

# Chapter 4. Contribution of Industrial Land to the Regional Economy

## CHAPTER INTRODUCTION

The industrial sector continues to be critical to the diversification and strength of the central Puget Sound economy. This chapter covers findings from the following analyses:

- 1) Employment, wages, and business revenues regionwide and by activity.
- 2) The distribution of industrial activities by subarea.
- 3) Economic impacts of these activities to the regional economy.
- 4) Fiscal impacts of these activities for local and state governments.

Throughout this analysis, employment and wages are reported across all industrial and non-industrial lands and by land use segmentations.

## Methodology

This analysis employs the following steps in sequence to assess the contributions of industrial lands: 1) defining industrial activities by economic codes; 2) assessing the direct contributions of these activities, in the form of jobs, wages, and estimated business revenues; 3) the economic impacts of industrial activities on industrial lands, based on input-output analysis; and 4) the fiscal contributions of industrial activities on industrial lands.












### Defining Industrial Activities

There are several considerations in defining and measuring industrial economic activities. In this analysis, industrial activities are defined as economic activities that require and/or enjoy benefits associated with industrially zoned lands. **Exhibit 4.1** below illustrates the different types of demand for industrial land.

















In the most commonly understood case, industrial activities are activities that have significant byproducts or externalities and are thus by regulation required to locate in specifically zoned lands; such cases would include certain types of manufacturing, such as paper manufacturing. However, there are additional factors driving demand for industrial lands; these include access to physical assets, such as a rail spurs, spatial needs, and agglomeration benefits. For instance, a video production company, while not required by regulation to locate on industrial lands, may seek out facilities with high ceilings, such as the vacant part of a warehouse. In

other cases, a machine repair business may demand location on industrial lands to be in closer proximity to many of its clients. Example businesses demanding industrial land are illustrated in **Exhibit 4.2**. Importantly, these factors are not mutually exclusive—in many cases businesses may locate on industrial lands for two or more reasons.

**Exhibit 4.1. Defining Industrial Lands Activities by Type of Demand**

NEED	EXAMPLES	ILLUSTRATIVE ACTIVITIES
 <b>Physical Separation</b>	<ul style="list-style-type: none"> <li>&gt;Noise</li> <li>&gt;Odor</li> </ul>	<ul style="list-style-type: none"> <li> Chemical Manufacturing (NAICS 325)</li> <li> Paper Manufacturing (NAICS 322)</li> </ul>
 <b>Physical Assets</b>	<ul style="list-style-type: none"> <li>&gt;Rail transportation</li> <li>&gt;Marine terminals</li> </ul>	<ul style="list-style-type: none"> <li> Some types of warehousing (NAICS 493)</li> </ul>
 <b>Space</b>	<ul style="list-style-type: none"> <li>&gt;Building square footage</li> <li>&gt;High ceilings</li> </ul>	<ul style="list-style-type: none"> <li> Caterers (NAICS 72232)</li> <li> Motion Picture &amp; Video Prod. (NAICS 51211)</li> </ul>
 <b>Physical Clustering</b> <small>(agglomeration)</small>	<ul style="list-style-type: none"> <li>&gt;Business-to-Business</li> <li>&gt;Cooperative prod. dev.</li> </ul>	<ul style="list-style-type: none"> <li> Machinery/eq. Rental &amp; Leasing (NAICS 5324)</li> <li> Comm'l &amp; Ind'l Equipment Repair (NAICS 8113)</li> </ul>

**Exhibit 4.2. Examples of Industrial Land Demand by Types of Business**

Example	 <b>Physical Separation</b>	 <b>Physical Assets</b>	 <b>Space</b>	 <b>Physical Clustering</b>
 Comm'l & Ind'l Equipment Repair <small>(NAICS 8113)</small>	—	—		
 Caterers <small>(NAICS 72232)</small>	—	—		—
 Warehousing & Storage <small>(NAICS 5324)</small>	—			—
 Paper Manufacturing <small>(NAICS 322)</small>				—

## **Industrial Economic Sector Codes**

North American Industry Classification System (NAICS) codes are the standard codes used for categorizing and aggregating economic data. In this analysis, NAICS codes are the most basic unit of employment data. To more accurately describe and assess industrial activities, combinations of NAICS codes are created to represent those industries and activities that demand industrial land as a core input in their business operations. **Appendix B** details this industry selection and definitional process.

An inherent challenge with the NAICS codes is the use of one code to classify all business activities. In most cases, the codes sufficiently approximate and represent a business's primary activities, but there are many cases in which a large share of business operations occurs outside the assigned classification. For example, among large retail businesses, employment in support of non-retail activities, such as warehousing or distribution space, can often be classified as retail based on the company's primary activity. Another example is Paccar; while the company is primarily engaged in the manufacturing of transportation equipment, a large part of its business involves truck leasing and financing. These nuances are obscured through the assignment of a single industry code.

## **Industrial Employment and Land Zoning Mismatches**

Data presented throughout this report disaggregate industrial and non-industrial activities on industrial lands. For example, many wholesalers, builders and contractors will locate on commercial, not industrial land; at the same time, many non-industrial uses, including stadiums, auto repair, adult entertainment, and fitness uses, are often found on industrial lands. This segmentation is important for understanding changes in the nature of industrial activities and the role of industrial land as an important input.

## **Economic and Fiscal Impacts**

The Washington State Input-Output Model is the primary tool for estimating the regionwide impacts of industrial activities on industrial lands. The model produces estimates of jobs, business revenues, and wages attributable to direct, indirect, and induced effects.

Indirect effects refer to jobs, revenues, and incomes generated via business-to-business transactions, such as the additional jobs supported across the region among aerospace suppliers fulfilling orders with Boeing Commercial. Likewise, machinery and electronics manufacturing will often require services and inputs provided by machine shops and component manufacturers. When there is new demand for machinery, this results in additional demand for component parts provided by suppliers, extending the number of jobs required to fulfill these new orders.

Induced effects refer to those impacts supported via the spending of household income supported by industrial activities. Because industrial jobs tend to pay wages much higher than the regional average, these activities are expected to have a strong induced impact on the region's economy. Multipliers are used to articulate these relationships across the regional economy. A more detailed discussion of input-output analysis, and the localizing of the statewide model for the central Puget Sound region, can be found in **Appendix C**.

Fiscal impacts in this analysis refer to: 1) direct tax payments—to both state and local governments—by industrial activities on industrial lands; and 2) tax revenues drawn from additional economic activities supported via indirect and induced effects across the region. For these latter estimates, revenues are apportioned by jurisdiction based on economic activity shares and local tax rates applied when necessary (e.g., in jurisdictions with a local Business & Occupation (B&O) tax rate, and to account for variation in tax rates across cities).

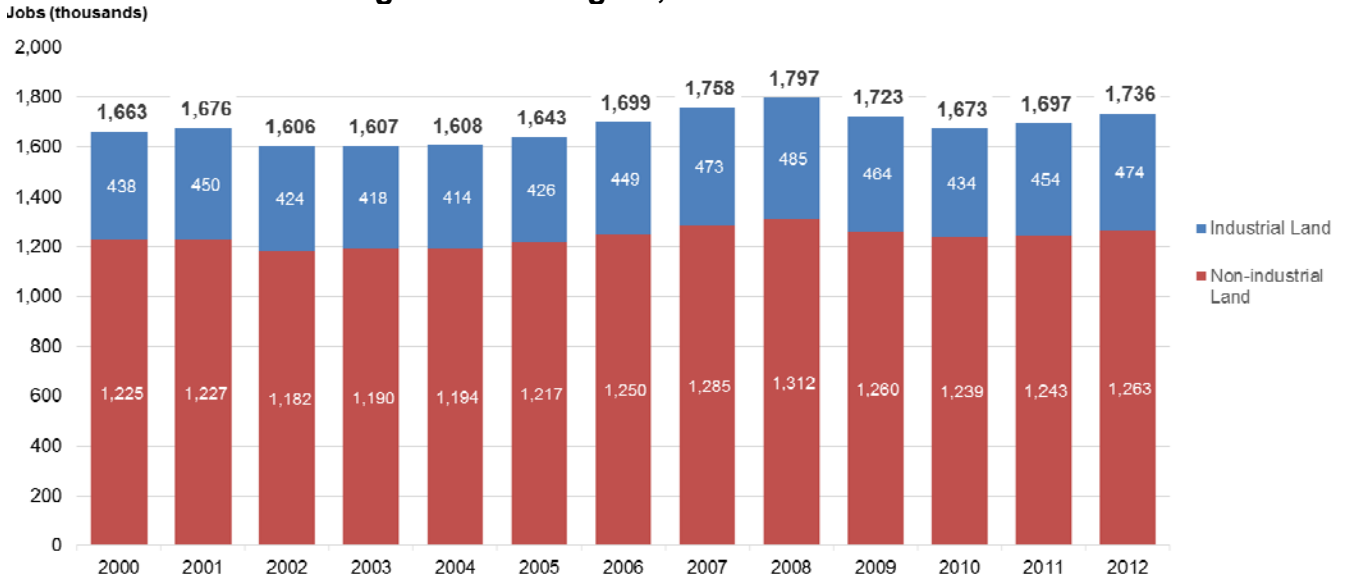
## **JOBS AND WAGES ON INDUSTRIAL LANDS**

This chapter reports covered jobs. Covered jobs refer to hired workers, and thus exclude military personnel, sole proprietors, and other forms of self-employment.<sup>1</sup> “Total jobs” in this chapter thus refer only to covered jobs.

