

# Chapter 5. Regional and Subarea Employment Forecasts

## CHAPTER INTRODUCTION

This section examines industrial and non-industrial employment growth through analysis of the PSRC's employment forecasts for the region and the region's industrial subareas.

## PSRC'S UrbanSim Land Use Model

PSRC utilizes a land use model known as UrbanSim. This model was developed in collaboration between PSRC and Dr. Paul Waddell, now at the University of California, Berkeley. UrbanSim is designed to be a dynamic, capacity-constrained model for land development. The model incorporates interactions between households, firms, and governments, as well as the real estate market, the transportation system and development patterns. Statistical models approximate the behavior of developers, households, and employers, based on detailed data specific to the region in question. A key feature is its detailed and explicit recognition of development regulations (including, but not limited to, zoning). UrbanSim then apportions regional growth to individual parcels regionwide (published at an aggregated level for small areas that cover the region).

In July 2013 PSRC published the initial public release of land use forecasts generated with UrbanSim—the Land Use Baseline product. The maintenance release that followed in April 2014 is used in this report. The Land Use Baseline scenario matches PSRC's regional economic forecast in aggregate and reflects currently adopted development regulations. Note the forecasts represent merely one potential future among a range of possible scenarios that reconcile supply and demand for industrial land in the central Puget Sound region.

Chapters 6 and 7 discuss changes in development patterns that mathematically must happen to accommodate the forecasts.

## REGIONAL EMPLOYMENT FORECAST

PSRC's regional employment forecasts incorporate national and local variables to show plausible growth for planning purposes. The PSRC regional employment forecasts represent projections of total jobs (including both covered workers and the self-employed), presented in **Exhibit 5.1**.

Note that the standard industry sectors published in the PSRC forecasts do not neatly align with industrial activity groupings as defined and discussed in **Chapter 4**. To account for these differences, this analysis applies the 2013 ratio of custom

sectors (identified by Community Attributes) by forecast sector, to 2040 forecast sectors.

**Exhibit 5.1. Employment Forecast by PSRC Major Sector and County, Central Puget Sound Region, 2010-2040**

<b>County-Sector</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>
<b>King</b>				
Manufacturing - WTU	202,443	237,488	243,363	268,840
Retail - Food Services	187,391	220,241	251,138	294,531
FIRE - Services	559,446	745,070	863,414	1,033,671
Government / Higher Education	129,634	128,680	130,251	135,380
Education K-12	44,680	57,551	62,749	68,649
Construction-Resource	57,943	78,590	76,144	96,190
	<u>1,181,537</u>	<u>1,467,620</u>	<u>1,627,059</u>	<u>1,897,261</u>
<b>Kitsap</b>				
Manufacturing - WTU	14,929	17,895	18,733	20,834
Retail - Food Services	17,343	19,313	20,606	24,320
FIRE - Services	33,969	40,457	44,775	52,783
Government / Higher Education	19,877	20,055	20,835	21,275
Education K-12	6,498	8,743	9,732	10,660
Construction-Resource	4,801	5,049	5,029	6,395
	<u>97,417</u>	<u>111,512</u>	<u>119,710</u>	<u>136,267</u>
<b>Pierce</b>				
Manufacturing - WTU	38,591	46,633	49,943	60,920
Retail - Food Services	52,803	60,797	68,152	79,211
FIRE - Services	107,369	149,714	173,018	213,240
Government / Higher Education	78,393	87,215	88,135	89,355
Education K-12	20,335	25,957	28,539	30,908
Construction-Resource	20,383	22,680	22,473	28,007
	<u>317,874</u>	<u>392,996</u>	<u>430,260</u>	<u>501,641</u>
<b>Snohomish</b>				
Manufacturing - WTU	65,440	70,356	72,932	82,710
Retail - Food Services	48,793	64,135	73,834	89,243
FIRE - Services	91,498	121,896	145,117	182,192
Government / Higher Education	27,603	27,553	27,788	28,538
Education K-12	15,239	20,029	21,811	23,661
Construction-Resource	20,013	24,528	24,272	30,331
	<u>268,586</u>	<u>328,497</u>	<u>365,754</u>	<u>436,675</u>
<b>4-County Regional Total</b>	<b><u>1,865,414</u></b>	<b><u>2,300,625</u></b>	<b><u>2,542,783</u></b>	<b><u>2,971,844</u></b>

Source: PSRC, 2014.

## SMALL-AREA EMPLOYMENT FORECASTS

### Forecast Growth on Industrial Lands

Sub-regional forecasts of employment demand and land use represent one scenario that may occur under existing conditions, including local land use, markets, transportation, and other conditions. If the supply of industrial land changes, the results presented below will change.

