

Better Bus Project

Making transit
better together

Gateway East Bus Priority Lanes Pilot Evaluation

Quarter 4 Analysis
May 1, 2025 – July 31, 2025

Presentation to Brookline Transportation Board
October 8, 2025

Agenda

- Project Schedule & Status
- Project Background & MBTA Bus Priority
- Summary of Quarter 4 Analysis & Changes from Quarter 3
 - Bus Travel Times
 - Vehicle Volumes & Speeds
 - Vehicle Travel Times & Control Delay
 - Vehicle Queuing
- Key Findings & Takeaways
- Next Steps



Project Schedule & Status

Gateway East Bus Priority Pilot Evaluation
Q4 Analysis | October 8, 2025



*Gateway East, after
Photo Credit: Toole Design*

Project Status & Operations Update

Pilot Extension

- Pilot has been extended to allow time to gather data while the Traffic Signal Transit Priority is active during the school session

Transit Signal Priority

- Due to technical difficulties, the Transit Signal Priority elements of the adaptive traffic signaling system were not activated until June 2025

Route 9 Eastbound Approach to Bus Lane

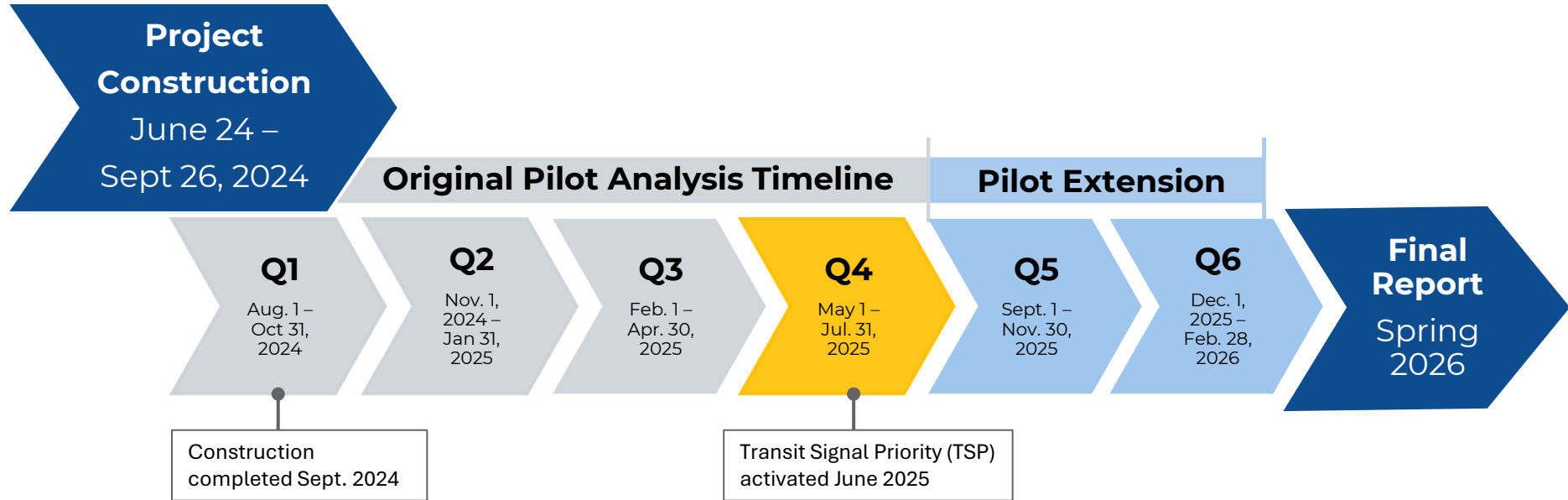
- Town reviewing opportunities for signage and pavement markings to better inform drivers of the lane change

Other Factors Affecting Local Travel Patterns

- The Pierce School construction includes periodic closures of School St., which may contribute to reduced traffic on Cypress St and increased traffic on Walnut St. and Davis Ave., as the school was relocated to the old Lincoln School between Boylston St. and Walnut St.



Pilot Analysis Schedule: We are reporting on Quarter 4 today



Project Motivation & Bus Priority

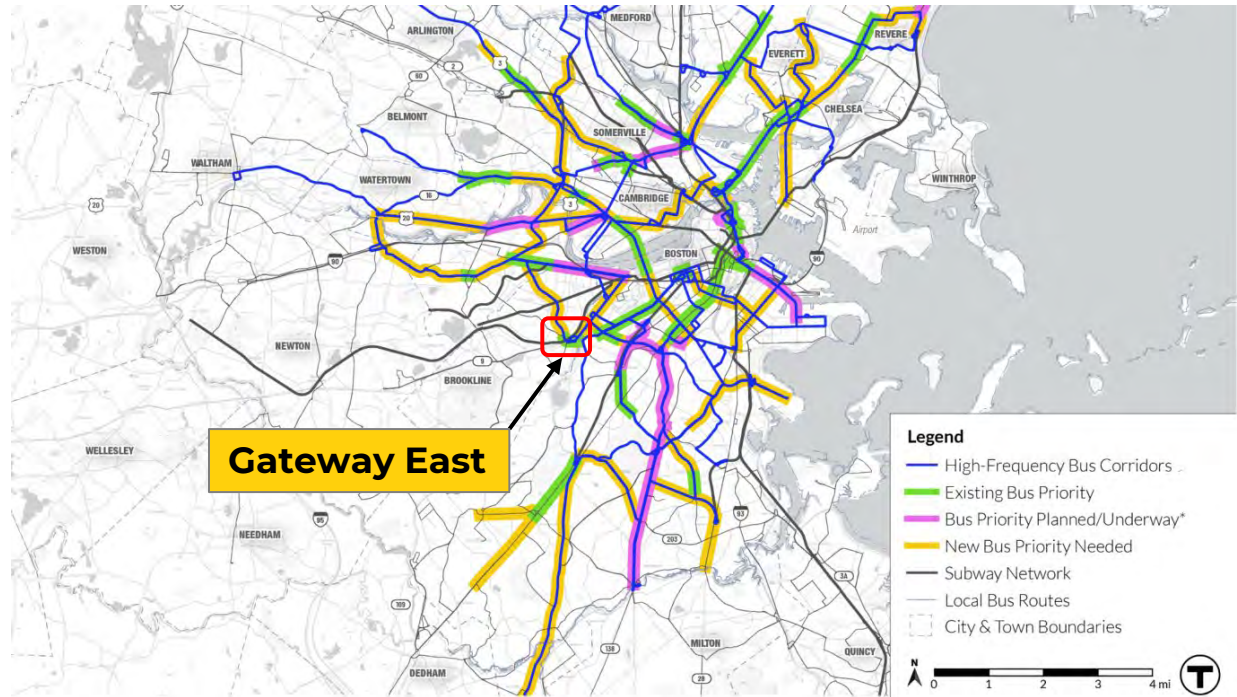
Gateway East Bus Priority Pilot Evaluation
Q4 Analysis | October 8, 2025



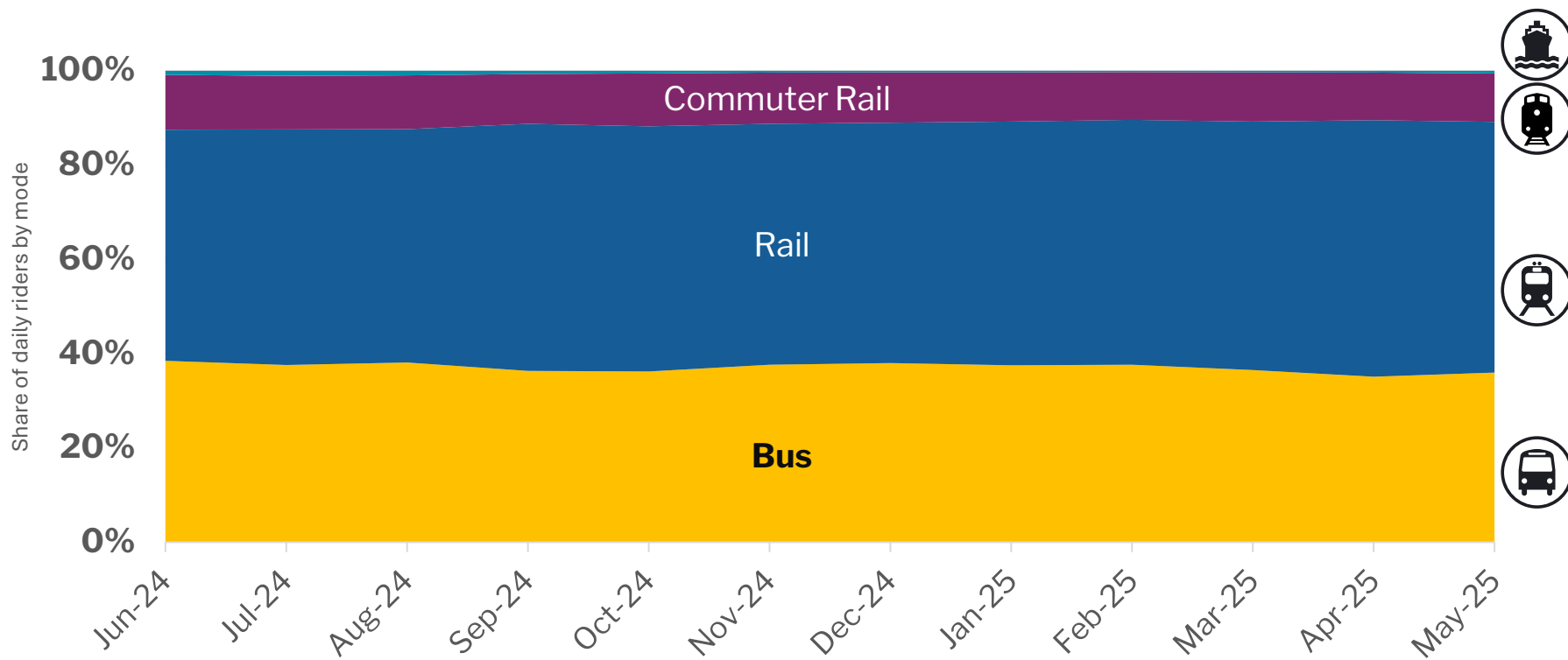
*Gateway East, after
Photo Credit: Toole Design*

MBTA's Bus Priority Vision Plan

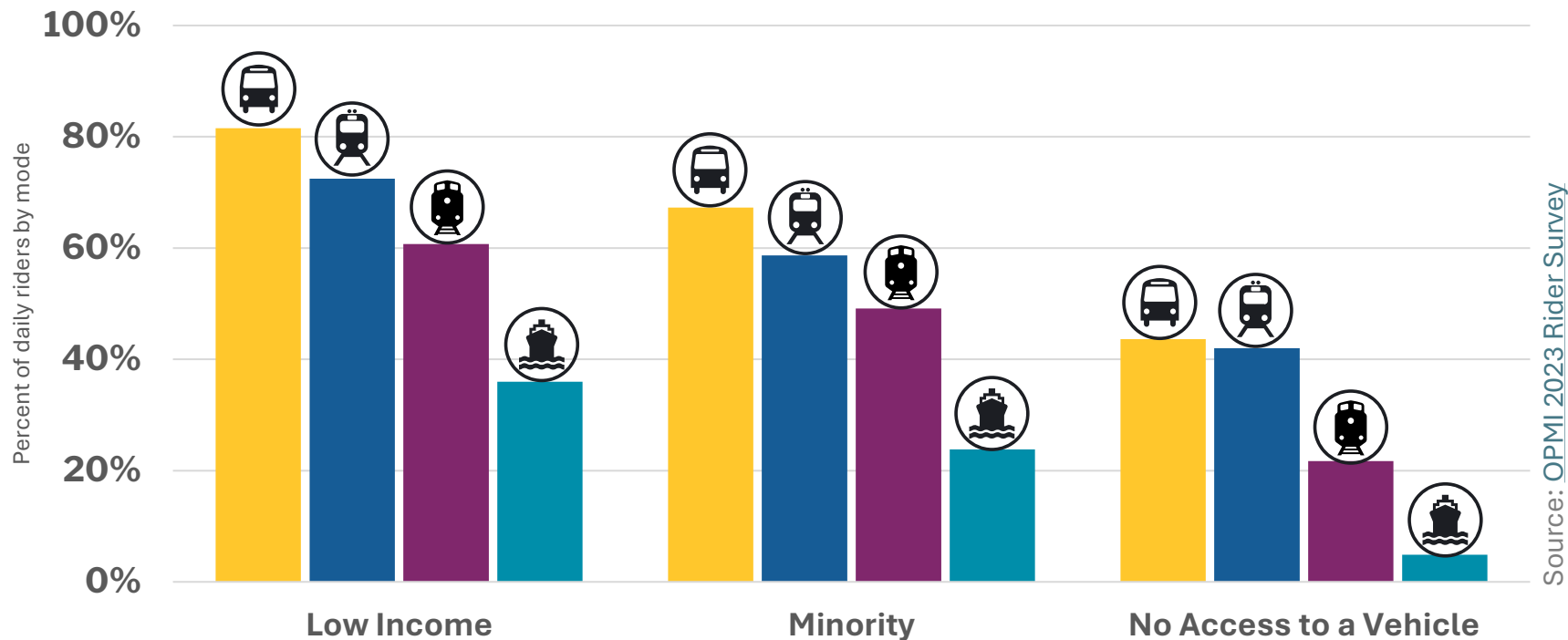
- **Targets existing delay** and service along 26 corridors
- Improves service to **220,000 daily bus riders**
- Covers 10-15% of the bus network; **impacts 80% of all bus riders**
- 5-7+ years of implementation



Bus Ridership: Nearly 40% of daily MBTA riders use the bus

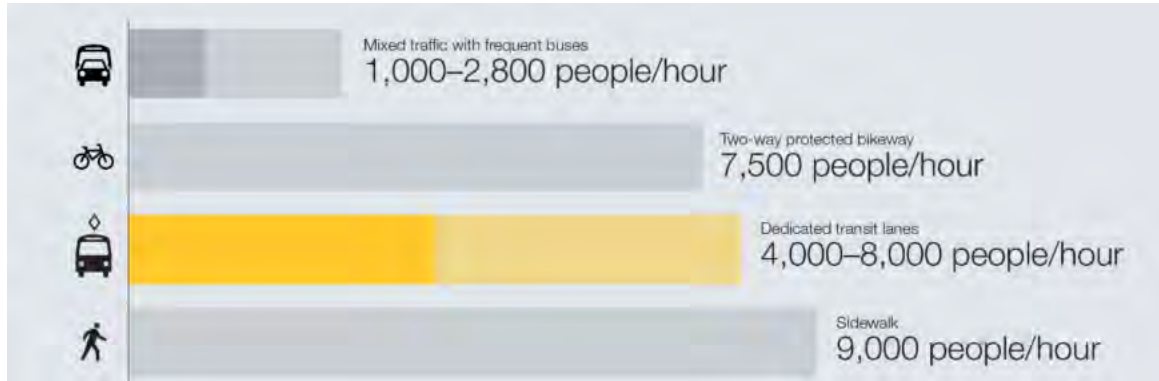


Bus Ridership & Equity: Majority of riders are low income & minority



Transit Priority Moves More People

How many people can the space of one travel lane serve?



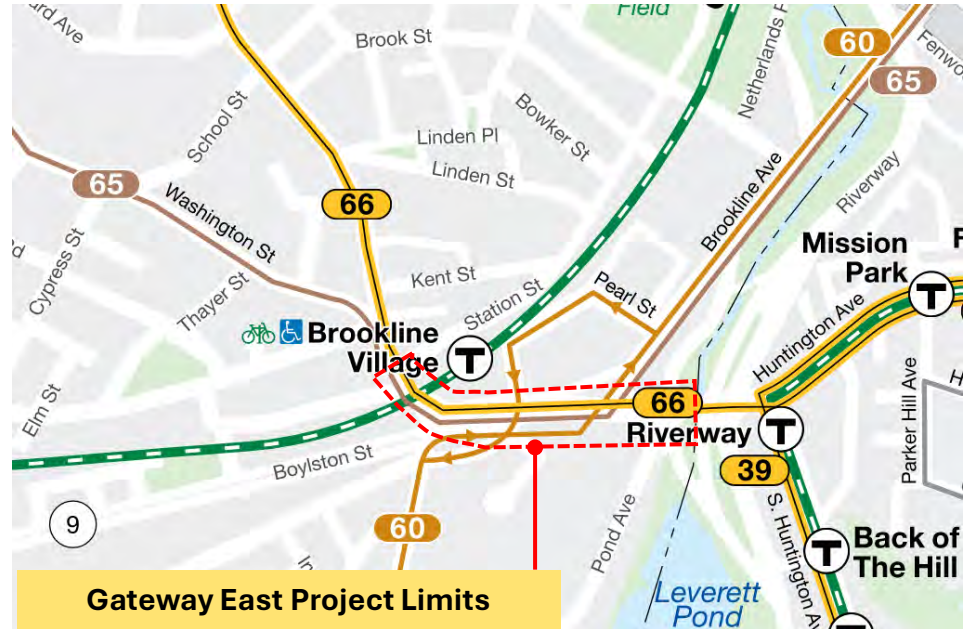
Person-Throughput Capacity (Graphic from MBTA Bus Priority Toolkit)

By repurposing space for transit, bus lanes can **increase the number of people that can travel along the corridor**, supporting future growth and mode shift to transit.



Project Motivation: Critical Transit Connection

- **Crossroads for three busiest bus routes** servicing Brookline: 60, 65, and 66 - highest bus ridership in all of Brookline
- Route 66 is **the 2nd busiest line in the entire MBTA bus system**
- Critical connections to and from the **Longwood Medical Area**, the Green Line (D and E branches), and other transit services
- Gateway East is the **busiest section of roadway** in Brookline for MBTA buses



MBTA Bus Map

Project Motivation: Bus Ridership & Equity

Typical Ridership on the Route 66 Bus

- 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
- During peak hours, the average Route 66 bus passing through the corridor has 35-45 riders – this means multiple riders standing

Benefits nearly **15,000 daily riders** on Route 60, 65, 66 – half of which travel through the Gateway East Corridor



Gateway East: Route 66 Network Context

Route 66 is **the 2nd busiest line in the entire MBTA bus system**

Connects Red Line, Green Line, Orange Line, Silver Line, & several Frequent Bus Routes between Harvard & Nubian Stations

Gateway East project benefits nearly **15,000 daily riders** on Routes 60, 65, 66 – half of which travel through the project

For context, Route 9 carries **22,000** average daily traffic (Cypress - High)



Route 66 is a **Frequent Bus Route** (every 15 min or better)



Gateway East: Route 66 Network Context

Existing Projects

- Gateway East Bus Lanes
- Brighton Ave Bus Lanes
- Harvard Bus Tunnel Reroute
- TSP at Packard's Corner
- Huntington Ave Bus Lanes
- Tremont Street Queue Jump

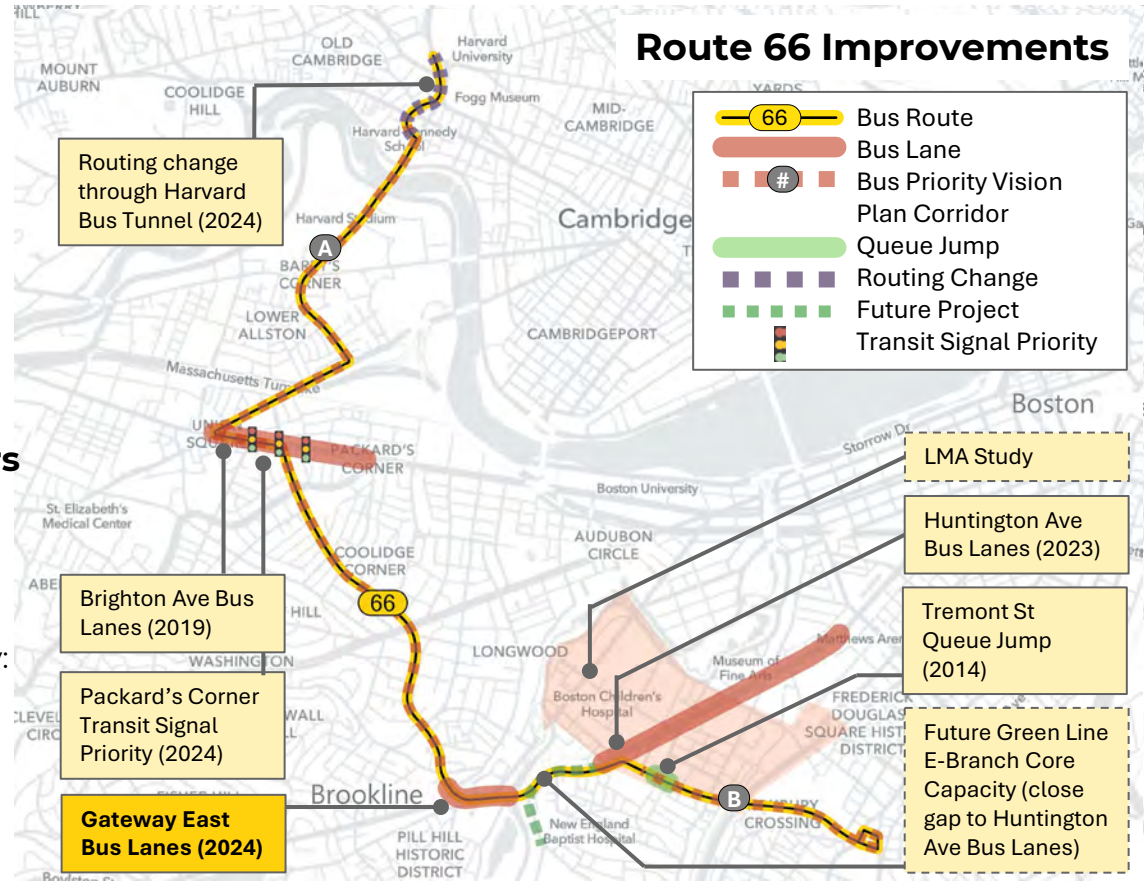
Bus Priority Vision Plan Corridors

- A** Harvard Sq - Brookline Village
- B** Nubian Sq - LMA (via Malcom X Blvd)

Projects In Development

- Green Line E-Branch Core Capacity: Transit Lanes on Huntington Ave
- Longwood Medical Area Study

