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Freight Transportation Infrastructure Policies in Canada, Mexico & the US: An Overview and Analysis

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Introduction

The North American economy can best be visualized in the early 21st century as a deeply integrated continental system structured by networks linking production centers and distribution hubs across the continent.

In the 1980 and '90s, flows of goods across North America's internal borders grew dramatically. More and more of the movement of goods was within companies, and complex cross-border supply chains linking production, distribution and marketing resources across the NAFTA nations became a distinguishing characteristic of this system.

These increasingly elaborated supply chains depended on efficient transportation systems. Transportation providers were able to meet the demands of users because excess capacity existed in many systems, because of available new technology (unit trains, double stacking of containers, larger trucks) and because consolidation in the trucking and rail industries enabled suppliers to work more efficiently. Government involvement focused primarily on privatization and, in the case of railroads, benign views on mergers – although by the mid-1990s, US highway legislation provided funds for a many local transportation projects. Within this new environment, companies worked out their own strategies for building new continental systems and solved problems themselves as they arose.

By the turn of the century, however, this situation had begun to change. The end of excess capacity, the impact of post-9/11 measures on borders and ports, the emergence of global manufacturing value chains with vastly increasing demand for freight transportation capacity because of rising imports from Asia, the continued failure to harmonize regulations and the accumulated weight of delayed maintenance together strained the capacity of the North American freight transport system to service the economic system as it had emerged over the previous decades.[1]

In 2007, Ottawa, Mexico City and Washington all announced new transportation infrastructure development programs. None of these programs was seen as a direct response to an emerging crisis in North American transportation infrastructure – indeed the three governments have not acknowledged the existence of a systemic North American crisis. But all were viewed as efforts to remedy the infrastructure gaps that had emerged over the past decade of intensified use and delayed maintenance.

This paper provides an introduction to the current situation, an overview of the three national programs and a brief critique. It asks if these new national efforts will create the foundation for a freight transportation system that will maintain North American global competitiveness in the first decades of the 21st century

[1] See Guy Stanley, Review of Recent Reports on North American Transportation Infrastructure, North American Transportation Competitiveness Research Council, Working Paper 3 (September 2007)

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The development of modern transportation systems in the United States and Canada in the 19th century was a response to the opening of the West and the creation of an integrated Atlantic to Pacific economy. In the mid-20th century, the US Interstate Highway System was designed to facilitate the movement of goods across the country by linking cities with populations of 50,000 or greater. Like the railroad network that preceded it, it was designed to enhance east-west connections. In the 1980s, the volume of north-south movement of goods increased rapidly. This was driven by changes in the structure of many major US (and Canadian) firms. These companies responded to tougher international competition and falling profit margins by rationalizing their operations and reducing excess capacity tied up in Canadian (and Mexican) branch plant operations. To replace the old system of branch plants, they built new integrated North American production, marketing, and sourcing networks – and the North American economy was increasingly characterized by complex, cross-border supply chains.[2]

Freight Transportation Infrastructure Developments in the 1990s

NAFTA and Transportation

Discussions on freight transportation in the NAFTA negotiations, focusing largely on regulatory harmonization, were contentious. Many issues were not resolved, including immigration restrictions that affected crews, harmonization of vehicle weights and dimensions and other such standards applying to transport capital equipment, cabotage provisions preventing the free movement of transport entities carrying domestic cargo within each of the countries in the NAFTA geographic area, and full liberalization of investment restrictions on NAFTA-based investors in transportation operations. As Professor Mary Brooks observes: "NAFTA provided no commitment to a global North American transportation system, funded by the three federal governments (or even each country's federal government funding roads on its own territory). Nor did it create any agency mandated to assess transportation infrastructure maintenance or future requirements."[3]

NAFTA Working Groups

NAFTA set up some 30 Working Groups to facilitate trade and investment and ensure effective implementation of the agreement. The groups dealt with trade in goods, rules of origin, customs, agricultural trade and subsidies, standards, government procurement, investment and services, cross–border movement of business people, and alternative dispute resolution. Several dealt with transportation.

The mandate of the Land Transportation Standards Sub-Committee, for example, was to make more compatible the three countries' relevant standards-related measures on bus, truck and rail operations, and transportation of dangerous goods.[4] The LTSS created working groups on

[2] The model for integrated production systems was the Auto Pact signed in 1965, although this was a response to the particular needs of the auto industry.

[3] See Mary Brooks, "NAFTA and Transportation: A Canadian Scorecard," Centre for International Business Development Dalhousie University (Research Paper 177, August 2000) http://cibs.management.dal.ca/Files/pdf%27s/DP-177.pdf

[4] See http://www.transportcanada.org/pol/nafta-alena/en/menu.htm

Driver and Vehicles Standards, Vehicle Weights & Dimensions, Traffic Control Devices, Rail Safety and Dangerous Goods/Hazardous Materials Transportation. The Transportation Consultative Group 4 prepared an "Initial Five-Year Plan for Increased Cooperation in the Field of North American Transportation Technologies which outlined four stages of implementation: create and maintain a "knowledge base" on transportation R&D in each nation; increase contacts between the three transportation R&D communities; identify gaps in existing transportation technology and R&D activities where successful efforts would bring benefits to all three nations; and develop collaborative research proposals that could successfully fill these gaps.[5]

The impact of the Working Groups is not clear. Work on regulatory harmonization, while failing to reach agreement on many vital issues, still registered some clear achievements. The most outstanding failure was on Mexican trucking. Discussions on infrastructure (such as the application of new tracking technology to highways), however, seemed to peter out after a few years.

Trade Corridors

One key response to the increased volume of goods moving north and south in North America took place outside the national capitals. Business and municipal leaders searched for ways to capture some of this growing action. Their answer was to create new "trade corridors" that would attract corporate interest in building supply chains along this route.

A wide array of trade corridor organizations emerged in the 1990s, typically organized by businesses and metropolitan and state government agencies. While a few corridor organizations sought to build new highway infrastructure (the Canamex Corridor for example), most aimed at deepening links among metro-regions along existing highways and railroad lines or on spurring the development of "natural economic regions" (PNWER, NASCO) Local entrepreneurial enthusiasm was an essential ingredient of the corridor movement. The availability of government funds was another.

US Highway Legislation

New government funds were on the way. Washington jumped into the transportation infrastructure issue in the early 1990s with the first of a series of enormous highway bills. The US Intermodal Surface Transportation Efficiency Act (ISTEA) and those which followed were big, complex and fantastically expensive legislative packages.

ISTEA was designed to create an economically efficient and environmentally sound National Intermodal Transportation System that would provide the foundation US competitiveness in the global economy and move people and goods in an energy efficient manner.[6] It generated disagreements on many issues, between, for example, advocates of mass transit and advocates of highways, and it gave significant new powers to metropolitan planning organizations (MPOs).

[5] "Initial Five-Year Plan for Increased Cooperation in the Field of North American Transportation Technologies" signed by Canada, Mexico and the US on June 12, 1998.
http://www.tc.gc.ca/pol/nafta-alena/en/plenaries/plenary_1998/TCG4.htm
[6] See "Intermodal Surface Transportation Efficiency Act of 1991 – Summary," http://ntl.bts.gov/DOCS/ste.html

But it was was the first US national legislation on transportation since the Interstate Highway System and it was funded at some $198 billion.

ISTEA aimed at alleviating bottlenecks along highways and at border crossings. One key provision called for the designation of a National Highway System (NHS) – an interconnected network of highways linking major population centers, providing access to international border crossings, ports, airports, public transportation facilities, and other intermodal facilities and serving major travel destinations – and authorized a six-year total of $21 billion for the proposed 256,000-kilometer (159,000-mile) NHS.[7] The Act identified 21 "high priority corridors" and included funding for studies of border congestion as well as highway feasibility studies. It focused heavily on creating new North-South Corridors. It also made $1.3 billion available to develop and deploy advanced ITS technologies to improve safety, mobility, and freight shipping.

ISTEA was followed by three equally grand and expensive acts – the National Highway System Designation Act of 1995, the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005 – A Legacy for Users (SAFETEA-LU).

