

Duke Transportation

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Motivation



Transportation
accounts for
**31% of
overall
emissions**

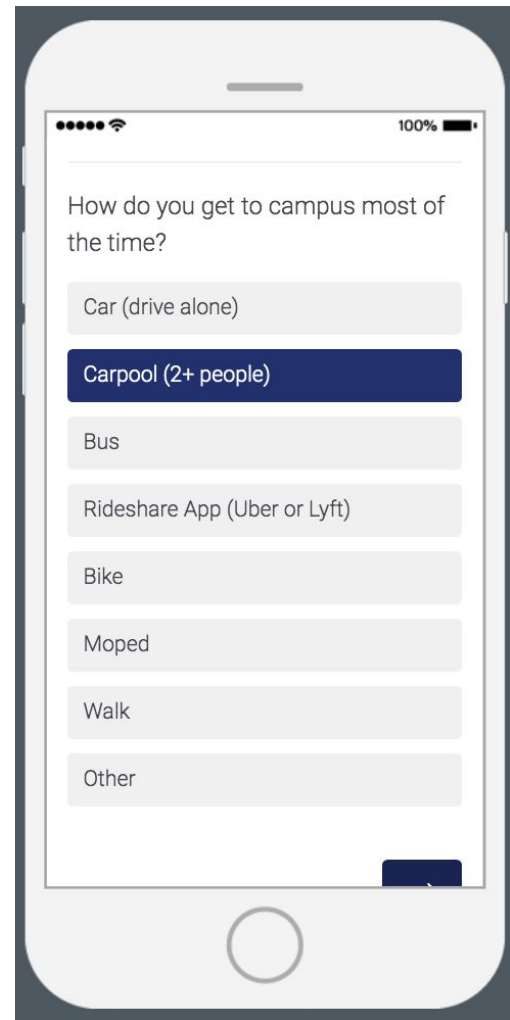


**Lack of
information**
about student
transportation
behavior



No initiatives to
address student
transportation
emissions

Consumer Survey



A smartphone screen displaying a survey question: "How do you get to campus most of the time?". The screen shows a list of transportation options: "Car (drive alone)", "Carpool (2+ people)", "Bus", "Rideshare App (Uber or Lyft)", "Bike", "Moped", "Walk", and "Other". The "Carpool (2+ people)" option is highlighted in dark blue, indicating it is the selected answer. The phone's status bar at the top shows signal strength, Wi-Fi, and 100% battery. A dark blue button is visible at the bottom right of the screen.

How do you get to campus most of the time?

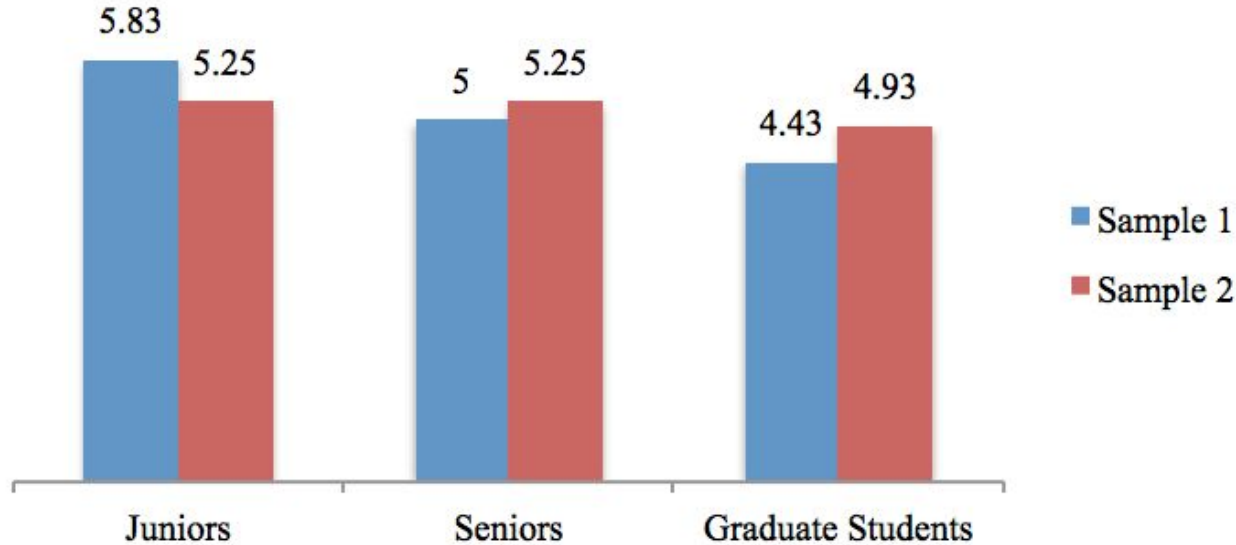
- Car (drive alone)
- Carpool (2+ people)**
- Bus
- Rideshare App (Uber or Lyft)
- Bike
- Moped
- Walk
- Other

