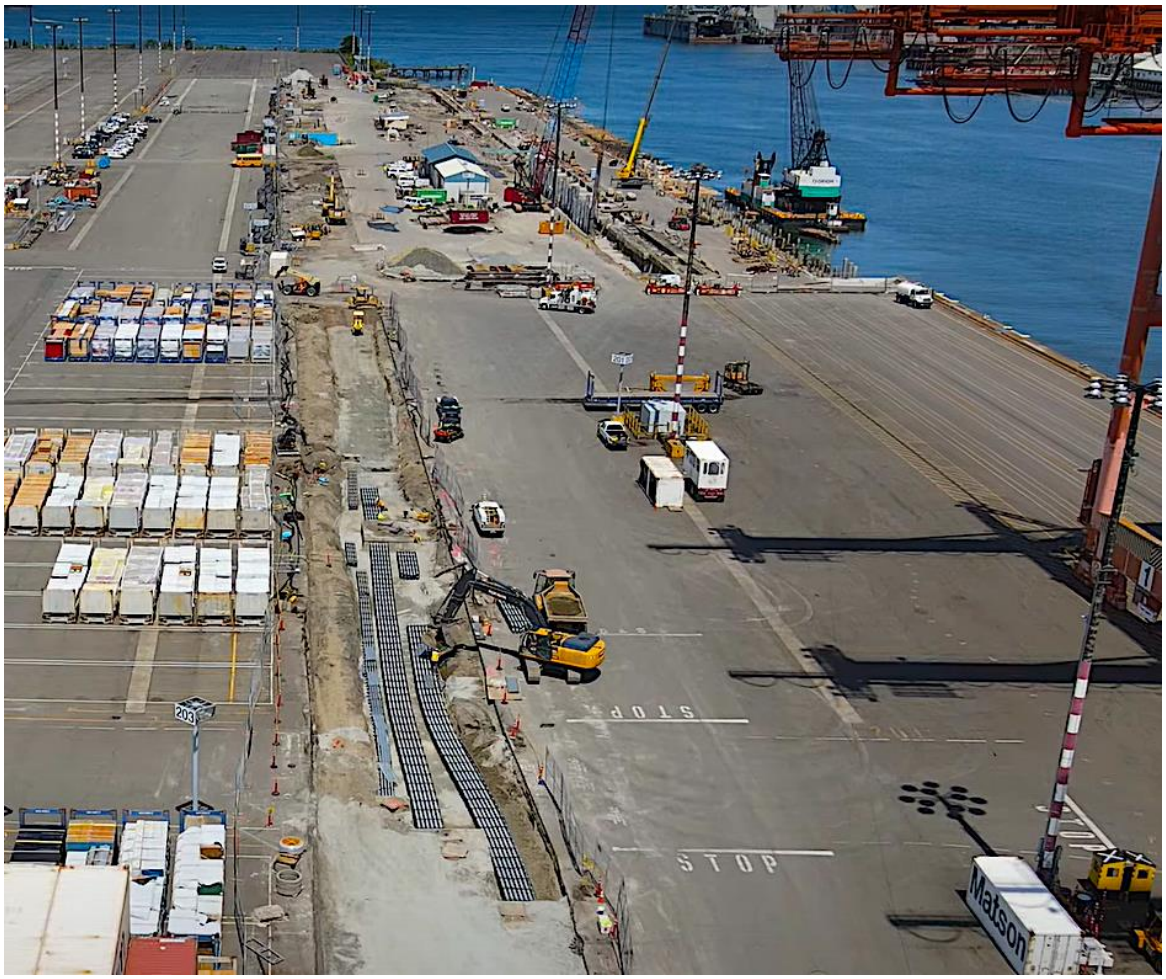
Canadian and US Port Infrastructure Funding and Policy Study Final Report

Prepared for Northwest Seaport Alliance, Port of Long Beach, and Port of Oakland

October 27, 2021



Davies Transportation Consulting Inc.

In collaboration with

Hatch Consultants Associates Inc.

1 EXECUTIVE SUMMARY

Project Scope



The project scope includes a review of government funding for port infrastructure funding for transportation infrastructure related to British Columbia (B.C.), Washington State and California ports from 2005 to 2021.

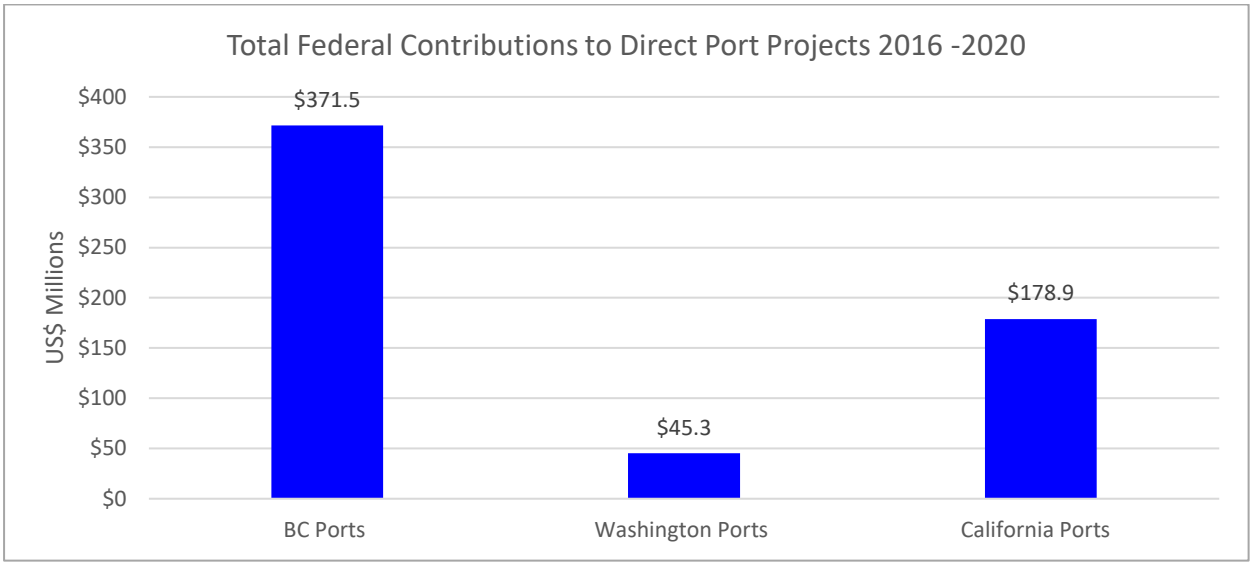
The purpose of this project is to position the Northwest Seaport Alliance, Port of Long Beach, and Port of Oakland to influence federal policymaking and maximize opportunities for U.S. federal and State government funding. Success in accessing federal and other non-federal funds for port-related investment is a fundamental challenge in ensuring that the ports can build the infrastructure needed to compete in the North American containerized cargo trade.

The report encompasses the major ports of Prince Rupert, Vancouver B.C., Northwest Seaport Alliance, Oakland, Los Angeles, and Long Beach. It also includes a discussion of funding for regionally significant B.C., Washington State and California ports receiving funding from federal infrastructure programs.

Key Findings

Canadian federal contributions to B.C. port projects have substantially exceeded U.S grants to Washington State and California ports over the last five years.

Canadian federal contributions to B.C. “Direct Port” projects over the last five years (2016 – 2020) totaled US $372 million compared to US $45 million for Washington State ports and US $179 million for the California ports. “Direct Port” projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property. This is the most relevant category for purposes of this study.



For "Direct Port" projects over the entire fifteen-year period, Canadian contributions to B.C. ports totaled US $560 million compared to US $92 million for Washington State projects and US $1,006 million for California projects. The largest California port project undertaken over the last fifteen years was the replacement of the Gerald Desmond Bridge. The total project cost was US $1,561 million, and funding sources included US $726.6 million from various federal programs and a Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan of US $500 million to the Port of Long Beach. If this project is excluded, contributions to California Direct Port projects totaled only US $279 million from 2005 to 2020.

The table below shows federal funding contributions for direct port projects from 2005 to 2020.

Federal Contributions to BC, Washington and California Ports 2005 - 2020				
	Total Federal Contributions US$ Millions 2005 - 2020	**Total Federal Contributions US$ Millions 2016 - 2020**	**2016 - 2020 Tonnage (Million Tonnes)*[1]**	**Federal Contributions US$ per Tonne 2016 - 2020**
Port of Vancouver	$373.3	$231.7	563	$0.41
Port of Prince Rupert	$142.7	$100.1	132	$0.76
Other BC Ports	$44.4	$39.7	24	$1.63
Total BC Ports	$560.4	$371.5	719	$0.52
Northwest Seaport Alliance	$30.7	$10.7	176	$0.06
Other Washington Ports	$61.1	$34.6	29	$1.21
Total Washington Ports	$91.7	$45.3	205	$0.22
Port of Long Beach	$780.1	$36.5	581	$0.16
Port of Los Angeles	$71.8	$55.8		
Port of Oakland	$15.0	$0.0	82	$0.00
Other California Ports	$139.0	$86.7	43	$2.02
Total California Ports	$1,005.8	$178.9	1286	$0.14
California Ports excluding GDB	$279.2	$178.9	1286	$0.14

[1] U.S. port tonnage is estimated from U.S. Bureau of the Census statistics on port imports and exports. Port of Vancouver tonnage includes foreign cargo only.

Key assumptions used in the comparison include:

- The Canadian total includes contributions awarded under multiple discretionary programs including the Asia Pacific Gateway and Corridor Initiative (2006-2017), Western Diversification (2007), National Infrastructure Component of the New Building Canada Fund (2017) and National Trade Corridors Fund (2017-2020). Funding amounts were converted to U.S. dollars based on average annual exchange rates.
- U.S. grants to Washington State projects included contributions from discretionary programs including TIGER-BUILD grants (2011-2020), FASTLANE-INFRA grants (2016-2020) and Port Infrastructure Development Program (PIDP) grants (2019-2020). Funding provided directly to the ports receiving federal discretionary grants (NWSA ports and the Ports of Vancouver, Everett, and Bellingham) is included. Estimates of formula funding are based on analysis of data provided by WSDOT's Local Programs office. Contributions under Formula Funding have been allocated to the completion date of the project; for projects currently under construction, the contributions have been allocated to 2020.
- U.S. grants to California projects included contributions from discretionary programs including TIGER-BUILD grants (2011-2020) and Port Infrastructure Development Grants (2020). Funding provided directly to the ports receiving federal discretionary grants (Ports of Long Beach, Los Angeles, Oakland, San Francisco, San Diego, Hueneme, Stockton and West Sacramento) is included. The total includes formula funding allocated to port projects under the National Highway Freight Program.

Canadian federal contributions to B.C. port-related projects totaled CDN$ 731.1 million (US$ 556.8 million) over the five-year period from 2016 to 2020, compared to US $228.9 million in federal grants to port-related projects in Washington State and US $730.5 million for California projects. "Port-Related" projects include "Direct Port" projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property; and projects which may improve goods movement systems infrastructure and freight operations efficiency but are not specifically related to port operations. The Gerald Desmond Bridge project accounted for 46 percent of total California port-related funding.

The table below highlights federal funding for port-related projects from 2005 to 2020.

Federal Contributions to BC, Washington and California Port-Related Projects 2005 - 2020

	Total Federal Contributions US$ Millions 2005 - 2020	Total Federal Contributions US$ Millions 2016 - 2020
Total BC Ports	$1,331.9	$556.8
Total Washington Ports	$457.0	$228.9
Total California Ports	$1,567.4	$730.5
California Ports excluding GDB	$840.8	$730.5

Canada has treated West Coast ports as a national priority.

The allocation of contributions from Canadian federal funding programs has changed significantly in favor of port projects. Major transportation funding programs which provided contributions to

port-related projects after 2005 included the Asia Pacific Gateway and Corridor Initiative from 2005 to 2016 and the National Trade Corridors Fund from 2017 to 2021.

The Asia-Pacific Gateway and Corridor Initiative (APGCI) allocated approximately CDN$ 1.1 billion in contributions from 2005 to 2017. Of this BC projects were awarded CDN$ 812 million, 73% of the total.[2] The largest share was allocated to major provincial highway projects and grade separations designed to mitigate the impacts of port-related rail traffic on road users. Direct port projects accounted for 21% of total BC contributions.

The National Trade Corridor Fund (NTCF) program was introduced in 2017 with a total funding allocation of CD $2.3 billion (US $1.8 billion). Except for funds reserved for Northern projects, the initial NTCF funding has essentially been allocated. Approximately CDN$500 million of NTCF funding was allocated for projects in Northern Canada (the Yukon, Northwest Territories, and Nunavut). Of the remaining CDN$1.8 billion (US$1.4 billion), projects in BC received 36% or CDN $642 million (US $486 million). Of this, direct port projects accounted for 77% or CDN$ 495 million (US$ 377 million).

In 2021 the Canadian federal government allocated an additional CDN$ 1.9 billion (US$ 1.5 billion) for NTCF projects. This is likely to provide additional opportunities for federal funding of port projects in B.C.

British Columbia Shares of Discretionary Program Contributions		
	Asia Pacific Gateway and Corridor Initiative	**National Trade Corridors Fund**
Period	**2005 - 2017**	**2018 - 2020**
Total Contributions US$ Millions	$1,027	$1,363
BC Total Contributions US$ Millions	$751	$486
BC Share of Total	73%	36%
BC Port Projects US$ Millions	$157	$377
Port Projects Share of BC Contributions	21%	78%

U.S. discretionary grant programs over the same period included TIGER-BUILD grants (2011-2020), FASTLANE-INFRA grants (2016-2020) and Port Infrastructure Development Program (PIDP) grants (2019-2020). Washington State and California grants under these programs are shown below.

Both Washington State and California shares of total funding are greatest for the Port Infrastructure and Development Program (PIDP). PIDP was authorized by Congress as part of the *National Defense Authorization Act* for Fiscal Year 2010. The Maritime Administration (MARAD), an agency of the USDOT, administers the PIDP to provide discretionary grants on a competitive basis for projects that improve the efficiency, reliability, and safety of goods movement into, thru, and around coastal seaports, inland river ports, and Great Lakes ports. From 2010 to 2018, the program was unfunded. Congress appropriated US$ 293 million in FY2019, US$ 225 million in FY 2020 and US$ 230 million in FY 2021 for PIDP grants. Grants awarded for 2019 and 2020 totaled approximately US$ 500 million.

[2] APGCI was not a national program; funding was limited to the four Western Provinces (BC, Alberta, Saskatchewan and Manitoba).

Washington State and California Shares of Discretionary Program Grants				
	TIGER-BUILD	FASTLANE-INFRA	Port Infrastructure Development Program	Grand Total
Period	2009 - 2020	2016 - 2020	2019 - 2020	2009 - 2020
Total Grants US$ Millions	$8,911	$4,137	$500	$13,548
Washington Total Grants US$ Millions	$211	$140	$18	$369
Washington Share of Total	2%	3%	4%	3%
Washington Port Projects US$ Millions	$58	$0	$18	$76
Port Projects Share of Washington Grants	27%	0%	100%	20%
California Total Grants US$ Millions	$503	$196	$131	$830
California Share of Total	6%	5%	26%	6%
California Port Projects US$ Millions	$100	$0	$131	$231
Port Projects Share of California Grants	20%	0%	100%	28%

Recommendation: Of the three U.S. discretionary funding programs, the Port Infrastructure Development Program has emerged as the most effective program for funding port infrastructure. The TIGER-BUILD (now RAISE) grants and FASTLANE-INFRA grants have much wider eligibility criteria, so port infrastructure projects must compete directly with other infrastructure priorities including public transit, rural roads, and highways.

To maximize success in obtaining funding, ports should:

- Prioritize applications for funding under PIDP.
- Educate lawmakers regarding the competitive challenges facing West Coast ports and emphasize the importance of allocating sufficient funding to PIDP.

Canadian ports' extensive education, advocacy, and planning efforts have been successful in attracting federal funding.

Canadian ports have engaged in broad regional education, advocacy, and planning efforts which have impacted both the design of federal funding programs and the allocation of funding to port and port related projects.

Even though Canadian Port Authorities are agents of the federal Crown, federal policy was not supportive of contributions to fund port infrastructure prior to 2006. A locally led initiative called the Greater Vancouver Gateway Council (GVGC) was instrumental in building government support for port funding. Through the GVGC, the Port of Vancouver (since 2008 the Vancouver Fraser Port Authority) collaborates with Transport Canada, the B.C. Ministry of Transportation and Infrastructure, Translink and the Greater Vancouver Gateway Council (GVGC). Membership in the GVGC also includes the Provinces of Alberta, Saskatchewan and Manitoba, boards of trade, private sectors firms, universities, and associations such as the Western Transportation Advisory Council.

Canadian ports' have education, advocacy, and planning efforts have been successful in attracting federal funding. which have impacted both the design of federal funding programs and the allocation of funding to port and port related projects. In 2014 a new organization, the Gateway Transportation Collaboration Forum (GTCF), was established. The GTCF Steering Committee consists of senior executives from Transport Canada, BC Ministry of Transportation and Infrastructure, Vancouver Fraser Port Authority (i.e. Port of Vancouver), TransLink, and the Greater Vancouver Gateway Council. The success of the GCTF in attracting significant contributions under the NTCF since 2017 can be attributed in part to the pro-active planning process led by the Port of Vancouver. With the new NTCF program, the Port of Vancouver has taken a lead role in planning and delivering projects throughout the Lower Mainland. The Port of Vancouver has allocated an estimated CD $8 million (US$ 6 million) since 2014 for GTCF planning and consultation activities, and Lower Mainland projects have been awarded CDN$ 372 million (US$ 284 million) under the NTCF. The level of federal funding essentially matches the portion of project costs paid by the Port of Vancouver.

Recommendation: U.S. West Coast ports should maximize their capacity to successfully compete for funding opportunities which arise by:

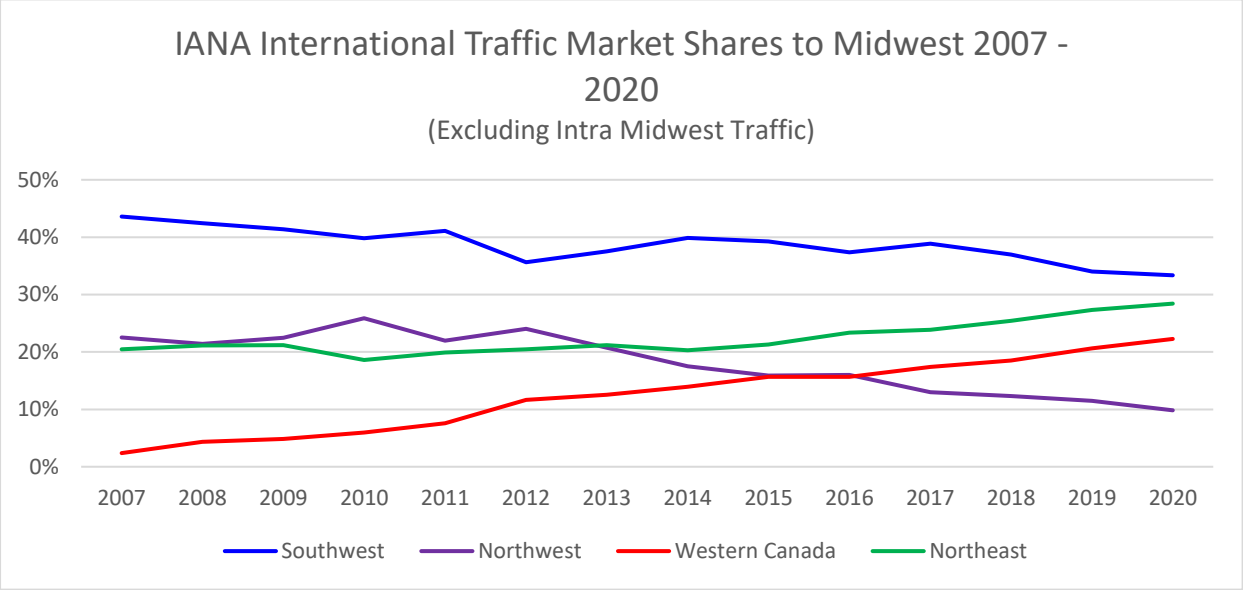
- Building coalitions to collaborate in planning and funding of projects.
- Undertaking long term planning efforts to identify port bottlenecks and priority projects.
- Bundling individual projects to closely match project eligibility criteria for available funding programs.
- Demonstrating regional support through the participation of multiple funding partners.