Every trade corridor group – and every group that thought it could create a trade corridor – fought for the "high priority" brand. In response, Congress raised the number of designated high priority corridors in each bill, and members joined in to earmark funds for their own favorite corridors. The National Highway System Designation Act of 1995 added 8 more high priority corridors. ISTEA evolved into the Transportation Equity Act for the 21st Century (TEA-21), passed on June 9, 1998. TEA-21 identified 14 more high priority corridors.

TEA-21 contained specific directives on trade corridor planning and border facility improvements (known collectively as the CORBOR programs). The National Corridor Planning and Development Program (NCPD) provided funding to states or metropolitan planning organizations for "coordinated planning, design, and construction of corridors of national significance, economic growth, and international or interregional trade."[8] Under the NCBD program, grants were available for "corridor feasibility, corridor planning, multi-state coordination, environmental review, and construction." The Coordinated Border Infrastructure Program (CBI) was designed to "improve the safe movement of people and goods at or across the border between the US and Canada or the border between the US and Mexico."[9] Under the CBI program, border States and MPOs were eligible for grants for "transportation and safety infrastructure improvements, operation and regulatory improvements, and coordination and safety inspection improvements in a border region."[10]

On August 10, 2005, President Bush signed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU provided over $2.8 billion to fund transportation projects of national interest to improve transportation at

[7] Lawrence Dwyer, Intermodalism and ISTEA: The Challenges and the Changes (www.tfhrc.gov/pubrds/fall94/p94au1.htm)
[8] Sec 1118 (a) TEA-21
[9] sec 1119 (a) TEA-21
[10] See www.fhwa.dot.gov/hep10/nhs/hipricorridors

international borders, ports of entry, and in trade corridors. Programs include the Coordinated Border Infrastructure Program which provided $833 million to expedite safe and efficient vehicle and cargo movement at or across the land border between the US and Canada and the land border between the US and Mexico. Also included was the Freight Intermodal Distribution Pilot Program which provided $30 million to facilitate intermodal freight transportation initiatives at the State and local level to relieve congestion and improve safety, and provide capital funding to address infrastructure and freight distribution needs at inland ports and intermodal freight facilities. And, finally, the National Corridor Infrastructure Improvement Program provided $1.948 billion in discretionary funding for construction of designated highway projects in corridors of national significance to further promote economic growth and international or interregional trade.

A comprehensive assessment of the impact of this decade of legislation has not yet been carried out. But two points are critical to our interests here. First, the successive acts failed to realize the vision of a system of North American superhighways. There were more high priority corridors and more money for individual projects, but nothing like a coherent, rational North American highway system – not to mention, an "economically efficient and environmentally sound National Intermodal Transportation System". And second, in the course of successive highway legislation, more and more of the control of the authorization of funds moved from the Department of Transportation to Congress. Despite noble intentions, the highway funds became a pot into which Congressional etiquette encouraged everyone to dip his fingers. The sense of a coherent continental – or even national – plan evaporated in flood of "earmarks" that provided funds to build a mega-store of individual projects.[11]

The rail sector in North America experienced significant change in the 1990s. Privatization in Canada and Mexico, and the proliferation of service agreements, alliances and joint ventures expanded network coverage, streamlined the movement of international freight and standardized service levels.[12] In the US, rail consolidation in the 1990s began with The Burlington Northern - Santa Fe merger in 1995. This was followed by Union Pacific's absorption of the Southern Pacific Railroad in 1996 and the split up of Conrail between Norfolk Southern and CSX in 1999.

Infrastructure Policy and Development in Mexico and Canada in the 1990s

In Mexico and Canada, there was little focus on public transportation infrastructure in the 1990s. The situation was much worse in Mexico where the lack of investment led to the sharp

[11] See a 2007 Department of Transportation report: "The inspector general counted 8056 earmarks worth $8.54 billion within last year's transportation budget. The majority of these, 6556 earmarks, directed the Federal Highway Administration (FHWA) to spend $5,675,100,200 -- fifteen percent of the agency's 2006 budget -- on projects hidden from public scrutiny in the text of laws, in conference reports and in the reports accompanying the 2005 transportation bill known as SAFETEA-LU. An earmark allows an individual member of Congress to identify a need in his district and bypass traditional federal and state planning procedures. This turns something that might previously have been a low-priority project within the state into a mandatory top priority." Source: Review of Congressional Earmarks Within Dept of Transportation Programs, US Department of Transportation, 9/7/2007 http://coburn.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=85049145-abf0-4af9-83c4-9189944808f7

[12] Material on railroad is drawn from Barry E. Prentice and Mark Ojah, "NAFTA in the Next Ten Years: Issues and Challenges in Transportation," Paper presented at the NAFTA in the New Millennium Symposium, University of Alberta, May 24-25, 2001

deterioration of infrastructure. In Canada, the decline was more gradual, but the infrastructure deficit grew nonetheless. In both countries, key transportation systems were privatized in the 1990s – particularly railroads.

Mexico's infrastructure suffered in the 1990s as a result of economic crisis. Deficits resulting from the 1994 peso devaluation and the government's subsequent emphasis on paying its foreign debt severely limited funds available for infrastructure projects. Public investment spending as a proportion of GDP fell from 12.1% in 1981 to barely 3% in 1996, while public investment in economic and social infrastructure also fell sharply from 1.4% in 1981 to just 0.3% in 1996. Moreover, the average public investment spending on economic infrastructure for the 1990s was half of that of the 1980s and just one quarter of the average level of the 1970s.[13]

After the surge of government ownership in the 1970s, President de la Madrid began the privatization of state enterprises in 1985. This accelerated under President Salinas and became a central component of his structural adjustment program. Privatization of the Mexican National Railway in 1997 and 1998 permitted foreign companies to bid on 50 year concessions for Mexico's three regional rail systems: the Northeast, Pacific North, and Southeast networks. Union Pacific became a 26% stakeholder in the Pacific North railway, Ferromex, and offered its "Aztec Eagle" service between the western United States and west/central Mexico. Kansas City Southern acquired 50% of Transportacion Ferroviaria Mexicana (TFM), the high density Northeast railroad that hauls over 60% of US-Mexico rail freight.

Notwithstanding privatization, the deterioration of transportation infrastructure continued in Mexico. One expert observed early in 2007 that "after two presidential cycles that spent parsimoniously on transportation infrastructure, Mexico's logistical backbone is in tatters. Mexico's strategy to build a hemispheric manufacturing base has fallen short of its goal in part because moving goods in and out of the country remains too costly and slow an endeavor." Another agreed: "By 2000, Mexico was last among large Latin American economies in terms of infrastructure. In fact, it had one of the lowest ratios of investment in infrastructure (as a percentage of GDP), and this applied to both public and private sectors. Today, infrastructure deficiencies are a key constraint on Mexico's economic development."[14]

In Canada as in Mexico, transport infrastructure spending became a casualty of deficit reduction strategies adopted by both federal and provincial governments in the early 1990s. This resulted in deferring many highway construction and maintenance projects and in the reduction of transfer funds that moved through the system from federal to provincial to municipal local governments.[15] At a time when economic growth, urban concentration and US border trade were all increasing, government's transport spending as a share of Gross Domestic Product was declining. In 2005 Western Transport Ministers reported: "*total government spending as a proportion of GDP has dropped from 2.9% in 1991/2 to 1.7% in 2002/3. Provincial and local*

[13] Miguel D. Ramirez, Public capital formation and labor productivity growth in Mexico. Atlantic Economic Journal, Dec, 2002 http://www.entrepreneur.com/tradejournals/article/96443141.html

[14] John Price, President and Director, Transportation & Logistics Industry Practice, InfoAmericas and Juan Carlos Moreno-Brid, Senior Economic Affairs Officer and Research Coordinator, UN Economic Commission for Latin America and the Caribbean quoted in "Mexican Infrastructure: More Competitiveness?" Latin America Business Chronicle, Monday, July 30, 2007 http://www.latinbusinesschronicle.com/app/article.aspx?id=1487

[15] After privatization, the new private railroads invested substantially in track.

governments have been forced to pick up an increasing share of transportation investment and, in fact, nominal spending has become stagnant. The gap between required investment needed to keep up with demand and actual investment is widening. In the meantime the disparity between federal transport revenues and federal funds spent on the system continues to grow!"[16]

In 1995, the Canadian government privatized the railway freight carrier Canadian National (CN). The privatization of CN allowed the company to grow rapidly to become a continental NAFTA roadway with the acquisition of assets in the United States and the development of a marketing alliance with Kansas City Railroad that extended from Canada through the US into Mexico. The expansions allowed CN to complement its historic east west Canadian freight movements with new strategic north-south movements into the central United States. In 1998, CN purchased the Illinois Central Railroad (IC), to connect existing CN lines from Vancouver, British Columbia to Halifax, Nova Scotia with a line running from Chicago, Illinois to New Orleans, Louisiana. A strategic marketing alliance with Kansas City Southern Railway (KCS) extended CN's reach into Mexico.

