

A Community-Engaged Investigation of Complete Streets for the Clifton Avenue Corridor

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Abstract

The objective of this project was to collect and analyze data on the Clifton Avenue corridor, adjacent to the University of Cincinnati. A PLOS, BLOS, and community survey were used for data analysis. Results show that pedestrian and personal automobile use are the most important aspect to individuals of the Clifton Avenue Corridor. Results suggest a complete streets design would benefit the accessibility, functionality, and safety of the Clifton Avenue Corridor for bikers and pedestrians.

Introduction

The complete streets program, an initiative overseen by the Department of Transportation, aims to assure that public streets are safe and accessible for all users (Department of Transportation, 2015). Considerations of the program include public transportation and pedestrian traffic. Complete streets applications better the communities in which they are implemented due to the increased safety for bicyclists, vehicles, and pedestrians, and the enhancement of community engagement (Gilpin, J. 2016; Gregg & Hess, 2018). The comparison of communities before and after a complete streets design implementation relies on consistent data collection and finding solutions pertaining to a given area (Rowley, K., et al. 2019). Pedestrian and Bicycle Level of Safety (PLOS/BLOS) are used to create complete streets design by building a transportation system that is equipped to facilitate its community members and its economic activity (City of Cincinnati, 2009). PLOS/BLOS data studies conducted on the Clifton Avenue corridor provide insightful data into the current condition of the corridor. Paired with results from a survey, the preliminary results presented here may inform improvements that can be made on the corridor.

Method

To determine if the Clifton Avenue Corridor would benefit from a complete streets design, a survey was created in collaboration with residents of the CUF community. The survey consisted of multiple questions to determine demographics and perceptions on the current state of the corridor. Examples of the data collected by the survey are participant age, where they live, if they have a car, how often they drive on the corridor, if they walk or bike on the corridor, if they park on the corridor, if they utilize the public transit system, and more. Once the survey was sent out to the residents, the data collected from the questions were then aggregated and analyzed for descriptive statistics. To determine the PLOS and BLOS scores for the Clifton Avenue Corridor, the team went to the top of the corridor, starting at the corner

of McMillan Street, and measured all the breaks in the sidewalks as well as the linear feet of street that is parking, and the bike lane, from the top of the street down to where it intersects with Martin Luther King Jr. Drive W. Once the measurements were completed, three trials were conducted to determine the traffic flow through the corridor. To complete this, one individual kept a tally of cars that passed while one timed the trial and tallied the number of large vehicles that passed. Each trial was a 15-minute interval counting every car that passed on one side of the street. These data were analyzed using the BLOS and PLOS calculators.

Results

Qualitative feedback from the participants of the preliminary community survey show that many respondents (90.1% of the 101 respondents) utilize the Clifton Avenue Corridor as pedestrians, while significantly fewer respondents utilize the corridor for biking (23.2%). When asked which use of the corridor is most important, 34.7% of respondents consider pedestrian use their most important use of the corridor, 23.5% consider it personal automobile use, and 17.3% of participants consider it public transportation. When asked if participants drive along the corridor, 29.4% of participants replied that they drive on it a few times per week while 27.5% replied that they do not drive at all. 21.6% of participants drive on the corridor daily. Figure 1 is a visualization of descriptive statistics from the survey.