B.C. ports have successfully competed against Washington State and California ports for container traffic.

The B.C. Ports of Vancouver and Prince Rupert compete with the Northwest Seaport Alliance and major container ports in California for Asia-Pacific container traffic. The U.S. Midwest is the largest destination for international intermodal traffic.

Based on Intermodal Association of North America (IANA) data, the Canadian West Coast ports' share of inland point intermodal (IPI) traffic to the U.S. Midwest increased from 2 percent in 2007 to 22 percent in 2020. Southwest-originating traffic (Ports of Los Angeles, Port of Long Beach, and Port of Oakland) declined from 44 percent to 33 percent and Northwest-originating traffic (Northwest Seaport Alliance) declined from 22 percent to ten percent.

Historically Eastern Canada was the largest market for containerized imports through the Port of Vancouver. With the opening of the Fairview Container Terminal at the Port of Prince Rupert in 2007 and an aggressive effort by CN Rail to increase market share in the US, container traffic through Vancouver and Prince Rupert has shown strong growth over the last twenty years, from 7.8 percent of West Coast port volumes in 2001 to 16.6 percent in 2020. A significant portion of this growth is due to increased traffic to U.S. destinations. Regional market shares for international container traffic destined to the Midwest are shown in the figure below.



Investments in port terminals and rail networks have been critical in enabling B.C. ports to succeed in increasing their share of North American container traffic, enabling them to take advantage of the economies of scale of large container vessels and longer trains. For IPI traffic to U.S. destinations, efficiency of the rail system is crucial. CN has made substantial investments in longer sidings and other network improvements to enable the use of 12,000 foot (and longer) intermodal trains. Based on estimates from U.S. Surface Transportation Board Public Waybill sample, international intermodal rates from B.C. ports to the Midwest have averaged around US$ 200 per container less than rates from Northwest Seaport Alliance, Port of Long Beach and Port of Los Angeles terminals over the last decade.

Recommendation: For U.S. West Coast ports, remaining competitive requires more than simply maintaining the status quo. Ongoing investments in port and landside infrastructure will be critical, including:

- Investments to accommodate larger container vessels, including deeper berths and navigation channels; larger cranes and stronger docks to support them; electrical grid upgrades; additional, high-efficiency cargo-handling equipment; and improvements to container yards and intermodal facilities
- Upgrading landside infrastructure including the roads, rails, bridges, tunnels, and waterways that connect ports with their markets.
- Investments to improve environmental sustainability such as zero-emission cargo handling equipment and alternative fuel supplies and infrastructure.

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2 INTRODUCTION

2.1 Study Objective

The purpose of this project is to position the Northwest Seaport Alliance (NWSA), Port of Long Beach, Port of Los Angeles and Port of Oakland to influence federal policymaking and maximize opportunities for U.S. and State government funding. Success in accessing federal and other non-federal funds for port-related investment is a fundamental challenge in ensuring that the ports can build the infrastructure needed to compete in the North American container trade.

2.2 Project Scope

For the period 2005 to 2021 the project scope encompasses the following tasks:



- A review of Canadian and U.S. programs for funding of coastal port-related investments.
- A review of Canadian federal funding for the Ports of Vancouver, Prince Rupert, Nanaimo, and Port Alberni.
- A review of U.S. federal funding for the Northwest Seaport Alliance, Port of Long Beach, Port of Los Angeles and Port of Oakland and for smaller ports in Washington State and California which received funding under federal infrastructure programs.
- A review of collaborative planning and advocacy efforts by the Greater Vancouver Gateway Council and Gateway Transportation Collaboration Forum that contributed to the region's success in obtaining federal funding.
- Analysis of Canadian federal funding for port-related rail infrastructure and impacts on port competitiveness.
- Analysis and synthesis of lessons learned and recommendations for future planning, competitiveness, and advocacy activities.
- Key messages.

While every effort has been made to assemble comprehensive information on port funding for B.C., Washington State and California ports from 2005 to 2020, the information and analysis in this report are based on the public information obtainable by the project team within the constraints of the project schedule and budget.

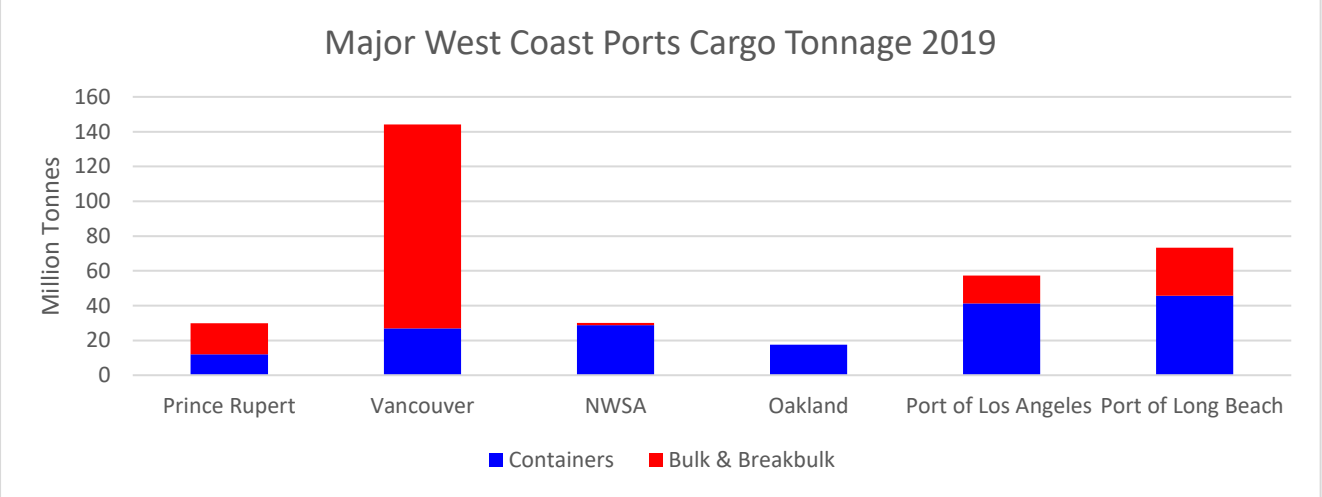
2.3 Background on West Coast Ports

The major ports included in the analysis vary significantly in size and cargo characteristics. The Port of Vancouver is the largest single port by tonnage, with a total of 144 million tonnes in 2019 (115 million tonnes of foreign cargo and 30 million tonnes of domestic cargo). Bulk and breakbulk cargo accounted for over 80 percent of the total. The Ports of Los Angeles and Long Beach combined handled 130 million tonnes, of which 67 percent was containerized cargo.

The dominant traffic at the major Canadian ports of Vancouver and Prince Rupert is bulk exports which originate in Western Canada. Exports accounted for 86 percent of total traffic by tonnage for the Port of Vancouver and 80 percent for the Port of Prince Rupert in 2020. Bulk commodities (coal, grain, potash, sulphur, etc.) accounted for 84 percent of export traffic at the Port of Vancouver and 80 percent at the Port of Prince Rupert.

The figure below shows annual cargo tonnage for the Port of Prince Rupert, Port of Vancouver (BC), Northwest Seaport Alliance, Port of Oakland, Port of Los Angeles, and Port of Long Beach in 2019.[3] Total tonnage provides a benchmark for the relative size of West Coast ports, and the composition of cargo is significant in comparing the significance of port funding; for example, projects funded by the Canadian federal government at the Port of Vancouver may improve efficiency for all types of cargo, while projects funded by the U.S. federal government are more likely to benefit the container sector.

Figure 2-1 Major West Coast Ports Cargo Tonnage 2019

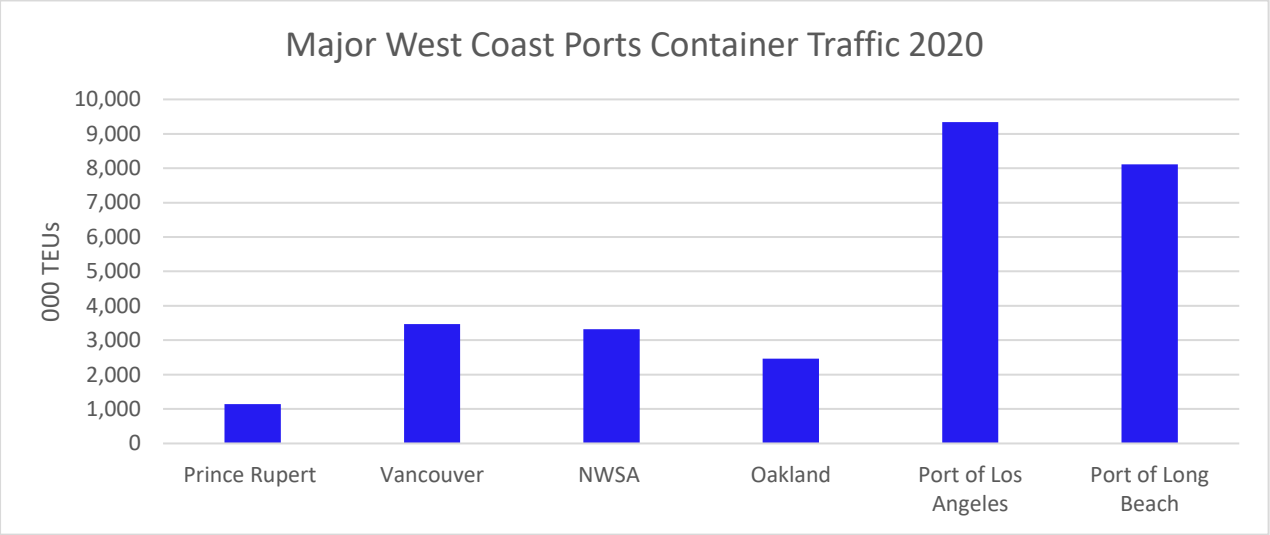


2.4 Canada and US West Coast Ports Competition

Competition between Canadian and U.S. ports is essentially limited to some container traffic. The figure below shows total container traffic at the major container ports examined in this study in 2020.

[3] Source: Estimates based on data from Port websites and Bureau of Transportation Statistics Port Profiles
https://explore.dot.gov/views/PortProfiles2020/HomeDashboard?:isGuestRedirectFromVizportal=y&:embed=y

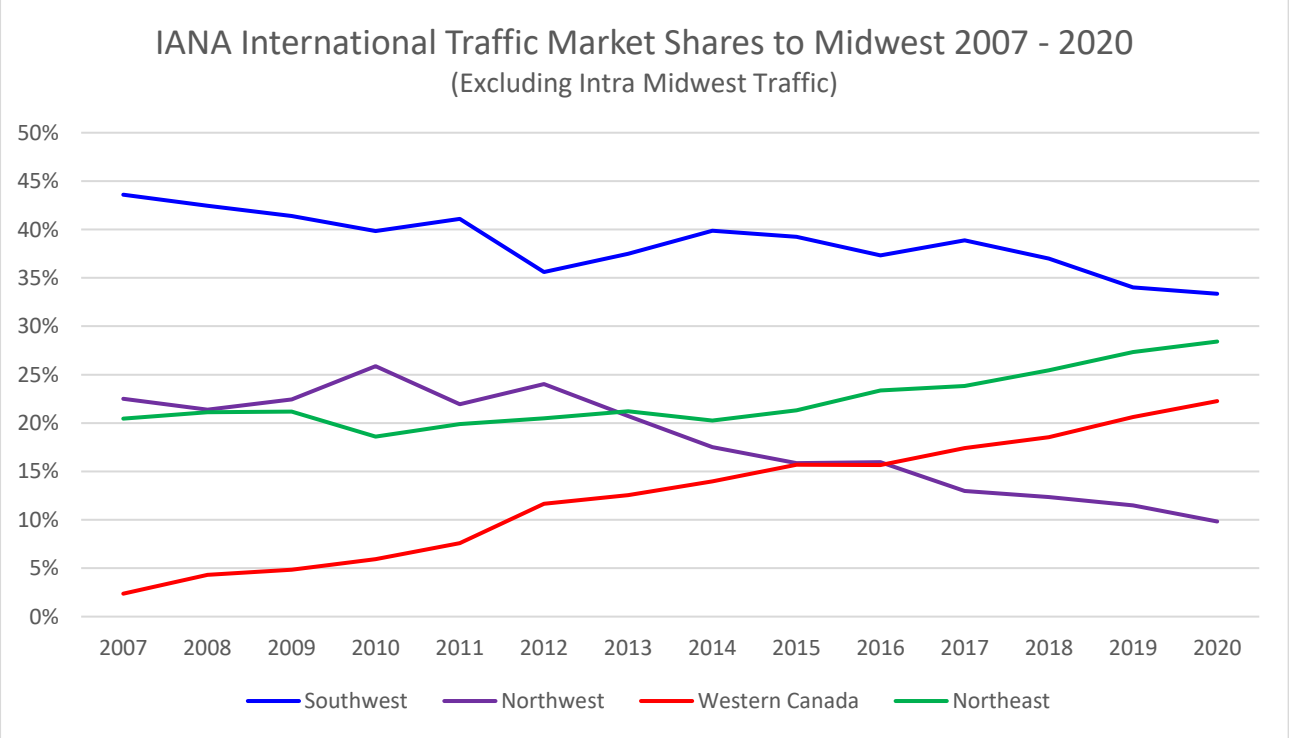
Figure 2-2 Major West Ports Container Traffic 2020



Historically Eastern Canada was the largest market for containerized imports through the Port of Vancouver. With the opening of the Fairview Container Terminal at the Port of Prince Rupert in 2007 and an aggressive effort by CN Rail to increase market share in the US, container traffic through Vancouver and Prince Rupert has shown strong growth over the last twenty years. A significant portion of this growth is due to increased traffic to U.S. destinations, which increased from 7.8 percent of West Coast port volumes in 2001 to 16.6 percent in 2020.

The U.S. Midwest is the largest destination for international intermodal traffic. The figure below shows market shares of international intermodal traffic destined to the Midwest, based on Intermodal Association of North America (IANA) data.

Figure 2-3 IANA International Traffic Market Shares for Midwest-Destined IPI Traffic



The Canadian West Coast ports' share of intland point intermodal (IPI) traffic to the U.S. Midwest increased from 2 percent in 2007 to 22 percent in 2020. Southwest-originating traffic (Ports of Los Angeles, Port of Long Beach, and Port of Oakland) declined from 44 percent to 33 percent and Northwest-originating traffic (Northwest Seaport Alliance) declined from 22 percent to ten percent. Northeast-originating traffic (Port of New York/New Jersey, Port of Virginia) increased from 20 percent to 28 percent.

3 Canada and U.S. Federal Funding Programs

3.1 Canadian Transportation Policy

The Canadian federal government has jurisdiction over all modes of transportation used in inter-provincial and international commerce.

Provincial governments have jurisdiction over highway infrastructure and intra-provincial rail and trucking.

Canada and the U.S. have similar mechanisms for addressing jurisdictional responsibility through the delegation of powers. Overall economic and safety regimes are overseen by federal agencies, with enforcement powers delegated to State or provincial authorities as deemed appropriate. State and local agencies also regulate transportation matters within their own jurisdiction.

Economic regulation of the rail and trucking industries is guided by similar policy principles in Canada and the U.S. Both countries have deregulated commercial operations of railways and trucking in the interests of economic efficiency, and federal policies are designed to restrict the ability of lower levels of government to regulate in these areas. As an example, federal responsibilities for the regulation of inter-provincial and international trucking are delegated to the provinces under the *Motor Vehicle Transport Act* (MVTA), although the federal government sets policy parameters. Coordination is achieved through cooperative agreements between the federal and provincial governments.

Ports fall under the jurisdiction of the federal government. In 1998 the federal government initiated the divestiture and/or devolution of responsibility for port operations under the *Canada Marine Act* (1998). The CMA established Canada Port Authorities (CPAs) to oversee the operation of nineteen major ("commercially important") ports, including six in British Columbia (Vancouver Port Authority, Fraser River Port Authority, and North Fraser Port Authority in the Lower Mainland; and the ports of Prince Rupert, Nanaimo, and Port Alberni). The three Lower Mainland Port Authorities were amalgamated in 2008 under the Vancouver Fraser Port Authority.

Canada Port Authorities are created by the federal minister of transport by issuing Letters Patent that structure each Port Authority as a federally incorporated non-for-profit entity. As such there are no ownership shares, and a Port Authority is an agent of the federal government. Many port-related assets and real property remain under the "ownership" of the federal government through Transport Canada, though some port marine terminal assets are also owned by the private sector.

Among other things, a Port Authority's federal Letters Patent set out the code of conduct governing the directors and officers of the port authority, as well as specify the extent of the activities the port authority may undertake, the limits of a port authority's ability to contract as agent for Her Majesty, and the limits of the port authority to borrow money.[4] In order to maintain its Letters Patent in good standing, a Port Authority is required annually to pay the Minister of Transport a charge on gross revenue.

[4] Port of Vancouver website https://www.portvancouver.com/about-us/faq/canada-port-authority-governance-and-oversight/

Port Authorities are financially self-sufficient, earning revenues from port users who lease the port's federal lands and pay various fees such as harbor dues. In addition to covering operating expenses, Port Authorities are required to invest excess revenues in port infrastructure.

3.2 Canadian Transportation Infrastructure Funding Programs

The Canadian federal government's role was fundamentally changed by the fiscal austerity program introduced by the Liberal government in 1994. Previously, the federal role included ownership and operation of large parts of the transportation system. From 1993 to 2005, these functions ceased to be a major part of the federal role. Subsidies were reduced or eliminated, commercial operations divested, and operational responsibilities transferred to others.

Major transportation funding programs which provided contributions to port-related projects after 2005 included the Asia Pacific Gateway and Corridor Initiative from 2005 to 2016 and the National Trade Corridors Fund from 2017 to 2021.

3.2.1 Asia Pacific Gateway and Corridors Initiative (APGCI)

The primary program for funding trade-related transportation infrastructure in Western Canada was the Asia Pacific Gateways and Corridors Initiative (APGCI) which was first announced by the Prime Minister in October 2006[5] with an initial investment of CDN $591 million. A further commitment of CDN $410 million was made in Budget 2007, bringing total federal funding for the APGCI to more than CDN $1 billion.[6]

By the end of fiscal year 2007-2008, the Government of Canada, in partnership with all four western provinces and various stakeholders, announced infrastructure projects worth over CDN $2.3 billion, including federal contributions of over $800 million. These projects include road/rail grade separations and improved access to ports or inter-modal facilities to promote more efficient and seamless connections between the various modes of transportation.[7]

The APGCI was launched as an integrated package of investment and policy measures to strengthen the efficiency, capacity, security and reliability of the Asia-Pacific Gateway and Corridor transportation system. The objectives of the program included:

- Gateway capacity - Strategic infrastructure investments and network improvements.
- Competitiveness - Increase Canada's share of Asia-Pacific commerce.
- Efficiency and reliability - Improve movement of goods throughout supply chains.
- Security and border efficiency - Establish a secure and efficient transportation network linking Canadian and North American markets; and
- Integrative policy frameworks and regulations that address new approaches to governance.

