

Memorandum

Date: November 1, 2018

To: Cara Seiderman, Transportation Program Manager

Organization: City of Cambridge, Community Development Department

From: Jeff Brubaker, AICP

Project: Cambridge Street Separated Bike Lanes

Re: Cambridge Street Intercept Survey Summary

This memorandum summarizes the findings from an intercept survey conducted along Cambridge Street on May 2 and May 5, 2018. The intent of the survey was to document opinions and feedback associated with the street redesign including separated bike lanes recently installed on Cambridge Street between Quincy and Fayette Streets.

Objective of the Intercept Survey

The separated bike lanes were installed on Cambridge Street during the summer of 2017. Before the installation, the Cambridge Street cross section consisted of one general travel lane in each direction and curbside parking on both sides of the street. The new cross section establishes physical separation between motorists and bicyclists using painted buffers and flex posts. On-street parking is available on one side of the street, with the parking side of the street varying throughout the corridor. Accessible parking spaces are also provided. The street retains one general travel lane in each direction and exclusive space for buses at bus stops.

The intercept survey was undertaken to understand better the community's perspectives on the changes. Input was sought from all street users, including those arriving on foot, by bicycle, by transit, in a private car or transportation network company¹ (TNC – Lyft, Uber, or taxi), and with a delivery vehicle. It was important to undertake an intercept survey to gain the perspectives of a random cross-section of users, in addition to the self-selected participants providing feedback via the online survey, wikimap, or direct contact to city officials.

¹ TNC is now more commonly referred to as "ride hail service"

Survey Procedure

A survey was devised through coordination with City of Cambridge staff. The survey was designed to be short and easy for respondents to answer quickly, while still soliciting useful feedback. TDG and Kleinfelder staff approached respondents randomly and entered their answers manually on survey forms that were taken to the site. The survey results were then tabulated in a spreadsheet and summarized.

The survey form is shown in Figure 1 and the Appendix. Questions include:

- How did you get here today?
- Why are you on Cambridge Street today?
- What is your overall opinion about the current design and function of Cambridge Street?
 - Delivery persons only
 - All other responses
- How have the changes on Cambridge Street affected how frequently you visit?
- What is your overall level of comfort and ability to access destinations along the street when driving, cycling, or walking?

Figure 1. Excerpt from the survey form

SECTION A	
1. Time _____	2. What is your ZIP code? _____
3. What is your age group? a. 0-17 b. 18-24 c. 25-34 d. 35-44 e. 45-54 f. 55-64 g. 65-74 h. 75+ i. Prefer not to answer	4. How did you get here today? a. Walk b. Bike c. Transit d. Private Vehicle e. Commercial Vehicle (e.g., delivery vehicle) <i>[If delivery person, skip to Section C]</i> f. Lyft/Uber/Taxi g. Other: _____
5. Why are you on Cambridge Street today? (can check more than one) a. I live nearby b. I work nearby c. I'm at/going to school d. I'm shopping/running errands/dining e. I bring a child/children/other family members to activities f. I'm on my way to somewhere else (e.g., commuting) g. I'm visiting from out of town (i.e., outside of the Boston metro area) h. I was looking for parking i. I'm making deliveries j. Other (fill in) _____	6. What is your overall opinion about the current design and function of Cambridge Street? a. Very Satisfied b. Satisfied c. Neutral/No Opinion d. Dissatisfied e. Very Dissatisfied Why? _____ _____ _____
7. Are you familiar with the changes made last fall to Cambridge Street? If so, how have the changes on Cambridge Street affected how frequently you visit? a. I come to Cambridge Street more often than before b. I come to Cambridge Street less often than before c. I come to Cambridge Street about the same frequency as before d. N/A (e.g., I have not come here before, or am not familiar with the changes)	

Six staff from TDG and Kleinfelder administered the survey on Wednesday, May 2, and Saturday, May 5, 2018, at two locations along the route. On Wednesday, May 2, they surveyed street users from 2:00 p.m.

to 4:30 p.m. On Saturday, May 5, 2018, they surveyed street users from approximately 11:00 a.m. to 1:00 p.m. Overall, 119 responses were received.

