



**Pacific International
Terminals**

A Carrix Enterprise

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October 27, 2011

Jane Dewell, Regional Lead
Governor's Office of Regulatory Assistance
3190 160th Ave SE
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RE: Economic Benefits

Dear Jane,

SSA Marine is interested in accurately assessing the economic benefits that will be produced by the Gateway Pacific Terminal project and making this information available to the permitting agencies and the public.

As you may know, we previously retained the leading expert on the economic impacts of marine terminals, Martin Associates, of Lancaster, Pennsylvania. Martin Associates has conducted more than 500 port planning, economic and market studies, for nearly every port in the United States, including the Ports of Bellingham, Seattle, and Tacoma. Martin Associates also provides economic and planning studies for private marine terminals, ocean carriers, state and federal government agencies, and ports in Europe, Asia and the Caribbean. Martin's study of the Gateway project is the basis for the economic projections in the Project Information Document.

Knowing that the Martin analysis is based on modeling of marine terminals nationally, we also wanted to ascertain how the predictions of his industry models would compare to predictions of the more general economic models most commonly used in the local area. To do this, we retained three economists associated with Western Washington University who are considered leading experts locally.

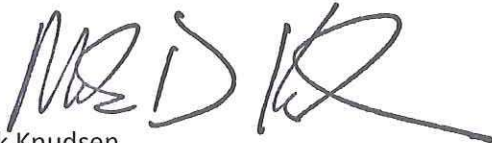
On Thursday, October 27, we are making public the results of this second analysis. The purpose of this letter is to convey to you this study, as well as the earlier study by Martin – which was updated this summer – so that you may have them available as you conduct the public environmental review process for the project. I'm also enclosing a short set of tables illustrating the key findings of the two studies.

I'm pleased to tell you that the regional economists, using different methodology, came to very similar projections in almost all cases. The one area of significant difference was in the matter of secondary employment during construction, where their results were lower. They explained that this was likely due to their different models, and that both models are valid. Although most

of the differences are slight, we have decided that for purposes of the project's communication with the public about the expected economic benefits, we will now use averages of the two studies where applicable.

We hope this additional study will contribute to an even stronger basis for the environmental work going forward. If you have any questions, of course, do not hesitate to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Knudsen', with a stylized, cursive script.

Mark Knudsen
Vice President, Business Development

Enclosures:

- THE PROJECTED ECONOMIC IMPACTS FOR THE DEVELOPMENT OF A BULK TERMINAL AT CHERRY POINT, Martin Associates (February 26, 2011)
- ECONOMISTS REVIEW OF MARTIN REPORT FINAL (October 24, 2011)
- ECONOMIC ANALYSIS COMPARISON SUMMARY (October 27, 2011)

THE PROJECTED ECONOMIC IMPACTS FOR THE DEVELOPMENT OF A BULK TERMINAL AT CHERRY POINT

July 2011

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THE PROJECTED ECONOMIC IMPACTS OF THE DEVELOPMENT OF A BULK TERMINAL AT CHERRY POINT

The purpose of this report is to measure the potential economic impacts for the development of a new bulk terminal located in Whatcom County, Washington State at Cherry Point. The analysis is based on the projected bulk throughput tonnage potential to be moved via a new bulk marine terminal and associated upland facilities on 1,092 acres of heavy impact industrial land located at Cherry Point, WA. The projected annual bulk cargo throughput was provided to Martin Associates by SSA Marine (SSA). The contemplated terminal is assumed to begin operations in 2015, with permitting to be completed in 2012 and construction to begin in 2013. A second phase will begin construction at operational start up and is projected to be completed within the first 5-7 years after the completion of the first phase, if favorable market conditions merit the capital investment. In the first phase, the terminal is projected to handle 25 million metric tons per year. The second phase will take the terminal capacity up to 54 million metric tons per year. The bulk tonnage will be moved to the terminal via unit trains from the Midwest and Canada. The economic impact of the projected bulk cargo throughput was evaluated using the Martin Associates' economic impact model developed as part of our recent study for the Ports of Seattle and Bellingham, as well as economic relationships between bulk throughput and maritime services (terminal operational levels, longshoremen productivity, freight forwarders, steamship agents, chandlers, etc.) developed from economic impact studies conducted by Martin Associates for major bulk ports such as Lake Charles, New Orleans, and Houston.

1. IMPACT METHODOLOGY

The movement of tonnage via the new terminal will contribute to the local and regional economies by generating business revenue to local and national firms providing vessel and cargo handling services. These firms, in turn, provide employment and income to individuals, and pay taxes to state and local governments. The impact of the port operations is not reduced to a single number, but instead, the operations of the Cherry Point bulk terminal will create several impacts. These are the revenue impact, employment impact, personal income impact, and tax impact. These impacts are non-additive. For example, the income impact is a part of the revenue impact, and adding these impacts together would result in double counting.

1.1 Business Revenue Impact

At the outset, activity at the new bulk terminal will generate business revenue for firms which provide handling and vessel services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and services, and to make Federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments or held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the local economy are those portions paid out in salaries to local employees, for local purchases by individuals and businesses directly dependent on the seaport, in contributions to state and local taxes, and in

lease payments and wharfage, dockage and handling fees.

1.2 Employment Impact

The employment impact of the current port operations and the proposed terminal consists of three levels of job impacts:

- . Direct employment impact - jobs directly generated by the movement of the bulk cargo via the terminal, as well as the current levels of business at the terminal. Direct jobs include jobs with the railroads moving cargo between inland origins and destinations and the marine terminal; members of the International Longshore and Warehouse Union (ILWU), tug assist operators; steamship agents; freight forwarders; surveyors; chandlers.
- . Induced employment impact - jobs that are created throughout the local economy because individuals directly employed by the activity at the port and proposed terminal will spend their wages locally on goods and services such as food, housing and clothing. These jobs are held by residents located throughout the region, since they are estimated based on local and regional purchases. Martin Associates has developed a Whatcom County specific induced model using data supplied by the US Bureau of Economic Analysis Regional Input-Output Modeling System (RIMS II), and US Bureau of Census data for the Bellingham Metropolitan Area.
- . Indirect jobs - jobs that are created locally due to purchases of goods and services by firms, not individuals. These jobs include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. The local purchases likely to be made by a major bulk terminal are based on relationships developed by Martin Associates for economic impact studies for the Ports of Seattle, Tacoma, Lake Charles, Portland, Vancouver, and New Orleans.

1.3 Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to handling the marine cargo. Re-spending of these earnings throughout the regional economy for purchases of goods and services is also estimated. This, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the region is estimated using a regional personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within the Whatcom County area. The direct earnings are a measure of the local impact since they are received by those directly employed by seaport activity.

1.4 Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported by (induced jobs) activity at the bulk terminal.

