

Project Information Form

Project Title	Integrating Management of Truck and Rail Systems in Los Angeles
University	University of Southern California
Principal Investigator	Maged Dessouky
PI Contact Information	Email: maged@usc.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	Volvo Research and Educational Foundation - \$79,604.00
Total Project Cost	\$79,604.00
Agency ID or Contract Number	USC-VOLVO-01
Start and End Dates	March 1, 2013 – December 31, 2018
Brief Description of Research Project	<p>This project establishes models to optimize the balance of freight demand across rail and truck modes. In real life situations, trains often travel at different speeds (i.e. passenger trains and freight trains share the same rail network). This incurs train delay whereby reducing the efficiency of the rail network. To provide a solution for this problem, the researchers develop heuristic algorithms to improve conventional dispatching rules to reduce the average train delay. Then they build a control model and provide the solution procedure to adapt a dynamic headway concept inspired by new signaling technology like Positive Train Control (PTC). Rail network data of the Southern California region is collected to perform a detailed simulation analysis. The simulation results show significant improvement of network efficiency brought by our model and algorithms: as high as 21% reduction in average train delay with our best dispatching policy while with the dynamic headway control model, the average train delay is reduced by 40%. The railway network is therefore shown to have the potential to increase throughput capacity by 20%.</p>
Describe Implementation of Research Outcomes (or why not implemented)	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none"> • Reports • Project website 	<p>https://ncst.ucdavis.edu/project/usc-volvo-01/</p> <p>https://escholarship.org/uc/item/3ms7789j</p>