Future approach will address delays along the 66 by targeting key junctions



Quarter 4 Findings

Quarter 4 Summary

Gateway East Bus Priority Pilot Evaluation
Q4 Analysis | October 8, 2025



*Gateway East, after
Photo Credit: Toole Design*

Travel time has improved for bus riders (morning inbound peak)

Overall, in the *morning inbound peak*,

Compared to the same time-period in 2024, bus travel times are (see map):

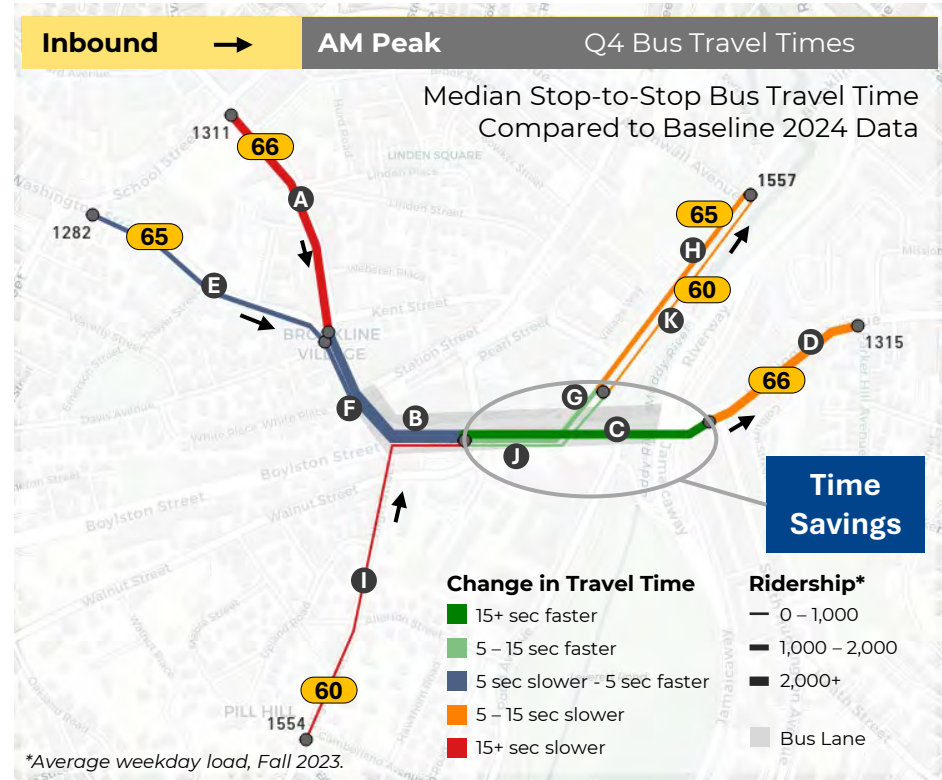
- Improving or consistent within the bus lane
- Longer travel times leading into and exiting the bus lane

Compared to Q3, bus travel times are:

- Improving within the bus lane
- Consistent or slightly faster outside the bus lane, except for segments A & I

During AM inbound trips, the bus lanes are performing well & **achieving significant time savings**

**See Appendix B for full details of Bus Service Analysis*



Travel time has improved for bus riders (evening outbound peak)

Overall, in the *evening outbound peak*,

Compared to the same time-period in 2024, bus travel times are (see map):

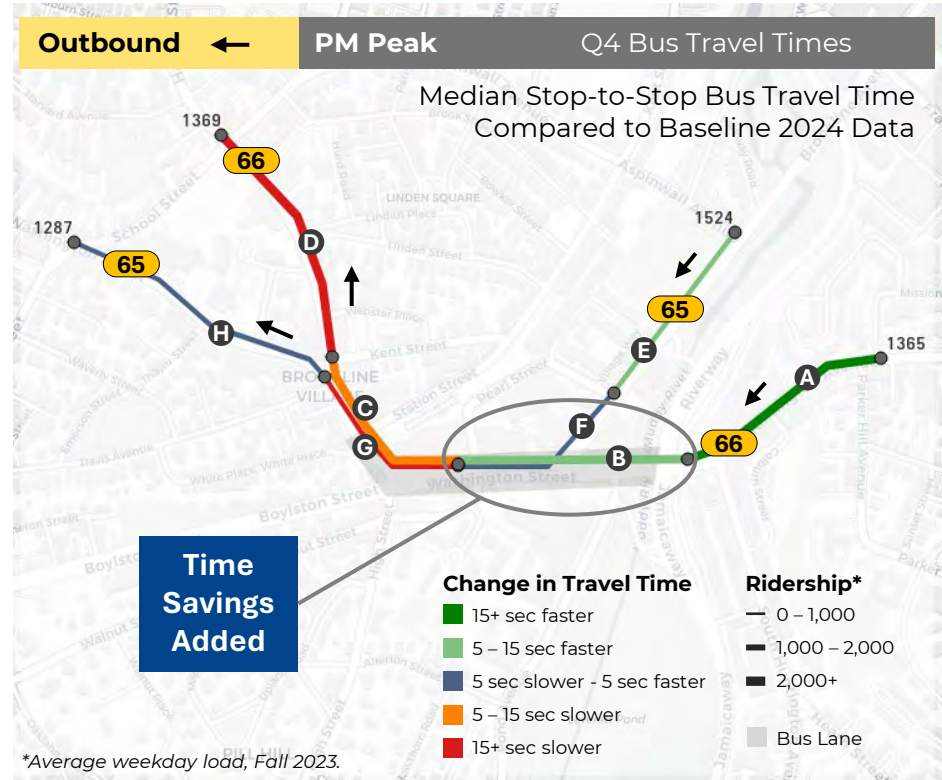
- Improved speeds approaching and traveling within the bus lane
- Increased travel times exiting the bus lane into mixed traffic

Compared to Q3, bus travel times are:

- Consistent or slightly slower throughout many study area segments, but faster in segments E & F

During PM outbound trips, the bus lanes are performing well & **achieving significant time savings**

**See Appendix B for full details of Bus Service Analysis*



Vehicle volumes & speeds have remained similar to previous quarters

VOLUMES:

- **Decreased in and around study area by approximately 1%** on average, relative to baseline
- Volumes on Route 9 **decreased slightly** with **mixed increases and decreases** on side streets

SPEEDS:

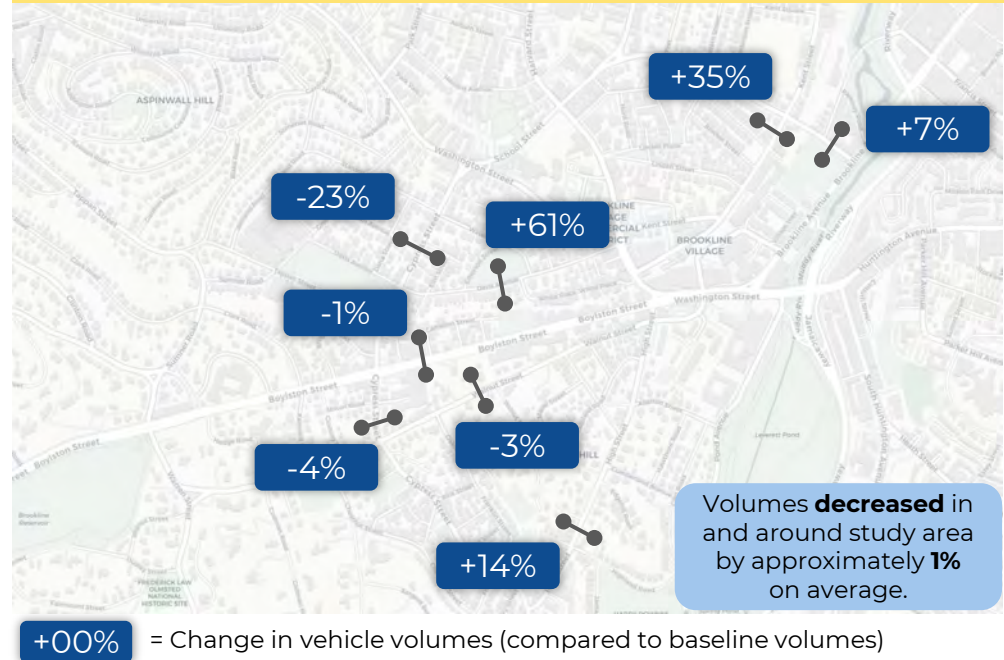
- Some fluctuation with speeds, but in general **most observed speeds decreased** (ranging from 22.4 to 34 MPH in the 85th percentile)

NEARBY TRAFFIC PATTERNS:

- **Pierce School** closed for construction and relocated to Old Lincoln School on Boylston St/Walnut St
- **Periodic closures of School St.** for the Pierce School construction may contribute to reduced traffic on Cypress St and increased traffic on Walnut St. and Davis Ave.

**See Appendix C for full details of Vehicle Volumes & Speeds*

Q4 Average Daily Traffic (ADT) Volume Change – Percentage

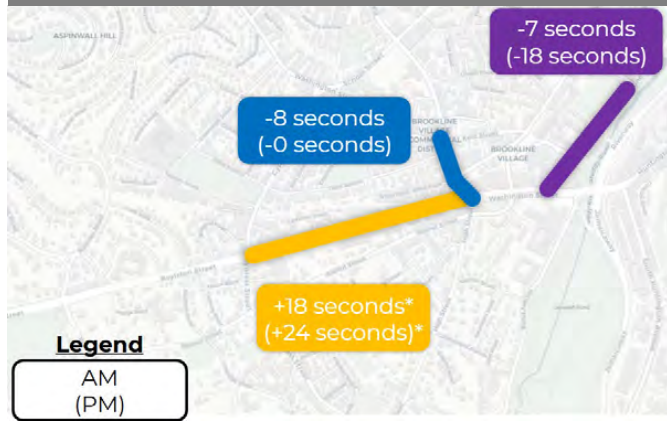


Travel times for general traffic have fluctuated slightly, and delays have remained similar

INTERSECTION DELAY:

- Either remains constant or fluctuates slightly
- Boylston St eastbound approach saw **increase** in delay, with other primary approaches seeing **decreases or no change** in delay

Intersection Approaches Analyzed for Delay

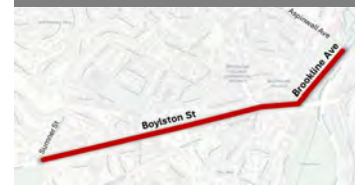


*See Appendix D for full details of Vehicle Travel Times & Control Delay

CORRIDOR TRAVEL TIMES:

- **Inbound:** After some fluctuations in Q1, Q2, and Q3, the Q4 inbound corridor travel times have stabilized to **slightly above** Baseline levels
- **Outbound:** The Q4 outbound corridor travel times **remain near** the Baseline levels

Corridor Analyzed for Travel Times



Inbound	Period	Baseline	Q1	Q2	Q3	Q4
	AM Peak	9.0 min	9.7 min	10.3 min	8.8 min	9.4 min
	MD Peak	5.7 min	6.6 min	6.0 min	6.5 min	7.1 min
	PM Peak	7.0 min	7.5 min	6.4 min	7.3 min	8.2 min

Outbound	Period	Baseline	Q1	Q2	Q3	Q4
	AM Peak	6.2 min	6.0 min	6.0 min	6.0 min	6.2 min
	MD Peak	5.5 min	5.9 min	5.7 min	6.0 min	6.0 min
	PM Peak	8.5 min	8.8 min	8.3 min	8.4 min	7.5 min

Vehicle queue lengths have seen minor increases at most approaches, but delays have remained similar

QUEUE LENGTHS

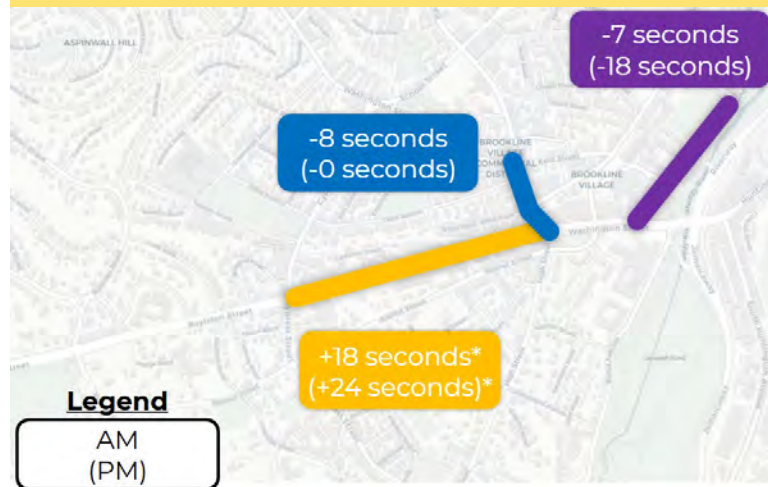
Minimal increases in queue lengths at most approaches, but delays (at right) are still similar to the baseline

- One exception was at the Boylston Street eastbound approach, which continues to see a **significant increase relative the baseline** (similar to Q1, Q2, and Q3)

Vehicle queue length graphics and full details can be found in Appendix E

**See Appendix E for full details of Vehicle Queue Lengths*

INTERSECTION DELAYS



Intersection Approaches Analyzed for Delay

Summary & Next Steps



Q4 Pilot Metrics Findings Summarized

- **Bus Travel Times** are continuing to improve
 - Continuing to see shorter travel times in the bus lanes and longer travel times exiting the bus lanes and entering mixed traffic
- **Vehicle Volumes** are relatively consistent with previous quarters
 - Traffic decreased slightly on Route 9 and increased moderately on side streets
- **Vehicle Speeds** mostly decreased, consistent with previous quarters
- **Vehicle Travel Times** have stabilized to baseline levels
 - Intersection delays remain constant or fluctuate slightly, broadly similar to previous quarters and baseline
- **Vehicle Queue Lengths** increased minimally, while delays remained consistent
 - One exception was at the Boylston Street eastbound approach, which saw a significant increase relative to the baseline (similar to previous quarters)
- **User Feedback Surveys** continue to remain open throughout the pilot

Key Takeaways from Q4 Findings

Pilot indicators help show impacts and help identify whether there is a trend to monitor or an outlier that didn't repeat.

- Overall, data shows consistency across first four quarters.
- Bus travel times stay consistent or improved, while general purpose traffic is mostly consistent with the baseline data.
- Data shows the bus lanes are effective where they exist, and are providing time savings. However, their efficacy is limited where buses re-enter mixed traffic.
- Continuing the pilot evaluation through Q5 – Q6 will provide insight on how the Transit Signal Priority is performing.



Washington St, before



Washington St, after

Next Steps

- **Pilot extension** for 6 months beginning September 2025 and concluding Spring 2026
- **Continue monitoring** & reporting quarterly throughout pilot duration
 - **Next report – January-Winter 2026: Quarter 5 (Sept 1, 2025 – Nov 30, 2025)**
- MBTA continue coordination on Transit Signal Priority with adaptive signal system vendor as needed
- Brookline continue coordination with BPD on education & enforcement

Appendix

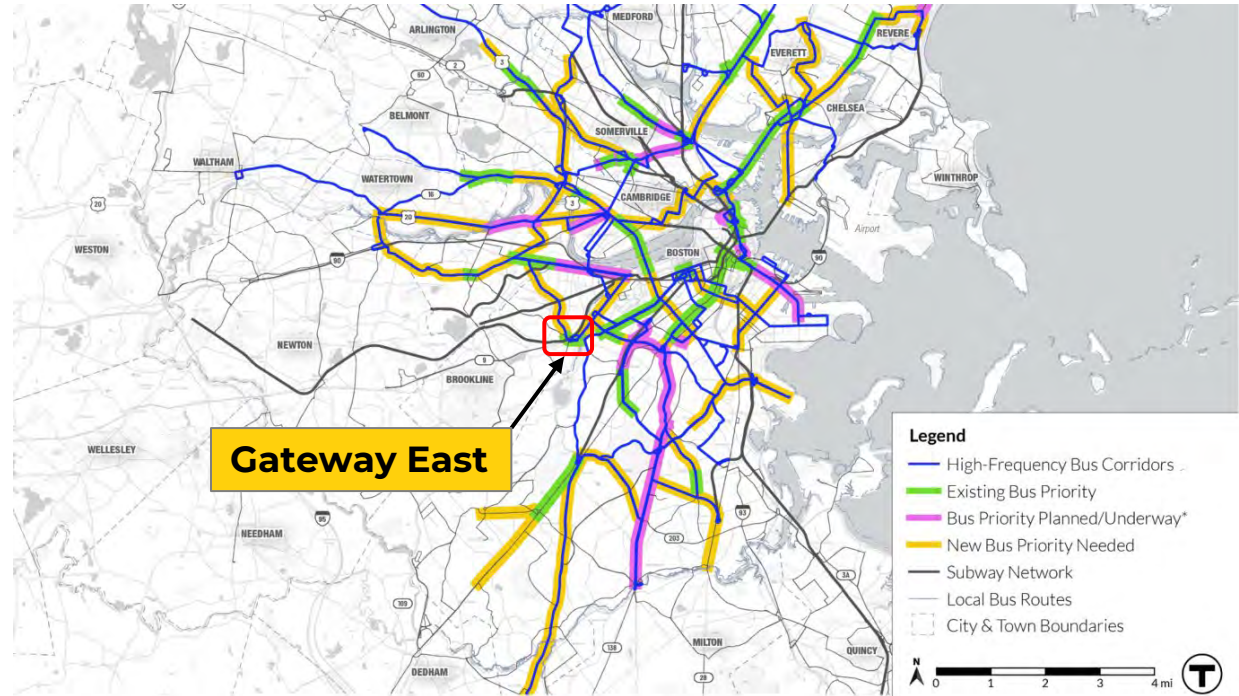
Appendix A

Project Background

MBTA Bus Priority

MBTA's Bus Priority Vision Plan

- **Targets existing delay** and service along 26 corridors
- Improves service to **220,000 daily bus riders**
- Covers 10-15% of the bus network; **impacts 80% of all bus riders**
- 5-7+ years of implementation

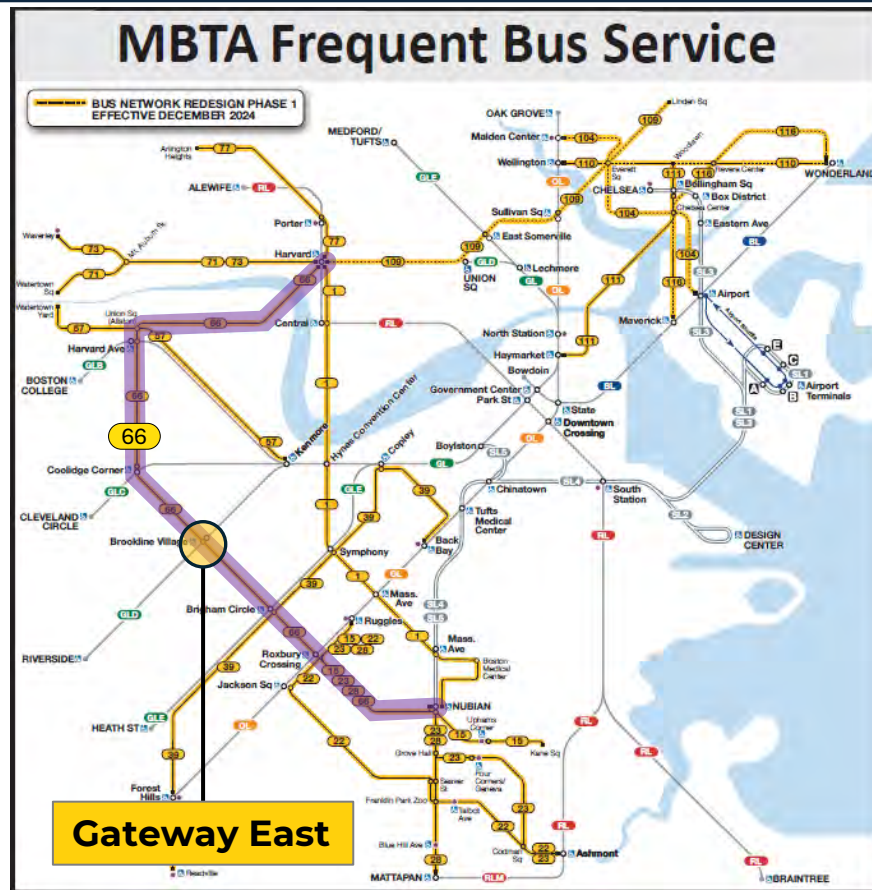


Gateway East: Route 66 Network Context

Route 66 is **the 2nd busiest line in the entire MBTA bus system**

Connects Red Line, Green Line, Orange Line, Silver Line, & several Frequent Bus Routes between Harvard & Nubian Stations

Gateway East project benefits nearly **15,000 daily riders** on Routes 60, 65, 66 – half of which travel through the project



Project Goals: Why Are Bus Lanes Needed?

- **Fastest, most affordable way** to improve transit service for riders in a short time frame
- **Improving access** to Longwood Medical Area, 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**



Gateway East, before the bus lanes

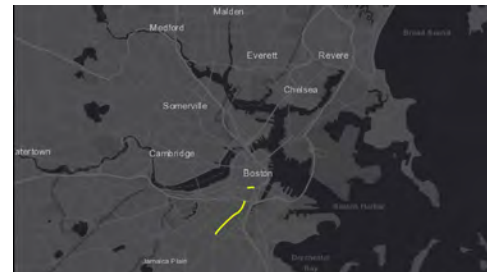
MBTA's Bus Priority Projects

Advance the Bus Priority Vision Plan to reduce bus rider delay through projects such as

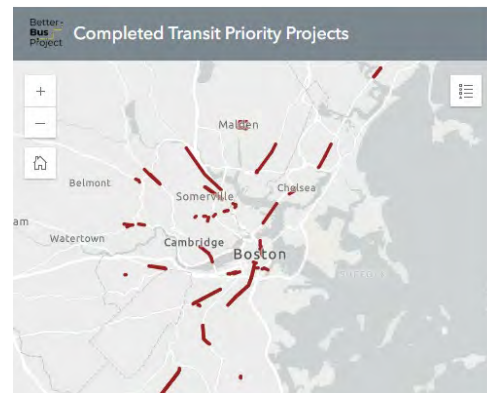
- Bus lanes
- Queue jumps
- Transit signal priority (TSP)

Growth of Bus Priority Projects in Greater Boston

- 40+ miles of bus lanes have been installed
- TSP has been activated at 85+ locations
- Collaboration is ongoing between MBTA and 12+ partner municipalities



*Bus lanes completed as of **2015***



*Bus lanes completed as of **2024***

Gateway East Bus Lane Pilot Evaluation Overview

Project Background

The **Gateway East Bus Lane Pilot** is a collaborative effort between MBTA, MassDOT, and The Town of Brookline to **build on the 2021 corridor reconstruction**.