[5] A contribution of $90 million was made to the Government of BC for the Pitt River Bridge and Mary Hill Interchange in 2005 before the program officially existed.
[6] "Canada's New Government Announces Projects for The Asia Pacific Gateway and Corridor Initiative"
News Release No. GC 016/07 May 11, 2007.
[7] Transport Canada Performance Review 2007 – 2008

3.2.2 National Trade Corridors Fund

Following their victory in the 2015 election, the new Liberal government introduced a new infrastructure funding plan called the Investing in Canada Plan. The new plan was intended to deliver investments across five streams:

- Public Transit - Investments to build new urban transit networks and service extensions.
- Green Investments to ensure access to safe water, clean air, and greener communities.
- Social - Investments to provide adequate and affordable housing and childcare as well as cultural and recreational centers.
- Trade and Transportation - Provide safe, sustainable, and efficient transportation systems that will bring global markets closer to Canada to help Canadian businesses compete.
- Rural and Northern Communities - Investments to grow local economies, improve social inclusiveness and better safeguard the health and environment of rural and northern communities.

In the 2017 federal budget, the government proposed to invest CDN $10.1 billion over the next decade in trade and transportation projects. One part of the Government's overall investment in trade and transportation infrastructure is the Trade and Transportation Corridors Initiative, led by Transport Canada. The initiative prioritizes investments that address congestion and bottlenecks along vital corridors, and around transportation hubs and ports providing access to world markets.

Under the Trade and Transportation Corridors Initiative (TTCI), the 2017 budget committed CDN $1.9 billion over 11 years for the National Trade Corridors Fund, a merit-based program to make Canada's trade corridors more efficient and reliable. CDN $400 million was committed to projects in Northern Canada. Contributions are available under the NCTF for up to 50 percent of eligible project costs. An additional CDN $400 million was allocated to the NTCF for Northern projects in 2019. In its Budget 2021 the federal government proposes to invest an additional CDN $1.9 billion over four years starting in 2021-22 to recapitalize the National Trade Corridors Fund.

3.3 U.S. Federal Transportation Infrastructure Funding

3.3.1 U.S. Surface Transportation Programs

The primary source of federal funding for surface transportation infrastructure in the U.S., including port and goods movement facilities, stems from the Highway Trust Fund that collects money through excise taxes on gasoline and diesel fuel, with additional allocations from the General Fund as needed.

Major federal framework legislation governing federal funding for transportation infrastructure has included:

- *Intermodal Surface Transportation Efficiency Act* (ISTEA), 1991.
- *Transportation Equity Act for the 21st Century* (TEA-21), 1998.
- *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU), 2005.
- *Moving Ahead for Progress in the 21st Century Act*, (MAP-21) 2012.
- *Fixing America's Surface Transportation Act* (FAST), 2015.

Current federal legislation providing funding for surface transportation infrastructure is the *Fixing America's Surface Transportation Ac*t (FAST Act). The legislation authorizes over $305 billion for fiscal years 2016 to 2020. A continuing resolution has extended the FAST Act with funding of $47.1 billion for highway programs and $12.3 billion for transit programs) through fiscal year 2021.

Administered by the Federal Highway Administration (FHWA), funding under the FAST Act is appropriated and distributed annually through a set of "formula programs" to the states and through "discretionary grants" awarded directly to eligible entities. Port related surface transportation capital improvement projects are eligible to receive federal program funds, which are predominately apportioned and augmented through the state department of transportation annual budgets. Port Authorities can compete directly for competitive grant awards on port infrastructure projects.

3.3.2 U.S. Federal Formula Funding Programs

Formula funding programs are apportioned to the states, and the states are allowed to flex the funding available between certain programs. As presented by the FHWA, these programs include the National Highway Performance Program (NHPP), the Surface Transportation Block Grant Program (STBG, formerly Surface Transportation Program), Highway Safety Improvement Program (HSIP) (including Railway-Highway Crossings), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Metropolitan Planning, plus a new National Highway Freight Program (NHFP). The *Transportation Infrastructure Financing and Innovation Act* (TIFIA) program provides Federal credit assistance to eligible surface transportation projects.

Total FAST Act apportionments over the six-year period 2016-2021 total US $250.78 billion, or an annual average of over US $41.8 billion for all 51 states. Of these apportionments, the states of California and Texas received the highest share year over year, with an average of 9.4 percent and 8 percent of national total, respectively, over six-year funding period. The state of Washington funding apportioned over this period is about two percent (US $4.32 billion) of total federal apportionments, representing an average of US $720 million per year.[8]

For port and port-related infrastructure planning and improvement projects, the National Highway Freight Program (NHFP) includes funding of US $1.2 billion per year for improvements on the National Highway Freight Network (NHFN) to enhance the efficient movement of freight. These funds are distributed by formula to the states for eligible projects and activities, including project implementation, operational improvements, freight planning and performance measurement. States may allot up to 10 percent of these funds each year for public or private freight rail and port and intermodal facilities that are included in a State Freight Plan.

Certain port-related infrastructure projects may also be eligible under the Rail-Highway Crossing Program and Congestion Mitigation & Air Quality Improvement Program.

3.3.3 U.S. Federal Discretionary Grants

Over and above the formula programs promoting improvements in freight infrastructure, the *FAST Act* established a competitive grant program with a funding amount of US $4.5 billion over five years. Federal DOT manage these grants and issues each year funding round that Port Authority

[8] DOT several data sources.

and other local and state agencies can compete for to support their relevant freight and highway projects.

Under these Discretionary Grant programs ports (including intermodal rail/road) projects are competing for Federal funding assistance among hundreds or thousands of other transportation projects national wide. Potential projects are required to meet a set of stringent evaluation criteria and requirements to be eligible. Based on data from recent year grant applications and awards, only about ten percent of applications was awarded, with some receiving the full amount eligible (80 percent of project cost) and many other projects receiving a much smaller share. Projects which have higher "leverage" (i.e. share of non-federal funds) may be favored in the selection process.

Terms and requirements of these grants often changes subject to the administrator's priorities and funding available each year, resulting in meaning unstable federal funding assistance from federal that port infrastructure projects are eligible to compete for and secure each yearUnder these Discretionary Grants, ports (including intermodal rail/road) projects are competing for Federal funding assistance among hundreds or thousands of other transportation projects national wide. Potential projects are required to meet a set of stringent evaluation criteria and requirements to be eligible. Based on data from recent year grant applications and awards, only about ten percent of the projects was awarded, with some received full amount eligible (80 percent) of project cost and many other projects awarded with much lesser amount, or as low as 25 percent to 50 percent of project cost just to be more competitive with Grant's evaluation criteria.

Terms and requirements of these grants often changes subject to the administrator's priorities and funding available each year, meaning unstable funding assistance from federal that port infrastructure projects are eligible to compete and secure each year.

TIGER-BUILD-RAISE Grants

The *American Recovery and Reinvestment Act* of 2009 (ARRA) is a supplementary discretionary grant program. Initially called TIGER, then BUILD and now RAISE grants, these grants have provided US $8.9 billion in funding over 12 rounds of competitive grants for significant local and regional projects. The current FY2021 Notice of Funding Opportunity for RAISE also identifies US $1 billion in funding to be awarded on a competitive basis for projects of national or regional significance.

State, Local, Tribal and U.S. Territory governments are eligible to apply for RAISE grants, as are Metropolitan Planning Organization (MPOs), port authorities, transit agencies and other subdivisions of State and local governments. Projects eligible for funding include highway and public transit infrastructure; port, intermodal, and inland port projects; and surface transportation facilities on Tribal lands that are vested in the federal government. Planning efforts eligible for funding include freight related master, comprehensive and corridor plans; multimodal freight corridor planning activities; the development of port and regional port planning grants; and planning assessments of transportation system vulnerability and sustainability to emergencies and major disasters.

Project grant amounts are limited to a maximum of US $25 million and a minimum of US $5 million for urban area and US $1 million for rural area grants. There is no minimum amount set for planning grants. Additional funding restrictions include a maximum of US $100 million per State, and that not more than US $500 million be awarded to urban projects; and federal funding is limited to 80 percent of total project costs, with exceptions possible for rural projects.

FASTLANE and INFRA Grants

Initially known as FASTLANE, and now as INFRA, this program provides federal financial assistance for highway and freight projects of national or regional significance. The FY2021 Notice of Funding Opportunity (NOFO) for INFRA identifies US $1 billion of appropriated funds available for eligible projects.

The FASTLANE program commenced in 2015 as part of the FAST Act's Nationally Significant Freight and Highway Projects (NSFHP) program and was designed to fund critical freight and highway projects throughout the states. Established to provide dedicated, multiyear funding for eligible freight infrastructure and intermodal projects, the program stratified funding for "large projects" (of at least US $100 million total cost) at a minimum grant award of US $25 million, and "small" projects (those below the large project threshold) at a minimum grant award of US $5 million.

Renamed the Infrastructure for Rebuilding America (INFRA) program in 2017, this program continues FASTLANE project size thresholds and includes an enhanced TIFIA eligibility level of 49 percent of project cost (as opposed to the standard 33 percent) for competitive INFRA grant applicants that did not receive a grant award. Eligible applicants are limited to States; urban Metropolitan Planning Organizations; local governments; special districts and port authorities; tribal governments; and multijurisdictional public entities. Eligible projects include highway freight projects on the National Freight Highway Network (NFHN); highway and bridge projects on the National Highway System (NHS); rail-highway grades separation projects; intermodal and freight rail projects; and surface transportation projects within the boundaries of private rail, water (including ports), and intermodal facilities that improve access and efficiency of the NFHN.

Port Infrastructure Development Program (PIDP)

In 2010, Congress authorized a Port Infrastructure Development Program (PIDP) to be administered by the U.S. Maritime Administration. The program remained unfunded from 2010 to 2018. Congress provided first-year funds of $293 million in the FY2019 Consolidated Appropriations Act. Congress continued program funding at $225 million in FY2020 and $230 million in FY2021.[9] The Maritime Administration (MARAD), an agency of the USDOT, administers the Port Infrastructure Development Program (PIDP) to provide discretionary grants on a competitive basis for projects that improve the efficiency, reliability, and safety of goods movement into, thru, and around coastal seaports, inland river ports, and Great Lakes ports. For 2021 this program has been authorized to provide US$230 million in funding to eligible entities and projects.

Eligible entities include Port authorities; State, local and Tribal governments; special purpose districts with a transportation function; and multistate or multijurisdictional entities are eligible to submit grant applications, and private entities may jointly apply with an eligible governmental entity as the lead agency.

Eligible projects include projects within the boundaries of a port, or directly related to port operations or an intermodal connection to a port are eligible for funding that include port gate; road and rail; berth; and fixed landside cargo operations support facility improvements. Utilities

[9] "Expand Port Infrastructure Development Grant Funding" American Great Lakes Port Association https://www.greatlakesports.org/issues/expand-port-infrastructure-development-grant-funding/

necessary for safe operations are also eligible. Directed specifically for port infrastructure projects, the PIDP program demonstrates how federal funding can be leveraged with private matching funds to a higher degree than occurs in the other USDOT grant programs.

3.3.4 Other Sources of Funding, Loan & Credit Assistance Programs

Harbor Maintenance Tax

With congressional approval of the *Water Resources Development Ac*t (WRDA) of 2020, the U.S. Army Corps of Engineers (USACE) Civil Works program budget for 2021 includes an appropriation of about US $1 billion for port and harbor navigation maintenance dredging from the Harbor Maintenance Trust Fund (HMTF). Initiated in 1986 with the imposition of an ad valorem tax on imports and exports, with exports subsequently excluded by the Supreme Court in 1998, the HMTF has accumulated a significant surplus over time.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

The *FAST Act* continues authorized funding of US $1.4 billion for the Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance program, through which the USDOT supplies direct loans, lines of credit, and loan guarantees on eligible surface transportation project to both public and private entities.

Railroad Rehabilitation and Improvement Financing

Initiated as a part of TEA-21 and continuing through the *FAST Act*, the Railroad Rehabilitation, and Improvement Financing (RRIF) program provides direct loans and loan guarantees to finance up to $35 billion in railroad infrastructure, with not less than US $7 billion reserved for projects benefiting freight railroads other than the Class 1 carriers. This program is available to railroads, state and local governments, government-sponsored authorities (**ports**), and freight shippers with low interest, flexible amortization, and long-term financing (up to 35 years with no prepayment penalties). The financing can be used to develop new intermodal and rail facilities; acquire, improve, or rehabilitate intermodal or rail equipment and facilities, inclusive of all infrastructure and track components along with positive train control systems; reimbursement of planning and design expenses; and refinancing of outstanding debt incurred for eligible purposes.

3.4 Canada and U.S. Federal Infrastructure Funding Summary

The table below summarizes the main features of relevant Canadian and U.S. transportation infrastructure funding programs.

Figure 3-1 Canada vs U.S. Transportation Infrastructure Programs

Canada vs U.S. Transportation Infrastructure Funding Programs		
Program Features	**Canada**	**U.S.**
Formula Funding Programs	None	National Highway Freight Program, Metropolitan Planning, Congestion Mitigation & Air Quality Improvement, Railway-Highway Crossings Program, Highway Safety Improvement Program, Surface Transportation Block Grant Program, National Highway Performance Program.
Formula Funding Eligibility	N/A	To be eligible for federal funding, projects must be included in an approved Statewide Transportation Improvement Plan (STIP).
Discretionary Funding Programs	Asia Pacific Gateways and Corridors Initiative (2006 - 2016); National Trade Corridors Fund (2017 - 2020)	TIGER-BUILD-RAISE Grants (ARRA 2009); FASTLANE-INFRA Grants (FAST Act); Port Infrastructure Development Program (PIDP).
Primary Granting Agency	Transport Canada	USDOT (US Maritime Administration for PIDP grants).
Policy Focus	Trade Enhancement	Freight Mobility
Discretionary Programs Eligibility	For-profit organizations, Not-for-profit organizations and charities, Indigenous recipients, government (provinces, territories, municipalities, Crown Corporations), academia and public institutions, and other public sector organizations such as Canada Port Authorities and National Airports Systems Airport Authorities.	TIGER-BUILD-RAISE: State, Local, Tribal & U.S. Territory governments, Metropolitan Planning Organization (MPOs), port authorities, transit agencies and other subdivisions of State & local governments. FASTLANE-INFRA: States; urban Metropolitan Planning Organizations; local governments; special districts & port authorities; tribal governments; and multijurisdictional public entities. PIDP: Port authorities; State, local & Tribal governments; special purpose districts with a transportation function; & multistate or multijurisdictional entities.

Figure 3-2 Canada vs U.S. Transportation Infrastructure Programs (continued)

Canada vs U.S. Transportation Infrastructure Funding Programs (continued)		
Program Features	**Canada**	**U.S.**
Infrastructure Eligibility	National Trade Corridor Fund (NTCF_: Projects that improve the fluidity and/or performance of the transportation system to contribute to an increase in the value and/or volume of goods exported from Canada to overseas markets; illustrate potential to increase existing or generate new overseas trade flows because of the investment ; or add capacity or address bottlenecks near major ports, airports or along road and rail corridors in Canada that contribute to generating or increasing overseas trade.	TIGER-BUILD-RAISE: Highway and public transit infrastructure; port, intermodal, and inland port projects; and surface transportation facilities on Tribal lands that are vested in the federal government. FASTLANE-INFRA: Highway and freight projects of national or regional significance. PIDP: Projects to improve facilities within, or outside of and directly related to operations or an intermodal connection of coastal seaports, inland river ports, and Great Lakes ports.
Contribution Limits	NTCF: Maximum amount of CDN $500 million per project. Maximum contribution will be up to 50 percent of the total eligible expenditures for a project, with the following exceptions: Public-private partnerships (P3) projects where the maximum contribution will be up to 33 percent of the total eligible expenditures; Transportation projects in the Territories, where the maximum contribution will be up to 75 percent of the total eligible expenditures; Projects with Federal Crown corporations and agencies where the maximum contribution will be up to 100% of the total eligible expenditures.	TIGER-BUILD-RAISE: Maximum of US $25 million and a minimum of US $5 million for urban area and US $1 million for rural area grants. Additional funding restrictions include a maximum of US $100 million per State; not more than US $500 million to urban projects; and federal funding is limited to 80 percent of total project costs, with exceptions possible for rural projects. FASTLANE-INFRA: Multiyear funding for eligible freight infrastructure and intermodal projects. funding for “large projects” (of at least US $100 million total cost) at a minimum grant award of US $25 million, and “small” projects (those below the large project threshold) at a minimum grant award of US $5 million. PIDP: The minimum PIDP award size is US $1 million, and the federal cost share (from all sources) is limited to 80 percent. No more than US $57.5 million in PIDP funding may be awarded to projects in any one state.

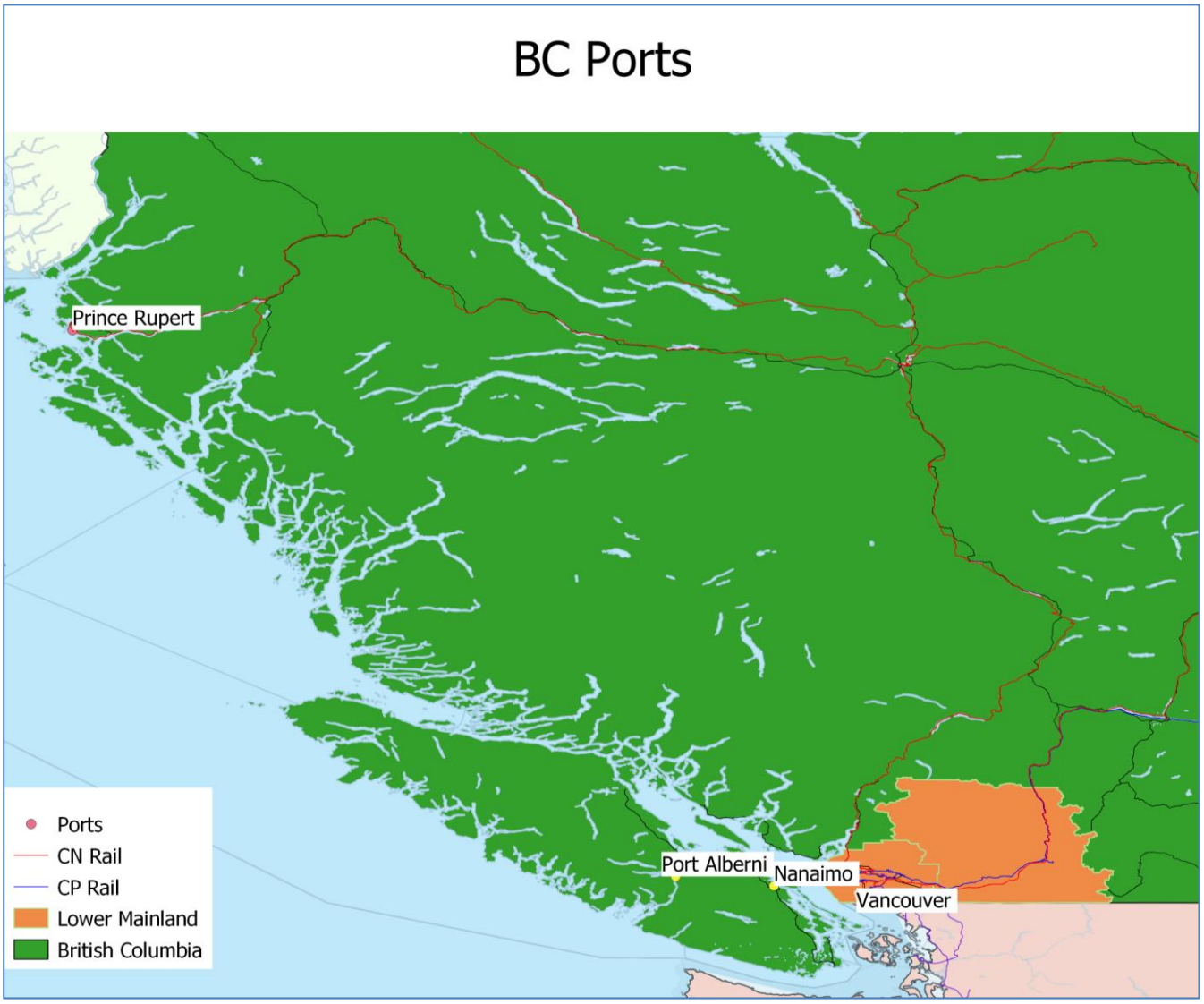
4 CANADIAN PORTS FUNDING HIGHLIGHTS

4.1 British Columbia Ports

The port included in this analysis include all of the ports in British Columbia which received federal infrastructure funding from 2005 to 2021, including:

- Port of Vancouver. Prior to 2008, there were three port authorities in BC's Lower Mainland: Vancouver Port Authority, Fraser River Port Authority and North Fraser Port Authority. In 2008 they merged under the leadership of the Vancouver Fraser Port Authority.
- Port of Prince Rupert.
- Port of Nanaimo
- Port Alberni.

