wynn shall comply with the requirements of the Malden Surrounding Community Agreement (“Malden SCA”). Without limitation, subject to the terms and conditions thereof, Wynn shall pay to Malden the Transportation Hub Payment under Section 1.2, the Transitional Roads Payment under Section 2.2, and the Public Safety Payment under Section 3.2 thereof.	Ongoing pursuant to schedule set forth in the Malden SCA

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
4. BOSTON MITIGATION		
	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings and in the Boston SCA, Wynn shall:	
Sullivan Square Mitigation Program Main Street/Maffa Way/Cambridge Street/Alford Street Intersection (Sullivan Square) Alford Street/Main Street/Sever Street/Cambridge Street (Sullivan Square)	<ul style="list-style-type: none"> • Optimize signal timing for Maffa Way/Cambridge Street; interconnect and coordinate traffic signals, modify the Main Street approach.¹⁵ • Install a traffic signal interconnection conduit system and associated equipment (pull boxes and wiring) from Sullivan Square to Austin Street. • Reconstruct busway between Cambridge Street and Maffa Way. • Reconstruct the southbound approach of Alford Street at Cambridge Street. • Install new traffic signals at Cambridge Street/Spice Street/MBTA Busway and Maffa Way/Busway.¹⁶ • Upgrade/replace traffic signal equipment/signs/pavement markings.¹⁷ • Optimize traffic signal timing, phasing and coordination. • Reconstruct Spice Street. • Reconstruct D Street.¹⁸ 	Prior to opening, except for Regional Working Group which shall be ongoing.

¹⁵ The SSFEIR Certificate indicates that Wynn will “widen the Main Street approach to provide two lanes.” The Boston SCA indicates that Wynn will “modify the Main Street approach.” These Section 61 Findings anticipate that Wynn and Boston will finalize the modification of the Main Street approach during review by the Boston Transportation Department & Public Improvements Commission.

¹⁶ The Boston SCA further specifies that this mitigation measure also includes “new traffic signals at ... Maffa Way/Beacham Street Extension, and Main Street (west)/Beacham Street.”

¹⁷ The Boston SCA further specifies that this mitigation measure also includes “new signal controllers with adaptive signal control capabilities and new Pan-Tilt-Zoom (PTZ) cameras,” and requires that Wynn “[i]nstall necessary additional loop detection to ensure adaptive signal control capabilities.” For the Cambridge Street/I-93northbound off-ramp, the Boston SCA specifically requires Wynn to “[u]pgrade traffic signals, including new controller with adaptive signal control capabilities and new PTZ camera.”

¹⁸ According to the SSFEIR Certificate, “The railroad right-of-way (ROW) referred to in the SSFEIR as D Street is owned by Massport. Comments from Massport indicate that this ROW is not a public way and proposed improvements would require approval by Massport.” The MassDOT/MBTA/DCR Section 61 Findings state that, “Prior to the issuance of the Vehicular Access Permit for the project, the Proponent will submit to the MassDOT District 4, and District 6

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
<p>Cambridge Street/Spice Street/Sullivan Square Drive Intersection</p> <p>Maffa Way/Beacham Street Extension Intersection</p> <p>Cambridge Street/I-93northbound off-ramp</p> <p>And Related Intersections</p>	<ul style="list-style-type: none"> • Reconstruct sidewalks on west side of rotary between Sullivan Square station and Alford Street Bridge. • Reconstruct sidewalks and upgrade lighting and streetscape in rotary between Cambridge Street and Main Street (east). • Provide bicycle lanes on Cambridge Street. • Reconstruct MBTA lower busway and parking area at Sullivan Square station, including new traffic signal at Maffa Way/station entrance. • Construct BUS ONLY left-turn lane from Main Street into Sullivan Square Station. <p>Without limitation, these improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Sullivan Square Conceptual Improvement Plan (Figure 2-91)” included in the SFEIR and approved by MassDOT. This plan will be refined as the design progresses to the 100 percent level.</p> <p>As set forth in the MassDOT/MBTA/DCR Section 61 Findings, Sullivan Square, the Maffa Way/Beacham Street Extension Intersection, the Maffa Way/MBTA Bus Lane Intersection, the D Street/Rutherford Avenue Intersection, and the Spice Street/D Street Intersection are not under MassDOT jurisdiction. However, because traffic operations at these locations may affect traffic operations at the I-93 Northbound off- Ramp and/or the MBTA bus operations or Sullivan Square Station driveways, Wynn will prepare and submit conceptual and 100 percent plans to MassDOT and MBTA for review and approval (as specified in the MassDOT/MBTA/DCR Section 61 Findings), in consultation with the City of</p>	

Offices satisfactory documentation to demonstrate that all necessary ROW along D Street has been acquired from the Massachusetts Port Authority (Massport) for the implementation of the mitigation measures detailed in this finding....” In Massport’s Section 61 Findings, Massport has concluded that, subject to its review and approval of detailed plans and specifications to support the request for a license for the construction of the transportation mitigation improvements on Massport’s D Street property, “the Project’s proposed transportation improvements on Massport’s D Street Property are expected to result in no adverse environmental impacts.”

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Boston, prior to the construction of these intersections or improvements.</p> <p>Moreover, enhanced transportation planning for long-term transportation improvements that can support sustainable redevelopment and economic growth in and around Sullivan Square will occur through the Regional Working Group required by the SSFEIR Certificate and discussed separately below.</p>	
<p>Dexter Street/Alford Street (Route 99)</p>	<ul style="list-style-type: none"> • Upgrade/replace traffic signal equipment/signs/pavement markings.¹⁹ • Optimize traffic signal timing, phasing, and coordination. <p>Without limitation, these improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Lower Broadway/ Alford Street (Route 99) Improvement Plan (Figure 2-12)” and refinements thereto as the design progresses to the 100 percent level.</p>	<p>Prior to opening.</p>
<p>Rutherford Avenue (Route 99)/Route 1 Ramps</p>	<p>Optimize traffic signal timing and phasing.</p> <p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, the traffic signal plans are to be submitted to and approved by MassDOT. This plan will be refined as the design progresses to the 100 percent level.</p>	<p>Prior to opening.</p>
<p>Other Intersection not under MassDOT jurisdiction</p>	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, the following intersection is not under MassDOT jurisdiction:</p> <ul style="list-style-type: none"> • Main Street/Beacham Street Intersection. <p>The determination of appropriate design and construction details of this intersection should be made between the proponent and the City of Boston.</p>	<p>Prior to opening.</p>
<p>Other Intersections</p>	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible</p>	<p>Per results of Regional</p>

¹⁹ The Boston SCA further specifies that this mitigation measures includes “PTZ camera.”

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>means to avoid or minimize the project's traffic impacts at the following locations that Wynn could be required to implement at this time:</p> <ul style="list-style-type: none"> • Rutherford Avenue/ Austin Street Intersection. • I-93 ramps/Rutherford Avenue/Chelsea Street Intersection (City Square). <p>Rather, enhanced transportation planning will occur through the Regional Working Group required by the SSFEIR Certificate and discussed separately below.</p>	Working Group.
Sullivan Square Landscaping	Improve landscaping within the rotary at Sullivan Square and immediately north of the rotary adjacent to Rutherford Avenue.	Prior to opening.
Cooperation and Outreach	<ul style="list-style-type: none"> • Continue to work with MassDOT and Boston to refine geometric improvements and optimize traffic operations. • Continue discussions with affected property owners impacted by improvements regarding necessary grants of right of way. 	Prior to opening and ongoing.
	In accordance with the SSFEIR Certificate²⁰ as more particularly specified and conditioned in the Boston SCA, Wynn shall comply with the following conditions:	
Long-term Financial Commitment to Transportation Mitigation for Sullivan Square	<p>Pursuant to and subject to §§ 7.3, 7.4 and 7.5 of the Boston SCA, Wynn shall provide payments of \$2.5 million per year for 10 years into the SSIP Fund toward the Sullivan Square Infrastructure Project, as defined therein.</p> <p>Prior to the Opening Date, pursuant to and subject to § 7.5 of the Boston SCA, Wynn shall negotiate with Boston in good faith an escrow agreement pertaining to</p>	Annually for 10 years beginning on the first anniversary of the Opening Date.

²⁰ In the SSFEIR Certificate, the Secretary noted that under the Reopener Provision of the conditional Gaming License (Section 2 condition 32), “the City of Boston can reopen negotiations for Surrounding Community Status any time prior to opening of the gaming establishment and the MGC has the authority to amend and modify mitigation as appropriate.” Wynn and the City have done so. See Commission’s Vote Regarding Litigation Release and Surrounding Community Agreement dated February 4, 2016.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>the SSIP Fund. If Wynn and Boston do not reach an escrow agreement prior to the Opening Date, Wynn shall report to the Commission on or within 30 days after the Opening Date for action by the Commission as may be necessary with respect thereto.</p>	
<p>Long-term Commitment Transportation Demand Management relative to Sullivan Square and Boston</p>	<p>Pursuant to and subject to § 7.1.B of the Boston SCA, Wynn shall monitor traffic and, if there are operational deficiencies at the monitored locations and either (1) the measured traffic volumes for the Project exceed 110% of the projected values; or (2) the distribution of Project-related traffic from the Project Site entrance to the roadway network varies by more than 10% of the trip assignment assumed for the Project, then Wynn shall be responsible for the costs of implementing additional mitigation measures including but not limited to those measures listed in § 7.1.B of the Boston SCA.²¹</p> <p>Pursuant to and subject to § 7.1.B of the Boston SCA, Wynn shall engage and pay for an independent organization approved by the Commission to complete the monitoring program.</p> <p>Consistent with the MassDOT/MBTA/DCR Section 61 Findings, at least twice annually on the anniversary of the Opening Date, or on such other schedule as Wynn and Boston may agree, Wynn shall report to the Commission and Boston the results of the monitoring program, any operational deficiencies at the monitored locations related to metrics (1) and (2) above, and the plan for, schedule for and status of implementing any additional mitigation measures with respect thereto.</p> <p>See also Transportation Monitoring Program, in § VIII.F.11 below.</p>	<p>Commences prior to the initial occupancy of the Project and continues for a period of 10 years.</p>

²¹ The terms “projected values” and “measured traffic values” in the first condition should be measured based on Friday and Saturday peak hour trip volumes; and the phrase “more than 10% of the trip assignment assumed for the Project” in the second condition should be understood to mean more than 80.3% of Gaming Establishment traffic.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Community Outreach	Pursuant to and subject to § 8.8 of the Boston SCA, Wynn shall engage in community outreach to the Charlestown neighborhood and consult with the neighborhood regarding the progress of the Project including any transportation mitigation or changes in transportation mitigation plans.	Ongoing.
Community Impact Fee ²²	<p>Pursuant to and subject to § 2.1 of the Boston SCA, following the Opening Date and throughout the term of the License for as long as Wynn, or any parent, subsidiary or related entity, owns, controls, or operates a commercial gaming facility at the Project Site, Wynn shall make an annual payment of \$2 million to Boston (the “Community Impact Fee”), subject to escalation pursuant to § 10.16 of the Boston SCA, for the purposes set forth therein.</p> <p>Pursuant to and subject to § 2.2 of the Boston SCA, the Commission has released to Boston at Wynn’s request Wynn’s check in the amount of \$1 million. If that check does not clear because of the passage of time since it was cut, Wynn shall promptly provide a replacement check in that amount to Boston.</p> <p>Pursuant to and subject to § 2.3 of the Boston SCA, the Community Impact Fee shall remain in the exclusive custody and control of Boston, and shall be used and applied at Boston's sole discretion and determination toward any impact, infrastructure, improvement and/or mitigation measures related to the Project that Boston deems necessary and suitable.</p>	<p>Annually on or before the ninetieth (90th) day following the Opening Date.</p> <p>Completed.</p>
5. REVERE MITIGATION		
	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall:	

²² Pursuant to and subject to §§ 2.1-2.3 of the Boston SCA, the Community Impact Fee may be used by the City for transportation mitigation or other purposes. Reference to this Community Impact Fee is included in this section because its potential uses include without limitation funding relative to transportation infrastructure impacts and the Sullivan Square Infrastructure Project (as defined in Section 7.4 of the Boston SCA) related to the Project.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Beach Street/Everett Street/Route 1A/Route 16/Route 60 Intersection (Bell Circle)	<ul style="list-style-type: none"> • Upgrade/replace traffic signal equipment/signs/pavement markings. • Optimize traffic signal timing, phasing and coordination. <p>As and to the extent set forth in the MassDOT/MBTA/DCR Section 61 Findings, Wynn will implement the improvements at this intersection in accordance with conceptual and 100 percent plans to be submitted to and approved by MassDOT and DCR. This plan will be refined as the design progresses to the 100 percent level.</p>	Prior to opening.
6. CHELSEA MITIGATION		
	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall:	
Route 16 (Revere Beach Parkway)/Washington Avenue	<ul style="list-style-type: none"> • Replace traffic signal equipment. • Furnish new signs/pavement markings. • Optimize traffic signal timing, phasing and coordination. <p>As set forth in the MassDOT/MBTA/DCR Section 61 Findings, Wynn will implement the improvements at this intersection in accordance with conceptual and 100 percent plans to be submitted to and approved by MassDOT and DCR. This plan will be refined as the design progresses to the 100 percent level.</p>	Prior to opening.
Route 16 (Revere Beach Parkway)/Everett Avenue ²³	Optimize traffic signal timing, phasing and coordination.	Prior to opening.

²³ The SSFEIR Certificate refers to this intersection in Chelsea and indicates that Wynn has committed to optimize traffic signal timing, phasing and coordination at this intersection. The MassDOT/MBTA/DCR Section 61 Findings (at pages 5-6) refer to this intersection in Chelsea and that Wynn will apply to MassDOT for a Vehicular Access Permit to implement improvements for modifications at this location; however, those Findings (at pages 4 and 16) list this intersection in Everett and indicate that “there are no feasible means to avoid or minimize the project’s traffic impacts at this location that the Proponent could be required to implement.” In public comments dated March 22, 2016, on the Commission’s draft Section 61 Findings, the Chelsea City Manager asked “that Wynn be required, as part of its traffic mitigation, to improve the Route 16/Everett Avenue intersection by means of replacing traffic signal equipment, installing new

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Route 16 (Revere Beach Parkway)/Webster Avenue /Garfield Avenue	<p>Optimize traffic signal timing, phasing and coordination.</p> <p>As set forth in the MassDOT/MBTA/DCR Section 61 Findings, Wynn will implement the improvements at these intersections as applicable in accordance with conceptual and 100 percent plans to be submitted to and approved by MassDOT and DCR. This plan will be refined as the design progresses to the 100 percent level.</p>	
Intersections not under MassDOT jurisdiction	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, the following intersection is not under MassDOT jurisdiction:</p> <ul style="list-style-type: none"> ▪ Williams Street/Chestnut Street Intersection. If necessary, the determination of appropriate mitigation measures at this intersection should be made between the Proponent and the City of Chelsea. <p>As an adjunct to the ongoing monitoring required under these Section 61 Findings, the Commission requests that Wynn investigate whether this location becomes the subject of significant additional cut-through traffic between Logan Airport and the gaming establishment. If it does, the Commission reserves the right to impose additional mitigation requirements on Wynn to address such significant additional cut-through traffic, including, without limitation, replacing traffic signal equipment; installing new signage and pavement markings; and/or optimizing traffic signal timing, phasing and coordination. The implementation of any such measures at this intersection should be coordinated between Wynn and the City of Chelsea.</p>	Ongoing.
Other Intersections	<p>As stated in the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible means to avoid or minimize the project's traffic impacts at this location that Wynn could be required to implement:</p> <ul style="list-style-type: none"> • Route 16 (Revere Beach Parkway)/Union Street Intersection. 	N/A

signage and pavement markings and optimizing traffic signal timing phasing and coordination.” These Final Section 61 Findings require that Wynn optimize traffic signal timing, phasing and coordination at this intersection as and to the extent authorized or required by MassDOT.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Other Mitigation under Surrounding Community Agreement Arbitration Award	In addition to the MEPA mitigation measures described above, Wynn shall comply with the conditions in Chelsea Surrounding Community Agreement Arbitration Award in the form of Wynn’s BAFO to Chelsea attached to the Report and Final Arbitration Award dated June 9, 2014 (the “BAFO”), including, without limitation the requirements of Section 5 regarding Transportation Impacts. Without limitation, subject to the terms and conditions thereof, Wynn shall make to Chelsea the Transitional Roads Payment pursuant to Section 5.2 thereof and the additional annual mitigation payment under Section 5.3 thereof.	Ongoing pursuant to schedule set forth in the BAFO.
7. SOMERVILLE MITIGATION		
	In accordance with the SSFEIR Certificate and (as applicable) as more particularly specified and conditioned in the Somerville Surrounding Community Agreement (“Somerville SCA”), Wynn shall comply without limitation with the following conditions:²⁴	
Orange Line Subsidy	Wynn will provide an annual Orange Line operating subsidy to the MBTA to support additional passenger capacity on the Orange Line, discussed below, which will directly benefit (without limitation) the residents, commuters and visitors to and from Assembly Station in Somerville ²⁵ .	See below.
Roadways	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible means to avoid or minimize the Project's traffic impacts that the Project Proponent (Wynn) could be required to implement at the following locations: <ul style="list-style-type: none"> • I-93 Ramps/Route 38 (Mystic Avenue) Intersection. 	N/A.

²⁴ In Section 1.2 of the Somerville SCA, “The Parties acknowledge and agree that the proximity of the Project to the Assembly Row and Assembly Square developments may result in additional pedestrian and vehicular traffic in Somerville. The projects identified in the provisions in this Agreement regarding infrastructure improvements are intended to mitigate such impacts.”

²⁵ The Orange Line Subsidy also mitigates impacts relating to other Orange Line stations, such as Sullivan Square, in addition to Assembly Square.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • I-93 NB Off-ramp/Route 28 (McGrath Highway) Intersection. • Route 38 (Mystic Avenue)/ Route 28 (McGrath Highway) Intersection. • Broadway/ Route 28 (McGrath Highway) Intersection.²⁶ 	
Sullivan Square ²⁷	<p>Wynn will fund and undertake improvements to Sullivan Square in accordance with the SSFEIR Certificate and these Section 61 Findings.</p> <p>Wynn will comply § 5.2 of the Somerville SCA and these Section 61 Findings relative to developing a comprehensive traffic solution for Sullivan Square. See provisions regarding the Regional Working Group required by the SSFEIR Certificate and discussed below in these Section 61 Findings.</p> <p>As an adjunct to the ongoing monitoring required under § 7.1.B of the Boston SCA, the independent organization approved by the Commission should monitor traffic at the following intersection and, if there are material operational deficiencies at the monitored location caused by the two new signalized intersections associated with the Project’s mitigation measures, should recommend feasible mitigation measures, if any, to mitigate those deficiencies: Intersection of Broadway / Mt. Vernon Street / Alfred A. Lombardi Way.</p>	<p>Prior to opening.</p> <p>Ongoing.</p> <p>Ongoing.</p>
Wellington Circle ²⁸	Wynn will fund and undertake improvements to Wellington Circle in accordance with the SSFEIR Certificate and these Section 61 Findings.	Prior to opening.

²⁶ In § 1.2 of the Somerville SCA, Wynn agreed to complete any necessary improvements as determined in accordance with the MEPA process with respect to these intersections. However, as stated in Wynn’s Response in the SSFEIR (at page 5-46) to Somerville’s Comment 4 on the SFEIR, “[b]ased on the trip generation of the SFEIR, which was developed in consultation with and approved by MassDOT as outlined in their comment letter on the SFEIR, the impacts of the Project at Somerville intersections will be minimal. As determined in the FEIR, mitigation was not required at those intersections.”

²⁷ Sullivan Square is located in Boston, not in Somerville. However, the Somerville SCA discusses mitigation with respect to Sullivan Square. As a result, this table briefly summarizes such mitigation, without in any way suggesting that Somerville has any jurisdiction over or standing with respect to such mitigation.

²⁸ Wellington Circle is located in Medford, not in Somerville. However, the Somerville SCA discusses mitigation with respect to Wellington Circle. As a result, this table briefly summarizes such mitigation, without in any way suggesting that Somerville has any jurisdiction over or standing with respect to such mitigation.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	Wynn will comply § 5.3 of the Somerville SCA and these Section 61 Findings relative to funding a study concerning permanent improvements to Wellington Circle, funding up to 25% or \$1.5 million of the concept design following the study, and cooperating with efforts by the relevant community or communities to seek future funding from the Transportation Infrastructure and Development Fund relative to Wellington Circle.	Ongoing.
Public Safety Mitigation Payment	<p>Pursuant to § 5.4 of the Somerville SCA, and contingent upon the receipt of a non-appealable License, Wynn will pay to Somerville an annual payment of \$250,000 (plus escalation per Exhibit B of the Somerville SCA) “to enable Somerville to fund staffing and other public safety initiatives related to increased pedestrian and vehicular traffic in Somerville and additional costs, if any, incurred in mutual aid responses to the Project.”</p> <p>Pursuant to § 5.4 of the Somerville SCA and with the specific conditions of these Section 61 Findings, Wynn will take steps to facilitate pedestrian and bicycle access along the Mystic River and Broadway.</p> <p>Pursuant to § 5.4 of the Somerville SCA and with the specific conditions of these Section 61 Findings, Wynn will coordinate signage on the Project to create continuity for pedestrian and bicycle use of such pathways and will participate in regional efforts to enhance and develop such path ways.</p>	<p>Annually per the requirements of the Somerville SCA.</p> <p>Ongoing.</p> <p>Ongoing.</p>
Water Transportation and Related Measures	<p>Pursuant to § 5.5 of the Somerville SCA and the specific conditions of these Section 61 Findings, and contingent upon the receipt of a non-appealable License, Wynn will pay Somerville an annual payment of \$150,000 (plus escalation per Exhibit B of the Somerville SCA) “to make certain improvements to facilitate water transportation and to fund staffing and other public safety initiatives related to increased use of water transportation.”</p> <p>Pursuant to § 5.5 of the Somerville SCA, Wynn will participate in regional discussions regarding a walk/bike connection across the Mystic River to be built on</p>	<p>Annually per the requirements of the Somerville SCA.</p> <p>Ongoing.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	or in the direct vicinity of the dam structure and will consider, in good faith, contributing, with other neighboring communities and businesses, to the design and construction of a connection.	
Limitation on Satellite Pickup/Drop-off Sites	Pursuant to § 5.6 of the Somerville SCA, except with Somerville's express permission, Wynn will not use any location in Somerville as a satellite pickup/drop-off site to and from the Project for its employees generally; provided, however, Wynn, in coordination with Somerville, may provide transportation for employees who are residents of Somerville. In addition, Wynn will not have stops for so-called "line-runs," or regularly scheduled bus or shuttle routes, in Somerville, provided that, subject to meeting legal requirements, Wynn will be able to provide transportation to patrons which whom it has established a relationship and will be able to provide transportation home to any patron residing in Somerville.	Ongoing.
Remote Parking	Pursuant to § 5.7 of the Somerville SCA, except with Somerville's express permission, neither Wynn nor any of its affiliates, successors or assigns shall construct a satellite parking or other facility associated with the Project within Somerville.	Ongoing.
TIPS Program	Pursuant to § 5.8 of the Somerville SCA, Wynn will incorporate a training program (e.g., TIPS (Training Intervention Procedures and Services Program)) for alcohol servers and other employees.	Ongoing.
8. CAMBRIDGE MITIGATION		
Intersections	<p>In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section V of the MassDOT/MBTA/DCR Section 61 Findings, there are no feasible means to avoid or minimize the project's traffic impacts at this location that the Project Proponent (Wynn) could be required to implement:</p> <ul style="list-style-type: none"> • Route 28 (Monsignor O'Brien Highway)/Edwin H. Land Boulevard/Charlestown Avenue Intersection. <p>Notwithstanding this finding, Wynn shall comply with the conditions in the</p>	One time, due (per the

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	Cambridge Surrounding Community Agreement (“Cambridge SCA”), including, without limitation the requirements of § 4 regarding Transportation Impacts. Specifically, to address any adverse impacts with respect to this intersection and contingent upon the acceptance by Wynn of a non-appealable License, Wynn has agreed to pay to Cambridge a onetime payment of \$200,000 to enable Cambridge to study and/or make certain improvements to the identified intersection to address any adverse impacts resulting from the development or operation of the Project.	requirements of the Cambridge SCA) on or before the ninetieth (90th) day following the acceptance by Wynn of a non-appealable License for the Project.
9. TRANSPORTATION DEMAND MANAGEMENT STRATEGIES		
	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section VIII of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall:	
Transportation Demand Management Program	<p>In addition to the Long-term Commitment for Transportation Demand Management relative to Sullivan Square and Boston referenced above, Wynn shall implement the following Transportation Demand Management Program:</p> <ul style="list-style-type: none"> • Pay Membership Fee with a Transportation Management Association. • Employ a designated Transportation Coordinator for the Project to coordinate efforts, monitor success rates, and manage strategic implementation of traffic reduction programs. • Provide on-site sale of MBTA passes for employees and for guests of the Project, including on-site Full Service MBTA Fare Vending Machine. • Schedule employee shift beginnings and endings outside specified peak traffic periods. • Implement carpool/vanpool matching programs. • Disseminate promotional materials, including newsletters about TDM program in print at the Project’s on-site Transportation Resource Center, and online. • Provide patron Orange Line Shuttle Service to Wellington and Malden Center stations, 2 locations, 20 Minute Headways, 20 Hrs./day, 30-60 passenger vehicles. • Provide Employee Shuttle Buses 2 Locations, 20 Minute Headways, 24 	At opening and ongoing.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Hrs./day.</p> <ul style="list-style-type: none"> • Improve and provide access to MBTA bus stops along Lower Broadway. • Implement improvements to Wellington and Malden Center Stations to accommodate Wynn patron shuttle service at curbside. • Premium Park & Ride Shuttle buses 3 Locations, 90 Minute Headways, 12 Hrs./day. • Provide Neighborhood Shuttle Continuous Loop, 20 Minute Headways, 24 Hrs./day. • Provide for potential future expansion of shuttle service to include service to Logan International Airport, North Station, and South Station and other major transportation hubs through coordination with Everett and the MBTA. • Provide water shuttle service to the Project Site, including associated docks and facilities and the use of customized ferry vessels to support passenger transport between the Project Site and key Boston Harbor sites. • Participate in the MBTA Corporate Pass Program to the extent practical and as allowable pursuant to commercial tenant lease requirements. • Furnish electric vehicle charging stations within the proposed parking garage. • Furnish car sharing services in the garage at the Project Site • Provide preferential parking for car/vanpools and alternatively fueled vehicles. • Provide a “Guaranteed-Ride-Home” in case of emergency to employees that commute to the Project by means other than private automobile. 	
10. MBTA FACILITY IMPROVEMENTS & LAND TRANSFER MITIGATION		
	<p>In accordance with the SSFEIR Certificate as more particularly specified and conditioned in Section VII of the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall comply with the following conditions:</p>	
Wellington Station Improvements	Wynn shall make multimodal improvements to MBTA’s Wellington Station including dedicated curb space for the patron shuttles, reconfiguration of the existing parking lot to support the construction of a fourth curb cut north of the existing/taxi/auto pick-up/drop-off area, and reconfiguration of the existing MBTA parking lot to create additional parking spaces.	Prior to opening.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>These improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Wellington Station Curbside Reconfiguration (Figure 2-13)” included in the SSFEIR, with such refinements thereto as are approved by the MBTA through the 100 percent design submission.</p>	
<p>Malden Center Station Improvements</p>	<p>Wynn shall make multimodal improvements to MBTA’s Malden Center Station to accommodate shuttle bus service at curbside, associated bus layover space, and construction of a passenger shelter on MBTA property near the corner of the busway and Centre Street.</p> <p>These improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Malden Center Station Curbside Reconfiguration (Figure 2-14)” included in the SSFEIR, with such refinements thereto as are approved by the MBTA through the 100 percent design submission.</p>	<p>Prior to opening.</p>
<p>Sullivan Square Bus Station Improvements</p>	<p>Wynn shall make multimodal improvements to at and adjacent to MBTA’s Sullivan Square Station. These improvements include creation of a new circulation pattern including the alteration and reconstruction of the existing busways and the reconfiguration of the parking field in front of the bus station; provision of a new signalized busway exit to accommodate right-turn movements, opposite the I-93 northbound off-ramp on Cambridge Street; construction of a new signalized entrance to allow buses to circulate into the station from Beacham Street Extension and Main Street; and provision of new bus shelters at the bus berths on the lower busway.</p> <p>These improvements shall be substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Sullivan Square Bus Station and Parking Reconfiguration (Figure 2-15)” included in the SSFEIR, with such refinements thereto as are approved by the MBTA through the 100 percent design submission.</p>	<p>Prior to opening.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Route 99 (Broadway) Transit Corridor Upgrades	<p>Wynn shall make multimodal circulation and accessibility upgrades to the Route 99 Corridor, substantially as described in the MassDOT/MBTA/DCR Section 61 Findings and as set forth in the conceptual plan entitled “Lower Broadway/ Alford Street (Route 99) Improvement Plan (Figure 2-12A, B, and C)” included the SFEIR, with such refinements thereto as are approved by the MBTA in consultation with the City of Everett through the 100 percent design submission.</p> <p>In connection with these upgrades, Wynn shall provide all necessary equipment for the traffic signals and the MBTA buses that travel this route to support a bus priority system along the Route 99 corridor.</p> <p>In addition, as set forth in the MassDOT/MBTA/DCR Section 61 Findings, the Proponent (Wynn) has conducted a Road Safety Audit (“RSA”) along this corridor due to its inclusion in a Highway Safety Improvement Plan (HSIP) cluster. The RSA has identified a list of recommended safety improvements to address both existing and future conditions. These recommendations were summarized in the RSA Report dated March 10, 2016 submitted to MassDOT by AECOM on behalf of the Proponent. To improve safety conditions and mitigate the project's impacts along this corridor, the Proponent shall incorporate in the conceptual design plans for the corridor all the potential safety enhancements with "low" and/or "medium" costs and with “short-term” and/or “mid-term” timeframes as listed in the RSA Report in Table 3: Potential Safety Enhancement Summary- Lower Broadway.</p>	Prior to opening.
MBTA Everett Shops Improvements	Subject to the mitigation regarding the conveyance stated below, and subject to review and approval by the MBTA, Wynn shall make improvements to access, construct a new gatehouse, grant an access easement to MBTA for 365 days a year/24 hours a day access, and construct new loading docks at MBTA’s Everett Shops.	Prior to opening.
Mitigation regarding Conveyance of certain of MBTA Everett Shops	In accordance with the SSFEIR Certificate, and as stated in the MassDOT/MBTA/DCR Section 61 Findings, Wynn has worked with the MBTA to place into escrow a quitclaim deed to Wynn and payment for 1.758 acres of the	Escrow to remain in place until issuance of the final

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
Land	MBTA Shops property as shown on an ANR Plan prepared by Feldman Land Surveyors dated January 7, 2014; and, upon issuance of the MassDOT/MBTA/DCR Section 61 Findings, the escrow agent will return the original Quitclaim Deed and Termination of Easement agreement to Wynn, the money to the MBTA; and any modifications will be subsequently recorded.	MassDOT/MBTA/DCR Section 61 Findings.
Orange Line Subsidy	Wynn shall provide to the MBTA an annual Orange Line operating subsidy to support additional passenger capacity on the Orange Line. The annual operating subsidy shall be calculated and paid in accordance with the MassDOT/MBTA/DCR Section 61 Findings regarding the MBTA Orange Line. The total subsidy is currently estimated at \$7.4 million, including escalation, over the 15 year term of the License.	Annually beginning after opening.
11. OTHER TRANSPORTATION MEASURES		
	In accordance with the SSFEIR Certificate as more particularly specified and conditioned in the MassDOT/MBTA/DCR Section 61 Findings, Wynn shall comply with the following conditions:	
Transportation Monitoring Program	<p>Wynn shall engage and pay for an independent organization approved by MassDOT to undertake a comprehensive transportation monitoring program. Monitoring shall commence prior to the initial occupancy of either hotel or gaming components of the Project, whichever occurs first, to establish a baseline, and will continue for a period of 10 years. Twice each year, Wynn shall provide a report on the Transportation Monitoring Program to the Commission (with a copy to MassDOT), which will include without limitation a report on the implementation of the TDM program described herein. Wynn shall provide more frequent reports as may be required from time to time by the Commission or MassDOT.</p> <p>The scope, locations, methodology, timing and frequency of the transportation monitoring program shall comply with the requirements of the MassDOT/MBTA/DCR Section 61 Findings, and may be adjusted by MassDOT as</p>	Prior to the initial occupancy (to establish a baseline), and continuing for a period of 10 years.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>necessary to ensure that the geographic extent of the data collected is sufficient to measure the impact of the Project and to reflect changes in the transportation system that may occur after the completion of the Project. The transportation monitoring program shall include Roadway Data Collection, Capacity Analyses, Parking Data Collection, Public Transportation Data Collection, and a Travel Mode Analysis, all as specified by the MassDOT/MBTA/DCR Section 61 Findings and adjusted from time to time by MassDOT as necessary.</p> <p>Without limitation, this monitoring shall be done at the locations, for the time periods and in accordance with the requirements and methodology specified by MassDOT and the MassDOT/MBTA/DCR Section 61 Findings, and will include the following additional intersections:</p> <ul style="list-style-type: none"> • Broadway / Mt. Vernon Street / Alfred A. Lombardi Way (Somerville) • Williams Street / Chestnut Street (Chelsea) <p>At these additional intersection, Wynn shall conduct peak period manual turning movement counts, vehicle classification, and pedestrian/bicycle counts on a Thursday and Friday between 4:00 PM-6:00 PM and on a Saturday between 2:00 PM-5:00 PM. The Commission may require additional data to be collected if the Commission determines that the submitted data are insufficient.</p> <p>Wynn shall comply with the requirements for both the transportation monitoring program required by the MassDOT/MBTA/DCR Section 61 Findings and with the transportation monitoring program required by § 7.1.B of the Boston SCA as incorporated above in the Commission’s Section 61 Findings and in the License; provided, however, that Wynn shall work cooperatively with MassDOT, DCR, the City of Boston and the Commission to avoid unnecessary duplication of effort or any conflicting requirements.</p> <p>The Commission will review the monitoring results to determine whether the mitigation triggers listed in § 7.1.B of the Boston SCA have been exceeded and whether additional data should be collected; and the Commission reserves the right to determine the appropriate mitigation in the event there are any such operational deficiencies or imminent traffic problems associated with traffic to and from the</p>	

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Gaming Establishment, including but not limited to those additional mitigation measures listed in § 7.1.B of the Boston SCA. If the additional mitigation measures involve changes to roadways, intersections, or traffic signals under the jurisdiction of the City of Boston, Wynn shall cooperate with Boston concerning the permitting and implementation of the additional mitigation measures, pursuant to the Boston SCA.</p> <p>See also Long-term Commitment Transportation Demand Management relative to Sullivan Square and Boston, in § VIII.F.4 above.</p>	
Mystic River Pedestrian-Bicycle Bridge Feasibility Study	Wynn shall provide \$250,000 to DCR for planning and engineering services for a possible pedestrian bridge crossing of the Mystic River linking Somerville and Everett.	Prior to opening.
Water Transportation Vessels	<p>Wynn shall:</p> <ul style="list-style-type: none"> • Provide dock facilities and customized ferry vessels to support passenger water transportation service between the Project Site and key Boston Harbor landing sites; • Provide a touch and go dock for transient boat access to the Project Site; • Consistent with Section 4.5.1.1 of the FEIR, provide water transportation level of service consisting of at least three custom-built, 49-passenger vessels, operating at different frequencies, as listed in the FEIR, during the 6:00 a.m. to 2:00 a.m. service hours (except when impracticable due to weather conditions); • Ensure that customized passenger vessels supporting water transportation service to and from the Gaming Establishment are designed and built to be able to pass safely under the Alford Street (Rt-99) Draw Bridge across the Mystic River, mile 1.4, between Boston and Everett, at high tide in the closed position; • Implement reasonable restrictions to prohibit or discourage patrons arriving to or departing from the Gaming Establishment in private vessels that would cause the Alford Street (Rt-99) Draw Bridge to open during or affecting peak vehicular transportation hours on Alford Street and in Sullivan Square; 	<p>At opening.</p> <p>At opening and Ongoing.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • Monitor and report to the Commission on any proposed amendments to 33 CFR 117.609(a)²⁹ or any temporary deviation from the regulations of the Coast Guard governing the hours of operation of the Alford Street (Rt-99) Draw Bridge (e.g., 78 Fed. Reg. 65874) which may have the potential to materially adversely affect vehicular transportation on Alford Street and in Sullivan Square. In such event, the Commission reserves the right to impose additional conditions to mitigate the effect thereon of vehicular traffic to and from the Gaming Establishment. 	
Annual Monitoring and Reporting Program	Without limiting the transportation monitoring programs required by the MassDOT/MBTA/DCR Section 61 Findings and by § 7.1.B of the Boston SCA Wynn shall also conduct a post-development traffic monitoring and employee survey program (including without limitation vehicular, public transit, and ferry service) in order to evaluate the adequacy of transportation mitigation measures including the TDM program for \$30,000 annually.	At opening and Ongoing.
12. WASTEWATER, WATER USE, AND WETLANDS AND WATERWAYS MEASURES		
	In accordance with the Secretary’s applicable Certificates and MWRA’s, DEP’s and MassDOT/MBTA/DCR’s respective Section 61 Findings, Wynn shall comply with all of the following mitigation measures and conditions:	
Wastewater	<ul style="list-style-type: none"> • Implement or fund sewer system improvements that remove Infiltration and Inflow (“I/I”) equivalent to 4 gallons removed for every gallon of new wastewater generated (currently estimated at 283,489 GPD); • Assist in modifications to regional wastewater infrastructure modifications that will reduce the incidence of combined sewer overflows (“CSOs”) into the Mystic River associated with the Cambridge Sewer Branch, including the 	Prior to opening as to I/I and ongoing as to CSOs.

²⁹ Currently the Coast Guard regulation provides, “The draw of the S99 Alford Street Bridge, mile 1.4, shall open on signal; except that, Monday through Saturday, excluding holidays, the draw need not open for the passage of vessel traffic from 7:45 a.m. to 9 a.m., 9:10 a.m. to 10 a.m., and 5 p.m. to 6 p.m., daily. From November 1 through March 31, between 3 p.m. and 7 a.m., at least an eight-hour advance notice is required for bridge openings by calling the number posted at the bridge.”

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	installation of grease traps and gas/oil separators.	
Water use	<ul style="list-style-type: none"> • Follow Leadership in Energy and Environmental Design (“LEED”) standards of Gold or higher, and incorporate water conservation measures that are intended to reduce the potable water demand on the MWRA water supply system; • Utilize water-efficient plumbing fixtures, low-flow lavatory faucets and shower heads; • Through rainwater harvesting, grey water reuse and the installation of alternatives to natural turf landscaping, the Project will further reduce water demand and use; • Include extensive indoor and outdoor landscaping; • Utilize timers, soil moisture indicators and rainfall sensors to reduce potable water use on landscaping. 	During construction.
Wetlands, waterways, and water quality certification	<ul style="list-style-type: none"> • Remediate, revegetate and enhance 550 linear feet of existing shoreline with enhanced “living shoreline;” • Remove invasive vegetation and planting of native herbaceous and shrub vegetation along part of existing Coastal Bank and Riverfront Area;³⁰ • Consult with MassDEP to develop specifications for the living shoreline and bank restoration.; • Transform 10,900 +/- SF of disturbed Coastal Beach/Tidal Flats, Coastal Bank, and Riverfront Area to Salt Marsh; • Clean up debris within the Land Under the Ocean, Coastal Beach and Coastal Bank resource areas; • Dredge to remove contaminated sediments from the harbor bottom to provide ample draft for water transportation, recreational vessels and a proposed floating dock; 	During construction and prior to opening.

³⁰ The terms “Land Under the Ocean,” “Coastal Beach and Tidal Flats,” “Coastal Bank,” “Land Containing Shellfish,” Salt Marsh,” “Riverfront Area,” and “Land Subject to Coastal Storm Flowage” have the meaning given to them in the Massachusetts Wetlands Protection Act and its regulations, 310 CMR 10.21-10.37. See FEIR § 3.1.1.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • Replace existing bulkhead and construction of new bulkheads within areas of existing degraded Coastal Beach and Coastal Bank areas; • Ensure that the ground floor of the Gaming Establishment will be a facility for public accommodation; • Construct high quality landscaped open space along the edge of the Mystic River and the existing degraded Coastal Bank, Buffer Zone and Riverfront Area, including a harborwalk with high-quality amenities along the edge of the Mystic opening this site to public access and connecting it to Lower Broadway to the east; • Create a Gateway Park Connector multi-use path with benches, lighting, signage, plantings, and other amenities, linking the harborwalk on the Project Site under the MBTA rail line through to the DCR's Gateway Park to the west along the Mystic River, including bicycle and pedestrian connections;³¹ • Provide a pile-supported pier/walkway, a gangway, and Americans with Disabilities Act-compliant floating water transportation dock designed to support future water transportation service to Downtown Boston and other regional water transportation destinations, as well as transient vessels; • Develop an attractive public destination for water dependent uses along the waterfront, including significant open space, outdoor seating, viewing areas, a gazebo and public docks; • Further consider opportunities to improve shellfish resources at appropriate locations in consultation with the Division of Marine Fisheries (“DMF”).³² 	
Public Access	<ul style="list-style-type: none"> • As stated above regarding Other Transportation Measures, provide \$250,000 to DCR for planning and engineering services related to an investigation of a potential pedestrian bridge crossing of the Mystic River linking Somerville and 	Prior to opening.

³¹ According to the MassDOT/MBTA/DCR Section 61 Findings, “DCR understands the value of the improvements to DCR's Gateway Park will total \$2,000,000 and will be provided prior to site occupancy.”

³² The Commission notes that this measure is encouraged, but not required by SFEIR Certificate.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>Everett.</p> <ul style="list-style-type: none"> • Participate in a process to study the feasibility of extending the Northern Strand Community Trail to Everett. • Provide over 190,000 sq. ft. of facilities for public accommodation to provide destinations and activation of the Project Site. • Provide 2 acres more open space than required by G.L. c. 91. 	<p>During construction/prior to opening, and ongoing.</p>
<p>Re-purpose Adjacent Waterfront Real Property</p>	<p>Pursuant to and subject to § 8.6 of the Boston SCA, Wynn shall pay to Boston \$250,000 for the purpose of covering Boston's legal, engineering and other professional services to be incurred by Boston under said § 8.6 in an effort to re-purpose the waterfront real property adjacent to and within the vicinity of the Project Site [i.e. the Boston Water and Sewer Commission's Material Handling Facility] and to return such waterfront real property to public access.</p>	<p>One-time payment prior to opening.</p>
<p>Stormwater</p>	<ul style="list-style-type: none"> • Implement a stormwater management system that will improve the quality of runoff on-site. These measures include: <ul style="list-style-type: none"> ○ On-site mitigation measures: <ul style="list-style-type: none"> ▪ Two new outfalls will discharge treated stormwater into the Mystic River; ▪ Green Roof installation; ▪ Best Management Practices (“BMPs”) such as pavement sweeping, deep sump catch basins, tree box filters, filtering bioretention areas, four (4) proprietary stormwater separators, and stormwater media filters. These BMPs will be designed to remove at least 80% of the average annual load of Total Suspended Solids; and ▪ Catch basins, silt fences, hay bales and crushed stone will be used during construction to prevent sediment removal from entering runoff; ○ Offsite mitigation measure associated with transportation improvements will include bioretention or subsurface infiltration chambers, deep sump catch basins or proprietary stormwater separators. • Prepare a Stormwater Pollution Prevention Plan (SWPPP) in support of a Notice of Intent (NOI) filing with the EPA for coverage under NPDES Construction General Permit (CGP); 	<p>Prior to opening.</p>

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • Incorporate new stormwater management systems in compliance with applicable requirements of State and City of Everett Stormwater Management Standards. The SWPPP and long-term stormwater improvements will provide stormwater mitigation measures to be implemented both during and after construction to improve water quality; and • Portions of the Project Site which currently drain into the MBTA 36-inch storm drain under existing conditions will be re-directed to the Project's stormwater management system. 	
13. GREENHOUSE GAS AND AIR QUALITY IMPACTS		
MassDEP Air Plan Approval or Environmental Results Program/Greenhouse Gas Reductions	<ul style="list-style-type: none"> • Design the Project buildings to be certifiable under a LEED rating of Gold or higher; • Operate utilizing a series of best operating practices consistent with LEED principles to maintain the energy use, water efficiency, atmospheric, materials and resources use, and indoor air quality goals; • Comply with the Energy Stretch Code adopted by the City of Everett pursuant to the Green Communities Act of 2008; • Provide a self-certification to the MEPA Office regarding compliance with GHG reductions upon completion of construction;³³ • Provide a lighting plan, approved by the City of Everett, for the Commission's review, and demonstrate to the Commission that the plan is reasonably consistent with the proposed LEED certification and mitigates unreasonable and unnecessary light pollution, trespass, and glare; 	During construction and post occupancy.

³³ The MassDOT/MBTA/DCR Section 61 Findings, incorporated herein by reference, provide that the Self Certification shall be (a) signed by an appropriate professional (e.g. engineer, architect, general contractor); (b) attest that Wynn has incorporated into the project all the GHG mitigation measures, or their equivalent, that were committed to in the EIRs to achieve the proposed stationary GHG emission reduction; (c) supported by as-built plans and shall include an update with respect to those measures that are operational in nature (i.e. TDM program, recycling, Energy Star-rated equipment, etc.); and (d) include any changes to these measures from those identified in the EIRs, the schedule for implementation of all measures, and how progress toward achieving these measures will be advanced, if not currently implemented. The Self Certification and all supporting plans and documents shall be provided to the MEPA office (with a copy to the Commission) within three (3) months of the completion of the Project.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • Commit to a comprehensive list of Energy Efficiency Measures (EEM) that are predicted to reduce CO2 emissions 27.4%.³⁴ These proposed EE measures include: <ul style="list-style-type: none"> ○ Installing street trees and lighting; ○ Cool roofs; ○ Central chiller plant with better efficiency than Code; ○ Demand Control Ventilation (DCV) for the casino, public entertainment, and retail areas; ○ Energy Recovery Ventilation (ERV) to reduce chiller energy use; ○ Building envelopes with roof and window insulation better than Code; ○ Skylights over the entry atrium and along the retail promenade (daylighting controls will be tied to this extensive system of skylights); ○ Lower light power density 20% better than Code; ○ Low-energy Electronic Gaming Machines; ○ Metal halide lighting for all parking structures; ○ High efficiency elevators with regenerative VVVF drives and LED lights; ○ Demand Control Exhaust Ventilation (DCEV) with variable frequency drive (VFD) fans for enclosed parking structures; ○ Kitchen and restaurant refrigeration energy efficiency design to reduce energy use; ○ Energy-STAR appliances; ○ Enhanced building commissioning; and ○ Occupancy controls for non-occupied or infrequently occupied spaces. • Install a photo-voltaic system on the podium building roof or other location, and/or purchase from local service providers of green power of annual electric consumption equaling 10% or more of the Project’s annual electric consumption; • Improve intersections to reduce vehicle idling and TDM measures to reduce trips will reduce Project-related motor vehicle CO2 emissions by 13.0%. When 	

³⁴ The SSFEIR lists two different reduction goals depending on which ASHRAE standards are used. The higher standard is listed here.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>combined, (stationary source plus transportation), the Project's total CO2 emissions reductions are 25.7% percent compared to the Base Case;</p> <ul style="list-style-type: none"> • Install cogeneration plan using a nominal 1-MW microturbine, providing approximately 20% of the Project's annual electrical consumption and significant amounts of absorption cooling, heat and hot water. Wynn will consult with MassDEP regarding the system prior to filing a permitting application. • Consider additional improvements in energy efficient design and expansion of commitment to renewable energy;³⁵ • Consider electronic gaming machine energy use and provide information to EOEEA and the Commission regarding same;³⁶ • Plan for and account for the effects of Sea Level Rise by elevating the proposed structures non-service and garage floor elevations to 15 to 16 feet above the 100-year flood level. The Project will also incorporate the following design criteria: <ul style="list-style-type: none"> o Parking garages entrances and other openings into below grade spaces will be elevated a minimum of 3.35 feet above the 100-year flood level, or will be sufficiently flood proofed to avoid damage from coastal storms; o Critical infrastructure and HVAC equipment will be elevated above projected flood levels; • Consider additional measures during subsequent design phases, including, but not limited to: rain gardens and swales; protection for service equipment (HVAC, electrical, fuel, water, sewage), installation of back-water flow valves and sump pumps; protection of entrances from snow and ice; enhanced building insulation; cool/green roofing; resilient back-up power and systems; backup power sources for elevators; insulation of refrigeration equipment and elevation of utility hook-ups, mechanical devices, electrical service panel, water heaters, 	

³⁵ The Commission notes that this measure is encouraged, but not required by SFEIR Certificate.

