



Project Summary Report 2128-S

Project O-2128: The Impact of Mexican Rail Privatization
on International Trade Corridors with Mexico

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The Impact of Mexican Rail Privatization on the Texas Transportation System: Summary Report

PROJECT SUMMARY REPORT

U.S.-Mexico trade has grown at an average annual rate of 17 percent since the inception of the North American Free Trade Agreement (NAFTA), reaching a record high of \$196 billion in 1999. As a result, truck traffic has greatly increased. This growth in truck traffic carries with it a corresponding increase in the demands placed on the highway infrastructure. The Texas highway network, which carries approximately 70 percent of the total incoming truck traffic from Mexico, is in jeopardy of being overwhelmed.

Rail traffic across the Texas-Mexico border is also expected to increase due to substantial capital investments and operational improvements being made by U.S. and Mexican private railroad companies. These efforts will help to expedite the border-crossing process and increase the amount of freight that can be moved by rail or by rail-to-truck intermodal shipment. Put in very simple terms, any increase in railroad modal share will reduce the demand placed on the highway system in Texas.

Consequently, rail is an important element in the overall transportation equation and a critical component that we need to monitor and understand within the context of the state's transportation planning process.

The purpose of this research project was to answer the following key question: "Will the privatization of Mexico's railroad system and closer operational ties to U.S. railroads serve to offset the increase in the amount of international truck trade passing between the U.S. and Mexico?"

What We Did . . .

Texas Transportation Institute (TTI) researchers employed their unique contacts with U.S. and Mexican railroads to facilitate the collection of information on investments, traffic projections, and emerging trends in U.S.-Mexico cooperation. In addition, TTI used its collaborative relationship with the IMT (Instituto Mexicano del Transporte), the official transportation agency of the Mexican federal government, to

garner insights into the Mexican government's policy initiatives as they pertain to rail transportation. The relationship between TTI and IMT provided the research team beneficial insights of IMT research staff through its work on the Mexican rail privatization.

What We Found . . .

The data collected in this research and its subsequent analysis indicate that the privatization of the Mexican railroad system will clearly have a positive impact on the quantity of freight transported by railroads in the U.S. and Mexico. This was shown through evaluation of four possible scenarios. Each scenario examined the ability of rail operations to offset the growth in NAFTA-related trade through a review of U.S. and Mexican railroad capabilities and projected traffic levels.

The four scenarios were:

Scenario 1—Combined U.S. and Mexican railroad traffic loads, due to improvements in infrastructure, equipment, and operations, will grow





sufficiently to exceed the overall growth in NAFTA-related trade and thereby reduce the demand for, and number of, trucks on Texas highways.

Scenario 2—Combined U.S. and Mexican railroad traffic loads, due to improvements in infrastructure, equipment, and operations, will grow sufficiently to keep pace with the overall growth in NAFTA-related trade and thereby maintain the current modal split seen between rail and truck transport.

Scenario 3—Combined U.S. and Mexican railroad traffic loads will grow, but at a rate slower than the increase in the growth in NAFTA-related trade, and will therefore lose market share relative to the trucking industry.

Scenario 4—Combined U.S. and Mexican railroad traffic loads will retain their current absolute volume, but, due to continued growth in trade, will decline in terms of the percent of international traffic carried by railroads.

The evaluation, based on interviews with railroad resources, examination of commodity flow data, and a trend analysis of NAFTA trade growth, suggests that the railroads are performing remarkably well. It is estimated by some within the industry that the railroads, U.S.-Mexico trade volume will grow at a double-digit rate, perhaps 10 to 12 percent per year. This means that of the four scenarios presented for

evaluation, the first three remain under consideration. The fourth scenario, that the railroads would only maintain current volumes, is not supported by the data.

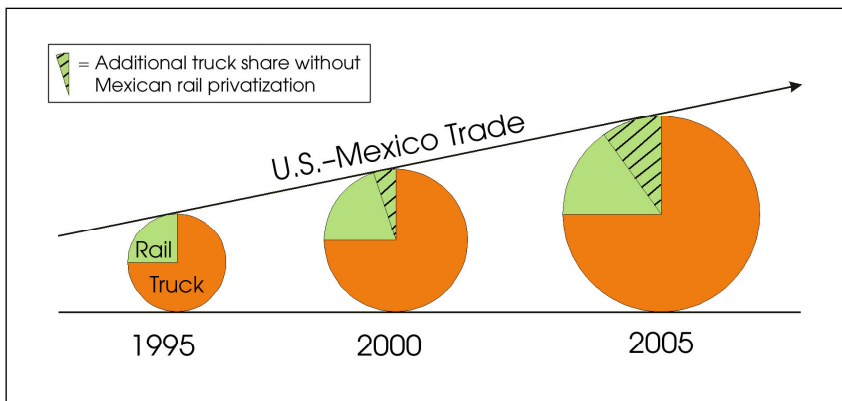
The research performed on this topic was undertaken, from the outset, with an emphasis on what rail transportation's impact would be on the number of trucks moving on Texas roadways. However, the railroad's key consideration of sustainable growth means that the rapid addition of capacity necessary to grow at a rate faster than NAFTA is not likely. This effectively eliminates Scenario 1 from consideration—sufficient growth to exceed the overall growth in



