EMPLOYMENT AT CHERRY POINT

Exploring the economic impacts of Cherry Point on Whatcom County

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March 2019 |

WESTERN WASHINGTON UNIVERSITY
CENTER OF ECONOMIC AND BUSINESS RESEARCH

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About the Authors

The Center for Economic and Business Research is an outreach center at Western Washington University located within the College of Business and Economics. The Center connects the resources found throughout the University to assist for-profit, non-profit, government agencies, quasi-government entities and tribal communities in gathering and analyzing useful data. We use a number of collaborative approaches to help inform our clients so that they are better able to hold policy discussions and craft decisions.

The Center employs students, staff and faculty from across the University as well as outside resources to meet the individual needs of those we work with. Our work is based on academic approaches and rigor and not only provides a neutral analysis perspective but also provides applied learning opportunities. We focus on developing collaborative relationships with our clients and not simply delivering an end product.

The approaches we utilize are insightful, useful, and are all a part of the debate surrounding the topics we explore; however, none are absolutely fail-safe. Data, by nature, is challenged by how it is collected and how it is leveraged with other data sources; following only one approach without deviation is ill-advised. We provide a variety of insights within our work – not only on the topic at hand but the resources (data) that inform that topic.

We are always seeking opportunities to bring the strengths of Western Washington University to fruition within our region. If you have a need for analysis work or comments on this report, we encourage you to contact us at 360-650-3909. To learn more about CEBR visit us online at https://cbe.wwu.edu/cebr/center-economic-and-business-research.

The Center for Economic and Business Research is directed by Hart Hodges, PhD and James McCafferty.

Executive Summary

This report updates the 2014 Employment at Cherry Point report created by our Center and provides a more current reference point for discussions about the economic contribution, commonly referred to as an economic impact, made by businesses within the Cherry Point Industrial District in Whatcom County, Washington. This report is not intended for any advocacy purposes.

In our current research we find:

- The Cherry Point Industrial Zone is home to at least 3,320 jobs, roughly 3.75 percent of all jobs in the County.
- The jobs in Cherry Point have an average wage of $110,690. The majority of these jobs are at the refineries, which have significantly higher wages than other industries within Whatcom County.
- The average job at Cherry Point pays 243% more than the average job in Whatcom County.
- The average wage in Whatcom County was $45,491 in 2017. Without the Cherry Point Industrial Zone, the average wage in the county falls to $43,024 (5.4 percent decrease). The overall average would fall further if the jobs elsewhere in the county that depend on businesses in Cherry Point were removed along with the jobs at Cherry Point.
- The median home price in Whatcom County in 2017 was $345,900, requiring an annual household income of $51,575.26.
- While only 3.5 percent of all jobs in the county are in the Cherry Point district, the region either directly or indirectly supports 11.2 percent of all the jobs in the county and 0.3 percent of all jobs in the state.
    - An addition (or loss) of 50 jobs in the Petroleum manufacturing industry would result in the addition (or loss) of 174 jobs throughout Whatcom County
    - An addition (or loss) of 50 jobs in the primary metals manufacturing industry would result in the addition (or loss) of 115 jobs throughout Whatcom County
    - An addition (or loss) of 50 jobs in the electrical generation industry would result in the addition (or loss) of 149 jobs throughout Whatcom County
- Wages paid in Cherry Point accounted for 9 percent of all wages paid in the county. The activity at Cherry Point either directly or indirectly supports 17 percent of the wages paid in the county.
- The businesses in Cherry Point paid more than $370 million in state and local taxes and $15 million in property taxes in 2017.
- Businesses in the region donated more than $1 million to charitable organizations in 2018.

Introduction

Western Washington University's Center for Economic and Business Research (CEBR) was retained by the Whatcom Business Alliance to update the 2014 study of employment at Cherry Point. Work on this report began in the summer of 2018, at which time the most recent complete annual data was for 2017. To keep the report consistent, all the data in this report is from 2017. At the completion of the report, not all data utilized for our analysis is available for 2018 due to the natural lag in data reporting by the related agencies. We do not expect the 2018 data to vary significantly from that we have used from 2017.

The focus of this report is the contributions made by existing employers and what may happen due to small changes in employment levels at existing businesses within the district. Our analysis does not intend to show what may happen if a new business moves to the region, nor does it intend to show what may happen if a business were to leave the region.

This report examines the economic contributions, commonly thought of as economic impacts, of the jobs present within the Cherry Point Industrial Zone. The analysis conducted represents only data from this regional perspective. Other impacts may include environmental and socioeconomic factors. An economic impact model should not be the only tool used to analyze the broad net impacts of given events or changes.

For the purpose of this report, the Cherry Point Industrial Zone is defined as the Cherry Point Urban Growth Area, as shown in the map on the right.

