Research Notebook

Source 1:

Research Question: How do people commute in urban areas?

Database/ Search Engine: Google Chrome

Search Terms: "Mode of transport", "Urban"

Citation: Brunner, H., Hirz, M., Hirschberg, W., & Fallast, K. (2018). Evaluation of various means of transport for urban areas. Energy, Sustainability and Society, 8(1). https://doi.org/10.1186/s13705-018-0149-0

Summary: Transportation use is characterized by different technologies depending on usability, infrastructural requirements, and environmental impacts. The most common criteria are energy demand or fuel consumption. About 70% of motorized individual passenger transport (MIT, car + 2 wheelers) is in cities or congested areas. Most energy demand for individual mobility is met using crude oil-based fuels. Some factors influencing transportation include space demand in parking and fluent traffic, space demand and the costs of energy supply infrastructures, traffic safety, and noise. There are 3 types of mobility: micro-mobility, motorized individual passenger transport (MIT), and public transport. Micro-mobility addresses individual transport over short distances with relatively low transportation demand and includes walking and the use of small and lightweight human-powered or electric-driven vehicles: bicycles, e-bikes, small scooters and other single-person vehicles. MIT includes the use of powered two-wheelers (PTW), small urban cars and passenger cars of different size classes. 77% of the world's 313 million PTW can be found in Asia. Public transport includes buses, trams and metros. The lowest energy consumption values can be determined for the use of bicycles and small electric-driven vehicles. In urban areas, space requirements are especially important. Other factors include resource demands, climate change, and fuel consumption. Using the data in the study, the best outcomes are achieved by human-powered modes of transport: walking and bicycle. The use of passenger cars, either fuel or electric driven, results in the lowest values. Overall, the combination of micro-mobility and public transport can be used to achieve maximum sustainable urban mobility.

Source 2:

Research Question: How to reduce car usage in urban areas?

Database/ Search Engine: Google Chrome

Search Terms: "Car Usage", "Urban", "Reduce"

Citation: Mackett, R. L. (2012). Reducing Car Use in Urban Areas. Sustainable Transport for Chinese

Cities, 211–230. https://doi.org/10.1108/s2044-9941(2012)0000003012

Summary: Car use has increased over the past 60 years, bringing mobility to its owners but also environmental damage and congestion. In Britain, there were 58 million passenger kilometers traveled by cars, vans, and taxis in 1952. This grew to 685 million passenger kilometers by 2007 with a mean annual growth rate of 4.6%. Cars offer several advantages: door-to-door travel, flexible timings, relatively low travel times, the low marginal cost of trips, comfort, and an indicator of social status. However, there are several disadvantages: use of resources, including fossil fuels, either directly or by conversion to electricity, and land; pollution including tailpipe emissions, noise, and visual intrusion; carbon dioxide emissions which affect climate change; congestion which leads to the unreliability of journeys and excessive travel times; casualties; social inequity: alternatives need to be provided for those without access to a car; and decentralization of urban areas. Cars benefit individuals while costing indirectly to members of society. Reducing urban car use requires the need to know the number of parking spaces. This is difficult due to the private parking areas that have been built. It is difficult to implement car policies as many car users would oppose them. Reduction of car usage would reduce congestion, atmospheric pollution, and CO2 emissions, but the benefits of the car to the user make this politically difficult. It was politically easier to improve public transport to compete with cars. One example to reduce car usage is through the Step2Get initiative by Transport for London and Intelligent Health which incentivizes children to walk to school by using swipe card technology, online gaming, and rewards which have increased walking to school by 18%. The second example is the introduction of bicycle hire schemes in major cities such as the one in London. There are many ways to help bring about travel behavior change: control of car parking, charging for the use of the road, fuel pricing, soft travel measures, making the alternatives to the car more attractive, alternative methods of accessing the car, and reducing car use through planning. Though many schemes have been introduced all over the world, there is little hard evidence based on systematic studies to prove this. The increasing motorization is contributing to increasing obesity in China. In Britain, many of the initiatives aimed at reducing car use have focused on reducing congestion rather than on the concept of reducing the number of car trips.

Source 3:

Research Question: Why do and how to change people's commuting habits?