36% of
students who
live off
campus drive
alone

27% of
students who
live off
campus take
the bus

Only
10%
carpool

**Graph showing the number of times a week students
get to campus by car**

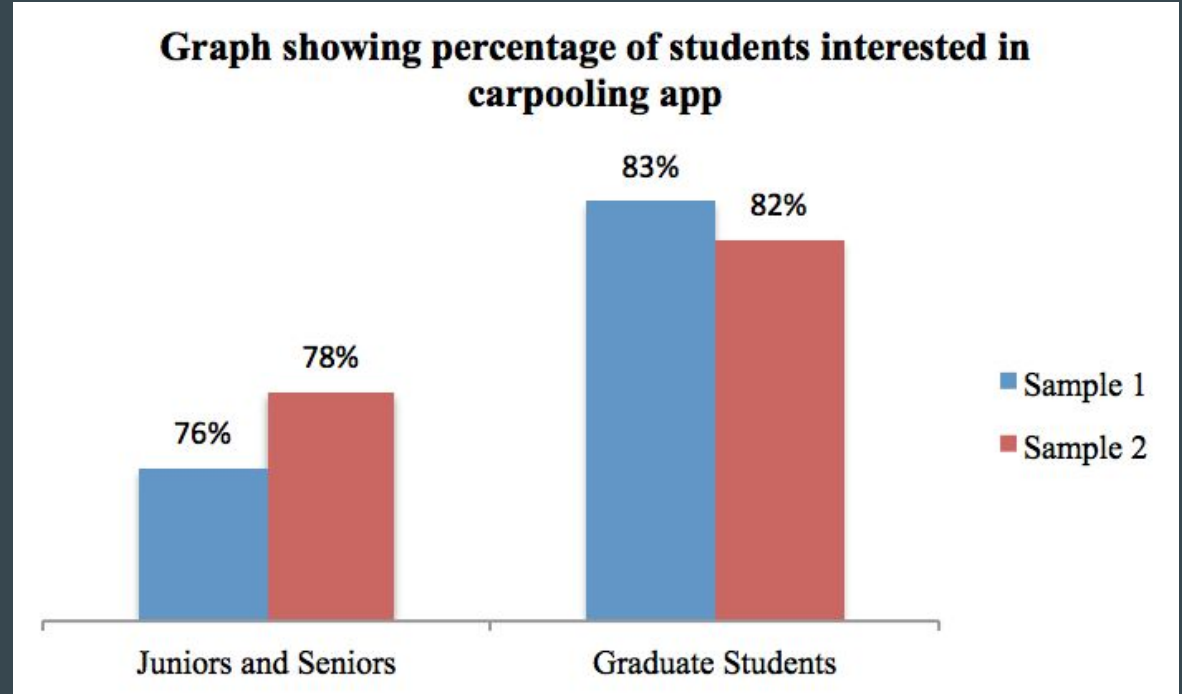


Students
driving go to
campus
5x per
week

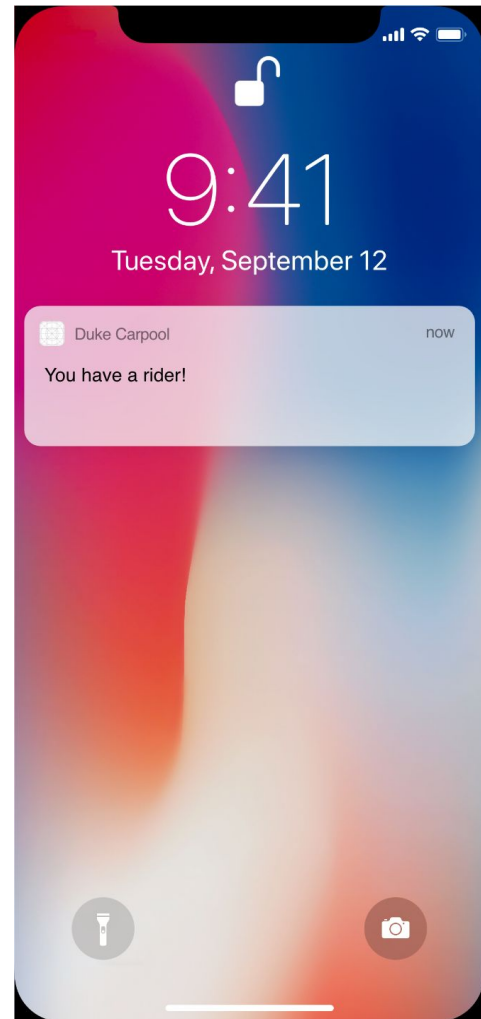
70% of off-campus
students live in high-density
residential complexes

