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RUPOOL: A Social-Carpooling Application for Rutgers Students

Introduction

Most climate change policy has addressed long-term options, such as low carbon energy technologies. However, a behavior altering approach can achieve near-term reductions by changing how individuals use available technologies. Because more than half of America's CO₂ emissions come from vehicles, encouraging students to carpool can target this direct source of pollution and encourage continued positive behavior.

Decreasing vehicle emissions, traffic congestion and addressing transportation inefficiency, a university wide car-pooling initiative would positively serve the Rutgers student body. By reducing the number of cars, carpooling or sharing rides with multiple passengers would reduce greenhouse gas emissions and conserve energy. In addition, local traffic may be reduced by the eliminated of some cars from the road. By sharing rides with fellow students, participants can also save money. In addition, carpooling gives students opportunity to meet new friends. By participating, students use a carpooling application called RUpool to support a communal effort to commute sustainably and incorporate environmental practices into their everyday lives.

Addressing Multiple Problems

According to Puget Sound Clean Air Agency, each gallon of gas burned causes over one pound of air pollution, and each year the average car causes over 600 pounds of air pollution. Therefore, the effective creation of an application that encourages students

to carpool will reduce overall carbon emissions from students. In fact, a once a week shift to carpool can reduce a commuter's carbon footprint by 20 percent.

A standard passenger car releases .667 pounds of CO₂ per mile. Therefore, a 3.1 mile trip from College Avenue campus to Livingston campus releases 2.067 lbs of CO₂ into the atmosphere. By carpooling with one other student, CO₂ emissions are reduced to 1.033 lbs. For a compact vehicle such as the Honda Civic, which gets about 30 miles per gallon, this 3.1-mile trip uses .1 gallons per mile. Carpooling with another person saves 0.05 gallons per trip. If the students drive together even just once a week, they would save 1.5 gallons through the course of two semesters. While reducing the financial burden of transportation for these students, carpooling also spares extra gasoline use. Because there are less cars on the road, the application called "RUPool", would innately decrease traffic in New Brunswick and on route 18.

Many students who live on campus at Rutgers complain about inefficient and infrequent transportation on the weekends. Although it would appeal to students, increasing the routes and frequency of buses on the weekends is not financially feasible. Through RUPool, Students are afforded an alternative to taking weekend buses. They can share ride to supermarkets, other campuses, and even to nearby shopping locations.

In addition, RUPool can increase student safety on campus. RUPool can be used at times when busses do not run or in off campus locations. Therefore, students who need a designated driver can utilize it. Students who feel unsafe walking through off-campus locations alone at night can use RUPool to get them home.

Rutgers University has a large commuter population. These students can use the application to find students traveling from the same town or city to Rutgers. Commuting

to campus together would be financially beneficial. A 60-mile daily commute in a two-person carpool saves about \$4,387.50 annually compared to commuting alone. While saving money on gas, commuter students who use RUpool can make connections with other students on and off campus, bonding them to the Rutgers community.

Implementation Plan

The first step is creating the RUpool application that can be downloaded onto students' Windows PCs, Macs, smartphones, or tablets. Through the application, students with cars can register their vehicle and create a profile, which can include a short biography, picture, cell phone number and rating. The student can include a travel schedule or simply provide a one-time route. Students, who wish to carpool for a ride download the app and also create a similar profile or connect using Facebook. When registering, all students must input their Netid and password. The driver enters a departure point and destination, creating a route. The passenger requests a ride by connecting to the app and inputting a desired destination. Using GPS technology, the application matches a passenger or a driver with the same destination or whose route passes the destination. On the application, the driver confirms with the passenger by accepting his/her request for a ride. The passenger can track where the driver is on the route and receive estimates for arrival. Once the trip is complete, the passenger has the option of rating the driver with regards to reliability, appropriateness, and safety. A student registered as a driver can also request rides from other drivers.

Once the application has been developed, RUpool must be marketed to the student body. These low cost efforts will include advertisements in the "Daily Targum" and posters at student centers. In addition, information explaining how to use and what to

gain from application will be added to the MyRutgers webpage. Marketing materials will focus on the environmental, financial, and social benefits of using RUpool.

Advertisements will inform students that the application exists. However, incentives will motivate students to use RUpool.

Incentives

Based on carpooling programs at other universities, incentives are necessary for the success of RUPool. At Princeton University for example, to motivate participation, faculty members who carpool can earn a gas card or oil change certificate. Rutgers students should be motivated to participate in a similar manner. Student drivers who participate in RUPool for a semester can get 10% off the cost of their parking pass for the next semester or academic year. Tracked through the application, the driver and passenger also get a reward point for each successful carpooling trip. These reward points can be redeemed in a variety of ways. One option is to allow students to use points toward claiming a student ticket for an athletic event, such as a football game. Another option is to allow students to change their reward points to RUexpress money. Fifty reward points can be traded for 5 dollars on the students RUexpress account. The reward point system also creates an element of competition. Like a game, students can be motivated to earn more points by using the RUpool app as a driver or passenger.

As the application gains in popularity, the University will offer reserved parking spaces for carpooling participants. Two to three spaces in high traffic or commuter lots on all five campuses will be reserved for students with a parking pass who use RUpool. To be most effective, spaces should be located in desirable locations like near building entrances. Marked reserved spots send a message to the student body that the University

supports carpooling. They are also physical reminders of the existence of carpoolers and add validity and merit to RUpool.

Costs:

Creating a complex service application with the aid of a design and coding company can cost around \$50,000 dollars. (Astegic.com) However, with the aid of the Rutgers computer science department, students can be selected to work on the project for a significantly lower fee. Supported by faculty, the students will receive some monetary compensation and the experiences of developing an application catering to their university. Although particularly low, other costs will include those associated with providing carpoolers with discounted or free parking and the designating of preferred parking spaces for carpoolers. Also, a proportion of budget will be put towards offering monetary rewards or prizes to participating carpoolers. Finally, funds allocated toward low cost advertisements will aid in informing students about RUpool.

Viability

RUpool can only be successful if it ensures the safety of the passenger accepting a ride from a stranger. Therefore, the app will require students to input a “Netid” and password while registering. This will eliminate non-students from utilizing RUpool. Users also have the option of register their Facebook account to the application. As a result, passengers can access their drivers Facebook page and add to their comfort with the driver. The ratings from previous student passengers also offer insight into the driver’s safety and pressure RUpool drivers to behave well to earn positive ratings.

Conclusion

Decreasing vehicle emissions, traffic congestion and addressing transportation inefficiency, a university wide car-pooling initiative with a RUpool application would

positively serve the Rutgers student body. Pioneering in carpooling using an application will reflect well on the Rutgers University and can influence other universities to follow its lead.

Work cited

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