

The Energy Contest Cover Page
Rutgers New Brunswick Undergraduate Students
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Proposal Title:

RU New to Eco-Friendly Transportation

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Proposal Summary

The RU New to Eco-Friendly Transportation consists of a multiyear process to introduce two new forms of transportation to this university. Those two methods include a purely electric-powered monorail system and a series of bike lanes. Both will provide easy access for students to each campus without the distraction of local roads and traffic. The monorail track itself will supply a shelter for the bike lanes that will be installed underneath. To ensure the use of these lanes, Rutgers will promote a bike sharing system. This system has been around for dozens of years as it is utilized mostly in Europe and has shown to be effective. These bike sharing rental stations will be located on each campus and only be exclusive for students and faculty. With the introduction of these two methods, the use of busses will be minimized.

Introduction

A problem amongst the Rutgers community which could be altered to become more efficient is the transportation. Rutgers holds one of the largest student bodies in the United States; therefore the transportation is a crucial element in the everyday life of a Rutgers student. Rutgers University includes four campuses, two towns, and fifty thousand plus students to manage. Rutgers Campus Busses support around six million commuters annually. This is about seventy thousand people a day. Without these busses, Rutgers would not be able to operate as a campus and a university. There are about fifty busses within the Rutgers fleet that all must be kept up and maintained properly. Rutgers uses the services of First Transit who supplied these new busses that we see today. The number of busses can be a lot lower than it is now and it starts by creating more eco-friendly transportation for students and faculty. There are alternatives to a system purely based on bus routes and those alternatives consume little to no energy at all.

Plan

I plan on proposing a project that introduces a whole new method of transportation here at Rutgers that's able to surpass the use of busses all together. After recently visiting West Virginia University I witnessed their monorail system in action. I figured why can't Rutgers use the same system? West Virginia is very similar to Rutgers as they too have a large student body that's in need of transportation. The use of a monorail can decrease the amount of busses and increase efficiency with energy and travel time. They are purely electric and require little to no fuel to operate. The better the monorail system works will ultimately create fewer busses that will be needed on the streets. Travel periods will be right on time instead of being affected by traffic especially during rush hour time periods. The idea of the monorail here at Rutgers can supply those fast travel times between all the campuses. Monorails between the campuses will show to be the most effective and cost efficient years down the road. Even though the cost to maintain a bus fleet here at Rutgers University was unknown in my research, I am determined that the utilization of monorails will eventually pan out the cost deficit years down the road. Monorails can be implemented on individual campuses if the budget allows it. To even go further with the idea, bike lanes can be installed beneath the monorail system to supply easy access for students on bikes without the distraction of cars and street lights. The monorail track itself would supply a covered bike lane so students are able to travel on bikes in all the elements. Furthermore, bike rental shops can be stationed on each campus to supply the option of bicycles for all students without the burden of owning a bike. This would create a bike sharing system here at Rutgers. Similar to the bike rental methods they use at the Jersey Shore and over in Europe can be applied the very same way here at Rutgers. If these methods can be applied effectively then busses will be of little to no need at Rutgers for future generations.

Monorail System Cost/Benefits

Monorail systems have been around for decades and only seem to improve as technology to power them has only improved in time. Monorails began with the use of coal and steam for power and soon evolved into electric powered motors we see today. Although the cost of electric power ranges on the size of the system, the cost to operate the system will be substantially lower than the cost to operate Rutgers' bus fleet. In Morgantown, it was projected to cost the university around fifteen to twenty million dollars to create the system but eventually ran the institution around 130 million when everything was all said and done. In comparison to Rutgers' campus, I'd predict around the same price to create such a system because Morgantown is similar in size and student body. An estimated sixteen thousand commuters utilize West Virginia's system every day. If sixteen thousand commuters were taken out of the equation here at Rutgers, that would reduce the daily bus fleet size by roughly twelve busses. In turn, the money needed to operate, maintain, and fuel twelve busses will be a thing of the past. Even though Morgantown's system ran over budget, designers agreed that the system is reliable and inexpensive to operate. Arrival times have been on-point and there has yet to be any record of injury or death.

Bicycle Sharing System and Bike Lane Cost/Benefits

A bicycle sharing system here at Rutgers will encourage the use of more eco-friendlier ways of transportation. The use of such a system will eliminate congested traffic and reduce the amount of pollutants in the air. Furthermore, designated bike lanes will be installed beneath the monorail system to ensure a sheltered ride in all forms of weather from campus to campus. A sheltered ride will ensure an active system all year long. This would also ensure a safe ride for students without the distractions of cars and pedestrians. Rutgers wouldn't be the only university to promote a bike sharing system. This has also been done at the University of California through