In 2001, following the earlier 1999 failure of a merger with the Burlington Northern and Santa Fe Railway (BNSF), CN purchased Wisconsin Central to allow the CN rail network to circle Lake Michigan and Lake Superior and create a more efficient route connection from Chicago to Western Canada and access to Sault Ste. Marie and Michigan's Upper Peninsula. In 2004 CN purchased BC Rail surface assets (locomotives, cars and service facilities) from the provincial government of British Columbia. Again in 2004 CN completed the purchase of the Bessemer & Lake Erie Railroad, Duluth, Missabe and Iron Range Railway that completed the CN route network between Chicago and Winnipeg.

In the aviation sector, Canada saw the transfer of many airports in the 1990s to local authorities, introduction of airport taxes initiated by the airports to pay the Federal rent resulting from the transfers and major investments in airport, runway and air cargo handling facilities. Canada restructured its air carriers following the Air Canada financial crisis with new regional entrants in Central and Atlantic Canada and the emergence of WestJet as a national carrier operating in all regions of Canada and into the US

But the overall result of Ottawa's policies in the 1990s was a growing infrastructure gap as many provinces found that their public road and highway spending was inadequate to maintain design specifications. Increasingly governments turned to "private public partnership arrangements" to build new roads and bridges for mines and freight traffic. Entering the 21st century, there was a growing recognition that serious safety, social and economic consequences followed if these policies continued. The Toronto Dominion Bank noted that

> *Although the negative impacts of inadequate public infrastructure are only starting to mount – and become visible to Canadian on a day to day basis – we believe that ongoing neglect of the nation's capital stock presents one of the greatest risks to the country's overall quality of life. With the state of a region's infrastructure weighting more heavily on the location decisions of highly mobile businesses and individuals, a deteriorating*

[16] Western Provincial Transportation Ministers Council, Western Canada Transportation Infrastructure Strategy for an Economic Network, March, 2005.

capital stock will increasingly cut into gains in productivity and living standards. The economy is only part of the picture, however. Without an excellent system of public assets, it will become difficult to ensure that the health, safety and security of the region's residents will be protected.[17]

An Emerging Crisis

In the early 2000's – after 9-11 and with rising concern in the US about drugs and illegal immigration – the focus on borders increased dramatically. At the same time, flows of goods across the borders continued to increase and the China's emergence as an economic superpower drilled attention once more on North American competitiveness.

Substantial efforts were made to improve the physical infrastructure at border crossings after 9/11. The US-Canada Smart Border agreement and the parallel agreement with Mexico marked serious commitments to improve border management. Organizations such as the Border Trade Alliance and the Can-Am Border Trade Alliance and various border communities carried on dialogues with government agencies that have achieved significant incremental improvement in processes at the borders. Many who work in these agencies understand the problems of complexity and delay and seek better answers.

But the pyramiding of requirements and programs each of which can significantly inhibit quick border processing and all of which together require high degrees of inter-agency coordination (and typically involve federal, state and even local governments) as well as new levels of cooperation with business and border communities has created tumult in some instances and threatens what Stephen Flynn calls "a potential train wreck."[18] The key problem is the tendency, understandable but increasingly self-defeating, to follow traditional border management practices and concentrate all of these activities – achieving the highest possible levels of security, controlling immigration, and enforcing a widening array of licensing, health and safety standards, all carried out by different agencies with different rules and work practices – at the border itself.

Asian trade has had a critical impact both in terms of increased pressure on transportation assets and also as a symbol of eroding competitiveness. If trade flows were reoriented in North America from east-west to north-south in the 1980s, a new balance seemed to emerge in the next decade: that between the land-based, North-South NAFTA trade flows and the newer shipping-based East-West flows of the new, inter-regional face of globalization – the boom of trade with Asia.

This growing trade between North America and Asia is more that simply an increased movement of goods and services across the continents. It is an integration of global economic activity based upon the regional outsourcing of manufacturing that transformed the economies of the

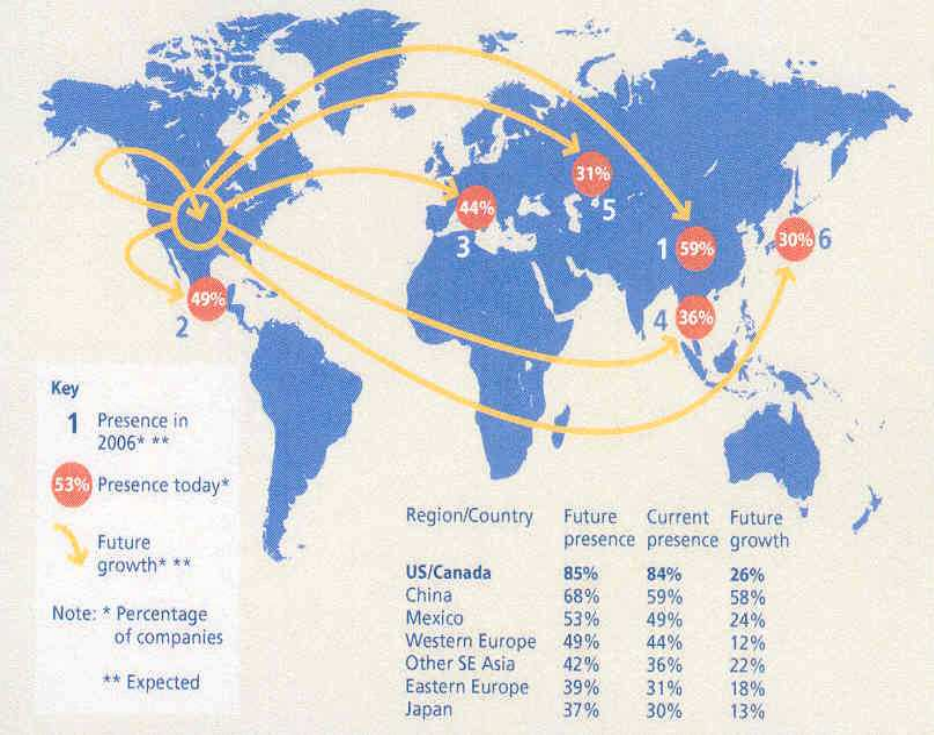
[17] TD Bank Financial Group, Mind the Gap, Finding the Money to Upgrade Canada's aging Public Infrastructure, Toronto, 2004.

[18] See Stephen Flynn, "The False Conundrum: Continental Integration Versus Homeland Security," in Peter Andreas and Thomas J. Biersteker, eds, The Rebordering of North America: Integration and Exclusion in a New Security Context" (Routledge, New York & London, 2003)

industrial world. Large scale mass retailing in big box stores became the norm. Wal-Mart, Home Depot, Canadian Tire, Lowes, Best Buy, Costco and many others survive on the basis of global supply value chains and just-in-time transportation systems. Containers, once thought of as primarily an efficiency gain for shipping bulk cargo across oceans, became central to road and rail transportation, wholesale and retail marketing.

Today North America sources many of its manufacturing components from around the world, often from multiple locations. Thus today sixty percent of manufacturers source from China, 40% from Mexico and 44% from Western Europe.[19] (Figure 1) Forecasts suggest a continuation of the trend if only to compete with competitors in Europe and Asia and will require a growth in North American freight traffic through gateway ports and along the corridors that connect the gateways to the inland retail, wholesale and manufacturing destinations. The majority of this inland surface freight growth will require expansion of heavy duty truck movements, often carrying containers and rail traffic.

Fig 1 Sourcing - North American Manufacturing



Source: Deloitte and Touche, 2003.

