



## **Terminal 2 Rehabilitation – East Pier**

U.S. Department of Transportation – Maritime Administration

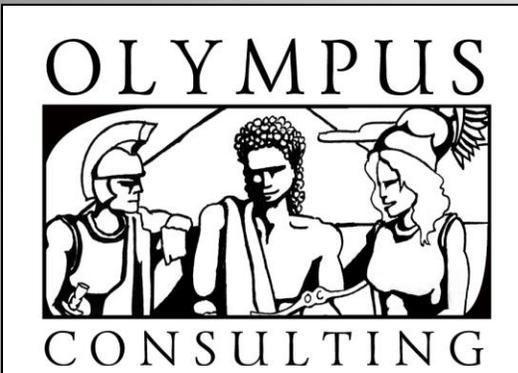
Port Infrastructure Development Program (PIDP)

Opportunity Number: MA-PID-21-001

### **Appendix A**

## **The Economic Impacts of Black Ball Ferry Line, 2019**

# The Economic Impacts of Black Ball Ferry Line – A Destination Hub In The Tourism Industry of Clallam County



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## Abstract

A MV Coho passenger survey was used to estimate what people spent where during their visit to the Port Angeles area in July, 2019. It revealed the 148,384 traveling parties believe the services provided by Black Ball Ferry Line were very important to their travel plans, making Black Ball Ferry Line a destination hub integrating a variety of local businesses. Each of those traveling parties injected an average of \$433 into the local economy. The study finds that the 91 people employed by Black Ball Ferry Line support the direct employment of 627 people in businesses ranging from motels/hotels, food and beverages, to retail shopping. The employment and labor income created in those sectors in turn support an additional 100 people in the supply chain and another 156 people in the general economy. Every person employed by Black Ball Ferry Line supports employment of 9.7 additional people locally.

## EXECUTIVE SUMMARY

This study estimates the economic impact of Black Ball Ferry Line operations on the economy of Port Angeles and surrounding areas of Clallam County for 2019. To learn about passenger travel, a survey was administered. Randomly sampled traveling parties indicated Black Ball Ferry Line was very important to their travel plans. As a destination hub, it directly channels travelers to businesses where they make expenditures that support employment, employee compensation, proprietor income, and pay state and local taxes. Expenditures by direct sector impacted and employment supported is summarized in Table ES1. The average traveling party spent \$433, contributing \$64,294,435 to the local economy, supporting direct employment of 626 people. In addition, on an annualized basis, Black Ball Ferry Line employs 91 people at an annual average income of \$67,534 including benefits.

| Direct Sector Impacted        | \$/Party     | Total Expenditures  | Employment |
|-------------------------------|--------------|---------------------|------------|
| Motels/Hotels                 | \$122        | \$18,130,217        | 157        |
| Airbnb/VRBO                   | \$69         | \$10,242,222        |            |
| B&B                           | \$8          | \$1,187,504         |            |
| Food and Beverage             | \$112        | \$16,625,056        | 281        |
| Fuel                          | \$37         | \$5,492,206         | 10         |
| Bus, Taxi, Uber               | \$23         | \$3,414,074         | 71         |
| Attractions, Events, Museums  | \$20         | \$2,968,760         | 36         |
| Guided Tours                  | \$6          | \$890,628           | 15         |
| Shopping                      | \$36         | \$5,343,768         | 56         |
| <b>Total Impacted Sectors</b> | <b>\$433</b> | <b>\$64,294,435</b> | <b>626</b> |

Table ES1: Expenditure patterns by direct economic sector and employment supported (2019 US\$).

The expenditures in Table ES1 created Employment, employee compensation (Compensation), Proprietor Income and State and Local Taxes for direct sectors. Direct employment in ES2 includes the 91 annualized employees at Black Ball Ferry Line. There were indirect economic effects in the supply chain, and induced effects in those businesses where people directly and indirectly employed spend their income. Those results are summarized in Table ES2. Direct employment of 718 people leads to indirect employment of 100 and induced employment of 156, with total compensation of \$27,857,434, proprietor income of \$19,778,706, and state and local taxes of \$10,888,818. ***Every employee at Black Ball Ferry Line helps support additional employment of 9.7 people in the local economy.***

| Impact Type         | Employment | Compensation        | Proprietor Income   | State and Local Taxes |
|---------------------|------------|---------------------|---------------------|-----------------------|
| Direct Effect       | 718        | \$20,289,395        | \$17,585,047        | \$6,605,276           |
| Indirect Effect     | 100        | \$3,170,603         | \$1,045,504         | \$500,983             |
| Induced Effect      | 156        | \$4,397,436         | \$1,148,155         | \$3,782,559           |
| <b>Total Effect</b> | <b>974</b> | <b>\$27,857,434</b> | <b>\$19,778,706</b> | <b>\$10,888,818</b>   |

Table ES2: Direct, indirect and induced economic effects associated with operations of Black Ball Ferry Line as a destination hub in the Tourism Industry of Clallam County (2019 US\$).