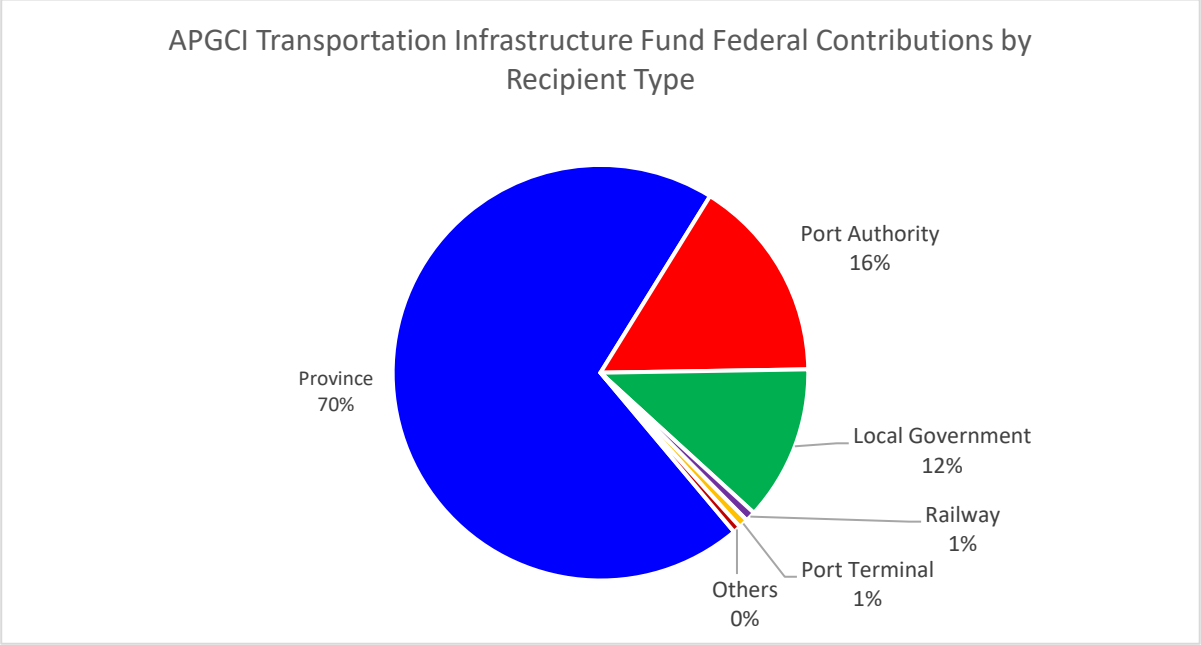
Figure 4-1 BC Ports



4.2 Asia-Pacific Gateways and Corridors Initiative

In total, Government of Canada funding for the APGCI was CDN $1.17 billion from October 19, 2006, to March 31, 2018. Of this amount, Transport Canada was allocated CDN $915 million in transfer payment funding, and CDN $29 million in operating expenditures. Of the transfer payment funding, CDN $911 million (99.5 percent) was allocated for the Asia-Pacific Gateway and Corridor Transportation Infrastructure Fund (APGCTIF).[10] According to Government of Canada Public Accounts, actual contributions by Transport Canada totaled approximately CDN $883 million over the life of the program.[11] Based on announced funding contributions, the total amount allocated under the APGCI (including payments by other departments such as Western Diversification) totaled CDN $1.09 billion.

Figure 4-2 APGCI Transportation Infrastructure Fund Federal Contributions by Recipient Type



Contributions to provincial governments accounted for CDN $618 million or 70 percent of the total. Of this, CDN $509 million or 82 percent was allocated to projects within British Columbia.

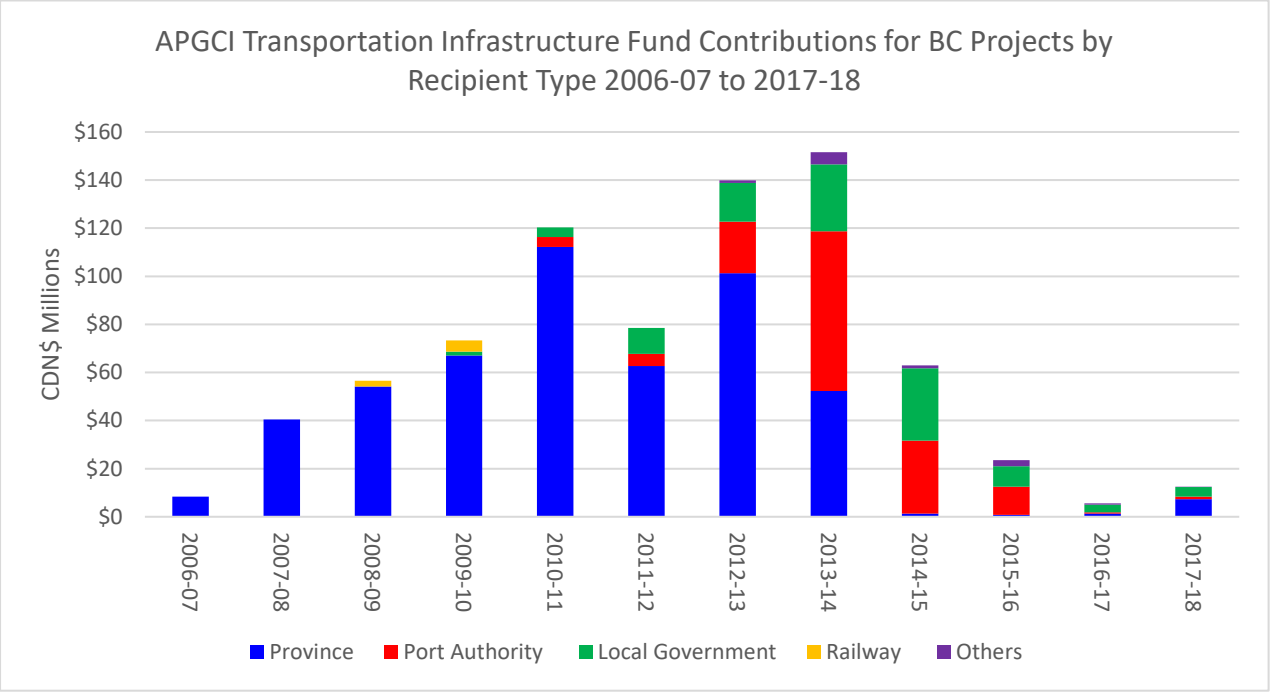
The figure below shows APGCI Fund contributions by Transport Canada for BC projects by year from 2006-07 to 2017-18.[12] Contributions to the provincial government dominated from 2006-07 to 2012-13, when contributions to Port Authorities and local governments accounted for the largest portion.

[10] Evaluation of the Asia-Pacific Gateway and Corridor Initiative and the Gateways and Borders Crossing Fund Transport Canada Evaluation and Advisory Services October 2017 https://tc.canada.ca/en/evaluation-asia-pacific-gateway-corridor-initiative-gateways-borders-crossing-fund

[11] Source: Government of Canada Public Accounts.

[12] Note that these figures are based on the years that contributions were actually paid, rather than when the contributions were announced.

Figure 4-3 APGCI Transportation Infrastructure Fund Contributions for B.C. Projects by Recipient Type



Significant non-APGCI port funding over this period (not included in the figure above) also included:

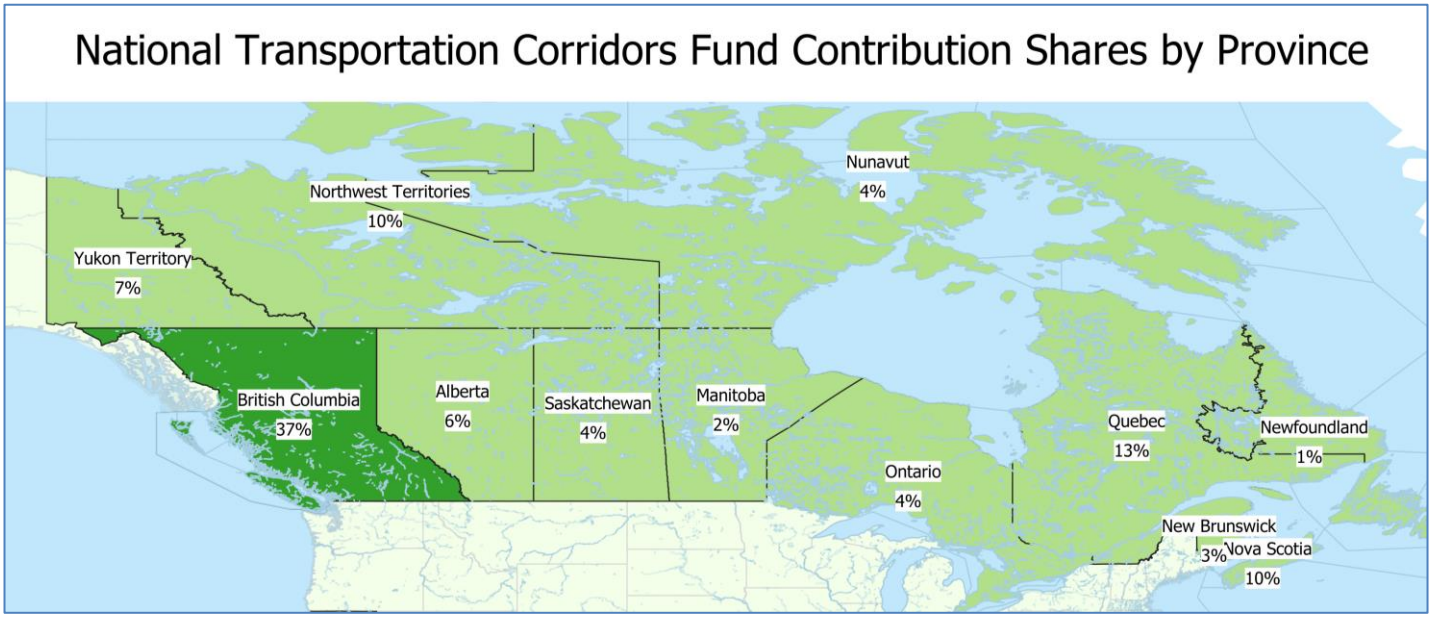
- A grant of CDN $30 million (US$28 million) by Western Economic Diversification Canada to assist in development of the Fairview container terminal at the port of Prince Rupert in 2006-07.
- Grants of CDN $2 million (US$3.7 million) in 2006/07 and 2007/08 by Western Economic Diversification Canada to the Fraser River Port Authority to assist in paying the costs of dredging of the main channel of the Fraser River. Responsibility for dredging was devolved from the Department of Fisheries and Oceans to the Fraser River Port Authority with passage of the *Canada Marine Act* in 1998. The Vancouver Fraser Port Authority took over responsibility for dredging following amalgamation of the three Lower Mainland port authorities in 2008.
- Under its Marine Security Program, Transport Canada provided contributions to assist Port Authorities and marine terminals in complying with enhanced security requirements following implementation of the Marine Transportation Security Regulations in 2004. Funding totaled CDN $82.9 million from 2004-05 to 2009-10. (Funding from this source is not included in analysis of infrastructure funding levels.)
- Contributions under the New Building Canada Fund extended past the change of government in 2015. In 2017 the federal government provided a contribution of CDN $81.7 million (US$ 63 million) under the National Infrastructure Component of the New Building Canada Fund to the Highway 91/17 Upgrade Project, part of the Ministry of Transportation and Infrastructure's Highway 91/17 and Deltaport Way Upgrade Project, a combination of improvements to existing Highway 91, Highway 17, and Highway 91 Connector. The Port of Vancouver

contributed CDN $88 million (US$ 68 million), and the Province of BC and Tsawwassen First Nation funded the balance of the CDN $260 million (US $200 million) project.

4.3 National Trade Corridors Fund

The 2017 Canadian federal budget committed $1.9 billion (US$1.5 billion) over 11 years for the National Trade Corridors Fund, a merit-based program to make Canada's trade corridors more efficient and reliable. To date the government has announced 86 projects and committed more than CDN $1.8 billion (US$1.4 billion) to marine, air, rail, and road projects. Fifteen of these projects are in or targeted to the Territorial North. The allocation of funding by province and territory is shown below.

Figure 4-4 National Trade Corridors Fund Commitments by Province/Territory

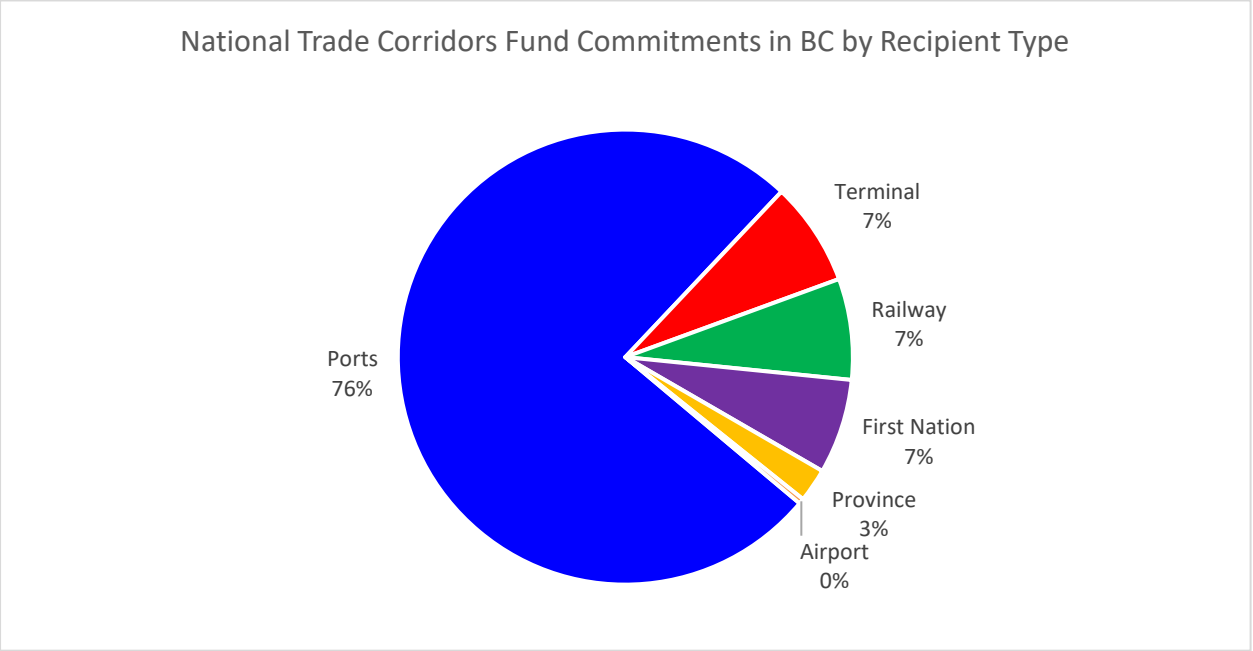


The largest shares of money under the NTCF have been allocated to provinces with major international ports:

- British Columbia (Ports of Vancouver and Prince Rupert) CDN $590 million (US$531 million), 37 percent of the total.
- Quebec (Port of Montreal) CDN $248 million (US$191 million), 13 percent of the total. Nova Scotia (Port of Halifax) CDN $175.9 million US$ 135 million), 10 percent of the total.

The largest share of the funds committed for B.C. projects was allocated to Port Authorities.

