

Seattle Maritime and Industrial Strategy

Updated Employment Trends and Land
Use Alternatives Analysis

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Prepared by:



Prepared for:



City of Seattle



*Community Attributes Inc. tells data-rich stories about communities
that are important to decision makers.*

President and CEO:
Chris Mefford

Project Manager:
Michaela Jellicoe

Analysts:
Madalina Calen
Ethan Schmidt
Bryan Lobel

Community Attributes Inc.
500 Union Street, Suite 200
Seattle, Washington 98101

www.communityattributes.com

Contents

Introduction	3
Background and Purpose	3
Methods	3
Organization of Report.....	4
Regional Employment Trends & Forecasts.....	4
Regional Forecasts	4
Industrial Lands Employment Forecasts	7
Industry Trends	15
Land Use Alternatives Analysis	26
No Action Alternative	26
Future of Industry – Targeted Alternative.....	31
Future of Industry – Broad Alternative	40
Transition to Mixed Use Neighborhoods	46
Appendix Alternatives Model Documentation	53
Model Overview	53
Model Components.....	54
Employment Growth Alternatives.....	54

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INTRODUCTION

Background and Purpose

Mayor Durkan's office, in collaboration with the City's Office of Planning & Community Development (OPCD) and the Office of Economic Development (OED), convened an industrial and maritime stakeholder group to guide development of strategies to ensure a strong industrial and maritime sector now and in the future. The work of the stakeholder group will result in a robust Industrial and Maritime Strategy for Seattle's industrial lands.

Community Attributes Inc. (CAI) was commissioned by the City of Seattle to provide economic and technical analysis to inform the Strategy. In the first phase of the project, CAI completed a comprehensive baseline data analysis, including employment and industries analysis, occupational and workforce analysis and real estate market data analysis. This was delivered to the city in a Technical Analysis Memo and in presentation material for the Advisory Group meetings.

CAI also conducted an economic impact analysis of policy changes and land use alternatives. The alternatives are variations of the type and pattern of zoning and land use regulation that the City of Seattle could apply to its current industrial land base. CAI updated the analysis using the final version of the land use alternatives, finalized after Environmental Impact Statement Scoping process received public comments. This report summarizes the methods, assumptions, and findings from that analysis.

Methods

CAI worked with OPCD to determine policy variables that define the alternatives analyzed. Together, CAI and OPCD determined four alternatives to receive in-depth development capacity and economic impact analysis. CAI created a spreadsheet model as a flexible analysis tool to share and analyze alternatives with OPCD. The model includes customizable assumptions related to measures such as jobs, employment density by use, absorption, and others.

The analysis leveraged data from the City of Seattle, the Puget Sound Regional Council (PSRC), the Washington State Employment Security Department (ESD) and other private vendor sources. The economic impact analysis used the Washington State Input Output model to describe indirect and induced impacts.

Organization of Report

The remainder of this report is organized as follows:

- **Regional Employment Trends & Forecasts.** Includes a discussion of the regional and citywide employment projections by industry, and the key trends that drive these growth estimates. Describes the methodology and assumptions for the employment growth scenarios for industrial lands.
- **Land Use Alternative Analysis.** Includes a description of the four alternatives analyzed their modeling assumptions and economic impacts.
- **Appendix Model Documentation.** Presents guidance to follow analysis and change assumptions that drive the alternatives model.

REGIONAL EMPLOYMENT TRENDS & FORECASTS

Regional Forecasts

Employment growth over time is a key component of the alternatives model. A shift-share analysis mindset was adopted to derive forecasts for industrial areas, in addition to utilizing historic data and available employment forecasts from the ESD and PSRC. Employment change in industrial areas can be driven by the total growth of the regional economy, the performance of specific industries and other local influences.

Historically, Seattle's industrial lands have captured between 2-3% of the region's total growth and 6-11% of Seattle's growth. Some industries typically capture a larger share of growth than others, such as construction, utilities and food and beverage production. Growth capture can vary significantly over time. In some cases, one area can capture more than the total regional growth, indicating declines in employment in other geographies. Additionally, greater losses in employment compared to overall indicate growth in other areas of the region. (**Exhibit 1**)

Exhibit 1. Industrial Areas Employment Growth as a Share of Regional and Seattle Growth, 2010-2018

	Puget Sound Growth		Seattle Growth		Industrial Areas Growth		Share Puget Sound		Share Seattle	
	2010-2015	2015-2018	2010-2015	2015-2018	2010-2015	2015-2018	2010-2015	2015-2018	2010-2015	2015-2018
Hospitality & Tourism	30,500	20,100	10,600	7,400	700	400	2.3%	2.0%	6.6%	5.4%
Construction and Utilities	25,300	25,000	4,200	7,000	1,000	2,500	4.0%	10.0%	23.8%	35.7%
ICT	25,500	30,800	12,100	14,400	4,000	500	15.7%	1.6%	33.1%	3.5%
Distribution & E-commerce	26,000	21,600	18,200	21,700	600	-100	2.3%	-0.5%	3.3%	-0.5%
Food & Beverage Production	7,600	5,500	2,800	600	700	400	9.2%	7.3%	25.0%	66.7%
Aerospace	23,300	-5,000	-800	-800	-900	-1,000	-3.9%	20.0%	112.5%	125.0%
Transportation & Logistics	12,000	15,800	500	1,400	800	100	6.7%	0.6%	160.0%	7.1%
Maritime	6,400	-1,800	-1,400	500	2,300	-300	35.9%	16.7%	-164.3%	-60.0%
Other Manufacturing	3,800	-500	300	-600	-100	-300	-2.6%	60.0%	-33.3%	50.0%
All Other Retail	17,500	4,100	1,500	-400	300	400	1.7%	9.8%	20.0%	-100.0%
All Other Services	70,800	49,400	22,800	16,900	600	800	0.8%	1.6%	2.6%	4.7%
Government	-900	11,200	-2,100	2,800	-1,900	600	211.1%	5.4%	90.5%	21.4%
Education	13,500	6,200	7,600	-7,500	600	0	4.4%	0.0%	7.9%	0.0%
Total	273,200	185,500	75,900	63,800	8,700	4,000	3.2%	2.2%	11.5%	6.3%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2020.

Regional Employment Growth

The forecast for the Puget Sound region is generated based on ESD projections for King County, Snohomish County, Pierce County, and Kitsap County, as well as PSRC’s macroeconomic forecast. Forecasted compound annual growth rates are matched between the industry clusters defined for Seattle’s industrial lands, NAICS industries and macro sectors defined by PSRC. The ESD forecast is used unless the PSRC forecast is within 1% of the ESD forecast.

Exhibit 2. Total Historic and Projected Employment by Industry, Puget Sound Region, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
All Other Services	655,000	725,800	775,200	1,038,700	1.1%	263,500
ICT	118,800	144,300	175,100	425,500	3.5%	250,400
Hospitality & Tourism	169,000	199,500	219,600	382,300	2.2%	162,700
Construction and Utilities	126,200	151,500	176,500	292,200	2.0%	115,700
Government	189,500	188,600	199,800	225,000	0.5%	25,200
Distribution & E-commerce	73,700	99,700	121,300	201,100	2.0%	79,800
All Other Retail	124,000	141,500	145,600	168,100	0.6%	22,500
Education	123,400	136,900	143,100	160,600	0.4%	17,500
Aerospace	99,200	122,500	117,500	116,900	0.0%	(600)
Food & Beverage Production	59,100	66,700	72,200	116,700	1.9%	44,500
Transportation & Logistics	40,700	52,700	68,500	105,600	1.7%	37,100
<i>Supressed</i>	72,000	84,000	87,000	100,200		
Other Manufacturing	42,000	45,800	45,300	39,400	-0.5%	(5,900)
Maritime	21,400	27,800	26,000	26,700	0.1%	700
Total	1,914,000	2,187,200	2,372,700	3,399,000	1.4%	1,026,300

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

The four-county Puget Sound region has grown from an estimated 1.9 million jobs in 2010 to nearly 2.4 million jobs in 2018. The region is projected to grow at a compound annual growth rate (CAGR) of 1.4% between 2018 and 2044. Information & Communications Technology (ICT) and Hospitality & Tourism are projected to see the largest growth rates, while All Other Services is projected to grow the most in absolute terms. **(Exhibit 2)**

Seattle Employment Growth

The forecast of jobs in Seattle assumes that Seattle maintains its proportionate rate of countywide growth as it has in the past. The forecast compares historic growth trends in Seattle, historic growth trends in King County and forecasts for King County available through PSRC and the ESD.

Conservative estimates for each industry are selected that are reasonable given employment trends and regional forecasts.

Industry estimates are controlled to a total citywide growth rate, which is estimated by comparing historic growth in King County to Seattle and adjusting the projected King County total growth rate to Seattle.

Exhibit 3. Total Historic and Projected Employment by Industry, City of Seattle, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
All Other Services	209,800	232,600	249,500	287,000	0.5%	37,500
ICT	23,900	36,000	50,400	205,100	5.5%	154,700
Distribution & E-commerce	20,500	38,700	60,400	134,200	3.1%	73,800
Hospitality & Tourism	52,800	63,400	70,800	107,300	1.6%	36,500
Construction and Utilities	23,200	27,400	34,400	63,900	2.4%	29,500
Education	58,900	66,500	59,000	55,900	-0.2%	(3,100)
Government	48,700	46,600	49,400	46,900	-0.2%	(2,500)
Food & Beverage Production	13,100	15,900	16,500	25,700	1.7%	9,200
All Other Retail	21,900	23,400	23,000	24,400	0.2%	1,400
Maritime	16,500	15,100	15,600	15,500	0.0%	(100)
Transportation & Logistics	7,200	7,700	9,100	13,000	1.4%	3,900
Aerospace	9,500	8,700	7,900	7,600	-0.1%	(300)
Other Manufacturing	10,900	11,200	10,600	7,000	-1.6%	(3,600)
<i>Supressed</i>	100	100	200	200		
Total	517,100	593,000	656,800	993,700	1.6%	336,900

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Overall, the City of Seattle is projected to grow at 1.6% annually between 2018 and 2044. ICT, distribution & e-commerce, and construction and utilities are all projected to grow at more than 2% annually. **(Exhibit 3)**

Regional and citywide employment growth projections are found in the **Employment Growth Scenarios** tab in the alternatives model.

Industrial Lands Employment Forecasts

Employment Growth Scenarios

This section provides a summary of the methodology applied and the growth rates derived for the five employment growth scenarios in the industrial alternatives model.

1. Historic Growth Rates

Historic growth rates are derived from actual growth in Seattle’s industrial areas between 2000 and 2018. Historic growth rates in each industry are examined, comparing compound annual growth rates from 2000 to 2018, 2010 to 2018 and 2015 to 2018. The 2000 to 2018 CAGR is generally selected for each industry, as the 18-year time frame is more comparable to the 26-year forecast period, with exceptions for outliers.

The 2010-2018 growth rate is selected for hospitality & tourism and other manufacturing. The 2015-2018 growth rate is selected for food & beverage production, transportation & logistics and education. All other services sector is based on the average of available growth rates. Construction and utilities and other manufacturing are both tied to projected regional growth rates, while ICT is tied to the projected growth rate for ICT across the City of Seattle.

Exhibit 4. Total Projected Employment by Industry, Historic Growth Rates Scenario, Industrial Areas, 2018-2044

	Employment		Growth	
	2018	2044	2018-2044	CAGR
ICT	8,200	33,400	25,200	5.6%
All Other Services	21,400	31,600	10,200	1.5%
Construction and Utilities	13,700	22,700	9,000	2.0%
Hospitality & Tourism	6,700	11,700	5,000	2.2%
Distribution & E-commerce	8,500	10,300	1,800	0.7%
Maritime	8,600	9,300	700	0.3%
Food & Beverage Production	3,800	8,200	4,400	3.0%
Transportation & Logistics	5,500	6,900	1,400	0.9%
Aerospace	6,300	6,000	-300	-0.2%
Government	5,300	5,300	0	0.0%
Other Manufacturing	5,900	5,100	-800	-0.6%
All Other Retail	3,400	5,000	1,600	1.5%
Education	1,200	2,200	1,000	2.4%
Total	98,400	157,700	59,300	1.8%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Industrial areas are projected to grow at a total annual rate of 1.8%. Using growth rates matching historic trends in Seattle’s industrial areas, ICT is projected to grow at the fastest annual rate and the most in absolute terms. **(Exhibit 4)**

2. King County Derived Growth Rates

County derived growth rates are estimated by comparing projected growth rates for King County sourced from the ESD and PSRC, comparing historic

forecasts to actual employment and comparing historic growth rates in King County, Seattle, and industrial areas by industry. Growth rates are estimated by selecting generally a more conservative forecast that is comparable to historic trends in industrial areas. Forecasts were originally produced for the 2018-2035 period and are adjusted to match the 2044 timeframe of the city’s Environmental Impact Statement by estimating growth by industry through 2044 and controlling to the total CAGR of 1.2%.

Exhibit 5. Total Projected Employment by Industry, King County Derived Growth Rates Scenario, Industrial Areas, 2018-2044

	Employment		Growth	
	2018	2044	2018-2044	CAGR
Construction and Utilities	13,700	28,400	14,700	2.8%
All Other Services	21,400	26,000	4,600	0.8%
ICT	8,200	11,600	3,400	1.3%
Hospitality & Tourism	6,700	9,800	3,100	1.5%
Distribution & E-commerce	8,500	9,100	600	0.3%
Transportation & Logistics	5,500	9,100	3,600	2.0%
Maritime	8,600	8,700	100	0.0%
Food & Beverage Production	3,800	7,200	3,400	2.5%
Aerospace	6,300	6,200	-100	-0.1%
Other Manufacturing	5,900	6,100	200	0.1%
All Other Retail	3,400	4,900	1,500	1.4%
Government	5,300	4,600	-700	-0.5%
Education	1,200	1,100	-100	-0.3%
Total	98,400	132,800	34,400	1.2%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Industrial areas are projected to grow at a CAGR of 1.2% when using estimated growth rates from forecasts and historic trends. Construction and utilities are projected to grow by more than 14,700 jobs at a CAGR of 2.8%. Food & beverage production and transportation & logistics are also projected to grow by more than 1.5% annually. (**Exhibit 5**)

3. Comprehensive Plan Growth Rates

The forecast for jobs within industrial areas is derived from the City of Seattle Comprehensive Plan employment estimates for these areas. A growth rate of 0.7% is used to estimate 2044 employment in industrial areas. These growth rates are applied to 2018 employment sourced through a custom data request with PSRC and supplemented by a custom adjustment for fishing employment.