Throughout this report, we reference economic contribution and not economic impacts. While these are often used interchangeably, they are distinct terms. An economic impact analysis measures the impact of a change in the business environment (changes in output, employment or labor income) whereas a contribution analysis examines the

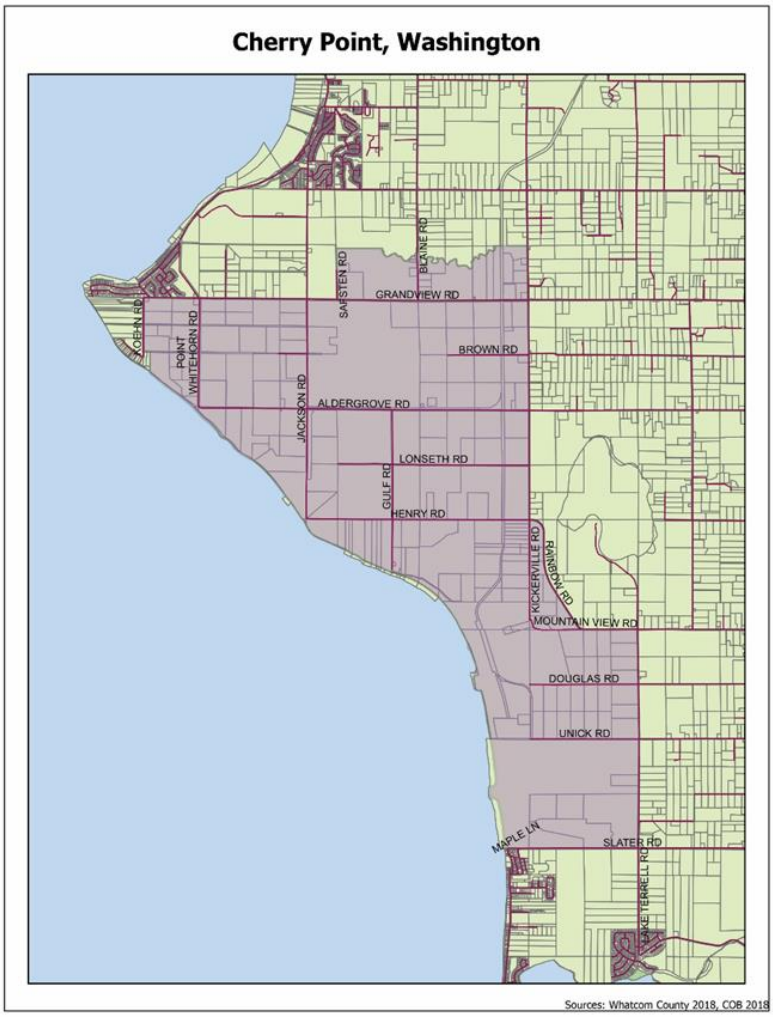


Figure 1 Cherry Point, shown in the image above in light purple

current conditions without a change. Being academics, we believe this distinction is important but understand the broader acceptance of both terms being used interchangeably.

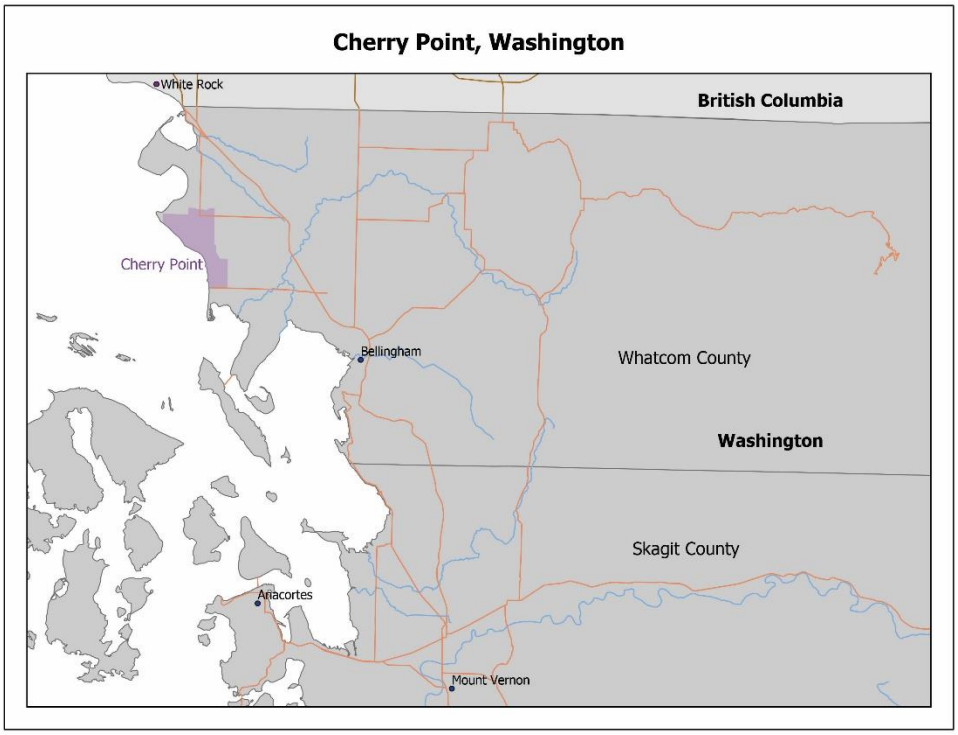


Figure 2 Cherry Point, shown in the image above in light purple

Employment in the Region

The Employment Security Department of Washington State reports an estimated 89,653 "covered" jobs and 92,500 "non-farm" jobs in Whatcom County. Covered jobs are those jobs where workers are covered by unemployment insurance. Non-farm jobs is a much broader definition, consisting of all non-agricultural jobs. The Cherry Point Industrial Zone is home to approximately 3,320 jobs, roughly 3.75 percent of all jobs in Whatcom County.

The companies contacted by the Center for this analysis reported a total of 3,318 employees working in the Cherry Point area. For analysis purposes, we have rounded this to 3,320, noting that some companies did not respond to our inquiries. Due to this complication in data collection, our rough estimate of 3,320 workers is highly likely to be low making our resulting calculations lower than we would predict given complete data. Furthermore, it is important to note that there are some questions surrounding this estimate of the number of people working in the area – such as how to count contract workers, many of whom are essentially full-time employees of the businesses in the area but some of whom are part-time and/or temporary workers. These questions are ones that arise in every economic contribution analysis and are likely mitigated by our known lower total headcount.