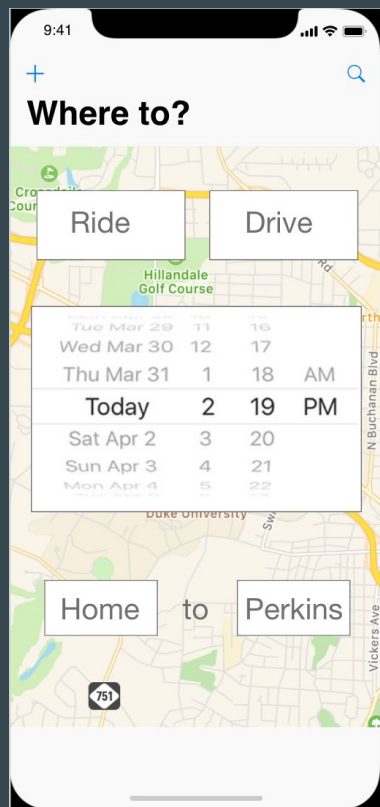


80% of
students surveyed
interested in using a
carpooling app

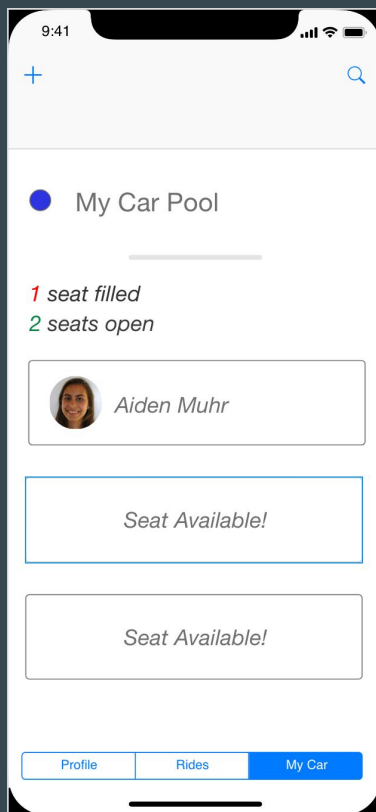


Carpool App

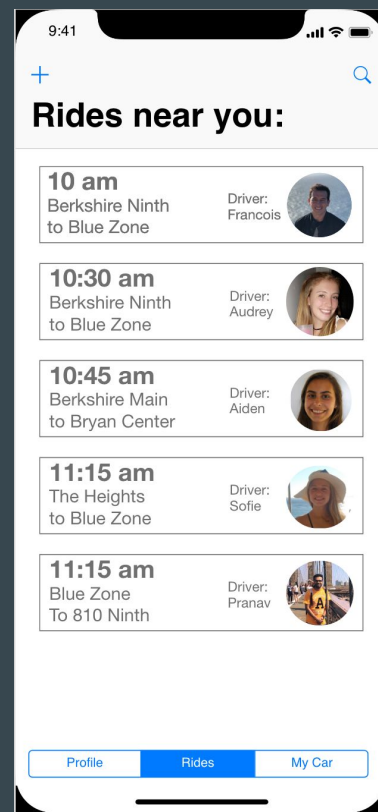




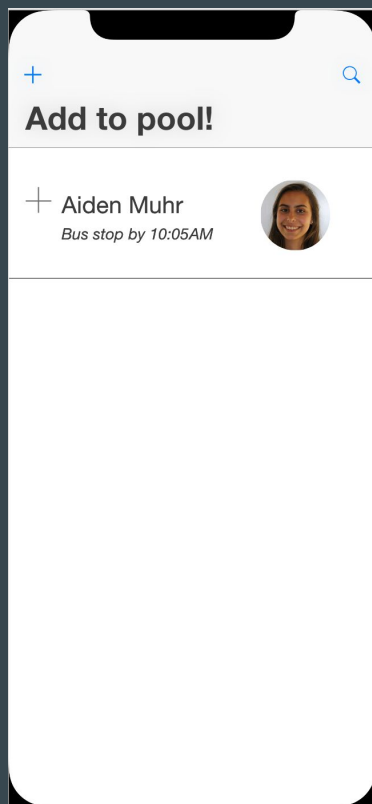
Riders



Drivers



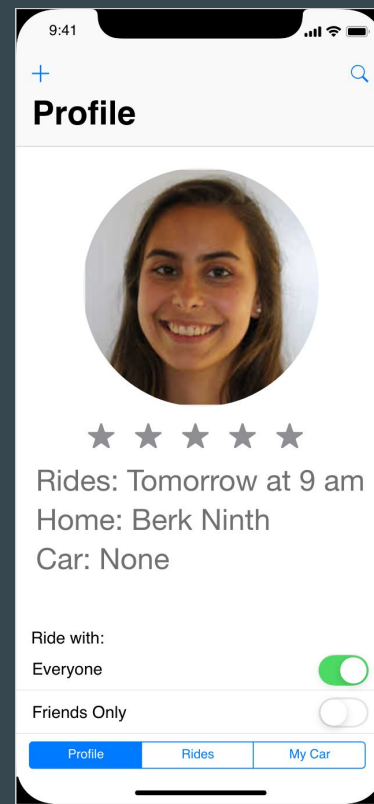
Rate



Filter



Chat



Friends

Incentives

- Refunds on parking passes
 - Based on number of carpool rides
 - Carpool is 3 or more people
- Better parking
 - First 2 lots of Blue Zone



