

# TRANSPORTATION MERGERS IN THE NORTH AMERICAN FREE TRADE (NAFTA) AREA

by

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## Preface

This study, *Transportation Mergers in the North American Free Trade Area (NAFTA)*, completes the trilogy on North America's transportation systems—*The Coming North American Rail Mergers* (Special Report: The Strom Thurmond Institute, 2004) and *Multimodal Transportation Companies in the 21<sup>st</sup> Century* (The Strom Thurmond Institute, 2005). The 2004 and 2005 studies can be found on the Strom Thurmond Institute's web site.

The argument made in the present study is that North America's transportation systems can be made more efficient by intra and inter-modal mergers, and in so doing insure that North America's goods and services are competitive worldwide.

While no specific mergers are hypothesized, visualized are two continent-wide multimodal firms structured to include, as necessary, all surface transportation modes. Data on pipelines are included in the study but are not considered as merger candidates.

Also noted is the possibility of independent highway-air companies entering into cooperative arrangements with rail based multimodal firms for portions of their ground movements or becoming a part of a multimodal transportation company.

# TRANSPORTATION MERGERS IN THE NORTH AMERICAN FREE TRADE AREA (NAFTA)

## I

### INTRODUCTION

Although criticized, and sometimes justly, the North American Free Trade Area (NAFTA) is here to stay. Granting that, it is then to the advantage of the three partners to make NAFTA as economically viable and competitive as possible. In this context, the importance of transportation, the glue that physically ties together a geographic area of 20,178,470 sq km, cannot be overstated. Two undertakings are important. One is to continually encourage improvements in transportation technology and innovation. (1) The second is to make *management* of NAFTA's transportation systems through mergers as efficient as possible. This research project concentrates on the latter.

Four assumptions are made. (a) Without the active support and encouragement of the governments of the United States, Canada and Mexico, no mergers of any consequence will occur. (b) In terms of ownership, the merged systems will remain in the private sector. (c) The sovereignty of the United States, Canada, and Mexico will in no way be compromised. The essence of this research is the examination of possible mergers within the transportation sector, i.e., the voluntary merger of business entities within NAFTA, not the precursor of any type of political union. Relied upon is a long history of cross border private sector investments and cooperative arrangements that do not infringe on the sovereignty of the involved countries. (d) The extent of competition prior to mergers must be essentially the same as after



the mergers. Globalization of transportation, like economic globalization, is only a matter of time and that NAFTA can be the model for this future.

While no *specific mergers* will be suggested, a case for mergers in general will be made based on the history of past mergers, a review of government policy with respect to mergers, logic and economic principles.

## **Transportation Systems**

Transportation systems are composed of three components—the *path*, the *vehicle* and the *terminal*. These components may be privately or publicly owned or in various combinations, e.g., the highway system is publicly owned while vehicles and terminals, for the most part, are privately owned.

Transportation systems in the United States include highway, rail (passenger and freight), airline, inland waterway, urban systems (light rail, subways, buses), pipelines and ocean shipping.

Transportation between A and B is economically efficient only when the vehicle is *carrying freight/passengers and moving*, and the revenue generated covers the total cost of the movement, including a return on capital. Very few, if any, public transport systems meet these criteria.

When revenue is non-existent or insufficient to cover total costs, society may subsidize a transportation system. In this case, benefits derived from the system are subjective and open to debate.

## **Globalization and Free Trade**

The rapid globalization of business undertakings in the latter part of the 20<sup>th</sup> century and present 21<sup>st</sup> century cannot be understated. (2) Since globalization, by definition, increases competition, and competition increases firm efficiencies, benefits from firms operating globally need no rationalization.

In addition to globalization, a political option to increase business efficiency is to increase market size through the creation of so called free trade areas. (3) However, while free trade areas improve business efficiencies by the removal of custom barriers and other bureaucratic impediments, they do not necessarily improve *transportation efficiencies* within the free trade area. This report focuses on increasing transportation efficiency within the North American Free Trade Area (NAFTA) through transportation mergers. Appendix A lists free trade areas worldwide in 2008.

Figure 1 shows NAFTA in terms of geographic area. Table 1 summarizes NAFTA demographic and economic data. Table 2 shows NAFTA transportation systems (the path) by country. Table 3 summarizes NAFTA transportation systems (the path) while Table 4 is a summary of industry profiles by country.



Figure 1

### NAFTA Geographic Area

United States (50 states and District of Columbia)	9,161,923 sq km
Canada	9,093,507 sq km
Mexico	1,923,040 sq km
Total	20,178,470 sq km

Source: CIA World Fact Book—U.S., Canada, Mexico, 2007

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Table 1

NAFTA DEMOGRAPHIC AND ECONOMIC DATA

Population

United States	301, 139,947	(2007 estimate)
Canada	33, 390,141	“ “
Mexico	108, 700,891	
	443, 230,979	

Gross Domestic Product (\$ trillions)

United States	\$13,060.0	(official exchange rate)
Canada	1,089.0	“ “
Mexico	743.5	
	\$14,938.5	

Gross Domestic Product Per Capita

United States	\$43,800.00	(2006 estimate)
Canada	35,700.00	
Mexico	10,700.00	

Labor Force

United States	151.4 million	(2006 estimate)
Canada	17.6	“ “ “
Mexico	44.5	“ “ “
	213.5	

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Source: Figure 1 and Table 1. CIA. *The World Fact Book, United States, Canada, Mexico, 2007*

Table 2

NAFTA TRANSPORTATION SYSTEMS: THE PATH

United States

Airports, paved runways, 780 foot runway or greater (2007)	415
Pipelines, total all products (2003)	793,285 km
Railroads, standard gauge (2005)	226,612 km
Roadways, paved, incl. 75, 009 expressways (2005)	4,165,110 km
Waterways, navigable (2007)	19,312 km
Seaports, major, incl. Great Lakes (2007)	62

Canada

Airports, paved runways, 780 foot runway or greater (2007)	34
Pipelines, total all products (2005)	98,544 km
Railroads, standard gauge (200 <sup>^</sup> )	48, 068 km
Roadways, paved, incl. 17,000 expressways (2006)	415,600 km
Waterways, navigable (2007)	638 km
St Lawrence Seaway and River, shared with United States	3,769 km
Seaports, major, incl. Great Lakes (2007)	20

Mexico

Airports, paved runways, 780 foot runway or greater (2007)	41
Pipelines, total all products (2006)	40,016 km
Railroads, standard gauge (2006)	17,665 km
Roadways, paved, incl. 6,114 expressways (2004)	116,751 km
Waterways, navigable (2007)	2,900 km
Seaports, major (2007)	14

Source: CIA. *The World Fact Book, U.S, Canada, Mexico, 2007*

Table 3

NAFTA TRANSPORTATION SYSTEMS: THE PATH  
(SUMMARY)

Airports, paved runways, 780 foot runway or greater (2007)	490
Pipelines, total all products (2003)	931,845 km
Railroads, standard gauge (2005)	292,345 km
Roads, paved, incl. 98,153 of expressways (2005)	4,697,461 km
Waterways, navigable, incl. Great Lakes (2007)	22,850 km
Seaports, major	96

Source: *Table 2.*

Table 4

NAFTA TRANSPORTATION INDUSTRY PROFILES

(Sources for NAFTA Transportation Profiles are listed in the References Section)

UNITED STATES

**Pipelines**

Industry associations: American Petroleum Institute (APO) and Association of Oil Pipelines (API)

Number of firms 400 (oil and natural gas pipelines)

Number of miles of lines: Oil pipelines 200,000  
 Natural gas 300,000 of intra-inter state transmission lines of which 206,000 is mainline.

Natural gas pipeline systems	210
Delivery points	11,000
Receipt points	5,000
Interconnection points	1,400

## **Waterways**

Industry association: American Waterway Operators (AWO) represents approximately 400 firms in the business of barge and towing on the inland waterway system. AWO estimated as of November 2005 the combined inland and coastal tank barge fleet numbered 3,697 vessels. In 2004 the towing industry moved 818 million tons of cargo.

## **Airlines**

Industry association: Air Transport Association.

Total revenue passenger enplanements (12/06-11/07)	773,581
Revenue passenger miles	“ “ 838,920,812
Revenue freight ton miles	7,209,722
U.S. airline fleet passenger planes	6,629
U.S. airline cargo planes	997
Mainline passenger jets	3,886
Regional jets	1,687

Major U.S. carriers: American, Continental, Delta, Jet Blue, Northwest, Southwest, United, U.S. Airways

## **Trucking**

Industry association: American Trucking Association (ATA)

For hire carriers (2006)	290,629
Private	“ 504,166
Other	“ 234,892

Trucks used for business purposes (2004) 26.2 million. In 2005 10.7 billion tons of freight transported by trucking industry.

Ten largest motor carriers: UPS, FedEx Ground, Yellow Freight, Schneider National, Sirva, J.B. Hunt, Consolidated Freightways, FedEx Freight, Con-Way, Transportation Services, Roadway Express

**Railroads (U.S., Canada, Mexico)**

North American Freight Railroads	600
Miles of track	173,000

**United States**

Miles of track	141,000
Number of carriers, total	500+
Number of regional railroads	31
Number of local, short line, switching railroads	500+

U.S. Class I Railroads (2006)	Burlington Northern Santa Fe CSX Transportation Grand Trunk Corporation Kansas City Southern Norfolk Southern Soo Line Union Pacific
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**Ocean Shipping**

For analyzing purposes, the U.S. flag fleet is divided into “Foreign” and “Domestic” shipping. Vessel types in both trades include tanker, container, dry bulk, Ro-Ro, gas carriers, combination, and general cargo. The U.S. Maritime Administration (2005) list of U.S. fleet was: Ocean, privately owned 245, Ocean, government owned 50, domestic fleet 153.