One of principles the Brookline Transportation Board set for the Priority Bus Lane Pilot:

- **“To prioritize safe, space-efficient, and energy efficient movement of people and goods over the movement and parking of private vehicles when designing and improving our public ways** with particular focus on **high traffic routes connectivity and directness** consistent with Brookline Town meetings almost unanimously approval of Warrant Article 31 (WA31), titled as a **“resolution to respond to climate change by prioritizing health, access, and equity of Brookline’s public ways.”**”



Pilot Performance Indicators

- User Feedback Surveys
- MBTA Bus Travel Time
- MBTA Bus Travel Time Variability
- Volume and Speed tracked on Boylston St, Secondary Roads, and Residential Side Streets
- Vehicle Travel Times and Control Delay
- Queue Length Analysis



Project Timeline

2020: Collaborative planning effort began.

2021: Brookline Transportation Board authorized Gateway East Bus Priority Lane Pilot project, funded by the MBTA

2024: Dedicated bus lanes were implemented on Washington St between Station St and the Town Line in both directions. Installation occurred 6/24/2024 – 9/26/2024

2024-2025: The original pilot analysis period was planned for one year between August 2024 and July 2025

2025: Transit Signal Priority features were activated in June 2025

2025-2026: Pilot was extended for 6 months (Sept 2025 to Feb 2026) to allow time to gather data while the Traffic Signal Transit Priority is active during the school session

Quarterly evaluations of the pilot's impacts on bus travel times and car traffic are being conducted by Arcadis and Toole Design Group.



Gateway East, before



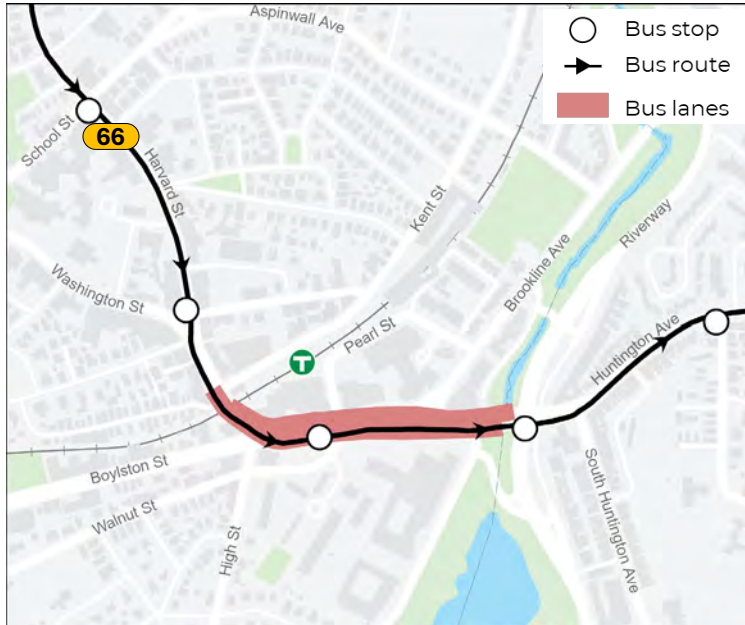
Gateway East, after



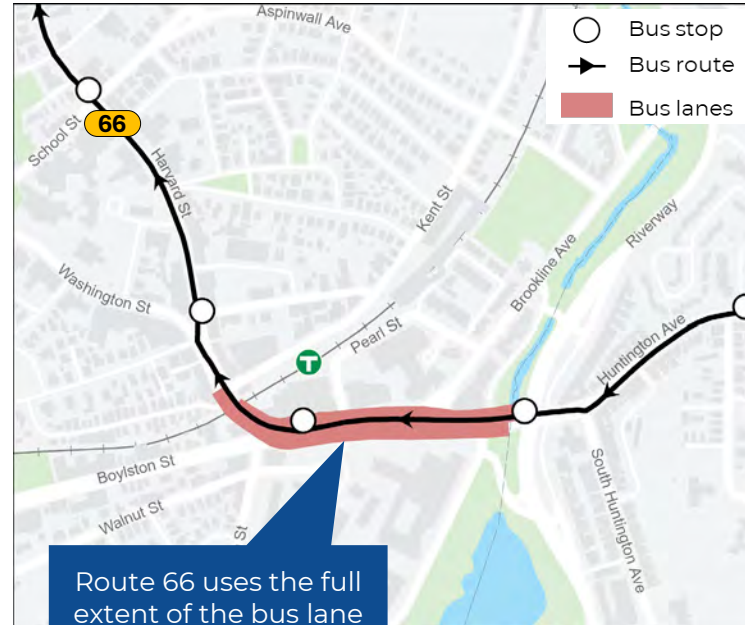
Gateway East, after
Photo Credit: Toole Design

Bus Routing Through the Project Area

66 Inbound



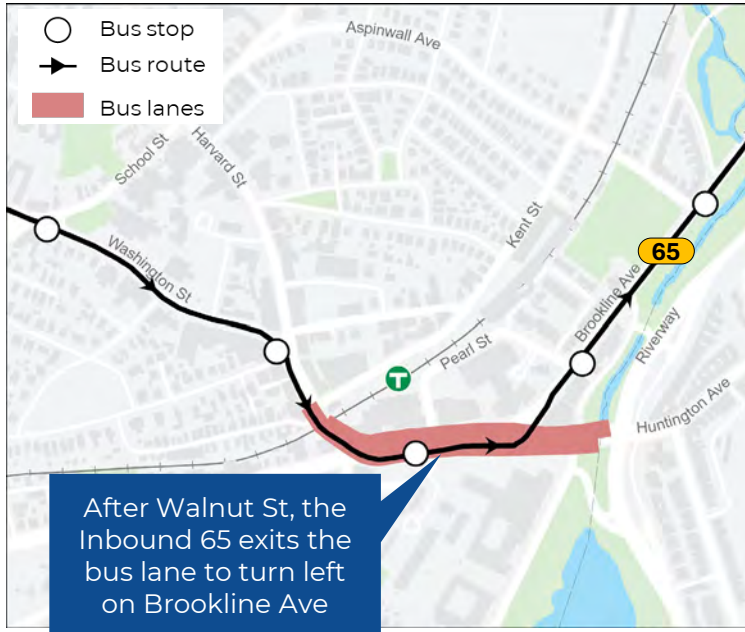
66 Outbound



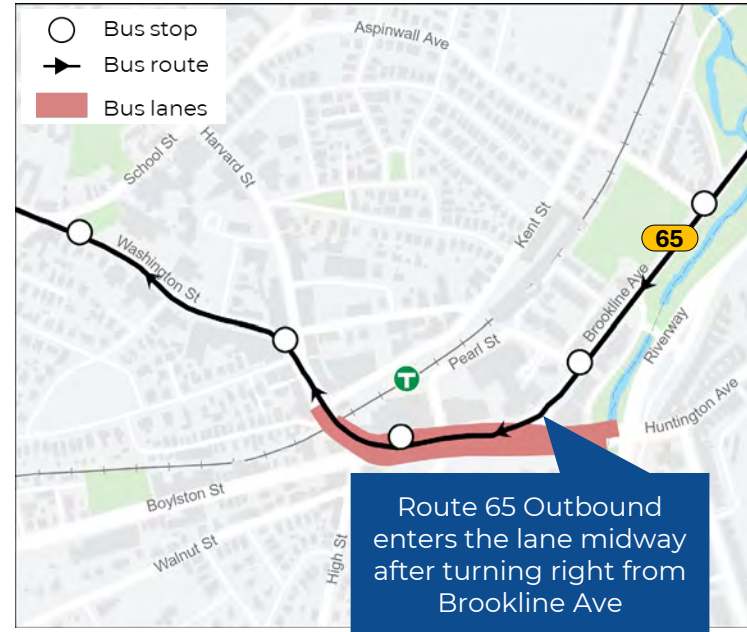
Route 66 uses the full extent of the bus lane in both directions

Bus Routing Through the Project Area

65 Inbound

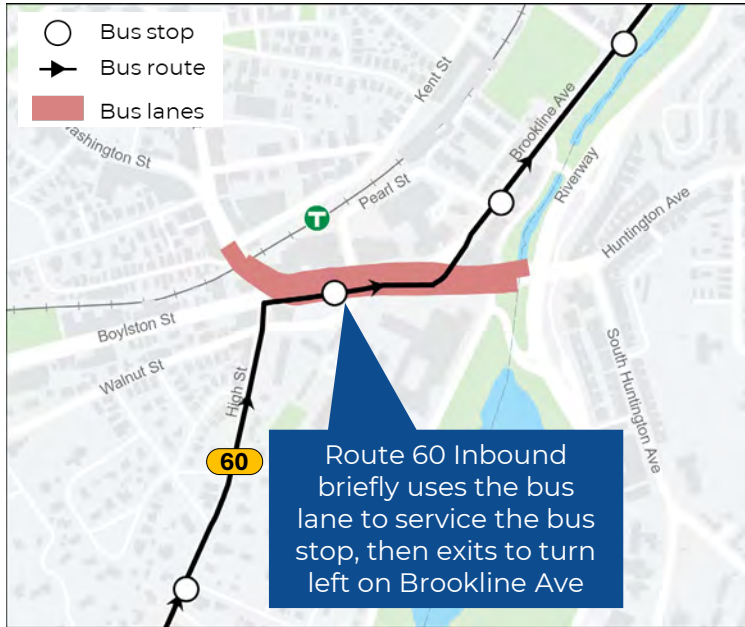


65 Outbound

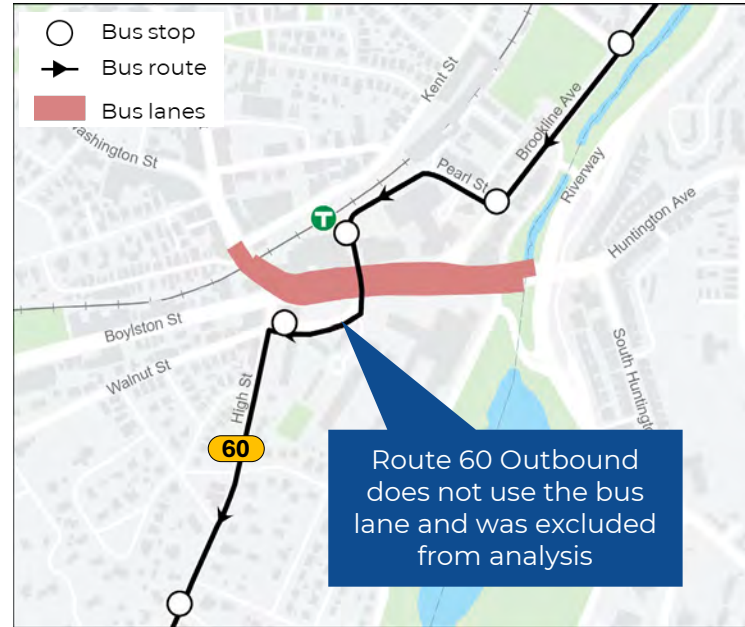


Bus Routing Through the Project Area

60 Inbound



60 Outbound



Project Status

Project Status & Operations

Construction – Markings & Signs Completed late September 2024

- Installation period extended well into the Q1 analysis period, ending 9/26/24 due to delays with signage installation

Traffic Signals – Activated in 2025

- The adaptive signal system was activated in April 2025 and the Transit Signal Priority features were activated in June 2025



T CEX

Project Status & Operations

Enforcement

- BPD has conducted spot enforcement and have reported difficulty with logistics of enforcing the lane without blocking the bus lane

Other Factors Affecting Local Travel Patterns

- The **Pierce School closure** may explain reduced traffic on Cypress St and increased traffic on Walnut St, as the school was relocated to the old Lincoln School between Boylston St and Walnut St
- Pierce School Construction has required intermittent road closure of School St.



Gateway East, after
Photo Credit: Toole Design

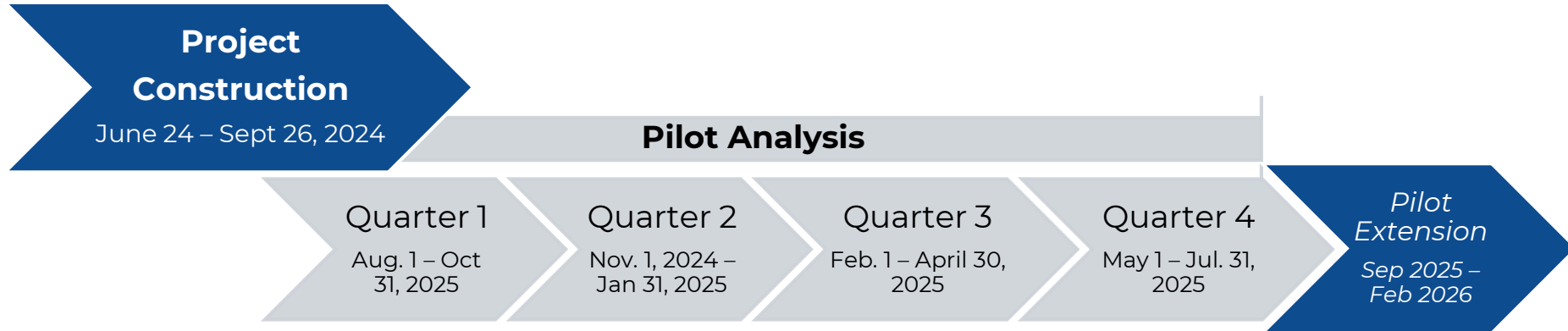
Public Feedback - Gateway East Bus Lane Pilot Survey

The survey was launched in mid-November and promoted through various channels, including:

- DPW and Town social media
- The Town Administrators' Newsletter
- The Longwood Collective Newsletter
- Eye-catching yard signs along the corridor
- The survey remains open for the duration of the pilot and we'd love to hear from you! Haven't taken the survey? Go to: <https://www.surveymonkey.com/r/CN3S9WZ>
- Survey results are included in the final Appendix.



Pilot Analysis Schedule



Data Collection Schedule

Period	Period Dates*	Traffic Count Dates	INRIX Dates	Queuing Dates
Baseline	Aug 1 – Oct 31, 2023	Sep 26-28, 2023	Jun 2024**	May 18, 2021***
Quarter 1	Aug 1 – Oct 31, 2024	Oct 8-10, 2024	Oct 2024	Dec 3, 2024
Quarter 2	Nov 1, 2024 – Jan 31, 2025	Feb 25-27, 2025	Jan 2025	Feb 26, 2025
Quarter 3	Feb 1 – Apr 30, 2025	Apr 8-10, 2025	Apr 8-10, 2025	Apr 8, 2025
Quarter 4	May 1 – Jul 30, 2025	Jul 15-17, 2025	Jul 2025	Jul 15, 2025

**APC data for travel time analysis collected over entire period.*

***INRIX Blackout from 6/2023 – 2/2024*

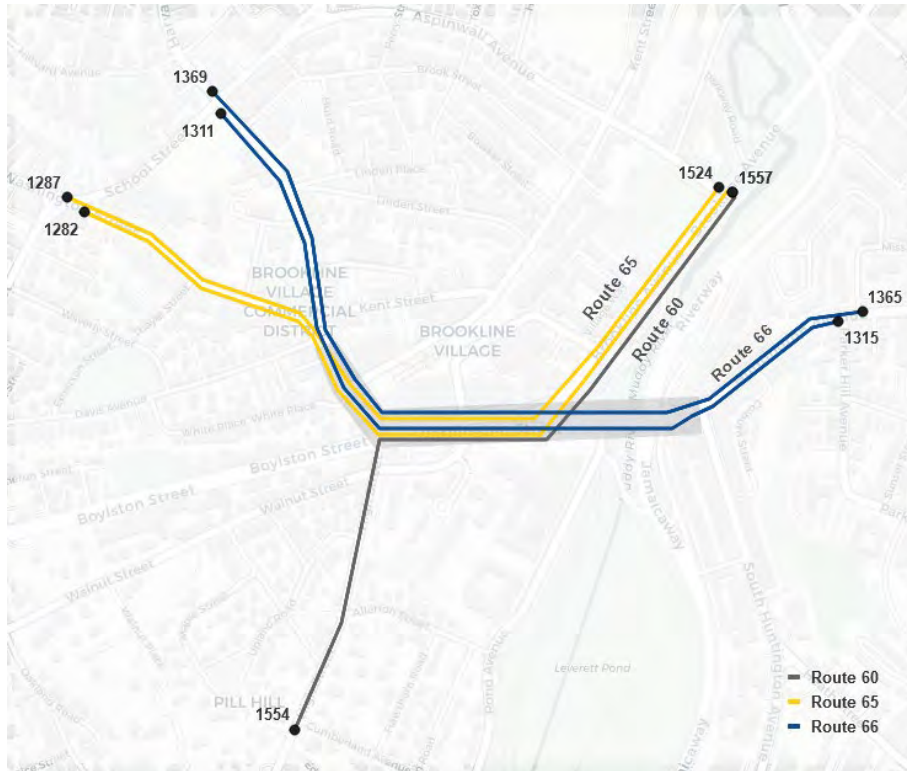
****Baseline queue data may be affected by decreased traffic in wake of COVID-19 pandemic*

Appendix B

Bus Travel Times

Bus Service Analysis Methodology

Analysis Area



Route 60 inbound between High St at Cumberland Ave (1554) and Brookline Ave opposite Aspinwall Ave (1557)

Route 65 inbound between Washington St at Cypress St (1282) and Brookline Ave at Aspinwall Ave (1557)

Route 65 outbound between Brookline Ave at Aspinwall Ave (1524) and Washington St at School St (1287)

Route 66 inbound between Harvard St at School St (1311) and Huntington Ave at Parker Hill Ave (1315)

Route 66 outbound between Huntington Ave opposite Parker Hill Ave (1365) and Harvard St at Aspinwall Ave (1369)

Data

- All analysis was completed using stop arrival and departure times in **automatic passenger counter (APC)** data.
- Data was collected for **weekdays** from February 2025 through April 2025.
 - The baseline period was weekdays from February 2024 through April 2024.
- MBTA-defined **time periods**:
 - AM Peak: 7:00 AM to 9:00 AM
 - Afternoon: 2:00 PM to 4:00 PM (*corresponds with the end of school*)
 - PM Peak: 4:00 PM to 7:00 PM

Metrics

Travel Time	Variability (MBTA Metric)	Travel Time Quality of Service (TTQOS)	Travel Time Variability Quality of Service (TTVQOS)
Median travel time of a vehicle over a segment at a given time.	Relative difference between the median and 90 th percentile of travel times.	Letter grade (A to E) for how much delay vehicles experience on average over a segment at a given time.	Letter grade (A to E) for how consistent vehicle travel time is over a segment at a given time.

Metrics

$$\text{TTQOS} = \frac{\text{average travel time (observed)}}{\text{reference travel time}^*}$$

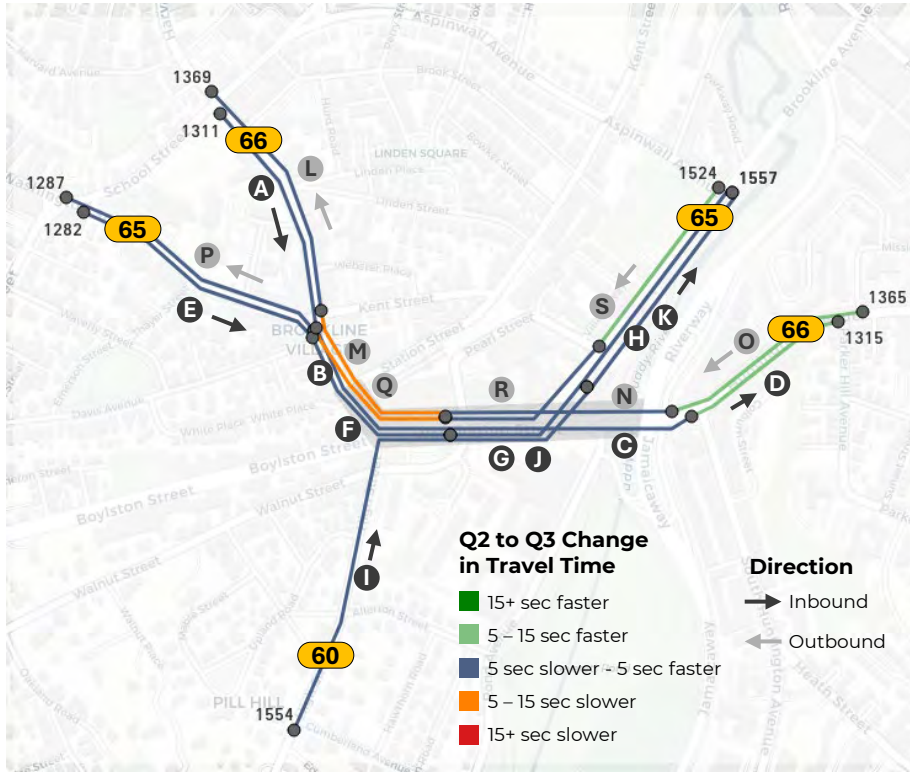
$$\text{TTVQOS} = \frac{\text{standard deviation travel time (observed)}}{\text{average travel time (observed)}}$$

Grade	Metric Upper Threshold		Representative Bus Service
	TTQOS	TTVQOS	
A	1.4	1.4	Fully grade-separated
B	1.8	2.7	Reserved right-of-way, subject to traffic signal control
C	2.4	3.8	Mixed traffic, little to no traffic congestion
D	3.0	5.1	Mixed traffic, modest traffic congestion
E	4.0	8.0	Mixed traffic, moderate traffic congestion
F	N/A	N/A	<i>Perceived as too slow to be a good travel choice</i>

*Based on segment length.

Quarter 4 Bus Service Analysis Findings

What has changed in bus travel times between Q3 and Q4?