Database/ Search Engine: Google Chrome

Search Terms: "Change", "Commuting", "Habits"

Citation: Clark, B., Chatterjee, K., & Melia, S. (2016). Changes to commute mode: The role of life events,

spatial context and environmental attitude. Transportation Research Part A: Policy and Practice,

89, 89–105. https://doi.org/10.1016/j.tra.2016.05.005

Summary: Commuting behaviors become habitual and only change with major life events. People that walk, cycle, or use the bus usually change their commuting mode by the following year. Car commuting is more stable; only 1 in 10 car commuters change their commuting mode by the following year. These changes are driven by alterations to the distance to work which occur when changing jobs or moving home. More people usually change to non-car commute (9.2 times more likely to change) when the distance to work drops to below 3 miles. It is 1.3 times more likely for people with a pro-environmental attitude to change to non-car commuting. Urban planners have an interest in how urban form influences travel behavior and look more broadly at the influence of the built environment on commute mode choices. In a study involving commuting behaviors of 655 workers from Cambridge, they found uptake of walking to work was associated with not having children, perception of convenient public transport and lack of free workplace parking. The uptake of cycling to work was predicted by the perception of convenient cycle routes and more frequent bus services. The British Household Panel Survey 2007 showed that 17.6% of commuters changed modes between years. People commuting by car was usually associated with birth of the first child, changing employer, and separation from a partner (one year before the commute mode change). Overall, people changed commuting modes due to the influence of life events, changes in transport systems, changes in transport costs, and information and marketing interventions. There has been increasing recognition that some behaviors such as travel behaviors, are habitual and are not deliberated over each time they are performed. Results from the data show that people tend not to maintain non-car commuting for very long and once they have started commuting by car, they tend to remain car commuters. They usually changed their mode of transport due to life events, changes in distance to work, and contextual changes. Study shows that an increase from two miles or less to at least two miles increases the likelihood of switching to car by 30 times, while a decrease from three miles or more to less than three miles increases likelihood of switching to non-car commuting by only nine times. These changes occur either when moving home or changing employer which are frequently experienced events and are therefore of great significance for commuting.

Project Reflection:

Research Activities:

Before starting the research, I believed that there was tons of information and studies done on commuting and its associated behaviors; however, during my research, I found out that even though there were multiple studies done, most were quite unreliable and hadn't been proven to be successful. There were policies in place to affect commuting behaviors, such as reducing car use or causing people to change to non-car commuting modes; however, the impacts were small and usually unsuccessful. As I knew, most people preferred cars or other motorized vehicles; however, it was interesting to research how commuting could be related to becoming a habit and that people were less prone to change to non-car commutes.

All of this could suggest that we might need to focus on incentivizing people to use non-car transport through upgrading public transport, which would help them to compete with cars, finding ways to educate them, add more green spaces which would allow people to enjoy the view and through transport costs. Along with this, research would need to done on understanding how to increase pedestrian walking alongside reducing car usage. We might also need to research case study specific data to understand the problem that we are find a solution to.

Some questions that may arise are how willing would people be to change to pedestrian walking, especially when the commuting choices are habitual and how would the geography and geology of the location impact this decision? In order to address this, we would need to look at our specific place, depending on our case study (currently, it is Worcester; but, it I subject to change), and do some library

research about our location and maybe, even some historical insight to understand the culture of our case study to make informed decisions on how people might react to our solutions.

Our Work:

I have really enjoyed about researching about people change decision on commuting choices based different stimuli given to them. I believe that I have a good grasp of the information to get us started on our project. Moreover, I have been able to apply all my research skills that I developed last term to this project which made it easier to find credible sources.

Our teamwork quite good and we have a shared OneDrive which allows us to individually track the progress that each team member has made to the project. We are also able to easily communicate using Messages and have tried our best to distribute work equally and allow people to focus on parts that they would prefer to work on. Though I have procrastinated quite a bit throughout the journey so far along with the work from other classes, I have been able to work to the deadline and finish by or before that specified deadline. I also made sure to hand in work that is good quality. So far, we haven't had any team meetings outside class; but I have attended all classes and made sure to know about what is going on.