Mode Choice

The majority of respondents arrived on foot; more than three-fourths of those surveyed either arrived on foot or by bike.

Table 1. Respondents' mode choice on the day of the intercept survey

4. How did you get here today?		
Mode	Count	%
Walk	71	58.7
Bike	21	17.4
Transit	10	8.3
Private Vehicle	17	14.0
Commercial Vehicle (e.g., delivery vehicle)	1	0.8
Lyft/Uber/Taxi	1	0.8
Other	0	0.0
Total	121	

Notes: Four responses included walking paired with another mode. Two surveys did not record a response to this question.

Trip purpose

Almost half of respondents (48%) were on Cambridge Street because they live or work nearby. Shopping, running errands, or dining (15%) and school (10%) were the next most common trip purposes.

Table 2. Reason for visiting Cambridge Street on the day of the intercept survey

5. Why are you on Cambridge Street today? (can check more than one)		
Answer	Total	%
I live nearby	58	34.9
I work nearby	21	12.7
I'm at/going to school	16	9.6
I'm shopping/running errands/dining	24	14.5
I bring a child/children/other family member to activities	5	3.0
I'm on my way to somewhere else (e.g., commuting)	5	3.0
I'm visiting from out of town (i.e., outside of the Boston metro area)	8	4.8
I was looking for parking	1	0.6
I'm making deliveries	0	0.0
Other (fill in)	28	16.9
Total	166	

The 28 other/write-in responses included the hospital, the library, recreation, and other trip purposes. Recreational trip purposes included both using the street for recreation (e.g. walking, dog walking, or running) and accessing recreational venues along the street.

Overall opinion about the new street designs

As Table 3 shows, the majority (61%) of the respondents indicated they were satisfied or very satisfied with the new street design. This is significantly larger than the percentage of respondents who indicated they were dissatisfied or very dissatisfied (24%).

Table 3. Overall opinion of the street design

6. What is your overall opinion about the current design and function of Cambridge Street?		
Answer	Total	%
Very Satisfied	19	16.8
Satisfied	50	44.2
Neutral/No Opinion	17	15.0
Dissatisfied	11	9.7
Very Dissatisfied	16	14.2
Total	113	

Table 4 provides counts and percentages for respondents' opinions on the street design stratified by mode. The results show that, for each mode, the number and proportion of people either very satisfied or satisfied with the current design and function of the street exceeds the number who are either dissatisfied or very dissatisfied.

Table 4. Overall opinion of the street design, by arrival mode.

6. What is your overall opinion about the current design and function of Cambridge Street?										
Answer	Answer by arrival mode									
	Walk		Bike		Transit		Private Vehicle		Lyft/Uber/Taxi	
	#	%	#	%	#	%	#	%	#	%
Very Satisfied	13	19.1	5	26.3	0	0.0	1	6.7	0	0.0
Satisfied	31	45.6	9	47.4	5	62.5	3	20.0	1	100.0
Neutral/No Opinion	6	8.8	1	5.3	2	25.0	8	53.3	0	0.0
Dissatisfied	8	11.8	2	10.5	0	0.0	1	6.7	0	0.0
Very Dissatisfied	10	14.7	2	10.5	1	12.5	2	13.3	0	0.0
Total	68		19		8		15		1	

Notes: There are 113 total responses to this question, but only 111 when stratified by mode. Two surveys have a response to Question 6 but do not have a response to Question 4. The single respondent who arrived via delivery vehicle did not provide a multiple-choice answer to this question.

Effect of the street design on frequency of visiting the street

As Table 5 shows, 94 people provided a response to the question regarding whether and how the new street design affected how frequently they visit the street. Of the responses, a large majority stated that they come to the street with about the same frequency as before the design changes were made. Only 19 respondents indicated that the new design affected their visiting frequency. Notably, 16 respondents now visit the street more frequently, over five times the amount who now visit less frequently.