³⁶ The Commission notes that this measure is encouraged, but not required by SFEIR Certificate.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	and IT services above potential flood levels.	
14. HAZARDOUS WASTE		
Hazardous Waste Remediation	<ul style="list-style-type: none"> • Remediation of areas of significant soil contamination, including soil removal and soil stabilization, will be initiated by Wynn at the commencement of Project construction and will be substantially completed in the first phase of Site construction (approximately 6 months); • During subsequent construction of the Project elements (casino, hotel, and retail buildings, site roadways and utilities, and waterfront improvements), additional contaminated soil will be removed, and Wynn will manage additional soil excavation and groundwater dewatering in accordance with the MCP; • All Project facilities, including the public harbor walk and other waterfront open space amenities, will be fully suitable for planned recreational and visitor uses; • Any hazardous materials excavated during construction will be managed in accordance with MassDEP guidelines, addressed, and disposed of accordingly, including treatment where applicable; • The parking garage will be waterproofed and designed to resist hydrostatic uplift pressures so that permanent, long term dewatering is not required. Dewatering will be required during construction and will be conducted pursuant to a Remediation General Discharge Permit under the NPDES program; and • Comply with G.L. c. 21E and the MCP in all areas of the Project including construction of the service road and shared entrances. 	Prior to opening/as permitted under MCP.
15. CONSTRUCTION MITIGATION		
Traffic and Transportation	<ul style="list-style-type: none"> • Implement phased starting of trades to off-peak hours, 7:00 a.m. and earlier starts; • Utilize lean building practices to maximize off-site prefabrication; • Develop separate construction staging and traffic management plans for these improvements as part of their respective construction bid documents; • The relocation of utilities to Gateway Center, which include water, electrical and communications, will be coordinated with the foundations of the Project garage; 	During construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • On-site parking by construction workers will be minimized. Most personal vehicles will be restricted from parking at or around the construction site so as to reduce the impact to traffic; • Worker parking shall not be allowed on site except for company vehicles required to perform the work; • Off-site locations at which construction workers can park will be provided with shuttle bus services for worker transportation to and from the Project Site; • Due to the proximity of public transit systems, employees will be encouraged to use the MBTA. In addition, Wynn will offer carpooling incentives; • The Project will provide an off-site area at which trucks may be staged. Truck routes will be coordinated before the start of construction, and the Construction Manager will routinely check truck routes to ensure compliance with the approved plan; • The Construction Manager will establish and maintain designated material staging and delivery areas; • Given the existing traffic patterns, right-turns onto and off of the Project Site through the main site entrance are anticipated; • Wheel wash stations will be installed and maintained at construction site exits by the Construction Manager as needed. Street sweeping/vacuuming of all impacted City streets and sidewalks shall be performed by the Construction Manager on an as needed basis; • There will be full-time police detail at the site entrance to facilitate the safe delivery of materials to and from the site with as little disruption to the traffic on Lower Broadway as possible. As needed, police details will control the traffic signals along Lower Broadway to facilitate traffic movements near the Project Site; • Secured fencing and barricades will be used to isolate construction areas on the Project Site from pedestrian and vehicle traffic. 	
Utilities	<ul style="list-style-type: none"> • Existing utility tunnels under the MBTA Commuter Rail are anticipated to be reused to minimize disruption to rail service and operation. The construction of utilities servicing the Project primarily will take place on-site; 	During construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<ul style="list-style-type: none"> • Connections to the water main and sanitary sewer in Broadway will occur during off peak hours; and • The stormwater management system will be functional prior to installing binder course in the service area or entry drive. 	
Air quality	<ul style="list-style-type: none"> • The contractors will implement dust control measures during active construction. The selection of specific dust control measures will be activity dependent, but the following types of control measures will be implemented: <ul style="list-style-type: none"> ○ Road and construction area watering; ○ Chemical stabilization; ○ Sand fencing ○ Wind speed control; ○ Perimeter sprinklers; ○ Tire washing stations; ○ On-site speed controls; ○ Covered stockpiles; and ○ Street sweeping. • Additional air quality measures to reduce air emissions will include low-sulfur diesel in construction equipment, retrofit equipment as needed, and prohibiting excessive idling (per 310 CMR 7.11); and • If on-site material crushing activities will take place, appropriate notifications will be made at least 30 days prior to the commencement of such activities to local officials and to MassDEP in accordance with 310 CMR 16.05(3)(e)(6). 	During construction.
Noise and vibration	<ul style="list-style-type: none"> • Instituting a program that includes allowable construction timeframes to ensure compliance with the local requirements; • Locating stationary noise sources, including staging areas, as far a possible from noise-sensitive receptors; • Constructing artificial or using natural barriers to shield construction noise; • Combining noisy operations to occur in the same time period (the total noise level produced will not be substantially greater than the level produced if the operations were performed separately); • Using properly maintained equipment mufflers and providing enclosures on 	During construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>equipment operating continuously;</p> <ul style="list-style-type: none"> • Turning off idling equipment; • Using quieter alternatives for equipment where feasible; • Selecting a quieter construction operation and technique where feasible; • Monitoring noise levels during the construction period to demonstrate compliance; • Conducting baseline noise level monitoring prior to construction and periodic monitoring of noise levels during construction. Noise monitoring shall be conducted at the site perimeter locations and locations near adjacent buildings; • Work activities that generate unavoidable excessive noise will be included in the two-week look-ahead schedule submitted by the construction managers; • Project specifications will include vibration limits to avoid potential damage to nearby utilities, buildings, and the adjacent rail line; and • If necessary to reduce vibration levels, pile locations proximate to sensitive structures will be pre-augured. 	
Stormwater and Erosion and Sediment Control	<ul style="list-style-type: none"> • Storm water pollution prevention measures will include good housekeeping such as properly storing materials, spill prevention and response plans, and proper storage and disposal of solid wastes; • The Construction Manager will be responsible for preventing the tracking of sediments beyond the construction site and for controlling dust by using stabilized construction exits, street sweeping, and watering if necessary; • Temporary construction dewatering discharges will be appropriately controlled and discharged in accordance with the NPDES, state, and local dewatering standards; • Erosion and sediment risks will be reduced by avoiding prolonged exposure of bare soil, providing temporary and permanent stabilization as soon as practical, controlling storm water runoff, installing sediment and erosion controls, and providing frequent inspections and maintenance; • Erosion and sediment controls will be installed prior to any earth disturbing activities; • BMPs must be employed to control storm water flows through the Project Site 	Prior to and during construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>and avoid the transport of sediments off site and towards surface waters or onto local roads. These may include silt fencing, hay bales, compost filter berms, sediment traps, check dams, diversion swales, sediment basins and/or settling tanks, and drain inlet protections;</p> <ul style="list-style-type: none"> • Stockpile area(s) will be designated on-site. Stockpiles of off-site fill will be stabilized with temporary seeding and mulching, or provided with a tarp to prevent blowing dust, if the soil will not be used within a 14-day period; • Stockpiles of on-site fill will be covered with polyethylene sheeting to prevent dust migration, and hay bales or silt fence may be placed around the perimeter of the stockpiles to prevent the migration of soils during rain events; • Soil stabilization will be initiated immediately after earth-disturbing activities have permanently or temporarily ceased. Temporary stabilization will be provided as soon as possible, but no later than 14 days after construction activity ceases on any particular area; • Areas at final grade will be provided with permanent plantings or seeding prior to the opening of the Project; • These control measures will be specific to the contractor’s equipment, construction activity, and seasonal variability; and • Inspections will be performed in accordance with the SWPPP to be prepared for the Project. This includes inspection by a qualified individual of storm water controls, stabilization measures, disturbed areas, storage areas, and points of discharge at least every 7 days and within 24 hours of a storm event of ½ inches or greater. 	
Infrastructure Protection	<ul style="list-style-type: none"> • Existing public and private infrastructure located within the public right-of-way will be protected during construction; • Existing infrastructure within easements on the Project Site will be protected or relocated with the coordination of the utility companies prior to the start of construction; • The Construction Manager will notify utility companies and call “Dig Safe” prior to excavation; • The Construction Manager will be required to coordinate all protection measures, 	Prior to, during and after construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies;</p> <ul style="list-style-type: none"> • The Construction Manager will be required to provide adequate notification to the utility owner prior to any work commencing on their utility; • Wynn shall prepare and submit for review by MWRA a construction plan, calculations and an analysis of the MWRA's pipeline (prepared by a professional engineer licensed in the State of Massachusetts), which shall take into consideration the contractor's equipment, including vibration machines that would be used over MWRA's pipeline in instances where the existing roadway surface will be completely excavated away removing the protection of the HS-20 surface loading barrier; and Wynn will be required to upgrade existing water or sewer infrastructure to protect these facilities during and after construction. See MWRA Section 61 Findings (pp. 4-5); • Wynn will conduct additional survey work, test pits and vacuum excavation to precisely identify the locations of utilities and construction monitoring and post construction surveys to ensure the integrity of MWRA infrastructure. See MWRA Section 61 Findings (p. 6); • In the event a utility cannot be maintained in service during switch over to a temporary or permanent system, the Construction Manager will be required to coordinate the shutdown with the utility owners and project abutters to minimize impacts and inconveniences; • Measures for proposed dredging and waterfront infrastructure installations will include providing floating debris barriers and turbidity curtains for water work; and • Measures for dredging would include the use of an environmental style bucket to minimize turbidity, and monitoring turbidity in accordance with federal, state, and local permit approvals. 	
Recycling program	<ul style="list-style-type: none"> • Construction waste material from demolition and new construction will be recycled when possible; • The disposal contract will include specific requirements that will ensure that construction procedures allow for the sufficient space for the necessary 	During construction.

SUBJECT MATTER	MITIGATION OR IMPROVEMENT MEASURE	SCHEDULE
	<p>segregation, reprocessing, reuse, and recycling of materials; and</p> <ul style="list-style-type: none"> • For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per MassDEP's Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. 	
Pest Control and Wildlife	<ul style="list-style-type: none"> • The extermination of rodents will be required prior to demolition, excavation, and foundation installation; • Proposed work within the tidal zone and below MLW will be subject to time of year restrictions from the Massachusetts Division of Marine Fisheries, which are intended to protect migratory fish as they travel up and down river and to protect winter flounder spawning and nursery habitat; and • Channel dredging operations will be conducted only during those times of the year permitted by state and federal agencies, so as to reduce possible adverse impacts to ecological populations within the dredged area. 	Prior to and during construction.
Laundry Effluent	<ul style="list-style-type: none"> • Obtain and comply with the conditions of a sewer discharge permit prior to and while discharging laundry wastewater into the MWRA sewer system. See MWRA Section 61 Findings (pp. 6-7). 	Prior to discharging laundry wastewater into the MWRA sewer system.

IX. REGIONAL WORKING GROUP

The SSFEIR Certificate requires Wynn to participate in and provide a proportionate share of funding for a Regional Working Group³⁷ with MassDOT to assess and develop long-term transportation improvements to support sustainable redevelopment and economic growth in and around Sullivan Square.³⁸ The Regional Working Group will be led by MassDOT and include, among others, the Executive Office of Housing and Economic Development, MAPC, DCR, Wynn, and the cities of Boston, Everett, and Somerville. See Section VIII of the MassDOT/MBTA/DCR Section 61 Findings entitled “Sullivan Square and Rutherford Avenue Planning Process.” The Commission requires Wynn to participate in the Regional Working Group process as a condition of these Section 61 Findings and of the License. The Commission further requires that Wynn shall contribute its fair proportionate share of the capital costs of the long-term infrastructure improvements to be implemented in and around Sullivan Square as a result of the Regional Working Group process, provided that the design and construction plans for those long-term infrastructure improvements have received all necessary governmental permits and approvals and account for the traffic associated with the Wynn Project.³⁹ However, as the Secretary has concluded in the SSFEIR Certificate, “the practical, rational and effective approach to addressing broader regional transportation impacts for this project is through enhanced transportation planning processes, not through the prism of this single project.” As a result, the Commission will not require completion of long-term infrastructure improvements

³⁷ As the Attorney General notes in her public comments dated April 11, 2016, the Regional Working Group was originally named the Sullivan Square Working Group. It changed its name to the Lower Mystic Valley Working Group; however, its primary focus largely remains on Sullivan Square. These Section 61 Findings refer to the group as the Regional Working Group.

³⁸ Pursuant to § 7.3 of the Boston SCA, Wynn has committed to provide \$250,000 in funding to support the Regional Working Group. As the SSFEIR Certificate requires Wynn to provide a proportionate share of funding for the Regional Working Group, this \$250,000 contribution shall not be deemed to be a cap on Wynn’s contribution if its proportionate share is determined to exceed this amount. Rather, as a condition of these Section 61 Findings, to be incorporated as a condition of the License, Wynn shall contribute \$250,000 or (if larger) its overall proportionate share consistent with the SSFEIR Certificate to the Regional Working Group regardless of whether that overall proportionate share exceeds \$250,000. Any amount due in excess of \$250,000 will be calculated and paid annually unless otherwise specified by the Commission in a reopener pursuant to 205 CMR 120.

³⁹ Pursuant to §§ 7.1A of the Boston SCA, Wynn shall be fully responsible for the costs of implementing the Mitigation Improvements, defined therein, which are currently estimated to cost Eleven Million Dollars (\$11,000,000). In addition, pursuant to and subject to Section VIII.F.4 of these Final Section 61 Findings and §§ 7.3, 7.4 and 7.5 of the Boston SCA, Wynn is required to make substantial payments toward the Sullivan Square Infrastructure Project and toward the Boston Community Impact Fee. To the extent those payments toward the Mitigation Improvements, Sullivan Square Infrastructure Project and Boston Community Impact Fee are made and used toward long-term transportation mitigation and infrastructure improvements in and around Sullivan Square, those payments shall be counted toward Wynn’s fair proportionate share of the overall capital costs of the long-term infrastructure improvements to be implemented as a result of the Regional Working Group process. As with the funding to support the Regional Working Group itself, Wynn’s payments toward the Mitigation Improvements, Sullivan Square Infrastructure Project and Boston Community Impact Fee shall not be deemed to be a cap on Wynn’s required contribution to the capital costs of the long-term infrastructure improvements if its proportionate share is determined to exceed the sum of those amounts.

implemented as a result of the Regional Working Group process prior to opening of the Gaming Establishment pursuant to G.L. c. 23K. In accordance with these Section 61 Findings, the License will include a reopener pursuant to 205 CMR 120 if and to the extent it is necessary for the Commission to determine, assess, increase, or otherwise adjust Wynn's contribution to either the proportionate share of funding for a Regional Working Group, or the long-term infrastructure improvements to be implemented as a result of the Regional Working Group process, or both.⁴⁰

Finally, Wynn shall use its best efforts to work with the MBTA, MassDOT, and DCR on any future plans to create mass transit opportunities that serve the Gaming Establishment, including without limitation working with the MBTA, MassDOT and DCR on right of way issues. Wynn shall consider making a reasonable contribution as may be determined by the Commission to the cost of implementation of such mass transit opportunities.

X. FINDINGS

Pursuant to G.L. c. 30, § 61, and 301 CMR 11.12(5), the Commission finds that all feasible measures have been taken to avoid or minimize impacts of the Project and damage to the environment. Specifically the Commission finds that:

1. Environmental impacts resulting from the proposed Project within the scope of MEPA are those impacts described in the FEIR, SFEIR, and SSFEIR, and the corresponding Secretary's Certificates regarding each.
2. Wynn shall comply with and implement (a) all conditions in the Commission's conditional License for the Project (except those conditions that have been expressly modified and amended by the Commission's action on the Boston SCA), (b) the terms and conditions of the Mitigation Agreements, (c) the mitigation measures described in these Section 61 Findings, and the applicable provisions of the FEIR, the SFEIR, the SSFEIR, and the Secretary's corresponding Certificates regarding the same, (d) the final Section 61 Findings and conditions issued by other State Agencies in their respective final Agency Action on the Project, and (e) all conditions imposed by the Commission in its final Agency Action and final License for the Project pursuant to 205 CMR 120.02(1)(a).

⁴⁰ In advance of each regular quarterly review required by these Section 61 Findings, Wynn shall report to the Commission on the activities and progress of the Regional Working Group and whether consensus has been reached by the Regional Working Group, with Wynn's consent, as to any determination of Wynn's fair proportionate share of the overall funding for both the Regional Working Group and/or the capital costs of the long-term infrastructure improvements to be implemented as a result of the Regional Working Group process, as well as the method and timing of payment thereof. The Commission reserves the right to scrutinize the amount and basis of any such determination, and the details of any written agreement effectuating it; and the Commission reserves the right to act as necessary to effectuate the terms and conditions of these Section 61 Findings in the absence of such determination and agreement.



SMART GROWTH AND REGIONAL COLLABORATION

Draft Technical Memorandum

To: Lower Mystic Working Group
Fr: Eric Bourassa and Chris Kuschel, MAPC
Date: July 11, 2017
Re: Lower Mystic Regional Working Group Overview of Financing Ideas to Implement Recommendations

Overview of Memo

The contents of this memo will be incorporated into the chapter of the report on Financing and Implementation. A previous report chapter will outline the Working Group's recommendations, which may constitute specific projects, policies, programs, or other ideas. The Central Transportation Planning Staff (CTPS) and MassDOT will provide estimated project costs of the various project elements that will have been modeled in the different alternatives. Following the cost estimates, there will be an outline of the different strategies and funding options that could be used to implement the recommendations of the report. The purpose of this chapter is to make the recommendations actionable, with an understanding that none of the recommendations are binding, and to highlight non-traditional funding strategies. The audience is mainly the Working Group members, but also the public at large. If there is consensus, the Working Group could highlight any of these funding options to advance any of the recommendations.

Transportation Infrastructure Funding Options

The following provides a brief overview of the various potential funding mechanisms decision makers could use to fund transportation infrastructure. The intent of this section is not to recommend a specific funding strategy for any of the recommendations in the report, but rather to identify the broad categories of funding options that could be pursued. Not all of the following funding options are appropriate for all infrastructure improvements and several new ideas at the end of this chapter would require changes to Massachusetts laws or regulations. Nonetheless, a critical step in advancing any infrastructure recommendation is to develop a funding strategy early on. Implementing the recommendations will require a variety of funding mechanisms, both traditional and innovative, and include state, municipal, and private sector resources.

Federal Sources

Federal funding comes to the Boston region by two primary means: formula funding from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) that is programmed by the Boston Metropolitan Planning Organization (Boston MPO) and occasional funding through various competitive federal discretionary funding programs. Federal funding requires a state or local match, typically 20%, but some discretionary programs require greater than 20% match to access the federal funds.

Boston MPO Formula Funding

The primary pathway through which federal funding is allocated is through the Boston MPO, which is responsible for conducting the federally required metropolitan transportation planning process for the Boston area. The MPO uses this process to develop a vision for the region and then decides how to allocate federal (with a state match) transportation funds to programs and projects – roadway, transit, bicycle, and pedestrian – which support that vision through the Transportation Improvement Program (TIP). In Federal Fiscal Year 2018, the Boston MPO has programmed approximately \$221 million in FHWA funds and \$441 million in FTA funds.¹

Discretionary Grant Programs

The federal government also provides grants through a number of discretionary programs. For example, the Transportation Investment Generating Economic Recovery (TIGER) grant program has provided approximately \$500 million per year across the country to support a variety of innovative transportation projects, including multi-modal and multi-jurisdictional projects that can be difficult to fund through traditional federal programs. For example, in 2014 the MBTA was awarded a \$20 million TIGER grant for improvements to the Ruggles commuter rail station. Additionally, the Green Line Extension was awarded almost \$1 billion in a FTA New Starts grant. These, and other discretionary grants, tend to be highly competitive with demand far exceeding available funds.

State Funding Sources

State transportation capital funds are typically allocated by the Legislature and Governor via bonds that authorize what the funding can be used for. MassDOT oversees most of this funding, which is used on projects like the Green Line Extension, to support initiatives like the Accelerated Bridge Program (ABP), or to match the federal funds that the Commonwealth receives. There are also several competitive infrastructure grant programs administered by various agencies.

MassDOT Capital Investment Program

While not a funding source, MassDOT's Capital Investment Program (CIP) outlines a process for prioritizing capital spending from multiple state and federal sources. The CIP organizes projects into three priorities: Reliability, Modernization, and Expansion. Investments focus first on fixing and modernizing existing transportation assets. Expansion projects, which include many of the LMRWG recommendations, comprise a smaller portion of available funds. All of MassDOT and MBTA planned capital projects, including projects funded with federal dollars as well as projects funded completely with state money, are identified in a rolling five year CIP that is produced at the beginning of each state fiscal year. In Fiscal Year 2018 MassDOT has programmed approximately \$2 billion and MBTA has programmed approximately \$950 million on capital improvements. Included in the MassDOT CIP will be taxes generated by gaming facilities.²

¹ http://bostonmpo.org/data/pdf/plans/TIP/FFYs_2018_2022_Final_TIP_061217.pdf

² <https://www.massdot.state.ma.us/InformationCenter/CapitalInvestmentPlan.aspx>

Once all casinos and slot parlors are in operation, the Commonwealth is expected to generate in excess of \$300 million in annual taxes from expanded gaming. MassDOT will receive 15% of those annual taxes, or approximately \$45 million.

MassWorks Infrastructure Program

Several state agencies administer grants that could be used to fund transportation infrastructure. The most significant is the MassWorks Infrastructure Program, administered through the Executive Office of Housing and Economic Development (EOHED).

Priority is given to projects which support the production of multi-family housing in mixed-use districts that are well-connected to significant employment opportunities. In 2016 awards totaled more than \$85 million spread across 34 projects.³

I-Cubed

A unique program in Massachusetts is the Infrastructure Investment Incentive Program (I-Cubed). The program captures net new state tax revenues (primarily income and sales tax) generated by a development project in order to finance infrastructure improvements required to make the project possible, or to move ahead more quickly or at a higher level of density. Applications for I-Cubed funds must demonstrate that the jobs and state tax revenues associated with the development project are “net new” to the Commonwealth and would not happen “but for” the infrastructure investment supported by I-Cubed. The I-Cubed program is designed for larger development projects with public infrastructure costs between \$5 and \$50 million. I-Cubed has been used to pay for a wide range of infrastructure types and is overseen by the Executive Office of Administration and Finance.⁴

MBTA Funds

The MBTA issues Special Obligation and Revenue bonds that are backed by either the T's credit worthiness or specific revenue sources such as fees collected at MBTA-owned parking lots.

Because the MBTA owns a large amount of land including stations, parking lots, maintenance facilities, and rail rights of way, it can raise funds through joint development, leases, and concessions. For example, it can raise revenue through leasing the use of its land or receive infrastructure improvements in exchange for allowing development on its land or over it (air rights).

Much of the MBTA's resources are focused on addressing its large state of good repair needs and modernizing the system to meet capacity constraints. Expansion projects such as the Green

³ <http://www.mass.gov/hed/economic/eohed/pro/infrastructure/massworks/round-results/>

⁴ <http://www.mass.gov/anf/budget-taxes-and-procurement/cap-finance/i-cubed/>

Line Extension are completely funded with non-MBTA capital resources, mainly a combination of state bonding and federal discretionary funds.

Municipal Sources of Funding

Municipalities have several options to fund transportation infrastructure, with the Chapter 90 program being the most commonly used. However, they can also leverage their own tax resources by making direct payments from their general funds, issuing bonds, or using tax increment financing, whereby the growth in property values generated by public improvements helps pay for the infrastructure.

Chapter 90

Municipalities are allocated state funding annually (based upon metrics such as population and miles of roadways) for roadway maintenance and improvements. The majority of these funds are used for repaving and restriping local roadways and minor repairs. This funding is part of the bonds issued by the Commonwealth and provides \$200 million per state fiscal year to cities and towns.

Tax Increment Financing

Tax increment financing tools are designed to capture incremental growth in tax revenues in order to pay for infrastructure improvements. District Increment Financing (DIF) is a locally driven public financing alternative available to all cities and towns in the Commonwealth. The DIF program enables municipalities to finance public works and infrastructure projects in a designated area by capturing the increase in property tax revenue, or tax increment, derived from new housing, commercial or industrial activity in the designated area and applying the revenues towards the municipality's capital improvement program. A tax increment is the difference between the beginning assessed value of the targeted property in its dilapidated state and the assessed value going forward in time, as the planned improvements take shape. The tax increment, calculated by the local Assessor, is the tax on the added value of new construction, rehabilitation or new equipment or machinery. Using DIF, municipalities can pledge all or a portion of tax increments to fund district improvements over time. A recent example is the City of Brockton using DIF to fund various infrastructure improvements in the downtown.⁵

Developer Funding

Contributions from the private sector for transportation infrastructure typically come in the form of mitigation for the impacts from their development and payment for increased accessibility to their land.

⁵ <http://www.brockton.ma.us/docs/default-source/planning/brockton-dif-program-for-3-8-16-final-draft.pdf?sfvrsn=2>

State Level Mitigation (MEPA)

The Massachusetts Environmental Policy Act (MEPA), which is administered by the Executive Office of Energy and Environmental Affairs, ensures that the environmental and transportation impacts of development projects and other activities that exceed MEPA review thresholds are appropriately mitigated by the developer. MassDOT's Public/Private Development Unit (PPDU) provides technical review and evaluation of transportation impacts of development projects through MEPA, as well as through its own access permit process. Common transportation-related thresholds which trigger PPDU's involvement of a development proposal include generation of 2,000 or more new daily trips, construction of 300 or more new parking spaces, the combination of 1,000 or more new daily trips and 150 or more new parking spaces, and the creation of five or more acres of impervious surface area.

In coordinating and consulting with developers and other project stakeholders, MassDOT works to ensure multimodal transportation goals are being advanced through the project. This includes the incorporation of transportation demand management (TDM) measures and other strategies, such as the construction or reconstruction of bicycle and pedestrian facilities. For projects which are anticipated to produce larger impacts on nearby transportation systems such as roadways, bus, and rail transit routes, mitigation in the form of roadway reconstruction, intersection signalization and signal optimization, incorporation of transit facilities such as bus stops within or adjacent to the development site, and direct funding to transit agencies to improve services are often required of the developer.

Local Mitigation

Cities and towns have their own development review processes and usually require that developments large in size conduct impact studies and mitigate impacts as a requirement to receive a building permit or other local approval. In Boston, for example, the city requires a development to have a Transportation Access Plan Agreement (TAPA) which consists of various agreed upon mitigation measures negotiated between the city and developer.

Special Assessment Districts (Currently Available in Massachusetts)

- The Local Infrastructure Development Program (LIDP) enables property owners to agree to an assessment on their property in order to finance public infrastructure improvements that support new development projects. This program is intended to shift the burden of paying for infrastructure to the private sector, by allowing private property owners to finance public-serving infrastructure with tax-exempt bonds issued by MassDevelopment. In order to establish an LIDP, the landowners and/or developers file a petition requesting municipal approval to create an improvement plan specifying the planned infrastructure projects to be funded within a designated development district. The petition must include the written consent of all property owners within the proposed district. This program, which can be used to pay for any public infrastructure has yet to be implemented in Massachusetts.
- Business Improvement Districts (BIDs) are a type of special assessment district in which property owners within a designated district pay a fee in addition to their regular property

tax bill, in order to fund supplemental services that support local businesses and economic development. To establish a BID, property owners must submit a petition containing signatures of 60 percent of property owners, representing 51 percent of assessed value within the proposed district. Revenues are typically used to fund minor capital improvements such as landscaping, lighting, wayfinding, and street furniture. Business Improvement Districts may also be used to fund local services and maintenance of public space, such as street cleaning, public security offers, and visitor assistance.

Negotiated Contributions (Public-Private Partnership)

Although formalized processes, such as MEPA, are avenues for developers to contribute to the funding of transportation infrastructure, they can also negotiate directly with state and local governments to fund infrastructure. There are several recent examples of private developers supporting MBTA capital improvements and operating costs. In Allston, New Balance funded a new commuter rail station in proximity to their corporate headquarters for approximately \$20 million plus additional ongoing operating costs.

Mass Gaming Commission & Wynn Boston Harbor

As part of both Wynn Boston Harbor’s gaming license and MEPA requirements, the casino is contributing a significant amount of transportation-related mitigation. Additionally, the Gaming Commission oversees a Community Mitigation Fund that is funded by all gaming operations in the Commonwealth.

Wynn Boston Harbor Mitigation

Wynn is providing payments for a variety of infrastructure and TDM services. Over fifteen years, this includes a total of \$57.5 million for road infrastructure, \$58.1 million for water transportation, and \$7.3 million for Orange Line service improvements, among others.

Wynn Boston Harbor: Section 61 Transportation Mitigation				
	Pre-Opening Payment (\$)	Annual Payment (\$)	Over 15 Years Payment (\$)	Total Payment (\$)
Road Infrastructure	32,510,000	2,500,000	25,000,000	57,510,000
Water Transportation	8,600,000	3,303,000	49,545,000	58,145,000
Orange Line Subsidy	-	410,188	7,355,455	7,355,455
Patron Orange Line Shuttle Service	-	3,285,000	49,275,000	49,275,000
Employee Shuttle Service	-	2,400,000	36,000,000	36,000,000
Premium Park and Ride Shuttle Service	-	1,934,500	29,017,500	29,017,500
Neighborhood Shuttle Service	-	1,100,000	16,500,000	16,500,000

Employee MBTA Pass Subsidy	-	400,000	6,000,000	6,000,000
Electric Vehicle Charging Stations	-	166,500	2,497,500	2,497,500
Annual Monitoring and Reporting	-	50,000	650,000	650,000
Transportation Coordinator	-	50,000	750,000	750,000
Improvements to Wellington Station	550,000	-	-	550,000
On-site MBTA Fare Vending Machine	-	35,000	525,000	525,000
DCR Funding For Pedestrian Bridge	250,000	-	-	250,000
Transp. Mgmt. Assoc. Membership Fee	-	10,000	150,000	150,000
Guaranteed Ride Home Program	-	10,000	150,000	150,000
Improvements to Malden Station	25,000	-	-	25,000
TOTAL	41,935,000	15,654,188	223,415,455	265,350,455

Community Mitigation Fund

As part of the effort to help offset impacts that may result from the development and operation of gaming facilities, the Massachusetts Legislature created the Community Mitigation Fund as part of the Expanded Gaming Act. The Community Mitigation Fund is designed to help communities offset a wide range of such costs including local and regional education, transportation, infrastructure, housing, environmental issues and public safety.

The Commission has determined that the funding of unanticipated impacts will be a priority under the annual Community Mitigation Fund. The Community Mitigation Fund is not intended to fund the mitigation of specific impacts already being funded in a Host or Surrounding Community Agreement. During the most recent program, the Community Mitigation Fund Guidelines specified that no application for the mitigation of a specific impact should exceed \$400,000, but communities and governmental entities were able to ask the Commission to waive this funding cap.

A percentage of the up-front license fees paid by the full casino licenses and the slots-only licensee, totaling \$17.5 million, was deposited in the Community Mitigation Fund. After the deduction of purposes approved in 2015, 2016, and 2017, the fund has approximately \$10 million available for costs experienced across the state, after accounting for potential future awards of previously authorized grants. No further contributions from these licensees will be made to the Community Mitigation Fund until the full casino licenses become operational and generate tax revenues. Once operational, MGL c. 23K, § 59 specifies that 6.5% of the revenues from the tax on gross gaming revenues from the full casino licenses, including Wynn Boston Harbor, shall be deposited in the Community Mitigation Fund.

Once the MGM Springfield and Wynn Boston Harbor facilities are operational, potentially \$18 million generated by these two facilities may be annually deposited into the Community Mitigation Fund, using an estimate provided by the Commission's financial consultants at the time of licensure.

Community Casino Mitigation Payments

Wynn Boston Harbor has entered into Host Community (with Everett) and Surrounding Community agreements to provide annual mitigation payments of \$5.25 million to Everett, \$2 million to Boston, and \$650,000 to Somerville. Such amounts are in addition to the value of annual real estate taxes received by Everett, pre-opening payments received by the communities, and any payments related to the planned Rutherford Avenue / Sullivan Square long term improvement project, and other mitigation such as vouchers to area businesses.

New Ideas for Funding and Implementation

One of the goals of the Lower Mystic Regional Working Group is to foster cross municipal coordination in addressing the impacts of new development in the Sullivan Square area on the transportation system. This section explores new ideas to support this type of coordinated funding and implementation at the local level. These ideas are either non-traditional in Massachusetts or would require changes in state laws or regulations.

Regional Mitigation Fund

Recently, Assembly Station on the Orange Line in Somerville and the Boston Landing Commuter Rail station in Brighton have exemplified the use of developer contributions to help fund one-time transit improvements such as infill stations. However, the ability for state or local mitigation processes to require multiple developers to pool funding for transportation investments with significant capital costs (beyond what is reasonable for one developer to fund) is limited. For instance, no single development in MEPA consultation is likely to necessitate the creation of a transportation facility such as a light or heavy-rail transit line, which requires a significant capital investment. However, the construction of multiple high-intensity developments in an area over time could create the need for this type of investment. Yet the opportunity to use mitigation funding through the MEPA process may have expired.

A Regional Mitigation Fund, or some other type of developer contribution program, would enable developers to deposit mitigation funding into a pool for future transportation investments. This would allow large-scale capital construction projects to proceed when the travel demand for such an investment is reached and/or a certain funding contribution threshold is realized. Contributions to the fund could be limited to a pre-defined geographic area, such as a municipality or within a threshold distance of a roadway or transit station. Administration of such a fund could be through MassDOT, the MBTA, or another public entity which would ultimately operate the new service, or through an entity representing developers to ensure investment decisions fulfill their needs, or a combination of the public and private entities involved.

An agreement between the MBTA, the City of Cambridge, the Cambridge Redevelopment Authority, and developer Boston Properties to facilitate the approval for one million square feet of development in Kendall Square may serve as a model for this type of approach. The Kendall Square Memorandum of Understanding obligates Boston Properties to set aside \$6 million as an initial investment to fund transit improvements in Kendall Square, such as expanded MBTA bus service, more privately subsidized EZRide shuttles between Kendall and North Station, technology upgrades to the Red Line, and dedicated bus lanes. Importantly, the program is designed for multiple developers and landowners to engage moving forward, potentially addressing needs across a larger area rather than local to a development site itself. Both short and long-term projects will be recommended by a working group made up of each of the parties, financial contributors to the fund, and other stakeholders designated by the City of Cambridge and the Cambridge Redevelopment Authority.

Mitigation Payments Directed to MBTA for Operations

Short of a pooled mitigation fund or negotiated agreement like the Kendall Square example above, opportunities exist to improve the process for new developments to provide funding to the MBTA to both mitigate service impacts and to increase MBTA service (or make it more reliable) to meet the mode share goal of the development. Wynn Boston Harbor's payments for improved Orange Line service provide a strong example for this mechanism.

A robust transit improvement analysis conducted for the development area, something not typically done currently, could provide a high level of technical rigor to inform the required payments. This report's technical work can serve as a starting point for developers in creating their Transportation Impact Analysis as part of the state and/or local regulatory process.

Special Assessment District

While the agreement in Kendall Square mentioned above is a good start in formalizing private commitments to future identified MBTA improvements, it could be challenging to structure such an agreement involving multiple property owners or multiple municipalities. It also only captures value from new development, not already existing land uses that would also benefit from new infrastructure.

Some states allow local government to create Special Assessment Districts, whereby the government entity (city, town, county) identifies the geographic boundaries of the district based upon the benefit of the infrastructure improvement. A special tax could be levied on properties that would benefit from the public investment. Assessments typically require at least a majority vote of affected property owners in order to be implemented.

While similar to BIDs, Special Assessment Districts generate more revenue over a set period of time (10 – 30 years), and unlike the Local Infrastructure Development Program, are established to involve multiple property owners. State legislation would be required to allow Special Assessment Districts in Massachusetts to support broader infrastructure improvements benefiting multiple property owners.

Regional Ballot Initiative

Municipalities in Massachusetts have limited ability to raise revenue through anything other than property taxes. In many parts of the country transportation improvements are funded via ballot initiatives that link the new or increased tax to the improvement.

Allowing municipalities a broader range of opportunities to raise revenue through additional local taxes could provide funding for transportation improvements, but new legislation would be required to enable this. Cities and towns could be authorized to determine the type of tax to be raised (sales, property, payroll, vehicle excise, etc.), set the maximum amount the new tax can raise, and set the term of the tax.

According to the Center for Transportation Excellence, 470 tax ballot initiatives were voted upon across the country between 2000 and 2013 that related to generating revenue for transportation projects, with 72% of these successful. Statewide and regional ballot initiatives have generated significant new funds for transportation over the last decade. For instance, in 2016 Los Angeles County raised their sales tax by 0.5 cents, which is estimated to generate \$120 billion over forty years, for numerous roadway and transit improvements.⁶

Supplemental Infrastructure Financing for Transportation

In the 2015-2016 legislative session, the Massachusetts state legislature considered (but did not approve) a bill to create a new value capture mechanism called the Supplemental Infrastructure Financing for Transportation (SIFT) program (proposed Chapter 40X of the General Laws). Like DIF, SIFT would capture incremental growth in property tax revenues from the existing municipal levy. However, SIFT revenues would be dedicated to state or regional transportation projects. In order to facilitate the use of property tax increment for transportation projects, the proposed legislation would create a process for collaboration between municipalities and the project sponsor, such as the MBTA, a Regional Transit Authority (RTA), or MassDOT. This mechanism would be used to help fund transportation projects sponsored by these entities. The specific transportation project for which SIFT revenues are designated must be identified in the SIFT agreement.

⁶ <http://theplan.metro.net/>

Telecommuting / Flexible Work Schedules

Research topic:

MAPC will provide CTPS information regarding the effect of telecommuting (i.e., working remotely) and flexible work schedules (i.e., adjusting commuting times to off-peak periods) on vehicle usage. The research will attempt to understand how often employees telecommute, which days are most common, the differences by industry, and whether there are any projections for whether this type of working environment will increase into the future.

Recommendation:

MAPC presented a draft recommendation of estimating 18% of jobs in appropriate sectors throughout the region would telecommute / have a flexible work schedule once per week. This number was based upon research showing today's trends. Based upon discussion with the Working Group, MAPC has revised the recommendation to:

- a) Only focus on those jobs from commuters traveling into the Focus Area
- b) Using a percentage slightly beyond today's current trend of 18%. A higher percentage reflects the use of telecommuting / flexible work as an explicit TDM strategy

Based upon the above, MAPC recommends an assumption that 25% of commuters working in the Focus Area applied to relevant sectors (described below). This results in 925 fewer trips on a typical weekday.

Background Information:

Summary of relevant research and methodology:

- According to CTPS research, approximately 18% of employed workforce telecommutes once per week. Information is not available about the Boston workforce in particular.
- On average, a telecommuter is college-educated, 49 years old, and earns an annual salary of \$58,000 while working for a company with more than 100 employees.
- A USDOT study estimates that telecommuting has the potential to double compared to current levels by 2030
- The DOT study also found that up to 8% of workers have a compressed work week (i.e., working 40 hours in 4 days)
- Statistics regarding flexible work schedules (i.e., working off peak times) have been more difficult to capture. Typically, managerial and professional jobs are more likely to allow for these schedules.
- Statistics regarding days telecommuters work from home or the actual number of days were not available

- To determine jobs in professional services and managerial work, we use 11 employment sectors created by aggregating 2 digit NAICS codes. These sectors are: 1) Construction, 2) Education and Health Services, 3) Financial Activities, 4) Public Administration, 5) Information, 6) Retail, Leisure, and Hospitality, 7) Manufacturing, 8) Natural Resources and Mining, 9) Other Services, 10) Professional and Business Services, and 11) Trade Transportation and Utilities. Additionally, these sectors are broken into 3 types of employment: retail, service, and basic. For the purposes of this analysis, we assumed that the service workers of sectors 3-Financial Activities 4-Public Administration and 10-Professional and Business Services were eligible for telecommuting.

Case study example

Encouraging flexible work schedules can be done in multiple ways. For example, as part of Kendall Square's TDM requirements, encouraging flexible work and telecommuting is one of a menu of options that an employer can utilize assist with TDM.

The city of Houston has an alternative, opt-in program to encourage these behaviors. In 2007, the city sponsored the Flex in the City program as an opportunity for Houston area employers to try flexible work options. Employers were asked to adopt an additional flex option that eliminated at least one peak commute between September 17-28, 2007, during which time employers measured the effect on productivity—when the right employees, in the right jobs, practice the right flexible work option(s). At the same time Houston measured the effects on mobility. By moving a relatively small number of cars off the roads during peak congestion periods, a measurable improvement in mobility could be realized. A savings of 906 peak-commute hours were experienced as a result of the 2006 Flex in the City on both the North and Southwest Freeways. The program has continued and the city offers technical assistance and promotion to help interested employers encourage these habits.

5

THE RECOMMENDED PLAN

BACKGROUND

A major component in LRTP development is the Recommended Plan. The Recommended Plan cites the major, regionally significant projects and investment programs that have been selected for funding for the life of the LRTP. This chapter explains what transportation infrastructure the MPO expects to fund during the next 25 years. It particularly focuses on those projects and programs that will be funded with MPO discretionary funds. The chapter begins with an overview of key elements that form the backdrop for these decisions and goes on to explain the project and program selection process. It then describes the projects and programs that comprise the Recommended Plan. Finally, this chapter describes the travel demand model results and offers an interpretation of the Recommended Plan's projects and programs.

The MPO's Challenge

The ultimate purpose of transportation is to serve human activity; therefore, the MPO defines its challenge for this LRTP as:

How can we maintain the transportation network to meet existing needs, adapt and modernize it for future demand, while simultaneously working within the reality of constrained fiscal resources?

Balancing Diverse Needs

The MPO recognizes the diversity of transportation needs throughout the Boston region. Matters of system preservation, safety, capacity management and mobility, the environment, economic vitality, and transportation equity all need to be addressed to balance diverse needs and reach the region's goals. The Recommended Plan demonstrates the MPO's method for reaching this balance—to provide adequate funding for regionally significant major infrastructure and capacity-adding projects as well as investment programs. A major infrastructure project is one that costs more than \$20 million. An expansion project is one that adds capacity to the existing system through adding a travel lane, constructing an interchange, building an extension of a commuter rail or rapid transit line, or procuring additional (not replacing) public transportation vehicles. Other investment programs allow for smaller-

scale projects that would be funded through the Transportation Improvement Program. This Recommended Plan is the MPO's response to the challenge above, including the issue of diversity.

Issues

The Recommended Plan addresses the following issues:

- The region's infrastructure is aging; clearly, the demands placed on highway and transit facilities have been taxing to the point that routine maintenance is insufficient to keep up with maintenance needs. As a result, there is a significant backlog of maintenance and state-of-good-repair work to be done on the highway and transit system, including on bridges, roadway pavement, transit rolling stock, and traffic and transit control equipment. Under these circumstances, the MPO recognizes that the concept of preservation has become even more important. Maintenance needs must be prioritized in a way that will address the most serious problems with the most effective investments in order to provide maximum current and future benefits. The Recommended Plan provides mechanisms for this.
- The Recommended Plan also needs to support a transportation system that expands travel choices within the region. While advocating for a system that adequately supports all modes of travel, the MPO recognizes that many people in the region are, and will continue to be, reliant on the automobile. MPO members expect both roadway congestion to worsen and transit demand to increase in the future. They recognize that many travel options need to be advanced in order to reduce our dependence on the single-occupant vehicle.
- Climate change likely will affect the Boston region significantly if climate trends continue as projected. In order to minimize the negative impacts, the MPO is taking steps to decrease our carbon footprint while simultaneously adapting our transportation system to minimize damage from natural hazards. The MPO strongly considers projects and strategies that protect and enhance the environment, promote energy conservation, and improve quality of life in the region.
- The Recommended Plan's transportation investments support livability by providing residents with convenient access to opportunities and resources. Affordable housing, access to services, employment opportunities, and shopping in close proximity all contribute to the livability of a community, as do safe, affordable, and healthy options for getting around.
- The MPO seeks, in the Recommended Plan, to provide access to transportation services on an equitable basis across the region. This includes, but is not limited to, providing transportation options to low-income and minority communities for travel to jobs, services, and other important destinations.

- Finally, the MPO recognizes that the transportation system plays a critical role in the continued economic health of the region. Many sectors of the economy depend heavily on safe and efficient movement of goods and services by truck, rail, air, and water.

PROJECT SELECTION

Chapter 2, Process for Developing Charting Progress to 2040, describes the MPO's process for selecting the recommended projects and programs included in this LRTP in more detail. The steps are summarized below:

1. Development of MPO's vision, goals, and objectives (Chapter 1)
2. Assessment of region's transportation needs (Chapter 3)
3. Analysis of future transportation scenarios (Appendix A)
4. Development of a Universe of Projects and Programs list (Appendix B)
5. Evaluation of major infrastructure projects (Appendix C)
6. Review of transportation revenues available for programming projects and programs through 2040 (Chapter 4)
7. Account of public participation that spanned the entire development process (Chapter 2 and Appendix D)

To develop the Recommended Plan, MPO staff needed to identify the region's top-priority highway and transit projects as candidates for funding. To arrive there, staff first had to comprise a draft list of major infrastructure projects and other investment programs for modeling. MPO staff used the information listed above, including results of the initial scenario planning, to create a balanced list that fits within the fiscal constraints of the LRTP.

Development of Alternative LRTP Scenarios

Developing the draft list of major infrastructure projects and other investment programs involved balancing two conflicting MPO policies:

- The policy and practice of maintaining its previous LRTP and TIP programming commitments
- The operations and management (O&M) approach to programming—a new policy of giving priority to low-cost, non-major infrastructure projects (adopted as part of this LRTP)

The MPO intends to ensure that the projects and programs funded in *Charting Progress to 2040* advance its goals. To address this, the MPO considered two alternatives: 1) program the projects included in *Paths to a Sustainable Region*, the previous LRTP, and 2) use the O&M approach for programming lower-cost projects as analyzed as part of the *Charting Progress to 2040* development process.

FIRST ALTERNATIVE—PROGRAM PROJECTS IN PATHS TO A SUSTAINABLE REGION

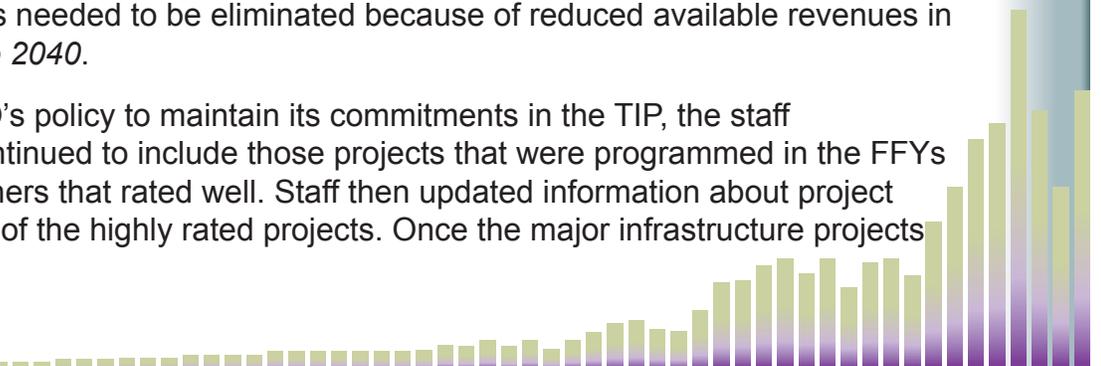
This alternative programmed all of the unfunded major infrastructure projects from *Paths to a Sustainable Region* in the five-year time bands established for *Charting Progress to 2040* (2016–2020, 2021–2025, 2026–2030, 2031–2035, and 2036–2040). Funding was available for all of the projects, although not in the same time bands because of reductions in available revenue. These major infrastructure projects, however, accounted for 68 percent of the total funding available for the 25-year period. This would not allow many smaller projects that do not add capacity or cost less than \$20 million (the projects that do not need to be listed in the LRTP) to be funded over the next 25 years.

SECOND ALTERNATIVE—O&M FUNDING

The O&M alternative targeted funding to lower-cost improvements such as intersection and complete street projects and a limited amount of major infrastructure projects. As shown in the scenario planning process (see Appendix A), this alternative was more effective in addressing the MPO’s goals and would provide greater opportunities to ensure geographic equity (money can be distributed throughout the region, as opposed to being concentrated in a few specific projects).

To develop the staff recommendation for major infrastructure projects under the O&M alternative, staff applied the MPO’s goals and objectives as criteria in a qualitative evaluation of the major infrastructure and capacity-adding highway projects. This was done for projects included in the Universe of Projects and Programs list that were sufficiently well defined to allow for analysis. Many of the major infrastructure projects in *Paths to a Sustainable Region* had been determined previously to address MPO priorities similar to the goals in *Charting Progress to 2040*; the projects that had rated highly in *Paths to a Sustainable Region* continue to rate highly in the *Charting Progress to 2040* project-evaluation process. In addition, many projects were identified in the *Charting Progress to 2040* Needs Assessment. For these reasons, staff included some of the *Paths to a Sustainable Region* major infrastructure projects in their recommendation for this LRTP. Some projects needed to be eliminated because of reduced available revenues in *Charting Progress to 2040*.

Respecting the MPO’s policy to maintain its commitments in the TIP, the staff recommendation continued to include those projects that were programmed in the FFYs 2015–18 TIP and others that rated well. Staff then updated information about project readiness and costs of the highly rated projects. Once the major infrastructure projects



were selected for *Charting Progress to 2040* (considering their updated readiness and costs), the remaining funding was used to implement the MPO's new policy of giving priority to the O&M program projects. Staff recommended implementing programming for O&M programs beginning in the FFYs 2021–26 time band and proposed funding in each program through the remaining time bands.

Staff developed the O&M alternative using the following assumptions for the various investment programs:

- No more than 50 percent of available funding in each five-year time band would be allocated to major infrastructure projects.
- If one major infrastructure project required more than 50 percent of funding in a particular time band, it would not be programmed.
- Four investment programs were established for the smaller projects that cost less than \$20 million and/or did not add capacity. This would give municipalities the confidence to begin designing projects knowing that there would be funding in the later years of the LRTP. Funding for the O&M investment programs used the funds that were left after the major infrastructure program was determined. Detailed information on each program is found under the Recommended List of Projects and Programs section of this chapter. The O&M investment programs and funding assumptions are as follows:
 1. Complete Streets Program – 58 percent
 2. Intersection Improvements Program – 28 percent
 3. Bicycle and Pedestrian Program – 10 percent
 4. Community Transportation, Parking, and Clean Air and Mobility Program – 4 percent

The first three programs include the types of projects that typically are funded in the TIP. The fourth, the Community Transportation, Parking, and Clean Air and Mobility Program, is a revival and expansion of the MPO's Clean Air and Mobility program (which had been in hiatus for several years because of lack of funding); it was established based on input from public outreach and information from the Needs Assessment.

Selection of the Recommended Projects and Programs

The MPO reviewed and discussed the two alternatives and ultimately adopted the O&M scenario as the basis for recommending projects and programs in the draft LRTP. After

further discussion, the MPO voted to adjust the last two time bands of the LRTP (2031–2035 and 2036–2040) continuing to fund the four O&M programs but leaving the major infrastructure program unallocated at this time. This was because of a number of factors:

- The Project Selection Advisory Council (PSA Council) was established by the state legislature to establish uniform project selection criteria for developing a comprehensive state transportation plan consistent with state and federal legislation and policies. The PSA Council was charged with delivering its recommendations for a project priority formula or other data-driven process to the legislature by June 30, 2015. The MPO decided to wait for these recommendations before programming new projects in the later time bands.
- MassDOT’s Capital Investment Plan for both highway and transit projects outlining the Commonwealth’s priorities for major highway and transit projects had not been released yet. The MPO felt that this information was important before determining projects that could be funded by the MPO in later years.
- MassDOT is beginning to develop the Program for Mass Transportation and determining its long-range priorities for transit in the region. The MPO felt that this information was also important to know before determining projects that could be funded by the MPO in later years.

Ultimately, the final selection of projects was based on the informed judgment of MPO members after they reviewed information obtained through the LRTP development process, including:

- Conclusions from the regional Needs Assessment (Volume II of the LRTP)
- Results from the scenario-planning process
- Information about projects available through feasibility studies, project-specific modeling work, and environmental impact reports
- Examination of individual highway and transit projects for conformity with the MPO’s goals and objectives
- Feedback from the Regional Transportation Advisory Council, the MPO’s advisory group, and the public via the MPO’s LRTP outreach process
- MPO members’ knowledge of proposed projects

A list of the major infrastructure projects and O&M programs is shown in Table 5.1; they are described in the next section.

TABLE 5.1
Major Infrastructure Projects in the Recommended Plan

Project Name	Current Cost
Middlesex Turnpike Improvements, From Crosby Drive North to Manning Road, Phase III (Bedford and Billerica)	\$26,935,000
Reconstruction of Rutherford Avenue, from City Square to Sullivan Square (Boston)	\$109,967,000
Intersection Improvements at Route 126 and Route 135/MBTA and CSX Railroad (Framingham)	\$115,000,000
Route 4/225 (Bedford Street) and Hartwell Avenue (Lexington)	\$23,221,000
Bridge Replacement, Route 27 (North Main St.) over Route 9 (Worcester St.) and Interchange Improvements (Natick)	\$25,793,000
Reconstruction of Highland Avenue, Needham Street and Charles River Bridge, from Webster Street to Route 9 (Newton and Needham)	\$14,298,000
McGrath Boulevard Project (Somerville)	\$56,600,000
Green Line Extension Project (Phase 2), College Avenue to Mystic Valley Parkway/Route 16 (Somerville and Medford)	\$190,000,000
Reconstruction and Widening on Route 18 (Main Street) From Highland Place to Route 139 (Weymouth and Abington)	\$58,822,000
Reconstruction of Montvale Avenue, from I-93 Interchange to Central Street (Woburn)	\$4,225,000
Bridge Replacement, New Boston Street over MBTA (Woburn)	\$9,707,000

RECOMMENDED LIST OF PROJECTS AND PROGRAMS

This LRTP includes funding to meet the needs and address the issues discussed in the Background section above, including maintenance and expansion of the transportation system. Funding for much of the roadway maintenance in the Boston Region MPO area is provided through statewide resurfacing, maintenance, and infrastructure programs. Maintenance of the bridges is provided through the statewide bridge program and the Accelerated Bridge Program.