Our Center estimates that there are 14 companies within the Cherry Point Industrial Zone (table 1). Within this table, note that companies provided their average number of employees in 2017.

Company	Participated in 2014	Participated in 2019	Industry Sector	Number of Employees
Alcoa	Yes	Yes	Primary Metals Manufacturing	691
Baker Septic	Yes	No, could not be reached	Waste Management	NA
Barlean's Organic Oils	Yes	Yes	Food Manufacturing	154
BP	Yes	Yes	Petroleum Manufacturing	1840[1]
Chemco Products	Yes	No, declined to participate	Wood Products	NA
Coastal Industrial Services	Yes	No longer in region	Miscellaneous (Waste) Management Services	NA
Praxair	No	No, could not be reached	Merchant Wholesalers	NA
Petrogas	No	Yes	Fuel Dealer	48[2]
Phillips 66	Yes	Yes	Petroleum Manufacturing	435[3]
PSE Ferndale	Yes	Yes	Utilities (Electric Power Generation)	22
PSE Whitethorn	Yes	Yes	Utilities (Electric Power Generation)	6
Western Refinery Services	No	Yes	Industrial Building Construction	122
Total				**3,318**

[1] This figure includes 1000 contract workers
[2] This figure includes 17 contract workers
[3] This figure includes 160 contract workers

Table 1 Source: Phone calls and emails to businesses, September 2018-February 2019

More than one-third of all jobs within the Cherry Point Industrial Zone are contract workers. In the 2014 study conducted by the Center, many of these workers were excluded when estimating the multiplier effects. In this study, we include these workers but exclude jobs at Western Refinery Services. We explain these decisions in the employment multipliers section.

The businesses located in the Cherry Point Industrial Zone mostly produce refined oil products and aluminum for assorted markets. They also produce other goods such as wood products, health supplements, and various chemical products.

Many companies within the region have integrated supply chains or use outputs from other companies within the region. Notably, Petrogas and Western Refinery Services provide services for other companies in the study area, such as the refineries.

Wages

The Employment Security Department of Washington State reports the average annual wage in Whatcom County as $45,491 for 2017. Our analysis finds the average annual wage in the Cherry Point Industrial Zone to be $110,690. The majority of jobs in Cherry Point are in the Petroleum Manufacturing Sector, which has the highest wages, resulting in a higher weighted average. The table below shows the average wages in Whatcom County for industry sectors found in the Cherry Point industrial zone.

Average Wages by Industry Sector, Whatcom County, 2017	
Industry Sector	**Average Wage**
Primary Metals Manufacturing	NA[4]
Waste Management	$60,125
Food Production	$42,456
Fuel Dealer	$38,495
Industrial Building Construction	$55,898
Petroleum Manufacturing	$146,231
Wood Products	$45,902
Merchant Wholesalers	$50,475
Utilities	$103,108
Overall County Average	**$45,491**

Table 2 Source: Washington State Employment Security Department, QCEW data, 2017 annual averages

While some employers in the region pay approximately the county average, the average job pays twice as much, with some paying up to three times the county average. More than two-thirds of the jobs in the area are in the Petroleum Manufacturing Sector, with an average wage 3.2 times that of the county average. Many of the jobs in the region also allow overtime, resulting in actual incomes that are much higher.

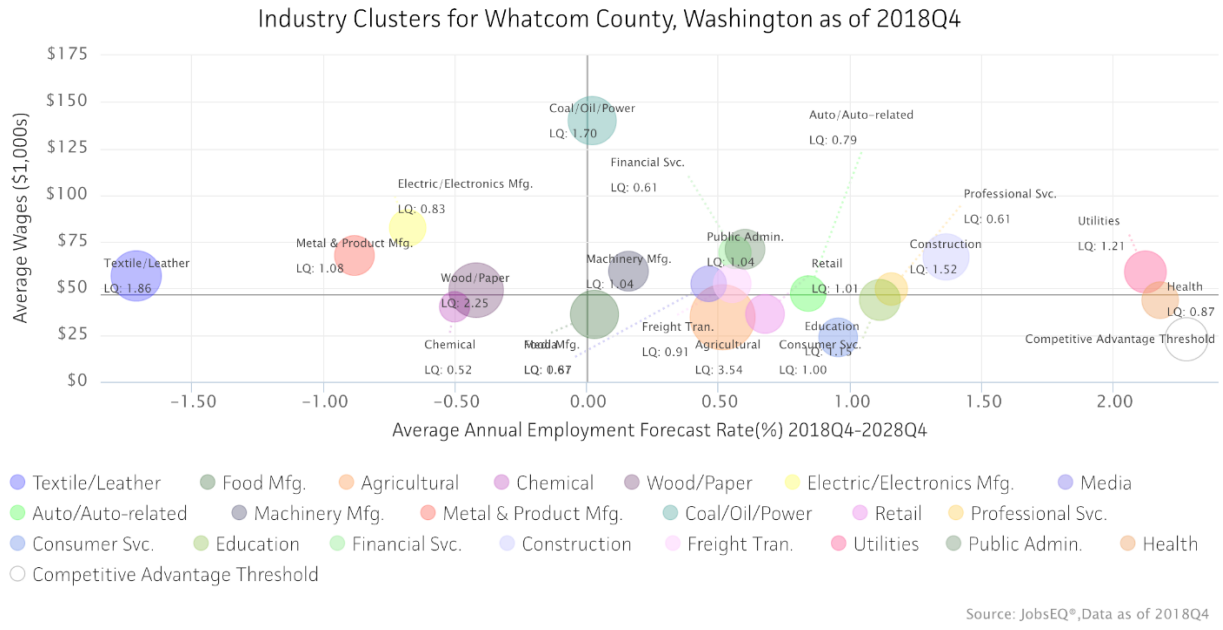
[4] NA indicates that data is not available due to confidentiality restrictions.