Traditionally local production networks migrated around the world to low cost sources of supply. Transport logistics provided for just-in-time delivery. Related improvements in global transport efficiency were found in larger scale ocean shipping, unit trains on land and the expansion of containers. Containers increased their share of global general cargo ocean trade from zero in 1975 to about one half by 2000. Together all of these developments enabled the growth of global supply value chains. The new freight architectures now span the globe and have

[19] Deloitte and Touche LLP, Mastering Complexity in Global Manufacturing, London, 2003

materially changed North America's traditional advantages in transportation. The new systems of logistics and movement all required new infrastructure, facilities that the rest of the world in Asia and Europe was rapidly building.

Equally significant, North American transportation routes increasingly became continental to both avoid infrastructure constraint bottlenecks and congestion that emerged from the increased Asian trade and to accommodate the route networks of continental rail carriers like Canadian National. US trade became Mexican and Canadian trade and freight infrastructure throughout the continental networks experienced growth in traffic.

The SPP – the Security and Prosperity Partnership of North America – revealed hundreds of on-going initiatives to harmonize regulations being carried out by executive agencies in the three national governments.[20] While the SPP went almost entirely unnoticed when it was announced by the NAFTA leaders at their summit meeting in Waco Texas in March 2005, it soon became the focus of fears that American sovereignty will be surrendered to a North American Union.

The SPP focus on transportation was modest. It called for efforts to improve the safety and efficiency of North America's transportation system by expanding market access, facilitating multimodal corridors, reducing congestion, and alleviating bottlenecks at the border that inhibit growth and threaten our quality of life. But it made few concrete recommendations – these included expand air services agreements, increase airspace capacity, initiate an Aviation Safety Agreement process, pursue smart border information technology initiatives, ensure compatibility of regulations and standards in areas such as statistics, motor carrier and rail safety, and working with responsible jurisdictions, develop mechanisms for enhanced road infrastructure planning, including an inventory of border transportation infrastructure in major corridors and public-private financing instruments for border projects).

A "Perfect Storm"?

Many transportation specialists in industry and in the research community believe that a "perfect storm" is beginning to build that puts North America's freight transportation system at risk and endangers North America's competitiveness. By the early 2000s, it was becoming clear that the increase in volumes of goods flowing across North America's internal borders was outrunning the capacity of highways, bridges, railroads, marine and air transport infrastructure and border crossings. Maintenance was increasingly viewed as inadequate raising the fear, particularly after a collapse of a bridge in Minneapolis, of widespread failures. [21]

Since the 1980s North American infrastructure capacity has not kept pace with the growth of the economy. Major changes to regulatory frameworks and transport technologies all helped to increase transport productivity, but long term infrastructure funding, urban growth, social differences and environmental regulation have combined to create a growing infrastructure

[20] See http://www.spp.gov

[21] In its latest "report card" on transportation infrastructure, the American Society of Civil Engineers awarded our roads a "D" (and our aviation system a D+; navigable waterways a D-; and rails a C-) American Society of Civil Engineers (www.asce.org/reportcard/index.cfm?reaction=full&page=6#roads)

deficit in both Canada and the United States with growing levels of congestion and bottlenecks at ports and throughout the transportation networks.
Today, North America's transportation and border infrastructure provides little margin for future expansion. UPS CEO Mike Eskew states, *"What's shocking, quite frankly, is the inability of our transportation infrastructure to keep up with the normal day--to-day stresses imposed upon it… Our highways, waterways, railroads and aviation network are simply not keeping up with ordinary demands."* [22]

National Responses

US "Corridors of the Future"

SAFETEA-LU, the widening trade corridor movement and the SPP all became the targets of bitter attacks by groups in the US (and Canada) which feared that national sovereignty was being undermined, that President Bush planned a North American Union and that secret 12-lane North American Super Corridor would bring hordes of drug-toting aliens into the country. As one blogger, more polite than most, wrote:

> *Imagine a United States without borders. From what I've been hearing lately, that is exactly the aim of the Bush administration as they push for a new North American SuperCorridor that would connect Mexico to Canada. This highway has secretive roots in the Bush administration's transportation bill, and will begin construction next year. What this would mean is more erosion of American economic sovereignty, a more expansive wave of illegal migration, and a dramatic change in our society as we know it.*[23]

Against the background of such controversy, the most recent addition to US national highway legislation, the Corridors of the Future Program (CFP), was far more modest than the giant legislative packages that preceded it. The CEP is a Department of Transportation initiative under the broader National Strategy to Reduce Congestion on America's Transportation Network. The emphasis in this project is on encouraging state governments to explore innovative financing as a tool to reduce congestion and improve the efficiency of freight delivery on some of the nation's most critical trade corridors.

The Department of Transportation describes its role as helping to facilitate and accelerate the development of these corridors, and to help project sponsors break through the institutional and regulatory obstacles associated with multi-State and multi-modal corridor investments. In cooperation with public and private sector transportation partners, the DOT would try to raise the corridors' value and efficiency beyond what would be achievable on a State-by-State basis.[24] After a year-long competition, six proposals were selected from 38 applications by public and private sector entities. The selected corridors carry 22.7% of the nation's daily interstate travel, and will receive a total of $65.9 million to develop and attract public-private partnerships to

[22] UPS Pressroom: Current Press Releases, "Transportation Infrastructure Failing the Nation, Says UPS CEO" (March 30, 2006) http://www.pressroom.ups.com/pressreleases/current/0,1088,4668,00.html
[23] The American View Forum, http://www.theamericanview.com/forums/showthread.php?t=1050
[24] See the Corridors of the Future website at www.fightgridlocknow.gov/corridors.htm

manage congestion and add capacity. The six winning proposals included $21.8 million for Interstate 95 (the reconstruction and expansion of a 1,054 mile stretch of I-95 from Florida to Washington, D.C.); $15 million for Interstate 15 (passenger and freight movement improvements to the I-15 corridor from San Diego, California at the junction of Interstate 5 through to Salt Lake City, Utah); $15 million for Interstate 5 (infrastructure improvements to I-5 from the US border with Canada, through the states of Washington, Oregon, and California, to the US border with Mexico) $8.6 million for Interstate 10 (establishes a template ITS architecture as a first step in solving the congestion issues along the 2,600-mile corridor); $5 million for Interstate 70 (dedicated and segregated truck lanes along I-70 from the Interstate 435 beltway on the eastern part of Kansas City, Missouri to the Ohio/West Virginia border near Bridgeport, Ohio/Wheeling, West Virginia); $800,000 for Interstate 69 (the proposed corridor would be built on a new location for about 1,660 miles From the Mexican border to Indianapolis).

While several of the projects accepted as "corridors of the future" focus on cross border issues, the funded projects are modest in scope. The DOT's role is to facilitate – particularly in exploring innovative new private-public sector financing arrangements. At the same time, much larger infrastructure projects are under way. They are regional in scope and include[25]:

> **Alameda Corridor:** This best-known trade-related infrastructure investment in the US opened in 2002. The $2.4 billion project enabled the quick movement of marine containers inland and away from the congested port facilities at Los Angeles and Long Beach, expanding the capacity of both ports to service trade requirements. 12 The capital program included $400 million in government loans and the issuance of revenue bonds as part of the total funding package.
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> **Heartland Corridor:** In response to current growth in Asian opportunities, the Heartland Corridor rail line expansion from Virginia to Ohio will support the Port of Norfolk's efforts to service its hinterland by making the shortest route to Chicago accessible to double stack trains. This $309 million project includes funding of $140.4 million from the federal government, some state level funds, and funds from the Norfolk Southern Railway. The project promises to shave a full day off the route between Asia and Chicago via Suez. When coupled with the $500 million Maersk container terminal in Norfolk, growth is expected to come at the expense of Canadian gateways and New York.
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> **Port of New York/New Jersey (PNYNJ):** Meanwhile, PNYNJ's capital program includes dredging harbor channels and the construction of on-dock rail facilities and rail connections for marine terminals; the dredging alone accounts for $882 million of the federal government funding. The total expenditures for programmed and potential projects in the "efficient goods movement" component of the PNYNJ Authority's 2006–15 strategic plan are $2.1 billion of its own funds and $3.8 billion in spending by other government agencies or from federal grants, making this infrastructure investment larger than any project conceived in Canada.

