



Brattle Street Bicycle Safety Demonstration Project

Data/Evaluation Summary

March 2019



Brattle Street between Mason Street and Eliot Street has long been discussed as a critical link in the network for people who travel by bike, with a desire for enabling two-way travel, providing direct access to key destinations. This was discussed in depth through the Harvard Square Design Project in 2002-2004, and later through the 2015 Bicycle Plan process, with continuing requests through various public forums.

In late 2015, Cambridge residents voted through Participatory Budgeting to spend \$50,000 to separate bicycles from traffic, in order to minimize conflicts between bicycles and vehicles and improve safety. In spring 2016, the Cambridge City Council adopted a Vision Zero Policy aimed at eliminating traffic fatalities and serious injuries, as well as a formal Complete Streets Policy, which reflects the City's commitment to ensuring that our streets work for people traveling by all modes. Informed by the historic analyses and discussions, and aligned with the Vision Zero and Complete Streets Policies and additional City policies (Climate Action Plan, Growth Policy, Vehicle Trip Reduction Ordinance, School Wellness Policy, and others), the City used the Participatory Budgeting funds to install a two-way separated bicycle facility on Brattle Street in July 2017.

The goals of the project were to improve accessibility and safety for all users and make this section of Brattle Street more comfortable for cycling, walking, and accessing businesses and services in Harvard Square. The project proposal was discussed with Harvard Square Business Association and the Cambridge Bicycle Committee and shared at a public open house forum with opportunity for feedback. The changes were implemented as a quick-build project: without construction, using materials like paint, signs, and flexible posts. The current street design includes a two-way separated bicycle facility, one travel lane, and two parking lanes. For more information, visit the [project website](#).

To evaluate the impacts of the project, the City collected before and after data, with the goal to match the time of year and weather when possible. A post-implementation survey was conducted, which received over 1,100 responses. Respondents were self-selecting and most answered the survey on-line; paper copies were also made available at several locations and upon request. An on-street intercept survey was also conducted to capture a random cross section of users; 87 surveys were completed in this way.

The following are some key findings from the review of the project data.



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I. Overview: Before & After Implementation

- **Parking Utilization** - Some impacts on Brattle Street
- **Bike Counts** – Bicycle counts show increases in people traveling by bicycle at all observed times; decreased #s of sidewalk cycling. (see Section II for more detail).
- **Crashes** - Robust traffic crash analysis typically requires 6 years of data (3 before implementation of a project and 3 after) so it is too soon to draw statistical conclusions. However, in the in **17-month time periods** before and after the project implementation, we see the following numbers:
 - All Crashes:
 - Before: 14 total crashes – 7 moving vehicle, 3 parked car, 3 pedestrian, 1 bicyclist
 - After: 3 total crashes – 2 parked car, 1 cyclist
 - Crashes involving a Pedestrian or Bicyclist:
 - Before: 3 pedestrian (all requiring EMS transport), 1 bicyclist (road rage incident)
 - After: 0 pedestrian, 1 cyclist
- **Speeds** – [to be added Spring 2019]

