



Caltrans Division of Research,
Innovation and System Information

Research



Results



Planning, Policy,
and Programming

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Project Title:

Route Choice Characteristics of Owner-Operated Trucks on Southern California Freeways

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Task Manager:

John Yang
Transportation Engineer
john.z.yang@dot.ca.gov

Route Choice Characteristics of Owner-Operated Trucks on Southern California Freeways

This research task is to enhance private decision-making regarding the route choices of owner-operated truck drivers.

WHAT IS THE NEED?

The problem of truck routing and the choices associated with it is a major focus of concern in transportation agencies throughout the world. Unfortunately, there has been a minimal amount of value of time (VOT) and value of reliability (VOR) oriented research relating to this problem. This research initiation grant project is intended to fill the gap in the literature surrounding this problem. The purpose is to evaluate characteristics used by owner-operated trucks in Southern California when choosing from two or more different types of roads such as interstate freeways, state freeways, toll roads, and local roads.

WHAT WAS OUR GOAL?

The ultimate goal is to contribute the body of knowledge necessary for comprehensive benefit-cost analyses concerning toll roads.

WHAT DID WE DO?

This report documents the development of a full research design based on six tasks such as the critical literature review on stated preference survey methods, clear and detailed statement of objectives for the stated preference survey, development of a survey instrument using Fuzzy Analytic Hierarchy Process (AHP), identification of the sample population, proposed methodology for generating a representative sample of respondents, and implementation of the survey instrument.



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WHAT WAS THE OUTCOME?

Based on the 40 eligible survey results out of 65 collected, the three most important factors were found to be travel time, reliability of on-time arrival, and safety in the route characteristics, while a scheduled delivery time was the most critical factor in trip characteristics. The results not only provide insight in deciding whether certain projects will be economically beneficial for the community, but also contribute an evaluation method for multi-criteria decision making to help researchers and managers to determine the drawbacks and opportunities of their decisions. The evaluation results were used when developing the full research design. The project team explored the number of alternatives and specific examples such as Interstates 110 and 710 during peak gate hours. The team designed a stated preference survey with different scenarios on Southern California freeways to provide an opportunity for each respondent to express their route choices.

WHAT IS THE BENEFIT?

This report presented evaluation results on key factors that affect route choice characteristics of owner-operated trucks in Southern California freeways. Unlike truck drivers who work for a company, owner-operated truck drivers need to make decisions when considering the best possible route for a particular trip since they have the liberty of choosing their own route and their value of time is dependent on numerous factors, rather than being dependent on their hourly wage. Surveys were conducted with owner-operated truck drivers who use Southern California highway systems routinely, including all truck classes and cargo types. The research team identified the sample population in Southern California boundary, especially ports of Los Angeles and Long Beach. Fuzzy AHP was designed and applied to identify and evaluate the most important

contemporary factors from the perspective of owner operated truck drivers

The findings obtained from this study were similar to the outcomes based on previous studies with real life truck drivers. The findings can be used as a foundation to help project owners and/or managers make decisions concerning the practicality and economic feasibility of their projects. For future study, the VOT and VOR will be crucial in weighing the costs and benefits of these decisions and can be used further when developing the full research design.

IMAGES

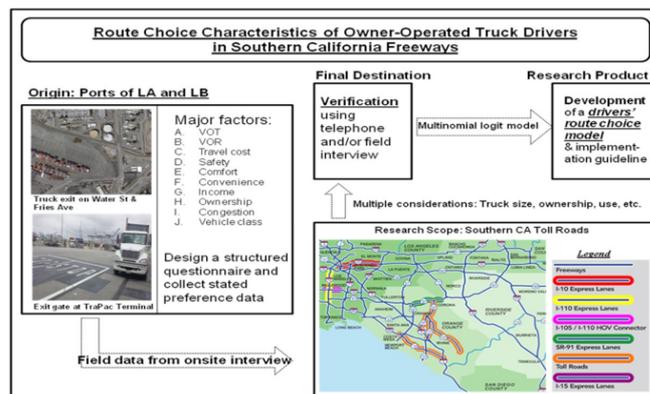


FIGURE 1: Overall schemata for the proposed research project