[25] We have taken this list of projects from Mary Brooks, Addressing Gaps in the Transportation Network Seizing Canada's Continental Gateway Advantage, The Conference Board of Canada, Briefing October 2007

The Department of Transportation also laid out a "Framework For A National Freight Policy." The Framework underlined that "the United States freight system underpins the nation's continued economic growth, and historically the US has led the world in freight system design and management," and that the system faces a new challenge in the form of dramatically increasing freight flows which have created congestion, imposing costs on shippers, consumers, and the environment. It noted, too, that "the Department of Transportation doesn't have the tools – or the authority – to remedy all of the problems on its own" and that "effective policy solutions will require coordinated and collaborative action by both public and private parties." The Framework was seen as a first step in bringing together public and private stakeholders around a common vision.[26]

Canada's Canadian National Policy Framework for Strategic Gateways and Trade Corridors

At the end of 2005, the Council of the Federation (the meeting of Canada's thirteen Provincial and Territorial Premiers) called for a new transport infrastructure financing partnership with the federal government to "ensure that Canada's transportation system is safe, secure and supportive to the global trading framework.… The Council outlined its plan with the release of the national transportation strategy document, "Looking to the Future: A Plan for Investing in Canada's Transportation System". The strategy proposes a new transportation funding partnership, identifies a strategic transportation network, describes preliminary provincial and territorial priorities and recommends changes to the policy framework."[27] The provincial territorial report identified nearly $100 billion dollars of essential infrastructure requirements to meet the growing requirements of trade, urban growth and maintaining design standards. The infrastructure requirements existed across Canada and had been consistently identified in earlier studies by governments such as the 2005 federal/provincial/territorial task force on urban transport ($66 billion over ten years), the 2005 Western Transport Ministers ($16 billion over ten years for strategic priorities and the 1998 Council of Ministers of Transportation ($17 billion for the National Highway System).

Estimated Transport Infrastructure Requirements Canada and Regions, 2005-2015 $ Billions					
Western Canada	**Ontario**	**Quebec**	**Atlantic Canada**	**Territories**	**Total**
$16B	$53B	$20B	$6.3B	$2.5B	$97.8B
Source: Council of the Federation, 2005.					

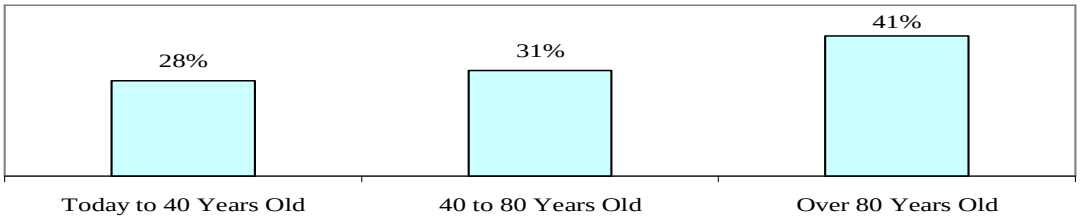
The source of the infrastructure financing problem in Canada was laid firmly at the door of the federal government which collected fuel tax revenues but was not returning them into the transport system. In 2005 Statistics Canada estimated that the federal revenues from fuel taxes would amount to $48.67 billion to 2015 while federal commitments to return those revenues to municipalities and for transit funding amounted to only $15.8 billion, leaving some $32.8 billion not returned into the system.[28] The financing problems of infrastructure renewal were also being

[26] April 10, 2006 http://ostpxweb.dot.gov/freight_policy_framework.html
[27] The Council of the Federation, Looking to the Future, A Plan for Investing in Canada's Transportation System, Victoria, December, 2005.
[28] Council of the federation, op cit, P.8.

seen by the public in the form of a bridge collapse in Quebec, journey to work congestion and safety issues on the roads between freight and passenger traffic. Canada's civil infrastructure engineers noted that over 59% of the county's infrastructure would be 40 years old by 2013.

In 2007 the Canadian Conservative government recognized the growing infrastructure financing problem. The October Speech from the Throne noted: "Our Government will announce an infrastructure program, the Building Canada Plan, to support our long term growth…. The result will be safer roads and bridges, shorter communities, more competitive business, improved cultural infrastructure and a better quality of life for all Canadians."[29]

Canada's age of infrastructure, 2003 – 2013



Source: Civil Infrastructure Systems, Technology Road Map 2003 – 2013, http://engineerscanada.ca/e/files/TRMReporteng.pdf.

Finance Minister Cannon, in announcing the program noted: Infrastructure drives productivity, supports trade and fuels economic growth. "It is critical to achieving our environmental goals and vital to building strong, competitive communities. But much of our public infrastructure is nearing the end of its expected lifespan and needs upgrading or replacing. Without significant investment in the country's critical physical assets, there is a risk that Canada will fall behind in the global economy and face challenges in maintaining a high quality of life for all Canadians."[30]

The federal infrastructure initiative was targeted at many regional needs across the country with programs to provide increased funding for municipalities through gas tax revenues and a Goods and Services Tax rebate, a Building Canada fund, Public Private Partnerships, Border and Gateway improvements, Asia Pacific Initiatives and financial transfers to provincial and territorial governments. In total these are estimated to amount to $33 billion between 2007 and 2014.

The federal initiative is intended to address the infrastructure gap that had developed in Canada over the years, but also to evolve a more strategic approach to infrastructure financing including public private partnerships, and increased level of federal/provincial/territorial cooperation and the development of new initiatives for international and continental trade at Gateways, Corridors, Strategic highways and border crossings.

[29] Government of Canada, Speech from the Throne, October 16, 2007.
[30] Government of Canada, Building Canada, Modern Infrastructure for a Strong Canada, p.2.

Building Canada Financing Plan, 2007 – 2014

	$ billions
Municipal Funding	
GST Rebate	$5.80B
Gas Tax Fund	$11.80B
Federal Building Canada Fund	$8.80B
Public Private Partnership Fund	$1.25B
Gateways and Border Crossings Fund	$2.10B
Asia-Pacific Gateway and Corridor Initiative	$1.00B
Federal Transfers to Provinces and Territories	$2.28B
Total	$33.03B
Source: Government of Canada, Building Canada, Ottawa, 2007, p. 24.	

Building Canada, the federal government's long-term infrastructure plan, includes a new national fund for gateways and border crossings, with $2.1 billion over seven years.

> The National Policy Framework for Strategic Gateways and Trade Corridors will help guide federal investment decisions. The focus of the Gateways and Border Crossings Fund will be a limited number of national gateway strategies and key intermodal linkages that enhance Canada's trade competitiveness and the efficiency of the national transportation system. This fund will help support infrastructure improvements at and leading to key locations, such as major border crossings between Canada and the US It will also advance multimodal and technology initiatives that will improve system integration.[31]

There is a strong focus on trade corridors. The Ontario-Quebec Continental Gateway and Trade Corridor encompasses a system of land, air and marine transportation assets, including the Saint Lawrence River and Great Lakes that offers a competitive and attractive gateway for international trade. Ontario and Quebec account for some 60% of Canada's exports and GDP. The region's transportation system is essential to support Canada's economic relationship with the US and other trade partners. In Atlantic Canada, current international trade volumes are relatively modest, leaving the transportation system with untapped capacity. Future trade patterns, particularly rising container trade driving demand for deepwater ports, the increasing use of the Suez route for Asian exports to North America and the expansion of the Panama Canal, point to growing potential. Major shippers are also increasingly considering North America's east coast to balance inbound and outbound logistical flows. An integrated approach to an Atlantic gateway could significantly enhance Canada's ability to capture a larger share of growing trade flows between North America and foreign markets. The Asia-Pacific Gateway and Corridor Initiative which focuses on the development of Prince Rupert Port – already well advanced – will proceed to new phases of implementation, building on early progress and the direction already established.

Canada's renewed interest in infrastructure and transportation renewal has made significant inroads in addressing the infrastructure deficits of the past. However, it is not yet clear that even

[31] Canadian National Policy Framework for Strategic Gateways and Trade Corridors (2007), p.14

the substantial increases in federal funding will address the emerging needs of the society and economy. In particular, most freight infrastructure estimates have been made prior to the explosion in Asia Pacific Trade. Between 1995 and 2005 Canada's exports to China doubled from $3.5 billion to $7.1 billion and imports increased over five times from $5 billion to $30 billion.

