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The Infrastructure that Matters Most:

The Need for Investment in Canada's Trade Infrastructure

June 2016





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INTRODUCTION

What follows is an argument for enhanced trade infrastructure investment, not simply as a “nice to have” when we get around to it but as a “must-have” before it is too late. It is a reminder of the fundamental connection of our economic well-being as a country to this category of transportation infrastructure that enables the movement of products, services and people to key markets around the world. We look back now upon the construction of the St. Lawrence Seaway, our coast-to-coast national railway and the establishment of Canada’s national highway system as historic investments in nation building. Today, we are at the doorstep of a major new opportunity that can reshape our economic destiny. Across the globe, three billion new global middle class consumers are set to join our major trade partner to the south as customers of Canadian exports but

only if our transportation network can enable the reliable delivery of the goods. Now is the time for a strategically focused and collaborative public-private upgrade of Canada’s key trade assets. In support of this objective, this report revisits trade infrastructure now for two reasons: first, the trade world into which we sell is changing in a way that makes trade infrastructure improvements for Canada much more urgent, and second, the federal government is about to launch a new infrastructure plan of unprecedented size in which trade infrastructure has a vital role to play to support continued economic well-being for Canadians. As the Canada Transportation Act Review suggests, investments in Canadian transportation infrastructure can drive our global competitiveness for the next 30 years.



SECTION 1: TRANSPORTATION INFRASTRUCTURE AND OUR ECONOMIC LIVELIHOOD

For a country that trades as much as Canada does, the competitiveness of its trade infrastructure is one of the most significant determinants of the quality of life that Canadians have come to expect. This is because Canada's export-based economy relies upon its roads, ports, waterways, railways, airports and pipelines to move Canadian products and services to the markets of its trading partners around the world. Together, these transportation and logistics assets that we call trade infrastructure combine with information systems and Canadian ingenuity to form the backbone of a trade network that, today, accounts for more than 60% of the country's collective income. With this much of Canada's annual gross domestic product tied to trade, the relative health of its trade infrastructure network directly affects the availability of jobs and whether or not Canadians can get to them. Maintaining the competitiveness of Canada's trade infrastructure also pays real dividends because it directly generates more new revenue than other forms of infrastructure and in so doing, helps pay for the country's social and economic priorities.

This connection between infrastructure and Canadians' quality of life is not new but what is, it can be argued, is the urgency for meaningful action. Perhaps the most significant reason for urgency is accelerating competition from other nations seeking a larger share of the international trade pie. It is all about competitiveness. At a time when the quality of Canada's own trade infrastructure is showing signs of increased strain, competitors are raising the bar by aggressively investing financial resources and political capital to improve their own trade infrastructure.

At the same time, the rules of the game in the international trade arena in which Canada earns its living are undergoing major changes. The advent of formal agreements such as the Trans Pacific Partnership (TPP) means that Canada's export economy will soon face a historic test. Canadian firms currently share privileged access to the U.S. market under the North American Free Trade Agreement (NAFTA) with Mexico. Soon however, they must anticipate nine arguably more aggressive players seated at that same trade table, all of whom will now share the same advantages previously enjoyed by Canada.

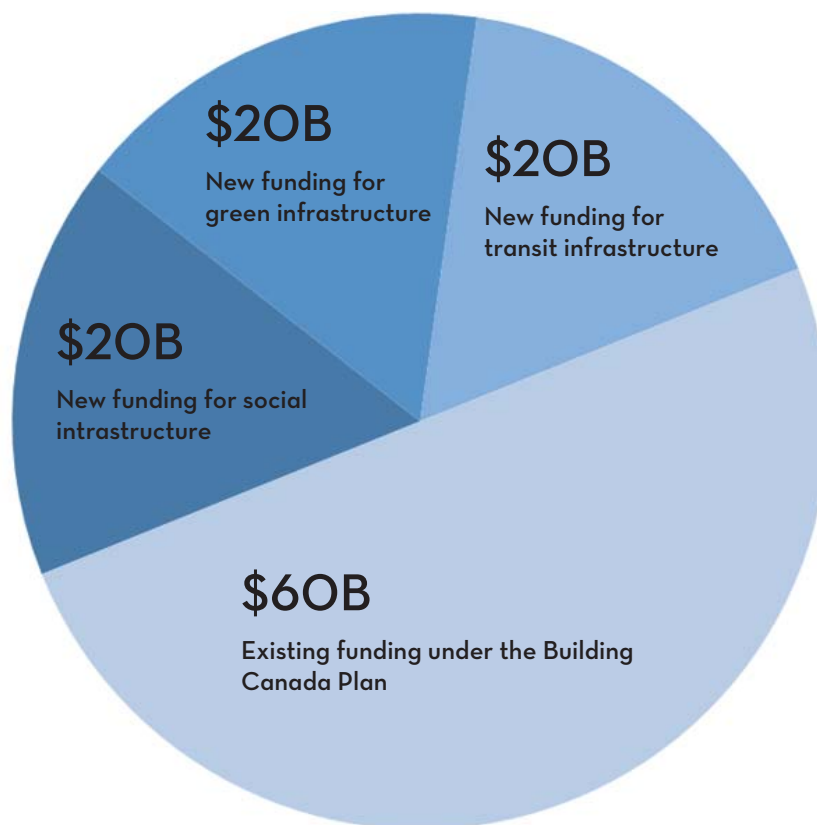
In the face of these new realities, the impacts of recent shortcomings in Canada's infrastructure network, such as that evidenced by the 2013 grain crisis, extend beyond the multibillion dollar impact that this event had on the Canadian economy. We are learning the hard way that Canada's reputation for producing high quality products and services is quickly eroded when we are unable to get them to destination markets in a timely manner.

Consequently, a significant measure in this coming test for Canada will be the ability to demonstrate improved reliability and efficiency in our trade infrastructure network. And the standard by which our progress will be judged will not be a domestic one. Canada's will be graded by international customers who, to a much greater extent than ever before, will gauge Canada's reliability against that of competitor nations that offer similar products and services. Our collective response will carry consequences for the country's trade performance and the individual wealth of our citizens.

For Canada to respond to heightened international competition on the timely basis that is now required, strong national leadership will be needed both from the federal government and the private sector. The good news is that the government has staked out infrastructure, broadly defined, as a distinguishing feature of its mandate by borrowing in this unprecedented low-interest climate to invest in rebuilding Canada's aging national infrastructure. The challenge is to ensure the government uses the funding to choose projects of meaningful long-term economic benefit. While short-term stimulus can play a role in economic recovery, federal funding should include project investments that generate long-term economic growth and prosperity.

To date, most of the government's focus on infrastructure has been devoted to its newly established priorities for social, transit and green infrastructure. Each of these three categories has received new federal funding of \$20 billion over the next 10 years for a total of \$60 billion. Combined with the existing \$60 billion Building Canada Plan (BCP), the government has committed to a record level of federal seed capital for national infrastructure investment.