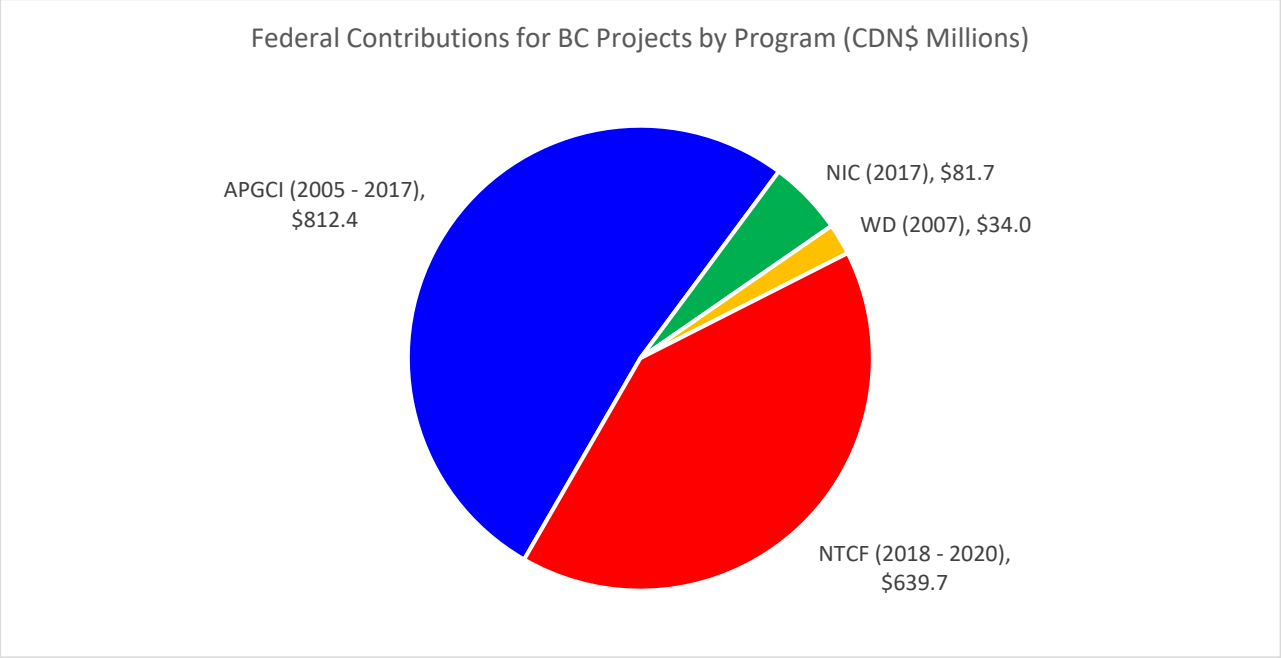
Figure 4-5 National Trade Corridors Fund Commitments in B.C. by Recipient Type



4.4 Funding Levels

Total funding for B.C. projects under the four major programs from 2005 to 2020 is depicted below.[13]

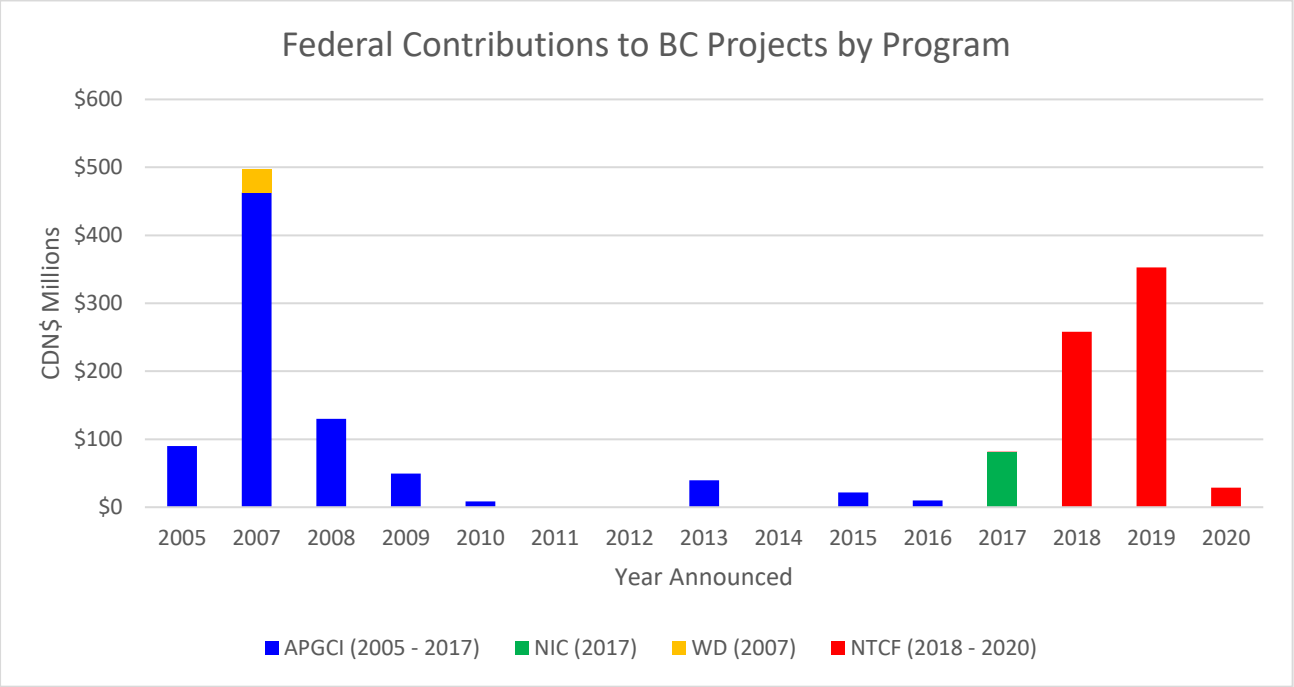
Figure 4-6 Federal Contributions to B.C. Projects by Program



The figure below shows federal contributions for B.C. projects by program and year.

[13] Total for APGCI excludes airport projects (one contribution was made to Prince George Airport for Rehabilitation of Runway 01-19, Apron III & Apron IV).

Figure 4-7 Federal Contributions to B.C. Projects by Program and Year



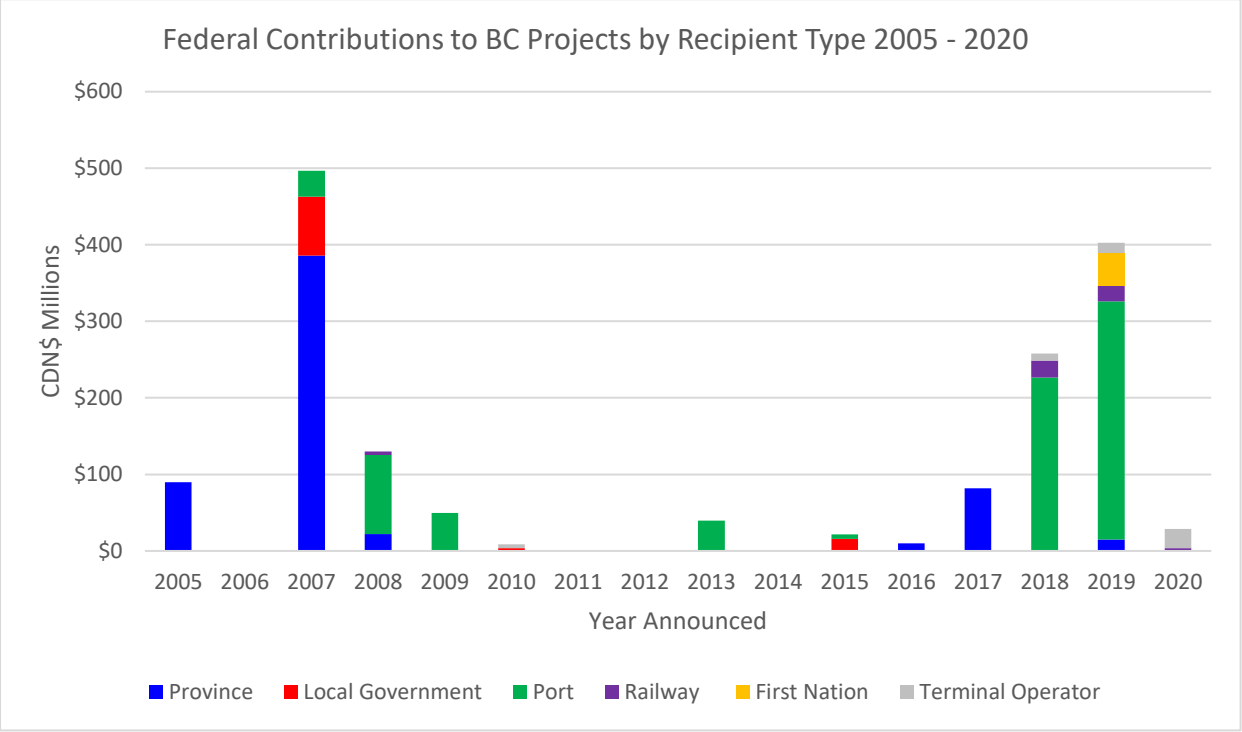
Annual funding levels based on commitments under the NTCF are significantly higher than under the APGCI program. From 2005 to 2017 average annual contributions under the APGCI were approximately CDN $62.5 million (US$ 58 million). From 2017 to 2021 under the NTCF funding commitments to BC projects averaged CDN $165 million (US$ 126 million) per year, more than double the average level under the APGCI.

4.5 Recipients

Federal contributions by recipient for the years 2006-2020 are shown below. The allocation of funding among recipients has also changed significantly. Under the APGCI the largest share of federal funding contributions (70 percent) was allocated to highway projects undertaken by the B.C. Ministry of Transportation and Infrastructure. The largest share was allocated to two major highway projects in the Lower Mainland: the South Fraser Perimeter Road (CDN $365 million (US$ 339 million) or 46 percent of the total) and the Pitt River Bridge and Mary Hill Interchange (CDN $90 million ($US 83 million) or 11 percent of the total). Contributions to port authorities totaled CDN $198 million (US$183 million) accounting for 16 percent of the total. This amounts to an average of CDN $18 million (US$ 15 million) per year over the 11-year life of the program. The relatively high level of contributions to local governments in 2007 was a result of the Roberts Bank Rail Corridor project. Most of the nine projects funded were on local streets, so as the local road authorities the municipalities were responsible for project delivery.

In contrast, announced contributions under the NTCF since 2018 heavily favored payments to Port Authorities, accounting for CDN $535.3 million (US$407.5 million) over the four-year life of the program, or 78 percent of the total, for an average of CDN $134 million (US$102 million) per year.

Figure 4-8 Federal Contributions to B.C. Projects by Recipient Type 2005-2020



4.6 Project Types

The largest share of federal contributions under the APGCI and related programs prior to 2016 was allocated to major provincial highway projects, including the Pitt River Bridge and Mary Hill Interchange and the South Fraser Perimeter Road in the Lower Mainland. These projects provided widespread benefits to regional mobility and improved the efficiency of port-related container trucking.

There were significant contributions for grade separations announce in 2007 to 2009, including the Roberts Bank Rail Corridor, North Shore Trade Area and South Shore Trade Area projects. The primary purpose of the Roberts Bank Rail Corridor Project was to mitigate impacts of increased train volumes on road users. The primary purpose of the North Shore Trade Area and South Shore Trade Area projects was to eliminate road-rail conflicts related to rail switching at port terminals.

The allocation of Canadian federal financial contributions under the NTCF has a dramatically different profile from the previous programs. To date no significant contributions to provincial highway projects have been included, and contributions directly related to port operations (terminal and rail projects) form a significant portion of the total. A new category of “Grade Separation and Rail” projects has been added for the NTCF. These differ from the grade separation projects under the APGCI because the grade separations have been “bundled” with associated rail improvements for purposes of funding applications. Past grade separation projects may have facilitated expansion or increased efficiency of rail operations, but these were typically carried out separately by the railways involved and not included in the project descriptions. The North Shore Corridor Capacity improvement project funded under the NTCF provides a good example; it includes a grade separation at Douglas/Holdom in Burnaby, a new 18,900 ft siding for staging of traffic through the Thornton Rail Tunnel, and Thornton Rail Tunnel ventilation improvements.

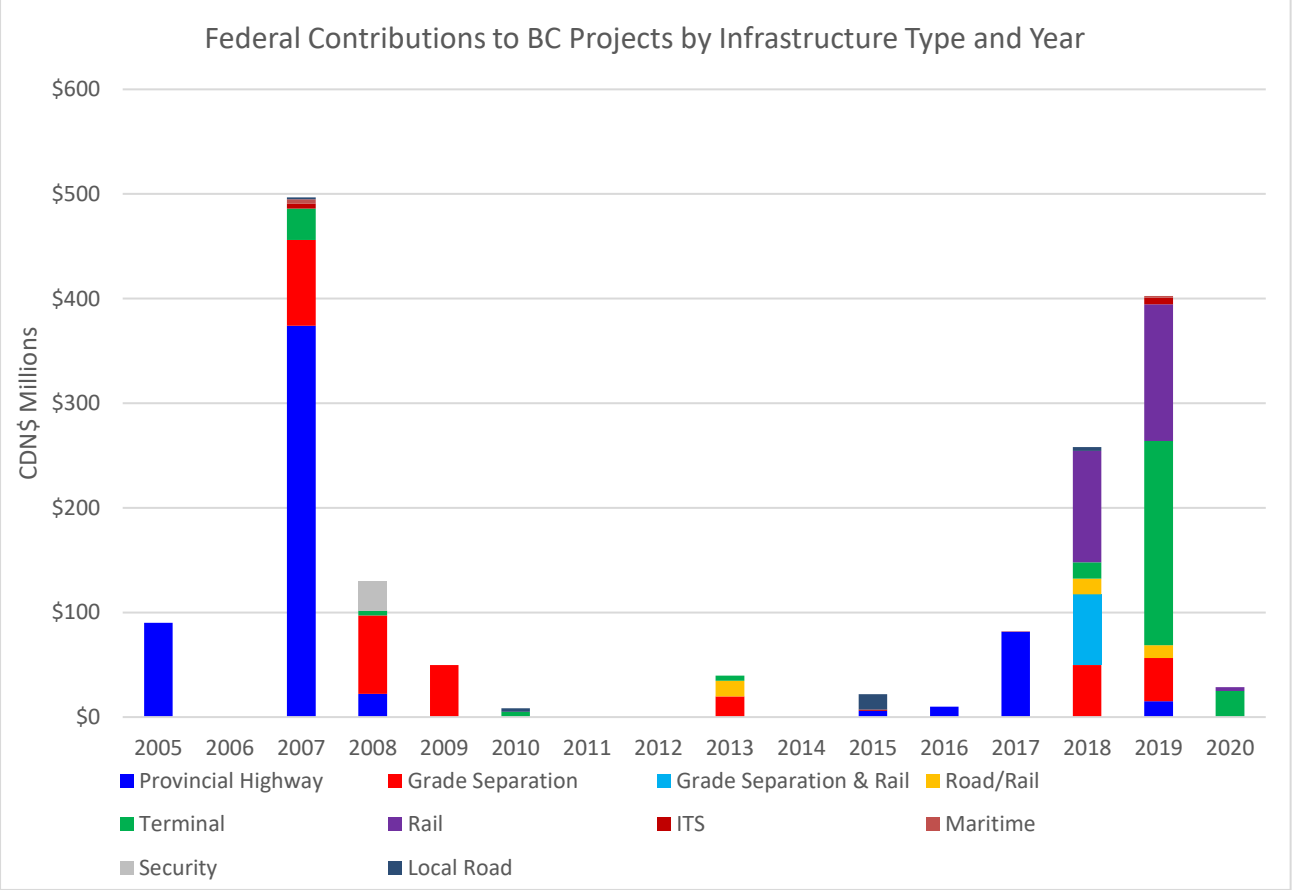
The NTCF also includes contributions for other rail projects including a contribution to CN for double tracking of the CN line at Glen Valley in the Lower Mainland, and to the Prince Rupert Port Authority for the Zanardi Bridge, Rail and Causeway project.

Contributions to on-dock and off-dock terminal projects were insignificant under the APGCI. The NTCF has funded several (Port of Nanaimo, Fibreco, Ray-Mont, and Ashcroft Terminal).

There was little to no direct funding of rail infrastructure under the APGCI. In contrast, federal contributions have been announced for several rail infrastructure projects under the NTCF, including the Glen Valley Double Tracking in the Lower Mainland and Zanardi Bridge, Causeway and Rail Expansion. Other projects include rail infrastructure improvements (for example the North Shore corridor Capacity Improvement Project in the Lower Mainland) but as full project funding details are not available it's not clear if federal contributions apply to these costs or if the railways are paying the full cost of the rail improvements.

Federal contributions to British Columbia projects by project type and year are shown below.

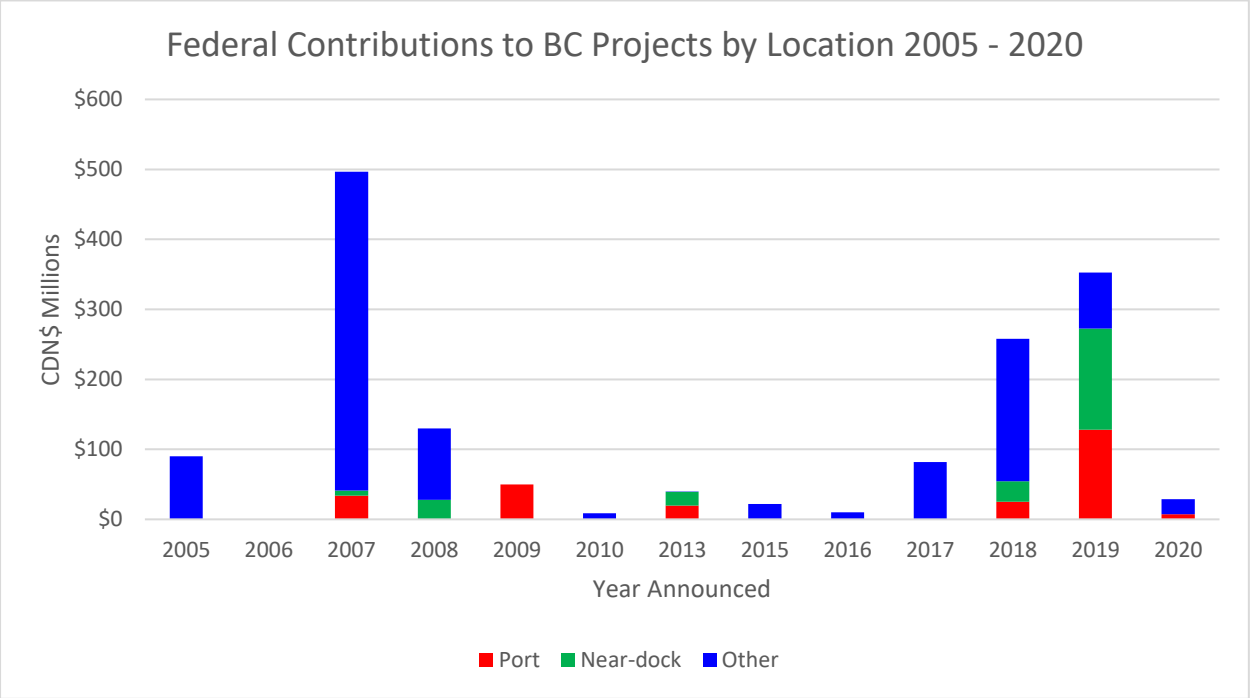
Figure 4-9 Federal Contributions to B.C. Projects by Project Type 2006-2020



4.7 Project Locations

The locations of projects funded under Canadian federal contributions from 2005 to 2020 are shown in the figure below. The share of funding for projects on port lands and "near-dock" (i.e., adjacent to port lands and directly supporting port operations) has increased substantially under NTCF.

Figure 4-10 Federal Contributions to B.C. Projects by Location



4.8 Future Funding

In 2021 the Canadian federal government allocated an additional CDN $1.9 billion (US$ 1.5 billion) over four years starting in 2021-22 to recapitalize the National Trade Corridors Fund. This is likely to provide further opportunities for new projects in B.C.

The Canada Infrastructure bank has commissioned a study on the New Westminster Railway Bridge (NWRB) between Surrey and New Westminster. The NWRB is the main route for rail movements to the port terminals on the North Shore of Burrard Inlet and the container terminals on the South Shore. It is also used for multiple passenger services and cross-border freight. The NWRB is owned by the federal government but has been operated and maintained by CN since 1992 through an entrustment agreement. Should the study indicate that replacement of the NWRB is warranted, CIB might finance the project as a Public Private Partnership or through some other financing arrangement.

4.9 BC Direct Port Federal Infrastructure Funding Summary

Federal contributions for “Direct Port” projects in BC totaled US $692 million from 2005 to 2021. Of this, US$ 415 million or almost 70% was awarded within the last five years under the National Trade Corridors Fund program. “Direct Port” projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property. This is the most relevant category for purposes of this study.