Change in Median Stop-to-Stop Bus Travel Time* (seconds)

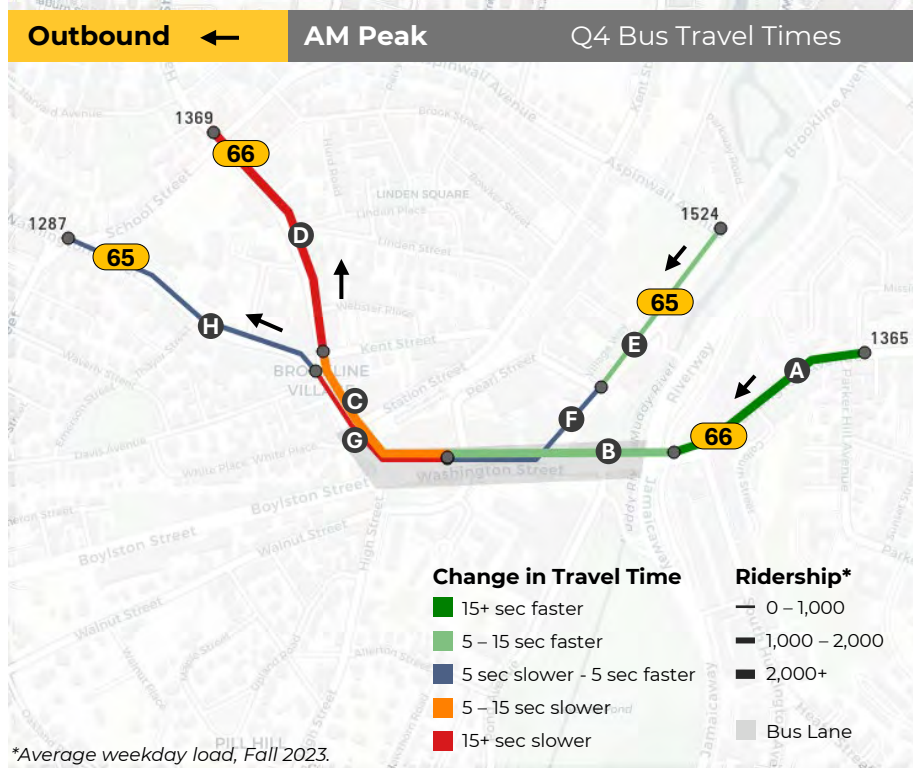
Represents a combination of AM, PM, and afternoon peak periods

	Inbound				Outbound		
	Q3 to Q4 Diff*	Baseline Diff**			Q3 to Q4 Diff*	Baseline Diff**	
		Q3 (sec)	Q4 (sec)			Q3 (sec)	Q4 (sec)
Route 66				Route 66			
A	5	36	35	L	-5	-8	-12
B	-0.5	-2.5	-16	M	-2	-24	-9
C	-1	-7	-13	N	11	-7	14
D	-5	6	1	O	-1	26	31
Route 65				Route 65			
E	2	2	4.5	P	-7	3	-6
F	-4.5	6	-1.5	Q	-3	15	2
G	-1	2	-4	R	10	2	16
H	-3	13	9	S	-2	-1	0
Route 60							
I	-2.5	-1	9				
J	0	-17.5	-1				
K	-3	19	10				

*Difference in travel time (s) between Q3 and Q4 (in seconds).

**Difference in travel time (s) between each quarter and its baseline (in seconds).

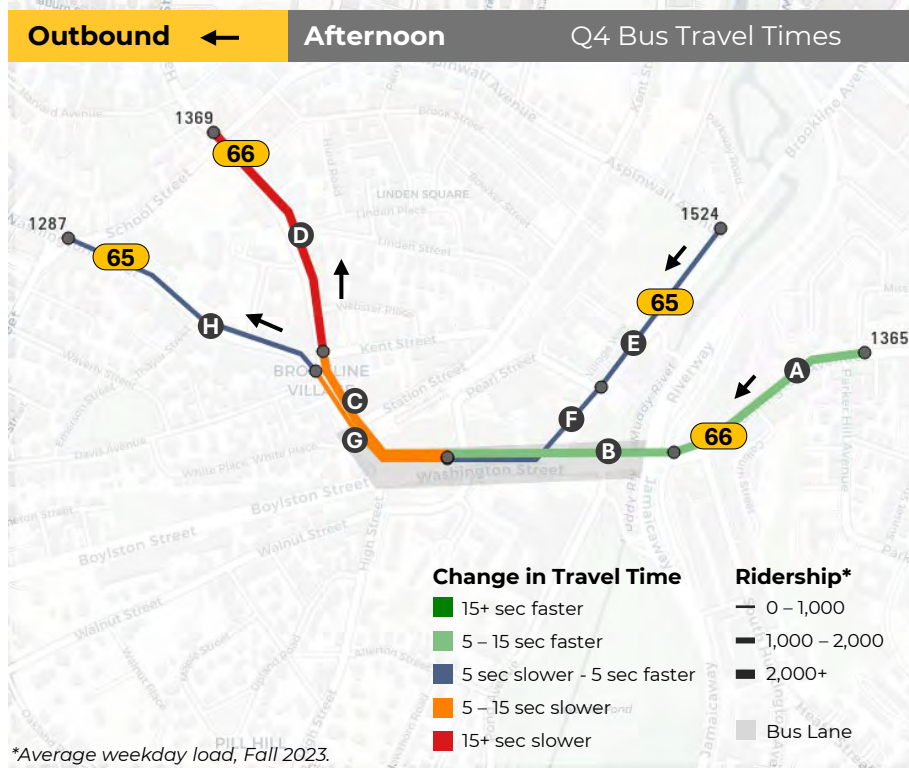
Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	7:54	8:25	32
A	2:04	1:40	-25
B	2:07	2:00	-7
C	1:31	1:45	14
D	1:51	2:37	46
Route 65			
Full corridor	6:03	6:11	8
E	1:13	1:06	-8
F	1:57	1:55	-2
G	1:34	1:51	16
H	1:04	1:03	-2

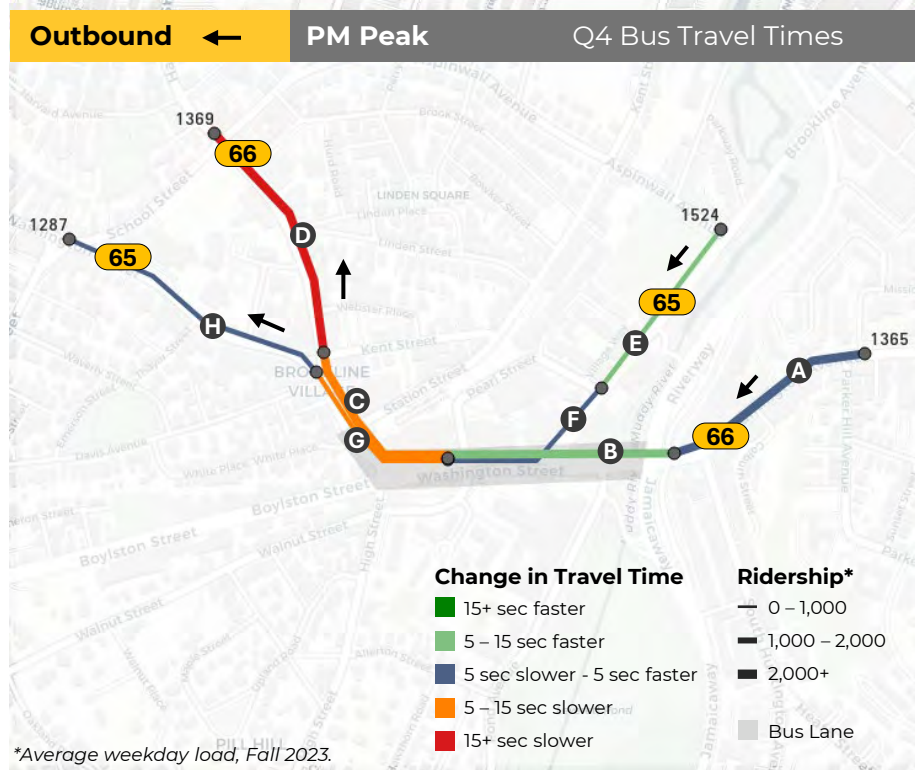
Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	8:03	8:36	32
A	2:04	1:55	-9
B	2:12	2:01	-11
C	1:34	1:49	15
D	1:58	2:31	34
Route 65			
Full corridor	6:34	6:45	10
E	1:22	1:19	-3
F	2:05	2:07	2
G	1:46	2:01	15
H	1:04	1:06	1

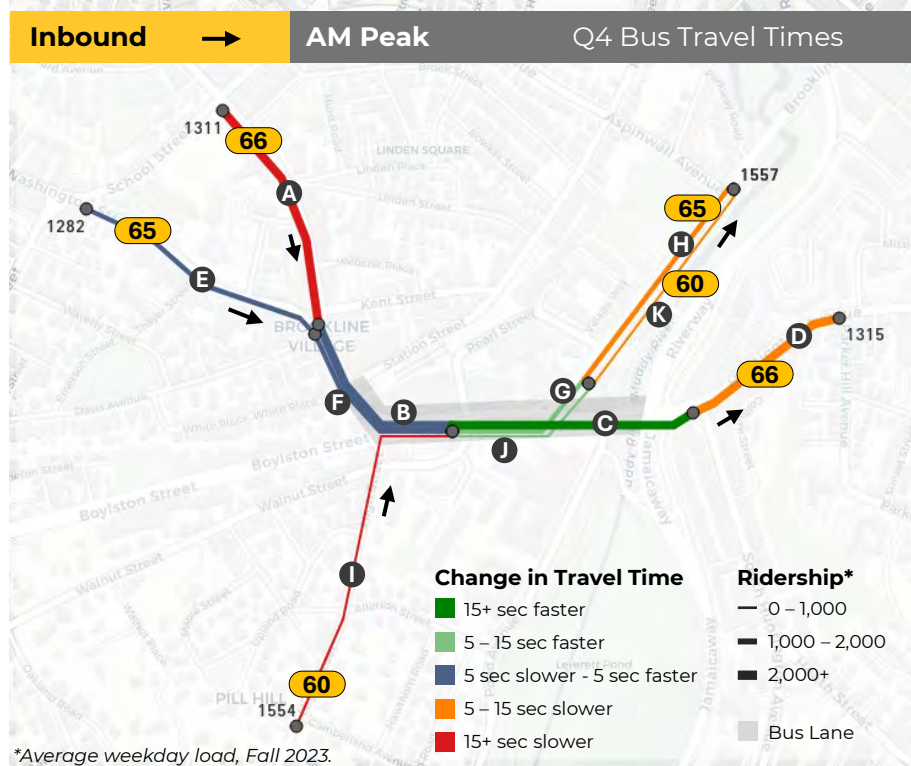
Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	8:21	8:45	24
A	2:06	2:03	-3
B	2:22	2:13	-10
C	1:39	1:54	14
D	2:04	2:22	18
Route 65			
Full corridor	6:37	6:46	10
E	1:24	1:16	-8
F	2:10	2:13	3
G	1:46	2:01	15
H	1:04	1:03	-1

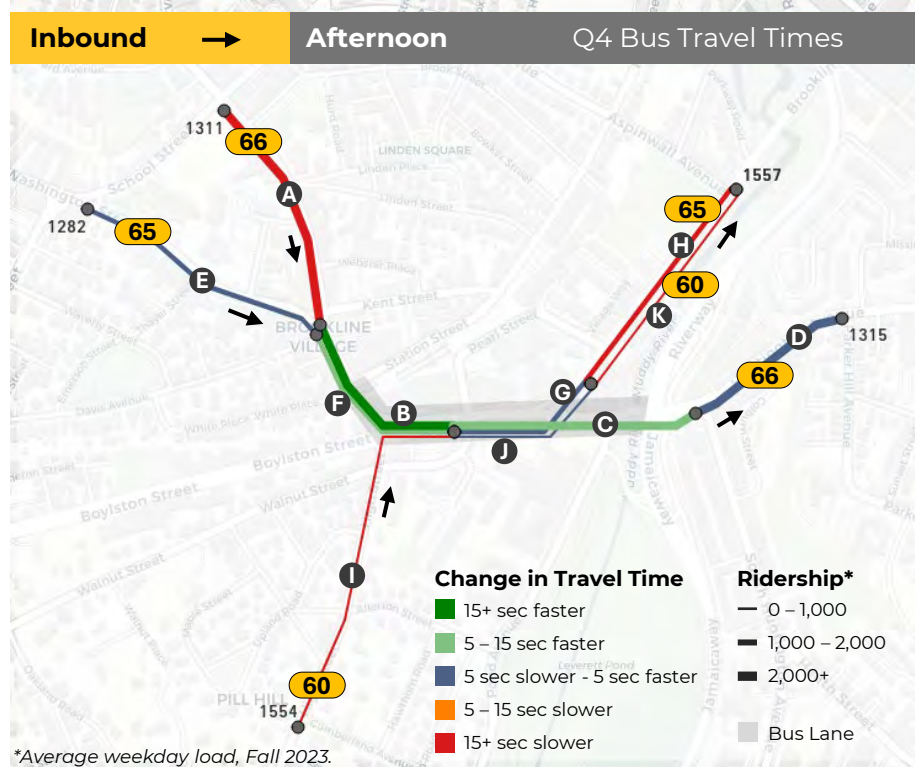
Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	8:22	8:39	17
A	1:15	2:00	44
B	2:45	2:40	-4
C	1:50	1:34	-16
D	2:15	2:22	7
Route 65			
Full corridor	7:04	7:13	8
E	1:18	1:22	4
F	2:24	2:28	5
G	2:04	1:58	-6
H	0:55	1:01	6
Route 60			
Full corridor	6:24	6:40	16
I	2:49	3:13	24
J	2:09	1:58	-10
K	1:00	1:07	7

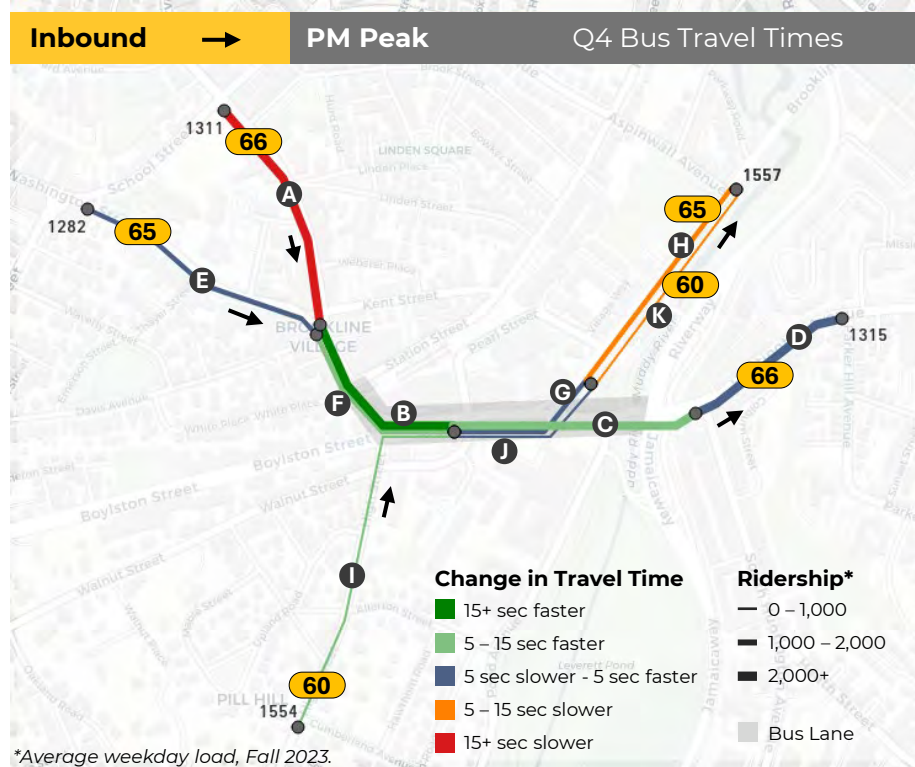
Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	8:45	8:37	-7
A	1:45	2:12	27
B	3:03	2:42	-21
C	1:40	1:34	-7
D	1:55	1:57	1
Route 65			
Full corridor	6:59	7:04	4
E	1:25	1:28	3
F	2:34	2:25	-9
G	1:49	1:49	0
H	0:45	1:01	16
Route 60			
Full corridor	5:16	5:49	34
I	2:16	2:34	19
J	1:44	1:49	4
K	0:49	1:04	16

Has travel time improved for bus riders?



Median Stop-to-Stop Bus Travel Time

Segment	Baseline (min)	Q4 (min)	Change (sec)
Route 66			
Full corridor	8:58	8:46	-11
A	1:43	2:16	32
B	3:16	2:55	-21
C	1:49	1:36	-14
D	1:55	1:55	0
Route 65			
Full corridor	7:10	7:13	4
E	1:24	1:27	3
F	2:30	2:25	-5
G	1:55	1:55	1
H	0:51	1:01	10
Route 60			
Full corridor	5:45	5:43	-1
I	2:31	2:27	-5
J	1:55	1:52	-3
K	0:59	1:07	8

Quarter 4 Bus Service Analysis Results

Travel Times, Dwell, and QOS Ratios | Time Period: AM Peak

Q4 Baseline (May 2024 – Jul 2024)

Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	Inbound	1554	1557	384	591.8	10	19	31%	0.54	3.59	E	4.83	D
		1554	1555	169.5	367.3	12	20	91%	1.17	4.54	F	7.04	E
		1555	1556	129	212.7	10	23	43%	0.65	4.41	F	4.19	D
		1556	1557	60	104.9	10	19	31%	0.75	1.81	C	3.87	D
65	Inbound	1282	1557	425	575	9	14	23%	0.35	3.11	E	3.26	C
		1282	1283	78	125	11	21	72%	0.6	2.15	C	3.06	C
		1283	1555	144	231	12	22	90%	0.6	4.6	F	4.34	D
		1555	1556	125	211.6	9	15	55%	0.69	4.42	F	3.91	D
		1556	1557	56	108.6	9	14	23%	0.94	1.74	B	3.73	C
65	outbound	1524	1287	363	471	8.5	13.7	22%	0.3	2.71	D	2.85	C
		1524	1525	74	107	9	14.9	46%	0.45	2.18	C	2.76	C
		1525	1526	117	179	10	18	76%	0.53	3.53	E	3.84	D
		1526	1286	95	161	9	13	56%	0.69	3.23	E	4.03	D
		1286	1287	65	112	8.5	13.7	22%	0.72	1.98	C	3.34	C
66	inbound	1311	1315	502	669.6	16.5	54.6	89%	0.33	3.64	E	3.67	C
		1311	1313	75.5	136	13.5	28	88%	0.8	2.31	C	4.07	D
		1313	1555	165	247	14	30.9	85%	0.5	5.07	F	4.12	D
		1555	1314	110.5	158.6	14	29	94%	0.44	3.19	E	3.31	C
		1314	1315	135	225.3	16.5	54.6	89%	0.67	4.16	F	4.71	D
66	outbound	1365	1369	474	631	11	17	72%	0.33	3.39	E	3.22	C
		1365	1366	125	183.4	14	30	89%	0.47	3.53	E	2.74	C
		1366	1526	127	192	13	23	92%	0.51	3.72	E	3.48	C
		1526	1367	91	153.4	11	20	81%	0.69	2.99	D	3.78	C
		1367	1369	111	202.4	11	17	72%	0.82	3.27	E	4.71	D

*Calculated for buses that stop
(excludes stops with no boardings,
alightings, or dwell).



Travel Times, Dwell, and QOS Ratios | Time Period: Afternoon

Q4 Baseline (May 2024 – Jul 2024)

Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	inbound	1554	1557	316	427.3	7.5	11	7%	0.35	2.83	D	3.25	C
		1554	1555	136	227.1	13	24	92%	0.67	3.25	E	4.38	D
		1555	1556	104.5	174.4	9	16.8	41%	0.67	3.79	E	4.01	D
		1556	1557	49	104.1	7.5	11	7%	1.12	1.57	B	3.69	C
65	inbound	1282	1557	419.5	567.6	9	16.2	9%	0.35	3.07	E	3.24	C
		1282	1283	85	138	11	27.3	71%	0.62	2.36	C	3.47	C
		1283	1555	155	257	10	19	83%	0.66	5.04	F	5.04	D
		1555	1556	109.5	175.4	9	16	56%	0.6	3.8	E	3.57	C
		1556	1557	45.5	100.4	9	16.2	9%	1.21	1.47	B	3.91	D
65	outbound	1524	1287	394.5	512.6	9	19	43%	0.3	2.95	D	2.75	C
		1524	1525	83	123.3	11	26	68%	0.49	2.56	D	3.16	C
		1525	1526	125.5	195.3	12	26.7	79%	0.56	3.86	E	3.35	C
		1526	1286	106	171.6	11	22	72%	0.62	3.48	E	3.78	C
		1286	1287	65	110	9	19	43%	0.69	2.01	C	3.41	C
66	inbound	1311	1315	525	683	14	35.7	81%	0.3	3.86	E	4.79	D
		1311	1313	105	187	15	46.7	82%	0.78	3.12	E	4.35	D
		1313	1555	183	282	18	46	84%	0.54	5.82	F	4.25	D
		1555	1314	101	158	13	26.7	85%	0.56	3.25	E	11.58	F
		1314	1315	116	169	14	35.7	81%	0.46	3.4	E	12.46	F
66	outbound	1365	1369	483.5	654	13	29	70%	0.35	3.49	E	4.01	D
		1365	1366	125	176	16	38	81%	0.41	3.45	E	3.32	C
		1366	1526	132	212	15	33.1	92%	0.61	4.03	F	7	E
		1526	1367	94	153	14	35	79%	0.63	3.05	E	4.23	D
		1367	1369	118	205.3	13	29	70%	0.74	3.41	E	4.51	D

*Calculated for buses that stop
(excludes stops with no boardings,
alightings, or dwell).