Figures do not include gas carriers or combination ships. U.S. privately owned, including foreign flag, numbered 668 in 2005.

The world fleet in 2005 totaled 15,819. U.S. ranked 5<sup>th</sup> by country of owner, i.e., 739 vessels. U.S. liner companies are members of the World Shipping Council that represents 90 percent of global liner vessels. The Chamber of Shipping America (CSA) represents 30 U.S. based companies that either own, operate, or charter ocean going tankers, container ships and dry bulk ships engaged in both foreign and domestic trades.

Major U.S. flag shipping companies (foreign and domestic trades) include: American President Lines, Atlantic Container Line, Crowley Marine Services, Crowley Marine Corp., U.S. Ship Management, Farrell Lines, Fidelio Limited Partnership, Central Gulf Lines, Maersk Line, Ltd., Horizon Line, Matson Navigation, Totem Ocean Trailer Express, Hapag-Lloyd USA, and Waterman Steamship Company.

## CANADA

### **Pipelines**

Industry association: Canadian Energy Pipeline Association (CEPA) CEPA member companies transport more than 95 percent of crude and natural gas produced in Canada. There are 62,000+ miles of pipeline in Canada.

Major pipeline companies include: Trans Canada Pipelines, Enbridge Pipelines, Alliance Pipeline, Terasen Pipelines, TransGas, ATCO Pipelines, Trans-Northern Pipelines, BP Canada Energy Company, Foothills Pipelines, and Trans Quebec & Maritimes Enbridge Pipeline is the world's longest, running from Canada's western provinces to markets in the east.

## **Waterways**

Canada's major inland waterway system is the St. Lawrence River and the St. Lawrence Seaway System. See NAFTA Transportation Systems: "The Path."

## **Airlines**

Industry association: Air Transport Association of Canada. Association has 200 member companies representing large commercial carriers and independent and regional operators as well as other aircraft related entities.

There are 12 Canadian passenger carriers including helicopter operators. The three largest carriers are Air Canada (No. of aircraft 341), West Jet (No. of aircraft 73 + 36 orders) and Air Transat (No. of aircraft 17).

## **Trucking**

Industry association: Canadian Trucking Alliance. The Alliance represents 4,500 motor carriers. There are an estimated 3400 for hire trucking firms in Canada with annual revenues of \$1 million or more. Major firms are Axsun Group and CN Worldwide North America.

## **Railroads**

Industry association: The Railway Association of Canada (RAC). The association represents 60 freight, tourist, commuter, and intercity railways. The primary national railroads are Canadian National (26,800 km of track) and Canadian Pacific (22,000 km of track). In 2005 there were 57 regional/short line railroads. American railroads operating in Canada are Amtrak,

BNSF, CSX Transportation, Guilford Rail System, Norfolk Southern, and Union Pacific.

Via Rail Canada is the large intercity passenger railroad offering trans-Canada service. It is essentially the counterpart of Amtrak in the United States.

## **Ocean Shipping**

Industry association: Canadian Shipowners Association. The association represents Canada's domestic fleet, that is, Canadian owned, built with Canadian crews. Members operate approximately 80 vessels. The Halifax Shipping Association represents 39 ocean carriers, shipping agents, stevedoring firms and terminal operators.

The two large international shipping firms are Canadian Steamship Lines and affiliated CSL International (CSL Group) and Hapag-Lloyd Canada.

## **MEXICO**

### **Pipelines**

Industry association: None known. Mexico's pipelines according to product transported: Crude oil 28,200 km, Petroleum products, 10,150 km, Petrochemicals, 1,400 km, natural gas 13,254 km. The natural gas system serves most of the population centers in Mexico with the exception of the Northwest, North Pacific area. State-owned Petroleos Mexicano (PEMEX) owns most of the pipelines in Mexico. It is the 10<sup>th</sup> largest oil company in the world. In 2006 its revenue in USD exceeded \$100 billion.

## **Waterways**

Industry association: None known. Mexico has 2,900 km of navigable rivers and canals. There is no major inland waterway system such as the U.S. Mississippi-Ohio River system and the inter-coastal waterway system. The Gulf portion of the U.S. inter-coastal that ends at Brownsville, Texas, is a terminal point for a small amount of cargo continuing into Mexico.

## **Airlines**

Industry association: There is no comprehensive association representing Mexico's airlines. There are 70 domestic airlines of which 27 are scheduled passenger carriers. The largest (domestic and international) are Aeromexico (Number of aircraft 65+19 on order), Mexicana (Number of aircraft 64), Aero California (30 aircraft), Alma de Mexico (20 aircraft), and Interjet (22 aircraft).

## **Trucking**

Industry association: Camara Nacional Del Autotransporte de Carga (CANACAR) (National Chamber of Freight Transportation) represents an estimated 8,000 firms. In 2007 a one year pilot agreement between the U.S. and Mexico allows 100 Mexican trucking companies to operate in the United States and 100 U.S. firms to operate in Mexico,

## **Railroads**

Industry association. None known. Ferromex and Kansas City Southern de Mexico are special members of the American Association of Railroads. Mexico's rail network is 26,662 km of which 17,665 is standard gauge. Class I railroads are Ferromex, Ferrosur and KSC de Mexico. Ferromex is the largest railroad in Mexico. In 2006 there were eight short line railroads.

## **Ocean Shipping**

Industry association. None known. Mexico's ocean going fleet consists of 60 vessels of 1000 GRT or over (802,128 GRT). By type: bulk carrier 2, cargo 7, chemical tanker 6, liquid gas 4, cargo/passenger 11, petroleum tanker 25, roll on/roll off 5. Four vessels are foreign owned. Fourteen Mexican owned vessels are registered in foreign countries. Gruppo TMM is Mexico's largest transportation/logistics firm and also the largest in Latin America. Its fleet of 30 vessels includes product tankers, parcel tankers, off shore service vessels and tugboats.

Although the data in Table 4 with respect to individual countries is not consistent with regard to detail, viewed totally it presents a general picture of NAFTA's operational transportation systems.

## **Conclusion**

As indicated in Table 1, the U.S. market in terms of every economic indicator, exceeds, by far, those of Canada and Mexico combined. This might suggest that the economic benefits derived from NAFTA significantly favor Canada and Mexico, with only marginal benefits to the United States. (4) While still true in 2008, it is considerably less true than in the decade following World War II when the United States stood alone as the world's only economic superpower. In 2008 marginal benefits become very important when American firms must compete with a European common market and other free trade areas as cited in Footnote #3.

As in the case of the economies of the U.S., Canada, and Mexico, American transportation assets greatly exceed those of its NAFTA partners. However, with respect to an economically efficient NAFTA, this dominance is important only to the extent that American transportation assets can be integrated with those of

Canada and Mexico; American transport infrastructure being the “bridge” that links NAFTA economies. It then follows that not only must U.S. transportation systems be as efficient as possible but more important that NAFTA’s transportation systems, viewed totally, be equally efficient. The following sections of this report will concentrate on transportation mergers within NAFTA as a chief means of achieving that efficiency.

## II

### THE POLITICS OF TRANSPORTATION REGULATION/DEREGULATION

This section focuses on legislation and legislative trends with respect to transport regulation/deregulation in NAFTA with particular emphasis on acquisitions and mergers in the United States.

Seldom does a proposed major business merger take place without the issue of monopoly coming into play. Transportation mergers between transport firms in different NAFTA countries would be no exception and would probably be more thoroughly scrutinized than mergers within national boundaries. Appendix B lists transport regulatory agencies in the United States, Canada and Mexico.

#### UNITED STATES

##### **Railroads**

The regulation of railroads in the United States, including regulation of railroad mergers, dates from passage of the Act to Regulate Commerce (1887). The most far reaching of the Act's amendments with respect to economic regulation was the Transportation Act of 1920. So comprehensive was this legislation with respect to railroad activities that if reviewed by a family court judge

today, it could be fairly concluded that railroads were now under the guardianship and control of the Interstate Commerce Commission (ICC), the regulatory agency created by the Act of 1887.

The decline of railroads as the major transportation system in the United States after World War II can be attributed to a number of factors including massive federal government expenditures on highway, air, and waterway infrastructure----an estimated \$115 billion from 1945-1975, inter-city passenger preference for auto and air, and a shift from rail freight to for hire and common carrier trucking. Whether railroads could have adapted to this new environment without government regulation is problematic. What is certain is that by the late 1960s and early 1970s, under regulation, forty percent of the nation's rail system was in bankruptcy with the remaining solvent carrier's rate of return on investment less than two percent.

Railroad return to profitability can fairly be attributed to the relaxation of railroad regulation beginning with the passage of the Railroad Revitalization and Regulatory Reform Act of 1976. Main provisions included freedom to merge and freedom to abandon unprofitable services. *Under the Act, the Secretary of Transportation was instructed to facilitate proposed rail mergers.* Further relaxation with respect to mergers came with passage of the Staggers Rail Act of 1980. In the 20 years since its passage, 14 rail mergers have taken place resulting in the present (2008) seven major carriers shown in Table 4 (Railroads).



## Airlines

The regulation of airlines in the United States was initially tasked to the Aeronautics Branch of the Department of Commerce under the Air Commerce Act of 1926. The major responsibilities of the Aeronautics Branch dealt with safety issues including certification of aircraft, licensing of pilots, establishing and operating aids to air navigation and air traffic control of airways.

