Equitable access to community resources has been a topic of research and study, especially when looking at the impacts on measures of well-being and economic opportunity. (Cass et al., 2005; Ermagun & Tilahun, 2020; Handy & Niemeier, 1997; Schwanen et al., 2015) In past research conducted, it was found that a subjective sense of well-being correlated with increased access to more community resources. (Currie & Delbosc, 2010; Delbosc & Currie, 2011) In addition, increased access to resources such as parks or other greenspace have been found to decrease likelihood of mental health disorders, as well as improve physical activity. (Madzia et al., 2019) Lack of accessibility to grocery stores can also have an affect on physical health and well-being, impacting the diet of those who frequent the store. (Aggarwal et al., 2014) In addition to health impacts, lack of accessibility also affects economic opportunity when considering access to employment, affordable care, and other stores and shops. (Currie & Delbosc, 2010; Hu, 2015)

Typical methods to determine accessibility are limited in their capacity to capture an accurate space-time environment. Two methods frequently used are travel time buffers or an arbitrary distance threshold. (Chen & Yeh, 2021; Widener et al., 2015) The drawback to these methods is that it has a very distinct line of accessibility and inaccessibility. Different variables that are not included in these models may have a dramatic affect on an individual’s accessibility. Improving the scope of the model to include some of these variables improves the accuracy of the accessibility model.

We analyze the data using a utility-based accessibility method. A utility-based model has been used to analyze accessibility before, but without including some specific variables. (Dong et al., 2006) These variables are the attributes of the origin, destination, and the sociodemographic attributes of the traveler. In addition, we create this model using a multimodal approach and passive location-based services. The benefit of using these variables is that we can extract specific qualities that create positive or negative correlation coefficients between a destination and origin pair. Similar research has been done using the same model with success in Alameda County, California. (Macfarlane et al., 2020).

The benefit of this model, passive location-based services, and resource attributes collected, is that it can be analyzed and applied across different situations. Analyzing according to different income levels and minority status helps us to determine equitable access for these variables as well. In doing so we can gain knowledge of where best to improve already existing infrastructure, or build new infrastructure, and increase accessibility across all demographics.