Research Notebook

Source 1:

Research Question: How safe is Worcester and is it different for gender groups?

Database/ Search Engine: Google Chrome

Search Terms: “Safety”, “Worcester”, “Spatial Analysis”

Citation: Ogneva-Himmelberger, Y., Ross, L., Caywood, T., Khananayev, M., & Starr, C. (2019). Analyzing the Relationship between Perception of Safety and Reported Crime in an Urban Neighborhood Using GIS and Sketch Maps. ISPRS International Journal of Geo-Information, 8(12), 531. https://doi.org/10.3390/ijgi8120531

Summary: Research has found that people tend to believe that crime is increasing even though the crime rate is decreasing. This fear of crime isn’t negative up to a certain point; however, after this point, there could be consequences such as increases in physical (vacant buildings, broken windows, trash, abandoned vehicles) and social (panhandling, loud neighbors) disorder that could eventually lead to more serious crimes. Crime fear could be divided into 3 categories: environmental cues, demographic factors, and neighborhood structure. Previous studies show that though men are more likely to be victimized in crimes, their perception of fear is much less than of women. From September 2014 to May 2017, 7831 social disorder crimes and 3608 violent crimes were reported. Their results showed certain areas as unsafe, including the University Park, the

whole length of Main Street (within the study area), and Kilby Street. Though the male and female crime perception maps showed similar patterns, some areas were defined as being “medium crime” by men, but “low crime” by women. Moreover, people living in that residency for longer time marked fewer places as unsafe. The resident’s perception of high crime rate didn’t match completely with the crime density map.

Source 2:

Research Question: How to increase walking in urban areas?

Database/ Search Engine: Google Chrome

Search Terms: “Increase”, “Walking”, “Urban”

Citation: Hillnhütter, H. (2021). Stimulating urban walking environments – Can we measure the effect? *Environment and Planning B: Urban Analytics and City Science*, *49*(1), 239980832110028. https://doi.org/10.1177/23998083211002839

Summary: Walking is often not considered a part of urban mobility. Over 90% of public transport journeys include at least 2 walking trips. The positive effects of more walking include reduction in noise levels, air pollution and CO2 emissions, as well as traffic safety and societal health. Study shows that sensory streets with a high degree of stimulation are the most attractive for walking. Details of the environment only become visible at lower speeds, for example when walking. Head movements and the time looked down vary inversely between car-dominated and pedestrian-oriented environments. People look down more and perform

fewer head movements in car-dominated environments. In pedestrian-oriented environments, heads move more frequently, and the time looked down decreases. The individual experiences of a walking person influence the attention they pay to their environment. Culture may affect head movements. The clues from this investigation can be condensed into two fundamental design principles for urban walking environments that appeal to pedestrians' senses. First, urban spaces in human scale are essential. The human scale is simply the distance at which the human sense organs function best. The second principle is variation. Visual variation prevents monotony and boredom when walking in linearly structured urban surroundings. This environmental variation can result in a more stimulating walking experience.

Source 3:

Research Question: How to increase walking? How to increase the number of pedestrians?

Database/ Search Engine: Google Chrome

Search Terms: "Increase", "Walking", "Pedestrians"

Citation: Maurer Braun, L., Read, A., & Ricklin, A. (2016). The Benefits of Street-Scale Features for Walking and Biking. *Journal of Transport & Health*, *3*(2), S22. https://doi.org/10.1016/j.jth.2016.05.060

Summary: The cities became more car-oriented throughout the 20th century when cars became the dominant mode of transport. Walking represents less than 3% of commuting trips while biking represents less than 1%. Walking and biking could be increased through improving

street-scale features. Street-scale features can promote walking and biking, leading to increases in physical activity. Moreover, individuals are more likely to walk and bike when the built environment is more supportive of physical activity and provides more opportunities for active transportation to and from local destinations. Street-scale features can also influence social cohesion by fostering social interaction, building community trust, supporting social equity, and creating a shared sense of identity. Active transportation creates street-level activity which can have effects on actual crime and safety, as well as perceptions of crime and safety. Dedicated facilities for pedestrians and bicyclists, and facilities that are intended to calm traffic, can have safety benefits for all pedestrians. These facilities can raise awareness of these travel modes within the transportation network and traffic calming measures can slow traffic speeds, thereby reducing the number of crashes that result in injury. Active transportation can have multiple benefits for both physical and mental health. Moreover, street trees and green spaces not only add aesthetics but are also associated with positive mental health.

Research Reflection:

Now that we have understood our problem better and have some possible lists of solutions, I figured that I should focus on pedestrian walking, especially in terms of safety, as this is an issue that some people suggested, and in terms of increasing the number of pedestrians.

While researching about the safety in Worcester, it became apparent that crime fear was more of an issue than the crime itself. Crime was declining; however, people were believing that crime was increasing due to fear within them. Moreover, even though males and females had a similar crime perception map, both groups saw some areas to have different amount of crime.

All of this suggested that we might need to incentivize people to walk more, which would include reducing crime or crime fear. Hence, I researched upon how to increase the number of pedestrians. The 2nd source gave some insights on head and eye movement of pedestrians as their surroundings changed. This helped us to get some information on how to make the street more visually appealing to increase the street's walkability. However, there were more causes that needed to be researched and hence, I continued on this topic.

The 3rd source gave a more general overview of how walking (and biking) could become more appealing. As we had seen some of these techniques being explained to us during presentations and during our group discussions, it was interesting to see some more methods that could be looked at and be implemented.

All of this could suggest that we might need to focus on incentivizing people to walk/bike through upgrading the streets, which would make the streets more aesthetically pleasing. Along with this, research would need to done on understanding how to educate people to

walk/bike, especially as we already know that the mode of transport is habitual. We might also need to do more Worcester specific data research to understand the problem more effectively that we find a solution to. This is currently going to be done through surveys and possibly spatial analysis.

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 much would it cost in improve the street-scale features to increase the possibility of pedestrian walking? In order to address this, we would need to look at Worcester and do some library research about our location and the costs related to the street improvements to make informed decisions on how people might react to our solutions.