Canada's \$120B, 10-year Infrastructure Plan



With the majority of Canada's national income tied to trade, the absence of a clear commitment to making trade infrastructure an equal priority with the three new categories of infrastructure stands out as a missed opportunity. The good news is that there is still time to get it right. The commitment of \$60 billion in new infrastructure funding and the government's stated intention to update the Building Canada Plan can be leveraged together to enhance Canada's trade infrastructure network.

In addition to the three new \$20-billion funds, the government has promised to establish an infrastructure bank to provide low-cost financing for municipal projects. In some countries, infrastructure banks have played a broader role than just supporting municipal projects and have contributed to improving trade competitiveness. As the name implies, they provide a range of financial services from direct lending to facilitating private sector lending for infrastructure. They can also play a

less obvious but, arguably, more important role in providing intelligence, information and analysis on trade infrastructure and integrated supply chains. Canada could leverage this concept to help bridge its trade infrastructure funding requirements and inform supply chain improvements between Canada and the U.S.

Amongst the infrastructure choices available to the new government, the one that is most integral to the economic well-being of everyday Canadians has yet to be endorsed as a top priority. Commitments to social, transit and green infrastructure need to be balanced with the longer-term return on investment from trade infrastructure. For the government and, indeed, for the country as a whole, this is not an indulgence issue but rather is as bread-and-butter as it gets. Canada's prosperity depends on immediate and targeted investments in its economy-enabling trade infrastructure.

SECTION 2: FIVE REASONS TO MAKE TRADE INFRASTRUCTURE AN INVESTMENT PRIORITY

1. Return on Investment (ROI)

One of the key features of trade infrastructure investments is that they typically provide economic returns that exceed the value of the initial direct investment of a given project. However, the selection of just any trade infrastructure project does not guarantee a positive economic return. To realize this benefit, investments must be selected prudently then planned and executed carefully to multiply benefits and minimize costs.

Trade infrastructure investments also yield longer-term benefits by facilitating the transportation of goods and services more quickly, reliably and at lower cost. In other words, enhanced trade infrastructure investment can increase the economy's competitiveness and productive capacity after the infrastructure is built. For example, an investment in a port can enhance the port's competitiveness and thereby attract stronger demand to that port and more jobs after the initial employment in construction and supporting service sectors is finished.¹

Various estimates have been attached to the return on investment associated with trade infrastructure projects. These range from relatively modest positive



returns that are slightly greater than the value of the investment itself to returns that are double or triple the value of the initial investment. For example, Standard and Poor's analyzed the multiplier effect associated with increased public investment on infrastructure in G20 countries and concluded

that an increase in investment of 1% of real GDP produced an economic return as high as 2.5 times in a three-year period.² Similarly, in its assessment of the effects of revisions to infrastructure grants for highway investments, Leduc and Wilson found that, on average, each dollar of federal highway grants in the U.S. translated into an increase to a state's GDP of at least twice that amount.³ The absolute value of these economic multiplier proxies is less important than the consistent finding of positive returns from prudent trade infrastructure investment and the causal link to multiplier benefits to an economy.

There are certainly economic benefits to be derived from the government's commitment to add \$60 billion for social, environmental and urban transit infrastructure. Properly selected, these projects can also improve the country's core infrastructure and deliver immediate-economic benefits. Australia, for example, found that improving urban transit led to significant GDP growth returns. Workers got to work more quickly, and goods moved more fluidly around cities contributing to the overall efficiency of national supply chains.⁴

Choosing to enhance trade infrastructure does not need to come at the expense of the government's other new infrastructure priorities. It is a matter of achieving a balance in which trade infrastructure can contribute widespread, longer-term economic benefits.

2. Reversing Canada's Trade Infrastructure Decline

With growing competition for global markets, the reliance of Canada's export-based economy on the state of its trade infrastructure leads to an obvious question about how well Canada's trade infrastructure compares with that of other countries. Canada's relative ranking in terms of the ability of its trade infrastructure to support the distribution of exports to destination markets is an important part of the competitive equation for Canadian suppliers. Our customers have more choice, and Canadian exporters are being compared on the basis of perceived reliability and end to end costs. If a Canadian competitor is in Singapore or Australia and happens to have shorter distances and arguably lower movement costs, that head start is a fact of life that Canadian companies can't control. One way to improve the odds though is with better trade infrastructure.

One measure, the World Economic Forum's Competitiveness Index, suggests that Canada is falling behind at precisely the wrong time.

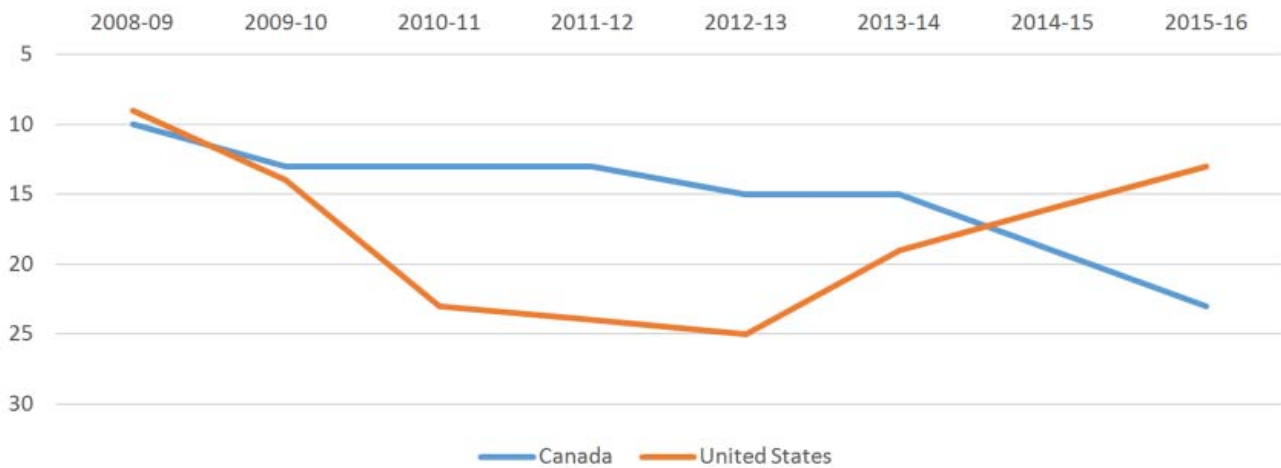
World Economic Forum - Quality of Overall Infrastructure

2008-2009	Rank	2015-2016
Switzerland	1	Switzerland
Singapore	2	United Arab Emirates
Germany	3	Hong Kong SAR
France	4	Singapore
Finland	5	Netherlands
Austria	6	Finland
Denmark	7	Japan
Hong Kong SAR	8	Austria
United States	9	Iceland
Canada	10	France
United Arab Emirates	11	Germany
Sweden	12	Denmark
Iceland	13	United States
Luxembourg	14	Spain
Belgium	15	Portugal
Japan	16	Malaysia
Netherlands	17	Luxembourg
Korea, Rep	18	Qatar
Malaysia	19	Sweden
Barbados	20	Korea, Rep
Cyprus	21	Chinese Taipei
Taiwan, China	22	Belgium
Portugal	23	Canada
United Kingdom	24	United Kingdom

Prior to 2010, Canada ranked ninth on quality of overall infrastructure, but by 2012, though still ahead of the U.S., had dropped to 15th in the world.

