



Cycle Atlanta:

Using Crowdsourced Data to Model Perceived Cyclist Safety

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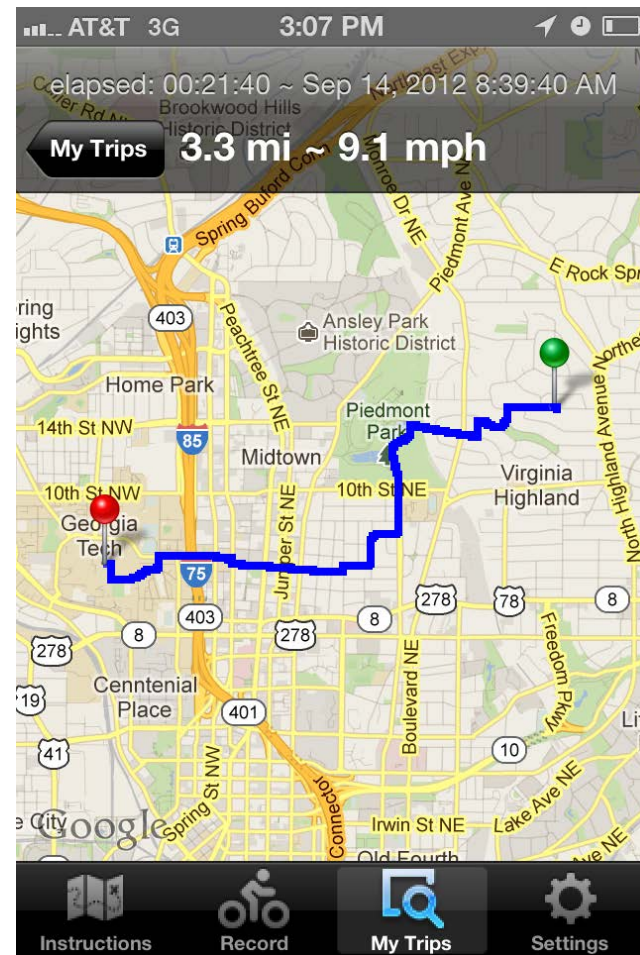
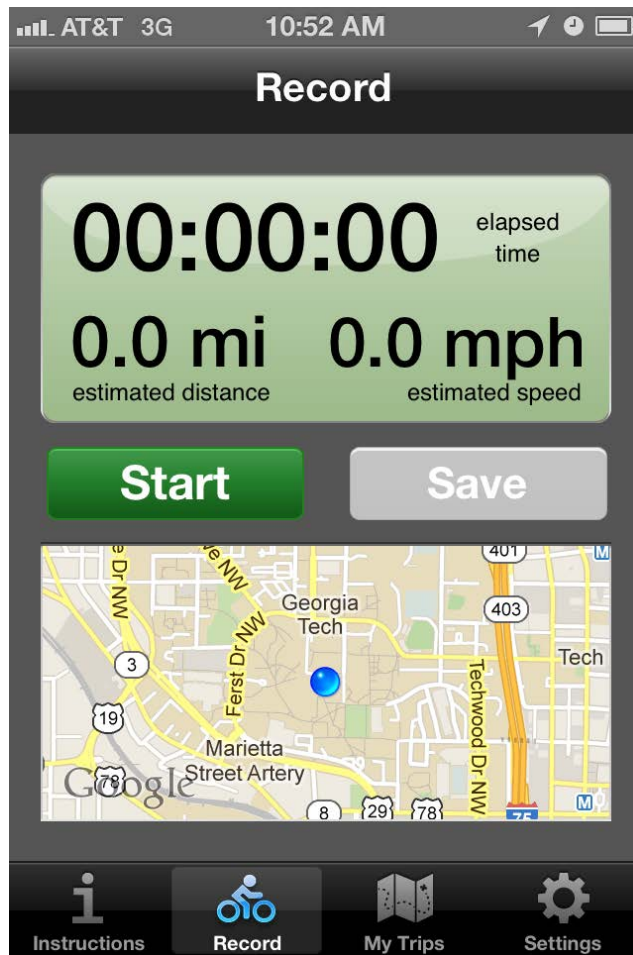
School of Civil and Environmental Engineering

In partnership with

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School Literature, Media, and Communication