Total jobs on industrial lands totaled 474,000 in 2012, representing about 27.3% of all jobs across the central Puget Sound region (**Exhibit 4.3**). Between 2000 and 2012, employment on industrial lands has averaged 26.5% of total covered employment across the region.

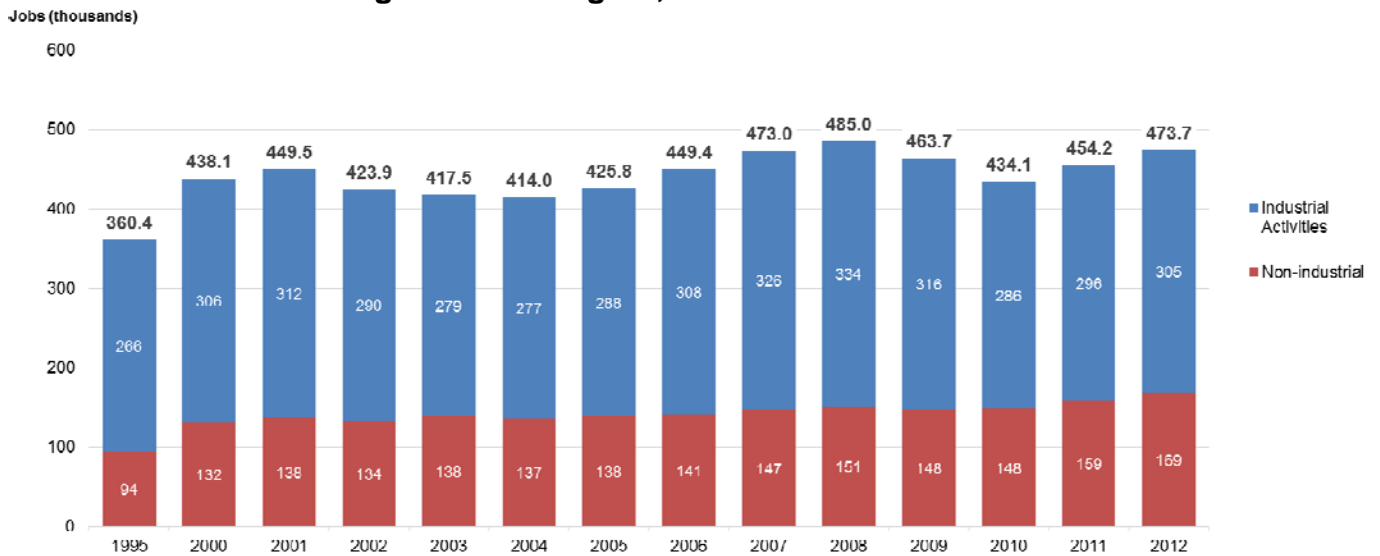
Total industrial employment on industrial lands summed to 305,100 jobs in 2012 (**Exhibit 4.4**). This total includes all private sector industrial jobs, plus the Puget Sound Naval Shipyard, while excluding public education, other government jobs, and private sector non-industrial jobs such as retail, restaurants, and software publishing (of which a large number were located in the 405 Corridor subarea in 2012). Industrial jobs on industrial lands increased two consecutive years, following two years of decline, from a peak of 334,000 jobs in 2008.<sup>2</sup>

### Exhibit 4.3. Jobs on and off Industrial Lands, All Job Types, Central Puget Sound Region, 2000-2012



Sources: PSRC, 2014; Community Attributes Inc., 2014.

### Exhibit 4.4. Industrial and Non-Industrial Employment on Industrial Lands, Central Puget Sound Region, 1995 and 2000-2012



Sources: PSRC, 2014; Community Attributes Inc., 2014.

Manufacturing jobs constituted the largest share of industrial jobs in 2012 (35.7%), though this is down from the year 2000 by 4.2 percentage points (**Exhibits 4.5** and **4.6**). Industrial employment on industrial lands represented nearly two-thirds of all jobs on industrial lands, based on 2012 land supply boundaries. However, private sector non-industrial activities, such as retail and other services, have grown as a share of employment on industrial lands, increasing from 24.0% in 2000 to 29.9% in 2012.

### Exhibit 4.5. Industrial Lands Employment by Industry Grouping, Central Puget Sound Region, 1995, 2000-2012

Industry Groupings	1995	2000	2008	2012	Change, 2000-2012
<b>Core Industrial Activities</b>					
Construction	21,300	31,000	44,000	30,800	-0.6%
Manufacturing*	160,900	174,800	177,100	169,000	-3.3%
Transportation, Distribution & Logistics	28,700	37,800	36,600	29,700	-21.4%
Warehousing & Wholesale	43,100	45,100	51,300	51,300	13.7%
Other Industrial Activities	12,100	17,800	25,000	24,400	37.1%
<i>Subtotal, Core Industrial Activities</i>	<i>266,100</i>	<i>306,500</i>	<i>334,000</i>	<i>305,100</i>	<i>-0.5%</i>
Public Education	1,000	1,000	2,300	2,000	100.0%
Other Government (excluding PSNS and education)	15,500	25,500	25,000	25,000	-2.0%
<b>Non-industrial Private Sector Employment</b>	<b>77,800</b>	<b>105,100</b>	<b>123,700</b>	<b>141,600</b>	<b>34.7%</b>
<b>All Covered Employment</b>	<b>360,400</b>	<b>438,100</b>	<b>485,000</b>	<b>473,700</b>	<b>8.1%</b>

\*Includes Puget Sound Naval Shipyard.

Sources: PSRC 2014; Community Attributes Inc., 2014.

Note: Other Industrial Activities include repair shops, for example, and other smaller employer activities.

### Exhibit 4.6. Change in Share of Total Covered Employment by Industrial Grouping on Industrial Lands, Central Puget Sound Region, 1995, 2000-2012

	1995-2000	2000-2008	2008-2012	1995-2012	2000-2012
<b>Core Industrial Activities</b>					
Construction	7.8%	4.5%	-8.5%	2.2%	-0.1%
Manufacturing (including PSNS)	1.7%	0.2%	-1.2%	0.3%	-0.3%
Transportation, Distribution & Logistics (TDL)	5.7%	-0.4%	-5.1%	0.2%	-2.0%
Warehousing & Wholesale	0.9%	1.6%	0.0%	1.0%	1.1%
Other Industrial Activities	8.0%	4.3%	-0.6%	4.2%	2.7%
<i>Subtotal, Core Industrial Activities</i>	<i>2.9%</i>	<i>1.1%</i>	<i>-2.2%</i>	<i>0.8%</i>	<i>0.0%</i>
Public Education	0.0%	11.0%	-3.4%	4.2%	5.9%
Other Government (excluding PSNS and education)	10.5%	-0.2%	0.0%	2.9%	-0.2%
<b>Non-industrial Private Sector Employment</b>	<b>6.2%</b>	<b>2.1%</b>	<b>3.4%</b>	<b>3.6%</b>	<b>2.5%</b>
<b>All Covered Employment</b>					

Sources: PSRC 2014; Community Attributes Inc., 2014.

The gross industrial land supply map in Chapter 3 shows the segmentation of industrial lands in the region into core industrial and industrial-commercial lands. **Exhibit 4.7** shows industrial and non-industrial jobs on core industrial and industrial-commercial land. **Exhibit 4.7** indicates that over time, non-industrial jobs have grown at a much faster rate than industrial jobs, regionally as well as on industrial lands (98% of regional employment growth 1995-2012 is non-industrial). Employment growth rates on industrial lands are higher than the remainder of the region (regardless of zoning segment, job dichotomy, or time interval), and higher on industrial-commercial land in particular. Industrial jobs vastly outnumber non-industrial jobs on core industrial land, and industrial employment has consolidated on core industrial land during this period (industrial job growth on core land surpasses regional industrial job growth). Industrial jobs account for 43% of job growth on core industrial lands, compared to 12% on industrial-commercial lands, and 2% regionally). Industrial jobs now represent only a third of employment on industrial-commercial land.