Travel Times, Dwell, and QOS Ratios | Time Period: PM Peak

Q4 Baseline (May 2024 – Jul 2024)

Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	inbound	1554	1557	345	481.2	8.5	13.4	12%	0.39	3.13	E	3.62	C
		1554	1555	152	268.6	13	21.8	95%	0.77	3.61	E	4.7	D
		1555	1556	116	198	9	12	39%	0.71	4.16	F	4.11	D
		1556	1557	59.5	109	8.5	13.4	12%	0.83	1.75	B	3.83	D
65	inbound	1282	1557	430	575.4	9	14	9%	0.34	3.14	E	3.51	C
		1282	1283	84	142	10	27.9	52%	0.69	2.36	C	3.69	C
		1283	1555	150	261.2	11	22	74%	0.74	4.87	F	4.75	D
		1555	1556	115	197.4	8	13	41%	0.72	4.07	F	4.4	D
		1556	1557	51	116.8	9	14	9%	1.29	1.67	B	4.1	D
65	outbound	1524	1287	397	536.8	11	25.4	57%	0.35	3	D	3.33	C
		1524	1525	84	138.8	12	28	67%	0.65	2.63	D	3.73	C
		1525	1526	131	212.8	13	28.7	81%	0.62	4.05	F	4.02	D
		1526	1286	106	172.8	11	23	68%	0.63	3.49	E	3.78	C
		1286	1287	64	105	11	25.4	57%	0.64	1.94	C	3.13	C
66	inbound	1311	1315	538	755.6	13	27	80%	0.4	3.96	E	3.71	C
		1311	1313	104	179	15	56.5	86%	0.72	3.06	E	4.29	D
		1313	1555	196	318	20	53.3	90%	0.62	6.21	F	4.44	D
		1555	1314	110	166	14	31	92%	0.51	3.31	E	3.32	C
		1314	1315	116	168	13	27	80%	0.45	3.45	E	3.98	D
66	outbound	1365	1369	501.5	682	13	30	79%	0.36	3.63	E	4.59	D
		1365	1366	126	194.9	17	40	87%	0.55	3.57	E	4.72	D
		1366	1526	143	216.9	15	32	89%	0.52	4.31	F	7.68	E
		1526	1367	99.5	160	15	32	80%	0.61	3.09	E	8.98	F
		1367	1369	125	195.8	13	30	79%	0.57	3.54	E	8.6	F

*Calculated for buses that stop (excludes stops with no boardings, alightings, or dwell).

Travel Times, Dwell, and QOS Ratios | Time Period: AM Peak

Q4 (May 2025 – Jul 2025)

Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	inbound	1554	1557	400.5	612.9	8	9	17%	0.53	3.7	E	4.79	D
		1554	1555	193.5	380.5	13	22	92%	0.97	4.9	F	6.83	E
		1555	1556	118.5	183.4	9	16	32%	0.55	4.09	F	3.18	C
		1556	1557	67	112.4	8	9	17%	0.68	1.95	C	3.45	C
65	inbound	1282	1557	433	572	8	11.5	29%	0.32	3.15	E	3.22	C
		1282	1283	82	135.2	12	27	78%	0.65	2.3	C	3.27	C
		1283	1555	149	243	12	20	92%	0.63	4.73	F	4.41	D
		1555	1556	119	196.8	9	15	44%	0.65	4.14	F	4.03	D
		1556	1557	62	105	8	11.5	29%	0.69	1.84	C	3.2	C
65	outbound	1524	1287	371.5	492	8	10.2	19%	0.32	2.76	D	3.09	C
		1524	1525	66.5	103	9	13	37%	0.55	2.05	C	2.98	C
		1525	1526	115	188	11	20	77%	0.63	3.5	E	4.32	D
		1526	1286	111.5	180	9	14.6	49%	0.61	3.72	E	3.76	C
		1286	1287	63	102	8	10.2	19%	0.62	1.91	C	3.21	C
66	inbound	1311	1315	519	698	18	44.8	90%	0.34	3.86	E	3.95	D
		1311	1313	120	190	13	24.4	84%	0.58	3.3	E	3.87	D
		1313	1555	161	245	15	25	95%	0.52	5.07	F	3.96	D
		1555	1314	95	153	13	20	93%	0.61	2.86	D	3.56	C
		1314	1315	142	226	18	44.8	90%	0.59	4.32	F	5.94	E
66	outbound	1365	1369	506	715	11	18	71%	0.41	3.66	E	4.06	D
		1365	1366	100	150.2	12	24	83%	0.5	2.85	D	3.46	C
		1366	1526	120	197.2	15	30.5	92%	0.64	3.64	E	3.89	D
		1526	1367	105	173.6	12	23.7	78%	0.65	3.44	E	3.7	C
		1367	1369	157	307.8	11	18	71%	0.96	4.7	F	5.72	E

*Calculated for buses that stop
(excludes stops with no boardings,
alightings, or dwell).



Travel Times, Dwell, and QOS Ratios | Time Period: Afternoon

Q4 (May 2025 – Jul 2025)

Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	inbound	1554	1557	350	452.4	8	11.9	12%	0.29	3.07	E	3.48	C
		1554	1555	155	228	14	26	98%	0.47	3.45	E	4.34	D
		1555	1556	109	178.4	8	18.2	33%	0.64	3.93	E	4.51	D
		1556	1557	65	119.4	8	11.9	12%	0.84	1.94	C	3.78	C
65	inbound	1282	1557	424	546.8	8	10.4	12%	0.29	3.06	E	2.99	C
		1282	1283	88	140.6	12	31.5	68%	0.6	2.43	D	3.36	C
		1283	1555	146	230.6	11	19	86%	0.58	4.58	F	4.05	D
		1555	1556	109	180.2	9	16	43%	0.65	3.75	E	3.64	C
		1556	1557	61	115.6	8	10.4	12%	0.9	1.82	C	3.87	D
65	outbound	1524	1287	405	544	10	19	49%	0.34	3.01	E	3.13	C
		1524	1525	80	121.8	10	21.2	66%	0.52	2.44	D	3.58	C
		1525	1526	128	204.8	12	25	83%	0.6	3.97	E	4.24	D
		1526	1286	121	184.9	11	21.5	73%	0.53	3.89	E	3.79	C
		1286	1287	66	98	10	19	49%	0.48	1.88	C	2.54	B
66	inbound	1311	1315	518	672	13	28	83%	0.3	3.75	E	3.04	C
		1311	1313	132	200	14	39	76%	0.52	3.67	E	3.53	C
		1313	1555	162	265	16	40	81%	0.64	5.17	F	4.08	D
		1555	1314	94	143	12	27	84%	0.52	2.79	D	3.36	C
		1314	1315	117	167	13	28	83%	0.43	3.45	E	3.75	C
66	outbound	1365	1369	516	686.8	12.5	25.8	68%	0.33	3.7	E	3.38	C
		1365	1366	116	167.2	15	31.7	86%	0.44	3.23	E	3.86	D
		1366	1526	121	189	16	36	92%	0.56	3.67	E	3.53	C
		1526	1367	109	187.6	14	34	82%	0.72	3.6	E	4.14	D
		1367	1369	152	261.2	12.5	25.8	68%	0.72	4.28	F	5.14	E

*Calculated for buses that stop
(excludes stops with no boardings,
alightings, or dwell).

Travel Times, Dwell, and QOS Ratios | Time Period: PM Peak

Q4 (May 2025 – Jul 2025)

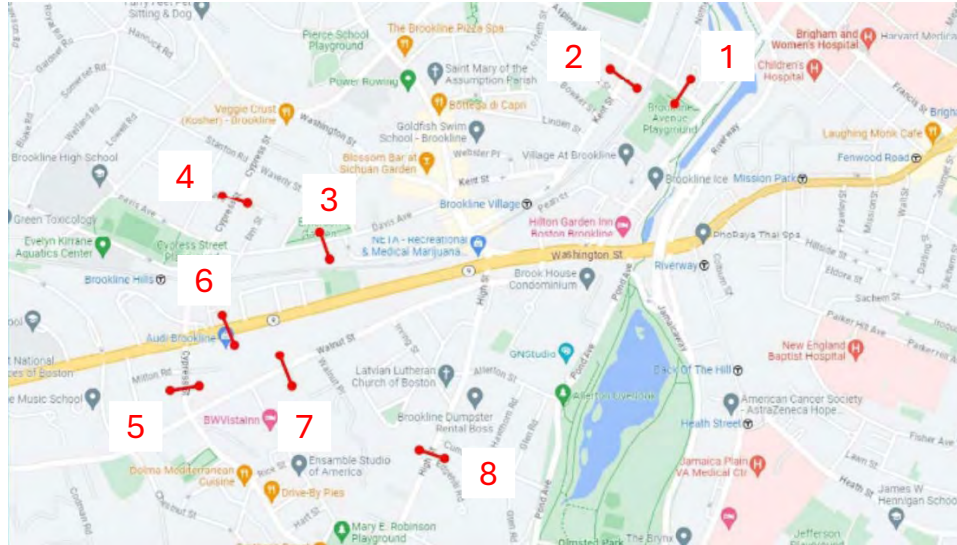
Route	Direction	Segment Start	Segment End	Travel Time Percentile (seconds)		Downstream Stop Dwell Percentile* (seconds)			Var (MBTA)	TTQOS Ratio		TTVQOS Ratio	
				50 th	90 th	50 th	90 th	Stopped %					
60	inbound	1554	1557	344	460.8	8	12.5	12%	0.34	3.1	E	3.17	C
		1554	1555	147	240.6	14	21.5	97%	0.64	3.49	E	4.21	D
		1555	1556	113	189.6	9	16	35%	0.68	3.99	E	3.85	D
		1556	1557	67	111.6	8	12.5	12%	0.67	1.93	C	3.52	C
65	inbound	1282	1557	433.5	580.3	8	16.2	9%	0.34	3.16	E	3.35	C
		1282	1283	87	143	10	25.8	54%	0.64	2.46	D	4.34	D
		1283	1555	145	240	11	19	78%	0.66	4.69	F	4.21	D
		1555	1556	116	188	9	16	40%	0.62	4	E	3.94	D
		1556	1557	61	120	8	16.2	9%	0.97	1.88	C	3.98	D
65	outbound	1524	1287	407	551.2	11	23	58%	0.35	3.1	E	3.69	C
		1524	1525	76	123	11	24	66%	0.62	2.42	D	4.47	D
		1525	1526	134	231.4	13	26	86%	0.73	4.29	F	4.89	D
		1526	1286	121	195.4	12	22	72%	0.61	3.96	E	3.85	D
		1286	1287	63	102	11	23	58%	0.62	1.89	C	2.79	C
66	inbound	1311	1315	527	695	12	28	81%	0.32	3.83	E	3.12	C
		1311	1313	136	208	15	47	88%	0.53	3.67	E	3.89	D
		1313	1555	175	284	19	44.7	91%	0.62	5.44	F	4.26	D
		1555	1314	96	158	14	27.4	92%	0.65	2.92	D	3.35	C
		1314	1315	116	169	12	28	81%	0.46	3.4	E	3.47	C
66	outbound	1365	1369	525	792.6	14	28	81%	0.51	3.96	E	4.36	D
		1365	1366	123	281.4	17	35	91%	1.29	4.2	F	7.59	E
		1366	1526	133	211.2	18	36	95%	0.59	3.97	E	3.87	D
		1526	1367	114	173.2	15	34.2	83%	0.52	3.6	E	3.58	C
		1367	1369	143	239.2	14	28	81%	0.67	4.04	F	4.67	D

*Calculated for buses that stop
(excludes stops with no boardings,
alightings, or dwell).

Appendix C

Highway Volumes

Data Collection Locations

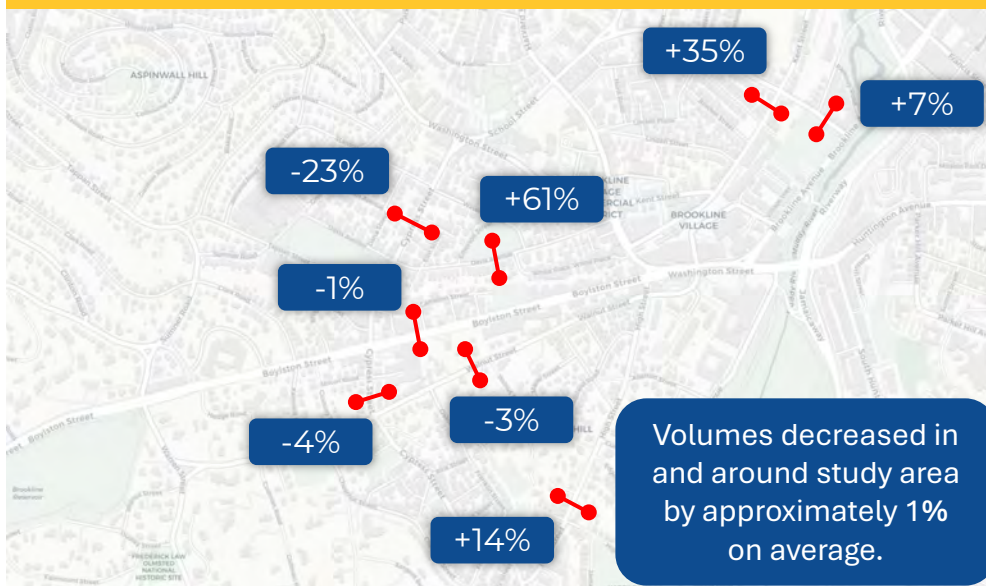


1. Aspinwall Ave, between Brookline Ave & Kent St
2. Kent St, between Aspinwall Ave & Brook St
3. Davis Ave, between Cypress St & Washington St
4. Cypress St, between Tappan St & Davis Ave
5. Cypress St, between Boylston St & Walnut St
6. Boylston St (Route 9), between Cypress St & High St
7. Walnut St, between Cypress St & High St
8. High St, between Cumberland Ave & Edgehill Rd

Quarter 4 Highway Volumes Findings

Has the project impacted traffic on secondary streets and residential side streets?

Q4 Average Daily Traffic (ADT) Volume Change – Percentage



VOLUMES:

- **Decreased in and around study area by approximately 1% on average**, relative to baseline
- Volumes on Route 9 **decreased slightly** with **mixed increases and decreases** on side streets

SPEEDS:

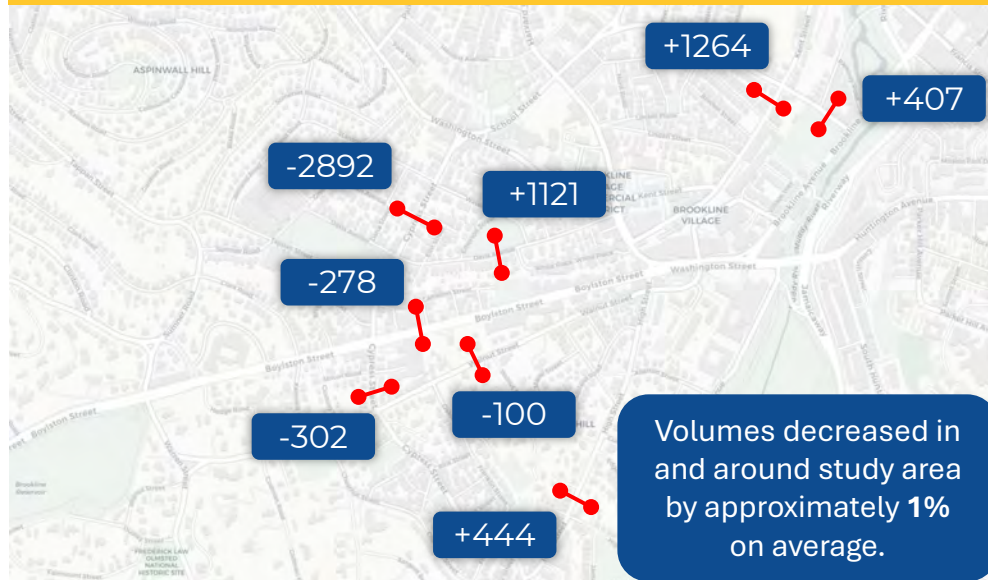
- Some fluctuation with speeds, but in general **most observed speeds decreased**

NEARBY TRAFFIC PATTERNS:

- **Pierce School** closed for construction and relocated to Old Lincoln School on Boylston St/Walnut St
- **Periodic closures of School St.** for the Pierce School construction may contribute to reduced traffic on Cypress St and increased traffic on Walnut St. and Davis Ave.

Has the project impacted traffic on secondary streets and residential side streets?

Q4 Average Daily Traffic (ADT) Volume Change - Volumes



VOLUMES:

- **Decreased in and around study area by approximately 1% on average**, relative to baseline
- Volumes on Route 9 **decreased slightly** with **mixed increases and decreases** on side streets

SPEEDS:

- Some fluctuation with speeds, but in general **most observed speeds decreased**

NEARBY TRAFFIC PATTERNS:

- **Pierce School** closed for construction and relocated to Old Lincoln School on Boylston St/Walnut St
- **Periodic closures of School St.** for the Pierce School construction may contribute to reduced traffic on Cypress St and increased traffic on Walnut St. and Davis Ave.

Has the project impacted speed on side streets?

Northbound/Eastbound

Location	NB/EB 50th Percentile Speeds (MPH)			NB/EB 85th Percentile speeds (MPH)		
	Baseline Sept 2023	Q4 Speeds Jul 2025	Change	Baseline Sept 2023	Q4 Speeds Jul 2025	Change
Aspinwall Ave, between Brookline Ave & Kent St	20.2	17.1	-15.5%	24.7	22.4	-9.3%
Kent St, between Aspinwall Ave & Brook St	18.0	17.8	-1.2%	24.1	23.9	-0.9%
Davis Ave, between Cypress St & Washington St	22.7	19.5	-13.7%	27.7	24.0	-13.2%
Cypress St, between Davis Ave & Gorham Ave	21.4	21.3	-0.4%	26.4	25.0	-5.2%
Cypress St, between Boylston St & Walnut St	19.5	20.3	+4.3%	24.1	24.3	+0.8%
Boylston St (Rt 9), between Cypress St & High St	28.8	27.2	-5.6%	34.6	32.8	-5.1%
Walnut St, between Cypress St & High St	23.5	23.0	-2.4%	28.4	27.6	-2.9%
High St, between Cumberland Ave & Edgehill Rd	22.6	23.4	+3.4%	27.4	28.0	+2.3%

Speed % Change Key:



Some fluctuation with speeds, but in general most observed speeds have decreased

Has the project impacted speed on side streets?

Southbound/Westbound

Location	SB/WB 50 th Percentile Speeds (MPH)			SB/WB 85 th Percentile speeds (MPH)		
	Baseline Sept 2023	Q4 Speeds Jul 2025	Change	Baseline Sept 2023	Q4 Speeds Jul 2025	Change
Aspinwall Ave, between Brookline Ave & Kent St	20.5	19.0	-7.4%	24.9	23.5	-5.8%
Kent St, between Aspinwall Ave & Brook St	21.8	21.0	-3.5%	26.1	24.7	-5.4%
Davis Ave, between Cypress St & Washington St	21.3	17.8	-16.7%	26.1	22.6	-13.4%
Cypress St, between Davis Ave & Gorham Ave	19.3	20.3	+5.2%	24.8	24.9	+0.4%
Cypress St, between Boylston St & Walnut St	18.1	18.3	+1.3%	23.7	23.7	+0.1%
Boylston St (Rt 9), between Cypress St & High St	29.2	28.6	-1.9%	35.8	34.0	-5.0%
Walnut St, between Cypress St & High St	22.6	23.4	+3.4%	27.3	28.2	+3.3%
High St, between Cumberland Ave & Edgehill Rd	23.6	23.2	-2.0%	28.4	27.9	-1.6%

Speed % Change Key:



Some fluctuation with speeds, but in general most observed speeds have decreased

Quarter 4 Highway Volumes Results

Baseline Volumes – Sept 2023

Location	ADT	Peak AM	Peak PM
Aspinwall Ave, between Brookline Ave & Kent St	5,484	465	501
Kent St, between Aspinwall Ave & Brook St	3,605	364	292
Davis Ave, between Cypress St & Washington St	1,840	264	177
Cypress St, between Davis Ave & Gorham Ave	12,553	1113	932
Cypress St, between Boylston St & Walnut St	7,730	879	585
Boylston St (Rt 9), between Cypress St & High St	22,520	1777	1765
Walnut St, between Cypress St & High St	3,193	472	435
High St, between Cumberland Ave & Edgehill Rd	3,224	321	310
Total Volumes	60,149	5,655	4,997

Q4 Volumes – Jul 2025

Location	ADT	Change	Peak AM	Change	Peak PM	Change
Aspinwall Ave, between Brookline Ave & Kent St	5,891	+7.4%	594	+27.7%	644	+28.5%
Kent St, between Aspinwall Ave & Brook St	4,869	+35.1%	637	+75.0%	415	+42.1%
Davis Ave, between Cypress St & Washington St	2,961	+60.9%	362	+37.1%	272	+53.7%
Cypress St, between Davis Ave & Gorham Ave	9,661	-23.0%	700	-37.1%	962	+3.2%
Cypress St, between Boylston St & Walnut St	7,428	-3.9%	753	-14.3%	679	+16.1%
Boylston St (Rt 9), between Cypress St & High St	22,242	-1.2%	1,733	-2.5%	1785	+1.1%
Walnut St, between Cypress St & High St	3,093	-3.1%	438	-7.2%	421	-3.2%
High St, between Cumberland Ave & Edgehill Rd	3,668	+13.8%	392	+22.1%	378	+21.9%
Total Volumes / Average % Change	59,813	-0.6%	5,609	-0.8%	5,556	+11.2%

Appendix D

Highway Travel Times and Control Delays

Study Locations

Intersections

1. Washington St at Station St
2. Boylston St (Route 9) at High St and Washington St
3. Washington St (Route 9) at Pearl St and Walnut St
4. Washington St (Route 9) at Brookline Ave

Corridors

1. Boylston St eastbound between Cypress St and High St
2. Washington St southbound between Boylston St and Harvard St
3. Brookline Ave northbound between Aspinwall Ave and Washington St.

