

# **City of Portland Economic Opportunities Analysis**

## **Volume 1. Trends, Opportunities and Market Factors**

Discussion Draft, March 2022

Prepared by the Bureau of Planning and Sustainability, City of Portland

## **Let us know what you think**

This Draft Report is available for public comments that will be considered in revisions.

- Please send comments by May 30, 2022.
- Send comments to [eo@portlandoregon.gov](mailto:eo@portlandoregon.gov).

## **How can you participate in the EOA Update?**

Being a state and regional job center, Portland's economic community is diverse, and all are urged to weigh in on the EOA Update. Portland's working population in the regional labor market, its businesses, neighborhoods, community groups, property owners, its regional and statewide consumer markets, and others are all among the city's economic community. Moreover, historically underrepresented groups who tend to bear the brunt of economic hardships are a priority for outreach and participation in this project.

- Contact us at [eo@portlandoregon.gov](mailto:eo@portlandoregon.gov) to be included on the project mailing lists for periodic updates and to make comments about the project and draft reports.
- Stay tuned to the EOA Update website at <https://www.portland.gov/bps/eo> for project materials, draft reports, and information about upcoming events and opportunities to participate.

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## Executive Summary

Oregon's land use planning system requires that cities update their comprehensive plans periodically and provide for adequate 20-year growth capacity, based on an Economic Opportunity Analysis (EOA) and a housing needs analysis (HNA). The EOA analyzes and forecasts growth in Portland's industrial and other business districts, then designates an adequate 20-year supply of developable land for businesses and jobs. The City of Portland is updating the existing EOA, adopted in 2016, to align 2045 growth expectations with current market trends and community choices.

The EOA consists of three volumes:

- Volume 1 (this report) analyzes economic growth trends and market factors by business district type, considering Portland's national and regional context.
- Volume 2 compares the 20-year demand and current supply of developable land in each of Portland's employment geographies, identifying shortfalls for further analysis and planning.
- Volume 3 identifies community choices to meet employment land needs and economic development policies in relation to other city goals.

### **Focus areas of EOA update**

Portland's existing EOA is relatively current, adopted in 2016. The existing EOA benefitted from the once-in-a-generation of Portland's Comprehensive Plan, which rewrote the policies of the 1980 Comprehensive Plan through an integrated planning process. The Portland Plan and 2035 Comprehensive Plan set three overall policy directions for economic development:

1. A diverse and growing city economy.
2. Competitive traded sectors.
3. Equitable household prosperity.

The 2016 EOA demonstrated that Portland's industrial districts have the greatest capacity to implement the equitable prosperity and traded sector goals of this vision. But our tightening industrial land supply and interrelated goals to improve environmental health in these districts warrant updated strategies to achieve multiple benefits. In other parts of Portland, the EOA identified an ample land supply to meet office, retail and campus institutional development needs well beyond 2045.

Therefore, this EOA update is expected to focus on three goals:

- Analyze industrial growth capacity to optimize multiple objectives.
- Promote inclusive prosperity and reduce BIPOC income disparities.
- Analyze and provide adequate short-term and 2045 goals for businesses and jobs.

## What types of trends are reviewed in this report and why?

Most of the EOA contents meet specific requirements of Statewide Planning Goal 9 (Economic Development) administrative rules. The Goal 9 Rule calls for analysis of growth and market trends, which are the focus of this report, as a basis of 20-year and short-term forecasts for developable employment land that will be included in EOA Volume 2. City job growth rates are compared to regional and national trends in this report. Growth trends are also compared by general land use type in terms of employment, economic output, land development, business district growth, and marine freight volume. In addition, this report includes performance trends on Portland's overall economic goals of diverse growth as an economic center, traded sector competitiveness, and equitable prosperity.

## Comparing the pace of national, regional and local job growth

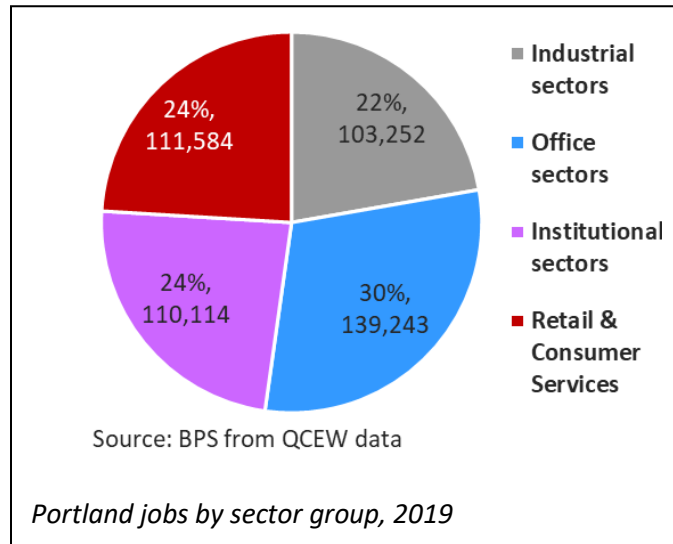
**Takeaway: Portland and the region are generating diverse job growth about 60% faster than the nation.**

- Job growth is accelerating in Portland, expanding at pace with the region and substantially exceeding the national trend in the last business cycle (2008-2019).
- Portland added 71,000 new jobs at a 1.5% average annual growth rate (AAGR) in this recent business cycle (2008-2019), accelerating from 0.9% AAGR in the last two business cycles (2000-2019) and Multnomah County's 1.1% AAGR in the last three cycles (1990-2019). Job sprawl trends of previous decades, in which suburban job growth widely outpaced core cities, may be receding in Portland, consistent with trends in several other large cities.
- The regional economy continues to widely outpace national job growth. The 7-County Region (Portland-Vancouver-Hillsboro MSA) added 174,800 jobs at 1.4% AAGR in the last business cycle (2008-2019), compared to the job national growth rate of 0.9% AAGR. Jobs in the Portland Region grew 63% faster than the national economy in the last business cycle, 62% faster over the last two business cycles, and 57% faster over the last three cycles.
- Portland is the diverse job center of the regional labor market, having a 38% market share of the 7-County Region's jobs in 2019 and a 41% capture rate of regional job growth in the last business cycle. Portland's location advantages as a job center include economies of scale as Oregon's largest city, above-average in-migration of young, educated workers, diverse specializations, and other sector-specific advantages. Typical of large cities, Portland is a working city more than a residential city. Portland had 70 jobs per 100 residents in 2017, compared to 48 jobs per 100 residents in the region, which are typical of shares over the last 20 years.

**What types of jobs and business districts do we have in Portland?**

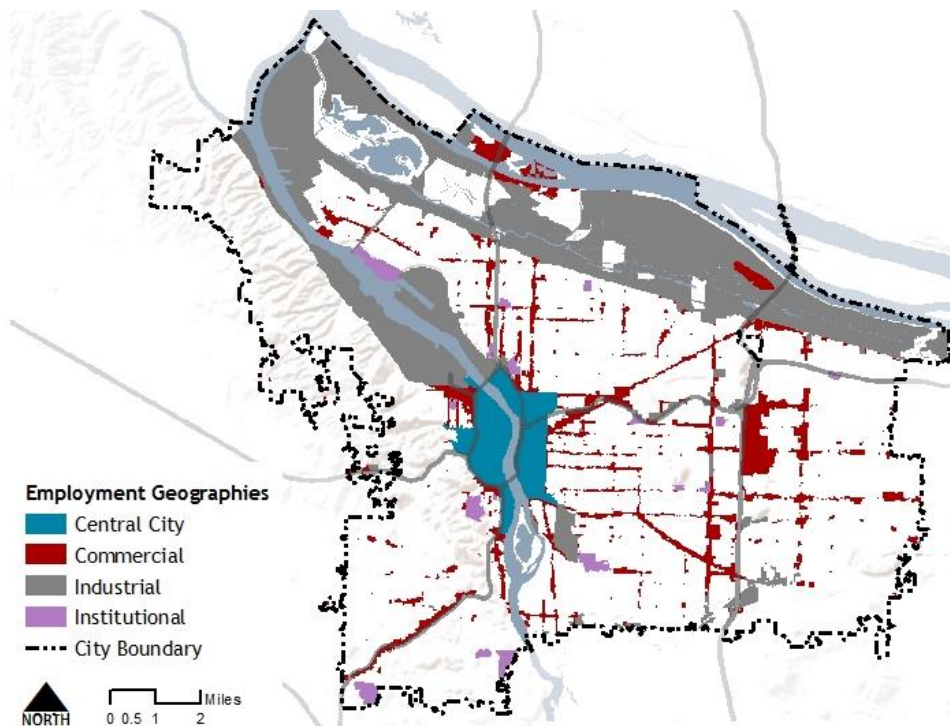
**Takeaway: The growing economy has diverse land needs. The office, industrial, institutional, and neighborhood commercial sectors each provide about a fourth of city jobs.**

- Portland and the region have a relatively balanced mix of jobs among four ‘land-use sector types’ including: office, industrial, institutional, and consumer-service sectors. These sector types each generate roughly a quarter of total jobs, reflecting Portland’s economic and employment land diversity.
- Portland’s office sector jobs are concentrated in the dense upper-floor space of the Central City business district, as shown in the map and chart below. The



industrial sectors of production and distribution locate primarily in the industrial districts along the Portland Harbor and the Columbia Corridor. Retail and consumer service sectors are most concentrated in neighborhood commercial centers and corridors. The 15 large college and hospital campuses make up a core part of the City’s education and health care jobs.

*Business districts vary by sector specialization*





- The regional economy had diverse, robust job growth in the recent business cycle (2008-2019), ranging from 2.1% AAGR in healthcare and education to 1.5% in retail and consumer services, 1.2% in the office sectors, and 0.9% AAGR in the industrial sectors.
- Portland's job growth was relatively balanced in most of Portland's employment geographies over the last business cycle, ranging from 1.1% AAGR in the Central City to 1.0% AAGR in Industrial Areas, 1.0% AAGR in Institutions, 1.9% AAGR in Neighborhood Commercial areas. The leading growth sectors in Neighborhood Commercial areas were healthcare and food service.
- Long-term job growth trends are especially affected by recession job losses. Comparing recent economic swings, the industrial sectors had the largest regional job losses in the 2001 and 2008 recessions, while consumer services had the largest job losses in the 2020 COVID recession.
- The manufacturing sector is an anomaly. The manufacturing sector was the largest source of the region's real GDP growth in each of the last two business cycles, but regional manufacturing jobs have been relatively flat between 2000 and 2019. The job growth in the industrial areas is mainly in the warehouse and distribution, construction, and office headquarters sectors.

#### Development trends in business districts

**Takeaway: Industrial land supply is tightening, due to robust growth of industrial building space, approaching buildout of vacant industrial space, and industrial displacement through redevelopment in commercial districts.**

- Development trends tell a somewhat different story than job trends. Total occupied space grew fastest in industrial buildings at 0.9% AAGR (adding 19.4 million square feet), compared to office space growth at 0.8% AAGR, and retail space growth at 0.5% AAGR.
- As Portland's vacant land is building out, a shift to growth through redevelopment at higher density is meeting employment land demand unevenly. Gaps include displacement of lower-density industrial and Class B/C office space in commercial zones, which is tightening vacant land supply in industrial districts.
- Industrial and flex space were the tightest building markets in Portland and the region during the last business cycle, based on faster rising rents and declining vacancy rates.
- Portland's Columbia Corridor and harbor industrial districts added 6.6 million square feet (sf) of occupied industrial space in the last business cycle - at pace with the region. But Portland also lost 2.0 million sf of occupied industrial space and about 3,200 industrial sector jobs (manufacturing, wholesale, and transportation) through displacement in the Central City and other neighborhood commercial areas - generally through higher-density redevelopment.

#### Traded sectors, economic specializations, and marine industry

**Takeaway: Portland is a core location for a mix of growing target clusters that drive regional prosperity and is Oregon's export gateway.**

- Portland is an important location for Oregon's traded sectors, which bring income and jobs into the state. A wide range of state, regional and city target industries are major employers in Portland. Most of these target industries are concentrated in the industrial and office sectors.
- The Portland region's exports are concentrated in manufacturing, measuring the output and income of traded sectors in global markets. This region ranked 17<sup>th</sup> among U.S. metropolitan

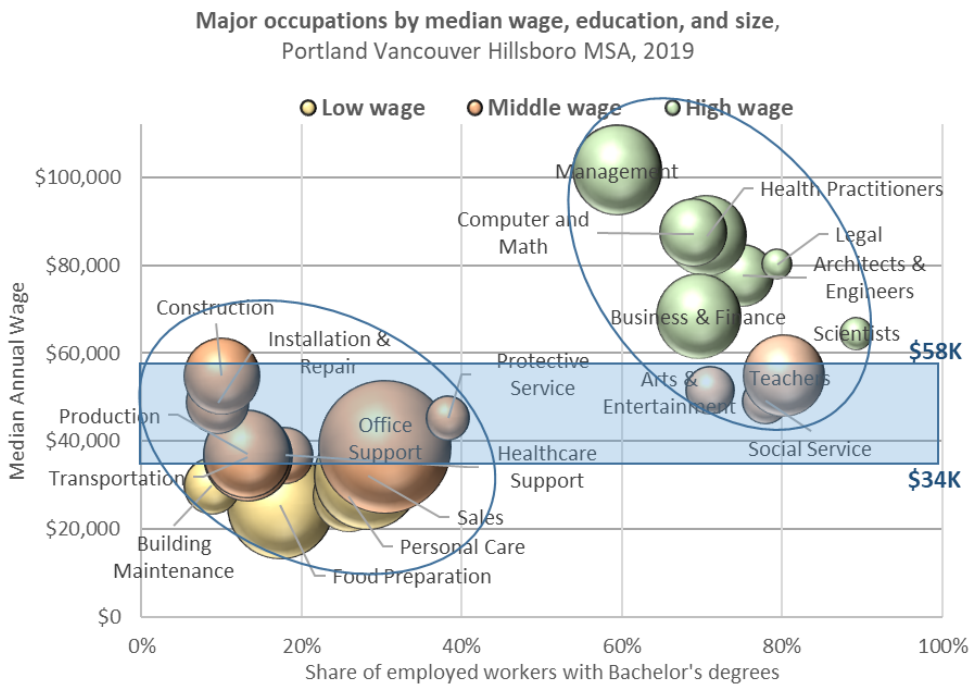
areas in real exports in 2017. Among the region’s largest export sectors, semiconductor and computer equipment manufacturing accounted for 40% of the region’s \$21.0 billion in export income and other manufacturers made up an additional 30% of total exports.

- Prosper Portland’s target industries are Athletic & Outdoor, Green Cities, Metals & Machinery, and Technology & Media, which represent local specializations among the region’s traded sector clusters.
- Large-city economic specializations that are not target industries are also generating some of the largest levels of local job growth. Examples include warehousing and wholesale trade, building construction and building contractors, drinking places (tourism), miscellaneous (specialty) stores.
- Portland’s marine industrial growth trends are mixed. Oregon’s largest export gateway is constrained particularly by limited land availability and liability uncertainty of the Portland Harbor Superfund project for new investors. ECONorthwest estimated growth opportunities (base case forecast) at 110 acres of land development by 2040 for new marine terminals and 260 acres for marine production and marine services development, which would conservatively support 1,900 new on-site jobs plus an additional 3,000 regional jobs.

