Discussion on Potential “Gateway East” Transit Improvements + Roadway Changes

December 1st - Community Meeting
Today’s Agenda

- **Introduction and Overview** by Chris Dempsey, Brookline Transportation Board Chair
- **MBTA Bus Service and Bus Lanes in Greater Boston** by Andrew McFarland, MBTA
- **Engineering and Traffic Analysis** by Laura Castelli, VHB
- **Questions and Comments from the Public**
Public Meeting Housekeeping

- This meeting is being held virtually in the interests of public health and safety.

- This meeting is being recorded.
  - You can also submit questions via email Todd Kirrane at tkirrane@brooklinema.gov.

- This is an official public meeting but it is not an official meeting of the Brookline Transportation Board. The Transportation Board will not be deliberating on this proposal today, but we will be paying close attention to questions and comments from the public.
Key Gateway East Stakeholders

**Elected and Appointed Officials:**
- Town Meeting Member Listserve
- Separate emails for Precinct 4, 5, & 6 TMMs
- Brookline Select Board
- Brookline Transportation Board
- Brookline Village Parking Benefits District Advisory Board
- Boylston Street Corridor Study Committee
- Bicycle Advisory Committee
- Pedestrian Advisory Committee
- Shared Mobility Advisory Committee

**Abutters / Residents**
- Brookline Housing Authority
- Juniper Gardens
- Brook House
- Village Way / Village at Brookline

**Neighborhood Associations**
- High Street Hill NA
- Greater Point NA
- Emerson Gardens NA
Key Gateway East Stakeholders

Business Groups and Businesses:
● Brookline Chamber of Commerce
● Brookline Village Businesses Listserv
● La Morra / Brookline Nails & Spa

Public Agencies
● MBTA
● MassDOT
● Brookline DPW
● Brookline Police
● Brookline Fire
● Brookline Economic Development
● MASCO (Longwood Medical Area)
● City of Boston Transportation Division

Media
• Brookline Tab
• Brookline Patch

Social Media
• Facebook
• Twitter

If we are missing any stakeholders, please let us know!
VILLAGE SQUARE LOOKING TO THE WEST
By F. B. Smith  12-27-15
BOYLSTON STREET LOOKING EAST TOWARDS VILLAGE SQUARE
Gateway East: Still a Critical Transit Connection

- Crossroads for three busiest bus routes servicing Brookline: 60, 65, and 66
- Critical connections to and from the Longwood Medical Area, the Green Line (D and E branches), and other transit services
Expected Timeline Moving Forward

- **December 1st Community Meeting**
  - Learn about the proposal
  - Answer questions from the community

- **December 14th Transportation Board Meeting**
  - Receive input from the community
  - Discuss the proposal with the Transportation Board
  - Note that this meeting will **not** be on December 7th

- **January Transportation Board Meeting (Date TBD)**
  - Potentially make a decision to adopt proposed changes
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# MBTA Bus Ridership in Gateway East

<table>
<thead>
<tr>
<th>Route Number</th>
<th>Pre-COVID</th>
<th>September 2020</th>
<th>Ridership Retained During COVID</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>13,517*</td>
<td>5,694</td>
<td>42%</td>
</tr>
<tr>
<td>65</td>
<td>2,228</td>
<td>1,059</td>
<td>48%</td>
</tr>
<tr>
<td>60</td>
<td>1,101</td>
<td>539</td>
<td>49%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,846</strong></td>
<td><strong>7,292</strong></td>
<td><strong>43%</strong></td>
</tr>
</tbody>
</table>

*Second-highest in entire MBTA bus system

Systemwide avg. bus: 41%
Systemwide avg. subway: 24%
Typical ridership on the 66 bus
(pre-COVID)

Demographic data:
- 55% are from households without vehicles
- 40% are from households with incomes of less than $43,500
- 40% are people of color
- 67% are women

Source: CTPS 2015-2017 Ridership survey
Delays to Transit Riders From Traffic – Fall 2019

According to MBTA data, the peak-hour delay to buses between Washington St @ Walnut St and Huntington Ave @ South Huntington added 3.6 minutes to a trip that should take about one minute.
Why Bus Lanes Are Bus Lanes Needed Here?

- **Fastest, most affordable way** to improve transit service for riders in a short time frame

- **Improving access** to LMA, grocery stores, and other essential services throughout the pandemic and recovery

- **Improving transit equity** by supporting the commuting needs of essential workers, low-income people, and people of color

- **Moving more people more efficiently**
Moving More People More Efficiently with Bus Lanes

Passenger movement
BUS LANE: ○
SOV LANE: ○
Duration: 0 sec.