The Civil Aeronautics Act of 1938 transferred federal regulation of airlines to an independent agency, the Civil Aeronautics Administration (CAA). In 1940, *economic regulation* of airlines was transferred to a Civil Aeronautics Board (CAB) within the Civil Aeronautics Administration. The board had authority to set routes, flight frequencies, passenger and freight fares and rates, grant subsidies on less traveled routes, and oversee *mergers and acquisitions*. With respect to economic regulation, the authority of the CAB was quite similar to that of the Interstate Commerce Commission under terms of the railroad Transportation Act of 1920. Like ICC authority to regulate railroads, CAB authority to regulate airlines was ill suited to the aviation world of jet aircraft and an exponential increase in domestic and international air travel. The Board's cumbersome and bureaucratic administration of antiquated regulation and an autocratic mind set lead to passage of the Airline Deregulation Act of 1978. Under the Act, CAB authority to interfere with market place forces was severely curtailed. The agency was abolished in 1985. Since passage of the 1978 Act,

numerous mergers and acquisitions have occurred. Refer to Table 4 (Airlines) for a list of major U.S. carriers.

In 2008, the only restriction on airline mergers would be a strong showing of monopoly power on the proposed route(s) served.

## **Motor Carriers**

The Motor Carrier Act of 1935 gave the Interstate Commerce Commission (ICC) authority to regulate motor carriers and drivers engaged in interstate commerce. Specifically, the ICC controlled the issuance of operating permits, had the authority to set uniform rates within the industry, the power to define routes and geographic areas served and, in many cases, the authority to determine the commodities carried.

The most important provision of the Act (Section 206 (A)) was the ICC's authority to control entry into interstate trucking. In this regard, no motor carrier could engage in interstate commerce without a "Certificate of Public Convenience and Necessity." One result of this authority was that the only way an existing firm could enter a new market was to purchase the certificates ("rights") of an existing trucking firm. This *de facto*, back door way of expanding the scope of a firm's operation, i.e. merging route authorities, was strenuously opposed by the ICC and whenever possible used its statutory powers to restrict the practice. In many ways the economic regulation of

interstate trucking was more pervasive and stifling than early rail and airline regulation.

With passage of the Motor Carrier Act of 1980, interstate trucking became the most deregulated of all U.S. carriers. The 1980 Act deregulated routes and ended rate making by the ICC through rate bureaus (truckers could now publish their own rates). While truckers must still apply for certificates of public convenience and necessity and file their tariffs, the requirements are more of a nuisance (but with costs) than having any real effect on entry and rates. Also terminated were most restrictions on commodities trucks could carry as well as any implied restrictions on mergers and acquisitions.

In the words of President Jimmy Carter upon signing the Motor Carrier Act of 1980:

*This is historic legislation. It will remove 45 years of excessive and inflationary government restrictions and red tape. It will have a powerful anti-inflationary effect, reducing consumer costs by as much as \$8 billion each year. And by ending wasteful practices, it will conserve annually hundreds of millions of gallons of precious fuel.*

Regulation of *intra-state commerce* is still a matter for states to decide. Where states regulate intra-state trucking, the regulations mostly concern entry and pricing of service. It should be noted, however, that the burden of proving a

case of strictly intra-state commerce would be difficult if challenged by the federal government.

As shown in Table 4 (Trucking) there were over one million for hire and private trucking firms in 2006 making it extremely difficult for a merger or mergers to influence competition to the extent that a federal agency would intervene.

## **Ocean Shipping**

With repeal of those sections of the Merchant Marine Act of 1936 that restricted entry of American firms into the business of international ocean shipping, mergers and acquisitions within the industry have not been challenged. In many cases, U.S. flag firms are subsidiaries of foreign companies. While there are no restrictions with respect to U.S. firms entering the American domestic trades, that is, service between American ports, the Merchant Marine Act of 1920, the so-called “Jones Act” reserves these trades to American owned and crewed ships. The Ocean Shipping Reform Act of 1998 continued the movement toward deregulation of the industry. Its chief purpose is to give ocean shippers and ocean carriers more freedom to inter into contractual relationships including inter-modal services.

Given past mergers and acquisitions in international ocean shipping, it is unlikely that future mergers and acquisitions would be contested. It should be noted, however, that U.S. flag ships in times of conflict are

considered a vital part of the defense establishment. Any private sector agreement that would compromise access to this shipping would be opposed by the Department of Defense.

The role of shipping conferences and cabotage laws will be discussed in later sections of the paper.

### **Pipelines and Inland Waterways**

There are no legal obstacles with respect to mergers and acquisitions in these industries. Pipelines are essentially private carriers, moving their own products through their pipeline systems. Inland waterway operators are both private and for hire carriers.

### **CANADA AND MEXICO**

Legislative trends in Canada with respect to transport regulation/deregulation, including mergers, have generally followed that of the United States. Recommendations made by the *Canada Transportation Act Review: List of Interim Recommendations (Released January 1, 2001)* are illustrative of this trend. Appendix C cites several of the review panel's recommendations with regard to mergers and the creation of a NAFTA common aviation area.

Pipeline regulation in Canada is more decentralized than in the United States. In this regard the federal government of Canada shares regulatory authority with the provinces to a greater extent than in the United States, i.e.

under the commerce clause in the U.S. Constitution it is difficult to make a case for purely intra-state commerce.

With the exception of local services, like the United States, transport firms in Canada, in all modes, are in the private sector.

Although transport deregulation in Mexico lags that in Canada and the United States, there are encouraging trends, in particular the move toward privatizing transport investment, a prerequisite for private sector mergers and acquisitions. As a general rule, when a nation's business sector is largely in the private sector, legislation to make that sector more efficient usually follows. In this respect, major airlines in Mexico are privately owned, as are railroad and truck firms.

Indicative of Mexico's move toward "globalization" of transportation within NAFTA is the recent "open skies" agreement between the U.S. and Mexico that allows low cost carriers of each nation to fly directly between U.S. and Mexican cities. Evidence of a willingness to participate in inter-NAFTA agreements is Mexico's compliance with motor vehicle inspection standards as specified by the Commercial Vehicle Safety Alliance (CVSA). These standards are the same at all points of entry along the U.S./Mexican and U.S./Canadian borders. (5)

## **Conclusion**

A strong presumption can be made, based on past and recent legislation with respect to deregulation and mergers, is that the present political climate in Canada and Mexico, while not necessarily inclined toward inter-NAFTA transport mergers, is not *per se* hostile to such proposals. It is, however, important to note when examining recent deregulation statutes that maintaining competition with respect to rates and services in deregulated environments has been, and will be, a major consideration when any merger proposal is examined by regulatory authorities.

### III

## TRANSPORTATION INTEGRATION IN NAFTA 2008

A fair question when considering the issue of transportation firm mergers in NAFTA is..... “If it isn’t broke, why fix it?” In this regard:

Canada’s two major railroads, Canadian National and Canadian Pacific own and operate rail subsidiaries in the United States. (6) Norfolk Southern, Burlington Northern Santa Fe, Union Pacific, and CSX all have gateways into Canada, In 2005 Kansas City Southern purchased a controlling interest in Mexican Grupo Transportacion Ferroviaria Mexicana and has a 50 percent interest in the Panama Canal Railroad Company.

With respect to railroads in general, interchange of rolling stock and trackage/hauling agreements between carriers has a long history. It can be fairly said that without such cooperation transportation by rail would suffer markedly in terms of service.

Shipping conferences that set rates and conditions of service for liner companies on specified routes have been in effect since the latter part of the 19<sup>th</sup> century. Generally speaking, conferences could not exist without anti-trust immunity as granted by the involved maritime nations. The United States historically has insisted on “open” conferences wherein a shipping company desiring to join



the conference could not be excluded. The United States *Ocean Shipping Reform Act of 1998* gave conference members the right of independent action with respect to rates and the ability to negotiate contracts with shippers without regard to conference rate setting provisions. (7)

The two largest U.S. air-ground transportation companies, FedEx and UPS have subsidiary companies in Canada and Mexico—FedEx Express Canada and FedEx Mexico; UPS Mexico and UPS Canada. In February 2008 Canada Post and FedEx Canada announced a partnership to develop an international express service. UPS Store Canada operates over 300 UPS store franchises in Canada. FedEx Express Latin American and Caribbean serves over 50 countries. UPS Mexico offers service to 600 different points in the country.

The EU-US Open Skies Agreement (effective 30 March 2008) allows any airline of the United States to fly between any point in the European Union and allows any EU airline to fly between any point in the United States. EU airlines are also allowed to fly between the United States and non-EU countries.

The most recent U.S. open skies agreement (2008) is between the United States and Australia. The United States has open skies agreements with 65+ countries, including one with Canada signed in November 2005.

Code sharing. All major U.S. airlines are members of code sharing alliances. Under a code sharing agreement a

flight operated by a code sharing member airline can be jointly marketed as a flight of other airlines in the alliance. Advantages of code sharing include the ability of a passenger to book through travel beyond points served by the originating carrier, coordinating of luggage handling, and earning frequent flyer miles when flying on carriers in the code share alliance. In the past code sharing agreements have been investigated by the responsible agencies in the United States and several other countries with respect to the possible creation of monopoly powers.

The International Air Transport Agreement specifies the rights of international airlines with respect to over fly of foreign countries and the rights to transport passengers and cargo between countries other than the carrier's nation of registry. (8)

The Security and Prosperity Partnership of North America (SPP) was agreed to by President Bush, President Vicente For of Mexico, and Canadian Prime Minister Paul Martin at a summit meeting in Waco, Texas in March 2005. The major purpose of SPP is to increase the competitiveness of NAFTA industries in the global marketplace. A number of working groups were established including a working group on transportation. One goal of the Transportation Group was to improve the safety and *efficiency* of North America's transportation system.

United States-Mexico-Canada Trilateral  
Transportation Meeting, Tucson, Arizona, April 27, 2007.

....we, the Ministers responsible for Transportation in North America have met...to confirm and advance our commitment to developing coordinated, compatible and interconnected national transportation systems.