### Economic equity

**Takeaway: Portland is backsliding on economic equity goals, as wage-polarized job growth is increasing income inequality, racial income disparities, and the share of poor households.**

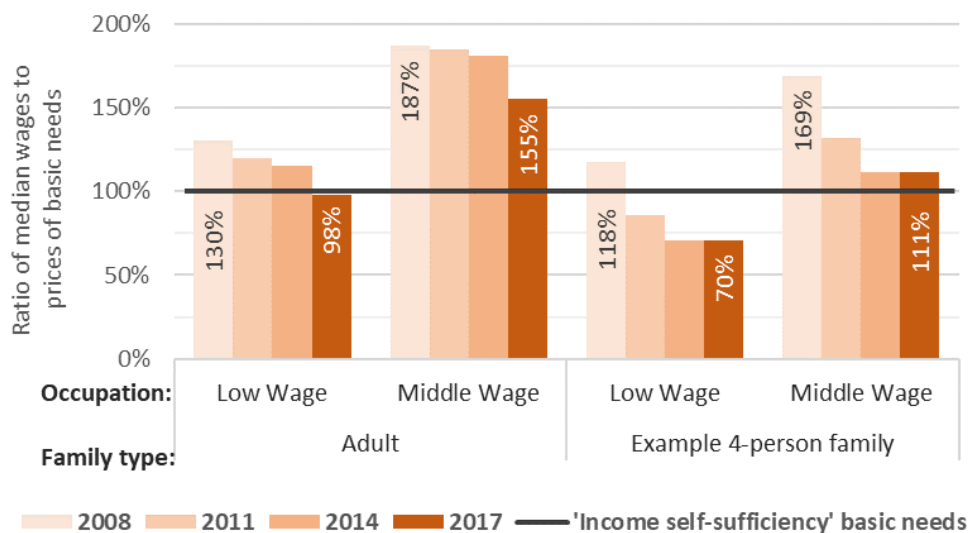
Three inequitable growth trends stand out in the last two decades, which have primarily burdened workers without bachelor’s degrees and people of color: increasing income inequality, persistent racial income disparities, and declining affordability. Core land use policies that support wage-polarized job growth and constrain middle-wage growth contribute to these trends. The prosperity benefits of the region’s growing economy since 2000 were concentrated in the top third of the income distribution.



Source: BPS from OES 2019, PUMS 2019 5-year avg. Circles scaled to number of employees.

- 'Middle-wage jobs' support inclusive prosperity for nearly half of the workforce, as shown in the chart above. High-wage jobs typically require bachelor's degrees or higher, but only 44% of regional workers and 36% of BIPOC workers have bachelor's degrees (IPUMS, 2019 5-year average). Middle-wage jobs are a higher-paying alternative to low-wage occupations. The upward wage mobility opportunity over careers of most middle-wage jobs ranges from \$45,000 to \$53,000 (75<sup>th</sup> wage percentile in 2020). Industrial occupations made up over half of these middle-wage jobs held by people without bachelor's degrees, and office support occupations made up over one-fourth.
- Increasing income inequality is occurring faster in the Portland region than other parts of the country. The region's wage-polarized job growth since 2000 has been concentrated at the top quarter and (to a smaller extent) bottom quarter of the wage distribution. The middle-wage occupations that made up 58% of regional jobs in 2000 have had minimal growth since then.
- The regional labor market has wide BIPOC income disparities (Black, Indigenous, and People of Color). The deepest disparities affect Black and Native American households, whose median income was only 56% and 69% respectively of the regional median for all races in 2016 (5-year average).
- Industrial- and (to a lesser extent) office-sector jobs stand out in raising BIPOC incomes relative to other sectors, while Portland's faster job growth in the neighborhood commercial and institutional sectors is reducing BIPOC incomes relative to other sectors.
- Declining income self-sufficiency (or affordability) is another inequitable impact of widening income inequality, as rising local prices of basic needs outpaced the relatively flat wages of low- and middle-wage occupations. Multnomah County's share of households in need, measured by the Income Self-Sufficiency Standard, increased from 23% in 2008 to 34% in 2017. Concentrated local growth of high-wage jobs and high-income households puts upward market pressure on local prices of basic needs (such as housing and childcare).

Declining real wages of low- and middle-wage occupations,  
Multnomah County, 2008-2017



Source: BPS from OES and ISS data (Pearce). Nominal \$ (not inflation adjusted) Example 4-person family: 2 working adults, preschooler and school-age child.

## COVID recession recovery

**Takeaway: While the economy has recovered to full employment, COVID trends signal adjustments in upcoming land demand, including somewhat less office space and more industrial space.**

- As of November 2021, the regional economy had fully recovered the 171,000 jobs lost in early 2020 and 50,000 Portland jobs (LAUS data), and the labor market is back to full employment. The region's peak unemployment rate of 13.1% in April 2020 had recovered to 3.4% by October 2021 and 3.5% in the City of Portland.
- The COVID recession's primary job losses were in different sectors than other previous recessions. The region's biggest job losses of this recession have been in food service, healthcare, education, and entertainment. The industrial sectors accounted for most regional job losses in the previous three recessions, but had moderate job losses in the COVID recession, and transportation had the economy's fastest recovery.
- Potential long-term economic impacts of COVID recession trends: reduced demand for office space due to expanded work-from-home options; faster industrial job growth due to moderated 2020 losses; and public health innovations in the consumer service and institutional sectors that may expand their building space needs.

## Conclusion: Takeaways from Volume 1. Trends, Opportunities and Market Factors

- Portland and the region are generating robust and diverse economic growth, which is expanding the land needs of industrial, office, institutional and consumer-service businesses.
- Job growth has been unequal, concentrated in the top and bottom fourths of the wage distribution.
- Middle-wage jobs raise incomes of nearly 400,000 regional workers without bachelor's degrees, mostly (61%) in industrial occupations. Most provide upward-mobility potential of \$45,000-53,000 per year (75<sup>th</sup> percentile wage), compared to \$30,000-34,000 in most low-wage jobs.
- BIPOC workers have higher incomes in the industrial and office sectors, reducing racial income disparities.
- Industrial land supply is tight and getting tighter.

# 1. Introduction

Portland is the diverse economic center of a large, growing metropolitan region. The 7-county Region (Portland-Vancouver-Hillsboro Metropolitan Statistical Area or MSA) was the 24<sup>th</sup> largest nationally in employment in 2018. Like many large cities, jobs in Portland grew faster than the region and nation in the last business cycle. Market trends affecting Portland are dynamic and changing. The EOA Update will help keep land use policies in Portland current with these market trends.

This report is the first of three volumes that will be prepared sequentially as Portland's Economic Opportunities Analysis (EOA). Volume 1 analyzes economic growth trends and market factors by business district type, considering Portland's national and regional context. Volume 2 will compare the 20-year demand and current supply of developable land in each of Portland's employment geographies, identifying shortfalls for further analysis and planning. And Volume 3 will identify community choices to meet employment land needs and economic development policies in relation to other city goals.

## **EOA Update Project Description:**

The purpose of the Economic Opportunities Analysis (EOA) is to analyze and forecast growth in Portland's business districts and designate an adequate 20-year supply of developable land. The EOA Update will align 2040 growth expectations with current market trends and community choices.

The Portland Plan and 2035 Comprehensive Plan set three overall policy directions for economic development:

4. a diverse and growing city economy;
5. competitive traded sectors; and
6. equitable household prosperity.

The EOA Update will build on this economic vision with expanded direction to improve economic equity, integrate environmental health, and provide a short-term land supply to support COVID/recession recovery.

## **What is the Economic Opportunities Analysis (EOA)?**

The EOA is an analysis of how much developable employment land is needed by business district types to accommodate forecasted city growth and city policies. The EOA is a background document of Portland's 2035 Comprehensive Plan (CP2035). City Council adopted both the current EOA and CP2035 in June 2016, which can be seen [here](#).

Oregon's land use planning system requires that cities update their comprehensive plans periodically and provide for adequate 20-year growth capacity, based on an EOA and a similar housing needs analysis. Portland's Policy 6.18 in CP2035 calls for updating the EOA and short-term land supply every 5-7 years, keeping land use approaches more up to date with market changes.

The EOA applies a land use lens to economic development, analyzing local development capacity for job growth, the effect of public investments and regulations on developability of sites, and business district competitiveness. The zone- or district-based approach of land use planning, which is guided by comprehensive plan policies, complements the firm-based and target-industry approaches of business development efforts that are guided by the 5-year economic development strategies. The local economic development strategy of Prosper Portland is currently being updated, which will guide business assistance and traded sector initiatives. The longer time horizon of the EOA forecast aims to inform land use policies and long-term investments, in contrast to the 5- and 10-year state and regional forecasts used to inform public budgets and workforce development.

### **Focus issues of 2040 EOA Update**

Portland's current EOA is relatively recent, adopted in 2016. The current EOA also benefited from the once-in-a-generation plan update approach of CP2035 that rewrote the policies of Portland's 1980 Comprehensive Plan through an integrated planning process.

The current EOA identified an ample land supply to meet office, retail and campus institutional development needs well beyond 2040. Therefore, the EOA Update is expected to focus on two issues:

- Update Portland's industrial land analysis, which is much tighter (less supply to meet land demand) than other employment geographies in the current EOA. The industrial geographies also present unique opportunities and trade-offs to improve racial/economic equity, regional prosperity, and watershed health, which will benefit from an integrated planning approach.
- Account for recent market trends in analyzing 20-year and short-term land needs, keeping the EOA up to date and supporting recession recovery with adequate short-term land supply to position the economy for the next upswing.

### **Outline and approach of this report**

- Section 2 reviews overall city and county job-growth trends relative to the regional and national economies.
- Sections 3-5 review local and regional growth trends by types of businesses, including economic output (GDP) trends by sector, job growth by sector, and land development by building type.
- Section 6 reviews trends across the range of Portland's employment geographies, including sector specializations and growth trends.
- Section 7 reviews Portland's diverse range of local sector specializations and their growth trends, which represent local competitive advantages and traded sector growth opportunities.
- Section 8 analyzes Portland's marine industrial growth trends and land demand relative to other Lower Columbia ports.
- Section 9 reviews regional labor market trends affecting economic equity, considering racial disparities, income inequality, and income self-sufficiency.
- Section 10 reviews 2020 recession trends with implications on equitable prosperity and short-term demand.
- Section 11 reviews the economic development policies in Portland's Comprehensive Plan and interrelated policies that shape and benefit from local economic growth.

- Section 12 will summarize comment themes of the public and technical input received on this discussion draft report.
- Section 13 contains a glossary of commonly used terms and summary notes on data analysis and methodology.

## 2. National, regional, and local growth trends

Growth trends of the national and regional economies indicate opportunities for local growth potential. At the same time, local growth trends can highlight opportunities in Portland that differ from its national and regional context. Job growth trends of the nation, region, county and city are reviewed in this section as a first step to understanding Portland's growth potential to 2040.

### Summary findings

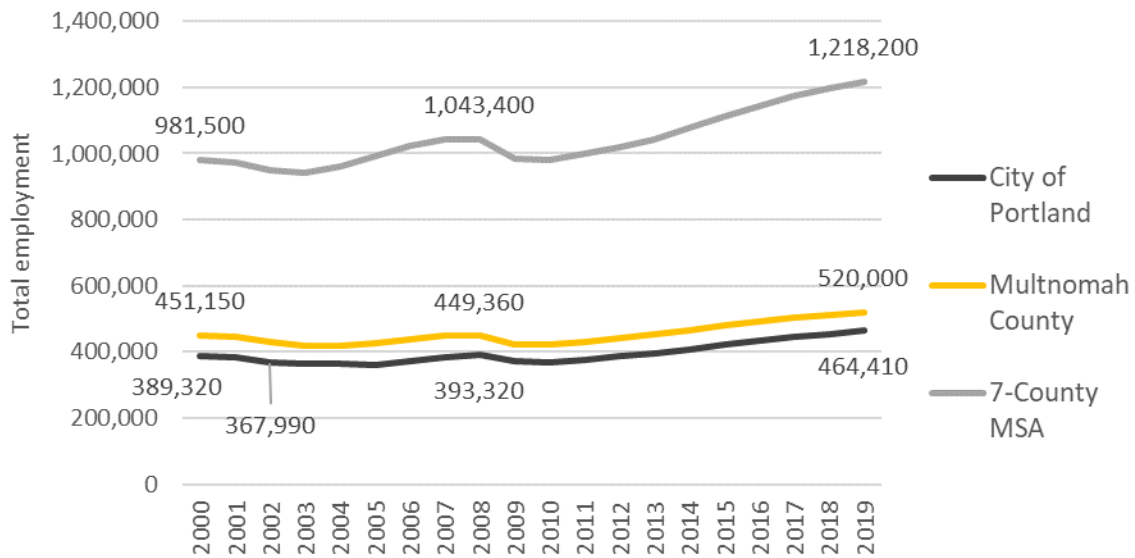
- Job growth is accelerating in Portland, expanding at pace with the region and substantially exceeding the national trend in the last business cycle (2008-2019). Portland added 71,000 new jobs at a 1.5% average annual growth rate (AAGR) in this recent business cycle, accelerating from 0.9% AAGR in the last two business cycles (2000-2019) and Multnomah County's 1.1% AAGR in the last three cycles (1990-2019). 'Job sprawl' trends of past decades, in which suburban job growth widely outpaced core cities, may be receding in Portland, consistent with trends in several other large cities ([Brookings, 2013](#)), supported by above-average in-migration and diverse urban location advantages.
- The regional economy continues to widely outpace national job growth. The 7-County Region (Portland-Vancouver-Hillsboro MSA) added 174,800 jobs at 1.4% AAGR in the last business cycle (2008-2019), compared to a moderate national growth rate of 0.9% AAGR. Jobs in the Portland Region grew 63% faster than the national economy in the last business cycle, 62% faster over the last two business cycles, and 57% faster over the last three cycles.
- Portland is the diverse job center of the regional labor market, having a 38% market share of the 7-County Region's jobs in 2019 and a 41% capture rate of regional job growth in the last business cycle. Portland's location advantages as a job center include economies of scale as Oregon's largest city, workforce depth, diverse specializations, and other sector-specific advantages. Typical of large cities, Portland is a working city more than a residential city. Portland had 70 jobs per 100 residents in 2017, compared to 48 jobs per 100 residents in the region, which are typical of shares over the last 20 years.

### Employment growth across the region

Regional employment trends in the last two decades are shaped both by an overall growth trajectory and business cycle fluctuations, as shown in Figure 1. Local employment peaks occurred in 2000, 2008, and 2019, based on annual average employment. Portland added a sizable 71,000 jobs over the recent business cycle between the 2008 and 2019, and the region added 174,800 jobs in that period. In 2008 and 2019, Portland had a 38% market share of 7-county regional jobs.



Figure 1. Average annual employment in the Portland-Vancouver-Hillsboro MSA, Multnomah County, and Portland, 2000-2019



Source: BPS from QCEW data

### Comparing national and local employment growth

The regional economy experienced wider business cycle fluctuations than the nation in the last two business cycles, as shown in Figures 2 and 3, with proportionally larger job gains in the upswings and larger job losses in the downswings. These wider fluctuations are a long-term pattern as discussed in Section 10 on the COVID recession. Measuring growth across the span of the last business cycle to reflect the long-term trend, employment in Portland expanded at an average annual growth rate (AAGR) of 1.5%, compared to 1.4% in the 7-county region, 1.3% in Multnomah County, and 0.9% nationally.