Source: LA Metro
How Bus Lanes Have Improved MBTA Service
Evidence from Nearby Bus Lane Pilots: Brighton Ave

Post-implementation of bus lanes:

- **137 additional passengers** in the morning peak hour, or a **5.3% growth** from pre-implementation
- **132 additional passengers** in the evening peak hour, or an **8.1% growth**
- Changing a general purpose traffic lane into a bus lane was associated with a **13.5% reduction in vehicular traffic on the corridor**, according to a City of Boston evaluation
Evidence from Nearby Bus Lanes: Broadway, Som.

Post-implementation of bus lanes:

- Reduction in average bus trip adds up to over **64 hours daily** saved for the Broadway corridor’s 7,700 weekday bus riders
- **4,500 fewer cars** using Broadway, according to a City of Somerville evaluation
Growth of Bus Lanes Across the Region

- 9 lane miles implemented between 2002 and 2019
- Up to 14 miles being constructed across the region between 2020-2021 as a part of COVID-19 response
- Over the last few months, the MBTA has worked with several municipalities to implement bus lanes for the first time

MBTA teaming with Boston-area cities to build 14 miles of bus lanes amid coronavirus pandemic

By Travis Anderson Globe Staff, Updated August 27, 2020, 4:08 p.m.

The MBTA said Thursday that it’s teaming up with Boston, Chelsea, Everett and Somerville on an “unprecedented” effort to build up to 14 miles of dedicated bus lanes in those communities to improve service reliability and reduce crowded conditions amid the COVID-19 pandemic.
Growth of Bus Lanes Across the Region

- Constructed in 2015 (Yellow)
- Constructed and In Progress by 2020 (Red)
Growth of Bus Lanes Across the Region

Municipalities that have partnered with the MBTA to implement bus lanes:

- Boston
- Cambridge
- Watertown
- Arlington
- Somerville
- Medford
- Malden
- Everett
- Chelsea
- Revere
- Lynn
Growth of Bus Lanes Across the Region

Sweetser Circle, Everett

Charles River Dam Rd, Boston & Cambridge
Improving Transit for Brookline and the Region

- Gateway East is the busiest section of roadway in Brookline for MBTA buses.
- Route 66 was the 2\textsuperscript{nd} busiest line in the entire MBTA bus system pre-pandemic; improving service here can improve the entire route.
- A keystone in our bus system: Making bus priority improvements in Gateway East pave the way for potential future improvements on Brookline Ave and Huntington Ave in Boston.

Source: CTPS Prioritization of Dedicated Bus Lanes study, 2016
Improving Transit for Brookline and the Region
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VHB’s Background on The Gateway East Project

- VHB’s engagement with Gateway East began in 2007 with the goal of improving pedestrian mobility across Route 9 and bicycle mobility along Route 9 to the Emerald Necklace.
- VHB has been the traffic consultant on Gateway East since the planning and design phases of the project.
- Laura served as Project Manager for the VHB Team.
- Laura has a BS in Civil Engineering and 20+ years of Transportation Planning and Conceptual Design experience.
Evaluation of Impacts of Dedicated Bus Lanes on Traffic and Travel Delay Through Gateway East

- VHB was chosen for this assignment because of Laura’s institutional knowledge of the study area and the traffic models built to support the Gateway East Project.
- Dedicated bus lanes were evaluated using Synchro Traffic Analysis Software (macroscopic model).
- Supplemented by calculations of “person delay” from information available in the model.
Evaluation of Impacts of Dedicated Bus Lanes on Traffic and Travel Delay Through Gateway East

- Evaluated with and without dedicated bus lanes
- Assumed pre-pandemic traffic volumes
- Person delay – passengers versus vehicles
- System delays for vehicular traffic
- Potential Impacts to Queuing
- Diverted Demand Estimates
High-Level Takeaways of Traffic + Delay Analysis

- Implementing Bus Lanes on Gateway East will:
  - Will save inbound AM Peak bus riders 10 hours per rider per year (just one-way), 24 hours of savings per day for all riders
  - Have little-to-no impact on traffic flow at “off peak” periods, but will slightly lengthen the duration of the “peak” period
  - Assuming no diversion of traffic, will increase inbound drive times by 5 minutes at “peak period”
  - Assuming 30% diversion of traffic, no increase to inbound drive times at “peak period”
  - Current traffic volumes along Route 9 are roughly 40% lower than 2019 traffic volumes
Bus Ridership Through Gateway East is Substantial