In the Boston region, the highway network's major infrastructure and capacity expansion projects, and other maintenance and rehabilitation projects not included in the statewide programs are funded through the Boston Region MPO's share of the discretionary capital

program. The selection of projects and programs using these funds was described in the Project Selection section above.

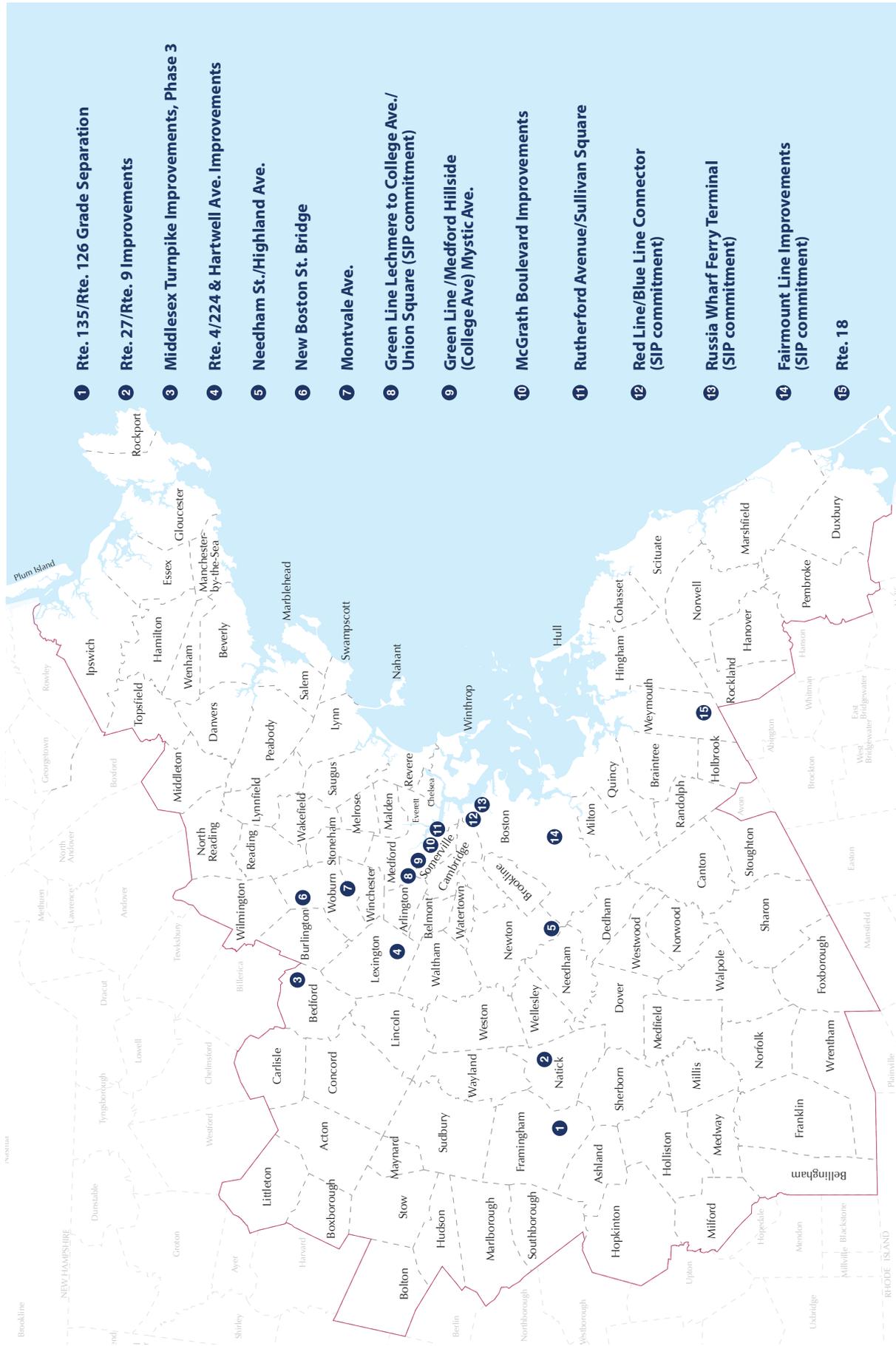
In this LRTP, for the transit network, the MPO has allocated all of the MBTA's future transit capital funding to system infrastructure maintenance, accessibility improvements, and system enhancements. It also demonstrates the MPO's commitment to State Implementation Plan projects by programming and funding them.

The following ongoing no-build major infrastructure and expansion projects are funded in this LRTP:

- Route 128 Additional Lanes (Randolph to Wellesley): The total budget for this project is approximately \$381.4 million; the remaining costs funded are \$57.8 million. The completion date is projected to be 2019.
- Fairmount Line Improvements: This is a State Implementation Plan project. The Commonwealth committed \$135 million to this project. The remaining cost, funded under this LRTP, is \$26.5 million. The completion date is projected to be the end of calendar year 2018.
- Green Line Extension to College Avenue and Union Square in Somerville: The Commonwealth committed \$996.122 million to this project. The Federal Transit Administration committed \$996.121 million to this project. The completion date is projected to be 2020.

After accounting for the costs of these ongoing projects, the remaining funds are available for major infrastructure and capacity expansion or set aside for low-cost, non-capacity-adding projects that advance the MPO's visions and policies. Table 5.1 listed the projects funded under the major infrastructure program and their current costs. Figure 5.1 shows the locations of these projects. As shown in Table 5.1, the Recommended Plan allocates the majority of highway funding for highway projects. However, it also provides for flexing \$190 million in highway funding to one transit project.

FIGURE 5.1
Major Infrastructure Projects in the Recommended Plan



1 Rte. 135/Rte. 126 Grade Separation

2 Rte. 27/Rte. 9 Improvements

3 Middlesex Turnpike Improvements, Phase 3

4 Rte. 4/224 & Hartwell Ave. Improvements

5 Needham St./Highland Ave.

6 New Boston St. Bridge

7 Montvale Ave.

8 Green Line Lechmere to College Ave./ Union Square (SIP commitment)

9 Green Line /Medford Hillside (College Ave) Mystic Ave.

10 McGrath Boulevard Improvements

11 Rutherford Avenue/Sullivan Square

12 Red Line/Blue Line Connector (SIP commitment)

13 Russia Wharf Ferry Terminal (SIP commitment)

14 Fairmount Line Improvements (SIP commitment)

15 Rte. 18

All public transportation funds are used for improvements to the regional public transportation system. Based on this distinction, the major infrastructure projects total approximately \$805 million, 28 percent, of the MPO’s discretionary funds. The MPO also included funding for approximately \$1.5 billion, 54 percent, in roadway modernization projects and programs, and \$63 million, 2 percent, for a community transportation, parking, and clean air and mobility program. Table 5.2 shows the total amount of funding dedicated to major infrastructure projects and O&M programs in this LRTP. In the last two time bands of the LRTP, \$446.7 million, 16 percent, has been left unallocated.

TABLE 5.2
Funding Dedicated to Programs in the LRTP

Program	Dedicated Funding
MPO Discretionary Capital Program: Major Infrastructure Projects	\$615,363,800
MPO Discretionary Capital Program: Highway Funds Flexed to Transit	\$190,000,000
MPO Discretionary Capital Program: Complete Street Program	\$936,262,700
MPO Discretionary Capital Program: Intersection Improvement Program	\$443,639,500
MPO Discretionary Capital Program: Bicycle/Pedestrian Program	\$158,442,700
MPO Discretionary Capital Program: Community Transportation/ Parking/ Clean Air and Mobility Program	\$63,377,100
MPO Discretionary Capital Program: Unassigned Funds	\$446,707,600
Total Highway Funding	\$2,853,793,400
Transit Expansion Projects Funded in the Boston Region MPO by the Commonwealth	\$1,555,250,000
Transit Funding	\$1,555,250,000

Highway Projects in the Recommended Plan

Table 5.3 lists the highway projects funded under the major infrastructure program, as well as other investment programs established for O&M projects, their costs, and the period in which they are projected to be programmed. The list also includes the Green Line Extension from College Avenue to Mystic Valley Parkway/Route 16 transit project, which is using highway funds flexed to transit.

Pursuant to federal guidance for allowing for inflation, costs associated with each highway project are based on the current estimated cost plus four percent per year through the year of construction. (Figure 5.1 shows the location of each project.) Table 5.4 lists bridges that cost more than \$20 million and currently are scheduled to be advertised. The next section of this chapter first provides a detailed description, current cost, and map for each major infrastructure highway project in the Recommended Plan; it also provides a detailed description of the other investment programs.

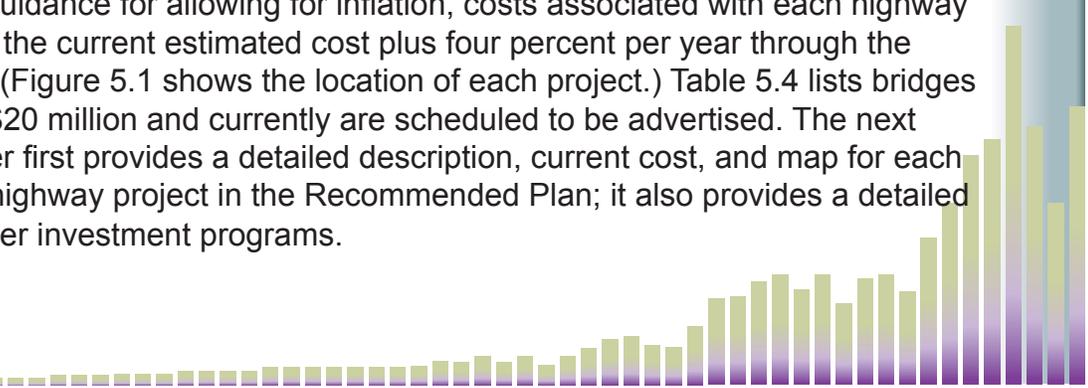


TABLE 5.3

Major Infrastructure Projects Programmed with Highway Funding in the Recommended Plan with Costs

Project Name	Current Cost	Investment Category	FFY 2016-2020	FFY 2021-2025	FFY 2026-2030	FFY 2031-2035	FFY 2036-2040	MPO Funding	Non-MPO Funding
Route 128 Additional Lanes (Needham & Wellestey)	\$57,768,183	MI	\$57,768,183					\$57,768,183	
Middlesex Turnpike Improvements from Crosby Dr North to Manning Rd, Phase III (Bedford & Billerica)	\$26,935,171	MI	\$28,296,348					\$28,296,348	\$1,000,000
Reconstruction of Rutherford Ave, from City Sq to Sullivan Sq (Boston)	\$109,967,000	MI	\$7,000,000	\$106,268,126				\$113,268,126	\$15,377,710
Intersection Improvements at Rte 126 & Rte 135/MBTA & CSX Railroad (Framingham)	\$115,000,000	MI			\$184,118,700			\$184,118,700	
Route 4/225 (Bedford St) and Hartwell Ave (Lexington)	\$23,221,000	MI		\$30,557,000				\$30,557,000	
Bridge Replacement, Rte 27 (North Main St) over Rte 9 (Worcester St) and Interchange Improvements (Natick)	\$25,793,370	MI		\$33,942,300				\$33,942,300	
Reconstruction of Highland Ave, Needham St & Charles River Bridge, from Webster St to Rte 9 (Newton & Needham)	\$14,297,606	MI	\$15,464,292					\$15,464,292	
McGrath Boulevard Project (Somerville)	\$56,563,000	MI			\$90,559,000			\$90,559,000	
Green Line Extension Project (Phase 2), College Ave to Mystic Valley Parkway/Rte 16 (Somerville to Medford)	\$190,000,000	MI	\$158,000,000	\$32,000,000				\$190,000,000	
Reconstruction & Widening on Rte 18 (Main St) from Highland Pl to Rte 139* (Weymouth & Abington)	\$58,822,115	MI	\$45,281,758					\$45,281,758	\$14,771,760

TABLE 5.3 (Cont.) Major Infrastructure Projects Programmed with Highway Funding in the Recommended Plan with Costs

Project Name	Current Cost	Investment Category	FFY 2016-2020	FFY 2021-2025	FFY 2026-2030	FFY 2031-2035	FFY 2036-2040	MPO Funding	Non-MPO Funding
Reconstruction of Montvale Ave, from I-93 Interchange to Central St (Woburn)	\$4,225,256	MI	\$4,752,838					\$4,752,838	
Bridge Replacement, New Boston St over MBTA (Woburn)	\$9,706,549	MI	\$11,355,289					\$11,355,289	
Complete Street Program (Regionwide)		CS		\$152,018,630	\$177,609,859	\$321,301,910	\$268,037,266	\$918,967,664	
Bicycle/Pedestrian Program (Regionwide)		B/P		\$26,210,109	\$30,622,389	\$55,396,881	\$46,213,322	\$158,442,701	
Intersection Improvement Program (Regionwide)		INT		\$73,388,304	\$85,742,690	\$155,111,267	\$129,397,301	\$443,639,562	
Community Transportation/Parking/Clean Air Mobility Program (Regionwide)		CT/PK/CA		\$10,484,043	\$12,248,956	\$22,158,752	\$18,485,329	\$63,377,080	
Total Available Regional Highway Target Funds			\$441,648,080	\$464,868,512	\$580,901,594	\$657,770,110	\$708,605,218	\$2,853,793,514	\$31,149,470
Total Programmed Regional Highway Target Funds			\$345,213,746*	\$464,868,512	\$580,901,594	\$553,968,810	\$462,133,218	\$2,407,085,880*	
Regional Highway Target Funds Available			\$96,434,334	\$0	\$0	\$103,801,300	\$246,472,000	\$446,707,634	
Percentage of Funding Allocated			78%	100%	100%	84%	65%	84%	

* Includes funding from projects not listed in LRTP but included in the 2016-2019 TIP

MI - Major Infrastructure Program

CS - Complete Streets Program

B/P - Bicycle/Pedestrian Program - Assabet River Rail Trail will be funded under this program

INT - Intersection Improvement Program

CT/PK/CA - Community Transportation/Parking/Clean Air and Mobility Program

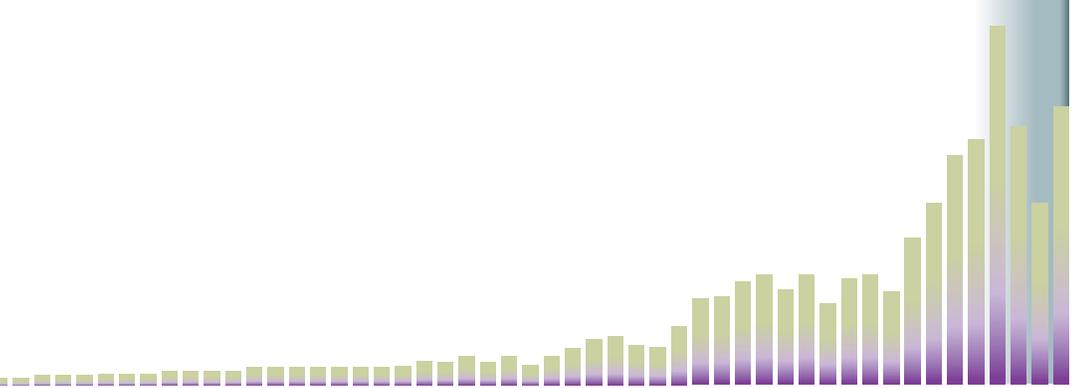


TABLE 5.3 (Cont.)
Major Infrastructure Projects Programmed with Highway Funding in the Recommended Plan with Costs

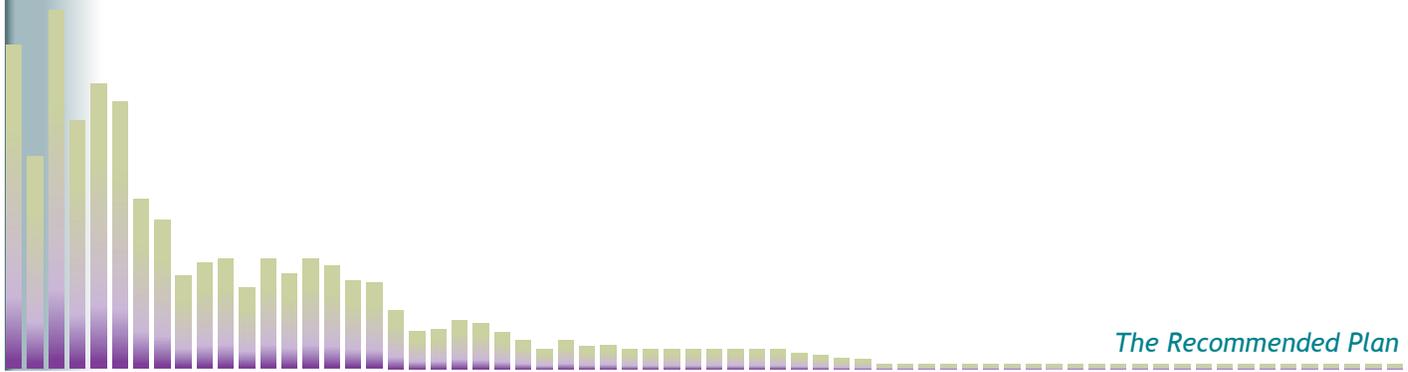
Project Name	Current Investment Cost Category	FFY 2016–2020	FFY 2021–2025	FFY 2026–2030	FFY 2031–2035	FFY 2036–2040	MPO Funding
Major Infrastructure		\$327,918,708	\$202,767,426	\$274,677,700	\$0	\$0	\$805,363,835
Complete Street		\$17,295,037	\$152,018,630	\$177,609,859	\$321,301,910	\$268,037,266	\$936,262,701
Bicycle and Pedestrian		\$0	\$26,210,109	\$30,622,389	\$55,396,881	\$46,213,322	\$158,442,701
Intersection Improvement Program		\$0	\$73,388,304	\$85,742,690	\$155,111,267	\$129,397,301	\$443,639,562
Community Transportation		\$0	\$10,484,043	\$12,248,956	\$22,158,752	\$18,485,329	\$63,377,080
Unallocated Funds		\$96,434,334	\$0	\$0	\$103,801,300	\$246,472,000	\$446,707,634
Total		\$441,648,079	\$464,868,512	\$580,901,594	\$657,770,110	\$708,605,218	\$2,853,793,514
% Major Infrastructure		74%	44%	47%	0%	0%	28%
% Complete Street		4%	33%	31%	49%	38%	33%
% Bicycle and Pedestrian		0%	5%	5%	8%	6%	6%
% Intersection Improvement Program		0%	16%	15%	24%	18%	16%
% Community Transportation		0%	2%	2%	3%	3%	2%
% Unallocated Funds		22%	0%	0%	16%	35%	15%
% Total		100%	100%	100%	100%	100%	100%

TABLE 5.4
Highway Bridges with Estimated Costs of More than \$20 Million

Municipality	Project	FFY 2016– 2020	FFY 2021– 2025	FFY 2026– 2030	FFY 2031– 2035	FFY 2036– 2040
Hanover and Norwell	Superstructure Replacement Route 3 over Route 123 (Webster Street) and Route 3 over Route 123 (High Street)	\$41,955,600				
Boston	North Washington Street over the Charles River	\$117,208,000				
Lynn and Saugus	Route 107 over the Saugus River	\$45,000,000				
Total Statewide Bridge Program		\$204,163,600				



PROJECT DESCRIPTIONS



BEDFORD AND BILLERICA: MIDDLESEX TURNPIKE, PHASE 3 (\$26,935,000)

Project Description

The proposed improvements will widen Middlesex Turnpike from 800 feet north of Plank Street to 900 feet north of Manning Road. This will provide two lanes in each direction, making it a four-lane highway with a median. There will be left-turn lanes at key intersections. The improvements span approximately 1.5 miles and include reconstructing the bridge over the Shawsheen River. The roadway's cross-section width will increase to 70 feet, and the total right-of-way will be 85 feet wide. Each direction will consist of a 14-foot outside travel lane, a 13-foot inside travel lane, and a 16-foot median. The median will be reconfigured at key intersections and driveways as a 4-foot median with a 12-foot protected left-turn lane. On the east side of the 70-foot travel way is a 7-foot grass strip, and on the west side are a 3-foot grass strip and a 4-foot concrete sidewalk.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

A draft environmental impact report (DEIR) for earlier phases of this project, completed in 1995, contained a roadway segment capacity analysis. This analysis showed that the Middlesex Turnpike operated at level of service (LOS) E in the AM and PM peak hours; and, at six out of seven intersections along this roadway, the critical movement in the AM and PM peak hours operated at LOS F. In terms of delay, Congestion Management Process (CMP) monitoring conducted in 2002 found that the average travel speed is less than 70 percent of the posted speed along four segments in both the northbound and southbound directions, in both the AM and PM peak periods. MassDOT traffic counts as recent as 2007 show average weekday traffic ranging between 15,000 and 25,000 vehicles between Billerica and Burlington.

Transit:

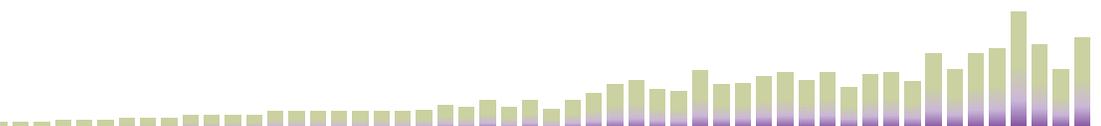
The MBTA and the Lowell Regional Transit Authority (LRTA) provide bus service in this corridor that connects with the downtown areas of Boston and Lowell.

Pedestrians/bicycles:

This project will add three miles of new bicycle lanes and rebuilt sidewalks.

SAFETY

There are no high-crash locations within the study area for the years 2010 to 2012, according to MassDOT's list of the top-200 high-crash intersections.



SYSTEM PRESERVATION

Three lane-miles of substandard pavement and one substandard bridge will be replaced as part of this project.

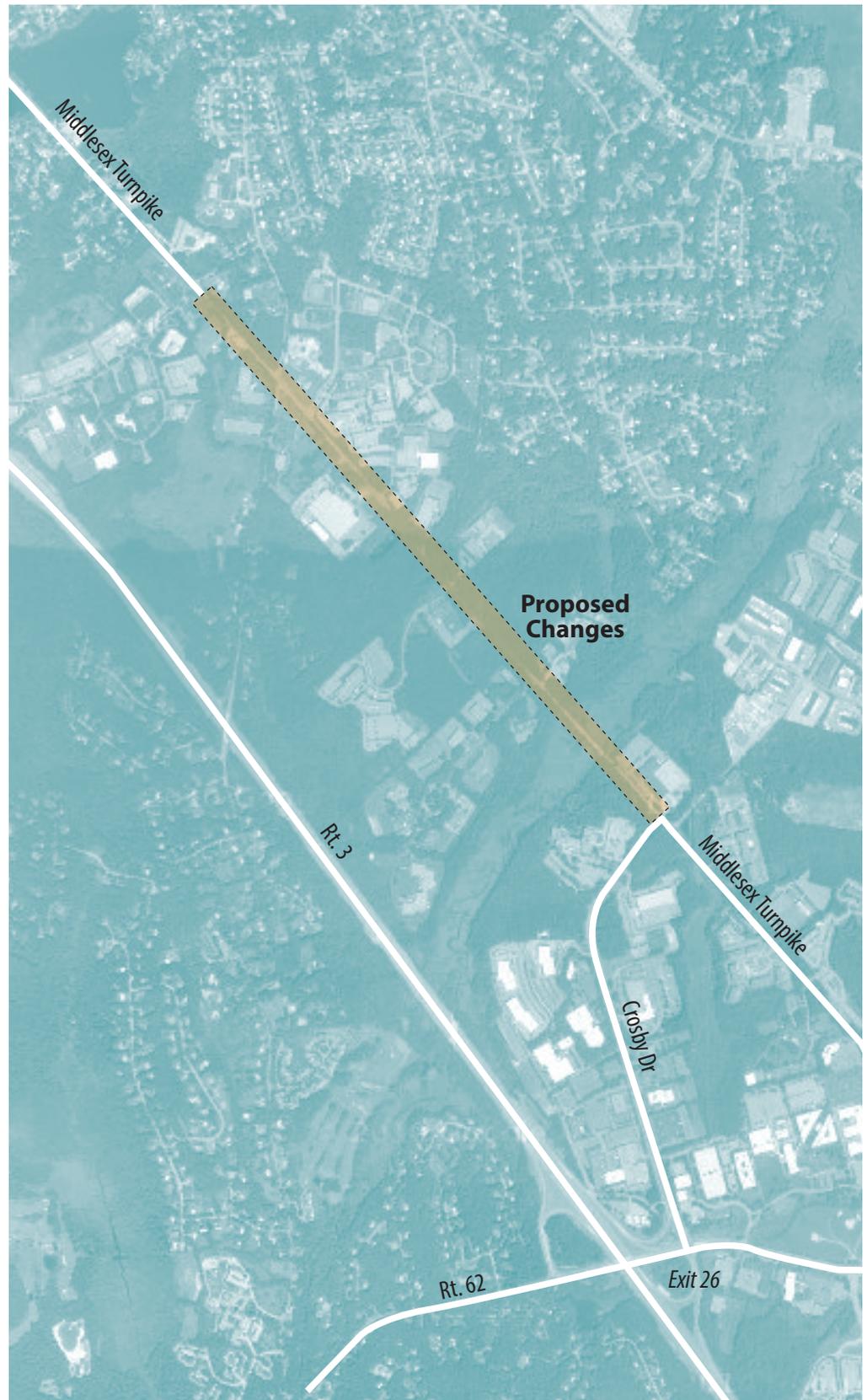
ECONOMIC VITALITY

The project consists of a corridor that spans two communities, Bedford and Billerica. The area in Bedford is zoned for industrial park, industrial, general business, and residential uses. The area in Billerica is zoned for industrial uses.

This phase of the reconstruction of the Middlesex Turnpike is in Bedford and Billerica, immediately north of an MPO-designated priority development area in Burlington. This project will improve access to the priority development area from US Route 3.

TRANSPORTATION EQUITY

This project is not within an environmental justice (EJ) area.



BOSTON: RUTHERFORD AVENUE/SULLIVAN SQUARE (\$109,967,000)

Project Description

The Rutherford Avenue project seeks to transform the corridor’s highway-like design into a multimodal urban boulevard. The Rutherford Avenue corridor in the Charlestown neighborhood of Boston extends about 1.5 miles from the North Washington Street Bridge to the Sullivan Square MBTA Orange Line station. The existing corridor consists of 8 to 10 lanes that facilitate high-speed automobile travel. Although this roadway layout served high volumes of traffic during construction of the Central Artery/Tunnel project, it now acts as a barrier to the neighborhood. The existing roadway creates significant challenges and safety issues for pedestrians and bicyclists seeking to reach various destinations, including Bunker Hill Community College, Paul Revere Park, the Hood Business Park employment area, and MBTA rapid transit stations.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

The proposed roadway design includes mobility improvements for all modes through widened sidewalks, shortened crossings, on-street parking lanes, bicycle lanes, and exclusive bus lanes to improve bus operations at the Sullivan Square Station. The project provides improvements around Sullivan Square by reconfiguring the roadways into an urban grid system of streets to regularize traffic movements. The at-grade urban boulevard will eliminate the underpasses at Sullivan Square and Austin Street, add a 12 to 16-foot-wide landscaped median, and reduce the roadway to two lanes in each direction, with turn lanes at intersections.

Transit:

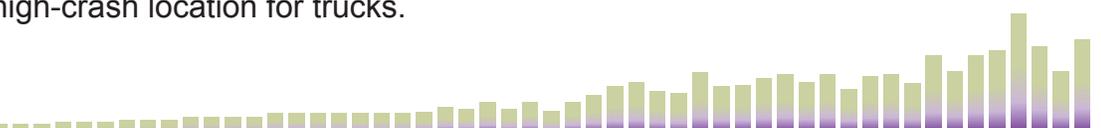
The designation of exclusive bus lanes at Sullivan Square Station also will improve operations for 12 MBTA bus routes served by almost 900 trips each day. The safety and convenience of street crossings for pedestrians accessing MBTA services will be improved.

Pedestrians/bicycles:

By transforming the highway-like roadway into a multimodal urban boulevard, the project will improve pedestrian and bicycle safety, and access to the Community College and Sullivan Square MBTA stations on the Orange Line. The livability elements consist of adding 10-foot sidewalks, creating a 20 to 40-foot linear park or buffer, installing ten traffic signals and crosswalks, shortening crossings, planting 900 trees, and possibly adding a 5-foot wide bike lane in the southbound direction.

SAFETY

There is one Highway Safety Improvement Program crash cluster in the project area. The project area is also identified as a high-crash location for trucks.





SYSTEM PRESERVATION

Nine lane-miles of substandard pavement will be replaced and three substandard bridges eliminated as part of this project.

ECONOMIC VITALITY

The plans for reconfiguring the Sullivan Square roadway network also provide an opportunity to create land parcels for transit-oriented-development that will be well suited and well located for commercial and residential redevelopment by the private sector. Many of the parcels in the Sullivan Square area are publicly owned, by either the MBTA or the City of Boston, which creates the potential for public-private partnerships.

TRANSPORTATION EQUITY

This project is not in an EJ area, but it is within a half-mile of an EJ area in the neighboring city of Somerville.

FRAMINGHAM: ROUTE 126/ROUTE 135 GRADE SEPARATION (\$115,000,000)

Project Description

This alternative would provide a grade separated crossing at the intersection of Route 135 and Route 126. Route 135 would be depressed under Route 126, with Route 126 approximately maintaining its existing alignment. The depressed section of Route 135 would extend from approximately 500 feet west of Route 126 to approximately 480 feet east of Route 126. The westerly limit of the depressed section would begin immediately east of a potential Hollis Court Extension. The easterly limit of the depressed section would be approximately 125 feet west of the existing at-grade crossing of the Framingham secondary track.

Within the proposed Route 135 cross-section would be an underpass that would include two 11-foot travel lanes with 4-foot shoulders. Retaining walls would be constructed on both sides of the underpass. The remaining space within the project cross-section would be used for at-grade features including ramps connecting Route 135 with Route 126, and sidewalks.

The available cross-section would be constrained by existing buildings on both sides of the road west of the Route 126 intersection, including two buildings on the south side and the historic train station on the north side. The proposed cross-section, west of the intersection, would include a 30-foot pavement section with two three-foot thick retaining walls and two 10-foot wide at-grade sidewalks on Route 135.

East of the intersection, three buildings on the south side of Route 135 directly abut the sidewalk. On the north side, two small buildings sit between Route 135 and the Boston mainline tracks. The existing distance between the buildings is approximately 66 feet. In order to make a partial connection between Route 135 and Route 126, ramps will be provided on Route 135 east of the intersection. These would consist of a one-way, one-lane ramp eastbound from Route 126 to Route 135 and a one-way one-lane ramp westbound from Route 135 to Route 126.

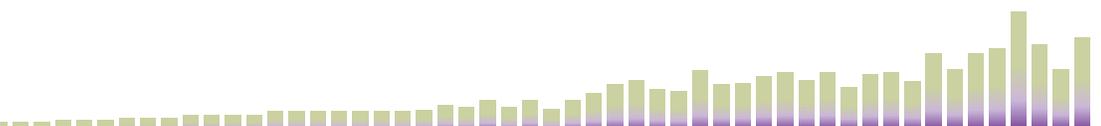
Side streets beyond the immediate vicinity of the intersection would be used to provide connections from eastbound Route 135 to Route 126 and from Route 126 to westbound Route 135. This would include the extension of Hollis Court, probably requiring new signals at the Route 126/Hollis Court and Route 135/Hollis Court Extension intersections.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

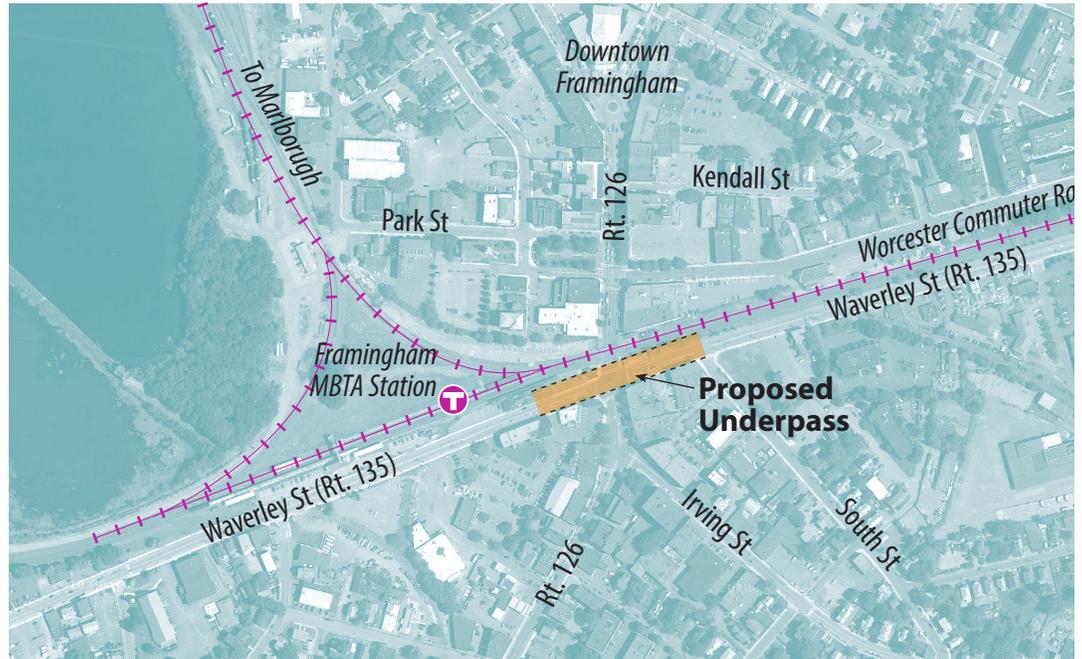
Roadways:

This project will allow traffic on Route 135 to bypass the intersection with Route 126. According to MassDOT 2005 traffic volume data, average daily traffic (ADT) at this location is 19,700 vehicles on Route 126 and 15,700 vehicles on Route 135. The Route 126/Route 135 intersection functions at LOS F in the AM and PM peak periods.



Transit:

The Framingham commuter rail station is located near the project site; and key Metrowest bus Routes 2, 3, and 7 now terminate at the station. Pedestrian and bicycle access to the station via Route 126 from the south will be improved since most of Route 135 traffic would now be below-grade.



Pedestrians/bicycles:

Project area sidewalks will be reconstructed and north-south travel by non-motorized modes will be facilitated.

SAFETY

This project area includes one of the top-200 Massachusetts crash locations, a situation that has existed for a number of years.

SYSTEM PRESERVATION

This project will rebuild one-half mile of roadway in its existing configuration.

ECONOMIC VITALITY

This project is entirely within an MPO-designated priority development area and is expected to be a catalyst for redevelopment of the downtown Framingham central business district.

This project is located in Framingham's central business district, which, according to the Executive Office of Environmental Affairs and the Metropolitan Area Planning Council's build-out analysis, is subject to absolute development constraints, but also is a designated redevelopment district. According to the *Route 126 Corridor Study*, the construction of this project would help facilitate redevelopment by making the downtown area more attractive and providing redevelopment sites through the partial taking of business sites as necessary for the roadway work.

As currently envisioned, the project includes many streetscape amenities and will facilitate downtown redevelopment, including possible facade improvements near the town common. The project also eliminates a significant congestion point in downtown Framingham.

TRANSPORTATION EQUITY

This project is entirely within an EJ area.



LEXINGTON: ROUTE 4/225 (BEDFORD STREET) AND HARTWELL AVENUE (\$23,221,000)

Project Description

The proposed project would greatly enhance mobility and safety for vehicular, bicycle, and pedestrian traffic in the project area. The preferred alternative includes reconstruction of Hartwell Avenue and Bedford Street to provide:

- Four through-travel lanes throughout most of the project area
- Three travel lanes at the southern end of Hartwell Avenue
- A sidewalk or multi-use path on both sides of the roadway
- A paved shoulder with bike lane on both sides of the roadway
- A raised center median to restrict mid-block left-turn movements
- Reconstruction of major intersections as multi-lane roundabouts

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

MassDOT traffic counts in 2005 found average weekday traffic of:

- 38,800 vehicles on Route 4/225 south of Hartwell Avenue
- 25,600 vehicles on Route 4/225 north of Hartwell Avenue
- 18,000 vehicles on Hartwell Avenue

The CMP has found that the average travel speed is less than 70 percent of the posted speed during the AM peak period and less than 60 percent in the PM peak. The section of Route 4/225 south of Hartwell Avenue already has four lanes. One or two additional lanes will be added to the other roadway sections.

Transit:

The MBTA provides bus service in this corridor connecting with the Red Line at Alewife station.

Pedestrians/bicycles:

This project will add four miles of new bicycle lanes and sidewalks.

SAFETY

There are two Highway Safety Improvement Program crash clusters in the project area.





SYSTEM PRESERVATION

Five lane-miles of substandard pavement will be replaced as part of this project.

ECONOMIC VITALITY

This project serves an existing area of concentrated development. There is potential for further development in this area, which would be facilitated by this project.

TRANSPORTATION EQUITY

This project is not within an EJ area.

NATICK: ROUTE 27 OVER ROUTE 9, BRIDGE AND INTERCHANGE REPLACEMENT (\$25,793,000)

Project Description

This project will reconstruct the Route 27 overpass that spans Route 9 and the associated cloverleaf-style ramps. While the basic configuration of the interchange will not change, reconstruction of all elements to current roadway design standards will address serious safety deficiencies and reduce traffic delay by providing new turning lanes.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

MassDOT traffic counts in 2008 found average weekday traffic on Route 27 to be about 27,000 vehicles near the Route 9 overpass. Historic traffic growth at this location has been about 0.3 percent per year. Congestion is apparent in the existing conditions because of lengthy peak-period queues; one PM queue in a turning lane exceeds 1000 feet.

Transit:

Four bus routes of Metrowest Regional Transit Authority (MWRTA) operate in the study area.

Pedestrians/bicycles:

This project will add one mile of new bicycle lanes and one mile of new or rebuilt sidewalks.

SAFETY

This project is located at one of the top-200 Massachusetts crash locations between 2010 and 2012.

SYSTEM PRESERVATION

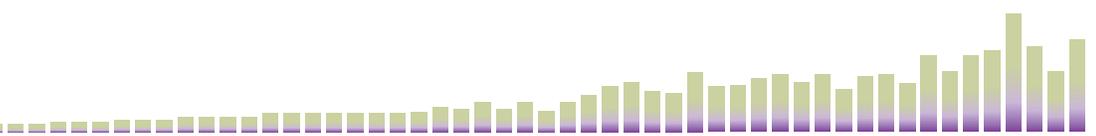
One lane-mile of substandard pavement and one substandard bridge will be replaced as part of this project.

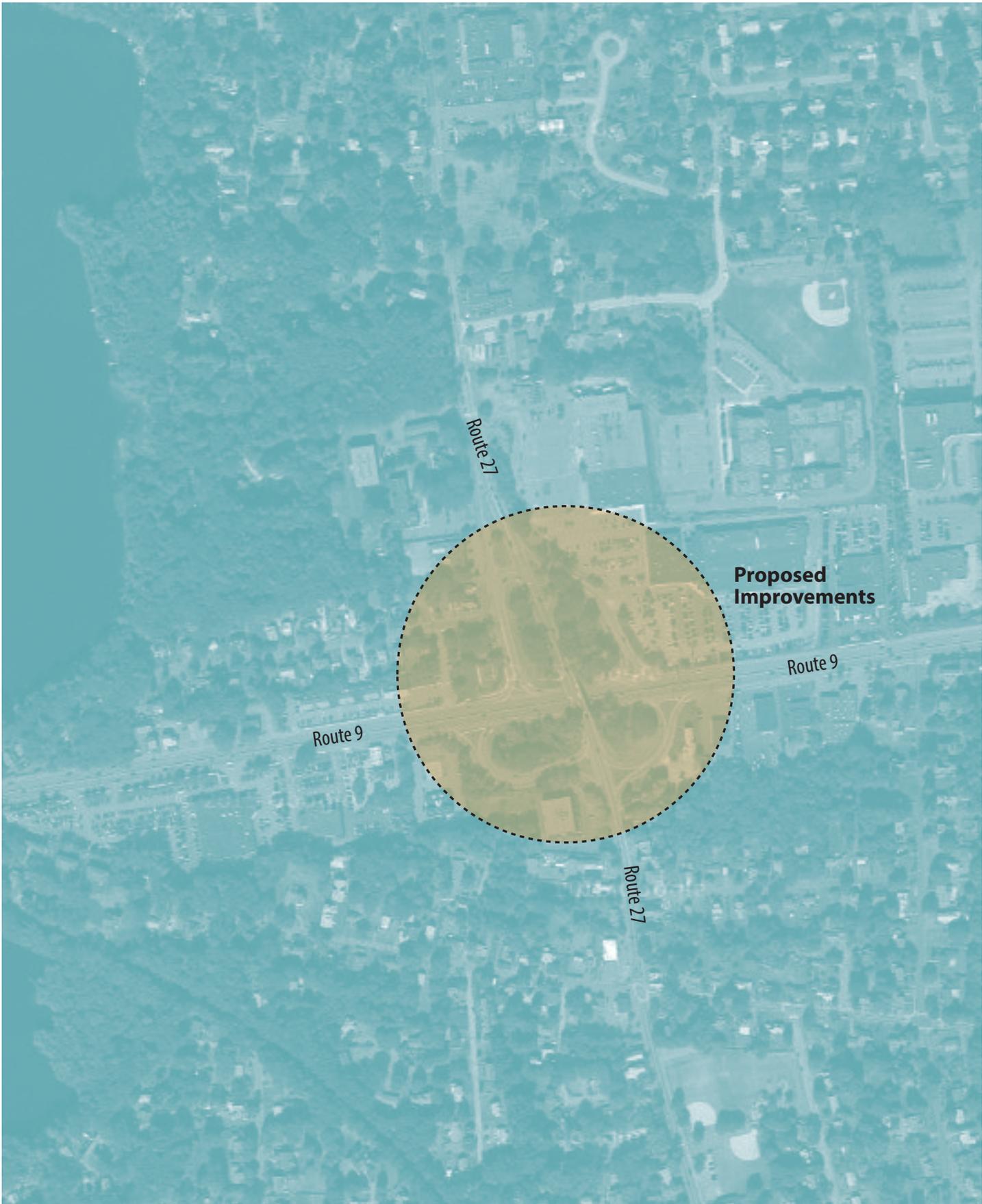
ECONOMIC VITALITY

The project serves an existing area of concentrated development. Few land-use-related benefits are projected.

TRANSPORTATION EQUITY

This project is not within an EJ area.





NEEDHAM AND NEWTON: NEEDHAM STREET/HIGHLAND AVENUE (\$14,298,000)

Project Description

This project will maintain Needham Street with a three-lane cross-section from the Needham Street/Winchester Street/Dedham Street intersection in Newton to the bridge over the Charles River at the Needham town line. The roadway will be rehabilitated and widened to include bicycle lanes, new sidewalks, reconfigured intersections, and updated traffic signals. The Highland Avenue portion of the project will improve the roadway's geometry from the Highland Avenue/Webster Street intersection in Needham to the Newton town line. Work will include upgrades and installation of traffic signals at five intersections. The project also will include reconstructing and widening the bridge over the Charles River to accommodate four travel lanes.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

CMP monitoring in 2001–02 indicated that the average travel speed on both Needham Street and Highland Avenue was 15 miles per hour (mph) or less (LOS E/F) along multiple segments of this corridor northbound and southbound during the AM and PM peak periods. Counts performed as part of MassDOT's Highland Avenue Corridor Improvements Functional Design Report (FDR) in 2002, showed that average daily traffic (ADT) on Highland Avenue east of First Street (just east of I-95 and between the two other count locations) was 36,700 vehicles; counts as recent as 2008 have found similar traffic volumes.

Transit:

Two MBTA bus routes with 86 weekday trips travel through the project area.

Pedestrians/bicycles:

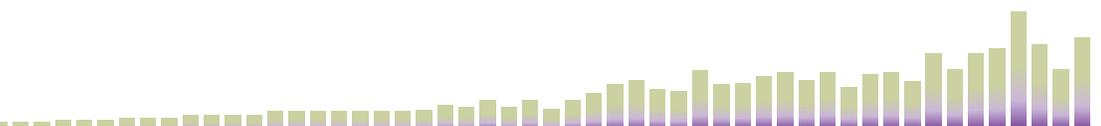
Roadway rehabilitation will include bicycle accommodation, six miles of new sidewalks, reconfigured intersections, and updated traffic signals to facilitate non-motorized travel options.

SAFETY

There are three Highway Safety Improvement Program crash clusters in the project area, which also is identified as a high crash location for trucks.

SYSTEM PRESERVATION

Nine lane-miles of substandard pavement will be replaced and one substandard bridge rehabilitated as part of this project.





ECONOMIC VITALITY

The project area in Newton along Needham Street is zoned as residential from Route 9 north, and as mixed-use and multi-unit residential from Route 9 south to the Needham town line. The project area in Needham is zoned as industrial from east of I-95 to the Newton town line and as residential west of I-95.

According to both the Highland Avenue Corridor Improvements FDR and the proposed Stop & Shop supermarket draft environmental impact report, this project would help facilitate redevelopment along this corridor.

TRANSPORTATION EQUITY

This project is not within an EJ area.

SOMERVILLE: MCGRATH BOULEVARD (\$56,600,000)

Project Description

The proposed improvements will remove the existing McCarthy Viaduct and replace it with an at-grade boulevard approximately 0.7 miles long, from the Gilman Street Bridge in the north to Squires Bridge in the south. The project will provide pedestrian and bicycle accommodation along the length of the reconstructed corridor, and result in more conventional intersection configurations at Washington Street and Somerville Avenue, which currently travel under or next to the viaduct. Removing the viaduct will physically reconnect the neighborhoods of Somerville with more direct vehicle, pedestrian, bicycle, and transit networks.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

The elevated viaduct currently serves vehicles driving through Somerville to points north and south, but physically divides the Somerville neighborhoods directly to the east and west. The existing surface roadway network below the viaduct includes a series of unconventional intersections that cause confusion and present some safety concerns. The proposed McGrath Boulevard will create conventional intersections that provide clear direction and safer operation for all modes of transportation along the corridor.

Transit:

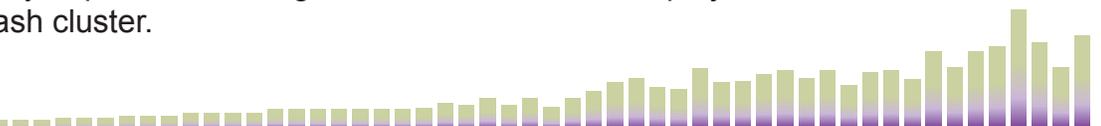
MBTA Routes 80 (Arlington Center to Lechmere) and 88 (Clarendon Hill to Lechmere) provide bus service in this corridor, with connections to the MBTA Green Line at Lechmere Station, and will have direct access to the Green Line Extension in the future, connecting the corridor to Boston, Cambridge, and Medford. Removing the viaduct will provide additional connectivity for existing bus routes along and across the proposed McGrath Boulevard.

Pedestrians/Bicycles:

New sidewalks and bicycle facilities will be provided for the length of the proposed McGrath Boulevard, creating safe and comfortable accommodation for users. Removing the viaduct will dramatically improve connections across McGrath Boulevard in the east/west direction, encouraging travel at a neighborhood scale. Mobility between communities on either side of the existing viaduct—including Union Square, Inner Belt, Gilman Square, and East Somerville—will improve vastly. The proposed bicycle and pedestrian facilities along McGrath Boulevard will connect with the extended Community Path, creating access to a more regional bicycle transportation network. The proposed facilities also will provide direct intermodal connections to existing bus routes and the new Green Line Station.

SAFETY

There are two Highway Safety Improvement Program crash clusters in the project area, as well as a bicycle and a pedestrian crash cluster.





SYSTEM PRESERVATION

Three lane-miles of substandard pavement, 1.5 miles of substandard sidewalk, and a substandard bridge will be improved as part of this project. Eliminating the McCarthy viaduct also will serve to reduce long-term maintenance costs.

ECONOMIC VITALITY

The project provides access to the Inner Belt/Brickbottom, Union Square, and Boynton Yards Priority Development Areas in Somerville, which are designated for mixed-use commercial and residential development. Redeveloping these three areas in Somerville should add 3,000 new housing units and an additional 6.5-million square feet of commercial development.

TRANSPORTATION EQUITY

This project is in an EJ area; and will improve transit, pedestrian, and bicycle access within the project corridor.

WEYMOUTH: ROUTE 18 CAPACITY IMPROVEMENTS PROJECT (\$58,822,000)

Project Description

This project will widen Route 18 to two continuous lanes in each direction (with four-foot shoulders) between Highland Place/Charmada Road (south of Middle/West Street) in Weymouth and Route 139 in Abington. Sidewalks will be constructed and the Route 18 bridge over the MBTA Plymouth commuter rail line will be reconstructed and widened.

Intersection improvements—including additional left- and right-turn lanes and some roadway widening between intersections on Route 18 from Route 3 to Route 139, and the Middle/West Street intersection. Park Avenue, Columbian Road, and Pond and Pleasant Streets—will be constructed as separate projects.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

According to Highway Division traffic counts, the average daily traffic volumes on Route 18 along this stretch of roadway are as follows:

Weymouth:

- North of West Street (2009 counts) – 33,900 vehicles
- North of Park Avenue (2000 counts) – 31,200 vehicles
- North of Pond Street (2009 counts) – 25,900 vehicles

Abington:

- North of Route 139 (2000 counts) – 19,500 vehicles

Intersection analyses were performed as part of the South Weymouth Access Study in August 2000. Existing LOS during the PM peak period were as follows:

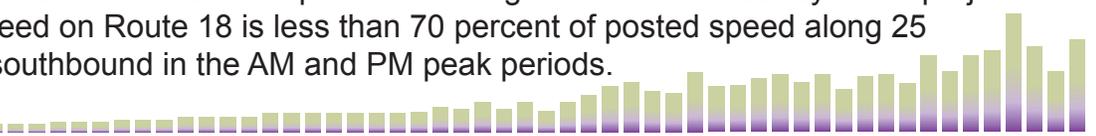
Weymouth:

- Route 18/West Street – LOS E
- Route 18/Pleasant Street – LOS D
- Route 18/Park Avenue – LOS C
- Route 18/Trotter Road – LOS D
- Route 18/Columbian Street – LOS E

Abington:

- Route 18/Route 139 – LOS D

According to 2002 CMP monitoring performed by CTPS, the average AM and PM speed on Route 18 northbound and southbound is less than 15 mph for three segments of the roadway in the project area. The average travel speed on Route 18 is less than 70 percent of posted speed along 25 segments northbound and southbound in the AM and PM peak periods.



Six signalized intersections in the project area are among the top-25 most delayed intersections (monitored as part of the CMP roadway network) for the South Shore Coalition MAPC subregion in the PM peak period.

Transit:

Route 18 provides access to the South Weymouth commuter rail station on the Plymouth Line. The South Shore Tri-Town Development Corporation, responsible for redeveloping the South Weymouth Naval Air Station, is proposing an expanded, multimodal station in conjunction with the existing South Weymouth commuter rail station. Route 18 is currently served by one MBTA bus route.

