Assessing the Relationship between Transportation Mode Choice and Transportation Land Consumption

The goal of this study is to develop models relating mode choice to the amount of land used for transportation in a city. With the increased emphasis being placed on building transit oriented developments in Connecticut and across the country, there is an immediate need to improve our knowledge relating to the efficient use of land in dense urban places and how this land allocation is affected by mode choice in our transportation system.

The wider importance of this work stems from the fact that there is growing consensus that compact, dense urban areas are some of most sustainable places, particularly from the perspective of the transportation, energy and climate impacts. Our proposed research is grounded in the fact that there is also growing evidence to suggest that such compact, dense urban zones are difficult, if not impossible, to create in the face of high levels of car use. However, this evidence is largely based on qualitative observation, as there is currently no realistic model for quantifying the complex interrelationship between car use level and land consumption.

This research aims to remedy this gap in our knowledge by building on both the empirical work that we have done at UConn and the theoretical models that were developed at UPenn. The model resulting from this project will add needed rigor for urban planning by providing tools for quantifying the economic, social and environmental advantages and costs associated various types of transportation systems and understanding the extent to which mix of modes support the building of sustainable urban places.

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