BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
Karl H. Quackenbush, Executive Director, MPO Staff

TECHNICAL MEMORANDUM

DATE: **January 18, 2018**

TO: **Boston Region Metropolitan Planning Organization**

FROM: **Seth Asante, MPO Staff**

RE: **Selection of Study Locations for the FFY 2018 *Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment***

1 BACKGROUND

During the development of the Boston Region Metropolitan Planning Organization (MPO) Long-Range Transportation Plan (LRTP), *Charting Progress to 2040*, the MPO staff identified the existing needs for all transportation modes in the region.[1] The results were compiled in the LRTP Needs Assessment, which is used to guide the MPO's decision-making process for selecting transportation projects to fund in future Transportation Improvement Programs (TIP). The MPO goals that guided the development of the LRTP Needs Assessment include the following:

- Safety—make all modes safe
- Preservation—maintain and modernize the system
- Capacity Management and Mobility—use existing facility capacity more efficiently and increase healthy transportation capacity
- Clean Air/Clean Communities—create an environmentally friendly transportation system
- Transportation Equity—provide comparable transportation access and service quality among communities, regardless of income level or minority population
- Economic Vitality—ensure our transportation network serves as a strong foundation for economic vitality

Based on previous and ongoing transportation-planning work—including the MPO's Congestion Management Process (CMP) and planning studies—MPO staff identified several priority arterial roadway segments that require maintenance, modernization, and safety and mobility improvements. These locations are documented in the LRTP Needs Assessment.

[1] Boston Region Metropolitan Planning Organization, *Charting Progress to 2040: The New Long-Range Transportation Plan of the Boston Region Metropolitan Planning Organization,* endorsed by the Boston Region MPO on July 30, 2015.

To address problems on some of these arterial segments, the *Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment* study was included in the federal fiscal year (FFY) 2018 Unified Planning Work Program (UPWP).[2] This memorandum presents the results of Task 2 of the work program for that study.[3] Task 2 involves presenting a recommendation for locations to study to the MPO board for discussion.

By focusing on arterial segments rather than intersections, planners can evaluate multimodal transportation needs comprehensively (with the goal of creating Complete Streets). A holistic approach to analyzing problems and forming recommendations ensures that the needs of all public transportation users—including pedestrians, bicyclists, and motorists—are considered. Ultimately, this approach will result in roadways where it is safe to cross the street and walk or cycle to shops, schools, train stations, and recreational facilities, and where buses can run on time. Typically, the recommended improvements are within a roadway's right-of-way. They take into account the needs of abutters and users, and the interests and support of stakeholders.

2 PROCEDURE FOR SELECTING STUDY LOCATIONS

The process for selecting study locations consisted of three steps. First, MPO staff assembled data about the arterial segments identified in the LRTP Needs Assessment and used the data to prioritize the roadway segments. Next, MPO staff examined the arterial segments more closely by applying specific criteria. Finally, staff scored each arterial segment and assigned a priority of *low*, *medium*, or *high* to each segment. Details about each step in the process are provided below.

2.1 Gathering Data

MPO staff identified 44 arterial segments in 33 municipalities in the Boston region based on the following data sources:

- The Massachusetts Department of Transportation (MassDOT) 2016 Road Inventory File and 2010–14 crash database were used to assemble the following information for each arterial segment: roadway jurisdiction,

[2] Boston Region Metropolitan Planning Organization, Unified Planning Work Program, Federal Fiscal Year 2018, endorsed by the Boston Region Metropolitan Planning Organization on June 15, 2017 and was approved by our federal partners and took effect on October 1, 2017.

[3] Karl H. Quackenbush, CTPS Executive Director, memorandum of a work program to the Boston Region Metropolitan Planning Organization, "Addressing Priority Corridors from the Long-Range Transportation Plan Needs Assessment: Federal Fiscal Year (FFY) 2017," October 19, 2017.

National Highway System status, average daily traffic (ADT), high-crash locations, and crash rates.
- The MPO's CMP data on arterial congestion were used to determine average travel speeds, travel-time index (travel time in the peak period divided by travel time at free-flow conditions), and speed index (average travel speed divided by the speed limit) on each arterial segment.
- The MPO's data on gaps in the bike network and data on the location of MassDOT bike facilities were used to identify needs for the bicycle mode, including locations where connectivity between bicycle facilities could be improved and where bicyclists' accommodations could be improved.
- Data on MBTA bus service performance and passenger loads were used to determine the percentage of bus trips that do not adhere to the schedule (in other words, that provide late service) or do not adhere to passenger load standards (resulting in crowding).
- Data on MBTA bus routes, subway lines, and commuter rail lines were used to identify which arterial segments serve MBTA buses or stations.
- Data on the MPO's Environmental Justice (EJ) transportation analysis zones were used to identify areas of concern as relates to environmental justice.
- Data selected from MassDOT's project-information database, the MPO's FFY 2018–22 TIP projects, MPO planning studies and other studies, and municipal websites were used to obtain data on projects, studies, and TIP projects that are planned or programmed for each arterial segment.

Table 1 (attached) presents the data and information gathered on each of the following arterial segments:
- Municipality
- Metropolitan Area Planning Council (MAPC) subregion
- Jurisdiction
- MassDOT district office
- Crash rate per million vehicle-miles traveled
- Number of top-200 high-crash locations
- Number of crash clusters that are eligible for Highway Safety Improvement Program (HSIP) funding
- Travel-time index
- Transit service performance
- Proximity to an EJ transportation analysis zone (within one-half mile distance)
- Relevant studies or projects within or near the segment

Table 1 also includes the score and priority rating that were determined by applying the selection criteria. The processes for scoring and assigning priority ratings to segments are described below.

2.2 Applying Criteria

MPO staff examined the arterial segments more closely by applying the following six criteria and assigning points based on the number of criteria that apply to each location:

1. *Safety Conditions, 0–4 points (each of the four criteria is worth one point)*
    - Location has a higher-than-average crash rate for its functional class
    - Location contains an HSIP-eligible crash cluster
    - Location is identified in the Massachusetts *Top High Crash Locations Report*
    - Location has a significant number of pedestrian and bicycle crashes per year (two or more per mile) or contains one or more HSIP-eligible bike-pedestrian crash cluster

2. *Congested Conditions, 0–2 points (each of the two criteria is worth one point)*
    - Travel-time index is at least 1.3
    - Travel-time index is at least 2.0

3. *Multimodal Significance, 0–3 points (each of the three criteria is worth one point)*
    - Location currently supports transit, bicycle, or pedestrian activities
    - Location needs to have improved transit, bicycle, or pedestrian facilities
    - Location has a high volume of truck traffic serving regional commerce

4. *Regional Significance, 0–4 points (each of the four criteria is worth one point*)
    - Location is in the National Highway System
    - Location carries a significant portion of regional traffic (ADT is greater than 20,000)
    - Location lies within 0.5 miles of an EJ transportation analysis zone
    - Location is essential for the region's economic, cultural, or recreational development

5. *Regional Equity, 0–2 points (each of the two criteria is worth one point)*
    - Location is in an MAPC subregion for which there has not been a Priority Corridors study

- Location is in an MAPC subregion for which there has not been a Priority Corridors study in the previous three years.

6. *Implementation Potential, 0–3 points (each of the three criteria is worth one point)*
   - Location is proposed or endorsed for study by the agency that administers the roadway
   - Location is proposed or endorsed by its MAPC subregional group and is a priority for that subregional group
   - Other stakeholders strongly support improvements for the location

2.3 Scoring and Rating

MPO staff rated arterial segments with a total score of 10 or fewer points as *low* priority; those with a score of 11 to 12 points as *medium* priority; and those with a total score of 13 or more points as *high* priority. MPO staff gave 15 arterial segments a high-priority rating based on safety and operational needs, multimodal and regional significance, regional equity, and support for improvements from agencies and municipalities. Staff then examined high-priority segments more closely, and excluded arterials that had projects meeting any of the following criteria from further consideration for this cycle of the Priority Corridors study: recently completed, in construction, in design, under study, or programmed in the TIP with the 25 percent design completed.