Figure 4-11 Federal Funding for BC Direct Port Projects 2005 – 2021

Canadian Federal Funding for B.C. Direct Port Projects 2005 - 2021					
Recipient	**Program**	**Year Awarded**	**Project**	**CDN$ Millions**	**US$ Millions**
Fraser River Port Authority	WD	2007	Fraser Port Dredging	$4.0	$3.7
Vancouver Fraser Port Authority	APGCI	2008	North Shore Trade Area	$75.0	$70.4
Vancouver Fraser Port Authority	APGCI	2009	South Shore Trade Area	$49.7	$43.5
Vancouver Fraser Port Authority	APGCI	2013	Deltaport Causeway Overpass	$19.9	$19.3
Vancouver Fraser Port Authority	APGCI	2015	Deltaport Truck Staging Area	$6.0	$4.7
Vancouver Fraser Port Authority	NTCF	2018	Burrard Inlet Road & Rail Improvement Projects	$67.6	$52.2
Vancouver Fraser Port Authority	NTCF	2018	Harris Road Underpass & Kennedy Road Overpass	$48.8	$37.7
Vancouver Fraser Port Authority	NTCF	2018	Mountain Highway Underpass	$3.8	$2.9
Vancouver Fraser Port Authority	NTCF	2018	North Shore Corridor Capacity Improvement	$76.9	$59.4
Vancouver Fraser Port Authority	NTCF	2018	Westwood St. & Kingsway Ave. Grade Separations	$1.1	$0.8
Vancouver Fraser Port Authority	NTCF	2019	Annacis Auto Terminal Optimization	$42.7	$32.2
Vancouver Fraser Port Authority	NTCF	2019	Fraser Surrey Port Lands Transportation Improvements	$12.2	$9.2
Vancouver Fraser Port Authority	NTCF	2019	Pitt River Rd and Colony Farm Rd Rail Grade Separations	$2.1	$1.6
Vancouver Fraser Port Authority	NTCF	2019	Portside Blundell Overpass and Upgrade	$39.4	$29.7
Vancouver Fraser Port Authority	NTCF	2019	Short Sea Shipping - Concept Development	$1.6	$1.2
Vancouver Fraser Port Authority	NTCF	2019	West Coast Supply Chain Visibility System	$6.5	$4.9
Port of Vancouver[14] Total				$457.3	$373.3

[14] Port of Vancouver total includes contributions to the former Fraser River Port Authority in 2007.

Figure 4-12 Federal Funding for BC Direct Port Projects 2005 – 2021 (continued)

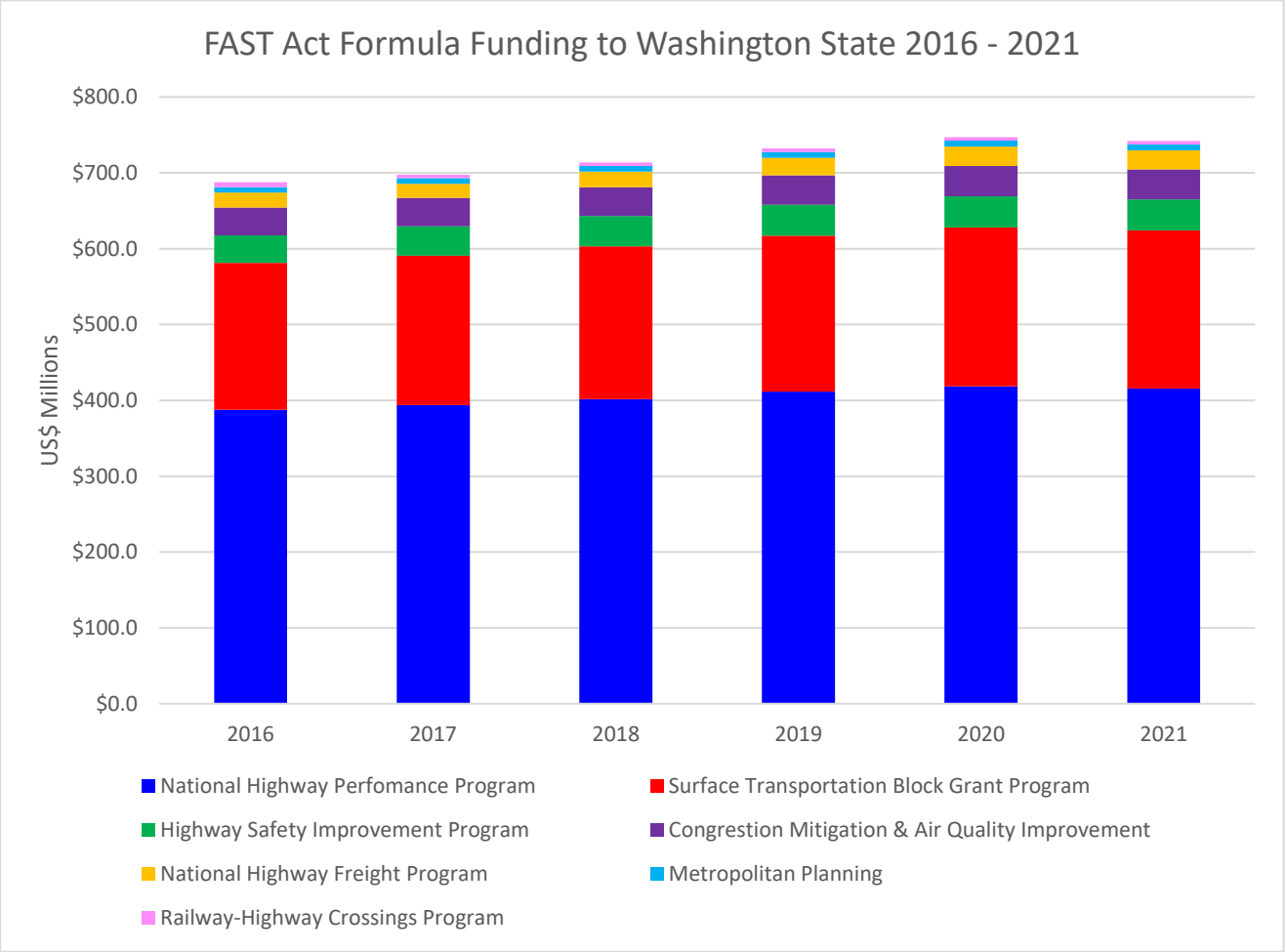
Canadian Federal Funding for B.C. Direct Port Projects 2005 - 2021 (continued)					
Recipient	**Program**	**Year Awarded**	**Project**	**CDN$ Millions**	**US$ Millions**
Prince Rupert Port Authority	WD	2007	Fairview Terminal Prince Rupert	$30.0	$27.9
Prince Rupert Port Authority	APGCI	2013	Ridley Island Road Rail & Utility Corridor	$15.0	$14.6
Prince Rupert Port Authority	NTCF	2018	Fairview-Ridley Connector Corridor	$15.0	$11.6
Prince Rupert Port Authority	NTCF	2018	Ridley Island Road-Rail-Utility Corridor Expansion	$3.7	$2.9
Prince Rupert Port Authority	NTCF	2018	Zanardi Bridge & Mainline Expansion - Engineering & Design	$3.2	$2.5
Prince Rupert Port Authority	NTCF	2019	Ridley Island Export Logistics Platform	$49.9	$37.6
Prince Rupert Port Authority	NTCF	2019	Zanardi Bridge, Causeway and Rail Expansion	$60.6	$45.7
Port of Prince Rupert Total				$177.4	$142.7
Port Alberni Port Authority	APGCI	2013	Port Alberni Transhipment Hub Study	$0.2	$0.2
Nanaimo Port Authority	APGCI	2013	Nanaimo Assembly Wharf Rehabilitation SSS	$4.6	$4.5
Nanaimo Port Authority	NTCF	2018	Nanaimo Vehicle Processing Centre (VPC)	$6.3	$4.9
Nanaimo Port Authority	NTCF	2019	Duke Point Terminal - Phase 2/3 Expansion	$46.2	$34.8
BC Other Ports Total				$57.3	$44.4
Grand Total				$692.0	$560.4

5 Washington State Port-Related Federal Infrastructure Funding

5.1 Washington State Port-Related Formula Funding 2005 – 2020

Apportionments for seven key funding programs of the FAST Act for WASHINGTON State are shown below. Over the six-year period Washington State received most of its FAST Act funds through the Highway Performance Program (56 percent) and the Surface Transportation Block Grant Program (28 percent).

Figure 5-1 Fast Act Funding to Washington State by Funding Program

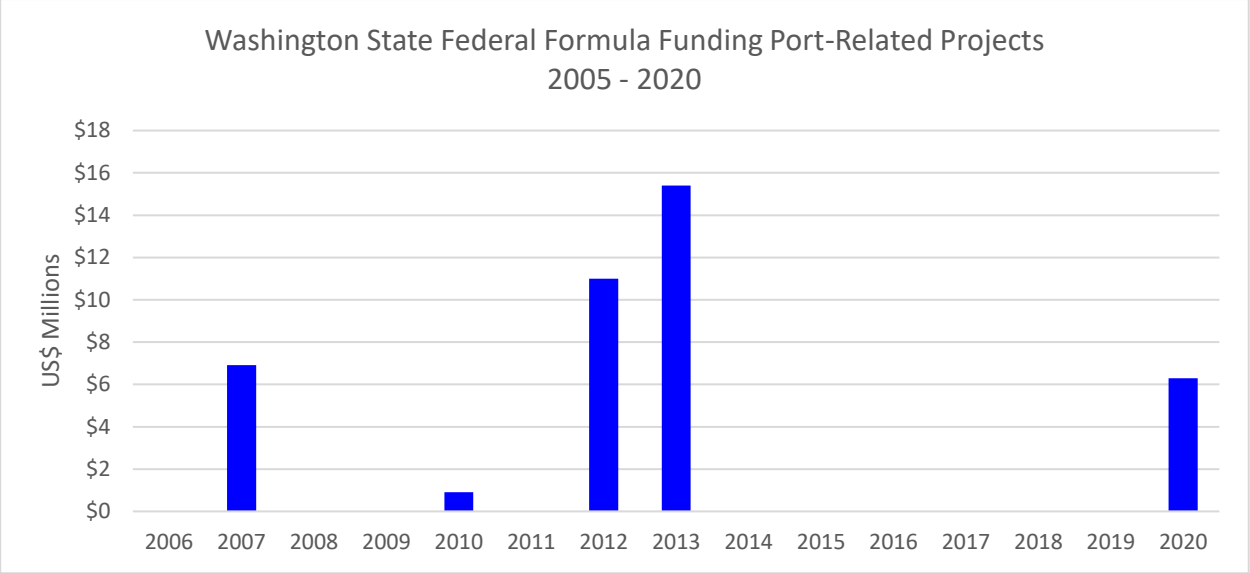


Port-related freight corridor and goods movement infrastructure projects are specifically eligible for funding under the National Highway Freight Program. Washington State received approximately US $133 million under the National Highway Freight Program over the 6-year period (an average of US $22 million per year).

The figure below shows estimated funding for port-related projects in Washington State from all formula funding programs from 2005 to 2020. Estimates of formula funding are based on analysis of data provided by WSDOT's Local Programs office. Contributions under Formula Funding have been allocated to the completion date of the project. For projects currently under construction, the contributions have been allocated to 2020. The totals include grants to ports receiving federal contributions under federal discretionary programs (NWSA Ports, and the Ports of Vancouver, Everett, and Bellingham) and FAST Corridor projects. Projects receiving major contributions

included the Lincoln Avenue Grade Separation project(s) led by the Port of Tacoma and the East Marginal Way Grade Separation project(s) led by the Port of Seattle.

Figure 5-2 Washington State Federal Formula Funding Port-Related Projects 2005 - 2020



5.2 Washington State Discretionary Funding

Washington State shares of major discretionary grant programs are shown below.

Figure 5-3 Washington State Shares of Discretionary Program Grants

Washington State Shares of Discretionary Program Grants			
	TIGER-BUILD	**FASTLANE-INFRA**	**Port Infrastructure Development Program**
Period	2009 - 2020	2016 - 2020	2019 - 2020
Total Grants US$ Millions	$8,911	$4,137	$500
Washington Total Grants US$ Millions	$211	$140	$18
Washington Share of Total	2%	3%	4%
Washington Port Projects US$ Millions	$85	$0	$18
Port Projects Share of Washington Grants	40%	0%	100%

5.3 Washington State TIGER-BUILD-RAISE Grants

Washington State projects received a total of US $211.2 million under the TIGER and BUILD programs from 2011 to 2020, approximately 2.4% of total program awards. However, only US $84.7 million or 40 percent of the total was for port and/or other freight related infrastructure. These projects are shown below.

Figure 5-4 TIGER & BUILD Freight-Related Grants to Washington State Projects 2011 – 2020

Washington State TIGER and BUILD Freight-Related Grants 2011 - 2020						
Federal Program	**Year Awarded**	**Project**	**Lead Agency**	**Federal Grant US$ Millions**	**Total Cost US$ Millions**	**Federal Share**
TIGER	2011	West Vancouver Freight Access	Port of Vancouver	$10.0	$92.9	11%
TIGER	2012	North Spokane Corridor Railroad Realignment	WSDOT	$10.0	$31.5	32%
TIGER	2014	Terminal 46 Rehabilitation	Port of Seattle	$20.0	$66.1	30%
TIGER	2016	Port of Everett South Terminal Modernization	Port of Everett	$10.0	$57.0	18%
BUILD	2018	WSDOT Rural Rail Rehabilitation	WSDOT	$5.7	$11.3	50%
BUILD	2019	Rail-Truck Transload Facility Spokane	Spokane	$11.3	$16.9	67%
BUILD	2020	Mills to Maritime Cargo Terminal	Port of Everett	$17.8	$36.0	49%
			Total	$84.7	$311.7	27%

5.4 Washington State FASTLANE and INFRA Grants

Washington State projects were awarded a total of $140.2 million in FASTLANE and INFRA grants from 2016 to 2020, 3.4% of total program awards. Projects are shown below; none were marine port projects.

Figure 5-5 FASTLANE & INFRA Grants to Washington State Projects 2016-2020

Washington State FASTLANE & INFRA Grants 2016 - 2020			
Federal Program	**Year Awarded**	**Project**	**Federal Grants US$ Millions**
FASTLANE	2016	South Lander St. Grade Separation and Railroad Safety	$45.0
FASTLANE	2016	Strander Blvd Extension & Grade Separation Phase 3	$5.0
FASTLANE	2017	Northern Columbia Basin Rail-Road Project	$9.9
INFRA	2019	Union Gap Regional Beltway Connector	$6.7
INFRA	2020	Puget Sound Gateway Project	$73.7
		Total	$140.2

5.5 Washington State Port Infrastructure Development Program (PIDP) Grants

Washington State applications for PIDP grants in 2019 included 8 projects with funding requests totaling US $127.1 million. Of these, two projects were funded in the 2020 round, for a total of US $17.7 million in grants.

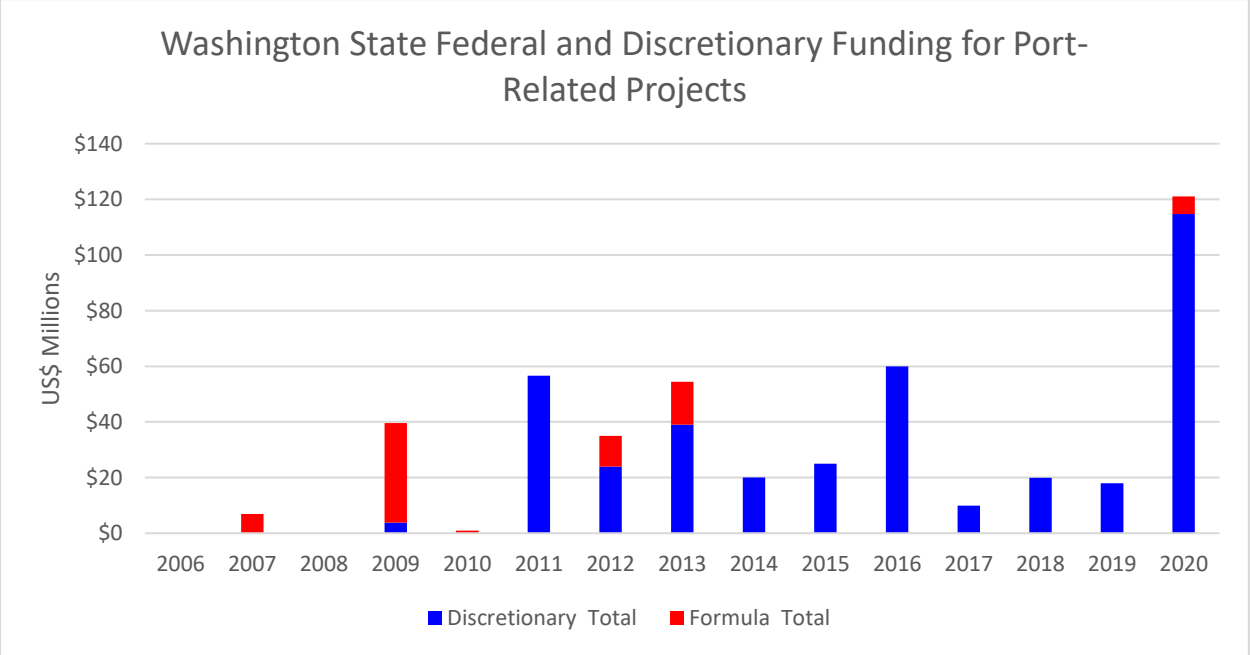
Figure 5-6 PIDP Grant Awards to Washington State Projects 2019-2020

PROGRAM	PROJECT	APPLICANT	STATE	Grant Award USD$ Millions	Total Cost
PIDP 2020	Bellingham Shipping Terminal Rehabilitation Project	Port of Bellingham	WA	$7.0	$15.0
PIDP 2020	Terminal 5 Uplands Modernization and Rehab. Final Phase	Northwest Seaport Alliance	WA	$10.7	$35.4
			TOTAL	**$17.7**	**$50.4**

5.6 Washington State Port-Related Federal Infrastructure Funding Summary

The figure below summarizes federal contributions under discretionary and formula funding programs from 2005 to 2020 for port-related projects. “Port-Related” projects include “Direct Port” projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property; and projects which may improve goods movement systems infrastructure and freight operations efficiency but are not specifically related to port operations. Examples of this type of projects includes road/rail grade separations and State or Provincial highway projects.

Figure 5-7 Washington State Federal Discretionary and Formula Funding for Port-Related Projects



Funding provided directly to the ports receiving federal discretionary grants (NWSA ports and the ports of Vancouver, Everett, and Bellingham) and to FAST Corridor projects after 2005 is included. Discretionary funding includes contributions from TIGER-BUILD grants (2011-2020), FASTLANE-INFRA (2016-2020) and Port Infrastructure Development Grants (2020). Estimates of formula funding are based on analysis of data provided by WSDOT’s Local Programs office. Grants provided from incremental funding to the State Highway Program under the *American Recovery*

and Reinvestment Act (ARRA) 2009 are considered formula funding contributions. Contributions under Formula Funding have been allocated to the completion date of the project; for projects currently under construction, the contributions have been allocated to 2020.

Over the entire 15-year period federal grants to port-related projects in Washington State totaled US $457 million in federal grants to port-related projects in Washington State (US $391 million in discretionary grants and US $76 million under formula funding programs). The high level of discretionary funding in 2019 is due to a US $74 million grant to the Puget Sound Gateway Program highway project.

5.7 Washington State Direct Port Federal Infrastructure Funding Summary

Federal grants for Washington State Direct Port projects totaled US $92 million from 2005 to 2020, and US $35 million over the last five years. “Direct Port” projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property. This is the most relevant category for purposes of this study. The table below shows federal funding for Direct Port projects in Washington State from 2005 to 2020.