Industry Cluster Analysis

Custer analysis is useful as it indicates what industries make a region unique when compared to the rest of the nation. For example, it's one thing to anecdotally understand that industries, like those found at Cherry Point, are important to Whatcom County, but the impact and cluster analysis quantifies the industry presence in different but equally useful ways. The following section examines an industry cluster analysis for Whatcom County. This Industry cluster comes from Chmura's JobsEQ, which uses the most current labor market data from the Bureau of Labor Statistics, in this case from 2018 Q4.

The cluster analysis shown below depicts each industry's forecasted average annual employment rate for 2018 to 2028, graphed against the average wage in thousands of dollars. The vertical axis is set at the average wage for the county; those industries that are below the axis pay less than the average wage and those above it pay more. The horizontal axis is set at zero percent annual employment growth; companies further to the right are expected to grow faster over the next decade and those more to the left are expected to decline quicker.

The size of the bubble for each industry indicates its location quotient (LQ), which is a measure of how concentrated a particular industry is in a given region compared to the national average. A location quotient of 1 would mean that the industry's concentration in that region is exactly the same as the national average. On this chart, that translates to industries with larger bubbles being more prominent in Whatcom County.



Source: JobsEQ®,Data as of 2018Q4

In Whatcom County, agriculture, unsurprisingly, has the largest location quotient of 3.54. This indicates that there is 3.54 times the number of agricultural employees in the county than the national average for counties. The coal/oil/power industry, which is largely composed of the refineries at Cherry Point, has the fourth largest LQ at 1.7. Between 2018 Q4 and 2019 Q4 this industry has an average annual employment forecast rate of 0.02 percent, Furthermore, Chmura gives an average wage of $140,000 -

which is similar to the average wage that the Center found for the petroleum manufacturing industry in Cherry Point.

Multiplier Effects

Any given business supports other jobs in different businesses or sectors through business-to-business activities and through the personal spending activities of their employees. In an economic impact analysis, the goal is often to determine the impacts of adding or subtracting jobs at a particular business. The jobs being added or taken away are the direct jobs (in the jargon of economic impact analysis); these jobs could also be seen as the jobs directly impacted by a given event. The related impacts that arise from changes in business activity are the indirect effects, and the changes in employment that come from changes in household spending are the induced effects.

The differences between the direct effects and, separately, the indirect and induced effects are often described as "multiplier effects". Put another way, the total change (direct, indirect and induced combined) is a multiple of the direct change.

It is important to note that the multiplier effects for a given change depend on the sector, geographic location, and when the change occurs. The multiplier effects differ depending on whether a job is being added or taken away from a retail store or an engineering firm because different sectors interact with other sectors differently. For example, there are more business-to-business interactions associated with jobs in the construction and manufacturing sectors than jobs in retail or education. Furthermore, pay varies across sectors, and spending by households and firms changes over time. As such, it is important to specify when the data were collected.

Additionally, there are different multipliers for different measures of economic activity. There is a multiplier for changes in employment, changes in income, and changes in output. These multipliers are all related, but each can also be used to describe the effects of a given event.

In our work with economic impact or contribution studies, we have found a wide variety of interpretations regarding multipliers and the modeling that is used to produce them.

In the 2014 iteration of this report, we noted that another economic analysis on this industry in estimated that the employment multiplier for the petroleum refining sector in Washington State was 11.68[5]. In their February 2019 report[6], they found this same multiplier. This estimate suggests that adding one job at a refinery would result in the addition of 10.68 other jobs in the state, for a total impact of 11.68 jobs added.

In contrast, an economic analysis conducted on the industry showed an employment multiplier of 2.51 for operations within the state of California. In 2017 an updated version[7] gave a multiplier of 2.61 for 2015. Although there will be some difference between the two states, we would not expect the multipliers to be wildly different between California and Washington.

[5] http://researchcouncil.org/wp-content/uploads/2014-refinery-report-final-122914.pdf
[6] http://researchcouncil.org/wp-content/uploads/2018-Refinery-Report-final.pdf
[7] https://www.wspa.org/wp-content/uploads/WSPA_LAEDC_Study_2017.pdf

A report in 2000 for the Pacific Northwest Aluminum Industry suggested an employment multiplier of 3.94 for jobs in the aluminum smelting industry. A more recent report from 2018 gives a multiplier of 0.68[8].

Our research center generally relies on two sources for identifying multipliers: the Washington State Input-Output Model and IMPLAN. Because the Washington State Input-Output Model has not been updated since 2007, we have restricted our analysis to IMPLAN for this study. Using data from 2017, the IMPLAN model provides 5.50 as the employment multiplier at the state level for the petroleum manufacturing sector and 2.81 for the aluminum industry.

More detail on multipliers

It is rare to see identical multipliers in different studies as data and methodology differs. Different models use different baseline data and include different factors in calculations. Additionally, the geographical boundaries of the region being studied may vary, although this generally is not a factor at the county or state levels.

