

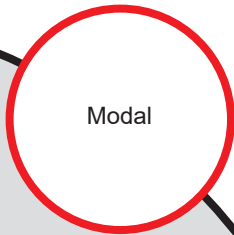


Caltrans Division of Research,
Innovation and System Information

Research



Results



Modal

MAY 2019

Project Title:

Promoting Peer-to-Peer Ridesharing Services as Transit System Feeders

Task Number: 2806

Start Date: March 1, 2015

Completion Date: May 1, 2016

Task Manager:

David Chursenoff
Associate Transportation Planner
david.chursenoff@dot.ca.gov

Promoting Peer-to-Peer Ridesharing Services as Transit System Feeders

A study of Ridesharing's mode shift potential on transit.

WHAT IS THE NEED?

Peer-to-peer (P2P) ridesharing services are an emerging travel option in California. However, prior ridesharing research suggests that the demand for ridesharing is usually diverted away from transit, while its true social and environmental benefits are obtained only if the demand is transferred away from private auto travel. For successful ridesharing, strategically selecting locations for individuals to access rideshare vehicles is crucial, in addition to the pricing structure for rides. These can be adjusted dynamically based on the feedback from today's app-users.

WHAT WAS OUR GOAL?

The goal of this study was to provide a real-time multi-hop P2P ridesharing mobile application along with accompanying analysis so that key insights could be gained on the potential that ridesharing services have in augmenting transit demand.

WHAT DID WE DO?

This project evaluated the potential of promoting ridesharing as a demand generator for transit by incorporating transit station transfers into the travel routes suggested by the real-time ride-matching algorithms used in P2P ridesharing services. A simulation was conducted with this algorithm so that certain metrics such as transit demand augmentation potential, station efficiency and pricing sensitivity could be evaluated and utilized to develop a computationally efficient mobile application. A parametric study of the application of real-time ride-matching algorithms using simulated demand was conducted in conjunction with the SCAG model for the LA Metro Red Line service area.



Caltrans provides a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

WHAT WAS THE OUTCOME?

The results of the project found that a range of distance-based ridesharing fares exists for which people would prefer ridesharing to solo driving. Additionally, trips whose origins and destinations fall within close proximity to the LA Metro Red Line can, in fact, be used to feed transit. The mobile application developed as part of this research will be field-tested in a later study so that the preliminary functionality can be assessed.

WHAT IS THE BENEFIT?

Ridesharing has the potential of augmenting transit demand by solving the first mile/last mile problem in transportation which is defined as the preclusion of many potential transit riders whose trip origins and destinations fall too far out of range from a transit station for convenient access via walking or bicycling. With higher transit ridership stemming from improved access, some of the key transportation issues in California such as urban congestion and excessive vehicular emissions can potentially be reduced.

IMAGES

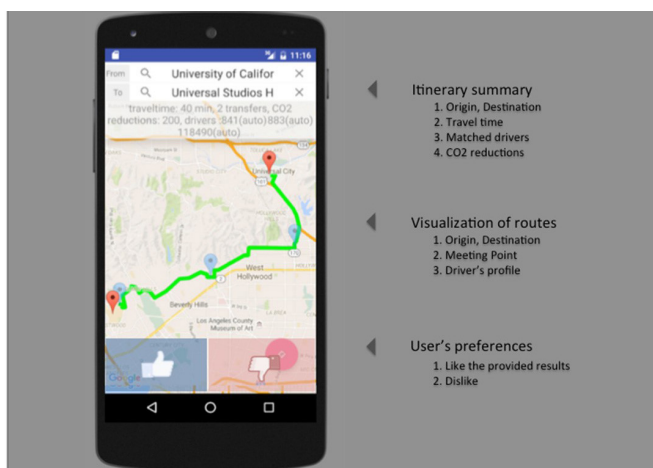


FIGURE 1: Screen example of matched results



FIGURE 2: Los Angeles Metro Red Line

The contents of this document reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the California Department of Transportation, the State of California, or the Federal Highway Administration. This document does not constitute a standard, specification, or regulation. No part of this publication should be construed as an endorsement for a commercial product, manufacturer, contractor, or consultant. Any trade names or photos of commercial products appearing in this document are for clarity only.