Pedestrians/bicycles:

The project will provide eight miles of new sidewalks and on-road bicycle accommodation to enhance pedestrian and bicyclist access along the corridor.

SAFETY

This project area includes six of the top-200 Massachusetts crash locations between 2010 and 2012. Four high-crash locations for trucks also are located in the project area.

SYSTEM PRESERVATION

Eight lane-miles of substandard pavement and one substandard bridge will be replaced as part of this project.

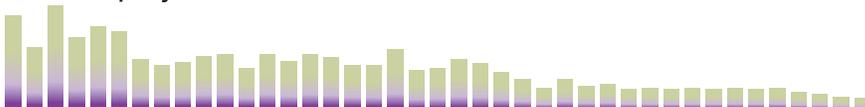
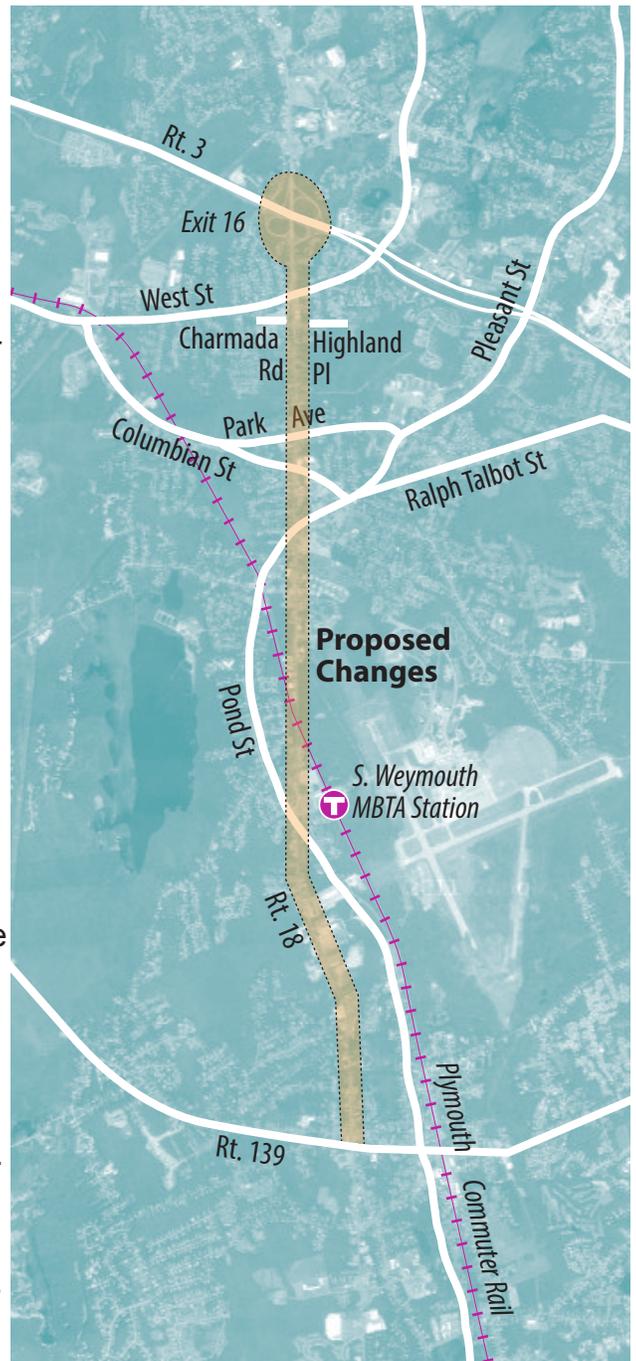
ECONOMIC VITALITY

Zoning along the Route 18 corridor in Weymouth includes residential, highway transition, medical services (South Shore Hospital and other related medical facilities), limited business, and general business. Zoning along Route 18 in Abington is industrial or highway commercial.

This project is a component of the development plan for the former South Weymouth Naval Air Station, which involves redeveloping the 1,450-acre site, consistent with the re-use plan formula. The South Shore Tri-Town Development Corporation foresees corporate office park, entertainment, and recreation use for the site, with more than 60 percent open space (recreational and conservation).

TRANSPORTATION EQUITY

This project is not within an EJ area.



WOBURN: MONTVALE AVENUE (\$4,225,000)

Project Description

This is an arterial and intersection improvement project along Montvale Avenue from Central Street to east of Washington Street in the City of Woburn. It includes the following improvements:

- Widening Montvale Avenue to four lanes and providing turning lanes at Washington Street
- Reconstructing roadways and sidewalks
- Installing a new traffic signal system at Central Street and modifying phasing and timing at Washington Street

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

The proposed project area serves as a critical connection between I-93, I-95, and the surrounding Woburn area. According to counts collected by MassDOT in 2008, ADT along Montvale Avenue east of Washington Street was 29,100 vehicles. Under 2007 traffic conditions, the intersection at Montvale Avenue and Washington Street operated at LOS C in the AM and PM peak periods, while the Montvale Avenue and Central Street intersection operated at LOS A in the AM and LOS B in the PM peak period. Although the LOS is acceptable, the proposed improvements will better utilize lanes and increase coordination between intersections to accommodate increasing traffic volumes.

Transit:

The project will enhance the operations of MBTA bus Routes 354 and 355 served by 38 weekday trips.

Pedestrians/bicycles:

The project will reconstruct one-half mile of sidewalk, which will improve pedestrian and bicycle access to nearby schools and activities.

SAFETY

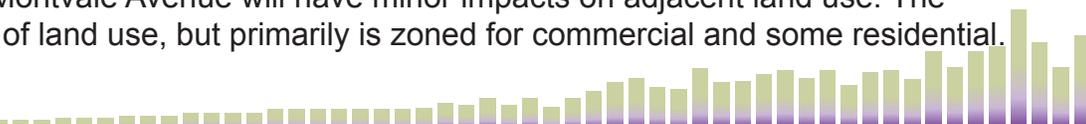
This project is located at one of the top-200 Massachusetts crash locations between 2010 and 2012.

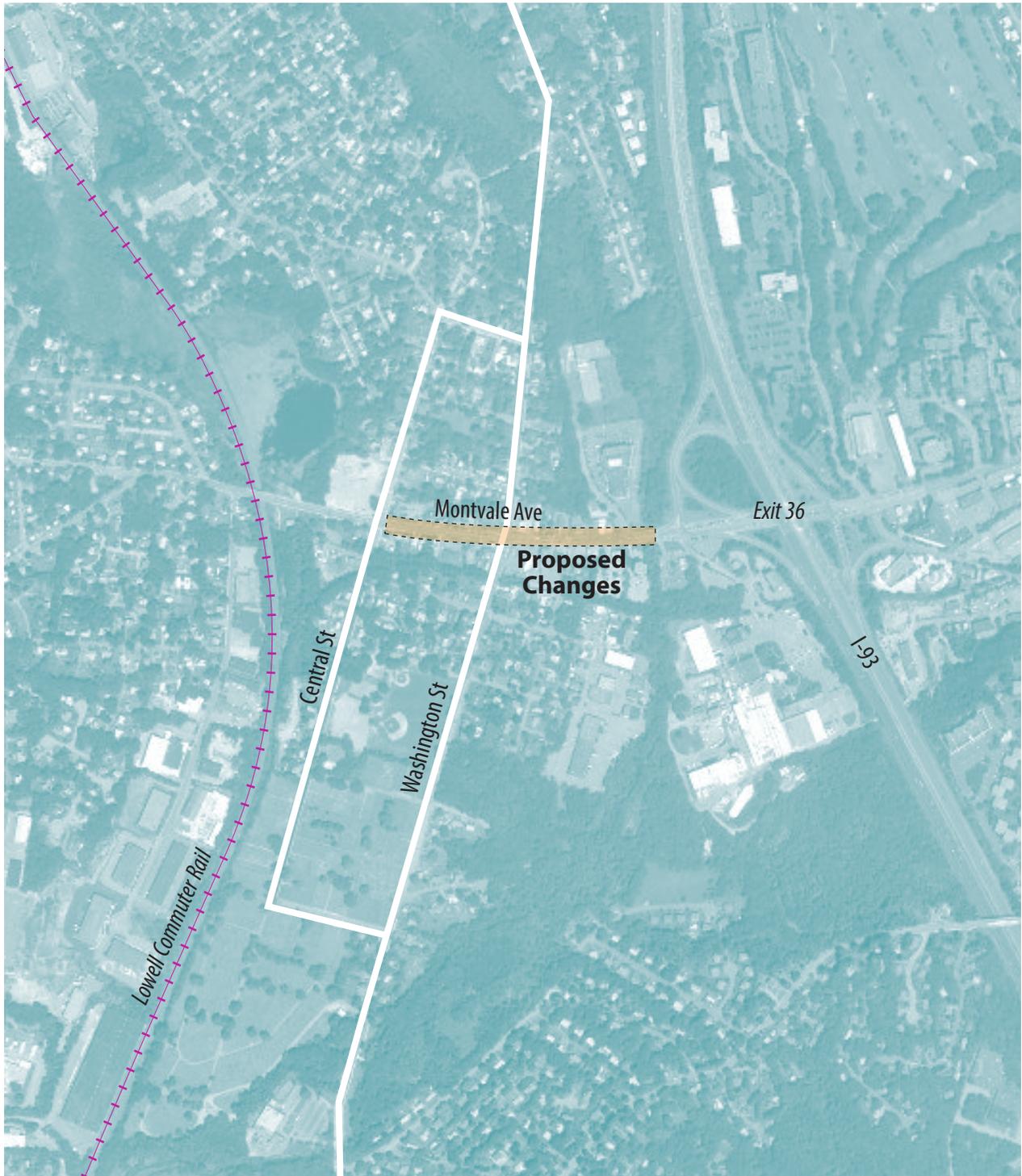
SYSTEM PRESERVATION

One lane-mile of substandard pavement will be replaced as part of this project.

ECONOMIC VITALITY

The proposed widening of Montvale Avenue will have minor impacts on adjacent land use. The project area contains a mix of land use, but primarily is zoned for commercial and some residential.





Maximum parking requirements and transportation demand management (TDM) requirements for all new developments are imposed. The project will improve pedestrian and disability access by widening the existing four-foot-wide sidewalks to five or six feet, and adding wheelchair ramps.

TRANSPORTATION EQUITY

This project is not in an EJ area.

WOBURN: NEW BOSTON STREET BRIDGE (\$9,707,000)

Project Description

A bridge on New Boston Street at the northern end of Woburn Industrial Park will be constructed. New Boston Street then will cross the MBTA's Lowell Line and connect with Woburn Street in Wilmington. This connection existed until approximately 30 years ago when the bridge was destroyed by fire and not reconstructed. Also included is the reconstruction of approximately 1,850 feet of New Boston Street.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Roadways:

No traffic studies have been performed to date; however, re-opening this bridge would provide a second means of access to the growing Industri-Plex area for residents of Wilmington and communities to the north, as well as for emergency vehicles from the North Woburn fire station.

Transit:

The Anderson Regional Transportation Center (RTC) is located just south of the proposed New Boston Street Bridge. The new bridge would provide an additional automobile access point for park-and-ride and transit services offered at the RTC.

Pedestrians/bicycles:

Non-motorized modes will be major beneficiaries of this project. The new network link will eliminate the need to use very circuitous alternate routes for many local and regional trips.

SAFETY

There is no recent crash history at the project location. Safety benefits may be realized at other locations that will have less traffic.

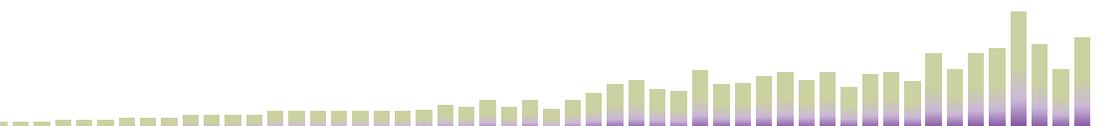
SYSTEM PRESERVATION

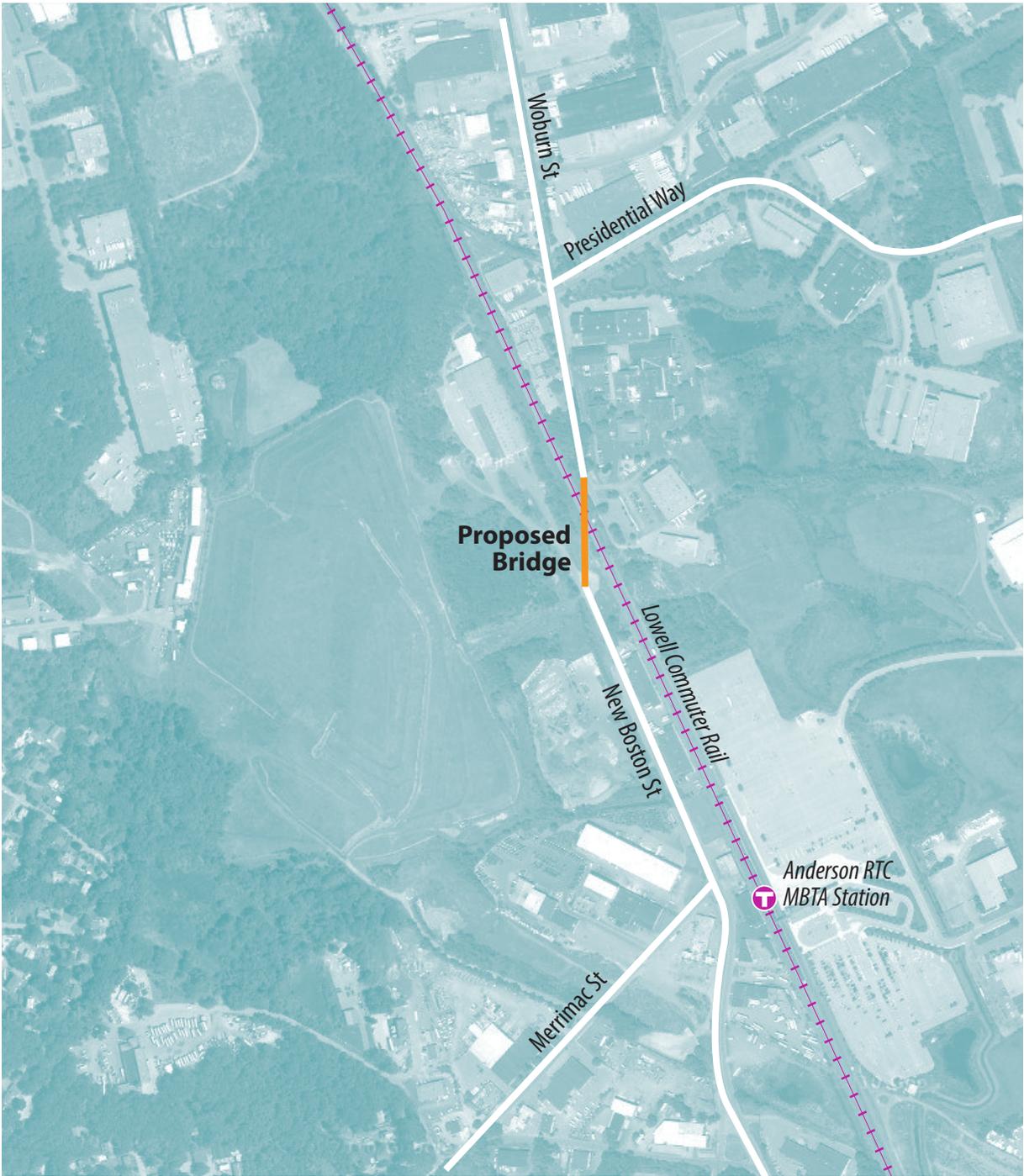
An existing stretch of New Boston Street will be rebuilt as part of this project.

ECONOMIC VITALITY

This project is entirely within an MPO-designated priority development area.

The majority of the land in the New Boston Street area in Woburn is zoned for industrial use; existing development in the area is primarily commercial/industrial. With the opening of the Anderson RTC and I-93 Interchange 37C serving the Industri-Plex developments, the city of Woburn anticipates more office and retail development in the project area over the next few years. Just north of the





proposed project in Wilmington, the land is zoned industrial and includes Southeast Wilmington Industrial Park. Further north on Woburn Street in Wilmington, the land is zoned residential up to Route 129.

TRANSPORTATION EQUITY

This project is not within an EJ area.

SOMERVILLE AND MEDFORD: GREEN LINE EXTENSION PROJECT (PHASE I: LECHMERE STATION TO COLLEGE AVENUE/UNION SQUARE AND PHASE II: COLLEGE AVENUE TO MYSTIC VALLEY PARKWAY/ROUTE 16 - \$190,000,000)

Project Description

This project—whose purpose is to improve corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development—will extend the MBTA Green Line in two separate phases. Phase I will extend the Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville. Phase II will further extend the Green Line from College Avenue to Mystic Valley Parkway (Route 16) at the Somerville/Medford municipal boundary.

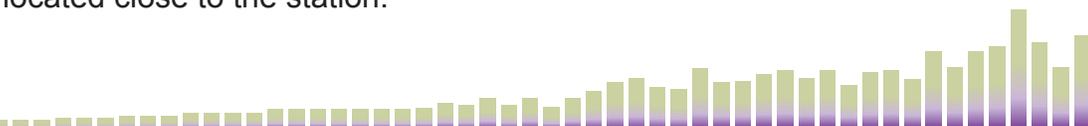
PHASE I

Lechmere Station to College Avenue with a branch to Union Square (State Implementation Plan commitment). This phase of the project is part of the no-build network but is included here to provide a full description of the project. It is funded with a combination of Commonwealth funds and federal transit funds.

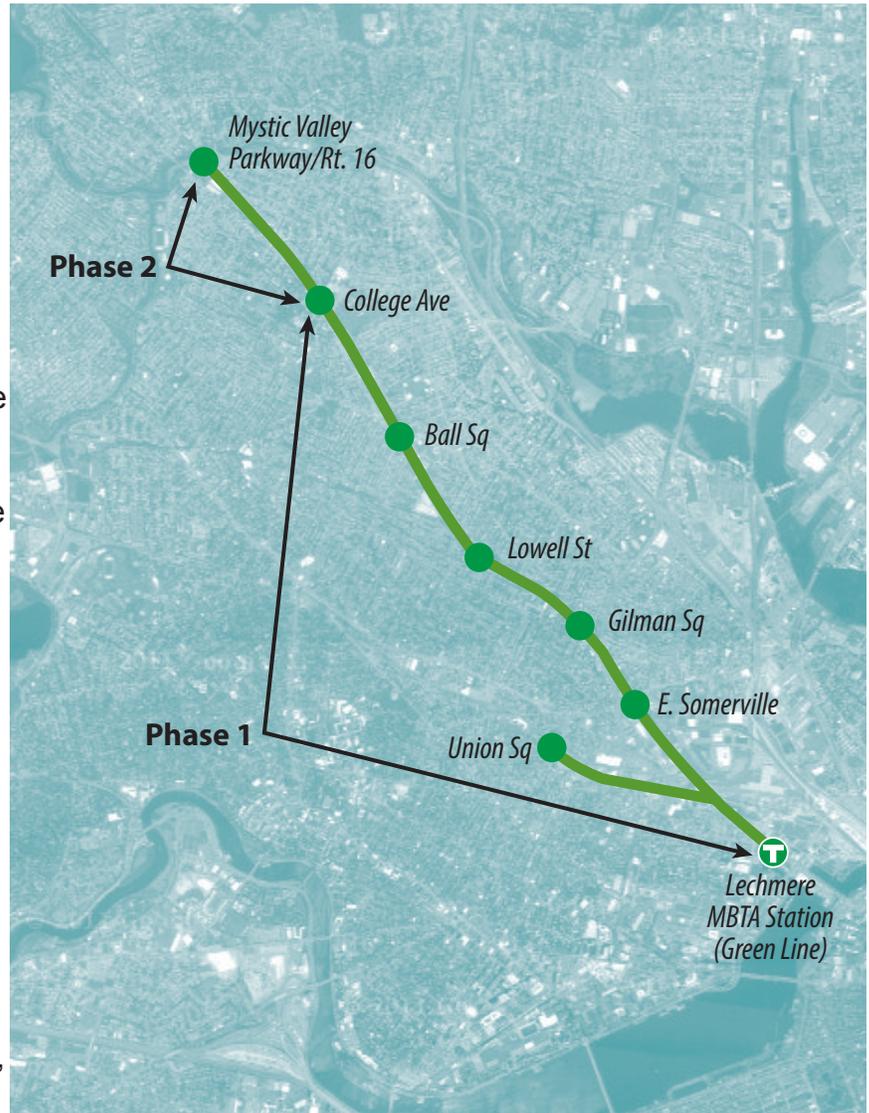
Proposed Stations

New Green Line stations are currently proposed for:

- College Avenue, Medford – Located at the intersection of College Avenue and Boston Avenue in Medford, adjacent to Tufts University. The station platform will be located on the north side of the College Avenue Bridge, which spans the MBTA Lowell Line. Access to the station will be provided from both Boston Avenue and College Avenue, as well as from the Burget Avenue neighborhood, which lies northeast of the station site.
- Broadway/Ball Square, Medford/Somerville – Located at the intersection of Broadway and Boston Avenue on the north side of Ball Square. The station platform will be located on the north side of the Broadway Bridge, which spans the MBTA Lowell Line. Access to the station will be provided from both Boston Avenue and Broadway. An electrical substation, needed to support the Green Line Extension, likely would be installed at this location.
- Lowell Street, Somerville – Located at the Lowell Street Bridge, which spans the MBTA Lowell Line adjacent to the proposed extension of the Somerville Community Path. The station platform will be located on the north side of the Lowell Street Bridge. Access to the station will be provided from Lowell Street.
- Gilman Square, Somerville – Located near the Medford Street crossing of the MBTA Lowell Line, behind Somerville’s city hall, public library, and high school. The station platform will be located on the north side of the Medford Street Bridge, which spans the MBTA Lowell Line. Access to the station will be provided from Medford Street. The proposed extension of the Somerville Community Path will be located close to the station.



- Washington Street, Somerville – Located within the footprint of the Washington Street Bridge, proximate to Somerville’s Brickbottom, Inner Belt, and Cobble Hill areas. The station platform will be located south of the Washington Street under-grade crossing of the MBTA Lowell Line. Access to the station will be provided via entrances under or adjacent to the south abutment of the bridge, in conjunction with improved sidewalk and street crossings. The proposed extension of the Somerville Community Path will be located near the station.
- Union Square, Somerville – Located east of Prospect Street near Union Square in Somerville. The station platform will be located within the MBTA Fitchburg Line right-of-way east of Prospect Street. Access to this station will be provided from both the street and bridge levels of Prospect Street.



Details of the station designs—including the relationship of stations to pedestrian, bicycle, and bus networks around them—are being developed more fully.

The MBTA is engaging the public in creating the look and feel of the stations and their surroundings.

Vehicle Storage and Maintenance Facilities

The Green Line Extension will also require construction of a new light rail vehicle storage and maintenance facility. MassDOT has identified a location known as “Option L” in the Inner Belt area of Somerville as its preferred location for the vehicle support facility. The MBTA is currently working on the program and design of the maintenance facility and its associated vehicle storage areas. The MBTA must acquire certain parcels of private property in order to construct the vehicle facility at the Option L location.

PHASE II

College Avenue to Mystic Valley Parkway (Route 16)

This project is not part of the State Implementation Plan commitment. Boston Region MPO members think that this is an important project and voted to include this phase in the recommended LRTP by flexing highway funding to this transit project. Design has not yet begun for this project. The terminus would be a station at Mystic Valley Parkway (Route 16).

OTHER INVESTMENT PROGRAMS

In addition to the major investment program discussed in the previous section, the MPO programmed four other types of investment programs in the recommended LRTP:

1. Intersection Improvement
2. Complete Streets
3. Bicycle Network and Pedestrian Connection
4. Community Transportation/Parking/Clean Air and Mobility

Projects included as part of these programs can be programmed in the TIP directly without first being listed in the LRTP because they do not add capacity to the transportation network. They would need to be listed in the LRTP only if they cost more than \$20 million.

The first three programs include types of projects that are regularly programmed in the TIP. The fourth program—Community Transportation/Parking/Clean Air and Mobility—is a revival and expansion of the MPO’s Clean Air and Mobility program (which had been in hiatus for several years because of lack of funding). This new iteration of the program is part of this LRTP in response to public input received during the LRTP development stage.

Each of these programs is discussed below, along with how they will address the MPO’s goals and objectives.

INTERSECTION IMPROVEMENT PROGRAM

Program Description

This program will fund intersection projects that modernize existing signals or add signals to improve safety and mobility. Improvements also could consist of the addition of turning lanes, shortened crossing distances for pedestrians, and striping and lighting for bicyclists. Improvements to sidewalks and curb cuts also will enhance accessibility for pedestrians. Updated signal operations will reduce delay and improve bus transit reliability.

Examples of intersection projects that are programmed in the MPO's 2016–20 TIP include:

- Improvements at Derby Street, Whiting Street, and Gardner Street in Hingham
- Traffic signal improvements at ten locations in Boston

Average Cost per Project

An average cost of \$2.8 million per intersection project was established based on similar projects the MPO has funded in the past, as well as those that are included in the Universe of Projects developed for this LRTP (see Appendix B) and awaiting potential funding in future TIPs.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Intersection projects can reduce congestion, which would improve mobility and reduce emissions. Improvements can include bicycle and pedestrian elements to improve mobility for bicyclists, and mobility and accessibility for pedestrians.

SAFETY

Intersection projects can improve safety at high crash locations for motorists, trucks, pedestrian, and bicyclists. Improvements can consist of upgraded geometry, shortened crossing distances, and enhanced signage and lighting.

SYSTEM PRESERVATION

Intersection projects can improve pavement condition and modernize signal equipment.

ECONOMIC VITALITY

Intersection projects can reduce congestion by improving signal timings, which will improve mobility and access to centers of economic activity. Improvements can include pedestrian and bicycle elements that will improve mobility for bicyclists, and mobility and accessibility for pedestrians in centers of economic activity.

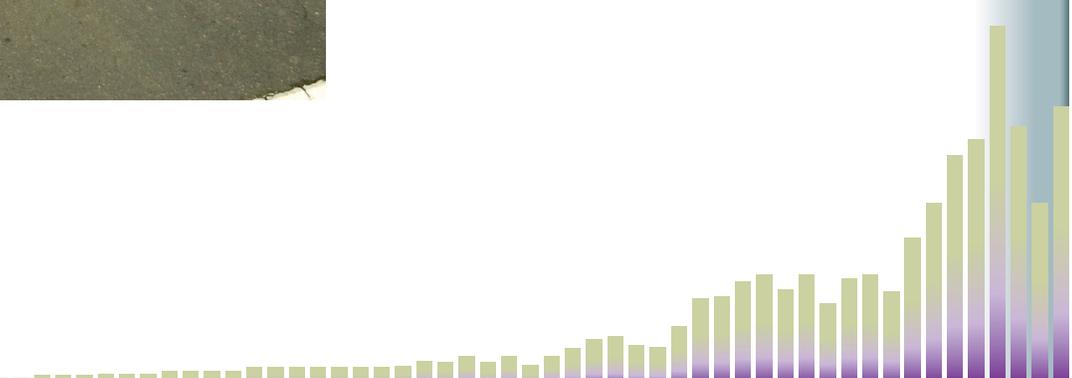
TRANSPORTATION EQUITY



Improvements to intersections can enhance transit services and provide better and more bicycle and pedestrian connections.

CLEAN AIR/CLEAN COMMUNITIES

Intersection projects can reduce emissions because of enhanced operations for all vehicles, and through mode shift, accompanied by improvements in transit reliability, and bicycle and pedestrian infrastructure.



COMPLETE STREETS PROGRAM

Program Description

The Complete Streets program modernizes roadways to improve safety and mobility for all users. Improvements can consist of continuous sidewalks and bicycle lanes, cycle tracks, and other bicycle facilities, as well as updated signals at intersections along a corridor. Improvements could also address other roadway infrastructure in the corridor, such as bridges, drainage, pavement, and roadway geometry. They will reduce delay and improve bus transit reliability. Expanded transportation options and better access to transit will improve mobility for all and encourage mode shift.

Examples of Complete Streets projects that are programmed in the MPO's 2016–20 TIP include:

- Intersection and Signal Improvements at Route 9 and Village Square (Gateway East) in Brookline
- Reconstruction of Route 85 (Maple Street) in Marlborough
- Reconstruction and related work on Derby Street from Pond Park Road to Cushing Street in Hingham
- Reconstruction on Route 129 (Lynnfield Street), from Great Woods Road to Wyoma Square in Lynn

Average Cost per Project

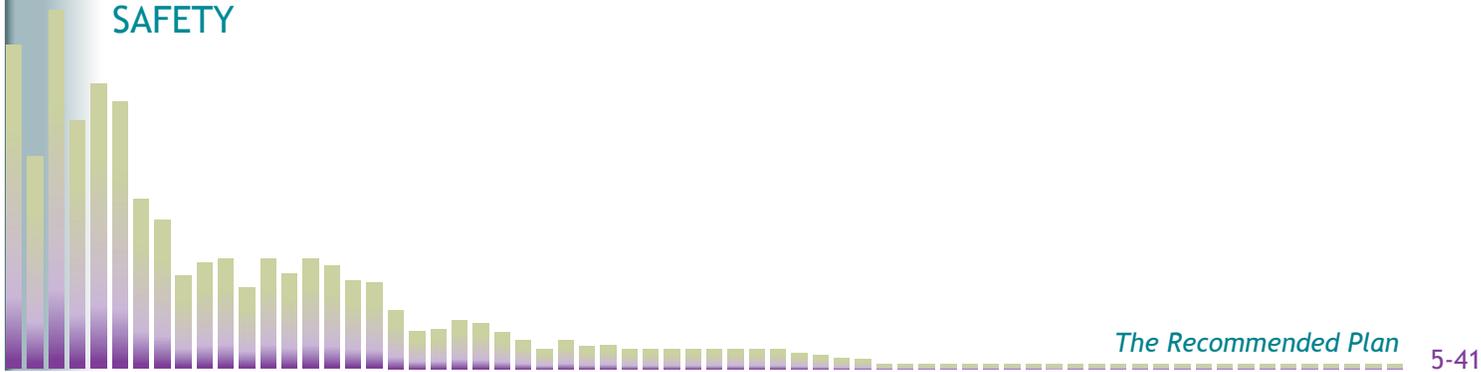
An average cost of six million dollars per mile of Complete Streets improvements was established based on similar projects that the MPO has funded in the past as well as projects that are included in the Universe of Projects in this LRTP (see Appendix B) and awaiting potential funding in future TIPs.

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Complete Streets projects can increase transportation options by adding new sidewalks and bicycle facilities. They also can improve mobility for transit services.

SAFETY



Complete Streets projects can modernize the roadway network to provide safe conditions for all modes of travel along the corridor. Improvements could consist of lane reconfiguration, traffic signal and access improvements for motorists, new sidewalks, curb ramps, improved roadway crossings for pedestrians, and continuous bicycle facilities to reduce conflicts between bicyclists and motor vehicles.

SYSTEM PRESERVATION

Complete Streets projects can address pavement condition, upgrade sidewalk and bicycle accommodations, and improve bridges and culverts (including adaptations to transportation infrastructure that is vulnerable to climate change and other hazards).

ECONOMIC VITALITY



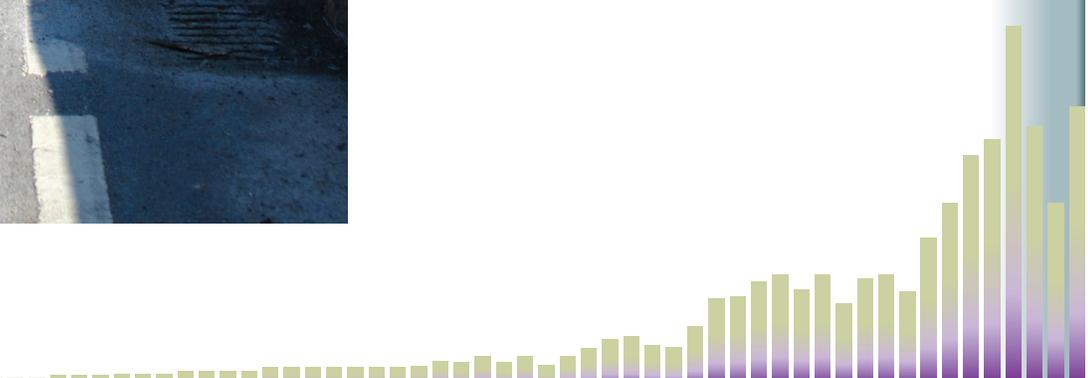
Complete Streets projects can increase transportation options and access to places of employment and centers of economic activity by adding new sidewalks and bicycle facilities and generally improving operations.

TRANSPORTATION EQUITY

Complete Streets projects in EJ areas can provide better access to transit, generally improved operations, and improved pedestrian and bicycle infrastructure.

CLEAN AIR/CLEAN COMMUNITIES

Complete Streets projects with bicycle and pedestrian infrastructure improvements can help to reduce VMT through improved operations and mode shift.



BICYCLE NETWORK AND PEDESTRIAN CONNECTION PROGRAM

Program Description

This program will expand bicycle and pedestrian networks to improve safe access to transit, school, employment centers, and shopping destinations. Bicycle and pedestrian connection projects could include constructing new, off-road bicycle or multi-use paths, improving bicycle and pedestrian crossings, or building new sidewalks. Improvements can also consist of traffic calming, sidewalk network expansion, and upgrades similar to those in a Complete Streets Program, or enhanced signage and lighting.

An example of a bicycle project that is programmed in the MPO's LRTP is the Assabet River Rail Trail in Stow and Hudson to be funded through this program.

Average Cost per Project

Project costs for sample bicycle and pedestrian projects were examined using evaluated TIP projects, the MPO's Bicycle Network Evaluation, and bicycle travel information from the 2011 Massachusetts Household Survey to develop an average cost of \$2 million per mile.

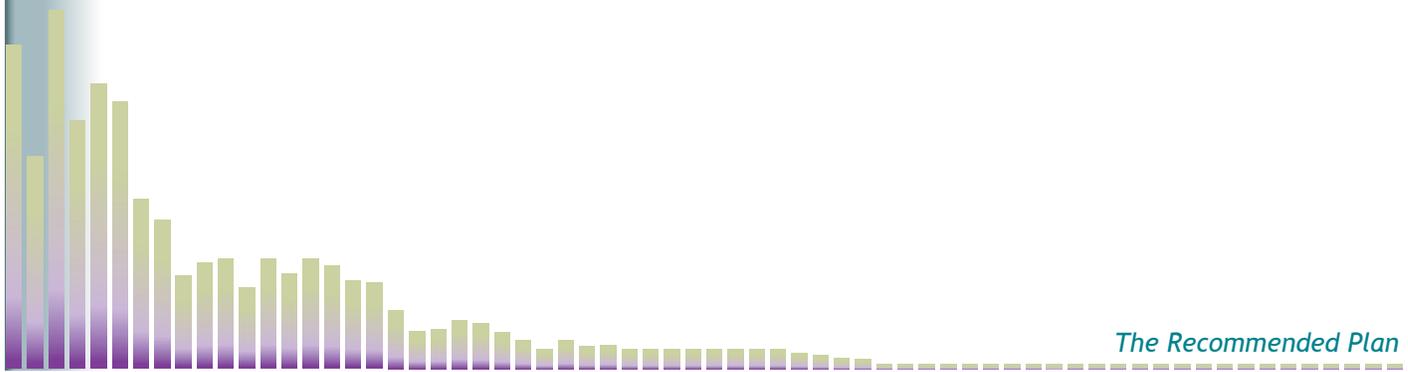
Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Projects in the Bicycle Network and Pedestrian Connection Program can increase transportation options, provide access to transit or other activity centers, and support last-mile connections.

SAFETY

Projects in this program can create a safe pedestrian and bicycle corridor that connects activity centers while avoiding high crash locations on the roadway system. They can include safety improvements to facilitate pedestrian access to transit or other activity centers.



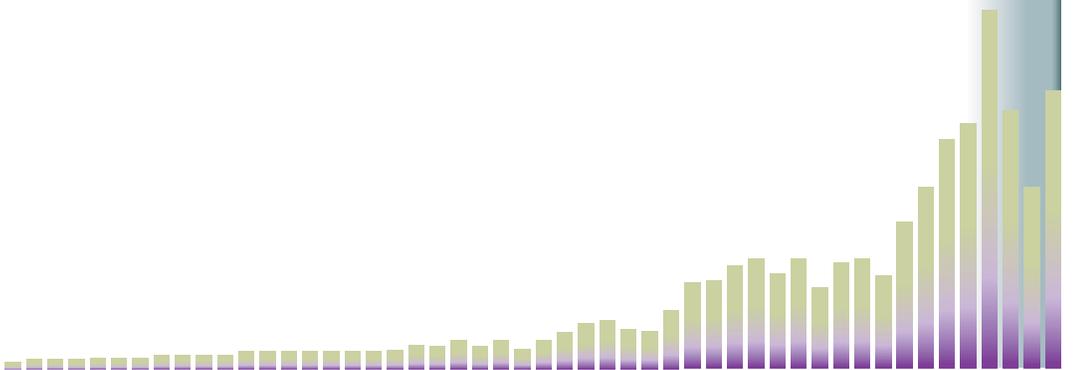


TRANSPORTATION EQUITY

Projects in EJ areas in this program can provide better access to transit and improved pedestrian and bicycle infrastructure.

CLEAN AIR/CLEAN COMMUNITIES

Bicycle and pedestrian infrastructure improvements can help to reduce VMT through mode shift.



COMMUNITY TRANSPORTATION/PARKING/CLEAN AIR AND MOBILITY PROGRAM

Program Description

This program includes a combination of the following types of projects:

- Community Transportation: Provides funding to launch locally developed transit services that support first-mile/last-mile connections to existing transit services and other destinations by purchasing shuttle buses and/or funding operating costs.
- Park-and-Ride: Targets funding to construct additional parking at transit stations that are at capacity, or at other viable locations.
- Clean Air and Mobility Program: Funds projects that improve mobility and air quality and promote mode shift. Examples include bike-share projects or shuttle-bus services.

Average Cost per Project

- Community Transportation: Staff estimates that an average cost for this type of service would be approximately \$1.5 million per year.
- Park-and-Ride: Average cost per parking space is \$35,000.
- Clean Air and Mobility Program: Based on review of projects funded through this program in the past, the costs vary widely depending on the project. Examples include:
 - Bike share projects – an average cost of \$200,000 per project
 - Transportation Demand Management projects – an average cost of \$140,000 per project
 - Shuttle Bus Services – an average cost of \$100,000 per project

Project Context and Possible Impacts by MPO Goal

CAPACITY MANAGEMENT/MOBILITY

Projects in this program can increase transit ridership by expanding automobile and bicycle parking at commuter rail and rapid transit stations. The program will also provide

funding for starting up new, locally developed transit services and supporting last-mile connections.



ECONOMIC VITALITY

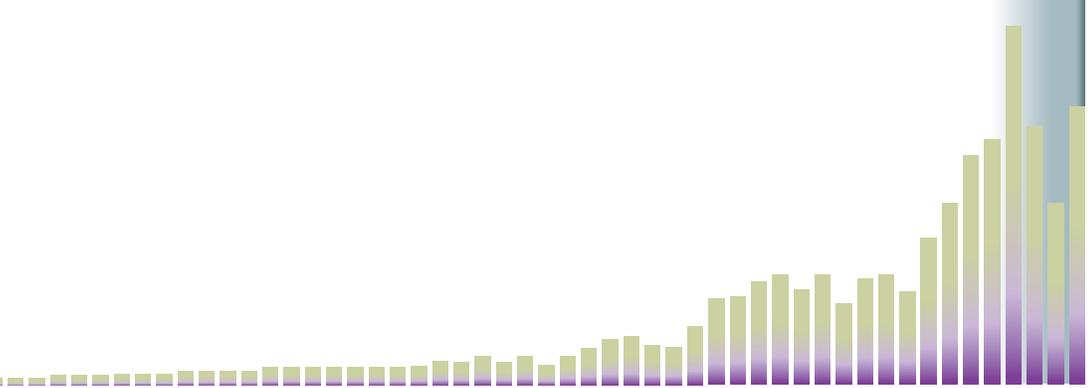
The program can provide funding for starting up new, locally developed transit services and support last-mile connections to places of employment and areas of economic activity.

TRANSPORTATION EQUITY

The program can provide funding for starting up new, locally developed transit services that include transit vehicles and coordination of service to transportation equity populations in suburban areas.

CLEAN AIR/CLEAN COMMUNITIES

Bicycle and pedestrian infrastructure improvements, locally developed transit services and first mile/last mile connections can help to reduce VMT through mode shift.



Transit Projects in the Recommended Plan

Table 5.5 and 5.6 lists transit projects funded under the capacity expansion program, their costs for the period of construction, and their projected completion dates. (Figure 5.1 shows the locations of projects.) The projects in Table 5.5 are projects that are included as part of the no-build and are being funded by the Commonwealth.

TABLE 5.5
Transit Expansion Projects in the Recommended Plan with Costs

Project	FFY 2016– 2020	FFY 2021– 2025	FFY 2026– 2030	FFY 2031– 2035	FFY 2036– 2040	Non-MPO Transit Funds	MPO Highway Funds
Green Line Extension from Lechmere Station to College Avenue/Union Square (Cambridge and Somerville)	\$1,399,987,000	\$128,763,000				\$1,528,750,000	
Fairmount Line Improvements Project (Boston)	\$26,500,000					\$26,500,000	

TABLE 5.6
Transit Expansion Projects in the Recommended Plan with Costs

Project	FFY 2016– 2020	FFY 2021– 2025	FFY 2026– 2030	FFY 2031– 2035	FFY 2036– 2040	Non- MPO Transit Funds	MPO Highway Funds
Green Line Extension from College Avenue to Mystic Valley Parkway (Somerville and Medford) (highway funding flexed to transit)	\$158,000,000	\$32,000,000					\$190,000,000

MBTA CAPITAL INVESTMENT PROGRAMS

The MBTA's Capital Investment Program (CIP) is a guide to the MBTA's planned capital spending in future fiscal years (FYs). The document describes the MBTA's infrastructure and the capital needs for maintaining the system, outlines ongoing and programmed capital projects, and details planned projects to expand the transportation network.

The MBTA recently released a one-year CIP for FY 2016. Unlike the prior CIP, this is not a five-year plan. The MBTA will develop and release a five-year CIP for FYs 2017–2021 that complies with the requirements of Chapter 161A of the General Laws of the Commonwealth by January 2016. The 2016 one-year plan, the first to be issued as part of the Baker-Polito Administration, reflects a commitment to sustainable mobility and the strategic and prudent expenditure of available capital resources. It provides a transition as the MBTA continues to categorize and define its needs over the next five years, and also updates the criteria used in evaluating and prioritizing investments in the regional transit system.

Projects in the CIP are selected through a prioritization process that strives to balance capital needs across the entire range of MBTA transit services. Given the MBTA's vast array of infrastructure and the need for prudent expansion, the number of capital needs identified each year usually exceeds the MBTA's capacity to provide capital funds. Therefore, the MBTA engages in an annual prioritization and selection process to select the needs with the highest priority for funding and inclusion in the CIP.

One of the highest priorities for the MBTA is the pursuit of a "State of Good Repair" (SGR). To measure the need for capital expenditures devoted to maintaining and replacing existing infrastructure, transit systems often use the SGR standard, wherein all capital assets are functioning at their ideal capacity within their design life. While few transit systems are likely to achieve this ideal, the standard does identify a level of ongoing capital needs that must be addressed over the long-term in order for the existing infrastructure to continue to provide reliable service.

To assist in this, the MBTA employs an SGR database to help guide its capital decisions. Based on an inventory of all existing MBTA capital assets, the model allows the MBTA to track the capital investment needs for its existing infrastructure and to develop scenarios for capital investment to maintain the system in a state of good repair.

Prioritization of projects to be included in the CIP is based on the following criteria, as defined in the MBTA's enabling legislation: the impact of the project on the effectiveness of the Commonwealth's transportation system, service quality, the environment, health, and safety; the state of repair of the MBTA infrastructure; and the MBTA's operating costs and debt service. Projects that receive the highest priority are those with the greatest benefit and the least cost, as prioritized by the following criteria:

1. Impact on the environment
2. System preservation

3. Financial considerations
4. Operations impact
5. Legal commitments

Transportation equity is also considered.

Below is a description of the programs funded by the MBTA to maintain the transit system.

Revenue Vehicles Program

DESCRIPTION

The revenue vehicle fleet is one of the most visible components of the MBTA service network. These are the trains, buses, and other vehicles that passengers board every day (i.e., all vehicles that carry passengers in revenue service). Scheduled major overhauls, maintenance, and planned retirements allow the fleet to reach its useful life and prevent the unwarranted consumption of resources to maintain its reliability.

COSTS

The revenue vehicle program is 30 percent of the MBTA's 2016 CIP, the largest share of any program area. In the 2009–2015 CIP, the MBTA allocated about 31 percent of its capital funds to this program. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. However, it is expected that funding for this program will continue to require a large share of the capital resources in the future.

Non-Revenue Vehicles Program

DESCRIPTION

Non-revenue vehicles and equipment support the entire range of MBTA operations and include over 1,000 systemwide vehicles and pieces of equipment. This program also includes funding for equipment for weather resiliency efforts as well as snow-fighting equipment.

COSTS

The non-revenue vehicle program is 11 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated less than 1 percent of its capital funds to this program. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will always be allocated for this program; however, as shown in

the varying allocations in the different CIPs, the funding will vary depending on the needs identified by the SGR database.

Tracks/Right-Of-Way/Signals Program

DESCRIPTION

Tracks/Right-of-Way: Several types of track can be found throughout the MBTA system, depending on the service (i.e., commuter rail, rapid transit). The right-of-way for heavy rail rapid transit track often includes an electrified third rail through which subway cars receive the traction power needed for movement.

Signals: The primary responsibility of the MBTA signal system is to control trains for efficient spacing and run times, making it an integral part of the transit system. The signal system's goal is to maintain train separation while attempting to minimize headways and run times.

COSTS

Systemwide track maintenance is 8 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 17 percent of its capital funds to this program. The signal systems are crucial for supporting the safe and efficient operations of trains systemwide and account for 8 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 6 percent of its capital funds to this program.

The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will always be allocated for this program; however, as shown in the varying allocations in the different CIPs, the funding will vary depending on the needs identified by the SGR database.

Bridge Program

DESCRIPTION

Continued maintenance and rehabilitation of the MBTA's bridges will be required. This will include replacing bridge decks and reconstructing bridges. The MBTA bridge inspection program is tailored to ensure that bridge repairs are prioritized and that all bridges receive adequate attention.

COSTS

The Bridge Program is 9 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 5 percent of its capital funds to this program. The MBTA prioritizes its bridges through its bridge inspection program. Funding will always be allocated for this

program; however, as shown in the varying allocations in the different CIPs, the funding will vary depending on the needs identified by the SGR database.

Stations Program

DESCRIPTION

MBTA stations are one of the most visible components of the transit system; they provide access to rapid transit, light rail, commuter rail, and Silver Line services in the MBTA transit system. Many of the bus stops also have bus shelters of various kinds. The majority of funding for stations is devoted to renovation of subway stations, including accessibility upgrades and the systemwide replacement of escalators and elevators.

COSTS

The Stations Program, including elevators and escalators, is 12 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 25 percent of its capital funds to this program. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will always be allocated for this program; however, as shown in the varying allocations in the different CIPs, the funding will vary depending on the needs identified by the SGR database.

Supporting Infrastructure Program

DESCRIPTION

The Supporting Infrastructure Program includes both facilities and power.

Facilities: Facilities include administrative buildings, vent buildings, storage buildings, noise walls, retaining walls, culverts, parking garages and parking lots, layover facilities, and fencing (which prevent trespassers from gaining access to tracks and fast-moving trains).

Power: While power for the MBTA's network is supplied by an outside utility, the MBTA transforms and distributes electricity over its own system to power the entire network of subway, trackless trolley, and light rail lines. The capital equipment in this power program is essential to operations. It supplies electricity to subway trains and trolleys for the traction power needed for movement; to the signal systems for the power needed to control the trains; and to the stations to operate their lights, elevators, escalators, and other equipment. The MBTA's power program, arguably one of the least visible elements to passengers, is one of the most complex, important, far-reaching, and expensive systems for the MBTA to maintain.

COSTS

The supporting infrastructure program is 15 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 12 percent of its capital funds to this program. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will always be allocated for this program; however, as shown in the varying allocations in the different CIPs, the funding will vary depending on the needs identified by the SGR database.

Communications and Technology Program

DESCRIPTION

The MBTA Communications Department's responsibilities include maintaining an inventory of equipment and overseeing contract services for the Wide Area Network, two-way radio systems, microwave links, emergency intercoms, public address systems, light-emitting-diode (LED) message signs, fire alarm systems, security systems, and the supervisory control and data acquisition system. The department manages the MBTA's Operations Control Center, which consists of technology that allows for real-time monitoring and supervisory control of the signal and communications systems for the rapid transit and bus systems. Current investments include a Green Line Real-Time Tracking System, systemwide communications enhancements, and a Maintenance Management System.

COSTS

The communications and technology program is 3 percent of the MBTA's 2016 CIP. In the 2009–2015 CIP, the MBTA allocated 3 percent of its capital funds to this program. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will vary depending on the needs identified by the SGR database.

Enhancement Program

DESCRIPTION

The Enhancement Program includes capital projects that improve existing service and foster increased ridership. Current investments include the Green Line Collision Avoidance Program, Commuter Rail Positive Train Control, and a climate change adaptation strategy.

COSTS

The enhancement program is 5 percent of the MBTA's 2016 CIP. The MBTA will employ its SGR database to help guide its capital decisions for this program in the future. Funding will vary depending on the needs identified by the SGR database.

MODEL RESULTS AND INTERPRETATION OF THE RECOMMENDED PLAN

In *Charting Progress to 2040*, the MPO has provided a 25-year vision of the Boston Region's transportation needs. Land-use patterns, growth in employment and population, and trends in travel patterns differ in how they affect demands on the region's transportation system. In order to estimate future demands on the system for this LRTP, the MPO utilized a regional travel demand forecast model. The model is a planning tool used to evaluate the impacts of transportation alternatives given varying assumptions about population, employment, land use, and traveler behavior. The model is used to assess potential projects in terms of air-quality benefits, travel-time savings, and congestion reduction.