Asian demands and investments are also fueling economic growth and related freight infrastructure demands throughout Canada, but particularly in the West. Oilsands and other western Canadian energy investments are increasing freight demands. New urban transportation freight corridors are being built, particularly in Alberta from Fort McMurray to Edmonton to Red Deer to Calgary to Lethbridge and from the B.C. Lower Mainland south into US Cascadia.[32] New continental systems of gateway and corridor combinations to meet Asian demands are emerging many of which are using the Canadian routes through Vancouver and Prince Rupert that now add substantially to the Canadian freight infrastructure requirements and creating access issues for smaller Canadian shippers.

Mexico: President Calderon's Transport Infrastructure Plan

Mexico's President Calderon unveiled a very ambitious 2007-2012 National Infrastructure Program. One of the main premises of the Program is to increase Mexico's competitiveness:

> *Infrastructure is synonymous of economic, social and human development. Economic growth and opportunities for the well-being of Nations are clearly correlated with the level of development of their infrastructure. The countries we compete with are placing the highest priority on the modernization of their infrastructure, because they know that it is a condition for success in the global economy. Mexico cannot and should not fall behind.*

The Program was developed recognizing that infrastructure "*is an essential factor for raising regions' competitiveness because it lowers transportation costs and transit times, facilitates access to distant markets, fosters the integration of production chains and furthers the generation of the jobs we so badly need*".

The Program includes specific plans for transportation, communications, water and energy, and was developed under three different investment scenarios.

- Inertial Scenario: assumes that there are no structural reforms
- Base Scenario: assumes that only the finance reform is implemented
- Outstanding Scenario: assumes that all the required structural reforms are implemented.

The average annual investment in infrastructure in 2001-2006 in Mexico was 3.2% of the country's GDP. The proposed Program investment goals for each of the three proposed scenarios are: 2.5% of GDP for the Inertial Scenario, 4.0 % GDP for the Base Scenario and 5.5% of the country's GDP for the Outstanding Scenario. The transportation sector includes highways, rail and multimodal, ports and airports.

[32] Parsons, G., Prentice, B., Gillen D., and Wallis, P. , Pacific Crossroads, Canada's Gateways and Corridors, U.B.C., Vancouver, 2007.

The strategies for the highway sector include the completion and modernization of the north-south and east-west highway network. These National Highway Corridors link the country's main urban areas, ports, international borders and tourist centers with high specification highways. Special emphasis is given to the construction of bypasses around cities and access roads to facilitate the continuous vehicle flow along the corridors. Other highway strategies include the construction of inter-regional roadways to improve regional communication and improve connectivity, and the improvement highway maintenance and reduction of accident rate.

The estimated investment in the highway sector under the Base Scenario is $26 billion for 2007-2012. Fifty four percent of this investment would be undertaken with public funds and the rest with private sector financing. The Mexican government has good experience on public-private financing for highways projects and the regulatory framework is already established for several different mechanisms that suits a particular project.

Strategies for the port sector are guided also to improving the countries competitiveness on the international marketplace. These strategies include:

- Increase port infrastructure, especially container management capacity.
- Develop ports as part of an integrated multimodal transportation system in order to reduce logistics costs.
- Promote the competitiveness of the port system to offer world class service.
- Promote the development of cruise-ships docks.

Under the Base Case Scenario, the Program expects to invest $6 billion in 2007-2012, with more than 80% of this amount invested by the private sector.

Strategies for the rail and multimodal sector put emphasis on the development of freight multimodal corridors[33] that link ports on the Pacific Coast to the Gulf of Mexico, as well as the border with the US Other related strategies include the resolution of interconnectivity issues between railroads and at between railroads and ports, border crossings and metropolitan areas.

The Program's Base Scenario calls for $4 billion investment in 2007-2012 split 50/50 between public and private sector investment.

The program has defined eight existing multimodal corridors:

- Mexicali - Guadalajara - Mexico City
- Manzanillo - Guadalajara - Mexico City
- Lázaro Cárdenas - Mexico City
- Manzanillo - Gómez Palacio - Monterrey
- Altamira - Monterrey
- Lázaro Cárdenas - Querétaro - San Luís Potosí - Monterrey - San Antonio, Texas
- Veracruz - Querétaro
- Veracruz - Mexico City

[33] Corridors that combine rail and highway infrastructure

Four of the eight multimodal corridors link ports on the Pacific Coast (Manzanillo and Lazaro Cardenas) with either the U.S-Mexico border or with central Mexico. Three of this corridors link the Gulf of Mexico with central Mexico and Monterrey, and one corridor links the US-Mexico border with central Mexico.

For the year 2012 the plan calls for the development of ten new multimodal corridors:

- Manzanillo - Guadalajara -Aguascalientes - Altamira
- Lázaro Cárdenas - Veracruz
- Salina Cruz - Coatzacoalcos
- Salina Cruz - Mérida
- Salina Cruz - Mexico City
- Topolobampo - Chihuahua - Ojinaga - Dallas, Texas
- Guaymas - Nogales - Arizona
- Ensenada - Tijuana (truck only)
- Punta Colonet - Mexicali or other location at the border
- Manzanillo - Gómez Palacio - Chihuahua - Cd. Juárez

Some of the proposed corridors are extensions of those already in operation. However, several of the proposed multimodal corridors are located in the south and south east part of the country. Three of them are linking the port of Salina Cruz with several parts of the country. One of the important corridors is the one from Salina Cruz in the Pacific Coast to Coatzacoalcos on the Gulf of Mexico through the Tehuantepec Isthmus, serving as a land bridge.

The Punta Colonet Port project is located 150 miles south of the Tijuana-San Diego border. The plan is to develop a multibillion-dollar deep sea port to relieve US West Coast ports. Initial estimates call for a volume of one million containers a year in the initial phase of the project, with capacity to handle as many as five million after just five years of operation. The ports of Los Angeles and Long Beach handle about seven million Twenty Equivalent Units (TEUs) a year, but container ship traffic from China alone is growing at a rate of 15% a year and neither Los Angeles nor Long Beach has room for growth. The project would require the construction of a 93-mile rail line to the border at Mexicali, east of Tijuana or other border crossing. From Mexicali, containers could travel east on the Union Pacific Railroad line or stay in Mexico on the Ferromex line.

Other Pacific Coast Mexican ports that are growing are Manzanillo and Lazaro Cardenas. Lazaro Cardenas beefed up capacity and is served by the Kansas City Southern Mexico Railroad (KCSM). KCSM has a direct route from the port to Laredo, Texas connecting to the US rail network. The port and railroad are promoting this corridor as an alternative route to the Midwest and the East Coast.

Container movements at the port of Manzanillo have reached one million TEU this year and it is expected to continue growing. The port authorities have plans to expand the current facilities with a new container terminal. The port is served by Ferromex that also has a direct connection to the Union Pacific Railroad and the US border via El Paso and Eagle Pass in Texas.

Conclusions

In the Introduction, we said that this paper would provide a description of the three national programs. We asked if these new national efforts will create the foundation for a freight transportation system that will maintain North American global competitiveness in the first decades of the 21st century.

Our answer is that despite impressive new efforts in Canada and Mexico, the answer is no.

After years of neglect, Mexico and Canada have launched aggressive national transportation infrastructure programs. Washington continues to press forward with its corridor program. The Canadian and Mexican programs are much more national in design, while the US program lacks little sense of a national project – despite the intentions of the first highway legislation in 1991 to develop a National Intermodal Transportation System.

Canada's National Policy Framework for Strategic Gateways and Trade Corridors explicitly recognizes the need for a continental approach. It underlines that an "integrated North American economy is the 'platform' for Canada's successful global engagement," and underlines that "Canada has a range of opportunities to connect North America with the world, by exploiting advantages in geography, transportation and commerce." The Framework continues:

> For example, gateway and corridor strategies can leverage significant Canada-US trade flows as part of national strategies to position Canada to benefit from the emergence of new economic powers such as China and India…. Transportation systems are key to Canada's successful relationship with the US Maximizing the free flow of goods, services and capital with the US is a key priority for Canada. The National Policy Framework for Strategic Gateways and Trade Corridors and future gateway strategies provide new avenues to advance competitiveness in the North American context."[34]

But while recognizing the need for a "continental approach," the National Policy Framework does not provide one.

