

Date: June 6, 2022

From: William Copithorne, Assistant Town Engineer / TAC

To: TAC

Subject: Traffic Concerns – Bates Road at Massachusetts Avenue

In December 2020 the Office of the Select Board referred the request of a Bates Road resident to the Transportation Advisory Committee (TAC) for consideration. The request centered on potential changes to the traffic signals at the intersection of Bates Road and Massachusetts Avenue.

Currently, vehicular traffic traveling eastbound (EB) on Massachusetts Avenue receives a green light at the same time as westbound (WB) traffic and there is no dedicated left-turn phase for EB vehicles turning onto Bates Road. To make left turns easier, the resident requested that the Town implement a left-turn only phase for EB traffic on Massachusetts Avenue onto Bates Road or a staggered/delayed green for WB traffic. The resident noted there is precedent for both techniques along Massachusetts Avenue elsewhere in Town.

In reviewing the resident's concern and proposals, members of TAC referred back to the November 2010 Functional Design Report (FDR) for Massachusetts Avenue (Route 2A/3) which provided traffic counts, analysis, and recommendations for the major intersections on Massachusetts Avenue between Pond Lane and Alewife Brook Parkway. In 2010, the Bates Road/Massachusetts Avenue intersection was not controlled by a traffic signal and operated at a Level of Service "F". This indicated the intersection was not providing acceptable service to vehicular traffic traveling in any direction at this intersection and it was thus recommended that a traffic signal be installed. This recommendation led to the installation of the current signal during the reconstruction of Massachusetts Avenue from Pond Lane to Alewife Brook Parkway which occurred between 2014 to 2016. The FDR did not recommend a dedicated left-turn phase based on traffic counts thus the current signal phasing.

TAC determined that additional observations should be completed to determine if the previous recommendation to exclude a left-turn only phase (or other left-turn prioritization) remained appropriate. However, the resident's recommendation came during the height of the COVID-19 pandemic and TAC determined such analysis should wait until traffic patterns had returned to or approached pre-COVID levels and also when in-person attendance was required at the nearby Gibbs School to account for any school related traffic. As such, observations by TAC were not started until September 2021.

The Town of Arlington Engineering Division, on behalf of TAC, completed four sets of observations of EB traffic on Massachusetts Avenue at Bates Road between September 15, 2021, and March 8, 2022; one observation to correspond with the morning rush hour, two to correspond to school dismissal/late afternoon time period, and one to correspond with the evening rush hour. The results for each observation period are summarized below:

- **Morning Rush (8:00 AM to 9:00 AM, 11/15/2021):** During the morning rush hour, a total of 31 complete traffic signal cycles were observed. In total, 13 vehicles turned left onto Bates Road during this period, with a maximum of two (2) left turning vehicles in a single-light cycle. During this observation there was not a single cycle during which a vehicle traveling in the left EB lane on Massachusetts Avenue ended up stuck at a red light due to a vehicle turning left onto Bates Road. When a vehicle was in queue to turn left onto Bates Road from the left EB Massachusetts Avenue travel lane, all EB vehicles behind them either changed lanes to the right EB travel lane or had time to proceed through the intersection once the first vehicle (or multiple vehicles) made the left turn before the light turned red. While a count was not taken during this observation, it was noted that vehicles appeared to

turn left onto Foster Street (located one block west of the Bates Road/Massachusetts Avenue intersection) from Massachusetts Avenue more frequently than vehicles tried to turn left onto Bates Road.

- School Dismissal (2:20 PM to 3:30 PM, 09/15/2021): During the school dismissal period, a total of 40 complete traffic signal cycles were observed. While the total number of vehicles turning left onto Bates Road was not tracked, once again a maximum of two (2) left turning vehicles were observed in any single-light cycle. As was the case with the morning rush hour, there was not a single cycle during which a vehicle traveling in the left EB lane on Massachusetts Avenue ended up stuck at a red light due to a vehicle turning left onto Bates Road.
- School Dismissal/Late Afternoon (3:00 PM to 4:00 PM, 12/03/2021): During the combined school dismissal/late afternoon period, a total of 39 complete traffic signal cycles were observed. In total, 16 vehicles turned left onto Bates Road during this period, with a maximum of three (3) left turning vehicles in a single-light cycle. During this observation there was only one (1) cycle during which a vehicle traveling in the left EB lane on Massachusetts Avenue ended up stuck at a red light due to a vehicle turning left onto Bates Road. This occurred when two (2) vehicles attempting to travel straight EB on Massachusetts Avenue were queued behind the three (3) turning vehicles during the maximum vehicle cycle previously noted. Both vehicles were delayed until the next green phase for EB traffic.
- Evening Rush (4:30 PM to 5:30 PM, 03/08/2022): During the evening rush hour, a total of 45 complete traffic signal cycles were observed. In total, nine (9) vehicles turned left onto Bates Road during this period, with a maximum of two (2) left turning vehicles in a single-light cycle. It is noted that the emergency preemption system was triggered half-way through the observation period, resulting in two straight green phases for EB traffic on Massachusetts Avenue, though this does not appear to have skewed the results. It was also again noted that vehicles appeared to turn left onto Foster Street (located one block west of the Bates Road/Massachusetts Avenue intersection) from Massachusetts Avenue more frequently than vehicles tried to turn left onto Bates Road though precise counts were not taken.

Based on the observations made by the Town of Arlington Engineering Division, TAC has determined that traffic patterns at the Bates Road/Massachusetts Avenue intersection have not changed significantly since the 2010 FDR. As such, TAC recommends that the Select Board take no action in regard to the proposed traffic signal adjustments at this intersection.