We recognize that real economic benefits in North America result from open and fair trade, transparency in economic regulations, and sound, market-based economic policies. (9)

### **Proposed NAFTA Super Corridor**

A major and extremely expensive project to improve (path) transportation efficiencies is the proposed NAFTA Super Corridor. As envisioned, the corridor will be multimodal, including lanes for 18 wheel trucks, rail freight and high speed commuter rail. Estimates place the length of the corridor at around 4,000 miles with a width of 1200 feet. The Texas portion of the corridor, the Trans-Texas Corridor will begin in Laredo, Texas running north near the present Interstate-35, to the Oklahoma border and continue on to Kansas City, its proposed hub. (10) Plans are to build a joint U.S.- Mexico custom facility in the city.

Extensions to Canada will go west to Vancouver and east to Montreal. Existing Mexican railroads and highways will connect to the Super Corridor at Laredo. Also proposed are several offspring super corridors leading to different gateways along the Canadian and Mexican borders. The corridor project is now in the planning stage.

The concept, however, has its critics; mainly the cost, estimated at between \$150-200 billion dollars. Proponents argue that private capital will be invested in the project and that the corridor will become a toll road. Critics see the U.S. taxpayer as the major source of funding. Another main objection is the likelihood that Asian shippers will use Mexican ports that connect with the Super Corridor, avoiding the use of presently congested California container ports. (11)

## IV

### OPPOSITION AND IMPEDIMENTS TO NAFTA TRANSPORTATION MERGERS

#### UNITED STATES

##### **Railroads (12)**

Historically, when two railroads have proposed a merger the loudest and most sustained objections come from other railroads that perceive their financial and market interests threatened. The proposed merger of BNSF and CN in 2000 was opposed by the Union Pacific and Canadian Pacific Railways. The case of CSX and Norfolk Southern's fight as to which road should purchase CONRAIL, and for how much is another case of railroads pitted against railroads. Ultimately CONRAIL assets were divided between the two contenders.

Railroad unions can be expected to carefully monitor and, when necessary, weigh in with political pressure when its interests, that is, jobs are threatened by a merger.

Objections can be expected from rail shippers, in particular bulk shippers. e.g., shippers of coal, grain, chemicals and other bulk products. Their complaint would generally cite the "market dominance" of the merged carriers should the merger take place and the expectation that market dominance would lead to unreasonable (monopoly) rail rates in the future. (13)

The viability of short line railroads may be threatened by a merger of major carriers in the region served by the short line or regional railroad. This can be the case when the distance between origin and destination is significantly reduced after a merger in areas where the short line held a prior distance advantage.

Should a proposed rail merger cause motor carriers to abandon a particular market, thus removing an element of competition, the Surface Transportation Board would undoubtedly consider the possibility of market dominance. Significant political pressure at the Congressional level from trucking associations and trucking labor unions can be counted as a certainty.

In 2000 the Surface Transportation Board, successor agency to the pro regulation Interstate Commerce Commission, placed a hold on a proposed merger between the Burlington Northern Santa Fe Railway and the Canadian National Railway. The STB concluded that railroads needed to “take a breather” with respect to more mergers and that shippers and the industry have not yet recovered from previous mergers. A review of STB decisions, in particular the BNSF-CN decision, indicates that the burden of proof would be on the merger partners to show, in every respect, that the merger would be beneficial to each and all parties and in the post merger world there would be more competition, i.e. maintaining the same degree of competition prior to the merger would not be acceptable.

## **Motor Carriers**

Should a merger of motor carriers result in significantly less competition in a geographic area, shippers can be expected to oppose the merger and the STB to consider the possibility of market dominance. The size of the merged firm would be a major consideration as well as competition from other modes. In all likelihood, a merger of two large trucking firms in a region otherwise lacking in competition would be opposed. A major criteria with respect to small carrier mergers would be (a) “ease of entry” into the market by competing motor carriers and (b) degree of competition after the merger(s).

## **Airlines**

Historically, airline mergers have been judged on the existence of competition on a merged route, the degree of competition at major cities (hubs) and loss of service in a particular region. The fact that several major carriers filed for bankruptcy over the past five years and that many smaller carriers have gone out of business would be a consideration of no small importance when the Federal Aviation Administration considers a proposed merger. In addition to the competition consideration, equally important is whether the merged carriers will have the financial strength to survive and compete in an environment of high fuel prices and a slowed economy. It should be noted, however, that *airline service* and *ticket*

*prices* are the major complaints of airline customers in 2008.

Mergers between airlines of different nations must overcome present statutory requirements with respect to degree of ownership. This is especially the case with regard to American carriers. Restrictions in 2008 with respect to ownership are currently under study in the context of modifying or abandoning ownership requirements.

### **Inland Waterway Carriers and Pipelines**

Like mergers in trucking, a merger of inland water carriers would be judged on whether or not the merged carriers had monopoly power. This would be a determination of the Anti Trust Division of the Department of Justice, not the Surface Transportation Board.

Oil and natural gas pipelines in the United States are not common carriers. (14) Rates and services are regulated by the Federal Energy Regulatory Commission and, in a few instances, the STB. Pipeline safety is tasked to the Pipeline and Hazardous Materials Safety Administration (PHMSA) Whether a pipeline merger created a monopoly would be determined by the Anti-Trust Division of the Department of Justice.



## CANADA AND MEXICO

### **Railroads**

Unlike the U.S. Surface Transportation Board, Canadian and Mexican transport regulatory agencies (described in Appendix B) have not exhibited *a defined bias* against railroad mergers. Recent history suggests that proposed mergers would be considered on their merit.

As in the case of the proposed CN-BNSF merger, a merger between CN or CP with a major U.S. railroad would be opposed by the left out Canadian carrier and most likely all major American railroads, in particular those carriers that would be in direct competition with the merged entity. Rail shippers, in particular bulk shippers, could be expected to offer sustained objections to such mergers.

Opposition to a merger between Mexico's two major railroads, Ferromex and KSC de Mexico, could be expected from major Mexican trucking firms as well as Mexican rail shippers. Major Canadian and American railroads would be interested parties in any merger proceedings and, on balance, probably object to the merger. Given the extent of opposition, Mexico's Ministry of Communications and Transportation could be expected to deny the merger on anti-competition grounds.

## **Airlines and Ocean Shipping**

Any U.S.-Canadian airline merger or U.S.-Mexico airline merger that left either Canada or Mexico without a national flag carrier or a major interest in a merged carrier, would be opposed in the legislative branch of both governments which, in turn, would assure a negative response by the responsible regulatory agencies. The same reasoning would apply to ocean shipping mergers. Demonstrably improved service and rates could not overcome the national pride and a national carrier rationale for denying the merger.

## **Motor Carriers**

With respect to motor carrier mergers, the only sustainable objection would be a clear showing of market dominance in a *defined region* after the merger. In 2008 motor carriers of the three NAFTA partners move freely across national borders making it difficult to assert that *any* merger between motor carriers would result in a NAFTA wide monopoly.

## **Pipelines**

The pipeline industry in NAFTA is so well integrated that any increase in efficiency by a merger per se would be minimal. Like railroads and motor carriers the possibility of market dominance leading to rate increases and loss of

service would be the only impediment should a major pipeline merger be proposed.

## V

### POLITICAL OPPOSITION TO NAFTA TRANSPORTATION MERGERS

#### UNITED STATES

Based on past history, political opposition can be expected from:

(a) Anti-NAFTA politicians that view NAFTA as a step toward political integration of North America followed by a super world government. These groups see NAFTA and follow on groups as a threat to U.S. sovereignty

(b) Politicians and interest groups that blame NAFTA for loss of jobs in the United States due to American firms relocating in Mexico.

(c) Politicians and academic groups that historically view regulation of transportation as an inherent government responsibility. In 2008 these groups argue for re regulation of railroads and airlines. They can be expected to oppose any further transportation mergers.

The United State Department of Defense, while not expected to pre judge NAFTA transportation mergers, can be expected to closely review any proposed merger that might jeopardize current contingency agreements with American flag ocean carriers and U.S. airlines. Appendix

D describes the Civil Reserve Air Fleet (CRAF) and Maritime Security Program (MSP) programs.

## **Excluded Systems**

This study has profiled and commented on the economic and political aspects of current NAFTA transportation systems, i.e., ocean shipping, rail, air, inland waterway, highway and pipelines. Concluded is that the present political and economic environment with respect to highway, inland waterways, and pipelines is economically competitive and politically positive to the extent that proposed inter NAFTA mergers/acquisitions in these sectors would not be opposed by the respective government regulatory agencies without a compelling economic reason, mainly the possibility of market dominance in particular markets. (15)

Ocean shipping is a special case. In the United States domestic ocean shipping has been reserved since 1789, in one form or another, to American flag, American built vessels. In 2008 this shipping is a mainstay for maintaining a private sector shipbuilding base, providing active, crewed U.S. flag ships in a mobilization, and maintaining a pool of skilled mariners to man reserve (NDRF) tonnage should such be required.

Although Canadian and Mexican domestic ocean shipping is essentially non-existent, the likelihood of keeping U.S. cabotage laws off the negotiating table when considering mergers between NAFTA ocean carriers is

small indeed. For this reason mergers/acquisitions of ocean shipping firms *per se* will not be considered. What will be considered are sea-air-highway combinations and sea-rail-highway combinations.

## VI

### THE CASE FOR TRANSPORTATION MERGERS IN NORTH AMERICA

#### **Parameters**

1. In creating an environment for transportation mergers in NAFTA, the national governments of Canada, Mexico and the United States must act *simultaneously*, or as close thereto as possible when establishing the rules/conditions under which transportation mergers can take place.

