

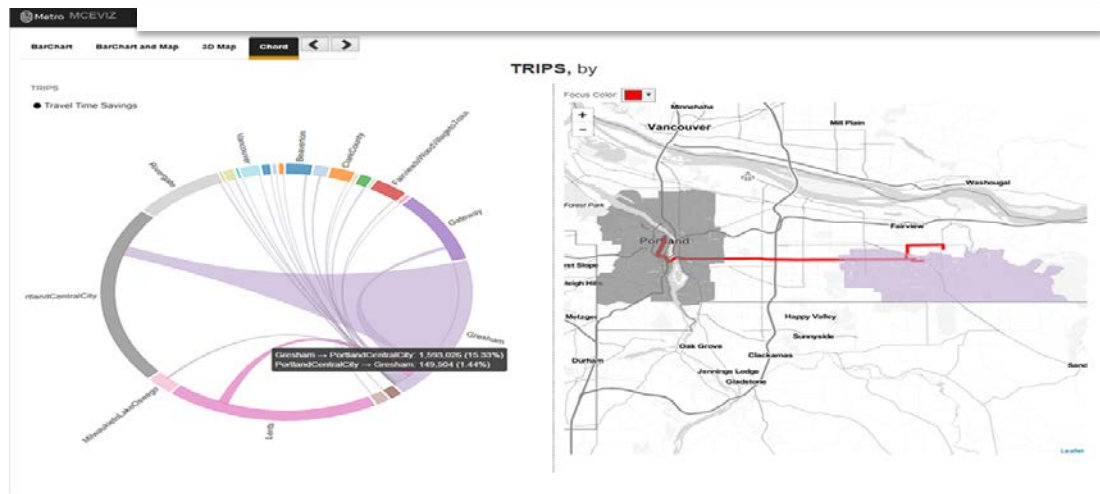


# Modeling 101

## *Multi-Criteria Evaluation (MCE) toolkit*

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Example of a travel time savings chord diagram from a transportation Alternatives Analysis

The Multi-Criteria Evaluation (MCE) toolkit is a comprehensive benefits calculator which monetizes the social return on investment of transportation investments. It provides a framework for making sense of diverse information in easily understandable units such as minutes and dollars. The objective of the toolkit is to enhance transportation decision-support methods by including a more comprehensive set of criteria; more comparability between the criteria; more explicit criteria priorities (weights); and more explicit equity analysis.

### How does it work?

The MCE toolkit is fully integrated to work with the latest version of the Kate travel demand model which includes better market segmentation and improved logsum calculations. The calculator takes as input a series of Kate output files for a base and build scenario, and the difference between them to produce monetized benefit estimates. Monetary value is used as the metric to allow for cross-benefit comparability.

The toolkit supports traditional user-benefits such as travel time savings, vehicle operating costs, safety, and emissions; as well as new benefits of travel time reliability, vehicle ownership costs, health benefits of physical activity, and accessibility improvements.

### Why does it matter?

As new, comprehensive planning and policy questions are being asked by Metro and its stakeholders. The MCE toolkit operates at the appropriate resolution to address the question at hand. Computing the social return on investment set of measures is a big step forward in Metro's ability to estimate the benefit of transportation investment scenarios.

Central to the working of the MCE toolkit is its ability to report benefits by equity group. The MCE includes 4 equity groups based upon US Census classifications: minority, low English proficiency, persons less than 18 or greater than 65, and low-income households. These features, in conjunction with the ability to report benefits quickly and efficiently, are key to satisfying the objectives of the MCE toolkit.