For the Comprehensive Plan growth rates scenario, King County derived growth rates for industrial areas are adjusted to make the total projected

2035 employment match the industrial areas growth projection of 111,100 jobs. Forecasts were originally produced for the 2018-2035 period and are adjusted to match the 2044 timeframe of the city’s Environmental Impact Statement by estimating growth by industry through 2044 and controlling to the total CAGR of 0.7%. **(Exhibit 6)**

Exhibit 6. Total Historic and Projected Employment in Industrial Areas, 2018-2044

Geography	Employment 2018	Employment 2018	Employment 2018	Employment 2018	Employment 2044	2018-2044 Employment Change
	PSRC Raw w/o Constr & Utilities	Constr & Utilities	Fishing Adjustments			
BINMIC	15,700	1,300	1,200	18,200		
Duwamish MIC	56,100	11,100	-	67,200		
ONI	9,000	800	700	10,500		
OSI	2,100	400	-	2,500		
North	24,700	2,100	1,900	28,700		
South	58,200	11,500	-	69,700		
Total	82,900	13,600	1,900	98,400	116,800	18,400

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Overall, based on City of Seattle growth estimates, industrial areas are projected to grow at a compound annual growth rate of 0.7%. Construction and utilities are projected to grow by roughly 10,400 jobs at 2.2% annually. Food & beverage production and transportation & logistics are also projected to grow at more than 1% annually. **(Exhibit 7)**

Exhibit 7. Total Projected Employment by Industry, Comprehensive Plan Growth Rates Scenario, Industrial Areas, 2018-2044

	Employment		Growth	
	2018	2044	2018-2044	CAGR
Construction and Utilities	13,700	24,100	10,400	2.2%
All Other Services	21,400	22,000	600	0.1%
ICT	8,200	9,800	1,600	0.7%
Distribution & E-commerce	8,500	9,000	500	0.2%
Maritime	8,600	8,600	0	0.0%
Hospitality & Tourism	6,700	8,400	1,700	0.9%
Transportation & Logistics	5,500	7,700	2,200	1.3%
Aerospace	6,300	6,100	-200	-0.1%
Food & Beverage Production	3,800	6,000	2,200	1.8%
Other Manufacturing	5,900	5,200	-700	-0.5%
Government	5,300	4,600	-700	-0.5%
All Other Retail	3,400	4,200	800	0.8%
Education	1,200	1,100	-100	-0.3%
Total	98,400	116,800	18,400	0.7%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

4. Medium Historic Growth Rates

Historic growth rates are derived from actual growth in Seattle’s industrial areas between 2000 and 2018. Historic growth rates in each industry are examined, comparing compound annual growth rates from 2000 to 2018, 2010 to 2018 and 2015 to 2018. Mid-level growth rates are selected for each industry. Construction and utilities, ICT and other manufacturing are matched to the growth rates from the Historic Growth Rates scenario.

The 2010-2018 growth rate is selected for hospitality & tourism and other manufacturing. The 2015-2018 growth rate is selected for food & beverage production, transportation & logistics and education. All other services sector is based on the average of available growth rates. Construction and utilities and other manufacturing are both tied to projected regional growth rates, while ICT is tied to the projected growth rate for ICT across the City of Seattle.

Exhibit 8. Total Projected Employment by Industry, Medium Historic Growth Rates Scenario, Industrial Areas, 2018-2044

	Employment		Growth	
	2018	2044	2018-2044	CAGR
ICT	8,200	33,400	25,200	5.6%
All Other Services	21,400	29,900	8,500	1.3%
Construction and Utilities	13,700	22,700	9,000	2.0%
Hospitality & Tourism	6,700	11,400	4,700	2.1%
Distribution & E-commerce	8,500	10,300	1,800	0.7%
Maritime	8,600	9,300	700	0.3%
Food & Beverage Production	3,800	8,200	4,400	3.0%
Transportation & Logistics	5,500	6,900	1,400	0.9%
Aerospace	6,300	6,000	-300	-0.2%
Government	5,300	5,300	0	0.0%
Other Manufacturing	5,900	5,100	-800	-0.6%
All Other Retail	3,400	4,900	1,500	1.4%
Education	1,200	2,200	1,000	2.4%
Total	98,400	155,600	57,200	1.8%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

The Medium Historic growth rates project that total employment in industrial areas will reach 155,600 jobs by 2044, an increase of more than 57,000 jobs or annual average growth of 1.8%. ICT is projected to grow the most in absolute terms, nearly 25,200 jobs, and at the fastest rate, 5.6% annually. Food & beverage production, education, hospitality & tourism and construction and utilities are also projected to grow at more than 2% annually in industrial areas. **(Exhibit 8)**

5. CAI Preferred Growth Rates

CAI developed a default employment growth rate scenario for the model informed by the four forecast scenarios described above, industry trends and professional judgement. More information on industry trends that have informed a preference for employment growth rates is presented in the Industry Trends section of this report. Forecasts were originally produced for the 2018-2035 time period and are adjusted to match the 2044 time frame of the city’s Environmental Impact Statement by estimating growth by industry through 2044 and controlling to the total CAGR of 0.8%.

Overall, the CAI preferred growth rates scenario estimates a growth of 23,600 jobs in industrial areas by 2044, or 0.8% per year on average.

Exhibit 9. Total Projected Employment by Industry, CAI Preferred Growth Rates Scenario, Industrial Areas, 2018-2044

	Employment		Growth	
	2018	2044	2018-2044	CAGR
All Other Services	21,400	26,200	4,800	0.8%
Construction and Utilities	13,700	17,600	3,900	1.0%
ICT	8,200	13,600	5,400	2.0%
Distribution & E-commerce	8,500	9,600	1,100	0.5%
Maritime	8,600	8,800	200	0.1%
Hospitality & Tourism	6,700	8,700	2,000	1.0%
Transportation & Logistics	5,500	8,100	2,600	1.5%
Food & Beverage Production	3,800	7,200	3,400	2.5%
Aerospace	6,300	6,300	0	0.0%
Other Manufacturing	5,900	5,900	0	0.0%
Government	5,300	4,700	-600	-0.5%
All Other Retail	3,400	4,200	800	0.8%
Education	1,200	1,100	-100	-0.3%
Total	98,400	122,000	23,600	0.8%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Impact of COVID-19 on Employment Growth

The COVID-19 pandemic has upended large segments of global and local economies, stemming from unprecedented mitigation and containment approaches. Industrial and maritime activities in Seattle have not been spared from these developments. Local economic impacts derive from supply chain and global trade and logistics disruptions, social distancing repercussions, business closures and broader economic losses from an economywide slowdown.

Many impacts may dissipate over the next year as the pandemic runs its course and more people get vaccinated. However, many other changes induced by the pandemic may be long lasting, forcing policymakers to rethink economic development strategy. Two major impacts of the virus affect industrial and maritime industries in Seattle.

The first is a sudden, unanticipated reduction in trade and foreign-sourced intermediate and final products. At the start of the pandemic quarantines and factory closures in China have resulted in a supply shock to global trade. Trade volumes fell precipitously as China's manufacturing productions declined and stopped overseas export. This early phase adversely affected Washington's global trade and supply chain management system, as well as local manufacturers who depend on intermediate or final assemblage of products in China.

The reduction in manufacturing output in China—the source of one third of all containers shipped through The Northwest Seaport Alliance (NWSA)—has resulted in cancelled vessel arrivals, or “blank sailings.” Reduced trade volumes through the Port of Seattle result in less cargo handling at the port and various warehousing, distribution, and transloading operations. These activities employed an estimated 14,000 workers on industrial lands in Seattle in 2018.

Global supply chain disruptions are likely to continue as supply chains continue to face challenges including labor shortages, among truckers for example, as well as congestion and blockages in the production system.

The second set of impacts comes from changes in household and consumer demand. At the start of the pandemic, quarantines and government social distancing directives required the temporary closure of some manufacturing facilities and disruptions to shipments. As lockdowns have lifted, demand has rocketed. This led to chaos for manufacturers and distributors of goods who cannot produce or supply as much as they did pre-pandemic for a variety of reasons, including worker shortages and a lack of key components and raw materials. The largest impacts, however, have been among consumer-facing businesses, such as accommodations, restaurants and “non-essential” retail. In 2018, the combined industrial lands employment in Seattle for the hospitality, tourism and all other retail sectors summed to 10,100 workers. Unemployment in these sectors spiked to 70% to 90% in April 2020.

Finally, the impacts compound and deeply worsened the pre-existing challenges in Washington’s cornerstone manufacturing industry, aerospace. Many aerospace suppliers are in Seattle’s industrial areas. Production stopped altogether for a short period at Boeing’s Renton and Everett plants. Forecasts for declined output of Boeing aircraft will challenge local suppliers to maintain levels of revenue and employment.

Long-term impacts to employment forecasts

The longer-term impacts of COVID-19 will vary by industry. The pandemic and resulting economic impacts can be viewed as both an *accelerant* and driver of *transformation* in the economy and demand for industrial lands.

Accelerant change refers to the rapid increase in the speed of adoption of new practices and forms of consumption, such as online entertainment, online retail, and remote work. The pandemic comes on the heels of a bruising, and only partially paused, U.S.-China trade war, and has added fuel to growing pressure on U.S. companies to diversify supply chains away from China, either through reshoring, near-shoring or relocating to countries with better geopolitical and trade relations with the United States.

These shifts could alter trade volumes handled at the Port of Seattle, potentially reducing local demand for workers in the transportation and logistics sector. If reshoring becomes a real trend, it could yield a higher demand for Seattle industrial manufacturers, adjusting upwards employment by 2044. A surging growth in remote work and e-commerce could drive increased demand for cloud server storage, e-commerce services and additional fulfilment capacity, also potentially pushing upward employment demand for these services on Seattle's industrial lands.

A second source of long-term change is *transformative change*. These are changes not previously anticipated or predicted based on prior developments. Potential examples include a sustained reduction in business travel as companies reevaluate the benefits of these expenses against alternative, cheaper meeting formats, such as over continually developing and improving videoconference platforms. A reduction in air flights to reflect this change in demand may in turn reduce the amount of belly freight capacity for air cargo, potentially increasing the cost of goods handled at fulfilment centers. Other examples could include long-term shifts as businesses and consumers acclimate to behavioral changes in air travel, commuting, and household spending.

Industry Trends

Working with OED and OPCD, CAI identified industries of interest and assessed key factors and regional trends that drive employment growth in these sectors and demand for industrial land.

Exhibit 10 through **Exhibit 21** below include historic employment by geography for each industry, as well as estimated 2044 employment. The 2018 to 2044 growth rates shown for industrial areas are from the CAI preferred growth rates scenario.

ICT

ICT has been growing significantly in industrial areas, at an annual average rate of 10.4% from 2010 to 2018 and 8.4% from 2000 to 2018. With Expedia locating their Seattle headquarters in the Interbay neighborhood and an Amazon office already present here, ICT is expected to continue growing in industrial areas.

Key factors that may have an impact on industry growth include:

- Clustering of firms in similar industries to take advantage of agglomeration economies, as can be seen in other neighborhoods like South Lake Union
- Entry of more technology companies as developers respond to the demand for more “tech-flex” space in Seattle’s industrial areas
- Increased demand for retail, restaurants, and other amenities as tech companies grow in the area
- Increased demand for space that is a mix of office with more open, high bay areas for R&D, light assembly, demonstrations and testing

Exhibit 10. ICT Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	118,900	144,400	175,100	425,500	3.5%	250,400
Seattle	23,900	36,000	50,400	205,100	5.5%	154,700
Industrial Areas	3,700	7,700	8,200	13,600	2.0%	5,400
Industrial Share of Seattle	15%	21%	16%	7%		3%
Industrial Share of Region	3%	5%	5%	3%		2%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the ICT industry include:

- Seattle’s major technology companies dominate the office market as the largest lessors of office space. In the past year, these companies leased nearly 2.8 million square feet of office, representing more than 45% of all leasing activity in the Puget Sound market. Much of this space is for expansion purposes, which will add more jobs to the tech industry. (CBRE, 2019)
- With a new light-rail line opening in 2023 that will connect Seattle to tech centers on the Eastside, the region is attracting Bay Area technology companies.

Maritime

The maritime sector is among Washington’s oldest and most diverse economic sectors. In 2018, the Puget Sound region directly employed 26,000 workers across fishing and seafood processing, shipyards, recreational boating, water transportation, maritime logistics and shipping, and support services.

Key factors that may have an impact on industry growth include:

- Recapitalization of the fishing fleet
- Climate change impact on fisherman and their local communities
- New maritime innovation, such as advanced metering of mechanical and fuel systems, the electrification of ferry fleets, and clean energy technologies tied to maritime projects and vessels
- Washington State Department of Commerce’s Maritime Blue Strategy for 2050
- The Port of Seattle 5-year investment plan, including Terminal 5 improvements, new cruise terminal at Terminal 46, new manufacturing and light-industrial facilities at Terminal 91 and Fishermen’s Terminal

Exhibit 11. Maritime Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044 CAGR	2018-2044 Growth
Puget Sound Region	21,400	27,700	26,000	26,700	0.1%	700
Seattle	16,500	15,100	15,600	15,500	0.0%	-100
Industrial Areas	6,600	8,900	8,600	8,800	0.1%	200
Industrial Share of Seattle	40%	59%	55%	57%		-200%
Industrial Share of Region	31%	32%	33%	33%		29%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Port of Seattle Maritime Division, Port of Tacoma, and The Northwest Seaport Alliance, 2019 Economic Impact Study; Community Attributes Inc., 2021.

Regional trends for the maritime industry include:

- Shipyard employment has fluctuated, from more than 1,900 workers in King County in 2010 down to less than 7,600 through the first three quarters of 2019. (QCEW, 2020)
- Tonnage of biomass harvested in the North Pacific Fisheries by Port of Seattle-based commercial vessels reached 1.3 million metric tons in 2017, up from 0.8 million metric tons in 2014. These operations generated nearly half a billion dollars in gross earnings in 2017.

Transportation & Logistics and Distribution & E-commerce

Statewide, the Global Trade & Supply Chain Management System directly employed 94,000 workers in 2017, including in warehousing, logistics, intermodal operations, and freight forwarding. Many of these activities are concentrated in SODO.