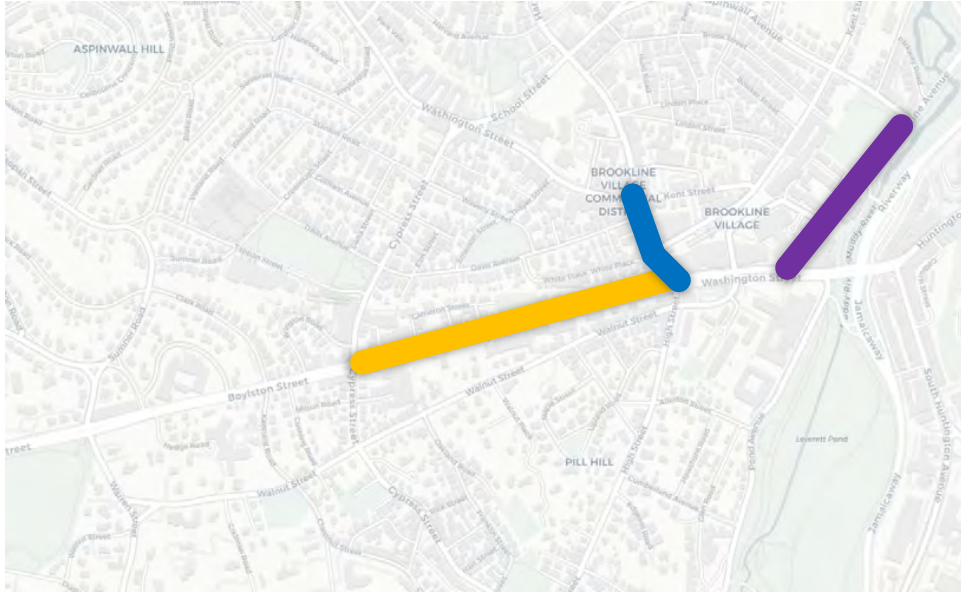
Intersections

1. Washington St at Station St
2. Boylston St (Route 9) at High St and Washington St
3. Washington St (Route 9) at Pearl St and Walnut St
4. Washington St (Route 9) at Brookline Ave



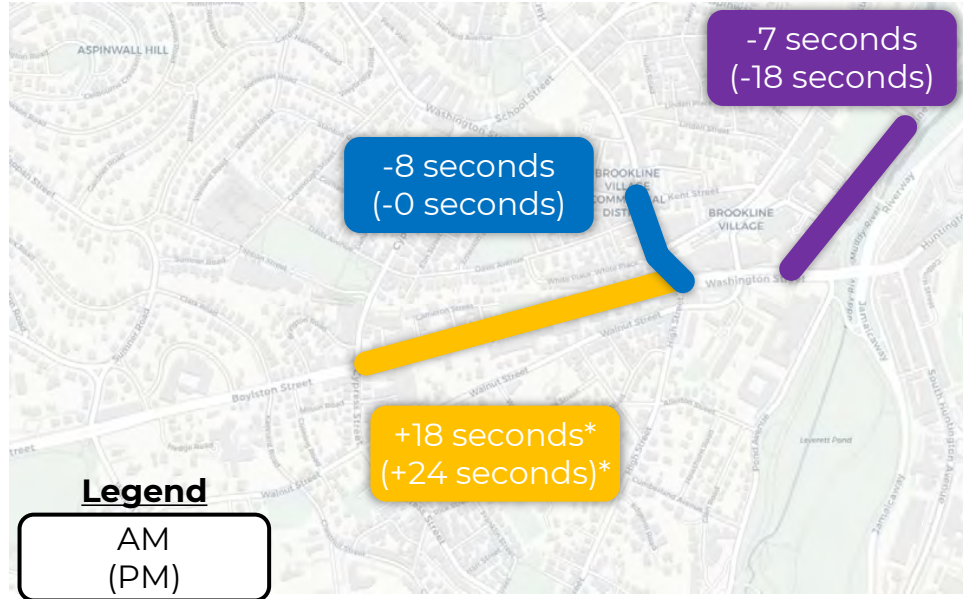
Quarter 4 Highway Travel Times & Control Delays Findings

Has the project created impacts to general purpose traffic?



1. Boylston St eastbound between Cypress St and High St (**orange**)
2. Washington St southbound between Boylston St and Harvard St (**blue**)
3. Brookline Ave northbound between Aspinwall Ave and Washington St (**purple**)

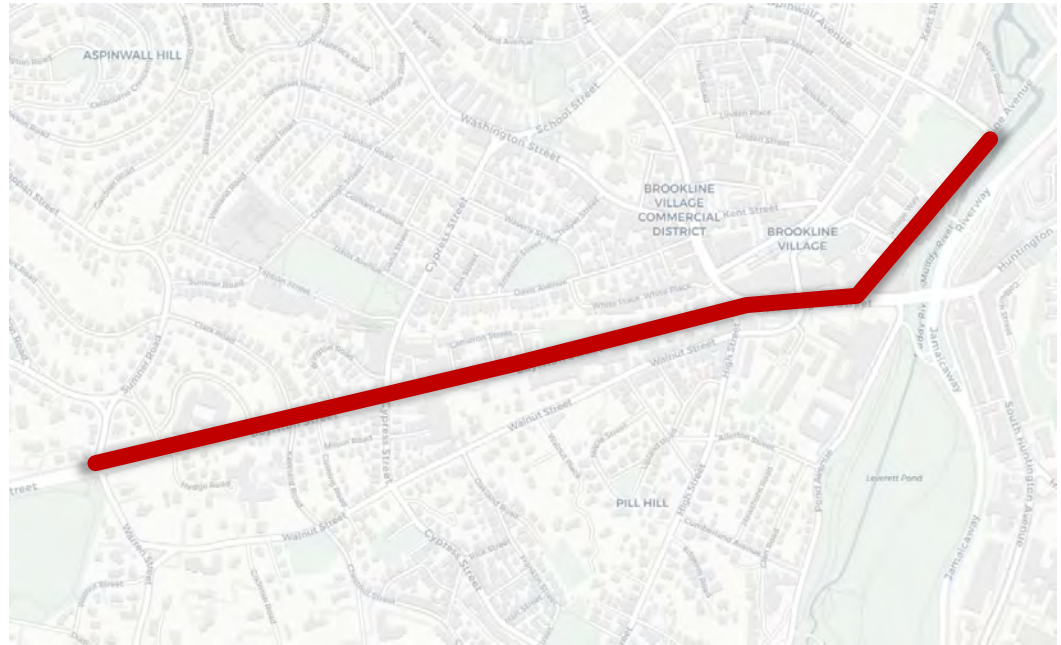
Has the project created impacts to general purpose traffic? Comparing Q4 to Baseline



- Intersection delay increases significantly for Boylston St eastbound through movement
- Intersection delay either remains constant or decreases for other movements
- *Data may be affected by INRIX platform limitations, but does not indicate significant increases in vehicle delay

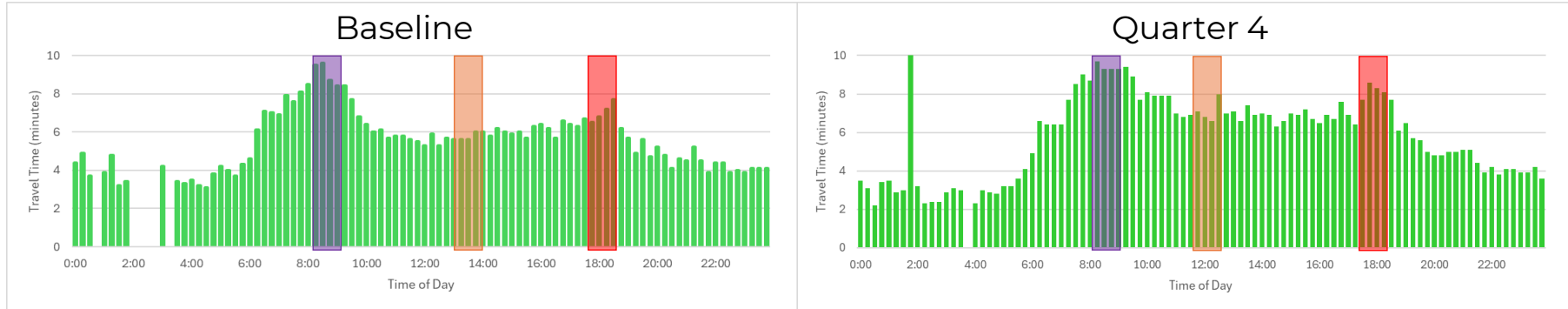
Corridor Travel Time

- Boylston Street & Brookline Avenue between Sumner Street and Aspinwall Avenue
- Approximately 1.2 miles
- Includes all three intersections in project area



Q4 Travel Time - Boylston Street and Brookline Avenue inbound between Sumner Road and Aspinwall Avenue

Average Travel Time over Time of Day

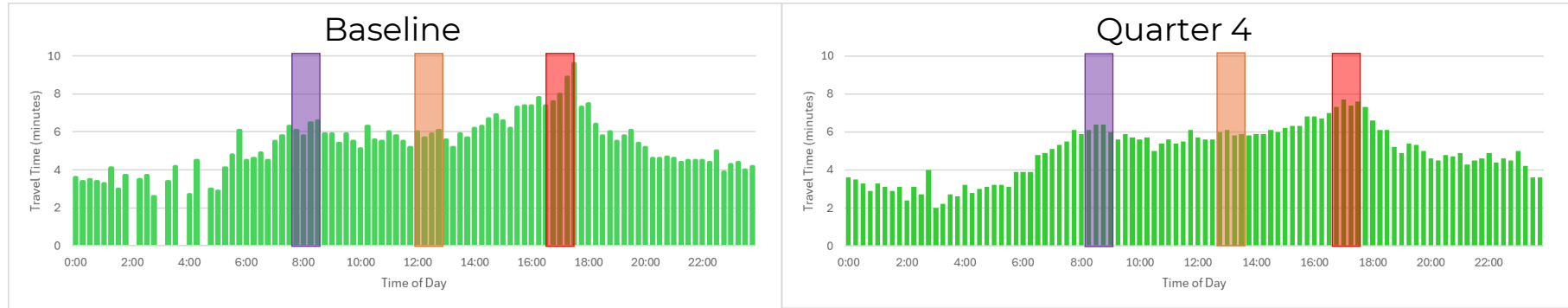


Period	Baseline Travel Time	Quarter 4 Travel Time
AM Peak Hour	9.0 minutes	9.4 minutes
MD Peak Hour	5.7 minutes	7.1 minutes
PM Peak Hour	7.0 minutes	8.2 minutes

Approximately 84 second increase in MD Peak travel time and 72 second increase in PM Peak Travel time for vehicles traveling through all project area intersections, with AM travel time remaining fairly constant

Q4 Travel Time - Boylston Street and Brookline Avenue outbound between Sumner Road and Aspinwall Avenue

Average Travel Time over Time of Day



Period	Baseline Travel Time	Quarter 4 Travel Time
AM Peak Hour	6.2 minutes	6.2 minutes
MD Peak Hour	5.5 minutes	6.0 minutes
PM Peak Hour	8.5 minutes	7.5 minutes

Approximately 30 second increase in MD Peak travel time for vehicles traveling through all project area intersections, with AM travel time remaining constant and PM travel time decreasing by 60 seconds

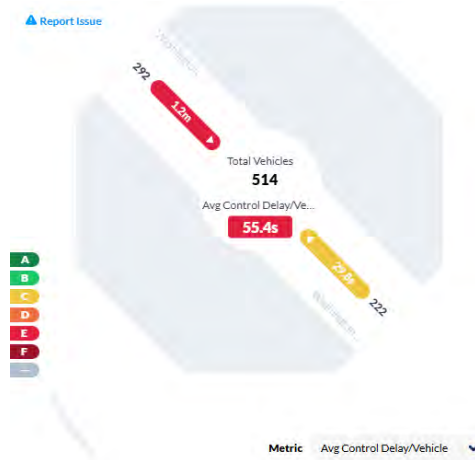
Quarter 4 Highway Travel Times and Control Delays Results

#1 Washington St at Station St – Baseline

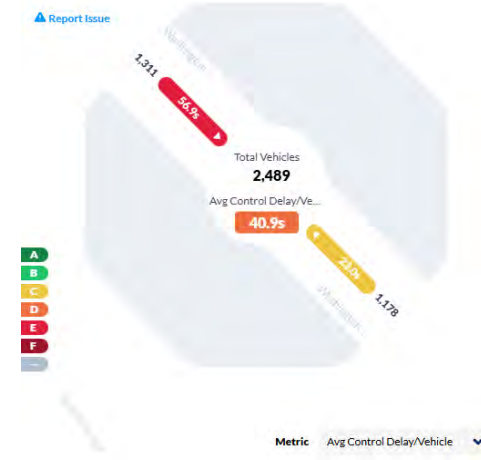
Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily

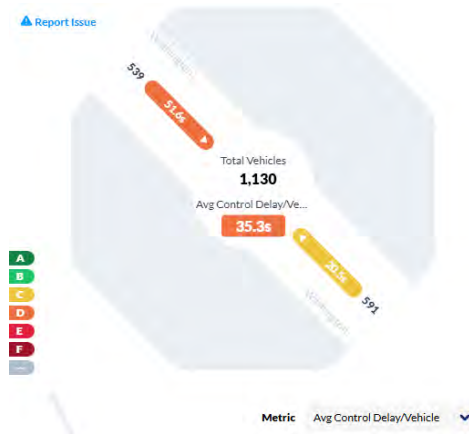


- Average intersection delay of about 40 seconds
- Average intersection delay varies from ~30-60 seconds during peak periods
- Most significant delay is Washington St southbound, in the PM peak (about 1.2 minutes)

All data is from June 2024 weekdays.

#1 Washington St at Station St – Quarter 4

Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



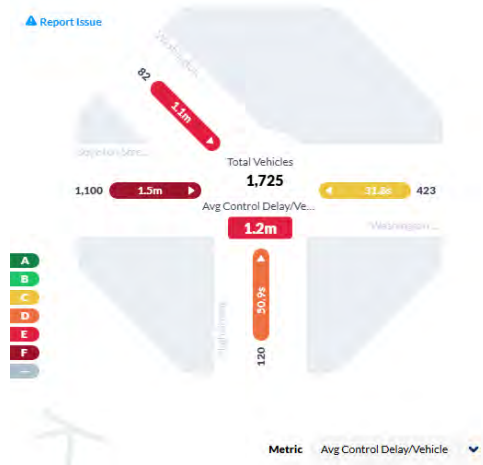
- **~5 second increase in average intersection delay compared to Baseline**
- All movements see slight fluctuations in delay

All data is from July 2025 weekdays.

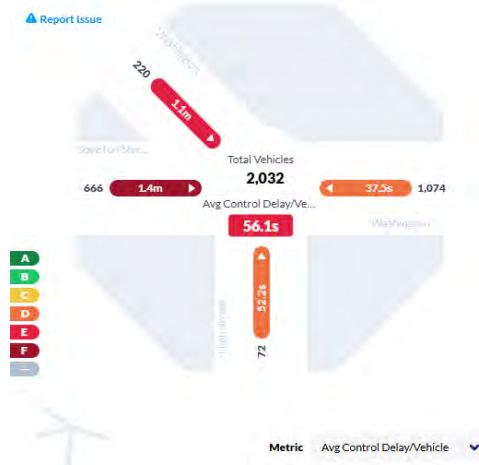
**Note increase in volumes related to INRIX data sample. Not indicative of actual volume change.*

#2 Boylston St (Route 9) at High St and Washington St – Baseline

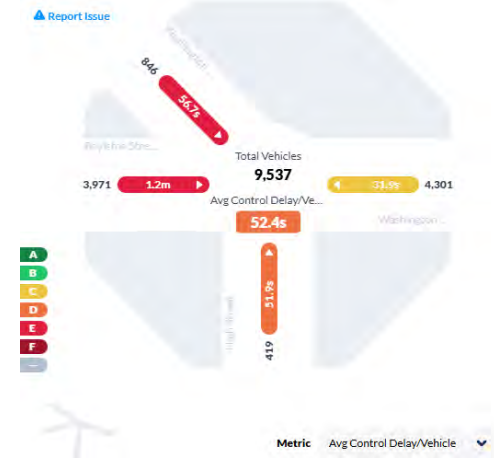
Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily

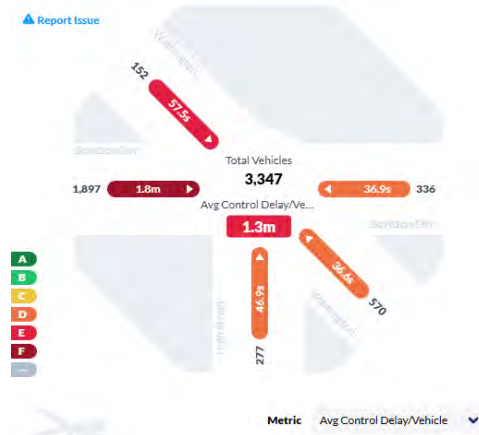


All data is from June 2024 weekdays.

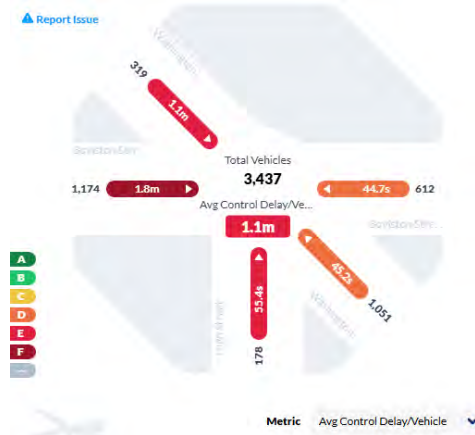
- Average intersection delay of about 1 minute throughout day
- Highest delay on Boylston St (Route 9), approximately 1.5 minutes during peak periods

#2 Boylston St (Route 9) at High St and Washington St – Quarter 4

Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



All data is from July 2025 weekdays.

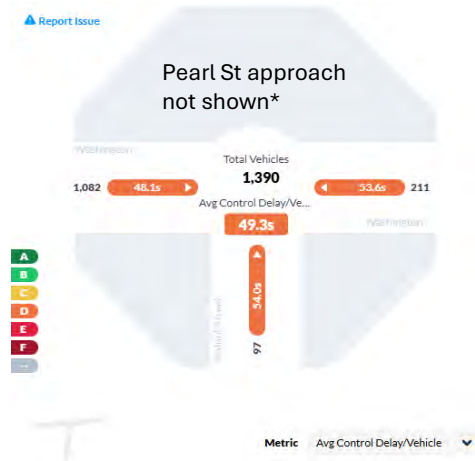
**Note increase in volumes related to INRIX data sample. Not indicative of actual volume change.*

**Note Washington St northwest-bound approach represents westbound right turning movements. INRIX has changed how the approaches are displayed*

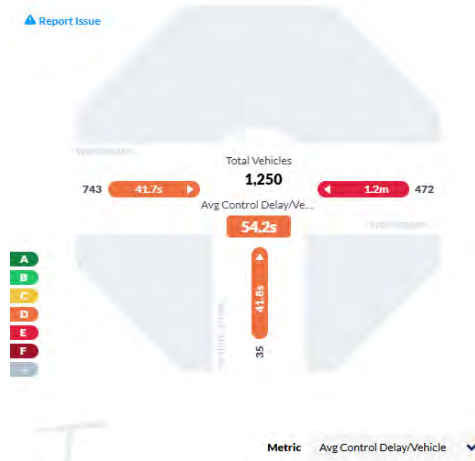
- **~5 second increase in average intersection delay compared to Baseline**
- Long queue lengths extend past the 500' approach distance INRIX uses to collect data, so actual intersection delay is likely higher

#3 Washington St (Route 9) at Pearl St and Walnut St – Baseline

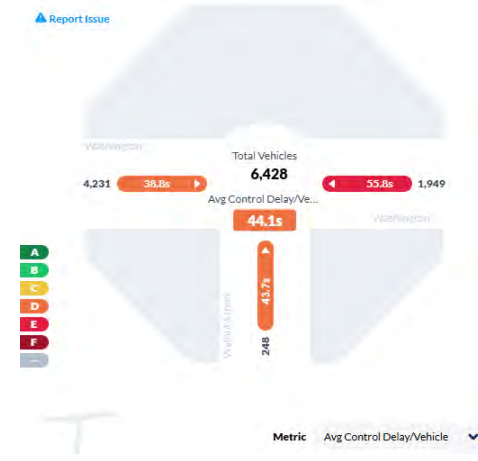
Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



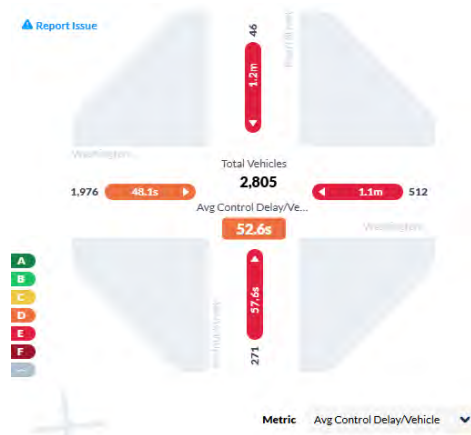
- Average intersection delay of 45-55 seconds throughout day
- Washington St (Route 9) through movements typically see highest delay

All data is from June 2024 weekdays.

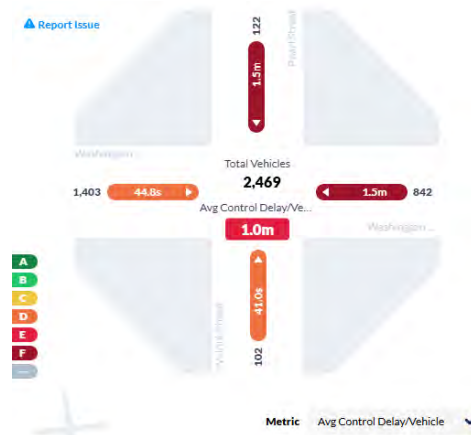
**Intersection diagram is missing the Pearl St approach because no volumes were recorded by INRIX at this approach during June 2024*

#3 Washington St (Route 9) at Pearl St and Walnut St – Quarter 4

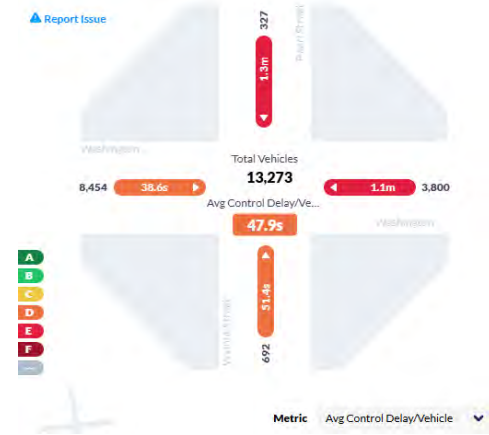
Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



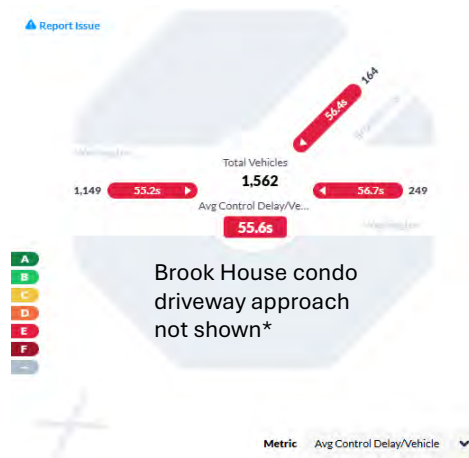
- **Generally, no change in total intersection delay**
- All movements see slight fluctuations in delay

All data is from July 2025 weekdays.