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## INTRODUCTION

Black Ball Ferry Line has provided ferry service between Port Angeles, Washington and Victoria, British Columbia since 1952.<sup>1</sup> Indeed, the MV Coho sailing to and fro through the Port of Port Angeles is one of the community's defining images. The MV Coho, however, is but part of the array of services provided by Black Ball Ferry Line, often familiar to tourists but likely unknown to residents of Port Angeles. These include rentals at local hotels, ground transportation, and guided tours. Black Ball Ferry Line also promotes and supports tourist participation in a wide range of activities and events including, but not limited to, the Juan de Fuca Festival, Sequim Lavender, Crab Fest and various kinds of arts and draught tours.<sup>2</sup> With MV Coho central to the travel plans of an estimated 472,104 riders in 2019, along with the wide array of associated services provided, an important question emerges: *What are the economic impacts to Port Angeles and surrounding areas of Clallam County derived from operations of the Black Ball Ferry Line?*<sup>3</sup> Ryan Malane, Vice President of Marketing for Black Ball Ferry Line, contacted Daniel Underwood, Olympus Consulting, to develop a methodology to answer that question.

This study quantifies the economic impacts to Port Angeles and surrounding areas derived from the operations and services provided by Black Ball Ferry Line. Economic impacts are evaluated in terms of employment, employee compensation, proprietor income, and state and local taxes. *Direct effects* will be the outcome of Black Ball Ferry Line expenditures and the expenditures made in the local economy by riders of the MV Coho. Direct effects also have multiplier effects in the supply chain (*indirect effects*) and upon businesses where those directly and indirectly employed make expenditures (*induced effects*). The sum of the three – *direct, indirect and induced* – constitutes the total effects which capture the economic impact of Black Ball Ferry Line.

## MODELING THE ECONOMIC IMPACTS OF BLACK BALL FERRY LINE

### OVERVIEW – EXPENDITURES AND ECONOMIC IMPACTS

The economic impact model used in this study was based upon the expenditure flows illustrated in Figure 1. Central to those flows are sailings by the MV Coho which carries passengers between Port Angeles, Washington and Victoria, British Columbia, six times each day. Ancillary to passenger traffic, but often a reason for riding the ferry, are the array of services provided by Black Ball Ferry Line. Those passengers make expenditures in the local economy during their travels. The general categories of those expenditures are lodging in motels/hotels, Airbnb/VRBO, and B&B. They purchase food and beverages, fuel, and make use of ground travel services. As most are on vacation, they make use of attractions, events, museums, and guided tours. Shopping is also part of their travel experience. To the

<sup>1</sup> Puget Sound Company/Black Ball Line began serving the region in the late 1800s, with service between Port Angeles-Victoria-Port Townsend beginning in 1896. The earliest sailing schedule found by Ryan Malane was from 1900. Black Ball Transport in its current form began in 1952, with the MV Coho beginning service in December of 1959.

<sup>2</sup> The number of Canadians using Black Ball Ferry Line services to participate in special events is substantial. For instance, at least 2,800 Canadians sailed on the MV Coho to participate in Crab Fest, October 11 – 13, 2019.

<sup>3</sup> 472,104 was the number of paying passengers in 2018, and used in this study for 2019. As this study is released, total paying passengers are at 97 percent of the 2018 level. This is further addressed in Appendix A.

extent those expenditures are the result of making use of services provided by Black Ball Ferry Line, they constitute *direct effects*. All of the economic sectors listed above, in turn, make expenditures in the supply chain to support their operations, which constitute *indirect effects*. Figure 1 illustrates some of the affected economic sectors. Those directly and indirectly employed (including proprietors) earn income. That income spent in Clallam County creates additional employment with corresponding employee compensation and proprietor income, which constitutes *induced effects*.<sup>4</sup>

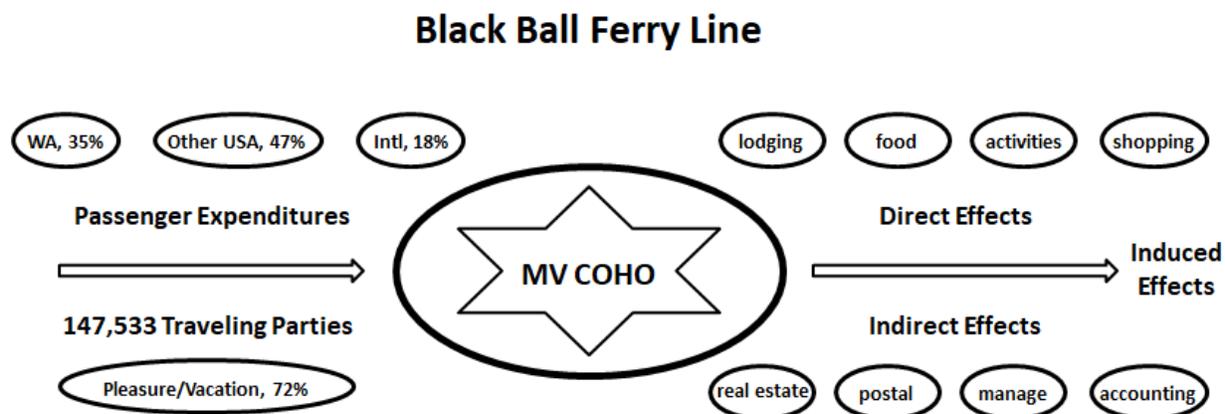


Figure 1: Direct, indirect and induced effects resulting from expenditures of passengers using Black Ball Ferry Line services.