Table 5. Effect of the street design on frequency of visiting the street

7. Are you familiar with the changes made last fall to Cambridge Street? If so, how have the changes on Cambridge Street affected how frequently you visit?		
Answer	Total	%
I come to Cambridge Street more often than before	16	17.0
I come to Cambridge Street less often than before	3	3.2
I come to Cambridge Street about the same frequency as before	63	67.0
N/A (e.g., I have not come here before, or am not familiar with changes)	12	12.8
Total	94	

When the responses are stratified by arrival mode:

- The 16 respondents who reported that they visit the street *more often* all arrived on foot (12) or by bike (4).
- Of the three respondents who reported that they visit the street *less often*, two arrived by private vehicle and one arrived on foot.
- The most common response for all reported arrival modes was “I come to Cambridge Street about the same frequency as before”. This includes:
 - 41 of 62 who arrived on foot
 - 7 of 13 who arrived by bike
 - 5 of 6 who arrived by transit
 - 9 of 12 who arrived in a private vehicle
- Neither of the two respondents who arrived via a TNC vehicle or delivery vehicle answered this question

A caveat to this question is that, other things equal, those who may visit the street less often may be less likely to have participated in the intercept survey. The results of the same question in the online survey (separate documentation) should supplement these results to provide an enhanced understanding of how the street design may affect visit frequency.

Comfort and access

Respondents were asked about their *overall level of comfort* and *ability to access destinations along the street* for the modes they used on Cambridge Street (not necessarily just the mode they reported in Question 4).

The surveyors provided the following preface to these questions:

We would like to get a sense of your experience of Cambridge Street's new design. Understanding that this may vary depending on how you happen to be getting around, we are providing the opportunity for you to select different responses as relevant.

Respondents then reported their level of satisfaction with these two aspects of their travel experience.

Highlights from Table 6 and Table 7 include:

Overall level of comfort

- There is a slightly higher level of dissatisfaction than satisfaction for respondents driving along the street (39% very dissatisfied or dissatisfied; 36% very satisfied or satisfied).
- The vast majority of respondents who walk or bike along the street expressed satisfaction with their overall level of comfort while using each mode: 75% for bicycling and 78% for walking.

Ability to access destinations along the street

- There is a slightly higher level of dissatisfaction than satisfaction for respondents driving along the street (39% very dissatisfied or dissatisfied; 34% very satisfied or satisfied).
- The vast majority of respondents who walk or bike along the street expressed satisfaction with their ability to access destinations along the street when using each mode: 81% for bicycling and 83% for walking.

Table 6. Overall level of comfort, by mode

8a.-10a. Overall level of comfort when I am...	Driving		Biking		Walking	
	#	%	#	%	#	%
Very Satisfied	9	16.1	19	36.5	46	46.0
Satisfied	11	19.6	20	38.5	32	32.0
Neutral/No Opinion	13	23.2	4	7.7	15	15.0
Dissatisfied	11	19.6	6	11.5	6	6.0
Very Dissatisfied	11	19.6	2	3.8	1	1.0
Not Sure	1	1.8	1	1.9	0	0.0
Total	56		52		100	

Table 7. Ability to access destinations along the street, by mode

8b.-10b. Ability to access destinations along the street when I am...	Driving		Biking		Walking	
	#	%	#	%	#	%
Very Satisfied	10	17.9	22	42.3	44	44.9
Satisfied	9	16.1	20	38.5	37	37.8
Neutral/No Opinion	15	26.8	6	11.5	13	13.3
Dissatisfied	15	26.8	1	1.9	3	3.1
Very Dissatisfied	7	12.5	0	0.0	1	1.0
Not Sure	0	0.0	3	5.8	0	0.0
Total	56		52		98	

Other comments

Respondents were given the opportunity to voice general comments at the end of the survey. These comments are logged in the appendix.

Deliveries

Only one respondent reported that they arrived at the street by commercial vehicle. Although a multiple-choice response from this respondent was not recorded on overall opinion and frequency of use, the respondent provided verbal feedback that expressed dissatisfaction with the design of the separated bike lanes and the width of the general travel lanes. The respondent also indicated “very dissatisfied” for overall level of comfort and ability to access destinations along the street when they were driving. A caveat is that this is only a sample size of one.

Conclusions and Recommendations

The results of the intercept survey suggest that the street design changes have a high level of favorability for people walking or bicycling, the two modes that also were most commonly cited as how respondents got to the street, and mixed results for people driving. A significant amount of responses also indicated neutral perspectives on the street design – for example, two-thirds of respondents visit the street about as often as they did before the project.