**Note increase in volumes related to INRIX data sample. Not indicative of actual volume change.*

#4 Washington St (Route 9) at Brookline Ave - Baseline

Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



- Average intersection delay of ~50-70 seconds throughout day
- Highest delays are approaching project area
- Generally lesser delays leaving project area

All data is from June 2024 weekdays.

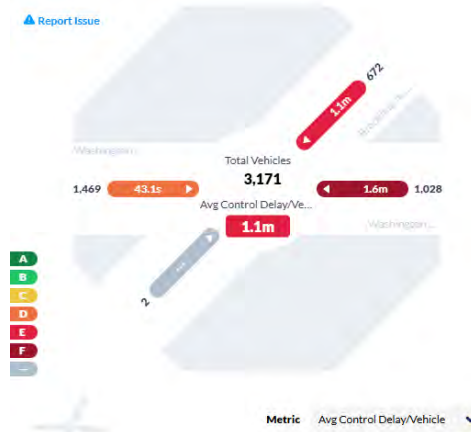
**Intersection diagram is missing the northbound approach because no volumes were recorded by INRIX at this approach during June 2024*

#4 Washington St (Route 9) at Brookline Ave – Quarter 4

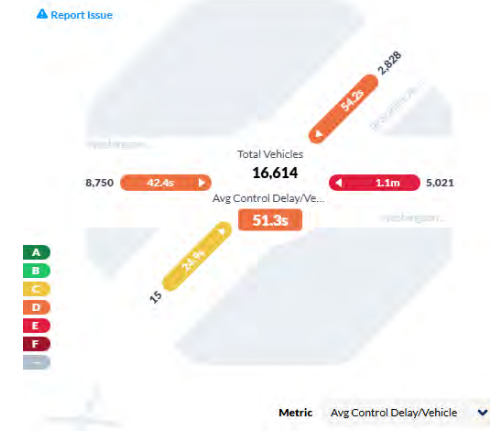
Delay AM (6am-9am)



Delay PM (4pm-7pm)



Delay Avg. Daily



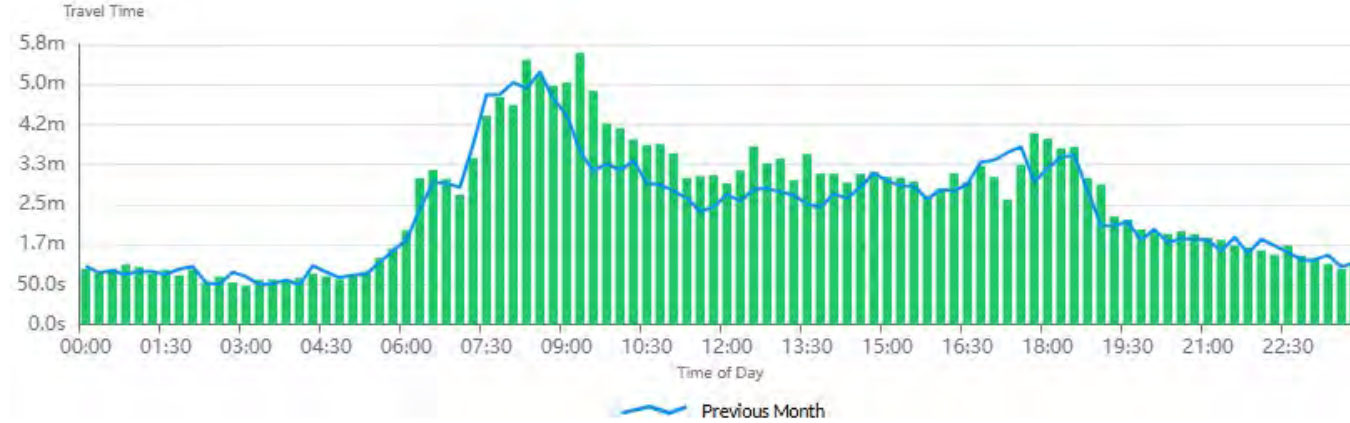
- **Generally, no change in total intersection delay**
- All movements see slight fluctuations in delay

All data is from July 2025 weekdays.

**Note increase in volumes related to INRIX data sample. Not indicative of actual volume change.*

Q4 Travel Time - Boylston St eastbound from Cypress St to High St

Average Travel Time over Time of Day*



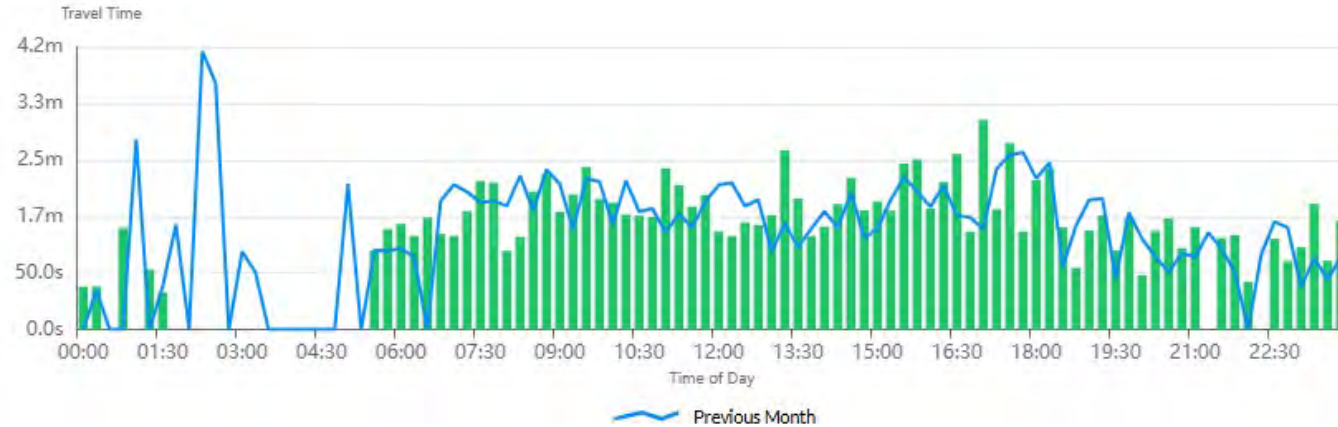
All data is from
July 2025
weekdays.

Period	Travel Time	Time of Day
AM Peak Hour	5.2 minutes	8:30am-9:30am
MD Peak Hour	3.5 minutes	12:15pm-1:15pm
PM Peak Hour	3.8 minutes	5:45pm-6:45pm

*Baseline data not available from INRIX.

Q4 Travel Time - Washington St southbound from Harvard St to Boylston St

Average Travel Time over Time of Day*



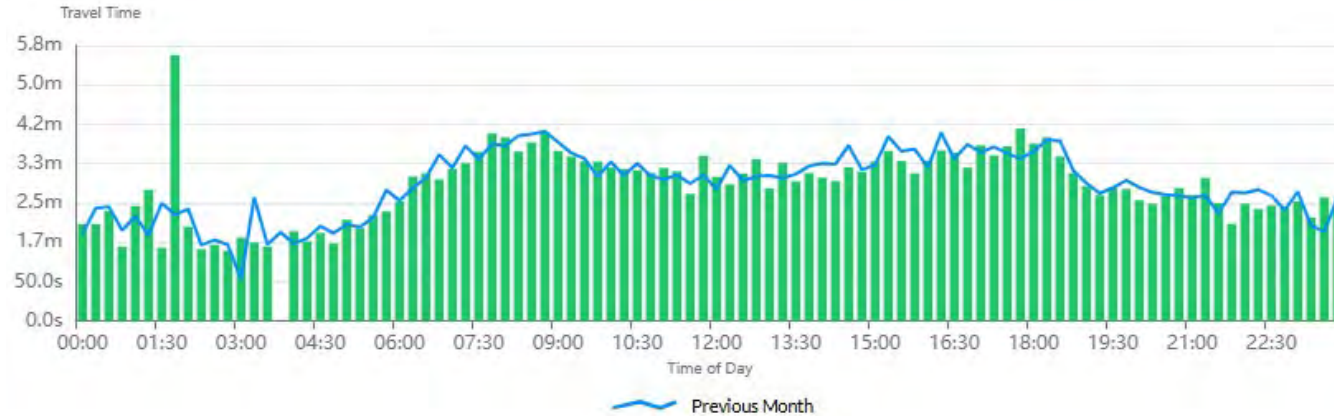
All data is from
July 2025
weekdays.

Period	Travel Time	Time of Day
AM Peak Hour	2.1 minutes	9:15am-10:15am
MD Peak Hour	2.1 minutes	11:00pm-12:00pm
PM Peak Hour	2.3 minutes	4:15pm-5:15pm

*Baseline data not available from INRIX.

Q4 Travel Time - Brookline Ave northbound from Washington St to Aspinwall Ave

Average Travel Time over Time of Day*



All data is from
July 2025
weekdays.

Period	Travel Time**	Time of Day
AM Peak Hour	3.8 minutes	8:00am-9:00am
MD Peak Hour	3.2 minutes	12:30pm-1:30pm
PM Peak Hour	3.9 minutes	5:30pm-6:30pm

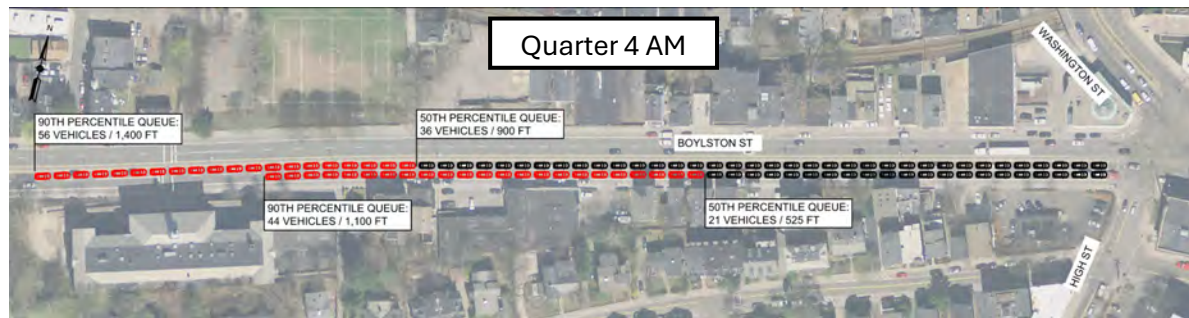
*Baseline data not available from INRIX.
**Note this includes delay at the
Washington St & Brookline intersection
approach.

Appendix E

Queueing Data

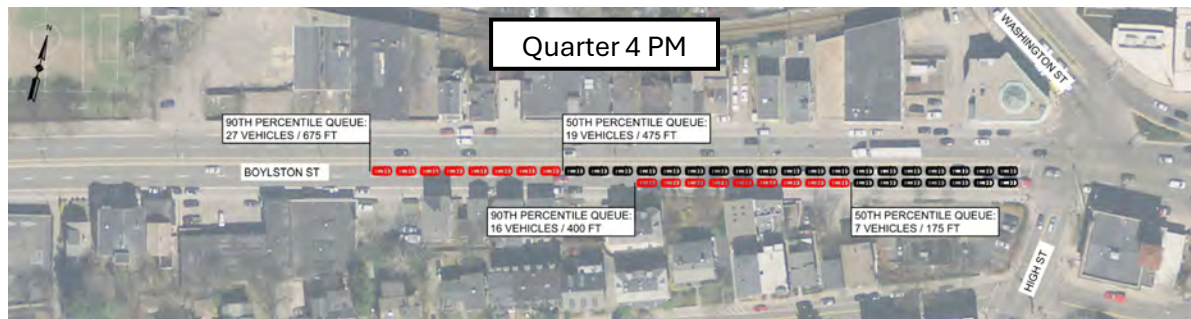
Q4 Queueing Data - Findings

Boylston Street (Rt 9), approaching Washington Street, AM



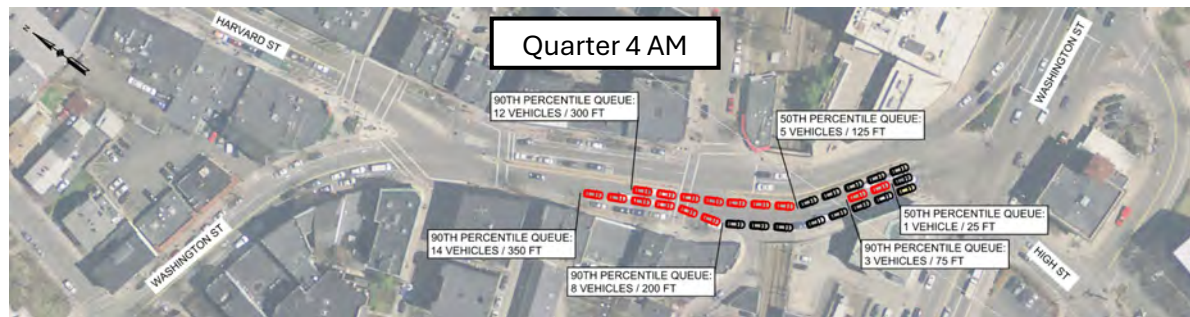
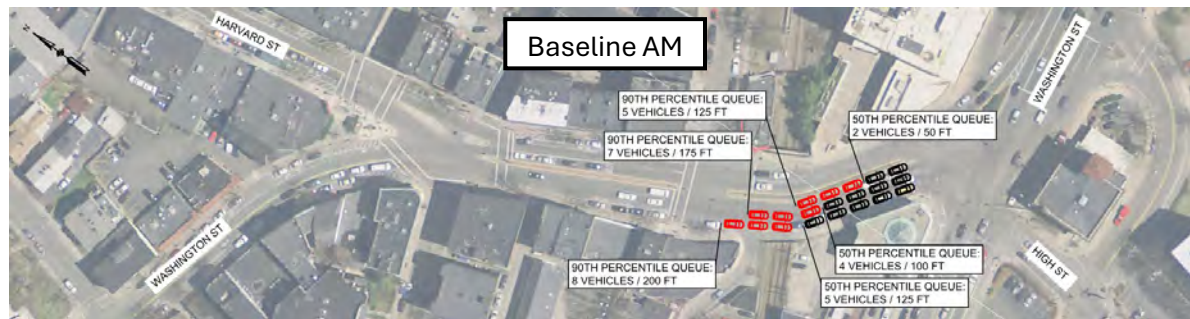
- Significant increase in AM vehicle queues

Boylston Street (Rt 9), approaching Washington Street, PM



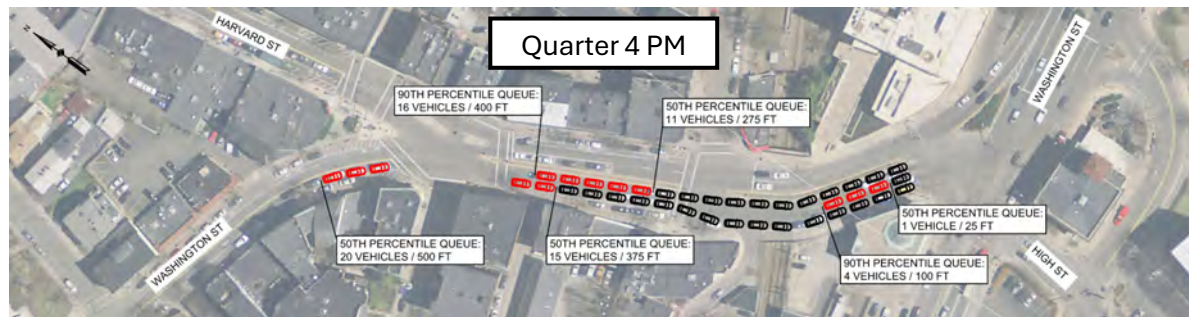
- Increase in PM vehicle queues

Washington Street, approaching Boylston Street (Rt 9), AM



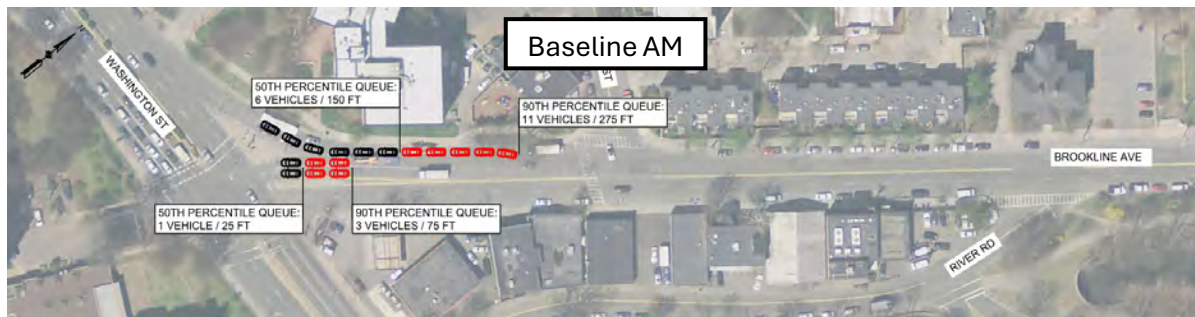
- Increase in AM vehicle queues

Washington Street, approaching Boylston Street (Rt 9), PM



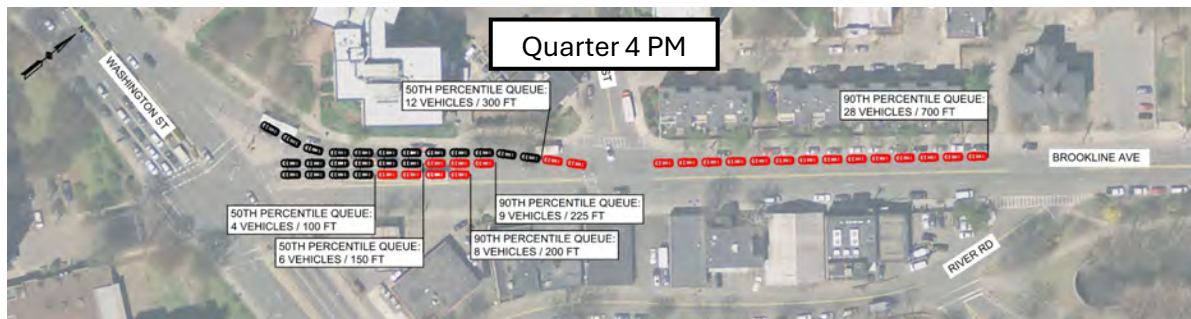
- Increase in PM vehicle queues

Brookline Avenue, approaching Washington Street (Rt 9), AM



- Number of AM vehicles queued remains relatively constant

Brookline Avenue, approaching Washington Street (Rt 9), PM



- Increase in PM vehicle queues

Quarter 4 Queueing Data Results

Queue Length of Boylston St EB, west of Washington St

		Left Lane		Right Lane		Total		
		Baseline	Q4	Baseline	Q4	Baseline	Q4	Change
	10th %ile	2	24	1	9	3	33	+1,181%
AM	50th %ile	9	36	8	21	17	57	+235%
	90th %ile	18	56	18	44	36	100	+177%
	Longest	25	68	25	55	50	123	+146%
	10th %ile	1	9	1	2	2	11	+424%
PM	50th %ile	8	19	8	7	16	26	+63%
	90th %ile	14	27	14	16	28	43	+53%
	Longest	21	36	22	19	43	55	+28%

Queue Length of Washington St SB, north of Boylston St

		Left Lane		Center Lane		Right Lane		Total		
		Baseline	Q4	Baseline	Q4	Baseline	Q4	Baseline	Q4	Change
	10th %ile	0	1	2	0	2	2	4	3	-25%
AM	50th %ile	2	5	4	1	5	8	11	14	+23%
	90th %ile	5	12	7	3	8	14	20	29	+44%
	Longest	8	19	13	4	9	22	30	45	+50%
	10th %ile	1	6	1	0	4	7	6	13	+117%
PM	50th %ile	3	11	5	1	6	15	14	27	+93%
	90th %ile	8	16	8	4	8	20	24	40	+65%
	Longest	28	23	10	5	11	23	49	51	+4%

↑
Bus only lane

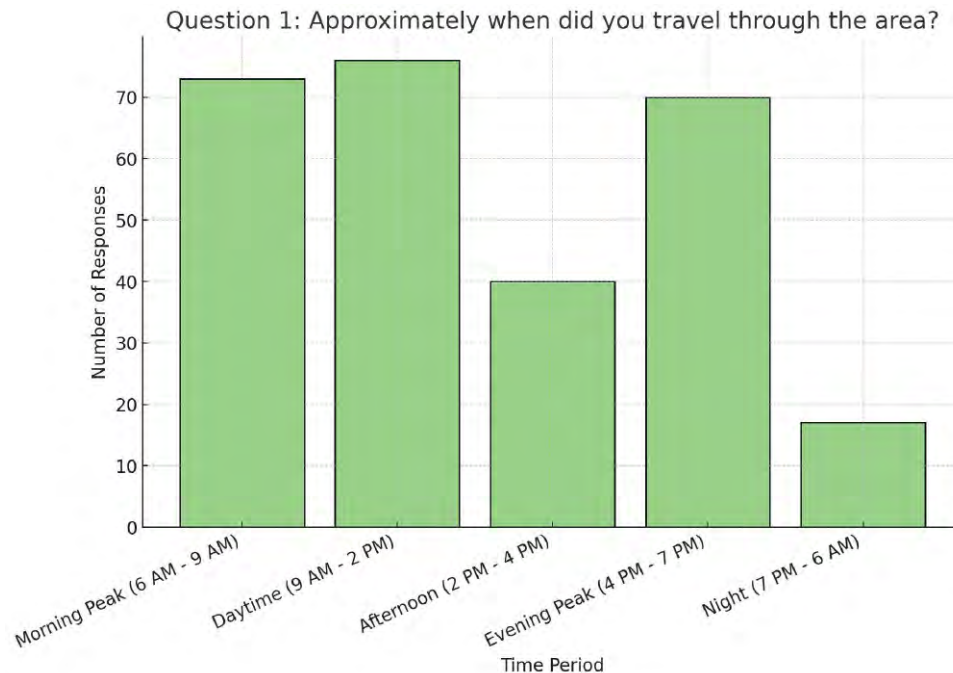
Queue Length of Brookline Ave SB, north of Boylston St