By the 2014 rankings, Canada had dropped further to 19th and was behind the U.S. In the most current 2015-16 index, Canada sits in 23rd place.⁵

Canada Versus United States Overall Infrastructure Quality

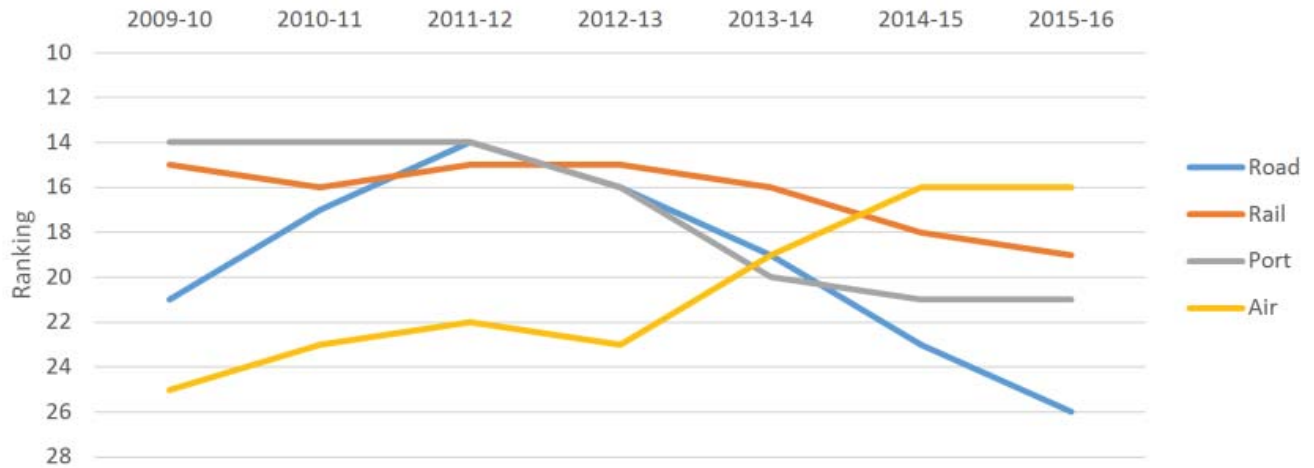


The trajectory of Canada's international ranking should be cause for concern, specifically for those assets that support its export economy such as road, rail and port infrastructure, which have all declined since 2010.

On the quality of its roads, Canada has fallen from 14th to 26th position in the last five years. Rail infrastructure and port infrastructure have also

lost ground over the survey period and currently sit at 18th and 21st respectively compared to their international competitors. Of the four trade infrastructure categories in the global survey, only air transport infrastructure in Canada has made demonstrable progress compared to its rivals over this period. Even with this improvement, Canada currently sits 16th in the world on air infrastructure.⁶

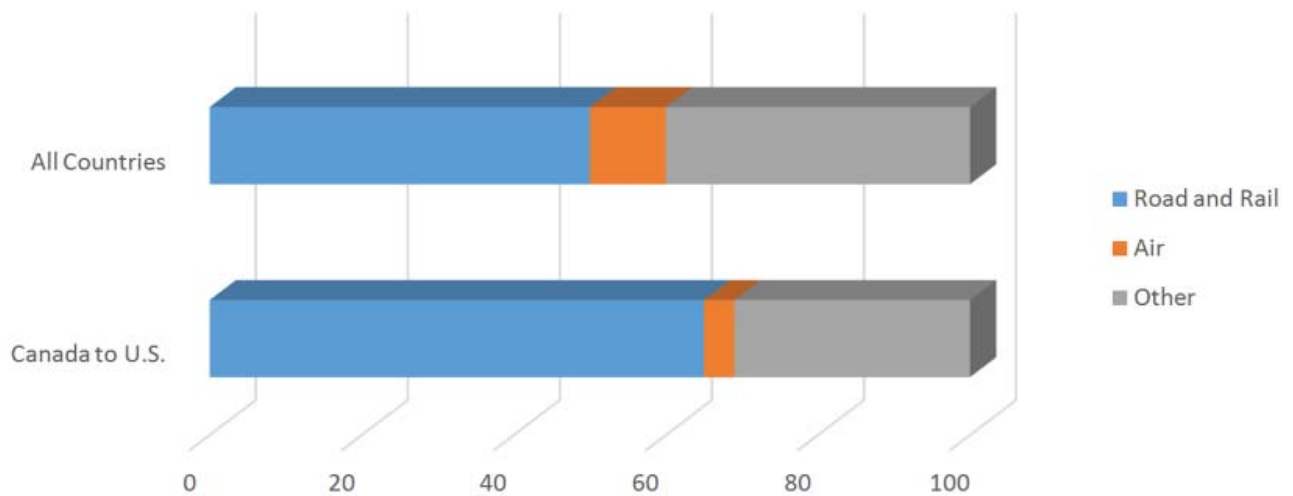
Quality of Canada's Infrastructure Competitiveness Rankings



The significance of the rankings on road and rail infrastructure are perhaps most concerning because of the proportion of Canada's exports that rely upon these two dominant modes of the Canadian supply chain to reach export destinations or connecting marine ports. According to Transport Canada, over

50% of overall exports move to market by road or rail with 10% accounted for by air. For movements to the U.S., our largest trading partner accounting for two-thirds of Canadian trade, the significance of road and rail for moving exports rises to 65%, with 45% moving by road and 20% by rail.⁷

Modes of Transportation for Canadian Exports



This modal challenge is especially noteworthy in relation to the U.S., our major competitor for much of our western Canadian bulk commodities; for example, where Canada moves virtually 100% of its grain by rail, over 50% of the grain exported by Idaho and Washington moves by barge. This back up barge capacity provides an important alternative to rail as well as helping to discipline rail pricing. Barge is also cheaper. Whether it is the U.S. or a different competitor's jurisdiction, like Australia where ports are much closer to farms, most Canadian exporters start this transportation dimension with a distance-based disadvantage.

If there is a silver lining in these trends, it is that Canada's highest international ranking on infrastructure competitiveness corresponds to a time when Canada had strategic investment programs and policy initiatives focused on trade infrastructure. In the decade leading up to its top 10 world ranking, the federal government exercised national leadership in forging partnerships with provincial governments and industry to coordinate a series of investments to upgrade key economic corridors and trade assets. The Asia Pacific Gateway and Corridor Initiative (APGCI) and the Gateways and Border Crossings Fund (GBCF), together with a major upgrade of the National Highway System (NHS), spurred coordinated investment in key trade infrastructure assets aimed at reducing bottlenecks and improving trade flows in and out of the country.