Key factors that may have an impact on industry growth include:

- Continued strong growth in e-commerce, necessitating fulfillment centers and warehousing space, particularly last-mile delivery facilities
- Growth driven by Asia Pacific connections, migration to the region and market demands
- Competition from British Columbia ports Prince Rupert and Vancouver, as well as LA-Long Beach, and the newly widened Panama Canal
- New technologies transforming the urban goods delivery system

Exhibit 12. Transportation & Logistics and Distribution & E-Commerce Employment by Geography 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	114,400	152,500	189,800	306,700	1.9%	116,900
Seattle	27,700	46,400	69,500	147,200	2.9%	77,700
Industrial Areas	12,600	14,000	14,000	17,700	0.9%	3,700
Industrial Share of Seattle	45%	30%	20%	12%		5%
Industrial Share of Region	11%	9%	7%	6%		3%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the transportation & logistics and distribution & e-commerce industries include:

- In 2019, the Seattle customs district (including most Washington ports) handled \$161.8 billion in imports and exports. This was down 10% over 2018 though in part due to the U.S.-China trade war.
- In the age of Amazon, consumers have come to expect a fast level of service on the supply chain side. Several startups in the Seattle region (Shipium, Flexe) have emerged recently to help retailers provide a faster experience for their customers when they order.
- Freight delivery firms' capacity has been challenged to match the e-commerce growth curve and to provide fast and reliable delivery times expected by online shoppers.

Construction & Utilities

In 2018, the Construction & Utilities sectors employed 34,400 workers in Seattle, including self-employed individuals. The industry is reliant on industrial lands for assembly areas, production space, home offices, and vehicle and equipment storage.

Key factors that may have an impact on industry growth include:

- Continued regional demographic and economic growth, especially in the technology industry
- Investment in transportation infrastructure, such as the light rail expansion project or the Alaskan Way Viaduct removal
- High demand for new construction with up-zoning
- Focus on sustainable development projects

Exhibit 13. Construction & Utilities Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	126,200	151,400	176,500	292,200	2.0%	115,700
Seattle	23,200	27,400	34,400	63,900	2.4%	29,500
Industrial Areas	10,200	11,200	13,700	17,600	1.0%	3,900
Industrial Share of Seattle	44%	41%	40%	28%		13%
Industrial Share of Region	8%	7%	8%	6%		3%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the construction & utilities industries include:

- Residential projects continue to dominate the development landscape. Roughly 73% of all building under construction in downtown Seattle in 2019 had a residential component.
- Technology companies in the Puget Sound region struggle to find suitable locations for large blocks of available office space and often commission new construction. Vacancy rates in downtown Seattle and on the Eastside remain low by historic standards.
- The region has been facing a shortage of skilled construction workers. The labor shortage is resulting in longer completion times than anticipated for projects, higher prices on bids and contracts and overall costs being higher than planned.

Aerospace & Supply Chain

In addition to Boeing, there are numerous aerospace suppliers in Seattle, such as Machinists, Inc., Pioneer Industries, Spaceflight Industries, and GMN Aerospace. The aerospace industry is a source of many well-paid jobs and has a large industrial lands footprint.

Key factors that may have an impact on industry growth include:

- Business cycles (and employment) based on cycles of aircraft demand across the globe
- Composites and other fuel-saving technologies as important and growing elements of new aircraft
- Competitive advantage of aerospace and the supporting supply chain being reliant on access to the Port of Seattle
- Strong investment in research and development for aerospace, including space and unmanned systems which support the broader industry

Exhibit 14. Aerospace Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	99,200	122,500	117,500	116,900	0.0%	-600
Seattle	9,500	8,700	7,900	7,600	-0.1%	-300
Industrial Areas	8,200	7,300	6,300	6,300	0.0%	0
Industrial Share of Seattle	86%	84%	80%	83%		0%
Industrial Share of Region	8%	6%	5%	5%		0%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the aerospace & supply chain industry include:

- Boeing faced a challenging year in 2019 but still added roughly 2,000 jobs in Washington state.
- Boeing projects single aircraft delivery orders to total more than 32,000 between 2019 and 2038. Of this, more than 13,000 deliveries will be to the Asia-Pacific region, dominated by sales to China (The Boeing Company, Commercial Market Outlook, 2019).

Food & Beverage Production

Industrial lands are increasingly becoming home to small- to medium-scale food and beverage production, including wineries and breweries. Added to this are grocery producers and distribution operations.

The food and beverage processing and manufacturing industry in industrial areas is forecasted to grow at 2.5% per year on average, adding roughly 3,400 jobs by 2044. Breweries, wineries, and frozen and canned food products are some of the largest sectors in the food and beverage production cluster. Ballard and the Georgetown/SODO area have established themselves as local brewery districts and there are opportunities to add more local breweries and expand existing ones.

Key factors that may have an impact on industry growth for wineries and breweries include:

- Strong local and national demand for Washington-made products
- Growth dependent on access to industrial space and equipment
- Varying distribution, exports, retail activities among brewers
- Relatively few breweries exporting out of the state, with larger breweries, such as Fremont Brewing, exporting outside of the region

Exhibit 15. Food & Beverage Production Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	59,100	66,800	72,200	116,700	1.9%	44,500
Seattle	13,100	15,900	16,500	25,700	1.7%	9,200
Industrial Areas	2,700	3,400	3,800	7,200	2.5%	3,400
Industrial Share of Seattle	21%	21%	23%	28%		37%
Industrial Share of Region	5%	5%	5%	6%		8%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the food & beverage production industry include:

- Statewide, licensed breweries increased from 95 in 2005 to 441 in 2018.
- In 2017, 41% of statewide craft beer production was among breweries producing 25,000 or more cases annually.
- There were 6,500 jobs statewide in breweries in 2017, up from 1,400 in 2005. The trend is expected to continue with further growth in consumer demand for local neighborhood breweries and craft beer.

Other Manufacturing

Various types of manufacturing operations are resident on Seattle’s industrial lands. Other types of manufacturing include metalworking, automotive & machinery manufacturing (1,800 workers in 2018); medical & consumer product manufacturing (more than 1,000 workers); paper & packaging, printing & publishing (900 workers); and activities such as chemical manufacturing and oil and gas production and transportation.

Key factors that may have an impact on industry growth include:

- New technologies such as metal 3D printing, fiber laser cutting, and automation opening markets and maximizing productivity
- U.S.-imposed tariffs and retaliatory tariffs from U.S. trading partners
- Advances in technology, Industry 4.0, which support increased demand for flex space and increased productivity for the broad range of manufacturing activities on industrial lands
- High intensity uses including metal, nonmetal and chemical manufacturing being less compatible with residential and consumer uses

Exhibit 16. Other Manufacturing Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	42,100	45,800	45,300	39,400	-0.5%	-5,900
Seattle	10,900	11,200	10,600	7,000	-1.6%	-3,600
Industrial Areas	6,300	6,200	5,900	5,900	0.0%	0
Industrial Share of Seattle	58%	55%	56%	84%		0%
Industrial Share of Region	15%	14%	13%	15%		0%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for these industries include:

- Manufacturing located on industrial lands constitutes a strong ecosystem which is supported by the activities of aerospace, maritime and the Port of Seattle.
- Seattle’s thriving technology industry supports regional advances in technology that increase productivity in manufacturing.
- Advances in technology will support increasing density among manufacturing uses.

Hospitality & Tourism

The hospitality and tourism industry in industrial areas include stadium-related activities, restaurants, bars, and hotels.

Key factors that may have an impact on industry growth include:

- Increased demand for ancillary, allied spending among spectators either before and/or after events, such as at local restaurants and bars
- Port of Seattle investment in new cruise terminal located in SODO, supporting an expansion in the cruise industry
- Expansion of the Washington State Convention Center, planned to open in 2021, and the expected expansion in hospitality and tourism throughout the Seattle area

Exhibit 17. Hospitality & Tourism Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	169,000	199,500	219,600	382,300	2.2%	162,700
Seattle	52,800	63,400	70,800	107,300	1.6%	36,500
Industrial Areas	5,600	6,300	6,700	8,700	1.0%	2,000
Industrial Share of Seattle	11%	10%	9%	8%		5%
Industrial Share of Region	3%	3%	3%	2%		1%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the hospitality & tourism industry include:

- In 2018 alone, there were 2,100 new hotel rooms, mainly due to the opening of the Hyatt Regency Seattle.
- Across the Seattle metropolitan statistical area (defined as King and Snohomish counties), leisure and hospitality employment increased 3.3% per year between 2010 and 2019. The fastest growth within this sector was in food services and drinking places, growing at 3.6% per year. (Washington State Employment Security Department, Current Employment Statistics, 2020).

All Other Retail & Services

While the growth of e-commerce is exploding, most shopping still takes place in retail stores. Other retail activities range from marijuana shops, building materials, auto and auto parts dealers, furniture, electronics, and clothing and accessories. Other services include activities ranging from social assistance, personal and laundry services, and outpatient care centers.

Key factors that may have an impact on industry growth include:

- Continued population growth in the Puget Sound region
- Increased demand for automobiles, household fixtures and building materials, with SODO as an important retail hub for these products
- Entry of marijuana retail outlets on industrial lands

Exhibit 18. All Other Retail Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	124,000	141,300	145,600	168,100	0.6%	22,500
Seattle	21,900	23,400	23,000	24,400	0.2%	1,400
Industrial Areas	2,700	3,000	3,400	4,200	0.8%	800
Industrial Share of Seattle	12%	13%	15%	17%		57%
Industrial Share of Region	2%	2%	2%	2%		4%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Exhibit 19. All Other Services Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	655,000	725,800	775,200	1,038,700	1.1%	263,500
Seattle	209,800	232,600	249,500	287,000	0.5%	37,500
Industrial Areas	20,000	20,600	21,400	26,200	0.8%	4,800
Industrial Share of Seattle	10%	9%	9%	9%		13%
Industrial Share of Region	3%	3%	3%	3%		2%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Regional trends for the hospitality & tourism industry include:

- In 2018, marijuana businesses on industrial lands employed 491 workers, of which 132 were employed in recreational and medical marijuana retail, while the rest were employed in marijuana processing and transportation.

Government and Education

Government and education activities and tenants on industrial lands include Seattle City Light, Metro Power Distribution Facility, the Seattle Public School District, Sound Transit, and non-maritime properties owned by the Port of Seattle.

Key factors that may have an impact on industry growth include:

- Adjustments to demand for government and education services on industrial lands as major regional projects reach completion
- Sustained high demand for large parcels to house transportation-related equipment and conduct maintenance activities
- Public transit, utilities and school district properties as essential services for residents of the City of Seattle and throughout the region

Exhibit 20. Government Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	189,500	188,600	199,800	225,000	0.5%	25,200
Seattle	48,700	46,600	49,400	46,900	-0.2%	-2,500
Industrial Areas	6,600	4,700	5,300	4,700	-0.5%	-600
Industrial Share of Seattle	14%	10%	11%	10%		24%
Industrial Share of Region	3%	2%	3%	2%		-2%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Exhibit 21. Education Employment by Geography, 2010-2044

	2010	2015	2018	2044	2018-2044	
					CAGR	Growth
Puget Sound Region	123,400	137,000	143,100	160,600	0.4%	17,500
Seattle	58,900	66,500	59,000	55,900	-0.2%	-3,100
Industrial Areas	600	1,200	1,200	1,100	-0.3%	-100
Industrial Share of Seattle	1%	2%	2%	2%		3%
Industrial Share of Region	0%	1%	1%	1%		-1%

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

LAND USE ALTERNATIVES ANALYSIS

The alternatives model evaluates four different alternatives for the future of Seattle's industrial lands: No Action, Future of Industry Limited, Future of Industry Targeted, and Future of Industry Expanded. The alternatives are variations of types of permitted uses and development standards as expressed through zoning designations.

While the No Action alternative retains existing zoning, the action alternatives introduce several new industrial zone classifications:

- **Maritime, Manufacturing and Logistics (MML).** Increases policy protections and support for the maritime and legacy industries and combines the existing IG1 and IG2 zones.
- **Industry and Innovation Zone (II).** Replaces existing IC and in some cases IB zones. Encourages development aimed at industrial businesses with a greater mix of production, research and technology activities, and office uses than traditional industrial businesses.
- **Urban Industrial (UI).** Provides space for smaller scale industrial firms and incubator and prototyping activities, in addition to space for general industrial activity. Modifies and replaces existing IB and some parts of IC zones adjacent to designated urban villages and in selected alternatives allows workforce housing.

The model includes a redevelopment capacity analysis to assess whether the assumed employment growth can be accommodated in industrial areas. The capacity analysis is conducted for five planning areas: Ballard, Interbay/Dravus, Interbay/Smith Cove, SODO/Stadium and South Park/Georgetown (Exhibit 49 in the Appendix shows the boundaries of the five subareas). The timeline modeled is 2044 and the baseline year is 2018.

No Action Alternative

Description

The No Action alternative assumes no changes in land use and zoning policy in industrial areas but includes assumptions of employment growth over time. Under this alternative significant port, rail, other transportation infrastructure investments and shoreline opportunities continue to support maritime and auxiliary industries.

Assumptions

2018 Employment by Industry and Subarea Allocation

The share of employment by industry within each subarea in 2018 derives from total employment estimates by industry for the North and South industrial areas from PSRC; total employment by subarea from PSRC; and

data on businesses located in industrial areas, which were reviewed and adjusted based on secondary research and CAI's knowledge of industrial areas. (**Exhibit 22**)

Exhibit 22. Share of Subarea Employment by Industry, All Alternatives, 2018

Industry	Industrial Areas	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	11%	7%	9%	9%	6%	8%
Construction and Utilities	8%	16%	14%	23%	11%	15%
ICT	3%	12%	3%	5%	10%	5%
Distribution & E-commerce	11%	7%	2%	3%	10%	10%
Food & Beverage Production	6%	4%	2%	1%	3%	6%
Aerospace	1%	2%	3%	1%	6%	12%
Transportation & Logistics	5%	1%	3%	4%	8%	5%
Maritime	7%	13%	24%	22%	5%	6%
Other Manufacturing	9%	7%	12%	9%	5%	5%
All Other Retail	7%	2%	1%	1%	5%	3%
All Other Services	28%	24%	27%	20%	22%	20%
Government	1%	5%	-	2%	8%	3%
Education	1%	0%	1%	-	2%	1%
	100%	100%	100%	100%	100%	100%

Sources: Puget Sound Regional Council, 2020; Community Attributes Inc., 2020.