In 2018 the MV Coho transported 472,104 people, which translates into 148,384 traveling parties in 2019. Those traveling parties made expenditures for a variety of services, including lodging, food and beverages, activities like attractions, events and guided tours, and for shopping, all of which constitute direct effects. Indirect effects in the supply chain supporting those direct services include real estate, postal services, management of buildings, and accounting services. Induced effects result when people directly and indirectly employed spend income in the local economy, creating and supporting additional employment, employee compensation, proprietor income, and state and local taxes.

## ***SURVEY RESULTS***

To estimate MV Coho rider expenditures a survey previously developed for Black Ball Ferry Line was modified.<sup>5</sup> The experimental design used stratified sampling. The survey was randomly administered during four two-way crossings in July of 2019. In 2018, the M.V. Coho transported 472,104 paying passengers. This study assumes the same total for 2019. The average traveling party was 3.2 people; thus there were 148,384 traveling parties in 2019. 72 percent of those parties were traveling to Port Angeles for pleasure/vacation. Of those travelers, 35 percent were from Washington, 10 percent from Oregon, 9 percent from California; 29 percent were from other regions in the USA. 14 percent were from Canada and 4 percent from other international places. The average traveling party spent 2

<sup>4</sup> Proprietors are “self-employed” individuals, and proprietor income is gross, before operational expenditures.

<sup>5</sup> Brock Smith, *MV Coho: Economic Impact Analysis*, November 22, 2011. That survey was used to allow comparison of previous survey results and this more recent survey.

nights on the Olympic Peninsula. 52 percent of those nights were spent in hotels/motels (32%), Airbnb/VRBO (17%), and B&B (3%). Thus, approximately 35 percent of all lodging uses Airbnb/VRBO services. Critical to this study, when asked “When you were planning your trip, how important were the services provided by Black Ball Ferry Line,” the average (weighted median) response was 3.44, where 4 indicates extremely important and -4 indicates not at all important. Thus, *the direct expenditures analyzed in this study are very dependent upon the services provided by Black Ball Ferry Line*, and Figure 1 emphasizes its role as a destination hub through which visitors make expenditures at a wide variety of businesses.

Results for expenditures by sector obtained by the survey are presented in Table 1. The average traveling party (3.2 people) made expenditures by sector presented under “\$/Party.” The 148,384 parties crossing in 2019 were used to calculate total expenditures by sector, which range from a high of \$18,130,217 for Motels/Hotels to a low of \$890,628 for Guided Tours. The average traveling party spent a total of \$433 in the local economy during their visit. Total expenditures for all passengers/traveling parties across direct sector impacted is \$64,294,435.<sup>6</sup>

| <b>Direct Sector Impacted</b> | <b>\$/Party</b> | <b>Total Expenditures</b> |
|-------------------------------|-----------------|---------------------------|
| Motels/Hotels                 | \$122           | \$18,130,217              |
| Airbnb/VRBO                   | \$69            | \$10,242,222              |
| B&B                           | \$8             | \$1,187,504               |
| Food and Beverage             | \$112           | \$16,625,056              |
| Fuel                          | \$37            | \$5,492,206               |
| Bus/ Taxi/Uber                | \$23            | \$3,414,074               |
| Attractions/Events/Museums    | \$20            | \$2,968,760               |
| Guided Tours                  | \$6             | \$890,628                 |
| Shopping                      | \$36            | \$5,343,768               |
| <b>Total Impacted Sectors</b> | <b>\$433</b>    | <b>\$64,294,435</b>       |

Table 1: Traveling party and expenditure patterns by direct economic sector, July 2019 (2019 US\$).

### ***ESTIMATING ECONOMIC IMPACTS***

In this study, the direct expenditure impacts in Table 1 result from operations of Black Ball Ferry Line in the Port Angeles area. Those operations support local employment and provide employee compensation, including benefits, and proprietor income. In 2018, on an annualized basis, Black Ball Ferry Line employed 91 people.<sup>7</sup> As indicated in the section *SURVEY RESULTS*, the array of services provided by Black Ball Ferry Line were very important to travelers in planning their trips. Thus, the expenditures made by traveling parties are included as direct effects. Those expenditure values were used to construct an economic impact model using IMPLAN, the standard tool of analysis employed by

<sup>6</sup> See Appendix A – Data and Methodology for a discussion of survey results and the assumptions used.

<sup>7</sup> Actual employment ranged from 70 during winter to 106 in the summer. We assume the same level of employment for 2019.

regional economists to study economic development.<sup>8</sup> Black Ball Ferry Line operations and the economic sectors Motels/Hotels, Food and Beverages, Fuel, Bus/Taxi/Uber, Attractions/Events/Museums, Guided Tours, and Shopping were analyzed as an Industry Activity. IMPLAN estimates the associated proprietor income corresponding to the Black Ball Ferry Line *direct effect*. IMPLAN also estimates the *indirect effect* in the supply chain, including employment (covered payroll and proprietors), employee compensation (including benefits), and proprietor income. Lastly, those directly and indirectly employed spend part of their income in the local economy, creating additional employment and income. This is captured as an *induced effect*. At each stage, state and local taxes are paid, which are also estimated by IMPLAN.