PSRC's Land Use Baseline forecasts show industrial jobs on industrial lands increasing from **305,100 in 2012 to 389,000 by 2040**. This represents an addition of 83,900 jobs regionwide through 2040, which yields a compound annual growth rate of 0.9%. This is lower than the 1.6% CAGR for PSRC's regional employment forecast across all sectors and land types.

Critically, the proportion of industrial to non-industrial jobs is forecast to experience a pronounced change—total non-industrial jobs are projected to grow from 35.6% of total jobs on industrial lands in 2012 to 43.6% by 2040 (**Exhibit 5.2**).

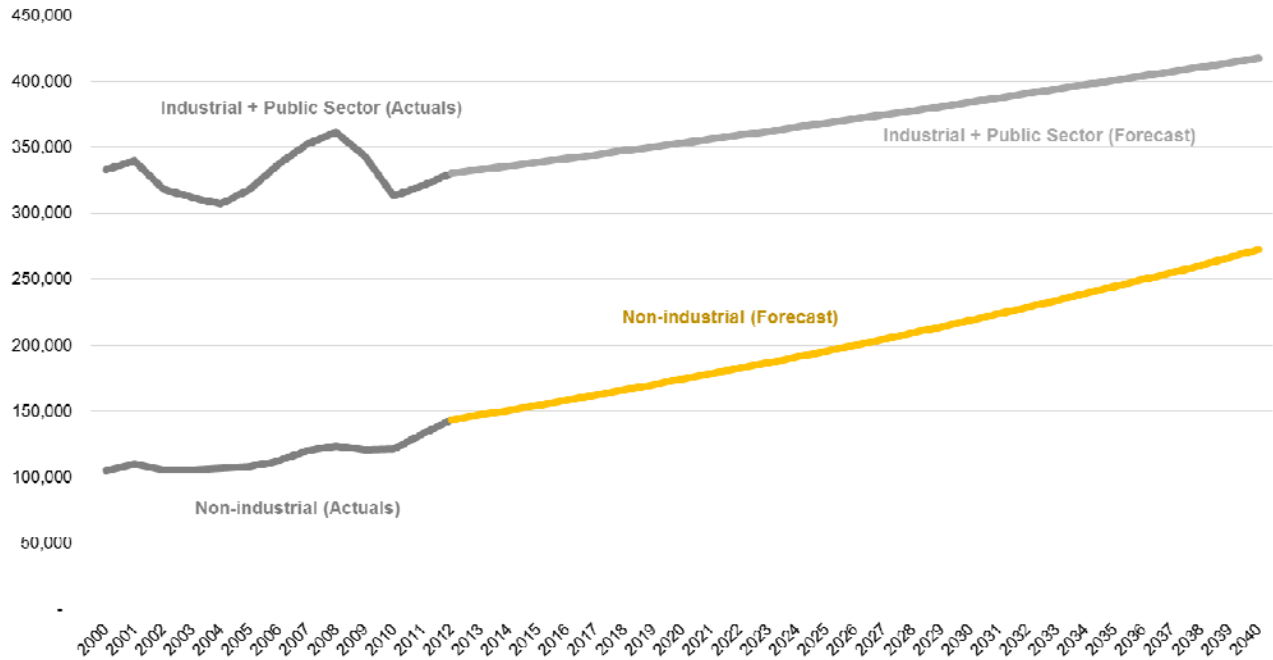
#### **Exhibit 5.2. Share of Industrial versus Non-Industrial Employment on Industrial Lands, Central Puget Sound Region, 2012-2040**

	<b>2012</b>	<b>2040</b>
Industrial	64.4%	56.4%
Non-industrial	35.6%	43.6%

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

Between 2012 and 2040, these non-industrial jobs on industrial lands are forecast to grow at a compound annual growth rate of 2.3%, compared with 0.9% for industrial jobs and 0.5% for other public sector jobs on industrial lands (less the Puget Sound Naval Shipyard; **Exhibit 5.3**).

### Exhibit 5.3. Historic and Forecast Industrial and Non-Industrial Jobs on Industrial Lands, Regionwide (Covered Employment)



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

**Exhibits 5.4 and 5.5** show growth across all industrial sectors on industrial lands, though growth rates vary by activity. The PSRC-derived forecasts show the greatest job growth occurring in Warehousing & Wholesaling, with 30,000 new jobs by 2040 (1.7% CAGR). Other industrial activities follow, with a net jobs increase of 26,500—a projected compound annual growth rate of 2.7% per year between 2012 and 2040. Manufacturing jobs are forecast to grow just 0.2% on industrial lands through 2040; Aerospace jobs are forecast to decline slightly during this period.