By the end of that first decade of the millennium, Canada was left with a much improved and relatively strong trade infrastructure foundation. The link between Canada's highest world-ranking and this coordinated effort to strategically enhance priority trade infrastructure assets is not coincidental.

Starting from a relatively strong position less than a decade ago, Canada has steadily lost ground. It is difficult to see how these trends can be reversed without a strategic effort targeting Canada's trade and transportation infrastructure.

3. Domestic Freight Demands on Canada's Trade Infrastructure

The capacity of Canada's transportation network to efficiently handle shipments is an ever-present issue. Assessing potential demand provides a lens by which to plan and measure investments by their capacity to reduce congestion or enhance velocity in the system. This was the basis for the *2014 Transportation Network Needs Assessment* conducted by Colledge Transportation Consulting Inc., one of the more recent studies of future domestic freight demand on the country's system of roads, rail, ports and airports. The study provides a proxy by which to measure the overall need for upgrades to key corridors.



Source: Transport Canada

*Does not include trade with Latin America/Other which is \$86B in 2014

- At the beginning of the forecast period in 2013-14, Canada's total international trade amounted to approximately \$1,033 billion comprised as follows:⁸
 - Total freight by rail was estimated at 320.2 million tons with the value of rail based international trade traffic in Canada amounting to \$126 billion.
 - For commercial truck traffic, of which approximately 43% involves international movements including 10.7 million at Canada – U.S. border points, the value was \$371 billion.
 - At Canadian airports, domestic and foreign carriers loaded and unloaded an estimated 1.1 million tons of freight with the estimated value of international air cargo trade amounting to \$116.4 billion. Air passenger traffic, an important feature of Canada's emerging service economy continued to grow with revenue passenger kilometres (RP K) up nearly 6% in 2014 and capacity also up by nearly 5.8%. The result was record load factors of almost 80% worldwide.
 - For ports, total trade through the three gateways – Ontario-Quebec, the Maritime Gateway and the Asia Pacific Gateway – amounted to \$420 billion:⁹
 - The Atlantic Gateway shipped almost \$30 billion worth of merchandise.
 - The Ontario-Québec continental gateway and trade corridor saw a value of \$290 billion in merchandise shipments, excluding pipeline exports to the U.S.
- The Asia Pacific Gateway saw a value of \$99 billion in merchandise shipments.

i) Forecasted Domestic Demand

The 2014 *Transportation Network Needs Assessment* provides freight traffic projections for roads, rail, ports and airports for a 10-year period for 12 different sectors to anticipate potential bottlenecks for Canadian exports through the Asia Pacific Gateway and along major east-west and north-south trade corridors.

The study projected overall demand for domestic freight transportation will increase on a strong trajectory through 2024 based on global demand for Canadian resources in areas such as food, energy, fertilizers, mineral resources, petrochemicals and forest products. Total volumes travelling across the

Asia Pacific network were forecast to increase in the coming decade by 116% from 91.6 to 197.6 million tons.¹⁰

Although the economic slowdown in the two years since the study's completion have affected growth projections for some commodities such as coal, the positive trajectory anticipated by the study for freight movements remains. The rate of growth has moderated, but over the forecast period, growth is expected to continue. Perhaps more importantly, even with a global economic slowdown, maintaining cost effective infrastructure will be critical in the coming era of TPP.

Pacific Gateway Throughput Comparison 2013-2024

Sector	2013 Actual (million tons)	2024 (million tons)	Increase (tons)	Increase (%)
Coal	48.6	82.0	33.4	69
Agriculture Products	21.2	29.6	8.4	40
Potash	6.6	15.2	8.6	130
Forest Products	3.4	4.5	1.1	32
Metals and Minerals	3.4	4.5	1.1	32
Sulphur	2.8	3.2	0.4	14
Other Fertilizers	1.9	2.3	0.4	21
Petrochemicals	0.6	3.0	2.4	400
Sub-Total	88.5	144.3	55.8	63
Crude Oil	3.1	25.7	22.6	729
LNG	-	27.6	27.6	-
Total	91.6	197.6	106.0	116

Source: 2014 *Transportation Network Needs Assessment*

ii) Rail

In terms of anticipated demand on rail infrastructure, the study forecasts consistent growth in domestic demand across most of the 12 sectors totalling 61.9% or approximately 6.2% per annum. The most significant pressure is expected to come from the export of bulk commodities that share the

rail network as the most cost-effective means of transportation. Similarly, the growth outlook for containerized traffic points to positive growth over the decade with the warning that capacity could again come under extreme pressure as was the case in 2013 if favourable market conditions occur across several sectors.¹¹

Estimated Rail Traffic to/from B.C. Ports (East-west Flows)

	Trains 2013	Trains 2024	Increase Trains/Year
Vancouver	17,100	25,200	8,100
Prince Rupert	4,000	8,900	4,900
Total Pacific Gateway	21,100	34,100	13,000

Source: 2014 Transportation Network Needs Assessment

iii) Roads

The report predicts significant increases in road transportation, arising from exports such as forest products, metals and minerals and containerized

cargo. Much of the truck traffic increases are forecast to occur on the principle north-south highways within each province that connects to the United States market.¹²

Estimated Truck Traffic to/from B.C. Ports (East-west Flows)

Sector	Truck Trips 2013	Truck Trips 2024	Change	% Change
Forest Products	26,600	36,700	10,100	+37.9%
Metals & Minerals	31,500	58,900	27,400	+86.9%
Containers	1,456,100	2,066,500	610,400	+41.9%
Total	1,514,200	2,162,100	647,900	+42.8%
-Port Metro Vancouver	1,472,000	2,086,400	614,400	+41.7%
-Prince Rupert/Stewart	42,200	75,700	33,500	+79.5%