When estimating multipliers, it is important to ask if the value makes sense. For example, a value of 13 for retail would not make sense because a retail job is not likely to support 12 other jobs in any given region. When a multiplier is that large, questions of data reliability arise.

In evaluating the multipliers found in our research, the Center believes the multipliers found in this study to be accurate. We have discussed our findings and other studies with our peer research centers located throughout the US and have found consensus that the modeling used for this analysis should be held as reliable.

The main concern when calculating multipliers is avoiding double counting. This occurs when a job is counted twice. For example, if company X is a client of company Y, there are likely employees at company Y whose jobs depend on working with company X. If both companies were included in an economic impact analysis, the employees at company Y would be counted twice because their jobs are part of the indirect effects of company X on the region. To avoid this potential issue, we did not use Western Refinery Services' numbers in our analysis scenario as they have reported working with other clients in the Cherry Point area that submitted employment information.

[8] 2018 Economic Impact of the Aluminum Industry, Methodology and Documentation

Regional Impacts

The following sections explore the impacts of employment in the Cherry Point Industrial Zone.

County Level Impacts

Unlike the 2014 study, we have not reported the multipliers from the Washington Input-Output Model. As that model has not been updated and was published 10 years before the data was collected for this study, we have exclusively used IMPLAN to calculate multipliers and impacts.

Multipliers for County Level Impacts (IMPLAN)				
Company	Industry Sector	Multiplier		
		Output	Employment	Labor Income
Alcoa	Primary Metals Manufacturing	1.37	2.29	1.73
Barlean's Organic Oils	Food Manufacturing	1.38	1.93	1.95
BP	Petroleum Manufacturing	1.09	3.52	1.9
Petrogas	Fuel Dealer	1.93	1.89	1.36
Phillips 66	Petroleum Manufacturing	1.09	3.42	2.02
PSE Ferndale	Utilities (Electric Power Generation)	1.15	2.97	1.75
PSE Whitehorn	Utilities (Electric Power Generation)	1.15	2.97	1.75

Table 3 County level Multipliers calculated using IMPLAN

On average, the companies in the Cherry Point Industrial Zone have a county level employment multiplier of 2.71, meaning that each job supports an average of 1.71 other jobs in the county. For comparison, most sectors such as retail and food and drinking establishments have employment multipliers of less than 2.

Our analysis suggests that each job in the petroleum manufacturing industry supports an average of 2.47[9] other jobs in the county, including jobs at companies like Western Refinery Services. Each job at Puget Sound Energy (PSE) supports 1.97 other jobs; each job at Alcoa supports 1.29 jobs; etc.

The largest multipliers are seen at the state level rather than at the county-level because the larger geographic area contains a broader variety of business interactions and spending that occur due to trade between Whatcom County and the rest of the state. State level multipliers are examined in the next section. Additionally, the multiplier for firms within the same industry sector may vary due to different wages.

The following table (table 4) applies the multipliers to the employment reported to demonstrate the total county level employment impacts by the number of jobs created, or dependent, upon those by these companies listed.

[9] BP has a multiplier of 3.52 and Phillips 66 has a multiplier of 3.42. The average between the two is 3.47.

County Level Employment Impacts (IMPLAN)				
Company	**Industry Sector**	**Direct Employment**	**Employment Multiplier**	**Total Impact**
Alcoa	Primary Metals Manufacturing	**691**	**2.29**	**1,582**
Barlean's Organic Oils	Food Manufacturing	**154**	**1.93**	**297**
BP	Petroleum Manufacturing	**1840**	**3.52**	**6,477**
Petrogas	Fuel Dealer	**48**	**1.89**	**91**
Phillips 66	Petroleum Manufacturing	**435**	**3.42**	**1,488**
PSE Ferndale	Utilities (Electric Power Generation)	**22**	**2.97**	**65**
PSE Whitethorn	Utilities (Electric Power Generation)	**6**	**2.97**	**18**
Total		**3,196**		**10,018**

Table 4 County level Multipliers calculated using IMPLAN

Table 4, above, suggests that while only 3.75 percent of jobs in Whatcom are in Cherry Point, the Cherry Point Industrial Zone supports 11.2 percent of all jobs in the county. This is up from 10 percent in 2014.

Wages paid in Cherry Point based employment accounted for 9 percent of all wages paid in Whatcom County. The region either directly or indirectly supports 17 percent of all the wages paid in the county. That's roughly $700 million out of $4 billion paid to Whatcom County based employees in 2017.

Using the average employment multiplier of 3.47, we find that the addition (or loss) of 50 jobs in the petroleum manufacturing industry would result in the addition (or loss) of 174 jobs throughout Whatcom County.

With an employment multiplier of 2.29, the addition (or loss) of 50 jobs in the primary metals manufacturing industry would result in the addition (or loss) of 115 jobs throughout Whatcom County.

The electrical generation industry's employment multiplier of 2.97, shows the addition (or loss) of 50 jobs would result in the addition (or loss) of 149 jobs throughout Whatcom County.

State Level Impacts

While the average county-level employment multiplier is 2.71, the average multiplier at the state-level is higher, at 3.55. At the state level, there are more types of firms that might not necessarily be found in Whatcom County which allows for more business to business and household spending activities.

