

# Appleton Street Traffic Study: Intervention Impact Summary

April 2025

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The City of Cambridge Department of Transportation (CamDOT) implemented a new "No Left Turn" regulation at the intersection of Brattle Street and Appleton Street in mid-August 2024. The new metal "No Left Turn" signs restrict left turns from Brattle Street eastbound onto Appleton Street northbound at all times. This report serves as a summary of the impact of this change on Appleton Street and the surrounding streets. Specifically, it compares 'after' data that the city collected in mid-October 2024 with the data from before the change took place. It also serves as an update on other interventions that came from the community process, including changes to pavement markings and parking, and the installation of speed feedback signs.

## Background

Beginning in Summer 2023, several community members reached out to the department to report a noticeable increase in northbound vehicle volumes on Appleton Street, specifically between Brattle Street and Huron Avenue. Residents also raised concerns about speeding on the street. In response, we collected data on Appleton Street in September 2023 and found that vehicle volumes were significantly higher than in the past, and significantly higher than we would expect to see on a local street such as Appleton Street. In late March of 2024, we did a second round of data collection, this time collecting volume and speed data across the neighborhood streets that run between Brattle Street and Huron Avenue. This data collection confirmed that Appleton Street carried more vehicles than parallel streets in the neighborhood. Conversely, most nearby streets were seeing lower volumes than previously experienced.

We also reviewed crash data for Appleton Street since 2021, including both the Brattle Street and Huron Avenue intersections. There were 6 reported crashes during that time, four of which were drivers hitting parked cars. One was a driver backing into another vehicle and another was a single vehicle crash.

## May 23, 2024 – Community Meeting

City Staff met with residents of Appleton Street and the surrounding neighborhood on May 23, 2024, to discuss the findings of the initial data collection and to discuss potential next steps. During that meeting, we heard similar concerns about volumes and speeds on Appleton Street, safety concerns about the Brattle Street and Appleton Street intersection, and general concerns about the designs of bike lanes.

## Interventions

The potential solutions discussed during the meeting included access restrictions (such as one-way conversions, do not enter signs, and “no left turn” or “no right turn” regulations), speed controls and warning signage, changes to pavement markings, and changes to parking regulations.

The most impactful intervention that city staff reviewed at the community meeting was the potential to restrict left turns from Brattle Street onto Appleton Street. With respect to this change, we discussed with the community that:

- Part-time turn restrictions are not recognized by some of the traffic routing applications (such as Google Maps and Waze). According to meeting notes and subsequent feedback, Appleton Street neighbors expressed significant support for a full-time left turn restriction.
- While our goal was to ensure that Appleton Street did not carry a disproportionate load of traffic, we cannot confidently predict where traffic would re-route. We committed to monitor any changes by taking another set of new counts after posting the signs.
- Some drivers may choose to ignore turn restrictions, and we cannot reasonably expect 100% compliance with any turn restrictions, even with police enforcement.
- State law prohibits excepting residents from a restriction.

As discussed at the meeting, the proposal to restrict left turns, which would prohibit access to Appleton Street from eastbound Brattle Street, would substantially reduce a common cut-through pattern of vehicles traveling from Mt. Auburn Street to Lowell Street and then right on Brattle Street and left on Appleton Street. By disrupting this cut-through maneuver, more through-vehicles would remain on major (or “collector”) roadways. Further, traffic would be balanced more evenly across the “ladder” streets that run between Brattle Street and Huron Avenue. Ultimately a full-time “No Left Turn” regulation received the most support during the meeting and through subsequent community feedback. A summary of the comments and feedback received is included as an appendix at the end of this report.

Other interventions identified to address community concerns included:

- restricting parking at the crest of the hill on Appleton Street;
- adding a short section of yellow centerline to keep drivers on the correct side of the road;
- repainting the yellow centerlines on Appleton Street at the Huron Avenue and Brattle Street ends to further emphasize that the street is two-way;
- and installing a speed feedback sign for each direction of Appleton Street.

The above items are complete except for the speed feedback signs, which will be installed during the next fiscal year (after July 2025).