Figure 5-8 Federal Funding for Washington State Direct Port Projects 2005 – 2020

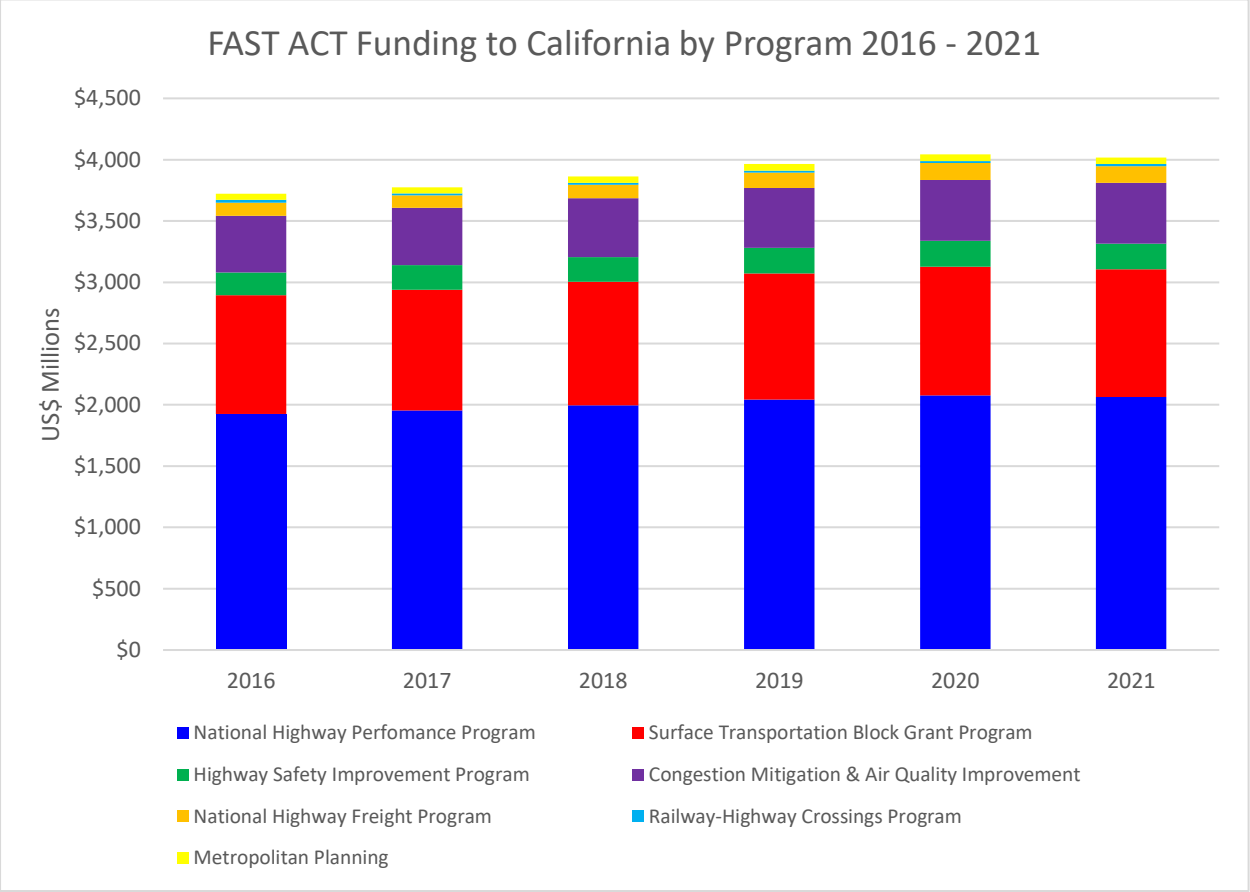
Federal Funding for Washington State Direct Port Projects 2005 - 2020			
Federal Program	**Project**	**Year Awarded**	**Federal Funding (US$ Millions)**
RLRI	West Vancouver Freight Access	2009	$3.9
ARRA HSRIP	West Vancouver Freight Access	2011	$12.6
TIGER	West Vancouver Freight Access	2011	$10.0
TIGER	Terminal 46 Rehabilitation	2014	$20.0
TIGER	Port of Everett South Terminal Modernization	2016	$10.0
BUILD	Mills to Maritime Cargo Terminal	2020	$17.8
PIDP	Bellingham Shipping Terminal Rehabilitation Project	2020	$6.9
PIDP	Terminal 5 Uplands Modernization and Rehab. Final Phase	2020	$10.7
			$91.7

6 California Port-Related Federal Infrastructure Funding

6.1 California Port-Related Formula Funding 2005 – 2020

Apportionments for seven key funding programs of the *FAST Act* for California are shown below. Over the six-year period California most of its FAST Act funds through the Highway Performance Program (51 percent), Surface Transportation Block Grant Program (26 percent) and the Congestion Mitigation and Air Quality Improvement program (12 percent).

Figure 6-1 Fast Act Funding to California by Funding Program



Identifying California port projects funded under federal formula programs is challenging due to the structure of the State transportation financing programs. Federal contributions from the Federal Highway Trust Fund are combined with revenue from the State's Base Excise Tax and Incremental Excise Tax on fuel in the State Highway Account. State programs funded from the State Highway Account include Maintenance & Operations; Capital Outlay Support; State Highway Operation & Protection Program (SHOPP); Local Assistance; Active Transportation Program; State Transportation Improvement Program (STIP); and Road Maintenance & Rehabilitation Programs.[15] Contributions to projects under these programs are typically attributed to "State/Federal" funding.

[15] Transportation Funding in California 2020 p. 20 https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/transportation-economics/transportation-funding-booklet/2020-final-transportation-funding-a11y.pdf

6.1.1 Gerald Desmond Bridge

The largest port project undertaken over the last fifteen years was the replacement of the Gerald Desmond Bridge. The previous bridge which was built in the late 1960s prevented the new generation of cargo ships from reaching the inner channel at the port of Long Beach due to the limited air draft. The new bridge raised the clearance by 50 feet up from the pre-existing bridge height of 155-feet above water. Construction began in 2013 and the new bridge opened to traffic on October 5, 2020.

The Port of Long Beach was the lead agency for the project. The total project cost was US $1,561 million, and funding sources included: Federal Funds – US $726.2 million; State/Local – US $187.2 million; TIFIA Loan – US $500 million; Port Funds – US $148 million.[16] Federal contributions included funding under SAFETEA-LU section 1301 (Projects of Regional and National Significance) and federal Highway Bridge Program funds. Strong support for this project was demonstrated by the State government through the allocation for federal formula funds through multiple State programs including the State Highway Operations and Protection Program (SHOPP) and Trade Corridor Improvement Fund (TCIF), indicating that this project was both a federal and State priority. The TIFIA loan was provided by the federal government to the Port of Long Beach under the *Transportation Infrastructure Finance and Innovation Act*.

6.1.2 National Highway Freight Program

Port-related freight corridor and goods movement infrastructure projects are specifically eligible for funding under the National Highway Freight Program. California was allocated approximately US $717 million under the National Highway Freight Program over the six-year period (an average of US $120 million per year).

From 2016 to 2019, five port projects were funded by grants from the National Highway Freight Program for a total of US $47.8 million. Port projects accounted for 11 percent of total NHFP funding allocated to California projects over this period.

Figure 6-2 California Port Projects Funded Under the National Highway Freight Program

California Port Projects Funded Under the National Highway Freight Program					
Project	**Lead Agency**	**Year**	**Federal Grant**	**Total Cost**	**Federal Share**
Southern Terminus Gap Closure	Port of Los Angeles	2018	$6.0	$9.5	63%
Terminal Island Rail Improvements	Port of Los Angeles	2018	$21.6	$34.0	64%
Pier G & J Double Track	Port of Long Beach	2018	$14.0	$25.0	56%
National City Marine Terminal Rail Track	Port of San Diego	2018	$0.6	$13.1	5%
10th Ave Marine Terminal	Port of San Diego	2019	$5.6	$8.1	69%
		Total	$47.8	$89.7	53%

[16] Port of Long Beach - Gerald Desmond Bridge Replacement Project US Department of Transportation Build America Bureau https://www.transportation.gov/buildamerica/projects/port-long-beach-gerald-desmond-bridge-replacement-project

6.2 California Discretionary Program Funding

Washington State shares of major discretionary grant programs are shown below.

Figure 6-3 California Shares of Discretionary Program Grants

California Shares of Discretionary Program Grants			
	TIGER-BUILD	**FASTLANE-INFRA**	**Port Infrastructure Development Program**
Period	**2009 - 2020**	**2016 - 2020**	**2019 - 2020**
Total Grants US$ Millions	$8,911	$4,137	$500
California Total Grants US$ Millions	$503	$196	$133
California Share of Total	6%	5%	27%
California Port Projects US$ Millions	$100	$0	$133
Port Projects Share of California Grants	20%	0%	100%

6.3 California TIGER-BUILD-RAISE Grants

California projects received a total of US $503.0 million under the TIGER and BUILD programs from 2011 to 2020, approximately 6% of total program awards. However, only US $100.3 million or 20 percent of the total was for port projects. These projects are shown below.

Figure 6-4 California Port Projects Funded Under the TIGER Program

California Port Projects Funded Under TIGER - BUILD Program				
Federal Program	**Year Awarded**	**Applicant**	**Project Name**	**Amount Awarded**
TIGER	2009	Ports of Oakland, Stockton, W. Sacramento	California Green Trade Corridor/Marine Highway Project	$30.0
TIGER	2010	Port of Los Angeles	Port of Los Angeles West Basin Railyard	$16.0
TIGER	2011	Port of Long Beach	Port of Long Beach Rail Realignment	$17.0
TIGER	2012	Port of Oakland	Port of Oakland Intermodal Rail Improvements	$15.0
TIGER	2015	Oxnard Harbor District (Port of Hueneme)	Port of Hueneme Intermodal Improvement Project	$12.3
TIGER	2015	San Diego Unified Port District	Tenth Avenue Marine Terminal Modernization Project	$10.0
			Total	$100.3

Funding was also provided through a TIGER grant in 2010 for the Alameda Corridor East: Colton Crossing project which provided benefits to the Ports of Los Angeles and Long Beach by eliminating a major rail bottleneck in San Bernardino County. In 2010, the Colton Crossing Project received US $34 million from a Federal Tiger Grant through the American Recovery and Reinvestment Act federal stimulus fund. With cooperation from Caltrans, the project was also eligible to receive US $41 million from State Proposition 1B funds from the Transportation Corridor

Improvement Fund. The railroads contributed the remaining US $18 million in construction costs.[17]

6.4 California FASTLANE and INFRA Grants

There have been no port projects funded under the FASTLANE or INFRA programs, but there have been several regional goods movement projects which received INFRA grants.

Figure 6-5 FASTLANE & INFRA Grants to California Goods Movement Projects 2016-2020

California Regional Goods Movement Project Funded Under FASTLANE and INFRA Programs						
Federal Program	**Year Awarded**	**Applicant**	**Project Name**	**Amount Awarded US$ millions**	**Total Cost US$ millions**	**INFRA Share**
INFRA	2017 - 2018	City of Bakersfield	Centennial Corridor State Route 58/99 Freight Improvement Project	$50.0	$386.6	13%
INFRA	2017 - 2018	LA MTA	Interstate 5 Golden State Chokepoint Relief Program (I-5 Component)	$47.0	$500.3	9%
INFRA	2019	City of Temecula	Interstate 15/French Valley Parkway Improvements Phase 2	$50.0	$110.1	45%

6.5 California Port Infrastructure Development Program (PIDP) Grants

Seven California port projects were awarded PIDP grants in 2019 and 2020 totaling US $132.6 million.

Figure 6-6 PIDP Grant Awards to California Projects 2019-2020

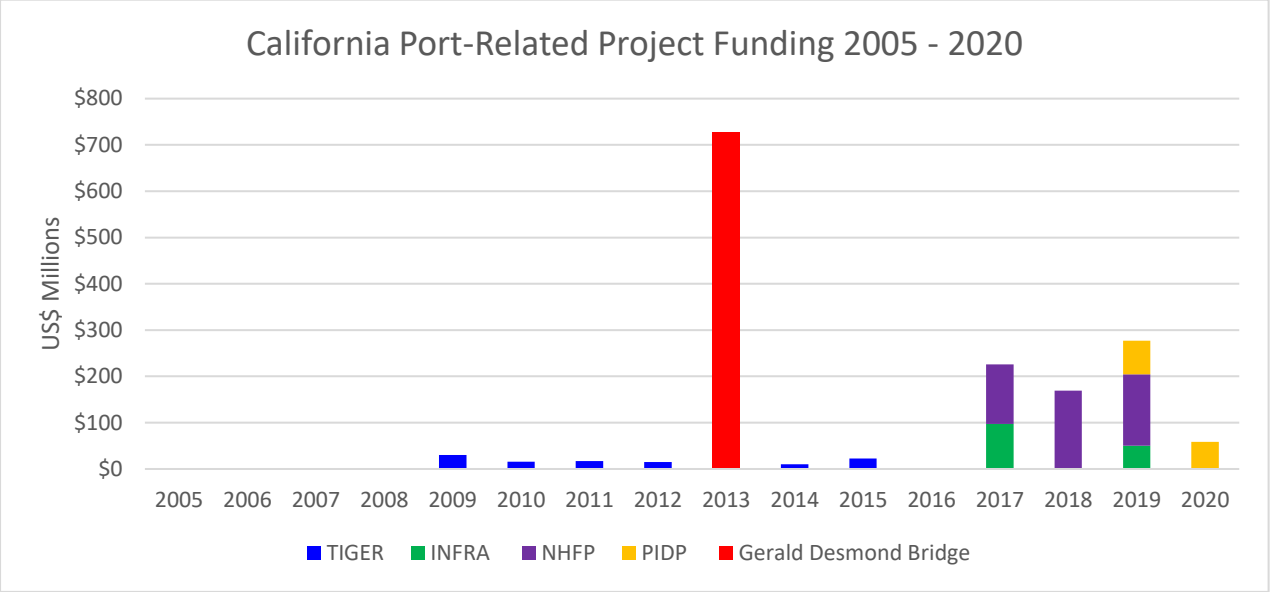
California Port Projects Funded Under Port Infrastructure Development Program (PIDP)						
Federal Program	**Year Awarded**	**Applicant**	**Project Name**	**Amount Awarded US$ millions**	**Total Cost US$ millions**	**PIDP Share**
PIDP	2019	City of Antioch, CA	City of Antioch and AMPORTS, Inc., Ports Infrastructure Grant	$21.9	$43.7	50%
PIDP	2019	Port of Los Angeles	Fenix Container Terminal Intermodal Railyard Expansion and Modernization Project	$18.2	$40.5	45%
PIDP	2019	Port of Long Beach	Alameda Corridor South Access Terminal Island Rail Junction Project	$16.0	$40.0	40%
PIDP	2019	Port of Long Beach	East Basin Rail Gateway Expansion: Fourth Track at Ocean Project	$8.0	$24.8	32%
PIDP	2019	Port of Los Angeles	SR 47-Vincent Thomas Bridge & Harbor Boulevard-Front Street Interchange	$10.0	$59.5	17%
PIDP	2020	Port of Hueneme	Structure for Transfer of Automobiles Creating Key Economic Development (STACKED) Intermodal Project	$53.4	$66.7	80%
PIDP	2020	Port of San Francisco	Pier Improvements to Promote Economic Recovery and Sustainability Project	$5.2	$7.2	72%
		Total		$132.6	$282.5	47%

[17] Colton Crossing: A Model for Public-Private Partnerships Rose Institute 2013 https://roseinstitute.org/colton-crossing-a-model-for-public-private-partnerships/

6.6 California Port-Related Federal Infrastructure Funding Summary

The figure below summarizes federal contributions under discretionary and formula funding programs from 2005 to 2020. Federal grants to California port-related projects totaled US $1,567 million from 2005 to 2021, and US$ 731 million over the last five years.

Figure 6-7 Federal Funding of California Port-Related Projects 2005 – 2020

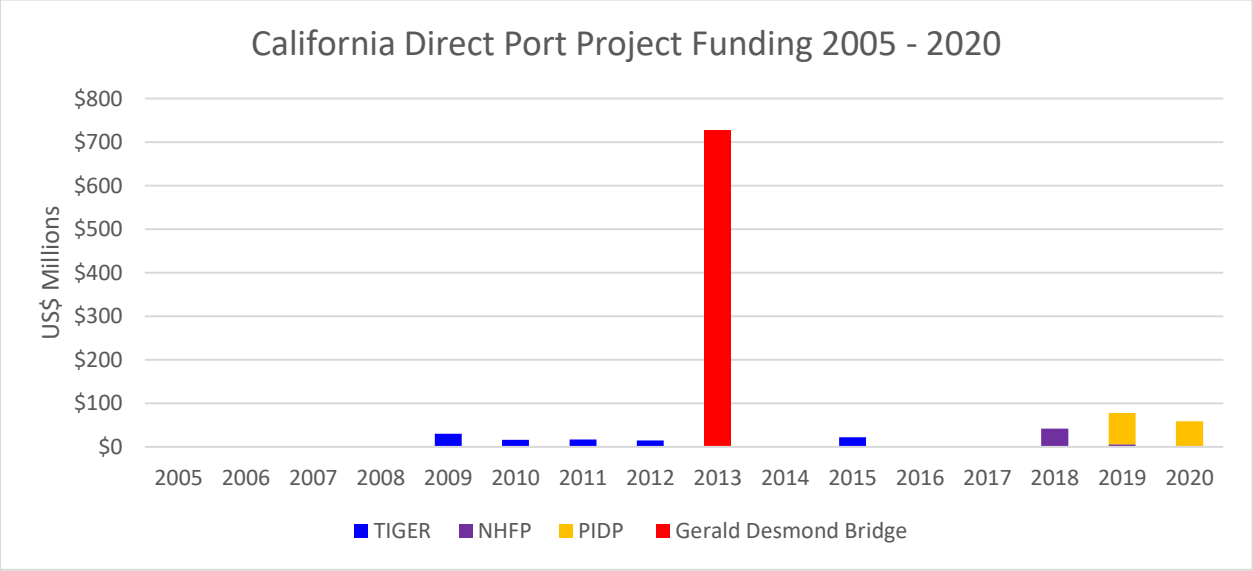


Federal contributions to the Gerald Desmond Bridge replacement project dominated, totaling US $726.6 million including federal formula funding allocated by the California government though multiple State programs. Federal contributions identified for port projects under all other programs totaled US $279.2 million over the same period.

6.7 California Direct Port Infrastructure Funding

Federal grants to California Direct Port projects totaled US $1,006 million from 2005 to 2021, and US$ 179 million over the last five years.

Figure 6-8 Federal Funding for California Direct Port Projects 2005 – 2020



The figure below shows funding for direct port projects excluding the Gerald Desmond Bridge.