Multipliers for State Level impacts (IMPLAN)				
Company	Industry Sector	Multiplier		
		Output	Employment	Labor Income
Alcoa	Primary Metals Manufacturing	1.65	2.81	2.49
Barlean's Organic Oils	Food Manufacturing	1.79	2.48	3.2
BP	Petroleum Manufacturing	1.17	5.55	2.79
Petrogas	Fuel Dealer	1.46	1.84	1.55
Phillips 66	Petroleum Manufacturing	1.17	5.44	3.06
PSE Ferndale	Utilities (Electric Power Generation)	1.23	3.35	2.23
PSE Whitehorn	Utilities (Electric Power Generation)	1.23	3.35	2.23

Figure 3 State level Multipliers calculated using IMPLAN

Not surprising, the largest multipliers are within the Petroleum Manufacturing and Utilities (Electric Power Generation) sectors, at 5.55 and 3.35 respectively. This indicates that each Petroleum Manufacturing job supports 4.55 other jobs across the state and that each power generation job supports 2.35 jobs.

State Level Employment Impacts (IMPLAN)				
Company	Industry Sector	Direct Employment	Employment Multiplier	Total Impact
Alcoa	Primary Metals Manufacturing	691	2.81	1,942
Barlean's Organic Oils	Food Manufacturing	154	2.48	382
BP	Petroleum Manufacturing	1840	5.55	10,212
Petrogas	Fuel Dealer	48	1.84	88
Phillips 66	Petroleum Manufacturing	435	5.44	2,366
PSE Ferndale	Utilities (Electric Power Generation)	22	3.35	74
PSE Whitethorn	Utilities (Electric Power Generation)	6	3.35	20
Total		**3196**		**15,084**

Figure 4 State level Multipliers calculated using IMPLAN

In comparing the State and County level impacts it is noted that slightly more than 5,000 jobs are created outside of Whatcom County due to this business activity.

Using the average employment multiplier of 5.5, we found that the addition (or loss) of 50 jobs in the Petroleum Manufacturing industry would result in the addition (or loss) of 174 jobs throughout Whatcom County, but 278 jobs statewide.

The employment multiplier of 2.81 shows that the addition (or loss) of 50 jobs in the primary metals manufacturing industry would result in the addition (or loss) of 115 jobs throughout Whatcom County, and an additional 26 elsewhere in the state.

With the employment multiplier of 3.35 the addition (or loss) of 50 jobs in the electrical generation industry would result in the addition (or loss) of 149 jobs throughout Whatcom County, and a further 19 jobs in the rest of the state.

Furthermore, wages paid in Cherry Point accounted for 0.18 percent of all wages paid in the state. However, the region either directly or indirectly supports 0.34 percent of the wages paid in the state. Stated in dollar form this is approximately $700 million in wages from the $204 billion paid state-wide in 2017.

Analysis

The jobs in the region that pay the most, unsurprisingly, have the largest multipliers, and thus they support the most jobs in both the state and county. It follows that the addition or loss of higher-paying jobs at the refineries will have a larger impact on the rest of the county and state than lower paying jobs.

The 2014 study reported multipliers from the 2007 Washington Input-Output Model; however, as the Washington I-O model has not been updated in the last 10 years, IMPLAN's 2016 Washington State and Whatcom County models were used for this report. Given that the underlying assumptions and data are different between these models, it is difficult to draw conclusions about how these multipliers may have changed over time. However, we can observe that the multipliers from the Washington Input-Output Model are much higher than those from IMPLAN.

Looking at the county level in 2017, IMPLAN showed that an additional 50 jobs in the petroleum manufacturing industry would result in addition (or loss) of 174 jobs throughout Whatcom County. The Washington I-O model in 2014 found that adding 50 jobs in the petroleum manufacturing industry would result in addition (or loss) of 270 jobs in the County.

For primary metals manufacturing in 2017 IMPLAN gave that the addition (or loss) of 50 jobs would result in the addition (or loss) of 115 jobs throughout Whatcom County. The Washington I-O model in 2014 suggests an addition (or loss) of 163 jobs.

In the electric generation industry, IMPLAN found that the addition (or loss) of 50 jobs would result in the addition (or loss) of 149 jobs throughout Whatcom County. In 2014 the Washington I-O model indicates an addition (or loss) of 193 jobs.

Since the 2014 study, roughly 1,100 jobs have been added in the region. Many of these jobs are lower paying, resulting in the average wage for the region declining from $114,000 to $110,690. Meanwhile, the average wage in the county has increased from $41,334 to $45,490. The increase in the average

wage in the county while average wages at Cherry Point slightly decreased indicates wage growth outside of the Cherry Point Industrial Zone at a faster pace.

Tax Impacts

CEBR estimates that the businesses in the Cherry Point Industrial Zone paid more than $243 million in state and local taxes in 2017. Business and Occupation (B&O), hazardous substance, and oil spill response taxes account for roughly 80 percent of this total. Property, payroll, sales, and use taxes make up the remainder, including in excess of $14.9 million in property taxes alone.

As with employment data, tax information paid by any individual company is highly confidential. Fortunately, several of the companies in the region provided us with enough information to determine that the tax impact data from IMPLAN was accurate.

Property tax information, however, is publicly available and shown in the table below for the top three employers in the region.