Given the predominant ownership structure of Airbnb/VRBO and B&B in Clallam County are private households, the economic impacts of those sectors were analyzed as Household Income.<sup>9</sup> As Household Income is not an Industrial Activity, there are no direct or indirect impacts derived from that sector. Determination of this household income from total traveling expenditures is complex, and explained in Appendix A – Data and Methodology. For this study, an assumed rate of 25 percent to cover for Airbnb/VRBO booking services, County and City lodging taxes and sales taxes were deducted from gross expenditures. The remaining revenues become household income.<sup>10</sup> Some of that income is spent in the local economy and creates *induced effects*. Those Airbnb/VRBO and B&B operators pay sales taxes, property taxes, lodging taxes and other state and local taxes.

It was determined to estimate the economic impacts associated with Black Ball Ferry Line for the year 2019. Information was limited to the survey results from July and total passengers carried in 2018. It was assumed that the survey results were representative of passenger spending during other seasons of the year. Similarly, it was assumed that total passengers in 2019 would be equivalent to the total of 2018.<sup>11</sup> Accordingly, the estimates are likely quite accurate for the economic impacts of summer. They may be biased upward or downward during other seasons.<sup>12</sup>

## **A LOOK AT THE ECONOMIC IMPACTS OF BLACK BALL FERRY LINE**

Figure 1 illustrated the linkage between the services provided by Black Ball Ferry Line and an array of directly impacted economic sectors. The figure emphasizes that Black Ball Ferry Line is a destination hub that links passengers and traveling parties to a wide range of businesses in the Port

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<sup>8</sup> The assumptions and specifics of analysis are explained in Appendix A – Data and Methodology.

<sup>9</sup> Considerable time was spent discussing this issue with economic modelers at MIG, Inc. This study followed their recommendations, and modeled economic impacts using Household Income as the effect. Thus, there is no direct or indirect employment associated with Airbnb/VRBO and B&B accommodations. This assumption likely biases estimates downward. The emergent Airbnb/VRBO industry is most complex and acquisition of detailed information about ownership patterns and thus economic impacts is beyond the scope of this study.

<sup>10</sup> It is possible that some providers of Airbnb/VRBO accommodations make use of local cleaning services, or even management services. In such cases those expenditures would constitute an Industry Impact and would have direct and indirect effects. Again, this observation helps illustrate how problematic analyzing this sector is. Further discussion is provided in Appendix A – Data and Methodology.

<sup>11</sup> At the end of the third quarter, 2019 totals are 97 percent of 2018. Thus, this assumption is reasonable.

<sup>12</sup> For further discussion, see Appendix A – Data and Methodology.

Angeles area. Those people spend on average 2 days and nights on the Olympic Peninsula, and contribute \$433 in monetary expenditures in the local economy. In 2019 those expenditures totaled \$64,294,435. In addition, the operations of Black Ball Ferry Line brought in sales revenues that supported employment, created income for employees (Compensation), and produced proprietor income for numerous business owners providing services for Black Ball Ferry Line. Table 2 summarizes those direct effects as Employment, Compensation, and Household Income. Employment is the total number of people employed as a result of those expenditures, and includes both full time and part time employment. Compensation is for a year, including benefits. Household income for Airbnb/VRBO and B&B deducts service fees, sales taxes, and lodging taxes from total expenditures in that sector. The number of proprietors resulting from direct effects is not estimated by IMPLAN. They are included under employment for indirect and induced effects, seen below in Table 3.

| <b>Economic Sector</b>       | <b>Employment</b> | <b>Compensation</b> | <b>Household Income</b> |
|------------------------------|-------------------|---------------------|-------------------------|
| Black Ball Ferry Line        | 91                | \$6,145,605         |                         |
| Motels/Hotels                | 157               | \$3,556,156         |                         |
| Airbnb/VRBO Income           |                   |                     | \$7,681,667             |
| B&B Income                   |                   |                     | \$890,628               |
| Food and Beverages           | 281               | \$7,101,151         |                         |
| Fuel                         | 10                | \$223,209           |                         |
| Bus, Taxi, Uber              | 71                | \$968,139           |                         |
| Attractions, Events, Museums | 36                | \$1,041,444         |                         |
| Guided Tours                 | 15                | \$276,346           |                         |
| Shopping                     | 56                | \$977,344           |                         |
| <b>Grand Totals</b>          | <b>718</b>        | <b>\$20,289,394</b> | <b>\$8,572,295</b>      |

Table 2: Direct impacts by sector associated with the operations of Black Ball Ferry Line (2019 US\$).<sup>13</sup>

The operations of Black Ball Ferry Line employ 91 people on an annualized basis with total employee compensation of \$6,145,605, including benefits.<sup>14</sup> All other employment, employee compensation, and tax values were estimated by IMPLAN as a result of traveling party expenditures obtained from survey results. Motels/Hotels employ 157 people with compensation of \$3,556,156. Airbnb/VRBO and B&Bs, as household enterprises, create no direct or indirect employment. However, the total expenditures for this lodging type create household income after deductions of \$7,681,667 and \$890,628 respectively, some of which supports induced employment.<sup>15</sup> Food and beverages establishments employ 281 people with employee compensation of \$7,101,151. Ground transportation employs 71 people with compensation of \$968,139. Attractions/Events/Museums employ 36 people with compensation of \$1,041,444. Guided Tours employ 15 people with compensation of \$276,346. Shopping employ 56 people with compensation of \$977,344. The total employment directly associated

<sup>13</sup> Employments do not include decimals; thus, actual sum is 718, not 717.