#### **Exhibit 4.7. Industrial and Non-Industrial Jobs on Core and Industrial-Commercial Land**

	1995	2000	2012	1995-2012		2000-12	
				Change in Jobs	CAGR	Change in Jobs	CAGR
<b>Industrial Jobs</b>	457,300	534,300	464,800	7,500	0.1%	-69,500	-1.2%
Core Lands	222,700	255,700	248,100	25,400	0.6%	-7,600	-0.3%
IC Lands	30,300	37,100	35,400	5,100	0.9%	-1,700	-0.4%
<b>Non-industrial Jobs</b>	937,400	1,128,600	1,271,700	334,300	1.8%	143,100	1.0%
Core Lands	55,400	75,200	88,900	33,500	2.8%	13,700	1.4%
IC Lands	36,700	56,300	74,500	37,800	4.3%	18,200	2.4%

Source: PSRC, 2015.

The extent to which industrial activities concentrate on industrial land has also changed. Between 2000 and 2012, private sector Transportation, Distribution & Logistics, which includes terminal operators, warehousing, trucking businesses, and freight forwarders, experienced a reduction in its share of activities resident on industrial lands from 66.3% to 58.1%. Manufacturing conversely experienced an increase, though this may be largely due to overall increases in aerospace employment, with the majority of these gains occurring at Boeing facilities (or expansion of existing facilities) already located on industrial lands (**Exhibit 4.8**).

### Exhibit 4.8. Share of Sector Jobs on Industrial Lands, 1995, 2000-2012

Activity	1995	2000	2008	2012	Change, 1995-2012
Construction	32.4%	33.3%	36.9%	40.9%	7.5%
Manufacturing*	73.0%	72.2%	80.0%	79.6%	7.5%
Transportation, Distribution & Logistics	64.0%	66.3%	67.5%	58.1%	-8.2%
Warehousing & Wholesale	54.9%	54.7%	57.3%	61.7%	7.0%
Other Industrial Activities	21.7%	23.7%	32.1%	34.7%	11.0%
Government (ex. Education and PSNS)	12.2%	18.7%	16.4%	16.5%	-2.3%
All Industrial Activities	40.5%	41.5%	43.1%	43.1%	1.5%
Non-Industrial Activities	11.2%	12.2%	12.9%	14.7%	2.5%

\*Including Puget Sound Naval Shipyards.

Sources: PSRC 2014; Community Attributes Inc., 2014.

Across the central Puget Sound region, the largest share of industrial lands jobs by industry grouping in 2012 were in Transportation Equipment Manufacturing (92,400), followed by Wholesaling (45,500), and Transportation, Distribution & Logistics (29,700). Within Transportation Equipment Manufacturing, approximately 70,900 jobs were based in one of five Boeing facilities across the region, with an estimated 5,900 jobs based in other aerospace firms on industrial lands. Ship & Boat Building, Repair, and Maintenance, which includes local private sector businesses such as Kvichak Marine and Vigor Industrial in Seattle and the Puget Sound Naval Shipyard in Bremerton, collectively employed an estimated 13,600 workers on industrial lands. Other transportation activities, such as truck manufacturing, employed another 2,000 workers on industrial lands (**Exhibit 4.9**).

Boeing activities constituted the largest share of Transportation Equipment Manufacturing activities, with 70,900 workers employed at sites on industrial lands regionwide in 2012 (**Exhibit 4.10**). Other Aerospace activities include some, but not all, aerospace suppliers. For example, avionics firms are included in this grouping, but many types of aerospace suppliers, such as Toray Composites, fall under such categories as Refining, Chemicals, and Plastics Manufacturing. Ship and Boat Building, Maintenance, and Repair activities totaled 13,600 workers, the largest share of this operating out of the Puget Sound Naval Shipyard.



### Exhibit 4.9. Detailed Breakout Industrial Employment on Industrial Lands, Central Puget Sound Region, 2012, Regionwide<sup>3</sup>

Rank Industrial Grouping	Jobs on Industrial	Share of Sector Jobs
	Lands	on Industrial Lands
1 Aerospace Manufacturing	76,800	83.5%
2 Wholesaling	45,500	60.3%
3 Transportation, Distribution & Logistics	29,700	58.1%
4 Builders & Contractors	26,700	40.1%
5 Ship and Boat Building, Repair, and Maintenance	13,600	96.5%
6 Electronics & Components Manufacturing	13,100	77.5%
7 Printing & Publishing	13,100	37.3%
8 Other Manufacturing	10,900	71.5%
9 Metals & Fabrication Manufacturing	10,900	87.9%
10 Food & Bev Processing	9,900	61.2%
11 Building & Grounds Services	7,400	26.7%
12 Refining, Chemicals & Plastics Manufacturing	6,000	91.7%
13 Telecom, Broadcasting & Video Production	6,000	27.3%
14 Warehousing & Storage	5,800	75.3%
15 Machinery Manufacturing	5,500	83.3%
16 Wood & Paper Products Manufacturing	5,100	83.7%
17 Heavy & Civil Construction	4,100	46.8%
18 Industrial Services	3,700	63.2%
19 Waste Management & Remediation	3,200	65.8%
20 Other Industrial	2,700	38.7%
21 Textiles, Apparel & Leather Manufacturing	2,100	70.9%
22 Other Transportation Equipment Manufacturing	2,000	83.3%
23 Utilities	1,300	51.7%
<b>Total</b>	<b>305,100</b>	<b>60.3%</b>

Sources: PSRC, 2014; Community Attributes Inc., 2014.

### Exhibit 4.10. Transportation Equipment Jobs on Industrial Lands, 2012

Employment Source	Employment, 2012
Boeing	70,900
Other Aerospace	5,900
Ship and Boat Building, Repair, and Maintenance	13,600
Other Transportation Equipment	2,000
<b>TOTAL</b>	<b>92,400</b>

Sources: PSRC 2014; Community Attributes Inc., 2014.

Wage estimates come from customized private sector wage outlay estimates from PSRC and additional augmentations to account for Puget Sound Naval Shipyard activities. In 2012, total wages paid out by industrial activities on industrial lands summed to \$24.4 billion (**Exhibit 4.11**). Aerospace was the single largest source among industrial activities for wages paid (\$7.5 billion), followed by Transportation, Distribution & Logistics (\$3.4 billion), and Wholesaling (\$3.2 billion). Printing & Publishing activities paid the highest average wages on industrial lands (\$149,800), due in part to publishing activities associated with software, followed by Transportation, Distribution & Logistics (\$114,600). Overall,

annual earnings for industrial jobs on industrial lands averaged \$80,000 in 2012 (**Exhibit 4.12**). By comparison, the average wage across the four-county central Puget Sound region in 2012 was \$59,700. Retail Trade, one of the largest segments of the regional work force, supported an average wage of \$36,300, while Finance and Insurance paid an average wage of \$86,900.<sup>4</sup>

In 2012, total wages paid across the four-county central Puget Sound region and across all industries totaled more than \$105.2 billion. Wages associated with industrial jobs on industrial lands thus equaled 23.2% of all wages paid out across the region in 2012.

**Exhibit 4.11. Total Wages Paid Out by Industrial Activities on Industrial Lands, 2012**

<b>Rank</b>	<b>Industrial Category</b>	<b>Wages (mils \$)</b>
1	Aerospace	7,486.3
2	Transportation, Distribution & Logistics	3,398.9
3	Wholesaling	3,217.6
4	Printing & Publishing	1,957.6
5	Builders & Contractors	1,406.6
6	Electronics & Components	1,191.1
7	Ship and Boat Building, Repair, and Maintenance	1,018.2
8	Metals & Fabrication	578.7
9	Other Manufacturing	572.1
10	Telecom, Broadcasting & Video Production	565.1
11	Food & Bev Processing	507.1
12	Machinery Mfg	354.2
13	Refining, Chemicals & Plastics	336.4
14	Heavy & Civil Construction	300.7
15	Warehousing & Storage	278.5
16	Wood & Paper Products	263.3
17	Building & Grounds Services	227.2
18	Industrial Services	196.1
19	Waste Management & Remediation	176.7
20	Utilities	109.4
21	Other Industrial	106.0
22	Other Transportation Equipment Mfg	91.2
23	Textiles, Apparel & Leather	82.6
<b>Total</b>		<b>24,421.5</b>

Sources: PSRC 2014; Community Attributes Inc., 2014. Estimates do not include benefits and other forms of compensation.

**Exhibit 4.12. Average Wages among Industrial Activities on Industrial Lands, 2012**

<b>Rank Industrial Category</b>	<b>Wages (\$)</b>
1 Printing & Publishing	149,800
2 Transportation, Distribution & Logistics	114,600
3 Aerospace	97,500
4 Telecom, Broadcasting & Video Production	94,400
5 Electronics & Components	91,000
6 Utilities	83,300
7 Ship and Boat Building, Repair, and Maintenance	74,900
8 Heavy & Civil Construction	73,000
9 Wholesaling	70,800
10 Machinery Mfg	64,400
11 Refining, Chemicals & Plastics	55,900
12 Waste Management & Remediation	54,700
13 Industrial Services	53,700
14 Metals & Fabrication	53,200
15 Builders & Contractors	52,700
16 Other Manufacturing	52,300
17 Wood & Paper Products	52,100
18 Food & Bev Processing	51,000
19 Warehousing & Storage	48,000
20 Other Transportation Equipment Mfg	45,600
21 Textiles, Apparel & Leather	40,200
22 Other Industrial	38,700
23 Building & Grounds Services	30,600
<b>Overall Average</b>	<b>80,000</b>

Sources: PSRC, 2014; Community Attributes Inc., 2014.