Employment Growth by Industry and Subarea Allocation

The allocation of employment growth by industry to each subarea reflects (1) a baseline of 2018 industry employment by subarea and (2) changes in future industries by subarea based on trends and clustering in each area based on the following assumptions (**Exhibit 23**):

- The addition of light rail to Ballard should increase demand for retail and services employment in the subarea.
- The Interbay/Dravus and Interbay/Smith Cove subareas will continue to grow and attract more flex-tech demand from ICT, services, and light manufacturing.
- The development of the armory site is a major site that can catalyze future development either to more industrial or less industrial use. This analysis assumes the development will increase demand for nearby industrial land, regardless of what happens on site at the armory site.
- Both SODO/Stadium and South Park/Georgetown have existing concentrations of services employment and are expected to continue to capture a large proportion of services growth.
- SODO is expected to continue to host the largest proportion of transportation and logistics and distribution and e-commerce employment. The SODO subarea will continue to be attractive for these industries given unique access to Port and maritime facilities.

Exhibit 23. Share of Industry Employment Growth by Subarea, No Action Alternative, 2018 – 2044

Industry	Total	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	100%	16%	7%	7%	37%	31%
Construction and Utilities	100%	20%	6%	10%	36%	28%
ICT	100%	30%	7%	7%	40%	16%
Distribution & E-commerce	100%	14%	1%	2%	52%	31%
Food & Beverage Production	100%	18%	3%	3%	34%	42%
Aerospace	100%	5%	3%	2%	41%	49%
Transportation & Logistics	100%	4%	4%	4%	64%	25%
Maritime	100%	26%	15%	15%	26%	19%
Other Manufacturing	100%	20%	15%	12%	33%	20%
All Other Retail	100%	16%	6%	6%	52%	20%
All Other Services	100%	30%	7%	6%	37%	20%
Government	100%	17%	0%	2%	66%	15%
Education	100%	8%	8%	0%	67%	17%

Sources: Community Attributes Inc., 2021.

The colors of the data shown in **Exhibit 23** help explain the projections. Numbers shown in black reflect a status quo allocation of demand by sector. Numbers in green reflect an increase demand over the status quo; numbers in red reflect a decrease in demand.

Absorption Assumptions: 2018 Employment by Redeveloped Land

Improvement value per square foot of land is a key metric used in the model as a proxy for the economic surplus of land. The lower the ratio, the greater the surplus and the greater the opportunity for redevelopment of that land. This does not fully equate to an owners’ willingness to sell. Rather, it approximates barriers for a buyer to redevelop the property. Low improvement values suggest lower valuation of improvements by a buyer and relatively lower demolition costs.

The model assumes that 100% of parcels with improvement values of less than \$10 have the potential for redevelopment, excluding rail parcels. Changing redevelopment assumptions adds or subtracts land area from the inventory of land with potential for redevelopment.

The distribution of existing employment on redeveloped land by industry is based on 2018 (**Exhibit 22**) or 2018-2044 (**Exhibit 23**) shares of employment by industry. The No Action alternative model allows the user to toggle between the current or future distribution of employment by industry.

Absorption Assumptions: Required Redevelopment Land

Absorption assumptions by subarea expressed as square feet of land per job are used to determine the required land to be redeveloped to accommodate

the assumed employment growth. Square feet of land per job is calculated by dividing square feet of building area per job by FAR. The PSRC provided estimated square feet of building per job in 2035, for each subarea by land use.

Exhibit 24. Absorption Assumptions by Subarea, No Action Alternative, 2044

Land Use	Industry	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Other	Hospitality & Tourism	1,400	1,600	2,500	2,000	204
Ind	Construction and Utilities	813	1,400	1,571	1,800	708
Com & Off	ICT	265	900	577	571	250
Ind	Distribution & E-commerce	813	1,400	1,571	1,800	708
Ind	Food & Beverage Production	813	1,400	1,571	1,800	708
Ind	Aerospace	813	1,400	1,571	1,800	708
Ind	Transportation & Logistics	813	1,400	1,571	1,800	708
Ind	Maritime	813	1,400	1,571	1,800	708
Ind	Other Manufacturing	813	1,400	1,571	1,800	708
Com & Off	All Other Retail	265	900	577	571	250
Com & Off	All Other Services	265	900	577	571	250
Gov & Ed	Government	1,800	2,000	3,100	400	222
Gov & Ed	Education	1,800	2,000	3,100	400	222

Sources: Puget Sound Regional Council, 2020; Community Attributes Inc., 2020.

Results

For the CAI employment growth scenario, the No Action alternative model estimates that the Interbay/Dravus subarea will require the largest share of redevelopment land to accommodate the assumed employment growth for 2044, amongst the five subareas analyzed (**Exhibit 25**). These projections are illustrative and approximate in nature, to test capacity. In reality, land with improvement values greater than \$10 per SF of land are apt to be redeveloped, and thereby reduce the demand for the lower improvement shown in the exhibit.

Exhibit 25. Required Redevelopment Land by Subarea, CAI Growth Rates Scenario

Subarea	Employment			Required Redevelopment Land (mils SF)	Required Redevelopment Land (% of parcels improv <\$10)
	2018	2044	2018 - 2044		
Ballard	17,100	22,300	5,200	4.7	41%
Interbay/Dravus	5,600	6,800	1,200	5.4	69%
Interbay/Smith Cove	6,000	7,400	1,400	2.4	18%
SODO/Stadium	43,900	53,500	9,600	25.8	53%
South Park/Georgetown	25,900	32,000	6,100	6.1	20%
Total	98,400	122,000	23,600	44.5	

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; City of Seattle, 2020; Community Attributes Inc., 2021.

Notes: The results in the table above assume the distribution of existing employment on redeveloped land by industry is based on 2018 shares of employment by industry.

Economic Impacts

The 2044 direct employment in industrial areas under the CAI preferred growth rates scenario supports a total of 194,300 jobs in King County, roughly \$47 billion in business revenue and \$14 billion in labor income.

Exhibit 26. Total Economic Impact CAI Preferred Growth Rates Scenario, No Action Alternative, King County, 2044

	Direct	Indirect	Induced	Total
Jobs (2044)	117,300	58,400	18,600	194,300
Total Compensation (mils 2018 \$)	\$9,756.6	\$3,504.6	\$1,008.7	\$14,269.9
Business Revenue (mils 2018 \$)	\$34,111.0	\$9,916.1	\$3,222.9	\$47,250.0

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Washington State Office of Financial Management, 2020; City of Seattle, 2020; Community Attributes Inc., 2021.

Note: The total jobs for 2044 in the table above excludes government jobs. The 2007 Washington Input-Output model does not include a government sector.

Future of Industry Limited Alternative

- The Limited alternative will accommodate an estimated 132,800 total jobs in 2044, an increase of 10,900 jobs over the No Action Scenario.
- The Limited Alternative adds an estimated 40 million square feet in potential built capacity, which could accommodate nearly 90,400 additional jobs assuming 400 square feet per jobs and 90% absorption at build out.
- The Interbay/Smith Cove and SODO/Stadium subareas will see the largest increases in potential capacity due to zoning changes. These subareas have additions of both Industry and Innovation and Urban Industrial zones.
- Overall, zoning changes under the Limited alternative will support moderately greater density and capacity for jobs in Seattle's industrial areas compared to the No Action scenario.
- Under this alternative, industry employment growth rates in Seattle's industrial areas are assumed to follow the King County Derived Growth Rates forecast, including continued strong growth in construction and utilities and food & beverage production.
- Assuming growth trends within the subareas continue and are supported by changes in zoning under the Limited alternative, the SODO/Stadium and South Park/Georgetown subareas will experience the largest growth in jobs. The Interbay/Smith Cove and Ballard subareas will see the largest percentage increase over 2018 employment.

Description

The Future of Industry Limited Alternative strengthens industrial and maritime sector land use protections, while also accommodating emerging industrial trends such as increased allowances for ancillary office, design, lab and other dense employment uses. Under this alternative, existing IG1 and IG2 zones are converted to a highly protective Maritime, Manufacturing and Logistics zone.

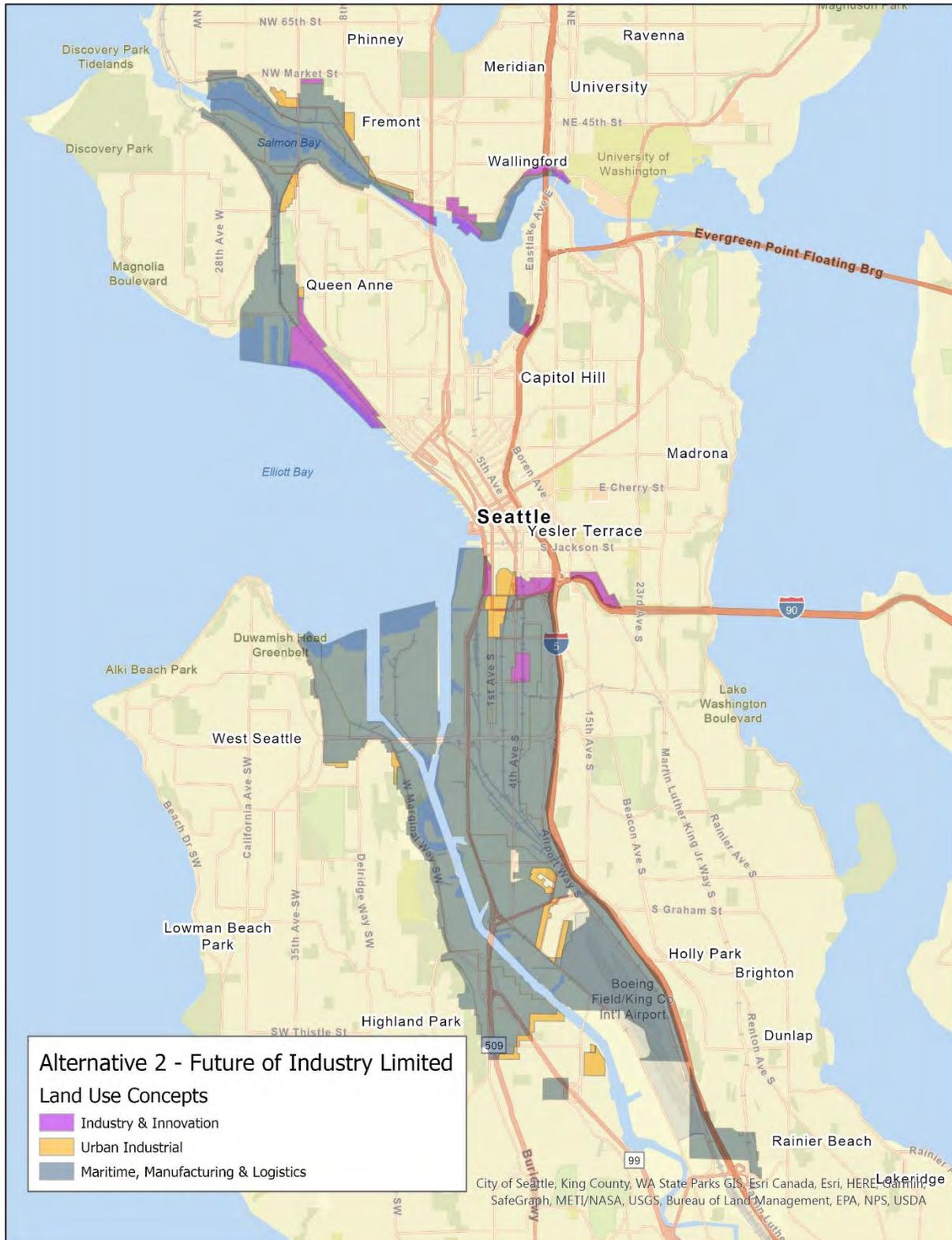
Areas within one-quarter mile from existing and new high-capacity transit stations are zoned as Industry and Innovation to encourage Transit Oriented Development (TOD), for example multi story light industrial structures or an industrial eco district. These areas include parcels near the Lander Street Station, portions of the stadium district and Smith Cove.

The Limited alternative also proposes that transition areas between industrial and urban villages and residential areas are zoned as Urban Industrial to support both small-scale industrial activity and more activities such as ancillary retail, tasting rooms and similar. The Urban Industrial zone replaces Industrial Buffer (IB) zones and covers a relatively small

geography in Ballard, Georgetown, and the edges of South Park. The Limited alternative does not allow any new residential development. (**Exhibit 27**)

This alternative designates the Interbay Armory site a Master Planned Community area which provides flexibility for a potential master developer to determine uses for the site. Proposed policies support mixed uses with a mix of Industry and Innovation and Urban Industrial.

Exhibit 27. Future of Industry Limited Alternative Zoning



Sources: City of Seattle, 2021; Community Attributes, 2021.

Generally, the Limited Alternative has a similar quantity of the new Maritime, Manufacturing and Logistics (MML) zoning compared to the Industrial General (IG) zoning. The Ballard, Interbay/Smith Cove and South Park/Georgetown subareas will see increases in the more restrictive MML zone compared to the existing IG zoning, while the other two zones will see a small decrease in the more restrictive MML zoning (**Exhibit 28**). Increased restrictions in the Maritime, Manufacturing and Logistics zoning will likely promote an industry shift toward traditionally industrial and ancillary uses.

Exhibit 28. Current and Future of Industry Limited Alternative Lot Square Feet by Zone (Excl. Rail Parcels)

Zone	Ballard		Interbay/Dravus		Interbay/Smith Cove		SODO/Stadium		South Park/Georgetown	
	Current	FIN Limited	Current	FIN Limited	Current	FIN Limited	Current	FIN Limited	Current	FIN Limited
IG	9,800,304	-	8,856,200	-	10,431,333	-	82,231,848	-	66,686,378	-
IB	4,030,764	-	518,872	-	139,010	-	485,764	-	4,348,009	-
IC	3,344,610	-	-	-	4,837,054	-	4,639,434	-	1,245,037	-
IDM	-	-	-	-	-	-	-	-	-	-
II4	-	2,424,910	-	-	-	-	-	-	-	-
II6	-	222,363	-	-	-	4,837,054	-	2,600,629	-	-
UI	-	1,175,902	-	630,131	-	93,450	-	3,180,406	-	4,812,231
MML	-	13,352,503	-	8,744,941	-	10,476,893	-	81,576,011	-	67,467,193
SM	-	-	-	-	-	-	-	-	-	-
Total	17,175,678	17,175,678	9,375,072	9,375,072	15,407,397	15,407,397	87,357,046	87,357,046	72,279,424	72,279,424

Sources: City of Seattle, 2021; Community Attributes, 2021.