2. **KEY IMPACT ASSUMPTIONS**

As part of the development of the baseline economic impact model for the Port of Seattle (2008), the Port of Bellingham (2009) and the Port of Tacoma (2005), Martin Associates interviewed 1,610 local maritime service providers, including tug operations, pilots, freight forwarders and customhouse brokers, agents, surveyors, chandlers, and railroad.¹ Based on the data gathered during those interviews, as well as an updated induced impact model and local re-spending multiplier developed for this current terminal study, Martin Associates developed the baseline economic impact model used in this analysis. To model expected employment for the ILWU, freight forwarders/customhouse brokers, chandlers, ship repair operations, surveyors, environmental support firms, bunkering firms, etc., Martin Associates developed employment, revenue and income relationships from our previous economic impact studies conducted for key bulk operations at other ports throughout the United States. SSA provided the estimated terminal employment anticipated at the two phases were provided to Martin Associates at each phase of throughput. The ILWU category includes jobs generated by the loading and offloading of vessels at the terminal, mechanics, maintenance, and labor involved in loading and off-loading rail cars at the terminal.

Job impacts with rail are based on the data provided to Martin Associates by the BNSF railroad, and include crew jobs within Whatcom County, yard employees at the terminal, and maintenance and administrative overhead factors (also provided by BNSF). Rail revenue is estimated based on the portion of the rail rate allocated to the movements within Whatcom County.

3. **POTENTIAL ECONOMIC IMPACTS OF THE PROPOSED BULK TERMINAL**

Exhibit 1 summarizes the annual economic impacts of the bulk terminal in Phase I and Phase II, which is the completion of the terminal. The throughput assumptions were provided to Martin Associates by SSA. It is estimated that with a 25 million ton throughput per year during Phase I of the terminal development, the proposed terminal would support 863 total jobs to the Whatcom County economy annually. The 294 direct job holders are projected to earn \$29.5 million of direct wages for an annual salary of about \$100,300, in 2011 dollars. A total of \$91.1 million of direct wages and salaries, local consumption expenditures, and indirect wages and salaries are estimated to be generated annually with a 25 million ton bulk throughput. Businesses (railroads, terminal operations, agents, freight forwarders, tug operators, pilots, etc.) are projected to receive \$666.6

¹ The 2007 Economic Impact of the Port of Seattle, Prepared by Martin Associates, February 10, 2009; The Economic Impact of the Port of Tacoma, Prepared by Martin Associates, May, 2005; The Economic Impact of the Port of Bellingham, Prepared by Martin Associates, October 3, 2008.

million of annual revenue, and make \$12.0 million of local purchases annually (supporting the 116 indirect jobs annually). A total of \$8.1 million of state and local taxes are projected to be generated annually with the 25 million ton terminal throughput.

Exhibit 1
Annual Economic Impact of Bulk Exports

	Phase I	Full-Build Out
Jobs		
Direct	294	430
Induced	453	634
Indirect	<u>116</u>	<u>165</u>
Total	863	1,229
Personal Income (millions)		
Direct	\$29.5	\$40.8
Re-Spending and Local Consumption	\$56.5	\$78.2
Indirect	<u>\$5.1</u>	<u>\$7.3</u>
Total	\$91.1	\$126.3
Business Revenue (millions)	\$666.6	\$1,437.8
Local Purchases (millions)	\$12.0	\$17.1
State and Local Taxes (millions)	\$8.1	\$11.2

With the completion of Phase II and full-build-out, the terminal is projected to handle 54 million tons of bulk cargo. With this throughput, it is estimated that 430 direct jobs will be supported annually, with an average salary of \$94,900. The slightly lower average income at full build out reflects the change in the distribution of direct jobs at the build out of the terminal. At full build out with a 54 million ton throughput, the share of maritime service jobs and rail jobs increase at a greater rate than jobs with the terminal employees and members of the ILWU, as productivity at the terminal improves over time. In phase II, a total of 1,229 direct, induced and indirect jobs are projected to be generated within Whatcom County on an annual basis, and total (direct, induced and indirect) annual personal wage and salary income and local consumption expenditures are projected at \$126.3 million annually. With a 54 million ton throughput, businesses providing the services to the terminal are projected to earn \$1.4 billion annually, and make \$17.1 million of local purchases within Whatcom County annually. Finally, with the 54 million ton throughput, \$11.2 million of state and local tax revenue are projected annually.

The breakdown of the direct jobs by job category, by phase, is presented in Exhibit 2. As this exhibit shows, the largest employment impact within Whatcom County is projected to be with the members of the ILWU. At full build out, jobs with maritime services such as steamship agents, freight forwarders, surveyors, and chandlers show the next largest impact.

Exhibit 2
Distribution of Projected Direct Jobs by Category

Categories	Direct Jobs/Phase I	Direct Jobs/Full Build-Out
Railroads	46	66
Terminal Operators	29	44
ILWU	170	213
Pilots/Tugs	17	36
Maritime Services	32	71
Total	294	430

In addition to the projected annual impacts generated by the throughput of the proposed terminal, SSA estimates that the Phase I construction cost of the terminal is \$536 million excluding cost of equipment. These purchases will be made in Whatcom County. Using data from the US Bureau of Economic Analysis, Regional Input-Output Modeling System for Bellingham/Whatcom County, it is estimated that the \$536 million of direct construction expenditures (excluding capital expenditures) will support 7.4 million personhours hours of direct construction employment over the period of construction. In addition, 10.1 million personhours of indirect and induced labor will also be supported over the construction period, as the result of purchases by the construction industry to local suppliers and supporting industries within Whatcom County. Associated with these direct, induced and indirect construction jobs are a payroll of \$331.0 million and an additional \$503 million of local purchases for construction supplies and support services. In addition to the jobs, income and local purchases impacts associated with the Phase I construction program, a state and local tax impact of \$74.4 million is projected. This includes the application of the sales tax on the initial construction expenditures. It is to be emphasized that the timing of the construction expenditures on an annual basis will result in varying levels of job, income, local purchases and tax impacts created annually over the construction period.

In phase II of the construction period, an additional \$121 million of construction and material expenditures will be made in Whatcom County. These additional expenditures will support 1.8 million direct personhours during the Phase II construction, and an additional 2.4 million of induced and indirect jobs in the County. The construction activity will also generate \$80 million of direct, induced and indirect wages and salaries over the Phase II construction period, along with an additional \$121 million of local purchases. Finally, the Phase II construction is projected to generate \$18.0 million of state and local taxes over the Phase II construction phase.

In total, the \$665 construction expenditures over the two phases of the project will support 21.7 million direct, induced and indirect personhours, \$411 million of direct, induced and indirect wages and salaries, and additional \$624 million of intermediate local purchases and \$92.4 million of state and local tax revenue. The timing of these impacts occur only during the construction period

and will not be ongoing as will the impacts created by the operation of the marine terminal.

These impacts are summarized in Exhibit III.