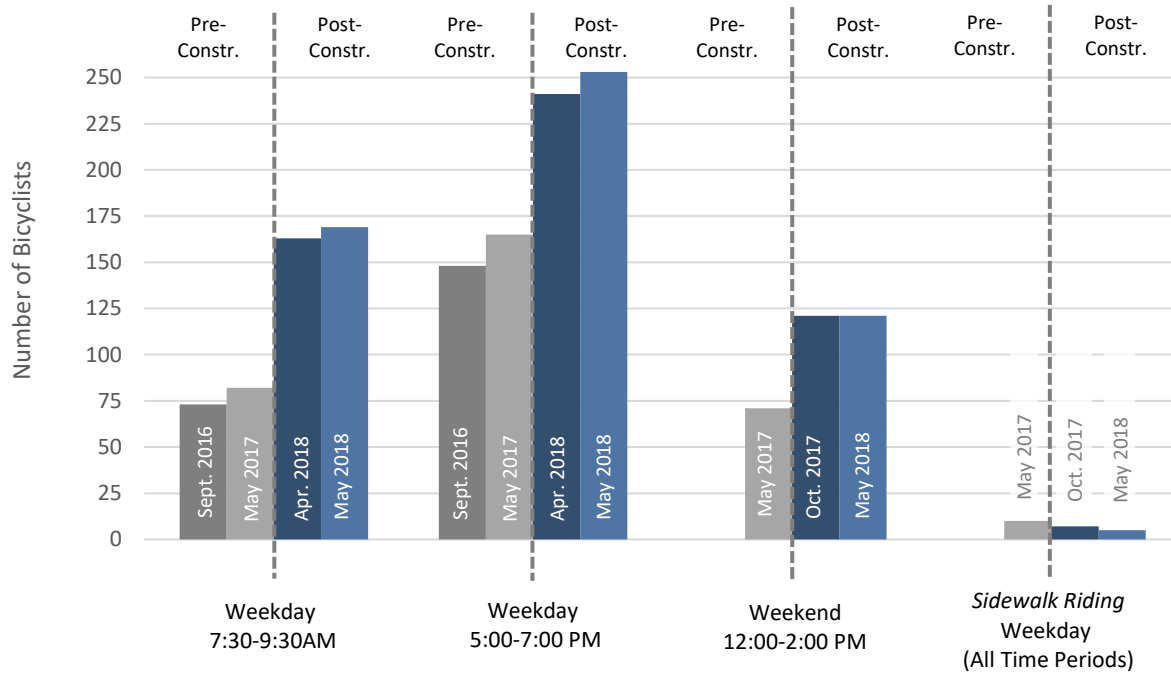


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II. Bike Counts

There has been an increase in the number of people bicycling for all time periods and there has been a decrease in the number of people riding on the sidewalk. The following exhibit illustrates the pre-post counts of people riding bicycles.

Brattle Street Bicyclist Count Comparison – Both Directions





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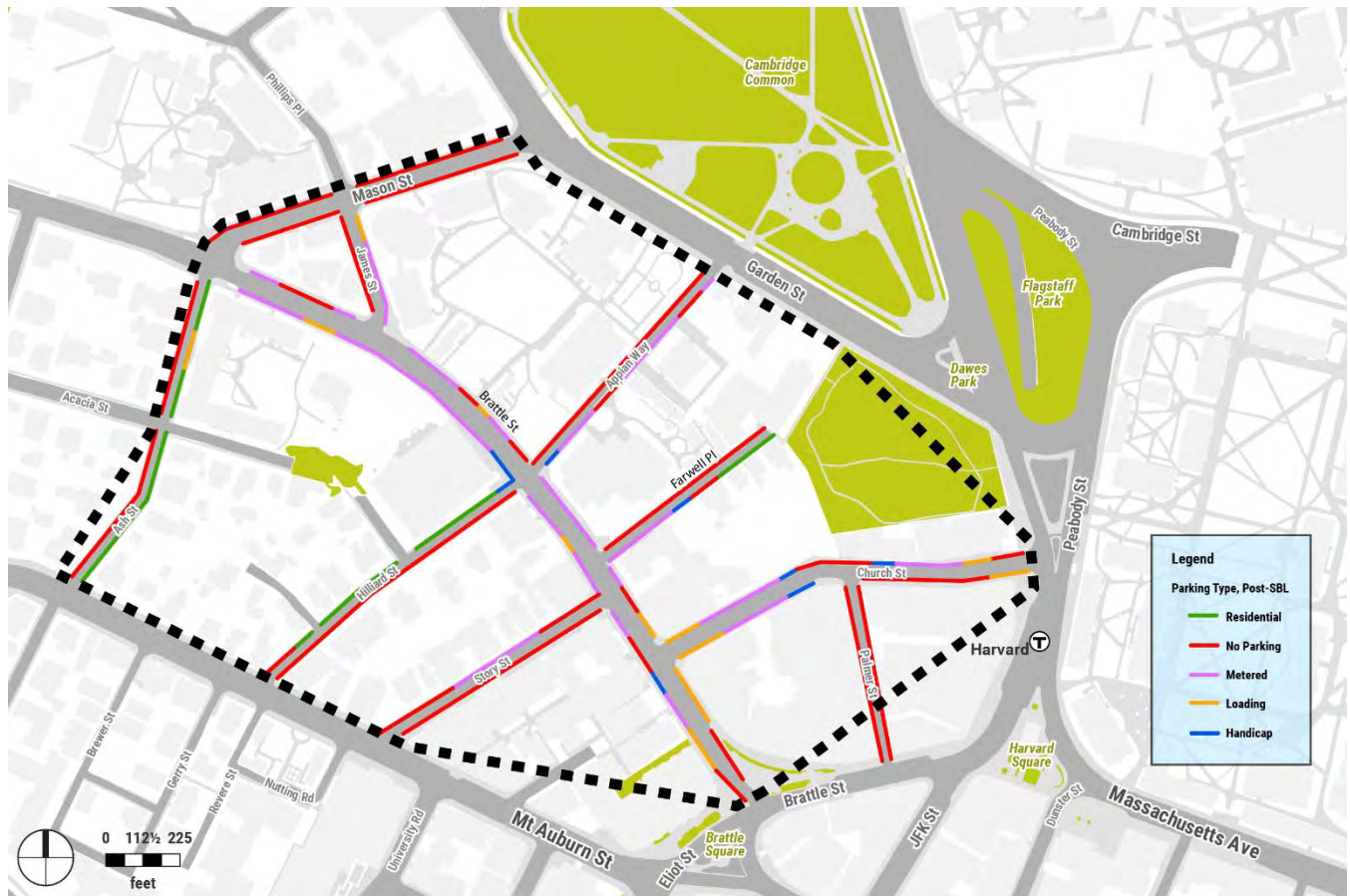
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III. Parking and Curbside Utilization

Overall, the Brattle Street study area has 156 parking spaces and approximately half of those are metered spaces. Parking utilization data has been collected. This information is illustrated in the subsequent exhibit, table, and map.

