



## Introduction to the San Francisco Travel Demand Forecasting Model

The San Francisco Travel Demand Forecasting Model (San Francisco Model) is a computer-based tool that can be used to assess the impacts of land use, socioeconomic, and transportation system changes on the performance of the local transportation system. The San Francisco Model was developed to reflect San Francisco's unique transportation system and socioeconomic and land use characteristics. It uses San Francisco residents' observed travel patterns, detailed representations of San Francisco's transportation system, population and employment characteristics, transit line boardings, roadway volumes, and the number of vehicles available to San Francisco households to produce measures relevant to transportation and land use planning. Using future year transportation, land use, and socioeconomic inputs, the model forecasts future travel demand.

The San Francisco Model incorporates a state of the art approach to forecasting travel demand. This activity-based model is more sensitive than traditional four-step models to a broader array of conditions that influence travelers' choices. One of the fundamental differences between the San Francisco Model and traditional models is that it is *tour*-based not *trip*-based. A tour is a sequence of trips made by an individual that begins and ends at home without any intermediate stops at home, whereas a trip is a single movement from an origin to a destination. As such the model structure is more complex than the traditional four-step approach as shown in the figure below. A short discussion of tours is provided with this documentation.

The development of the San Francisco Model and the corresponding model components is described in the final documentation (included on this CD), which is divided into the following reports:

- Executive Summary

### Technical Reports

- Data Development
- Population Synthesis
- Vehicle Availability Model
- Tour and Trip Generation and Time-of-day Models
- Destination Choice Models
- Tour and Trip Mode Choice Model
- Visitor Model
- Model Validation
- MTC Consistency

The Executive Summary provides an overview of the entire model development, while Data Development describes how some of the inputs to the model were collected and/or synthesized. The Population Synthesis report indicates how a sample representing all San Francisco residents is generated. These synthesized residents are the basic decision unit in the model stream. The model reports describe the development of the specific models and how they fit into the model stream. The Model Validation Report discusses the comparison of model output with observed data and any changes that were made to improve the demand forecasting capabilities of the model. Finally, the Metropolitan Transportation Commission (MTC) requires the MTC Consistency report as part of the

Congestion Management Program. The report details how the San Francisco Model compares to the regional model developed and used by MTC.

### San Francisco Travel Demand Forecasting Model System

