

G. Pedestrian and Bicycle Demand Forecasting

CCTA has developed simple Excel-based tools to calculate future bicycling and walking demand based on updated research regarding facility investment and associated mode shifts. These tools are meant to provide a quick and consistent way for local agencies to forecast future use of new facilities. Using these tools, local agencies will be able to be able to pursue grant opportunities without having to estimate ridership themselves, thus reducing barriers to obtaining grant funding.

Walk Mode Share Model

The walk mode share model is a linear regression model developed by the Alameda County Transportation Commission as part of the Bicycle and Pedestrian Master Plan Demand Forecast Tool. The model was developed from data from the 2012 California Household Travel Survey and EPA's Smart Location Database. Here it is applied to Traffic Analysis Zones from the Contra Costa County (CCTA) travel demand model. The data dictionary provides a list of required variables from model inputs (land use variables) and intermediate outputs (auto ownership model).

The Zonal Mode Share Forecast tab contains the calculations required to produce estimated 2010 and 2040 walk mode shares for each zone. The Mode Share Summary tab aggregates the zonal estimates to a single estimate of walk mode share, and provides a simple tabular summary of population in zones with walk mode shares in certain ranges (e.g. under 8% walk mode share or over 20% walk mode share).

Bike Mode Share Model

The bike mode share model is based on the miles of bicycle facilities (bike paths or bike lanes) in the county as compared to the number of bicycle commuters in the county. It applies a simple elasticity from the research literature ("Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes" by Ralph Buelher and John Pucher, 2012). Although the paper of Buehler and Pucher separates bike paths and bike lanes into two classes of facilities with separate elasticities, they note that the difference between the calculated elasticities is not statistically significant. For this reason, and because the separate elasticities do not provide intuitively reasonable results, the two elasticities are used to provide a range of plausible bicycle mode share estimates.