The language of the tri part enabling legislation inviting merger proposals is extremely important, i.e., mergers must not be viewed as compromising national sovereignty.

2. When specifying rule and conditions of mergers, special consideration must be given to the concept of national pride and the importance of national flag carriers in international commerce. In this respect, should United States entities be viewed as controlling all, or most of the merged systems, any proposed merger will fail politically. An example of recognizing the national pride consideration was the proposed (but failed) merger between BNSF and the Canadian National Railway. The merged company was to be headquartered in Montreal, Canada. While this

decision was based on legal rather than national pride considerations, it would have served a purpose with respect to the latter.

Another way to avoid the possible dominance of U.S. firms in NAFTA transportation mergers is to insure the opportunity for national representation in ownership of the merged firm. Initially, a specified amount of stock could be reserved for the nationals of the three NAFTA partners but with the stipulation that after a defined period the stock would be openly traded.

3. An important consideration when considering any NAFTA transportation merger is that the merged assets be available to the national governments in time of war, national emergency and natural disasters. In the case of the United States, the present earmarked ocean shipping and air assets covered by the MSP and CRAF agreements must remain available as specified in the agreements.

4. Merged transportation assets must remain the private sector and, to the political extent possible, NAFTA governments should avoid financially supporting any private sector transportation firm, whether national or multinational, either by capital grants or operating subsidies. As history has shown, government ownership of transportation assets or a government guarantee of the viability of a transportation asset will only insure failure in the long term. (16) Legislation that would make transportation more efficient in NAFTA, and is clearly in



the public interest, would be encouraged. e.g. granting eminent domain authority for right of ways.

5. No NAFTA government, or any agency representing all NAFTA governments, will submit proposals for transportation mergers. In this regard, a provision of the U.S. Transportation Act of 1920 is illustrative. It gave the Interstate Commerce Commission authority to draw up and submit merger proposals to rail carriers for their consideration. *No railroad responded and the provision was deleted in later legislation.* This lesson is instructive. The private sector must take the initiative with regard to merger proposals, not government.

6. Merger proposals must give due consideration with respect to maintaining competition in areas served by the merged firms, i.e. avoid allegations of market dominance as generally defined. In defining market dominance, however, due weight must be given to geographic and product considerations.

7. To the extent possible transportation rules and regulations within NAFTA must be codified. National transportation authorities will administer the codified rules, not a super NAFTA transportation agency.

## **Compelling Factors For Mergers/Acquisitions: Summary**

\*The need to increase fuel efficiency in NAFTA transport systems, i.e., moving one ton of freight one mile on less fuel; less fuel in passenger miles transported.

\*The need to lessen greenhouse gas emissions in the transport sector. Appendix E examines transportation efficiency in terms of increasing fuel efficiencies and lessening transport greenhouse gas emissions.

\*Gateways connecting rail systems and hubs connecting air systems already exist.

\*The path components of air and rail systems are already in place. While improvements must be made, the basic issue is how to make the existing infrastructure as efficient as possible.

\*The history of rail and air mergers over the past 30 years is positive, i.e. mergers have improved the overall efficiency of rail and air transportation.

\*As a general rule, large corporate entities can more easily raise capital to pay for expansion and invest in improved technologies than can small corporate entities.

\*Potential merger partners already exist. There is no need for government to create new transportation firms in order to insure competition.

\*Governments in the 21<sup>st</sup> century will more carefully weigh the costs and benefits of future government transportation investments. In this context, proposed transportation firm mergers in 2008 and beyond will be given a fair hearing, not as in the past, rejected or burdened with unreasonable bureaucratic demands.

\*The world is moving toward “open skies” agreements at an accelerated pace. Not only must air service be efficient within NAFTA, but beyond NAFTA.

\*The European Union is ahead of NAFTA with respect to integrated surface transportation systems. In a large part this is due to state owned/controlled transport entities where the government is the decision maker, not the private sector market place. As noted earlier, this study takes the position that the private sector can better decide on whether transportation mergers/acquisitions are economically viable.

\*In recent years Canada and Mexico have accelerated the privatization process with respect to state owned transport assets. This can only be viewed as encouraging with respect to transportation deregulation.

\*The statement of purpose made at the April 2007 United States-Mexico-Canada Trilateral Transportation Meeting is a strong indication that all options to improve transport efficiency within NAFTA will be considered.

\*Transportation efficiency within NAFTA directly effects the ability of NAFTA products to compete in a global economy. This conclusion has never been challenged at any level by any NAFTA government.

### **Intra-industry Air, Rail and Ocean Shipping Mergers/Acquisitions: Analysis**

It was argued earlier (Excluded Systems) that highway, inland waterway, and pipeline mergers within their own sectors probably would not raise objections by their respective regulatory agencies. Also noted was that the remaining merger/acquisition candidates, air, ocean shipping and rail, faced a number of economic disadvantages in terms of competing with highway carriers, pipelines and inland water transport. Among them were truck access to a 4.7 million km NAFTA road system and the fuel efficiency (ton miles moved per energy unit) of inland water carriers, and pipelines. This raises the question of how can NAFTA air, rail and ocean shipping firms proceed with proposed merger/acquisitions in (a) the context of a competitive transport marketplace, that is, a marketplace wherein different modes have distinct advantages, and (b) insure that sufficient competition exists, that is, rebut the contention of market dominance in the geographic markets of the merged firm.

One question that must be answered in this regard is whether future technologies can effect/change the present marketplace advantages/disadvantages of existing transport modes. Some possibilities include:

\*More efficient small diesel engines for trucks as well as a different fuel source for trucks.

\*More efficient large diesel or other type engines for ocean going carriers. In this respect, is the earlier Sea Land concept of a fast ocean ship competing with air freight carriers viable? (17)

\*More efficient aircraft engines powering larger aircraft.

\*Alternate sources of energy coming on line, e.g. wind power, solar power, emission free coal plants, and nuclear power.

\*Improvements in transportation infrastructure such as containerization and the interstate highway system.

\*Use of natural gas as the dominant fuel source for automobiles. For hybrids? Will they decrease the demand for petroleum based fuels to a point where trucks can more effectively compete with rail, pipeline, and water transport modes over longer distances?

\*Increase/decrease in transportation user taxes.

\*Government subsidies for different transport modes.

Whether future transportation technologies and government actions will significantly alter the present transportation environment with respect to modal advantages/disadvantages cannot be stated with any degree

of certainty. What can be stated is that, over time, technological improvements developed in the private sector will be, more or less, evenly distributed among the modes. e.g. improvements in diesel engine technology and improvement in transport infrastructure that benefits bi-modal and multi-modal movements.

The greatest unknown is government action with respect to transportation spending in general, subsidies, direct and indirect, for a particular mode and taxation, direct and indirect of a particular mode. .

## **Multimodal Transportation Companies**

A second question is how to structure merged transportation firms? A restructured North American rail system composed of, for example, two continent-wide systems, would probably be challenged as monopolistic. Assuming such to be the case, what firm structure might reasonably satisfy the competition requirement? One option is multimodal transportation companies. By adding a highway or waterway capability to rail based systems, the geographic area of competition between rail-based systems could be significantly increased. This option is explored in the 2005 Strom Thurmond Institute study—*Multimodal Transportation Companies In The 21<sup>st</sup> Century*

## Comments On Inter-Modal Transportation

In 2008 Canada is the number one trading partner of the United States; Mexico is number two. In this context the importance of an efficient North American transportation network cannot be overstated, With respect to the U.S. transport sector's contribution to Gross Domestic Product (GDP) in 2005:

Air.....	\$135.1 Billion
Rail.....	57.6 Billion
Water.....	35.8 Billion
Truck.....	250.6 Billion
Pipeline.....	39.1 Billion
 Total	 \$518.2 Billion

Total GDP for all private sector industries was \$20,256 billion.  
(18)

Comments on the importance of inter-modal transportation in the United States include:

*I wonder how many members of Congress are even aware of the scale and impact of the freight intermodal revolution of the past quarter century. I have great respect for the U.S. Department of Transportation. (However) DOT sat on the sidelines during the intermodal revolution. It is still organized along modal lines.*

*I keep saying that for railroads, this is going to be their century. Containers are reshaping the transportation world because moving them is so much more fuel efficient than trucks. Growth trends in freight intermodal traffic are forcing us toward this approach....freight moving in and out of our largest cities by highway is plagued by gridlock.*

*Congestion is turning into strangulation.*

Gil Carmichael  
Former U.S. Railroad Administrator

Mr. Carmichael further states that a high-speed intermodal, interstate system stretching from coast to coast and from Mexico to Montreal will be required to maintain the health of the railroads and the U.S. economy. This system will require building or upgrading 20,000 miles of grade separated, double track corridors capable of train speeds of 90 miles an hour. Without such a sweeping upgrade to the nation's intermodal transportation network, railroads will not be able to handle the business coming their way. (19)

More comments on inter-modal transportation from the Foundation for Intermodal Research and Education.

