

Brattle Street Traffic Calming Project Evaluation

Cambridge, MA

August 15, 2012

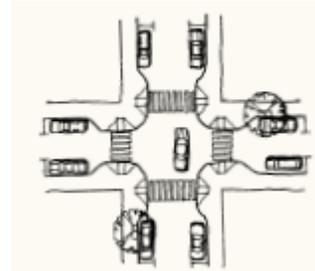
Executive Summary

In 2010, Brattle Street was reconstructed between Sparks Street and Fresh Pond Parkway. Prior to reconstruction, the city held a series of public meetings in which residents expressed concerns about high vehicle speeds and lack of pedestrian safety on the street. To make the character of this street more in keeping with community goals, the Brattle Street project included several traffic calming elements to reduce vehicle speeds and enhance safety for pedestrians. Crossing islands, curb extensions and curb extensions to create chicanes were constructed to shorten crossing distances for pedestrians. Crosswalks were marked at all intersections along the project as well.

Project Summary

The changes included on Brattle Street are described below. Appendix A includes before and after photos of the street.

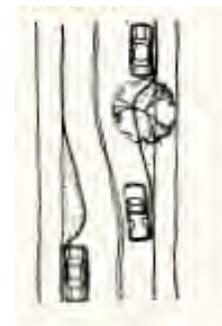
Curb extensions were installed at major intersections including Channing Place, Hubbard Park Road, and Riedessel Avenue.



Curb extensions improve safety in several ways:

- Provide clear sight lines for drivers and pedestrians by preventing cars from parking illegally at corners.
- Make pedestrians more visible to drivers by bringing them out in front of trees, parked cars, meters and non-crossing pedestrians.
- Reduce the length of crosswalks and the time a pedestrian spends in the street.
- Increase the width of the sidewalk and change the emphasis of the intersection away from motorized vehicles.
- Curb extensions also force drivers to take turns more slowly by creating sharper turns at the intersection.

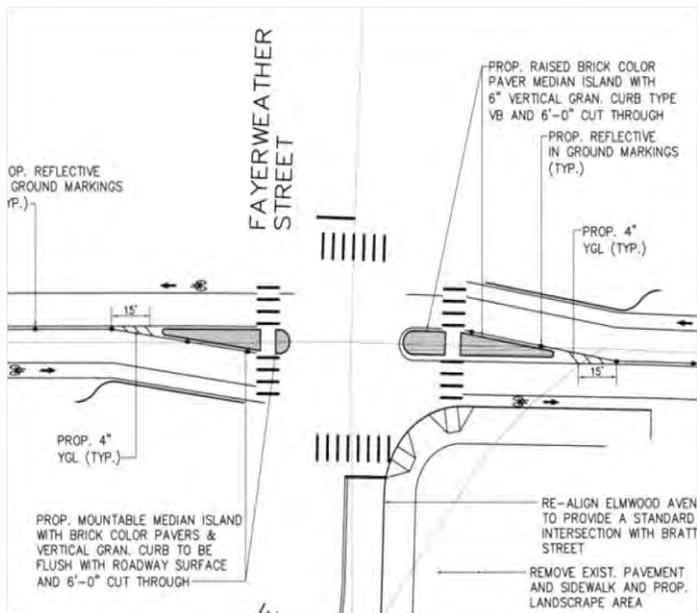
Chicanes were created by alternating one-sided parking from north to south between blocks, making the path of the travel for vehicles less straight to reduce speeds. On-street parking was implemented on the south side of Brattle Street from Lexington Avenue to Fayerweather Street/Elmwood Avenue and from Appleton Street to Riedesel Avenue. From Fayerweather Street/Elmwood Avenue to Appleton Street, on-street parking was implemented on the North side. From Riedesel Avenue to Sparks Street on-street parking was implemented on both sides of Brattle.