Note: The zones are Industrial General (IG), Industrial Buffer (IB), Industrial Commercial (IC), International District Mixed (IDM), Industry and Innovation (II4 and II6), Urban Industrial (UI), Maritime, Manufacturing, and Logistics (MML), and Seattle Mixed (SM).

Assumptions

2018 Employment by Industry and Subarea Allocation

The share of employment by industry within each subarea in 2018 is estimated using the same assumptions as in the No Action alternative. (**Exhibit 22** in the No Action alternative subsection).

Employment Growth by Industry and Subarea Allocation

The allocation of employment growth by industry to each subarea reflects both the baseline of 2018 industry employment, trends in industry growth within each subarea and changes in zoning restrictions that may alter trends in employment growth by industry.

Adjustments are applied informed by capacity changes and allowed uses defined by the zoning adjustments under the Limited alternative. Increases in capacity within the Interbay/Dravus, Interbay/Smith Cove and SODO/Stadium areas will promote growth beyond the capacity within the subareas under the No Action alternative, shifting proportions of growth between subareas.

Exhibit 29. Share of Industry Employment Growth by Subarea, Future of Industry Limited Alternative, 2018 – 2044

Industry	Total	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	100%	16%	7%	7%	37%	31%
Construction and Utilities	100%	20%	6%	10%	36%	28%
ICT	100%	25%	9%	10%	40%	16%
Distribution & E-commerce	100%	14%	1%	2%	52%	31%
Food & Beverage Production	100%	18%	3%	3%	34%	42%
Aerospace	100%	5%	3%	2%	41%	49%
Transportation & Logistics	100%	4%	4%	4%	64%	25%
Maritime	100%	26%	15%	15%	26%	19%
Other Manufacturing	100%	20%	15%	12%	33%	20%
All Other Retail	100%	12%	8%	8%	52%	20%
All Other Services	100%	25%	8%	7%	40%	20%
Government	100%	17%	0%	2%	66%	15%
Education	100%	8%	8%	0%	67%	17%

Sources: Community Attributes Inc., 2021.

Absorption Assumptions: 2018 Employment by Redeveloped Land

The inventory for land with potential for redevelopment is determined as follows:

- For parcels zoned Maritime, Manufacturing and Logistics (MML or MIG in the model), the model uses the improvement value per square foot of land as a proxy for redevelopment. Like in the No Action scenario, the model assumes that 100% of MML zoned parcels with improvement values of less than \$10 have the potential for redevelopment, excluding rail parcels.
- For parcels zoned Industry and Innovation (II4 or II6 in the model) and Urban Industrial (UI or M in the model), the model uses total assessed value per square foot of land as a proxy for redevelopment. A feasibility analysis was carried out to estimate the maximum site acquisition cost for several projects that are representative of the zoning concepts proposed by the City. The alternatives model assumes that 100% of II and UI zoned parcels with total assessed value per square foot of land below the maximum site acquisition per square foot of land threshold from the feasibility analysis will be redeveloped.

CAI conducted outreach with real estate developers and property owners and secondary research to inform the inputs into the feasibility analysis. A summary of the findings from the outreach was provided to the city in a separate memo.

The West Woodland Business Center located in Ballard and the R&D Interbay building in Seattle’s Interbay neighborhood are modelled as a

prototype of a project on an Industry and Innovation zoned parcel. Equinox studios in Georgetown is representative of the makerspace model and forms the base of the makerspace with workforce housing variation. **Exhibit 30** shows the results of the feasibility analysis.

Exhibit 30. Maximum Site Acquisition Cost per Square Foot of Land Thresholds by Zone

Zone	Redevelopment %	Total Value per SF of Land Threshold
II4	100%	\$70
II6	100%	\$70
UI	100%	\$51
All Other	100%	\$170

Source: CBRE, 2020; Freehold, 2020; Equinox Studios, 2020; King County Assessor, 2020; CoStar, 2020; RLB Q4 2019 Construction Cost Report North America, 2020; Community Attributes, 2021.

Exhibit 31 and **Exhibit 32** show the assumptions for the distribution of existing employment on redeveloped land by industry. The focus on transition areas between industrial areas and urban villages with the use of Urban Industrial zone allows for increased density and diversity of uses.

- The concentration of Urban Industrial zoning and the addition of light rail in Ballard should increase demand for services employment in the subarea. However, the increased restrictions on Maritime, Manufacturing and Logistics zoned parcels will also support increased concentrations of Maritime, and other traditional industrial employment.
- The Interbay/Dravus and Interbay/Smith Cove subareas will both see increased restrictions within MML zoned parcels, supporting increased concentrations of maritime employment. Urban Industrial zoning will continue to support and attract more flex-tech demand from ICT, services and light manufacturing.
- Both SODO/Stadium and South Park/Georgetown have existing concentrations of services and retail employment, which will continue to grow. However, increased restrictions on MML zones will also support distribution & E-commerce and transportation & logistics, as well as other light manufacturing.

Exhibit 31. Share of Industry Employment by Subarea on Redeveloped Land, MML Zones, 2044

Industry	Industrial Areas	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	11%	5%	5%	5%	5%	5%
Construction and Utilities	8%	20%	15%	25%	15%	15%
ICT	3%	5%	5%	5%	10%	5%
Distribution & E-commerce	11%	15%	10%	5%	10%	10%
Food & Beverage Production	6%	15%	5%	5%	5%	10%
Aerospace	1%	-	-	-	10%	15%
Transportation & Logistics	5%	-	5%	5%	10%	10%
Maritime	7%	15%	30%	25%	10%	10%
Other Manufacturing	9%	10%	10%	10%	10%	5%
All Other Retail	7%	5%	5%	5%	5%	5%
All Other Services	28%	10%	10%	10%	10%	10%
Government	1%	-	-	-	-	-
Education	1%	-	-	-	-	-
	100%	100%	100%	100%	100%	100%

Sources: Community Attributes Inc., 2021

Exhibit 32. Share of Industry Employment by Subarea on Redeveloped Land, INN and UI Zones, 2044

Industry	Industrial Areas	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	11%	10%	5%	5%	5%	10%
Construction and Utilities	7%	15%	15%	20%	10%	5%
ICT	3%	10%	15%	15%	15%	5%
Distribution & E-commerce	11%	10%	5%	5%	10%	10%
Food & Beverage Production	5%	10%	-	-	5%	5%
Aerospace	5%	-	-	-	5%	10%
Transportation & Logistics	6%	-	5%	5%	10%	5%
Maritime	7%	5%	15%	20%	5%	5%
Other Manufacturing	8%	5%	10%	10%	5%	5%
All Other Retail	7%	5%	-	-	10%	15%
All Other Services	27%	30%	30%	20%	20%	25%
Government	2%	-	-	-	-	-
Education	1%	-	-	-	-	-
	100%	100%	100%	100%	100%	100%

Sources: Community Attributes Inc., 2021.

Absorption Assumptions: Required Redevelopment Land

Absorption assumptions by subarea are expressed as square feet of land per job to determine the required land to be redeveloped to accommodate the assumed employment growth. Square feet of land per job is calculated by

dividing square feet of building area per job by FAR. The PSRC provided estimated square feet of building per job in 2035, for each subarea by land use, which is used as an input to adjust assumptions for the Targeted Alternative.

The Industry and Innovation and Urban Industrial zones allow for increased density, through increased FAR. Under current conditions, realized FAR are less than zoned FAR. Assumptions under the Limited Alternative are adjusted based on maximum FAR and adjusted to reflect realistic absorption based on current conditions.

Exhibit 33. Absorption Assumptions by Subarea, Future of Industry Limited Alternative, 2044

Land Use	Industry	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Other	Hospitality & Tourism	786	1,091	1,214	1,583	900
Ind	Construction and Utilities	600	1,273	950	1,417	533
Com & Off	ICT	182	225	217	400	206
Ind	Distribution & E-commerce	600	1,273	950	1,417	533
Ind	Food & Beverage Production	600	1,273	950	1,417	533
Ind	Aerospace	600	1,273	950	1,417	533
Ind	Transportation & Logistics	600	1,273	950	1,417	533
Ind	Maritime	600	1,273	950	1,417	533
Ind	Other Manufacturing	600	1,273	950	1,417	533
Com & Off	All Other Retail	182	225	217	400	206
Com & Off	All Other Services	182	225	217	400	206
Gov & Ed	Government	1,143	1,636	1,786	333	167
Gov & Ed	Education	1,143	1,636	1,786	333	167

Sources: Puget Sound Regional Council, 2020; Community Attributes Inc., 2021.

Results

The Limited Alternative will likely support growth rates that are slightly more conservative than historic trends, similar to growth rates derived from King County projected growth rates. The Interbay/Dravus and SODO/Stadium subareas will require the largest share of potential land available for redevelopment to accommodate assumed employment growth for 2044 (**Exhibit 34**). These projections are illustrative and approximate in nature, to test capacity. In reality potential development will likely select parcels improvement values different from the thresholds indicated by zone, thereby reducing the demand for parcels with lower improvement values shown in the exhibit below.

Exhibit 34. Required Redevelopment Land by Subarea, Historic Growth Rates and Targeted Alternative

Subarea	Employment			Required Redevelopment Land (mils SF)	Required Potential Redevelopment Land
	2018	2044	2018 - 2044		
Ballard	17,100	23,500	6,400	5.0	41%
Interbay/Dravus	5,600	7,700	2,100	5.0	64%
Interbay/Smith Cove	6,000	8,600	2,600	2.4	18%
SODO/Stadium	43,900	57,700	13,800	27.8	57%
South Park/Georgetown	25,900	35,200	9,300	7.3	22%
Total	98,400	132,800	34,400	47.5	

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Economic Impacts

The 2044 direct employment in industrial areas under the historic growth rates and Limited Alternative scenario supports a total of 217,100 jobs in King County, roughly \$53 billion in business revenue and \$16 billion in labor income. This represents an increase of 22,800 jobs, \$5.7 billion in business revenue and \$1.3 billion in labor income over the No Action Alternative.

Exhibit 35. Total Economic Impact County Derived Growth Rates Scenario, Future of Industry Limited Alternative, King County, 2044

	Direct	Indirect	Induced	Total
Jobs (2044)	129,500	67,200	20,400	217,100
Total Compensation (mils 2018 \$)	\$10,530.9	\$4,006.2	\$1,080.4	\$15,617.4
Business Revenue (mils 2018 \$)	\$37,927.9	\$11,329.5	\$3,706.1	\$52,963.6

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Washington State Office of Financial Management, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Note: The total jobs for 2044 in the table above excludes government jobs. The 2007 Washington Input-Output model does not include a government sector.

Future of Industry Targeted Alternative

- The Targeted alternative will accommodate an estimated 155,600 total jobs in 2044, an increase of 33,600 jobs over the No Action Scenario.
- The Targeted alternative adds an estimated 52 million square feet in potential built capacity, which could accommodate an additional 117,400 jobs assuming 400 square feet per jobs and 90% absorption at build out.
- Similar to the Limited Alternative, the Interbay/Smith Cove and SODO/Stadium subareas will see the largest increases in potential capacity due to zoning changes. The Ballard subarea will see a greater increase in capacity compared to the Limited alternative. These subareas have additions of both Industry and Innovation and Urban Industrial zones.
- Overall, zoning changes under the Targeted alternative will support greater density and capacity for jobs in Seattle's industrial areas compared to the No Action scenario and the Limited Alternative. The alternative additionally allows for limited industry-supportive housing.
- Assuming growth rates in Seattle's industrial areas follow slightly more conservative growth rates compared to historic trends for industry employment, including continued strong growth in ICT, food & beverage production, and services.
- Additionally, assuming growth trends within the subareas continue and are supported by changes in zoning under the Targeted alternative, the SODO/Stadium and Ballard subareas will experience the largest growth in jobs. The Interbay/Dravus and Ballard subareas will see the largest percentage increase over 2018 employment.

Description

The Future of Industry Targeted alternative uses similar tools and approaches to the Limited alternative but applies them to a larger geographic area. The Industry and Innovation and Urban Industrial zoning is applied in an area up to one-half mile of transit stations, near the Lander St. Station, in the Interbay-Smith Cove area, at Dravus Street, and in a swath of Ballard. Additionally, the Urban Industrial zone includes a workforce housing allowance to support industrial workers. (**Exhibit 36**)

Like Future of Industry Limited, the Targeted alternative strengthens industrial and maritime sector land use protections through the Maritime, Manufacturing and Logistics zone. This is applied to industrial land near significant port, rail and other major freight and logistics infrastructure to support maritime and industrial activity. The Targeted alternative also designates the Interbay Armory site a Master Planned Community area which provides flexibility for a potential master developer to determine uses

for the site. Proposed policies support mixed uses with a mix of Industry and Innovation and Urban Industrial zones.