Figure 2. National and local employment change over the last business cycle

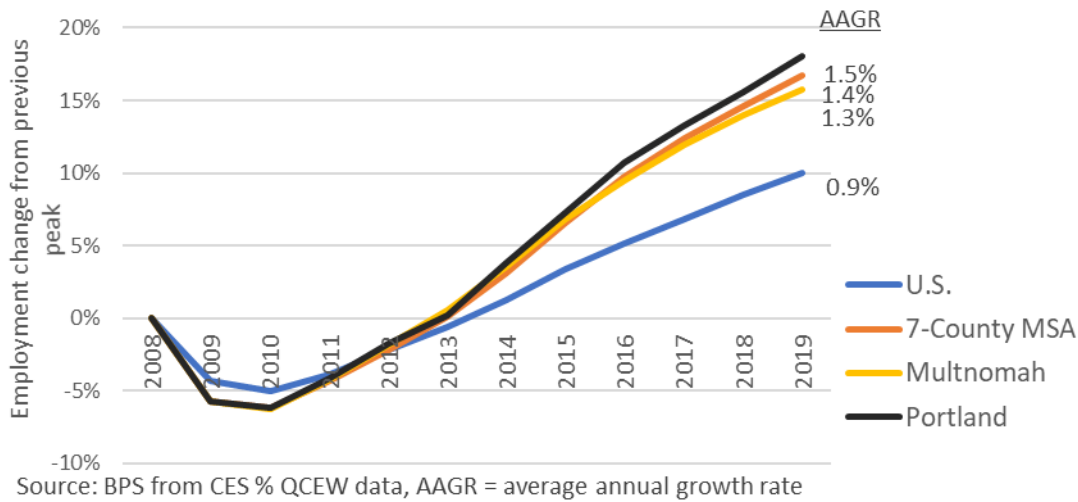
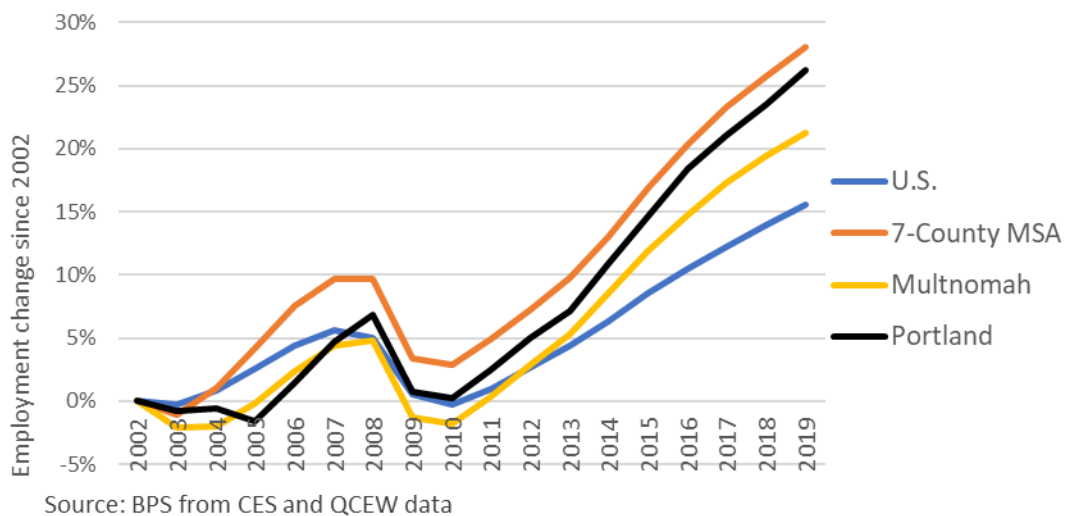


Figure 3. National and local employment change over the last business cycle



### Recent swings in job growth

Portland’s market share of the regional economy and Portland’s capture rate of regional growth are indicators of the city’s overall growth potential, as shown in Figure 4. A variety of job growth patterns stand out in recent decades between the national, regional, and county levels, which are summarized in Figure 4.

- The region is growing jobs substantially faster than the nation, outpacing U.S. job growth by 63% in the last business cycle and similar proportions in the two previous cycles. For example, the region’s largest employment gains in the last business cycle were in healthcare, accommodation and food service, and professional services.

- Portland and Multnomah County are continuing to grow as a regional job center. The ‘capture rate’ (local share of region growth), has generally varied from 30-40% since the 1990s, except for the outlier 2000-2008 period. The 2000-2008 business cycle had exceptionally low job growth at all levels, and especially at the county level.
- Portland had above-average job growth in the last business cycle, a common trend of large core cities nationally, in contrast to the opposite job-sprawl trend nationally of previous decades.
- Growth rates vary between business cycles. A pendulum-like trend is apparent over time (continuing back to the 1970s), with faster growth in one business cycle followed by slower growth in the next, especially at the regional level.

*Figure 4. Average annual job growth and capture rates by business-cycle period*

Business-cycle period	Average annual growth rates (AAGR)				MSA pace of U.S. growth	Local capture rates	
	U.S.	7-County MSA	Multnomah	Portland		County: MSA	City: MSA
1 cycle: 2008-2019	0.9%	1.4%	1.3%	1.5%	163%	40%	41%
2 cycles: 2000-2019	0.7%	1.1%	0.8%	0.9%	162%	29%	32%
3 cycles: 1990-2019	1.1%	1.7%	1.1%		157%	30%	
2000-2008	0.5%	0.8%	0.0%	0.1%	158%	-3%	
1990-2000	1.9%	2.9%	1.9%		154%	31%	

Source: BPS calculations; CES data for U.S. and MSA; QCEW data for City and County.

City trend calculations from data before 2002 are affected by location methodology changes.

### 3. Economic output trends by sector

Economic output, measured by Gross Domestic Product (GDP), is commonly considered the broadest measure of the economy's size and its growth. Thus, more than other measures, GDP trends show sectors that are growing as economic opportunities. GDP trends are reviewed in this section by sector in Multnomah County and the 7-County Region. GDP growth rates are one indicator of future demand for land development by sector, supplementing the employment and real estate development trends reviewed in the next two sections of this report.

#### Summary findings

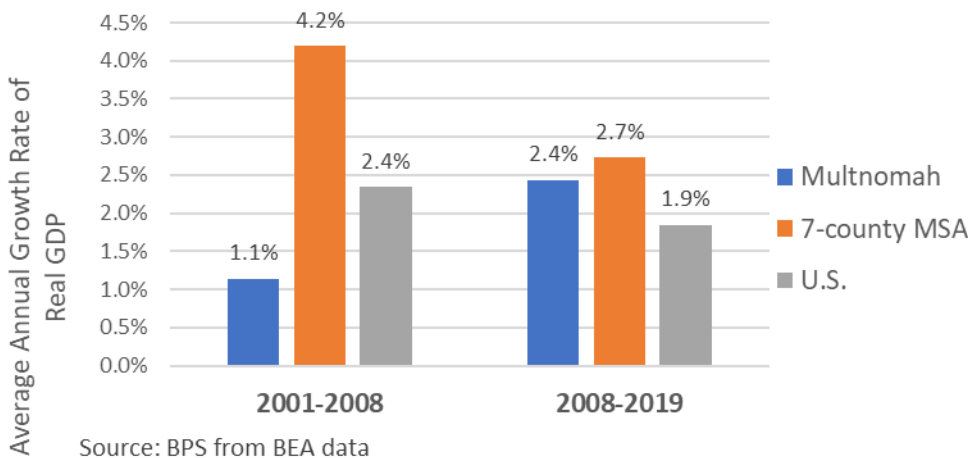
- The local economy's fastest growing sectors vary widely by how growth is measured. GDP, employment, and land development trends each show different growth rates and different leading growth sectors that represent market opportunities. Real GDP (inflation adjusted economic output) trends in Multnomah County indicate that office sectors grew fastest in output and income at 3.1% AAGR in the last business cycle. In contrast, job growth trends show that the healthcare/education sectors and retail/consumer-service sectors grew fastest in Portland. And land development trends measured by occupied building space indicate that industrial buildings grew fastest at 0.9% AAGR in Portland's harbor and Columbia Corridor industrial districts. This variation in leading growth by sector type is similar at the regional level.
- Economic output in Multnomah County and the region are growing faster than the national economy. Real GDP expanded by a 2.4% average annual growth rate (AAGR) in Multnomah County and 2.7% AAGR in the 7-County region during the last business cycle (2008-2019), compared to 1.9% AAGR nationally.
- The office sectors are the leading source of GDP in Multnomah County, accounting for 57% of county GDP in 2019 and 70% of GDP growth in the last business cycle. Among the office sectors, real estate leasing (such as landlord income) and government (such as infrastructure investments and social-service transfer payments) are the largest and together made up 27% of County GDP in 2019 and 27% of GDP growth in the last business cycle. Despite being a leading source of GDP growth, rental income and government budgets do not relate proportionately to job growth or land development.
- Multnomah County had healthy growth of real GDP across land-use sector types during the last business cycle, ranging from 1.2% AAGR in the industrial sectors to 2.1% AAGR in the institutional sectors, 2.5% AAGR in retail and consumer services, and 3.1% AAGR in the office sectors.
- The manufacturing sector is an anomaly for measuring growth by either GDP or jobs, because of their opposite conclusions, revealing that manufacturing has grown briskly through productivity gains more than by adding jobs. The manufacturing sector was the largest source of the region's GDP growth in each of the last two business cycles, but regional manufacturing jobs have been relatively flat between 2000 and 2019. Manufacturing competes in global markets more than other sectors, and productivity gains help manufacturers in higher-wage nations remain globally competitive and retain local jobs.

## National, regional, and county trends

Multnomah County's total economic output in 2019 was \$63.2 billion (measured as Real GDP in 2012 dollars), compared to 156.6 billion in the 7-County Region. Multnomah County's GDP grew at an average annual rate (AAGR) of 2.4% in the last business cycle (2008-2019), compared to 1.9% AAGR nationwide and 2.4% AAGR regionwide (see Figure 5). Real GDP growth in the County at 2.4% AAGR also widely exceeded countywide job growth of 1.3% AAGR in the last business cycle, reflecting both productivity gains that produce more income with less worker hours and non-labor sources of income.

Regional GDP grew at a faster 4.2% annually (AAGR) from 2001 to 2008, amounting to \$29.1 billion of economic expansion in that period, of which 37% was concentrated in manufacturing. The region's rapid manufacturing sector growth at 12.4% AAGR from 2001 to 2008 slowed to 3.2% AAGR from 2008 to 2019, but manufacturing GDP has continued to outpace the region's overall economic growth.

Figure 5. National, regional, and county growth of real GDP by business cycle



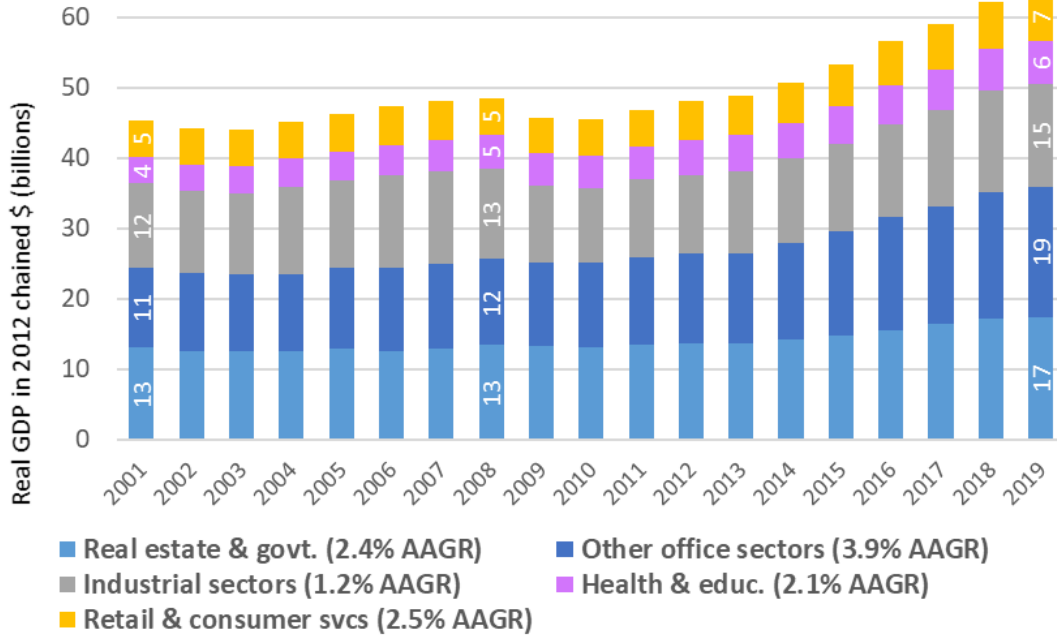
## GDP growth by sector in Multnomah County

Jobs in Portland and the region are relatively balanced among office, industrial, institutional, and retail-related sector types, each generating roughly a fourth of total jobs (as described in Section 4). In contrast, the office sectors are by far the largest source of Multnomah County's GDP, making up 57% in 2019, meaning essentially that office sectors provide a larger source of the total income generated in the county. And employment building space is more concentrated and growing faster in industrial buildings, meaning that industrial sectors are likely to need more building space and employment land over time (as described in Section 5).

Office-sector GDP in Multnomah County is most concentrated in real estate leasing and government (see Figure 6), which together made up 27% of countywide GDP but only 10% of countywide jobs in 2019. Real GDP in Multnomah County's office sectors also grew by an above-average rate of 3.1% AAGR in the last business cycle, which was spread broadly across the office sectors. GDP growth in Multnomah County's industrial sectors from 2008 to 2019 was more concentrated in Transportation and Warehousing (growing at 2.2% AAGR) and Manufacturing (1.9% AAGR), while Construction and

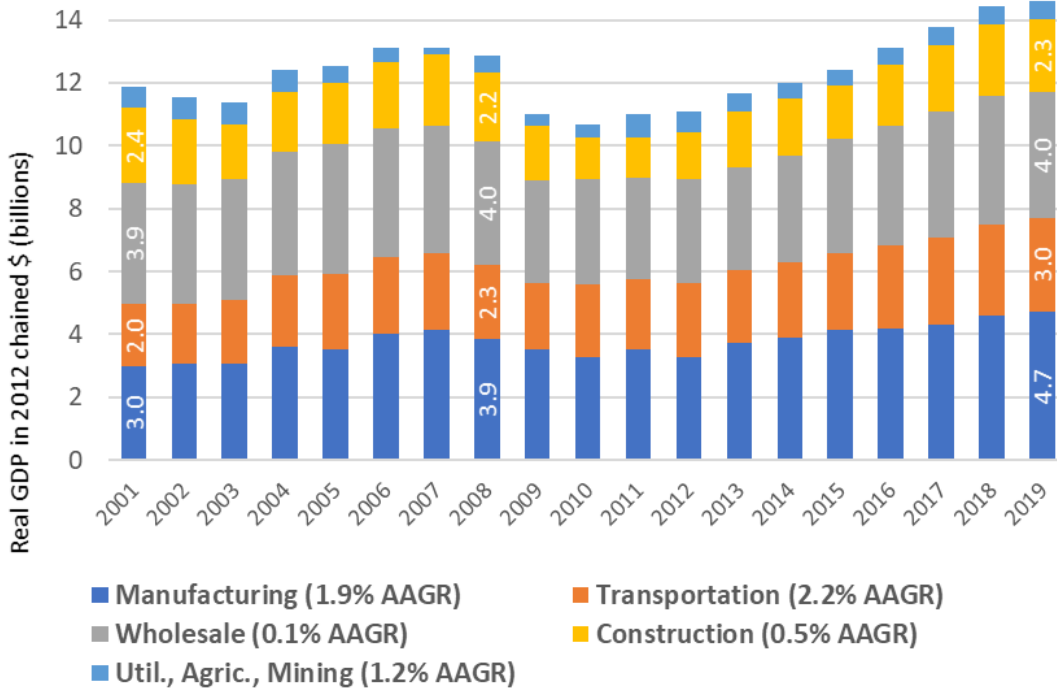
Wholesale Trade grew slower at 0.5% and 0.1% AAGR respectively (see Figure 7). A detailed table of county and regional GDP trends since 2001 is included in Figure 60 of Appendix 1.

Figure 6. Real GDP trends by sector group in Multnomah County



Source: BPS from BEA data, AAGR calculated from 2008 to 2019

Figure 7. Real GDP trends in the industrial sectors, Multnomah County



Source: BPS from BEA data, AAGR calculated from 2008 to 2019

## 4. Employment trends by sector

Job growth is a core policy priority of economic development that supports local and regional prosperity. Job growth trends are reviewed in this section by sector, comparing Portland and the 7-County Region. Job growth rates are an indicator of future demand for land development, along with economic output and land development trends reviewed in the previous and next sections.

### Summary findings

- The regional economy had diverse, robust job growth in the recent business cycle (2008-2019), adding 174,800 jobs at 1.4% average annual growth rate (AAGR). Job growth by land-use sector types ranged from 2.1% AAGR in the institutional sectors of healthcare and education to 1.5% in retail and consumer services, 1.2% in the office sectors, and 0.9% AAGR in the industrial sectors.