The four arterial segments with the highest scores were:

- Route 138 in Milton
- Route 114 in Peabody
- Route 3A in Quincy
- Route 16 in Wellesley

Staff also evaluated the pedestrian accommodation and safety improvement needs for these segments by applying the MPO's recently developed Pedestrian Report Card Assessment.[4] All four locations highly qualify based on pedestrian accommodation or safety improvement requirements. Appendix A contains detailed results of the assessments. Based on this evaluation, MPO staff recommends studying the segment on Route 138 in Milton.

[4] Ryan Hicks and Casey-Marie Claude, Boston Region Metropolitan Organization, *Pedestrian Level-of-Service Memorandum*, January 19, 2017.

3 ARTERIAL SEGMENT SELECTED FOR STUDY: ROUTE 138 IN MILTON

The arterial segment that was selected for study was Route 138 in Milton, based on a total score of 14, using the five selection criteria (safety, congestion, multimodal and regional significance, regional equity, and implementation potential). Route 138 runs north-south through Milton, from the border of Boston to the north to the border of Canton to the south. In Milton, the roadway primarily passes through residential areas and the Blue Hills Reservation area. Current evaluation indicates that there are safety, capacity, and mobility problems in the segment. Two locations along the segment contain HSIP-eligible crash clusters and the segment has a higher-than-average crash rate for its functional class. The corridor also sees a high injury rate with 39 percent of collisions causing injuries. Additionally, several intersections in the segment are congested, which create long traffic queues during peak travel periods. Finally, accommodations for pedestrians and bicyclists are poor and need improvement—several sections in the Blue Hills Reservation and Curry College lack sidewalks.

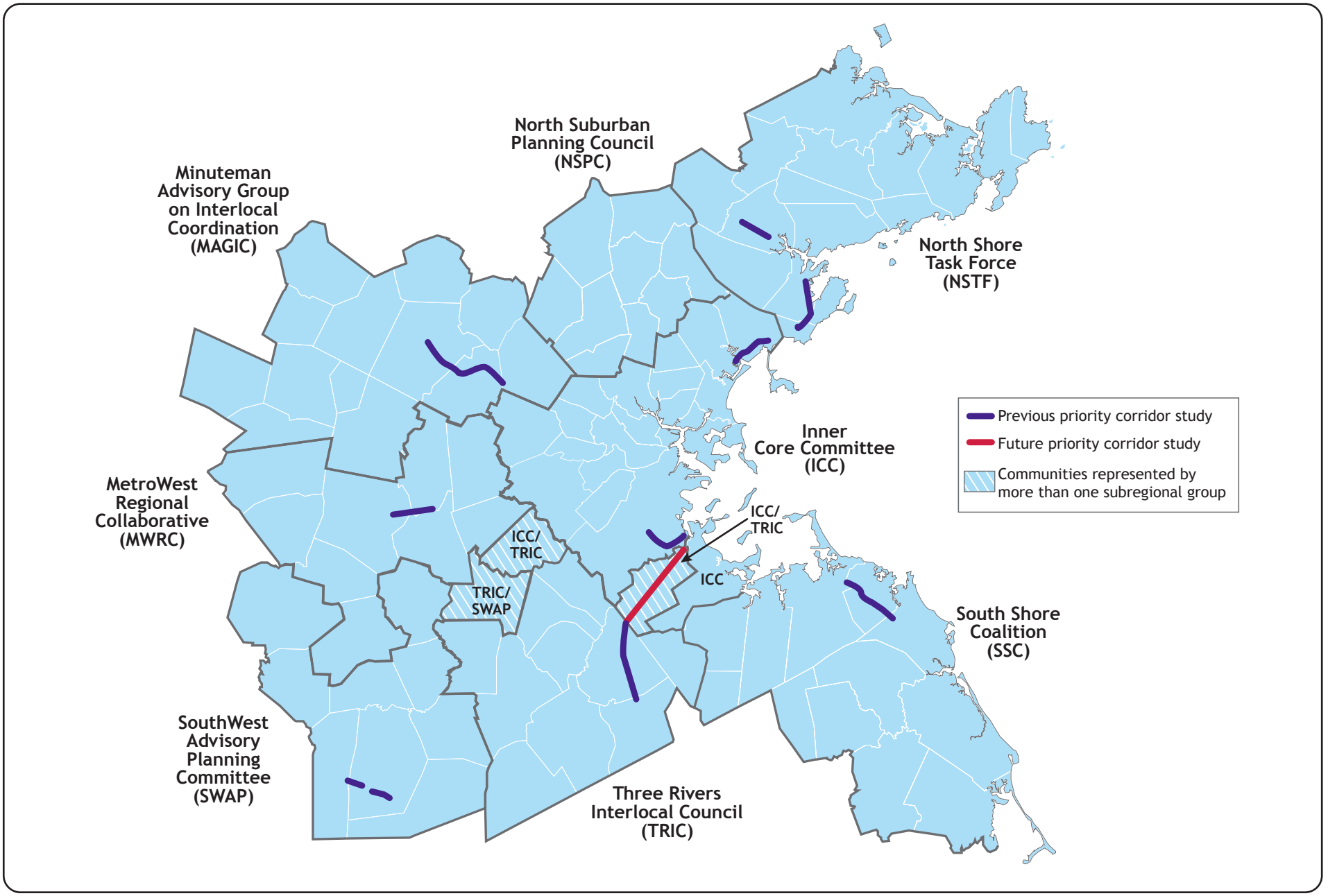
The Town of Milton is considering capacity and mobility improvements in the corridor and has expressed support for and willingness to participate in a study of this arterial segment (See Appendix B). MassDOT Highway Division District 6 supports this study and asked the MPO staff to identify the problems and develop Complete Street solutions that could be implemented by MassDOT in tandem with a future roadway improvement project.

The recommended arterial segment on Route 138 in Milton meets the selection criteria of this study, especially by supporting the transportation improvement priorities of the MPO's LRTP. While the work program for this study assumed that "as many as two" arterial segments would be selected, the MPO staff does not propose studying a second arterial segment because Route 138 in Milton is approximately 3.5 miles long and this study would require considerable resources for evaluating alternative improvement plans. Figure 1 shows the general locations of previous Priority Corridor studies, and the location identified for this year's study.

4 NEXT STEPS

After the MPO board discusses this recommendation, staff will meet with officials from the Town of Milton, MassDOT, MAPC, and other stakeholders to discuss the study specifics, conduct field visits, collect data, identify needs, and develop solutions.

