



TOWN OF ARLINGTON

DEPARTMENT OF PLANNING and
COMMUNITY DEVELOPMENT

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MEMORANDUM

To: Adam Chapdelaine, Town Manager
From: Jennifer Raitt, Director of Planning and Community Development
Date: September 10, 2018
RE: Bus Priority Pilot

The Arlington BRT pilot project reviewed several options for three segments of Massachusetts Avenue in East Arlington. The three segments consisted of the following areas:

1. Massachusetts Avenue at Lake Street Intersection
2. Massachusetts Avenue corridor from just east of the Lake Street intersection to just west of Alewife Brook Parkway
3. Massachusetts Avenue at Alewife Brook Parkway Intersection.

The corridor was separated into these three segments to provide focused options within each of these areas and enable the project team to mix and match the interventions along the corridor that result in the best solution to meet project goals. Below are the results of the evaluation and a description of the preferred option for each segment.

Massachusetts Avenue at Lake Street

The existing bus stop is located in front of the Capitol Theater and shares its curb with an exclusive right turn pocket, accommodating right turns on the Lake Street southbound. Bus delays at this intersection occur primarily due to a phenomenon known as a "Triple Stop."

- Stop 1: As the bus approaches the intersection while the light is red, it is often unable to access the bus stop due to the queued vehicles at the intersection and the parked vehicles within the parking lane.
- Stop 2: When the light turns green, the traffic queue clears, enabling the bus to reach its stop at the curb. The bus stops to load and unload its passengers.
- Stop 3: By the time the bus has completed the boarding and alighting process, the signal may have turned red again.

The preferred option at this intersection is to move the bus stop to a "far-side" location, approximately 150 feet east (across Lake Street) from the current location. There are currently three parking spaces where the proposed bus stop is to be relocated. Moving the bus stop to the far side eliminates the occurrence of the triple stop thus reducing bus travel time and delay while increasing bus reliability. Buses will be allowed to use the right turn lane on the Massachusetts Avenue eastbound approach to

move out of the traffic queue and line up with the relocated bus stop on the far side of the intersection. The bus stop will be relocated to its new location for the entire day for the duration of the pilot period to provide a consistent experience and expectation for transit riders and minimize confusion.

Massachusetts Ave between Lake Street at Alewife Brook Parkway

Providing an exclusive bus lane along this segment would enable buses to bypass traffic queues at signalized intersections, particularly at the eastbound Massachusetts Avenue approach to Alewife Brook Parkway, an identified area of significant bus delay and impact to reliability. The project team looked at two main options along this segment of Massachusetts Avenue: an exclusive bus lane within a travel lane and an exclusive bus lane within the parking lane (for two different lengths: from Varnum Street to Alewife Brook Parkway and from Teel/Thorndike to Alewife Brook Parkway). This segment of Massachusetts Avenue has two lanes travelling eastbound, toward Cambridge. The preferred alternative is to use the parking lane from Varnum to Alewife Brook Parkway as an exclusive bus lane. Use of the parking lane as the bus lane would minimize disruption to traffic flow within this segment and reduce the impact to traffic queuing. Based on a study conducted by the Metropolitan Area Planning Council (MAPC), there is low parking demand during the pilot's hours of operations on the eastbound side of Massachusetts Avenue, where the bus lane is proposed. Cones are proposed on the outside of the bike lane, spaced approximately 20 feet apart and wider at intersecting streets. Placing the cones on the outside of the bike lane will provide a comfortable travel width for the buses, and bus drivers are trained to not overtake bikes traveling within the bike lane.