Description of the MPO Model Set

RECENT TRAVEL MODEL CHANGES

Before describing the general capabilities of, and inputs to, the current travel demand model, a list of recent major changes to the model set follows:

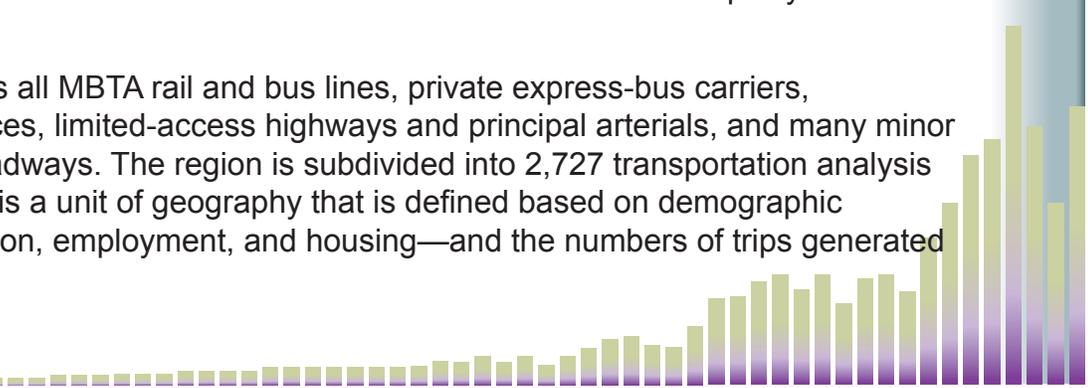
- Prior to 2010, the MPO model was run in a software package named EMME. The recently re-estimated model set is executed in a software package named TransCAD.
- In 2011, staff completed a new statewide household travel survey, conducted during an 18-month period. That survey, the 2011 Massachusetts Travel Survey (2011-MTS), was used to update the entire regional model.
- In addition to re-estimation, certain components of the model set have been completely revamped or enhanced, including:
 - Redesigned:
 - ◆ School trip purpose
 - ◆ Estimation of external trips
 - ◆ Internal-internal (I-I) distribution
 - ◆ Mode choice model

- Enhancements:
 - ◆ Developed a transportation analysis zone (TAZ)-specific pedestrian environmental variable (PEV)
 - ◆ Developed a turn-restrictions file, which is now incorporated in highway assignment procedures
 - ◆ Developed specific parameters for volume-delay functions to suit facility type
- Updates:
 - ◆ Because of the sensitivity of highway tolls, the actual toll rates are included in order to depict reality
 - ◆ Average fare by transit sub-mode is now incorporated into the model
- Staff updated and enhanced highway network characteristics using the Massachusetts Roadway Inventory File (RIF). This provided better representation of number of lanes, directionality, and capacity, as well as improvement of overall intersection detail throughout the network.
- Air quality calculations are now based on the latest technology, the EPA-approved motor vehicle emission simulator (MOVES 2014) model.
- In 2013, staff purchased a land-use allocation model (Cube Land), and incorporated it into the modeling process.
- TransCAD offers easy reporting at every step of the modeling process, which has been fully utilized to our advantage.

TRAVEL DEMAND MODEL CHARACTERISTICS

As discussed earlier in this section, the Boston Region MPO utilizes a robust quantitative travel model framework that employs a traditional four-step planning process—trip generation, trip distribution, mode choice, and trip assignment. This travel demand model set simulates existing travel conditions and forecasts future-year travel on eastern Massachusetts transit and highway systems. For a more accurate picture of travel demands in the Boston region, all communities within the commuting shed (the area from which people commute) for eastern Massachusetts are represented in the modeled area, including an additional 63 communities that are outside of the 101-municipality MPO region.

The model represents all MBTA rail and bus lines, private express-bus carriers, commuter boat services, limited-access highways and principal arterials, and many minor arterials and local roadways. The region is subdivided into 2,727 transportation analysis zones (TAZs). A TAZ is a unit of geography that is defined based on demographic information—population, employment, and housing—and the numbers of trips generated



in, and attracted to, it. The model set is made up of several models, each of which represents a step in the travel decision-making process (the four-step process). The model set simulates transportation supply characteristics and transportation demand for travel from every TAZ to every other TAZ.

This simulation is the result of several inputs (different categories of data). Two broad sets of these inputs are land-use patterns, to identify amount and types of trips produced and how they are distributed (trip generation and trip distribution); and a transportation network with associated trip-making behavioral parameters, to allocate each trip onto different travel modes and onto a system of transportation network links (mode choice and trip assignments).

Land Use

MAPC is responsible for developing the land-use inputs for the travel demand model. With guidance from an advisory panel (local jurisdiction staff, academic experts, and state agencies), MAPC and the MPO, in a joint effort, implemented an iterative land-use transportation model to quantify land-use patterns, by answering this basic set of questions:

- What will the Boston MPO region look like in 2040?
 - How many people will live here (population forecasts)?
 - What will they be doing (economic forecasts)?
 - Where will the activities take place (land-use patterns)?
 - How many trips will be made (trip-generation model)?
 - How will these trip ends be connected to form round trips (trip-distribution model)?

For each TAZ, this process generated number of households, household characteristics, employment-related activities, auto ownership, and other variables that produce travel demand on transportation systems (see Appendix E and the section below for more details).

Transportation Network

This set of inputs was derived from various resources such as the Massachusetts Roadway Inventory File (RIF) and the MBTA routes and schedules.

The model is used to answer questions such as:

- What will the travel patterns in 2040 look like?
 - How will travelers select a particular mode, or a combination of modes for each trip (mode-choice model)

- How will these trips choose network path links representing available alternative modes (trip-assignment model)

All these inputs are updated on a regular basis to ensure reliability of forecasts.

Travel-Demand under 2012 Base Year, 2040 No-Build, and 2040 Build Conditions

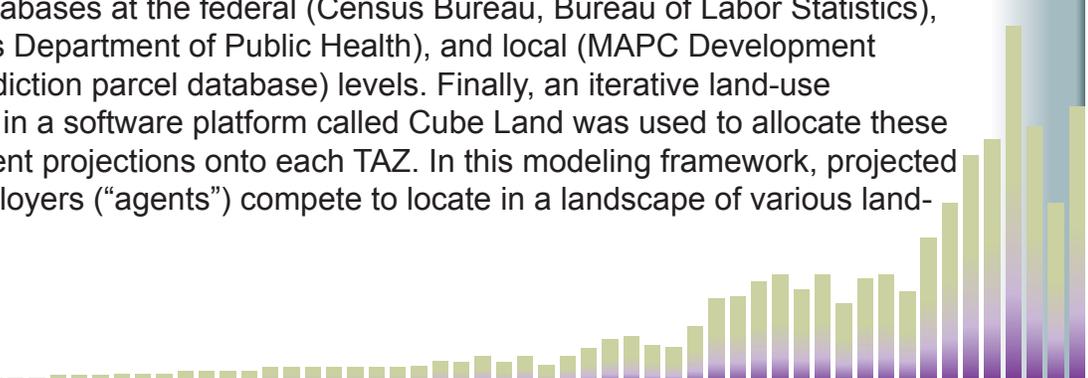
The travel model analysis for the LRTP consisted of several steps. First, staff tested an existing conditions network with existing land-use patterns, to simulate recent 2012 travel conditions. This constituted the model's Base Year. Projects included for analysis in the Base Year model were deemed "regionally significant," as defined by the federal government, because of being regional in nature, adding capacity, and having air-quality impacts for the region as measured by the model. Existing land-use information was derived from comprehensive land development and demographic databases maintained by MAPC and the Boston Region MPO.

Next, a 2040 No-Build alternative was incorporated into the model. This 2040 No-Build alternative was structured around the 2012 Base Year, and projects that were constructed between 2012 and 2015, as well as those that are currently under construction and those that are programmed in the first year of the 2015–2018 TIP. The process for developing 2040 land-use forecasts is described below.

Land-use forecasts, in the context of travel demand analyses, involve two basic factors or "agents" of growth—households and employments. To better deal with uncertainties in future projections of these variables, MAPC employed a scenario exercise between two alternatives, "Status Quo" and "Stronger Region." The latter option aligned better with the adopted land-use growth vision of the region called "MetroFuture," which entails the following assumptions:

- The region will attract and retain more young adults.
- Younger households (millennials) will be more inclined toward urban living.
- An increasing share of senior-headed households (baby boomers) will choose to downsize from single-family homes to apartments or condominiums.

With these assumptions, household and employment control totals were developed for the region and individual municipalities. The process utilized current and historic growth trends from a number of databases at the federal (Census Bureau, Bureau of Labor Statistics), state (Massachusetts Department of Public Health), and local (MAPC Development Database, local jurisdiction parcel database) levels. Finally, an iterative land-use transportation model in a software platform called Cube Land was used to allocate these household/employment projections onto each TAZ. In this modeling framework, projected households and employers ("agents") compete to locate in a landscape of various land-



use supplies, which are determined by economic factors (“bid-rents”) and zonal attraction characteristics (land-rent affordability, transportation connectivity). More detail is provided in Appendix E – Methodology for Land Use Projections in the Boston Region.

The 2012 Base Year and 2040 No-Build scenarios thus provided a baseline against which the predicted effects of potential investments in the transportation system were measured.

Finally, staff developed an alternative set of projects called the 2040 Build Scenario through an investment scenario process discussed earlier in the Project Selection section. This set of projects was analyzed with same 2040 No-Build land-use assumptions in the travel demand model set. Several important travel statistics were reported and compared from all these conditions, including:

- Total vehicle-miles traveled (VMT) and vehicle-hours traveled (VHT) on a typical weekday
- Average speed of highway traffic
- Amount of air pollution produced by automobiles and transit vehicles
- Number of daily trips made by auto and transit
- Average daily fixed-route transit ridership by mode (rapid transit, bus, commuter rail, commuter boat, express bus)
- Percentage of people traveling by each travel mode

Selected travel-modeling results for the 2012 Base Year, 2040 No-Build, and 2040 Build scenarios—are shown in Table 5.7 below.

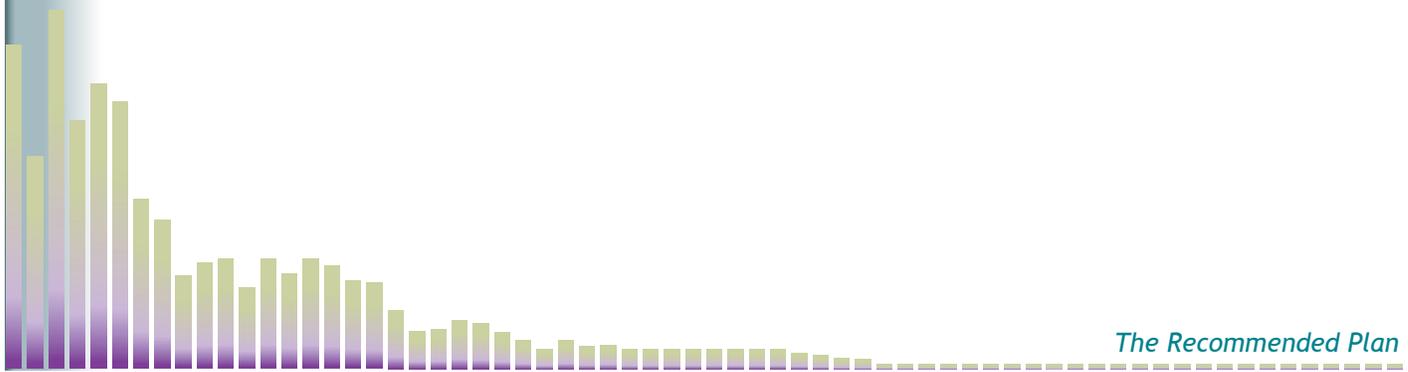


TABLE 5.7
2012 Base Year, 2040 No-Build, and 2040 Build Scenarios

Measure	2012 Base	2040 No-Build	2040 Build	Percentage Change From 2012 to 2040 No-Build	Percentage Change From 2040 No-Build to 2040 Build
Socioeconomic Variables (BRMPO)					
Population	3,163,900	3,601,600	3,601,600	13.8%	0.0%
Households	1,243,900	1,522,300	1,522,300	22.4%	0.0%
Household Size	2.5	2.4	2.4	-7.0%	0.0%
Total Employment	1,850,000	2,027,800	2,027,800	9.6%	0.0%
Basic	371,800	316,300	316,300	-14.9%	0.0%
Retail	316,800	334,600	334,600	5.6%	0.0%
Service	1,161,400	1,376,900	1,376,900	18.6%	0.0%
Households with Vehicles (BRMPO)					
0 vehicles	16%	20%	20%	25.0%	0.0%
1 vehicle	37%	39%	39%	6.4%	0.0%
2 vehicles	35%	25%	25%	-29.3%	0.0%
3+ vehicles	13%	16%	16%	30.9%	0.0%
Trip Activity					
Person Trips in Eastern MA	16,451,300	19,024,000	19,024,000	15.6%	0.0%
Auto person trips	13,425,500	15,077,100	15,076,600	12.3%	0.0%
Transit person trips	905,000	1,152,100	1,152,400	27.3%	0.0%
Non-motorized	2,120,800	2,794,800	2,795,000	31.8%	0.0%
Person Trips in BRMPO	12,801,500	14,802,600	14,802,600	15.6%	0.0%
Auto person trips	10,122,800	11,270,500	11,270,000	11.3%	0.0%
Transit person trips	898,100	1,144,700	1,145,000	27.5%	0.0%
Non-motorized	1,780,600	2,387,400	2,387,600	34.1%	0.0%
Mode Choice					
Mode Share in Eastern MA	100%	100%	100%	0.0%	0.0%
Auto share	82%	79%	79%	-2.9%	0.0%
Transit share	6%	6%	6%	10.1%	0.0%
Non-motorized share	13%	15%	15%	14.0%	0.0%
Mode Share in BRMPO	100%	100%	100%	0.0%	0.0%
Auto share	79%	76%	76%	-3.7%	0.0%
Transit share	7%	8%	8%	10.2%	0.0%
Non-motorized share	14%	16%	16%	16.0%	0.0%
Highway Results (Interzonal)					
Vehicles Assigned in Eastern MA	12,733,200	14,291,400	14,291,000	12.2%	0.0%
Auto	10,540,700	11,793,300	11,792,900	11.9%	0.0%
Trucks	2,192,500	2,498,100	2,498,100	13.9%	0.0%
Vehicles Assigned in BRMPO	10,169,600	10,637,900	10,637,500	4.6%	0.0%
Auto	7,977,100	8,847,600	8,847,200	10.9%	0.0%
Trucks	2,192,500	1,790,300	1,790,300	-18.3%	0.0%
VMT in Eastern MA	106,030,300	116,912,800	116,957,500	10.3%	0.0%

(Cont.)

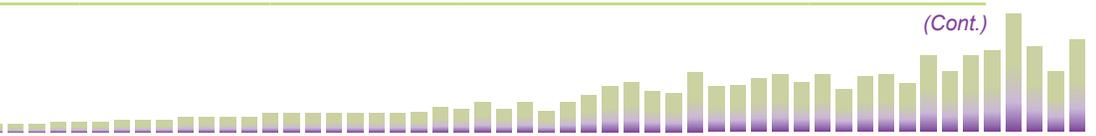


TABLE 5.7 (Cont.)

Measure	2012 Base	2040 No-Build	2040 Build	Percentage Change From 2012 to 2040 No-Build	Percentage Change From 2040 No-Build to 2040 Build
Highway Results (Interzonal) (cont.)					
Auto	86,846,500	93,362,500	93,413,300	7.5%	0.1%
Trucks	19,183,800	23,550,255	23,544,235	22.8%	0.0%
VMT in BRMPO	69,448,500	74,968,400	74,970,100	7.9%	0.0%
Auto	57,594,000	61,058,400	61,073,800	6.0%	0.0%
Trucks	11,854,500	13,910,000	13,896,300	17.3%	-0.1%
VHT in Eastern MA	3,277,800	3,765,200	3,763,600	14.9%	0.0%
Auto	2,712,500	3,049,500	3,048,500	12.4%	0.0%
Trucks	565,300	715,700	715,100	26.6%	-0.1%
VHT in BRMPO	2,301,000	2,556,500	2,553,600	11.1%	-0.1%
Auto	1,924,300	2,109,200	2,107,200	9.6%	-0.1%
Trucks	376,700	447,300	446,400	18.7%	-0.2%
Average Speed in Eastern MA	32.3	31.1	31.1	-4.0%	0.1%
Auto	32.0	30.6	30.6	-4.4%	0.1%
Trucks	33.9	32.9	32.9	-3.0%	0.1%
Average Speed in BRMPO	30.2	29.3	29.4	-2.8%	0.1%
Auto	29.9	28.9	29.0	-3.3%	0.1%
Trucks	31.5	31.1	31.1	-1.2%	0.1%
Congested VMT (0.75 V/C <)					
in Eastern MA	65,875,292	78,083,600	79,281,500	18.5%	1.5%
BRMPO	45,748,927	52,608,500	53,130,700	15.0%	1.0%
Transit Results					
Transit Trips (Linked)	905,000	1,152,100	1,152,400	27.3%	0.0%
Local Bus	360,000	435,600	435,300	21.0%	-0.1%
Express Buses	25,600	26,900	27,100	5.1%	0.7%
Bus Rapid Transit	27,400	63,000	63,200	129.9%	0.3%
Rapid Transit Lines	700,000	896,000	896,600	28.0%	0.1%
Commuter Rail	104,000	122,700	122,000	18.0%	-0.6%
Ferry	4,500	11,700	11,700	160.0%	0.0%
Transit Trips (Unlinked)	1,221,500	1,555,900	1,555,900	27.4%	0.0%
Walk Access Transit	1,050,500	1,338,100	1,338,900	27.4%	0.1%
Drive Access Transit	171,000	217,800	217,000	27.4%	-0.4%
Average Transfer Rate	1.35	1.35	1.35	0.1%	0.0%
Air Quality (BRMPO)					
Volatile Organic Compounds (kg)	8,546	3,908	3,905	-54.3%	-0.08%
Nitrogen Oxides(kg)	54,672	27,927	27,914	-48.9%	-0.05%
Carbon Monoxide - Winter (kg)	222,485	66,731	66,693	-70.0%	-0.06%

BRMPO - Boston Region MPO (101 Municipalities)

Eastern MA (164 Municipalities)

Linked Transit Trips - A transit trip made between an origin and a destination that does not account for transfers between vehicles or modes.

Unlinked Transit Trips - A transit trip made between an origin and a destination that accounts for transfers between vehicles or modes.

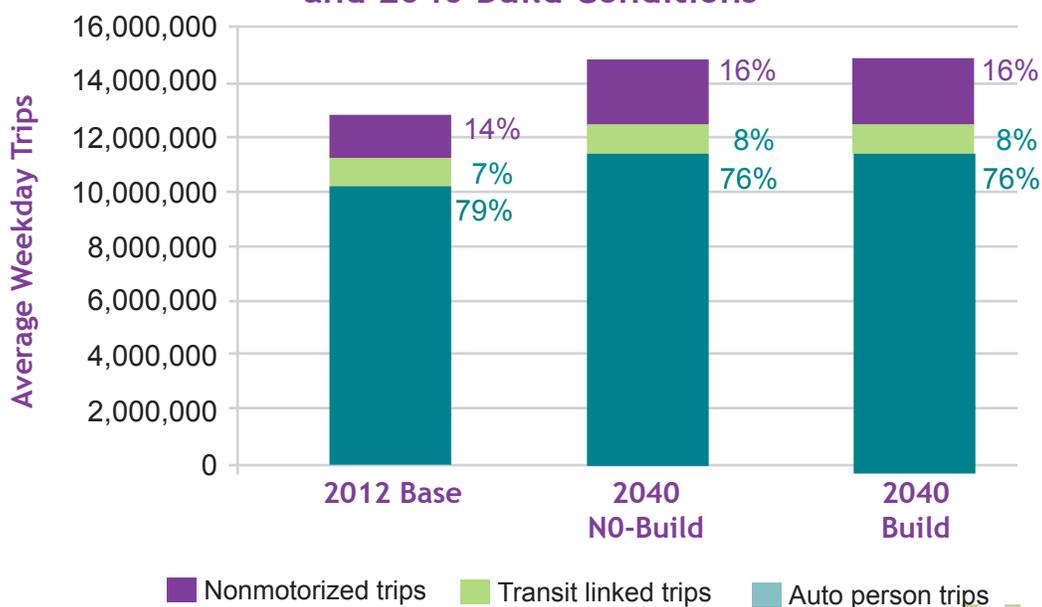
Interpretation of the L RTP

Analyzing current patterns of demographic shifts and the Boston region's vibrant economy, the 2040 demographic forecasts projected an increase in population (13.8 percent), households (22.4 percent), and employment (9.6 percent). This assumed level of demographic growth is estimated to produce approximately 19 million trips on an average weekday, regardless of modes—a 16 percent increase from the 2012 Base-Year conditions for the model area.

Within this overall growth, there is a larger growth shift estimated in the millennial (birth years from early 1980s to early 2000s) and the baby boomer (births between the years 1946 and 1964) age cohorts, which likely resulted in a greater number of 0 and 3+ vehicles households in the region. Consequently, there is a shift in mode choice between 2012 Base Year and 2040 No-Build/Build conditions.

Transit and nonmotorized trips are expected to grow faster than auto trips. Nonmotorized trips are forecasted to have the greatest percentage increase of slightly more than 34 percent, from 1,780,600 trips in 2012 to 2,387,400 trips in the 2040 No-Build condition. Transit trips will grow from 898,100 trips to 1,144,700 trips (28 percent), with a modest increase in auto trips, from 10,122,800 in 2012 to 11,270,500 in 2040 (about 11 percent). These higher growth shares in nonmotorized and transit trips are a result of underlying land-use allocation assumptions, as more households are located near transit services and other activity centers in a compact fashion. Figure 5.2 below shows the change in share of auto, transit, and nonmotorized trips in the Base Year, 2040 No-Build, and 2040 Build conditions. As transit and nonmotorized trips are growing at faster rates than auto trips, these modes have a slightly greater percentage of total trips made in the future year.

FIGURE 5.2
Mode Share Split - Person-Trips Under 2012 Base Year, 2040 No-Build, and 2040 Build Conditions

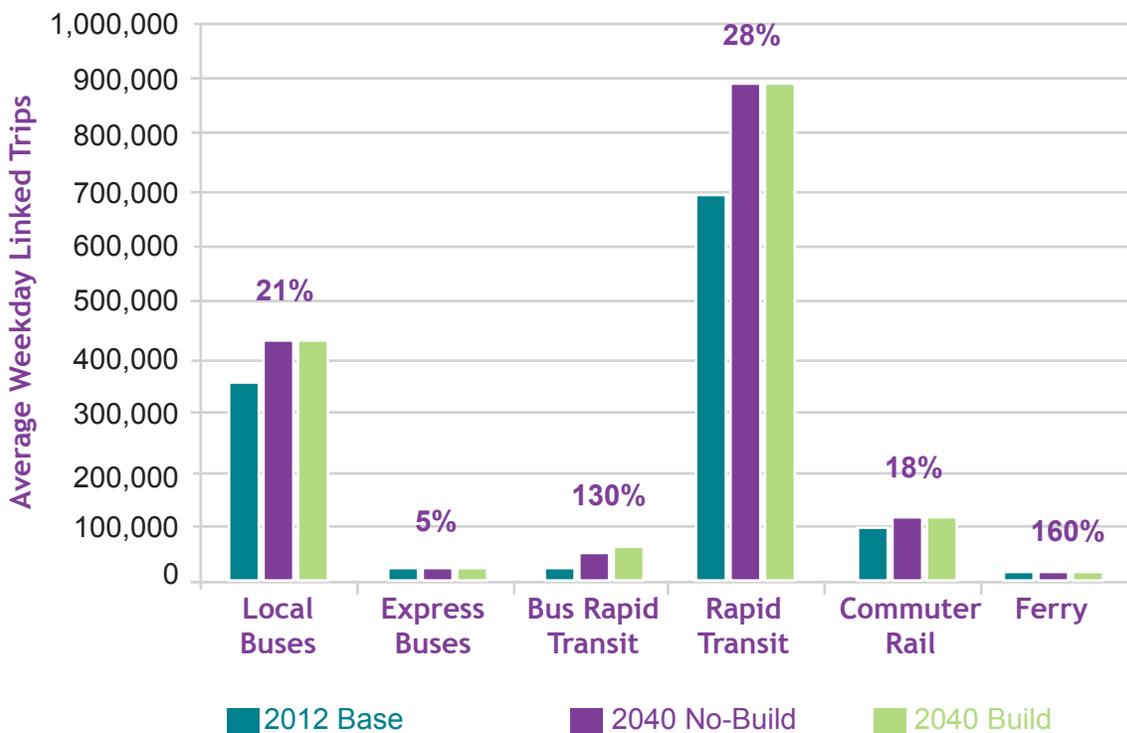


Source: CTPS Travel Demand Model

TRANSIT

As in the highway assignment portion of the model framework, transit ridership forecasts were not constrained by existing and proposed transit service capacity. This produced a true level of demands on highway and transit facilities. In the Base Year, the model set estimated 905,000 linked transit trips on a typical weekday. With an observed average transfer rate of 1.35, this translates to 1,221,500 unlinked trips. In the 2040 No-Build condition, growth of more than 27 percent was estimated for these transit trips. Two factors contributed to this growth: assumed growth in overall population and associated demographic shift (more 0-vehicle households), and changes in transit service supply (Green Line extension to Union Square, Fairmount Line service improvements, etc.). Figure 5.3 shows how these additional transit trips are estimated to be allocated across various transit modes.

FIGURE 5.3
Increases in Transit Trips by Mode



Source: CTPS Travel Demand Model

In addition to overall growth in transit trips because of transit-conducive demographic growth, there is mode-specific growth that warrants further discussion. The number of

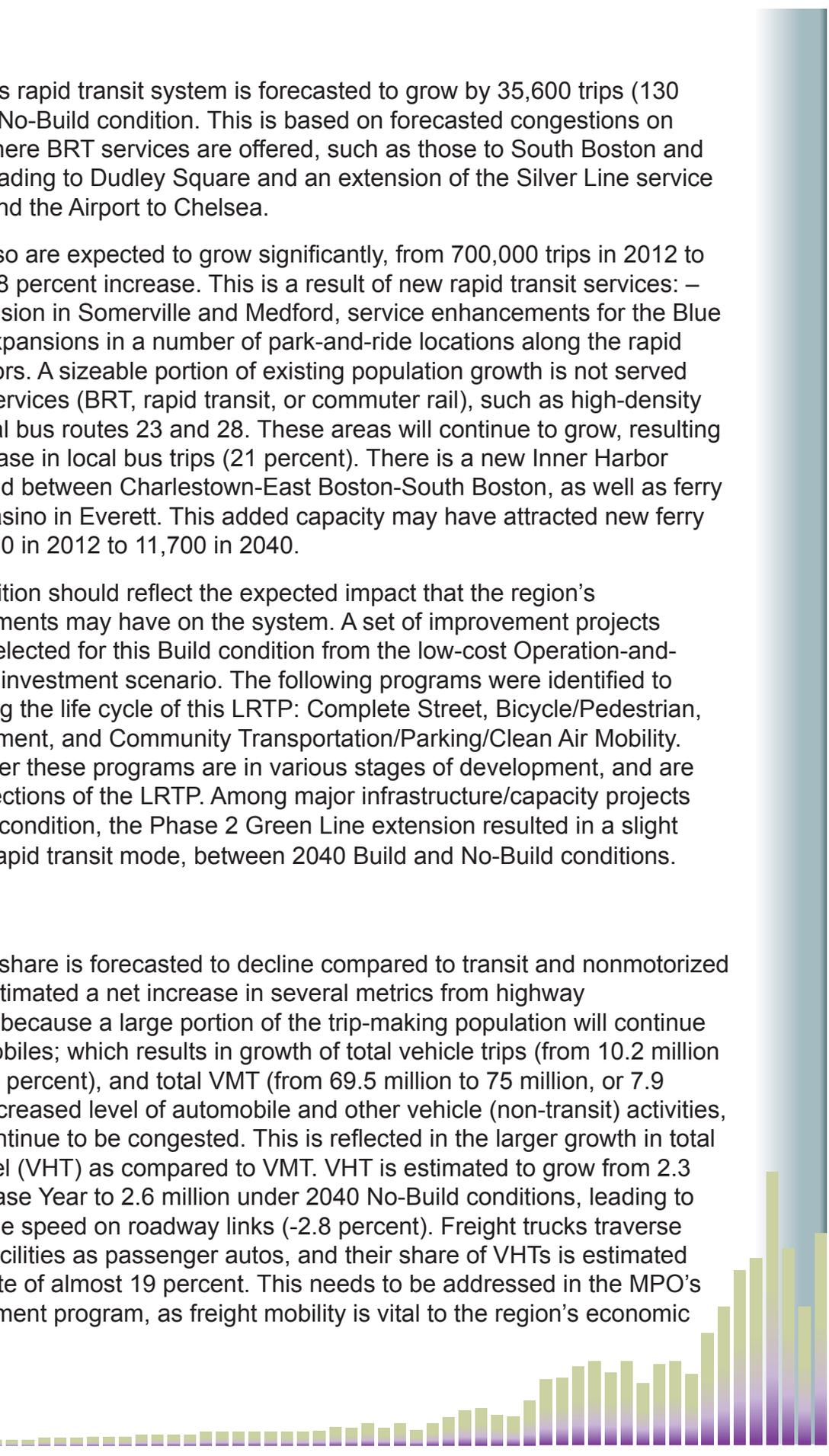
linked trips on the bus rapid transit system is forecasted to grow by 35,600 trips (130 percent) in the 2040 No-Build condition. This is based on forecasted congestions on roadway corridors where BRT services are offered, such as those to South Boston and the corridor south heading to Dudley Square and an extension of the Silver Line service from South Station and the Airport to Chelsea.

Rapid transit lines also are expected to grow significantly, from 700,000 trips in 2012 to 896,000 in 2040, a 28 percent increase. This is a result of new rapid transit services: – the Green Line extension in Somerville and Medford, service enhancements for the Blue Line, and capacity expansions in a number of park-and-ride locations along the rapid transit service corridors. A sizeable portion of existing population growth is not served by premium transit services (BRT, rapid transit, or commuter rail), such as high-density population along local bus routes 23 and 28. These areas will continue to grow, resulting in a substantial increase in local bus trips (21 percent). There is a new Inner Harbor ferry service proposed between Charlestown-East Boston-South Boston, as well as ferry service to the new casino in Everett. This added capacity may have attracted new ferry trips, rising from 4,500 in 2012 to 11,700 in 2040.

The 2040 Build condition should reflect the expected impact that the region’s transportation investments may have on the system. A set of improvement projects and programs was selected for this Build condition from the low-cost Operation-and-Management (O&M) investment scenario. The following programs were identified to receive funding during the life cycle of this LRTP: Complete Street, Bicycle/Pedestrian, Intersection Improvement, and Community Transportation/Parking/Clean Air Mobility. Specific projects under these programs are in various stages of development, and are discussed in other sections of the LRTP. Among major infrastructure/capacity projects included in the Build condition, the Phase 2 Green Line extension resulted in a slight increase in trips for rapid transit mode, between 2040 Build and No-Build conditions.

HIGHWAY

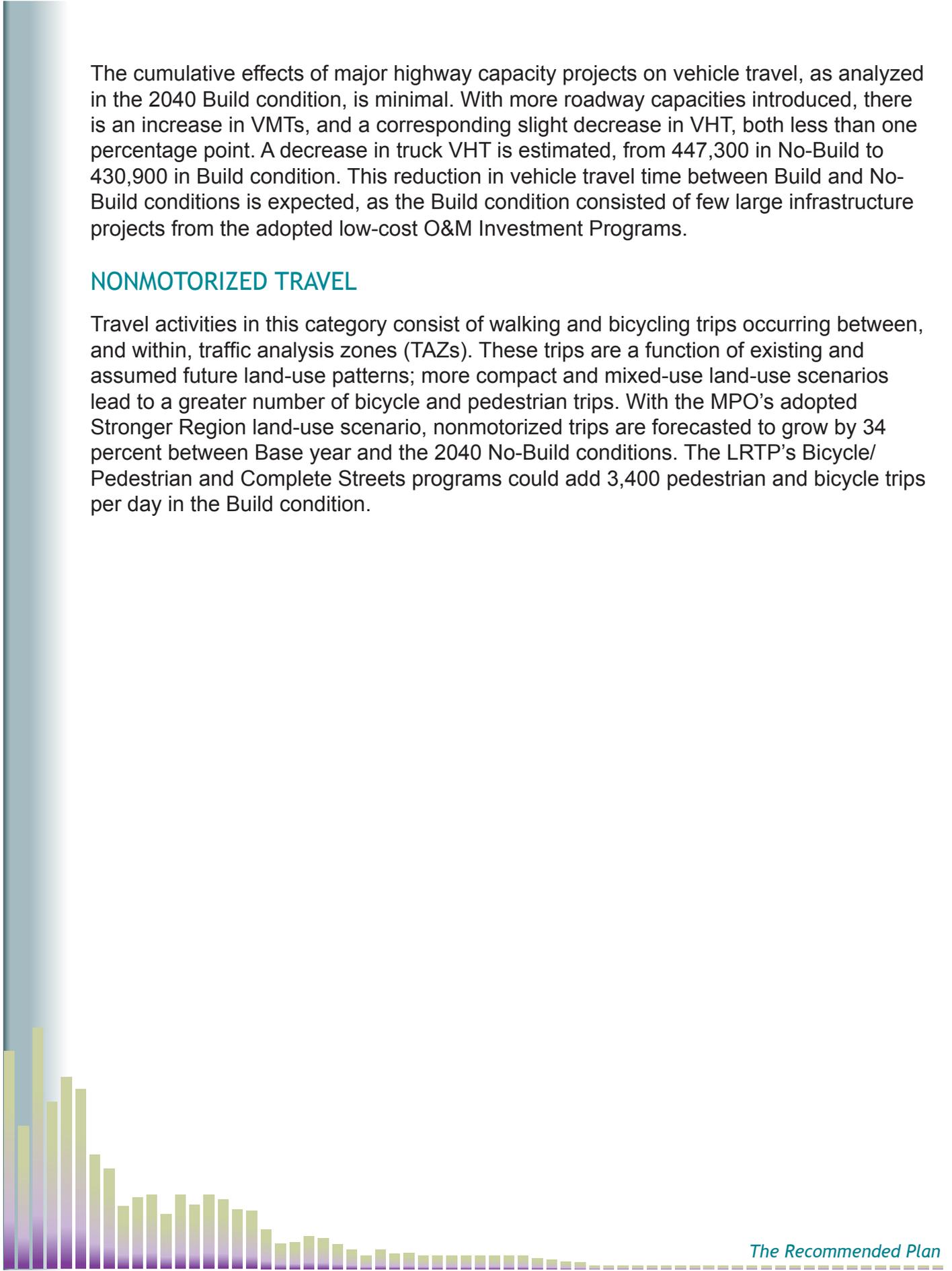
Although auto mode share is forecasted to decline compared to transit and nonmotorized modes, the model estimated a net increase in several metrics from highway assignments. This is because a large portion of the trip-making population will continue to depend on automobiles; which results in growth of total vehicle trips (from 10.2 million to 10.6 million, or 4.6 percent), and total VMT (from 69.5 million to 75 million, or 7.9 percent). With this increased level of automobile and other vehicle (non-transit) activities, roadway links will continue to be congested. This is reflected in the larger growth in total vehicle hours of travel (VHT) as compared to VMT. VHT is estimated to grow from 2.3 million in the 2012 Base Year to 2.6 million under 2040 No-Build conditions, leading to a decrease in average speed on roadway links (-2.8 percent). Freight trucks traverse the same roadway facilities as passenger autos, and their share of VHTs is estimated to grow at a faster rate of almost 19 percent. This needs to be addressed in the MPO’s transportation investment program, as freight mobility is vital to the region’s economic growth.



The cumulative effects of major highway capacity projects on vehicle travel, as analyzed in the 2040 Build condition, is minimal. With more roadway capacities introduced, there is an increase in VMTs, and a corresponding slight decrease in VHT, both less than one percentage point. A decrease in truck VHT is estimated, from 447,300 in No-Build to 430,900 in Build condition. This reduction in vehicle travel time between Build and No-Build conditions is expected, as the Build condition consisted of few large infrastructure projects from the adopted low-cost O&M Investment Programs.

NONMOTORIZED TRAVEL

Travel activities in this category consist of walking and bicycling trips occurring between, and within, traffic analysis zones (TAZs). These trips are a function of existing and assumed future land-use patterns; more compact and mixed-use land-use scenarios lead to a greater number of bicycle and pedestrian trips. With the MPO's adopted Stronger Region land-use scenario, nonmotorized trips are forecasted to grow by 34 percent between Base year and the 2040 No-Build conditions. The LRTP's Bicycle/Pedestrian and Complete Streets programs could add 3,400 pedestrian and bicycle trips per day in the Build condition.



KENDALL SQUARE TRANSIT ENHANCEMENT PROGRAM

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (the “MOU”) is entered into by the Cambridge Redevelopment Authority (the “CRA”), the City of Cambridge (the “City”), the Massachusetts Department of Transportation (“MassDOT”) and the Massachusetts Bay Transportation Authority (“MBTA”). Boston Properties Limited Partnership (“BP”), the designated redeveloper of the Mixed Use District (the “MXD District”) under the Kendall Square Urban Renewal Plan (the “KSURP”) is a concurring party to this MOU.

WHEREAS, since 1977, the CRA has undertaken the successful redevelopment of forty-three (43) acres within the MXD District which has resulted in the creation of an economic hub of 3.3 million gross square feet of office, retail, lab, innovation, hotel and residential development with road improvements, transit investment, parking garages, open spaces and other public amenities;

WHEREAS, in 1979 the CRA selected BP as the Master Developer for the Cambridge Center property in the MXD District of the KSURP, and BP remains the primary property owner in the MXD District;

WHEREAS, the success of the MXD District has been greatly enhanced by the favorable transportation mode split, with greater than seventy percent (70%) of trips to and from KSURP area utilizing transit, walking, biking, shuttles and car pools, the majority of which relies heavily on service provided by the MBTA’s Red Line and the Kendall Square Red Line station;

WHEREAS, from 2011 through 2013, the City conducted an extensive planning process of the Kendall Square area as part of its Kendall Square Central Square Planning Study (“K2C2 Study”) to develop a vision for the study area and formulated recommendations to achieve the vision, which included among other things; increased mixed use development opportunities and the provision of local transit improvements;

WHEREAS, in 2015, MassDOT formed the Kendall Square Mobility Task Force (the “Task Force”) to study the transportation network and facilities servicing the Kendall Square area from throughout the region and in 2016 transferred the leadership of the Task Force to the City;

WHEREAS, the CRA wishes to enhance the transit-oriented environment in the KSURP area by piloting innovative programs to expand mobility through partnerships with both public and private parties, and MassDOT and the MBTA also wish to enter into such partnerships that can maximize alternative funding opportunities to support the MBTA’s transit development and operations;

WHEREAS, in 2015 the CRA and the City amended the KSURP and the zoning for the MXD District, consistent with the K2C2 Study, to add approximately 600,000 square feet of gross floor area for commercial office, innovation and retail space and approximately 400,000 square feet of gross floor area for residential uses which expansion program is more fully described in KSURP Amendment No. 10 (the “Project”);

WHEREAS, the CRA submitted a Single EIR for the Project for review under the Massachusetts Environmental Policy Act (MEPA) and on which the Secretary of Environmental Affairs issued a Certificate, dated November 25, 2015 (the “EIR”); and

WHEREAS, the EIR required the CRA to work with the MBTA, MassDOT, and the City to develop an MOU that outlines enforceable commitments to support the maintenance and improvement of the transit system servicing the KSURP area.

NOW, THEREFORE, in recognition of the critically important role access and mobility play to the successful redevelopment and expansion in the MXD District and the Kendall Square area, the parties to this MOU wish to set forth their understanding regarding certain commitments and the process to be undertaken that will lead to identification of the specific measures to be developed and implemented over the next 15 years that will preserve, enhance and expand transit access and mobility in the Kendall Square area through a Kendall Square Transit Enhancement Program (“KSTEP”).

1. The parties to this MOU acknowledge and agree that all transit enhancement measures that are identified in this document for implementation under the terms of this MOU and the proposed KSTEP will be coordinated with planning efforts of MassDOT, the City, and other transportation programs identified by the parties.

2. The parties agree that funding to be provided under this MOU shall be focused on both short and long range transit enhancements that provide direct benefits to the KSURP area as well as to other properties and institutions located in and around Kendall Square. Accordingly, the parties agree to work together to establish a program that will contribute to transit funding in a manner that improves transit mobility in the MXD District and in the Kendall Square area.

3. The parties further agree that a KSTEP fund (the “KSTEP Fund”) shall be established and maintained by the CRA, in coordination with the City and the other parties to this MOU. The CRA Board shall authorize disbursement of funds from the KSTEP Fund after consulting with and obtaining final approval from the City Manager. As the geographic scope of the KSTEP is potentially expanded beyond the KSURP area, as discussed further in Section 10 below, it is anticipated that the KSTEP Fund may transition into or merge with a different governance structure, with the City playing a more central role in its administration.

4. The CRA shall convene a Working Group, which shall include the parties to this MOU, additional contributors to the KSTEP Fund and other stakeholders as may be designated, for the purpose of establishing funding priorities and allocations under the KSTEP Fund for consideration by the CRA Board and the City Manager. The Working Group, utilizing the recommendations of other relevant planning efforts, shall give consideration, at minimum, to projects with:

- a. measurable improvement to transit service levels in the Kendall Square area (transit services that touch Kendall Square), including connections to and from transit service in the Kendall Square area;

- b. the ability to leverage multiple layers of available public and private funds and remain long-term economically sustainable from a capital and operational perspective; and
- c. a high level of utility from a broad mobility perspective.

5. Funding for the KSTEP Fund will be provided initially by Boston Properties, in conjunction with its addition of commercial GFA within the KSURP area as part of the Project, with the Initial Payment to be made to the KSTEP Fund upon the issuance of any building permit for new commercial development. The KSTEP funding shall be in a lump sum of six million dollars (\$6,000,000).

6. Within six months of the Initial Payment, the Working Group shall meet to decide on initial funding allocations for short-term transit enhancements and shall consider projects to be included in an immediate scope of transit investments for up to one-third (1/3) of the KSTEP funding commitment, which may include, but are not limited to:

- a. Capital investment for additional MBTA bus service to Kendall Square from under-served corridors and potentially including new routes that can be added relatively quickly;
- b. Capital and operating investment for additional EZ Ride bus service to address commuter peak periods, additional routes to underserved corridors, and/or expansion of off peak service; or
- c. Capital improvements to the existing transit infrastructure at Kendall Station, including increased station capacity by expanding passenger waiting areas, or similar enhancements, improved Kendall Square station transit information, resiliency measures, and/or improved bus connectivity.

7. Within a year from the Initial Payment, the Working Group shall begin to meet regularly (at least every six months) to recommend longer term funding allocations for enhanced transit service in Kendall Square, potentially leveraging additional resources from an expanding KSTEP or other sources for more significant service enhancements in the future. The Working Group may consider the following projects as the scope for potential future transit funding.

- a. Operating and capital support for new ground transportation via non-MBTA shuttles and/or MBTA buses or Bus Rapid Transit (BRT) aimed at facilitating access to and from Kendall Square to and from Central Square, Sullivan Square, Union Square, Longwood Medical Area, North Station, or other locations with a demonstrated clear need for access to or from Kendall Square;
- b. Red Line service modernization and improvements, including signal, track, station, and other technology improvements designed to increase capacity and reliability especially at peak-of-the-peak, including enhancing headways (time

between service) and other improvements that will positively impact the quality and capacity of transit service and the customer experience;

- c. Other strategic investments that are consistent with the considerations listed above, and with state and local 2030 and 2040 transportation planning efforts, which all may also be considered for funding from the KSTEP Fund, including feasibility investigations and potential capital investments toward new transit service benefiting the Kendall Square area.

8. Prior to allocating funding from the KSTEP, the Working Group will obtain approval from the entity to which the funding is being allocated, confirming that entity is ready and willing to accept and expend those funds for the purpose intended by the Working Group.

9. The CRA, with the approval of the City Manager, may reserve up to two-thirds (2/3rds) of the Initial Payment to KSTEP Fund or otherwise place limits on the usage of funds for up to five (5) years from the date of the Initial Payment, in order to preserve a tangible link between the development investment in Kendall Square that generated the funds and the subsequent supporting investment in transit, especially related to the percentage of funds that may be used for capital expenditures, operational/maintenance expenditures or planning expenditures. The Parties will develop metrics of success to measure the success of the KSTEP within two years (2) of the Initial Payment

10. Additional ongoing funding for the KSTEP may also be provided by property owners and developers in the Kendall Square area under a transit enhancement funding program to be developed in cooperation with the parties to this MOU. The parties agree to use good faith efforts to expand the area and funding sources supporting the KSTEP and to advance efforts to implement a program of ongoing annual KSTEP Fund payments, or other financial contributions to transit improvements, by property owners and developers in the Kendall Square area.

11. This Agreement does not preclude the City or the CRA with the City's approval, from seeking additional funding sources in the future for the KSTEP Fund or combining this fund with other transit funding programs, such as but not limited to the introduction of a special assessment district to Kendall Square. The parties further agree that the payments contemplated in paragraph 10, above, will require certain actions and approvals by the City and must be implemented in a non-discriminatory fashion consistent with the requirements of all applicable federal, state and local laws and regulations. Further, in connection with the payments to the KSTEP Fund, the parties acknowledge and agree that the transit funding required and to be required hereunder must take into consideration all other transportation mitigation payments required by state and municipal permits related to a particular development project, so as not to disproportionately or unfairly impact any single owner or property.

IN WITNESS WHEREOF, this Agreement is hereby duly executed by the parties on this __ day of _____, 2016.

CITY OF CAMBRIDGE

By: _____

Name: Richard C. Rossi

Title: City Manager

CAMBRIDGE REDEVELOPMENT AUTHORITY

By: _____

Name: Kathleen Born

Title: Board Chair

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

By: _____

Name: _____

Title: _____

As a Concurring Party:

BOSTON PROPERTIES LIMITED PARTNERSHIP

By: Boston Properties, Inc., its general partner

By: _____

Name: Michael A. Cantalupa

Title: Senior Vice President, Development

Exhibit A

Kendall Square Transit Enhancement Program (KSTEP)

Funding Formula and Methodology

Formula Inputs

- **Space/Square Footage:** The square footage of development based on land use type (ie: office, retail, residential) is used in a standard trip generation calculation to predict the number of trips a future development project may generate through commonly accepted modeling by qualified transportation engineers and planners. Trip generation is calculated for all modes – auto, transit, bike and walk.
 - *The KSTEP uses only the commercial space square footage (600,000 GSF from the Project), in order to incentivize residential.*
- **Daily Transit Trips Generated:** The daily number of trips predicted to be generated by the proposed development is based upon the square footage of development in different land use categories and results in predicted daily vehicle, transit, walking and biking trips. Because the KSTEP is intended to benefit public transit it utilizes the transit trip generation number from the Project.
 - *The KSTEP uses only the adjusted daily office space transit trip generation to levy funding responsibility in order to not disincentive residential development. The KSTEP accepts the funding responsibility of 50% of each transit trip as the presumed destination of the trip.*
- **Timeframe:** The Kendall Square Urban Renewal Plan, which provides the initial regulatory framework for the adoption of the KSTEP, expires in 2030 and therefore the KSTEP calculations are based on a 15 year development window. There are at least 260 weekdays in a calendar year, and in Massachusetts there are 11 legal holidays according to the Secretary of State's Office, leaving at least 249 working days in a year.
 - *The KSTEP is calculated using the number of weekdays in a year because the capacity burden on the T system from the proposed development is on weekdays.¹ In the case of the KSTEP funding calculation, 249 weekdays is multiplied by 15 years to equal 3,735 total days.*
- **Fare Recovery Gap Per Trip:** There are multiple methods to calculate the cost of a single MBTA trip. The CRA has concluded that the simplest and most effective way to calculate it using easily available data is to reverse calculate the fare recovery ratio presented in the Governor's Special Panel to Review the MBTA in spring 2015: *Back on Track – An Action Plan to Transform the MBTA*. That report states that the fare recovery ratio is 26% for bus, 48% for commuter rail, 55% for light rail/trolley, 61% for heavy rail/subway.

Utilizing the 2015 standard subway fare (\$2.10) a reverse calculation of the Fare Recovery Gap per MBTA Trip for subway service can be estimated. This number represents the cost gap that is not covered by each transit passenger fare. This gap is a significant financial burden on the MBTA and for each new trip on the system, this gap adds to that deficit. The MBTA lacks sufficient non-fare

¹ Alternatively, the capacity burden for other types of developments may be focused on weekend trips, such as a casino for example.

revenue, state aid, or federal aid to continue to close this accumulating gap, as new trips are continuously added through increased transit oriented development. For purposes of the KSTEP, the parties have determined that the subway fare gap per trip is \$1.34.

- *The KSTEP calculation uses only the subway fare gap (\$1.34/trip) as the multiplier because subway service is the primary MBTA service used by transit trips in and out of Kendall Square.*

Application of the KSTEP Funding Formula to the Kendall Square Urban Renewal Project

*DAILY TRANSIT TRIPS GENERATED BY THE PROJECT x .50 x
TIMEFRAME (WEEKDAYS PER 15 YEARS) x FARE RECOVERY GAP PER TRIP =
KSTEP Project Contribution*

Product rounded up to \$6,000,000

DRAFT



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
 100 Cambridge Street, Suite 900
 Boston, MA 02114

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GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

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SECRETARY

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August 28, 2015

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
 ON THE
 SECOND SUPPLEMENTAL FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Wynn Everett
 PROJECT MUNICIPALITY : Everett
 PROJECT WATERSHED : Boston Harbor
 EEA NUMBER : 15060
 PROJECT PROPONENT : Wynn MA, LLC
 DATE NOTICED IN MONITOR : July 22, 2015

As Secretary of Energy and Environmental Affairs, I hereby determine that the Second Supplemental Final Environmental Impact Report (SSFEIR) submitted on this project **adequately and properly complies** with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00). The SSFEIR is responsive to the Scope identified in the Certificate on the SFEIR which was limited to five issues. The Proponent adequately addressed these issues. Outstanding aspects of the project that require additional analysis can be addressed during local, State and federal permitting, review and approval processes. This finding of adequacy will initiate more detailed review of environmental and transportation issues by the permitting agencies. The subsequent review, permitting and approval processes will build on the foundations established during MEPA review and will provide additional, meaningful opportunities for public review and comment.

Traffic impacts have been a primary concern in the MEPA review of each of the proposed casino projects. The Proponent has made significant commitments to minimize and mitigate traffic impacts. The Proponent has also agreed to provide an annual operating subsidy to the MBTA to mitigate impacts on the Orange Line. The subsidy will amount to approximately \$7.4 million over a 15-year period. This is an unprecedented commitment that acknowledges and addresses the project's impact on transit operations.

As evidenced in its many comments through this process, most recently on the SSFEIR, the Massachusetts Department of Transportation (MassDOT) has reviewed the Proponent's traffic analysis and mitigation plans and determined, consistent with long established review protocols, that it will be effective to mitigate the project's impacts on existing transportation infrastructure. The Metropolitan Area Planning Council (MAPC) reached the same conclusion after its review of this project.

Concerns regarding the long-term traffic impacts of this project and other planned developments are warranted by, in particular, the longstanding congestion of Sullivan Square. I have given serious consideration to requests to require the Proponent and MassDOT to undertake additional planning through MEPA review and whether it would be consistent with the purpose and goals of MEPA review.

The purpose of MEPA is to provide meaningful opportunities for public review of the potential environmental impacts of Projects for which Agency Action is required, and to assist each Agency in using (in addition to applying any other applicable statutory and regulatory standards and requirements) all feasible means to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable. MEPA review is intended to inform the Proponent and State Agencies of a project's potential environmental impacts, maximize consistency between Agency Actions, and facilitate coordination of environmental and development review and permitting processes of the Commonwealth. Furthermore, I note that MEPA review is an iterative process that begins with a scope of study for an EIR. Issues are narrowed through review of the EIR and subsequent documents; the scope is not revisited or reopened in subsequent documents. A particularly important part of the scope for many development projects is the identification of the traffic study and associated methodology. The MEPA process includes the preparation of separate Section 61 Findings by each State Agency with permitting authority over the project.