Brattle St Parking Type Map



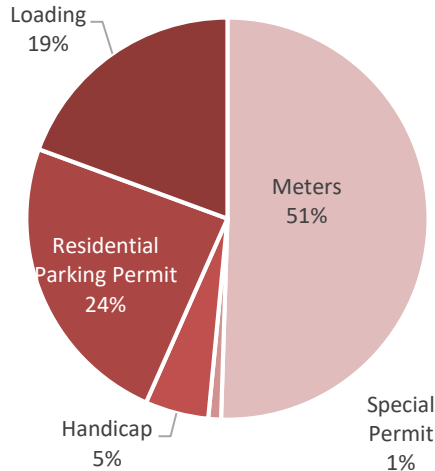


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Type of Parking in Study Area



Parking Occupancy Rates – 2018 Condition

Street/Area	Time Period	Occupancy
Study Area	Weekday 10AM	81%
	Weekday 4PM	76%
	Saturday 1PM	87%
	Saturday 6PM	83%
Brattle Street	Weekday 10AM	100%
	Weekday 4PM	95%
	Saturday 1PM	98%
	Saturday 6PM	98%
Streets North of Brattle Street	Weekday 10AM	66%
	Weekday 4PM	55%
	Saturday 1PM	73%
	Saturday 6PM	73%
Streets South of Brattle Street	Weekday 10AM	75%
	Weekday 4PM	80%
	Saturday 1PM	87%
	Saturday 6PM	83%

Findings from Parking Study

- Based on parking inventory observations collected, the analysis revealed the study area has enough parking supply to meet the demand.
- Parking in the study area is well utilized, with occupancy rates ranging from 76% to a maximum utilization rate of 87%.
- Metered parking is the most highly utilized on Brattle Street.

General Observations

- Ride-hail drivers tend to pick-up and drop-off passengers anywhere on Brattle Street, which is not ideal for congestion or safety.
- Illegal parking occurs in front of fire hydrants and loading zones by passenger vehicles.



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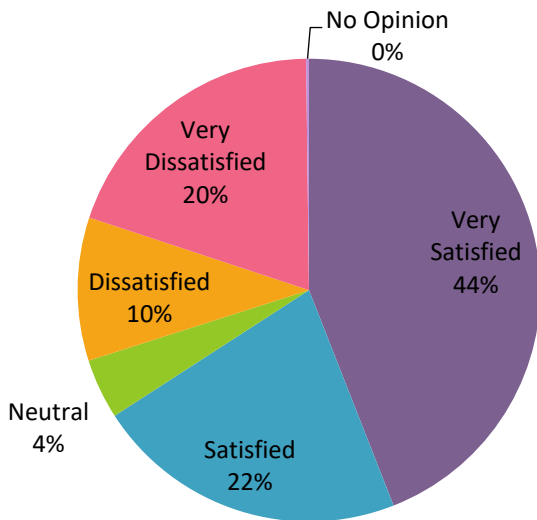
IV. Post Implementation Surveys

The City collected feedback from the community in online survey and intercept survey formats. The following summarizes the public feedback about the Brattle Street new design:

Online and Intercept Survey

1,182 people completed surveys with 81 partial surveys completed. The following exhibits summarizes answers to their question about the new design for Brattle Street.