Chicanes improve safety in several ways:

- Narrow, curving roads encourage motorists to drive more slowly and carefully
- An undulating path interrupts any clear view ahead and compels drivers to slow down
- Chicanes can be formed using plantings to enhance the appearance and function of a street

Crossing Islands were constructed at intersections where the parking switched from one side to another (Lexington Avenue, Fayerweather Street/Elmwood Avenue, Appleton Street, Sparks Street) to reduce the crossing distances for pedestrians and provide a refuge mid-crossing so that pedestrians can take advantage of gaps in traffic separately from each direction.



Additionally, pedestrian ramps were constructed at all intersections to improve access for all users. Bicycle lanes were added to both sides of the street. The project also included the removal of the exclusive right turn lane from Elmwood Avenue onto Brattle Street and expanded landscaped area into that space. Additional green spaced were created throughout the project area were possible.

Speed Studies

Speed

As part of the ongoing evaluation of this project, before and after speed studies were conducted. Both the percentage of vehicles exceeding the speed limit and the 85th percentile speed were used to evaluate changes in speeds. The 85th percentile speed is the speed at or below which 85% of vehicles travel. It is the standard speed used for design purposes and speed studies.

The speed limit on Brattle Street is 30 mph. After improvements, the 85th percentile speed (at a location east of Lakeview Avenue eastbound and westbound) was not significantly changed, from 31 mph to 30 mph. But there was a significant reduction in the percentage drivers traveling 25 to 30 mph and a corresponding increase of drivers traveling between 21 to 25 mph. This represents a reduction in the number of vehicles traveling 25 mph and higher.

When vehicles travel more slowly, it is easier for drivers to stop should they need to and to yield to a crossing pedestrian. This reduces the likelihood of a collision. In addition, lower speeds significantly reduce the chance of injuries being serious should an incident occur; injury severity to pedestrians decreases exponentially with each mile per hour reduction in speed.

Resident Survey

Methodology

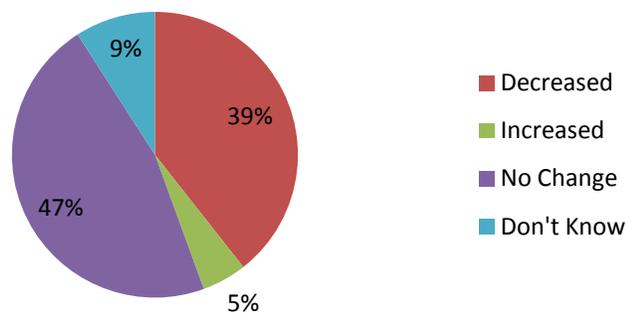
As part of the ongoing evaluation of the traffic calming project, a survey of residents along Brattle Street Road was conducted in July and August of 2012. Postcards were mailed to 417 residents with a link to an online survey. Fifty-eight (58) residents completed the surveys, garnering a 13% response rate.

Results Highlights

More than half (55%) those surveyed responded favorably to the project overall, while 27% responded unfavorably. Nearly three-quarters of respondents (70%) believe the overall look of the street has improved, while 20% believe it has deteriorated.

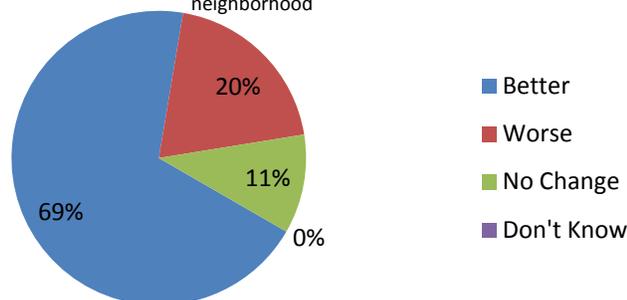
Traffic Speed

perception of how changes to Brattle Street have affected the traffic speed



Overall Atmosphere

perception of how changes to Brattle Street have affected the overall atmosphere of the neighborhood