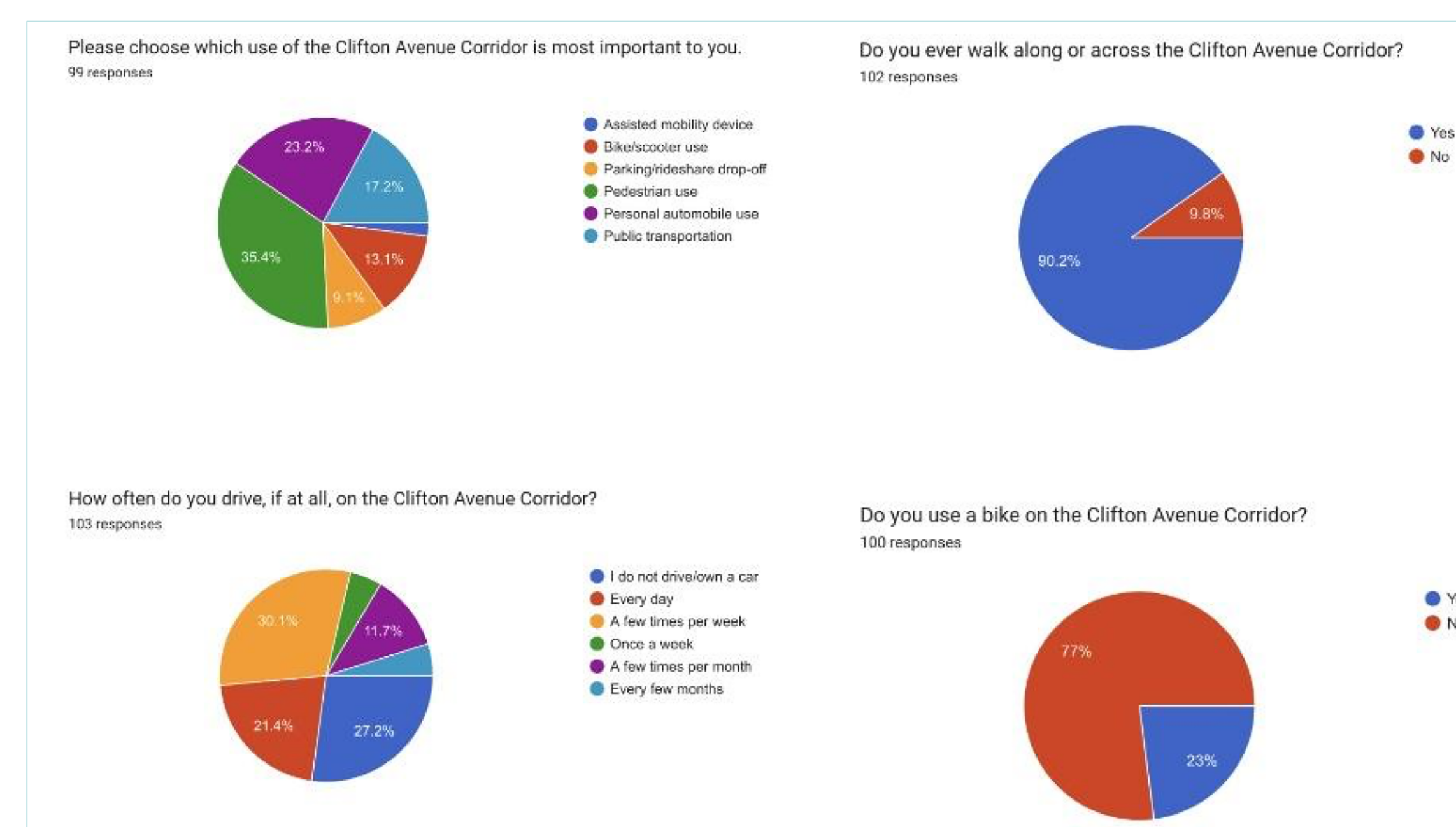


Figure 1. Data compiled from the community survey

By measuring traffic patterns and the quality of the road segment, the BLOS and PLOS provided quantitative data that resulted in a BLOS score of 2.19 and a PLOS score of 2.51. These numbers relate to a B and C rating for their level-of-service, respectively. The BLOS and PLOS scores of B and C may be correlated to the number of pedestrians and bicyclists that utilize the corridor. Figure 2 is a visualization of the BLOS/PLOS inputs and results.

BLOS and PLOS for the following road segment

| | |
|---|-----------------|
| Lanes per direction: | 2 |
| Outside lane width: | 7.9 ft |
| Paved shoulder/bike lane/arked parking width: | 12 ft |
| Bidirectional ADT traffic volume: | 16244 (veh/day) |
| Posted speed limit: | 35 mph |
| Heavy vehicle percentage: | 5% |
| FHWA's pavement condition rating: | 4 |
| % of segment with occupied parking: | 28.6% |
| % of segment with sidewalks: | 98% |
| Sidewalk width: | 10.6 ft |
| Sidewalk buffer/parkway width: | 0.6 ft |
| Buffer/parkway avg tree spacing: | 21.3 ft |

| | | | |
|-------|-------|------------------|---------------------|
| | Score | Level-of-service | Compatibility Level |
| BLOS: | 2.19 | B (1.51-2.50) | Very High |
| PLOS: | 2.51 | C (2.51-3.50) | Very High |

Figure 2. PLOS and BLOS for the Clifton Avenue Corridor.

Discussion

Preliminary results suggest the Clifton Avenue Corridor, capped between McMillan Street and Martin Luther King Jr. Drive W. and adjacent to the University of Cincinnati, would likely benefit from a complete streets design. The BLOS and the PLOS scores of B and C, respectively, could be improved. Results from the community survey indicate that the community would like improvements. Most of the participants indicated that they walk along the corridor and believe that pedestrian use is the most important aspect to them. Fewer participants on the survey indicated use of a bicycle or vehicle on the corridor. The results of the community survey and of the BLOS/PLOS investigation suggest the need to make the corridor more accessible, more functional, and safer. Limitations of this study are construction work being done along the corridor and small sample size on the survey. Future research could increase the sample size on the survey to determine if these preliminary results are generalizable to the larger population, as well as complete a BLOS and PLOS study for the remainder of Clifton Avenue down to Ludlow Avenue.

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