Source: 2014 Transportation Network Needs Assessment

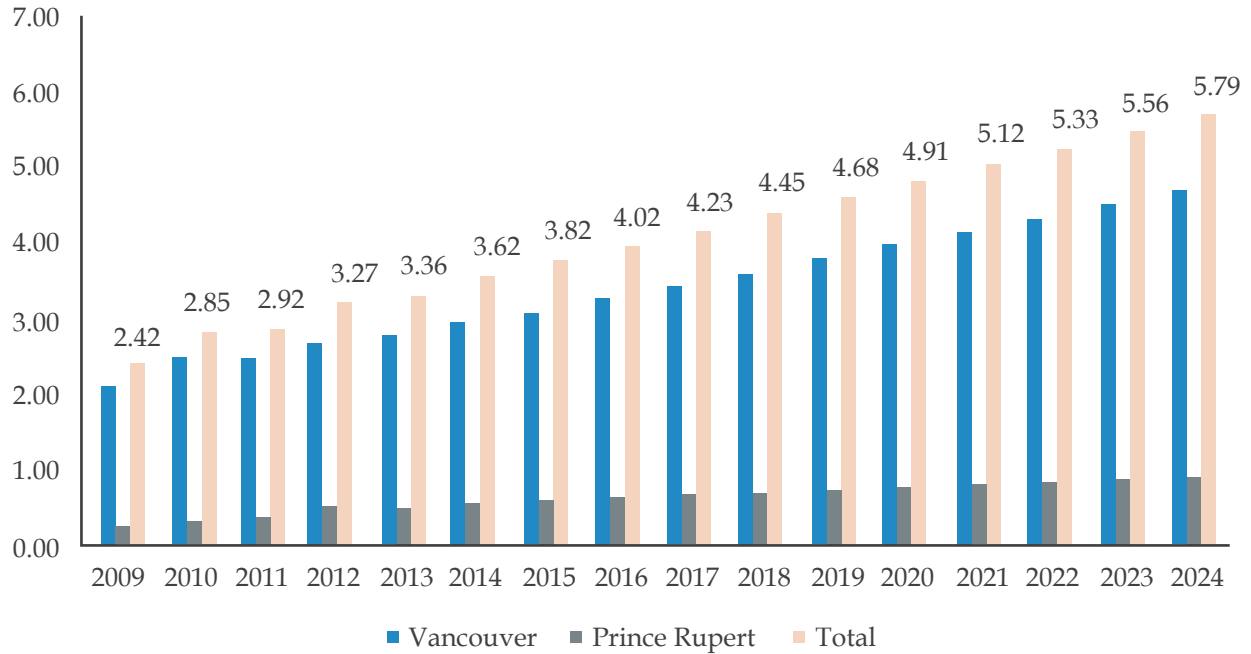
iv) Ports

Container traffic through the ports of Vancouver and Prince Rupert are projected to grow from 3.36 million twenty-foot equivalent units (TUE) to 5.79 million TEU or approximately 5% annually.¹³ It is important to note that in tracking these numbers, we

are not simply talking about the economic activity of the Western provinces but rather overall Canadian traffic through the Asia-Pacific network. The province of Ontario, for example, does more two-way trade with China than the Western provinces combined.

B.C. Container Traffic Projections

Sector	2013 Actual	2024 Range	2024 Medium Growth Scenario	Avg. Growth Rate (%/year 2013-2024)
Containers (million TEU)	3.36	5.15-6.61	5.79	4.9



Other Canadian port traffic projections predict a similar pattern of growth. For example, since 2009, overall traffic at the Port of Montréal has increased from slightly less than 25 million tons to 32 million tons in 2015. Containerized traffic during this period increased from approximately 11 million tons to 13 million tons, reaching approximately 1.4 million TEU in 2015. For future years, the Port is forecasting continued growth of 6.2% to reach 43 million tons by 2020 as well as average annual growth of over 4% in container traffic.¹⁴

The growth projections in this freight traffic data suggest that Canada's key trade infrastructure will need to manage greater volumes and levels of product movements in the next decade. For major trade corridors, the study concluded that combined traffic volumes by common users of road and rail networks will continue to create issues of congestion and bottlenecks. It also concluded that competition

with other countries and producers on price, quality and reliability will be key and that improving market access through continued network development and funding of freight transportation infrastructure will be the most important variable driving future economic success.¹⁵

Airports

While the majority of goods moving within North America are predominantly on trucks and rail, air transport plays a significant role in the movement of Canadian international goods accounting for over 22.5% of all non-U.S. imports/exports in Canada by value. The value of this cargo moving through Canadian airports has grown considerably over the last several years, averaging 32% across Canada from 2001 to 2011 and 21.5% from 2006 to 2011.¹⁶

Figure 6: International/Trans-Border Trade by Air

CANADIAN AIRPORTS: IMPORT/EXPORT GROWTH (\$ MILLIONS)							
AIRPORT	AIR CARGO VALUE	% GROWTH		AIRPORT	AIR CARGO VALUE	% GROWTH	
Exports from 2001 to 2011	2001	2011	% CHANGE	Imports from 2001 to 2011	2001	2011	% CHANGE
Toronto Intl Airport	\$14,242	\$30,414	114%	Toronto Intl Airport	\$21,690	\$35,949	66%
Montreal-Mirabel	\$8,640	\$5,275	-39%	Montreal-Dorval/PET	\$10,601	\$7,727	-27%
Montreal-Dorval/PET	\$5,314	\$5,430	2%	Hamilton Intl Airport	\$1,723	\$3,934	128%
Vancouver Intl Airport	\$1,708	\$1,949	14%	Vancouver Intl Airport	\$3,301	\$3,732	13%
Calgary Intl Airport	\$1,144	\$1,227	7%	Calgary Intl Airport	\$2,518	\$2,735	9%
Ottawa Intl Airport	\$1,068	\$339	-68%	Montreal-Mirabel	\$2,185	\$2,698	24%
Edmonton Intl Airport	\$242	\$157	-35%	Ottawa Intl Airport	\$2,704	\$1,363	-50%
Halifax Intl Airport	\$202	\$315	55%	Winnipeg Intl Airport	\$1,291	\$1,035	-20%
Winnipeg Intl Airport	\$113	\$419	270%	Edmonton Intl Airport	\$765	\$800	5%
Hamilton Intl Airport	\$106	\$162	52%	Halifax Intl Airport	\$364	\$230	-37%

Source: Statistics Canada

The statistics are a reflection of a developing story about the role of airports in the growth of Canada's service economy. While air cargo accounts for approximately 1% of Canada's international trade by volume, by value it represents as much as 25% of exports outside the United States. These higher value goods include precious metals and stones, consumer electronics, luxury goods and pharmaceutical products as well as perishable foods such as prepared grain products, seeds and natural oils.¹⁷

The United States is still Canada's major air cargo market in terms of both import and export value, representing 30 to 40% of Canada's total trans-border cargo activity.¹⁸ However, China is growing as a significant driver of air cargo demand as a result of the import and export of manufactured goods and components in the manufacturing process. Similarly, a number of emerging markets in Europe and Asia are also moderating the impact of the U.S. air cargo market for Canada.

In addition to being the largest revenue source for most major Canadian airports, passenger travel is also a key driver for air cargo for at least three reasons:¹⁹

- Cargo is often shipped in the belly of passenger airplanes, and higher passenger volumes can generate more capacity and efficiency for commercial cargo.
- Airports with high passenger volumes often have more nonstop flights to major markets across the world thereby shortening shipping times for cargo due to efficiencies in shared infrastructure and flight networks.
- Airports with high passenger volumes are often in metropolitan regions with a large population and a large distribution sector that relies on the airport to move goods.