## Data collection

Overall, we used data collected from three time periods:

- December 2017. After the completion of the West Cambridge sewer separation projects
- March 2024. Before the “No Left Turn” sign was posted
- October 2024. After the “No Left Turn” sign was posted

Our files contained counts in the Appleton Street area from December 2017, after the completion of the West Cambridge sewer separation project, and these earlier counts were used to provide additional context. Specifically for the new turn restriction, we obtained new vehicle volume, speed, and classification count data on Appleton Street and in the area between Tuesday, March 26, and Thursday, March 28, 2024, to capture the existing condition and quantify neighborhood traffic concerns about cut-through traffic. After the left turn restriction was installed, we collected data again on the same streets between Tuesday, October 8, and Thursday, October 10, 2024, to serve as ‘after’ data. We selected these time periods because they had representative traffic flows under normal weather conditions and there were no planned special events that would impact travel routes.

Volume, speed, and classification data was collected mid-block on the following streets:

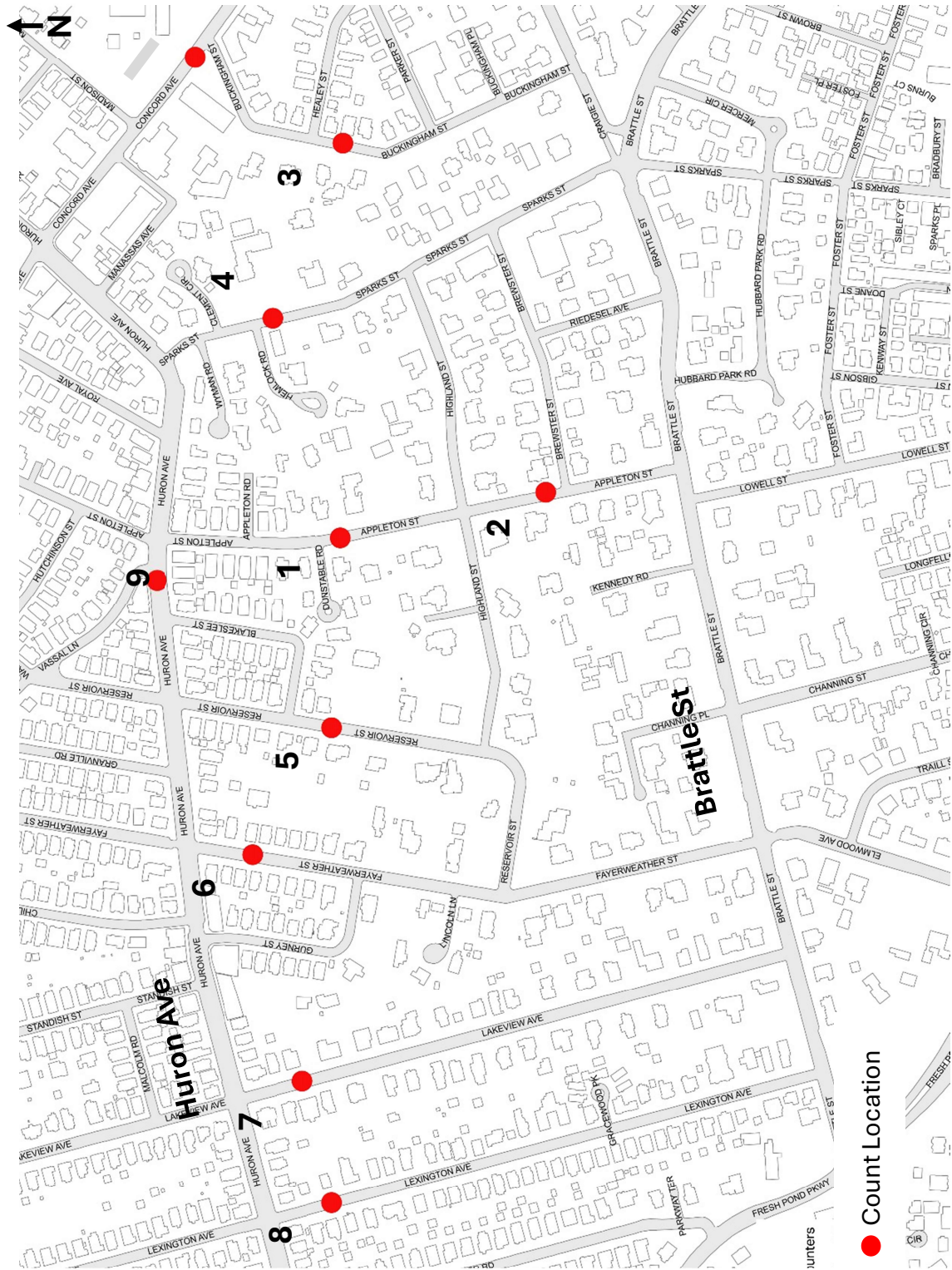
1. Appleton Street (near Dunstable Road)
2. Appleton Street (near Brewster Street)
3. Buckingham Street
4. Sparks Street
5. Reservoir Street
6. Fayerweather Street
7. Lakeview Avenue
8. Lexington Avenue
9. Huron Avenue