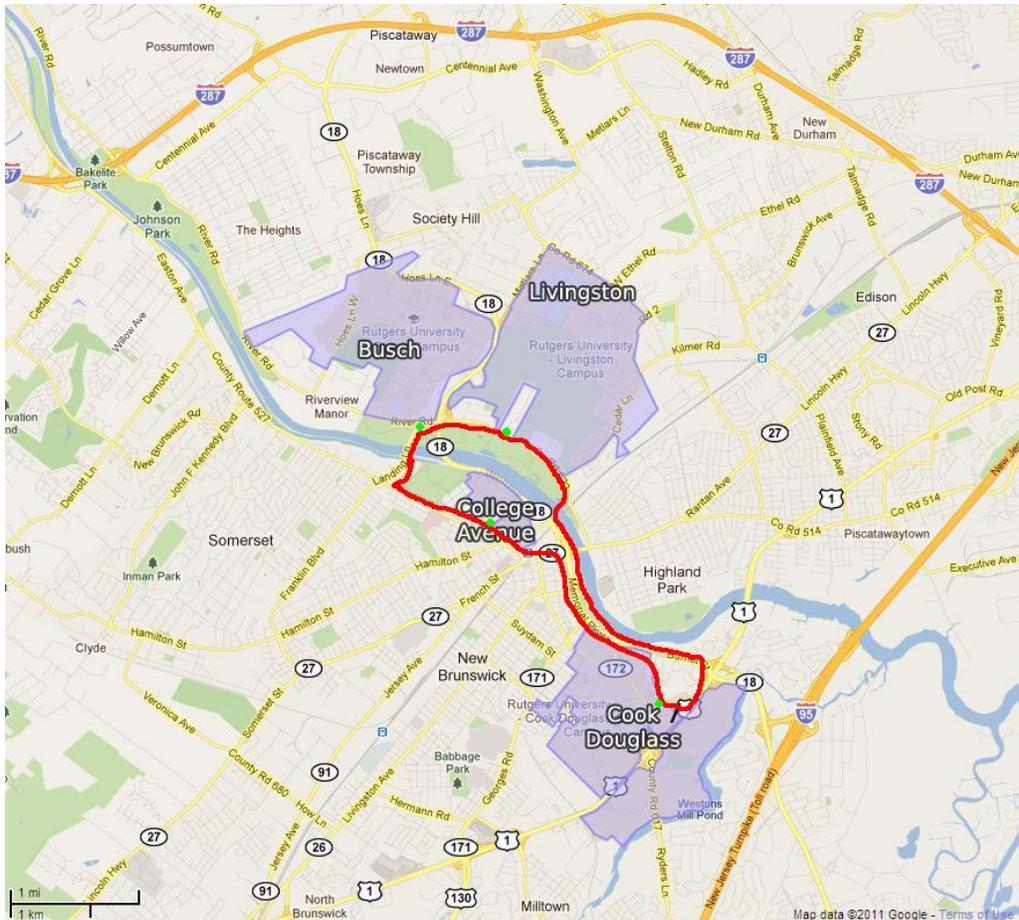
their *Zotwheels* program. Students who utilize this program pay an annual cost of forty dollars to have the freedom to use bikes whenever they desire. The same program can be introduced here at Rutgers. At first, fees might be necessary to help support the bike and monorail system budgets, but this is something that I would like to see as being free for students in the future in order to encourage more eco-friendly practices. The only time students would be penalized for using the bikes is if they were ever lost or stolen. Again, the price to introduce such a program is unknown at the moment, but the use of a bike sharing system will further diminish the need of busses.

Conclusion

Transportation is the bedrock that sustains the university's size and effectiveness. Without the complex bus system we see today, Rutgers wouldn't be nearly as effective therefore transportation is the key to this university. With expansions in both campus and student size in recent years, Rutgers is going to need more efficient, cleaner ways to transport the student body for future decades. Yes, it is a pricy and lengthy process as the cost to build the line in Morgantown ranged around 130 million dollars when completed, but Rutgers has the money and resources to establish a system eventually. Rutgers is the perfect candidate to introduce such transportation methods. If we can start planning for it now, the payoff will remain at Rutgers for all the future generations to come. Instead of encouraging students to change their behavior by introducing recycling methods, the monorail and bike lanes will change their transportation habits through force as opposed to wants. It's the only way we can ensure an eco-friendlier way to travel for all students, not just students who choose eco-friendly methods. If we introduce this now then we can change the norms for transportation without the student body even realizing it.

Projected Monorail/Bike Lane Route

- Red- Route
- Green- Stops



http://theplaza.rutgers.edu/images/plaza_map_campus_large.jpg

References

Rutgers Busses: <http://rudots.rutgers.edu/campusbuses.shtml>

Monorails: <http://en.wikipedia.org/wiki/Monorail>

Morgantown Personal Rapid Transit:
http://en.wikipedia.org/wiki/Morgantown_Personal_Rapid_Transit

Bicycle Sharing System: http://en.wikipedia.org/wiki/Bicycle_sharing_system