- Existing Bus Frequency and Number of Riders
- Focus on Routes 66 and 65

<table>
<thead>
<tr>
<th>Route</th>
<th>Direction</th>
<th>Weekday Morning Peak Hour</th>
<th>Weekday Evening Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Buses</td>
<td>Riders</td>
</tr>
<tr>
<td>65</td>
<td>Inbound</td>
<td>6</td>
<td>322</td>
</tr>
<tr>
<td></td>
<td>Outbound</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>66</td>
<td>Inbound</td>
<td>7</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>Outbound</td>
<td>8</td>
<td>212</td>
</tr>
</tbody>
</table>

In the AM Peak, roughly 25% of all people traveling through Gateway East are traveling on a bus.
## Impacts on Trip Times of Dedicated Bus Lanes

- Average Person-Delay by mode to travel the corridor
- Assumes 0% diversion of traffic

<table>
<thead>
<tr>
<th>Peak Hour</th>
<th>Direction</th>
<th>Inbound (Sec)</th>
<th>Outbound (Sec)</th>
<th>Inbound (Sec)</th>
<th>Outbound (Sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>Without Dedicated Bus Lanes</td>
<td>248</td>
<td>285</td>
<td>205</td>
<td>368</td>
</tr>
<tr>
<td></td>
<td>With Dedicated Bus Lanes</td>
<td>540</td>
<td>281</td>
<td>55</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td>+292</td>
<td>-4</td>
<td>-150</td>
<td>-291</td>
</tr>
<tr>
<td>PM</td>
<td>Without Dedicated Bus Lanes</td>
<td>198</td>
<td>312</td>
<td>211</td>
<td>316</td>
</tr>
<tr>
<td></td>
<td>With Dedicated Bus Lanes</td>
<td>423</td>
<td>360</td>
<td>53</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Change</td>
<td>+225</td>
<td>+48</td>
<td>-158</td>
<td>-249</td>
</tr>
</tbody>
</table>

*Vehicle Person-Delay for through movements along Route 9*

*Transit Person-Delay for movements along proposed bus lanes (between Washington Street and Route 9)*
Impacts on Trip Times of Dedicated Bus Lanes

- Pre-pandemic, typical weekday “Peak” periods lasted at least three hours (AM and PM); these conditions are expected to continue even after completion of Gateway East

- With addition of dedicated bus lanes, these “Peak” periods could extend 60-90 minutes (assuming no diversion)
Potential Impacts to Queuing (AM Peak Hour)

- 2020 Gateway East – Route 9 at High Street

Queue = 92 vehicles in 2 lanes
Potential Impacts to Queuing (AM Peak Hour)

- 2020 Gateway East with Dedicated Bus Lanes – Route 9 at High Street

Queue = 85 vehicles in 1 lane
Potential Impacts to Queuing (AM Peak Hour)

- 2020 Gateway East – Route 9 at Pearl Street / Walnut Street

Queue = 70 vehicles in 2 lanes
Potential Impacts to Queuing (AM Peak Hour)

- 2020 Gateway East with Dedicated Bus Lanes – Route 9 at Pearl Street / Walnut Street

Queue= 82 vehicles in 1 lane
Potential Impacts to Queuing (PM Peak Hour)

- 2020 Gateway East – Route 9 at Brookline Street

Queue = 90 vehicles in 3 lanes
Potential Impacts to Queuing (PM Peak Hour)

- 2020 Gateway East with Dedicated Bus Lanes – Route 9 at Brookline Street

Queue = 100 vehicles in 2 lanes
Modeling and Pros/Cons of Traffic Diversion

- VHB’s primary analysis of traffic delay assumes no diversion of traffic.

- Any traffic diversion reduces the estimated delays presented in the previous slides.

- If 30% of traffic (based on 2019 levels) uses other corridors or diverts to other roads, then traffic delays due to the bus lanes are entirely eliminated.

- The MBTA typically sees about 10% reduction in vehicle volumes when bus lanes are installed, and has not seen diversion to local roads.
Potential for Regional + Local Traffic Diversion

- **Regional Diversion:**
  - Given the regional nature of Route 9, we can expect that some vehicles will divert entirely away from Gateway East / Brookline Village (e.g., Mass. Turnpike / I-90)

- **Local Diversion:**
  - It is also possible that some drivers would divert to local streets
  - Town staff and VHB will monitor local traffic impacts in partnership with the Transportation Board and residents
  - Additional traffic calming on local streets is possible
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