We also collected turning movement counts at the following intersections:

- Appleton Street and Brattle Street
- Appleton Street and Huron Avenue
- Brattle Street and Fayerweather Street
- Brattle Street and Lowell Street
- Brattle Street and Riedesel Avenue

While we collected data in both directions, traffic headed northbound in the area (from Brattle Street towards Huron Avenue) was of most interest. This is the direction of travel that community members identified as the most concerning to them and where we saw the largest increase in volume on Appleton Street over the years of study.

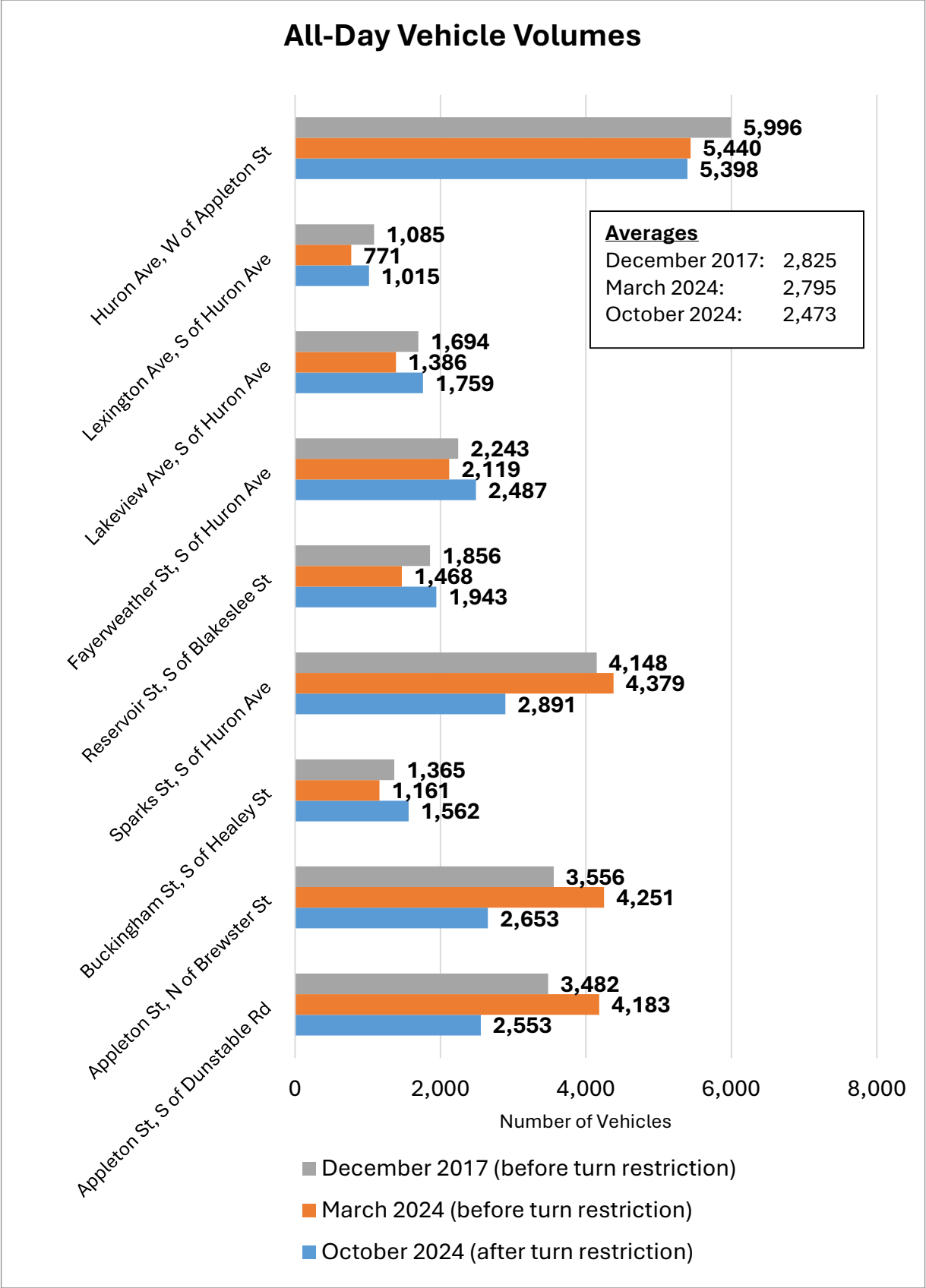
- 1) Appleton Street (near Dunstable Road) 2) Appleton Street (near Brewster Street) 3) Buckingham Street
- 4) Sparks Street 5) Reservoir Street 6) Fayerweather Street 7) Lakeview Avenue 8) Lexington Avenue 9) Huron Avenue