Exhibit III
Economic Impacts to Whatcom County
of the Construction of the Marine Terminal

	Phase I	Phase II	Total
Jobs (personhours)			
Direct	7,406,880	1,782,560	9,189,440
Induced/Indirect	<u>10,096,320</u>	<u>2,429,440</u>	<u>12,525,760</u>
Total	17,503,200	4,212,000	21,715,200
Personal Income (millions)			
Direct	\$140.0	\$34.0	\$174.0
Re-spending/Indirect	<u>\$191.0</u>	<u>\$46.0</u>	<u>\$237.0</u>
Total	\$331.0	\$80.0	\$411.0
Revenue (millions)	\$536.0	\$129.0	\$665.0
Local Purchases (millions)	\$503.0	\$121.0	\$624.0
State/Local Taxes (millions)	\$74.4	\$18.0	\$92.4

KEY ASSUMPTIONS

The baseline impact model used in this analysis of a bulk terminal development at Cherry Point is based on interviews with 1,610 marine services providers, developed from Martin Associates' economic impact studies for the Port of Seattle, the Port of Tacoma and the Port of Bellingham. These interviews were used to form the basic model used in this study. The key assumptions used to calibrate the economic impact model are as follows:

- Throughput of 25 and 54 million metric tons of dry bulk cargo;
- The average ship load is 130,000 tons per vessel call;
- 2 pilots will be assigned each vessel one way transit;
- 2 tugs will be assigned each vessel one way transit;
- Terminal employment was provided by SSA for each cargo throughput level;
- Agency fees are estimated from interviews for each vessel call, as part of the Port of Seattle and Port of Tacoma impact studies;
- Charges and fees per ton for various maritime services have been derived from our Port of Seattle and Port of Tacoma impact models, which are based on the results of surveys of the 1,610 marine services providers;
- Average salary for each job category included in the model have been developed from the interviews with the marine services firms conducted as part of the Port of Seattle, Port of Tacoma, and Port of Bellingham economic impact studies. Specific salary ranges were provided for terminal employees and the ILWU by SSA;
- Rail will be used to move the bulk to the Cherry Point Terminal. Rail yard employment, crew size, average revenue per ton and rail distance traveled within Whatcom County was provided by BNSF.
- Appropriate terminal charges, rail rates, and tug and pilot charges were developed from interviews and are confidential, but included in the model analysis.

Martin Associates (John C. Martin Associates, LLC) was founded in 1986 by Dr. John Martin to provide personalized consulting services to the port and maritime industries. These services include:

- Economic Impact Analyses –seaports, airports, shipyards, waterfront real estate development;
- Economic and Financial Feasibility Analyses of Capital Intensive Projects;
- Market Analysis;
- Port Master Planning/Strategic Planning;
- Litigation Support and Expert Witness Testimony;
- Ocean Carrier Cost Analysis and Fleet Deployment Strategies;
- Commodity Flow Analyses and Forecasting;
- Surface Transportation Cost Analysis;
- Intermodal Analysis and Rail/Port Interface Planning; and
- Facilities Planning and Analyses.

Martin Associates has conducted more than 500 port planning, economic and market studies for nearly every port in the United States. Martin Associates also provides economic and planning studies for private marine terminals, ocean carriers, state and federal government agencies, and ports in Europe, Asia and the Caribbean.

Martin Associates has developed more than 300 economic impact studies for ports and port systems throughout the United States and Canada, including:

<i>Boston</i>	<i>Pittsburgh</i>	<i>Portland, OR</i>
<i>Bellingham</i>	<i>Montreal</i>	<i>Brunswick, GA</i>
<i>Baltimore</i>	<i>Providence, RI</i>	<i>Seattle</i>
<i>Philadelphia</i>	<i>Quonset Point, RI</i>	<i>Oakland</i>
<i>Virginia Port Authority</i>	<i>Houston</i>	<i>Tacoma</i>
<i>Richmond, VA</i>	<i>Beaumont/Port</i>	<i>Portland, OR</i>
<i>Wilmington, NC</i>	<i>Arthur/Orange</i>	<i>Everett, WA</i>
<i>Morehead City, NC</i>	<i>Brownsville</i>	<i>San Diego</i>
<i>Port Everglades</i>	<i>Freeport, TX</i>	<i>Vancouver, WA</i>
<i>Tampa</i>	<i>Victoria, TX</i>	<i>Vancouver, BC</i>
<i>Jacksonville</i>	<i>Los Angeles</i>	<i>Windsor, ON</i>
<i>Palm Beach</i>	<i>Long Beach</i>	<i>Thunder Bay, ON</i>
<i>New Orleans</i>	<i>San Francisco</i>	<i>Saint John, NF</i>
<i>Baton Rouge</i>	<i>Corpus Christi</i>	<i>Prince Rupert, BC</i>

These port impact studies have become integral as planning tools, in addition to the traditional public relations use of impact studies. The major reason that these impact models have become planning tools is the fact that the underlying analysis is based on a detailed assessment of each port's operations, and no macro port impact models are used. Each port is unique and our models reflect the uniqueness of each port. Hence, the results of the models are highly defensible and the direct economic impacts estimated can be traced to the individual firm level of detail.

The following examples highlight how the Martin Associates economic impact models have been used for port planning and the justification of capital development projects:

- ***Assess the impact of new marine facilities construction*** - The Port of Seattle impact model was used to justify the purchase of additional land to expand American President Lines' Terminal, and to further estimate the future economic impacts that will be generated by this state-of-the-art marine terminal. The Port of Seattle model was also used to assess the impact of future breakbulk and container tonnage forecasts and the associated need for new breakbulk warehouse space at Seattle. For the Maryland Port Administration, we used the impact model to assess the impacts of a new state-of-the-art automobile terminal -- the Masonville Terminal. For the Port of Houston, we completed the economic impact analysis of the Bayport Container Terminal for use by the Corps of Engineers in assessing the economic benefits and costs of that project.
- ***Measure the economic impacts of channel dredging*** - The Port of Oakland Economic Impact Model was used to assess the impacts of dredging the Inner Harbor area of the San Francisco Bay. For the US Army Corps of Engineers, Martin Associates used our Port of Richmond (VA) economic impact model to measure the economic impact of widening and deepening the James River. For the Maryland Port Administration we identified the potential lost cargoes if maintenance dredging is not continued, and using our Port of Baltimore Economic Impact Model, we translated the potential "at risk" cargo and ocean carriers into potential economic impact losses to the region. The potential negative impacts of not continuing the maintenance dredging were then allocated to state legislative districts to be used in lobbying efforts by the Maryland Port Administration.
- ***Assess the impact of intermodal facilities development*** - The Martin Associates' Port of Philadelphia's impact model was used to measure the impact of increased use of rail at the Port's new intermodal rail yard for container moves to and from the port. The Martin Associates' Port of Oakland model was recently used to assess the potential impact of the loss of intermodal traffic and transload traffic.
- ***Allocate port investments*** - For the Port of Portland (OR), Martin Associates developed separate impact models for each of the Port's lines of business: seaport, airport, shipyard and real estate development. The impact models are then used to assess the impact of alternative capital investment in airport vs. seaport vs. shipyard vs. real estate development. The Port of Portland is now using the impact models to identify the jobs, income and revenue impacts associated with

each Port investment. The results are used in the Port's annual report to describe the economic importance of the investments made by the Port over the fiscal year.

A similar set of models of seaport and airport operations and real estate development on port-owned land was developed by Martin Associates for the Port of Seattle and the Port of Oakland. These models are used on a continual basis to assess the relative economic impacts of various types of seaport, airport and real estate projects all competing for limited port funds. The Port of Seattle has incorporated the use of the impact models in its overall planning process, and will, as part of their long-term business plan, use the models to evaluate the economic benefits of each proposed capital project.