		Left Lane		Center Lane		Right Lane		Total		
		Baseline	Q4	Baseline	Q4	Baseline	Q4	Baseline	Q4	Change
	10th %ile	0	0	0	0	1	2	1	2	+100%
AM	50th %ile	1	2	1	2	6	7	8	11	+38%
	90th %ile	3	4	3	4	11	13	17	21	+24%
	Longest	4	7	4	6	16	16	24	29	+21%
	10th %ile	0	2	1	3	4	4	5	9	+84%
PM	50th %ile	1	4	3	6	10	12	14	22	+54%
	90th %ile	4	8	5	9	17	28	26	45	+73%
	Longest	6	13	8	12	21	29	35	54	+54%

Appendix F

Survey Results as of September 30, 2025

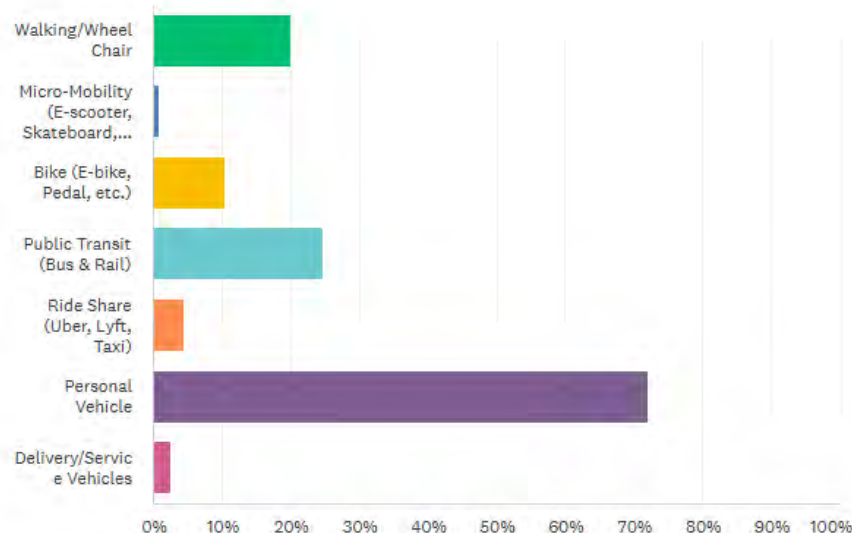
Gateway East Bus Lanes Pilot Survey: Question 1



Gateway East Bus Lanes Pilot Survey – Question 2

What modes did you use when traveling through this area?

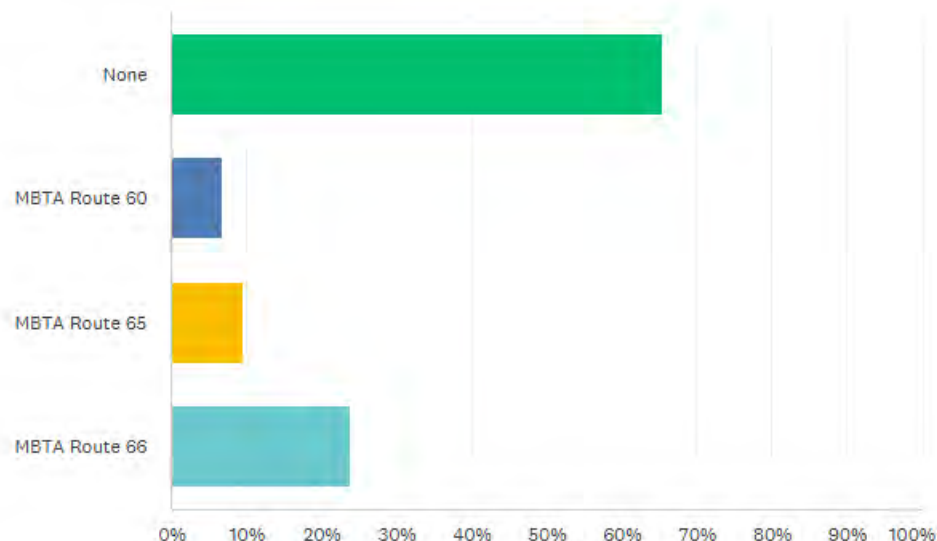
Answered: 319 Skipped: 10



Gateway East Bus Lanes Pilot Survey – Question 3

If you used MBTA bus service, which route?

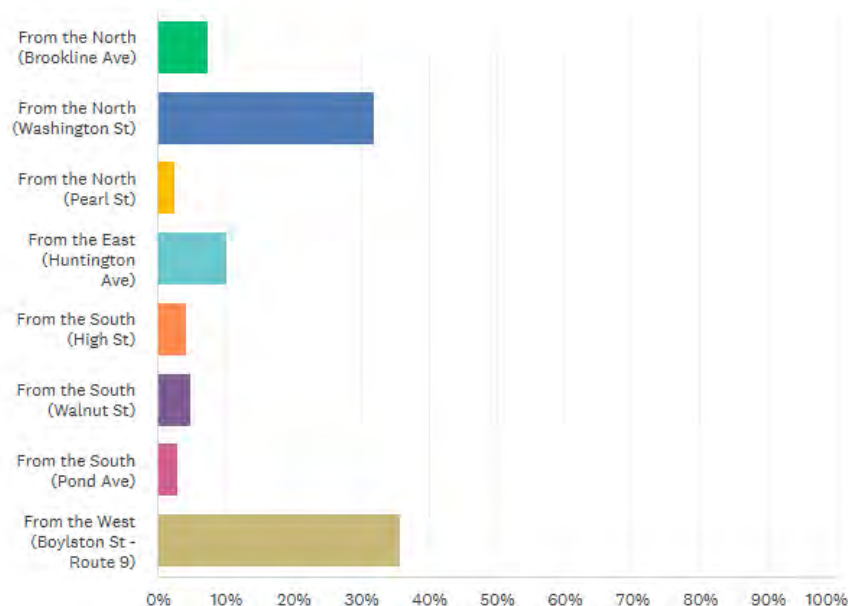
Answered: 238 Skipped: 91



Gateway East Bus Lanes Pilot Survey – Question 4

On this trip where did you come from?

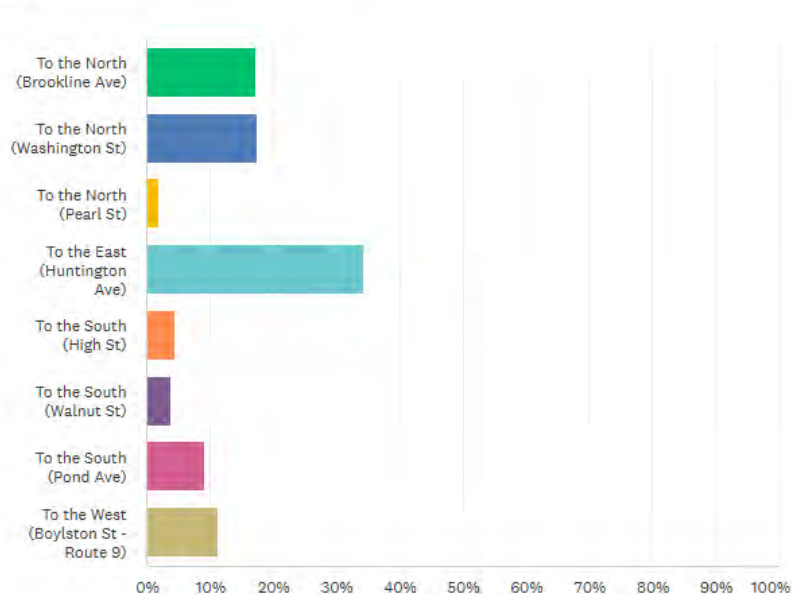
Answered: 310 Skipped: 19



Gateway East Bus Lanes Pilot Survey – Question 5

On this trip where were you going?

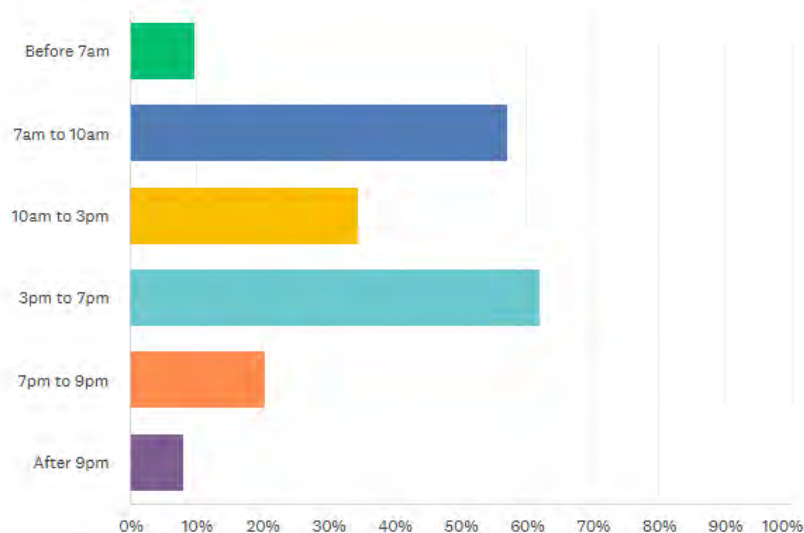
Answered: 308 Skipped: 21



Gateway East Bus Lanes Pilot Survey – Question 6

What time do you typically travel through this area?

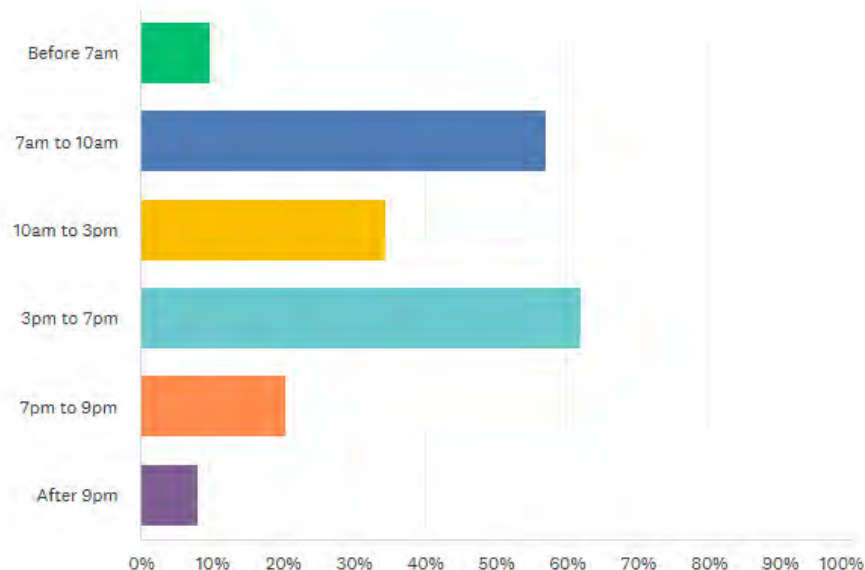
Answered: 324 Skipped: 5



Gateway East Bus Lanes Pilot Survey – Question 7

What time do you typically travel through this area?

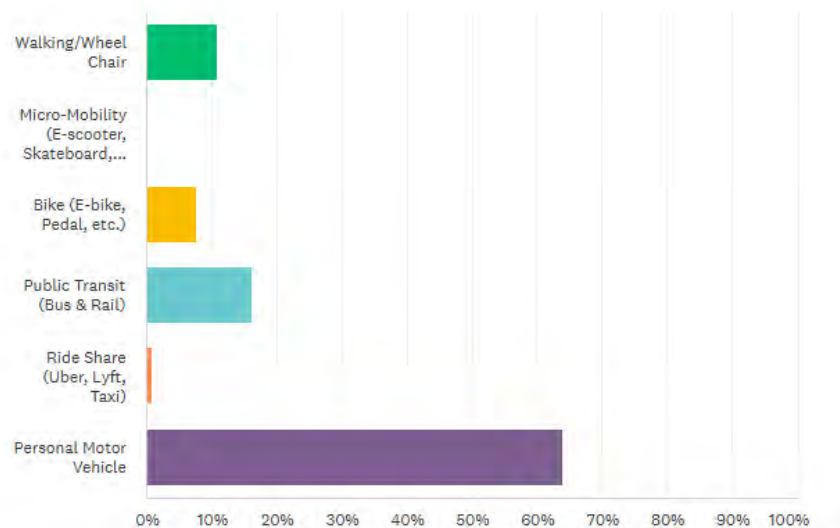
Answered: 324 Skipped: 5



Gateway East Bus Lanes Pilot Survey – Question 8

What is your primary mode of transportation when traveling through this area? (Select one)

Answered: 325 Skipped: 4



Gateway East Bus Lanes Pilot Survey – Question 9

The dedicated bus lane has improved safety for:

Answered: 325 Skipped: 4

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE	TOTAL
▼ those walking through this area	37.85% 120	14.51% 46	25.87% 82	11.04% 35	10.73% 34	317
▼ those biking or using micro-mobility devices through this area	37.26% 117	16.24% 51	23.57% 74	11.78% 37	11.15% 35	314
▼ those taking public transit through this area.	25.24% 79	8.63% 27	28.75% 90	20.45% 64	16.93% 53	313
▼ those driving through this area.	55.59% 179	11.80% 38	16.46% 53	9.63% 31	6.52% 21	322

Gateway East Bus Lanes Pilot Survey – Question 10

The dedicated bus lane has improved access for:

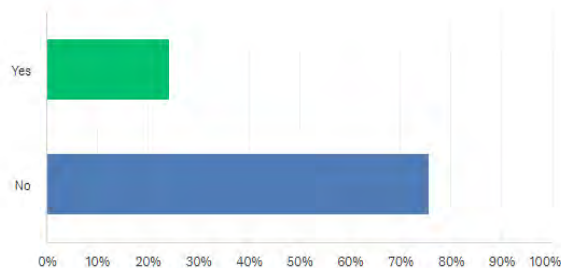
Answered: 324 Skipped: 5

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE	TOTAL
▼ those walking through this area	36.16% 115	14.15% 45	29.56% 94	9.75% 31	10.38% 33	318
▼ those biking or using micro-mobility devices through this area	34.08% 107	15.61% 49	26.43% 83	13.06% 41	10.83% 34	314
▼ those taking public transit through this area.	24.36% 76	8.97% 28	21.79% 68	22.76% 71	22.12% 69	312
▼ for those driving through this area.	60.00% 192	12.50% 40	18.75% 60	4.38% 14	4.38% 14	320

Gateway East Bus Lanes Pilot Survey – Question 11 & 12

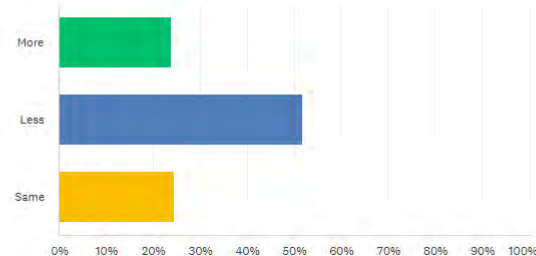
Do you feel your trip is faster with the bus lanes?

Answered: 316 Skipped: 13



Do you feel that your trip time is more or less consistent from day to day with the bus lanes?

Answered: 311 Skipped: 18



Gateway East Bus Lanes Pilot Survey – Question 13

- Q13 Has the dedicated bus lanes caused you to change how you travel through the area? (Open ended)
 - 264 responses Key Themes from the Open ended Comments:
 - Negative Feedback (~75%):
 - Increased Traffic congestion and delays.
 - Drivers feel confused and forced into last-minute lane changes.
 - Insufficient bus frequency to justify the dedicated lane.
 - Gridlock caused by poorly timed traffic signal and misuse of the lane.
 - Attempts to avoid area.
 - Positive Feedback (~10%):
 - Improved reliability and speed for buses.
 - Some responder are more likely to use buses.
 - Neutral or Unclear Feedback (~15%):
 - Observations without a clear stance (e.g., “no noticeable change”)
 - Mixed sentiments that acknowledge both pros and cons.

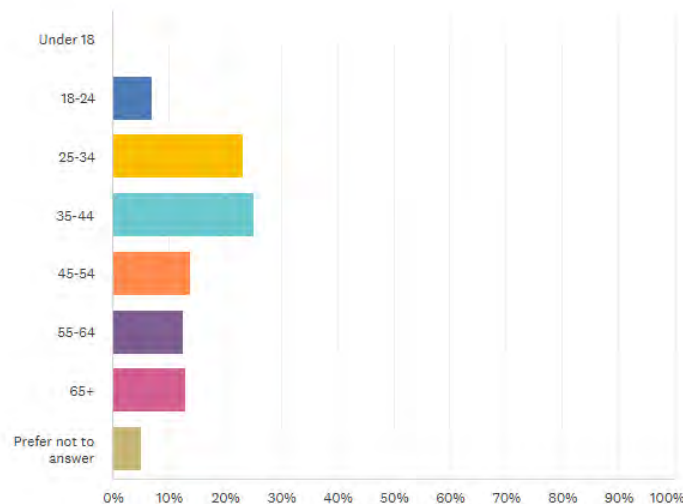
Gateway East Bus Lanes Pilot Survey – Question 14

- Q14 Should the Town and MBTA make changes to the dedicated bus lanes? (Open-ended)
 - 283 responses Key Themes from the Open ended Comments:
 - Negative Feedback (~60%):
 - Strong calls to remove the bus lanes or restrict their hours of operation.
 - Frustration over increased congestion and poor implementation while the bus lane is empty.
 - Concerns about drivers not respecting the bus lanes and safety issues with merging and turning.
 - Concerns about unsafe merging, turning conflicts, and widespread driver disregard for bus lane restrictions.
 - Positive Feedback (~20%):
 - Suggestions to adjust signal timings and improve enforcement.
 - Recognition of the potential for better transit efficiency if changes are made.
 - Neutral or Unclear Feedback (~20%)
 - Observations without a clear stance (e.g., “no noticeable change”, “lack of enforcement”)
 - Mixed sentiments that acknowledge both pros and cons.

Gateway East Bus Lanes Pilot Survey – Question 15

What is your age? (Select one)

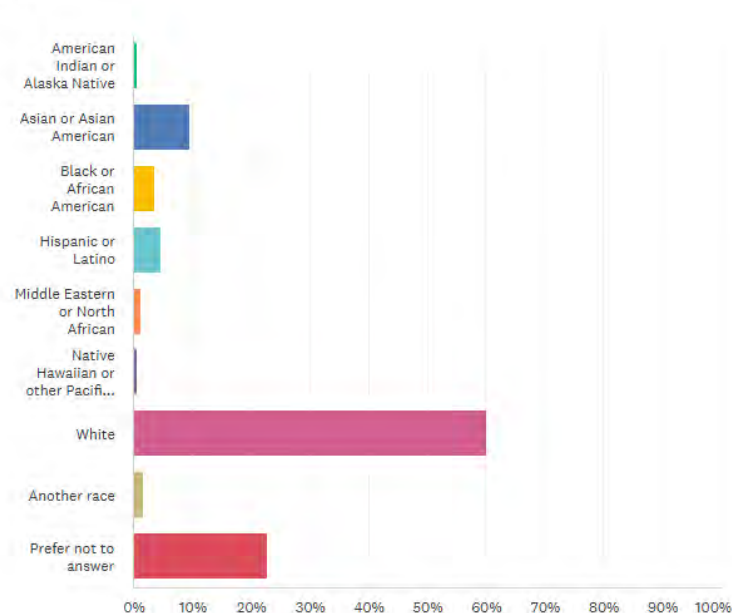
Answered: 317 Skipped: 12



Gateway East Bus Lanes Pilot Survey – Question 16

What is your ethnicity?

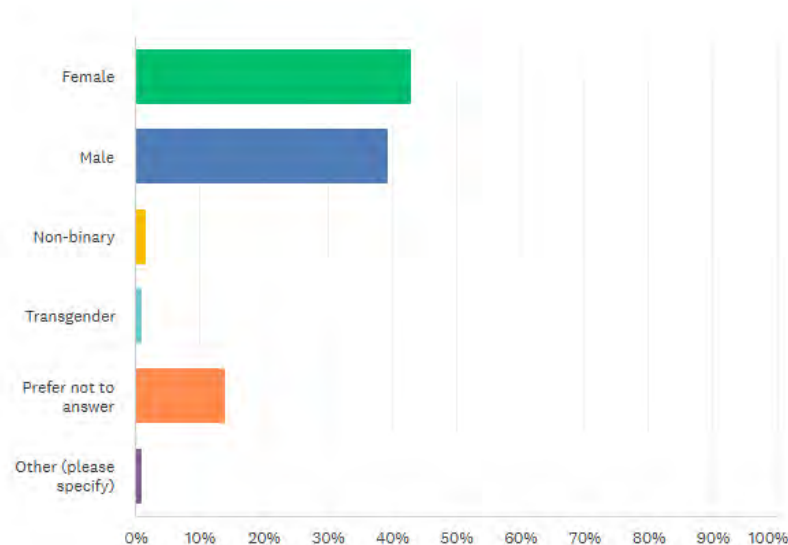
Answered: 299 Skipped: 30



Gateway East Bus Lanes Pilot Survey – Question 17

What is your gender identity? (Select one)

Answered: 307 Skipped: 22



Gateway East Bus Lanes Pilot Survey – Question 18

Do you live or work in Brookline? (Select one)

Answered: 327 Skipped: 2