Tax Category	County Total	Paid by Alcoa, BP and Phillips 66	Percent of Total
State	$59,456,753.00	$3,153,349.96	5.30%
County	$28,860,064.63	$1,527,509.82	5.29%
Conservation Futures	$1,067,876.74	$56,520.72	5.29%
Flood Control Zone	$3,441,531.30	$182,153.87	5.29%
Port of Bellingham	$7,058,336.68	$373,584.69	5.29%
Rural Library	$8,188,771.80	$687,931.65	8.40%
School Districts	$115,533,569.30	$4,507,201.77	3.90%
• Blane School #503	NA	$2,200,18.20	2.00%[10]
• Ferndale School #502	NA	$2,307,053.57	1.90%[9]
Road Districts	$29,382,385.46	$2,089,371.20	7.11%
Fire Districts	$20,108,214.36	$1,693,230.42	8.42%
Cemetery Districts	$590,636.13	$134,849.24	22.83%
Parks & Recreation Districts	$981,773.03	$81,714.52	8.32%
EMS Districts	$8,225,373.05	$416,493.35	5.06%
Total	**$282,895,285.48**	**$14,903,911.21**	**5.27%**

Figure 5 Source: Whatcom County Assessor's tax book and website

It may be important to note that the hazardous substance tax paid by some of the firms in the region is a primary source of revenue for clean-up activities in Bellingham Bay.

[10] As the property taxes paid to individual school districts were not included in the 2017 county tax book, these are the percentage of all property taxes paid to school districts in the county.

Charitable Giving Impacts

Many of the companies within Cherry Point give significant amounts to local groups. Phillips 66, for example, has gifted an annual average of approximately $450,000 in charitable contributions during the last five years, including matching gifts and volunteer grants, in addition to more than $100,000 and 1,000 hours of community service donated by employees.

In 2018, Phillips 66 donated more than $500,000 to local groups, including the Boys & Girls Club of Whatcom County, Lummi Boys & Girls Club, United Way, and the Whatcom Center for Early Learning, Middle School Math Championships (Blaine SD), NW WA fair, and Ferndale Chamber.

The Alcoa Foundation awarded more than $120,000 directly to local organizations and a further $60,000 in national grants to local partners. Intalco provided an additional $80,000 in contributions and scholarships.

In 2019 United Way awarded the BP Cherry Point Refinery the Impact Award for donating more than any other business in the county. In 2018 employees at BP donated $154,237.31 to United Way. BP matched this with a contribution of $151,397.07. Employees donated a further $77,864 to other charitable groups, which BP matched in full. BP gave another $380,000 in scholarships and contributions to Whatcom Library Foundation, Boys & Girls Club of Whatcom, American Red Cross, Nooksack Salmon Enhancement Association, WWU, BTU, Bellingham Schools Foundation, Blaine School District, Friends of Birch Bay State Park, YMCA, and membership dues to Chambers of Commerce and businesses associations in Washington. Additionally, between 2013 and 2017 BP gave more than $3.9 million to community organizations in Washington, and in 2017 employees volunteered 4,500 hours.

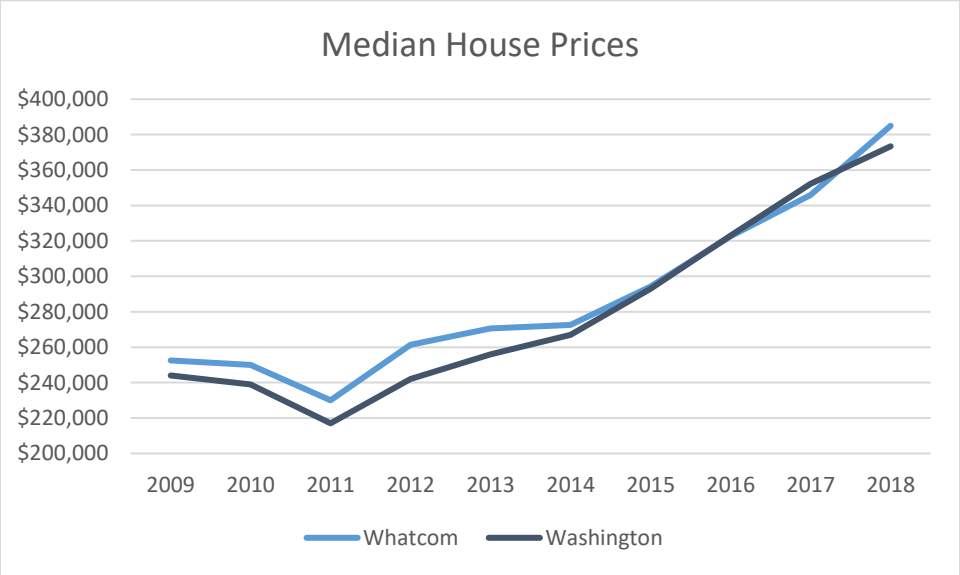
In 2018 Puget Sound Energy provided $572,000 to various charitable groups. $500,000 was awarded to the Opportunity Council Energy Assistance, $5,000 to Lydia place, $10,000 to Sustainable Connections, $50,000 to United Way, $2,500 to the Boys & Girls Club, and $5,000 to various other organizations. They also reported more than 100 volunteer hours.

This charitable giving is not included in our impact modeling but helps paint a more holistic picture of the local impacts of Cherry Point employment and business impacts on a financial basis.

Affordable Housing and Poverty

There are several ways to calculate the cost of living and poverty levels within a community. Wage differences between the Cherry Point Industrial Zone and the rest of the county impact the affordability of housing and other necessities. As with the rest of the report, this section is not intended to serve any advocacy purposes, but rather to act as a reference for further discussions regarding affordable housing and poverty.