<sup>14</sup> David Booth, CFO, Black Ball Ferry Line.

<sup>15</sup> See Appendix A – Data and Methodology for assumptions regarding deductions from gross revenue to determine Household Income.

with Black Ball Ferry Line as a destination hub in the Tourism Industry is 718 people, employee compensation of \$20,289,394, and household income of \$8,572,295, included in proprietor income.

The direct sectors make purchases of goods and services in the supply chain, which constitute *indirect effects*, creating additional employment, employee compensation, proprietor income, and tax revenues. Those directly and indirectly employed make purchases in the local economy. State and local taxes are imposed on these activities, with the predominate forms being sales taxes and property taxes. These impacts are presented in Table 3. The direct effect is the sum of all the direct impacts in Table 2: Employment, Compensation and Proprietor Income values. While household income from Airbnb/VRBO and B&B was estimated, and included under Proprietor Income as a direct effect, the corresponding number of households is unknown. The total expenditures that resulted in direct employment of 718 people created an additional 100 jobs in the supply chain – *indirect effect* – with employee compensation of \$3,170,603, and proprietor income of \$1,045,504. *Induced effect* employment is 156 people with employee compensation of \$4,397,436, and proprietor income of \$1,148,155. IMPLAN includes the number of proprietors in estimates of indirect and induced employment. Direct, indirect and induced employment is 974 people; employee compensation \$27,857,434; proprietor income \$19,778,706. State and local taxes are \$6,605,276 for direct effects, \$500,983 for indirect effects, and \$3,782,559 for induced effects, for a grand total of \$10,888,818.

| Impact Type         | Employment | Compensation        | Proprietor Income   | State and Local Taxes |
|---------------------|------------|---------------------|---------------------|-----------------------|
| Direct Effect       | 718        | \$20,289,395        | \$17,585,047        | \$6,605,276           |
| Indirect Effect     | 100        | \$3,170,603         | \$1,045,504         | \$500,983             |
| Induced Effect      | 156        | \$4,397,436         | \$1,148,155         | \$3,782,559           |
| <b>Total Effect</b> | <b>974</b> | <b>\$27,857,434</b> | <b>\$19,778,706</b> | <b>\$10,888,818</b>   |

Table 3: Direct, indirect and induced economic effects by employment, employee compensation, proprietor income, and state and local taxes associated with operations of Black Ball Ferry Line as a destination hub in the Tourism Industry of Clallam County (2019 US\$).

## Conclusion

To understand the integrative role Black Ball Ferry Line plays in the Tourism Industry it is critical to trace the flow of expenditures associated with its operations. In the process of moving traveling parties between Port Angeles, Washington and Victoria British Columbia, people spend time at events, participate in activities, eat and drink, and stay overnight. Analysis of that integration reveals that Black Ball Ferry Line is a central destination hub which supports employment of 718 people in the Tourism Industry. In addition, another 100 people are indirectly employed in the supply chain, and another 156 people employed in the general economy as a result of those directly and indirectly employed. The total employment is 974 people with employee compensation of \$27,857,434, proprietor income of \$19,778,706, and state and local taxes of \$10,888,818. An important way to understand this impact is to recognize that ***the 91 people employed by Black Ball Ferry Line help provide employment for 883 people in the Port Angeles area. In other words, every job at Black Ball Ferry Line helps support an additional 9.7 jobs in the local economy.***

## **APPENDIX A – DATA AND METHODOLOGY**

### ***SAMPLING METHODS***

Central to the analysis in this report are expenditures made in different economic sectors directly associated with the services provided by Black Ball Ferry Line, especially passenger traffic on the MV Coho. In 2010, a survey was developed to estimate those expenditure patterns.<sup>16</sup> To allow comparison with historical patterns, but to account for changes in the Tourism Industry, that survey was modified. The modified survey consisted of 13 questions, two of which were open ended, that captured origin of travel, destinations, activities, and expenditures by category and local. Critical to this study were expenditure values by economic category, party size, and the importance of travel made possible by the MV Coho. The expenditure pattern detail was sufficient to determine what types of accommodation services were used during travel, making it possible to capture the dynamic changes occurring in that sector, especially the frequency of Airbnb and VRBO accommodation relative to Motels/Hotels.<sup>17</sup> Only select results from that survey are used in this study.

Budgetary and time constraints limited total sampling to four two-way crossings during summer. To best capture those expenditure patterns by economic sector affected, stratified sampling was used. The goal was to select days and times that capture the representative expenditure patterns made by riders. This was accomplished using the detailed knowledge of Ryan Malane, Vice President of Marketing. Discussion resulted in the selection of July 17 (Wednesday), 5:20 pm and 7:20 pm; July 26 (Friday), 8:15 am and 10:30 am; July 27 (Saturday), 12:45 pm and 3:00 pm; and July 28 (Sunday), 12:45 pm and 3:30 pm.

While stratified sampling was used for days/crossings, random sampling was used to solicit responses from passengers. A representative from Black Ball Ferry Line was instructed on the nature of the survey and its objectives and provided a solicitation script so that all potential respondents would be greeted in the same fashion. The representative began from the bow of the ship and worked toward the stern. The response rate was approximately 80 percent, with up to 50 surveys returned during a voyage.<sup>18</sup> While all returned surveys were used, incomplete answers precluded use of some questions/answers. Thus, sample size by question ranged from 321 to 269.