Photo courtesy of Winnipeg Airports Authority

Over the next 20 years, passenger traffic is forecast to grow annually by 4.9% and air cargo traffic by 4.7%.²⁰ Much of this growth in demand for airport services affecting air cargo is anticipated to be related to the growth of Canada's service economy. The growth of the Canadian air cargo market will be led by e-commerce and continued growth in the global movement of high value goods. In this context, airports play an important role not only in helping to overcome Canada's geographic challenges of distance from foreign markets but also by enabling the flow of professional services and time-sensitive exports. This emerging high-value segment of Canadian exports can be expected to bring requirements for specialized industrial buildings such as fulfilment centres, bulk distribution and integrator sorting facilities.

While Canadian airports must ensure its services are satisfactory to meet these new opportunities, unlike the other major modes of transport infrastructure, Canada does not have an airport capacity problem. The work of local airport authorities in recent years created a situation in which there is not the same urgency to build more capacity. However, regulatory improvements and lowering government-imposed costs on the sector could attract more air carriers to the Canadian market and get more people flying.

4. Demand on Canadian Trade Infrastructure from the Global Middle Class

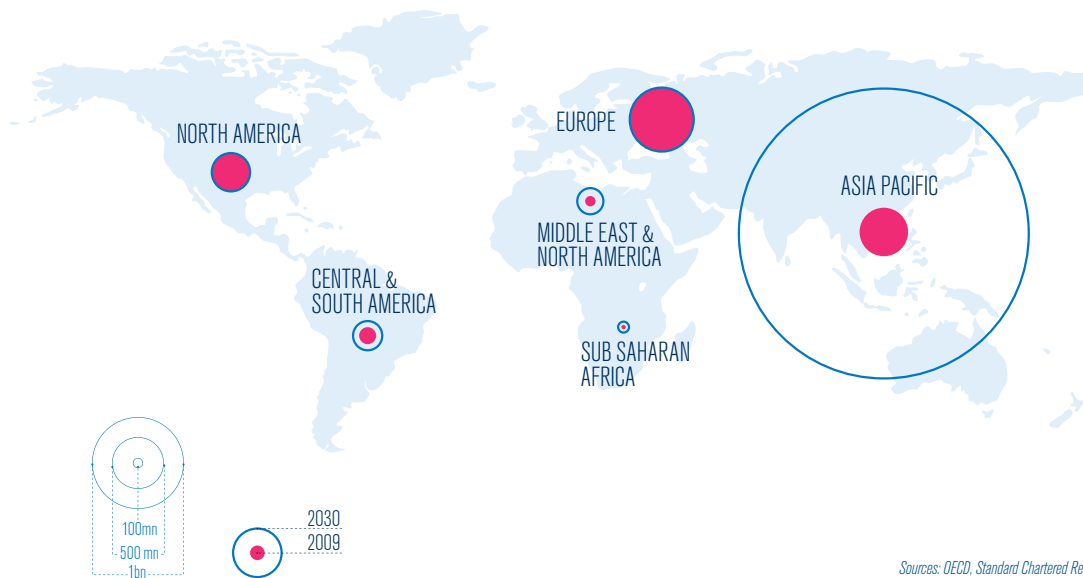
As important as forecasted growth in domestic freight traffic will be, the ability of Canada’s trade infrastructure network to support Canada’s fight for its share of new growing international market opportunities with an emerging global middle class is crucial. Canadian exports have been identified as ones that will be in high demand with this new group of consumers if Canada’s trade infrastructure network can deliver them in a timely fashion.²¹

These emerging markets with more rapidly growing economies offer significant potential for products that Canada has been producing for years. This demand comes primarily from the growth of the middle class in Asia, where at the end of 2015, China’s middle class overtook the U.S. to become the largest in the world. This new global middle class has both enough income to increase consumption and the power to exercise choice in

what it consumes and from where. The number of these consumers is projected to grow from 1.8 billion today to five billion by 2030, representing unprecedented long-term growth in demand and changes in consumption patterns.²² To put these numbers into perspective, the recent rise in demand has been driven by an increase in the global middle class of 700 million new consumers over the past 10 years. In the near future, that growth will be in the order of three billion, or four times the past decade’s growth. By 2030, the world population is expected to grow by two billion, but the size of the global middle class will grow by three billion.²³

As one example of the anticipated impact of this growth, in the years extending to 2030, the airline industry is expecting to triple or quadruple its services in order to serve the demand for air travel and cargo generated by this market segment of consumers in the Asia-Pacific, Latin America, the Middle-East and North Africa (MENA) and sub Saharan African nations.

Chart 7: Global Middle Income Class In 2009 and Prediction for 2030



Well over the next twenty years the airline industry is expecting to triple or quadruple its services in order to serve the demand for air travel and cargo services generated by the expansion of the middle income classes in Asia-Pacific and emerging economies in Latin America, MENA and Sub Saharan Africa.

Source: <https://www.iata.org/whatwedo/Documents/economics/profitability-and-the-air-transport-value%20chain.pdf>

If Canadian exporters are going to meet the demands of this expanding global middle class, it will require continued improvements to the capacity, speed and resiliency of our trade infrastructure network.

5. Preparing Wisely for the Potential of Slower Global Growth

Over the course of the last year, International Monetary Fund forecasts have been bearish about near-term global economic growth. This has led some to suggest that these recent changes may be structural in nature, reflecting extended slower global economic growth that could have particularly challenging implications for resource-rich nations like Canada. While the budgets of commodity-exporting nations can expect to be under pressure during this adjustment, economists, like Dambisa Moyo, suggest that now is precisely the right time for countries to invest in trade infrastructure improvements to prepare for the future.²⁴

While the rate of demand growth has slowed, the growth of demand has not. Oil demand in China, for example, is still close to what it was before. Moyo argues that issuing new debt at a time of low borrowing costs is a move that smart countries are making and, which “used wisely,” can both stimulate a country’s economy in the near term and, by investing in the right areas, like infrastructure, contribute to lasting improvements in a new era of slower economic growth. It is a strategy she describes as one for countries of investing in themselves to improve their economic and fiscal fortunes.²⁵

The Canadian potash industry offers a good example of an industry that has articulated such a strategy for investments in its network infrastructure now to strategically prepare for longer-term competitiveness. In the face of weaker global prices and heightened international competition, it is a Canadian example of the pressure to improve domestic logistics in order to take advantage of emerging middle-class markets. It also illustrates how the timing of trade infrastructure investments will impact Canada’s export economy.



Potash is an important soil nutrient that is used to grow crops that feed consumers worldwide, including the global middle class. With rising incomes, consumers add more food, especially meat, to their diets, which requires more crops to be planted, more fertilizer to be applied and more animals to be fed, which all leads to an increased demand for potash. However, a number of factors are challenging Canada's potash industry to capitalize on this opportunity.