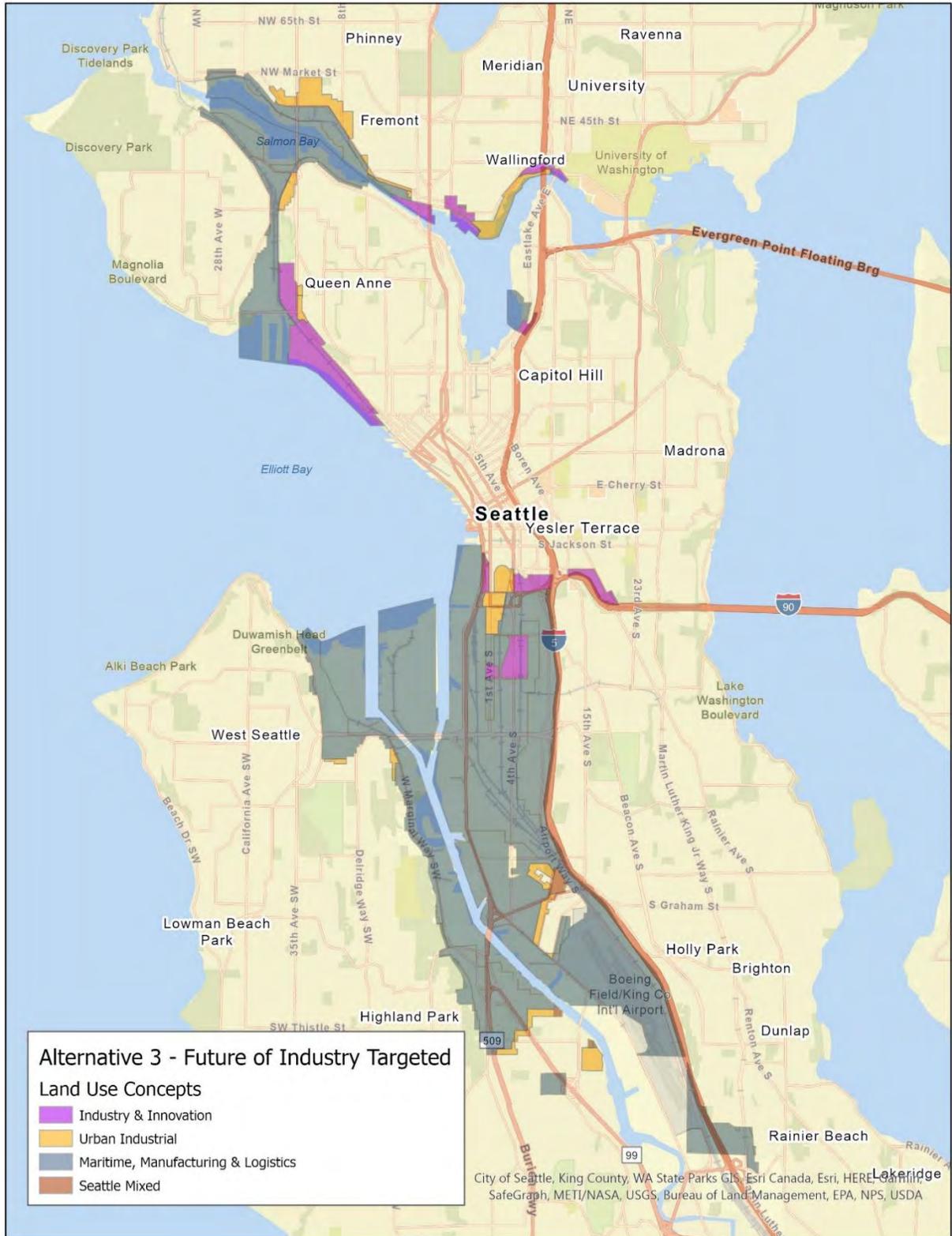
Generally, the Targeted Alternative, like the Limited Alternative, has a similar quantity of the new Maritime, Manufacturing and Logistics zoning compared to the Industrial General zoning. The South Park/Georgetown subarea will both see a slight increase in the more restrictive MML zone, while the other four zones will see a small decreases in the more restrictive MML zoning (**Exhibit 36**). Increased restrictions in the Maritime, Manufacturing and Logistics zoning will likely promote traditionally industrial uses and ancillary uses.

Exhibit 36. Current and Future of Industry Targeted Alternative Lot Square Feet by Zone (Excl. Rail Parcels)

Zone	Ballard		Interbay/Dravus		Interbay/Smith Cove		SODO/Stadium		South Park/Georgetown	
	Current	FIN Targeted	Current	FIN Targeted	Current	FIN Targeted	Current	FIN Targeted	Current	FIN Targeted
IG	9,800,304	-	8,856,200	-	10,431,333	-	82,231,848	-	66,686,378	-
IB	4,030,764	-	518,872	-	139,010	-	485,764	-	4,348,009	-
IC	3,344,610	-	-	-	4,837,054	-	4,639,434	-	1,245,037	-
IDM	-	-	-	-	-	-	-	-	-	-
II4	-	2,424,910	-	-	-	-	-	-	-	-
II6	-	222,363	-	-	-	6,753,415	-	3,971,487	-	-
UI	-	5,322,960	-	630,131	-	93,450	-	3,180,406	-	4,068,793
MML	-	9,205,445	-	8,744,941	-	8,560,532	-	80,205,153	-	67,405,233
SM	-	-	-	-	-	-	-	-	-	805,398
Total	17,175,678	17,175,678	9,375,072	9,375,072	15,407,397	15,407,397	87,357,046	87,357,046	72,279,424	72,279,424

Sources: City of Seattle, 2021; Community Attributes, 2021.

Exhibit 37. Future of Industry Targeted Alternative Zoning



Sources: City of Seattle, 2021; Community Attributes, 2021.

Assumptions

2018 Employment by Industry and Subarea Allocation

The share of employment by industry within each subarea in 2018 is estimated using the same assumptions as in the No Action alternative. (**Exhibit 22** in the No Action alternative subsection).

Employment Growth by Industry and Subarea Allocation

The allocation of employment growth by industry to each subarea reflects both the baseline of 2018 industry employment, trends in industry growth within each subarea and changes in zoning restrictions that may alter trends in employment growth by industry.

Adjustments are applied informed by capacity changes and allowed uses defined by the zoning adjustments under the Future of Industry Targeted alternative. Increases in capacity within the subareas will promote growth beyond the capacity of the subareas under the No Action alternative, shifting proportion of growth between subareas.

The Targeted Alternative has a greater focus on transition areas, with larger areas of Industry and Innovation and Urban Industrial Zones compared to the Limited Alternative. The Industry and Innovation zone allows for greater density and diversity of uses compared to the Maritime, Manufacturing and Logistics zone but promotes a stronger focus on industrial related uses compared to the new Urban Industrial zone.

- The Ballard subarea has seen growth in services employment in recent trends. The increased restrictions on Maritime, Manufacturing and Logistics zones as well as the focus on supporting related uses will promote growth in industrial industries already concentrated in the area. The area will still see growth in services employment, but to a lesser degree compared to the No Action Alternative.
- The Interbay/Dravus and Interbay/Smith Cove subareas zoning under the Targeted Alternative is very similar between the Targeted and Limited Alternatives. These subareas will both see zoning changes supporting increased concentrations of maritime and other industrial uses, as well as related employment.
- The Interbay/Dravus and Interbay/Smith Cove subareas will both see increased restrictions within Maritime, Manufacturing and Logistics zoned parcels, maintaining existing concentrations of maritime employment. Urban Industrial zoning will continue to support and attract more flex-tech demand from ICT and services employment.
- Both SODO/Stadium and South Park/Georgetown have demand trending for services and retail employment. Increased restrictions in the Industry and Innovation zone compared to the No Action Alternative will support maintaining traditionally industrial and

related employment in SODO/Stadium. Urban Industrial zoning in South Park/Georgetown will support trends toward retail employment in the subarea.

Exhibit 38. Share of Industry Employment Growth by Subarea, Transition to Mixed Use Alternative, 2018-2044

Industry	Total	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	100%	18%	8%	5%	37%	31%
Construction and Utilities	100%	20%	6%	10%	36%	28%
ICT	100%	30%	9%	10%	38%	13%
Distribution & E-commerce	100%	14%	1%	2%	52%	31%
Food & Beverage Production	100%	18%	3%	3%	34%	42%
Aerospace	100%	5%	3%	2%	41%	49%
Transportation & Logistics	100%	4%	4%	4%	64%	25%
Maritime	100%	26%	15%	15%	26%	19%
Other Manufacturing	100%	20%	15%	12%	33%	20%
All Other Retail	100%	14%	8%	8%	45%	25%
All Other Services	100%	28%	8%	7%	37%	20%
Government	100%	17%	0%	2%	66%	15%
Education	100%	8%	8%	0%	67%	17%

Sources: Community Attributes Inc., 2021.

Absorption Assumptions: 2018 Employment by Redeveloped Land

The inventory for land with potential for redevelopment is estimated using the same assumptions as in the Future of Industry Limited alternative. The assumptions for the distribution of existing employment on redevelopment land by industry are estimated using the same assumptions as in the Future of Industry Limited (**Exhibit 31** and **Exhibit 32**).

Absorption Assumptions: Required Redevelopment Land

The absorption assumptions by subarea are estimated using the same assumptions as in the Future of Industry Limited (**Exhibit 33**).

Results

The Targeted alternative will likely support growth rates that are slightly more conservative than historic trends. The Interbay/Dravus and SODO/Stadium subareas will require the largest share of potential land available for redevelopment to accommodate assumed employment growth for 2044 (**Exhibit 39**). These projections are illustrative and approximate in nature, to test capacity. In reality, potential development will likely select parcels improvement values different from the thresholds indicated by zone, thereby reducing the demand for parcels with lower improvement values shown in the exhibit.

Exhibit 39. Required Redevelopment Land by Subarea, Medium Historic Growth Rates and Targeted Alternative

Subarea	Employment			Required Redevelopment Land (mils SF)	Required Potential Redevelopment Land
	2018	2044	2018 - 2044		
Ballard	17,100	31,200	14,100	6.0	45%
Interbay/Dravus	5,600	9,900	4,300	5.4	69%
Interbay/Smith Cove	6,000	10,500	4,500	2.0	15%
SODO/Stadium	43,900	66,100	22,200	28.4	58%
South Park/Georgetown	25,900	38,300	12,400	7.8	23%
Total	98,400	155,600	57,200	49.7	

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Economic Impacts

The 2044 direct employment in industrial areas under the historic growth rates and Targeted Alternative scenario supports a total of 258,600 jobs in King County, roughly \$65 billion in business revenue and \$20 billion in labor income. This represents an increase of 64,300 total jobs, \$17.4 billion in business revenue, and \$5.9 billion in labor income over the No Action alternative.

Exhibit 40. Total Economic Impact Medium Historic Growth Rates Scenario, Future of Industry Targeted Alternative, King County, 2044

	Direct	Indirect	Induced	Total
Jobs (2044)	151,800	79,000	27,800	258,600
Total Compensation (mils 2018 \$)	\$13,792.7	\$4,777.2	\$1,631.5	\$20,201.5
Business Revenue (mils 2018 \$)	\$46,946.0	\$13,424.9	\$4,247.7	\$64,618.6

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Washington State Office of Financial Management, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Note: The total jobs for 2044 in the table above excludes government jobs. The 2007 Washington Input-Output model does not include a government sector.

Future of Industry Expanded

- The Future of Industry Expanded Alternative will accommodate an estimated 157,700 total jobs in 2044, an increase of 35,700 jobs over the No Action Scenario. While the Targeted and Expanded Alternatives differ in specific parameters for each zone, they are more similar in capacity generation compared to the No Action and Limited Alternatives.
- The Future of Industry Expanded adds an estimated 58 million square feet in potential built capacity, excluding likely industry supportive residential absorption of capacity created in new zones. Added capacity could accommodate an additional nearly 131,100 jobs assuming 400 square feet per job and 90% absorption at build out.
- The Interbay/Dravus and SODO/Stadium subareas will see the largest increases in potential capacity due to zoning changes.
- Overall, zoning changes under the Future of Industry Expanded Alternative will support greater density and capacity for jobs in Seattle's industrial areas compared to all other scenarios.
- Under this scenario, growth rates in Seattle's industrial areas are assumed to follow growth trends informed by historic growth trends in King County, Seattle and industrial areas. Under the Future of Industry Expanded zoning changes, the SODO/Stadium, Ballard, and South Park/Georgetown subareas will experience the largest growth in jobs. The Ballard, Interbay/Dravus, and Interbay/Smith Cove subareas will see the largest percentage increase over 2018 employment.

Description

The Future of Industry Expanded alternative, like the Limited and Targeted alternatives strengthens industrial and maritime sector land use protections. This alternative reduces the overall footprint of industrial areas in Seattle by removing focused area in the South Park/Georgetown subarea. Over the planning time horizon, this alternative accommodates growth of nonindustrial activities by converting some current industrial zoning to nonindustrial zoning.

Industrial areas closest to key infrastructure, including ports and rail, as well as shorelines are prioritized for strong industrial and maritime protections. Similar to the Targeted alternative industrial parcels in transitional areas between industrial and nonindustrial zones within one half mile of future Sound Transit stations is a mix of Industry and Innovation and Urban Industrial zoning. Additionally, this concept increases the allowance for limited industry-supportive housing within the Urban Industrial zone.

The Future of Industry Expanded alternative reduces the more restrictive Maritime, Manufacturing and Logistics zoning compared to IG zoning in the

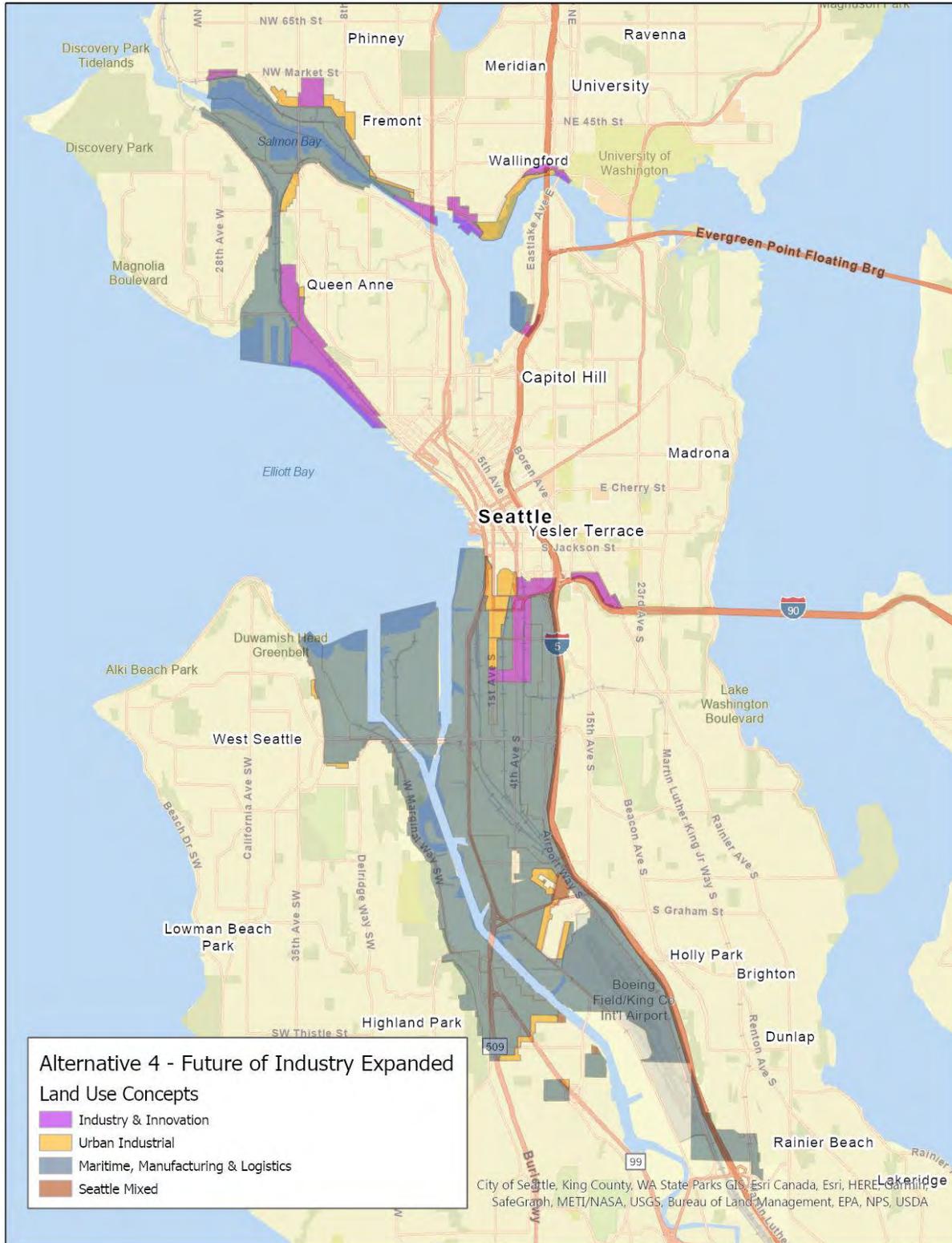
No Action scenario. The South Park/Georgetown subarea will see a slight increase in the more restrictive MML zone compared to the existing IG zoning, while the remaining four zones will see decreases in the most restrictive industrial zones. The SODO/Stadium and Interbay/Smith Cove subareas will see the largest decreases in MML zoning. **(Exhibit 41).**