Non-military public sector industrial activities on industrial lands include public education, public vehicle depots, public sector utilities, and similar government functions. These activities are forecast to add an additional 3,600 jobs between 2012 and 2040, but with a smaller growth rate of 0.5% per year.<sup>1</sup>

## Exhibit 5.4. PSRC Industrial Jobs Forecast by Macro Sector on Industrial Lands, Central Puget Sound Region, 2012 – 2040 (Covered Employment)

Macro Sector	2012 (baseline)	2040	Change 2012 - 2040	
			Jobs	CAGR
Construction	30,800	44,900	14,100	1.4%
Manufacturing	168,700	178,900	10,200	0.2%
Transportation, Distribution & Logistics	29,800	33,000	3,200	0.4%
Warehousing & Wholesale	51,200	81,200	30,000	1.7%
Other Industrial	24,500	51,000	26,500	2.7%
<i>Subtotal, Industrial Jobs</i>	<i>305,100</i>	<i>389,000</i>	<i>83,900</i>	<i>0.9%</i>
Public Sector (less PSNS)	25,000	28,600	3,600	0.5%
<b>Total Industrial Jobs + Public Sector</b>	<b>330,100</b>	<b>417,600</b>	<b>87,500</b>	<b>0.8%</b>

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

Note: macro sector totals do not perfectly sum to subtotal for industrial jobs due to rounding.

Variable growth among different industrial subsectors could usher in changes in the composition of employment on industrial lands. The Warehousing & Wholesale sector is projected to grow as a share of total industrial jobs on industrial lands (including public sector jobs) from 17% in 2012 to 21% in 2040, while the share of Manufacturing jobs is expected to decline (55% in 2012 to 46% in 2040).

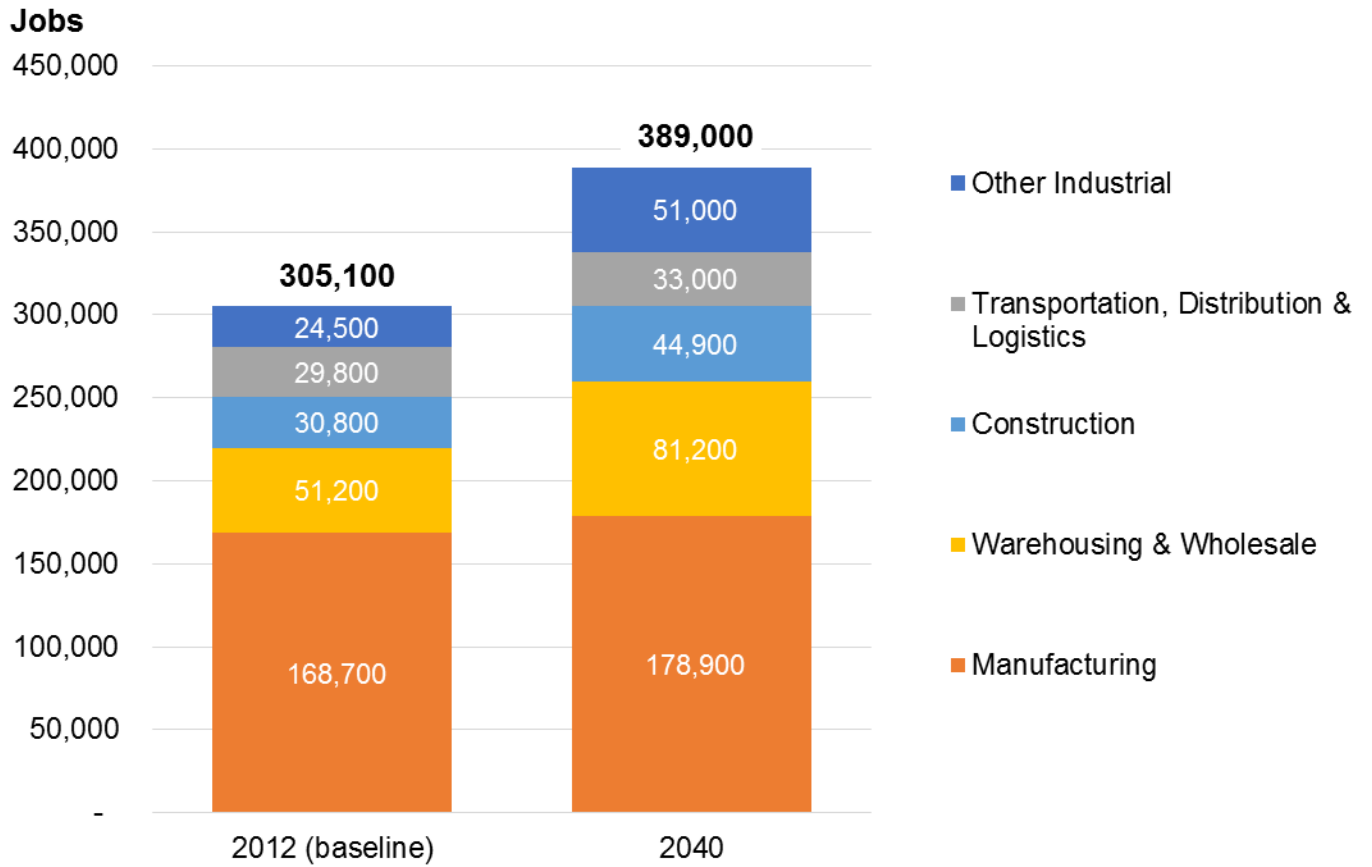
Other industrial activities—largely composed of Industrial Services<sup>2</sup>—have the highest forecast growth rate and are projected to increase as a share of total industrial jobs from 8% to 13% by 2040.