The national transport infrastructure initiatives of all three countries lack a vision of a continental transportation infrastructure system. The three North American nations have become increasingly integrated on both the continent and with Asia, but their transport systems are failing in many critical cases, and there is no evidence of the evolution of any conscious North American transportation framework. That the continent might be larger than its constituent parts never entered the transport dialogue.

Transportation systems are still fragmented. Railway systems have become more North American – although increasing cross border traffic will run into new delays where border infrastructure is inadequate to manage new volumes. Highways remain fragmented. As Susan

[34] National Policy Framework, p 6

Bradbury observed in 2002, "Although the individual national [highway] transportation systems of the three countries are linked together, they are not truly integrated with each other."[35]

> For example, the Pacific Highway crossing at Blaine, WA/Douglas, BC, which links Vancouver and the lower mainland of British Columbia with the Interstate 5 corridor to Oregon, California, and Mexico, is the fifth busiest port on the northern border and handles the highest truck volume in the western borderland region….. However, this crossing has no connection to the Canadian national highway system except by local access roads. In fact, there is no direct connection for trucks between the national highway system and any US/Canada border crossing in all of British Columbia except for local access roads….. A similar situation exists along the southern border. The Otay Mesa port of entry is connected to California's highway system by a four-lane city street that is currently operating at three times its designated capacity).[36]

Canada's TransCanada Highway has a growing number of traffic lights and is yet to be divided in some provinces. Planned Mexican port development, if successful, is likely to overwhelm highways with trucks.

In the US, the vision of a system of North American Superhighways embodied in the US highway legislation in the early 1990s has not been realized. Congress rapidly increased the number of designated high priority corridors in subsequent legislation, and everyone joined in to earmark funds for his own corridors. The result is that the latest map of high priority corridors in the US looks like a plate of spaghetti.[37] To be sure, there has been significant improvement in pieces of highways, at some border crossings and in other related areas, but emerging continental synergies were never considered.

Cooperation in resolving transportation regulatory issues has been slow, and there has been no movement toward developing a true North American highway system. Certainly nothing like the earlier plans for super multimodal corridors, wired with fiber-optics and the latest digital frills[38], has come about. If anything, as we are reminded by the American Society of Civil Engineers' report cards, the general state of major highways in the US declined over the decade.[39]

What this reveals, no surprise, is how difficult it is to build a continental highway system from the bottom up. Organizing this process as a competition among Congressional districts for highway funds – or similarly, among provinces – is not going to produce a rational blueprint for

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[35] Susan Bradbury, "Planning Transportation Corridors in Post-NAFTA North America," Journal of American Planning Association (Vol. 68, No.2) Spring 2002, p.3

[36] Bradbury, Op. Cit.

[37] It is interesting – and revealing of Congressional clout – how much of this money went to non-border states, in particular Kentucky and West Virginia. Not one high priority corridor was designated east of the Hudson River.

[38] See, eg, the "Initial Five-Year Plan for Increased Cooperation in the Field of North American Transportation Technologies" signed by Canada, Mexico and the US on June 12, 1998. http://www.tc.gc.ca/pol/nafta-alena/en/plenaries/plenary_1998/TCG4.htm

[39] American Society of Civil Engineers (www.asce.org/reportcard/index.cfm?reaction=full&page=6#roads)

a continental system. The economy is not a democratic political process, but it seems that this is exactly what has become of the decision making process for economic transport infrastructure.[40]

Inter-modal linkages seem to have improved, and the volume goods carried on North America's railways have increased. But again, there is little sense of what happens next, now that there is little remaining capacity for increasing loads on existing rail systems.

The SPP could have encouraged the development of trade corridors by pushing forward harmonization of regulations that inhibit easy movement. But there has been little coherent follow-up and the entire SPP process remains opaque and, as noted above, the SPP is widely viewed today as a dangerous threat to national sovereignty.

Mistrust has increased along our internal borders. It is hard to argue even today with another author's conclusion in 2000: "NAFTA set a timeline for the creation and implementation of transboundary standards and the incremental relaxation of restrictive regulations, but many provisions of this timeline remain unimplemented. The difficulties in negotiating transportation differences have fostered an atmosphere of mistrust between the US and Mexico and have played a part in Mexico's reluctance to participate fully in transcontinental transportation corridor planning."[41] During the past few years, mistrust has deepened along the US-Canadian border as well.

The new national infrastructure development initiatives stand, as well, on uncertain ground regarding projections of increasing demand for port, highway and rail capacity**.** While international trade growth is a reality around the world, the final patterns of logistics and volumes of flows are far less certain. International trade growth – and particularly Asian exports to the US – while expanding, may not continue to increase at anything like the rate of the past decade. How strong is the evidence supporting increasing demand for port and transportation capacity? Can improved continental route logistics provide the additional capacity for the expected growth?

Planned port expansions in Canada and Mexico are based on the assumption that Asian imports destined for the US will continue to increase and that US ports will be unable to accommodate all of this increment. If this is the case, major questions are raised of how to deal with likely US border congestion or how to ensure that goods will reach their US destinations quickly and efficiently. The Canadian Western and Eastern gateway initiatives both assume that goods – perhaps two million or more new TEUs – will move through the most congested region in North America, Chicago. Will delays in Chicago offset the benefit of Prince Rupert Port and Halifax – in terms of distance from Asian markets and available capacity?

Funding seems unrealistic in light of estimated costs of providing needed new capacity and dealing with the impact of delayed maintenance. The entire federal Canadian Building Canada

[40] The irony here is that the anti-NAFTA bloggers' favorite target, the 12-Lane, border-to-border SuperCorridor, is the very last thing Washington could possibly build.

[41] Julie Schneider, IRC-BIOS, NAFTA & Transportation: Impacts on the U.S.-Mexico Border, Borderlines, 67, Vol. 8, No 5 2000 (http://www.irc-online.org/us-mex/borderlines/PDFs/bl67.pdf)

program sees federal investment of $33 billion over 5 years and President Calderon's infrastructure program calls for $7 billion of public and private spending. Washington's Corridors of the Future program makes available only $65.9 million in federal funds to develop and attract public-private partnerships and even the largest project, the Port of NY and NJ, projects spending of around $5 billion.

These numbers are dwarfed by an infrastructure funding gap that may have already entered into the trillions of dollars. For example, a paper issued by the National Chamber Foundation of the US Chamber of Commerce estimates that by 2015, the cost just to "maintain US pavements, bridges, and transit infrastructure" would amount to $295 billion. To "improve" these systems would cost $356 billion. The report concludes that total cost to improve the system for the period from 2005 to 2015 will be $3.4 trillion but that total revenue will be only $2.4 trillion, leaving a cumulative gap of approximately $1.0 trillion.[42] Granted this is a much larger vision than the freight transportation infrastructure programs we have described, but everything will certainly compete for public and private funds nonetheless.

The North American Center for Transborder Studies at Arizona State University has assembled a table suggesting total national transportation and border ports needs – a figure of more than $250 billion over the next decade.

NACTS Meta Transportation Infrastructure Needs Assessment (TINA)

NATION	TINA	Note	Source
Canada	$300M/yr 9.78B/yr	Gateways and Corridors Planned National Transportation Need	Gateway Connects 2007 Council of Federation 2005
U.S.	$225B/yr $10.6-15.3B	National Transportation Need Border Ports Needs	NSTP Trans for Tomorrow "Bottlenecks" CalTrans
Mexico	$5.2B/yr $.86-$1.07B	Investment Need Border Ports Needs	Blank et al "Bottlenecks" CalTrans
Total	$239.98B/yr 16.96B	National Transportation Needs Border Ports Needs *	

- Ten year and median sum

The key focus now – see all three national infrastructure initiatives – is on "innovative financing" and on creating a wide array of private-public partnership programs.[43]

The national policies we have described do not appear to have integrated thinking about the impact of rising fuel prices and intensified environmental policies on trade flows and transportation movements – or about technological developments that fuel and environmental cost pressures will surely stimulate.