Note: Overall average represents the weighted average across all industrial jobs on industrial lands activities.

By county, the largest number of industrial jobs on industrial lands in 2012 were in King County, followed by Snohomish County. King County accounted for 54.9% of all industrial jobs on industrial lands across the region (**Exhibit 4.13**).

### Exhibit 4.13. Industrial Jobs on Industrial Lands by County, 2012

<b>County</b>	<b>Jobs</b>	<b>Share of Total</b>
King	167,600	54.9%
Kitsap	18,300	6.0%
Pierce	43,100	14.1%
Snohomish	76,000	24.9%
<b>Total</b>	<b>305,100</b>	<b>100.0%</b>

Sources: PSRC, 2014; Community Attributes Inc., 2014. Note: Total does not exactly sum due to rounding.

## BUSINESS REVENUES

Industrial businesses on industrial lands directly generated more than \$155 billion in business revenues in 2012 (**Exhibit 4.14**). The largest sources of business revenues were Wholesaling activities (\$49.8 billion), followed by Aerospace manufacturing (\$41.8 billion) and Refining, Chemicals, and Plastics manufacturing (\$13.3 billion).

**Exhibit 4.14. Estimated Business Revenues among Industrial Activities on Industrial Lands, 2012**

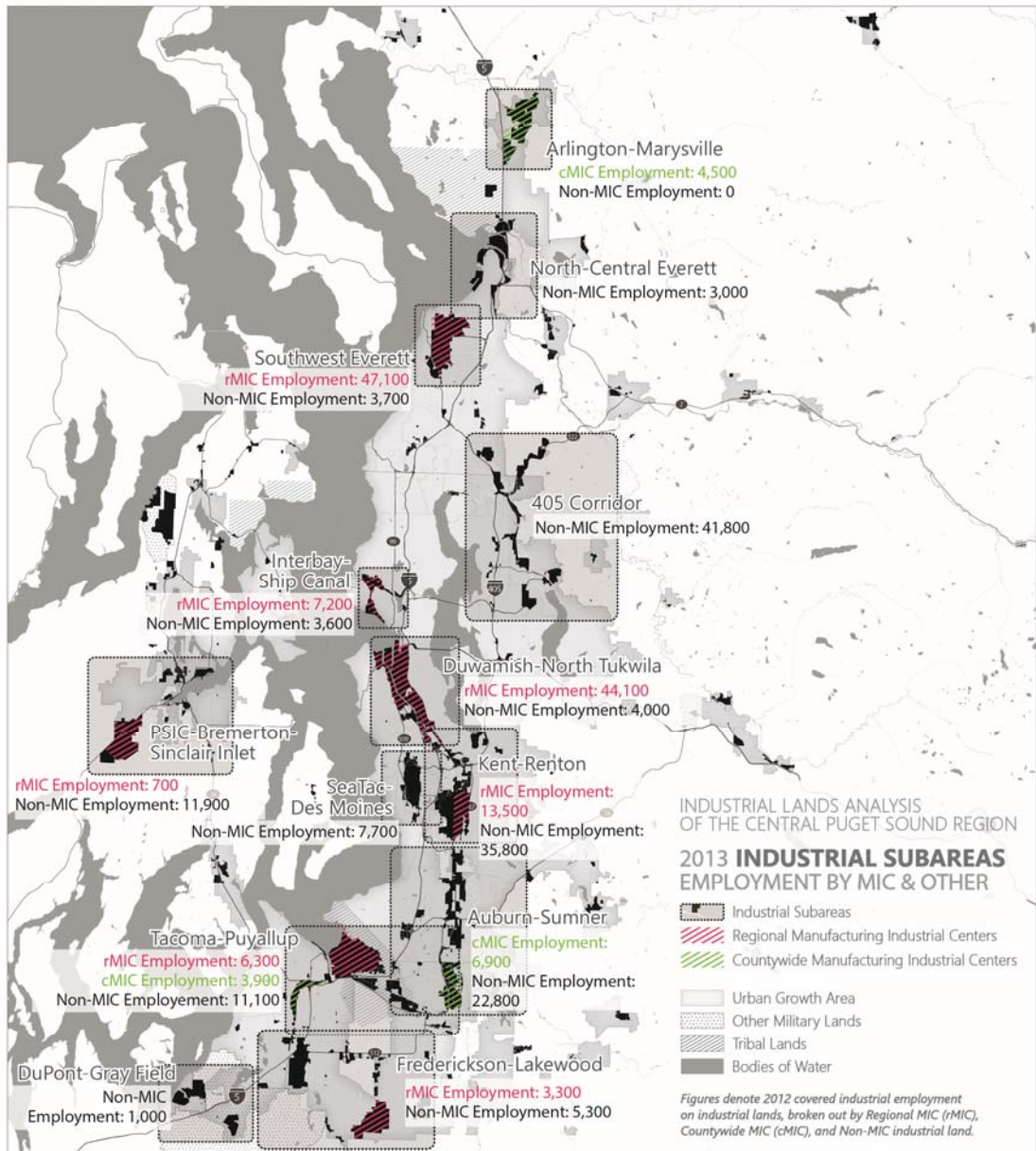
<b>Rank</b>	<b>Industrial Category</b>	<b>Revenues (mils \$)</b>
1	Wholesaling	49,839
2	Aerospace	41,765
3	Refining, Chemicals & Plastics	13,332
4	Builders & Contractors	7,251
5	Electronics & Components	6,346
6	Printing & Publishing	5,989
7	Metals & Fabrication	3,888
8	Food & Bev Processing	3,468
9	Wood & Paper Products	3,429
10	Transportation, Distribution & Logistics	3,365
11	Other Manufacturing	3,292
12	Telecom, Broadcasting & Video Production	2,327
13	Machinery Mfg	2,267
14	Industrial Services	1,439
15	Other Transportation Equipment Mfg	1,391
16	Ship and Boat Building, Repair, and Maintenance	1,231
17	Heavy & Civil Construction	1,202
18	Utilities	866
19	Waste Management & Remediation	764
20	Building & Grounds Services	544
21	Textiles, Apparel & Leather	504
22	Warehousing & Storage	386
23	Other Industrial	263
	<b>Total</b>	<b>155,148</b>

Sources: PSRC, 2014; Washington State Department of Revenue, 2014; Washington State Employment Security Department, 2014; IMPLAN, 2014; Community Attributes Inc., 2014.  
Note: Total does not exactly sum due to rounding.

## Subarea Jobs and Business Revenues

Seventeen distinct industrial subareas have been identified (**Exhibit 4.15**) for more detailed analysis, based on contiguity and general character of each area (as explored throughout this chapter and the next). Metrics discussed below include jobs and business revenues; the latter metric refers to gross business receipts attributable to industrial activities on industrial lands.

**Exhibit 4.15. Employment by Industrial Subarea & MIC, 2012**



The largest of these by employment, Southwest Everett, employed an estimated 50,800 workers in 2012, of which an estimated 45,000 were employed in Manufacturing. The Duwamish-North Tukwila subarea had the largest number of Transportation, Distribution & Logistics jobs (6,600), with another 8,700 workers employed in Warehousing & Wholesale activities. The largest number of Warehousing & Wholesale jobs in 2012 were in the Kent-Renton subarea, which was also home to 24,700 Manufacturing jobs (**Exhibit 4.16**).

Dispersed lands are segmented by county. These areas are not large enough to constitute their own subareas, but are still home to important industrial activities. In 2012, industrial lands in Snohomish County not associated with a defined subarea were home to 6,900 jobs, while employment on dispersed lands in King County summed to 6,300.