SA/sa



BOSTON REGION MPO

N

FIGURE 1
Previous and Current Priority Corridor Studies By MAPC Subregion

Route 138 Milton
LRTP Priority Corridors Study

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 138	Milton	ICC and TRIC	6	MassDOT	Yes	2	1.5	0	1	2.41	MBTA bus Routes 245 and 716 MBTA Commuter Rail at Route 128 Station MBTA Red Line Rapid Transit at Mattapan Station	Yes	Yes Half of the segment is contained within EJ zones.	MassDOT Poject #608484, Roadway Improvement on Route 138, project is planned to be funded through the 2020 Transportation Improvement Program for the Boston Metropolitan Planning Organization (MPO); project will also incorporate work planned originally for 607763 (described below); in the preliminary design phase. MassDOT Project #607763, Intersection and Signal Improvements at Two Locations: Route 138 (Blue Hill Avenue) at Atherton Street and Bradlee Road and Route 138 (Blue Hill Avenue) at Milton Street and Dollar Lane, programmed in federal fiscal year (FFY) 2019 Transportation Improvement Program (TIP); in the preliminary design phase.	2	2	2	4	1	3	14	High	Safety and congestion issues have been identified on this route and many locations in the segment need pedestrian and bicycle improvements. In addition, several intersections in the segment have congestion and safety issues. The Town of Milton is looking at pedestrian improvements in the corridor and has expressed unanimous support for the study. MassDOT Highway District 6 is in support of this study to identify problems and solutions that can be implemented in tandem with a future roadway improvement project in the segment. The location was suggested in the 2017 MPO outreach program.
Route 114	Peabody	NSTF	4	MassDOT and Town	Yes	2	3.7	2	8	3.60	Three MBTA bus stops MBTA bus Routes 435 and 465	Yes	Yes Half the segment abuts an EJ zone.	MassDOT Project # 608567, Improvements at Route 114 at Sylvan Street, Cross Street, Northshore Mall, Loris Road, Route 128 Interchange, and Esquire Drive, in design	4	2	2	3	1	2	14	High	Route 114 in Peabody was listed as a potential corridor in need of signal progression and improvements to accommodate pedestrians and bicyclists. However, the arterial segment was not selected because according to MassDOT Highway District 4, a road safety audit was completed for the segment in August 2016 and a consultant is starting design work as part of project #608567. The location was suggested in the 2017 MPO outreach program.
Route 3A	Quincy	ICC	6	MassDOT, DCR, and City	Yes	3	2.9	1	4	2.76	MBTA bus Routes 201, 202, 210, 211, 212, 217, 275, 276, and 217 MBTA Red Line Rapid Transit at Quincy Center, Wollaston, and North Quincy MBTA Commuter Rail at Quincy Center	Yes	Yes The entire segment lies within or near EJ zones.	MassDOT Project #608569, Intersection Improvements at Route 3A (Southern Artery) and Broad Street. The project is planned to be funded through the FFY 2021 TIP; in the preliminary design phase. MassDOT Project #605729, Intersection and Signal Improvements at Hancock Street and East/West Squantum streets. The project consists of widening and improvements to the intersection of Hancock Street with East and West Squantum streets and improvements along Hancock Street to the MBTA access drive; completed in fall 2015. MassDOT Project #602237, Traffic Signal Installation and Intersection improvements, Hancock Street and Southern Artery. The project reconstructed Hancock Street from Saint Ann's Road to Fenno Street, completed in fall 2007. MassDOT Project #606518. As part of the Quincy redevelopment project, the city plans to construct a new bridge over the existing MBTA tracks that will connect the downtown area at Market Square and Hancock Street. The main goal of the new bridge will be improved pedestrian conditions along Hancock Street; 25% package received (as of 12/16/2016) An FFY 2012 CTPS safety and operations study addressed problems at Route 3A and Coddington Street intersection.	3	2	2	4	1	2	14	High	Route 3A (Hancock Street and Southern Artery) has received several improvement projects and a CTPS study. The location was suggested in the 2017 MPO outreach program.
Route 16	Wellesley	MWRC	6	MassDOT and Town	Yes	4	6.4	0	5	2.57	MBTA Commuter Rail at Wellesley Square, Wellesley Hills, and Wellesley Farms MWRTA Route 8	N/A	Yes The southern end of the segment lies in an EJ zone.	MassDOT Project #94762, Bridge Rehabilitation, Route 16 (Washington Street) over Route 9, including relocation of retaining wall; completed summer 2010. MassDOT Project #600712, Reconstruction of Route 16 from Grantland Road to the Newton City Line. The work consisted of paving, drainage improvements, sidewalk reconstruction, traffic signals, and ornamental lighting on Route 16. A signal was installed at the Washington Street/Walnut Street intersection, and the pedestrian crossing 150 feet south of Hillside Road was upgraded, completed in 2004.	3	2	2	4	1	2	14	High	The location was suggested in 2014 LRTP outreach through verbal comments at a 495/MetroWest Partnership meeting.
Route 60	Arlington	ICC	4	Town	Yes	3	5.7	0	1	2.92	Eight MBTA bus stops MBTA bus Routes 67, 62, 76, 77, 78, 79, 80, 84, and 350	Yes	Yes	CTPS and MAPC Community Transportation Technical Assistance Program evaluated the high-crash location at the intersection at Massachusetts Avenue, March 2010. MassDOT Project #606885, the contractor is planning to finish the rest of the bike route symbols and electric work, weather permitting (as of 01/06/2017); in construction.	3	2	3	3	1	1	13	High	N/A
Alewife Brook Parkway	Cambridge	ICC	6	DCR	Yes	2	9.3	0	3	4.77	MBTA bus Routes 79, 350, 62, 67, 74, 76, 78, 84, and 351 MBTA Rapid Transit on the Red Line MBTA Commuter Rail at Porter Square	Yes	Yes Most of the segment lies within or adjacent to EJ zones.	Alewife Studies, Phase II, CTPS study (2009). DCR announced a comprehensive study of the parkway system for bike lanes. MassDOT Project #605637, Improvements at Route 2 and Route 16. The purpose of this project is to perform minor widening, eliminate a merge condition, and improve throughput capacity and vehicle queue storage at the intersection of Route 2 and Route 16 (Alewife Brook Parkway); under construction.	3	2	2	4	1	1	13	High	The Fresh Pond Residents Alliance identified Fresh Pond Parkway and Alewife Brook Parkway as locations in need of transportation improvements. Concerns include pedestrian safety of young students who walk to Shady Hill School because of high traffic volumes, environmental issues, and lack of livability.
Route 16 (Revere Beach Parkway)	Everett	ICC	4	DCR	Yes	2	2.2	1	7	1.97	MBTA bus Routes 97, 99, 106, 110, 112, 104, 105, and 109 MBTA Orange Line Rapid Transit at Wellington and MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updated traffic information, assessment of parkway conditions, and assessment and understanding of deficiencies along the heavily cycled parkways.	3	1	3	4	1	1	13	High	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 9	Framingham	MWRC	3	MassDOT	Yes	2	2.8	0	7	3.47	MWRTA bus Routes 1, 2, 3, 7, and 9	None	Yes Over half the route lies within or adjacent to an EJ zone.	MAPC Land Use/Route 9 Corridor Study (fall 2013) MassDOT Project #603865 is located in Framingham at the intersection of Route 9 and Temple Street; in preliminary design MassDOT Project #608006, Pedestrian Hybrid Beacon Installation at Route 9 and Maynard Road; 25% design stage MassDOT Project #604991, Resurfacing and Related Work on Route 9, includes wheelchair ramp upgrades, additional sidewalks/repairs, and signal improvements; completed in autumn 2011 #602522: Framingham- Bridge Replacement, Br# F-07-006, Route 9 over the Sudbury River -- This project proposes to replace the Route 9 Bridge over the Sudbury River and includes minor incidental roadway work. (2009) #602930: Brookline- Framingham- Natick- Newton- Southborough- Wellesley- Westborough- Traffic Signs on Route 9 -- This project will replace and update all overhead and ground-mounted guide sign panels, exit gore, warning, regulatory, and route marker panels on Route 9 and secondary roadways from the Boston-Brookline town line to I-495 in Westborough, with the exception of signing, which was updated under the I-495 Milford to Bolton contract. (2009) #604991: Framingham- Natick- Resurfacing and Related Work on Route 9 -- Route 9 will be resurfaced from approximately the Southborough/Framingham Line easterly to the Natick/Wellesley Line. (2011) #605228: Framingham- bridge replacement, F-07-001, Route 9 (Worcester Road) over reservoir outlet -- The purpose of this project is to replace the superstructure of the Route 9 bridge over the Reservoir Outlet connecting the Foss Reservoir No. 3 to the Stearnes Reservoir No. 1. (2017) #608006: Framingham- Pedestrian Hybrid Beacon installation at Route 9 And Maynard Road -- The proposed project will construct an at-grade pedestrian crossing across Route 9 in the vicinity of Maynard Road and the Framingham Fire Station. (Design public hearing 2017)	2	2	3	4	1	1	13	High	This arterial segment was not selected because according to MassDOT District 3, most of the intersections on this corridor have already been studied. In addition, MPO staff studied Route 30 in Framingham and Natick under the FFY 2013 Priority Corridors for LRTP Needs Assessment.
Route 107	Lynn	ICC	4	MassDOT and Town	Yes	3	20.6	3	21	1.86	MBTA bus Routes 424,426, 436, 441, 442, 450, 455, 456, 459, 429, and 435 MBTA Commuter Rail at River Works, Lynn/Central Square, and Swampscott Ferry service	Yes	Yes The entire segment lies within EJ zones.	MassDOT Project #604952, Bridge Replacement, Route 107 over the Saugus River; Design exception submitted (as of 01/26/2017); The construction will begin in autumn 2018. MassDOT Project #26710, Bridge Replacement, Route 107 over the Saugus River (Fox Hill Bridge); completed spring 2013 MassDOT Project #603938, Western Avenue Bridge over Saugus River (Fox Hill Bridge) TIP Project #374, Lynn Garage (transit)	4	1	2	4	1	1	13	High	This arterial segment was not selected for study because there is an ongoing Route 107 Corridor Study in Lynn and Salem, which is being conducted by MassDOT in conjunction with Lynn and Salem.
Route 16 (Revere Beach Parkway and Mystic Valley Parkway)	Medford	ICC	4	DCR	Yes	2, 3	2.2	2	4	3.18	MBTA bus Routes 90, 97, 99, 100, 106, 108, 110, 112, and 134 MBTA Rapid Transit on the Orange Line at Wellington and on the Red Line at Porter Square MBTA Commuter Rail at West Medford and Porter Square	Yes	Yes EJ zones are located at the ends of the segment in Somerville and Everett and 0.2 miles away in Medford.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways. #604660: Everett- Medford- Bridge Replacements, Revere Beach Parkway (Route 16), E-12-004=M-12-018 Over The Malden River (Woods Memorial Bridge) & M-12-017 Over Mbta And Rivers Edge Drive -- The purpose of this project is to replace the existing non-operating draw bridge with a new fixed bridge. (2020)	3	2	2	4	1	1	13	High	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 9	Natick	MWRC	3	MassDOT	Yes	2	4.4	1	10	3.30	MWRTA bus Routes 1, 4, 9, and 10	None	Yes One EJ zone is 0.5 miles away.	MAPC Land Use/Route 9 Corridor Study (fall 2013) MassDOT Project #608821, Installation of adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at 5 traffic signals (3 in Framingham and 2 in Natick) on Route 9; in construction. MassDOT Project #605091, Work consists of bridge repairs on 4 bridges over Route 9 and Speen Street, in preliminary design MassDOT Project #601586 was completed in autumn 2015. MassDOT Project #605313 will reconstruct the Route 9/Route 27 interchange; 25% project design stage. MassDOT Project #604991, Resurfacing and Related Work on Route 9, includes wheelchair ramp upgrades, additional sidewalks/repairs, and signal improvements; completed in 2011	4	2	1	4	1	1	13	High	This segment was not selected because according to MassDOT District 3, the installation of an adaptive traffic control system for five signals and the reconstruction of the Route 9 and Oak Street intersection are currently under construction. The Route 9 and Route 27 interchange is currently in design.