Potash prices have fallen dramatically from the thousand-dollar-per-ton peak in 2008 that made the Potash Corporation of Saskatchewan the highest valued company on the Toronto Stock Exchange to a more modest \$475-level by 2011. More recent prices below \$285 a ton reflect the economic slowdown that has forced companies to rationalize production. In addition, the potash industry in Canada is going head-to-head with at least eight competitors around the world, like Russia, that already enjoy significant cost advantages in areas such as exchange rates and comparably advantageous royalty rates.²⁶

The industry's domestic export infrastructure is also facing pressure to ensure the reliable movement of its product. Canpotex, which handles offshore marketing for Saskatchewan's three major potash producers, is the largest shipper of bulk commodities in the country. It moves 10 to 11 million tons of potash per year primarily by rail to ports and ships in order to export its product around the world. That translates into 100,000 railcars domestically per year.²⁷ Consistent with the

freight forecast for Canadian potash movements, Canpotex is projecting 3% annual growth rates across its offshore markets. According to the Potash Corporation of Saskatchewan, this will translate into a rise in potash demand from about 50 million tons per year in 2015 to about 70 million tons by 2020.²⁸

In order to prepare for this anticipated growth and its significant volumes of domestic product movement and international distribution, Canpotex is currently looking at building a \$775-million export terminal in Prince Rupert, B.C. to ensure there are no bottlenecks in delivery to its customers in the 36 countries that it serves worldwide.²⁹ In other words, despite relatively low market prices and concerns about the pace of growth in the global economy, Canpotex is looking at this major trade infrastructure investment now to respond to aggressive competition. As the CEO and President of Potash Corporation Jochen Tilk commented, "if you don't make the decision to expand now, then you sit there and when the increased demand does kick in, you're back to the 10-year lead time."³⁰ Tilk makes a critical point for the federal government and other key infrastructure stakeholders to consider: there is a significant lead time involved in ramping up supply chain capacity.

SECTION 3: A STRATEGIC FOCUS FOR THE NEXT GENERATION OF TRADE INFRASTRUCTURE INVESTMENTS IN CANADA

The Lessons of Previous National Infrastructure Programs

Establishing the right strategic focus is an important starting point in improving the competitiveness of the country's trade infrastructure. To do this, the government can take a page from the last generation of federal programs that recognized global supply chains as a preeminent feature of the business model governing the operation of global trade.

The Asia Pacific Gateway and Corridor Initiative (APGCI), the Gateways and Border Crossings Fund (GBCF) and the National Highways System (NHS) programs all shared a notable common denominator, namely, a federal investment priority on economically significant trade corridors aimed at connecting the country's centres of production to one another and to Canada's key export markets. This organizing principle, which has earned acclaim from policy analysts, industry operators and trade partners, remains as relevant today as it was when it was adopted.

A brief overview of the APGCI, the GBCF and the NHS's focus on trade corridors is instructive in understanding why the Canadian Transportation Act Review and other commentators recommend supply chains as a basis to focus federal, provincial and industry investment priorities.

The NHS was first endorsed by the federal and provincial governments in 1988. Included highways were defined by criteria that identified routes that supported interprovincial and international trade and travel by connecting major population or commercial centres with one another, major points of entry to and from the U.S. and links to other transportation modes such as ferry terminals.³¹

In 2004 and 2005, federal and provincial governments agreed to the first major overhaul of the NHS since its inception. The criteria for augmenting the NHS again focused specifically on trade and the economy, and a 56% increase in network length was approved on the basis of the following criteria:³²

- Key truck routes that linked freight terminals including ports, railways and airports to major highways were added on the basis of their importance for trade and commerce.
- Feeder routes connecting regional population and economic centres to intermodal facilities and important border crossings were added.
- Growing northern and remote areas that were home to new developments of Canada's resource economy gained eligibility.

By basing federal investment decisions on the economic significance of highway routes and their impact on facilitating trade, core federal NHS funding of approximately \$3 billion leveraged close to \$25 billion in spending by the provinces on national priorities carrying significant trade and economy-enabling benefits.³³

As the government was rolling out major NHS funding, two other foundational trade infrastructure programs, the APGCI and the GBCF, were being introduced by Minister of Transport Jean Lapierre and Minister of Trade David Emerson. In developing this policy framework in the early 2000s, the federal government recognized that international companies, having achieved significant productivity improvements in other aspects of the production cycle, were increasingly focused on how to create seamless, secure and efficient multimodal transportation systems. Policy makers realized that Canada's trade activity by itself was not sizable enough to alter the pattern or direction of these international flows, and instead, the government sought to coordinate transportation investments on the basis of how Canada could best connect to these developing international patterns of trade. This simple but critical organizing principle – making supply chain infrastructure a specific priority, with seed funding through these programs – created a strategic focus for project investments.

Following consultations with key stakeholders, the APGCI and the GBCF were formalized in 2006 and 2007 respectively with funding targeted for trade infrastructure projects of national significance, employing merit-based criteria and cost-sharing, and partnerships to involve private companies, other levels of government and non-profit organizations. The federal government played the

lead role defining the national economic interest by establishing criteria that sought to increase economic returns, building consensus with provincial and industry stakeholders and participating directly in the negotiation of multi-stakeholder projects. This collaborative model reflected the inherent interconnectedness of supply chain projects and created an important convenor role for the federal government to help transcend distinct transportation modes and individual interests.

One of the outcomes of these programs was that projects were not assessed solely as stand-alone propositions. The federal government, instead, adopted a network-based approach in which there was a conscious effort to consider projects within the same trade corridor in relation to one another and, where possible, to align them. By doing this, it was possible to coordinate two or three projects along the same corridor to, in effect, improve the overall fluidity of a given trade route. This had the additional benefit of leveraging the relative value and priority of each project.

Similarly, different stakeholders, say a railway, a provincial road authority and a municipality, could each bring their respective interests together to partner or coordinate on projects that would otherwise not proceed had those stakeholders each attempted to go ahead in isolation. A new rail spur or transload facility, for example, complimented by improved highway access to manage growing road traffic and municipal services for urban industrial growth could, together, mutually reinforce and improve the viability of the business case for one or all of the investing parties where otherwise they could not go ahead. The net effect was a powerful incentive for collaboration.

Not surprisingly, financial leveraging of federal dollars with stakeholder partners multiplied the investment and economic impact. Federal core funding was rarely intended to cover all aspects of a particular project but often made the difference in attracting outside financial participation that, together, made the business case work. Federal funding for projects was not arbitrarily limited to a fixed percentage but instead contained flexibility that allowed projects to be funded for as little as 10% or, in some instances, as much as 90%. The net effect of this early leveraging was that the Asia-Pacific program, for example, leveraged \$3.5 billion in total project funding on the basis of 1.4 billion federal dollars. These investments had a spinoff effect in private investments exceeding \$14 billion.³⁴

Another key feature of these federal programs that reflected the interconnectedness of the supply chain model was the role of research. The federal government acknowledged that it was often necessary to subject assumptions to a further more detailed assessment as industry participants provided important proprietary data about production, freight requirements and market demand. By bringing government and industry information together, federal officials were able to understand with greater precision what problems existed where within the network. It also advanced opportunities for inclusion in the development of solutions and project scope.

