

THE UNIVERSITY OF CONNECTICUT

CIVIL & ENVIRONMENTAL ENGINEERING

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WHAT DOES WALK SCORE® REALLY MEASURE?

In recent years there has been an increase in the research of the concepts of accessibility, land use, travel behavior and walkability. These topics have become critical to planners, engineers and policymakers as they work to make correct decisions in the development and redevelopment of urban places and their related transportation infrastructure. More importantly, research has shown that street network design and street design characteristics have been found to be significantly associated with outcomes such as travel behavior, road safety, physical activity, and public health.

In 2007, the technology incubator Front Seat began development of the Walk Score® (WS), a metric created to help people evaluate the walkability of specific locations. With a simple street address search, you get a map with nearby amenities and a walkability score. The Walk Score® (WS) algorithm works by identifying the closest amenities (for example, grocery stores, banks, restaurants, and schools) and awarding points based on the distance to them from a given location. Scores have a range between 0 and 100, with 100 being the best. In 2011, the Walk Score® (WS) founders and advisory board modified the algorithm to better account for pedestrian friendliness by adding block length and intersection density data into the model to represent roadway characteristics (walkscore.com). Although this version was originally named Street Smart Walk Score® (SSWS), the name never made it to into the public sphere. However, the algorithm was accepted and incorporated into what is now used for scores on the Walk Score® web service.

Modelers attempting to quantify accessibility often focus on two components: a transportation element (or resistance factor) and an activity element (or attraction factor). The transportation element often considers variables such as infrastructure, topography, route directness, as well as distance, travel time, or cost. Activity factors are measured from objective variables such as destination locations, parking availability, land-use density, land-use mix, and subjective variables such as the perceived quality of products at destinations. It is generally believed that Walk Score® (WS) and Street Smart Walk Score® (SSWS) account for both the land use and the street network elements of accessibility measures. However, the extent to which these metrics accurately represent these variables has not been fully evaluated by research. The goal of this thesis is to determine if Walk Score® (WS) and Street Smart Walk Score® (SSWS) are true measures of accessibility in fully representing both transportation and activity. In this body of work, Walk Score® (WS) and Street Smart Walk Score® (SSWS) are analyzed to understand if they adequately account for street network density, street network connectivity and street design characteristics – all of which are key aspects of the transportation element of accessibility.