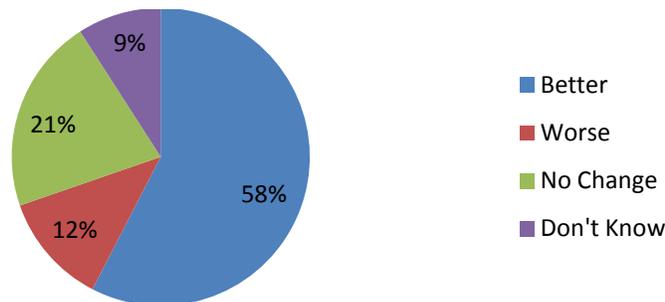


On the issue of safety, 39% of respondents reported that traffic speeds have decreased compared to 5% who felt it had increased. More than half (57%) believe Brattle Street is safer for pedestrians, 21% indicated no change and 12% stated that the street is now less safe. 41% of respondents reported the street was safer for children, while 11% reported that they thought the street was now less safe for children. Nearly a third (32%)

reported the street to be safer for motorists with 18% reporting it to be less safe. Percentage for cyclists were similar with 38% feeling safer and 17% believing it to be less safe.

Safety of Pedestrians

perception of how changes to Brattle Street have affected pedestrian safety



On the issue of traffic noise, 21% felt the project had decreased noise and only 5% felt it had increased.

Half (50%) of residents indicated they would like to see similar projects around Cambridge in the future, while 22% indicated they would not. In the area of neighborhood involvement, there may be room for improvement, however. Only 20% of residents agreed that the City did a good job involving the neighborhood in the planning of the project, while 27% responded negatively. Nearly half (48%) were not sure how they felt.

Conclusion

The Brattle Street reconstruction project attempted to calm traffic in response to resident concerns about pedestrian safety and high vehicle speeds. The results of the Brattle Street resident survey show that the majority of residents support the outcome of the project. More than half of all residents have a positive view of the overall project and would like to see similar projects in Cambridge in the future. Even more impressive, nearly 70 percent of residents surveyed believe that the overall atmosphere of the project is an improvement to the neighborhood.

Some results were more nuanced, however, including those relating to some of the primary goals for the project. Nearly half (47%) of residents surveyed believed that there has been no change in the traffic speed since the completion of the project. Raised devices were not considered for Brattle Street because it functions as a main arterial and emergency response route. Also, chicanes constructed here may be less effective at reducing vehicle speeds because the deflection, both real and perceived, by motorists is less when a bicycle lanes are included and the roadway width at points where the road shifts are wider. Many residents surveyed believed that the project had improved safety for pedestrians, bicyclists, motorists, and children, however.

In addition to improved safety, the project helps the City of Cambridge to meet its goal of improving air quality by improving facilities that support sustainable modes of transportation such as walking and cycling. Further information on these issues can be found in the City of Cambridge Climate Protection Plan and Pedestrian Plan. The City of Cambridge's webpage contains a version of the plans as well as details about the specific traffic calming tools and devices used in this project (www.cambridgema.gov/~CDD/et/).