Exhibit 41. Current and Future of Industry Expanded Alternative Lot Square Feet by Zone (Excl. Rail Parcels)

Zone	Ballard		Interbay/Dravus		Interbay/Smith Cove		SODO/Stadium		South Park/Georgetown	
	Current	FIN Expanded	Current	FIN Expanded	Current	FIN Expanded	Current	FIN Expanded	Current	FIN Expanded
IG	9,800,304	-	8,856,200	-	10,431,333	-	82,231,848	-	66,686,378	-
IB	4,030,764	-	518,872	-	139,010	-	485,764	-	4,348,009	-
IC	3,344,610	-	-	-	4,837,054	-	4,639,434	-	1,245,037	-
IDM	-	-	-	-	-	-	-	-	-	-
II4	-	3,205,023	-	-	-	-	-	-	-	-
II6	-	916,375	-	-	-	6,753,415	-	4,829,979	-	-
UI	-	4,230,803	-	630,131	-	93,450	-	3,942,099	-	3,226,430
MML	-	8,823,477	-	8,744,941	-	8,560,532	-	78,584,968	-	68,247,596
SM	-	-	-	-	-	-	-	-	-	805,398
Total	17,175,678	17,175,678	9,375,072	9,375,072	15,407,397	15,407,397	87,357,046	87,357,046	72,279,424	72,279,424

Sources: City of Seattle, 2021; Community Attributes, 2021.

Exhibit 42. Future of Industry Expanded Alternative Zoning



Sources: City of Seattle, 2021; Community Attributes, 2021.

Assumptions

2018 Employment by Industry and Subarea Allocation

The share of employment by industry within each subarea in 2018 is estimated using the same assumptions as in the No Action alternative. (**Exhibit 22** in the No Action alternative subsection).

Employment Growth by Industry and Subarea Allocation

The allocation of employment growth by industry to each subarea reflects both the baseline of 2018 industry employment, trends in industry growth within each subarea and changes in zoning restrictions that may alter trends in employment growth by industry.

Adjustments are applied informed by capacity changes and allowed uses defined by the zoning adjustments under the Future of Industry Expanded alternative. Increases in capacity within the subareas will promote growth beyond the capacity of the subareas under the No Action alternative, shifting proportion of growth between subareas.

Exhibit 43. Share of Industry Employment Growth by Subarea, Future of Industry Expanded Alternative, 2018-2044

Industry	Total	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Hospitality & Tourism	100%	20%	8%	5%	37%	30%
Construction and Utilities	100%	20%	6%	10%	36%	28%
ICT	100%	30%	10%	10%	37%	13%
Distribution & E-commerce	100%	13%	1%	1%	55%	30%
Food & Beverage Production	100%	20%	2%	2%	34%	42%
Aerospace	100%	5%	0%	0%	45%	50%
Transportation & Logistics	100%	5%	5%	5%	60%	25%
Maritime	101%	26%	15%	15%	25%	20%
Other Manufacturing	100%	20%	15%	12%	33%	20%
All Other Retail	100%	15%	8%	8%	44%	25%
All Other Services	100%	30%	8%	7%	35%	20%
Government	100%	17%	0%	2%	66%	15%
Education	100%	8%	8%	0%	67%	17%

Sources: *Community Attributes Inc., 2021.*

The Expanded Alternative increases Industry and Innovation and Urban Industrial zoning in transition areas compared to the Limited and Targeted Alternatives. The Industry and Innovation zone allows for greater density and diversity of uses compared to the Maritime, Manufacturing and Logistics zone but promotes a stronger focus on industrial related uses compared to the new Urban Industrial zone.

- The Ballard subarea has seen growth in services employment in recent trends. The increased restrictions on Maritime, Manufacturing and Logistics zones as well as the focus on supporting related uses will promote growth in industrial industries already concentrated in the area, but to a lesser degree compared to the Limited and Targeted Alternatives. The area will see increased growth in hospitality and tourism and food and beverage production.
- The Interbay/Dravus and Interbay/Smith Cove subareas will both see zoning changes supporting continued concentrations of maritime and other industrial uses, as well as related employment. Increases in Urban Industrial zoning will support and attract more flex-tech demand from ICT and services employment.
- Both SODO/Stadium and South Park/Georgetown have demand trending for services and retail employment. Increased restrictions in the Industry and Innovation zone compared to the No Action Alternative will support maintaining traditionally industrial and related employment in SODO/Stadium. Urban Industrial zoning in South Park/Georgetown will support trends toward retail employment in the subarea.

Absorption Assumptions: 2018 Employment by Redeveloped Land

The inventory for land with potential for redevelopment is estimated using the same assumptions as in the Future of Industry Limited and Targeted alternatives. The assumptions for the distribution of existing employment on redevelopment land by industry are estimated using the same assumptions as in the Future of Industry Limited (**Exhibit 31** and **Exhibit 32**).

Absorption Assumptions: Required Redevelopment Land

Absorption assumptions by subarea are expressed as square feet of land per job to determine the required land to be redeveloped to accommodate the assumed employment growth. Square feet of land per job is calculated by dividing square feet of building area per job by FAR. The PSRC provided estimated square feet of building per job in 2035, for each subarea by land use, which is used as an input to adjust assumptions for the Future of Industry Expanded Alternative.

The Industry and Innovation and Makerspace zones allow for increased density, through increased FAR. Assumptions under the Future of Industry Expanded Alternative are adjusted based on maximum FAR and adjusted to reflect realistic absorption based on current conditions.

Exhibit 44. Absorption Assumptions by Subarea, Future of Industry
Expanded Alternative, 2044

Land Use	Industry	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
Other	Hospitality & Tourism	688	1,091	1,063	1,583	900
Ind	Construction and Utilities	400	1,273	864	1,417	533
Com & Off	ICT	125	225	163	286	175
Ind	Distribution & E-commerce	400	1,273	864	1,417	533
Ind	Food & Beverage Production	400	1,273	864	1,417	533
Ind	Aerospace	400	1,273	864	1,417	533
Ind	Transportation & Logistics	400	1,273	864	1,417	533
Ind	Maritime	400	1,273	864	1,417	533
Ind	Other Manufacturing	400	1,273	864	1,417	533
Com & Off	All Other Retail	125	225	163	286	175
Com & Off	All Other Services	125	225	163	286	175
Gov & Ed	Government	1,000	1,636	1,563	333	167
Gov & Ed	Education	1,000	1,636	1,563	333	167

Sources: Puget Sound Regional Council, 2020; Community Attributes Inc., 2021.

Results

The Future of Industry Expanded Alternative will likely support growth rates following historic trends. The Interbay/Dravus and SODO/Stadium subareas will require the largest share of potential land available for redevelopment to accommodate assumed employment growth for 2044 (**Exhibit 45**). These projections are illustrative and approximate in nature, to test capacity. In reality, potential development will likely select parcels improvement values different from the thresholds indicated by zone, thereby reducing the demand for parcels with lower improvement values shown in the exhibit.

Exhibit 45. Required Redevelopment Land by Subarea, Historic Growth Rates and Future of Industry Expanded Alternative

Subarea	Employment			Required Redevelopment Land (mils SF)	Required Potential Redevelopment Land
	2018	2044	2018 - 2044		
Ballard	17,100	32,100	15,000	4.4	33%
Interbay/Dravus	5,600	10,200	4,600	5.5	69%
Interbay/Smith Cove	6,000	10,700	4,700	2.1	16%
SODO/Stadium	43,900	66,400	22,500	26.3	54%
South Park/Georgetown	25,900	38,400	12,500	7.6	24%
Total	98,400	157,700	59,300	46.0	

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Economic Impacts

The 2044 direct employment in industrial areas under the historic growth rates and Transition to Future of Industry Expanded Alternative scenario supports a total of 260,900 jobs in King County, roughly \$65 billion in business revenue and \$20 billion in labor income. This represents an increase of 66,600 jobs, \$17.6 billion in business revenue and \$6.0 billion in labor income over the No Action Alternative.

Exhibit 46. Total Economic Impact Historic Growth Rates and Future of Industry Expanded Scenario, King County, 2044

	Direct	Indirect	Induced	Total
Jobs	153,500	79,500	27,900	260,900
Total Compensation (mils 2018 \$)	\$13,860.0	\$4,806.2	\$1,640.0	\$20,306.2
Business Revenue (mils 2018 \$)	\$47,095.2	\$13,498.0	\$4,275.2	\$64,868.3

Sources: Bureau of Labor Statistics, 2020; Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Washington State Office of Financial Management, 2020; City of Seattle, 2021; Community Attributes Inc., 2021.

Note: The total jobs for 2044 in the table above excludes government jobs. The 2007 Washington Input-Output model does not include a government sector.

APPENDIX ALTERNATIVES MODEL DOCUMENTATION

This User's Guide presents guidance to follow analysis and change assumptions that drive an economic model for the Seattle's Industrial and Maritime Strategy, in particular for the land use alternative development and analysis. The model includes analysis of four different alternatives.

Model Overview

The model is composed of twenty-seven tabs.

- The **Contents** tab presents all subsequent tabs with a description of each.
- The **Exhibits** tab shows several model outputs, including employment growth by industry and subarea, as well as required redevelopment land by subarea.
- The **Model Controls** sheet provides three selections that control the analysis, as described in subsequent sections.
- **Key assumptions** driving the model are documented in the following tabs:
 - Employment Growth Scenarios,
 - Employment Forecasts
 - Employment by Subarea No Action and Employment by Subarea Action Alternatives, and
 - Absorption Assumptions No Action and Absorption Assumptions Action Alternatives.

Assumptions that drive the analysis are cells highlighted orange. Default assumptions, reflecting data, analysis and expertise can be adjusted for sensitivity analysis to test the impact of changing assumptions on model results.

Model analysis is completed in the two **Employment by Subarea** tabs, the two **Absorption Assumptions** tabs, and **Capacity Analysis Subarea 1-5** tabs. Analysis is conducted for each subarea, resulting in estimates of jobs in 2018 and 2044, job growth, land to be developed to accommodate growth and land to be redeveloped as a share of parcels with potential for redevelopment.

Supporting data and analysis are documented in the tabs that follow:

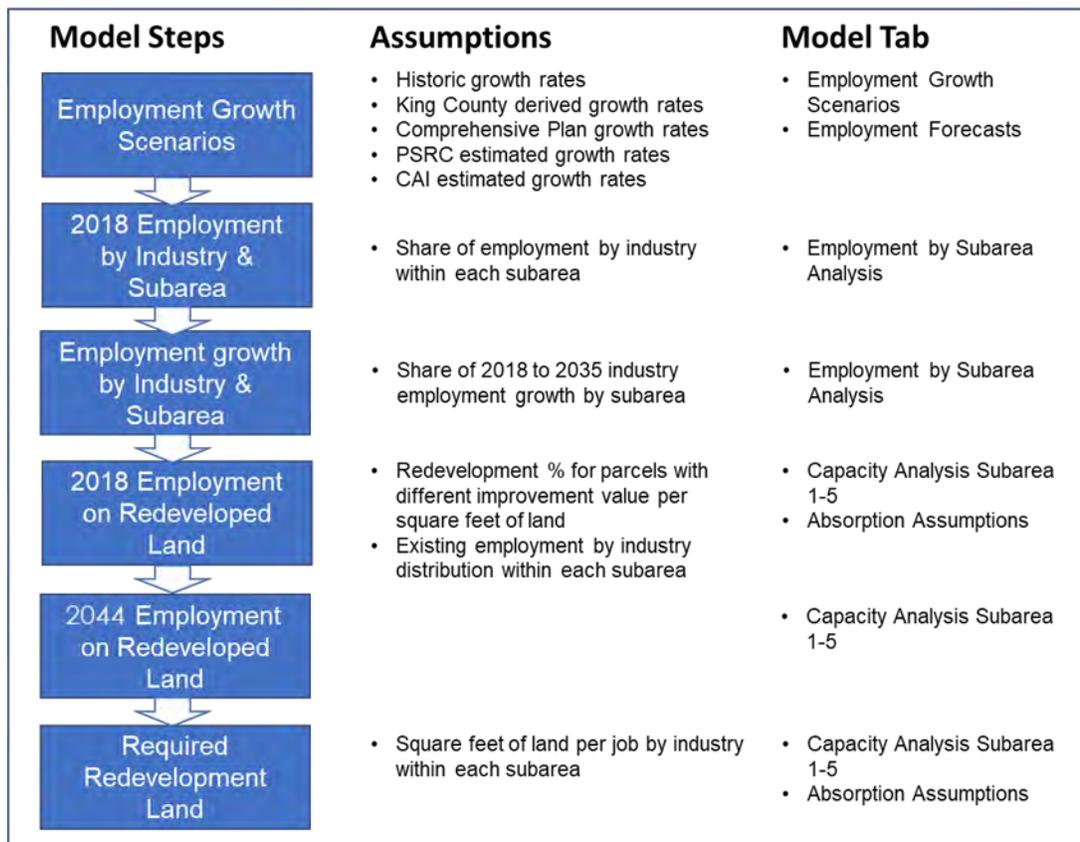
- Current Conditions
- Alternatives Analysis
- 2044 Emp Forecast Analysis
- Employment Analysis
- Land Use by Industry
- Employment by Industry

- Action Scenario Parcel Data
- KC_Industrial_Parcels (industrial area parcel data)
- Parcels by Industry
- Jobs by Land Use Category
- Jobs per Sq Ft
- Armory Site
- FAR by Imp Value and Land Use
- Lookup Lists

Model Components

The methodology required to develop the industrial alternatives model involves multiple steps, as shown in **Exhibit 47**. The sections below discuss in more detail the modeling process, including data sources and assumptions.

