

MAKING A GREAT PLACE



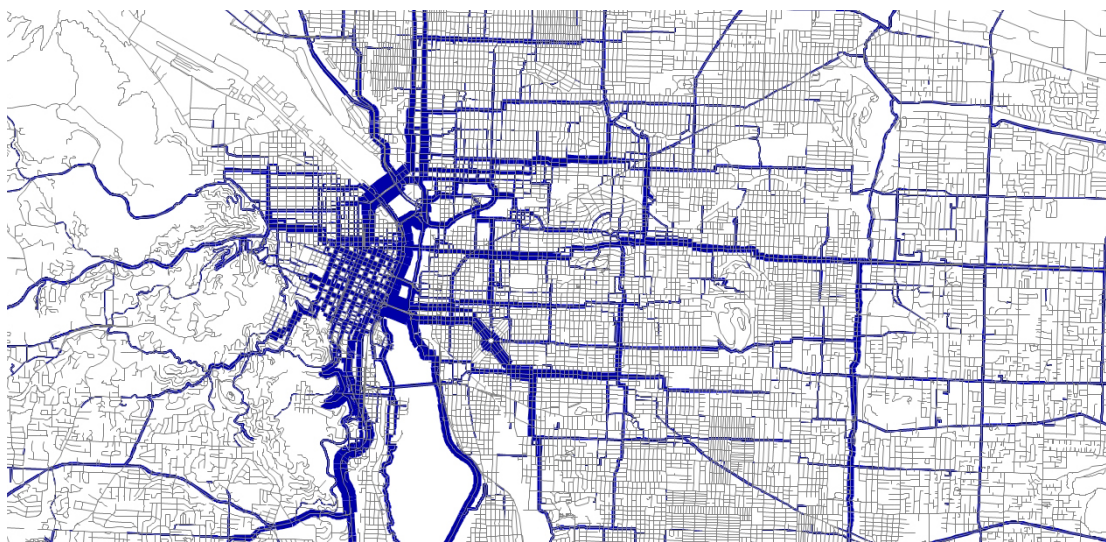
Modeling Services

Contact

aaron.breakstone@
oregonmetro.gov
503-797-1823

Research Center updates

Bicycle modeling tool



What's new?

Modeling Services has incorporated an enhanced bicycle routing tool and associated functionality for measuring route attractiveness into its regional transportation model. These utilities, developed in conjunction with researchers at Portland State University, consider a multitude of network attributes in assessing the relative desirability of travel by bicycle between origins and destinations throughout the region.

How does it work?

A dedicated bicycle network containing all streets and off-street paths in the region is at the core of the bicycle modeling tool. A routing algorithm is used to determine the most logical path between each zonal origin-destination pair in the network, and the relative attractiveness of each path is then quantified according to a relative valuation of network attributes: distance, facility type, auto traffic volume, uphill slope, major bridge crossings, turn frequency, and intersection control.

The resulting "route experience measure" is passed into the regional transportation model's mode choice model, which considers bicycle alongside all other potential modes in estimating travel decisions. Upon completion of the mode choice step, the number of daily bicycle trips between each origin-destination pair is known. This demand, which is separated into commute and non-commute categories, is subsequently assigned to the bicycle network for the purposes of flow visualization and further analysis.

Why does it matter?

Whereas previous model forms relied solely on distance in accounting for the desirability of a bike route, the bicycle modeling tool uses a dedicated network to consider a number of attributes that are known to directly impact the cyclist's choice of routes. This results in a more thorough and accurate depiction of network service characteristics and their impacts on traveler behavior.

Thanks to this heightened level of network detail and the increased sensitivity that coincides with it, the bicycle modeling tool represents a more robust resource for use in the assessment of bicycle projects, policies, and network concepts. Furthermore, the network assignment constitutes an additional analytical layer that facilitates a range of useful graphics and network-based metrics.