Theodore Kim

URB 3874 – Sustainable Transportation

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**Question 1:**

Sustainable transportation is a concept with no single definition that satisfies it complexities. Any transportation system must address the primary goal of transportation in general: move people from point A to point B. However, sustainable transportation systems must address the needs of all of its involved parties. From a user’s perspective (i.e. the traveler), this process must be done with as little economic cost (economic costs include time, capital and personal comfort) as possible. From the perspective of a public municipality or private corporation their implemented transportation systems must similarly be cost effective to build, effective enough to attract users (i.e. fulfill their economic needs), and efficiently move as many people as possible for the lowest possible cost (hence “mass transit”). Finally, sustainable transportation systems take into account the needs of future users by providing a system that is designed with its environmental, social and economic future impact in mind. In other words, sustainable transportation means to develop a system that *is in fact* sustainable.

With this idea of the “sustainability of transportation” in mind, an analysis of the Uber’s plan for its “Elevate” flying taxi service proves that it does not take into account all possible perspectives, but rather caters to a narrow range of services and factors in urban transportation without taking into accounts its possible environmental and socio-economic implications. Particularly, Uber Elevate may lead to decreased urban density, economic stratification, increased environmental pollution. For the sake of the argument presented here, operator and vehicle safety will be assumed to be mitigated by future technological advances in areas such as air traffic control and air propulsion systems.

The history of transportation has been the story of being able to travel “further, faster,” from its origins in pedestrianism and horseback, to the current high speed rail and aviation technologies. As a result of advances in transportation technologies, cities have grown wider and less dense as resident were able to travel further from their place of work to their place of residency. Whereas the wealthy used to live in the city center, as transportation technology developed, they moved farther and farther away, leading to the development of urban sprawl and suburban neighborhoods. As we’ve seen with the development of private automobiles and highways, introducing these technologies into society without any sort of sustainable forethought has resulted in problems like pollution, congestion, and socio-economic rifting. The same can be applied to Uber’s service. Uber’s flying cars would enable the development of far flung suburban districts. Without the need of the development of permanent infrastructure like rails or roads, such sprawl would be developed at even greater rates. Imagining such air-taxi based suburbs could end up looking similar to the modern aerotropolis: a community centered around its air taxi port.

Given that the service would be initially accessible by the wealthy, such urban sprawl would stratify society into those who could afford to fly into work daily and those who couldn’t, creating ultra-wealthy (or upper middle class) enclaves. Private enterprises like Uber and Lyft who would be operating these air taxis and, by extension, the cars which would take those individual between the airport and their place of work, would receive the majority of investment, while public modes might see decline as was seen with the rise of the automobile and the decay of the New York City subway in the 1970s. Gentrification would most likely take place around the newly establish airport whereas the remaining “fly-over districts” would see economic decay and be inhabited by those who could not afford such a luxury. Urban transportation systems would be stratified and lead to socio-economic disparity.

Finally, the environmental footprint of transportation systems make up over 20% of the carbon emissions in the United States. While many systems’ carbon footprint benefit from increased ridership density, Uber’s service would be providing yet another low-density, and high emissions travel option which would draw more usership than greener alternative as a result of its speed and luxury. While current airplane emissions can be justified by their infrequent usage (compared to other modes), Uber’s service would become a daily expenditure of greater air pollution (if not directly by its engines, then indirectly by its electricity consumption).

An immediate mitigation of these issues should be an implementation of a local tax to be added to the price of trips which would allow money spent by the upper class on luxury transportation to be reintroduced into private transportation system development (such as the subway or buses). Moreover, adding a surcharge would reduce ridership and therefore emissions, and force companies to try to lower their base cost by improving the technology and service to a point in which widespread usage would no longer be harmful. Furthermore, having local municipalities run and maintain the airports in which these taxis dock would add to their ability to manage the socio-economic impact of their placement allow them to pair it with smart urban planning and development such as public transit access. Finally, placing limit on continuous flight distances would reduce the resulting urban sprawl as it would prevent reductions in urban density.

**Question 2:**

The biggest problem facing dockless bikes are security. In other words, prevent bikes from being stolen and dumped into the streets, sewers, or elsewhere. Dockless bikes are beneficial as they require less system maintenance or infrastructure investment, however, as with any cycling environment, the city should be prepared to make investments in its streets to encourage biking amongst its residents and the utilization of its dockless system.

To improve dockless bike security and placement, local municipalities such as New York, should be prepared to pass regulations on their use and placement within the city. Unregulated, users of the system may just stack bike in the center of Columbus Circle, rather than find a more appropriate place to leave them for the next user. Having dedicated “drop zones” (not like docks, but rather reserved bike mounts) where the dockless bikes can be returned would be an ideal system, but may be seen as opposite of the service’s goals. Instead, the city may require the operating company to maintain active tracking and relocation of their bikes, or mandate them to change their policies to encourage individuals to return bikes in an appropriate manner (some sort of fine for misplaced bikes). Implementing regulations to fine individuals who mistreat bikes is an alternative approach, which could be paired with tracking within the service (requiring users to associate a driver’s license with their registration so that they may be identifiable).

The second step to promoting a dockless bike system is to improve biking conditions in the city and encourage individuals to utilize the bike share program. The best way to do so is to construct dedicated bike lanes, as have already been done throughout much of Manhattan. However, continuing that developing into the outer boroughs and making increased effort to connect cycling lanes (as many lanes end and restart suddenly, especially in the outer boroughs). Adding more bicycle mounts to safely lock bikes may also improve the usability of the service as well. Finally, passing legislation to heavily penalize cars for obstructing cycling lanes would also incentivize cycling for the average commuter who may see it as too inconvenient currently.