### ***ESTIMATION OF ECONOMIC IMPACTS***

This report used the IMPLAN regional input-output modeling system produced by the MIG Corporation using Clallam County data, all zip codes, for 2017, the most recent data set available. Expenditures by economic sector were estimated using sample survey data from July, 2019. In addition, data for employment, wages and benefits, total passengers, total revenues, and operational expenditures were provided by Black Ball Ferry Line for the year 2018. The model was created and run using 2019 values.

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<sup>16</sup> Brock Smith, MV COHO: 2010 Economic Impact Study, November 22, 2011.

<sup>17</sup> The economic sectors used in the survey captured over 98 percent of total expenditures.

<sup>18</sup> There was an exception for the 8:15 sailing on July 26, when the response rate was 67 percent.

### **CREATING ECONOMIC SECTORS FOR ANALYSIS**

The sectors, along with monetary expenditures derived from the survey, used to estimate economic impacts associated with Black Ball Ferry Line along with IMPLAN code (CODE) used for analysis are presented in Table A1. As explained in the previous section, Black Ball Ferry Line provided data for total passengers and sales revenues for 2018. These values were used for 2019. Party size was estimated from the surveys conducted in July of 2019. Code 414 – Scenic and sightseeing transportation and support activities – was used for analysis of the impacts from Black Ball Ferry Line operations. Expenditure values were obtained from surveys, using weighted means across dates and sailings for select questions, and are presented in terms of dollars per party (\$/Party), where the mean party size was 3.2 in 2019, and total monetary expenditures (Total Expenditures) for 2019. This study assumes the same level of ridership for 2019, which translates into 148,438 travel parties in 2019. It also assumes average travel expenditures from the survey hold for the entire travel year. While more accurate results would be obtained by implementing surveys for each quarter of travel, time and budgetary constraints prevented that approach. The extent and direction to which this assumption bias estimates is unknown.

| <b>Direct Sector Impacted</b> | <b>CODE</b> | <b>\$/Party</b> | <b>Total Expenditures</b> |
|-------------------------------|-------------|-----------------|---------------------------|
| Motels/Hotels                 | 499         | \$122           | \$18,130,217              |
| Airbnb/VRBO                   | 10006       | \$69            | \$10,242,222              |
| B&B                           | 10006       | \$8             | \$1,187,504               |
| Food and Beverage             | 501         | \$112           | \$16,625,056              |
| Fuel                          | 402         | \$37            | \$5,492,206               |
| Bus/Taxi/Uber                 | 412         | \$23            | \$3,414,074               |
| Attractions, Events, Museums  | 493         | \$20            | \$2,968,760               |
| Guided Tours                  | 496         | \$6             | \$890,628                 |
| Shopping                      | 406         | \$36            | \$5,343,768               |
| <b>Total Impacted Sectors</b> |             | <b>\$433</b>    | <b>\$64,294,435</b>       |

Table A1: Direct impacts by economic sector, IMPLAN code, average expenditures by party, and total expenditures (2019 US\$).

While the survey provided detailed information about where people stay and for how long while visiting, only Motels/Hotels, Airbnb/VRBO and B&Bs resulted in expenditure values that could be used in this study. Interestingly, the surveys indicated 35 percent of the accommodation nights used Airbnb/VRBOs. The weighted mean expenditure values by party are \$122 for Motels/Hotels, \$69 for Airbnb/VRBO and \$8 for B&B. Motel/Hotel is an Industry Activity, and code 499 was used. As an economic sector, Airbnb/VRBO are *not* industries. Rather, they are dwellings owned by individuals used partly or wholly as rental units. The revenues gained represent additional household income. Accordingly, those impacts were estimated using Household Income, code 10006. As no prior information exists about current income levels for those households renting Airbnb/VRBO, the range

\$70-\$100k was used.<sup>19</sup> The \$69 per party spent for Airbnb converts into \$10,242,222 in additional gross household revenue; for B&B, this amounts to \$1,187,504 annually. Determination of the proportion of those revenues going to households as income is complex and problematic. Airbnb services use at least three different fee structures, Host Fee (3%), Guest Fee (less than 13%), and Host Only Fee (14 – 20%). Additional deductions are made for County and/or City Lodging Taxes (2 – 4%) and Sales Tax (8.5% in Clallam County, 8.7% in Port Angeles). This study applied a 25 percent deduction from gross sales revenue to estimate Household Income, a reasonable assumption given the complexities above.

The complexities of analyzing this dynamic and emerging sector do not end with determination of a gross revenue deduction rate. Some Airbnb/VRBO units are completely managed by the owning household. In those circumstances, they pay the assumed fee and personally tend to all management issues for the unit, including cleaning. In other circumstances, owners contract out for cleaning services, which approximates 10 percent or more of the gross revenue. Some units are managed by Property Management Companies, who charge approximately 35%, which includes contracting for cleaning services. In these circumstances, Household Income decreases along with the corresponding induced impact. However, those expenditures create an indirect impact, which increases employment, employee compensation, and proprietor income. As this study is not an examination of the structure and economic impacts of the emergent Airbnb/VRBO Industry, it treated all rental units as managed by owning households, it likely underestimates the total economic impacts resulting from visitors lodging in this sector. The reason is that more employment is stimulated by increases in the supply chain (indirect effect) than is lost in the form of induced employment when Household Income decreases.