Recommendations include analyzing these results in conjunction with the online survey, which allows for a comparison of opinions between people using the street and people who may or may not use the street, and continuing to seek feedback from delivery drivers and transit users, who represented a small portion of respondents.

Appendix

Q5. Why are you on Cambridge Street today? (can check more than one)

Summary of write-in responses (including response frequency)

Walking dog (5)
Hospital / Medical Center (4)
Running, soccer, sports or exercise (4)
Library (4)
Swimming pool (2)
Taking a walk, enjoying the day (2)
Park
Rec Center
Waiting for bus
Walking to car
Social
Classes
Moving today, looking for apartments

Q6. What is your overall opinion about the current design and function of Cambridge Street? Why?

Write-in explanations provided, sorted by Q6 multiple-choice response

Very satisfied
Very happy with separate bike lanes.
More BL everywhere. Parking in BL. Better enforcement.
Bike lanes! Doesn't drive often.
Likes SBLs.
Some of my favorite BLs.

Satisfied
Light at Punjabi really long (driving).
Lot of confusion at Inman.
Inman square.
Improvements to visibility of cyclists.
Likes the BLS.
Kinda easy to get used to. Wayfinding is ok.
Love bike lanes!
Pedestrians crossing are an issue. Cars park.
On fence of value of separate BLs. People stand in it lingering. Undecided.
Like the better BLs.
Too much traffic.
Like the bike lanes.
Parking is harder, but runs smoother.

Nice place to walk.
It looks pretty.
New BL. Lots of lights.
Curb still where it is. Bulb out for pedestrians would be nice.
Too much vehicle focus.
Finding parking is difficult for out of town friends. Harder to park physically in street.
More trees and biking from Europe.
Like bike lanes. Busy street.
Cars still park in bike lane sometimes. Bike lanes feel safer. Visibility issues at some intersections with parking farther from sidewalk.
Bike lane pavement is bad. Otherwise fine.
Like bike lanes.
Like the protected bike lane.
Like the protected BL - better than before. More interesting to drive because center lane shifts.
Depends on the block. This section is good.
Coming from Texas - like the bike lanes.
I like the bike lanes.
Very hard on drivers. Improvement. General.
<i>Neutral</i>
Bikes riding along sidewalk. No rules enforced.
Better than most streets.
More buses from Harvard to Somerville.
Doesn't like Union Square. Mixed: Likes bike lanes, but vehicle lanes feel too narrow. Drives and bikes. At war memorial changes are hard parking in bike lane.
Inman Square is horrible. New plans are worse. Don't take away open space. Drivers disobey signs. Bikes don't follow traffic laws at all. (Not about Cambridge Street.)
Getting used to it. Fire trucks. Bikes not (Illegible) to pedestrians in crosswalk.
Use sidewalk for biking rather than street. Very cautious. Worries about swerving.
Narrow roads. Two buses passing. Difficult.
Don't like where cars are parked. Too many cars in city. Wider spots.
Good to have the BLs.

<i>Dissatisfied</i>
Complicated to drive.
Street seems too narrow for all the activity. Appreciate bus, but no room for buses, emergency vehicles, pick up/drop off. Too much in small space. Right hook due to vision is an issue.
Good idea. Needs improvement. See comments below.
Much better than before. Bike lanes are constantly blocked by buses. Didn't happen before. Bike lane bad for RT drivers. "I like biking better on regular BLs - here your space is limited. Other bikes can't pass. Spoiled by European bike infrastructure."
Bike lanes made things worse as a bicyclist. People don't look getting out of their cars. Too narrow for emergency vehicles. Less parking.
Walking - hard to watch for all conflicts. Weaving is hard. Same for driving. Bikers seem confused sometimes.
Didn't account for safety issues for drivers.

Too narrow for driving and opening doors. Not enough space for emergency vehicles. Great for cyclists. Traffic moving more slowly at busy times. Love the idea though. Pedestrians not aware of looking at separated bike lanes.
Understand why, but not a good change. Too narrow. Hospital activity. Broadway better bike street. Don't like zigzag for emergency vehicles. Good that something is happening for bikes.
Crazy getting in and out with new BLs. Bikers are adequately protected.
Personal safety. Cars yield. Buses yield. Cyclists don't yield. They yell at people.