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
														#602930: Brookline- Framingham- Natick- Newton- Southborough- Wellesley- Westborough- Traffic Signs On Route 9 -- This project will replace and update all overhead and ground-mounted guide sign panels, exit gore, warning, regulatory, and route marker panels on Route 9 and secondary roadways from the Boston-Brookline town line to I-495 in Westborough (completed 2009) #603004: Natick- Bridge Replacement, Br# N-03-021, Route 9 Over Lake Cochituate (2007) #607732: Framingham- Natick- Cochituate Rail Trail Construction Including Pedestrian Bridge, N-03-014, Over Route 9 & F-07-033=N-03-029 Over Route 30 (begins 2018/2019) #607993: Ayer- Natick- Lancaster- Leominster- Worcester- Stormwater Improvements Along Route 2, Route 9, Route 12, Route 2a, Route 110, Route 111 And I-290 (2018)								
														#608281: Framingham- Natick- Adaptive Signal Control On Route 9 (Worcester Road) -- Installation of adaptive traffic control signal equipment, vehicle detection, communication equipment, and managing software at 5 traffic signals (3 in Framingham + 2 in Natick) on Route 9. (completed summer 2017)									
Route 114	Salem	NSTF	4	MassDOT and City	Yes	2, 3	10.4	1	5	2.06	18 MBTA bus stops MBTA bus Routes 450, 451, 455, 456, 459, and 465 MBTA Commuter Rail at Salem and Beverly Ferry service	Yes	Yes Half the segment abuts EJ zones.	Transportation Improvement Study for Routes 1A, 114, and 107 and Other Roadways in Downtown Salem, 2005 CTPS study MassDOT Project #605332, Bridge Replacement (Route 114) North Street over North River; in preliminary design	4	2	2	4	0	1	13	High	This arterial segment was not selected because of regional equity--the NSTF subregion was the recipient of the FFY 2016 LRTP Priority Corridor study. This location was suggested for study in 2012 UPWP outreach via an NSTF letter. NSTF suggested that a study on Routes 114/1A and Route 127 from Swampscott to Gloucester would include suggestions about how to improve bike facilities and bike-to-rail connections in this heavily traveled tourist region. This builds on the NSTF's primary recommendation for that year and the anticipated popularity of the Essex Coastal Scenic Byway in the region.
Route 3A	Weymouth	SSC	6	MassDOT	Yes	3	3.5	0	3	1.74	30 MBTA bus stops MBTA bus Routes 220, 221, and 222 MBTA Commuter Rail at Quincy Center, Weymouth Landing/ East Braintree, and West Hingham Ferry service	Yes	Yes An EJ zone in Quincy is 0.2 miles from the segment.	MassDOT Project #608231, The intent of this project is to reconstruct Route 3A and address poor traffic operations along the corridor. The project will also upgrade accomodations for bicyclists and pedestrians; in preliminary design MassDOT Project #604382, Route 3A (Washington Street) Bridge; construction ends winter 2016/2017 MassDOT Project #608483, Work consists of resurfacing on Route 3A; in preliminary design MassDOT Project #602703, Bridge Rehabilitation, Route 3A (Lincoln Street) over the Weymouth Back River; completed in autumn 2006	3	1	2	4	1	2	13	High	A road safety audit was completed for Route 3A in Weymouth in September 2016. The audit identified the problems and needs on the roadway, and suggested short-, medium-, and long-term improvements. MassDOT District 6 indicated that a study would probably be redundant as the audit provided the information needed to advance Project #608321 in design.
Route 18	Weymouth	SSC	6	MassDOT	Yes	3	7.1	0	10	2.55	Nine MBTA bus stops MBTA bus Route 225 MBTA Commuter Rail at South Weymouth	Yes	Yes EJ zones lie adjacent to the segment.	Programmed TIP (2017) and MassDOT Project #601630, Reconstruction and Widening on Route 18 (Main Street), from Highland Place to Route 139; construction begins summer 2017 MassDOT Project #603161, Signalization and Improvements on Route 18 (Three Locations) at West Street, Park Avenue, and Columbian Street; completed in spring 2009 MassDOT Project #603738, Traffic Signal Improvements on Route 18 at Pond Street and Pleasant Street; completed in summer 2006	3	2	2	4	1	1	13	High	This arterial segment was not selected because according to MassDOT District 6, a MassDOT project is underway, and no project is needed at this time.
Route 129	Wilmington	NSPC	4	MassDOT and Town	Yes	3	6.1	0	7	3.31	MBTA Commuter Rail at Wilmington, North Wilmington, Anderson/Woburn, and Reading	N/A	None	MassDOT Project #601732, Rehabilitation, Route 129 (Lowell Street) from Route 38 (Main Street) to Woburn Street. The project includes full-depth reconstruction and widening, accessible (ADA-compliant) sidewalks, new tree plantings, and bicycle accommodation within the newly paved shoulders. The intersection of Route 129 and 38 was realigned with new traffic signals and the bridge over Maple Meadow Brook was replaced; completed in 2009. MassDOT Project #608051 will reconstruct Route 38 from Route 62 to the Woburn city line and will add bike lanes, sidewalks, turn lanes, and signal upgrades; in preliminary design.	3	2	2	3	2	1	13	High	N/A
Routes 4 and 225	Bedford and Lexington	MAGIC	4	MassDOT and Town	Yes (part)	3, 5	4.2	1	3	1.82	Three MBTA bus stops MBTA bus Route 62	Yes	None	Great Road Project: Master Plan and Conceptual Design, prepared by VHB for the Town of Bedford in 2011, in preliminary design The MassDOT-administered section, from I-95 to Hartwell Avenue, was the subject of a Town study (Hartwell Avenue Traffic Mitigation Plan -- Bedford Street Concept Plan), and a road safety audit was performed for this segment in November 2011 #29500: Bedford- Roadway Reconstruction And Traffic Signal Installation On A Section Of Great Road (Routes 4 & 225) (complete 2000) #607409: Lexington- Reconstruction On Massachusetts Avenue, From Marrett Road To Pleasant Street -- The proposed project will address safety and capacity deficiencies at three intersections along Massachusetts Avenue; Marrett Road (Route 2A), Maple Street (Route 2A) and Pleasant Street (Routes 4/225). (construction 2016-2018)	3	1	2	3	1	2	12	Medium	This arterial segment was not selected because it did not have the support of MassDOT District 4 and also sections of it had already been studied. The Town of Bedford requested in FFY 2017 that the MPO study this arterial segment from I-95 in Lexington to Loomis Street in Bedford. The MAGIC subregion requested that the FFY 2012 UPWP and FFY 2013 UPWP include a study of Routes 4 and 225. The MassDOT section from I-95 to Hartwell Avenue was the subject of a Town study.