Application of a specific sector for “Food and Beverages” was problematic as there are three general sources of food and beverages – full-service restaurants, limited-service restaurants, and other food and drinking. Associated economic effects are not equal per dollar of expenditures. Lacking information on the relative proportion of expenditures across these food and beverage types, it was assumed dollars were spent using equal proportions. Thus, one-third of the average response of \$112 per party was applied to each of those three sectors and the resulting impacts aggregated. A similar quandary exists for “Shopping.” Code 406 for Retail – Miscellaneous store retailers was used for shopping. The rationale for this assumption is as follows. Other forms of retail shopping were quite specific, and less likely to capture the establishments tourists would utilize, even though, indeed, a party might stop at a big box store. There is no “Other” sector in IMPLAN to capture unspecified expenditures. As the \$7/party specified at “Other” represents less than 2 percent of expenditures, where it is allocated will have but a small impact on overall economic impacts. Thus the value was applied to shopping. This assumption likely has no significant impact in biasing estimates. Code 402 – Retail gasoline stores was used for “Fuel.” Code 412 – Ground transportation and transit was used for “Bus/ Taxi/Uber. Code 493 – Museums, historical sites, zoos, and parks was used for “Attractions/Events/ Museums, and Code 496 – Other amusement and recreation industries for “Guided Tours.”

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<sup>19</sup> The rationale was that family income must be sufficient to purchase such a dwelling; at the same time, there should be incentive to rent out, especially for Airbnb. If a range like \$70-\$150 was available, it would have been used. There are always limitations to analysis in circumstances with imperfect information.

## APPENDIX B – AN UPDATE OF BROCK SMITH’S MV COHO ECONOMIC IMPACT STUDY

### OBJECTIVE

Black Ball Ferry Line was interested in updating the economic impact estimates developed by Brock Smith in his *MV Coho 2010 Economic Impact Study*. While the models employed by Olympus do not allow analysis of the impacts of expenditures by traveling parties in Victoria, Canada, it is possible to apply the results obtained from the July 2019 passenger surveys to the impact ratios in Smith’s study to develop a general update for his previous work.

### METHODOLOGY

Smith used a modeling approach developed by Informetrica Limited. The model allows analysis of economic impacts driven by expenditures made by traveling parties in the Victoria and the Vancouver Island region.<sup>20</sup> Economic impacts are a result of expenditures associated with MV Coho Organization’s (Black Ball Ferry Line) operations in Victoria and expenditures made by passengers. In his study, direct and indirect impacts are combined and induced impacts derived.<sup>21</sup> The model estimates induced local income, employment and local property tax revenues. Employment is expressed as estimated full-time equivalent jobs (FTEs).<sup>22</sup>

Olympus used a modified version of the Smith passenger survey; thus, the application of traveling party expenditures to the impact multipliers implicit in Smith’s study is appropriate.<sup>23</sup> On average, the 148,384 traveling parties spent \$1,126.41 during their visit to Victoria and the greater Vancouver Island area, or \$167,141,221 annually.<sup>24</sup> Black Ball Ferry Line estimates 10 percent of total operational expenditures are made in Canada. Using the 2018 expenditure total and an estimated 2019 inflation rate of 1.9 percent, those expenditures, including payroll and payroll taxes, totaled to \$1,743,305. Black Ball Ferry Line employed 33 Canadian residents in 2018. The same employment level was used for 2019.

Table B1 updates Smith’s 2011 study. Implicit in the Informetrica Limited model are transformation coefficients that convert expenditures into induced local income impacts; likewise, expenditures are transformed into direct & indirect employment impacts, and induced employment impacts.<sup>25</sup> A similar process is used to estimate local tax impacts. To capture and apply the underlying coefficients, it was necessary to convert 2019 nominal expenditures into 2010 values to eliminate

<sup>20</sup> The interested reader can study Smith’s methodology section for greater detail.

<sup>21</sup> This gives rise to problematics discussed in the concluding section.

<sup>22</sup> Smith does not indicate if the monetary values are expressed in real or nominal terms. It is assumed they are nominal in accordance with standard procedures used by economists. That is, values are nominal unless stated otherwise in which case the base year is specified.

<sup>23</sup> Appendix A – Data and Methodology describes the nature and limitations of the expenditure values obtained from the survey.

<sup>24</sup> All monetary values in this appendix are expressed in 2019 Canadian dollars (2019 CA\$), using the July, 2019 exchange rate of \$1.00 CA = \$0.75 US. Source: Bank of Canada.