### Forecast Growth by Subarea

Forecast growth rates by subarea between 2012 and 2040 range from 0.5% per year (Southwest Everett) to 2.4% (Frederickson-Lakewood and SeaTac-Des Moines; **Exhibit 5.6**). Dispersed industrial lands, covering land parcels across all four counties, are forecast to experience a net industrial jobs increase of 9,100 between 2012 and 2040. Within this grouping, the largest gains are projected to occur in Snohomish County, with a net increase of 3,900 jobs. However, the fastest growth among dispersed lands by county is expected within Pierce County, with a compound annual growth rate between 2012 and 2040 of 3.3%.

Due to a lower growth forecast, the Southwest Everett subarea is projected to drop in rank from the largest subarea in 2012 (50,800 jobs) to second largest by 2040 (61,600), dropping below Duwamish-North Tukwila (1.0% CAGR, 63,500 industrial jobs by 2040) and ahead of the Kent-Renton subarea (55,900 industrial jobs by 2040).

**Exhibit 5.5. Industrial Jobs Forecasts by Macro Sector on Industrial Lands, Central Puget Sound Region, 2012 – 2040 (Covered Employment)**



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

## Exhibit 5.6. Industrial Jobs Forecasts by Subarea, 2012 – 2040 (Covered Jobs)

Subarea	2012	2040	Change 2012 - 2040	
			Jobs	CAGR
405 Corridor	41,800	46,200	4,400	0.4%
Arlington-Marysville	4,600	8,700	4,100	2.3%
Auburn-Sumner	29,700	33,000	3,300	0.4%
DuPont-Gray Field	1,000	1,200	200	0.7%
Duwamish-North Tukwila	48,100	63,500	15,400	1.0%
Frederickson-Lakewood	8,600	16,600	8,000	2.4%
Interbay-Ship Canal	10,700	14,000	3,300	1.0%
Kent-Renton	49,300	55,900	6,600	0.4%
North-Central Everett	3,000	4,000	1,000	1.0%
PSIC-Bremerton-Sinclair Inlet	12,600	15,900	3,300	0.8%
SeaTac-Des Moines	7,700	14,900	7,200	2.4%
Southwest Everett	50,800	61,600	10,800	0.7%
Tacoma-Puyallup	21,300	28,500	7,200	1.0%
<b>DISPERSED INDUSTRIAL LANDS</b>				
Dispersed-King County	6,300	8,400	2,100	1.0%
Dispersed-Kitsap County	1,500	3,000	1,500	2.5%
Dispersed-Pierce County	1,100	2,700	1,600	3.3%
Dispersed-Snohomish County	6,900	10,800	3,900	1.6%
<b>Industrial Employment on Industrial Lands (rounded to 100)*</b>	<b>305,100</b>	<b>389,000</b>	<b>83,900</b>	<b>0.9%</b>

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

\*Estimates for 2040 do not sum exactly to regional total due to rounding.

Note: in order to maintain consistency between base year (2012) industrial job estimates—reported as covered employment—and 2040 forecasts for industrial jobs, PSRC's customized forecasts for 2040 by subarea, which were reported in total jobs (including proprietors), were adjusted to reflect only covered industrial jobs for 2040. However, given the very low share of industrial jobs that are not covered, the difference between total industrial jobs and covered industrial jobs for 2040 is very small.

<sup>1</sup> Non-military public sector activities include public schools, bus depots, and other public sector operated activities.

<sup>2</sup> Industrial Services include services activities that either support industrial activities, such as commercial and industrial equipment repair, or services activities that require industrial space, such as industrial launderers and appliance equipment maintenance and repair. Industrial Services belong to the larger macro category of Other Industrial Activities. For a more a detailed description, see Chapter 4.