Land-use sector groups - Analysis of sector trends in this report is often framed by land-use groups, which loosely inform land needs by business-district type (see NAICS codes in Figure 12):

- Industrial – production (manufacturing, construction, et al.) and distribution;
  - office - professional, financial, business, and government services;
  - institutional - healthcare and education; and
  - retail-related - retail and consumer services (food service, entertainment, et al.).
- The land-use sector groups of the regional economy grew at a roughly even pace during the upswings of the business cycles since 1990, but the recession job losses have been uneven (see Figure 10). The industrial sectors had the largest downswings in the previous three recessions of 1991, 2001 and 2009, while consumer services and institutional sectors had the biggest downswing in the 2020 COVID recession.
  - The leading sources of city job growth in the last business cycle were health care with 16,860 added jobs, followed by 14,130 new jobs in professional services, 10,090 new jobs in accommodation and food service, and 8,520 new jobs in education. Annual growth rates in the last business cycle ranged from 2.4% AAGR in the institutional sectors to 1.7% in retail and consumer services, 1.4% in the office sectors, and 0.7% AAGR in the industrial sectors.
  - Slower job growth in industrial sectors underestimate growth trends in industrial districts. Examples include the juxtaposition of manufacturing job losses with GDP growth, industrial headquarters and ‘temp’ jobs counted as office sectors, and industrial displacement in Portland’s commercial districts. Jobs grew faster in Portland’s large industrial districts than in the Central City’s high-density commercial districts (Oregon’s largest office district) in the last business cycle.
  - Automation-related job displacement is diversely affecting the economy, creating a mix of gains and losses as new types of jobs replace old types. McKinsey Institute projections foresee overall job gains in large metropolitan regions like Portland, including the biggest displacement impacts on office-support occupations in core urban locations.
  - Self-employment made up 14% of Multnomah County’s combined employment and self-employment in 2017. Self-employment is particularly concentrated in some sectors, including arts and entertainment (50% of combined employment and self-employment); real estate leasing (40%); agriculture (35%), and professional services (31%). Average annual income was 10% less

overall countywide for self-employment than employment. The county’s 73,000 self-employment firms in 2017 with no paid employees made up 73% of all firms countywide.

**Land-use quadrants of the regional labor market**

Analysis of job growth trends in this section is framed by four land-use sector groups that are specializations of the EOA’s four aggregate employment geographies (business district types). These land-use sector groups each provide roughly a fourth of regional and city jobs, as shown in Figure 8. Land-use sector groups generally represent quadrants of the regional labor market that rely substantially on distinct types of business districts and employment land. Thus, business district vitality and adequate developable land supply by district type have important roles in economic development.

The institutional sectors of healthcare and education continue to generate the fastest rates of job growth in Portland and the region (see Figure 9), which is generally consistent with national trends since the 1990s. While somewhat smaller than the other sector groups in total jobs, the institutional sectors are expanding as the leading source of new city and regional jobs, as shown in Figure 12. Job growth in the rest of the economy was relatively balanced across the land-use sector groups.

Figure 8. Sector share of total employment, 2019

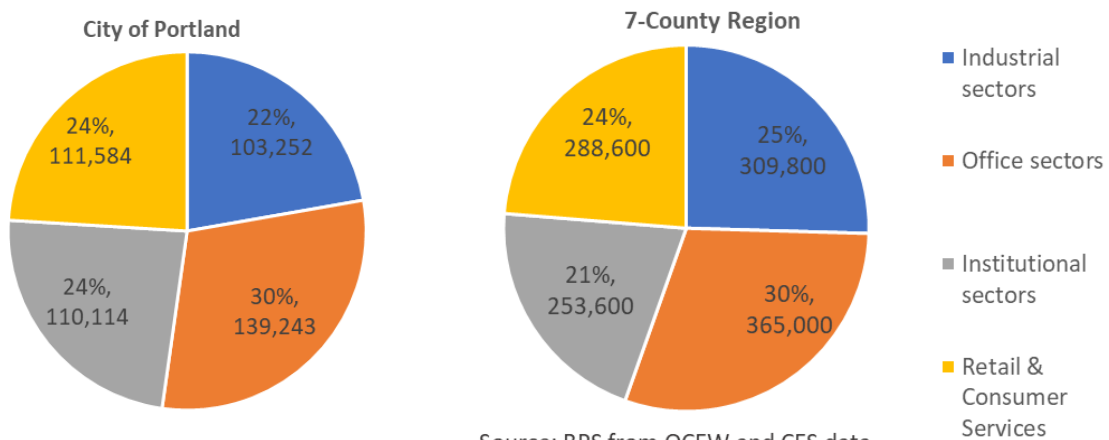
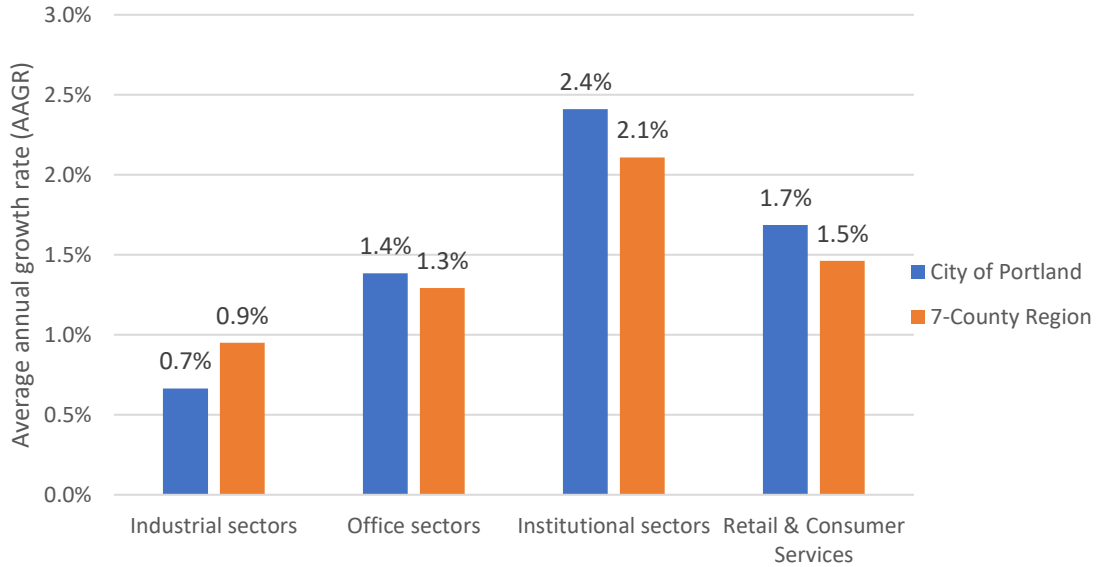




Figure 9. Job growth rates by sector groups, 2008-2019

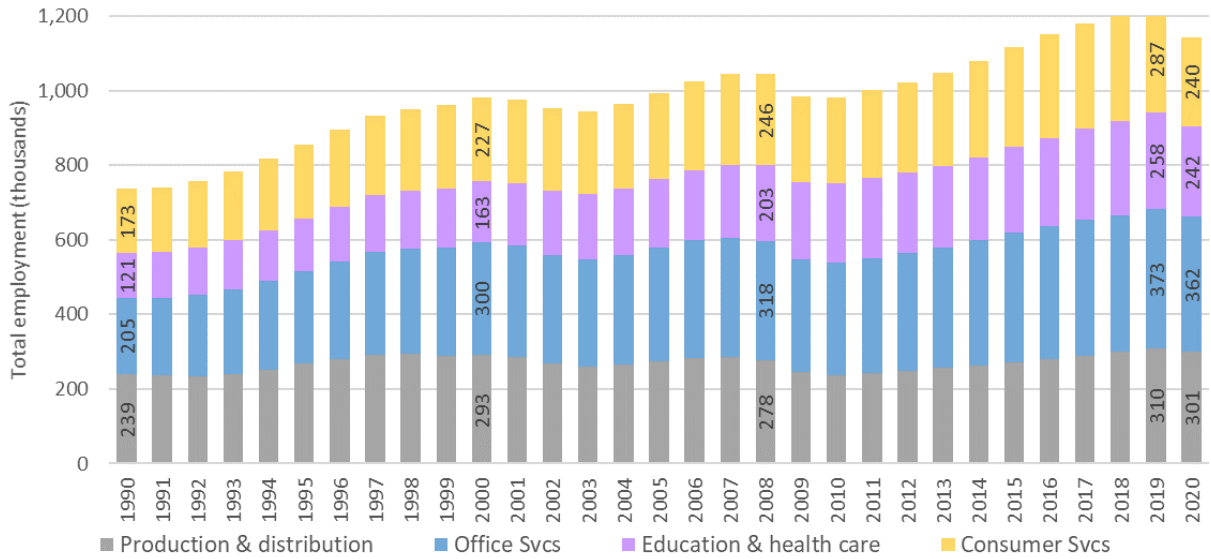


### Regional job growth patterns by land-use sector group

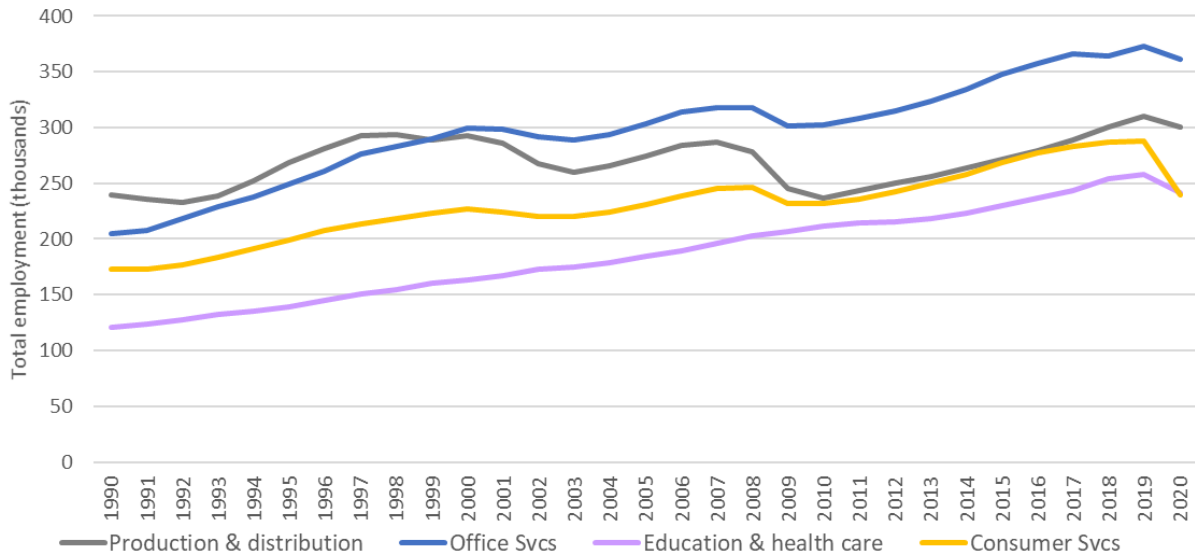
The land-use sector groups of the regional economy grew at a roughly even pace during the upswings of the business cycles since 1990, but their job losses during recessions were uneven (see Figure 10). Comparing recent economic swings, the industrial sectors had the largest downswings in the previous three recessions of 1991, 2001 and 2009, while consumer services (particularly Leisure and Hospitality) had the biggest downswing in the COVID recession of 2020.

The institutional sectors of health care and education have been the least cyclical in recent decades, such that their minimal jobs losses during recessions contribute to their faster long-term growth rates, while the industrial sectors of manufacturing and construction have been the most cyclical, reflected in lower long-term growth rates. The 2020 COVID recession has been an exception to this trend (see Figure 60 and sector-impacts discussion in Section 10), which could indicate slower long-term job growth for the institutional sectors and faster long-term job growth for industrial sectors. More detailed job growth patterns and trends are summarized in Figure 12 for Portland and the region, including current employment, new jobs by business cycle, and average growth rates.

Figure 10. Employment trends of land-use sector groups in 7-County Region



Source: BPS from CES Nonfarm data



### Industrial job growth by sector

Regional and city job growth trends in the combined industrial sectors (production and distribution) have been moderate overall, as shown in Figures 11 and 12. Various anomalies in the industrial sectors complicate this aggregate trend:

- The industrial sectors added 30,600 jobs at 0.9% AAGR in the region during the last business cycle and 7,250 jobs at 0.7% AAGR in Portland, as shown in Figure 12. Aggregate industrial job growth was reduced by the slower job growth in manufacturing in this period, such that the

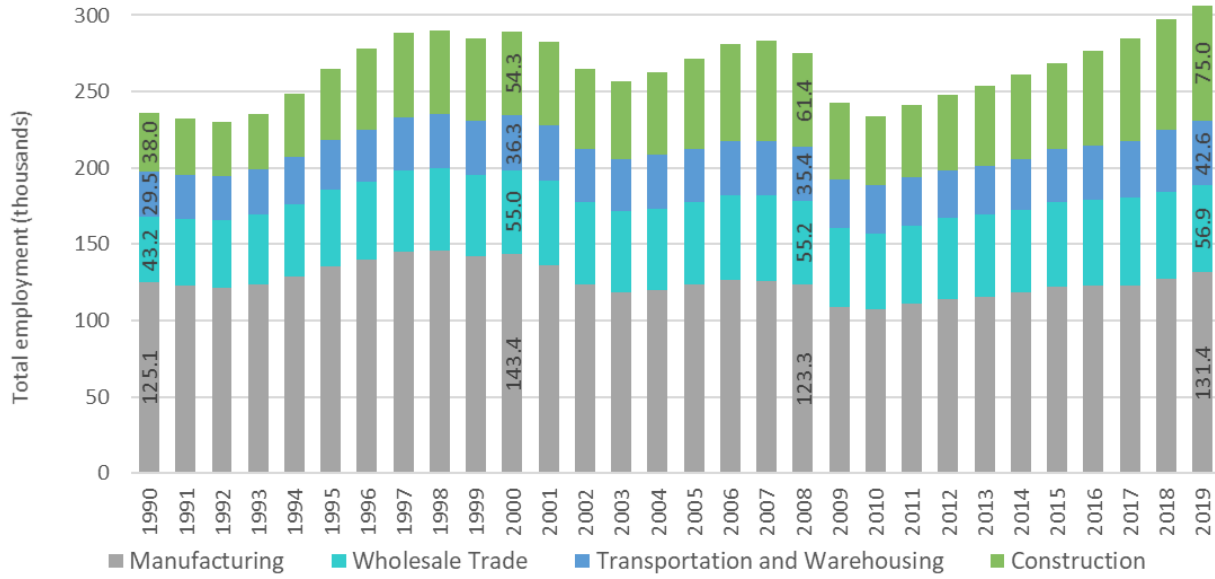
industrial-sector job growth excluding manufacturing was 1.2% AAGR in both Portland and the region.

- The fastest job growth rates among the region’s industrial sectors were 1.8% AAGR in construction and 1.7% AAGR in transportation and warehousing during the last business cycle, reflecting increases in industrial wages and job density:
  - Recent e-commerce development trends have resulted in rising warehouse job densities (roughly 3 jobs per 1,000 square feet of building area) and substantially higher than manufacturing job density ([Columbia Corridor real estate trends, 2021](#)).
  - Blue-collar wage levels in the region’s transportation and material movement occupation overall are roughly the same as in the manufacturing production and office-support occupations (see Figure 42 in Section 9).
- Manufacturing continues to be the region’s largest source of industrial-sector jobs, but manufacturing growth trends are complicated by a variety of factors:
  - The manufacturing sector is an anomaly for measuring growth as described in Section 3, being the region’s leading source of overall economic output growth (real GDP growth) in the last two business cycles (2000-2019) combined with moderate employment reduction (-0.5% AAGR). Manufacturing competes in global markets more than other sectors, and productivity gains (meaning fewer labor hours per unit of output) help manufacturers in higher-wage nations remain globally competitive and retain local jobs. GDP growth also generally means expanding manufacturing activity in the region.
  - Manufacturing job trends are improving. ‘Re-shoring’ trends in the last business cycle have supported moderate regional job growth at 0.6% AAGR, compared to the ‘off-shoring’ trends and manufacturing job losses in the 2000s.
  - More than a few of the region’s large manufacturers have local headquarters offices, in which significant job growth is tracked as ‘management of companies’ (NAICS 55, an office sector) in employment data, thus undercounting ‘manufacturing-related’ job growth.
  - Connecting the dots further, occupied regional space in manufacturing buildings was flat in the 2008-2019 business cycle (0.0% AAGR), as described in Section 5. However, the office building space of manufacturers, which is often located on-site or near factories, is likely increasing, consistent with the manufacturing job and GDP growth in this period.
- Jobs grew faster in Portland’s industrial districts than in the Central City’s high-density commercial districts (Oregon’s largest office district) in the last business cycle. Job growth of 0.9% AAGR in Central City Commercial geography compared to 1.1% AAGR in Harbor & Airport Industrial Districts and 1.5% in Columbia East, as described in Section 6.
- Occupied space in industrial buildings grew faster than in commercial building types during the last business cycle, both in the region and Portland’s industrial districts (see Section 5). Also, citywide industrial growth has been moderated by substantial losses of industrial space and industrial jobs in commercial districts through redevelopment to higher-density building types.
- Automation-related job impacts are diversely affecting the economy, including a mix of gains and losses that are difficult to predict over time, the largest impacts on non-industrial jobs, and projections for overall net job growth from automation in the Portland region.
  - Job displacement by labor-saving technologies have been a recurring trend and narrative since early in the Industrial Revolution, amid continuing industrial job growth.