#### **Exhibit 4.16. Industrial Lands Employment by Industrial Subarea, 2012**

Subarea	Total Industrial Emp	Macro Sector				Non-industrial	
		Construction	Manufacturing	Transportation, Distribution & Logistics	Warehousing & Wholesale	Other	
405 Corridor	41,800	4,900	23,200	1,500	5,400	6,800	53,500
Arlington-Marysville	4,600	500	3,000	300	600	200	1,100
Auburn-Sumner	29,700	3,900	12,400	3,400	8,300	1,700	6,300
DuPont-Gray Field	1,000	100	800	-	-	-	2,200
Duwamish-North Tukwila	48,100	6,900	21,500	6,600	8,700	4,500	27,300
Frederickson-Lakewood	8,600	1,200	3,700	1,300	1,400	900	4,300
Interbay-Ship Canal	10,700	1,400	6,200	1,200	1,200	700	22,800
Kent-Renton	49,300	3,500	24,700	5,500	12,800	2,800	14,500
North-Central Everett	3,000	500	1,700	400	400	100	2,100
PSIC-Bremerton-Sinclair Inlet	12,600	400	11,400	200	300	200	3,000
SeaTac-Des Moines	7,700	100	400	6,100	400	600	5,300
Southwest Everett	50,800	1,700	45,000	800	2,100	1,200	5,000
Tacoma-Puyallup	21,300	2,600	7,100	2,000	6,600	3,000	8,900
<b>DISPERSED INDUSTRIAL LANDS</b>							
Dispersed-King County	6,300	1,200	2,200	300	1,900	800	1,900
Dispersed-Kitsap County	1,500	400	700	-	200	200	2,800
Dispersed-Pierce County	1,100	300	500	100	100	200	1,600
Dispersed-Snohomish County	6,900	1,100	4,300	200	900	500	6,000
<b>Industrial Employment on Industrial Lands (rounded to 100)</b>							
	<b>305,100</b>	<b>30,700</b>	<b>168,700</b>	<b>29,800</b>	<b>51,200</b>	<b>24,400</b>	<b>168,500</b>

Sources: PSRC, 2014; Community Attributes Inc., 2014.

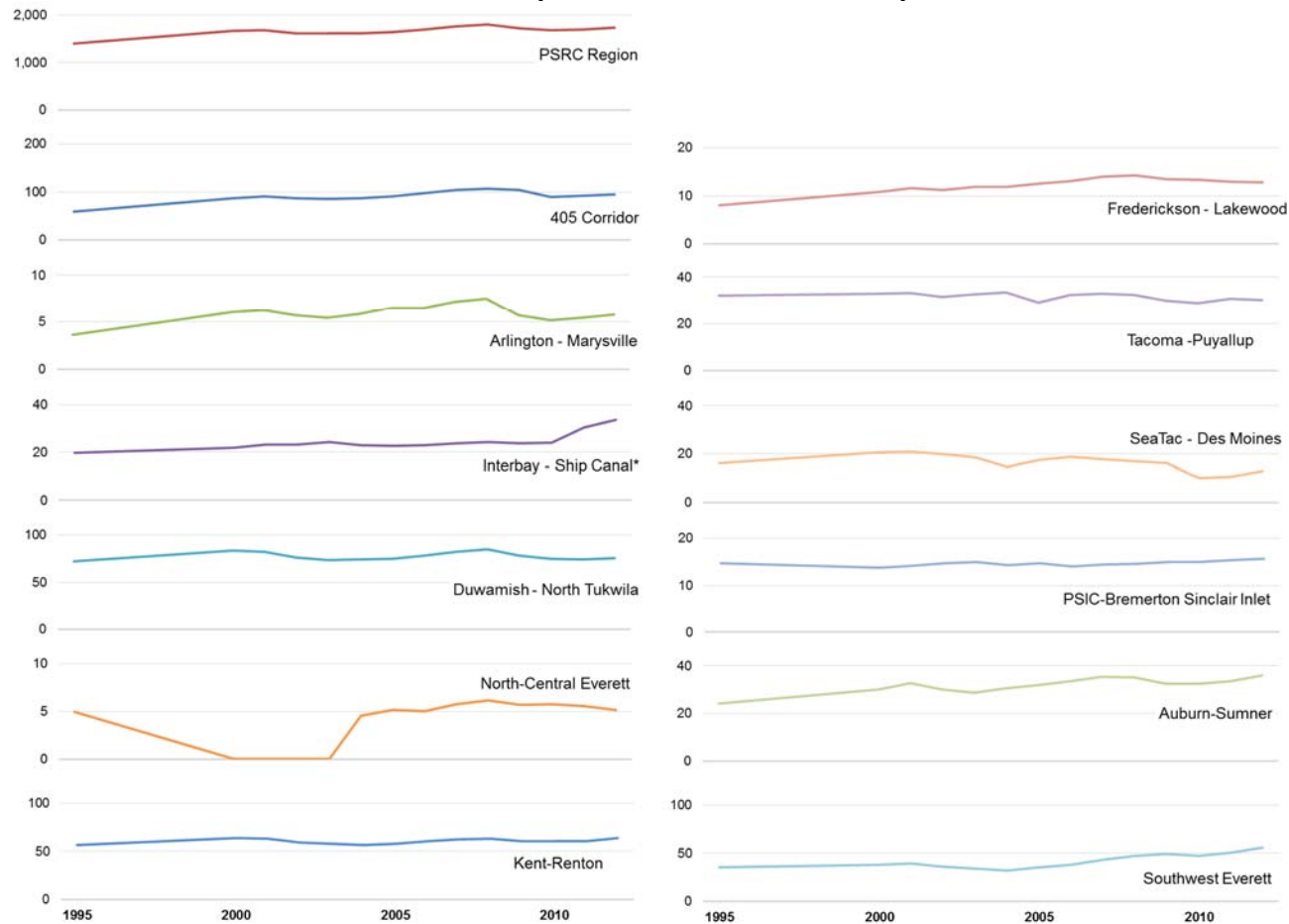
Note: The Interbay-Shipyard Canal subarea includes a nine-block area belonging to the South Lake Union area. This area was zoned industrial in 2012, but has since been rezoned as non-industrial. Non-industrial employment numbers above this reflect approximately 8,500 jobs within this area.

Total covered employment throughout the Puget Sound region has had continuous and relatively steady growth from 1995 through 2012 (**Exhibit 4.17**). This pattern is also consistent throughout most of the subareas as well. However, the 405 Corridor saw a more pronounced time period of employment growth and decline between 2006 and 2010, compared to the Puget Sound region as a whole and compared to other subareas. Additionally, Southwest Everett has seen the most pronounced trend in total covered employment growth between 1995 and 2012. The overall trend in total covered employment in the central Puget Sound region subareas has been relatively flat over time.

Industrial employment in the central Puget Sound region has seen some pronounced peaks and valleys between 1995 and 2012, (**Exhibit 4.18**). The Duwamish-North Tukwila subarea has had the highest industrial employment over time, but the Southwest Everett subarea has had very pronounced growth, and as of 2012 had more industrial employment than any other subarea. Also, the 405 Corridor subarea saw a dramatic drop in industrial employment starting in 2009. Most of the subareas throughout the Puget Sound region have seen relatively flat industrial employment between 1995 and 2012.



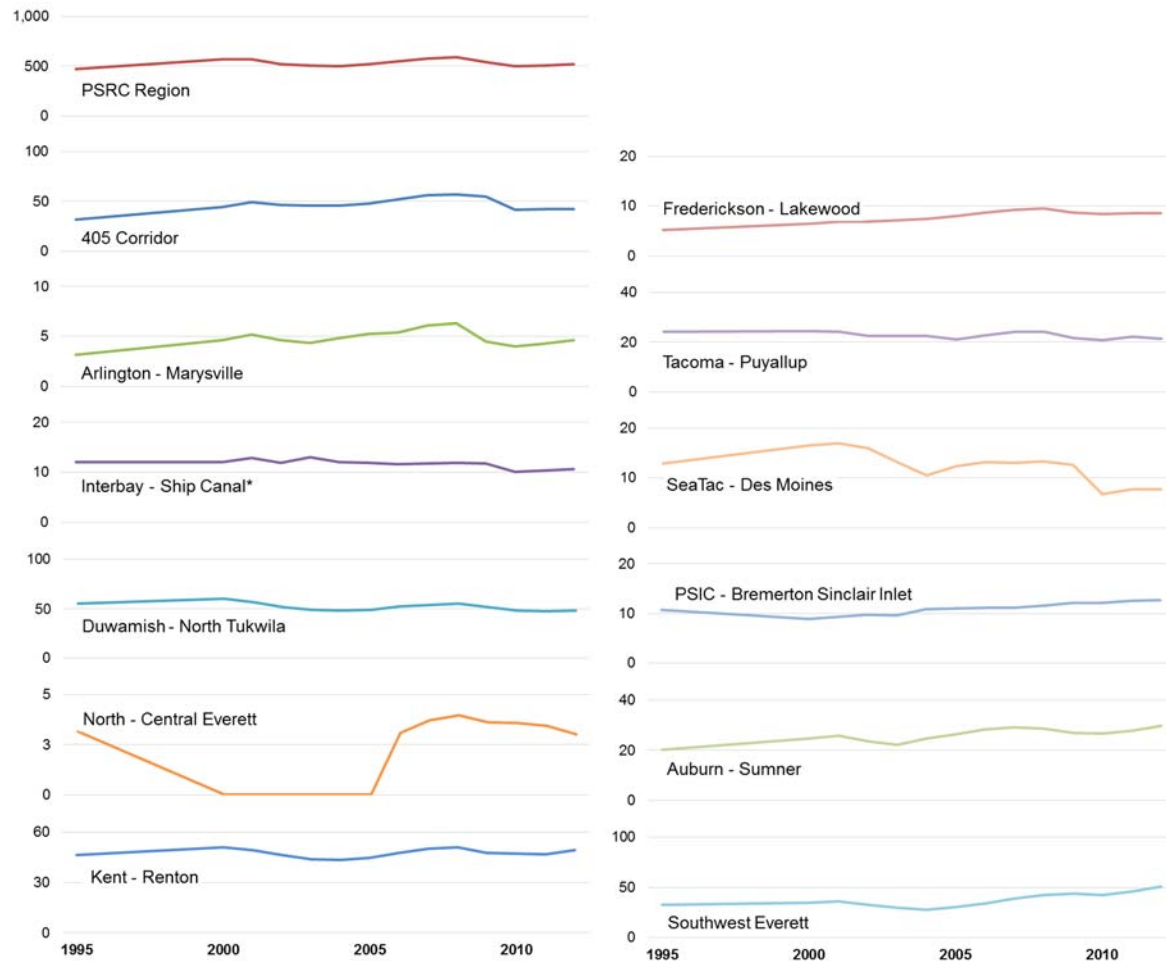
**Exhibit 4.17. Total Covered Employment by Industrial Subarea and Region, 1995-2012 (Thousands of Workers)**