- ***Rank facilities investment plans*** - The Port of Philadelphia impact model was used in Martin Associates' Marine Facilities Development Strategy Study for the Commonwealth of Pennsylvania. The model was used to rank recommended facilities investment projects in terms of job and income generation. A similar approach was used to assess each recommended master plan strategy and investment in our Port Everglades Master Plan Study, the North Carolina State Ports Authority Capital Development Master Plan and our completed Master Plan for the Port of Baltimore.
- ***Assess alternative waterfront land development*** - The Martin Associates' real estate and maritime models are being used by the Port of Portland (OR), the Port of Vancouver (WA), the Port of Seattle, the Port of Oakland, the Port of San Francisco, and the Port of Longview to assess alternative development of waterfront land. For example, the models are used to assess the impact of future marine terminal development vs. industrial or commercial development of the waterfront land. In Oakland, the impact model was used to assess the impact of developing a resort hotel vs. reserving the land for future maritime uses. In Seattle, the impact models have been used to assess the impact of developing a parcel of land as a container facility or a ship repair yard, as well as the development of the Central City Waterfront, including a museum, hotel, restaurant, world trade center and condominium development.

We completed an analysis of riverboat gambling for the Port of Philadelphia, and the impact models were used to assess the relative economic benefits of marine terminal operations vs. riverboat gaming and hotel development.

- ***Justify investments in cruise terminal development*** - The Martin Associates' cruise service impact methodology was used at the Port of Baltimore to evaluate the economic impacts of cruise service on the local and regional economies. Impacts of passengers and crew in the local and regional tourism industry were also estimated, as part of this study. We also developed a detailed cruise industry model for Port Everglades which is used with our seaport impact model for Port Everglades to assess the relative economic benefits of cruise operations vs. cargo operations. This is of critical importance to Port Everglades since the Port is both land and berth constrained. We also developed a cruise impact model as part of our overall impact study for the

Port of Houston Authority, as well as for the Port of Seattle, Port of San Francisco, Port of Los Angeles, and the Port of Philadelphia.

- ***Evaluate alternative marine terminal designs*** - The Martin Associates' seaport impact models are also used to assess alternative designs of marine terminals. We develop the economic impacts of a terminal based on dedicated uses of the terminal. For example, for a given terminal we can compare the jobs, income and port revenue that would be created under full-utilization if the terminal were used for a mixed use terminal (containers, breakbulk, RO/RO), or a dedicated auto terminal or bulk terminal or cruise terminal. Given the fact that the demand exists for each of the terminal uses, it is possible to use the impact models to assess the economic development benefits of each terminal alternative and to further lobby for port development financing.
- ***Measure the economic impacts of shipbuilding and ship repair activity*** - Martin Associates has developed detailed ship building and repair economic impact models that are used to measure the jobs, revenue, income and tax impacts of shipyard activity, by type of activity – new building, ship and barge repair, modular construction, military versus cargo versus passenger ships, etc. These models have been developed for shipyards at the Port of Portland, Port of Seattle, Port of San Francisco, Port of Erie and the Port of Philadelphia. We have used the shipyard model to estimate the economic impacts of the opening of a new shipyard (Meyer Werft Yard) in Philadelphia, as well as to monitor the ongoing dry-docking activities at the Port of San Francisco owned shipyards.
- ***Assess the impacts of a work shutdown at West Coast Ports*** - For the Pacific Maritime Association (PMA), Martin Associates conducted an assessment of the economic impact of containerized cargo at West Coast Ports. The models developed for Seattle, Tacoma, Portland, Oakland, Los Angeles, and Long Beach were then used in a detailed analysis of the potential impacts of a work slowdown or strike (in July of 1999) by the International Longshore and Warehouse Union (ILWU). The results of the analysis were used by the Governor of California, the Council of Economic Advisors and the White House to evaluate the impact on the national economy of the possible strikes, and to formulate a plan to resume normal working practices.
- ***Assess the economic impacts of the Marine Transportation System*** - Martin Associates recently completed an evaluation of the economic impacts created by the nation's coastal ports, inland waterways, cruise industry, commercial fishing, passenger ferry service, and recreational boating. The report, which was prepared as an issue paper on behalf of the National Advisory Council, Marine Transportation System, was submitted to Vice President Richard Cheney. The issue paper sets out the economic benefits of the Marine Transportation System, and further identifies key investment needs of both coastal ports as well as inland river ports that will be needed over the presidential term. This report served as the basis for the Secretary of Transportation's address to the AAPA Spring Conference on March 20, 2001.

- ***Impact of Section 201 Steel Import Quota*** - Martin Associates completed the economic impact assessment of steel import restrictions as part of the maritime industry's response to the Section 201 steel import hearings. The results of the study were presented before the International Trade Commission and the report served as the key document describing the importance of the steel imports on the US Maritime Transportation System. The report was presented to the Council of Economic Advisors and President Bush.
- ***Impact of 2002 West Coast Port Shutdown*** - Our impact analysis of the West Coast port shutdown in September, 2002 was a key input into the decision by the President to enact the Taft Hartley Act. As part of this process, Martin Associate's impact models and methodology was reviewed by the Council of Economic Advisors and the Board of Governors of the Federal Reserve. Currently, Martin Associates is measuring the actual economic impacts of the recent port closure on all aspects of the logistics supply chain of the port closure.
- ***Impact of Port Systems*** - With respect to the impact of port systems, Martin Associates has developed the Great Lakes Economic Model of the St. Lawrence Seaway Development Corporation. This model, last updated in 2002, consists of 13 individual port impact models. Using these models, it is possible to assess the comparative economic impact of specific investments and changes in operational characteristics at each port as well as at the port system level.

Martin Associates developed a similar set of port system models for the Canadian Ports Corporation, which was used by Ports Canada to assess and compare investments at each of the ports within the Canada Ports Corporation System.

- ***Pacific Maritime Association*** - Martin Associates has developed container terminal-specific models to assess the economic impacts of the West Coast container operations. These models, being terminal specific, allow the PMA to assess future ILWU labor demands based on forecasts developed by Martin Associates for each terminal, to assess the impacts of grounded vs. stacked operations at each terminal, and to assess the impacts of work slowdowns and port shutdowns.
- ***Port of New Orleans*** - Martin Associates completed the economic impact analysis of the Port two days before the Port was devastated by Hurricane Katrina. The resulting impact model was used to demonstrate the economic importance of New Orleans and the Lower Mississippi River Ports to the nation's economy, and was instrumental in securing the initial FEMA funding to assist the Port's recovery.
- ***Economic Impact of the US Ports Industry, 2006-2007*** – For the American Association of Port Authorities, Martin Associates prepared an economic impact analysis of international cargo activity at the US ports. This study has provided the foundation for the AAPA for responses to specific policy issues.

- ***Economic Impact of the Containerized Shipping Industry, 2007*** - For the World Shipping Council, Martin Associates has just completed an economic impact analysis of containerized cargo activity handled at US ports in calendar year 2007. This report will form the basis for the WSC responses to policy issues impacting international container shipping.

