

31 Green Modes of Transportation for the Delivery of Fast Food in Connecticut's Mixed-Use Developments- Peter Miniutti

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Summary:

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Project Overview

With air pollution continually rising and fossil fuel supplies dwindling, the use of the automobile in American society is becoming more and more difficult to sustain. The issue has gained prominence, but productive solutions are difficult to come by, and even more difficult to fund. As members of academia, we have the opportunity to research alternative modes of transportation with funding from various granting agencies. By doing so, a new strategy could be developed before our increasingly outdated systems crash. The University of Connecticut's Center for Transportation and Urban planning (CTUP) is providing much needed help and funding for such research projects.

The Green Modes of Transportation in Connecticut's Mixed Use Developments grant provided by the CTUP promotes their work towards implementing smart growth transportation principles as well as interdisciplinary cooperation. The 'delivering green' study is a research endeavor which professors at the University of Connecticut (UConn) have undertaken as an idea-to-implementation project. The case study focuses on the food delivery sector of Downtown Storrs (a commercial center on the UConn main campus); reviewing the existing practices and investigating potential alternative systems. Currently, the Downtown Storrs food delivery service generates anywhere from 136-272 deliveries per day; on some of the busiest days topping 1000 delivery trips. With this highly utilized system relying on privately owned cars and trucks, this sector contributes approximately 100,332 lbs of carbon emissions each year. → This study theorizes that the use of zero/low emission vehicles such as pedal bikes or electric cars for deliveries could have a significant impact on the carbon footprint, without compromising the quality of delivery services.

The case study of Downtown Storrs' food delivery was a joint effort between professors and students from the University of Connecticut. Their expertise include graphic design and communication, business management, transportation and environmental engineering, and landscape architecture. Each team member contributed toward the project in a unique way, together designing a sustainable food delivery system for Downtown Storrs.

Communication Design

The graphic team designed a range of logos for the project which could be used in marketing strategies to raise awareness of environmental impact among the food delivery clientele. Various applications of logos were also explored including display at bus stops around campus, clothing of the delivery personnel, and decals on the delivery vehicles themselves. With these preliminary explorations completed, the logos were then analyzed through survey of students on the UConn

campus. Students were surveyed in a two-step process. They were first shown a selection of logos and asked to respond to what they saw without any prior knowledge of the project. This served to identify which logos would most likely convey the appropriate message to those seeing it displayed around campus. For the second portion of the survey, the project was explained to the same students, who were then asked to respond to the logos based on visual appeal and message clarity. The responses were tabulated --and the feedback used to further develop the various logos into a smaller set from which the team leaders could choose a graphic representation of the project.

Business Management

The business management group performed an analysis of the existing business models and potential application of low emission vehicles in the delivery sector. Business owners were in found to be apathetic towards issues of sustainability, but were aware of the importance of 'green practices' in the eyes of their clientele. As an opportunity to improve their marketability, businesses were willing to consider participation in a 'green' delivery system if it were cost effective. However the implementation costs t intimidated most business owners, outweighing the perceived benefits of a 'green' public image. The main issues were the small scale of the businesses making capital for such a project scarce, and the fact that the current system costs very little; investment ends with the hourly wages paid to the drivers, and in some cases an insurance policy. The vehicles used for delivery are owned by the delivery personnel, mostly college students working their way through school. Thus the investment costs of obtaining low emission vehicles were prohibitive to business involvement in a new delivery system. As a potential solution, the model of a third-party delivery service was explored, and is seen as an effective alternative for the Storrs Downtown/UConn campus area. The delivery service would be built using low emission vehicles, and local restaurants would pay into that service instead of their own drivers.

Transportation Systems

Using GISystems technology, the transportation group analyzed delivery quantity and destination factors to determine the most efficient route management and vehicle selection methods for a delivery service to utilize. Based on a scenario of one, two and three item deliveries, it was found that by using gas efficient vehicles the delivery sector could eliminate 119,686 lbs of carbon emissions each year relative to the carbon emissions of the same trips utilizing standard fossil fuel vehicles. The use of pedal bikes is the most fuel efficient method, however concerns of speed and manpower indicate that their use may be limited to on-campus dormitory delivers. Looking beyond which vehicle is chosen, the studies show that it is essential to maximize the number of deliveries per trip to create an efficient and sustainable delivery system.

Landscape Architecture

As project managers, the landscape architecture group worked on the various aspects of the project with the individual groups, coordinating efforts and assisting with research and graphic production. The work to date on this grant project is a prime example of the benefits of interdisciplinary teams to the advancement of sustainable transportation systems. By working with all groups concurrently the group was able to guide the research into the needed areas in order to produce information for sharing between disciplines; ensuring that each group had the data necessary to complete their work. The unique melding of experience with both graphic representation, land use and circulation relationships, and management allowed the facets of the project to coalesce into a new business strategy for the food delivery sector.