Typical MEPA review of projects subject to an EIR requirement consists of review of an ENF, a Draft EIR, and a Final EIR. The environmental review of this project has extended over two years and included filing of an ENF, Draft EIR, Final EIR, a Supplemental Final EIR and a Second Supplemental Final EIR. Each of these documents have been subject to public review. Numerous and voluminous comments have been received from State Agencies, elected officials, municipalities, and citizens and each of these comments has been considered and reviewed.

I have concluded that the practical, rational and effective approach to addressing broader regional transportation impacts for this project is through enhanced transportation planning processes, not through the prism of this single project. In completing MEPA review, I am requiring enhanced public participation during permitting and development of Section 61 Findings by MassDOT and the establishment of a Regional Working Group. The Regional Working Group will be led by MassDOT and its purpose will be to assess and develop long-term transportation improvements that can support sustainable redevelopment and economic growth in and around Sullivan Square. Wynn Everett has committed to participate in this Regional Working Group and provide a proportionate share of funding to support this effort.

In concluding MEPA review, I am requiring enhanced public review during permitting and development of Section 61 Findings and the establishment of a Regional Working Group. There are aspects of the Wynn Everett project and its mitigation that do require additional analysis and will be subject to further scrutiny during development of Final Section 61 Findings and permitting by MassDOT and the Massachusetts Gaming Commission (MGC). In consultation with Secretary Pollack, I am directing MassDOT to complete the following process:

MassDOT Issuance of its Section 61 Findings and Vehicular Access Permit

- MassDOT will revise the draft Section 61 Findings based on consultation with the Proponent and other stakeholders
- MassDOT and the Proponent will identify the Proponent's financial contribution to the Regional Working Group
- Revised draft Section 61 Findings will be published in the Environmental Monitor for public review and comment. The Proponent will concurrently publish their financial commitment to the Regional Working Group. This will include a 15-day comment period.
- Within two weeks of the close of the comment period, MassDOT will hold a public meeting to review comments and accept additional public comments.
- Within 40 days of the publication of the revised Section 61 Findings in the Environmental Monitor, MassDOT will publish Final Section 61 Findings in the Environmental Monitor.
- MassDOT will address and resolve the following issues:
 - demonstrate feasibility and constructability of proposed improvements for Sullivan Square, including control of necessary right-of-way, carefully review intersection improvements around and within Sullivan Square to minimize queuing and confirm that vehicular storage capacity is adequate, and evaluate safety of proposed right-on-red traffic movements.
 - consult with DCR regarding Mystic Valley Parkway to minimize queuing and confirm that vehicular storage capacity is adequate.

MGC Issuance of its Section 61 Findings

- Consider and revise, as appropriate, its draft Section 61 Findings included in the SSFEIR.
- MGC Section 61 Findings shall include or include by reference the Section 61 Findings from all other State Agencies including, but not limited to, MassDOT's Section 61 Findings.
- A consultant hired by the MGC will make a public presentation at a MGC meeting and provide recommendations regarding additional conditions that should be added to the draft Section 61 Findings.
- MGC will solicit written comments on the draft Section 61 Findings and will hold a public hearing. The draft Section 61 Findings and the consultants' report(s) will be posted on the MGC website.

- Final Section 61 Findings will be incorporated into the Gaming License and will be filed with the MEPA Office.
- Compliance with the Section 61 Findings and the conditions of the Gaming License will be part of a regular quarterly review conducted by the MGC.

In addition, I note that the Reopener Provisions of the conditional Gaming License (Section 2 condition 32) indicates that the City of Boston can reopen negotiations for Surrounding Community Status any time prior to opening of the gaming establishment and the MGC has the authority to amend and modify mitigation as appropriate.

Regional Working Group

Establishment of the Regional Working Group will proceed on a separate and distinct track and will include significant opportunities for consultation, public review and comment. The Regional Working Group will be led by MassDOT. To be productive, the effort will require the active and constructive participation of stakeholders, including the Executive Office of Housing and Economic Development (EOHED), MAPC, DCR and municipalities including, but not limited to, the cities of Boston, Everett, and Somerville. In addition, large employers and developers have an important role to play.

MassDOT will outline the process and schedule and work with stakeholders to identify goals and objectives of the Working Group. At a minimum, the Working Group will:

- assess existing conditions, planned improvements and reviewed and permitted development
- identify planned development and potential build-out
- identify critical infrastructure and study alternatives
- consider funding resources and equitable allocation of project costs

Project Description

As described in the SSFEIR, the project consists of the redevelopment of a 33.9-acre site in Everett as a destination resort casino. The site is located on Horizon Way and Lower Broadway (Rt. 99) in Everett. Chapter 194 of the Acts of 2011: An Act Establishing Expanded Gaming in the Commonwealth and M.G.L. Chapter 23K, Section 19, as amended by Section 16 of the Expanded Gaming Act, authorizes the Massachusetts Gaming Commission (MGC) to license three casinos. The Act identifies three regions of the state - Region A (Suffolk, Middlesex, Essex, Norfolk and Worcester counties), Region B (Hampshire, Hampden, Franklin and Berkshire counties) and Region C (Bristol, Plymouth, Nantucket, Dukes and Barnstable counties) – and authorizes MGC to permit one casino in each region. This project is located in Region A.

The project will include a total of 3,096,700 square foot (sf), comprised of the following:

- A gaming facility with 4,580 total gaming positions
- A hotel tower, 386-foot high, with 629-rooms (621,774 sf)
- Retail space (52,632sf)
- Food and beverage space (54,680 sf)
- Lobbies, lounge, and an atrium garden (front-of-house) (58,548 sf)
- Back-of-House (411,058 sf)
- A spa and gym (15,405 sf)
- Convention/meeting rooms (37,068 sf)

The project will include 2,930 parking spaces on-site and 800 parking spaces off-site for employee parking. The project includes construction of a parking structure below the Casino Level (including under the retail portion of the Project), with three below-grade levels and one at-grade level to provide self-serve and valet parking spaces for patrons for a total of 1,627,751 sf. The Proponent will provide shuttle service to and from the Project Site. Employee parking will located at existing parking facilities or newly constructed lots.

The project includes remediation and restoration of the site. The proposed shoreline work includes the installation of a vertical steel pile bulkhead, the placement of stone revetments and the installation of pile-supported walkways, the removal of abandoned and deteriorated structures and remnants, salt marsh restoration and re-vegetation of the shoreline. The waterside work includes the dredging of approximately 15,000 cubic yards (cy) of sediment over approximately 41,480 sf to provide an adequate water depth of six feet below mean low water (MLW) to accommodate water transportation vessels. Coastal bank and salt marsh restoration is proposed within a 69,000 sf area landward of high tide at the southwestern edge of the site. Connections from the harborwalk on the Project Site via a new pedestrian and bicycle path under the MBTA right-of-way are proposed.

Primary access to the site will be provided via a new signalized intersection on Route 99 on land acquired from the MBTA. A secondary access for deliveries and employees will be provided via a service road that would follow the periphery of the MBTA Everett Shops property and connect with Route 99 across from Beacham Street in Everett.

Project Site

The 33.9-acre site is located in Everett adjacent to the Mystic River. Approximately 25.6 acres are upland, surrounded by shoreline and the remnants of marine structures, and approximately 8.3 acres are located below mean high water (MHW) on the Mystic River. The site includes approximately 1,600 lf of shoreline along flowed tidelands. A small area of the site is used as a materials storage yard and includes a 5,200 sf construction trailer/office. Historic uses include the Monsanto chemical manufacturing facility. The site is classified as a disposal site subject to Massachusetts General Law Chapter 21E (MGL c.21E) and the Massachusetts Contingency Plan (MCP). It is contaminated and contains very high levels of arsenic and lead, both in soil and groundwater. Contaminated sediments have also been identified in the area of the site within the Mystic River.

The site is bordered to the west by the tracks of the MBTA Newburyport commuter rail line. The upland portions of the site are bounded by Horizon Way, Rt. 99, and commercial and institutional properties. Most of the soils on the site are disturbed and comprised of fill material. Along the shoreline is a mix of deteriorated stone seawalls, loose gravel and boulders, and rotted timber piers and pilings. The shallower portions of the shoreline also contain debris and remnants of timber structures.

Access to the site is via Horizon Way which forms an unsignalized intersection with Broadway (Rt. 99) in Everett. The site is located in an urban, commercial/industrial area that suffered from economic disinvestment during the latter part of the twentieth century when manufacturing, import and fishery activities declined. Surrounding land uses are primarily commercial/retail, with local businesses (e.g. an auto dealership, chain restaurants, and an auto repair shop) and infill residential structures nearby. Proximate uses include Boston Water and Sewer Commission (BWSC) and Massachusetts Water Resources Authority (MWRA) properties, the MBTA's maintenance facility (Everett Shops) to the north, and the Gateway Center and Gateway Park to the west. The Department of Conservation and Recreation (DCR) owns and operates parkways in the vicinity of the site, including Revere Beach Parkway, the Fellsway and Mystic Valley Parkway. In addition, DCR owns and operates the Mystic River Reservation and the Amelia Earhart dam, a flood control structure located on the Mystic River in the vicinity of the site.

The site is bordered by the Mystic River to the south and an embayment to the east. The embayment is approximately 350 to 500 feet wide from shoreline to shoreline (from the Project area to the upland east of the embayment containing the operations of the MWRA and BWSC). The embayment contains a former channel which was reportedly constructed in the mid-1800s. Records indicate the channel to be about 1,000 feet long with a width of 100 feet, and an original draft of 20 feet below MLW. The channel flares out at the northern end to about 250 feet wide. The channel has since shoaled, and the present depth does not exceed 13 feet below the MLW mark. Waters adjacent to the channel are shallower than the central portion of the channel. The eastern side of the embayment is a mud flat with surface grades from the MLW mark to about three feet above it. The mud flat contains a variety of debris, including several abandoned timber barges.

Procedural History

Previous review documents submitted to MEPA, including the FEIR, addressed a wide range of environmental issues. The Proponent has made significant commitments to avoid, minimize and mitigate potential environmental impacts including: redevelopment and remediation of a brownfield site located in close proximity to transit, provision of 7.42 acres of open space, creation of access to and along the Mystic River including extension of a multi-use path to Gateway Park, and salt marsh restoration. The Certificate on the FEIR required the Proponent to file a Supplemental FEIR (SFEIR). The Scope was limited to traffic and transportation issues, Responses to Comments and revised Section 61 Findings. The Certificate on the FEIR indicated that other issues had been adequately addressed in the FEIR or could be addressed through subsequent review, approval and permitting processes.

Prior to filing the Supplemental FEIR (SFEIR), the Proponent revised its design based on direction from the MGC. The SFEIR identified changes to the project and associated changes in environmental impacts. The primary changes were the addition of 58,005 square feet (sf) to the size of the building, the addition of 125 hotel rooms (from 504 to 629) and the addition of 420 gaming positions (from 4,160 to 4,580).

The SFEIR provided a revised and updated traffic impact assessment (TIA) which reflected the productive consultation between MassDOT and the Proponent. It included updated traffic counts, improved modeling, and better defined mitigation. It included a revised analysis of the project's impacts on the Orange Line and existing bus service and changes to the private shuttle system to complement existing transit service.

Throughout the review of many projects vying for a Gaming License, the MEPA Office and MassDOT have made a concerted effort to provide clear and consistent information regarding potential environmental and transportation impacts to inform decisions by MGC, municipalities and residents. The methodology for the transportation analysis included in the SFEIR was consistent with that which was required of each of the Casino proposals, including MGM Springfield (EEA #15033), Project First Light (EEA #15159) and the proposed Mohegan Sun project in Revere (EEA #15006).

While the SFEIR represented significant progress in identifying traffic and transportation impacts, a SSFEIR was required to address outstanding traffic and transportation issues, including the violation of the MEPA statute associated with the conveyance of land by MassDOT/MBTA to the Proponent. This transfer occurred prior to completion of MEPA review. None of the documents associated with the land transfer, including the deed, contained any terms, such as a condition or restriction, to provide that the land transfer would be deemed not to have taken place until MEPA review was complete and that the MBTA would reconsider and confirm or modify the Agency Action and any conditions thereof to ensure consistency with MEPA.

Gaming Legislation and Massachusetts Gaming Commission Process

The MGC issued a Category 1 gaming license to the Proponent, effective November 18, 2014, pursuant to Chapter 194 of the Acts of 2011: An Act Establishing Expanded Gaming in the Commonwealth and M.G.L. Chapter 23K, Section 19, as amended by Section 16 of the Expanded Gaming Act. The license was issued after the submission of the FEIR and the Certificate on the FEIR (dated August 15, 2014). Conditions of the license include completion of the MEPA review process. Upon completion of the MEPA process, the Gaming Commission will issue Final Section 61 Findings in conjunction with the Gaming License.

The MEPA regulations do not consider Agency Action final if the Permit, contract or other relevant document approving or allowing the Agency Action contains terms such as a condition or restriction that provides that such Agency Action shall be deemed not to have taken place until MEPA review is complete, provided that the Agency shall reconsider and confirm or

modify the Agency Action and any conditions thereof following completion of MEPA review (301 CMR 11.02, Agency Action (c)).

A Host Community Agreement (HCA) was executed with the City of Everett on April 19, 2013. It was approved by the citizens of Everett pursuant to a referendum held on June 22, 2013, in accordance with the Gaming Act. It indicates that the Project will provide 4,000 construction jobs and 4,000 permanent jobs, improve and expand infrastructure, and support a myriad of community programs and services. The HCA identifies the following payments to the City of Everett: \$30 million for capital improvements; \$20 million annual PILOT payments; \$5 million annual community impact fee; and, \$250,000 annual contribution to the Everett Citizens Foundation.

The Proponent entered into Surrounding Community Agreements (SCA) with the City of Malden (November 12, 2013), the City of Medford (April 11, 2014), the City of Cambridge (April 22, 2014), the City of Somerville (June 12, 2014), and the City of Chelsea (June 9, 2014). The Proponent entered into Neighboring Community Agreements with the City of Lynn and the City of Melrose on January 28, 2014.

The Proponent designated the City of Boston as a Surrounding Community. The City of Boston requested that it be identified as a host community; however, the MGC determined that it did not meet the criteria for a host community. The City of Boston declined to participate in the arbitration process for a Surrounding Community established pursuant to the terms of the Gaming Act, thereby relinquishing its designation. As a result, the Proponent agreed to certain specified conditions in the Gaming License for the purpose of mitigating any adverse impacts to the City of Boston and, in particular, the Charlestown neighborhood. The conditions set forth in the Gaming License include a one-time, pre-opening payment by the Proponent of \$1,000,000. Per the Gaming License, this payment can be used to support Charlestown's non-profit organizations, parks, after-school activities, senior programs, job training programs, cultural events and related activities. On January 6, 2015, the Proponent delivered this initial payment to the MGC because the City of Boston's refused to accept the payment. The MGC continues to hold this payment in escrow for the City of Boston's benefit. Following the opening of the Project, the Proponent has agreed to annual payments to the City of Boston in the amount of \$1,600,000, adjusted annually to reflect increases in the Consumer Price Index.

In addition to the specific agreements noted above, the Expanded Gaming Act establishes a Community Mitigation Fund, which is administered by the MGC. Monies from the Community Mitigation Fund shall be used to:

...assist the host community and surrounding communities in offsetting costs related to the construction and operation of a gaming establishment including, but not limited to, communities and water and sewer districts in the vicinity of the gaming establishment, local and regional education, transportation, infrastructure, housing, environmental and public safety, including the office of the county district attorney, police, fire, and emergency services (M.G.L. Chapter 23K, Section 61(b)).

I note that the Expanded Gaming Act requires the establishment of a Subcommittee on Community Mitigation consisting of 12 members, including, but not limited to, representatives from each Region's Host Community, local chambers of commerce, the Department of Revenue's Division of Local Services, the MGC, the Massachusetts Municipal Association, and an appointee of the Governor. Among other responsibilities, this subcommittee will develop recommendations to be considered by the MGC regarding how funds may be expended from the Community Mitigation Fund (M.G.L. Chapter 23K, Section 68(b)). Furthermore, each Region may establish a local Community Mitigation Advisory Committee, which shall include no fewer than six members, to provide information and develop recommendations for the Subcommittee on Community Mitigation, including ways in which funds may be expended from the Community Mitigation Fund. This local committee will include members appointed by Host and Surrounding Communities, the regional planning agency, and the MGC to represent chambers of commerce, regional economic development, and human service providers. (M.G.L. Chapter 23K, Section 68(e)).

MEPA jurisdiction is limited to the subject matter of required or potentially required State Agency Actions, except in the case of a project proposed by a State Agency or receiving State Financial Assistance. In that case, broad scope jurisdiction applies and extends to all aspects of a Project that are likely, directly or indirectly, to cause Damage to the Environment, as defined in the MEPA regulations. In some instances the subject matter of the Agency Action is sufficiently broad (e.g. a Chapter 91 License, Energy Facilities Siting Board review) such that it is functionally equivalent to broad scope jurisdiction. That is the case with the Gaming License which addresses a broad range of environmental issues - sustainability, energy efficiency, renewable energy, and traffic - and extends to mitigation of environmental impacts on host and surrounding communities.

Permits and Jurisdiction

The project is subject to MEPA review and requires the preparation of a Mandatory EIR pursuant to 301 CMR 11.03(1)(a)(2), 11.03(3)(a)(5), 11.03(6)(a)(6) and 11.03(6)(a)(7) because it requires State Agency Actions and it will create 10 or more acres of impervious area, create a New non-water dependent use occupying one or more acres of waterways or tidelands, generate 3,000 or more New adt on roadways providing access to a single location, and provide 1,000 or more New parking spaces at a single location

The project requires a Category 1 Gaming License from the MGC, a Vehicular Access Permit from the Massachusetts Department of Transportation (MassDOT), a land transfer from the MBTA, a Construction and Access Permit from DCR, and Airspace Review by the Massachusetts Aeronautics Commission (MAC). It requires a Sewer Use Discharge Permit (or waiver) from the MWRA and may also require a 8(M) Permit from MWRA. It requires a Chapter 91 (c.91) License and a 401 Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MassDEP) and it may also require an Air Plan Approval from MassDEP. Transportation mitigation may require review and approval by Massport. It may require Federal Consistency Review by Coastal Zone Management (CZM). The project is subject to the May 5, 2010 MEPA GHG Emission Policy and Protocol (GHG Policy).

The project is not subject to the enhanced analysis provisions of the EEA Environmental Justice (EJ) Policy. The project is located in and adjacent to communities with designated EJ populations; however, the project does not exceed the MEPA thresholds for solid waste or air quality that trigger a requirement for enhanced analysis.

It will require multiple permits and approvals from the City of Everett, including an Order of Conditions from the Everett Conservation Commission (or a Superseding Order of Conditions (SOC) from MassDEP if the local Order is appealed). It will require approvals from the City of Boston Transportation Department and the Public Improvements Commission (PIC) for off-site roadway improvements.

The project requires a Section 404 Clean Water Act Permit and a Section 10 Permit from the United States Army Corps of Engineers (ACOE). In addition, the project may require approval from the Federal Highway Administration (FHWA) for modifications to the highway system (I-93) and/or for work on the National Highway System (NHS). As a result, the project may be subject to review pursuant to the National Environmental Policy Act (NEPA) and review pursuant to Section 106 of the National Historic Preservation Act (NHPA). The project also requires a Part 77 Airspace Review from the Federal Aviation Administration (FAA) and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the United States Environmental Protection Agency (EPA) for stormwater discharges from a construction site of over one acre.

MEPA jurisdiction is limited to the subject matter of required or potentially required permits; however, the subject matter of the Gaming License confers broad scope jurisdiction and extends to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations.

Project Changes Since the Filing of the SFEIR

The SSFEIR identifies changes to the project since the filing of the SFEIR. Changes include an increase in the elevation of the finish floors and elimination of one full level of below-grade parking. The elimination of the parking level will reduce the amount of excavation and flood proofing required for the structured parking. The adjusted floor plans will now reflect a first level floor elevation of 25 NAVD88 at the main entrance for the gaming, restaurant and retail portions of the Project, with the convention space set at elevation 24 NAVD88. Adjustments have also been made to accommodate the transitions between the building and open space areas and the Harborwalk. The Harborwalk and other open space remain at elevations proposed in the SFEIR (approximately 10.3 NAVD88 and up to 12.5 NAVD88, respectively). Garage floor elevations will be set at elevation -4 NAVD88 (level B-3), elevation 4.0 NAVD88 (level B-2) and elevation 13 NAVD88 (level B-1). All publicly accessible areas will be ADA compliant.

As required by the SSFEIR Scope, the Proponent reconsidered parking demand. The review included reconsideration of projected parking demand, utilization of off-site parking for employees and the integration of the Project into the existing and expanded public transportation opportunities that will be available to patrons, guests and employees of the resort. As a result of

this evaluation, the on-site parking supply has been reduced from 3,400 spaces to 2,930 spaces. The SSFEIR indicates that this will accommodate the projected demand for parking at the resort (2,360 spaces) with a reserve capacity to accommodate potential parking demand fluctuations. No changes are proposed to the use of offsite parking for employees. The Proponent will lease up to 800 spaces at three (3) off-site facilities; on-site employee parking will be limited to a small number of spaces for Wynn executives and employees with disabilities.

Environmental Impacts and Mitigation

Potential environmental impacts are associated with the creation of 19.42 acres of impervious surfaces; alteration of wetland resource areas; water demand of 311,830 gallons per day (gpd); and, generation of 283,482 gpd of wastewater. The project will generate approximately 31,844 new (unadjusted) adt and 37,916 new (unadjusted) adt on a Saturday. When adjusted for mode share, the project is estimated to generate approximately 20,130 adt on a weekday and 23,982 adt on a Saturday. As noted above, parking has been decreased to 2,930 on-site parking spaces. The project will include 800 off-site parking spaces for employee parking.

The waterside work includes the dredging of approximately 15,000 cubic yards (cy) of sediment over approximately 41,480 sf to provide an adequate water depth of six feet below mean low water (MLW) to accommodate water transportation vessels. Impacts to coastal bank are estimated at 41,480 sf.

Measures to avoid, minimize and mitigate impacts include redevelopment and remediation of a brownfield site located in proximity to transit, provision of 7.42 acres of open space, access to and along the Mystic River including a connection to Gateway Park, salt marsh restoration and replication of shellfish beds, installation of a stormwater management system, roadway improvements, and improvements to transit, bike and pedestrian access. The building will be designed to be certifiable by the US Green Building Council's Leadership in Environmental and Energy Design (LEED) at the Gold level, or higher. The project incorporates measures to improve energy efficiency including use of a Combined Heat and Power (CHP) system. In addition, it includes a commitment to install a PV system and/or purchase Green Power from local service providers (equal to 10% of the Project's annual electrical consumption).

Review of the SSFEIR

The SSFEIR included an updated project description and associated plans. The SSFEIR included an updated Transportation Impact Analysis (TIA), revised mitigation based on additional analysis and comment letters, and provided conceptual plans for proposed improvements. The SSFEIR included a separate chapter summarizing proposed mitigation measures and included draft Section 61 Findings for each State Agency that will issue permits for the project.

The Scope for the SSFEIR was limited to the following:

1. Provide an explanation of and remedy for the premature conveyance of land from MassDOT/MBTA and its acceptance by the Proponent prior to the completion of MEPA review.
2. Commit to a specific dollar amount for an annual operating subsidy to the MBTA to support service and capacity improvements on the Orange Line.
3. Clarification of the Traffic Impact Assessment and supplemental data and analysis.
4. Provide revised Draft Section 61 Findings that incorporate commitments associated with the three requirements listed above.
5. Response to Comments document that provides clear and specific responses to issues.

MBTA Land Transfer

As noted previously, the MBTA prematurely conveyed land associated with the Everett Shops facility to the Proponent in February 2015 prior to the completion of MEPA review. MassDOT has acknowledged and has taken responsibility for the premature conveyance of the land which constituted a violation of the MEPA statute. To remedy the premature conveyance of the land, MassDOT/MBTA and the Proponent placed the subject property and the associated payment into escrow. The escrow agreement provides that the conveyance of the property shall be deemed to not have taken place unless and until a Certificate finding the final MEPA review document adequate is issued. Upon completion of the MEPA review process, MassDOT/MBTA will issue Final Section 61 Findings which may include modifications or addition of conditions to the draft Section 61 Findings. Upon issuance of Final Section 61 Findings, the escrow agent will return the Quitclaim Deed and Termination of Easement Agreement to the Proponent, the money to the MBTA, and any associated modifications will be recorded.

The SSFEIR includes a description of the parcels subject to the Land Transfer and their relationship to the overall development supported by existing and proposed conditions plan. It describes the infrastructure and operations associated with the Everett Shops. The SSFEIR identifies issues that the MBTA has highlighted as critical to ongoing operations, including protecting the 24-hour nature of the facility, providing sufficient access and internal circulation, and measures to avoid future conflicts between maintenance activities and the casino and hotel. The SSFEIR describes the public bidding process and the sale of the land and provides supporting documentation in the Appendices including the Notice of Proposal and Request for Response, Offer Letter, Notification of Successful Bidder Letter from MBTA to Wynn, Quitclaim Deed, Easement Agreement, and Closing Statement.

The SSFEIR indicates that the Proponent engaged in numerous discussions with the MBTA, over a two-year period, regarding acquisition of a portion of the MBTA Everett Shops. The MBTA Everett Shops property is one of two train and bus repair facilities available to support the needs of all MBTA divisions and departments. It serves as the train repair facility for four MBTA Heavy and Light Rail Subway lines and the 1000 bus fleet. Alternatives considered ranged from acquisition of approximately 0.5 acres to acquisition of the entire property.

Approximately 1.76 acres, consisting of 3 parcels, was conveyed to the Proponent. Parcel 1 is a 22,511 square feet (0.517 acres) triangular parcel located in the southeast corner of the property. Parcel 2 is a 30,753 square feet (0.706 acres) rectangular parcel running along the northwest edge of the property. Parcel 3 is a 23,330 square feet (0.535 acres) rectangular parcel running along the northwest edge of the MBTA parcel.

The SSFEIR includes analysis of the potential impact of the transfer on MBTA operations, including illustration of vehicular access and movements throughout the site. It describes consultation with MBTA operations and technical staff, including Everett Shops staff, to address potential impacts and changes to the facility's entrance prior to conveyance of the land. Measures to avoid, minimize and mitigate impacts include a signalized entrance and exit on Broadway (Route 99), as well as turning lanes, a layover area, and a new gate/processing facility. The main gatehouse to the Everett Shops will be relocated to the north opposite Beacham Street. The layover facility consists of a 10-foot wide, 60-foot long area along the driveway's eastbound approach to the gatehouse.

MassDOT comments indicate that it is satisfied that the sale will not impact MBTA operations on the site. As directed, the Proponent has provided separate draft Section 61 Findings for MassDOT (i.e. Vehicular Access Permit) and the MBTA (i.e. Land Transfer). These Section 61 Findings will be finalized during permitting, any associated modifications to the sale will be recorded, and copies of the Section 61 Findings will be filed with the MEPA Office.

Transit Subsidy

The MBTA's Orange Line is a key component of the Project's transportation strategy to maximize patron and employee use of non-automobile travel modes. A significant proportion of patrons and employees are expected to travel on the Orange Line. Frequent shuttle bus service is proposed by the Proponent from Wellington and Malden Center stations. The project includes improvements to Sullivan Square, Wellington and Assembly Square stations to facilitate and encourage Orange Line usage and to improve circulation for all vehicles at the stations. In addition, employees and patrons can make connections from Sullivan Square Station to one of several MBTA bus routes servicing Lower Broadway (Route 99). As required, the SSFEIR includes a commitment to an annual operating subsidy, identifies the amount of the subsidy and how the amount was determined, and identifies how the funds will be managed and used. This subsidy is necessary to preserve the service and capacity improvements associated with the addition of new Orange Line trains and to mitigate project impacts.

The SSFEIR includes an updated analysis of projected Orange Line peak loads for weekday and weekend service days between the Wellington and Back Bay Stations. This analysis was developed in consultation with MassDOT and the MBTA and, at the direction of the MBTA, is structured on the MBTA Service Delivery Policy. The analysis compares existing Orange Line operations, future operations (2023) including general ridership growth, and future operations (2023) with the addition of project trips. The Service Delivery Policy quantifies the vehicle loading that the MBTA seeks to achieve by time of day and by location (core or non-core). Core-area stations are defined as heavily traveled areas and include stations between Back

Bay and North Station (inclusive). Non-core stations are outside of downtown Boston and include stations located north of North Station or south of Back Bay station.

The projections demonstrate that increased demand would add a significant number of employees and casino patrons to the transit system during some peak periods. The subsidy is based, in part, on costs of additional operational capacity necessary to offset project-related deterioration in service. The Proponent will fund additional service where the level-of-service (LOS) in the Build Condition is projected to be below the LOS in the No Build Condition, unless the Orange Line has existing capacity to handle the increased trips.

The analysis identified four times of the week in the Build Condition when the Orange Line would be over capacity. It indicates that the annual cost to run additional service necessary to mitigate this condition is \$382,200. The revenue that is assumed for this service based upon the additional passengers added to the Orange Line by Wynn patrons and/or employees is \$110,500 resulting in an annual subsidy of \$271,700. The Proponent has agreed to subsidize additional service to encourage use of late night service hours. That service will provide reduced headways during weekday evenings (9:00 PM to 11:00 PM) at a cost of \$109,200, for a total annual Orange Line subsidy of \$380,900 (2015 dollars). The resulting annual cost of \$380,900 is the Proponent's proposed annual operating subsidy for additional train service on the Orange Line. The subsidy will be a fixed annual amount for the 15-year term of the Gaming License. It will be inflated each year by a factor of 2.5%. If the project were to open in 2018, the subsidy would range from \$410,188 in the first year to \$579,584 by 2032, for a total subsidy of \$7,355,455.

The Proponent is proposing improvements at three MBTA stations to support attainment of mode share goals for transit and to improve pedestrian and vehicular circulation around the stations. At Wellington Station, this includes dedicated curb space for proposed patron shuttles. The parking lot will be reconfigured and a fourth curb north of the existing shuttle/taxi/general auto pick-up/drop-off curb will be constructed. An additional benefit is that the reconfiguration of the parking will create additional parking spaces that generate revenue for the MBTA.

At Malden Center Station a berth for shuttle buses will be provided along the southern curb in the western bus bay. Space will be retained for a bus layover and the ability of buses to turn into the busway when the berth is occupied will be maintained. The Proponent may construct a passenger shelter on MBTA property near the corner of the busway and Centre Street (Route 60).

At Sullivan Square, improvements include creation of a new circulation pattern, including alteration and reconstruction of busways and reconfiguration of the parking field in front of the bus station. A signalized busway exit, opposite the I-93 northbound off-ramp on Cambridge Street, will be provided for right-turning buses. All buses will enter the upper busway from Maffa Way. A new signalized entrance will be constructed, allowing buses to circulate into the station from Beacham Street Extension and Main Street. Buses will circulate from the upper busway to the lower busway, exiting the station onto Maffa Way via the new signalized busway exit, with the exception of those buses with destinations via Cambridge Street westbound toward Somerville. Bus shelters will also be provided at the bus berths on the lower busway.

Traffic and Transportation

In addition to other issues identified in the SSFEIR Scope, MassDOT requested the SSFEIR to establish a process for integrating the City of Boston's long-term plans for Sullivan Square and Rutherford Avenue and the impacts of casino-related traffic. I supported MassDOT's interest in consulting with the parties to address concerns with the mitigation and identify opportunities to address them more effectively. MassDOT initiated the planning process and convened a group of stakeholders on June 1, 2015. A second meeting was held after the SSFEIR was filed with the MEPA Office. MassDOT indicated that the meeting was productive as it provided an opportunity for MassDOT to understand concerns with respect to interim and long-term mitigation.

The SSFEIR includes an updated transportation study that conforms to MassDOT/EEA's Transportation Impact Assessment Guidelines (2014). The SSFEIR identified and clarified how and for what purpose the Synchro and VISSIM models were used in the transportation analysis. The transportation study addressed comments regarding capacity analyses for several intersections, trip distribution and corrections of some inaccuracies in graphics included in the previous submissions. The SSFEIR includes updated LOS and a summary of the 50th and 95th percentile vehicle queues for these intersections as appropriate.

As part of the SSFEIR, the Proponent has updated the analysis and the mitigation plan at Sullivan Square to address comments provided by the City of Boston. The comments centered primarily on the redistribution of traffic and the lack of an AM peak hour analysis. The results of the new analysis are not significantly different from those presented in the SFEIR and continue to indicate that the Sullivan Square area would experience worsening LOS and increased delay in both the No Build and Build conditions due to projected growth and casino impacts, respectively. With the proposed mitigation in place, the SSFEIR analysis demonstrates that traffic operations would generally return to close to No Build conditions (LOS E and F) with moderate reduction of delay in the Build conditions.

The City of Boston identifies a number of concerns with the proposed mitigation, including that traffic diversions assumed are not likely to occur at the levels assumed. The City also notes that even with the assumed diversions, much of the reduction from Build to Build with Mitigation conditions can be attributed to an assumed right turn-on-red movement from Cambridge Street. Comments also indicate that the proposed mitigation for the Broadway/Beachman Street intersection may divert even greater volumes through Sullivan Square.

The SSFEIR contains corrected networks for weekday PM and Saturday PM conditions. It did not provide intersection capacity analysis results to accompany the new networks. This issue will be addressed by MassDOT in permitting.

The Proponent should continue to work with MassDOT and the City of Boston to refine the geometric improvements and optimize traffic operations around the area. Comments from MassDOT indicate that the Proponent should pay close attention to how the proximity of the intersections could impact overall network operations, including MBTA bus operations. These

improvements may necessitate the acquisition of ROW along Cambridge Street, Spice Street, and D Street. The Proponent has indicated that they have initiated discussions with the respective property owners and expect that they will cooperate in providing the needed right-of-way upon request. MassDOT comments indicate that the proposed mitigation provides sufficient flexibility for further refinements to address its concerns at the I-93/Cambridge Street intersection and at the MBTA Sullivan Square Station.

The Proponent was also directed to assess in the SSFEIR the impact of its proposed signal timing modifications along a section of Mystic Valley Parkway (a roadway under DCR jurisdiction), between Mystic Avenue to the I-93 southbound ramp. This short section of Mystic Valley Parkway in Medford contains two signalized intersections located approximately 350 feet apart. Both of these intersections are operated by a single controller. The SFEIR proposed signal timing modifications to improve traffic flow from I-93 onto the Route 16 Southbound connector. Under current and future operations, there is limited storage space between intersections and DCR indicates that coordination is necessary to avoid queues that may extend from one intersection to another.

Analysis indicates that future volumes with mitigation (signal timing and phasing adjustments) will result in shorter queues compared to the SFEIR proposal. However, these queues will continue to exceed storage capacity during peak traffic periods. DCR notes that there is adequate space on Mystic Valley Parkway westbound, east of the I-93 southbound off-ramp, to store additional vehicles if needed.

Many commenters have suggested that the Boston Metropolitan Planning Organization's (MPO's) regional travel demand model be used to conduct modeling and analysis in light of the project's potential impact on the transportation system and the regional distribution of its trip patterns. MassDOT comments indicate that the regional travel demand model is employed to evaluate MassDOT projects that are of sufficient size and scope to alter the regional travel network. I note that MAPC has not called for this analysis and also indicate that the traffic analysis demonstrates that project impacts can be mitigated.

The railroad right-of-way (ROW) referred to in the SSFEIR as D Street is owned by Massport. Comments from Massport indicate that this ROW is not a public way and proposed improvements would require approval by Massport. In addition, the comments note that the ability to support future rail use must be maintained.

Comments from MassDOT and MAPC indicate that the SSFEIR has adequately addressed the key transportation issues during the interim period while Rutherford Avenue and Sullivan Square remain in roughly their current configuration. I note that neither MassDOT nor MAPC recommend use of the regional transportation demand model for this project.

Mitigation and Draft Section 61 Findings

The SSFEIR contains revised and updated mitigation commitments. It identifies clear commitments to implement mitigation measures, estimates the individual costs of each proposed measure, identifies the parties responsible for implementation, and contains a schedule for implementation. All of the identified mitigation commitments should be incorporated into the Draft Section 61 Findings for the MGC license to ensure that the license accurately reflects the significant commitments to environmental mitigation identified in the MEPA process.

The Proponent has committed to the following measures to avoid, minimize and mitigate environmental impacts:

Transportation

Annual Operating Subsidy to support additional passenger capacity on the Orange Line

- Assuming a 2018 opening, the subsidy would be \$410,188 in that starting year and \$579,584 in 2032, fifteen years later (inflated each year by a fixed factor of 2.5%, consistent with historical Cost of Living Adjustments). The total subsidy over that fifteen-year period would be approximately \$7,355,455.

MBTA Everett Shops

- New Entrance;
- New Loading Dock; and,
- Easement on Surface Road.

MBTA Stations

- Improvements to MBTA's Wellington Station to accommodate Wynn patron shuttle service at curbside;
- Improvements to MBTA's Malden Center Station to accommodate Wynn patron shuttle service at curbside; and,
- Improvements to MBTA's Sullivan Square Bus Station to accommodate new traffic patterns and road alignments.

Offsite Improvements – Everett

1. Revere Beach Parkway (Route 16)/Mystic View Road/Santilli Highway/Route 99 Connector Improvements (Santilli Circle): Modify the approach from Frontage Road into the rotary to allow for two formal lanes; Widen circle at Santilli Highway approach to allow for three travel lanes; Provide improved pedestrian and bicycle connection from Frontage Road to Mystic View Road; Reconfigure channelizing island on south side of rotary near Mystic View Road; Provide traffic signal improvements at the signalized locations around the traffic circle; Provide landscaping improvements to the center of the circle; Provide new guide signage and pavement markings;

and, perform RSA into final design, where feasible; Coordinate with MassDOT to identify funding source of RSA recommendations. Work will be completed prior to opening.

2. Route 16/Broadway/Main Street (Sweetser Circle): Reconstruct circle and approaches to function as a two-lane modern roundabout; Reconfigure the existing Broadway (Route 99) northbound approach to allow for three travel lanes providing free flow access to Route 16 eastbound; Provide shared use path on northwest side of rotary to improve bicycle access; Install new signing to provide direction to bicyclists on how to navigate the rotary safely; Provide landscaping and improvements on the north side of the circle; and, maintain pedestrian signal across Route 16 eastbound exit from rotary. Work will be completed prior to opening.

At the following locations (3-11) the Proponent has committed to: Reconstruct Lower Broadway as a 4-lane boulevard with turn lanes at major intersections; Upgrade/replace/install traffic control signals; Reconstruct sidewalks and bicycle lanes where required; Install street trees and lighting; Improve MBTA bus stops along Lower Broadway; Installation of technology along Broadway/Alford Street (Route 99), near project entrance, to allow for signal prioritization for buses.

3. Broadway/ Beacham Street

4. Broadway/ Horizon Way

5. Broadway/ Lynde Street

6. Broadway/ Thorndike Street

7. Bow Street/Mystic Street

8. Bow Street/Lynde Street

9. Bow Street/ Thorndike Street

10. Beacham Street/Robin Street

11. Broadway/ Bowdoin Street

12. Broadway/ Norwood Street/Chelsea Street: The Proponent will optimize traffic signal timing, phasing and coordination.

13. Lower Broadway Truck Route: -- Upgrade Robin Street and Dexter Street to serve as a truck route; Provide full depth reconstruction of the existing roadway to accommodate heavy vehicles; Reconstruction of Robin Street and Dexter Street to include heavy-duty pavement, corner radii improvements, sidewalk reconstruction (where present), drainage system modifications (minor), signs and pavement markings.

14. Ferry Street/ Broadway (Route 99): Traffic signal retiming and optimization.

Offsite Improvements – Medford

1. Mystic Valley Parkway (Route 16)/Fellsway (Route 28)/Middlesex Avenue (Wellington Circle): Upgrade/replace traffic signal equipment/signs/pavement markings; Optimize traffic signal timing, phasing and coordination; Widen Route 28 northbound to provide an additional left turn lane; Widen Route 16 westbound to provide an additional through lane in the middle of

the intersection; Reconstruct noncompliant sidewalks and accessible ramps around the intersection to improve pedestrian access; Provide landscape improvements.

2. Mystic Valley Parkway (Route 16)/Route 16 Connector: Traffic signal retiming and optimization.
3. Mystic Valley Parkway (Route 16)/Mystic Avenue: Traffic signal retiming and optimization.

The Proponent has committed to contribute \$1.5 million to a study of long-term improvements for Wellington Circle.

Offsite Improvements – Boston

1. Alford Street/Main Street/Sever Street/Cambridge Street (Sullivan Square) and at
2. Cambridge Street/I-93 northbound off-ramp: The Proponent has committed to: Optimize signal timing for Maffa Way/Cambridge Street; interconnect and coordinate traffic signals, widen the Main Street approach to provide two lanes; Reconstruct busway between Cambridge Street and Maffa Way; Reconstruct the southbound approach of Alford Street at Cambridge Street; Install new traffic signals at Cambridge Street/Spice Street/MBTA Busway and Maffa Way/Busway; Upgrade/replace traffic signal equipment/signs/ pavement markings; Optimize traffic signal timing, phasing and coordination; Reconstruct Spice Street and D Street; Reconstruct sidewalks on west side of rotary between Sullivan Square station and Alford Street Bridge; Reconstruct sidewalks and upgrade lighting and streetscape in rotary between Cambridge Street and Main Street (east); Provide bicycle lanes on Cambridge Street; Reconstruct MBTA lower busway and parking area at Sullivan Square station, including new traffic signal at Maffa Way/station entrance; Construct BUS ONLY left-turn lane from Main Street into Sullivan Square Station.
3. Traffic Signal Interconnect Conduit from Sullivan Square to Austin Street: Install conduit, pullboxes, and wiring.
4. Dexter Street/Alford Street (Route 99): Upgrade/replace traffic signal equipment/signs/pavement markings; and, Optimize traffic signal timing, phasing, and coordination.
5. Rutherford Avenue (Route 99)/Route 1 Ramps: Optimize traffic signal timing and phasing.
6. Sullivan Square Landscaping: Improve landscaping within the rotary at Sullivan Square and immediately north of the rotary adjacent to Rutherford Avenue

Long-term Commitment to Sullivan Square: Provide payments of \$2.5 million per year into the Sullivan Square mitigation fund (\$25 million over 10 years); Provide payments to the City of Boston for each vehicle above Friday afternoon and evening period projections \$20,000 per additional vehicle trip, not to exceed \$20,000,000 over 10 years; Monitor and Report no later than 30 days after the first anniversary of Project opening and for 10 years.

Offsite Improvements – Revere:

1. Route 16/Route 1A/Route 60 (Bell Circle): Upgrade/replace traffic signal equipment/signs/pavement markings; and, Optimize traffic signal timing, phasing and coordination.

Offsite Improvements – Chelsea:

1. Route 16/Washington Avenue: Upgrade/replace traffic signal equipment/signs/pavement markings; optimize traffic signal timing, phasing and coordination.

2. Route 16/Everett Avenue and 3. Route 16/Webster Avenue: The Proponent has committed to optimize traffic signal timing, phasing and coordination.

Transportation Demand Management

- Membership Fee with a Transportation Management Association
- Employ a designated Transportation Coordinator for the Project to coordinate efforts, monitor success rates, and manage strategic implementation of traffic reduction programs;
- Schedule employee shift beginnings and endings outside specified peak traffic periods;
- Carpool/vanpool matching programs;
- Dissemination of promotional materials, including newsletters about TDM program in print at the Project's onsite Transportation Resource Center, and online;
- Orange Line Shuttle Service to Wellington and Malden Center stations and associated improvements to support curbside shuttle service at Wellington Station and Malden Center Station;
- Neighborhood Shuttle Buses;
- Employee Shuttle Buses;
- Premium Park & Ride Shuttle Buses;
- Neighborhood Shuttle Buses;
- Water shuttle service to the Project Site- customized ferry vessels to support passenger transport between the project site and key Boston Harbor sites;
- On-site Full Service MBTA Fare Vending Machine;

- Participation in the MBTA Corporate Pass Program to the extent practical and as allowable pursuant to commercial tenant lease requirements;
- Electric vehicle charging stations within the proposed parking garage;
- Car sharing services in the garage at the Project Site;
- Preferential parking for car/vanpools and alternatively fueled vehicles;
- Offering a “Guaranteed-Ride-Home” in case of emergency to employees that commute to the Project by means other than private automobile;
- Monitoring and reporting program for post-development traffic and parking monitoring and employee survey program for \$30,000 annually; and,
- Monitoring of post-development motor vehicle traffic counts at Sullivan Square as well as additional locations to determine where Project related trips through Sullivan Square exceed projects during the Friday afternoon peak hour at a cost of \$20,000 per year for 10 years.

Wastewater

- Financial contribution to remove Infiltration and Inflow (I/I) equivalent to 4 gallons removed for every gallon of new wastewater generated;
- Install grease traps and gas/oil separators.

Water Use

- Incorporates water conservation measures consistent with LEED requirements, including efficient plumbing fixtures, low-flow lavatory faucets and showerheads.
- Rainwater harvesting, grey water reuse and landscaping alternatives;
- Use timers, soil moisture indicators and rainfall sensors to reduce potable water use on landscaping;

Wetlands, Waterways and Water Quality

- Create public access and amenities, including a water transportation dock and continuous harborwalk;
- Remediation, revegetation and enhancement of 550 linear feet of existing shoreline with enhanced living shoreline;
- Removal of invasive vegetation and planting of native herbaceous and shrub vegetation along part of existing Coastal Bank and Riverfront Area;
- Consultation with MassDEP to develop specifications for the living shoreline and bank restoration.

- Transformation of 10,900 +/- SF of disturbed Coastal Beach/Tidal Flats, Coastal Bank, and Riverfront Area to Salt Marsh;
- Dredging to remove contaminated sediments from the harbor bottom and to provide ample draft for water transportation, recreational vessels and a proposed floating dock;
- Debris clean up within LUO, Coastal Beach and Coastal Bank resource areas;
- Replacement of existing bulkhead and construction of new bulkheads within areas of existing degraded Coastal Beach and Coastal Bank areas;
- 100% of the ground floor will be FPAs;
- Extension of the harborwalk off-site to the DCR Gateway Park and to Broadway including construction of a multi-use path, benches, signage, bicycle racks, plantings and lighting; and,
- Contribution of \$250,000 to DCR for planning and engineering of a potential pedestrian bridge linking Somerville and Everett over the Mystic River.

Stormwater

- Best Management Practices (BMPs) such as pavement sweeping, deep sump catch basins, tree box filters, filtering bioretention areas, four (4) proprietary stormwater separators, and stormwater media filters will be constructed. These BMPs will be designed to remove at least 80 percent of the average annual load of Total Suspended Solids (TSS)
- Catch basins, silt fences, hay bales and crushed stone will be used during construction to prevent sediment removal from entering runoff
- Offsite mitigation measures associated with transportation improvements may include bioretention or subsurface infiltration chambers, deep sump catch basins or proprietary stormwater separators.

GHG Emissions

- Buildings designed to be LEED-certifiable at the Gold level or higher;
- Energy Efficiency Measures (EEM) estimated to reduce CO₂ emissions from stationary sources for the building by 18.4% relative to ASHRAE 90.1-2010, or for the entire Project Site (including buildings, garage ventilation, and lighting, exterior lighting and water/wastewater utilities) by 27.4% relative to ASHRAE 90.0-2010 standards, which will include:
 - Cool roofs;
 - Central chiller plant with better efficiency than Code;
 - Demand Control Ventilation (DCV) for the casino, public entertainment, and retail areas;
 - Energy Recovery Ventilation (ERV) to reduce chiller energy use;
 - Building envelopes with roof and window insulation better than Code;
 - Skylights over the entry atrium and along the retail promenade (daylighting controls will be tied to this extensive system of skylights);
 - Lower light power density 20% better than Code;
 - At least 80% of the total to be Low-energy Electronic Gaming Machines (EGMs);
 - Metal halide lighting for all parking structures;

- High efficiency elevators with regenerative VVVF drives and LED lights;
- Demand Control Exhaust Ventilation (DCEV) with variable frequency drive (VFD) fans for enclosed parking structures and metal halide lighting for all parking structures;
- Kitchen and restaurant refrigeration energy efficiency design to reduce energy use;
- Energy-STAR appliances;
- Enhanced building commissioning; and
- Occupancy controls for non-occupied or infrequently occupied spaces.
- PV system on the podium building roof or other locations, and/or purchase from local service providers of Green Power of annual electric consumption equaling 10% of the Project's annual electrical consumption;
- Cogeneration plant using a nominal 1- MW microturbine, providing approximately 20% of the Project's annual electrical consumption (the cogeneration plant is capable of providing 6,307 MWhr/year of on-site electrical generation, supporting 780 tons of absorption cooling, and providing up to 50 percent of the Project's annual heating and hot water needs); and,
- Intersection improvements to reduce vehicle idling and TDM measures to reduce trips will reduce Project-related motor vehicle CO₂ emissions by 13.0%.

Climate Change Adaptation and Resiliency

- Elevate proposed structures the proposed structures non-service and garage floor elevations to 15 to 16 feet above the 100-year flood level.
- Parking garages entrances and other openings into below grade spaces will be elevated, as noted above, or incorporate sufficient flood-proofing to avoid damage from coastal storms; and
- Critical infrastructure and HVAC equipment will be elevated above projected flood levels.
- The Proponent will consider additional measures during subsequent design including, but not limited to: rain gardens and swales; protection for service equipment (HVAC, electrical, fuel, water, sewage); installation of back-water flow valves and sump pumps; protection of entrances from snow and ice; enhanced building insulation; cool/green roofing; resilient back-up power and systems; backup power sources for elevators; insulation of refrigeration equipment; and, elevation of utility hook-ups, mechanical devices, electrical service panel, water heaters, and IT services above potential flood levels.

Air Quality

- Commitment to a robust and comprehensive TDM program supported by the TMP (described in TDM section above).
- Commitment to consult with MassDEP regarding the CHP system prior to filing a permitting application.

Responses to Comments

The SSFEIR contains copies of each comment letter received during the review of the SFEIR. The SSFEIR also provides a specific response to each comment letter received and presents additional narrative and/or quantitative analysis when needed to respond to the comments received to the extent that they were within MEPA jurisdiction. In some instances the Proponent also references sections of the SSFEIR, such as reference to the traffic analysis and methodology, where a reference to larger sections is appropriate.

Conclusion

The purpose of MEPA is to provide meaningful opportunities for public review of the potential environmental impacts of Projects for which Agency Action is required, and to assist each Agency in using (in addition to applying any other applicable statutory and regulatory standards and requirements) all feasible means to avoid Damage to the Environment or, to the extent Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable. MEPA does not approve or deny a project. It is an administrative process that is subject to public review and comment. The MEPA process itself does not result in any formal adjudicative decision approving or disapproving a Project. The determination that a review document is adequate means that the Proponent has adequately described and analyzed the Project and its alternatives, and assessed its potential environmental impacts and mitigation measures.

In regard to a Final EIR, the MEPA regulations (301 CMR 11.08 (8)(c)) indicate that the Secretary shall:

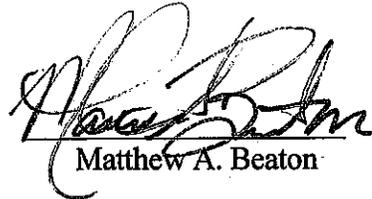
- 1) *determine that a final EIR is adequate, even if certain aspects of the Project or issues require additional analysis of technical details, provided that the Secretary finds that the aspects and issues have been clearly described and their nature and general elements analyzed in the EIR or during MEPA review, that the aspects and issues can be fully analyzed prior to any Agency issuing its Section 61 Findings, and that there will be meaningful opportunities for public review of the additional analysis prior to any Agency taking Agency Action on the Project; or*
- 2) *determine that the final EIR is inadequate and require the Proponent to file a supplemental final EIR in accordance with 301 CMR 11.07.*

The SSFEIR addresses each of the Scope items identified in the April 3, 2015 Certificate on the Supplemental FEIR. Comments from State Agencies do not identify issues that warrant additional analysis in a Supplemental EIR. Additional analysis, consultation and review are necessary to finalize mitigation and will continue through project permitting.