APPENDIX A

Before



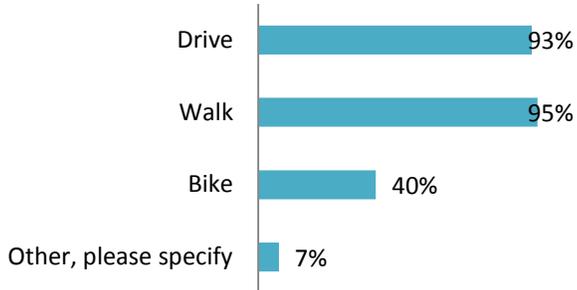
After



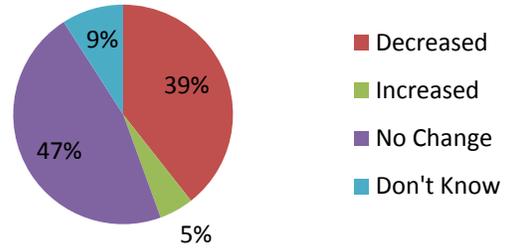
APPENDIX B

Resident Survey Analysis

Street Use

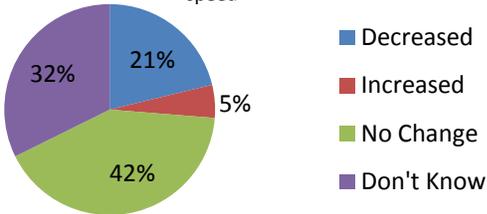


Traffic Speed



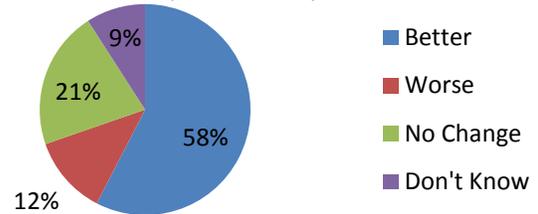
Traffic Noise

perception of how changes to Brattle Street have affected traffic speed



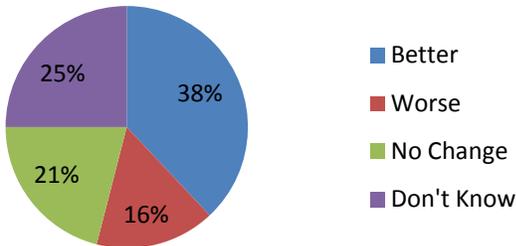
Safety of Pedestrians

perception of how changes to Brattle Street have affected pedestrian safety



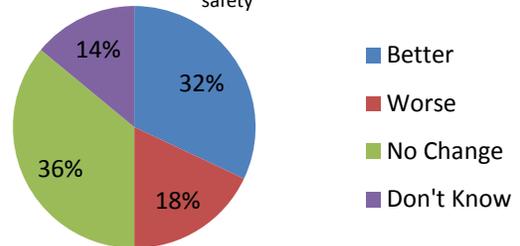
Safety of Bicyclists

perception of how street changes have affected bicyclist safety



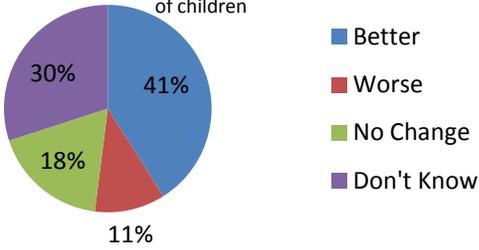
Safety of Motorists

perception of how changes to Brattle Street have affected motorist safety



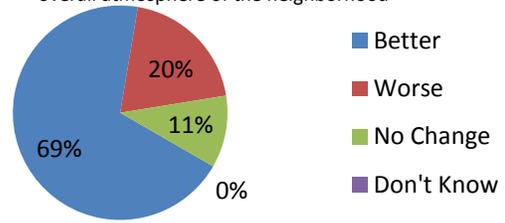
Safety of Children

Perception of how changes to Brattle Street have affected safety of children



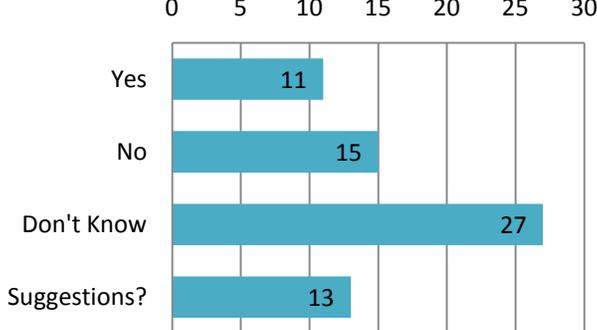
Overall Atmosphere

perception of how changes to Brattle Street have affected the overall atmosphere of the neighborhood