With respect to ***cruise impact analysis***, Martin Associates has developed cruise impact models for the Ports of Los Angeles, San Francisco, Seattle, Port Everglades, Jacksonville, Tampa, Baltimore, Norfolk and Philadelphia. These models are used to show the impact of current cruise service operations, as well as to provide a tool by which changes in vessel deployment, vessel size and market demographics can be measured. The cruise models are also used with the cargo models to evaluate alternative uses of waterfront land for cargo or cruise terminal development. Such an analysis was recently conducted by Martin Associates at the Port of Jacksonville to assist the Commissioners in making strategic decisions as to the development of a cruise terminal that could impact both containerized cargo and auto operations.

We also use a derivation of this model to assess the impacts of ferry operations, including the Washington State Ferry operations, as well as San Francisco Bay ferry operations and the impact of potential ferry operations on the Great Lakes.

Martin Associates has developed a detailed model of ***commercial fishing activity*** at the Port of Seattle's Fishermen's Terminal and Elliott Bay, and a similar commercial fishing and fish processing economic impact model for the Port of San Francisco and the Port of Los Angeles. The models are used to assess the impacts of changes in the composition of the commercial fishing fleet. We have also measured the economic impacts of commercial fishing activity at the Port of Boston, the Port of Victoria, TX and the Port of Port Lavaca, TX.

As part of our economic impact study of the Marine Transportation System conducted for the National Advisory Council of the Marine Transportation System (MARAD) (which was presented to the Bush Administration in 2000), Martin Associates developed a more refined model to measure ***the impacts of recreational boating***. The model not only addresses the local employment at marinas and support services at the marinas, but also the impact of local purchases to support the recreational boating operations. These include repairs and supplies, retail purchases as well as storage. We used a similar model of recreational boating on our economic impact studies for the Port of San Francisco marinas, as well as for the Port of Los Angeles marinas, the Port of Tacoma marinas, the Port of Seattle marinas and the Port of Everett marinas.

With respect to channel ***deepening and the justification of continued maintenance dredging***, Martin Associates has developed the economic benefits analysis of maintenance dredging of the Texas City Ship Channel, the maintenance dredging benefits of Port Freeport, the economic benefits of channel widening for an LNG facility at the Port of Freeport, and the economic benefits of maintaining the Houston Ship Channel. We also developed the economic benefits analysis of the Matagorda Ship Channel at Port Lavaca, as well as an economic impact study of the cargo activities at Port Lavaca –Point Comfort. For the Port of Brownsville, we recently conducted an economic

impact study of the Port as well as an economic benefits analysis of maintaining the shipping channel and deepening the channel to accommodate not only Panamax size vessels for steel slab, but also to accommodate large oil rigs that are maintained and repaired by one of the Ports tenants. With respect to other economic studies evaluating the economic benefits of channel maintenance dredging, we have recently developed the economic benefits of maintaining the C&D Canal at its current depth and developed a similar economic benefit cost analysis of maintaining the Port of Baltimore's main shipping channel at 50 ft.

Martin Associates has also developed a similar methodology to evaluate the economic impacts associated with ***industrial and commercial real estate development***. This methodology has recently been used to measure the economic impacts of industrial and economic development at numerous seaports throughout the United States. The real estate impact methodology has been used to quantify the economic impacts of real estate development by the Ports of Portland, Seattle, Los Angeles, San Diego, Tampa and San Francisco. The resulting real estate impact model developed for these Ports allows for the estimation of the potential economic impacts of alternative waterfront and non-waterfront land developments and compares these developments with cargo and passenger uses.

Martin Associates has developed a similar approach to measure the economic ***impacts of shipyard activity***. The methodology measures the jobs, income, revenue and tax impacts generated by new construction and repair work at shipyards. The impacts are estimated by industry segment (i.e., tankers, cargo ships, barges, Navy/Coast Guard, MARAD, oil modules, etc.) and by type of work (i.e., new construction, repair, dry dock, topside, etc.). The model allows the direct comparison of shipyard activity with the impacts of seaport, airport and other industrial activity. The shipyard model has been used to assess the economic impacts of shipyard activity in Seattle, Portland (Oregon), and Port Angeles, to assess the potential for locating a barge and tug construction yard in Pittsburgh, and to assess the economic impacts of a proposed shipyard (by Meyer Werft) specializing in cruise ship construction at the site of the Philadelphia Naval Yard. Within the last year, we have recently used this analysis to estimate the economic impacts of ship repair and new construction activity at the shipyards in Tampa and Mobile.

Finally, Martin Associates provides similar economic impact services to the majority of the ***nation's airports***, including the Van Nuys Airport (current), San Francisco International Airport, Oakland International Airport, Sacramento International Airport, San Jose International Airport, Sea-Tac International Airport, Portland International Airport, Miami International Airport, Washington-Dulles and Washington Reagan National Airport, Baltimore-Washington International Airport, Hartsfield-Atlanta International Airport, Minneapolis-St. Paul International Airport, and the Milwaukee International Airport.

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October 24, 2011

Review of Martin Associates Economic Impact Study

Prepared by: Jedidiah W. Brewer, Ph.D., Hart Hodges, Ph.D., and David M. Nelson, Ph.D.

We have been asked by the management at SSA Marine to review the Economic Impact Study for the Gateway Pacific Terminal in Whatcom County, Washington state at Cherry Point prepared by Martin Associates in Lancaster, PA. The Martin Associates impact study is titled *The Projected Economic Impacts for the Development of a Bulk Terminal at Cherry Point* and was prepared on February 16, 2011. Table 1 contains an executive summary of our findings compared to Martin Associates'. Our respective findings and methodologies are then discussed in detail.

In brief, we find Martin Associates' estimates of the economic impact of the Gateway Pacific Terminal to be reasonable. Our analysis projects qualitatively similar direct employment impacts for the Construction of Phase I of the terminal and for total employment resulting from the Operation of Phase I of the terminal; however, we do diverge some on the induced and indirect employment impacts generated by the Construction of Phase I of the project. This difference most likely is attributable to different input-output models used by Martin Associates and us. Martin Associates and we both used nationally recognized and respected input-output models to estimate indirect and induced impacts. Input-output models are known to yield different results at times. Accordingly, the conservative reader could use our indirect and induced estimates as his or her preferred impact projections. The more optimistic reader could use Martin Associates'.

We want to emphasize that we have only been asked by SSA Marine management to corroborate and verify Martin Associates' findings of the employment impacts of the project. We make no attempt to determine the project's overall net benefits.

Executive Summary -- Table 1
Comparison of Our Analysis to Martin Associates' for the Construction of Phase I

Jobs*	Martin Associates	Our Analysis
Direct	1,781	1,648
<i>Variance from Martin Associates</i>	--	-7.5%
Employ. Multiplier	2.36	1.80
Induced/Indirect	2,427	1,318
<i>Variance from Martin Associates</i>	--	-45.7%
Total	4,208	2,966
<i>Variance from Martin Associates</i>	--	-29.5%

*Jobs are workers hired per year, assuming a 2-year construction period and that labor is smoothed out so that the number of workers utilized in the first year is the same as the second.

