



Introduction

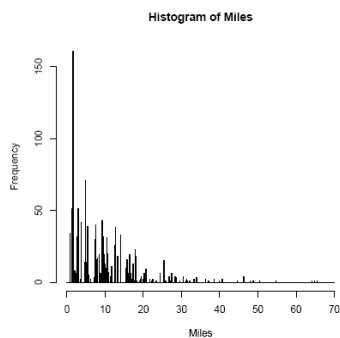
The Parking & Transportation Services Office and the Green Practices Committee of Carnegie Mellon University have expressed interest in reducing the environmental effects of transportation to campus and on campus. They created a survey consisting of eighteen questions and emailed the link to all faculty and staff at the university, totaling over 6,000 individuals. We examined the 1,293 responses for trends and fits to models.

Methods

- Data was collected using SurveyMonkey.com.
- Results were exported as an Excel format and were adapted for analysis.
- Geographical maps were generated using the *maptools* package in the statistical application, R version 2.4.1.
- Histograms were generated in R as well as Microsoft Excel.
- Correlations and contingency tables were generated in Microsoft Excel and analyzed using R.

Analysis of Responses

Distance From Campus



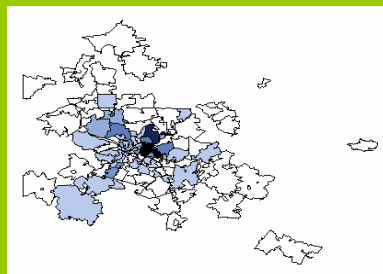
The graph is visibly skewed to the right with a mode at 1.6 miles from campus in zip code 15217 (Squirrel Hill). There is a mean distance from campus of 9.433 miles and a median of 12.6 miles.

Exploring Transportation Behavior at Carnegie Mellon University

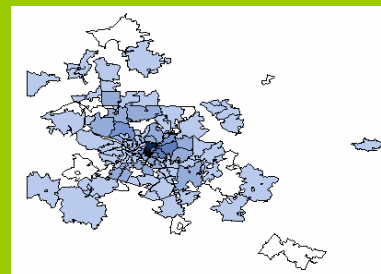
Cathy Park, Steven Schoenfelder, Shouzhou Shi, and Akiko Takeda

Distributions of Staff and Faculty Respondents

Faculty Respondents



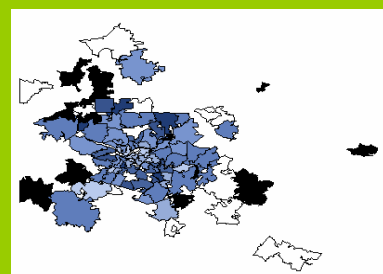
Staff Respondents



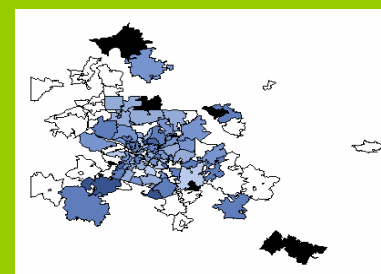
Staff respondents are more spread out over the relevant area, and the faculty respondents tend to live closer to campus. There were x faculty responses and y staff responses.

Responses to a Fuel-Efficient Vehicle Discount

Percentage that Opposes a Discount



Percentage that Favors a Discount



Zip codes with a unanimous decision to this proposal are farther away from campus.

Comparing to Distance from Campus

Fuel Efficient	Distance			
Car Response	<=10 Miles	10-20 Miles	>=20 Miles	Total
No	231	158	48	437
Yes	246	110	31	387
No Opinion	63	44	11	118
Total	540	312	90	942

As respondents live farther from campus, a smaller percentage of people are in favor of a fuel efficient vehicle discount.

Comparing to Parking Category

Fuel Efficient	Parking Category			
Car Response	Faculty	Staff	Other	Total
No	88	317	34	439
Yes	110	229	48	387
No Opinion	15	90	13	118
Total	213	636	82	931

A greater portion of faculty than staff is in favor of a fuel-efficient vehicle discount.



Responses to a 4 out of 5 Day Plan

	Parking Category			
4 out of 5 Days Plan	Other	Faculty	Staff	Total
No	58	110	303	471
Yes	18	84	268	370
No Opinion	21	19	66	106
Total	97	213	637	947

Choosing the 4 out of 5 days plan was not as popular as choosing not to have the plan among each parking category, the difference between the number of people who oppose it and favor it is small. Of those with an opinion, 44% favored the plan.

Discussion

- A pilot study would be useful for future surveys to minimize confusing questions.
- Future surveys can further explore trends identified through this analysis.

Concerns to be relayed to Allegheny Port Authority Transit:

- Inconvenient bus stops.
- Tardiness of buses.
- Number of transfers.
- Cleanliness of buses.

Recommendations to Carnegie Mellon University:

- Promote websites to the Carnegie Mellon Community that provide accurate information on bus schedules and stops.
- Increase awareness of carpools and vanpools to campus through online bulletin boards.

Acknowledgements

The authors acknowledge the Parking and Transportation Services of Carnegie Mellon University for providing the survey result. Special thanks to Cliff Davidson, Jim Delaney, and Brian Junker for advising throughout the project.