## **Results**

In addition to traffic routing applications—which have been noted by many community members as a main cause of traffic pattern changes—there are other activities that may impact how drivers choose what streets to use and when to use them. Projects in the Appleton Street area may have closed roads periodically for utility construction and implemented detours during their work, and other roadway projects may have changed the ease/speed of turning movements, and/or adjusted the efficiency/flow at signalized intersections. Additionally, the Vassal Lane Upper School and Tobin Montessori School have been closed for several years to be reconstructed and expanded, affecting some morning drop off and afternoon pick up travel patterns. Between December 2017 and March 2024, total volumes across most of the streets in the study area have trended down since the December 2017 counts. There were two exceptions: Appleton Street and Sparks Street, where volumes increased by 20% and 5.6%, respectively. This is shown in the following chart.

After the “No Left Turn” signs were posted, volumes on Sparks and Appleton Street dropped substantially while volumes on the parallel streets grew by about 20 to 30 percent, as volumes became more equalized over the ladder streets.



### *Garden Street Project Effects*

As part of the Garden Street Safety Improvement Project, Garden Street was changed from a two-way street to a one-way street traveling in the eastbound direction from Huron Avenue towards Concord Avenue in October 2022. Many community members believe that this change had an impact on traffic in the Appleton Street neighborhood. We heard through community feedback that many of the former westbound Garden Street trips may have instead rerouted to Appleton Street and the surrounding area as a faster alternative to Concord Avenue, which parallels Garden Street in the project area. If this was the case, only northbound Appleton-area trips from Brattle Street towards Huron Avenue would increase; however, the table below shows that following the Garden Street project’s implementation, northbound trips actually declined across the neighborhood by 51 trips per day between December 2017 and March 2024.

Following the installation of the “No Left Turn” signs at Appleton Street at Brattle Street, the October 2024 after counts then showed that northbound trips had increased by 87 trips per day compared to December 2017. If the project had detoured some trips into the neighborhood, they were offset in by a loss in other trips. Despite overall northbound traffic volumes not changing much over the three count periods, we did see that the distribution of those trips across the parallel streets changed considerably, with Appleton Street experiencing a large increase in trips and all other streets experiencing fewer trips between December 2017 and March 2024.

Count Location	Northbound				
	Dec-17	Mar-24	vs '17	Oct-24	vs '17
Appleton St (2-location avg)	2,401	3,314	913	1,664	-737
Buckingham St, S of Healey St	1,028	857	-171	1,252	224
Reservoir St, S of Blakeslee St	873	606	-267	1,106	233
Fayerweather St, S of Huron Ave	775	724	-51	1,022	247
Lakeview Ave, S of Huron Ave	1,117	838	-279	1,177	60
Lexington Ave, S of Huron Ave	508	312	-196	568	60
<b>Total</b>	<b>6,702</b>	<b>6,651</b>	<b>-51</b>	<b>6,789</b>	<b>87</b>

### *Riedesel Avenue volumes*

Some community opposition to the left-turn restriction focused on the potential to detour trips to Riedesel Avenue, which is the next left turn available for eastbound Brattle Street traffic after Appleton Street. This concern was brought to our attention after we completed our data collection in March 2024, so we collected separate “before” counts for Riedesel Avenue on August 8, 2024. We then returned to collect “after” counts on February 26 and 27, 2025. These counts focused on the 1.5-hour period of 3:00pm to 4:30pm weekdays, which was the time that community members identified as the busiest for Appleton Street.