Social Benefits

Safety



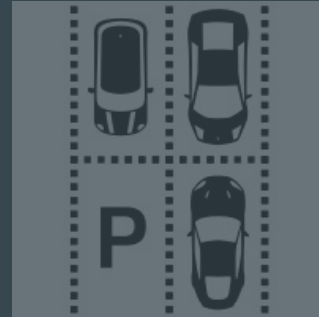
Developing habits



Equalizing vehicle access



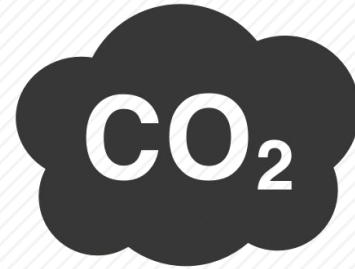
Less crowded parking lots



Environmental Benefit Analysis



78.5 tons



**emitted weekly from
student commuters**

Inputs	
Data regarding student commuting	
Total No. of students driving alone to campus	5470
Total No. of students carpooling to campus	1077
Total Commuting Population	6547
Data regarding trips	
Average No. of one way trips per week (car)	5.5
Total No. of Trips per week	11
Total weeks considered in an academic year	30
Fuel Use	
Carbon Content (lb CO ₂ /gallon)	19.6
Fuel Economy (miles/gallon)	20
Energy Content of Gasoline (Btu/Gallon)	115400

Inputs for Calculating CO₂ Emissions

New mode share
can lead to a
25% decrease in
emissions

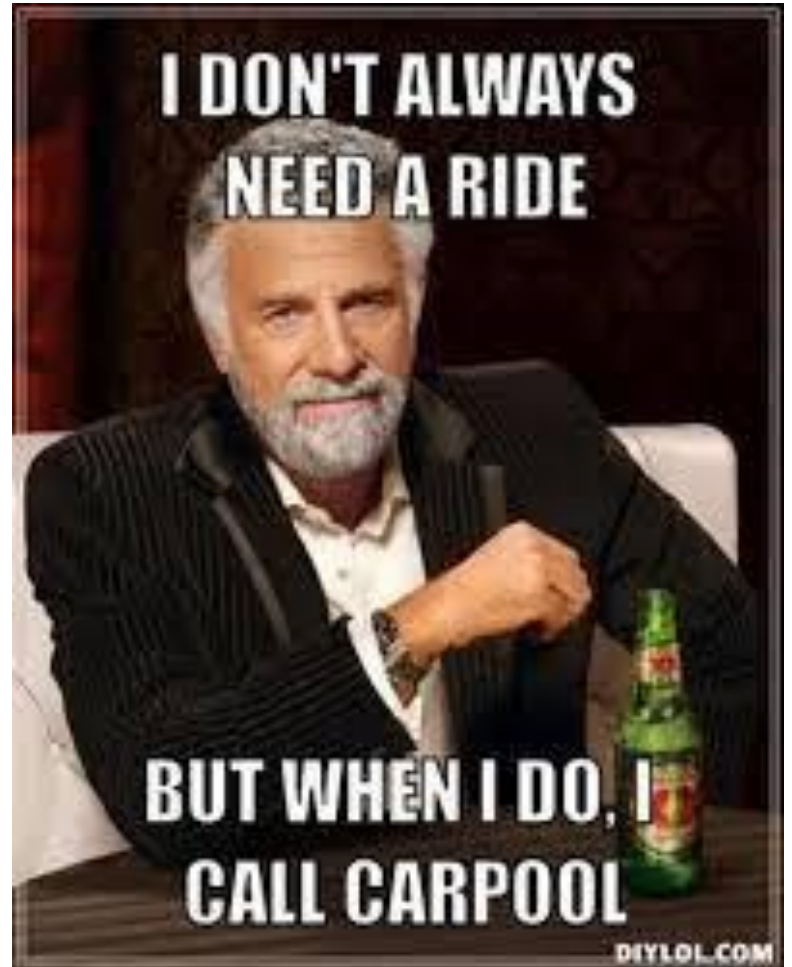


Going forward



- App development
- Coordination with administration on incentives
- Carbon neutrality

Questions?



References

- Duke University Climate Action Plan, 2018 Update
- Duke University Sustainability Office
- Duke University Parking and Transportation
- Duke University Progress Report, 2017