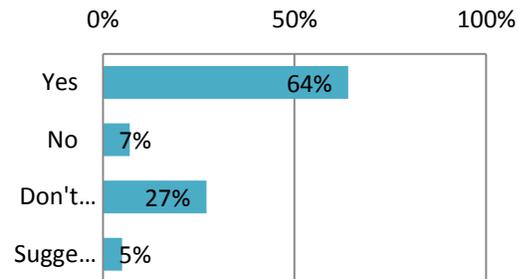
Neighborhood Involvement

Do you think the City did a good job of involving the neighborhood in the planning stages of the Brattle Street project?



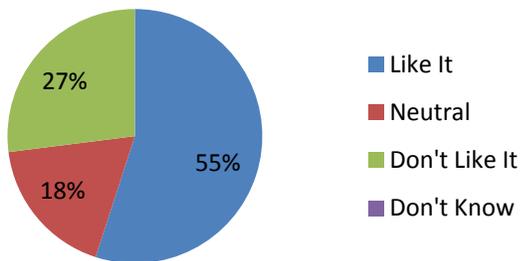
Handling of construction

Did the City do a good job handling the construction of Brattle Street?



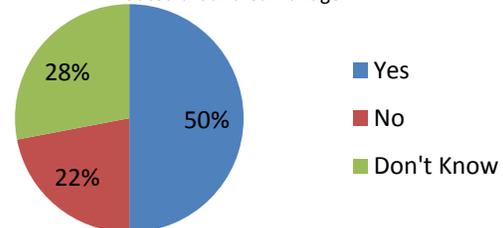
View of Project

Overall view of the Brattle Street Project



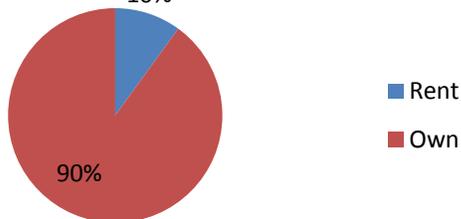
More Similar Projects?

Percentage of respondents who would like to see similar projects initiated around Cambridge



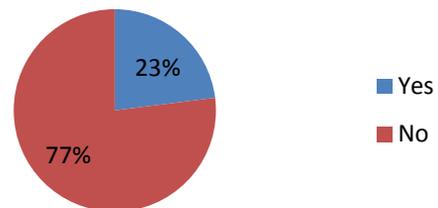
Home Ownership

Percentage of residents who rent or own on Brattle Street



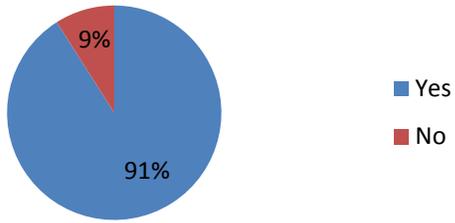
Children at Home?

Percentage of Brattle Street residents with children living at home

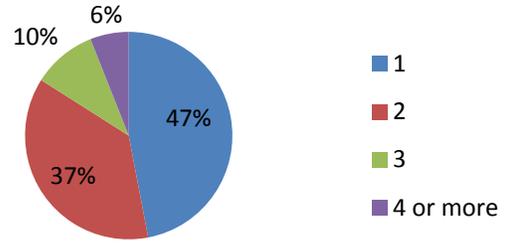


Car Ownership

Percentage of Brattle Street residents who own a car

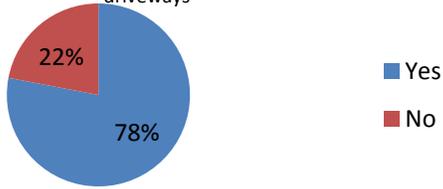


Number of Cars Owned



Private Driveway

Percentage of respondents who have private parking spaces or driveways



Gender

Gender of Brattle Street survey respondents