NAFTA-related trade, thereby reducing the demand for, and number of, trucks on Texas highways.

The figure below summarizes the findings of this research effort and suggests that the rail industry, through the growth that has already taken place, has effectively slowed the rate of growth in the numbers of trucks on Texas highways.

The ever-increasing volume of NAFTA trade, as depicted by the increasing size of the pie charts



Rail-truck modal share under conditions of NAFTA trade growth

above, shows how modal share can potentially decrease even as capacity and traffic levels increase for a given mode. For rail transportation to offset the growth in trucks, the industry (Mexican and American) would have to expand at a rate that exceeds the rate of growth in trade. This is not indicated by the available data. The report shows a significant increase in rail traffic that serves to partially offset the growth in truck traffic. Without this improvement in rail transportation, characterized by better performance and coordination between U.S. and Mexican carriers, the rate of increase in trucks on Texas highways would be even greater.

The Researchers Recommend...

Texas is in a difficult spot in terms of its ability to encourage alternate modes of transport to offset the ever-increasing numbers of trucks on our state's highways. The constitutional prohibition against spending from the highway trust fund for anything but highways has provided TxDOT with but one tool—more highway lanes. Roadway maintenance and construction undertaken in response to traffic growth on major corridors

Texas. Projects in support of rail and intermodal transportation, such as improving roadway access into or connectivity to intermodal facilities, can create direct benefits by facilitating the use of trailer on flat car (TOFC) or container on flat car (COFC) movements.

2. Whenever possible, make provisions within new transportation corridors for the inclusion of rail. TxDOT has recently initiated the practice of allowing a 100-foot median between opposing lanes on U.S. and Interstate highways with the notion that rail may be able to operate within this median, benefiting from the grade separated corridor. Problems may exist with the practice, however, since railroad design characteristics are not fully followed. For instance, double-stack container operations require a minimum vertical clearance of 23 feet. Most overpasses are less than 20 feet high. More critically, vertical and horizontal curves on railroads are less severe than those found with highways. Grades should not exceed 2 percent, and horizontal curves with a radius of 574 feet or more are preferred, with a minimum acceptable radius of 459 feet.
3. Work with federal officials and Mexican authorities to streamline the institutional procedures affecting (slowing) international railroad operations. These include U.S. Department of Agriculture and U.S. Customs procedures.

benefits the trucking industry by providing better infrastructure, but it indirectly hurts the rail industry by providing public subsidy to its principal competition. No amount of traffic growth on the railroads can overcome this competitive advantage enjoyed by truckers.

Some actions that the State can take include the following:

1. Integrate rail planning into the state and border planning activities underway at TxDOT. The Multimodal Section of TxDOT's Transportation Planning and Programming Division is very well suited to guide the integration of rail into the transportation system of



For More Details . . .

The research is documented in Report 2128-2, *The Impact of Mexican Rail Privatization on the Texas Transportation System*.

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TxDOT Implementation Status May 2001

One product was identified as a deliverable for this project: a summary of information on current and future infrastructure and operational plans conducted by the U.S. and Mexican railroad private sector and their impact on TxDOT's highway infrastructure needs.

These findings will be forwarded to consultants working on the update of the Texas Transportation Plan and State Rail Plan. These findings will be considered in transportation developments in Texas over the next 25 years. In addition, some consideration is being given to incorporate adequate right-of-way, vertical clearances, and geometric considerations to accommodate rail facilities in portions of the new I-69. Implementation will require Commission approval.

TxDOT has acquired the South Orient Rail Line. Information on the acquisition was included in the final report.

For more information, please contact Dr. Khali Persad, P.E., Texas Department of Transportation, Research and Technology Implementation Office, (512) 465-7908, or e-mail kpersad@dot.state.tx.us.

YOUR INVOLVEMENT IS WELCOME!

DISCLAIMER

This research was performed in cooperation with the Texas Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration (FHWA). The contents of this report 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 view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement. The researcher in charge of this project was Stephen S. Roop.