Massachusetts Ave at Alewife Brook Parkway Intersection

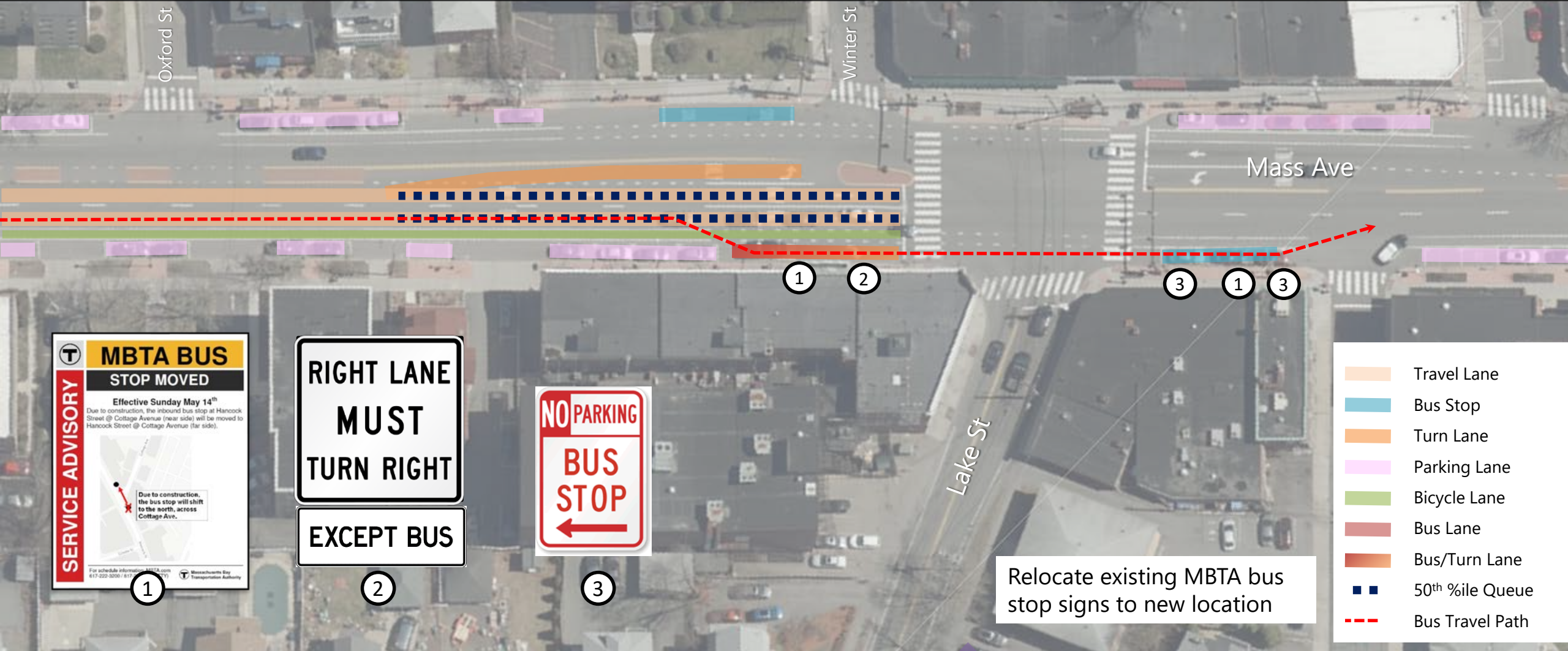
The project team identified this location as a major source of bus travel time delay with significant impact on bus reliability. Queues in the eastbound direction can sometimes reach as far back as Thorndike and Teal, approximately 1,000 feet over two travel lanes. This queuing issue for buses is partially resolved by providing the exclusive bus lane as described in the previous section. However, additional improvements for buses may be realized at the intersection of Massachusetts Avenue at Alewife Brook Parkway, without significantly impacting traffic operations. The signal is under the City of Cambridge jurisdiction and Alewife Brook Parkway itself is under Department of Conservation and Recreation (DCR) jurisdiction. The project team has been coordinating with both Cambridge and DCR throughout this process.

The preferred alternative changes the eastbound lane assignment from its current configuration (an exclusive left turn lane, a through lane and shared through-right turn lane) to a shared left-through lane, a through lane, and a shared bus/right turn lane. In addition, the phasing of the signal will be modified to work on split phasing for the eastbound and westbound Massachusetts Avenue approaches to more efficiently allocate green time and provide protected left-turn movements onto Alewife Brook Parkway. Two bus routes (MBTA bus routes 79 and 350) turn right onto Alewife Brook Parkway while the MBTA 77 route continues along Massachusetts Avenue into Cambridge. The 77 route will be permitted to continue straight through the intersection from the bus/right-turn lane and into an existing bus stop on the far side of the intersection. This reconfiguration of the intersection will have minimal impact on the overall intersection operations and little impact on eastbound approach traffic operations (i.e., drivers will not notice any significant changes to queues or delays), with the exception of the noted change in lane configuration and phasing.