Records your bike trips



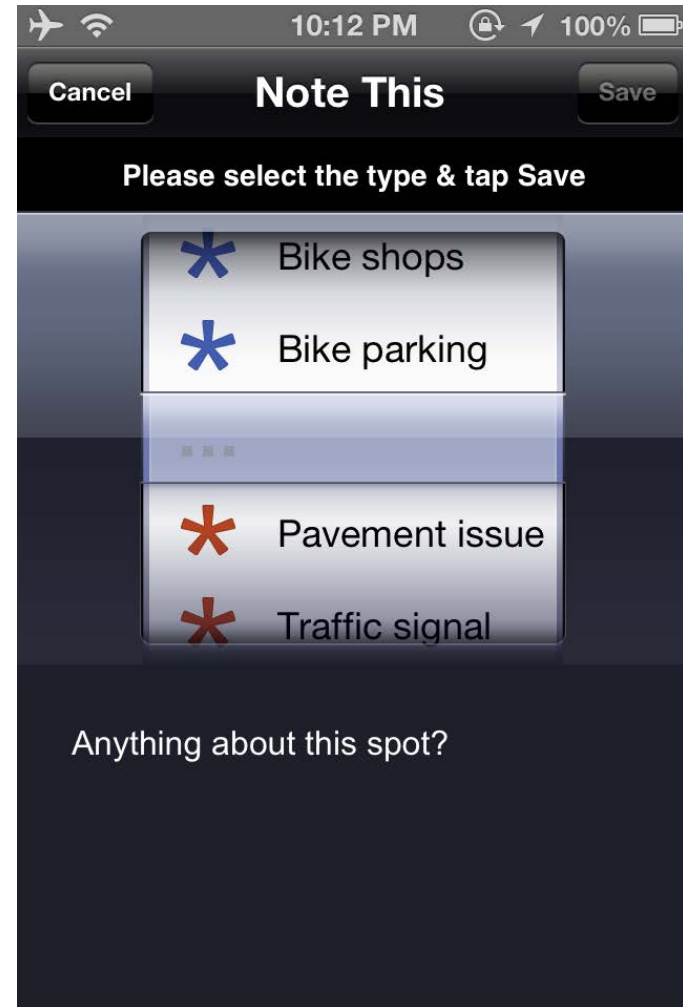
Cycle Atlanta Data Collection Framework: Infrastructure

Assets

- + Bike parking
- + Bike shops or repair kits
- + Public restrooms
- + Secret passage
- + Water fountains

Issues

- Pavement issue
- Traffic signal
- Enforcement
- Bike parking
- Bike lane issue



Cycle Atlanta Data Collection Framework: Demographic

10:17 PM 100%

Personal Info

Save

Getting started with Cycle Atlanta

Tell us about yourself

Age 25-34

Email miss.asad@g...

Gender Female

Ethnicity Other

Home Income Less than \$20...

Your typical commute

Record My Trips My Notes Settings

10:18 PM 100%

Personal Info

Home ZIP 30308

Work ZIP 30308

School ZIP 30308

How often do you cycle?

Cycle Frequency Several times...

What kind of rider are you?

Rider Type Enthusied & c...

How long have you been a cyclist?

Rider History One year or less

Record My Trips My Notes Settings



Rider Type



Strong &
Fearless



Enthused &
Confident



Comfortable but
Cautious



Interested but
Concerned



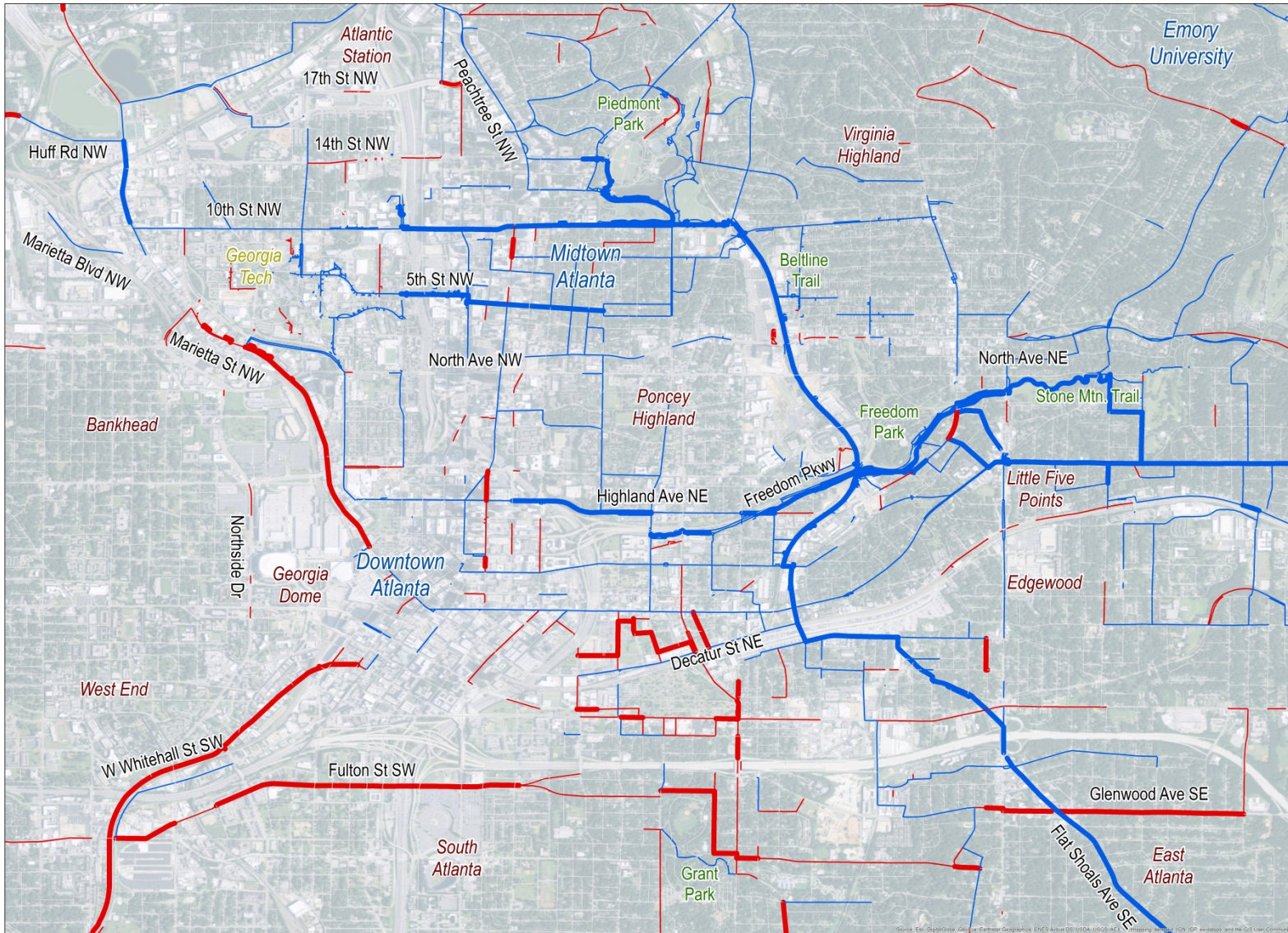
No way,
No How!



