

This topic is “practice ready.” Yes No

Truck Platooning, Autonomous Trucking vs. Intermodal Rail Service – Implications for National Transportation Freight Policy

Ray A. Mundy, Ph.D
Executive Director, AGTA
Center for Transportation Studies
University of Missouri - Saint Louis
tel. 314-225-7039 fax. 314-516-7272
url: www.agtaweb.org

Ken Bao
Graduate Research Assistant | UMSL
Center for Transportation Studies
JC Penny 240
1 University Blvd.
St. Louis, MO 63121-4400

Abstract

The United States has taken great measures to successfully develop its extensive transportation networks within all modes through directed Federal Transportation Policy. There were the railroad land grants early in federal funding, massive highway projects funded by the Federal government in the mid 1900’s as well as later airport development grants. More recently, there was the Intermodal Surface Transportation Efficiency Act of 1991 which sought to improve highway and rail corridors that were deemed critical for facilitating intermodal transportation. Governments all around the world are looking towards intermodalism to address the problem of increasing transportation demands per capita which has been on an upwards trend for decades.

However, new and emerging technologies have the potential to be a disruptive force in these efforts. Significant government assistance to further the intermodal transportation industry may prove to be a frivolous endeavor in the face of driverless vehicles. Driverless vehicles can drastically reduce the private cost of truck freight shipments by an amount equal to the cost of labor. These vehicles will most probably be operated first in a “platoon” configuration with a lead truck still having an individual driver. Even with a lead driver, there will be significant fuel and labor savings which will further reduce the cost of truck freight. As true autonomous trucks begin to operate, these cost savings are plotted to increase significantly. With potential cost savings of between 30 and 40% it seems reasonable to question whether further significant government programs for long term investments into intermodal transportation is questioned.

This theoretical analysis seeks to quantify the estimated decrease in intermodal rail demand as a result of significantly lower competitive pricing by over the road trucking concerns as they move through three phases of introducing autonomous trucking, thereby suggesting that existing intermodal facilities and infrastructure will be more than adequate to handle future demand.

Table 2 Percent Decrease in Rail Demand

Phases	Percent Decrease in Q (Max Fuel Savings)	Percent Decrease in Q (Min Fuel Savings)
Phase1	2.91%	1.56%
Phase2	23.89%	22.54%
Phase3	45.34%	43.99%

keyword 1— Intermodal

keyword 2— Autonomous Trucks

keyword 3— National Freight Policy

keyword 4— Freight costs

keyword 5 Railroads