Automation job losses have typically been mixed with job gains through increasing productivity that supports growth and through new types of jobs that replace old types.

- McKinsey Institute (2019) projections of automation-related job displacement includes diverse gains and losses affecting most U.S. jobs, the largest displacement impacts on office-support occupations in urban core locations, and overall job growth in the largest metropolitan regions like Portland.

Figure 11. Employment trends of industrial sectors in the 7-County Region



Source: BPS from CES Nonfarm data

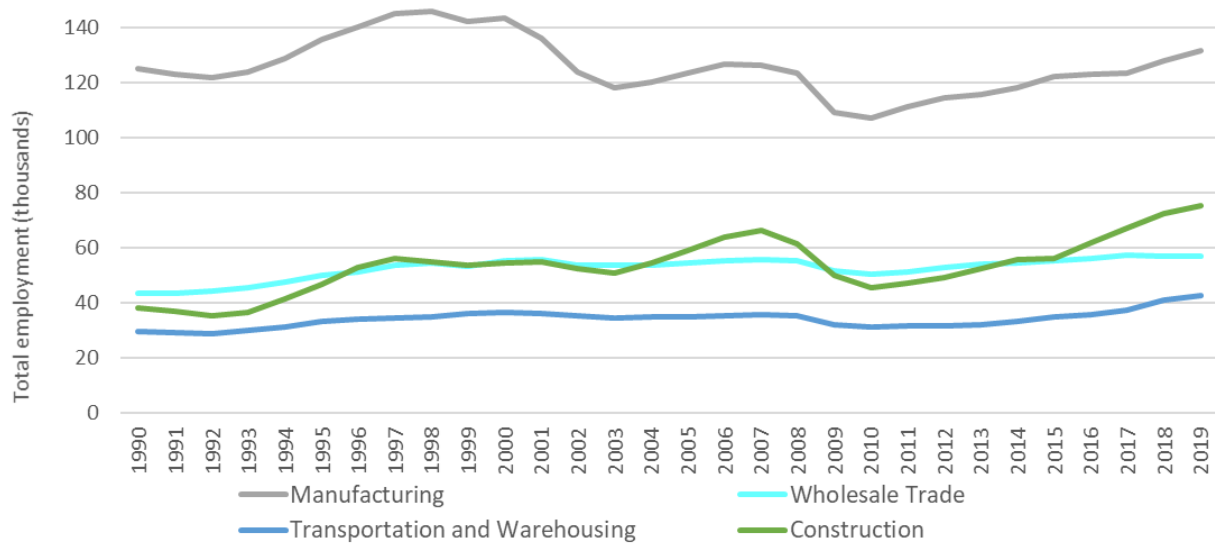


Figure 12. Employment trends by sector in Portland and the 7-county region

		= Major source of job growth						= Faster job growth rate					
		Employment in 2019				2008-2019 employment change			Average annual growth rate (AAGR)				
		Total	% of	Total	% of	Change	Change	Capture	City		MSA		
NAICS Sector		in City	City	in MSA	MSA	in City	in MSA	rate	2008-2019	2002-2019	2008-2019	2000-2019	1990-2019
<b>Citywide Total</b>		464,413	100%	1,218,200	100%	71,001	174,800	41%	1.5%	1.4%	1.4%	1.1%	1.7%
<b>Industrial sectors</b>		103,252	22%	309,800	25%	7,249	30,600	24%	0.7%	0.4%	0.9%	0.3%	0.9%
31-33	Manufacturing	28,482	6%	131,400	11%	-1,881	8,100	-23%	-0.6%	-0.4%	0.6%	-0.5%	0.2%
48-49	Transp. & Warehousing	27,676	6%	42,600	3%	3,911	7,200	54%	1.4%	0.4%	1.7%	0.8%	1.3%
42	Wholesale Trade	21,344	5%	56,900	5%	829	1,700	49%	0.4%	0.4%	0.3%	0.2%	1.0%
23	Construction	22,146	5%	75,000	6%	3,746	13,600	28%	1.7%	1.5%	1.8%	1.7%	2.4%
22	Utilities	2,362	1%	2,500	0%	-282	200	-141%	-1.0%	-1.7%	0.8%	0.0%	0.1%
11-21	Agriculture & Mining	1,242	0%	1,400	0%	926	-200	-463%	13.3%	5.9%	-1.2%	-1.6%	-1.4%
Industrial minus manufacturing		74,770	16%	178,400	15%	9,130	22,500	41%	1.2%	0.7%	1.2%	0.9%	1.5%
<b>Office sectors</b>		139,243	30%	365,000	30%	19,529	48,100	41%	1.4%	1.1%	1.3%	1.1%	2.0%
54	Professional Services	41,406	9%	78,000	6%	14,128	22,600	63%	3.9%	3.3%	3.2%	2.4%	2.6%
52-53	Financial	27,937	6%	73,300	6%	411	5,200	8%	0.1%	-0.2%	0.7%	0.6%	1.3%
56	Administrative Support	23,196	5%	65,600	5%	1,098	4,600	24%	0.4%	0.6%	0.7%	0.2%	2.5%
55	Management	18,871	4%	42,100	3%	4,197	14,300	29%	2.3%	2.8%	3.8%	3.2%	4.9%
51	Information	12,595	3%	25,400	2%	2,013	600	336%	1.6%	0.4%	0.2%	-0.2%	1.5%
92	Government, exc. Educ.	15,238	3%	80,600	7%	-2,318	800	-290%	-1.3%	-1.0%	0.1%	0.6%	1.1%
<b>Institutional sectors</b>		110,114	24%	253,600	21%	25,376	52,000	49%	2.4%	2.4%	2.1%	2.4%	2.6%
62	Healthcare & Social Asst.	66,217	14%	155,400	13%	16,861	44,200	38%	2.7%	2.5%	3.1%	3.2%	3.2%
61	Education	43,897	9%	98,200	8%	8,515	7,800		2.0%	2.3%	0.8%	1.3%	1.8%
<b>Retail &amp; Consumer Services</b>		111,584	24%	288,600	24%	18,745	42,600	44%	1.7%	1.8%	1.5%	1.3%	1.8%
44-45	Retail	35,695	8%	118,100	10%	2,452	8,900	28%	0.6%	0.7%	0.7%	0.5%	1.2%
72	Accommodation & Food	46,017	10%	109,200	9%	10,094	24,300	42%	2.3%	2.7%	2.3%	2.2%	2.5%
81	Other Services	20,643	4%	43,100	4%	3,263	5,800	56%	1.6%	1.8%	1.3%	1.3%	1.8%
71	Arts & Entertainment	9,229	2%	18,200	1%	2,936	3,600	82%	3.5%	3.0%	2.0%	1.7%	2.1%

Source: BPS from QCEW data in City and CES data in MSA. CES education data was adjusted to include public and private establishments.

- Looking at the example of self-driving trucks, a [USDOT study in 2021](#) found “vast uncertainty” in future labor market impacts, including losses and gains over several decades with net impacts difficult to predict.
- Niche industrial jobs have been less impacted by automation. The use of robots and artificial intelligence in manufacturing has primarily affected mass-production activities. Portland’s predominantly small-batch manufacturing and multi-modal niche distribution reduces potential automation risks to local industrial jobs.

### Self-employment trends

Current conditions of the expanding ‘gig economy’ are shown in Figure 13, which compares employer jobs and self-employment by sector in Multnomah County. Self-employment is estimated from Nonemployer Statistics data, which identifies firms with no paid employees using federal tax data.

Figure 13. Employment and self-employment in Multnomah County, 2017

NAICS	Sector	Total private employers	Employment and self-empl.			Average annual income		
			Total private empl.	Total self-empl.	Self-empl. share	Average wages	Average self-empl. receipts	Self-empl. % of wages
<b>Countywide Total</b>		<b>27,628</b>	<b>440,774</b>	<b>73,059</b>	<b>14%</b>	<b>\$53,499</b>	<b>\$47,905</b>	<b>90%</b>
<b>Industrial sectors</b>		5,327	110,082	13,893	11%	\$62,526	\$51,096	82%
31-33	Manufacturing	1,190	33,279	1,358	4%	\$56,749	\$44,376	78%
48-49	Transportation	799	24,159	7,454	24%	\$52,423	\$39,437	75%
42	Wholesale Trade	1,375	26,002	881	3%	\$67,283	\$84,156	125%
23	Construction	1,886	22,083	3,827	15%	\$69,146	\$68,633	99%
22	Utilities	43	3,898	9	0%	\$107,546	\$168,556	157%
11	Agriculture	27	661	353	35%	\$48,890	\$46,963	96%
<b>Office sectors</b>		9,033	119,937	29,706	20%	\$73,049	\$62,285	85%
54	Professional Services	4,039	34,950	15,589	31%	\$80,857	\$40,617	50%
52	Finance & Insurance	1,239	21,508	1,148	5%	\$92,555	\$73,916	80%
53	Real Estate	1,673	11,156	7,314	40%	\$48,299	\$132,814	275%
56	Administrative Support	1,197	24,146	3,787	14%	\$34,588	\$25,469	74%
55	Management of Cos.	217	15,364	-	-	\$93,816	-	-
51	Information	668	12,813	1,868	13%	\$88,136	\$34,446	39%
<b>Institutional sectors</b>		3,876	87,406	9,020	9%	\$51,118	\$32,593	64%
62	Health Care	3,409	71,567	6,426	8%	\$55,111	\$39,713	72%
61	Education	467	15,839	2,594	14%	\$33,079	\$14,957	45%
<b>Retail &amp; Consumer Services</b>		9,369	123,127	20,432	14%	\$28,023	\$31,574	113%
44-45	Retail Trade	3,088	43,445	4,290	9%	\$30,875	\$51,806	168%
72	Accommodation & Food	3,157	51,763	1,407	3%	\$21,868	\$39,985	183%
81	Other Services	2,577	20,076	6,872	26%	\$36,252	\$28,729	79%
71	Arts & Entertainment	547	7,843	7,863	50%	\$31,788	\$21,516	68%

Source: Employment from CBP data (excludes sole proprietors & partners), self-employment from NES data.

- Self-employment made up 14% of the county's combined employment and self-employment in 2017. Self-employment is particularly concentrated in some sectors, including arts and entertainment (50% of combined employment and self-employment); real estate leasing (40%); agriculture (35%), and professional services (31%).
- Average annual income was 10% less overall for self-employment than employment. The ratio of annual self-employment receipts to wage income ranged from 39% in the information sector (such as software publishing) to 275% in real estate leasing (such as landlords).
- The county's 73,000 self-employment firms in 2017 with no paid employees made up 73% of all firms countywide.

## 5. Development trends by building type

Trend analysis of real estate development markets is another primary task of the EOA, to inform land use planning for expected growth. Real estate development trends are reviewed in this section by building type, comparing business districts in Portland and the 7-County Region.

### Summary findings

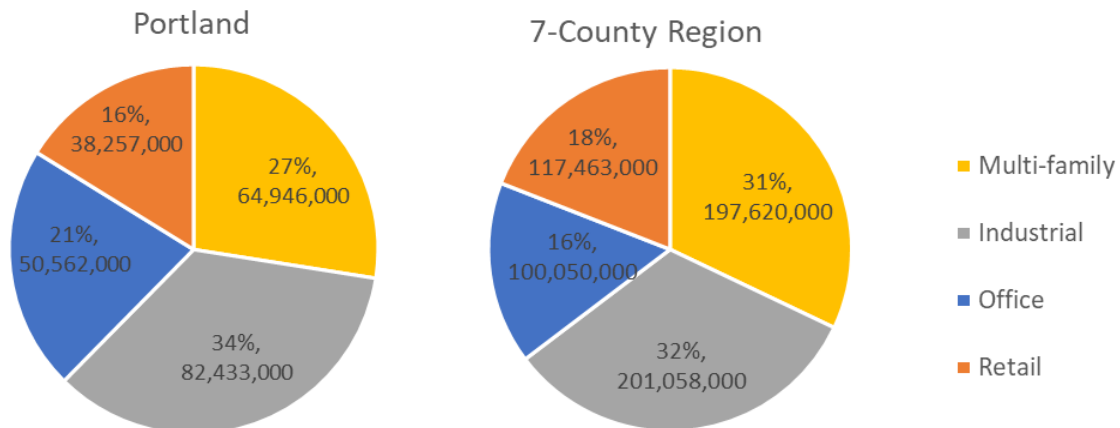
- The real estate development market has been robust in the last business cycle (2008-2019), but growth rates were consistent with job growth trends. Among employment building types, the region added 19.4 million square feet (sf) of new occupied industrial space at 0.9% average annual growth rate (AAGR), 8.5 million sf of office space expanding at 0.8% AAGR, and 6.5 million sf of retail space expanding at 0.5% AAGR.
- Multifamily housing topped Portland's development trends in the last business cycle, making up 68% of the total new occupied leasable building space citywide. Portland added 17.2 million sf of occupied multifamily space at 2.8% AAGR compared to 1.2% AAGR in the rest of the 7-County Region.
- Portland's real estate market is meeting employment land needs unevenly, favoring higher-density building types (particularly multi-family housing) in two ways: displacing lower-density building types in commercial districts through redevelopment; and building out the vacant land of past annexations in industrial districts. Multifamily housing accounted for all the net new building space added in Portland's Central City (the region's CBD and largest office district) during the last business cycle, as displaced employment space exceeded new employment space. Portland's industrial districts added 6.6 million square feet (sf) of occupied industrial space in the last business cycle at pace with the region, but Portland also lost 2.0 million sf of occupied industrial space and about 3,200 industrial sector jobs in the Central City and other commercial zones.
- Distribution space (particularly for e-commerce) dominated industrial development in the last business cycle, accounting for 57% of the new occupied industrial space in the region and 84% in Portland's Columbia Corridor and harbor districts. Industrial space demand has been much less cyclical than industrial jobs, instead matching the upswing portion of industrial job trends and the less cyclical growth trend of warehouse and distribution jobs.
- Four distinct office geography markets each attracted a different mix of the region's 9.9 million sf of office construction after 2008: the Central City had a 32% capture rate oriented toward Class A space; Portland's other commercial districts had a 14% capture rate and low-rise orientation; Portland's industrial areas had an 11% capture rate with common links to industrial facilities; and the rest of the region had a 42% capture rate with balanced office building types.
- Industrial and flex space are the tightest building markets in Portland and the region during the last business cycle, based on faster rising rents and declining vacancy rates. Average lease rates increased by 38% (after adjusting for inflation) in Portland's industrial building space between 2008 and 2019, compared to a 20% increase for Class B/C/F office, 1% for Class A office, and 1% for retail space. Vacancy rates of industrial building space in Portland and the Region tightened to about 3-4% between 2016 and 2019, putting upward pressure on industrial lease rates.