ARLINGTON BRT

Location: Massachusetts Avenue from Lake Street to Alewife Brook Parkway
Duration: One Month Only
Timeframe: Weekday Morning Peak Period Only (6-9 AM)
Direction: Eastbound Direction Only



Option 1 – Relocate Bus Stop to Far Side

Massachusetts Avenue at Lake Street | Arlington BRT Pilot Project

Location: Massachusetts Avenue from Lake Street to Alewife Brook Parkway
Duration: One Month Only
Timeframe: Weekday Morning Peak Period Only (6-9 AM)
Direction: Eastbound Direction Only

- Traffic cones will be placed approximately every 20 feet



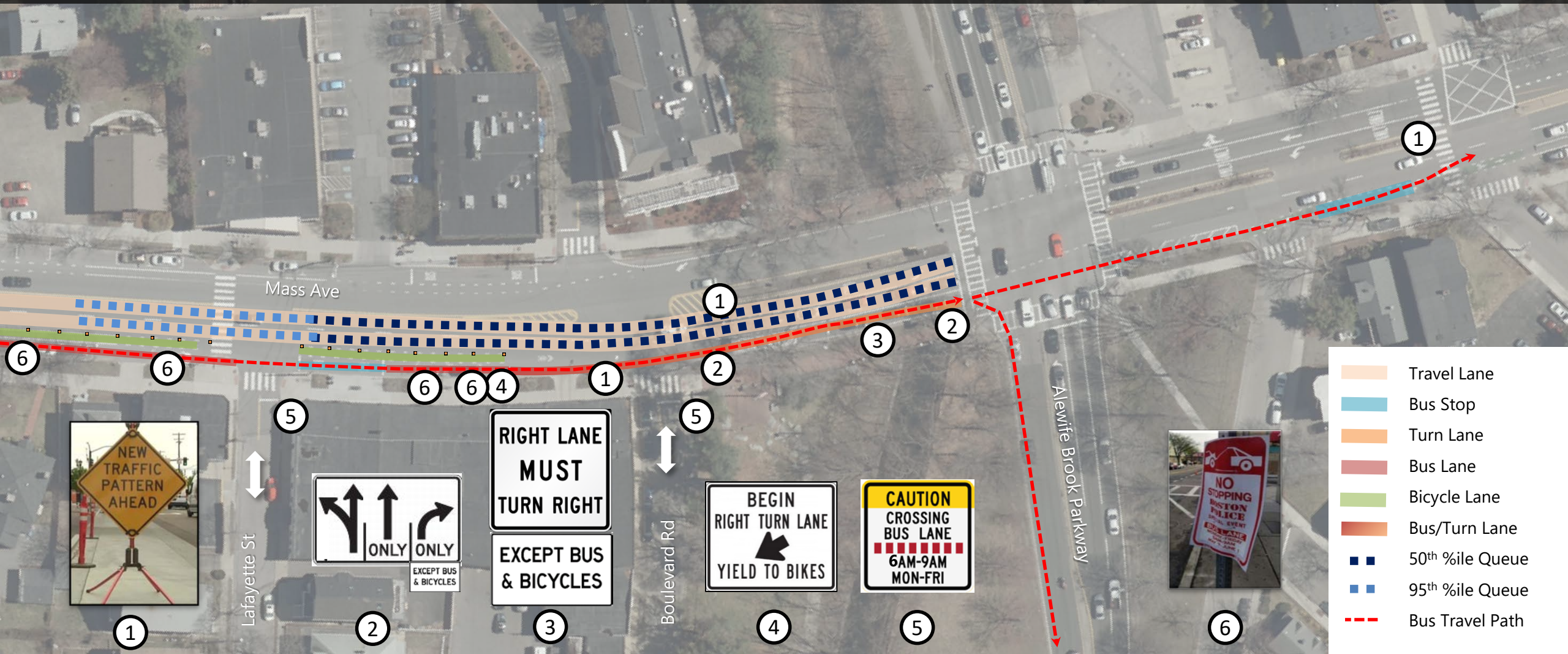
Option 2 – Provide Curbside Bus Lane from Varnum to Alewife Brook Parkway

Massachusetts Avenue from Lake Street to Alewife Brook Parkway | Arlington BRT Pilot Project



ARLINGTON BRT

Location: Massachusetts Avenue from Lake Street to Alewife Brook Parkway
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Option 1 B – Split Phase on EB Approach with Shared Left-Through Movement

Massachusetts Avenue at Alewife Brook Parkway | Arlington BRT Pilot Project