

Project Information Form

Project Title:	Congestion Reduction through Efficient Container Movement under Stochastic Demand
University:	University of Southern California
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Funding Source(s) and Amounts Provided (by each agency or organization):	California Department of Transportation (Caltrans) - \$104,998.00
Total Project Cost:	\$104,998.00
Agency ID or Contract Number:	Caltrans 65A0686 Task Order 018 USC-CT-FAST-018
Start and End Dates:	December 1, 2018 – November 30, 2019
Brief Description of Project:	<p>There is a significant amount of investigation regarding how to efficiently distribute loaded containers from the ports to the consignees. However, to fully maximize the process and become more environmentally friendly, one should also study how to allocate the empty containers created by these consignees. Currently, most container movement at the Ports of Los Angeles and Long Beach follow a simple movement, going from the port to importers and then back to the port as an empty container. Subsequently, some of these empty containers go from the port to exporters and then return as loaded containers to the port, with both empty and full containers shipped from the ports to Asia.</p> <p>In this study, the researchers propose to have some of the empty containers go directly from the importers to the exporters and not return empty back to the port. The most prominent reason this container movement is uncommon in today's system is because of the substantial amount of coordination required between the different companies to make the exchange in a timely fashion. This research will develop a procedure that will yield better container movement solutions to efficiently satisfy both today's demand as well as future stochastic demand. Benefits of reduced truck miles include a decrease in pollution and congestion levels from containerized traffic between marine terminals and hinterland. This is achieved by the development of an optimization framework that incorporates both empty and loaded containers and allocates them throughout the day. It then provides a vehicle routing schedule that has the potential to reduce the number of trucks and truck miles needed to meet the demand, therefore reducing</p>



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	congestion at peak hours of the day, and making freight more environmentally friendly.
Describe Implementation of Research Outcomes (or why not implemented): Place any photos here	
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links <ul style="list-style-type: none">• Reports• Project website	https://ncst.ucdavis.edu/project/congestion-reduction-through-efficient-container-movement-under-stochastic-demand/