<sup>25</sup> See the section on problematics for application and interpretation

distortions caused by inflation. As the Canadian CPI increased by 17.3 percent over that time period, 82.7 percent of 2019 expenditures were used in the transformation to direct & indirect employment impacts, and induced employment impacts. The 2010 transformation coefficients are as follows. For local income impacts, 1.03 for direct & indirect for MV Coho and passenger expenditures into induced local income impacts. For local employment impacts, 1.22 transforms the MV Coho Organization employment into induced employment. Passenger driven direct and indirect employment into induced employment uses the ratio 1.03. For local tax impacts, MV Coho Organization tax impact was estimated using the ratio of expenditures to 2010 taxes, or 8.3 percent. The induced coefficient is then 1.2. For passenger impacts, the respective ratios are 9.6 percent and 1.03 for the transformation coefficient.

| Category of Economic Impact                   | Direct & Indirect Impact | Induced Impact | Total Impact  |
|---|--------------------------|----------------|---------------|
| <b>Local Income (GDP) Impact</b>              |                          |                |               |
| MV Coho Organization                          | \$1,743,305              | \$1,795,604    | \$3,538,909   |
| Passengers                                    | \$167,141,221            | \$172,155,458  | \$339,296,679 |
| Total   | \$168,884,526            | \$173,951,062  | \$342,835,588 |
| <b>Local Employment Impact (Net FTE Jobs)</b> |                          |                |               |
| MV Coho Organization                          | 33                       | 40             | 73            |
| Passengers                                    | 3446                     | 3549           | 6995          |
| Total   | 3479                     | 3589           | 7068          |
| <b>Local Tax Impact (Net \$)</b>              |                          |                |               |
| MV Coho Organization                          | \$144,694                | \$173,633      | \$318,327     |
| Passengers                                    | \$16,045,557             | \$16,526,924   | \$32,572,481  |
| Total   | \$16,190,252             | \$16,700,557   | \$32,890,809  |

Table B1: An Update of Brock Smith's 2010 Economic Impact Estimates (2019 CA\$).

Given the assumptions used, survey data, and employment and expenditure data provided by Black Ball Ferry Line, Table B1 reveals operations of the MV Coho contributed a total of \$3,538,909 in local income. Passenger expenditures contributed \$339,296,679 in local income. In terms of employment, those total impacts are 73 and 6,995 respectively. In addition, local tax revenues are \$318,327 and \$32,572,481 respectively. Total local income created is \$342,835,588; employment 7,068 jobs; local taxes \$32,890,809.

#### ***SOME PROBLEMATICS FOR APPLICATION AND INTERPRETATION***

Olympus and Smith employed two distinct models and methods to estimate economic impacts in Clallam County and Victoria/Vancouver Island respectively. The use of a common passenger survey does make possible direct comparison of relative levels of expenditures between those regions, and thus an update of Smith's impact table. This brief section identifies some of the problematics for application and interpretation of results as presented in this appendix.

First, Olympus estimates direct, indirect and induced impacts individually, on a sector by sector basis, based upon the expenditures flows made by traveling parties. Smith methodology combines

direct and indirect impacts. A significant result of this simplification is that dependence of economic sectors in the supply chain is lost. Understanding those flows from direct sectors to sectors in the supply chain can be important in formulating economic development policy.

Second are estimated employment impacts. IMPLAN estimates direct, indirect and induced employment supported by expenditures in different economic sectors. Thus, Olympus was able to identify economic impacts across a variety of economic sectors dependent upon the services provided by Black Ball Ferry Line. If those passengers were not participating in the local economy, they would not make those expenditures, sales to businesses would decline and unemployment result. The employment estimates of Smith must be interpreted differently. According to Smith, who worked with Informetrica Limited, these jobs “represent a diffused impact – they are reflected in jobs retained and business vitality, and not necessarily new jobs or businesses created” (Smith, p. 9). As a result, the employment estimates of Olympus and Smith should not be directly compared: employment in the Olympus study depends on the expenditures made by traveling parties; that may not necessarily be the case in Smith’s study where they contribute to business vitality.

Third is the treatment of income. Olympus estimated direct income across economic sectors and in aggregation; similarly, Olympus estimated indirect and induced proprietor income. Thus, who earns what where is estimated. That detail is lost in Smith’s aggregations.

Fourth are tax impacts. IMPLAN estimates local and state taxes in detail, from sales taxes, to property taxes, through lodging taxes. Thus, the estimates are comprehensive. It appears in the Smith study the tax estimates are confined to local property taxes. Thus, it may well be that the total tax impacts in Victoria and Vancouver Island are greater than those reported in his study and reproduced in this appendix using his methodology.

Fifth, the results in Table B1 assume the transformation coefficients have not changed since 2010. This is unlikely as productivity gains decrease impacts: it takes more dollar expenditures to support employment. Thus, the local income and employment estimates are likely biased upward. Estimated local tax impacts assume tax rates have remained unchanged. To the extent they have increased/decreased, estimates are biased downward/upward respectively.

Sixth, Smith’s Table 4: Economic Impact Results combine direct and indirect impacts. However, his narrative is inconsistent with such a summation. For instance, the Executive Summary indicates total expenditures by passengers was \$57,968,249, the same value appearing in Table 4. Thus, *indirect impacts in the supply chain are not included in that cell*. The narrative (page 4) states total operational expenditures by Black Ball Transportation totaled \$1,928,574 in 2010. That value appears in the cell for MV Coho Organization and Direct & Indirect Impacts. Stated directly, it appears Smith’s table, at least for the two cells identified here, do not present the sum of direct and indirect impacts. It may be that Informetrica Limited combines indirect and induced impacts. However, Olympus is not in a position to know if this is the case. If Smith did not include indirect impacts, then the values in Table B1 will be biased downward.