Route 16 (Revere Beach Parkway)	Chelsea	ICC	6	DCR	Yes	2	2.8	2	3	2.33	MBTA bus Routes 112 and 111 MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ zone.	The Lower North Shore Transportation Improvement Study, CTPS study (2000) DCR announced a comprehensive study of the parkway system for bike lanes.	3	2	2	4	1	0	12	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 28	Milton	ICC and TRIC	6	MassDOT and Town	Yes	3	4.2	0	1	2.48	51 MBTA bus stops MBTA bus Routes 240, 245, 24, 28, 26, 30, 31, and 33 MBTA Red Line Rapid Transit at Mattapan/Ashmont Station BAT Route 12	Yes	Yes EJ zones are located at the northern end.	MassDOT Project #607342, Intersection and Signal Improvements at Route 28 (Randolph Avenue) and Chickatawbut Road; in preliminary design MassDOT Project #106901, Roadway Reconstruction on Route 28 (Randolph Avenue) from Reedsdale Road to Milton/Quincy town line; completed 2008 Conceptual TIP #1008, Reconstruct the Intersection of Blue Hills Parkway and Brook Road	2	2	2	3	1	2	12	Medium	This arterial segment was not selected because there have been several improvements in this segment in recent years.
Route 9	Newton	ICC	6	MassDOT	Yes	2	2.0	0	8	4.99	Six MBTA bus stops MBTA bus Routes 60, 52, and 59 MBTA Green Line	Yes	Yes An EJ zone in Brookline is 0.3 mi from the segment.	MassDOT Project #604327, Resurfacing and Related Work on Route 9 (Boylston Street) from the Wellesley/Newton city line to Newton/Brookline city line; completed in summer 2012 MassDOT Project #601704, Reconstruction and Signal Improvements on Walnut Street, from Homer Street to Route 9; in design; 25% package received (as of 12/23/2013) MassDOT Project #606635, Reconstruction of Highland Avenue, Needham Street, and Charles River Bridge, from Webster Street to Route 9; 75% package received (as of 09/23/2016). MassDOT Project #604327, resurfaced this segment, including updates to guardrails and improvements to the existing drainage structures; construction was completed in 2012.	2	2	2	4	1	1	12	Medium	According to MassDOT District 6, improvements were recently made to accommodate new developments. An analysis of the new existing conditions would be helpful to compare with the future projected conditions.
Route 16	Newton	ICC	6	MassDOT and City	Yes	3	2.9	0	4	1.86	MBTA Routes 59, 170, 505, 553, 554, and 556 MBTA Green Line Rapid Transit MBTA Commuter Rail at West Newton	Yes	Yes An EJ zone lies adjacent to the segment.	MassDOT Project #606780, Bridge Rehabilitation, Route 16 (Washington Street) over I-90, MBTA/CSX Corporation and Access Road; 25% package comments to DE (as of 02/19/2016). Conceptual TIP #1067, Washington Street (Phase 2), from Commonwealth Avenue to Perkins Street	2	1	2	4	1	2	12	Medium	In FFY 2014, a subregional study was conducted on Washington Street in Newton. The location was suggested in 2014 LRTP outreach through verbal comments at a 495/MetroWest partnership meeting.
Route 28	Randolph	TRIC	6	MassDOT and Town	Yes	3	5.5	0	6	2.00	50 MBTA bus stops MBTA bus Routes 240 and 238 MBTA Commuter Rail at Holbrook/Randolph BAT Route 12	Yes	Yes The entire segment lies within EJ Zones.	MassDOT Project #603716, Resurfacing and Related Work on a Section of Route 28; completed 2007/2008 Conceptual TIP #1002, Route 28 (N. Main Street) Bridge Conceptual TIP #1010, Route 28 (N. Main Street) and Liberty Street intersection Conceptual TIP #1011, Route 28 (N. Main Street) and West Street intersection FFY 2008 Safety and Operations Analyses at Intersections study Arterial Coordination Study, CTPS study (2010)	3	2	2	4	0	1	12	Medium	The location has several MassDOT projects and CTPS studies and it is not recommended for study.
Route 16 (Revere Beach Parkway)	Revere	ICC	4	DCR	Yes	2	1.5	0	4	1.86	MBTA bus Routes 110, 116, 117, 119, 424, 426, 428, 448, 449, 450, 455, and 459 MBTA Rapid Transit on Blue Line MBTA Commuter Rail at Chelsea	Yes	Yes The entire segment lies within EJ Zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways. The Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.	2	1	3	4	1	1	12	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 20	Weston	MWRC	6	MassDOT	Yes	3	2.6	0	2	3.06	MBTA bus Route 70 MBTA Commuter Rail at Waltham and Kendal Green	Yes	Yes An EJ Zone is located 0.1 mi from the end of the segment.	No projects	1	2	2	4	1	2	12	Medium	A congestion study was suggested through UPWP and LRTP outreach in 2012, 2013, and 2014 by MAGIC; a formal letter was submitted and verbal comments were made at an MWRC subregion meeting. The location was resubmitted in a comment on Draft FFY 2014 UPWP and was suggested in the 2017 MPO outreach program.
Route 2 (Fresh Pond Parkway)	Cambridge	ICC	6	DCR	Yes	2	1.8	1	3	1.31	MBTA bus Routes 75, 71, 72, 73, 74, and 78 MBTA Red Line Rapid Transit MBTA Commuter Rail at Porter Square	Yes	Yes Two EJ zones are located within 0.5 miles of the segment.	DCR announced that the agency will conduct a traffic study of several intersections along Mount Auburn Street and Fresh Pond Parkway, in partnership with the City of Cambridge and the MBTA. The study will focus on safety measures, bus prioritization, and accessibility. Conceptual TIP project #987 would acquire Minuteman Path right-of-way in Watertown to connect Minuteman Bikeway from Arlington, Cambridge, and Watertown to Dr. Paul Dudley White Bike Path in Boston.	3	1	2	4	0	1	11	Medium	The Fresh Pond Residents Alliance identified Fresh Pond Parkway and Alewife Brook Parkway as locations in need of transportation improvements. Concerns include pedestrian safety of young students who walk to Shady Hill School because of high traffic volumes, environmental issues, and lack of livability.
Memorial Drive (Routes 2 and 3)	Cambridge	ICC	6	DCR	Yes	2	3.6	0	4	3.99	MBTA bus Routes 747, 1, 47, 64, 66, 70, 70A, 71, 73, 86, and 701 MBTA Rapid Transit available on the Red and Green Lines MBTA Commuter Rail at North Station, Back Bay, Yawkey, Porter Square, and Belmont	Yes	Yes Most of the segment lies within or adjacent to EJ Zones.	DCR announced a $500,000 comprehensive study of the parkway system for bike lanes in FFY 2015. The goals of the study include updating traffic information, assessing parkway conditions, and assessing and understanding deficiencies along the heavily cycled parkways.	3	2	1	4	1	0	11	Medium	None

