

Executive Summary

With the passage of the Transportation Equity Act for the 21st Century (TEA 21), an amendment to the Vehicle Weight Limitations was made. This Amendment stated:

“(1) IN GENERAL—Section 127(a) of title 23, United States Code, is amended—

(A) by inserting before the next to the last sentence the following: “With respect to the State of Colorado, vehicles designed to carry 2 or more precast concrete panels shall be considered a nondivisible load.”

The legislation also directed the Colorado Department of Transportation to conduct a study analyzing the economic, safety, and infrastructure impacts of this exemption to definition of nondivisible loads. The study investigated the impacts of vehicles designed to carry two or more precast concrete panels including the possible impacts of not having such an exemption. This report is the result of the Study.

This study investigated the transportation of precast concrete panels on Colorado highways, interviewed neighboring states regarding their experiences with the transport of precast concrete panels and other commodities, and performed a literature search for studies similar in nature to this one.

The precast concrete wall industry in Colorado is one of the most technically advanced in the World. About one-half of the delivered price of their products are in shipping. It is essential to the viability of this industry that shipping is done safely and economically. The Colorado market has also become accustomed to designing for and with this type of wall materials. It dominates many public sector structures, and is extremely competitive in the private sector.

The precast concrete industry is also unique from other transportation intensive industries in Colorado. Precast concrete panels are manufactured at plants near interstate highways.

The delivery points generally are also close to the same type of highways. Unlike the agricultural sector, the bulk of the transportation routes traveled are on major, four lane divided, access controlled highways. The average nondivisible load of precast concrete panels is 90,000 pounds. The average precast concrete panel load carried is only 12% over the legal load limits.

The law change has been beneficial to the Colorado taxpayers. There is an increase in property, sales, and incomes taxes from this industry. However the highway trust fund suffers a negative impact due to less fuel taxes. Jobs are created in Colorado, and other businesses benefit from lower costs due to increased competition in building choices.

The environmental benefits from a reduction in pollution due to reduced Vehicle Miles Traveled (VMT) along with its associated reduction in tailpipe pollutants. Highway congestion is reduced not only from the reduction in VMT, but also from the fact that nondivisible loads are under permit restrictions from traveling during peak hours. Also congestion is reduced in and around construction sites due to reduced number of deliveries. The chance of crashes is also reduced due to the reduction of VMT.

Negative impacts are minor. There is an increase in load on bridge structures. However due to axle load limitations still in place on the permits, and the fact that the loads are generally carried on major routes, there are no significant problems. There are negative impacts to the pavements of Colorado highways due to the increased weights of the loads. There is anywhere from a 5% to 20% increase in pavement damage due to the increased loads. However, since the bulk of the routes traveled are designed to carry heavy loads, and the VMT are small, for this industry only, the impacts are not significant.

Two recommendations are made with respect to this study.

- The nondivisible load exemption is for A-Frame trailers only. Many of the benefits for other trailer configurations are not warranted.

- The axle configuration for this permitted type of load is limited to one single steering axle and a maximum of two tridem axles, one for the drive train, and one for the trailer. This is currently larger than the precast concrete panel industry is using today. An increase to the number of trailer axles, and multiple loading of the trailers, will increase the infrastructure damage and far exceed the other benefits to the State of Colorado.