Sources: PSRC, 2014; Community Attributes Inc., 2014. Note: The DuPont-Gray Field subarea is excluded due to confidentiality concerns in the PSRC data from the Washington State Employment Security Department for the years of 1995 through 2005. The region's dispersed industrial lands are also excluded as data was unavailable for 1995.

\*The Ballard-Interbay subarea includes a nine-block area belonging to the South Lake Union area. This area was zoned industrial in 2012, but has since been rezoned as non-industrial. Non-industrial employment numbers above this reflect approximately 8,500 jobs within this area.

**Exhibit 4.18. Industrial Employment by Industrial Subarea and Region, 1995-2012 (Thousands of Workers)**

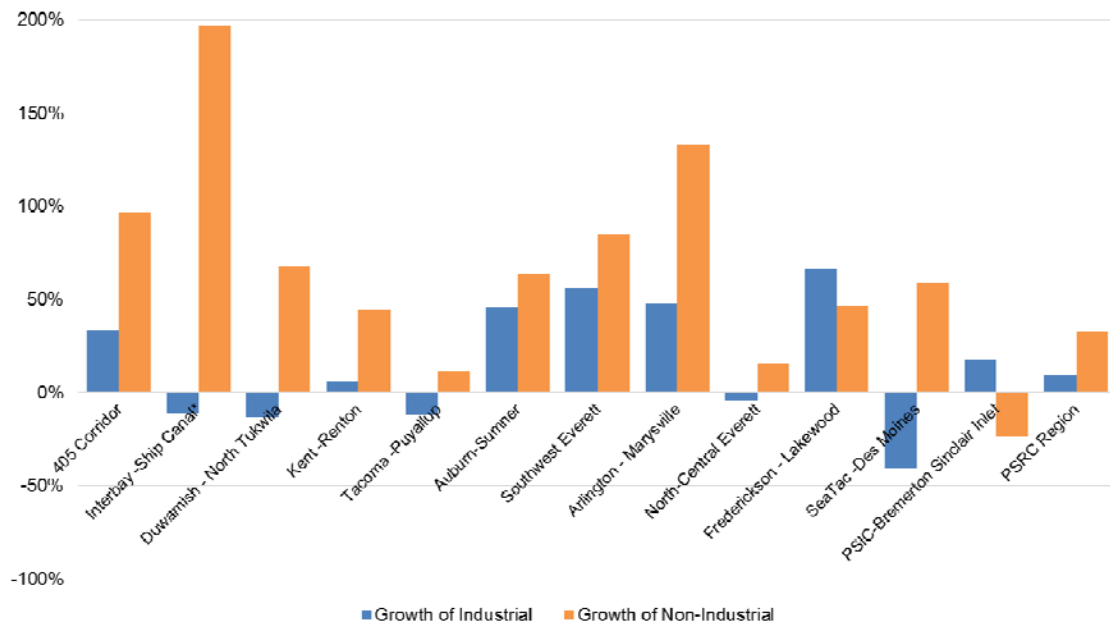


Sources: PSRC, 2014; Community Attributes Inc., 2014. Note: The DuPont-Gray Field subarea is excluded due to confidentiality concerns in the PSRC data from the Washington State Employment Security Department for the years of 1995 through 2005. The region’s dispersed industrial lands are also excluded as data was unavailable for 1995.

\*The Ballard-Interbay subarea includes a nine-block area belonging to the South Lake Union area. This area was zoned industrial in 2012, but has since been rezoned as non-industrial. Non-industrial employment numbers above this reflect approximately 8,500 jobs within this area.

Industrial and non-industrial employment growth rates have been low, but positive in the central Puget Sound region between 1995 and 2012 (**Exhibit 4.19**). Five subareas saw growth in non-industrial jobs, but decline in industrial jobs over this time period. These subareas include Ballard-Interbay, Duwamish-North Tukwila, Tacoma-Puyallup, North-Central Everett, and SeaTac-Des Moines. Many of the subareas have seen very pronounced growth in non-industrial jobs; most pronounced are Interbay-Ship Canal, Arlington-Marysville, and the 405 Corridor. The PSIC-B-Sinclair Inlet subarea saw a decline in non-industrial jobs and a simultaneous increase in industrial jobs between 1995 and 2012, the only subarea that saw this growth pattern.

**Exhibit 4.19. Comparison of Growth of Industrial and Non-Industrial Employment by Industrial Subarea and Region, 1995-2012**



Sources: PSRC, 2014; Community Attributes Inc., 2014. Note: The DuPont-Gray Field subarea is excluded due to confidentiality concerns in the PSRC data from the Washington State Employment Security Department for the years of 1995 through 2005. The region's dispersed industrial lands are also excluded as data was unavailable for 1995.

\*The Interbay-Ship Canal subarea includes a nine-block area belonging to the South Lake Union area. This area was zoned industrial in 2012, but has since been rezoned as non-industrial. Non-industrial employment numbers above this reflect approximately 8,500 jobs within this area.

In 2012, activities in the Kent-Renton subarea supported an estimated \$30.3 billion in business revenues, split between Warehousing & Wholesale and Manufacturing activities (**Exhibit 4.20**). The Southwest Everett subarea generated an estimated \$29.1 billion in revenues in 2012, primarily due to aircraft final assembly at the Boeing Everett facility.

**Exhibit 4.20. Estimated Business Revenues from Industrial Activities by Subarea, 2012 (mils \$)**

Subarea	Construction	Manufacturing	Transportation, Distribution & Warehousing &		Other	Total
			Logistics	Wholesale		
405 Corridor	1,429.04	8,916.20	181.45	6,158.85	2,072.57	18,758
Arlington-Marysville	146.06	1,534.19	41.96	619.40	45.31	2,387
Auburn-Sumner	1,149.52	6,687.28	412.81	7,123.54	311.93	15,685
DuPont-Gray Field	25.40	407.00	1.99	17.53	9.52	461
Duwamish-North Tukwila	2,009.18	10,154.41	789.82	9,724.26	903.24	23,581
Frederickson-Lakewood	360.24	1,889.24	152.15	1,504.40	259.77	4,166
Interbay-Ship Canal	402.43	2,342.26	145.28	1,263.88	171.68	4,326
Kent-Renton	1,014.97	13,826.07	659.73	14,060.90	759.59	30,321
North-Central Everett	152.12	837.20	42.92	378.22	34.06	1,445
PSIC-Bremerton-Sinclair Inlet	124.70	227.96	28.45	328.29	68.41	778
SeaTac-Des Moines	33.48	215.86	737.97	427.10	187.03	1,601
Southwest Everett	503.10	25,837.03	90.78	2,224.11	436.58	29,092
Tacoma-Puyallup	759.49	6,061.92	244.26	5,955.42	912.03	13,933
DISPERSED INDUSTRIAL LANDS						
Dispersed-King County	349.92	1,109.54	36.17	2,018.61	230.90	3,745
Dispersed-Kitsap County	116.64	353.03	-	212.49	57.73	740
Dispersed-Pierce County	87.48	252.17	12.06	106.24	57.73	516
Dispersed-Snohomish County	320.76	2,168.64	24.11	956.19	144.31	3,614
<b>Total Revenues</b>	<b>8,985</b>	<b>82,820</b>	<b>3,602</b>	<b>53,079</b>	<b>6,662</b>	<b>155,148</b>

Sources: PSRC, 2014; Washington State Department of Revenue, 2013; Community Attributes Inc., 2014.