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 99	Everett	ICC	4	City	Yes	3	2.6	0	3	2.23	40 MBTA bus stops MBTA bus Routes 97, 104, 105, 109, 110, 112, 99, and 106	Yes	Yes The entire segment lies within EJ zones.	MassDOT Project #602383 reconstructed Route 99 with a traffic signal upgrade, from Second Street to the Malden city line in 2008; completed autumn 2007; All work is complete except punch list work (as of 02/15/2008) MassDOT Project #601580 reconstructed Route 99 from Sweetser Circle to Second Street in 2004; completed in summer 2004. MassDOT Project #602382 reconstructed Route 99 from Sweetser Circle to the Alford Street Bridge in 2013; completed spring 2013.	2	2	2	4	0	1	11	Medium	Not recommended for study because the MassDOT projects listed completely reconstructed Route 99 with signal improvements from Alford Street Bridge to the Malden city line.
Route 1	Norwood	TRIC	5	MassDOT	Yes	3	0.8	1	4	3.85	MBTA Commuter Rail at Islington, Dedham Corp Center, Endicott, Norwood Depot, Norwood Central, Windsor Gardens, and Plimptonville stops MBTA bus Routes 110, 116, 117, 411, 424, 426, 439, 441, 442, 448, 449, 450, and 455 MBTA Rapid Transit on Blue Line	N/A	Yes One EJ zones lies adjacent to the southern end of the segment. The entire segment lies within EJ zones.	MassDOT's I-95 South Corridor Study, provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 that included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #608052, Route 1 at Morse Street (approved by PRC Nov. 2014); in preliminary design MassDOT Project #605857, Route 1 at University Avenue and Everett Street; Town design is at pre-25% MassDOT Project #605321, Bridge Preservation, Route 1 over the Neponset River; in design stage	2	2	2	4	0	1	11	Medium	The location has MassDOT projects and studies and it is not recommended for study.
Route 1A	Revere	ICC	4	MassDOT	Yes	2	2.1	0	1	2.93	MBTA Commuter	Yes	Yes The entire segment lies within EJ zones.	CTPS Lower North Shore Transportation Improvement Study proposed improvements for Route 1A in Revere in October 2000; an update may be necessary. Conceptual TIP Project #982, Mahoney Circle (Bell Circle) Grade Separation	2	2	2	4	0	1	11	Medium	This arterial segment was not selected because it is part of the Mystic River Working Group Study. In addition, the Wynn Everett DEIR (2015) includes intersection improvements and mitigated traffic operations for Revere Beach Parkway and Mystic Valley Parkway.
Route 1	Walpole	TRIC	5	MassDOT	Yes	3	1.5	1	3	1.53	MBTA Commuter Rail at Sharon and Walpole	N/A	Yes One EJ zones lies adjacent to the southern end of the segment.	MassDOT's I-95 South Corridor Study presented a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #608480, Resurfacing and related work on Route 1; in preliminary design MassDOT Project #608599, Stormwater Improvements to treat discharges from Route 1, I-95 and Route 1A to the Neponset River and an Unnamed Tributary; in preliminary design	2	1	3	4	0	1	11	Medium	The location has MassDOT projects and studies and was not recommended for study by MassDOT Highway District 5.
Route 135	Wellesley	MWRC	6	MassDOT and Town	Yes	3	6.7	0	2	1.97	MBTA Commuter Rail at Natick, Wellesley Square, and Wellesley Hills MWRTA bus Route 8	None	Yes Most of the segment lies adjacent to EJ zones.	No projects	3	1	2	3	1	1	11	Medium	None
Route 2	Acton	MAGIC	3	MassDOT	Yes	2	1.3	0	1	1.80	MBTA Commuter Rail at South Acton and West Concord	N/A	Yes	MassDOT Project #604472, Resurfacing and Related Work on Route 2 (includes all of Acton); completed in spring 2014 MassDOT Project #607748, Intersection and Signal Improvements on Route 2 and Route 111 at Piper Road and Taylor Road; in preliminary design MassDOT Project #604609, Traffic Sign Replacement and Safety Improvements on Route 2; completed in summer 2009 TIP Project #606223, Bruce Freeman Rail Trail Construction (Phase II-B) in Acton and Concord to connect the trail across Route 2, programmed in FFY 2018 TIP	1	1	2	4	1	1	10	Low	Location has MassDOT projects. A MassDOT road safety audit is scheduled for the Piper Road/Taylor Road intersection; the project is in the preliminary design phase. The MAGIC subregion expressed interest in a Route 2 study.
Route 62	Bedford	MAGIC	4	MassDOT and Town	No	5	7.0	0	0	2.65	Three MBTA bus stops MBTA bus Route 62	Yes	None	Great Road Project: Master Plan and Conceptual Design, prepared by Vanasse Hagen Brustlin Inc. (VHB) for the Town of Bedford in 2011. The plan was to improve pedestrian and bicycle access, recommend streetscape improvements that would highlight the "center" of Bedford while taking into consideration traffic flow through the area, crosswalk locations, intersection and traffic control improvements, property access, and parking.	2	2	2	2	1	1	10	Low	Forms part of Routes 4 and 225 arterial segment.
Route 16	Holliston	MWRC	3	MassDOT and Town	Yes	3	4.8	1	2	1.09	MWRTA bus Route 6	None	None	MassDOT Project #605745, Reconstruction of Route 16 from Quail Run to the Sherborn town line; in preliminary design MassDOT Project #602462 will enhance safety and improve efficiency by installing a new traffic signal at the intersection of Route 16 at Route 126 and at Oak Street in Holliston; 25% design stage (as of 12/08/1999) 2011 CTPS study, Route 126 Corridor: Transportation Improvement Study 2008 CTPS study, Washington Street (Route 16/126) at Hollis Street	4	0	1	2	1	2	10	Low	Location has MassDOT projects and CTPS studies, which have not been implemented. The 495/MetroWest Partnership expressed interest in a Route 16 study. The section that experiences the most crashes is the town center portion (under town jurisdiction). A road safety audit was performed for the town center portion in December 2012.
Route 135	Natick	MWRC	3	Town	Yes	3	6.7	1	3	1.97	MWRTA bus Routes 10 and 11 MBTA Commuter Rail at Natick and West Natick	None	None	MassDOT Project #600573 reconstructed Route 135 in Natick in 2008. More extensive improvements were proposed in the downtown area, on East Central Street between North Main Street and Union Street, including signal upgrades, new sidewalks, pavement rehabilitation, and shoulders; Contract #32302 was completed; all construction operations have been suspended (as of 06/30/2007) 2010 CTPS study, West Central Street (Route 135) at Speen Street.	4	1	2	1	1	1	10	Low	Congestion in the downtown area; likely focus area would be on the intersection of Route 135 at Route 27 and the intersection of Route 135 at Speen Street because of the crash history of those locations.