Comparison of Our Analysis to Martin Associates' for the Operation of Phase I

	Martin Associates	Our Analysis -- BEA	Our Analysis -- IMPLAN
Employment Multipliers	2.93	~2.8	2.96

Summary of Martin Associates Report

Martin Associates was provided by SSA Marine management key project specifications regarding the Gateway Pacific Terminal. In particular, Martin Associates was informed the Gateway Pacific Terminal project would be broken down into 2 main parts:

1. The Construction Phase. The construction phase, itself, would be broken down into two parts: Phase I provides for terminal throughput capacity of 25 million metric tons per year. Phase II, to be completed after Phase I is up and operational, will provide an *additional* 29 million metric tons per year. Phase II, when completed, will bring the total terminal capacity up to 54 million metric tons.

SSA Marine management estimates Phase I will cost \$536 million in direct construction expenditures (these expenditures do not include the purchase of equipment from areas outside Whatcom County). The \$536 million, therefore, represents the amount of expenditures expected to take place in the local community.¹ Martin Associates was asked by SSA Marine management to focus on local economic impacts only.

Based on the \$536 million SSA Marine construction expenditure assumption, Martin Associates used a proprietary model to find the number of person-hours of employment (direct, indirect, and induced) Phase I will support.

Martin Associates abstained from converting person-hours into "jobs" because the length of the construction project is uncertain. We agree with Martin Associates' decision to leave employment impacts in person-hours since one generally measures jobs on an annual basis and in this case the number of years has not been clarified. It is thought, however, by SSA Marine management that construction of Phase I would likely last about two years, but is nonetheless unknown. The person-hours number, while more difficult for a typical person to interpret, does more accurately specify the employment impact. Martin Associates could convert person-hours directly into worker-years (i.e. the number of workers it would take to build the project in one year), which can be used as well in place of the number of "jobs" and would make the findings generally more interpretable.

¹ The \$536 million in expenditures can equivalently be thought of as revenue since every transaction has both a buyer and a seller.

SSA Marine management further estimates Phase II of the project will cost \$129 million in direct construction expenditures. Martin Associates again used its proprietary model based on this assumption to find the number of person-hours of employment Phase II of the project will support.

Table 2 below lists the relevant Martin Associates findings.

Table 2
Martin Associates Findings of Economic Impacts
from Construction of Gateway Pacific Terminal

Jobs (personhours)	Phase I	Phase II	Total
Direct	7,406,880	1,782,560	9,189,440
Induced/Indirect	<u>10,096,320</u>	<u>2,429,440</u>	<u>12,525,760</u>
Total	17,503,200	4,212,000	21,715,200
Personal Income (millions)			
Direct	\$140.0	\$34.0	\$174.0
Re-spending/Indirect	<u>\$191.0</u>	<u>\$46.0</u>	<u>\$237.0</u>
Total	\$331.0	\$80.0	\$411.0
Revenue (millions)	\$536.0	\$129.0	\$665.0
Local Purchases (millions)	\$503.0	\$121.0	\$624.0
State/Local Taxes (millions)	\$57.0	\$13.8	\$70.8

2. The Operating Phase. Martin Associates secondly estimated the employment impacts of the operation phase of the Gateway Pacific Terminal. Table 3 contains the estimated number of jobs (direct, induced, and indirect) created in the operating phase on an annual basis. The operating phase is broken into two parts itself (Phase I and Phase II) representing the respective throughput capacities.

Table 3
Martin Associates Findings of Economic Impacts
From Operation of Gateway Pacific Terminal

Jobs	Phase I	Phase II
Direct	294	430
Induced	453	634
Indirect	<u>116</u>	<u>165</u>
Total	863	1,229
Personal Income (millions)		
Direct	\$29.5	\$40.8
Re-Spending and Local Consumption	\$56.5	\$78.2
Indirect	<u>\$5.1</u>	<u>\$7.3</u>
Total	\$91.1	\$126.3
Business Revenue (millions)	\$666.6	\$1,437.8
Local Purchases (millions)	\$12.0	\$17.1
State and Local Taxes (millions)	\$8.1	\$11.2

Table 4 details the direct jobs created by job-type found by Martin Associates.

Table 4
Martin Associates Findings of Direct Jobs Created
by Job-Type from Operating the Gateway Pacific Terminal

Categories	Direct Jobs/Phase I	Direct Jobs/Phase II
Railroads	46	66
Terminal Operators	29	44
ILWU	170	213
Pilots/Tugs	17	36
Maritime Services	<u>32</u>	<u>71</u>
Total	294	430

Our Thoughts on Martin Associates' Findings

Our objective was to explore the Martin findings and either add assurance by corroborating the findings' reasonableness or refute them. Since the project is divided up into two parts – construction and operation – we will focus our analysis accordingly. In short, we find Martin Associates' estimates of the economic impact of the Gateway Pacific Terminal to be reasonable.

1. Construction Phase. As depicted in Table 2 and discussed above, Martin Associates offers that there will be 7.4 million person-hours of direct activity during Phase I of the construction phase, based on the \$536 million in local construction spending assumption. Table 2 also implies an *employment multiplier* (how many induced and indirect person-hours of employment are created from each direct person-hour of employment) of 2.36. Martin Associates used the RIMS II² multiplier for construction activity in Whatcom County that is prepared by the Bureau of Economic Analysis. Martin Associates found the total multiplier for construction to be about 16 per million of construction sales. It then multiplied this by the respective construction expenditures reported by SSA Marine's management. Induced and indirect jobs were backed into using the final demand job multipliers used by RIMS II for all of Washington State. The Whatcom county multiplier is what produced the total construction jobs.

We used IMPLAN³, an economic impact modeling system, in an attempt to replicate Martin Associates' findings. IMPLAN, among other things, allows the researcher to choose the appropriate project classification and predict the number of direct, induced, and indirect jobs that will be created. One advantage of IMPLAN over the BEA's RIMS II multipliers is that it has a production function built into the model that allows the researcher to completely calculate the direct employment impact from a given dollar of expenditure. Martin Associates, using the RIMS II multipliers, needed to back into this number.

We entered \$536 million (the assumption of construction expenditures provided by SSA Marine management) into IMPLAN and used the category "construction of new nonresidential structures." The program yielded 3,295 average worker-years of direct employment (note: IMPLAN shows the average worker-years rather than person-hours). If we assume 2,080 hours worked per year on average,⁴ our 3,295 average worker-years equates to 6.9 million person-hours of direct employment created. This is about 0.5 million person-hours lower than Martin Associates' finding of 7.4 million person-hours or about 7.5 percent. So our findings are reasonably similar. Our employment multiplier, however, is only 1.80 compared to Martin Associates' implied employment multiplier of 2.36. We, thus, find total employment created from the construction of Phase I of the terminal to be lower than Martin Associates' findings. So it is possible that the induced/indirect employment estimates obtained by Martin Associates are a bit high. However, we need to emphasize that the IMPLAN category we used may not exactly fit the project at hand. The construction of a shipping terminal, in particular, may involve more workers than the construction of typical non-residential structures, may include higher paying jobs, and possibly more business-to-business expenditures (thereby giving it a larger multiplier).

² RIMS is a Regional Input-Output Modeling System produced by the Bureau of Economic Analysis, a division of the US Department of Commerce. The Bureau of Economic Analysis is the department that calculates US Gross Domestic Product numbers, among other national and regional estimates.