Business revenues estimates are derived by use of statewide ratios of gross business income to worker by industrial sector, with additional augmentation for activities that are not fully represented in statewide gross business income data. Because revenues represent private sector activities, no business revenues are attributed to the Puget Sound Naval Shipyard, despite the large role of the shipyards as a major employer and, to a lesser extent, procurer of local contracts and materials. Furthermore, because business revenues are not reported at the regional level, data reported in **Exhibit 4.20** represent estimated revenues attributable to industrial employment by major sector and subareas.

## ECONOMIC IMPACTS

Activities on industrial lands make significant contributions to the regional economy. This in large part is due to the very nature of certain industrial activities as highly tradable, such as manufacturing. These activities are net exporters of output (i.e., net importers of income) to other parts of the U.S. and world, resulting in significant revenue infusions into the region.

Indirect impacts refer to additional jobs, wages, and business revenues supported through business-to-business transactions, in this case rooted in industrial activities located on industrial lands. Industrial activities paid an average annual wage of \$80,000, more than 34% above the four-county average for 2012. A large share of these higher wages are spent throughout the regional economy, supporting additional economic activity, or what is commonly referred to as “induced” impacts. Together, these two types of impacts constitute the total economic impact of industrial activities on industrial lands, or what is referred to below as “multiplier” effects.

In 2012, industrial activities on industrial lands supported, through direct and multiplier effects, 744,200 jobs, \$220.6 billion in business revenues, and \$45.5 billion in labor income. In other words, for each job in an industrial business on industrial land in the region, an additional nearly 1.5 jobs are supported elsewhere throughout the economy. Likewise, for every dollar of business revenue among these firms, on average another \$0.45 is supported among other businesses, and every dollar of income supports \$1.00 in additional income throughout the region. For every dollar in sales (final demand) among these businesses, 4.9 jobs are supported across the central Puget Sound region (**Exhibit 4.21**).

### **Exhibit 4.21. Industrial Land Industrial Activities Economic Multipliers, 2012**

<b>Measure</b>	<b>Multiplier</b>
Total output per \$ final demand	1.45
Total jobs per direct job	2.44
Total labor income per \$ direct income	2.00
Total jobs per \$ mil final demand	4.90

Sources: Washington State Office of Financial Management, 2013; PSRC, 2014; Community Attributes Inc., 2014.

In terms of jobs, the 305,100 direct industrial jobs on industrial lands supported an additional 439,100 jobs throughout the region through indirect and induced effects. These impacts manifest across all sectors of the economy. For instance, industrial activities on industrial lands supported 58,100 jobs among other retail activities, 39,900 among restaurants and bars, and 36,200 jobs among administrative and employment support services (**Exhibit 4.22**).

**Exhibit 4.22. Top 10 Sector-Based Secondary Employment Impacts of Industrial Activities on Industrial Lands, 2012**

<b>Rank Sector</b>	<b>Employment Impacts</b>
1 Other Retail	58,100
2 Food Services and Drinking Places	39,900
3 Administrative/Employment Support Services	36,200
4 Waste Management/Other, and Agriculture Services	33,500
5 Wholesale	28,900
6 Real Estate and Rental and Leasing	25,800
7 Legal /Accounting and Bookkeeping /Management Services	25,500
8 Nursing and Residential Care Facilities, Social Assistance	25,000
9 Ambulatory Health Care Services	22,300
10 Other Construction	22,100
<i>All other sectors</i>	<i>121,800</i>
<b>Total, All Sectors</b>	<b>439,100</b>

Sources: Washington State Office of Financial Management, 2013; Community Attributes Inc., 2014.

**TAX REVENUES**

Tax revenues include both local and state payments. Direct state tax payments are based on B&O rates (a gross receipts tax) and sales tax rates, while local revenues are calculated based on the industrial activities resident in jurisdictions with retail and B&O tax rates. The B&O is a significant source of income for many local jurisdictions, in some places greater than local sales tax revenues.

In some cases, jurisdictions are home to significant amounts of industrial lands-based business revenues, but those revenues are not subject to local sales and B&O taxes. In other cases, industrial activities do not generate business revenues because the activities are federal, such as with the Puget Sound Naval Shipyard in Bremerton. However, even these activities support tax revenues indirectly through earned income spent in the regional economy.

In 2012, industrial activities on industrial lands made estimated direct B&O tax payments to the state of \$455.7 million, sales tax payments of

\$610.3 million, and \$124.4 million in other taxes, such as utility fees and use taxes. These payments summed to nearly \$1.2 billion. Secondary impacts represent tax revenues drawn from additional economic activity supported through indirect and induced effects throughout the central Puget Sound region. In 2012, an estimated \$376.1 million in additional state B&O tax revenues was supported by industrial activities on industrial lands. State sales tax revenues, through direct and secondary (multiplier) impacts, summed to nearly \$1.2 billion (**Exhibit 4.23**).

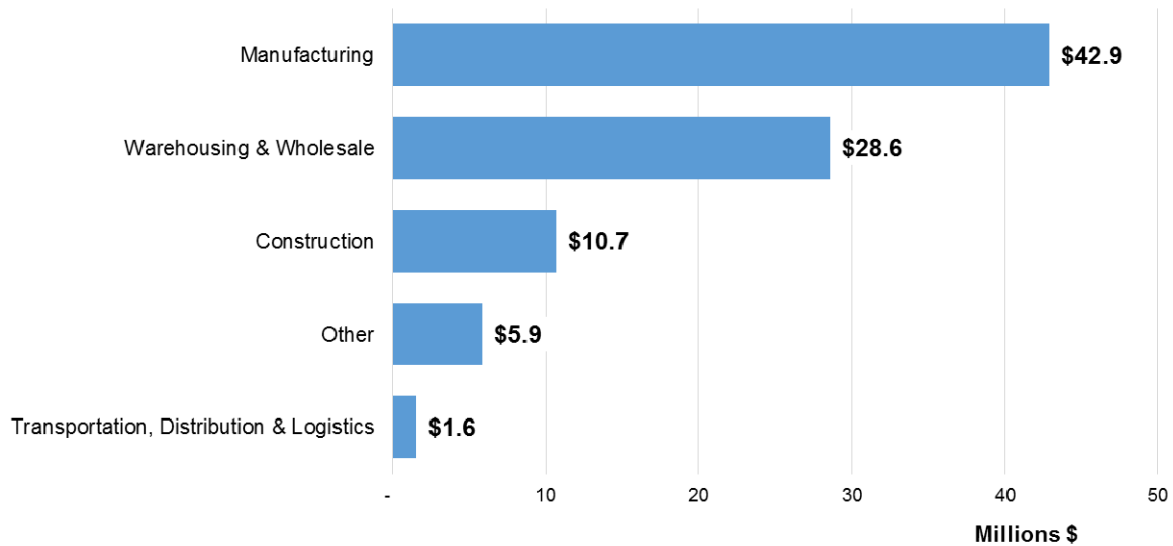
**Exhibit 4.23. Estimated State Tax Revenues Generated by Industrial Activities on Industrial Lands (mils \$)**

<b>Tax Category</b>	<b>Direct Payments</b>	<b>Secondary Impacts</b>	<b>Total Impact</b>
B&O Tax Revenues	455.7	376.1	831.8
Sales Tax Revenues	610.3	571.8	1,182.1
Other Taxes (e.g., use taxes, utility)	124.4	109.1	233.5
<b>Total</b>	<b>1,190.5</b>	<b>1,057.0</b>	<b>2,247.5</b>

Sources: Washington State Office of Financial Management, 2013; Washington State Department of Revenue, 2013; Community Attributes Inc., 2014.

Local B&O tax revenues in 2012 summed to an estimated \$89.6 million (**Exhibits 4.24 and 4.25**). Manufacturing activities paid an estimated \$42.9 million in taxes to local governments, followed by Warehousing & Wholesaling (\$28.6 million). Some jurisdictions, such as SeaTac and Arlington, impose no additional B&O tax, whereas cities that do, such as Everett, received an estimated \$20.2 million in direct tax payments. The majority of Everett’s B&O tax (\$17.3 million) came from manufacturing activities in the Southwest Everett subarea. Industrial activities in the Duwamish-North Tukwila subarea directly paid an estimated \$32.8 million in local B&O tax revenues, of which \$13.0 million were paid by Manufacturing and \$11.2 million by Warehouse businesses. The largest payments were in King County, with \$56.6 million in payments (**Exhibit 4.26**).

**Exhibit 4.24. Estimated Local Government B&O Tax Receipts from Industrial Activities on Industrial Lands**



Sources: Washington State Office of Financial Management, 2013; PSRC, 2014; Washington State Department of Revenue, 2013; Community Attributes Inc., 2014.