TABLE 1
Arterial Segments Considered for Study: Priority Corridors for Long-Range Transportation Plan Needs Assessment Study
(Arterial Segment Selected for Study Is Highlighted in Green)

Arterial Segment	Community	MAPC Subregion	MassDOT District	Jurisdiction	National Highway System	Functional Class*	Crash Rate (MVMT)	Number of Top-200 High-Crash Locations 2012–14	Number of HSIP-Eligible Crash Clusters 2012–14**	Travel-Time Index	Transit Service	Crowded or Late Bus	In or Near Environmental Justice Zone	Study, Project, or TIP Project	Safety Conditions	Congested Conditions	Multimodal Significance	Regional Significance	Regional Equity	Implementation Potential	Score	Priority Rating	Summary of Comments
Route 129	Reading	NSPC	4	MassDOT and Town	Yes	3	3.9	0	1	2.06	11 MBTA bus stops MBTA bus Route 136 MBTA Commuter Rail at Wakefield, Reading, and Woburn	Yes	None	No projects	2	2	2	1	2	1	10	Low	None
Route 9	Wellesley	MWRC	6	MassDOT	Yes	2	3.5	0	11	1.76	MBTA Commuter Rail at Wellesley Hills and Wellesley Farms MWRTA bus Route 1	None	None	MassDOT Project #601586, Intersection Improvements at Route 9 (Worchester Street) and Oak Street, from 1500 feet West of Oak Street to 300 feet East of Overbrook Drive; construction ended in spring 2015 MassDOT Project #607340, Resurfacing on Route 9, from Dearborn Street to the Natick town line; in preliminary design MassDOT Project #606530, Drainage Improvements along Route 9 Boulder Creek Culvert (Design Only); 25% design stage (as of 06/10/2015) CTPS study: Route 9 Corridor in Wellesley, 2003 MAPC Land Use/Corridor Study (fall 2013)	2	1	2	3	1	1	10	Low	MassDOT has a preliminary assessment of this corridor that will develop into 25% design plans for roadway improvements.
Route 16	Sherborn	SWAP	3	Town	Yes	3	1.3	0	1	1.96	None	N/A	None	2002 CTPS study, Traffic Congestion in SWAP Subregion: Sherborn Town Center Traffic-Flow Improvement Study Conceptual TIP #915, Washington Street (Route 16)	1	1	1	3	1	2	9	Low	Location was suggested in 2014 LRTP outreach at a 495/MetroWest Partnership meeting. The section that experiences the most crashes and congestion is the town center portion, where Route 16 and Route 27 combine and split.
Route 62	Concord	MAGIC	4	Town	Yes	3	4.3	0	0	2.66	MBTA Commuter Rail at Concord and West Concord	N/A	None	No projects	2	2	1	1	1	1	8	Low	None
Route 3A	Marshfield	SSC	5	MassDOT	Yes	3	2.0	0	2	1.41	GATRA bus MBTA Commuter Rail at Greenbush	None	None	The corridor is within the limits of MassDOT Project #605664, Resurfacing and Related Work on Route 3A (Duxbury town line northerly to Scituate town line), work includes patching and microsurfacing, shoulder reconstruction, and drainage structures; 100% design stage; no construction funding identified	1	1	2	2	1	1	8	Low	None
Route 16	Natick	MWRC	3	Town	Yes	3	1.5	0	0	1.21	None	N/A	Yes	No projects	0	0	2	3	1	2	8	Low	The 495/MetroWest Partnership expressed interest in a Route 16 study. Specific issues in this segment include improvements to accommodate pedestrians and bicyclists.
Route 1	Sharon	TRIC	5	MassDOT	Yes	3	1.3	0	1	1.36	MBTA Commuter Rail at Sharon and Walpole	N/A	None	MassDOT's I-95 South Corridor Study, provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 that included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #603622, Bridge Rehabilitations, Route 1/Route I-95; completed in 2010	1	1	3	2	0	1	8	Low	Segment has MassDOT projects and studies.
Route 1	Westwood	TRIC	6	MassDOT	Yes	3	1.1	0	0	2.49	None	N/A	None	MassDOT's I-95 South Corridor Study provided a comprehensive evaluation of the I-95 and Route 1 corridors south of Route 128 and included a recommended plan of short-term and long-term improvements (June 2010) MassDOT Project #603162, Route 128 Add-a-Lane Bridges (Bridge III), Route 1 and 1A over I-95/128; completed in 2012	0	2	2	3	0	1	8	Low	Segment has MassDOT projects and studies.
Route 9	Southborough	MWRC	3	MassDOT	Yes	2	1.4	0	0	2.11	MWRTA bus Route 7	None	None	MAPC Land Use/Route 9 Corridor Study (fall 2013). The CTPS Safety and Operations at Intersections study evaluated congestion and safety issues at the Route 9/Oak Hill Road/Central Street intersection in FFY 2012. MassDOT's I-495/Route 9 study, November 2013. The western section of Route 9 in Southborough between the I-95 interchange and Crystal Pond Road was evaluated for short-term and long-term improvements as part of this study. MassDOT Project #607172, Resurfacing and Related Work on Route 9, from Westborough to just west of White Bagley Road; construction ends in summer 2016	0	2	2	2	1	0	7	Low	Most of the intersections on this corridor have already been studied, as MassDOT District 3 has noted.
Route 3A	Scituate	SSC	5	MassDOT	Yes	3	1.2	0	0	1.21	MBTA Commuter Rail at Greenbush, North Scituate, and Cohasset	N/A	None	FFY 2013 Subregional Priority Corridor Study The corridor is within the limits of MassDOT Project #605664, Resurfacing and Related Work on Route 3A (Duxbury town line northerly to Scituate town line); no construction funding identified. Work includes patching and microsurfacing, shoulder reconstruction, and drainage structures; 100% design stage.	0	0	2	1	1	1	5	Low	The FFY 2013 Subregional Priority Corridors Study was conducted within the segment. MassDOT District 5 comments refer to MassDOT Project #605664 (in the 100% design stage).

Abbreviations
AADT = Annual average daily traffic. ADA = Americans with Disabilities Act. ADT = Average daily traffic. BAT = Brockton Areas Transit Authority. CTPS = Central Transportation Planning Staff. DCR = Department of Conservation and Recreation. DEIR = Draft Environmental Impact Report. EJ = Environmental Justice. ENHC = Essex National Heritage Commission. EPDO = Equivalent property damage only. FFY = Federal fiscal year. GATRA = Greater Attleboro Taunton Regional Transit Authority. HSIP = Highway Safety Improvement Program. ICC = Inner Core Committee. LRTP = Long-Range Transportation Plan. MAGIC = Minuteman Advisory Group on Interlocal Coordination. MAPC = Metropolitan Area Planning Council. MassDOT = Massachusetts Department of Transportation. MBTA = Massachusetts Bay Transportation Authority. MPO = Boston Region Metropolitan Planning Organization. MVMT = Million vehicle-miles traveled. MWRC = MetroWest Regional Collaborative. MWRTA = MetroWest Regional Transit Authority. NSPC = North Suburban Planning Council. NSTF = North Shore Task Force. PRC = MassDOT Project Review Committee. RSA = Road safety audit. RTA = Regional transit authority. SSC = South Shore Coalition. SWAP = South West Advisory Planning Committee. TIP = Transportation Improvement Program. TRIC = Three Rivers Interlocal Council. UPWP = Unified Planning Work Program.

Selection Criteria
Safety Conditions: Segment has a high crash rate for its functional class, contains an HSIP-eligible crash location, a top-200 high-crash location, and/or a significant number or HSIP-eligible clusters of pedestrian or bicycle crashes.
Congested Conditions: Segment has a Travel-Time Index of at least 1.3 and/or of at least 2.0,that is, which signify that it experiences delays during peak periods.
Multimodal Significance: Segment supports transit or bicycle or pedestrian activities, has a need to improve these activities, and/or has a high volume of truck traffic serving regional commerce.
Regional Significance: Segment is in the National Highway System, carries a significant proportion of regional traffic, lies within 0.5 miles of Environmental Justice transportation analysis zones, and/or is essential for regional economic, cultural, or recreational development in the area.
Regional Equity: Location is in a subregion that has not had a priority corridor study before, or location is in a subregion that has not had a priority corridor study in the last three years.
Implementation Potential: Improvements to the segment are proposed or endorsed by the roadway administrative agency (agencies), proposed or endorsed by the subregion and are a priority for the subregion, and/or have strong support from other stakeholders.

***Functional Class**
2 = principal arterial; 3 = principal arterial other (rural minor arterial or urban principal arterial); 5 = minor arterial (urban minor arterial or rural major collector)

Number of HSIP-eligible crash clusters
**HSIP-eligible crash clusters are defined by MassDOT as crash clusters that rank within the top five percent of crash clusters for each regional planning agency, based on the Equivalent Property Damage Only (EPDO) index. In the EPDO index, property damage only crashes are awarded one point each, crashes involving injuries are given five points each, and fatal crashes are given 10 points each. In the Boston region, the 896 intersections in the top five percent have crash clusters with a minimum EPDO value of 42.

Source: Central Transportation Planning Staff.