<i>Very dissatisfied</i>
Bikes, switch lanes, lanes too narrow. Hospital/Ambulance. No place to pull over.
As a pedestrian, can't see on-coming traffic (vehicles and bikes). Lot of near misses. Bikes don't stop at crosswalks.
Extremely unsafe for pedestrians and people parking in small spaces. Chicane. Number of parking spaces removed. 32 removed. 7 provided not adequate. Jaywalkers crossing street just "pop" out. No room to react.
Dangerous for pedestrians and drivers. Drivers in peril getting out of driver side. Winter was a nightmare. Didn't plow. Elderly/Disabled who depend on driving can't exit from parked cars. Bikes on sidewalk and in street (No BL). Bikers yell at drivers.
Lots of traffic. Mom is really annoyed. Parking issues.
Bike safety needed. This is not the answer. Road too narrow. Side view mirror ripped off. Street is less safe.
Need to protect businesses. Pharmacy has lost business. Don't jeopardize business.
Hate it and like it. Poor sight lines for driving and biking. Cleanest the street has ever been. Snow melts better because less parking.
BL extension of sidewalk difficult for vehicles to turn. Not enough outreach.
Emergency vehicle access an issue. No space to move away for drivers. Hospital and school make pick-up/drop-off hard. Street not wide enough. Businesses having hard time. Old people can't bike. Cyclists likely aren't the ones who live here. Bike lanes only help commuters. Lots of concern over the design. Catalyzing gentrification and bringing in chain retailers.
Removed parking spaces. Cyclists don't stop when opening car doors. Street is too narrow. Removed whole parking lane.
More dangerous for cyclists than before. No room for cars and so heavily trafficked. No where for cars to stop. I applaud the effort, but too much traffic. Would be more effective with sidewalk for walking and biking like Beacon Street.
Harder to get to business even with resident sticker. Don't go to business as often. Lane blocked off driving (Illegible). Concern about emergency vehicles. Harder to get into car because closer to traffic.
Totally sucks. I live on Robert Square.
Emergency vehicles. No place to pull over.
Looks nice.
Really terrible. Not enough parking. Hit by a cyclist. Multiple threat.
Safer for bikes. Intersections are more difficult. Cones helpful. Education needed about parking. Different side exiting vehicle.
Bad design. Car doors (Illegible). Feels more dangerous. Head on collisions possible.

Q11. Other comments

He loves Cambridge.
Bikes don't stop for pedestrians. Not enforced.
Very difficult. Tells friends to park on roadway.
Cardinal/Medeiros driving and walking.
Driving space quite tight. Good bike awareness. Getting hit.
Can't get by large vehicles (cars/buses). Door opening is dangerous from driver's side. No place to park. Tax payer vs. renting vote. City doesn't care what tax payers want.
In Chicanes, people encroach on DYCL. No place to pull over when emergency vehicles. Less permanent cones better. More traffic, more backups because no place to pull over.
More bikes on sidewalk. Crossing street have to go far into street. Visibility is not the access.
Happy camper.
Street design is terrible for seniors, particularly accessing the swimming pool. Hard to find parking. Required to walk too far with disability. I want bikers to be safe, but this is really not working for me.
Much safer. Definitely like (Illegible).
Dependent on T. Riding bus is same as before.
Night is really hard when BL shifts suddenly creates difficulty. Parking is an issue. 85 year old month in bus avoid Cambridge Street - Needs to access Pharmacy. Parents at school drive around a lot to find spots. Hard time parking. I like biking on Cambridge Street, but hate driving on Cambridge Street. Don't know what the answer is.
Curb extension and BL conflict with each other. CES need to be removed. Happy to see PBLs. CES cause confusion while driving due to BL shift.
Drop off near school is an issue. Quincy Street particularly difficult to navigate. Unclear. Left hand turn into bike lane isn't clear for bikes. Left turn signal for bikes needed?
Should do better job with snow removal next winter.
Idea is great, but needs more security for bikers. Weak spots - all right turns - bikers less aware of threat because protection. Needs sign to warn bikes. Nor more traffic lights! For cars, path is too crooked - fender benders. General idea is great, but needs tweaks. Huron Ave is a great BL - better than this. Also, Mass Ave by law school. Separation is best feature.
Bike - cones are good. Should be more curb openings. Straightforward design. Should be more crosswalks.
Always support more meter parking and bike parking. When meters go away, bike parking does too.
Inman Square - very difficult to traverse on bike - angles and sight lines - offset crosswalk, same signal cycle as cars.
I feel like and need a new car with the safety features because there are so many other road users.
Traffic jams are too long.
Western Ave is a good example. Bike lane on Cambridge St weaves too much. I support the goal overall, but the design is confusing.
"Don't want to cut down trees for biking. Cambridge is great for biking and I want more bike lanes, but don't cut down trees."
I don't like having to look four times when crossing intersections, but I understand it's for the best. I support protection for bikers. I guess everyone has to be a little inconvenienced.
Much easier to cross street with dog.
Very happy.