Before the Appleton Street turn restriction was installed, we saw 3 left turns from Brattle Street eastbound onto Riedesel Avenue northbound over the 1.5-hour period. Following the change, we saw an average of 27 left-turns during the same period. This marked an increase of 24 drivers using the street over the 1.5-hour period. Volumes on Appleton Street northbound during this time period were reduced from an average of 523 trips to 272 trips. It appears that of the 252 trips that were detoured to other routes, only 24 trips went on to use Riedesel Avenue, or fewer than 10%.

### *Enforcement*

Enforcement remains a concern for many community members. Upon implementation of the left turn restriction, Cambridge Police performed educational enforcement for several days before transitioning to writing tickets. CamDOT staff were careful to say from the onset that some drivers may ignore turn restrictions and that we cannot expect 100% compliance. Despite this reality, the results of the traffic study have shown that volumes have become far more balanced throughout the neighborhood, with a vast majority of the public obeying the posted regulation.

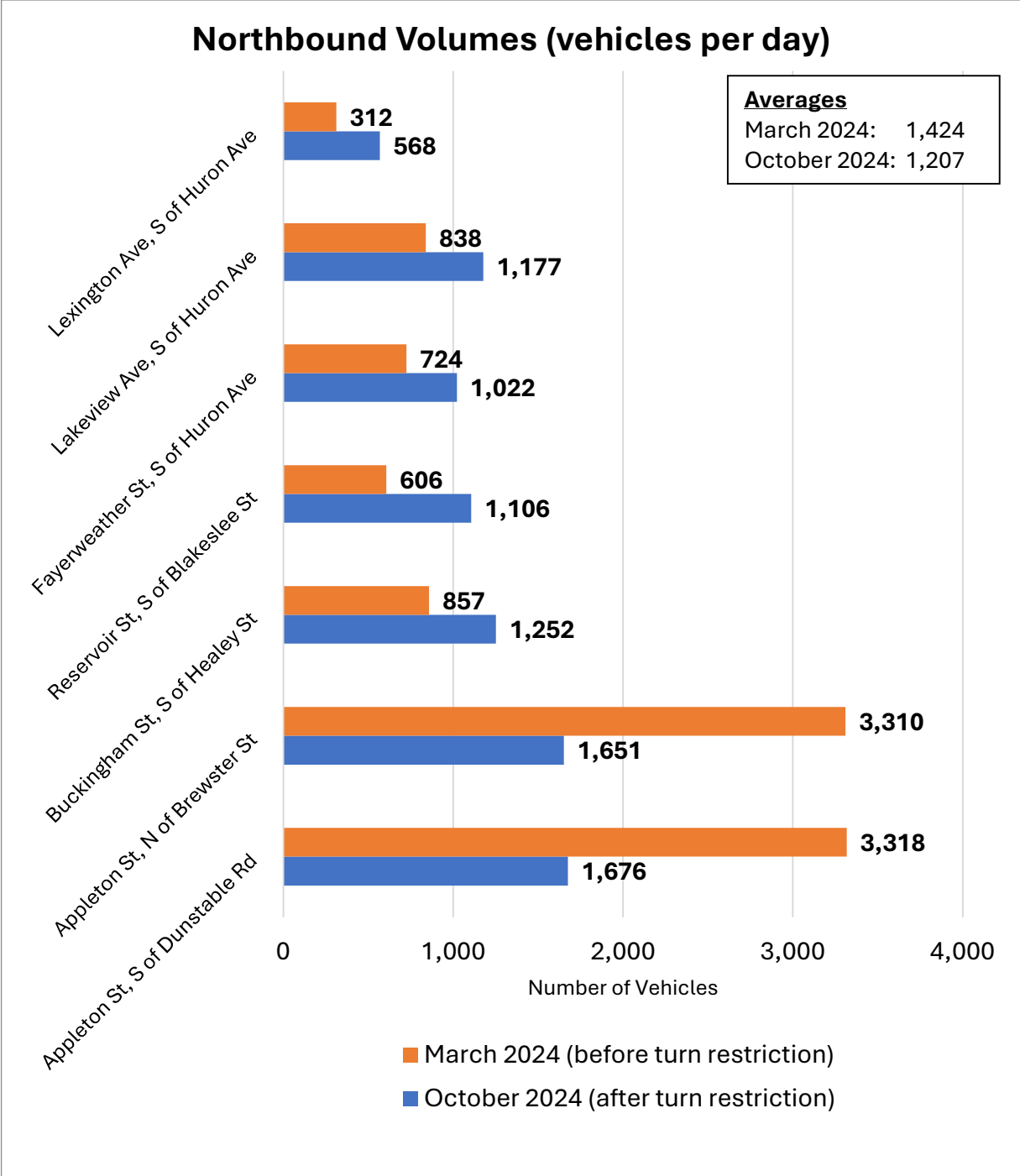
### **Evaluation of Project Goals Conclusion**