### Vigorous growth of multifamily housing and industrial space

Total leased building space in the 7-County Region breaks down roughly into thirds in 2019 (see Figure 14) with 31% in multifamily housing buildings, 32% in industrial buildings, and 34% in commercial buildings (including 16% in office and 18% in retail buildings). Another 3% of regional building space is in Flex, a hybrid commercial and industrial building space.

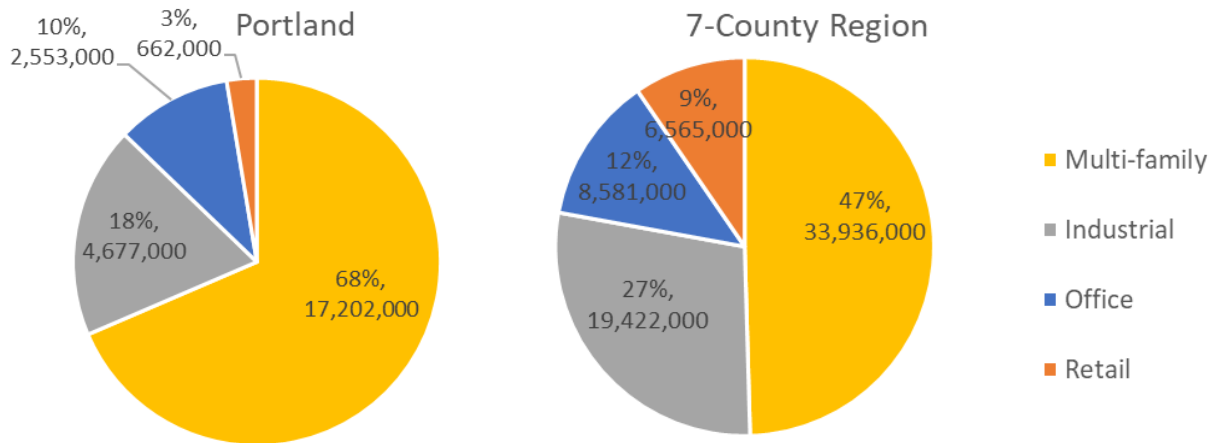
Figure 14. Total occupied building space by type in 2019



Source: BPS from CoStar data, building space in SF

Growth trends by occupied building space are shown in Figure 15. The region’s largest increases in occupied building space over the last business cycle (2008-2019) have been in multifamily housing, which expanded by 33.9 million square feet (sf) and made up 47% of the region’s total new occupied building space (all building types). In Portland, multi-family housing made up 68% of the total new building space in that period. Industrial building space expanded by 19.4 million sf in the region at 0.9% average annual growth rate (AAGR) during this period, including 6.6 million sf in Portland’s Columbia Corridor and harbor districts at 0.9% AAGR. Office building space expanded by 8.6 million sf in the region at 0.8% AAGR and 2.5 million sf in Portland at 0.5% AAGR. Occupied retail space expanded by 6.6 million sf in the region at 0.5% AAGR and 0.7 million sf in Portland at 0.2% AAGR.

Figure 15. New occupied building space by type, 2008-2019

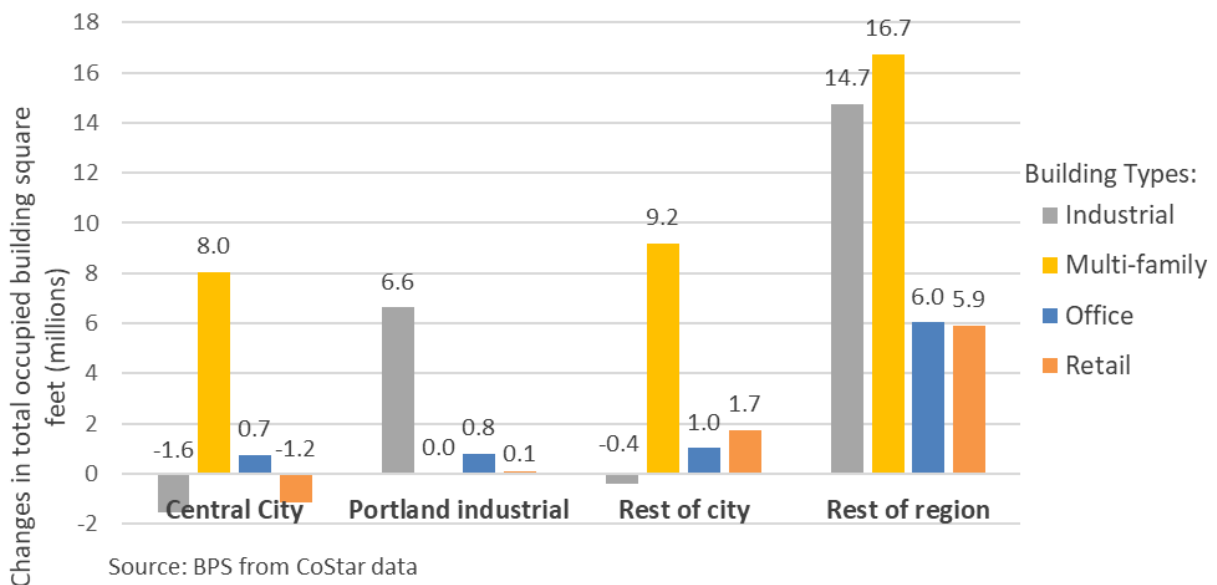


Source: BPS from CoStar data, bldg. space in SF

### Shifting building types in close-in areas as density increases

Central City added 8.0 million sf of multifamily housing buildings from 2008 to 2019, which made up all the net new building space added there. A relatively modest expansion of 0.7 million sf in office building was offset by the loss of 1.6 million sf in industrial buildings and loss of 1.2 million sf in retail buildings (see Figure 16). The decline in retail buildings is slightly offset by ground-floor retail expansion in new mixed-use residential buildings. As the Central City grows through redevelopment at higher density, its share of industrial building space declined from 14% in 2008 to 11% in 2019, and Central City’s retail building space declined from 27% in 2008 to 23% in 2019. Corresponding to the loss of industrial space in the Central City and other commercial areas, Portland lost about 3,200 jobs in industrial sectors (reviewed in Figure 64 of Appendix 1).

Figure 16. Regional growth trends in occupied building space by type and geography, 2008-2019



Source: BPS from CoStar data

The Central City office market is also shifting somewhat to more Class A building space, which generally refers to the highest quality construction and amenities (see CoStar definitions [here](#)). Central City added 880,000 sf of occupied Class A office building space from 2008 to 2019 and lost 136,000 sf of Class B, C, and F office space. The Class B, C, and F share of Central City office space declined slightly from 56% in 2008 to 55% in 2019.

The rest of Portland outside of the Central City and industrial districts had a less dense but similar shift to higher density building types. These areas added 9.2 million sf of occupied multifamily housing space from 2008 to 2019 with relatively modest growth or decline in other building types. Retail buildings expanded by 1.7 million sf (occupied space) in this area of Portland, office buildings expanded by 1.0 million sf, and industrial buildings declined by 385,000 sf.

In contrast, Portland’s harbor and Columbia Corridor industrial districts are accommodating substantial industrial growth. The Industrial Sanctuary zoning in these districts prohibits housing and limits commercial uses to very small formats, keeping developable land competitive for industrial growth in the regional real estate market. These districts added 6.6 million sf of occupied industrial building space between 2008 and 2019, including 5.4 million sf in new industrial building deliveries (2009 through 2019) and the balance in reduced building vacancy (from 7.0% in 2008 to 3.7% in 2019).

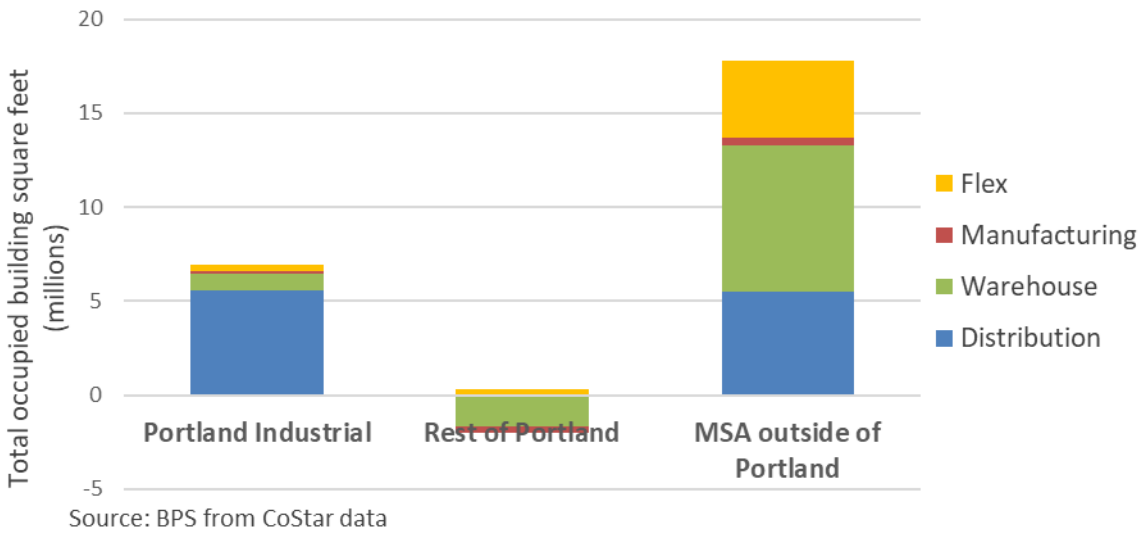
### **Regional expansion of close-in distribution space**

Distribution space (particularly for e-commerce) dominated industrial development in the last business cycle, accounting for 57% of the new occupied industrial space in the region and 84% in Portland’s Columbia Corridor and harbor districts. Portland has competitive advantages for new distribution space in proximity to the airport, population density (e-commerce delivery), and close access to I-5, I-205, and I-84 ([Columbia Corridor real estate trends, 2021](#)). Portland’s Columbia Corridor and harbor districts added 5.6 million sf of new occupied space in Distribution buildings at 3.8% AAGR from 2008 to 2019 (see Figure 17).

What are industrial building subtypes and flex buildings? [Definitions](#) used in CoStar data are:

- Distribution – Buildings are typically 200,000 sf or more in size, both single and multi-tenant, used for the warehousing and distribution of inventory, with clear heights 28 feet plus, one loading dock for every 10,000 sf of rentable building area, up to 5% office space (the balance being warehouse/storage space), and site coverage up to 40%.
- Warehouses – Buildings are typically 25,000 sf or more, box shape, with clear heights of 22 feet or greater, one loading dock per 15,000 sf, up to 20% office area, and site coverage is typically up to 50%.
- Manufacturing – Buildings are typically 300,000 sf or greater, used for assembly or processing, with one loading dock per 15,000 sf, and office area up to 50%.
- Flex – Buildings are designed to be versatile with different uses in combination and at least 50% for office space. Other uses may include research and development, quasi-retail sales, and industrial. Ceiling heights are under 18 feet.

Figure 17. Changes in occupied industrial and flex space in the 7-County Region, 2008-2019



### Regional growth by building subtypes

Changes in the total regional and city inventories of occupied building space are an apt measure of employment land demand over time. Increases in occupied building space (see Figure 18) constitute market absorption, including new construction and changes in vacancy rates.

Figure 18. Regional growth in occupied space by building subtypes

Building subtypes	MSA Total, 2019		2008-2019 Change		AAGR
	Total	% of type	SF change	% of type	
<b>Total, all building types</b>	<b>637,964,446</b>	<b>100%</b>	<b>72,957,589</b>	<b>100%</b>	<b>1.1%</b>
Industrial, all subtypes	201,057,876	100%	19,422,474	100%	0.9%
Warehouse & Distribution	150,729,150	75%	18,054,375	93%	1.2%
Distribution	37,655,038	19%	11,062,662	57%	3.2%
Warehouse	113,074,113	56%	6,991,714	36%	0.6%
Truck Terminal	1,170,494	1%	116,158	1%	1.0%
Manufacturing	40,509,103	20%	203,618	1%	0.0%
Other Industrial	8,649,129	4%	1,048,323	5%	1.2%
Flex	21,773,365	100%	4,452,853	100%	2.1%
Office, all subtypes	100,050,493	100%	8,581,085	100%	0.8%
Class A	29,619,712	30%	4,946,683	58%	1.7%
Class A Low-rise	13,703,578	14%	2,550,693	30%	1.9%
Class A Mid/High-rise	15,504,134	15%	1,983,990	23%	1.3%
Class B/C/F	70,399,099	70%	3,634,651	42%	0.5%
Class B/C/F Low-rise	61,363,270	61%	3,682,182	43%	0.6%
Class B/C/F Mid/High-rise	7,548,216	8%	-40,656	0%	0.0%
High-rise	10,026,145	10%	279,647	3%	0.3%
Low-rise	75,094,179	75%	6,238,920	73%	0.8%
Mid-rise	13,026,205	13%	1,663,688	19%	1.2%
Retail	117,462,924	100%	6,565,184	100%	0.5%
Multi-family	197,619,788	100%	33,935,994	100%	1.7%

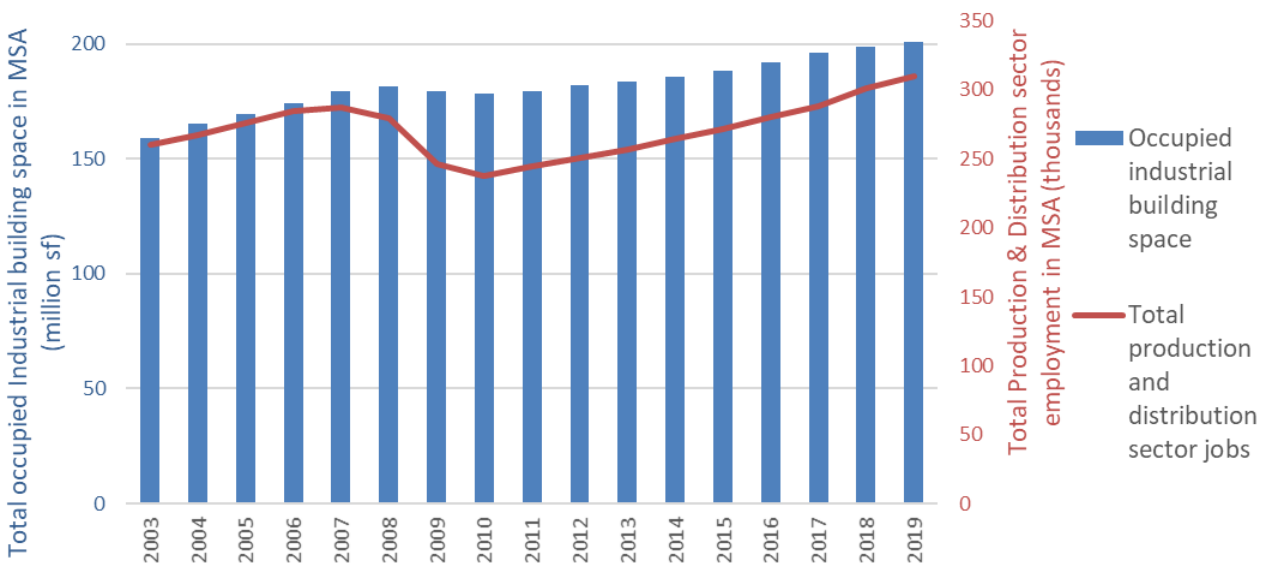
Source: BPS by CoStar data

- Warehouse and distribution buildings made up 75% of the region’s total occupied, leasable industrial space in 2019 and 93% of the new space added between 2008 and 2019. Manufacturing buildings accounted for 20% of the occupied leasable industrial space in 2019 but only 1% of the new space added in this recent business cycle. The manufacturing share appears to be undercounted by excluding some owner-occupied manufacturing facilities, and permit data in Portland suggests a manufacturing share closer to 5% and likely higher in the rest of the region. Other general industrial buildings accounted for 4% of the occupied industrial space in 2019 and 5% of the new space added.
- Class A office buildings made up 30% of the region’s total occupied office space in 2019 and 58% of the new space added between 2008 and 2019. Low-rise office buildings of 1-6 floors (see [NAIOP definitions](#)) made up 73% of all new occupied office space in this period, and mid-rise buildings of 7-15 floors accounted for another 19% of the region’s new occupied office space.