1. What is your overall opinion about the new design for Brattle Street?

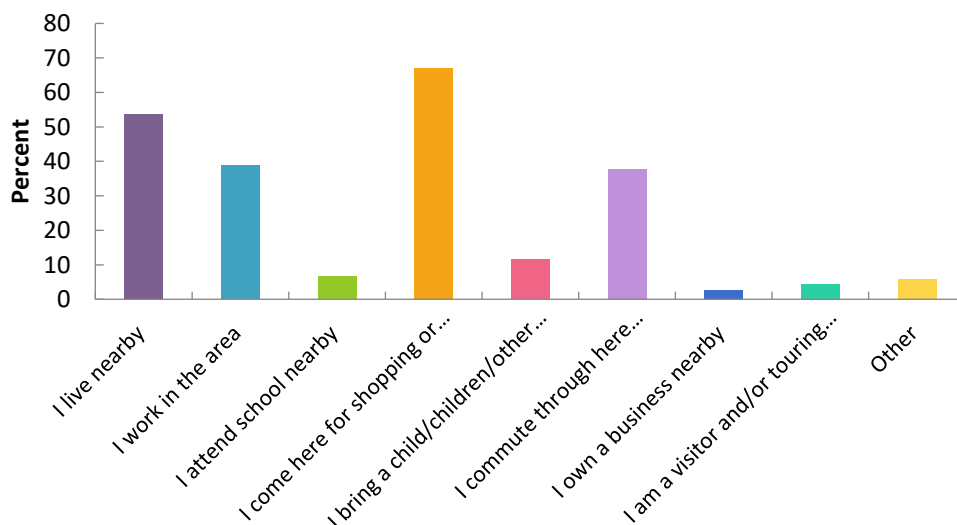


Satisfaction by Mode:

Walking: 71% Positive/Neutral
 Bicycling: 93 % Positive/Neutral
 Driving: 47% Positive/Neutral
 Transit: 91% Positive/Neutral/DK

- Approximately 75% of online surveys were completed by Cambridge residents.
- 87 responses were recorded from the intercept survey with similar results as the online survey.

2. Why do you come to Brattle Street?



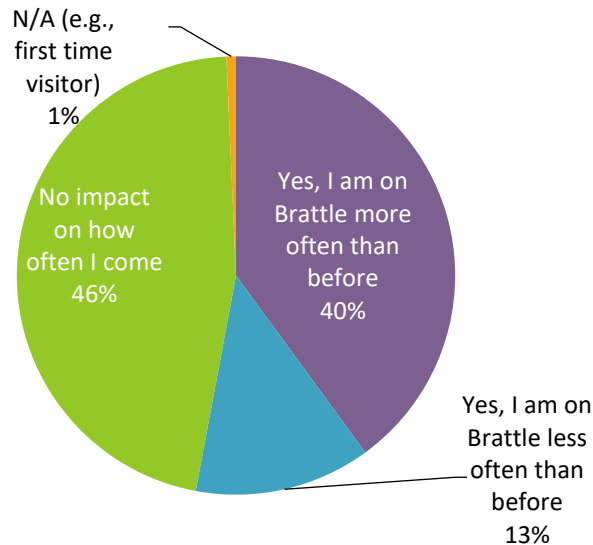


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3. How has the new design Influenced how often you come to Brattle Street?



Many comments received through surveys, direct communication, meetings, etc. General themes are:

- Support for additional separated bike lanes at other locations in the City
- Support for upgrading the new design to a grade-separated bike lanes, such as the one on Western Avenue
- Brattle Street is more quiet and pleasant to walk on
- Appreciate ability to bicycle more comfortably and directly into Harvard Square from the west
- Support for additional bicycle parking on Brattle Street
- Concerns about ride hail operators loading/unloading passengers not at designated places (everywhere in the city, not just on Brattle)
- Concerns about pedestrians crossing the street wherever they choose on Brattle Street
- Concerns about bicyclists not yielding to pedestrians
- Concerns about parking because of the new parking configuration
- Concerns about drivers parking in the separated bike lanes

V. Street Operations

Street Cleaning:

- Performed with flex-posts in place, using smaller equipment
- Requires more frequent emptying at the City's Department of Public Works (DPW) yard due to lower capacity
- Eliminated City's typical "sweeping day" parking restrictions



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Winter Operations:

- Overall, snow operations worked well with flex-posts left in place, during a winter with low-moderate snowfall such as 2018/2019.
- DPW did need to salt the bike lane more heavily, however, with the flex-posts in place. This is because windrows of snow form on both sides of the bike lane due to separate roadway and bike lane plowing operations. This, in turn, results in additional situations where the flex-post windrow would begin to melt (during the day for example), runoff across the bike lane, and then re-freeze on the bike lane.
- Seasonal removal of flex-posts will still need to be considered during winters of heavy snowfall.

Flex-post Deployment:

1. Clear Zones:
 - Locations where it is critical to restrict vehicle parking to ensure that drivers and cyclists can see (typically at intersections and major driveways)
 - Flex-posts in clear zones generally remain in place year-round, although on Brattle Street a few posts were removed prior to the first snow storm of the 2018/2019.
2. Bike Lane Adjacent to Parking Lane:
 - Vehicles are generally parked properly in their lane (will continue to monitor)
 - Posts remained in place for the 2018/2019 season, and worked well with the lighter snow totals and spread-out storms which were experienced this year.
 - It may be necessary to remove non-critical posts in years when weather patterns result in more closely-spaced storms with higher amounts of snow.