Would like if more streets were adopted like Cambridge has been.
Bike on other streets. But definitely pro bike lane.
Would like it if Beacon Street could adopt separated bike lanes as well.
Very happy with the change. Feels others will be worried if there is a lack of parking due to the change.
Doesn't have to park on Cambridge Street so cannot comment on parking. Inman Square is a pain to drive.
Does not typically end up on Cambridge Street but it feels nice and safe.
Child walking with parent.
Seems fine. Does not use Cambridge Street much.
Biking very much improved. Used to be scary to bike on Cambridge Street.
Reminds him of Europe.
More mid-block crossings. Curb extensions.
Curb level would be awesome.
Make trains better.
Terrible effects on stores. Pharmacy needs parking. Mostly concerned about width. Overall understand the trade offs.
Bike lanes are great. Makes the street easier for them.
Like new crosswalks!
Cars parked in bike lane sometimes. Overall very satisfied. Mostly use the whole length of Cambridge Street to get to places.
Overall happy with changes.
Snow gets plowed from bike lane onto sidewalk. Hard for pedestrians. Look into seasonal bike lanes. Consider only one bike lane side for future design.
Tough for driveway visibility. Tough on local businesses. Inman - hard to park at drug store. Hard for old people.
Bike lane disappears after a few blocks. Why? Stand still when parking because cars can't go around anymore.
Cyclists aren't actually protected - needs a curb.
Road isn't straight anymore. So much activity. Enforce the speed limit. Shared road. Drop off zone needed at pool.
Great making it safer for bikers. Sad to lose parking.
Traffic by Alewife - needs to be addressed.
Not practical for me to come to these stores anymore because fewer parking spots. Hard to find parking even as resident. Don't want to walk too far from parking due to injury. More difficult to do three-point turns with current set up. Wish parking was at curb.
"You guys have done a good job."
I like that BL is inside parking lane. Protected BL on Hampshire Street needed!
Worse than before for biking because right hook. I like Mass Ave by law school - no parking there.
I like that it slows down the traffic with the shifting centerline. Ubers stop a lot in bus stops. Problem citywide.
The new bike lanes are awesome.
"Thank you for the new bike lanes!"
I support bike lanes everywhere - the fewer cars the better.

The businesses need deliveries but trucks are too long for spaces. Crossing street is complicated - can't see what's coming at you. Don't see bikes until last second. Street cleaning days terrible. Worried about vehicles. City doesn't know how bad traffic gets on weekdays. It's a cluster fuck. Street after Irving towards Harvard - left turns are difficult - not enough room.

Cambridge Street at Fellow Street is difficult to cross - turning traffic. Cyclists don't yield. You can't finish crossing. Was getting off bus - almost got hit by cyclist. This has happened twice. Cyclists need to yield to people getting off bus. Some bikers go way too fast and don't yield. People need to be more considerate - the cyclists need to be enforced. Needs to be more enforcement of biking on the sidewalks.

DISCLAIMER

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, and commentary contained herein are based on limited data and information, and on existing conditions that are subject to change. Further analysis and engineering design is necessary prior to implementing the recommendations contained herein.