*Historically, the U.S. federal government has recognized and supported the national development of transportation infrastructure necessary for economic growth and national defense. For many years, any investment was an improvement. However, such a haphazard arrangement is no longer acceptable. Today, we find ourselves with a funding mechanism as dysfunctional as the policy mechanism itself.*

*Transportation is an asset-based, network-operating business. Unfortunately the system cannot efficiently accommodate the demands being place on the road, rail and waterway networks. In 2005 the American Society of Civil engineers gave our nation's transportation*



*infrastructure a grade of D+ and estimated a \$1.6 trillion price to repair it.*

*The industry consensus is that freight is talking, and the federal government is not listening.*

*We believe that current project planning for surface freight transportation is ineffective because the passenger and transit models—which are focused locally—fail to consider the entire freight network, and the network no longer enjoys the luxury of overcapacity.*

*Our proposed solutions focus on inter-modal improvements, which we believe have the power to leverage other freight network initiatives and maximize overall value for the entire network, not just a single mode or special interest.*

*believe inter-modal focus provides the catalyst for this common vision because it leverages the strengths of every mode. Transportation can achieve necessary synergies because integrated service is better, and more productive, than the individual modes. We believe that nation has reached an inflection point. The economic gains unleashed by deregulation have been consumed, and we are starting to see infrastructure problems pose a threat to America's economic growth and security. (20)*

*Additional comments by Gilbert Carmichael, former United States Railroad Administrator.*

*By tradition, government agencies concentrate on each mode's infrastructure. Highway agencies build and maintain roads. Airport authorities build and maintain airports. Government provides grants to these and other systems—urban transit and Amtrak, for example—to offset operating deficits, meet capital needs, and help upgrade the infrastructure they use. Several things are wrong with this historical arrangement.*

*For one thing, it leads to one-dimensional thinking. Federal and state governments concentrate on infrastructure, but do not pay much attention to how it is actually used—or where the most promising opportunities exist. Freight's inter-modal network, on the other hand, has succeeded because it is customer driven. Our “infrastructure mentality” also causes government to view the modes in isolation, yet the inter-modal system prospers by efficiently unifying them horizontally.*

*Among public officials at all levels of government—including many people in transportation agencies—the ignorance of freight transportation is almost universal. Some regional planning agencies have written transportation plans that devote more attention to bicycle paths than to freight transportation. We must remember that for every passenger moving on America's transportation system, a ton of freight is moving. (21)*

## VII

### 2008 AND BEYOND

The most logical starting point with respect to creating large, efficient, private sector NAFTA transportation firms are the present (2008), major North American railroads.

Railroad	Mainline Miles
Burlington Northern Santa Fe	24,000
Canadian National	16,600
Canadian Pacific	13,200
CSX	21,000
Ferromex/Ferrosur	5,000
Kansas City Southern	3,200
KSC de Mexico	2,600
Norfolk Southern	21,000
Union Pacific	<u>36,200</u>
	140,200

Table 5 summarizes selected 2008 financial data of the above railroads.

Table 5

NORTH AMERICAN RAILROAD FINANCIAL DATA  
2008

Railroad	P/E	ROE	Mkt Cap	Total Rev	Net Inc
NSC	17.25	15.36	\$25.4B	\$2.765M	\$453M
CSX	17.12	15.27	22.0	2.907	385
BNSF	18.64	16.83	31.7	4.478	350
UP	19.03	12.88	35.3	4.568	531
KSCR	23.84	10.20	3.9	4.826	55
CP	11.04	15.16	8.0	1.181	150
CN	12.51	20.98	22.9	2.031	444

Source: [www.nyse.com](http://www.nyse.com) as of October 20, 2008. In US\$.  
Stock symbols for above are NSC, CSX, BNI, UNP, KSU, CP, and CNI.

FERROMEX 2008 Data NA. In August 2006, the Mexican government denied a merger between Ferromex and Ferrosur (a short line serving the greater Mexico area) The proposed merger was contested by KSC de Mexico. In 2007 the Mexican Supreme Court upheld denial of the merger. While the two companies will remain separate entities, by a 2006 arrangement Ferromex will manage Ferrosur rail assets. Union Pacific Railroad owns 26% of Ferromex.

KSC de Mexico (KSCM) 2008 data NA. KSCM is a subsidiary of the Kansas City Southern, a holding company. KSCM was formerly Transportacion Ferroviaria Mexicana (TFM), a part of the Mexican governments national railway system. KSC is the parent company of KSCR and KSCM.

Table 6 summarizes the performance of North American rail equities in 2008. The inclusive dates cover the worldwide economic meltdown that began in August of 2008 and is fair evidence that railroads are the best building blocks for NAFTA multi-modal transportation firms.

Table 6

Market Valuation of North American Rail Equities  
January 2-October 31, 2008 (\$US)

Carrier	Stock price	
Burlington Northern	\$82.93	\$89.06
Canadian National	46.40	43.25
Canadian Pacific	64.45	45.00
CSX Industries	43.45	45.72
Kansas City Southern	33.47	30.87
Norfolk Southern	49.41	59.94
Union Pacific	62.12	66.77
Dow Industrial Average	13,043.96	9,336.92

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Source: *nyse.com*

Appendix F shows maps of NAFTA transportation systems and individual firm routes.

In considering possible NAFTA rail merger/acquisitions the major consideration is to insure that continent-wide north-south and east-west competition exists. In this respect, monopoly objections would be likely if the merged entities included CP-CN, CN-KSC, BN-UP, NS-CSX, Ferromex-KSC. While extensive trackage/haulage rights as between carriers and bringing the 500 or more regional railroad into the mix might overcome some objections, it would still be a high mountain to climb. All things considered the most likely outcome would be two major NAFTA rail based multimodal transportation firms with the option of including ocean carriers in the final systems.

Regional multimodal transportation companies composed of regional/short line railroads, redundant trackage of the two major systems, and highway carriers, will be part of the continent-wide system.

Should NAFTA flag carriers lack the tonnage necessary to meet the ocean freight requirements of the final systems, foreign owned shipping could be considered giving due weight to the national and national security interest of the three NAFTA partners.

With respect to building continent-wide transportation systems based on rail networks, it might be argued that the rail advantage (over highway carriers) might be temporary;

that improved highways, improved diesel engine efficiencies, reduced fuel prices, and improved vehicle technology, might return the transport advantage to truckers as was the case in 1950-80. Should, however, all the above improvements come to pass, the advantage will still be with railroads. *In this respect the greatest “enemy” of the highway carrier is not railroads, nor inland water or pipelines, but rather the automobile.*

In 1980 there were 121,601,000 registered passenger cars. In 2005 the number of passenger cars totaled 136,568,000, an increase of almost 15 million vehicles added to the highway system. In the next 25 years there is no data that suggests that this trend in passenger car registration will not continue.

Roadway congestion costs in 2003 were \$422 per person. Delay costs totaled \$742 million; wasted fuel gallons per person was \$15.00. In 2005, 10,775 vehicles were involved in crashes of which 6.08 million were passenger cars compared to 441,500 large trucks. Going from 6 to 8 to 12 lanes and building five level interchanges may hold percentages relatively constant but totals indicate that congestion on U.S. highways will continue into the foreseeable future.

As started earlier, improvements in transport technology seldom benefits a single mode. Improvements, for example, diesel engines will benefit all modes as will any decrease in fuel costs.

While no data is available, a reasonable hypothesis is that double or even triple tracking portions of the rail network is significantly less expensive than adding lanes and interchanges to the highway system. An area, however, where rail and highway costs are essentially equal is land acquisition in urban areas. In this regard, there is no disagreement that rail terminal capabilities must be significantly increased. In 2008, a solution to this “bottleneck” problem is critical, one that must be addressed, if congestion on the U.S. rail network, like congestion on the highway system, is to be avoided.

When a road or highway comes to a border, be it local, county, state or country, the path is continuous; not dependent on cooperative agreements between government entities. In the case of NAFTA, there are seven major railroads where a continuous rail path depends on inter-modal, haulage/trackage and demurrage agreements’. The question then becomes...can a continuous rail path be better achieved by merged railroads expanding into multimodal transportation companies than can present cooperative arrangements?

In 2008 the path component of the highway system is government owned; the rail path privately owned. If it is granted that efficient transportation in NAFTA in the 21<sup>st</sup> century will rely to an ever greater extent on railroads, the choice becomes a choice between (a) a government owned rail system without boundaries, as in the case of the highway system, or (b) a privately owned rail network without boundaries.



In 2008, North American limited weight freight shippers are well served by existing air-highway firms. i.e., FedEx, UPS, DHL and smaller regional systems. However, as rail increases its share of the ground movement in these systems, incorporating air-highway systems into rail based multi-modal transportation companies is a concept deserving consideration. Or existing air-highway freight carriers could enter into cooperative agreements with rail-based multi-modal transportation companies.

Viewed in its entirety, there is no compelling reason why all mode-encompassing transportation firms cannot be financially successful while markedly improving North America's transportation capabilities and, at the same time, insure that effective competition exists in all geographic areas of NAFTA. There has been a lot of discussion on the edges of this possibility, e.g. the statement of purpose made at the April 2007 US-Mexico-Canada Trilateral Transportation Meeting. It is now time for the next step.

## APPENDICES

## APPENDIX A

### FREE TRADE AREAS 2008

#### **Regional Agreements Between States/blocs in Same Geographic Area**

Andean Community-Bolivia, Columbia, Ecuador, Peru, Venezuela.

ASEAN Free Trade Area (AFTA)-Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, Cambodia, Laos, Myanmar, Vietnam.

Central American Common Market (CACM)-Guatemala, Costa Rica, El Salvador, Honduras, Nicaragua.

Dominican Republic-Central America Free Trade Agreement (DR-CAFTA)-United States, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Dominican Republic.

Common Market For Eastern and Southern Africa (COMESA)-Burundi, Djibouti, Egypt, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Zambia, Zimbabwe.

European Free Trade Association (EFTA)-Iceland, Norway, Switzerland, Liechtenstein.

European Economic Area (EEA)-Austria, Belgium Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

Greater Arab Free Trade Area (GAFTA)-Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, “State of Palestine,” Qatar, Saudi Arabia, Sudan, Syria, Tunisia, UAE, Yemen.

G-3 Trade Agreement-Columbia, Mexico, Venezuela (Venezuela has indicated it intends to pull out of agreement).

North American Free Trade Agreement (NAFTA)-United States, Canada, Mexico.