APPENDIX A

Pedestrian Report Card Assessment

1. Route 138 in Milton

BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Pedestrian Report Card Assessment (PRCA):

Roadway Segment

Central Transportation Planning Staff (CTPS) to the Boston Region MPO:
www.ctps.org | 857.702.3700 | ctps@ctps.org

Ryan Hicks, Congestion Management Process Manager:
www.ctps.org/cmp | 857.702.3661 | rhicks@ctps.org

Casey Claude, Bicycle and Pedestrian Program Manager:
www.ctps.org/livability | 857.702.3707 | cclaude@ctps.org

Roadway Segment Location
Route 138 – Milton, MA

Grading Categories	Score	Rating
Safety	2.8	Good
System Preservation	N/A	Fair
Capacity Management and Mobility	1.5	Poor
Economic Vitality	1.5	Poor

Transportation Equity	
High Priority Area	✓
Moderate Priority Area	
Not a Priority Area	

Category Ratings
Good: Score of 2.3 or more (maximum 3.0)
Fair: Score is between 1.7 and 2.3
Poor: Score is 1.7 or less (minimum 0)

Grading Categories: Scoring Breakdown

Roadway Segment

Capacity Management and Mobility

Performance Measure	Weight	Rating	Weighted Score
Sidewalk Presence	3	Fair	6
Crossing Opportunities	2	Poor	2
Walkway Width	1	Poor	1
Total	**6**		**9**

Economic Vitality

Performance Measure	Weight	Rating	Weighted Score
Pedestrian Volumes	1	Fair	2
Adjacent Bicycle Accommodations	1	Poor	1
Total	**2**		**3**

Category rating = total rating/total weight
Rating Score:
Good = 3
Fair = 2
Poor = 1

Safety

Performance Measure	Weight	Rating	Weighted Score
Pedestrian Crashes	3	Good	9
Pedestrian-Vehicle Buffer	1	Good	3
Vehicle Travel Speed	1	Fair	2
Total	**5**		**14**

System Preservation

Performance Measure	Rating
Sidewalk Condition	**Fair**

Transportation Equity Priority

Area Condition	Yes/No
Environmental Justice zone?	✓
School or college within one-quarter mile?	✓
More than 8.9% of population older than 75 years?	✓
More than 27.5% of households do not own a vehicle?	

Category Ratings
Good: Score of 2.3 or more (maximum 3.0)
Fair: Score is between 1.7 and 2.3
Poor: Score is 1.7 or less (minimum 0)

Detailed Performance Measure Information: Roadway Segment

Goal	Performance Measure	Features of Analyzed Locations
Mobility	Sidewalk Presence	Sidewalks are present on one side of the street
	Crossing Opportunities	9 crosswalks/ 3.6 miles = 2.5 crosswalks per mile
	Walkway Width	4 foot sidewalks
Economic Vitality	Pedestrian Volumes	Estimated 5 to 60 pedestrians
Safety	Adjacent Bicycle Accommodations	Some bike lanes are present at the southern portion of the corridor but the bike lanes are inconsistent
	Pedestrian Crashes	Not in HSIP cluster
	Pedestrian-Vehicle Buffer	13 feet
	Vehicle Travel Speed	32 MPH
System Preservation	Sidewalk Condition	Fair

APPENDIX B

Support Letters from the Town of Milton and MassDOT

Seth Asante

From: John Thompson
Sent: Friday, October 20, 2017 9:21 AM
To: sasante@ctps.org
Cc: geraldine.vatan@state.ma.us; Chase Berkeley; Michael D. Dennehy; William Clark
Subject: Rt. 138 corridor study extension and Rt. 28 corridor study - Milton

Good Morning Seth,

Over the past few weeks I have had a few conversations with Geri Vatan at MassDOT District 6 about an ongoing corridor study for Route 138 in Canton and the possibility of extending the study to include Milton. My understanding is that MassDOT will be undertaking a resurfacing project in FY19 for Route 138 through Canton and Milton, and would like to incorporate additional complete streets principles and improvements that may be identified by extending the corridor study. I am writing to relay Milton's enthusiastic support for this effort. The town would benefit greatly from any improvements to this corridor that would increase efficiency and increase accessibility for all users, including bicyclists and pedestrians, especially given the number of area amenities and destinations directly adjacent to Rt. 138 (Blue Hills Ski Area, DCR's Blue Hills Reservation and Trailside Museum, and Curry College to name a few).

In addition to supporting the Route 138 study, I would also like to request that State Route 28, primarily the section between I-93 and Reedsdale Road in Milton, be considered for a corridor study as well. Officials from the Town recently met with MassDOT to discuss ongoing safety issues along this section of state highway. There was recently another fatality on the roadway (there have been numerous fatalities over the past several years) in addition to many other accidents that seemingly occur on a regular basis. I know that an intersection project at the intersection of Randolph Avenue and Chickatawbut Road is already moving forward, which is fantastic, but we believe the entire corridor should be looked at for possible improvements. The corridor sees a tremendous amount of cut-through traffic which floods the town with vehicles looking to avoid and bypass the Braintree split in both the AM (northbound) and PM (southbound). The cut through traffic is travelling at high rates of speed on a four lane highway through a residential neighborhood with many driveways, no shoulders, no accommodations for bikes, and very uncomfortable conditions for pedestrians. Currently, the layout of Route 28 does very little to promote safe driving habits. Compounding the issue is the fact that a lot of traffic, particularly during peak hours, is finding its way onto smaller neighborhood streets to avoid queues and delays due to high volume. We feel that a corridor study would be a very logical and beneficial first step to begin addressing these issues.

Thank you for your attention to this matter and please feel free to reach out to me directly if you have any questions or would like any further information.

Respectfully,

John P. Thompson, P.E.
Town Engineer

Town of Milton – Engineering Dept.
525 Canton Avenue
Milton, MA 02186

(617) 898-4869

Seth Asante

From: Vatan, Geraldine (DOT)
Sent: Thursday, October 19, 2017 10:33 AM
To: Seth Asante (sasante@ctps.org)
Cc: Rose, Marie (DOT); Paul, Andrew (DOT); Polin, Bonnie (DOT); Sutton, Peter (DOT); Dwyer, Courtney (DOT)
Subject: FW: Route 138 Corridor Study Canton-Milton
Attachments: Emailing: Ma Ped Plan_DRAFT Corridor Analysis (2).jpg (96.4 KB)

Hi Seth,
I am writing to update you regarding Route 138 in Canton and Milton. As you know, there is a corridor study underway in Canton and Milton is a potential study for next year. I would like to re-iterate MassDOT's support of the Milton corridor study. OTP is developing a Statewide Pedestrian Plan, ranking corridors for improvement. Route 138 Canton-Milton has been ranked as a high priority corridor and as such may be eligible for additional funding (see attached). In the email below statements relating to support for the corridor study have been highlighted. It is my understanding that the Town of Milton has expressed their support for this study to you as well.
Thank you and I look forward to learning what CTPS decides on this issue.
Geri

Geraldine Vatan | District 6 Project Development Engineer
185 Kneeland Street Boston, MA 02111 | Office (857) 368-6115 | Cell (508) 330-1078
MassDOT Highway Division geraldine.vatan@dot.state.ma.us

Seth Asante

From: Polin, Bonnie (DOT)
Sent: Tuesday, October 3, 2017 8:36 AM
To: 'sasante@ctps.org'
Cc: Vatan, Geraldine (DOT)
Subject: Route 138 Corridor Study Canton-Milton

Seth – Good morning. I understand CTPS will be conducting a corridor study of Route 138 in Canton. It is perfect because there is a resurfacing job of Canton/Milton Route 138 on the STIP for 2020 (608484). It would be great if we could incorporate the recommendations and actually make the corridor study applicable. Therefore, is your intention to actually pull the crashes? Is it possible to conduct the RSAs for the HSIP eligible locations along the corridor? If not, let me know as soon as possible so we can do it (but it would make sense to have one as part of the corridor rather than piecemeal). Furthermore, because the resurfacing job is for both Canton and Milton, is there a chance you could extend the corridor study to cover the area of the project and then add the HSIP clusters. If not, let me know. We want to work with CTPS to make this effective for Milton, Canton, MassDOT and CTPS.

Also, just so you know, 2015 just closed so we will be updating the high crash cluster map.

Thanks, Bonnie

Bonnie Polin, Manager Highway Safety Programs
MassDOT |Highway Division|Traffic Safety Section
10 Park Plaza Suite 7210|Boston, MA 02116
Phone: 857-368-9636| Fax: 857-368-0628
Email: Bonnie.Polin@state.ma.us