³ IMPLAN (IMPact analysis for PLANning) is an economic impact modeling system. It can be used to create complete, detailed Social Accounting Matrices and Multiplier Models of local economies. IMPLAN was developed in 1993 by Scott Lindall and Doug Olson as part of their work with the University of Minnesota. Today it is a nationally recognized input-output model used by many researchers.

⁴ If a person works on average 40 hours a week over a 52 week year (the equivalent of a full-time job) it equals 2,080 hours worked in one year.

As a robustness check, we modified the IMPLAN category to “construction of nonresidential manufacturing structures.” This yielded qualitatively similar results to when we used the “construction of new nonresidential structures” described above.

We should emphasize that differences between our estimates and Martin Associates’ could persist, even if our category selections are similar, because of the different input-output models used to find the induced and indirect employment impacts. Martin Associates used the RIMS II input-output model produced by the Bureau of Economic Analysis. We used IMPLAN’s input-output model. There are underlying differences in how these two models are constructed that could explain the discrepancies in our respective findings of the magnitude of the employment multiplier for construction of Phase I. IMPLAN relies on coefficients calculated with national data when describing the interdependencies in a region’s economy. BEA uses a slightly different approach to calculate the coefficients and multipliers. In short, the different models tend to provide similar multipliers but differences can and do arise. We should say, though, that both BEA RIMS II and IMPLAN are nationally recognized and respected input-output models. Researchers across the country use both of these models to estimate economic impacts for a variety of projects on a regular basis. We feel both models are valid.

Table 5 lists our findings for the economic impacts of the construction phase derived from IMPLAN and places them next to those of Martin Associates derived from BEA’s RIMS II. The table also shows the percentage difference between our findings and Martin Associates’. Overall, our direct employment impacts for the construction phase are reasonably similar to Martin Associates’ but our induced and indirect impacts are smaller. The conservative reader could view our results as a lower bound on the projected employment impacts to be generated from the construction of Phase I of the terminal. Even if a lower bound, our analysis still suggests that the construction of Phase I of the terminal would create about 3,295 worker-years of *direct* employment and approximately 5,931 worker-years of *total* employment in the local area. If the project were to take two years to complete, as expected by SSA Marine management, it would equate to the creation of 2,966 annual, local jobs for two years. To put this number in local context, at the end of February 2011, Whatcom County had 9,990 unemployed persons according to the Washington State Employment Security. The temporary jobs created by the construction of the terminal, therefore, are equivalent to roughly 30 percent of the total unemployed capacity in our county.

Table 5
Comparison of Our Analysis to Martin Associates’ for the Construction of Phase I

Jobs (person-hours)	Martin Associates	Our Analysis
Direct	7,406,880	6,853,600*
<i>Variance from Martin Associates</i>	--	-7.5%
Employ. Multiplier	2.36	1.80
Induced/Indirect	10,096,320	5,482,880
<i>Variance from Martin Associates</i>	--	-45.7%
Total	17,503,200	12,336,480
<i>Variance from Martin Associates</i>	--	-29.5%

*Assumes 2,080 hours worked per year on average. This is the total hours an individual would work in one year when averaging 40 hours per week over 52 weeks.

2. Operating Phase. We also attempted to replicate Martin Associates economic impact estimates for the operation of Phase I of the Gateway Pacific Terminal. Martin Associates used a proprietary model based on its experience with other port projects throughout the world and based on inputs obtained from SSA Marine and Burlington Northern Railroad management. In general, we find Martin Associates’ findings of the direct employment and personal income generated from the operation of the terminal to be well-done. Martin Associates used inputs about terminal capacity, rail rates, number of cars per train, number of rail crew at the terminal, number of rail miles per train cycle, expected worker salaries, etc. to “add up” how many workers are needed to operate and support the terminal at a given capacity and calculate these workers’ total salaries. Its proprietary model for calculating the direct effects, therefore, is fairly straightforward and formulaic. Martin Associates then used these direct impacts to calculate the induced and indirect employment impacts and personal income effects.

We took Martin Associates’ direct impacts as given and focused on replicating the induced and indirect jobs or employment multiplier. Martin Associates shows direct employment from the operation of Phase 1 to be 294 jobs with an implied employment multiplier of 2.93 (see Table 3).

We called the Bureau of Economic Analysis (BEA) to ask what category they would use for the operation of something like a marine terminal. They said “48A000.” Unfortunately, we did not have a recent set of RIMS II multipliers from the BEA for Whatcom County. We did, however, have them for other counties in the west. The employment multipliers tended to be around 2.8 and slightly above – similar in magnitude to what Martin Associates reported.

We also used IMPLAN and tried different categories to estimate the impacts. IMPLAN, unfortunately, does not have a category that matches exactly to 48A000 at the BEA. However, they had categories like “transport by water” and “transport by rail.” Therefore, we placed the 294 direct jobs found by Martin Associates in Table 4 in the transport by water category. In doing so, we arrived at an employment multiplier of 2.96, quite similar to Martin Associates’ multiplier of 2.93. We did not prepare a scenario in IMPLAN that had some jobs in the transport by rail category and some in transport by water, but are quite confident doing so would give us figures almost identical to those in the Martin Associates report.

Table 6 lists and compares Martin Associates’ and our multipliers for the operation of Phase I of the terminal, based on the direct employment estimates obtained in the Martin report. Overall, these findings support the veracity of the estimates derived by Martin Associates for the operation of Phase I.

Table 6
Comparison of Our Analysis to Martin Associates’ for the Operation of Phase I

	Martin Associates	Our Analysis -- BEA	Our Analysis -- IMPLAN
Employment Multipliers	2.93	~2.8	2.96

Conclusion

On the whole, our analysis supports that Martin Associates' estimates of economic impacts of the Gateway Pacific Terminal are reasonable. With independent analysis we find similar employment multipliers for the induced and indirect impacts stemming from the operation of Phase I of the terminal. We also find marginally lower but similar direct impacts for the construction of Phase I of the project. Our key area of departure is in the calculation of indirect and induced impacts arising from the construction of the Phase I of the terminal. Our estimates here are approximately 45 percent lower. As we discussed, the difference could be due to our inability to find a strong classification match for the construction of a marine terminal leaving us using a more general and less precise construction classification. Moreover, we may diverge because we are using different input-output models [BEA/RIMS II (Martin Associates) vs. IMPLAN (us)].

As a final note, in performance of our analysis, we noticed the Gateway Pacific Terminal project has the potential to have a sizable impact on the local economy. Taking Martin Associates' findings as given, the project's construction of Phase I has the potential to produce \$503 million in local purchases (see Table 2). If we assume a two year construction build out period and constant purchases in each year, this equates to \$251.5 million in local purchases for each of the two years. According to the Bureau of Economic Analysis, GDP for Whatcom County was \$7.01 billion in 2008. As a result, the construction of Phase I of the project could augment Whatcom County GDP by as much as 3.6 percent each year for two years.

Additionally, the operation of Phase I and Phase II is expected to create 1,229 long-term jobs (see Table 3). According to the Washington State Employment Security, there were 9,990 unemployed individuals in Whatcom County at the end of February 2011. The long-term jobs created by the operation of the Gateway Pacific Terminal constitute about 12 percent of our currently unemployed workforce.