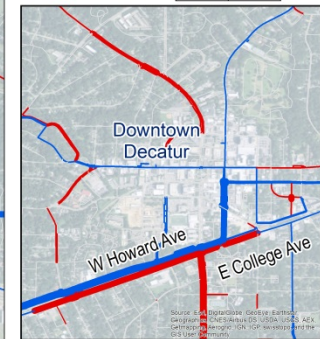
Strava vs. Cycle Atlanta User Route Preferences

AM Commute Percent Variation

- Cycle Atlanta Strongly Prefers
- Cycle Atlanta Slightly Prefers
- No Significant Difference
- Strava Slightly Prefers
- Strava Strongly Prefers



Decatur, GA 0 0.25 0.5 Miles



The variation explains the difference in percent chance that a Strava user would choose a route versus the chance that a Cycle Atlanta user would choose the same route. A thick red line indicates that the road is much more preferable to Strava users than to Cycle Atlanta users.

Each of the two apps allows users to designate a trip as a commute trip. The AM commute for this map is 6AM - 12PM



Decision to chose bicycling as a mode

| Conditions | Strong and Fearless | | Enthused and Confident | | Comfortable but Cautious | | Interested but Concerned | | Significance in difference in mean scores (ANOVA) |
|--------------------|---------------------|-----------|------------------------|-----------|--------------------------|-----------|--------------------------|-----------|---|
| | Mean Score | Std. Dev. | Mean Score | Std. Dev. | Mean Score | Std. Dev. | Mean Score | Std. Dev. | |
| Bike Lane | 3.13 | 2.02 | 3.41 | 2.08 | 3.47 | 2.02 | 3.29 | 1.89*** | |
| Separate Path | 3.00 | 1.98 | 3.39 | 2.09 | 3.65 | 2.08 | 3.72 | 2.00*** | |
| Heavy Traffic | 1.44 | 1.35 | 1.07 | 1.25 | 0.64 | 1.10 | 0.43 | 0.98*** | |
| High Speed | 1.03 | 1.28 | 0.60 | 1.08 | 0.47 | 0.96 | 0.31 | 0.83*** | |
| Safe Routes | 3.06 | 2.08 | 3.08 | 2.12 | 3.04 | 2.10 | 2.78 | 2.10* | |
| Directness | 3.03 | 1.96 | 2.98 | 1.93 | 3.07 | 1.95 | 3.18 | 2.03 | |
| Poor Pavement | 1.57 | 1.31 | 1.42 | 1.21 | 1.20 | 1.25 | 1.11 | 1.25*** | |
| Steep Hill | 2.31 | 1.43 | 2.16 | 1.41 | 1.85 | 1.40 | 1.28 | 1.22*** | |
| Parked car | 2.23 | 1.26 | 2.18 | 1.20 | 1.97 | 1.25 | 1.68 | 1.24*** | |
| Traffic Signal | 2.15 | 1.28 | 2.20 | 1.22 | 2.00 | 1.34 | 1.79 | 1.45* | |
| Attractive Scenery | 2.82 | 1.83 | 2.86 | 1.76 | 2.96 | 1.78 | 2.84 | 1.79 | |

Responses coded as five point Likert scale (Much less likely =1)
 Scores > 3.00 indicate a preference for facility or condition
 *** indicate significance at 0.001 level, ** 0.01 level, and * 0.05 level

Findings

1. Female and senior cyclists are found to be in general low confidence, low comfort riders and they significantly differ in their route choice and infrastructure preference from their more confident counterparts.
2. Although cyclists with more riding experience tend to see themselves as more confident riders, preference for separate infrastructure pervades all rider types, as does the negative influence of high speed and volume traffic.
3. Cyclists are generally found to shy away from longer trips and hence, when faced with the trade-off between a significant detour and safety concerns, they may not make the trip itself.