### Stable growth of industrial buildings contrasts cyclical jobs

The cyclical reduction of industrial jobs during recessions does not result in an equivalent reduction in occupied building space, as shown in Figure 19. Instead, regional growth in demand for industrial space has been relatively steady. Thus, industrial space demand is more represented by industrial job trends during upswings, rather than entire business cycles. Moreover, expansion of industrial land demand has been primarily in warehouse and distribution space, which correlates to its less-cyclical job growth in the transportation and wholesale sectors.

Figure 19. Regional trends in occupied industrial space and industrial jobs



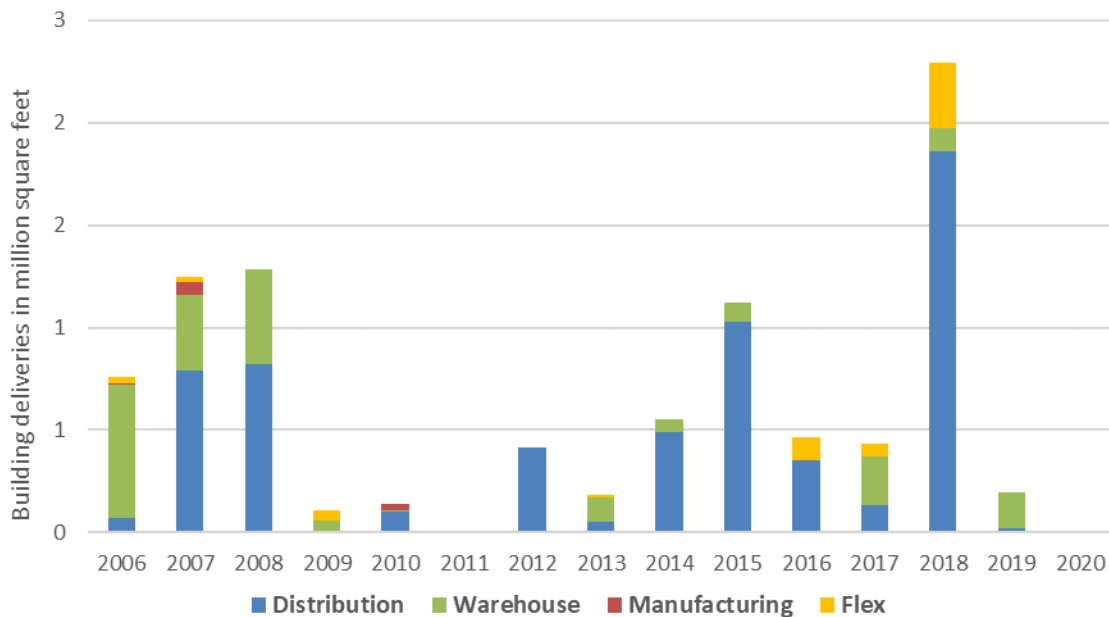
Source: BPS from CoStar and CES data

## Industrial construction focused on distribution and warehouse space

Portland’s industrial districts are attracting a more distribution-focused mix of industrial construction than the region in the last business cycle (new building deliveries from 2009 through 2019), as shown in Figures 20 and 21.

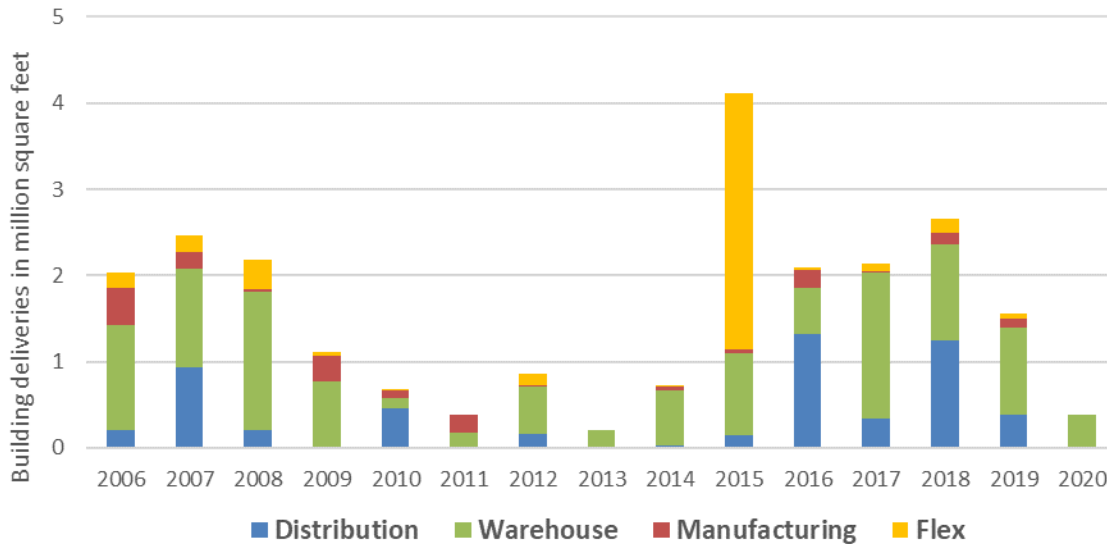
- Portland’s harbor and Columbia Corridor districts had 5.45 million sf of industrial building construction in this period, resulting in a 27% capture rate of regional industrial construction. Capture rates refer to the area share of regional growth. These districts accounted for 99% of Portland’s leasable industrial building construction.
- Warehouse and distribution space made up a dominant 87% of industrial building construction in the region from 2009 through 2019 and 97% in Portland’s harbor and Columbia Corridor districts. New distribution buildings, which are larger than warehouses and include most overnight delivery facilities that are expanding with e-commerce, made up 81% of industrial building construction after 2008 in the Portland’s harbor and Columbia Corridor districts, compared to 43% of leasable industrial construction in the region. Warehouse and distribution space serve comparable functions and constitute one zoning use category.
- Warehouse and distribution space also relies on efficient access to freight routes and the freeway system. Moreover, Portland has the region’s highest concentration of transportation and wholesale jobs, multimodal freight-hub infrastructure, and terminal facilities that depend on that infrastructure (see the Figure 75 and 76 maps in Appendix 1).

Figure 20. New industrial construction in Portland by subtype



Source: BPS from CoStar data

Figure 21. New industrial construction in the 7-county region outside of Portland



Source: BPS from CoStar data

- Portland’s capture rates of regional industrial construction vary by building subtype: 52% of new distribution space, 10% of new warehouse space, 6% of new manufacturing space, and 1% in other general industrial space. This trend shows Portland’s competitive advantage for distribution space. Portland’s capture rate of regional flex building construction was 14%, of which 71% occurred in the Central City and 29% in the harbor and Columbia Corridor districts.

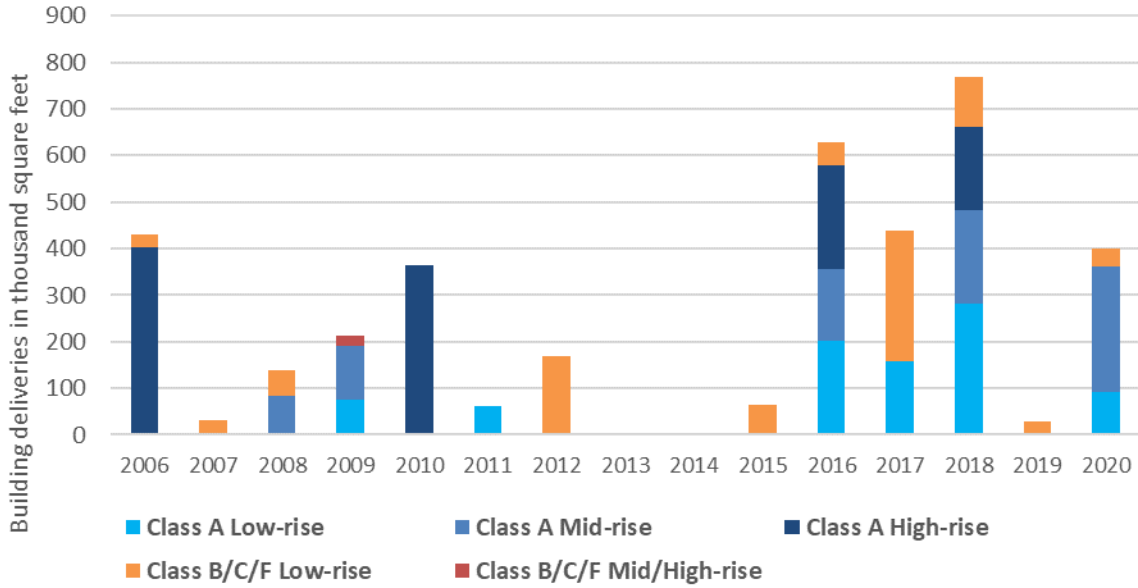
### Office construction trends by type and location

Four distinct office geography markets in the region each attracted a different mix of office construction by subtype in the last business cycle (new building deliveries from 2009 through 2019), as shown in Figures 22-24. Class B/C/F low-rise office buildings continue to be the largest segment of regional office construction at 36%, adding 3.0 million sf in this period, and 48% of that construction was in Portland.

- The Central City had 2.7 million sf of office construction in this period, resulting in a 32% capture rate of regional office construction. Central City is the region’s most diverse office market, but construction trends indicate a shift to Class A space more than other office market areas. Class A buildings accounted for 73% of Central City’s office construction in this period, compared to its 45% Class A share of total occupied office space in 2019. High-rise buildings of 16 or more stories made up 9% of regional office construction, which was located entirely in the Central City.
- Portland’s other commercial districts outside the Central City had 1.2 million sf of office construction in this period and a 14% capture rate of regional office construction. This area’s office construction was virtually all in low-rise buildings, of which 54% was in Class B/C/F space.
- Portland’s harbor and Columbia Corridor industrial districts had 0.9 million sf of office construction in this period, resulting in an 11% capture rate of regional office construction. The largest share of this area’s office construction at 64% was in Class A low-rise buildings with 0.6

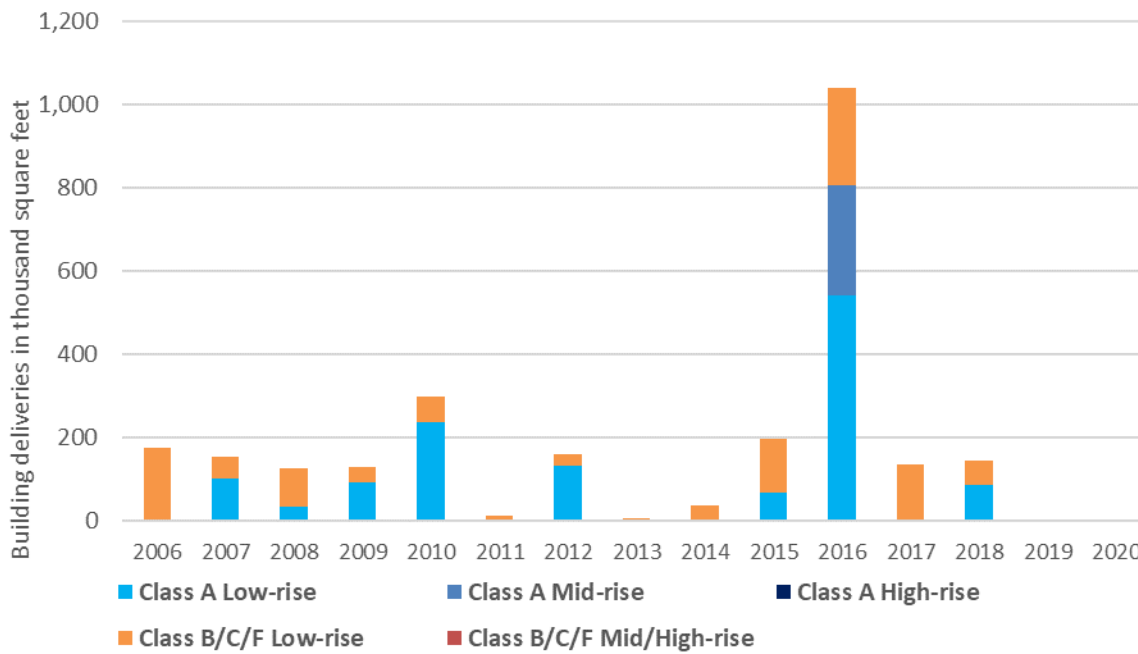
million sf added in this period. Office uses in these districts are primarily industry-related, such as headquarters offices of manufacturers near their industrial facilities.

Figure 22. New office construction in the Central City



Source: BPS from CoStar data

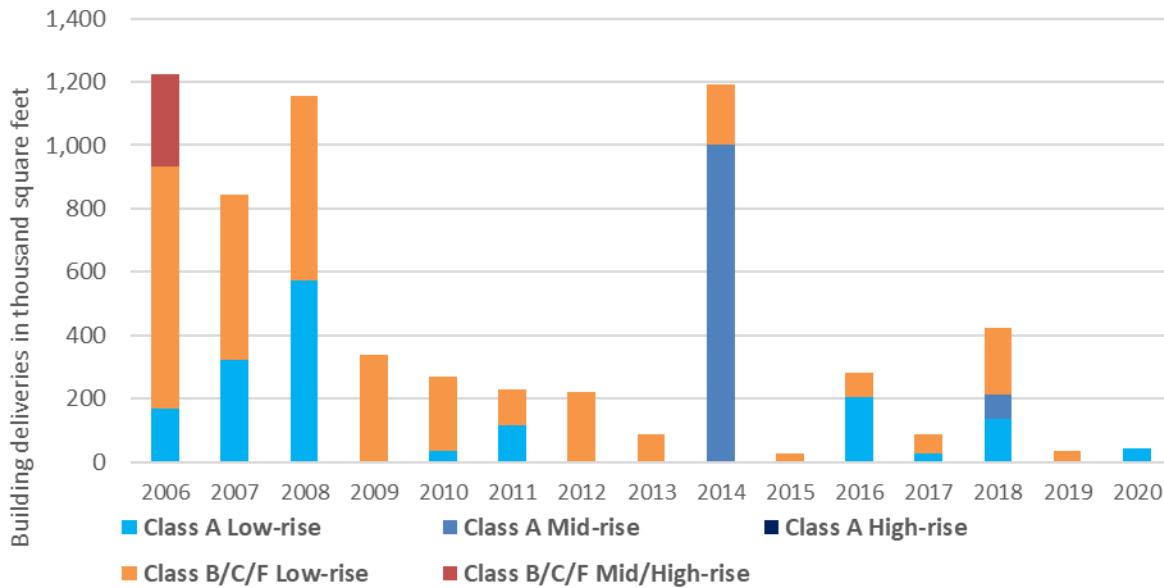
Figure 23. New office construction in Portland outside of the Central City