Pacific Island Countries Trade Agreement (PICTA)-Cook Islands, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

South Asia Free Trade Agreement (SAFTA)-India, Pakistan, Nepal, Sri Lanka, Bangladesh, Bhutan, Maldives.

### **Multilateral Agreements Between States/Blocs of Different Geographic Regions**

Trans-Pacific Strategic Economic Partnership (P4)-Chile, New Zealand, Singapore, Brunei.

### **Agreements Between Two States, Two Blocs or a Bloc and a State**

There are 63 bilateral trade agreements. See “List of Free Trade Agreements,” Wikipedia, the free encyclopedia.

## APPENDIX B

### TRANSPORT REGULATORY AGENCIES, UNITED STATES, MEXICO AND CANADA

Recent deregulatory legislation in the United States, Canada and Mexico and the privatization of government owned transportation entities, suggest there would be no opposition *per se* to domestic and cross border transportation mergers and acquisitions. In all countries, however, mergers and acquisitions would be subject to scrutiny with respect to the possibility of creating monopolies, i.e., significantly lessening competition. It should also be noted that when considering transportation firm mergers, competitiveness is not the only criteria. Regulations with respect to pricing and service in the industry under consideration are also important. The responsible regulatory agencies and ministries in this respect are listed below.

#### **United States**

Surface Transportation Board (STB) has jurisdiction over railroad rates/services, *mergers*, construction and abandonment; jurisdiction over the regulated portion of the trucking/bus line operations and pipelines not regulated by the Federal Energy Regulatory Commission.

Federal Aviation Administration (FAA) has responsibility for airline safety (rules and regulations) and a common civil-military air traffic control system. The agency also has responsibility for developing and administering environment rules with respect to airlines, e.g., noise. Mergers would be reviewed by the Department of Justice with respect any monopoly power that might be created by an airline merger.

Transportation Security Administration is tasked with protecting all transportation modes against terrorist/criminal activities. Its most visible role is protecting foreign and domestic air travel. It has no authority with respect to domestic mergers and acquisitions but would probably play an active roll with any foreign acquisition that might impact on national security.

Federal Maritime Commission (FMC) monitors ocean shipping common carriers in the foreign and domestic trade and their associated supporting infrastructure, e.g., ocean terminals, with respect to rates and practices; monitors foreign shipping laws/practices and international conference agreements that might be discriminatory with respect to U.S. flag shipping, and administers laws applicable to foreign-owned common carriers operating in U. S. foreign trades. The Shipping Act of 1984 and the Oceans Shipping Reform Act of 1998 essentially deregulated ocean shipping. A number of mergers and acquisitions have been accomplished without interference by a U.S. regulatory body.

The Federal Energy Regulatory Commission (FERG) regulated the transmission of oil, natural gas and the wholesale of electricity in interstate commerce. The agency oversees the construction and abandonment of natural gas pipelines and the supporting infrastructure. The FERC does not have authority to interfere with mergers and acquisition of oil companies. The authority with respect to natural gas pipeline companies is unclear.

The Army Corps of Engineers has responsibility for developing the “path” component of the U.S. inland waterway system, i.e., rivers and ports. Waterway operators are essentially unregulated with respect to rates and practices. Discriminatory practices leading to monopoly power and mergers and acquisitions that might create monopoly power would be subject to Department of Justice review. The U.S. Coast Guard has the responsibility for

licensing crews of vessels engaged in interstate commerce on inland waterways. Prior to its abolishment, waterway operators were regulated by the Interstate Commerce Commission.

The Department of Justice (DOJ) has the authority to review mergers and acquisitions in any transportation mode that might lead to the creation of monopoly power. The extent to which the FMC might share this authority with respect to international shipping is unclear.

## **Canada and Mexico**

The following summary of Canadian and Mexican transport regulations/authorities is less detailed than that of the United States. This lack of detail, however, does not suggest that the laws of Canada and Mexico would not be important considerations with respect to transportation acquisitions and mergers.

### **Canada**

Transportation regulations in Canada are a responsibility of the Minister of Transport, Infrastructures, and Communities. *Transport Canada* is a department within this Ministry and administers the regulation of all modes of transport in Canada with the exception of oil and natural gas pipelines.

Canadian Aviation Regulations (CAR) are the rules that govern aviation in Canada. Canadian ocean shipping operates under the provisions of the Shipping Conference Exemption Act of 1987 (SCEA). For hire trucking and bus operations are regulated under provisions of the Motor Vehicle Transport Act of 1987. This Act is jointly administered by Transport Canada and the individual provinces that regulate for hire common carriage within their jurisdictions. The Rail Safety Directorate, Transport Canada is responsible for rail safety and develops and administers rail

safety regulation. Railroad operating rules are administered by the Canadian Rail Operating Rules (CROR). Inter-province pipelines are regulated by the National Energy Board (NNEB), not Transport Canada. Intra-pipelines are regulated by the individual provinces.

## Mexico

Transportation regulations in Mexico are a responsibility of the Ministry of Communications and Transportation. (SCT) The ministry is divided into three subordinate ministries— Infrastructure, Communications, and Transportation. The Transportation Secretariat oversees safety and operating regulations for roadways, railroads, airports, airlines, shipping and seaports.

Pipelines in Mexico are regulated by Comision Reguladora de Energia (CRE). This commission issues regulations with respect to pricing and transportation of natural gas. PEMEX, the state run oil company, administers regulations with respect to its operations.

As pointed out in Note #5, the most critical issue with respect to transport regulation in Mexico is enforcement of safety standards for Mexican truck firms operating in the United States.



## APPENDIX C

### CANADIAN TRANSPORTATION ACT REVIEW PANEL'S INTERIM REPORT SELECTED RECOMMENDATIONS

#### *The Merger Review Process*

##### Recommendation 6.1

The panel recommends the establishment of a new process for reviewing proposed transportation mergers, either within modes or cross-modally, to examine issues of broad national or transnational interest separately from competition issues considered under the merger review provisions of the *Competition Act*.

##### Recommendation 6.2

The existing *Competition Act* process should continue to be used to evaluate whether a proposed merger in the transportation sector would prevent or lessen competition.

##### Recommendation 6.3

The proposed public interest review process would have the following steps:

1. Parties notify the Minister of Transport of the proposed merger at the same time notice is served to the Commissioner of Competition.
2. The notice to the Minister includes a statement of public interest impact, including:

\*the objective of the merger;

\*the impact of the merger on the transportation sector concerned

- and on the industry sectors it serves;
- \*possible costs and benefits to shippers or passengers;
  - \*implications with respect to network rationalization and the labour force;
  - \*the regional impact of the merger;
  - \*the impact of the proposed merger on the overall structure of the transportation sector concerned; and
  - \*remedial or mitigating actions proposed by the merging parties to address public interest concerns.

#### Recommendation 6.4

The Panel recommends that the proposed merger review process apply to all transportation modes under federal jurisdiction.

#### The Airline Industry

#### Recommendation 7.1

The Panel recommends that the government enter into negotiations with the United States and Mexico to create a North American Common Aviation Area in which carriers from Canada, the U.S. and Mexico would compete freely.....

## APPENDIX D

### MARITIME SECURITY PROGRAM (MSP) & CIVIL RESERVE AIR FLEET (CRAF) PROGRAM

#### Maritime Security Program

The Maritime Security Program was established in 1996 and is the successor program to the Sealift Readiness Program. Both programs have (had) essentially the same goal as the Operating Differential Subsidy (ODS) program contained in the Merchant Marine Act of 1936 which was to insure the availability of U.S. flag ships crewed by American seamen in time of war or national emergency.

The MSP, like its predecessors, recognizes that the cost to operate ships under the American flag is significantly greater than that of other maritime nations. In this respect, ships enrolled in the program receive an annual subsidy. The FY 2008 budget requested \$154 million to subsidize 60 ships in the program at a per ship cost of approximately \$2.6 million.

Ships to be included in the program are nominated by the Maritime Administration. Criteria include the age and type of vessel (container ship, RO/RO, barge, break-bulk as well as the vessel's suitability to meet current contingencies and threats to national security. In addition to the ship, the operator pledges the availability of the shipping firm's intermodal assets such as terminals and loading equipment. A secondary goal of the program is to maintain a pool of skilled mariners available to crew ships in reserve status should the need arise.

Congress annually reviews the program and funds the program on the basis of its findings.

## Civil Reserve Air Fleet

The Civil Reserve Air Fleet (CRAF) program was created in 1952. Under terms of the program, airlines, both passenger and freight, agree to commit part of their fleets to DOD in the event of a contingency requiring airlift capability beyond that controlled by the Department of Defense. CRAF activation is in three stages. Stage III activation is essentially a full mobilization wherein the largest number of CRAF planes are called up. Stages I and II are partial activations. In return for a commitment to the CRAF program, airlines are eligible to participate in the carriage of military personnel and government owned/controlled freight.

CRAF categories are International Long Range-Cargo, International Long Range-Passenger, International Short Range-Passenger and Aeromedical Evacuation. As might be expected, the number of CRAF available planes change frequently. As of April 2008, total CRAF aircraft was 1,239.

Participation in the Maritime and Security Program the Civil Reserve Aircraft program are voluntary.

## APPENDIX E

### ENERGY EFFICIENCY AND GREENHOUSE GAS IN THE TRANSPORTATION SECTOR

Globally, petroleum products account for over 95 percent of energy consumed by transport modes. Land transportation is, by far, the greatest user of transport energy consumption with highway transportation accounting for the lion's share in this sector. Globally, the transport sector accounts for more than 20 percent of energy used, while the sector is responsible for approximately 25 percent of carbon emissions.