The goal of the left-turn restriction at the intersection of Appleton Street and Brattle Street was to disrupt the cut-through routes originating from Mt Auburn Street and to balance vehicle volumes more evenly across the streets that run between Brattle Street and Huron Avenue. While northbound volumes had increased on Appleton Street over the last few years, nearly all abutting parallel streets that could be seen as alternatives saw decreased volumes during the same period. The discussion following shows that the goals of the change were successfully accomplished without creating new problematic cut-through patterns or causing other streets to take on an outsized role in the network.

### *Northbound volumes*

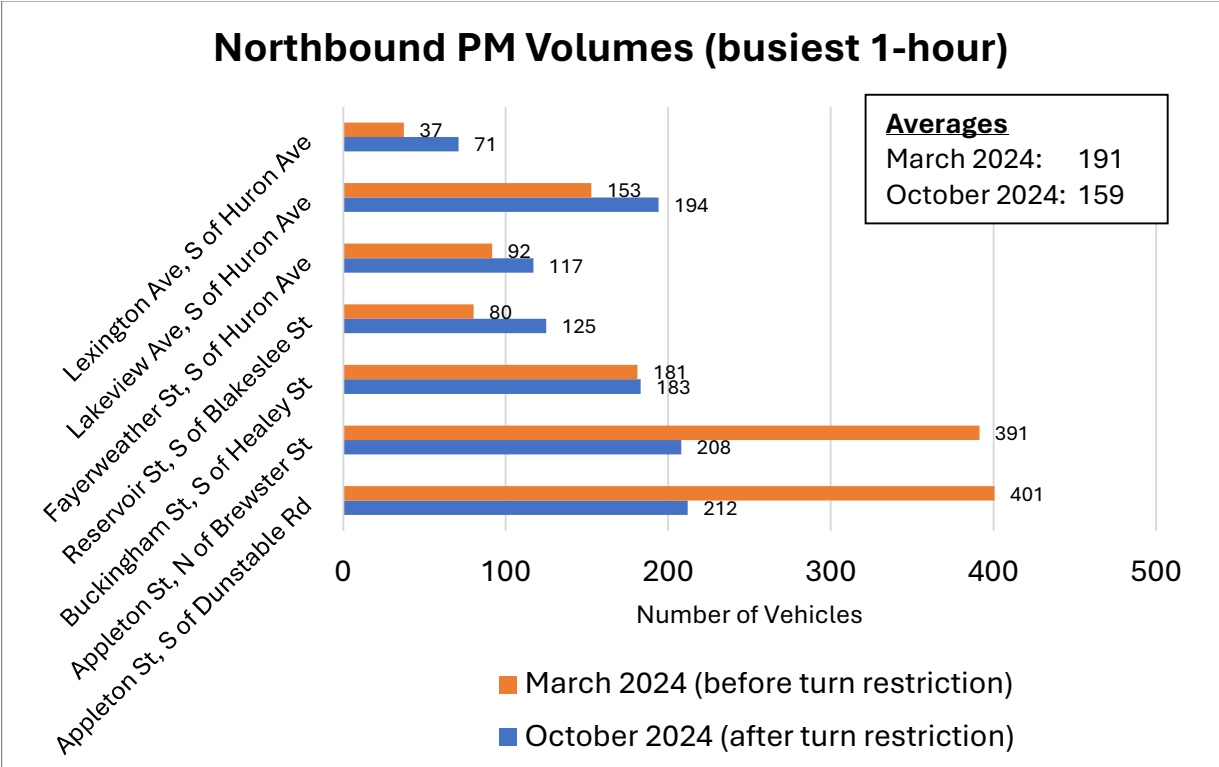
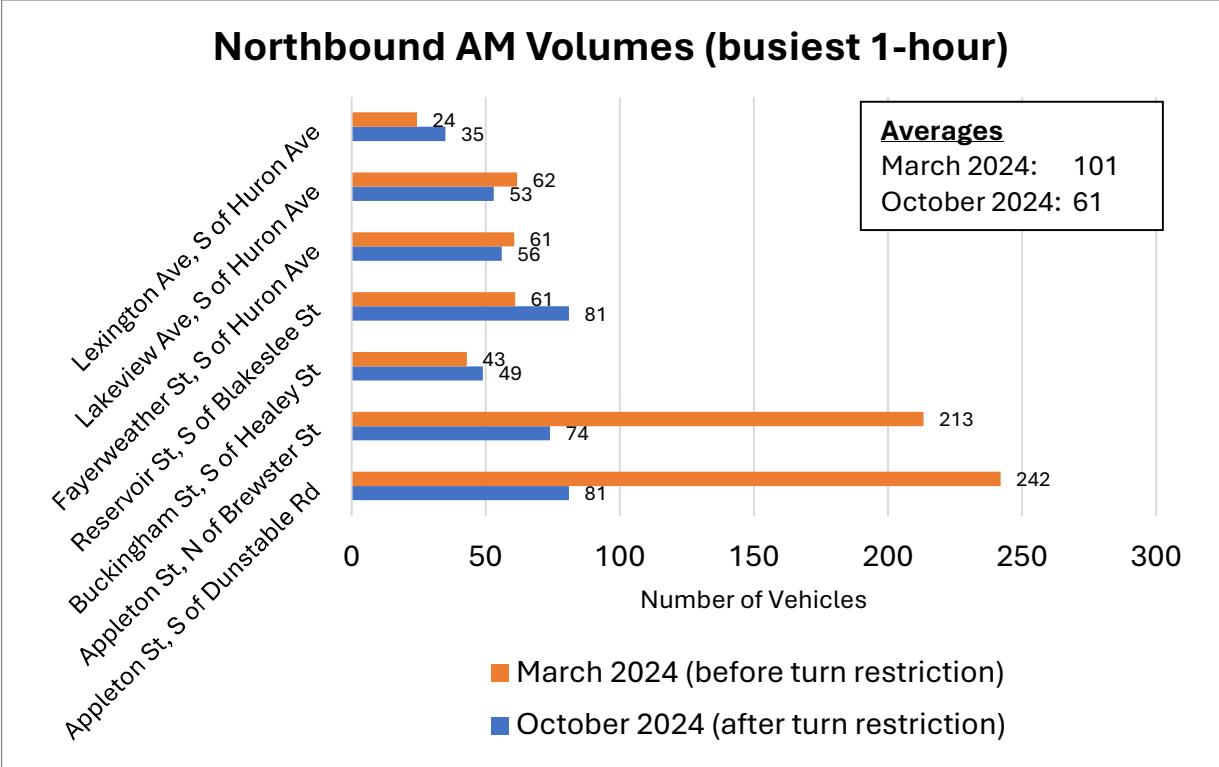
On Appleton Street, northbound volumes (from Brattle Street towards Huron Avenue) were reduced by about half, to about 1,600 trips. Those trips were spread relatively evenly among the parallel northbound streets, with no specific alternative street taking on an outsized role.