[42] *Future Highway and Public Transportation Finance Phase I: Current Outlook and Short-Term Solutions* prepared by Cambridge Systematics, Inc. under contract to the National Chamber Foundation® of the U.S. Chamber of Commerce, 2005)

[43] By far, the most important study that focuses on these issues is the report of the National Surface Transportation Policy and Revenue Study Commission, "Transportation for Tomorrow" (December 2007)

No is mention made of the need for better education in transportation management education focused on North America. No assessment has been made of the conflicts emerging between the social interests of the traveling and increasingly urban public and freight requirements of a restructuring economy.

Despite the best efforts of business, state and metro-government leaders, security demands have continued to increase at the border – too often with contradictory demands. Will security continue to trump trade along the borders? Transportation infrastructure plans won't work unless Ottawa and Mexico City make efforts to re-open the borders – which almost surely mean launching an initiative to build a "North American security perimeter."

What can be drawn from the above?

Our analysis suggests the following conclusions:

1. The economy has become global for all three countries.
2. As a result, continental freight movements are now a reality.
3. North America is not doing very well at planning its long term transport future when compared to Asia or Europe.
4. Therefore it is time to get serious about continental freight transportation planning to improve productivity, reduce costs and to provide for financing commensurate with the needs.
5. This requires collaboration between government, industry and the research establishments to renew North America's freight transport infrastructure for the 21st. Century.

Over the past decade North America has changed direction in its attention to infrastructure funding and, despite these new efforts, remains far behind the progress now being made in the rest of the world. In part this results from the inherently complex nature of planning across the many jurisdictions, national, state, provincial and local who are all involved in infrastructure financing, planning and construction. While the private sector may finance the bulk of transport systems in all three countries, it can do little without a supportive regulatory and operating environment.

The US experience strongly indicates that in the absence of a vision of a North American transportation infrastructure, local interests and private companies will play dominant roles in shaping policy outcomes, and that this will produce fragmented, localistic outcomes. Highway legislation in the 1990s became a source of funds gifted by earmarks rather than a strategy for strengthening the North American economy – or the national economy for that matter. The same is likely to hold true for Canada and Mexico.

Reviews of gateway and corridor initiatives from around the world show clearly that North America has much to learn from developments in Asia and Europe.[44] The process of infrastructure renewal and investment is much slower in North America than in Europe or Asia.

[44] Canada's Asia-Pacific Gateway And Corridor Initiative: Policy, Trade & Gateway Economics Volume 1, U.B.C., Vancouver, 2007

Europe already has a freight transportation plan and continues to reduce border restrictions. Institutional reforms can provide for seamless movements across borders. New gateway corridor route-way combinations will emerge to provide alternatives to traditional routes and require investments in inland ports, freight highways and improved modal integration.

It is time to create a broader continental framework for transportation planning in North America that recognizes the new competitive realities of global supply chains and integrated global manufacturing. Competing with Asia or Europe will require fewer border constraints, increased infrastructure and continental planning. Europe has been able to achieve many reforms in spite of many national jurisdictions and vested interests. The result is seen in huge infrastructure investments like the Channel Tunnel and the tunnel/bridge between Denmark and Sweden and the removal of passport controls.

It is time for North America to better integrate its transportation systems. A starting point would be a continental freight transport plan!

Comments and Reservations: NATCRC Members

Guy Stanley: Is the problem lack of vision or lack of ability to design a system that is self financing and self maintaining? The paper describes the transportation system problem mostly as a capacity problem, and illustrates the governance and management problems, but then moves into a discussion of the new capacity creating initiatives and doesn't really tackle the issue as a management problem although your conclusion points in that direction by calling for a continental strategy. But it seems to be a strategy for capacity creation through corridors rather than a continental management strategy that would (1) eliminate unnecessary capacity roadblocks, (2) mandate norms and technical standards, (3) standardize security strategy (e,g,. inspect at origin, seal and track movement through GPS in seamless end to end systems, smart containers and other stuff) (4) coordinate the whole thing through some sort of NAFTA oversight committee with a multi-year budget. Another issue is management shortcomings in relation to managing incoming finances that would if corrected add a significant percentage to revenues – and the Working Paper shows the impact of earmarks and Congressional misallocation of funds in the US, Canadian federal-provincial funding games and Mexico's management sloppiness…. It may be that a privately financed freight route is the only practicable alternative.

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The North American Transportation Competitiveness Research Council

Who are we?

In response to mounting concerns about carrying capacity throughout the United States, Mexico, and Canada, we have come together to form the North American Transportation Competitiveness Research Council. The Council is composed of researchers in transportation, logistics, and supply chain management from universities, transportation research institutions, and companies in Canada, Mexico and the United States.

Our initial meetings were organized with the support of authorities in Kansas City and Winnipeg – well-established freight and distribution hubs in their respective regions. However, it has become clear to all of us that the issues must be addressed on a continent-wide basis. Mexico, the U. S., and Canada each have unique needs and capabilities which complement each other. But realizing these synergies requires a continent-wide approach to moving freight within and between these three countries. Many companies have organized trinational production systems whose continued efficiency is threatened by deterioration in infrastructure capacity and network capabilities

What does the Research Council do?

North American companies have spent the last thirty years finding ways to leverage the unique capabilities of the three countries that share the continent. This progress is now threatened by rising congestion at borders, in major cities, and at critical hubs. The Council intends to investigate how to transform the overstressed, disjointed network into an efficient and secure continental freight transportation system that will enhance North American competitiveness in the 21st century.

Trustworthy information, innovative alternatives, and political insights are all critical to enabling the necessary changes to the North American network. The Council will deliver objective information, policy assessments, and options to key stakeholders in industry and government. It will organize projects to educate and train professionals in North American transportation, bringing together planners, civil engineers, users, and operators of the North American transportation systems. Thus we will facilitate collaboration between North American transportation research institutions, transportation industry executives and their customers, and urban region leaders to seek both short term and long term solutions to congestion issues that are facing every freight transport mode serving the North American business community.

Developing an agenda for addressing transportation shortcomings to North American Competitiveness

The members of the Research Council welcome the opportunity to work with transportation industry and government agencies to cooperatively develop an agenda for this purpose and to undertake the necessary research, consultation and evaluation to ensure that North America remains the global leader in transportation productivity and efficiency. We hope to:

Evaluate technological, organizational, and political solutions to port, infrastructure, and modal bottlenecks throughout North America

Determine specific requirements and priorities for infrastructure improvement and expansion to improve North American freight and data connectivity

Lay out options for creating a more efficient and secure North American transportation infrastructure for the 21st century.

The Council's initial output will be briefs on transportation infrastructure competitiveness, relevant policy options, and alternative future scenarios. These briefs will be designed to address the needs of decision makers who have been identified in cooperation with transportation industry and government leaders. The Council believes that it can initially contribute by:

- identifying existing research assets and completed studies that support specific initiatives
- building links among research projects already underway in research centers, industry, and government agencies throughout North America
- locating gaps where new work should be undertaken to address near term choke points in the continental network.

The Council will have an equally important mission to show policy makers the need to configure transportation systems to support the reality of a deeply integrated continental economy. The Council, in cooperation with industry and government leaders, will strive to open points of access into the national policy making processes – through the SPP-North American Competitiveness Council, through elected representatives and through other governmental agencies. The overarching goal is to create a dialogue among transportation industry leaders and experts representing different regional, modal and industry perspectives, a dialogue that will produce recommendations for action and also build a broad constituency to support the implementation of these recommendations.

North American firms have long since understood the need to be globally competitive, and they have made many adjustments to face that reality. However, competitiveness is a moving target, and what served in the past will not assure a bright future. Safeguarding and improving living standards in North America requires the best use of the talents, knowledge, and resources of three major countries working together. These synergies can only be realized if the physical connections throughout the continent are capable of handling an increasing level of commerce. The North American Transportation Competitiveness Research Council is committed to finding and synthesizing the best information available to give policy makers alternatives which address current congestion, capacity, and security issues while showing the best ways to employ North America's formidable resources to enable three major economies to work together and improve opportunities for citizens of all three nations.

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