Exhibit 47. Modelling Process



Source: *Community Attributes, 2021.*

Employment Growth Alternatives

The user can select the desired growth alternative from the **Model Controls** tab in the model. The **Employment Growth Scenarios** tab includes the growth rates for the five alternatives and shows growth in industrial areas as a percentage of regional and citywide growth.

The model can set employment growth to one of the following five growth alternatives:

- Historic growth rates
- King County derived growth rates
- Comprehensive Plan growth rates (default)
- Historic growth rates (med)
- CAI preferred growth rates

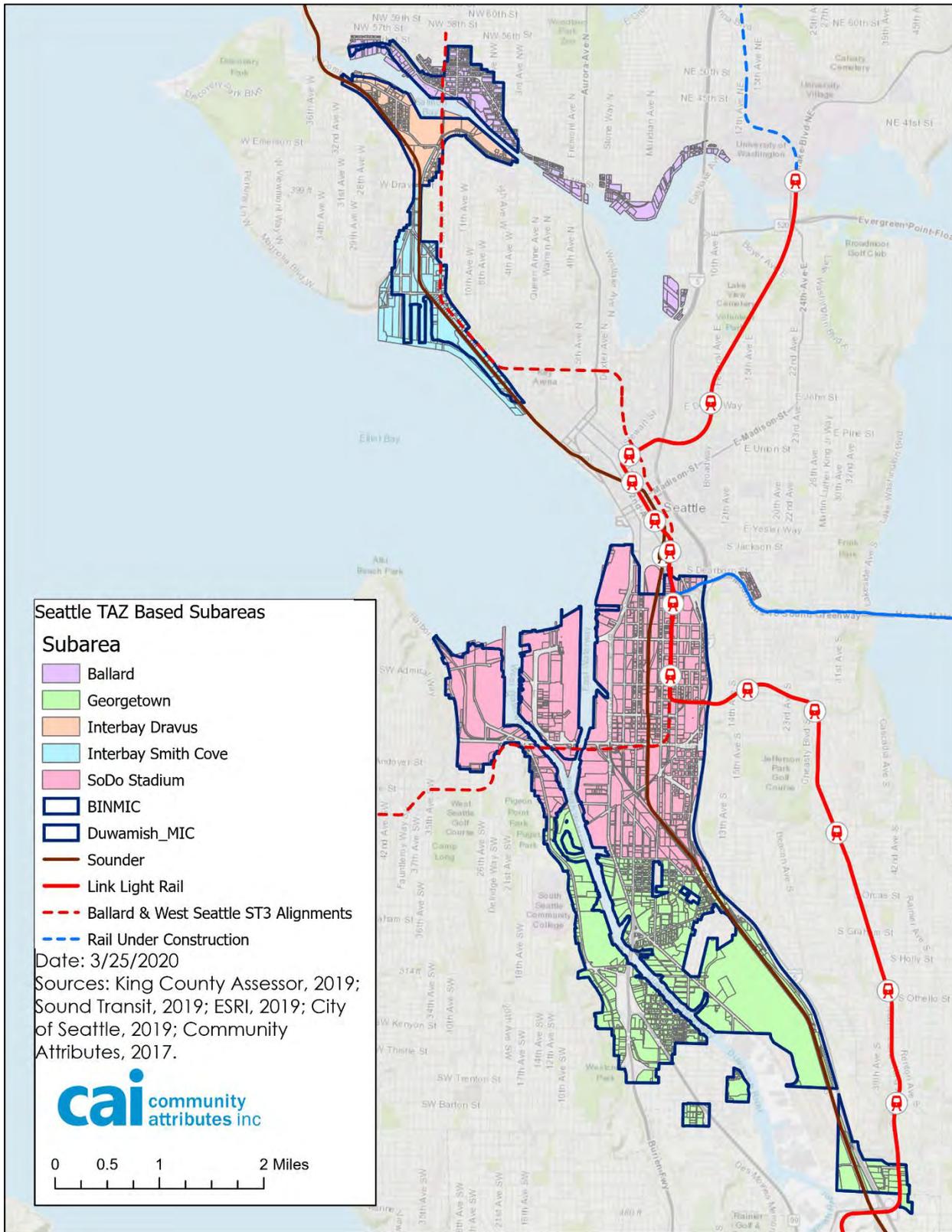
The CAI preferred growth rates are the recommended assumptions for the No Action alternative. The County Derived Growth Rates are the recommended assumption for the Future of Industry Limited (2_FIN – Limited) alternative. The Historic Growth Rates (med) are the recommended assumption for the Future of Industry Targeted (3_FIN – Targeted) alternative. The Historic Growth Rates are the recommended assumption for the Future of Industry Expanded (4_FIN – Expanded) alternative.

Exhibit 48. Employment Growth Assumptions

Scenario Name	Historic Growth Rates	County Derived Growth Rates	Comp Plan Growth Rates	Historic Growth Rates (med)	CAI Estimated Growth Rates
Industry	1	2	3	4	5
Hospitality & Tourism	2.2%	1.5%	0.9%	2.1%	1.0%
Construction and Utilities	2.0%	2.8%	2.2%	2.0%	1.0%
ICT	5.6%	1.3%	0.7%	5.6%	2.0%
Distribution & E-commerce	0.7%	0.3%	0.2%	0.7%	0.5%
Food & Beverage Production	3.0%	2.5%	1.8%	3.0%	2.5%
Aerospace	-0.2%	-0.1%	-0.1%	-0.2%	0.0%
Transportation & Logistics	0.9%	1.9%	1.3%	0.9%	1.5%
Maritime	0.3%	0.0%	0.0%	0.3%	0.1%
Other Manufacturing	-0.6%	0.1%	-0.5%	-0.6%	0.0%
All Other Retail	1.5%	1.4%	0.8%	1.4%	0.8%
All Other Services	1.5%	0.8%	0.1%	1.3%	0.8%
Government	0.0%	-0.5%	-0.5%	0.0%	-0.5%
Education	2.4%	-0.3%	-0.3%	2.4%	-0.3%
	1.8%	1.2%	0.7%	1.8%	0.8%

Sources: Puget Sound Regional Council, 2020; Washington State Employment Security Department, 2020; Community Attributes Inc., 2021.

Exhibit 49. Industrial Areas No Action Alternative Model Subareas



2018 Employment by Industry and Subarea

For the purposes of modeling, the study area is divided into five subareas (**Exhibit 49**):

- Ballard
- Interbay/Dravus
- Interbay/Smith Cove
- SODO/Stadium
- South Park/Georgetown

These planning areas were defined by the City of Seattle based on groups of traffic analysis zones (TAZs).

The model allocates 2018 employment by industry to each subarea in the **Employment by Subarea Analysis** tab. Total industrial areas employment by subarea in 2018 was estimated from a custom request made to PSRC. (**Exhibit 50**)

Exhibit 50. Estimates of Employment by Subarea

Year	Industrial Areas	Ballard	Interbay/ Dravus	Interbay/ Smith Cove	SODO/ Stadium	South Park/ Georgetown
2000	80,100	10,300	5,500	3,000	37,400	23,900
2010	85,700	15,400	4,900	4,000	36,400	25,000
2015	94,400	16,300	6,000	5,600	40,600	25,900
2018	98,400	17,100	5,600	6,000	43,900	25,900

Sources: Puget Sound Regional Council, 2020; Community Attributes Inc., 2020.

Employment Growth by Industry and Subarea

Next, the model allocates 2018 to 2044 employment growth by industry to each subarea in the **Employment by Subarea Analysis** tab. The 2018 to 2044 employment growth to be allocated is a control total based on the employment growth alternative selection in **Model Controls**.

2018 Employment on Redeveloped Land

The model includes a capacity analysis for each subarea to determine land development capacity based on assumed employment growth and absorption assumptions. The calculations for the capacity analysis are found in the model in the consistently named tabs (e.g. **Capacity Analysis Subarea 1**).

Each capacity analysis tab includes summary tables analyzing all industrial land parcels in a subarea (excluding railroad parcels) by improvement value per square foot of land. Improvement value per square foot of land is a key metric used as a proxy for the economic surplus of land. The lower the ratio,

the greater the surplus and the greater the opportunity for redevelopment of that land.

For the action alternatives, a second summary table analyzes the industrial parcels within the new zones created in the action alternatives, based on a threshold for improvement values per square foot. Assumptions for the threshold per square foot and zone can be found in the **Absorption Assumptions Action Alt** tab. The threshold values based on total value per square foot is a key metric used to assess the feasibility of targeted development types within the new zones.

The summary tables show number of parcels, built square feet, lot square feet and 2018 employment for different ranges of improvement value per square foot of land. The 2018 employment by improvement value per square foot of land is allocated based on the existing ratio of square feet of built space per job for the entire subarea.

Current jobs on parcels to be redeveloped are calculated based on a redevelopment percentage assumption for parcels with different improvement value per square foot of land. The net new jobs represent 2018 to 2044 employment growth as forecasted in the previous modelling step (Employment Growth by Industry and Subarea). (**Exhibit 51**)

Exhibit 51. Example of Summary table by Improvement Value per Square Foot of Land, Ballard Subarea, Future of Industry Expanded

Industrial land parcels zoned as MIG, excluding railroad parcels

Improvement Value/SF of Land	# of Parcels	Bldg SF (mils)	Lot SF (mils)	Employment 2018	Redevelopment %
<\$1	147	1.1	1.1	1,933	100%
\$1 to \$10	24	0.5	8.7	894	100%
\$10 to \$50	36	0.6	2.1	997	0%
\$50 to \$100	29	0.4	0.5	663	0%
>\$100	52	1.5	0.9	2,770	0%
TOTAL	288	4.0	13.4	7,257	

Industrial land parcels zoned as indicated below, excluding railroad parcels

Zone	Total Value per SF of Land - Less than	# of Parcels	Bldg SF (mils)	Lot SF (mils)	Employment 2018	Redevelopment %
II4	\$70	22	0.1	0.7	199	100%
II6	\$70	3	0.0	0.0	-	100%
M	\$51	13	0.0	1.2	53	100%
All Other	\$170	0	0.0	0.0	-	100%
TOTAL		38	0.1	1.9	252	

	Current, 2018	
SF of building/Job	553	
FAR	1.0	
SF of land/Job	568	
Jobs/acre	77	
Current jobs	2,827	Jobs on parcels to be redeveloped with improvement value per sf of land <\$10
Current jobs	252	Jobs on parcels to be redeveloped with total value per sf of land less than set thresholds by zone
Net new jobs	15,000	Jobs forecasted for 2044 on industrial lands in this subarea
Total future jobs	18,079	Total future jobs on redeveloped land

Sources: City of Seattle, 2020; Community Attributes Inc., 2021.

Once total 2018 jobs on parcels to be redeveloped have been estimated for a subarea, the model allocates these jobs by industry. The redistribution of these jobs by industry allows the model to account for the possibility that redevelopment could lead to a different industry mix in that subarea.

The 2044 employment by industry is also calculated in the capacity analysis tabs by subarea. Employment in 2044 is the sum of current jobs on land to be redeveloped, current jobs on other land and forecasted job growth for 2044.

2044 Employment on Redeveloped Land

Employment in 2044 on land to be redeveloped is calculated in the **Capacity Analysis** tabs in the model by adding the 2018 estimated employment on redeveloped land and the 2018 to 2044 employment growth for each of the five subareas.

Required Redevelopment Land

For each of the five subareas, the model estimates required redevelopment land square feet by industry by dividing total future jobs on redeveloped land by square feet of land per job by industry. This calculation is in the **Capacity Analysis** tabs in the model.

Zoned Capacity

For each of the five subareas, the model estimates the maximum zoned capacity based on FAR for each zone, including the existing zones as well as new zones proposed in the action alternatives. Summary tables in the **Capacity Analysis** tabs provide data on existing buildings square feet, existing jobs, square feet of building per job, current maximum capacity in built square feet, and the percent of total capacity absorbed.

The tables also summarize assumed square feet of building per job for future building square feet, and assumed absorption at built out, and maximum capacity in terms of built square feet under each alternative. The tables also estimate the maximum jobs capacity, new capacity in terms of built square feet, and increased jobs capacity for each scenario. Additionally, for each alternative and growth assumption the forecasted new jobs in each subarea is compared to the total capacity and estimates the percent of new jobs capacity absorbed. (**Exhibit 52**)

Capacity in terms of built square feet is analyzed by parcel in the **Action Scenario Parcel Data** tab. The Future of Industry Targeted and Expanded Alternatives include a reduction for the portion of added capacity that is likely to be residentially development within mixed use zones. Analysis of existing mixed use parcels around industrial areas found that about 25% of existing capacity is nonresidential uses.

Exhibit 52. Example Existing and Scenario Land Capacity, Ballard Subarea, Future of Industry Expanded Alternative, Historic Growth Rates

Existing and Scenario Industrial land capacity, excluding railroad parcels			
	Current, 2018	Current, 2018	Current, 2018
Existing Bldg SF	9,462,029	9,462,029	9,462,029
Existing Jobs	17,100	17,100	17,100
SF of building/Job	553	553	553
Current Max Capacity	43,775,348	43,775,348	43,775,348
% Absorbed	22%	22%	22%
	2_FIN - Limited	3_FIN - Targeted	4_FIN - Expanded
Assumed SF of building/Job	400	400	400
% Absorbed	90%	90%	90%
Maximum Capacity	48,824,708	54,008,530	56,242,546
Jobs Capacity	109,900	121,500	126,500
New Capacity	5,049,360	10,233,182	12,467,198
Increased Jobs Capacity	11,400	23,000	28,100
Forecasted New Jobs			15,000
Forecasted % Absorbed			53%

Sources: City of Seattle, 2021; Community Attributes Inc., 2021.

Armory Site

Assumptions for the Armory Site based on the potential master plan under each scenario are documented in the **Armory Site** tab. Analysis for the existing and future capacity, as well as redevelopment of the site are included in the **Capacity Analysis Subarea 3** tab.