Based on a review of the SSFEIR and consultation with State Agencies, I find that the SSFEIR adequately and properly complies with MEPA and its implementing regulations. The Proponent and State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12. I note that the Proponent may be required to file one or more Notices of Project Change (NPC) if there is a material change to the project that will increase environmental impacts prior to the completion of Agency Actions for the project.

August 28, 2015

Date



Matthew A. Beaton

Comments Received:

8/14/15	MWRA
8/21/15	City of Somerville
8/21/15	Maura Healey, Attorney General
8/21/15	City of Malden
8/21/15	Salvatore LaMattina, Boston City Council
8/21/15	Representative Daniel Ryan
8/21/15	City of Boston
8/21/15	MassDOT
8/21/15	Massport
8/21/15	MAPC
8/21/15	City of Revere
8/21/15	City of Everett
8/21/15	MassDEP
8/26/15	MA Division of Marine Fisheries
8/27/15	City of Medford
8/28/15	DCR
7/27/15	Charlestown Waterfront Coalition
7/31/15	Barry Kleinman
8/5/15	Linda Sheldon
8/6/15	Louise A. Zawodny
8/7/15	Stephen Kaiser
8/8/15	Ivey St. John
8/11/15	Laura Mackey
8/11/15	William McGee
8/12/15	Liz Levin & Co.
8/13/15	Margaret Riley
8/14/15	Jim Grafmeyer, DDR Corp.
8/14/15	Lynn Levesque
8/17/15	Claire Lupton
8/17/15	Fay Donohue

8/18/15 ELM, MyRWA, BGT
8/18/15 Harry Ostrander
8/18/15 William Lamb Design Review Committee
8/19/15 Alice Krapf
8/19/15 Annette Tecce
8/19/15 Antonia Pollak
8/19/15 Bart Higgins & Charlene Liska
8/19/15 Boston Harbor Association
8/19/15 Daniel Kovacevic
8/19/15 Karyn Wilson
8/19/15 Louis W. Mian, Jr.
8/19/15 Whittemore-Wright Co. Inc.
8/19/15 Kevin Broderick
8/19/15 Louis W Mian, Jr.
8/19/15 Cynthia Wisniewski
8/20/15 Evmorphia Stratis
8/20/15 Friends of Middlesex Fells Reservation
8/20/15 Judith McDonough
8/20/15 Linda Ordough
8/20/15 Mary Walsh
8/20/15 MassBike
8/20/15 Thomas Annaratone
8/20/15 Toby Goldstein
8/20/15 Vincent Ragucci
8/21/15 Ann Kelleher
8/21/15 Bike to the Sea
8/21/15 Chris Remmes
8/21/15 Devon Moos, East Somerville Main Streets
8/21/15 Diane Valle
8/21/15 Elmer Lupton
8/21/15 Evelyn Addante
8/21/15 Frederick Salvucci (1)
8/21/15 Frederick Salvucci (2)
8/21/15 Gardens for Charlestown
8/21/15 Linda Maloney
8/21/15 Marlene Zizza
8/21/15 Nancy Wovers Cadene
8/21/15 Nicole Payne
8/21/15 Paul Dobbins
8/21/15 Richard Eliseo
8/21/15 Rosemary Kverek
8/21/15 Pru Chapman
8/21/15 Steffen and Nancy Koury
8/21/15 Federal Realty Trust
8/21/15 Alan Moore
8/21/15 Somerville Bicycle Advisory Committee

8/21/15 Border to Boston et al
8/21/15 Kenneth Krause
8/21/15 MyRWA
8/21/15 John Vitagliano
8/21/15 Wig Zamore
8/21/15 Seta K Wehbe
8/21/15 Sal DiDomenico
8/21/15 Friends of Community Path
8/21/15 Bathsheba Grossman
8/21/15 Hispanic American Institute
8/21/15 Kevin Mehigan & Jere Getchall
8/21/15 Everett United
8/21/15 Mary Berghello
8/21/15 Ann Vertullo
8/21/15 Phylis Polci
8/21/15 Mary Rocco
8/21/15 Lessy Campbell
8/21/15 Josephine Wilson
8/21/15 Charles DiPerri
8/21/15 Maureen O'Brien
8/21/15 Everett Villa Coop Resident (1)
8/21/15 Jo Hooi
8/21/15 Julia P
8/21/15 Everett Villa Coop Resident (2)
8/21/15 Hazel O'Neil
8/21/15 Robyn S
8/21/15 Mary Bargarello
8/24/15 Unite Here! Local 26 – signed petition
8/26/15 A Better City (ABC)
8/27/15 Paul Morceau

775 form letters “I respectfully urge you to approve the Wynn plan....” from 7/27/15 to 8/26/15

Chapter 10.18 - PARKING AND TRANSPORTATION DEMAND MANAGEMENT PLANNING; PARKING SPACE REGISTRATION

Sections:

10.18.010 - Purpose.

- (a) It is the purpose of this Chapter to regulate and control atmospheric pollution from motor vehicles by formalizing parking and transportation demand management planning, programs, and coordination which have been ongoing for a number of years. This Chapter will reduce vehicle trips and traffic congestion within the City, thereby promoting public health, safety, and welfare and protecting the environment. This Chapter requires parking and transportation demand management (PTDM) plans for commercial parking facilities and other types of non-residential parking facilities over a specified size as set forth in 10.18.050 and 10.18.070. This Chapter also establishes a process whereby City officials will be able to track the number, use and location of off-street parking spaces in the City.
- (b) A Parking and Transportation Demand Management Planning Officer will be designated by the City Manager with the responsibility for reviewing, conditioning, approving and/or denying PTDM plans. Any project subject to the requirements of this Chapter shall not be qualified to receive a permit from the Planning Board, a commercial parking permit from the Commercial Parking Control Committee, a special permit or variance from the Board of Zoning Appeal, a building permit from the Commissioner of Inspectional Services, a certificate of occupancy from the Commissioner of Inspectional Services, or an operating license from the License Commission absent written approval of its PTDM plan from the PTDM Planning Officer or evidence of registration of its parking spaces with the Department of Traffic, Parking, and Transportation.

(1211, Added, 11/16/1998)

10.18.020 - Definitions.

"Commercial Parking Space" means a parking space available for use by the general public at any time for a fee. The term shall not include (i) parking spaces which are owned or operated by a commercial entity whose primary business is other than the operation of parking facilities, for the exclusive use of its lessees, employes, patrons, customers, clients, patients, guests or residents but which are not available for use by the general public; (ii) parking spaces restricted for the use of the residents of a specific residential building or group of buildings; (iii) spaces located on public streets; or (iv) spaces located at a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Commercial Parking Facility" means a parking facility owned or operated by a commercial entity whose primary business is the operation of a parking facility and at which there are at least five (5) Commercial Parking Spaces.

"Commercial Parking Permit" means a (i) permit issued under chapter 10.16 of the Cambridge Municipal Code, authorizing the use of a designated number of parking spaces at a specified location as Commercial Parking Spaces; (ii) a permit or approval issued prior to the effective date of this Chapter pursuant to the Procedures, Criteria, and Memorandum of Agreement dated November 15, 1984; (iii) a Controlled Parking Facility Permit that expressly authorizes use of the parking facility for Commercial Parking Spaces; or (iv) a letter from the Director confirming the number of spaces at a specified location that were in existence and being used as Commercial Parking Spaces as of October 15, 1973.

"Controlled Parking Facility Permit" (CPFP) means a permit issued by the Director prior to the effective date of this Chapter, which authorized the construction or operation of a parking space or the construction, operation, or modification of a parking facility.

"Determination of Exclusion" means a determination made by the Director that a parking facility or a parking space did not require a controlled parking facility permit.

"Director" means Director of the Cambridge Department of Traffic, Parking, and Transportation.

"Effective Date" means November 16, 1998, the original date of final adoption of this Chapter of the Cambridge Municipal Code.

"Existing Parking Facility" shall mean a parking facility for which (i) a certificate of occupancy was issued by the Commissioner of Inspectional Services; (ii) an operating license was issued by the License Commission; or (iii) the Director issued a letter confirming the number of spaces at that location which spaces were in existence and being used as commercial parking spaces as of October 15, 1973 (a "Director's Letter").

"New Project" means a project to construct or operate parking spaces within a new facility or an existing parking facility which will cause such facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter and which is not a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Parking Facility" means any lot, garage, building or structure or combination or portion thereof, on or in which motor vehicles are parked, except any such facility used in association with or by a municipal police or fire station, and in the case of university or college campuses, the stock of parking spaces maintained within the City by the university or college which supports university or college activities within the City.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

"Planning Officer" means the City official responsible for PTDM plan reviews.

"PTDM" means Parking and Transportation Demand Management.

"Small Project" means a project to construct or operate five (5) to nineteen (19) non-commercial, non-residential parking spaces within a new facility or an existing parking facility which will cause such Facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter. To qualify as a Small Project, the total number of non-commercial, non-residential parking spaces at the parking facility must remain at or below nineteen (19).

(Ord. 1287, Amended, 09/12/2005; 1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.030 - PTDM Planning Officer.

Within thirty (30) days of the effective date of this Chapter, the City Manager shall designate a Parking and Transportation Demand Management Planning Officer who shall have responsibility for reviewing, conditioning, approving, and/or denying PTDM plans and who shall report to the City Manager. Said officer shall be a Cambridge resident within six months of employment in this position. Prior to rendering his/her determination(s), the Planning Officer shall consult with the PTDM plan applicant, the Director and the Assistant City Manager for Community Development.

(1211, Added, 11/16/1998)

10.18.040 - Registration of All Parking Spaces.

- (a) No person shall build, expand, or reconfigure a parking facility for non-residential parking spaces resulting in a net increase in the number of parking spaces or a change in the use of such spaces based on the categories of use listed below at paragraphs b(v) and (vi), without first submitting a parking registration form to, and obtaining acceptance from, the Director.

- (b) The registration form shall be prepared by the Director and shall be available at the offices of the Department of Traffic, Parking and Transportation. The form will require the following information:
- (i) name and address of parking facility owner;
 - (ii) name and address of parking facility operator;
 - (iii) address of parking facility;
 - (iv) total number of existing parking spaces;
 - (v) number of existing parking spaces in each of the following categories:
 - residential
 - commercial
 - non-commercial
 - customer
 - employee
 - patient
 - student
 - client
 - guest
 - (vi) number of parking spaces proposed to be added to the parking facility in each of the following categories:
 - residential
 - commercial
 - non-commercial
 - customer
 - employee
 - patient
 - student
 - client
 - guest
 - (vii) identification of any existing parking permits for the parking facility; and
 - (viii) explanation of any enforcement actions against the parking facility.
- (c) The Director shall accept or return a registration form to the registrant with a request for additional information within thirty (30) days after the form was filed.
- (d) The License Commission shall not issue a license and the Commissioner of Inspectional Services shall not issue a building permit or certificate of occupancy for a parking facility subject to this section without evidence (i) that the registration form has been accepted by the Director; and (ii) if required, that the facility has a PTDM Plan approved by the Planning Officer.

(1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.050 - Parking and Transportation Demand Management Plans.

- (a) No person shall build, expand, or operate a parking facility subject to the Parking and Transportation Demand Management (PTDM) Plan requirements of this Chapter absent a PTDM Plan approved by the Planning Officer.
- (b) The PTDM requirements of this Chapter shall apply to each of the following:
 - (i) any commercial parking facility for which a certificate of occupancy or operating license, variance or special permit was not obtained prior to the effective date of this chapter;
 - (ii) an existing commercial parking facility at which the number of parking spaces is increased after the effective date of this chapter;
 - (iii) any parking facility at which the use of existing or permitted parking spaces is changed to commercial use after the effective date of this chapter;
 - (iv) any new project to build or create by change of use twenty or more non-residential parking spaces; and
 - (v) any new project to expand an existing parking facility resulting in a total number of non-residential parking spaces of twenty (20) or more.
- (c) The PTDM Plan shall be designed to minimize the amount of parking demand associated with the project and reduce single-occupant vehicle trips in and around Cambridge. The PTDM Plan shall be based on the following facts, projections and commitments:
 - (i) Facts and Projections:
 - nature of development and property use;
 - proximity of project to public transit and other non-Single-Occupant Vehicle facilities;
 - availability of and accessibility to offsite parking spaces which could serve the project;
 - number of employees and their likely place of origin; and
 - type and number of patrons/users of proposed parking supply and their likely place of origin.
 - number of vehicle trips expected to be generated by the project and description of measures to reduce associated traffic impacts on Cambridge streets; and
 - other factors published by the Planning Officer.
 - (ii) Commitments:
 - commitment to work with the Cambridge Office of Work Force Development;
 - commitment to implement vehicle trip reduction measures including some or all of the following:
 - subsidized MBTA passes and other incentives; shuttle services; ride-sharing services; bicycle and pedestrian facilities; flexible working hours; preferential parking for Low Emission Vehicles/Zero Emission Vehicles/bicycles/carpools/vanpools (Note: this list is not meant to preclude implementation of other types of vehicle trip reduction measures). This commitment must be accompanied by a detailed description of the measures proposed to be implemented; and
 - commitment to establish and make reasonable efforts to achieve a specified, numeric reduction (or percent reduction) in single-occupant vehicle trips in and around Cambridge.

The percent reduction will be based on PTDM practices successfully implemented in reasonably comparable environments and as identified in professional and academic literature and based on analysis of existing trip reduction measures in Cambridge.

Each PTDM Plan shall identify the total number of existing and proposed parking spaces at the facility and specify how many existing and proposed spaces fall within each of the following categories (explain how many spaces are used for multiple purposes):

- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

Where the parking facility includes or proposes a combination of commercial and non-commercial parking spaces, the Plan shall specify how the parking facility will prevent commercial use of the non-commercial parking spaces.

Each PTDM Plan shall contain the following certification signed by an authorized corporate officer:
"I hereby certify that a commercial parking permit has been obtained for each space being used for commercial parking. None of the other existing or proposed parking spaces at this parking facility have been or will be available as commercial parking spaces until a commercial parking permit therefor has been obtained."

- (d) The Planning Officer shall review, condition, approve and/or deny the PTDM Plan based on the above-listed facts, projections, and commitments. The Planning Officer shall issue his/her decision in writing within 60 days of receipt of the proposed PTDM Plan. The required time limit for action by the Planning Officer may be extended by written agreement between the proponent and the Planning Officer. Failure by the Planning Officer to take final action within said sixty (60) days or extended time, if applicable, shall be deemed to be approval of the proposed PTDM plan. If the project proponent elects to make a request pursuant to 10.18.060, the decision of the Planning Officer shall be expanded to include a recommendation about whether offsite parking should be allowed at distances greater than those allowed in the Zoning Ordinance and/or whether fewer parking spaces than the minimum required in the Zoning Ordinance should be allowed. Decisions of the Planning Officer may be appealed by the project proponent to a review committee composed of the City Manager, or his designee, and two other City staff members designated by the City Manager none of whom may have participated in the initial review of the Plan.
- (e) The Planning Officer shall also make available sample PTDM plans which a project proponent may adapt for their project, such to approval by the Planning Officer.
- (f) No permit, commercial parking permit, special permit, variance, building permit, certificate of occupancy, or operating license shall be issued for any project subject to 10.18.050 by the Planning Board, Commercial Parking Control Committee, Board of Zoning Appeal, Commissioner of Inspectional Services, or License Commission absent a written decision indicating approval from the Planning Officer of the project proponent's PTDM Plan. Any such permit or license shall be consistent with, and may incorporate as a condition, the decision of the Planning Officer and shall

include written notice of the requirements of 10.18.050 (g) and (h), below. Nothing in this ordinance shall be construed to limit the power of the Planning Board or Board of Zoning Appeal to grant variances from or special permits under the provisions of the Zoning Ordinance. No project proponent shall be required by the Planning Officer to seek such relief under the Cambridge Zoning Ordinance.

- (g) Approvals issued by the Planning Officer shall be automatically transferrable by and among private parties, provided that the proposed new owner (the "Transferee") shall continue to operate under the existing PTDM Plan and shall submit to the Planning Officer within thirty (30) days of the title transfer a certification that the existing PTDM plan will remain in effect. The certification shall be submitted on a form issued by the Planning Officer and shall certify that such Transferee commits to implement the existing PTDM plan, as approved; and acknowledges that failure to implement the plan is subject to the enforcement provisions of this Chapter. Where such certification is submitted, the approved plan shall remain in effect as to the Transferee. The Transferee may elect instead to and consult with the Planning Officer within thirty (30) days of title transfer regarding appropriate revisions to the existing plan. Based on such consultation, the Planning Officer may require information from the Transferee concerning proposed changes in use of the parking facility and associated buildings and the relevant facts and projections regarding the proposed changes. Within thirty (30) days of receipt of such information, the Planning Officer may issue a written approval of the revised plan and obligations to the Transferee, or the Planning Officer may require submittal of a new PTDM Plan from the Transferee for review, condition, approval and/or denial. Until such time as a new or revised plan has been approved, the existing PTDM plan shall remain in effect.
- (h) Each PTDM Plan approval issued by the Planning Officer shall contain, at a minimum, the following conditions:
 - (i) The parking facility owner and operator each commit to implement all elements of the PTDM Plan, as approved, including annual reporting requirements, and to maintain records describing implementation of the Plan;
 - (ii) The City shall have the right to inspect the parking facility and audit PTDM implementation records; and
 - (iii) The parking facility owner and operator each commit to notify and consult with the Planning Officer thirty (30) days prior to any change in ownership, use or operation of the facility.

(1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

10.18.060 - Reduction in Minimum Parking and Maximum Distance Requirements.

- (a) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for fewer parking spaces than the minimum set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about the maximum number of parking spaces for the project. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate.
- (b) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for utilizing off-site parking spaces that are farther from the project site than the maximum distance requirements set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about how many parking spaces serving the project may be appropriately located at an off-site location and at what distance from the project site. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate.

(1211, Added, 11/16/1998)

10.18.070 - Requirements Applicable to Small Projects.

The owner or operator of each Small Project shall implement at least three (3) PTDM measures and maintain records of such implementation. A list of acceptable types of measures may be obtained from the Traffic, Parking and Transportation Department, the Inspectional Services Department, the Community Development Department, or the License Commission. The Planning Officer shall create and periodically update this list, which shall include: T-pass subsidies; bicycle parking; changing facilities; carpools/vanpools; financial incentives not to drive alone; or other similar measures.

(1252, Amended, 09/24/2001; 1121, Added, 11/16/1998)

10.18.080 - Enforcement.

- (a) The Director shall enforce the provisions of this Chapter. If the Director has reason to believe that any provision of this Chapter is being violated, the Director shall investigate the possible violation. If after investigation the Director determines that any provision of this Chapter is being violated, s/he shall provide a first written notice of violation to the person charged with the violation, or the duly authorized representative thereof, of the determination of violation and shall order that the violation cease within thirty (30) days of the issuance of the first written notice. If the violation is not cured within the thirty (30) days after issuance of the determination of violation, the Director may proceed to assess the fines established in this chapter as well as any other remedies available to the city. In addition to all other remedies, if the violation has not ceased within thirty (30) days after the first written notice, then the Director may order shutdown of the parking facility. Second or subsequent written notices to a facility for the same violation shall be immediately effective and shall not provide the thirty (30) day opportunity to cure contained in the first written notice. A determination and order of the Director may be appealed to the City Manager by the person charged with the violation within thirty (30) days of issuance of the Director's determination and order.
- (b) In addition to other remedies available to the City, any person who builds or modifies a parking facility without complying with the provisions of this Chapter shall be subject to a fine of up to \$10.00 per day per parking space for every day that such parking space was operated without a registration accepted by the Director or without a PTDM Plan approval issued by the Planning Officer or in non-compliance with an approved PTDM Plan. On a determination, after investigation, by the Director that this Chapter is being violated, and the exhaustion of any appeal to the City Manager in accordance with (a) above, the Director shall take steps to enforce this chapter by causing complaint to be made before the district court and/or by applying for an injunction in the superior court.
- (c) In addition to other remedies available to the City, a determination that a facility is operating in violation of the provisions of this Chapter shall be ground for revocation by the Director of the facility's parking permit or other form of approval.
- (d) The Planning Officer shall have independent authority to inspect a parking facility and audit its records to determine whether it is in compliance with its PTDM Plan. The Planning Officer shall issue a finding of non-compliance in writing and provide copies to the parking facility owner and operator and to the Director.

(1211, Added, 11/16/1998)

10.18.090 - Evaluation.

The PTDM Planning Officer shall prepare a report annually on the status and effectiveness of the implementation of this Ordinance.

(1300, Amended, 09/11/2006; 1252, Amended, 09/24/2001; 1211, Added, 11/16/1998)

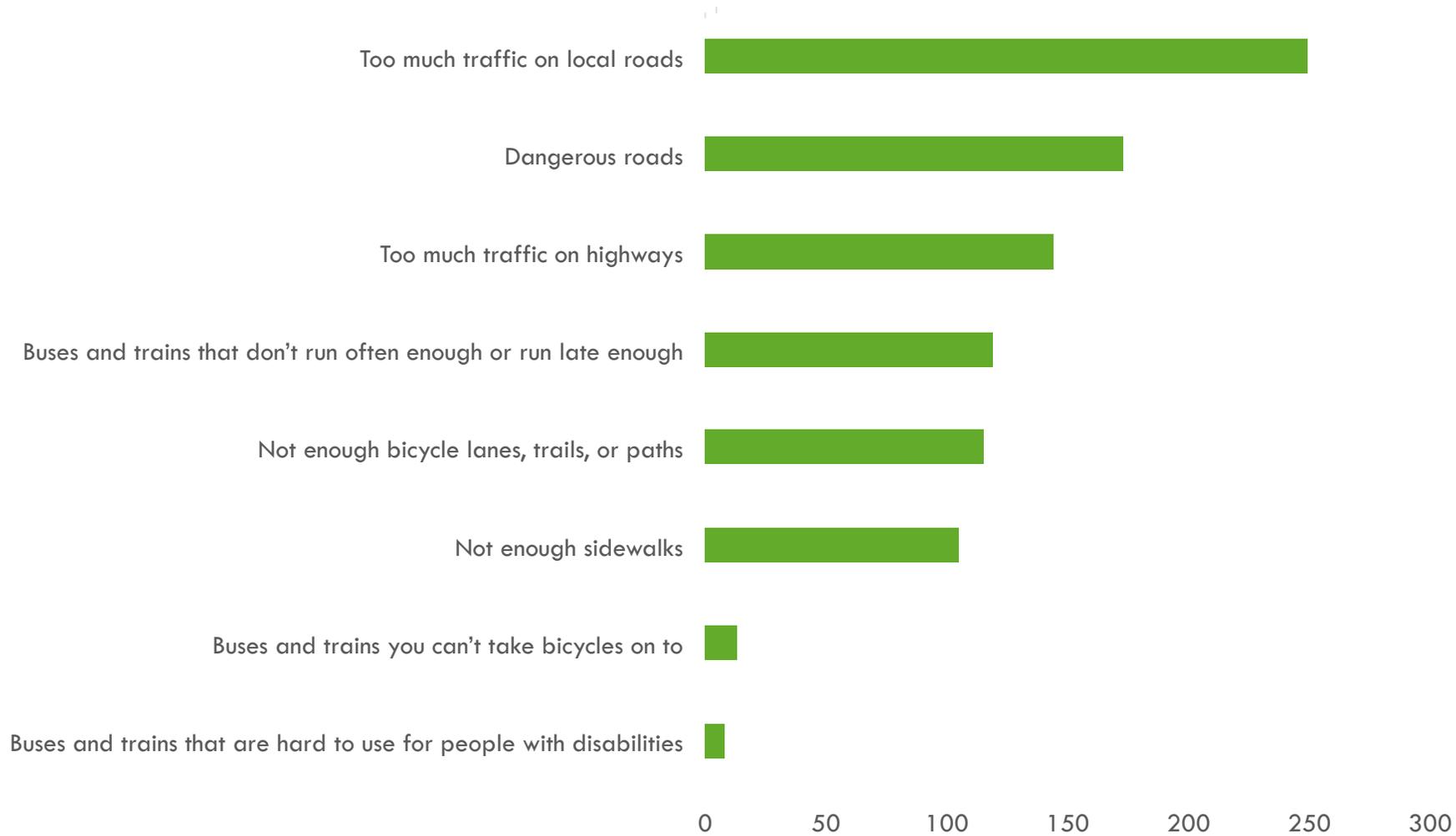
Lower Mystic Survey Responses

December 2, 2016

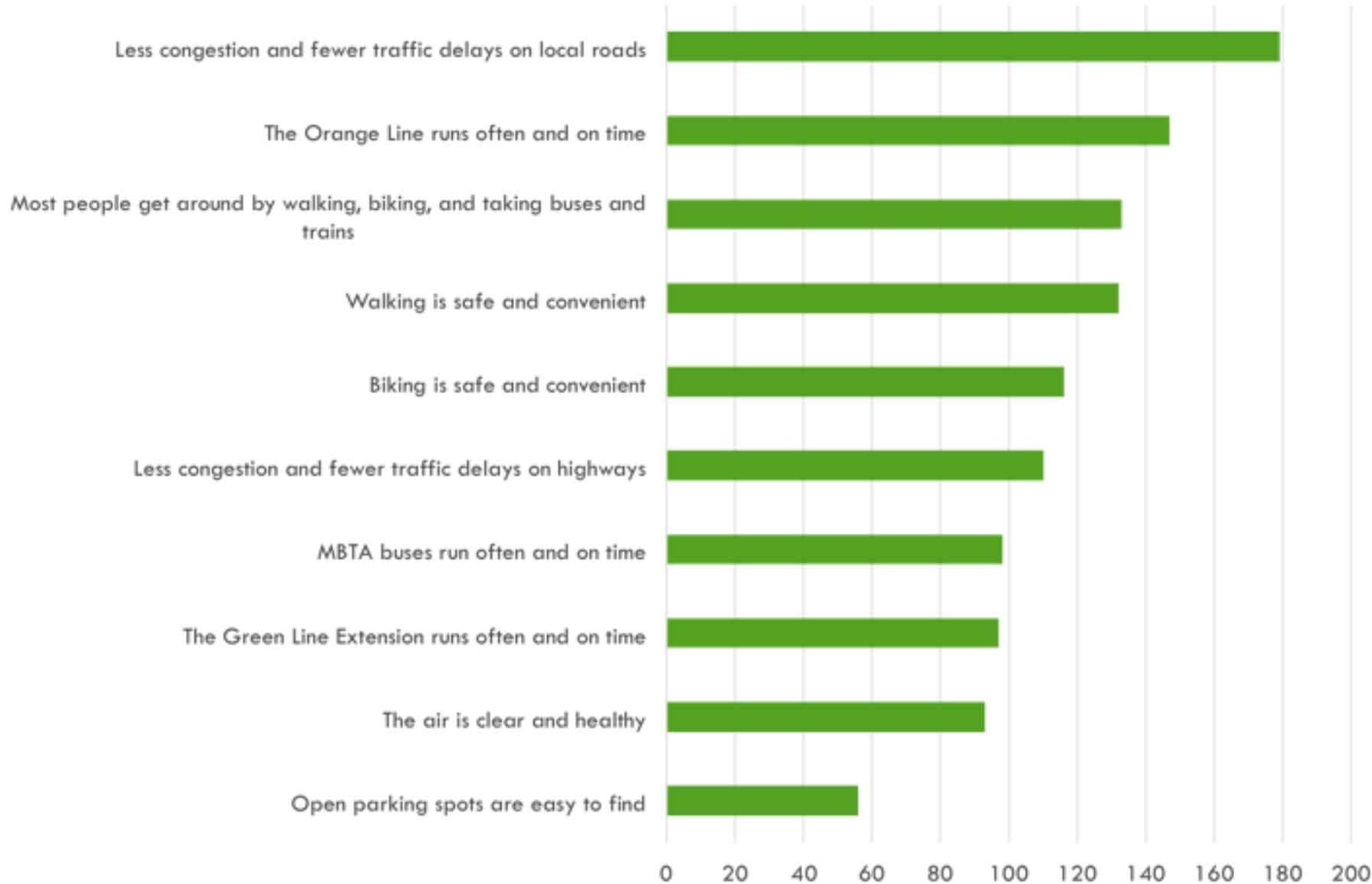


LOWER MYSTIC REGIONAL WORKING GROUP

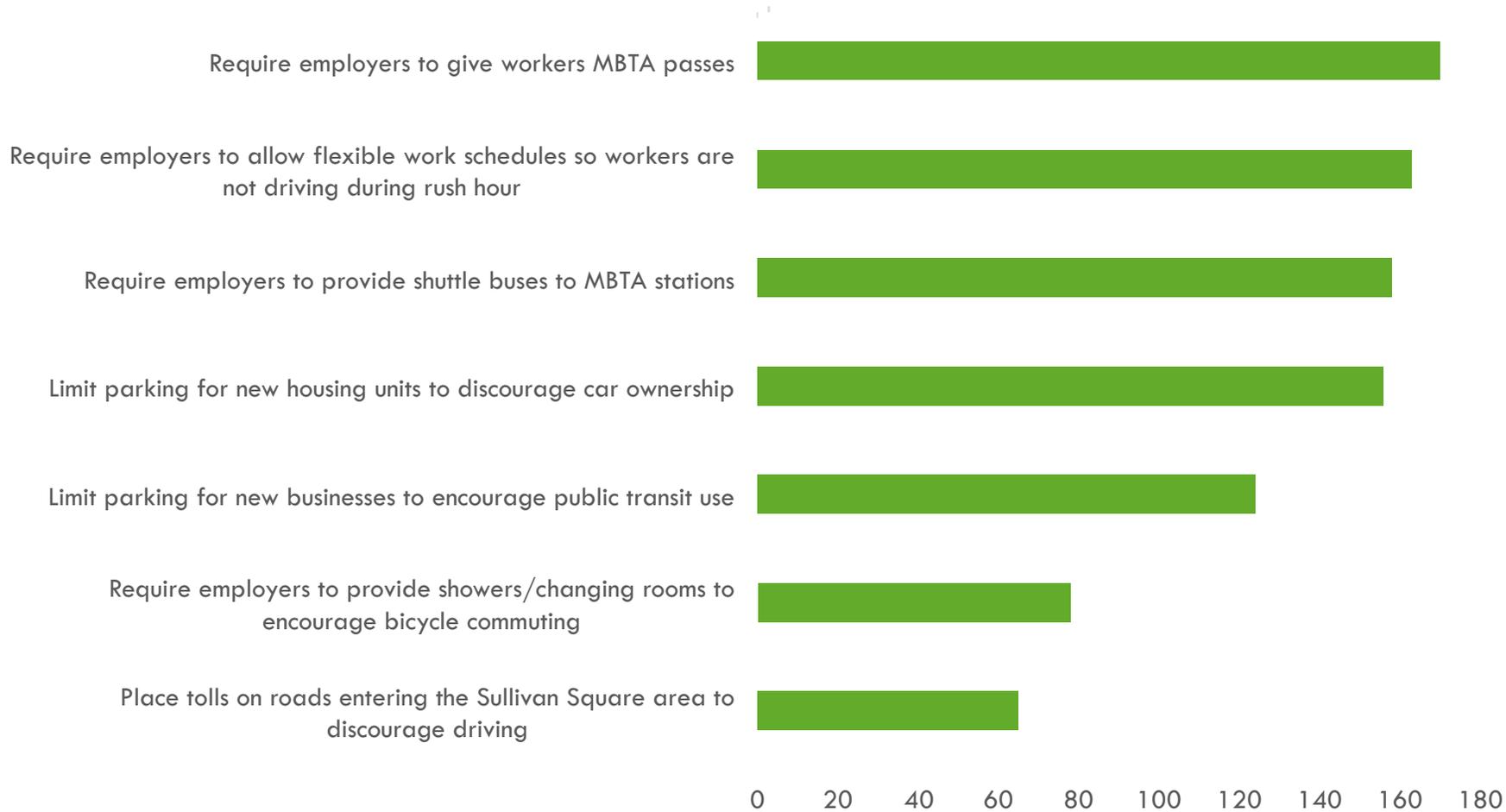
What makes it hard to get around the Sullivan Square area today? Choose top three:



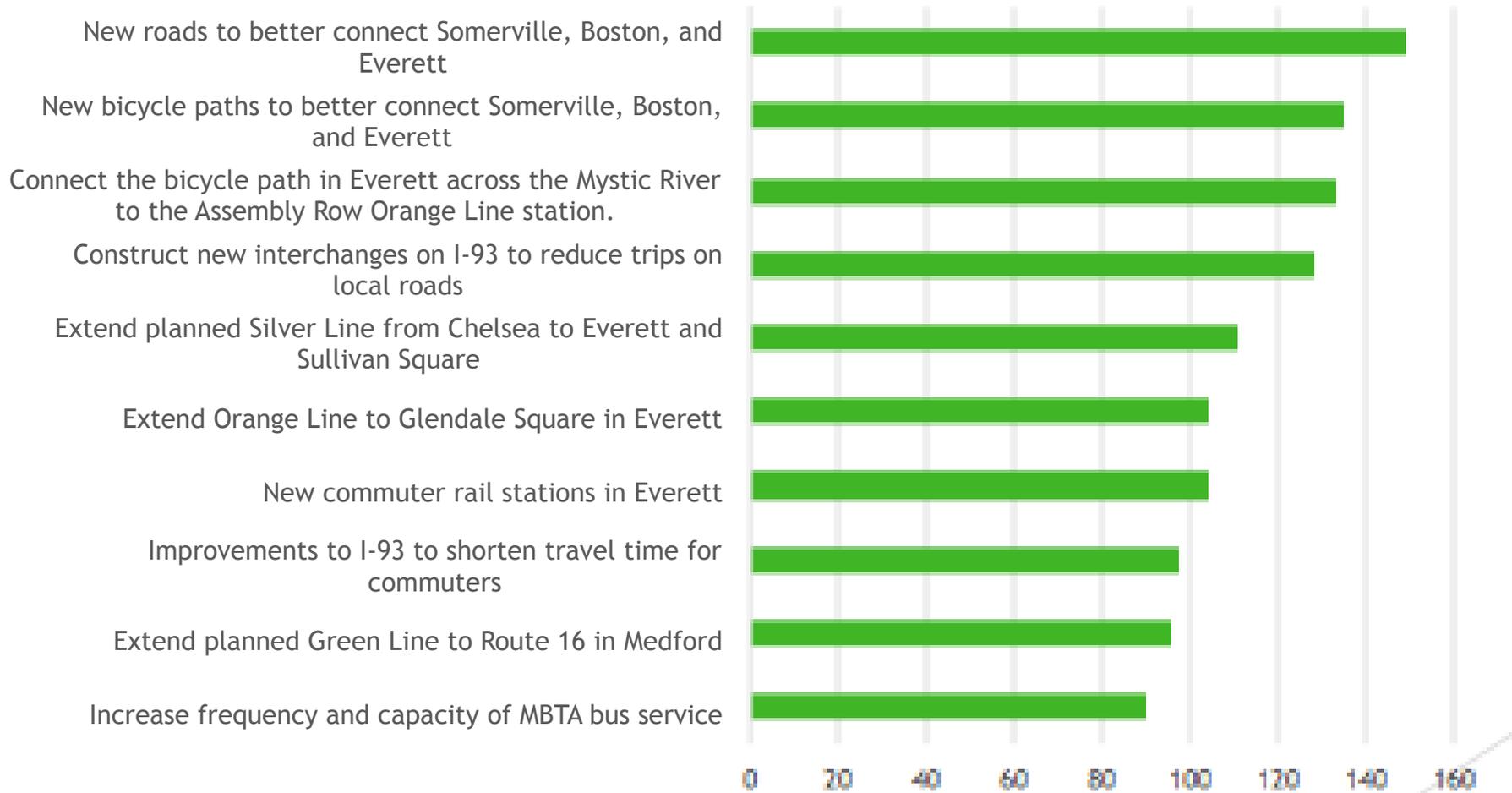
What would you like to see by 2030? Choose top three:



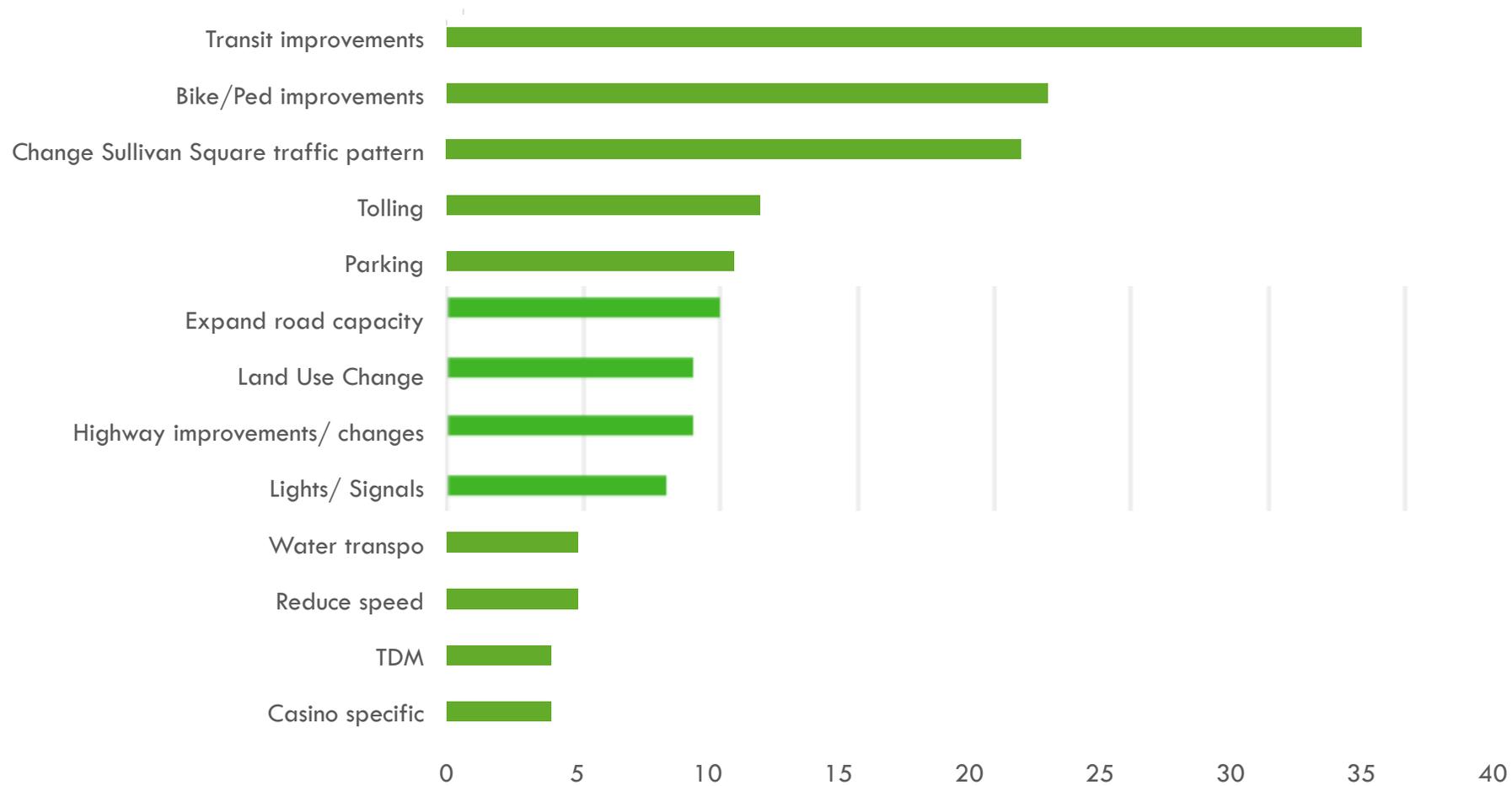
Which of the ideas below do you think should be studied to address traffic? Choose top three:



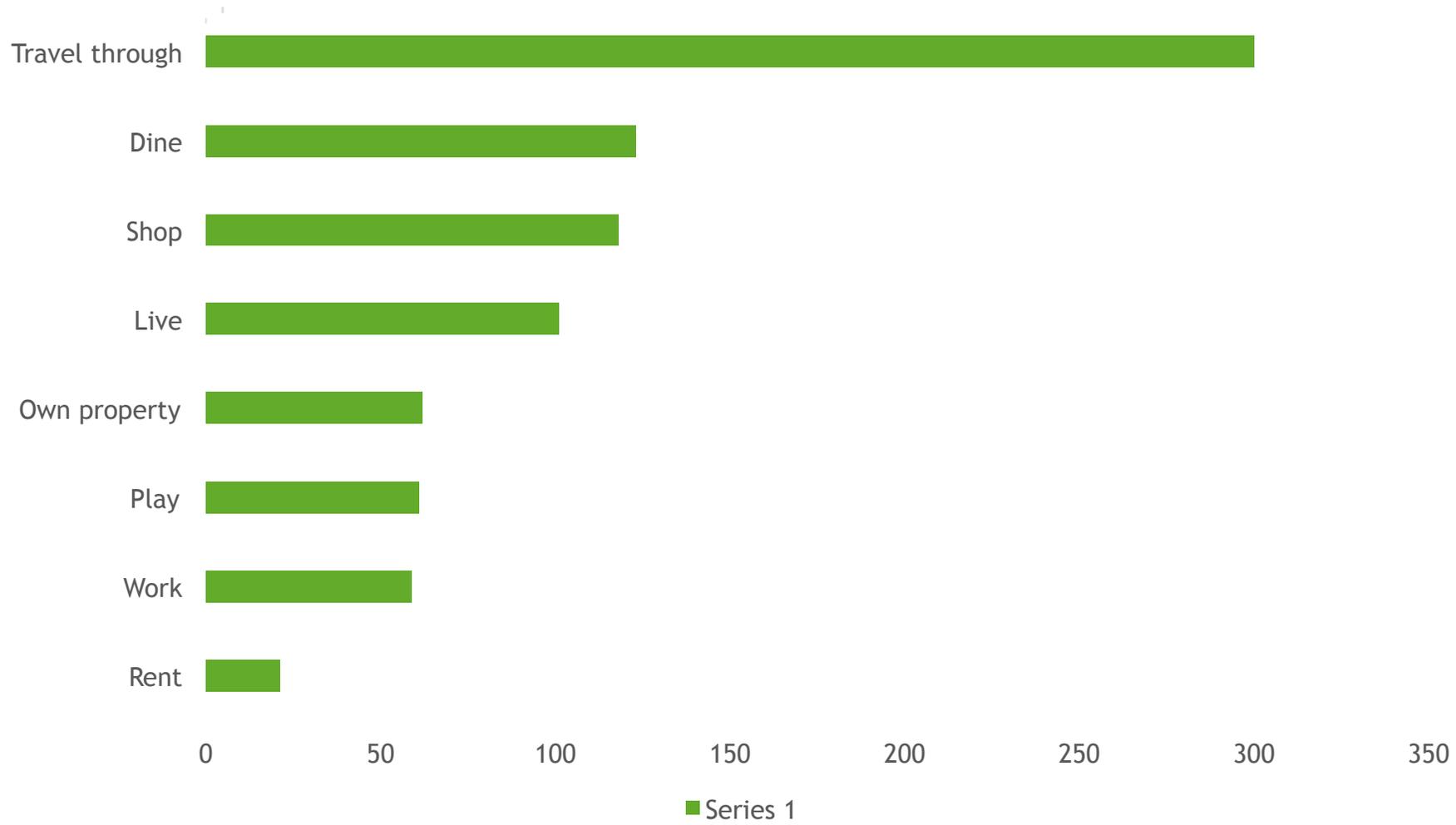
Which of the ideas below do you think should be studied to address traffic? Choose top three:



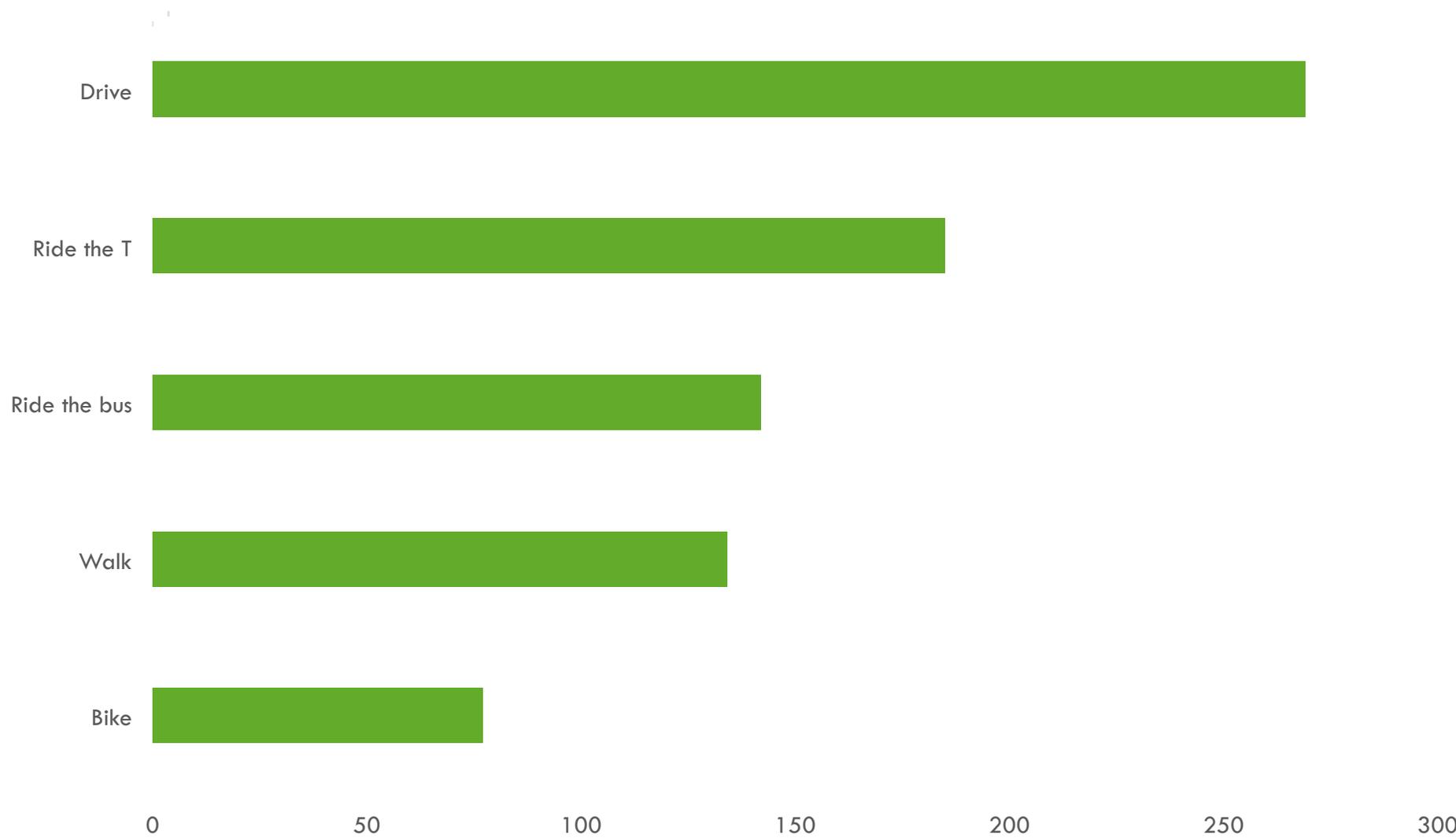
Do you have other ideas about ways to reduce traffic that we should study?



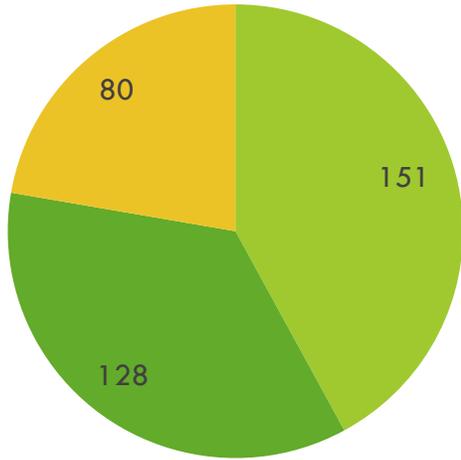
What do you do in the Sullivan Square area? (select all that apply)



How do you move around the Sullivan Square area? (Select all that apply)

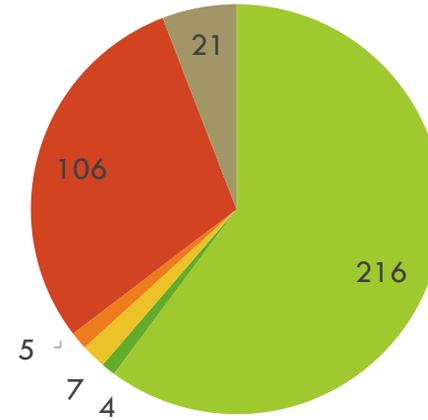


What is your gender?



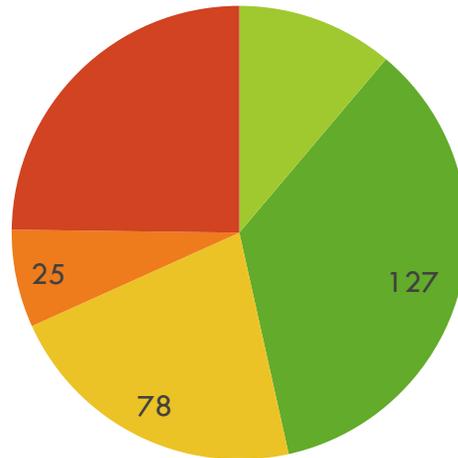
Female Male Did not answer

What is your race or ethnicity?



White/Caucasian Latino/Latina Hispanic
Asian Did not answer Other answer

What is your age?

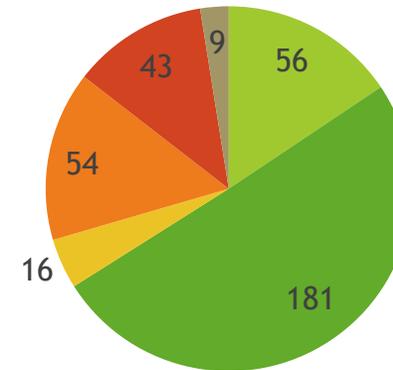


<30 30-45 45-60 60+ Did not answer

Responses by zip code

Town	Total
Arlington	1
Boston	3
Cambridge	7
Charlestown	37
Chelsea	6
Did not answer	39
Everett	118
Foxboro	1
Ipswich	1
Jamaica Plain	1
Littleton	1
Lynn	1
Lynnfield	1
Malden	5
Marion	1
Medford	19
Melrose	4
Newton Highlands	1
North Reading	1
Portland, ME	1
Quincy	1
Revere	3
Saugus	2
Somerville	98
Swampscott	1
Wakefield	2
Watertown	1
Winthrop	2

How did you hear about the Lower Mystic River Regional Working Group?



What makes it hard to get around the Sullivan Square area today?