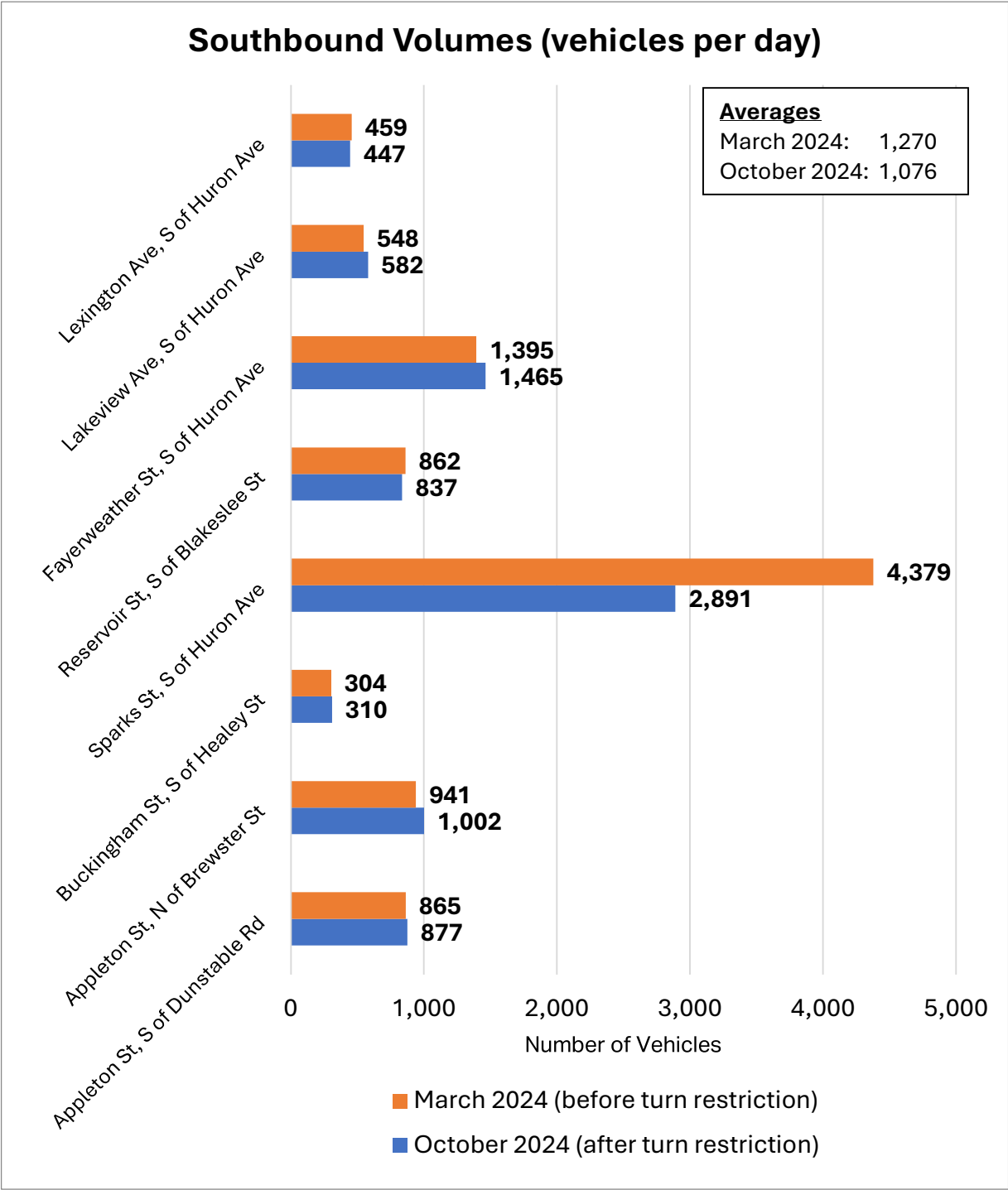
*Peak hour northbound volumes*

The following tables show northbound vehicle volumes during the busiest one-hour time periods in both the AM and PM. Again, the rush hour volume decreases on Appleton Street are substantial and increases are unnoticeable on the parallel streets.



Southbound volumes

Southbound volumes (from Huron Avenue towards Brattle Street) should have been unchanged by the left turn restriction as it only impacted access to Appleton Street in the northbound direction. The data shows consistent southbound volumes, except for Sparks Street, which experienced a substantial decline in volume. We could not determine a cause for the change in volume on Sparks Street.



Peak hour southbound volumes

The following tables show southbound vehicle volumes during the busiest one-hour time periods in both the AM and PM.