The University of Washington's Runstad Department of Real Estate, formed in 2017 from the Runstad Center for Real Estate Studies, has been collecting Housing and Apartment market data since 2007. Runstad has one of the most thorough databases for housing market data in Washington State. In the fourth quarter of 2017, the median home price in Whatcom County was $345,900. This was only surpassed by King, San Juan, Jefferson and Snohomish Counties.



Conventional banking practices suggest that no more than 33.3 percent of household income should be allocated to housing expenses. Assuming a 20 percent down payment and a 4 percent interest rate, the median home requires a weekly household income of $991.83 to afford a $345,900 house with a $1,321.12 mortgage payment, or $51,575.26 per year (principal and interest only). The average income in Whatcom County in 2017 was $45,491[11].

However, when considering this convention, it is useful to consider other factors that can affect what percentage of income should be spent on housing. For example, if someone lives in a city and has no car, they can afford to spend a larger portion of their income on housing. Others, however, may have additional expenses that require them to spend a smaller portion of their income on housing.

When considering this data, it is important to note that the median house, median household, and average wage do not exist. For example, the average household in Whatcom has 2.48 people, which, of course, in actuality cannot exist. Similarly, there are likely no houses that cost exactly $345,900, and it is

[11] https://esd.wa.gov/labormarketinfo/covered-employment , 2017 annual averages, revised

unlikely that anyone made exactly $45,491. These numbers are calculated and used to make generalized analyses. We note that income date from the Employment Security Department of Washington State, Census reports and other data sources will vary due to differences in methodologies used to collect the data.

A common resource to examine poverty levels is the United Way's ALICE project, which is "a nationwide effort to quantify and describe the number of households that are struggling financially." This project uses a Household Survival Budget, which accounts for housing, child care, food, transportation, healthcare, technology, miscellaneous expenses, and taxes. The resulting dollar amount is what is required to meet a "bare-minimum 'survival' level." This number tends to be substantially higher than other methods will produce as it takes more factors into consideration. These calculations were last complete in 2016, so while it can be useful in discussions about how much a living wage is, the exact results are no longer completely accurate.

The U.S. Department of Health and Human Services sets Federal Poverty Guidelines based on household size, which is shown in the table below. Since these guidelines are given for the 48 contiguous states, as well as for Alaska and Hawaii rather than for each individual state, it is difficult to use this data for much more than reference within any of the contiguous states. Cost of living varies widely across the US and within Washington state the variance is some 60 percent. Whatcom County is more than 15% more expensive than the US average making the Federal numbers comparatively low.

Federal Poverty Guidelines (For the 48 contiguous states)	
Persons/Household	Poverty Guideline
1	$12,140
2	$16,460
3	$20,780
4	$25,100
5	$19,420
6	$33,740
7	$38,060
8	$42,380

The U.S. Department of Housing and Urban Development utilizes section 8 housing limits, given below for the Bellingham MSA, to determine who qualifies for housing assistance, and how much assistance they qualify for. These limits can also be used to look at poverty levels.

2018 Income Limits Summary, Bellingham MSA									
Median Family Income	Income Limit Catagory	Persons in Family							
		1	2	3	4	5	6	7	8
$77,500	Very low	$26,650	$30,450	$34,250	$38,050	$41,100	$44,150	$47,200	$50,250
	Extremely low	$16,000	$18,300	$20,780	$25,100	$29,420	$33,740	$38,060	$42,380
	Low	$42,650	$48,750	$54,850	$60,900	$65,800	$70,650	$75,550	$80,400

Median Family Income is calculated using the 2015 American Community Survey five-year median income estimate and adjusting it for inflation. The income limits are first found for the four-person household and then adjusted to find the limits for other household sizes. The basic calculations are that the very low limit is 50 percent of the median family income, the extremely low limit is 60 percent of the very low limit, and the low limit is 80 percent of the median family income.

In considering an average income of $45,491 in Whatcom County in 2017, each of these models indicates that the households with a single income cannot afford to own the median home. However, the average wage in the Cherry Point industrial zone in 2017 could, in fact, afford more than the median home in Whatcom County. Additionally, large households with limited income sources, such as families with multiple children, are far more likely to be below the poverty line, no matter how the poverty line is defined.

Conclusion

The businesses in the Cherry Point Industrial Zone continue to play a significant role in both the county and state economy. The study area is home to approximately 3,320 jobs or roughly 3.75 percent of all jobs in Whatcom County. These jobs support 11.2 percent of all jobs and 17 percent of all wages paid within Whatcom County and contribute a significant amount to local taxes and contribute more than $1 million in charitable donations each year.

The average wage for all jobs in Whatcom County was $45,491 in 2017, with the average wage for jobs in the Cherry Point Industrial Zone being much higher at $110,690. In reflecting on our 2014 analysis we note that the average Cherry Point wage has decreased by an approximate $3,000 due to the addition of positions at a wage below the previous average wage. Some fluctuations are expected, and this one is fairly minor.

Without the jobs in Cherry Point, the average wage in Whatcom County would decrease from $45,491 to $43,024, a 5.4 percent drop.

As we find in many other communities, the average wage in Whatcom County is not enough to afford the median home, but the average wage in Cherry Point can more than afford the median home. When considering this, it is important to note that the average household, median house, and average wage do not truly exist and are calculated in order to make a generalized analysis.

Our analysis finds the companies within the Cherry Point Industrial Zone to have an average county-level employment multiplier of 2.71. Each job in this location supports an average of 1.71 other jobs in the county. The multiplier in this report may not reflect those found in other studies due to differences in data and methodology.