Figure 6-9 Federal Funding for California Direct Port Projects Excluding the Gerald Desmond Bridge 2005 – 2020

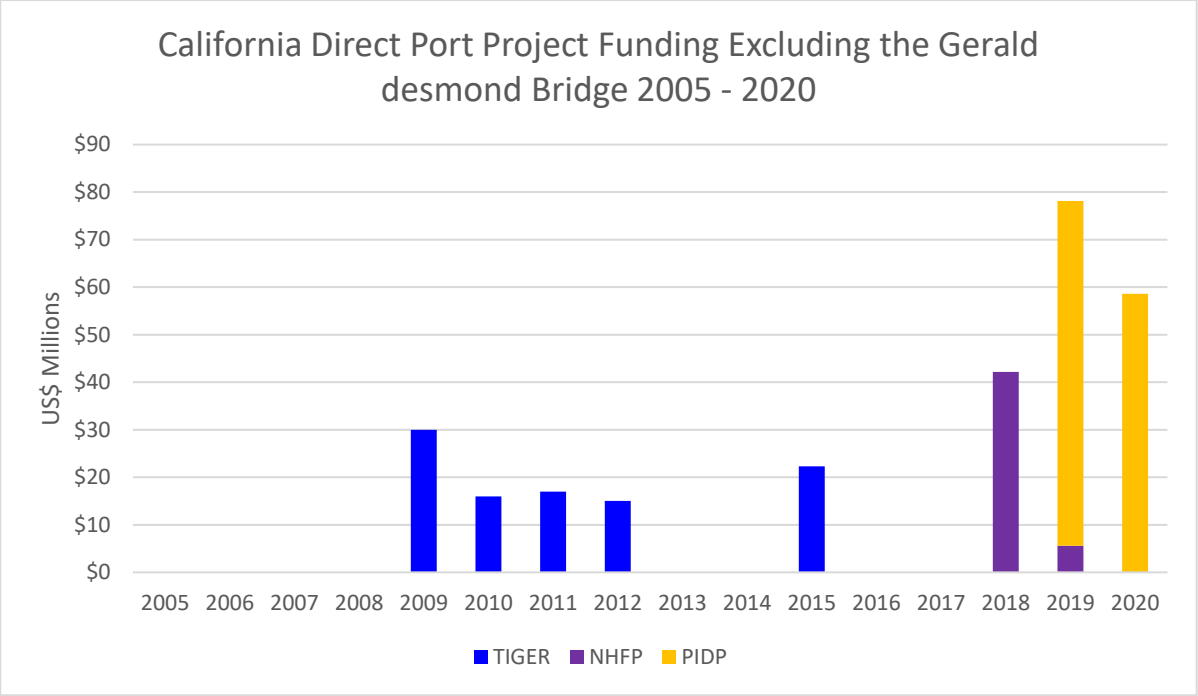


Figure 6-10 Federal Funding Federal Funding for Direct Port Projects Details

Federal Funding for California Direct Port Projects 2005 – 2020 US$ Millions				
Federal Program	**Lead Agency**	**Project**	**Year Awarded**	**Federal**
TIGER	Ports of Oakland, Stockton, W. Sacramento	California Green Trade Corridor/Marine Highway Project	2009	$30.0
TIGER	Port of Los Angeles	Port of LA West Basin Railyard	2010	$16.0
TIGER	Port of Long Beach	Rail Realignment	2011	$17.0
TIGER	Port of Oakland	Intermodal Rail Improvements	2012	$15.0
Gerald Desmond Bridge	Port of Long Beach	Gerald Desmond Bridge	2013	$726.6
TIGER	Port of Hueneme	Terminal & Intermodal Improvement Project	2015	$12.3
TIGER	Port of San Diego	Tenth Avenue Marine Terminal Modernization Project	2015	$10.0
NHFP	Port of Long Beach	Pier G & J Double Track	2018	$14.0
NHFP	Port of Los Angeles	Southern Terminus Gap Closure	2018	$6.0
NHFP	Port of Los Angeles	Terminal Island Rail Improvements	2018	$21.6
NHFP	Port of San Diego	National City Marine Terminal Rail Track Extension	2018	$0.6

NHFP	Port of San Diego	10th Ave Marine Terminal Beyond Compliance Environmental	2019	$5.6
PIDP	City of Antioch, CA	City of Antioch and AMPORTS, Inc., Ports Infrastructure Grant	2019	$21.9
PIDP	Port of Long Beach	Alameda Corridor South Access: Terminal Island Rail Jct	2019	$14.5
PIDP	Port of Long Beach	East Basin Rail Expansion: Fourth Track at Ocean Project	2019	$8.0
PIDP	Port of Los Angeles	Fenix Container Terminal Intermodal Expansion & Modernization	2019	$18.2
PIDP	Port of Los Angeles	SR 47-Vincent Thomas Bridge & Harbor Blvd - Front St Interchange	2019	$10.0
PIDP	Port of Hueneme	(STACKED) Intermodal Project (Autos)	2020	$53.4
PIDP	Port of San Francisco	Pier Improvements	2020	$5.2
		Total		$1,005.8

7 B.C., WASHINGTON STATE AND CALIFORNIA FEDERAL PORT FUNDING COMPARISONS

Due to the multiplicity of formula funding programs with overlapping eligibility criteria and the discretion granted to State Departments of Transportation to "flex" spending among different projects, U.S. projects may receive federal funding form multiple programs. This is not in general the case for Canadian projects.

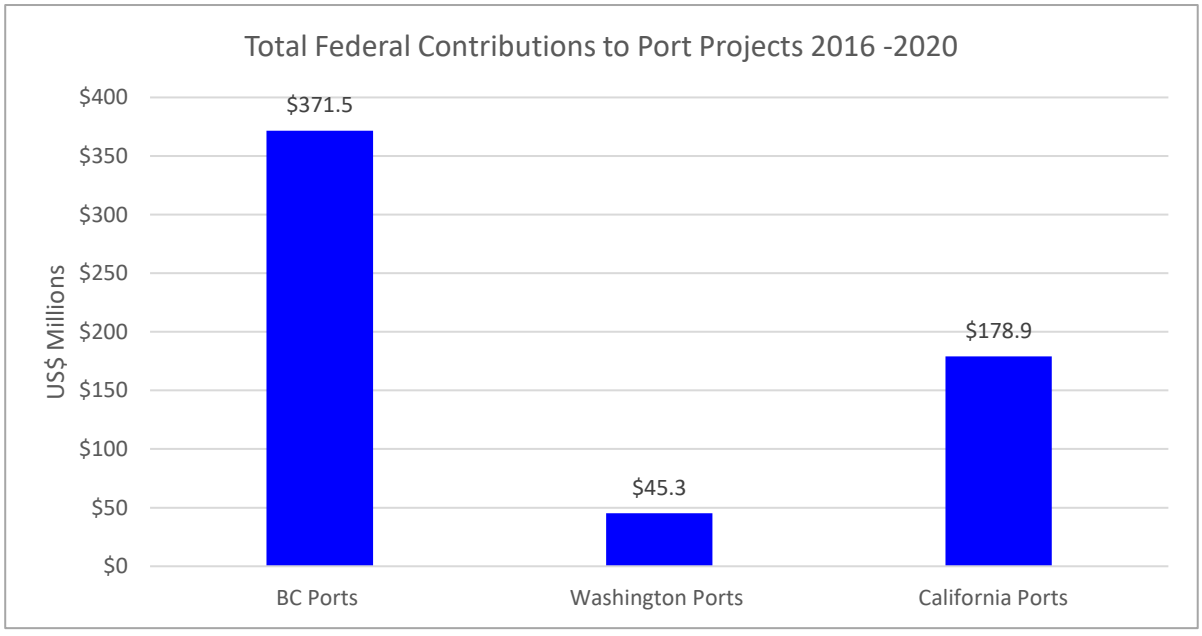
For purposes of analysis, projects receiving Canadian, or U.S. federal funding have been divided into two categories:

- "Direct Port" projects are projects for which a Port is the lead agency and/or the infrastructure funded is on or directly adjacent to port property. This is the most relevant category for purposes of this study.
- "Port-Related" projects which also include projects which may improve freight efficiency but are not specifically related to port operations. Examples of this type of projects includes road/rail grade separations and State or Provincial highway projects.

7.1 Direct Port Projects

For "Direct Port" projects Canadian contributions to B.C. ports over the last five years totaled US $415 million compared to US $35 million for Washington State ports and US $179 million for the California ports. The relatively high level of B.C. contributions is due to the introduction of the National Trade Corridor Fund (NTCF) program in Canada in 2017, with a funding allocation of CD $2.3 billion (US $1.8 billion). Except for funds reserved for Northern projects, the initial NTCF funding has essentially been allocated. In its Budget 2021 presented on April 19, 2021, the Canadian federal government proposes to invest an additional CD$ 1.9 billion (US $1.5 billion) over four years starting in 2021-22 to recapitalize the National Trade Corridors Fund. This is likely to provide opportunities for additional projects in B.C.

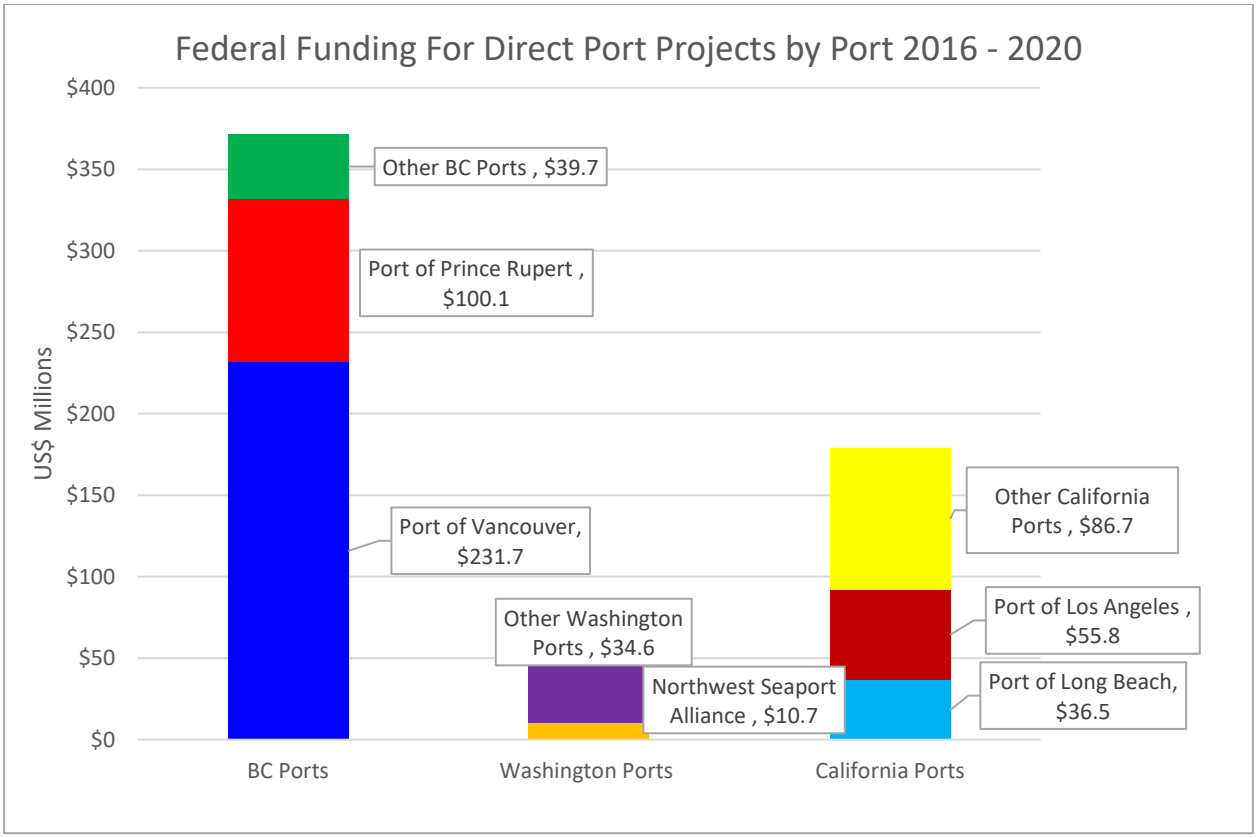
Figure 7-1 Total Federal Contributions to Direct Port Projects 2016 - 2020



For “Direct Port” projects over the entire fifteen-year period, Canadian contributions to B.C. ports totaled US $604 million compared to US $92 million for Washington State projects and US $1,006 million for California projects. The largest California project was the Gerald Desmond Bridge replacement, which received US $726 million in federal contributions. If this project is excluded, contributions to California Direct Port projects totaled only US $289 million from 2005 to 2020.

The distribution of funding for Direct Port projects by port from 2016 to 2020 is shown below. The largest recipients were the Ports of Vancouver and Prince Rupert.

Figure 7-2 Federal Funding for Direct Port Projects by Port 2016 - 2020



The figure below shows federal funding contributions for port-related infrastructure projects from 2005 to 2020. Key assumptions used in the comparison include:

- The Canadian total includes contributions awarded under multiple discretionary programs including the Asia Pacific Gateway and Corridor Initiative (2006-2017), Western Diversification (2007), National Infrastructure Component of the New Building Canada Fund (2017) and National Trade Corridors Fund (2017-2020). Funding amounts were converted to U.S. dollars based on average annual exchange rates.
- U.S. grants to Washington State projects included contributions from discretionary programs including TIGER-BUILD grants (2011-2020), FASTLANE-INFRA grants (2016-2020) and Port Infrastructure Development Grants (2020). Funding provided directly to the ports receiving federal discretionary grants (NWSA ports and the ports of Vancouver, Everett, and Bellingham) and to FAST Corridor projects after 2005 is included. Estimates of formula funding are based on analysis of data provided by WSDOT’s Local Programs office.

Contributions under Formula Funding have been allocated to the completion date of the project; for projects currently under construction, the contributions have been allocated to 2020.

- U.S. grants to California projects included contributions from discretionary programs including TIGER-BUILD grants (2011-2020) and Port Infrastructure Development Grants (2020). The largest port project undertaken over the last fifteen years was the replacement of the Gerald Desmond Bridge. The total project cost was US $1,561 million, and funding sources included US $726.6 million from various federal programs and a Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan of US $500 million to the Port of Long Beach.

Federal contributions identified for "Direct Port" projects under all other programs totaled US $279.2 million over the same period.

Figure 7-3 Federal Contributions to BC, Washington State and California Direct Port Projects 2005 - 2020

Federal Contributions to BC, Washington and California Ports 2005 - 2020				
	Total Federal Contributions US$ Millions 2005 - 2020	Total Federal Contributions US$ Millions 2016 - 2020	2016 - 2020 Tonnage (Million Tonnes)[18]	Federal Contributions US$ per Tonne 2016 - 2020
Port of Vancouver	$373.3	$231.7	563	$0.41
Port of Prince Rupert	$142.7	$100.1	132	$0.76
Other BC Ports	$44.4	$39.7	24	$1.63
Total BC Ports	$560.4	$371.5	719	$0.52
Northwest Seaport Alliance	$30.7	$10.7	176	$0.06
Other Washington Ports	$61.1	$34.6	29	$1.21
Total Washington Ports	$91.7	$45.3	205	$0.22
Port of Long Beach	$780.1	$36.5	581	$0.16
Port of Los Angeles	$71.8	$55.8		
Port of Oakland	$15.0	$0.0	82	$0.00
Other California Ports	$139.0	$86.7	43	$2.02
Total California Ports	$1,005.8	$178.9	1286	$0.14
California Ports excluding GDB	$279.2	$178.9	1286	$0.14

7.2 BC, Washington State and California Smaller Ports

The table below shows federal contributions to smaller B.C., Washington State and California ports from 2005 to 2020.

[18] U.S. port tonnage is estimated from U.S. Bureau of the Census statistics on port imports and exports. Port of Vancouver tonnage includes foreign cargo only.

Figure 7-4 B.C., Washington State & California Smaller Ports Federal Contributions 2005-2020

British Columbia Smaller Ports Federal Contributions				
Federal Program	**Lead Agency**	**Project**	**Year Awarded**	**Federal Grant US$ Millions**
APGCI	Nanaimo Port Authority	Nanaimo Assembly Wharf Rehabilitation SSS	2013	$4.5
APGCI	Port Alberni Port Authority	Port Alberni Transhipment Hub Study	2013	$0.2
NTCF	Nanaimo Port Authority	Nanaimo Vehicle Processing Centre (VPC)	2018	$4.9
NTCF	Nanaimo Port Authority	Duke Point Terminal - Phase 2/3 Expansion	2019	$34.8
	Total B.C. Ports			$44.4
Washington State and California Smaller Ports Federal Grants				
Federal Program	**Lead Agency**	**Project**	**Year Awarded**	**Federal Grant US$ Millions**
RLRI	Port of Vancouver	West Vancouver Freight Access	2009	$1.0
RLRI	Port of Vancouver	West Vancouver Freight Access	2009	$2.9
ARRA HSRIP	Port of Vancouver	West Vancouver Freight Access	2011	$12.6
TIGER	Port of Vancouver	West Vancouver Freight Access	2011	$10.0
TIGER	Port of Everett	Port of Everett South Terminal Modernization	2016	$10.0
BUILD	Port of Everett	Mills to Maritime Cargo Terminal	2020	$17.8
PIDP	Port of Bellingham	Bellingham Shipping Terminal Rehabilitation Project	2020	$6.9
	Total Washington State Ports			$61.1
TIGER	Ports of Oakland, Stockton, W. Sacramento	California Green Trade Corridor/Marine Highway Project	2009	$30.0
TIGER	Port of Hueneme	Terminal & Intermodal Improvement Project	2015	$12.3
TIGER	Port of San Diego	Tenth Avenue Marine Terminal Modernization Project	2015	$10.0
NHFP	Port of San Diego	National City Marine Terminal Rail Track Extension	2018	$0.6
NHFP	Port of San Diego	10th Ave Marine Terminal Beyond Compliance Environmental	2019	$5.6
PIDP	City of Antioch, CA	City of Antioch and AMPORTS, Inc., Ports Infrastructure Grant	2019	$21.9
PIDP	Port of Hueneme	(STACKED) Intermodal Project (Autos)	2020	$53.4
PIDP	Port of San Francisco	Pier Improvements	2020	$5.2
	Total California Ports			$139.0

The largest Canadian contribution was CD $46 million (US $35 million) to the Port of Nanaimo for expansion of the Duke Point Terminal which handles containers for a successful container-on-barge shortsea shipping service initiated by DP World in 2012.

Contributions to the Port of Vancouver Washington were provided to assist in the decade-long, US $250 million West Vancouver Freight Access program consisting of 21 individual projects to improve freight rail efficiency by facilitating unit train operations to the port.

Contributions to the Port of Everett included US $10 million to rebuild the South Terminal and US $17.8 million in 2020 to facilitate development of a new marine cargo terminal on the site of a former pulp mill.

The largest California contribution was US $53.8 million for the STACKED Intermodal Project (Autos) at the Port of Hueneme in 2020. Other significant California contributions including US $30 million for a short sea shipping project at the Ports of Stockton, Sacramento, and Oakland in 2009, and a US $21.8 million grant to the City of Antioch and AMPORTS, Inc. for an auto terminal project.

7.3 Port-Related Projects

Canadian federal contributions to B.C. port-related projects totaled CDN$ 556.8 million (US$ 556.8 million) over the five-year period from 2016 to 2020, compared to US $228.9 million in federal grants to port-related projects in Washington State and US $730.5 million for California projects. The Gerald Desmond Bridge project accounted for 46 percent of total California port-related funding.

The table below highlights federal funding for port-related projects from 2005 to 2020.

Figure 7-5 Federal Contributions to B.C., Washington State & California Port-related Projects 2005 – 2020

Federal Contributions to BC, Washington and California Port-Related Projects 2005 - 2020		
	Total Federal Contributions US$ Millions 2005 - 2020	**Total Federal Contributions US$ Millions 2016 - 2020**
Total BC Ports	$1,331.9	$556.8
Total Washington Ports	$457.0	$228.9
Total California Ports	$1,567.4	$730.5
California Ports excluding GDB	$840.8	$730.5