Energy efficiency rankings, e.g., one ton of freight moved one mile; one passenger flown one mile, as between the different modes is generally accepted, i.e., rail is more energy efficient than trucks, although different measures and criteria produce somewhat different results.

In the United States transportation energy consumption by mode (2005):

Mode	Percent of Energy Consumption
Motorcycles	1
Rail	2
Pipeline	3
Water	5
Air	9
Heavy Duty Road	17
Light vehicles, e.g. automobiles	63
	100

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Source: Transportation Energy Efficiency, InterAcademy Council (<[www. interacademy council.net](http://www.interacademy council.net)>)

Transport Mode                      Fuel Consumption  
(BTU per short ton mile, 2004)

Class I Railroads	341
Domestic Waterborne	510
Heavy Trucks	3,357
Air Freight (approximate)	9,600

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Source: U.S. Transportation Energy Book.

There is, however, some disagreement among the carriers/government data with respect to mode energy efficiency. The barge industry submits that in terms of miles shipped per ton of fuel consumed: Truck 59, rail 202, barge 514. The U.S. Department of Energy measure of energy intensity BTU per ton miles was 352 rail, 508 waterborne commerce, and 3200 trucks. The American Association of Railroads claims railroads can move a ton of freight 404 miles on average per gallon diesel fuel.

One undisputed conclusion is that all transport modes, the U.S. government, research universities, and endowed foundations are investing heavily in technology and research to improve energy efficiency.

### Greenhouse Gas Emissions

The other side of the energy coin is emission of greenhouse gases (GHG) by sector and transport mode. According to the U.S. Environmental Protection Agency (EPA):

*Transportation sources account for 29 percent of U.S. greenhouse gas (GHG) emissions in 2006. Transportation is the fastest growing source of GHS in the U.S., accounting for 47 percent of the net increase in total U.S. emissions since 1990.*

Greenhouse Gas Emissions From the U.S. Transport  
Sector, 1990-2003

Mode	Percent of Emissions
Passenger Cars	35
Light Trucks	27
Heavy Duty Vehicles	19
Aircraft	9
Boats and Ships	3
Locomotives	2
Pipelines	2
Lubricants	1
Other	2
	100

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Source: U.S. Environmental Protection Agency

According to a study prepared for the Pew Center on Global Climate Change, “Reducing Greenhouse Gas From U.S. Transportation” (May 2003) GHG emissions by transport mode in 2000:

Mode	Percent Emissions
Passenger Cars	36
Light trucks	19
Heavy Trucks	16
Aircraft	10
Marine	5
Rail	2
Buses	1
Other	11

When considering energy and emission efficiencies it must be remembered that most transportation movement is bi-modal or multi-modal. For example, a movement from A to B can be by truck and rail or by ocean, rail and truck.(1) If energy/emission efficiencies are the only criteria then the movement from A to B should be determined by the most energy/emission efficient mode combination.

However, while transport fuel efficiency and less greenhouse gas emissions are important from a national perspective, other considerations are important in market place mode selection. Among many are on time delivery, transit time, cargo security, damage in transit, schedule frequency, and cost of the transport service provided.

The conclusion with respect to transport mode energy and emission efficiencies it that an energy efficient, low emission carrier must still be competitive with respect to the market place considerations. For example, in the case of rail vs. truck service, as shown in Table 3, NATO highway carriers are the beneficiaries of a 4,697, 461 km road system while the NATO standard gauge rail network is only 292,345 km. In terms of markets served, the 16 times larger highway system is a formidable truck advantage. And, in the context of different mode advantages, it might be noted that air freight transit time stands alone.

(1) The classic often cited example of bi modal and multi modal freight movement is the land bridge, mini bridge and micro bridge concept. e.g. From Asia by ship to the U.S. west coast, by rail to the U.S. east coast, hence by ship to Europe (Land bridge). From Asia by ship to the U.S. west coast, by rail to the U.S. east coast, then by truck to destination. (Micro bridge). From St Louis to New York by rail, then by truck to destination (Mini bridge).



## NOTES

(1) Transportation technologies and innovations, 1950-2008 include: Freight containerization, the U.S. land bridge, diesel engine improvements--highway, rail, ocean and water transportation, transportation computer and communication systems, jet engines, airframe technology (DC-3, 21 passengers-A380 certified to carry up to 853 passengers), and unit trains. Also see web sites “Innovative Transportation Technologies,” and “Comparison matrix of Ready and Emerging innovative Transportation Technologies,” among many others.

(2) Globalization—“to make worldwide in scope.” *Marriam Webster’s Collegiate Dictionary, 10<sup>th</sup> ed. 1996.*

Globalization---“the process by which a business or company becomes international or starts operating at a international level.” *Encarta World English Dictionary, 2008.*

It might be noted that the *New Lexicon Webster’s Dictionary of the English Language*. Lexicon Publishing, Inc. NY 1989 ed. did not list the word “globalization.,” nor did the *New Marriam Webster Dictionary, 1989.*

(3) A free trade area is a grouping of countries within which tariffs and non tariff trade barriers between the members are generally abolished but with no common trade policy toward non members. The North American Free Trade Area (NAFTA) and the European Free Trade Association (EFTA) are examples of free trade areas. *OECD Glossary of Statistical Terms-Free trade area definition.*

A free trade area involves country combinations where the member nations remove all trade impediments among themselves but retain their freedom concerning their policy making vis-à-vis non member countries. *www. newworld encyclopedia.org.*

(4) A major U.S. marginal benefit is free trade area access to Canadian and Mexican raw materials. e.g., minerals, coal, oil, natural gas, and timber, among others. It should also be noted that as Mexico's per capita income increases, its growing population will be an important market for U.S. and Canadian products.

(5) A major problem is harmonizing truck regulations between the U.S. and Mexico is enforcement of safety standards for Mexican trucks operating in the United States. It is an important issue, one recognized by both countries, and one continually being addressed.

(6) In 1998 Canadian National Railway purchased the Illinois Central and in 2001 purchased the Wisconsin Central Railroad. In 2007 Canadian Pacific Railroad purchased the Dakota Minnesota and Eastern Railroad and the Iowa Chicago and Eastern Railroad. Both CP purchases are subject to Surface Transportation Board approval.

(7) The original purpose of shipping conferences was to prevent so-called cut throat practices by individual companies. Conferences would set standard rates and services for its members. The governments of maritime nations generally supported the concept of conferences and granted them anti-trust immunity. The United States has traditionally favored "open" conferences where any shipping firm could apply for admittance as opposed to "closed" conferences.

(8) The International Air Transport Agreement guarantees the so-called five freedoms. These are: The freedom of civil aircraft to fly over foreign countries and territories as long as they do not land, the right to make non traffic landings, for refueling or repairs only, a foreign country, the freedom to transport passengers and cargo from an aircraft's homeland to other countries, the right to transport passengers and cargo from other countries to the

aircraft's home country, and freedom to carry air traffic between countries other than the aircraft's home country.

(9) Transport Canada: Media Room. ([www.tc.gc.ca](http://www.tc.gc.ca) media room)  
Last undated 2007-04-27.

(10) The Trans-Texas Corridor will generally follow Interstate Highway 35 north passing near the cities of San Antonio, Austin and Dallas-Worth.

(11) Kelly Taylor, "Coming Through: The NAFTA Super Highway." *New American* (August 7, 2006) and Jerome R. Corsi, "Southern border blurs for global trade." *WorldNetDaily* (June 1, 2007).

(12) North American rail mergers are discussed in detail in "The Coming North American Rail Mergers," by Clinton H. Whitehurst, Jr. and Richard L. Clarke (Special Report: The Strom Thurmond Institute, July 2004).

(13) As defined by Wikipedia, the free encyclopedia "market dominance is a measure of the strength of a brand, product, service or firm relative to competitive offerings." Market share is usually the main criteria in determining market dominance, 35 percent being the lower threshold and 50 percent or more the higher threshold. The Association of American Railroads argues that product and geographic considerations must also be included when determining market dominance.

(14) Other products transported in pipelines include water, sewage, hydrogen and products in slurry form. e.g. coal slurry pipelines. In general, any chemically stable product can be transported via a pipeline.

(15) In July 2008 Trans Canada Corporation and Conoco Phillips Company announced they will increase the daily capacity of the Keystone Pipeline between Alberta and Port Author, Texas by 500,000 barrels. In August 2008 a license was granted to the Trans Canada Corporation to build a natural gas pipeline that would open up billions of cubic feet of North Slope natural gas. Environmental groups opposed granting the license.

(16) Amtrak is a government owned corporation whose charter is to provide intercity rail service in the United States. Originally, Amtrak was created as a “for profit” entity. In this respect it has failed miserably. Government appropriations supporting Amtrak total approximately \$48 billion since its creation in 1971. In FY 2007, Amtrak received \$1.3 billion in federal funds.

(17) In 1972 Sea-Land Services took delivery of the first of eight SL-7 container ships. The SL-7 was capable of speeds in excess of 33 knots. Because of its speed (U.S. to Europe in 6 days) the SL-7 could be considered to air freight where time of delivery was measured in days not hours. However, high fuel prices and technical problems made the ships uneconomical. In 1981, the U.S. Navy began its acquisition of the SL-7 fleet. Reconfigured SL-7s are maintained in inactive status but are readily available for use in a contingency.

(18) U.S., Department of Commerce, Bureau of Economic Analysis (April 24, 2007).

(19) John Gallager, Intermodal Super Highway, Traffic World (February 20, 2006).

(20) Thomas L. Finkbiner and Theodore Price. Leveraging the Freight Network: 10 Steps to Improve Modal Connectivity, National Center of Intermodal Transportation (November 2007).

(21) Gilbert E. Carmichael. "Intermodalism: New Science of Transportation." Intermodal Transportation Institute, University of Denver (23 March 2007).

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