

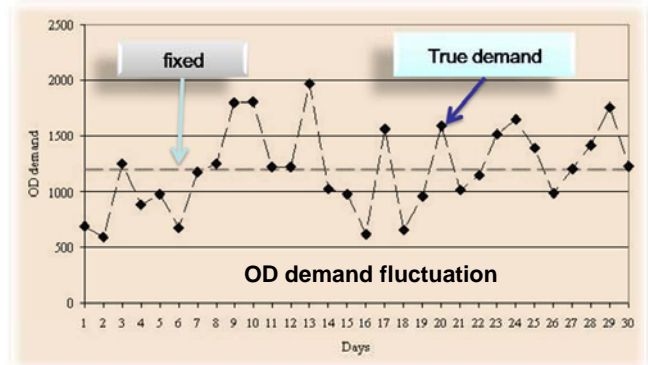
Background

Travelers may change their travel pattern when traffic condition change or when they receive traffic information via ITS technology or radio channel, etc. This dynamic behavior influences the decision of travel, hence generating travel demand variation. If the fluctuation of demand is realized, this can enhance the efficiency of expressway operation. The Electronic Toll Collection (ETC) system provides point-to-point information of each traveler such as entrance and exit of toll gate, travel time and tag ID. On the other hand, the between-points information can be obtained from sensor surveillance equipment. With this fruitful database, the dynamic travel demand and traveler behavior can be monitored.

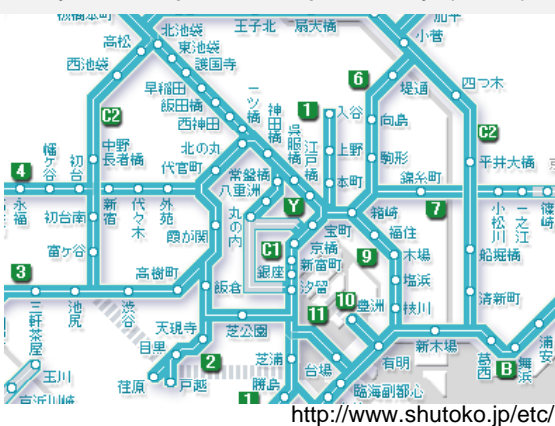
Purpose

- To develop route identification technique by using ETC data and detector data.
- To study how travelers switch route and departure time choice when traffic condition change due to congestion, incident and weather condition.

Method

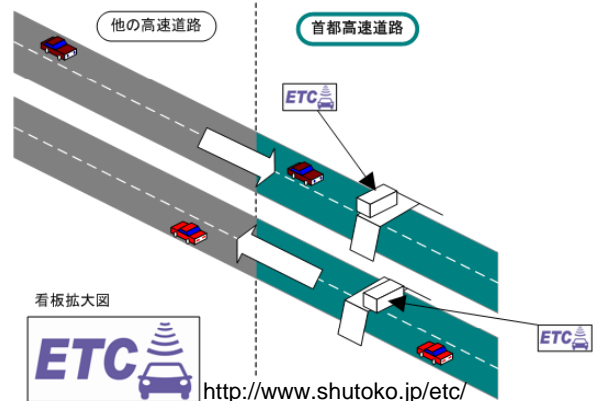


Tokyo Metropolitan Expressway (MEX)

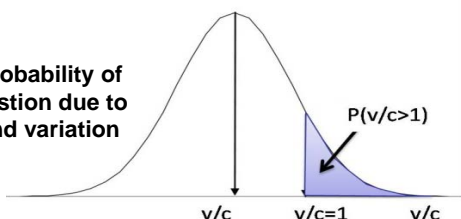


- ETC collects travelers information in tag ID format so that we can track individual travelers when/where they enter or exit the expressway system.
- With this advantage, the origin-destination choice and entering time choice will be monitored.

- ETC data provides point-to-point information. It does not show the individual route of travel. To identify the route of travel with the available data, the possible method is to match ETC travel time with detector travel time.
- The route identification technique will be developed by considering travel time variability of each route and finding the most likely utilized route.



The probability of congestion due to demand variation



- Their variation and characteristics will be used to develop the traveler behavior model on the expressway system.
- Travelers realize traffic condition in normal state. In abnormal state, the unforeseen bottleneck can possibly happen. Therefore, traffic condition with demand or supply variation under abnormal state such as incident or weather condition will also be analyzed.

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