**Exhibit 4.25. Local Direct B&O Tax Revenues by Industrial Activities on Industrial Lands, 2012 (est. \$)**

Rank City	Tax Payments
1 Seattle	40,470,400
2 Everett	20,228,900
3 Kent	15,424,300
4 Tacoma	11,948,800
5 Darrington	358,100
6 Bellevue	340,600
7 North Bend	299,200
8 DuPont	232,200
9 Algona	144,500
10 Bremerton	105,100
11 Bainbridge Island	70,700
12 Roy	4,200
<b>Total</b>	<b>89,627,000</b>

Sources: Community Attributes Inc., 2014; Washington State Department of Revenue, 2013; Association of Washington Cities, 2013.



**Exhibit 4.26. Local B&O Tax Revenues by County Paid by Industrial Activities on Industrial Lands, 2012 (est.,mils \$)**

<b>County</b>	<b>Total Business</b>	<b>Local B&amp;O</b>
	<b>Revenues</b>	<b>Revenues, mils \$</b>
King	84,608.2	56.6
Kitsap	4,191.7	0.2
Pierce	25,049.6	12.2
Snohomish	41,298.8	20.6
<b>Total</b>	<b>155,148.3</b>	<b>89.6</b>

Sources: Community Attributes Inc., 2014; Washington State Department of Revenue, 2013; Association of Washington Cities, 2013.

**Secondary Fiscal Impacts of Industrial Activities on Industrial Lands**

The economic impacts discussed earlier in this chapter extend to fiscal impacts. The fiscal impacts include, for example, additional sales tax revenues generated by the spending of income among activities supported by industrial activities, and the tax revenues drawn from these transactions. Additional revenues supported by industrial activities on industrial lands provide further tax revenues for local jurisdictions when local B&O and sales tax rates exist.

The approach to calculating additional fiscal revenues uses the distribution of economic activities by industry sector and city across the central Puget Sound region. For instance, if a jurisdiction has 20% of all manufacturing activity, then that jurisdiction would be credited with 20% of all additional manufacturing revenues supported by industrial lands' industrial activities. If the jurisdiction in question has a local B&O tax, that rate would then be applied to these additional manufacturing revenues.

The advantage of these additional calculations is to illustrate the broader fiscal benefits regionwide, even if these benefits are not equal. For example, some industrial workers on industrial lands in Everett may actually live in Bellevue. These workers may spend a large share of their disposable income in Bellevue due to their residence, with the City of Bellevue receiving the largest share of sales tax revenues as a result, even if the wages were earned outside the city. In another example, an aerospace supplier located in Kent but on non-industrial lands earns income through its contracts with Boeing Commercial in Renton; these revenues are thus subject to the applicable local B&O taxes, resulting in industrial lands-supported fiscal revenues for Kent, and not Renton.

Based on these estimates, local governments across the central Puget Sound region received an additional \$102.2 million in local tax revenues

based on local B&O tax rates in 2012 (**Exhibit 4.27**). The largest recipients were Seattle (\$71.4 million), Tacoma (\$11.8 million), and Bellevue (\$8.2 million). Industrial activities on industrial lands thus supported, directly and via multiplier effects, \$191.8 million in local government B&O tax revenues. Moreover, this total excludes property taxes and statewide tax revenues that are re-invested in the region.

### **Exhibit 4.27. Local B&O Revenues from Industrial Activities on Industrial Lands, 2012 (est. \$)**

<b>City</b>	<b>Direct Tax Revenues</b>	<b>Secondary Tax Impacts</b>	<b>Total Impact</b>
Seattle	40,470,400	71,372,600	111,843,000
Tacoma	11,948,800	11,777,800	23,726,600
Bellevue	355,100	8,156,700	8,511,800
Kent	15,424,300	4,243,100	19,667,400
Everett	20,228,900	3,208,300	23,437,200
Bremerton	105,100	1,094,600	1,199,700
Issaquah		780,200	780,200
Pacific		249,600	249,600
North Bend	299,200	239,400	538,600
Burien		234,100	234,100
Bainbridge Island	70,700	226,500	297,200
DuPont	232,200	209,700	441,900
Snoqualmie		157,300	157,300
Lake Forest Park		127,400	127,400
Pacific		69,500	69,500
Algona	144,500	44,800	189,300
Ruston		4,900	4,900
Darrington	358,100	4,000	362,100
Roy	4,200	1,800	6,000
<b>Total</b>	<b>89,641,500</b>	<b>102,202,300</b>	<b>191,843,800</b>

Source: Washington State Office of Financial Management, 2013; Washington Association of Cities, 2013; Community Attributes Inc., 2014.

Note: Secondary impacts refer to the combined effects of indirect and induced impacts.

### **Impacts of Streamlined Sales Tax Policy**

For most activities on industrial lands, tax revenues are directly levied by the jurisdiction where the industrial activity takes place. A major exception is sales tax levied on wholesaling activities. According to the streamlined sales tax (SST) policy, goods that are sold over the Internet or by phone are subject to the sales tax levy at the place of final destination. In the case of many Wholesaling & Warehousing activities, the immediate implication of this rule is that jurisdictions that are home to many Wholesaling and Warehousing jobs may not see a direct fiscal revenue stream associated with these activities.

To illustrate these impacts, local sales tax revenues were calculated for Wholesaling & Warehousing activities on industrial lands. These activities, across all industrial lands region wide, generate an estimated \$49.8 billion in business revenues. Of this, an estimated 6.2% is in the form of final demand sales, and thus subject to a sales tax levy. Sales transacted within the region account for an estimated 95% of total sales (the remainder representing sales to customers outside the central Puget Sound region), resulting in total regional taxable retail sales of \$2.9 billion in 2012.

Jurisdictions with the largest number of Wholesaling & Warehousing activities employment and associated business revenues include Kent (\$9.5 billion), Seattle (\$8.6 billion), Tacoma (\$4.6 billion), Renton (\$3.6 billion), and Auburn (\$2.5 billion). If sales tax levies were restricted to the origin of sale (and not destination), the City of Kent would collect, based on the above estimates, more than \$16.8 million in sales tax revenues in 2012. However, the SST lowers this total to \$4.1 million, a hypothetical net loss of \$12.7 million (**Exhibit 4.28**). Conversely, the City of Seattle, which under an origin-based sales tax would directly collect \$15.1 million in sales tax revenues generated by Warehousing & Wholesaling activities, under the SST collects an estimated \$25.4 million, a difference of \$10.3 million.

**Exhibit 4.28. Cities with Largest Absolute Change in Wholesaling & Warehousing Sales Tax Due to SST, 2012, (est., Mils. \$)**

Rank City	W&W Revenues	Sales Taxes Collected if no SST	Estimated Actual Sales Taxes Collected	Loss or Gain in Local Sales Tax Revenues
1 Kent	9,517	16.8	4.1	-12.7
2 Seattle	8,562	15.1	25.4	10.3
3 Bellevue	102	0.2	6.0	5.8
4 Renton	3,632	6.4	2.4	-4.0
5 Tacoma	4,631	8.2	5.2	-3.0
6 Sumner	2,155	2.9	0.5	-2.4
7 Auburn	2,451	4.3	2.6	-1.7
8 Lynnwood	50	0.1	1.2	1.1
9 Kirkland	383	0.7	1.7	1.0
10 Bremerton	34	0.0	0.9	0.8

Source: Washington Association of Cities, 2013; Washington State Department of Revenue, 2014; Community Attributes Inc., 2014.

Note: Loss of gain estimates may not exactly equal differences across other columns due to rounding.

Washington’s streamlined sales tax policies went into effect on July 1, 2008, nearly seven years ago. Some cities, such as Kent, may now be questioning the fiscal benefits of accommodating warehousing activities, since state laws for municipal taxes so heavily favor retail sales with points of sale locally. Warehousing is a critical component of the regional economy, however, and the local economic benefits of warehousing do

not hinge on SST alone. The local economy, local residents' job opportunities, and the city's role in the regional economy factor heavily into the relationship between local zoning and economic impacts, among other considerations.

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<sup>1</sup> Covered employment refers to jobs reported to the state in accordance with the Washington State Employment Security Act. The Act exempts unincorporated self-employed, uniformed military, corporate officers, elected officials, religious workers and railroad personnel. Covered employment accounts for approximately 90% of all jobs.

<sup>2</sup> Estimates of industrial employment presented in this report reflect private sector industrial employers; due to limitations of the source dataset, it is difficult to determine which government workplaces are industrial in nature and which are not. The scale of such public-sector industrial employment is typically small in comparison with the private sector, but a clear exception is the Puget Sound Naval Shipyard, which employs a regionally significant number of civilian personnel in manufacturing, maintenance and repair work. An estimate of Federal ship and boat building, maintenance, and repair activities (NAICS 3366) for this geography was thus added to the prior estimates of industrial employment.

<sup>3</sup> Note: totals include private sector covered employment plus Puget Sound Naval Shipyard's public sector employment, but do not include other public sector activities.

<sup>4</sup> Data source: Washington State Employment Security Department, Quarterly Census of Employment and Wages, 2015.