Taken together, the NHS, the APGCI and the GBCF all targeted trade infrastructure criteria as an important catalyst for focusing collective investments across Canada towards national priorities.

As the government embarks on its 10-year infrastructure plan, new federal leadership is needed to coordinate investments in trade corridors. This call for a renewed focus on corridors was a key recommendation of the Canadian Transportation Act Review tabled in Parliament on February 26, 2016.

Formalizing the Role of the Private Sector

In addition to lessons from previous federal trade infrastructure programs, it is important to recognize that, today, direct private sector involvement in the development of trade infrastructure planning and priorities has become standard practice amongst our leading trade competitors. Going forward, there are at least three opportunities for the government to leverage the private sector in the development of Canada's trade infrastructure.

First, the private sector possesses expertise that has been driving the innovation agenda in the construction of trade assets. One example has been Canada's global leadership in the development



and application of public-private partnerships (P3s). While the P3 model is not suitable for all capital projects, the application of best practices has demonstrated that tangible improvements are possible when it comes to innovation, project timeliness and risk mitigation. Apart from the choice of business model for project delivery, these are important competitive advantages for the construction and development of Canadian trade infrastructure. Measures of the value of such due diligence in the construction phases of trade infrastructure projects suggest cost savings of up to a third.³⁵

Second, whereas government has historically carried the lion's share of responsibility for trade infrastructure, increasingly, the private sector is the predominant owners and operators of trade infrastructure in Canada. Port of Vancouver's recent \$400-million expansion is an example of this, where up to 73% of port and municipal project expenditures originated with the private sector.³⁵

Third, industry is on the frontline of operational supply chain issues and opportunities. It owns critical intelligence in the form of sophisticated modelling, analytics and quantification in the decision-making process. Indeed, it can be argued that in recent years as the federal government has experienced a loss of analytical capacity, Canada's private sector has continued to refine and advance its supply chain intelligence.

The reality is the private sector is now the more dynamic actor in infrastructure investment. The days of stakeholder reliance exclusively upon federal and provincial governments are behind us. The challenge in this new global trade environment is a joint one that requires a model that can integrate the best features of both the public and private sectors.

SECTION 4: RECOMMENDATIONS

For Canada's export-based economy, trade-enabling infrastructure is the category of infrastructure that has the strongest connection to its long-term global competitiveness and economic well-being.

In the face of emerging challenges to Canada's trade competitiveness, the government has a unique opportunity to reshape Canada's economic future by making trade infrastructure a priority in its national infrastructure plan. For a plan that will set the course for the next decade of infrastructure investment across the country, making trade infrastructure a priority will send an important signal to global customers, Canada's businesses and its workers. It will be a message that Canada is committed to improving its international trade competitiveness to generate more wealth and employment for its citizens.

Specifically, the federal government should:

1. Make Trade Infrastructure an Equal Priority in the \$120-billion Federal Infrastructure Plan

To improve Canada's global economic competitiveness, the government should make trade-enhancing infrastructure investments an equal priority in the federal plan, commensurate with the funding allocated to the new social, transit and green infrastructure categories. There are several ways the government can do this, which could include adding trade-specific criteria to some of the existing infrastructure funds and/or reallocating funding within the overall \$120-billion envelope.

In addition to bringing greater balance to the national infrastructure plan, making trade infrastructure an equal priority with social, transit and green infrastructure will provide more opportunity for synergies with investments and planning in these other priority

areas. For example, coordinating investments in urban transit infrastructure with transportation upgrades for the movement of goods in and around urban areas can multiply benefits and reduce costs. This level of commitment to trade infrastructure would send a positive message to prospective private sector partners and to Canada's international customers alike.

2. Make Trade Infrastructure Investment Decisions Using Merit-based Criteria

Most of the funding streams under the Building Canada Fund are based on per capita models that provide provinces and municipalities with a 'fair share' of funding. While this model is appropriate for certain categories of infrastructure, the objective of trade infrastructure investments should remain to target projects with the highest probability of long-term economic benefit.

The federal government should ensure new trade infrastructure projects are selected on the basis of national objectives according to merit-based criteria. A merit-based approach ensures critical investments are not held captive to local or regional interests or undermined by inadequate financial support. As was the case with the APGCI, a merit-based program will leverage greater investments from the private sector and other levels of government where it is needed most.

3. Renew the Federal Commitment to Canada's Trade Corridors

One of the many successful features of Canada's previous trade infrastructure programs was the establishment of criteria that recognized gateways, corridors and border crossings as the

premise for investing in the country's priority trade and transportation infrastructure. As part of its new infrastructure plan, the government should renew the federal commitment to trade corridor strategies, as was done previously with the APGCI, the GBCF and the NHS to improve the efficiency of Canada's national supply chains.

A renewed program focusing on trade corridors that recognizes that Canada must improve the quality, speed, and cost-effectiveness of its trade networks can usher in a new era of Canadian competitiveness.

4. Partner with Industry to Develop a National Trade Infrastructure Committee

Canada's previous trade infrastructure programs brought together different levels of government and industry to work collaboratively on corridor projects that were, by definition, multi-modal, multi-stakeholder projects. The benefits included better intelligence on the network problems to be solved, combined regulatory and operational expertise, earlier awareness and participation concerning community issues, and leveraged financial resources.

Building on this experience, the federal government should establish a National Trade Infrastructure Committee of public sector and industry experts as an institutional mechanism to guide long-term national trade infrastructure priorities. It would be consistent with national models that have been successfully employed in Australia, the United Kingdom and Norway.

A committee of this standing could also be modeled to provide advice regarding supply chain effectiveness and associated government

policy and regulatory issues and to support a platform to integrate public and private sector data and intelligence. To reflect the private sector's role as a dominant investor in trade infrastructure, industry must be at the table with government to develop the committee's structure and mandate.

5. Consider the Proposed Federal Infrastructure Bank to Enhance Trade Infrastructure Investment

As the government develops its promised infrastructure bank, there is an opportunity to use this new tool to provide more than just low-cost financing for municipal infrastructure projects. The government should consult with investors to determine whether the bank should be used to generate more public-private investments in trade-enabling infrastructure.

An infrastructure bank could provide greater value by incentivizing private funding to underserved areas where there are gaps in Canada's trade infrastructure, such as the lack of transportation infrastructure in the North, a barrier to accessing resources and getting them to markets. The bank could also form part of a North American infrastructure bank to support more informed investments in integrated supply chains and cross-border infrastructure.

Examining whether the mandate of a new infrastructure bank should extend to trade infrastructure and act as a meeting place for project opportunities and investment capital deserves further investigation as part of a longer-term sustainable solution to Canada's trade infrastructure needs.

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