**CONSIDERATIONS AND THEIR EFFECTS WHEN FORECASTING FUTURE TRAFFIC FLOWS**

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Demand analysis:

One of the important objectives of demand analysis in a transportation master plan study is to examine the concepts and policies in proposed plans by numerically indicators. It is, thus, to check whether plans provide sufficient capacity and structure performs functionally and effectively for the estimated demand, and to provide most favorable plans responding to the demand.

Demand modeling:

In general, the future transportation demand will be estimated by models. Modeling means the development of mathematical formulations that represent the travel patterns of persons living in a city, such as travel mode, travel speed, and traffic volume on a transport system and network.

Land use model:

The output of land use forecasting and allocation models provides the inputs to the trip generation step of the travel forecasting model, and the accessibility and travel time resulting from the transportation demand forecasting model are then fed back to and become the input of the land use model.

Trip generation:

Trip generation is the first step in the conventional four-step [transportation forecasting](https://en.wikipedia.org/wiki/Transportation_forecasting" \o "Transportation forecasting) process (followed by [trip distribution](https://en.wikipedia.org/wiki/Trip_distribution" \o "Trip distribution), [mode choice](https://en.wikipedia.org/wiki/Mode_choice" \o "Mode choice), and [route assignment](https://en.wikipedia.org/wiki/Route_assignment" \o "Route assignment)), widely used for forecasting travel demands. It predicts the number of [trips](https://en.wikipedia.org/wiki/Travel" \o "Travel) originating in or destined for a particular [traffic analysis zone](https://en.wikipedia.org/wiki/Traffic_analysis_zone" \o "Traffic analysis zone). Typically, trip generation analysis focuses on [residences](https://en.wikipedia.org/wiki/House" \o "House), and residential trip generation is thought of as a function of the social and economic attributes of [households](https://en.wikipedia.org/wiki/Household" \o "Household). At the level of the traffic analysis zone, residential [land uses](https://en.wikipedia.org/wiki/Land_use" \o "Land use) "produce" or generate trips. Traffic analysis zones are also destinations of trips, trip attractors. The analysis of attractors focuses on nonresidential land uses.

Trip distribution:

Trip distribution is the second component in the traditional four-step transportation forecasting model. This step matches trip makers’ origins and destinations to develop a “trip table”, a matrix that displays the number of trips going from each origin to each destination.

Modal split

Mode split involves separating (splitting) the predicted trips from each origin zone to each destination zone into distinct travel modes (e.g., walking, bicycle, driving, train, bus). This model has both advantages and disadvantages for crime analysis.

Traffic assignment:

Traffic assignment models are used to estimate the traffic flows on a network. These models take as input a matrix of flows that indicate the volume of traffic between origin and destination (O-D) pairs. They also take input on the network topology, link characteristics, and link performance functions. The flows for each O-D pair are loaded onto the network based on the travel time or impedance of the alternative paths that could carry this traffic.