- The most important is bike & pedestrian safety. The connection to SS T Stop and the bike paths through SS are inconsistent, unplanned and hazardous. Pathways for both MUST be drastically improved to get people safely where they want to go.
- Area is too car-oriented and too much of an unpleasant wasteland. Wide roads, fast moving cars, huge parking lots with few buildings or destinations make this a place to get through as quickly as possible. It's simply not a pleasant place in any way. It should be a destination, with mixed use buildings, wide tree line sidewalks, protected bike lanes, and right-sized roads that handle traffic slowly and safely. Orange Line is overcrowded.
- As a cyclist I have no choice but to go around the rotary to go from Somerville to Charlestown. That rotary is absolutely dangerous and hostile to cyclist (and pedestrians). I'd like to see some protected bikeways connecting Charlestown, Somerville and Everett.
- Bad convergence of trucks, buses and cars compounded by pedestrians trying to get to the T. Add the occasional biker and Chaos!
- Bicycle lanes are not protected. Dangerous and intimidating to ride through the intersections.
- Buses and cars blocking intersections or not allowing others to merge.
- Buses that get delayed b/c of traffic in the square.
- Comment to clarify. 1. Dangerous roads means a terribly old and ineffective roadway design than never correctly created an intersection from an old rotary. 2. Not enough sidewalks really means a poorly designed and ineffective pedestrian environment that has many dangerous car-pedestrian-bike conflicts. 3. The buses and trains complaint in my mind means no proper blending of the city buses in with the roadway and pedestrian design which should include bus only lanes and rights of way connecting with Sullivan Station
- congestion from Broadway plus the congestion on Washington caused by the light timing and the merging into one lane on Washington.
- Difficult to navigate the Sullivan Sq rotary in a car.
- Extend the bike lane on Broadway a few hundred feet so that it actually reaches the bike parking at Sullivan. Provide a bike lane FROM as well as TO Sullivan. Enforce the bike lane on Broadway, I see trucks and cars parked and driving in it on an almost daily basis.
- Eyesore. runoff from highway above on rainy days.
- Get rid of the rotary and make tunnels for the traffic to quickly enter Boston. The rotary is ugly, dangerous, and slow. Also, more people are biking. Make it more accessible.
- Get the bikes off the streets. They are a hazard to everyone.
- High volume, high speeds & car-centric poorly designed facilities make trying to get around on foot /bike very hard. Not well connected for those not in a car.
- I am rarely in sullivan square - on the rare occasion it's just to take the 93 ramp in and make a turn to head toward McGrath and I never experience any problem there.
- I bike from Everett to Boston and this by far the most dangerous intersection in the whole route.

- I commute from Somerville to East Boston and would like to commute by bike daily but end up taking my car more than 50% of days because it is too stressful to ride every day. To put it mildly, riding through the Sullivan rotary is a terrifying experience. Returning home on 99 is particularly bad; merging from Alford St. onto the rotary and then continuing to go straight on Cambridge (while car traffic moves to the right and exits onto Main St.) is extremely unsafe and I hold my breath each time I do it. I have no problem jumping off my bike to use a crosswalk in an unsafe biking situation such as this one... but there are ZERO pedestrian options to get from Alford to Cambridge St.
- I live in Everett and it would be nice if I was able to get on a train in Everett. I know we can get it done .
- I live off of Broadway and rely on the 89, 90, and 101 busses to get to Sullivan Square. More often than not, three busses will drive by within a minute of each other, and won't come again for 10-12 minutes. This is especially problematic during the morning rush hour from 8:20-8:50. It would be helpful if these bus routes were spread out more evenly apart to have consistent stops.
- I would never walk through this area as a pedestrian. I have an 11 month old and walk with my baby carriage almost everywhere. It's so unfortunate bc I could easily access Assembly Square by walking but won't bc I don't want to risk getting hit by a car.
- I-93 off ramp to Sullivan Square, drivers do not adhere to lane restrictions while coming off exit and it creates backups on the off ramp.
- Increasing lanes through Sullivan Square by means of a tunnel only creates back up traffic as there is no outlet in any direction other than 2 lanes in or out in all directions. The required merges create backups and standing traffic which has been shown to increase pollution and respiratory problems in the surrounding neighborhoods. Also, tunnels threaten the cross street access of the new housing that is planned and being built on the other side of Rutherford Avenue. These cross streets allow access to Charlestown proper for the Hood site and the community college as shown in the previously approved plan.
- irrational layout of roads, sidewalks, and no real way for bikes to get around
- It is almost impossible to get out of Charlestown from the hours of 3pm - 6pm. Traffic backs up on to Charlestown's three major roadways - Main, Bunker and Medford street - impacting those who live there and potentially, first responders ability to properly address calls in a timely manner. This increased traffic also endangers pedestrians and bikers who travel in that area.
- It is really difficult for pedestrians that could be using the Sullivan Square T-station to get to it. For cars, the rotary is very confusing and dangerous, which leads to back-ups on Rutherford Ave in the north-bound direction (also making it difficult to get across the Alford St. bridge) and the ramps getting off of I-93 in the south-bound direction.
- Lack of bus lanes that would move the existing investment in buses faster, on time, and utilize the capacity to attract more commuters. The number of commuters will rise and the space on the streets is fixed. Per lane, buses and bus lanes can move more people than solo-car-commuters
- Low visibility at night time. Rows are very dark and hard to see pedestrian crossing
- Lower Broadway backed up due to construction day and night, unexpected and unannounced road closures, lane changes and delays.
- MBTA and school buses are active in the square at the time of rush hour only 2 lanes add to the mix the large trucks everything backs up

- Need to get bikes out of the traffic lanes and roads.
- No bus Sullivan to Broadway Chelsea
- No pick up spots for t station - have to drive around until the person gets off train.
- One problem: East Somerville residents have to walk around the entire MBTA station to enter it. There needs to be an accessible pedestrian entrance on Broadway. Another problem: truck and car drivers are all just passing through as quickly as possible, and have little respect for traffic signals and pedestrians.
- Only one lane in underpass.
- Pedestrians regularly almost get hit trying to get across the rotary. There is no way to get from the 'lost village' section of Charlestown to the main neighborhood.
- People avoiding the tolls on the highway and are congesting the city streets
- Poor road conditions. Poor signage and pavement markings. Trash/debris, sand, etc.
- Poor traffic flow, with badly designed intersections, insufficient capacity, poor maintenance (potholes, deteriorated curbing, worn lane markings and protruding structures), abandoned Orange Line structures not removed, which prevents redesign of Rutherford Ave.
- Poor traffic light/crosswalk issues. From the crossfit building heading to Charlestown, there's a crosswalk with a button to press, but no corresponding traffic light. So a pedestrian may have the cross signal, but cars have no way of knowing that they should stop.
- Poor visibility around rotary also. Dangerous for people, bicycles are dangerous to people and cars and vis versa. Disgusting air quality for our children.
- road configuration doesn't make the flow of traffic go smooth.
- Roads are too narrow. Bike lanes have been artificially added - i.e., they have not widened the streets, but have painted bike lanes which are not safe because there isn't enough room to follow the road marking and not drive upon the bike paths. For example within the width of one-way streets, the street is only wide enough for a car so you of course will be driving on the well-marked bike lane. This is unsafe for cyclists as marking bike lanes gives the impression that no cars will be driving on it. Another obvious example is the bike lane around Sullivan Square rotary for 93, Charlestown, Route 1. There is a bike lane that must be crossed every time to get to the 93 exit. This is unsafe.
- Rotary needs to go
- Rotary with a lane that doesn't yield to traffic already in the rotary.
- Rt99/Rutherford Ave needs to be a tunnel between Afford Street Bridge and the North Washington bridge so the commuter & casino traffic is isolated so we can cut the noise & pollution in the corridor, offer a means to re-join the fractured community and make it more livable. Basically what the North End got from the Big Dig!
- Severe lack of the Green Lane Project / Citywide Networks of Protected Bikeways: <http://www.peopleforbikes.org/blog/entry/edmontons-quick-build-protected-bike-lane-grid-a-new-model>
- Sidewalks along Broadway not plowed in winter, not lighted, and too close to speeding traffic.
- Street crossings and signals do not prioritize people. dangerous design w/ multiple lanes exiting and entering the rotary where crosswalks are.

- Sullivan Circle is a nightmare, traffic coming off of Rutherford Ave and from Charlestown heading in to the Circle is bogged down because of the amount of traffic and the traffic pattern caused by the rotary.
- Sullivan is by default pedestrian-unfriendly. There are crosswalks & timed lights, but little to no traffic enforcement especially for vehicles turning right (no matter how many "look for pedestrians" signs are posted).
- Sullivan Square is a danger zone for all humans traveling by all modes.
- Sullivan Square is dangerous and intimidating, making it a barrier for people who might bike or walk in the area. The poorly designed roads and excess of traffic also slows buses, which should be given priority over single occupancy vehicles, especially around a transit hub like Sullivan Station.
- Sullivan Station needs to be improved for people taking the bus.
- The bridge opening for pleasure boats....need a sign at Sweetser Circle telling people that the bridge is opening... Most importantly is slow Somerville's development down...look at what they have built with NO consideration to the effect on traffic. Special lane for Emergency Vehicles....
- The circle
- The decreased lane in the tunnel under Sullivan Square coming from Bunker Hill Community College and the approach Rte 99 into Everett. If there is a breakdown in that one lane, there will be more back ups towards City Square. This roadway needs to be improved, especially the right lane heading towards Everett to allow for better traffic flow.
- The layout of the roads, the roads were built around the elevated trains, the tracks have been removed but the layout was never changed.
- The layout of the streets is confusing! Basically everyone is forced to make their way to the rotary if you want to get through the area, even if all you want to do is cross the street.
- The off ramp from rte 93 down in to Sullivan square is a poor design. Needs to be moved elsewhere
- The rotary is a disaster. Too many people coming in from different directions makes for a dangerous road.
- The rotary traffic
- The whole Sullivan Square area is a tangle of traffic during any given rush hour. The whole area is torture to get through via car OR bus OR foot.
- This is the quickest way for me to get to work on my bike, but it is also the most dangerous. It's nice that there's a bike box at the rotary/intersection, but getting to the bike box is a hassle.
- Timing of lights and layout at the rotary causing backups through intersections, thus leading to congestion.
- too much traffic at grade
- Too many cars seem to hop off 93 and get on Rutherford Ave because they can (it's huge and no signals) - we should keep this traffic on 93 where it belongs.
- Too much and too dense development
- Too much TRAFFIC STILL on 99 people that live down the line it takes us forever to get back home morning noon and night it's horrible
- Traffic back ups at the rotary Not enough resident parking around the area
- Traffic lanes, bicycle lanes, stop signs, merges, are difficult to navigate and dangerous.

- Traffic pattern is just plain dangerous - for cars, bikes and pedestrians, but especially pedestrians. I can't stress enough how awful it is for pedestrians, it's not just that there's "not enough sidewalks", it's the whole design of where the sidewalks are. It is unsafe and extremely inconvenient. The area is clearly designed for cars first of all, and all other modes of transportation as an afterthought.
- Trains without enough capacity
- Transition from industrial to local residential. Sullivan square has four main roads entering and exiting. The scale and green spaces are out of wack! Rutherford avenue is two big and 93 traffic is allowed to exit and enter near the square. When the casino is fully functional evening rush hour traffic will be unbearable.
- Trucks that clog up the traffic. Congestion. Inefficient traffic patterns. There are so many accidents along the rotary.
- Unclear lane continuation across intersections, cars not heeding lanes as marked (the way lanes are marked may not be the actual way that cars drive habitually)
- Unclear signs slowing down cars that don't know which way to go out of the rotary
- undefined or poorly defined paths of travel Vehicles that fail to recognize that vehicles in the rotary have the right-of-way. Too many streets entering the rotary.
- Walking from Sullivan T stop to East Somerville requires curving all the way around and under a tunnel. It takes longer and the air quality is poor.
- Why oh why can't the commuter rail make a stop there? It's so bananas to hike out to North Station from Sullivan, only to whiz through it again on the way up north.
- With the reconfiguration of the McCarthy overpass Washington St is worse than ever. The interchange of Washington, Rt. 93, and Rt. 99 is unworkable. You can get off the train at Sullivan but there is no easy way to get out of the area. There is no good pickup area and buses, commuters, and through traffic clog the roadway. Drivers bound for Washington St. are backed up behind traffic signals that control the intersection on 93 and 99. The noise pollution and general congestion make Sullivan Square proper uninhabitable and the layout and inefficiency of the traffic control make the area a huge waste of space.
- easier for people who do not have easy mobility
- Easier to go back & forth between Everett & Somerville with less traffic
- just too congested all together.
- Constant construction
- Crazy roundabout
- Dangerous pedestrian crossings.

What would you like to see by 2030?

- Orange Line spur that runs directly into Everett like it used to.
- A regional highway system that works and keeps traffic off local roads. This question is really biased and doesn't address adequately the needs of drivers, the biggest set of users,
- An orange line stop in Everett square
- Attractive transit oriented livable development in Sullivan Square and on adjacent sites.
- Better direction around the rotary
- Bicyclists driving in the roadways, especially during traffic, should be restricted to bike paths or sidewalks, if possible, to avoid accidents. I bike, myself, but limit riding to identified paths, as it can be dangerous and frustrating to motor vehicle drivers.
- Clean, clear intersections with controlled traffic flow.
- Commuter Rail platforms at Sullivan Station
- Commuter rail stopping at Sullivan
- Congestion is always going to be present....safety and on-time service are the key goal heres.
- Connect Mystic walkway to Charlestown through Sullivan; pretty up area; make safer
- easier public transportation to Everett
- Fix the orange line! It is currently packed and that is before adding additional residential units. Fewer cars and more pedestrian friendly setup.
- Good pay jobs for highway workers.
- I can still afford to live there.
- I live on the Malden/Medford line and the traffic backs up from Sullivan and Assembly to those two towns every single morning. Everyone I know parks at Wellington, Assembly or Sullivan every day because they have kids whose daycares or schools open at the same time of day, and in order to make it to work on time we all have to drive and park at the T. I'd love to see parking at these stations preserved for local residents -- not casino employees or visitors, and definitely not as many NH and ME plates like you see now -- as well as more shuttles to and from local job centers so that nobody even has to contend with the traffic and parking at all. I see many people buying scooters (both "vespa" style as well as motorized "razor" style) instead of bikes but since you can't park them at the T, unlike in many other cities, they are not a viable transportation alternative right now, and that's a shame. Better bike/scooter parking options as well as safer bike/scooter lanes would help get people out of cars.
- I think walking and biking is great, but we have harsh winters and are a neighborhood of families with small children, so planning for car transport is important.
- Improved traffic flow through and around Sullivan Square into Boston. An Orange Line Spur into Everett.
- Improving that traffic circle
- In order to have my top 3 you need all the rest. The MBTA is key to any solution.
- Less construction
- like to see more foot traffic
- MBTA Train Stop in Everett (Glendale or everett Square)
- Mostly bikes and self-driving taxis providing clean, comfortable and cost-effective transportation.

- NO non resident parking, build new housing and commercial on on the Sullivan Sq parking lots
- Note that I want a future with fewer cars, not more cars traveling faster. Be careful with the word "congestion." To some people, solving congestion means adding car capacity. This is the WRONG solution.
- Public transportation is critical. We must make it less viable to use a car in this area and more viable to walk and use mass transit. The casino will have to provide some sort of shuttle bus from Sullivan stay (24 by 7) or the traffic will be horrible.
- regional traffic is directed around Charlestown as opposed to through it.
- Replace I-93 Upper & Lower Deck with below grade (depressed) structures that eliminate the lane drop between Exits 26 & 28. Eliminate the Car Pool Only lane on I-93. Build I-693 (Inner Belt) as Depressed Roadway from Ghost Ramps to Roxbury thru Volpe Bldg. & Melnea Cass Blvd.
- Rutherford Ave looks like Commonwealth Ave with landscaped medians, fewer vehicle lanes and crosswalks
- Several of these options go hand-in-hand. More people walking, taking public transportation, and biking, means fewer people creating traffic and pollution by driving regularly.
- Sullivan Sq is a really interesting site, with a great view of Boston. Underground parking garage and above ground park?
- Sullivan square as a destination rather than just a terminus.
- Sullivan Station is an attractive place to take the bus.
- The air will be clearer and healthier if biking/walking are prioritized AND cars/motor vehicles are disincentivized (ie. increase parking costs, increase ticketing, increase traffic enforcement/ticketing)
- The area didn't look like such an eyesore
- The rising. Umber of commuters can be accommodated without: more congestion, more pollution, and more carbon emissions.
- There should be a street grid and sidewalks that make it easier for people and cars to navigate and discourage regional traffic that should stay on 93.
- Transportation thru Broadway Everett might help alleviate some of the congestion. The bridge allowing passing of boats is another cause of congestion.
- Urban Ring! (See below.)

New housing, stores, and businesses in the Sullivan Square area will mean more auto trips. Which of the ideas below do you think should be studied to address traffic?

- "New housing, stores and businesses mean more auto trips" is a false assumption
- 3. Reduce pedestrian - car - bus conflicts by the use of dedicated bus lanes, roads that separate local from through traffic, and much better pedestrian and bike lanes such as bridges, ramps or separated lanes.
- Accommodate to employers to use MBTA Passes and shuttles
- Add protected bike lanes to encourage traveling by bicycle.
- all of the above please
- All parking should be paid parking, and it should be unbundled from housing/office costs
- ALL the others above are critically important too.
- Better traffic flow design.
- bicycle trips should be studied as well as secure/safe bike parking/infrastructure
- Build state of the art cycle tracks to encourage biking
- Businesses and residents will feed on each other, this will not necessarily increase traffic beyond the street systems capacity.
- Charlestown residents should not be subject to tolls
- Community path bike extension to Boston. Green line extension.
- Commuter rail is silly when talking region, in general
- Commuter rail stopping at Sullivan
- connected walking/biking/transit infrastructure to encourage local trips to not be by car
- Discounted Tobin bridge tolls for Everett residents so they don't have to commute through Sullivan square if they work in downtown Boston
- Do not allow dense development, require open space
- DON'T EVEN THINK OF TOLLS....
- Employers should offer discounts - NOT FREE MBTA passes. Don't penalize employer
- Few of the above are realistic solutions since nearly all traffic passing through Sullivan Square is doing just that -- passing through Sullivan Square. I assume this pattern will continue and worsen with continued development in Assembly Sq and Everett. Traffic calming and limiting measures need to be put in place. Putting unnecessary restrictions on new businesses won't solve the traffic problem, and will only stifle new business..
- Have a legit engineer address the road system.
- I don't think new housing, stores, or businesses in Sullivan Sq would necessarily increase auto trips.. people who live in the area are making a lot of auto trips that could be avoided if more services were provided locally.
- I tend to think that limiting parking will backfire - people will still own/drive cars; there will just be fewer places to park them and more double-parking. One thing that might encourage more walking/transit use would be better neighborhood street lights, especially underneath the 93 overpass.
- I think requiring any of these things is an over reach of government honestly.

- I think that traffic should be re-routed via tunnel underground for drivers going into Boston via Assembly square. The rotary is dangerous and congested for pedestrians and traffic alike.
- I think walking and biking is great, but we have harsh winters and are a neighborhood of families with small children, so planning for car transport is important.
- I'm a firm believe that if you build it they will come -- meaning, the more parking you build, the more driving-inclined employers and workers you will attract. This is too dense an area for anything but car-free living and commuting. Also, I see how widely used the shuttles are at Wellington, and I wish you'd see more of that everywhere.
- I'm for the tolls into Sullivan Square idea - but, I fear that the square, as a final destination, is not so popular at this point, that a toll could actually slow it's progress down because people's price sensitivity is likely higher to get into sullivan than it is to get into central, harvard, or Davis
- I'm sure this is something Wynn is contemplating.
- improve bus and transit service to new developments, including in Sullivan Square
- Improve MBTA (orange line, silver line and bus) service so people are more likely to take it.
- improve public transit (reliability and capacity of orange line and buses)
- improve the frequency of buses and trains to encourage public transit
- Improve the MBTA trains and buses so that people can count on it being timely and use it more often. Clean up Sullivan Square station so that it's welcoming.
- increase reliability + frequency of transit so people do not need to rely on auto trips for all journeys
- Less housing! The area cannot support more residents - with parking issues, first response needs, and lack of proper resources, offsetting MBTA passes and encouraging bike community will hold little effect on the whole area.
- Limit amount of new housing. If new housing is allowed actually follow a rule about making the developer have enough spaces
- Limit commercial traffic during rushhour (ie. No 18 wheelers driving through sullivan at rushhour)
- Limiting parking for new housing only puts more cars on the streets, making parking more difficult for everyone.
- Link Hubway with other transit options such as the Charlestown Ferry. Expand ferry stops.
- Look at rerouting traffic that cuts through the area
- Make 99roads bigger than two lanes each way
- Make sure the orange line is reliable so people will actually use it.
- Make the roads going into Sullivan square less wide and the traffic will eventually go through other routes.
- Make transit especially BU buses: cleaner, faster, reliable, predictable, attractive for new commuters.
- More flexibility in schedule from work. Better services from trains and buses
- Most of the options provided put the burden of reducing traffic on the employers. Why? These options seem to be taking the responsibility away from MassDOT by focusing on unrealistic alternatives that cannot be enforced to the employers. How can the MBTA help address the traffic problem instead? Lower fares to incetivize ridership? Expanding hours of service and frequency or trains and buses? Offering shuttles?

- Need to connect everett to commuter rail , silver line , DMU along the commuter rail line tracks,
- no tolls please. the state is taking enough from us...
- None of the above
- none of these
- None! You can't solve this mess with most of these, all you're doing is slapping a Band-Aid on it! To really fix it you need to do what London England did.
- Offroad bike paths will encourage many more people to commute by bike
- Parking is the #1 determinant of mode choice
- Provide enough parking for those who need it!
- Provide intensive and frequent very local transportation, that is, within the district have small busses that run at maybe 10 minute intervals. These take you store to store, home to T, store to T, quickly and easily. Make so frequent and convenient that would be silly not to use it.
- Rapidly implement the Green Lane Project / Citywide Networks of Protected Bikeways: <http://www.peopleforbikes.org/blog/entry/calgarys-quick-build-protected-bike-lane-network-doubled-bike-counts-in-thr>
- Redesign the traffic flow into and out of Sullivan Square to address existing inefficiencies and allow through traffic to pass around Charlestown
- Remove the rotary and turn the area into affordable housing. Create a neighborhood reconnecting Charlestown which was ripped apart by the MBTA sullivan sq station and maintenance yard. By creating a neighborhood of smaller streets would eliminate people getting off of 93 and cutting through the town. Using both rutherford ave and medford and main st. Also add back the entrance to 93 north access from city sq.
- Require any new development to add parking for its residences a la the Armory
- Require businesses to have more than ample parking.
- Require employers to provide shuttle buses to MBTA stations as a benefit / no more tolls
- Require MORE parking in residential development to eliminate on-street parking and allow more traffic lanes and bike paths.
- the only way to limit autos is to provide alternative, not take away parking
- There is a major bus and subway station here, we don't need parking
- There is no need for housing in Sullivan Square!!! Nothing you say will help congestion if you add housing and stores. Charlestown is 1 sq mile there is no room for more housing, less parking, and more traffic. Developers who DO NOT live in Charlestown are making decisions to make money and do not care how it will. Negatively impact a neighborhood.
- There should be designated parking areas for public, housing, stores and businesses to ensure less congestion with traffic and trouble parking. parking garages, additional lots etc.
- This question appears to be too negative in options specified/content to answer.
- Tolls on roads entering Sullivan is a horrible idea, please do not do this!!
- Too many of the options are limiting or requiring, we need to get rid of existing regulations that force developers to build too much parking.
- Traffic study of rotary and one-way roads in the area
- Under or above ground parking lots that take up less space at street level
- Why didn't anyone place restrictions on Assembly Row in Somerville

New roads, bridges, trains, buses, sidewalks, and bicycle paths can reduce auto traffic by providing more ways to get around. Which of the ideas below do you think should be studied to address traffic?

- Add bus lanes/busways through Sullivan Square and on roads leading to Sullivan Square. More bike and walking paths across the Mystic River.
- Additional park and ride facilities at outlying Orange Line stations.
- again trains and bikes all need to be studied and improved
- Any mass transit improvements that keep casino traffic off of Rutherford Ave/Sullivan Square
- Anything that encourages access to 93 and increases use and efficiency of public transit would be appropriate and necessary.
- As to increasing bike paths, a way to ticket those bikers that purposely impede traffic flow because they are on bikes.
- Better coordination of traffic controls during peak traffic hours
- By improvements to I-93, I mean reallocating space to HOV/HOT and possibly a congestion charge to enter Boston. We should NOT be adding more lanes, especially not for SOVs.
- Community path bike extension to Boston. Green line extension.
- Commuter rail is no solution for local transportation. Implement urban ring RT, Kenmore crossing, with full orange line integration, at both ends
- Commuter rail stops at Sullivan
- Connect 93 South Directly to the Tobin
- Continuous Path from East Boston and Malden into Boston, eliminating the need to ride through Sullivan Sq.
- Do something to make the rotary more pedestrian and bicycle friendly - maybe an elevated bike/walking bridge?
- Expand ferry options.
- Extend the Northern Strand Community Path with a bridge across the Mystic River
- Foot bridge. Also, commuter rail would not serve the needs of the majority of current Everett residents, most of whom travel by bus.
- Full implementation of the Green Lane Project throughout Boston-Cambridge-Somerville-Everett-Brookline: <http://www.peopleforbikes.org/green-lane-project>
- Generally should expand MBTA
- Hopefully the bicycle paths would be used allowing cars to use the lanes.
- I cannot adequately express how little I care about the Green Line or how little I expect it to alleviate congestion on orange line commuters and residents of places like Everett, Medford, Revere and Malden.
- I couldn't pick only 3 sorry
- If there are no trains there should be buses
- improved walkability around Sullivan Square and improved reliability of orange line
- increase frequency and capacity of the Orange Line service
- Large public projects involving new T stations and state funded highway projects are unrealistic.
- Larger buses are not what's needed. Smaller more frequent buses. Seating no more than 8-10 passengers.
- longer running times for trains and busses.

- Lots of great ideas here!
- Make sure all of the right of ways are safe from being lost! As well as make sure future provisions are thought through
- Make walking cool again.
- More roads = more driving. Why would we do this?
- More room for cyclists on streets or separated bikeways
- Need to get the people from the north shore who avoid the Tobin and drive 99 through town line and into everett on a train , trolley , rapid bus to start ! Build a huge parking garage off route one near lowes and get people on an express trolley, bus , train right into a t station! Need to think out of the box, more busses means more traffic , congestion and more money for the T..
- Physically separated bike lanes on all major streets
- Replace and/or upgrade Tobin Bridge and Revere Beach Parkway to shift more traffic to the east.
- restore the flyover for Rte 99 over the rotary, or build an equivalent replacement
- segregate local traffic from commuter traffic
- Stop developing!
- There needs to be PROTECTED bike infrastructure. There is no reason that a physically protected bike lane cannot run from Arlington Center to Sullivan Square via Broadway. If that were a protected path on Broadway - people from Medford, Arlington, Everett, Somerville, Cambridge would all have a convenient and safe way to get to Sullivan and Charlestown, Boston, etc. This should be a TOP priority. If you focus on building car stuff, you'll get more cars. If you focus on building bike and walking stuff, you'll get more bikes and walkers. The data is pretty straight forward - the more you invest in people on bikes and foot, the more economic benefits and health benefits your community gets.
- This area is much too dangerous for biking. I would never ride my bike in this area.
- Whichever of the above extensions service the greatest amount of (expected) demand
- Who cares about everett. Let wynn pay for them, not my tax dollars. They wanted this casino and didnt care about their neighbors, let wynn solve all their problems
- YES GLENDALE SQUARE PLEASE
- You don't want the orange line in everett. It brings too many problems. Working class commuter rail

Do you have other ideas about ways to reduce traffic we should study?

- 1 - Connect Sullivan Square station to Brighton Street with a short pedestrian bridge. People living or traveling to areas a hundred feet from the tracks have to walk a third of a mile to access the station. 2 - Study the use of the abandoned freight tracks to Charlestown as a mixed bike path and freight road to the port. 3 - Study congestion charging and tolling on the Route 99 bridge, which many people use as a "free" alternative to the tolled bridge and tunnels. This would keep cars and trucks on the highways and reduce pass through traffic. 4 - Connect the bike lanes in East Somerville to the Sullivan Square rotary with a quick flex-post protected bike lane in the Spring. Right now there is a gap right at the most uncomfortable and difficult quarter mile segment of Maffa Way and Main Street.
- Optimize tolling on Tobin Bridge to remove incentive to bypass the bridge and use Sullivan Square to avoid tolls. 2. Redesign 93 on and off ramps to better funnel local vs. casino vs. Boston commuter traffic to the desired locations.
- regional traffic light control system 2. removal of the Cambridge street off ramp from 93 and the reopening of the north bound 93 ramp at City Square.
- A network of protected bike lanes and protected intersections.
- A reconfiguration of the traffic mess that is the Sullivan traffic circle.
- Actual train service to Everett!
- Actually go out into the community and talk to the people who live there, i.e. door knocking and bus stop surveys in MULTIPLE LANGUAGES. Do not hold your "public meetings" in Boston in a building where you need to show an ID at a security desk to get in. That is a sure-fire way to NOT get genuine resident input.
- Add bike share stations at Sullivan Square and in East Somerville.
- Add Commuter Rail platforms at Sullivan Station
- Add more bus routes to Assembly. I take the 89 bus to Sullivan. There aren't many buses to Assembly, so I drive 1.4 miles to Assembly.
- Additional transportation options: look into fill empty seats of under utilized vehicles. QRyde Community in these areas.
- Again, the bridge causes lots of traffic congestion. Maybe a better, safer way of allowing boats to pass by.
- Along with more bike paths, add more Hubway stations.
- alternate truck routes to keep out of the square - same with school buses
- Area wide congestion pricing with funds dedicated to improved non-auto modes of transportation
- As a Medford resident who commutes through this area to Boston, I am happy and grateful that this group exists. As designed now, this area is dangerous and only encourages single-occupancy drivers while discouraging people from using other more efficient modes of transportation. Better and more reliable public transportation is a necessary step to reducing traffic. That should include bus priority lanes, more Orange line service, and more bus service. This area is also in desperate need of safer biking and walking infrastructure. I rated other options above it, but I love the idea to connect the Northern Strand trail in Everett to Assembly Square, as well as any and all ideas to improve public transportation. Spending that money on expanding the capacity of 93, on the other hand, will only encourage more people to drive.
- Better biking walking and transit is crucial

- Bike infrastructure on Beacham St, the only way to bike from East Boston and Chelsea into mainland Boston. Currently it is one of the most dangerous roads to bike on in the Boston metro area. Even so, many brave cycling commuters do so anyways.
- Build I-95 through Lynn to Peabody and through Roxbury to Canton as a depressed expressway.
- Build the casino somewhere else.
- Building a cycle track, lowering speed limit, bus-only express lanes to downtown
- can you put a hubway station at the Sullivan Square T stop?
- Casino parking should be reduced and we should be enforcing their commitment to alternative modes of transit. Assembly Row parking should be reduced.
- City planning is a must. Route 99 traffic is tied up along the Everett rotary for NO reason and clears up once cars get to the casino area. Police detail HAS to stop cutting off traffic so huge trucks going 5 mph can turn onto the road and clog up traffic. Consider moving the road barriers to allow 3 lanes into Boston inbound.
- Comments about orange line being beyond capacity exactly at res line numbers. Interconnected orange line on urban ring running on existing orange line with street switchovers are the obvious remeot
- Commuter rail station/transfer at Sullivan
- Congestion charge for entering the city of Boston during the day, on I-93 or on surface roads.
- Connect silver line to Chelsea along commuter rail ROW. Improve bus access, reliability, and frequency.
- Connect the bike paths on the Mystic River with those along the Charles River with those along the Parkways between the rivers through Alewife. Connect the triangle, attract more walking and more biking.
- Consider creating pedestrian and bicycle only retail spaces that are transit accessible. Use one-way streets to discourage through auto traffic through areas where other alternatives exist. This will encourage people to use alternative who want to visit the area and discourage people who are just using it as a convent short cut.
- Create fewer bottlenecks, especially at the rotary at Sullivan Square. Connecting Alford St and Gateway Center to Assembly could help ease congestion in that area.
- Create some type of flyover lane from Sullivan Square to the casino to avoid traffic. Install more speed bumps in Charlestown to limit cut through traffic.
- Create world class rail and bus services to make public transit the more convenient and affordable choice
- Driving fees like central London
- Encourage businesses to offer flexible work schedules, provide employees with incentives to use public transportation, promote use of water taxis and transportation from Everett, Medford, Somerville into Boston
- Encouraging walk to school programs, walkable streets development. Anything that will get people in the habit of walking.
- Ensure that the casino is handling all traffic with water shuttles, buses, etc.. Limit parking at all new developments including the casino.
- Everett Gateway to Boston. (Malden, revere, etc. 99 to get to Boston. Create another way to Boston. It's just 99. Two lanes is not enough.
- expand the infrastructure rotary and extended the road lanes and bike lanes from Broadway and north/south bound Route16

- Extend planned silver line to Everett and Wellington, possibly. Definitely bus priority traffic signals, which should be implemented throughout the region.
- Extend the Green Line!!!!
- Figure out how to keep traffic on I-93 and improve traffic flow there
- Fix rotary traffic with another road option
- Fixed guideways or at least firmly fixed routes for non-personal transit.
- Fixing the timing of the lights at Sullivan Square could reduce the congestion at the intersections
- Focus on fixing Sullivan Square. It is too difficult to stop people from driving.
- For businesses moving to Sullivan (e.g. Parters) parking spaces should be much more limited since it's TOD next to a brand station.
- Get serious about bus transit and dedicate lanes for buses.
- Getting rid of the underpasses in Sullivan Square and along Rutherford Ave so that regional traffic that should be on I-93 is not encourage to take Rutherford Ave (or McGrath, for that matter)
- HAVE MORE OPTIONS FOR ROADS
- I believe you should be allowed to take a left at the "Target" rotary to reduce the back up. Also a study of traffic signals would be beneficial to stop the blocking of intersections which is a huge issue.
- I hate to say it, but we should probably install open road tolling on 93 now that it's on the Pike and the Tobin. Or, institute congestion pricing to discourage folks from driving into Boston -- but that has to be coupled with subways and busses that run at reasonable intervals. half the time I bring my car into Boston or to the T station purely because I can't risk waiting for three or four trains to be able to get on, or a bus that runs late 100% of the time (when it already only comes every 30 minutes and sits in traffic) and then go pick up my kid at school. The unreliability of the T is already making people do whatever they can to cope; shifting job schedules at this point wouldn't help because people have already done that as much as they can on their own to get around rush hour. And of course that doesn't include most lower/moderate income folks who have no choice around their work schedule.
- I live in Charlestown, and from my observation, the issue with Sullivan square has mostly to do with the traffic that builds up heading into Boston on the charlestown bridge. The intersection of North Washington and Chelsea builds up all the way back to the Sullivan circle. If that could be relieved, It would certainly help the traffic situation. Is it possible to investigate an on ramp to 93 at this intersection or off ramp on 93 south directly into Charlestown? That would significantly reduce traffic at the circle.
- I think clearer signage in the Sullivan Square area can only help reduce slow-downs, confusion, traffic, and accidents.
- I think there should be tiered tolling for the Tobin based on the distance of your residential zip code is from the bridge. I live on Adams ave, I pay 4.50, I can throw a stone a hit houses where those residents pay .15 cents. That makes no sense to me. So I commute to back bay every day and drive 99 to Rutherford to leverit etc, to avoid paying that toll. And soon enough I'm going to have to do the same thing on my commute home, forcing me through the Sullivan square area 2x more frequently. I work at night, finish after public transit has stopped so driving is my only option. I think bicycles and people commuting on them should be taxed and tolled like everyone else particularly if you plan to take away road space currently used by cars. Bike lanes are

really only be viable 8 of the 12 months of the year and could be used during the times of the year when traffic is the lightest, the summer.

- I think we need to do away with the rotary and add more roads & intersections. The rotary is incredibly dangerous for drivers, bikers, and walkers. There is way too much traffic for that area. The cars coming out of the Scrafft's building clog everything up as well and cause a lot of issues.
- I was really looking for an option to check that was, "make rotary less dangerous and more easy to navigate as a car, walker and biker." It honestly has the reputation as the worst intersection in the city, for all transportation modes. Something needs to be done. The other question I'd like to see addressed is "how can the abandoned infrastructure along rte 99 be used to help people get around?" Seems like a waste of premium space.
- implement congestion tolling rates as well as tolls on Rte 93 in/out of Boston
- Improve sidewalks, walkability issues in industrial areas of Everett, Chelsea, Somerville.
- Improve underpass from East Somerville to Assembly Row. Charge for parking at Assembly Row. Special lanes for buses.
- increase reliability + frequency of transit so people do not need to rely on auto trips for all journeys
- instead of focusing on reduced parking, focus on reducing lanes in rutherford and sullivan. also reduce traffic drive through ability on medford st by putting a series of crosswalks from residences to waterfront parks (yes these are currently used very often!!!)
- Investigate ways to reduce cost of taking public transit and increase the reliability of public transit so more people will want to use it.
- Land use decisions can reduce traffic by providing jobs, housing and essential retail and services in one location. Sullivan Square would be a good place to do so.
- limit parking at Assembly Row, Wynn casino and other new developments; Wynn casino should provide the water shuttle service that has been promised
- limit parking at casino and assembly row. make sure the casino has a plan for water shuttles and alternative modes of transportation from the day it opens that will keep people off of local roads
- Listen to the people in the neighborhood who DO NOT WANT THIS! I live and work at a local school in Charlestown. I am from here. I have only spoke to one local who supports these developments and she works for the BRA! Enough is enough, stop profiting on negatively impacting Boston neighborhoods. Stop widening the gap between lower and upper class. These developments seem to only benefit the rich.
- Look into reducing the amount of trucks that are allowed to use Lower Broadway (99) near Sullivan square and the Entire run of Broadway, Main st and santilli circle in Everett by creating truck specific routes and enforce the laws regarding those routes... meaning make sure all truck use just the truck lanes and routes only..
- Make all of the car lanes narrower (9 foot max!). This slows down speed (making things safer) AND it increases the smooth flow of traffic. It's a win for everyone. With the space you save by narrowing the lanes - put in physically protected (with curbs or nice planters, etc to give some character) bike lanes. Expand and beautify the side walks. Ban ALL oversized trucks (anything with commercial plates - and/or more than 4 wheels) between the hours of 7:00a-9:30a and 4:00p-6:30p Monday-Friday. Increase the cost of parking meters so it costs at least \$5 per hour (if you want to take public transit into Sullivan Square to go shopping, it will cost you \$4.50-\$5.50 for a round trip bus ride).

Increase the \$5 per hour during peak times. Eliminate parking requirements when building properties. Provide business incentives for local business to convert parking spaces into public-people spaces (ie. parklets).

- Making more train stations in the area (Everett, Chelsea)
- many of the bike lanes that have been getting put in across the city seem more dangerous than helpful
- More driving lanes
- More even distribution of residences, jobs, and essential services (groceries, drug stores, etc.) Reduce the need to travel long distances (in the same direction and same time as everyone else) for everyday activities.
- Move excessive street parking to off-street parking facilities and use this public space for a Citywide Network of Protected Bikeways: <http://oppron.org/bikeways.html>
- Need to build a more modern train , trolley system , let's get people more active walking , make it very difficult for people to park their car in Boston. Boston should reduce parking requirements, and the state should increase train capacity !
- No offense but how many of you live near or in Charlestown? We are directly affected everyday, we should be the only ones to decided what happens in sullivan sq
- Non resident toll on local roads.
- Orange line stop in Everett
- Pedestrian overpass for Sullivan. It is treacherous out there (I walk through Sullivan every day)
- Perhaps put more park and pedal lots in Everett, Somerville and Medford
- Please rebuild the 93 North entrance to 93 in Charlestown When the bridge was built there was a Charlestown entrance to 93 North which for some unknown ridiculous reason was taken down. This requires all Charlestown and some North End traffic going north to drive through Sullivan square to get to the 93 North entrance
- Please review the traffic lights on lower Broadway Everett going towards Sullivan Square and also the lights going both ways on the street going by the Sullivation T station under the 93 overpass. The lights are a major source of traffic. Especially at the end of the ramp from 93 into Sullivan Square by the T Station.
- Priority bus lanes on Washington Street by removing on-street parking during rush hour
- PROTECTED BIKE LANES. Bike paths. More pedestrian and cycling infrastructure. Please.
- Provide for zipcar and hubway stations.
- Provide incentives to get people out of cars. Develop neighborhoods that include mixed use so people have options close by for shopping, dinning, etc.
- Provide more direct access to MBTA buses from Sullivan Station so that they are not stuck in traffic approaching or departing from Sullivan Station.
- Push car-pooling options for Everett/Medford
- Put toll on route 99
- re-design rotory to reflect traffic flow.
- Redesign the traffic circle (Maffa Way/Cambridge Street/Rutherford Ave/Bunker Hill St/Alford St) to increase capacity and reduce delays
- Reliable and more frequent MBTA service
- Requiring all parking to be market rate priced and unbundled from real estate, employment, and housing.
- Restrictions on when buses can enter and leave sullivan station so that they are not stopping traffic

- Rework the traffic pattern, resurrect old Orange line station in the square.
- Rush hour tolling to discourage driving and increase revenue. More consistent and reliable transit (trains and buses that run on time, better schedules to allow for connections, etc). Direct transit connection (rail) between North and South Stations.
- See above
- Segregate local traffic from commuter traffic. Charlestown is limited to 3 egress points and yet gets overwhelmed by commuters from everywhere else.
- Separate vehicle types as much as possible. Bikes, trucks and buses, and passenger vehicle all have different requirements and should have separate routes.
- Set up bike infrastructure to allow people to safely travel through Sullivan Square - the clearly marked bike lanes are a temporary good start, but are not nearly enough. In theory, the entire square should be reconstructed away from a rotary to something safer. Or at the very least, have a separate underground or above path to allow pedestrians and cyclist to be separated from cars.
- Small thing, but it would be great if there was a path from Broadway to Sullivan Square T stop that didn't require going under I-93 and then looping all the way around to the T entrance. This could potentially include a bike path as well, similar to what is at Alewife station.
- STOP DEVELOPMENT BETWEEN SULLIVAN SQ AND WELLINGTON CIRCLES...there seems to be no way of slowing them down. and this area DOES NOT effect their neighborhoods as bad as Everett's neighborhoods...
- Take away tolls on Tobin bridge with subsidy and you will eliminate a lot of cut through traffic. Move the produce market and fuel terminals out of congested everett to other rural areas. Will Make it easier for tractor trailers to find these businesses if they are right off major highways and there will be less gridlock in everett
- TDM TDM TDM
- The Casino site should be connected to Assembly Square over the Mystic via the Amelia Earhart Dam.
- The emphasis is this study is reducing traffic, not building or improving traffic capacity. Travel through SS and RA should be slow (25 MPH), and limited by multiple traffic lights and pedestrian crossings. The goal is to keep drivers on Rt 93 or in public transit.
- The focus of this study should not just be about cars - vehicle traffic is just one factor to weigh alongside creating good, walkable, thriving neighborhoods, sustainability, etc.. We should keep regional traffic (including casino traffic) off of local roadways in Somerville, Charlestown, Medford, etc.
- The Orange line is really a mess. It's really unpleasant to squeeze into a train car like a sardine on the way to work. I'm sure more people would happily take public transportation if it wasn't so unpleasant. There aren't enough cars on the train and the trains don't run frequently enough during the morning and evening commutes.
- The Sullivan T stop would benefit from some thoughtful redesign. It is inconvenient to access for pedestrians; bike parking is not ideal; it has unsafe parking; taxi cabs and other pickups/drop offs can be difficult. The Sullivan 'roundabout' is also problematic for traffic and still very dangerous for bikes- a variety of solutions for that problem must be a part of this study.
- The Urban Ring ([https://en.wikipedia.org/wiki/Urban_Ring_Project_\(MBTA\)](https://en.wikipedia.org/wiki/Urban_Ring_Project_(MBTA)))! Boston designed a "hub & spoke" rail network, but we only bothered building the "spokes", not the "hub", so all routes have to flow through downtown Boston. Implementing the

Urban Ring would greatly improve overall traffic flow throughout the Boston metro area. Also, I'm a big fan of Dutch-style road infrastructure: protected bike routes, "woonerfs" ("unregulated" auto/ped/bike zones), etc. We could do a lot worse than to just copy as much as we can from Amsterdam.

- there definitely needs to be more variety of ways to get to a destination. Sometimes the congestion is caused by people getting on to the road and having to hop over lanes to get to proper exits which creates back ups .A way to maybe simplify that issue could be creating short cuts and or more options for people to get to their destination (new streets/bridges). I also think sometimes the intersections can become confusing to drivers, maybe create more effective intersections with lights that allow turn on arrow only and provide easier means of navigation (signs) for the public so that they can better assess direction and prevent traffic. I know from experience that whether its congested in that area or not its still confusing to navigate because all of the exits come up so soon and causes tons of confusion.
- Think about reliable transit that starts EARLIER so that people can get to work. Boston is the only Northeastern city of its size without reliable 24-hour transit. That's why everyone still thinks they have to drive.
- To encourage bus use, better bus shelters which are well lit, provide updates on bus arrivals, and shield passengers from weather
- Toll I-93!
- Traffic coming off 83 to Sullivan! Rotary near Schraft's building plus coming from Boston needs to be fixed or looked at
- Traffic enforcement. There is none and gridlocking intersections worsen traffic
- Traffic is likely to always exist in Sullivan Square. We should focus on calming traffic. Require drivers to move slowly through our neighborhoods and adhere to traffic laws.
- Train Station in everett
- Unreliable and infrequent buses from Sullivan Square make it really difficult to connect to my trip home. Having buses that run more frequently—especially outside of rush hour—will make the trip a lot easier. One option that I was surprised to not see raised here was the dearth of Hubway stations in the area. It's very frustrating that Sullivan Square doesn't have a station, nor are there any in the immediate vicinity. Adding docks nearby would make that trip a lot easier.
- use of water shuttle as another mode of transportation and possibly bridges over the water.
- Use part of the tunnel as bus only lanes from Route 99 directly to Community College or North Station T Stops. Why should they all connect to Sullivan Station? Make an entrance between the tunnel and Somerville rather than only Everett. Make an entrance from Downtown to 93 North on the South Side of Sullivan Square somewhere between North Station and Community College.
- uses trolleys or busses up and down rt 99...
- Using commuter rail stops as "express" trains with similar fares to MBTA fares at certain stops.
- We have a Catch22 problem! You can't move forward with a better public transit plan as it costs money and the right of ways are being lost. Everyone wants their own means of transport as often they need to jump between different end points thought the day. Some how we need to find a way to create a sharable quasi personal transport system. But the tech is still 10 years out before that will be real.

- widen the roads heading to Sullivan square and eliminate traffic lights
- widen the route 16, and route 99. Those will be the streets with the most heavy traffic.
- Would love to see underground train solutions connecting Everett to Boston
- Yes - find a way to cut down the amount of traffic that comes through Everett to Avoid going on The Bridge!!!

Do you have any comments or questions about this study?

- Add more questions about attracting commuters to walk, bike, bus, transit, commuter rail. Play less into the political cost of reducing parking.
- Almost no one in Charlestown knows about this
- As a former survey research professional, I'm thrilled to see a public-works-minded survey as well-designed as this one. I hope the results will be made public.
- Change is needed on roadways
- Focus on ways to reduce traffic, not ways to accommodate more of it. Do not base roadway designs based on traffic projections of traffic growth. Base them on the amount of traffic we WANT to accommodate.
- Get the word out better
- Glad a study is being done.
- Great questions and I hope it leads to increased connectivity with surrounding communities.
- great to see this study out there to get things started
- Hopeful this study will impact the residence of the cities in a positive way!!!
- How will we be notified of the results and possible solutions
- I am glad we are having the discussion
- I am thrilled the study is happening and that the city is planning to fix it!
- I have lived in Charlestown for 14 years. The new buildings, businesses, housing, stores are all great but not if we can't get to them. I think it is wildly unfair, irresponsible and illogical to keep building without addressing the traffic concerns in this area. People from other communities are coming here to park, work, eat and shop. They may have parking (at work) but they are creating so much more traffic congestion to an already congested area. We've always been a community with that issue as people drive thru (via tobin, rt. 93, rt.99) on their way to work and back home but now they work here. It creates so much more congestion that it's going to be impossible to own, park and drive a car if you actually live in this community. I think all this talk about bike lanes etc...is a bit unrealistic too. We live in the Northeast. The weather we get about 6 months out of a year is no easy for cyclists to manage and really the roadways are unsafe for them. You are better off focusing your efforts on better traffic flow, roadway expansion, and parking. Also, bus and subway expansion. The cycling is not a viable commuting option in my opinion. And what if you have kids?
- I hope it will make a difference in improving the land use.
- I hope they can really take this major issue into consideration
- I rode my bike daily through Sullivan square from the north and would like a safer way to get through the rotary.
- I think driving is a reality in greater Boston. I take public transit to work, but I also commute places by car. We can and should focus on alternatives to driving, while still also focused on car-related congestion.
- I think it is necessary and useful, but that it does not put any emphasis of future residential and commercial development in the area.
- I think it's great!
- I think the needs of the local community should be prioritized over commuters.
- I would like to be kept informed about the outcomes of the study.
- I would like to get the results to this research
- I would list priorities in order rather than have to choose three

- im glad that there was a survey made so that we can offer insight to this matter and that the city cares and wants to make navigation more effective.
- I'm very glad you are looking for input from the community.
- its about tim
- Keep doing them! Good to get public input on infrastructure investments.
- little reason to go to Sullivan Square today except transit connections or going through it to other areas
- Lots
- Make it so
- more public transit
- Must focus on mass transit, walking, biking. No other way for commuters to avoid congestion in long run.
- Please do not increase traffic in Sullivan Square and Rutherford Ave. Improve on 93 so people do not get off the interstate in Charlestown to access downtown Boston. Also please make this area greener and not such an eyesore to look at.
- Please don't assume that current traffic trends will continue.
- PLEASE help people understand that even with great programs and carrots and sticks to get people to not drive, every new big development is going to create a LOT of auto trips. We will have half of the trips by car if we're lucky. Stop the fantasy that everyone will walk and bike and bus.,
- Please see # 5 above
- Read ALL the comments above
- see eng
- So far, a very open and engaged project. Please keep it that way!
- Study all of these options; it's hard to pick just three!
- Sullivan Square is challenged by crossing municipal lines
- Take new ideas seriously. The Alford Street bridge should only be raised a few times per day for pleasure craft or other marine craft. Why should people going to work wait for the drawbridge for pleasure craft?
- Thank you for doing this
- Thank you for doing this study. I consider transportation issues like this one to be urgent, especially in the face of growing populations and more and more traffic fatalities.
- Thank you for your consideration. But by 2030? I wish things would move more quickly. They have been talking about extension in Somerville for 20 years
- Thanks
- Thanks! My wife and I are very upset we won't be able to make the transportation forum on 11/9, so at least we have some way of being heard.
- The survey doesn't actually limit people to their top three choices, so responses might be a bit skewed.
- there are actions to take now that do not require further study - take action now and put Rutherford and Medford st on a diet!
- This is interesting. How do I get involved?
- This is very much needed!
- Tough to pick top 3 on question 2; Orange Line and biking are really important also.
- Very easy to understand and easy to complete

- VERY unrealistic options for employers
- Who is responsible for this project? Taxpayer?
- Why haven't we had a Citywide Network of Protected Bikeways during the last 70 years?