Appendix of Additional Comparison Tables

Construction of Phase I

Jobs*	Martin Associates	Our Analysis	Average
Direct	1,781	1,648	1,715
Employ. Multiplier	2.36	1.80	2.08
Induced/Indirect	2,427	1,318	1,873
Total	4,208	2,966	3,587

*Jobs are workers hired per year, assuming a 2-year construction period and that labor is smoothed out so that the number of workers utilized in the first year is the same as the second.

Construction of Phase II

Jobs*	Martin Associates	Our Analysis	Average
Direct	429	372	401
Employ. Multiplier	2.36	1.80	2.08
Induced/Indirect	584	298	441
Total	1,013	670	842

*Jobs are workers hired per year, assuming a 2-year construction period and that labor is smoothed out so that the number of workers utilized in the first year is the same as the second.

Total Jobs Created from Construction of Phase I and Phase II

Jobs*	Martin Associates	Our Analysis	Average
Direct	2,210	2,020	2,115
Employ. Multiplier	2.36	1.80	2.08
Induced/Indirect	3,011	1,616	2,314
Total	5,221	3,636	4,429

*Jobs are workers hired per year, assuming a 2-year construction period and that labor is smoothed out so that the number of workers utilized in the first year is the same as the second.

Total Annual Jobs Created from the Operation of Phase I

Jobs	Martin Associates	Our Analysis	Average
Direct**	294	294	294
Employ. Multiplier	2.93	2.96	2.95
Induced/Indirect	569	576	573
Total	863	870	867

**We took Martin Associates' estimate of Direct Jobs Created as given and estimated the Employment Multiplier and the number of Induced and Indirect Jobs Created from the Operation of the Terminal.

Total Annual Jobs Created from the Operation of Phase II

Jobs	Martin Associates	Our Analysis	Average
Direct**	136	136	136
Employ. Multiplier	2.69	2.96	2.83
Induced/Indirect	230	267	249
Total	366	403	385

**We took Martin Associates' estimate of Direct Jobs Created as given and estimated the Employment Multiplier and the number of Induced and Indirect Jobs Created from the Operation of the Terminal.

Total Annual Jobs Created from the Operation of Phase I and Phase II

Jobs	Martin Associates	Our Analysis	Average
Direct**	430	430	430
Employ. Multiplier	2.86	2.96	2.91
Induced/Indirect	799	843	821
Total	1,229	1,273	1,251

**We took Martin Associates' estimate of Direct Jobs Created as given and estimated the Employment Multiplier and the number of Induced and Indirect Jobs Created from the Operation of the Terminal.

Economic Analysis Comparison Summary

Gateway Pacific Terminal

October 27, 2011

Local Economic Impacts¹

Construction Impacts²

CONSTRUCTION JOBS*

	25 Million Metric Tons	54 Million Metric Tons	Source
Direct Jobs	1,715	2,115	Average of Martin & FRMC
Indirect & Induced Jobs	1,873	2,314	Average of Martin & FRMC
Total Jobs*	3,587	4,429	Average of Martin & FRMC

* Job impacts are reported as **annual** FTEs (full-time equivalents), over an estimated 2-year construction period.

PERSONAL INCOME (millions)

	25 Million Metric Tons	54 Million Metric Tons	Source
Direct Personal Income	\$134.8	\$166.5	Martin, adjusted to averages
Indirect & Induced Pers. Income	\$147.4	\$182.1	Martin, adjusted to averages
Total Personal Income*	\$282.2	\$348.7	Martin, adjusted to averages

* Personal Income impacts are for the **total** estimated 2-year construction period.

TOTAL ECONOMIC BENEFIT (millions)

	25 Million Metric Tons	54 Million Metric Tons	Source
Local Construction Expenditures*	\$536.0	\$665.0	GPT
State/Local Taxes	\$74.4	\$92.4	Martin
Total Personal Income	\$282.2	\$348.7	Martin, adjusted to averages

* SSA Marine estimate of construction cost. Impacts are for the **total** estimated 2-year construction period.

¹ Based on Martin Associates, "The Projected Economic Impacts for the Development of a Bulk Terminal at Cherry Point", February 26, 2011 using RIMS and a proprietary input-output economic impact modeling system. Job impacts were further reviewed and verified by Finance & Resource Management Consultants, Inc., "Review of Martin Associates Economic Impact Study", October 6, 2011 using the IMPLAN economic impact modeling system; **job impacts represent averages of the job impacts from both studies and personal income data was adjusted accordingly.**

² Direct Jobs=Jobs directly involved in the construction of the Terminal; Indirect Jobs=Jobs that are created locally due to purchases of goods and services by firms for the construction of the Terminal; Induced Jobs=Jobs that are created throughout the local economy because individuals directly employed by the activity at the terminal will spend their wages locally on goods and services (i.e. food, housing and clothing); Direct Personal Income=Employee wages and salaries (excluding benefits) for direct FTEs; Re-spending/Indirect & Induced Income=Local consumption expenditures and wages and salaries by indirect/induced employees; Total Revenue=Local construction expenditures (excluding cost of equipment); Local Construction Expenditures=Purchases for construction supplies and support services; State/Local Taxes=Taxes paid to State and Local government by terminal and construction companies involved in project (includes sales tax on the initial construction expenditures)

Operation Impacts³

OPERATIONS JOBS

	25 Million Metric Tons	54 Million Metric Tons	Source
Direct Ongoing Jobs*	294	430	Martin
Indirect/Induced Ongoing Jobs	573	821	Average of Martin & FRMC
Total Ongoing Jobs	867	1,251	Average of Martin & FRMC

*FTEs= Full-time Equivalents

PERSONAL INCOME (millions)

	25 Million Metric Tons	54 Million Metric Tons	Source
Direct Annual Income	\$29.5	\$40.8	Martin, adjusted to averages
Indirect & Induced Annual Income	\$62.0	\$87.8	Martin, adjusted to averages
Total Annual Personal Income	\$91.5	\$128.6	Martin, adjusted to averages

ANNUAL ECONOMIC BENEFIT(millions)

	25 Million Metric Tons	54 Million Metric Tons	Source
Local Purchases	\$12.0	\$17.1	Martin
State and Local Taxes	\$8.1	\$11.2	Martin
Personal Income	\$91.5	\$128.6	Martin, adjusted to averages

³ Direct Jobs=Jobs directly generated by the movement of the bulk cargo via the terminal; Indirect Jobs=Jobs that are created locally due to purchases of goods and services by firms for the construction of the Terminal; Induced Jobs=Jobs that are created throughout the local economy because individuals directly employed by the activity at the terminal will spend their wages locally on goods and services (i.e. food, housing and clothing); Direct Income=Employee wages and salaries (excluding benefits) for direct FTEs; Re-spending/Indirect & Induced Income=Local consumption expenditures and wages and salaries by indirect/induced employees; Local Purchases= Purchases made by firms which provide handling and vessel services at the Terminal; State and Local Taxes=Tax payments made to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported by (induced jobs) activity at the bulk terminal.