Source: BPS from CoStar data



Figure 24. New office construction in the 7-county region outside of Portland



Source: BPS from CoStar data

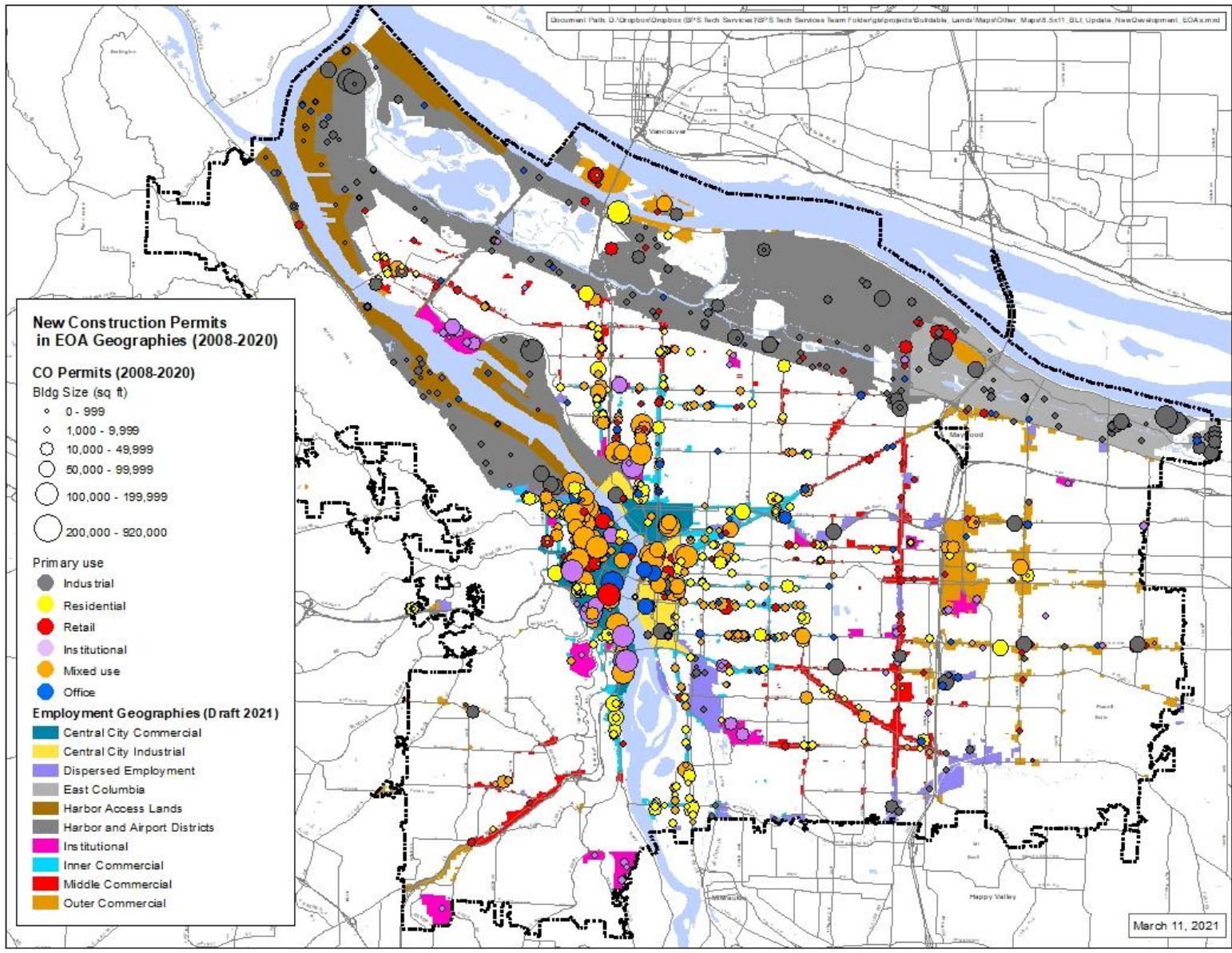
- The rest of the region outside of Portland had 3.6 million sf of office construction in this period and a 42% capture rate of regional office construction. This area’s office construction was relatively diverse with 44% in Class B/C/F low-rise buildings, 30% was in Class A mid-rise buildings, and the balance in Class A low-rise buildings.

### Construction trends by employment geography

A map of the new construction by building type, size, and employment geography is shown in Figure 25, based on data from commercial occupancy building permits compiled by BPS (2008-2020). This map highlights a few patterns that corroborate and supplement the CoStar data results described above:

- Residential and Mixed-Use residential buildings dominate construction in the Central City and Inner Commercial geographies. While Mixed-Use buildings are allowed throughout the commercial geographies, Mixed-Use construction is concentrated in these inner geographies. The Mixed-Use building type includes a combination of residential and employment space by definition and generally consists of residential floors above ground-floor retail and service uses.
- Industrial construction is occurring throughout the industrial geographies. Average new building sizes range from 20,850 sf in Harbor Access Lands to 54,800 sf in Columbia East, where larger vacant sites were more concentrated. Comparing development totals of permit and CoStar data by geography, CoStar accounted for 91% of the new construction identified in permit data, and the balance is assumed to be owner-occupied construction such as that of some manufacturing, the airport, and some marine terminals.

Figure 25. Map of new construction by size, building type, and employment geography



- Substantial new construction has occurred in Institutional buildings, identified by schools and medical occupancy designations in building permits. Institutional building types are generally not identified in commercial real estate data such as CoStar, nor is much of the owner-occupied buildings in the Institutions geography (hospital and college campuses).

**Building vacancy, lease rates, and market tightness**

Rising lease rates (rents) are an indicator of tightness in the real estate market, or lack of adequate supply to meet current demand. Average lease rates in industrial, flex, and Class B/C/F office buildings rose substantially faster than overall inflation in the last business cycle, both in Portland and the region (see Figure 26). In contrast, average lease rates in Class A office and retail buildings were moderated and consistent with overall inflation. Contributing factors to rising lease rates:

- Rising industrial lease rates after 2014 are closely related to declining vacancy rates both in Portland and the region, as shown in Figure 28. Asked to explain the tightening regional market of industrial building space, a focus group of industrial developers and brokers conducted by BPS in 2018 attributed the trend primarily to a lack of available, financially viable development sites. They explained that industrial demand for closer-in locations is being met either on more expensive sites or outward, and the increasing demand for larger industrial facilities is being pushed beyond the region’s Urban Growth Boundary.
- Rising lease rates of flex buildings in Portland relative to the region may indicate an increasing share of office space in these buildings that exceed industrial lease rates.
- The issue of neighborhood-serving commercial displacement appears to be focused on close-in commercial areas that are seeing increasing residential density, while citywide and regional lease rates in retail and related buildings have not risen faster than overall cost-of-living inflation.

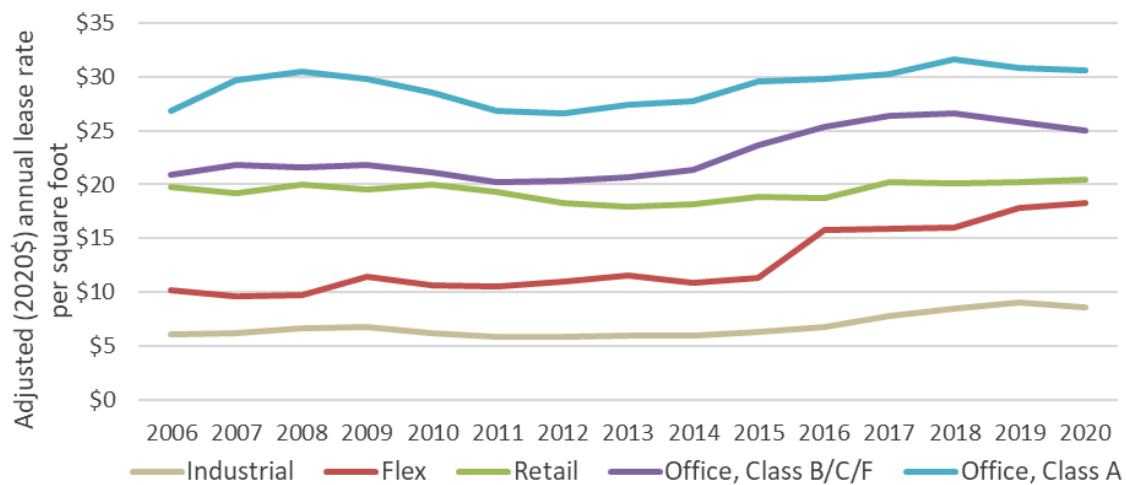
*Figure 26. Adjusted lease rate change from 2008 to 2019 by building type and geography*

Building type	City of Portland			7-County MSA
	Central City	Industrial districts	Citywide	
Flex	254%	154%	183%	125%
Industrial	141%	125%	138%	121%
Office, Class A	102%	-	101%	97%
Office, Class B/C/F	121%	85%	120%	105%
Retail	108%	111%	101%	88%
Source: BPS from CoStar data				

The price range in average lease rates of commercial and industrial building types are shown in Figure 27. As developable land supply tightens relative to urban demand, the continuum of what gets built appears to depend increasingly on its revenue potential, both in higher density and higher lease rates. For example, the higher building density and lease rates of Class A office space widely exceeds the low, freight-oriented density of industrial buildings and industrial lease rates, explaining the industrial building displacement occurring in the Central City and Inner Commercial geographies.

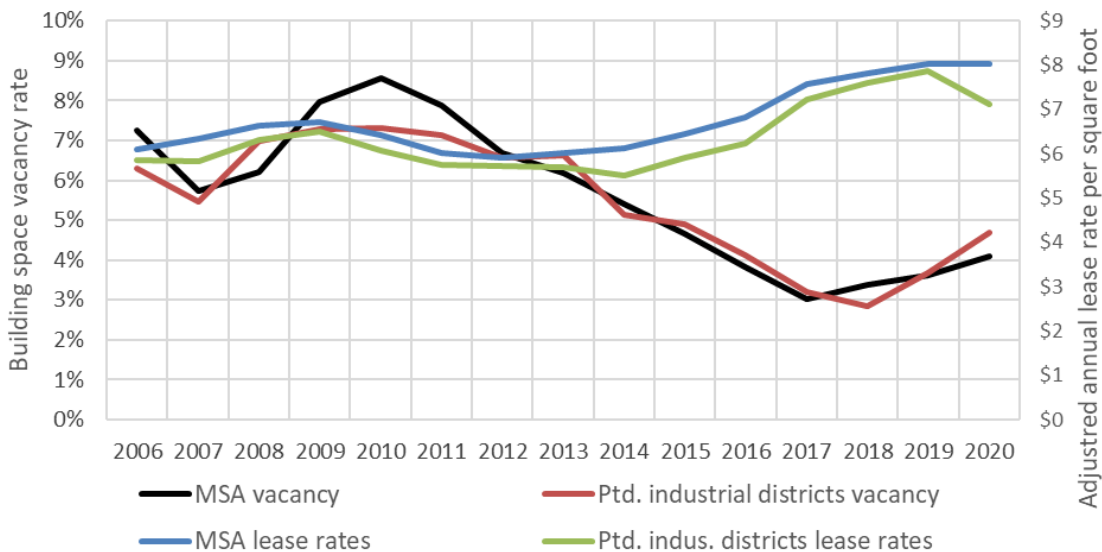
Portland’s Industrial Sanctuary policy applies a land-use approach to encourage industrial growth in the city, by designating districts where diverse industry is allowed while commercial use is tightly limited and housing is prohibited. Increasing densities and property values near close-in industrial districts have made industrial growth more challenging there. These challenges include rising industrial lease rates, less vacant land nearby for expanding firms and new development, and lack of sustainable landing places for displaced industry from rezoned close-in locations. Back-office uses in Class B/C/F buildings are facing less pronounced but similar real estate market challenges with 20% higher average lease rates citywide over the last business cycle. New land-use approaches in Portland that protect and expand space for industrial and back-office growth could support the equity benefits of these low-density building types discussed in Section 9.

Figure 27. Comparison of average lease rates by building type in Portland



Source: BPS from CoStar data

Figure 28. Interaction of vacancy and lease rates in industrial building markets



Source: BPS from CoStar data; annual inflation-adjusted rates (2020 \$)

## 6. Employment geography trends

The growth trends of different business district types are another focus of the EOA, because business districts link regional and sector growth to specific types of developable land demand. In the first part of this section, Portland's range of distinct business district types are identified by their sector specializations and their associated geographies. Then the job growth trends of these employment geographies are reviewed by sector. Job growth trends by sector are another important way of measuring district growth, supplementing the review in the previous section of land development trends by building type, using the same district geographies.

### Summary findings

- Business districts are specialized by sector types. In 2019, 53% of Central City jobs were in office sectors, 64% of industrial area jobs were in industrial sectors (production and distribution), 98% of campus institutional jobs were in healthcare and education, and 44% of the commercial area jobs were in retail and consumer services.
- Portland's job growth was relatively balanced in most of Portland's employment geographies over the last business cycle, ranging from 1.1% average annual growth rates (AAGR) in the Central City to 1.0% AAGR in Industrial Areas, 1.0% AAGR in Institutions, 1.9% AAGR in Neighborhood Commercial. The leading growth sectors in Neighborhood Commercial districts were healthcare and food service.
- Exceptional job growth occurred in the Inner Commercial and Central City Industrial geographies at growth rates of 2.5% and 2.3% AAGR respectively. Exceptional job growth also occurred in Portland's residential areas, concentrated in self-employment at home addresses and schools.
- Job growth rates in Industrial districts are healthy overall, while varying by geography and limited by availability of developable land. Perhaps surprising, jobs grew faster in Portland's large industrial districts during the last business cycle than the moderate 0.9% AAGR in the high-density, office-oriented Central City Commercial geography, expanding at 1.1% AAGR in Harbor & Airport Industrial Districts and 1.5% AAGR in Columbia East (where developable industrial land is most concentrated). Industrial districts trends are a more accurate measure of industrial facility job growth than industrial sector trends. For example, growing industrial headquarters and 'temp' jobs are counted as office sectors, and other non-industrial sectors commonly have industrial facilities. That said, the Harbor Access Lands geography (generally between the river and nearest street) was an exception, where jobs declined by -1.5% AAGR, explained largely by the developable land constraints of the harbor Superfund project and concentrated job losses in a few larger manufacturers among transportation job growth and mixed investment trends. Marine industrial growth trends are analyzed in detail in Section 8 and Appendix 2.
- Business size varies by business district type. Small businesses (fewer than 50 employees) make up most of the employment in the neighborhood commercial and residential geographies. Medium-sized businesses (50 – 250 employees) account for the largest share of Central City and industrial district jobs. And campus institutional jobs, where the fastest growing health care and education jobs are most concentrated, are mostly large firms (greater than 250 employees).

## Employment geographies

Businesses locate and grow where they have a competitive advantage. Ten employment geographies in Portland are identified below that represent distinct types of business districts and submarkets of developable land demand. The predominant site conditions that distinguish employment geographies are summarized in Figure 29. A map of the proposed employment geographies is shown in Figure 30. While each geography has a mix of sectors, most geographies have clear sector specializations, as shown in Figure 31.

Figure 29. Predominant Site Conditions in Employment Geographies

	Location	Types of Businesses	Density, site size	Features
<b>Central City</b>				
<b>Central City Commercial</b>				
	Central City westside, Lloyd	Office, mixed commercial	High, <1 acre	Regional CBD
<b>Central City Industrial</b>				
	Central Eastside, L. Albina	Mixed employment	Medium, <3 acres	Incubator/industrial
<b>Industrial</b>				
<b>Harbor &amp; Airport Districts</b>				
	Harbor upland & Airport	Distribution, manufacturing	Low, 1-100+ acres	Marine/rail/air hub
<b>Harbor Access Lands</b>				
	Harbor frontage	Marine-related industry	Low, 5-100+ acres	Deepwater channel
<b>Columbia East</b>				
	Col. Corridor E of 82nd	Industrial, mixed employment	Low, 1-20 acres	Industrial & flex parks
<b>Dispersed Employment</b>				
	Neighborhoods	Industrial, mixed employment	Low, <1-10 acres	Freeway proximity
<b>Commercial</b>				
<b>Inner Commercial</b>				
	Inner neighborhoods	Mixed commercial	Medium, <3 acres	Town centers/corridors
<b>Town Centers</b>				
	Middle neighborhoods	Retail-related, mixed commercial	Low/med., <3 acres	Centers/corridors
<b>Neighborhood Centers &amp; Corridors</b>				
	Outer neighborhoods	Retail-related, mixed commercial	Low, <1-10 acres	Centers/corridors
<b>Institutions</b>				
<b>Institutions</b>				
	Neighborhoods	Hospitals, colleges	Low/med., >10 acres	18 large campuses

Employment geographies have three general functions in the EOA analysis. Each 'employment geography' represents (1) a group of business districts by type that reflect business location preferences (agglomeration economies) and community location preferences (comprehensive plan map designations); (2) a market segment of citywide demand for employment land, consisting of a distinct mix of business sectors and building types; and (3) a segment of the city's current developable land

Figure 30. Employment geographies map

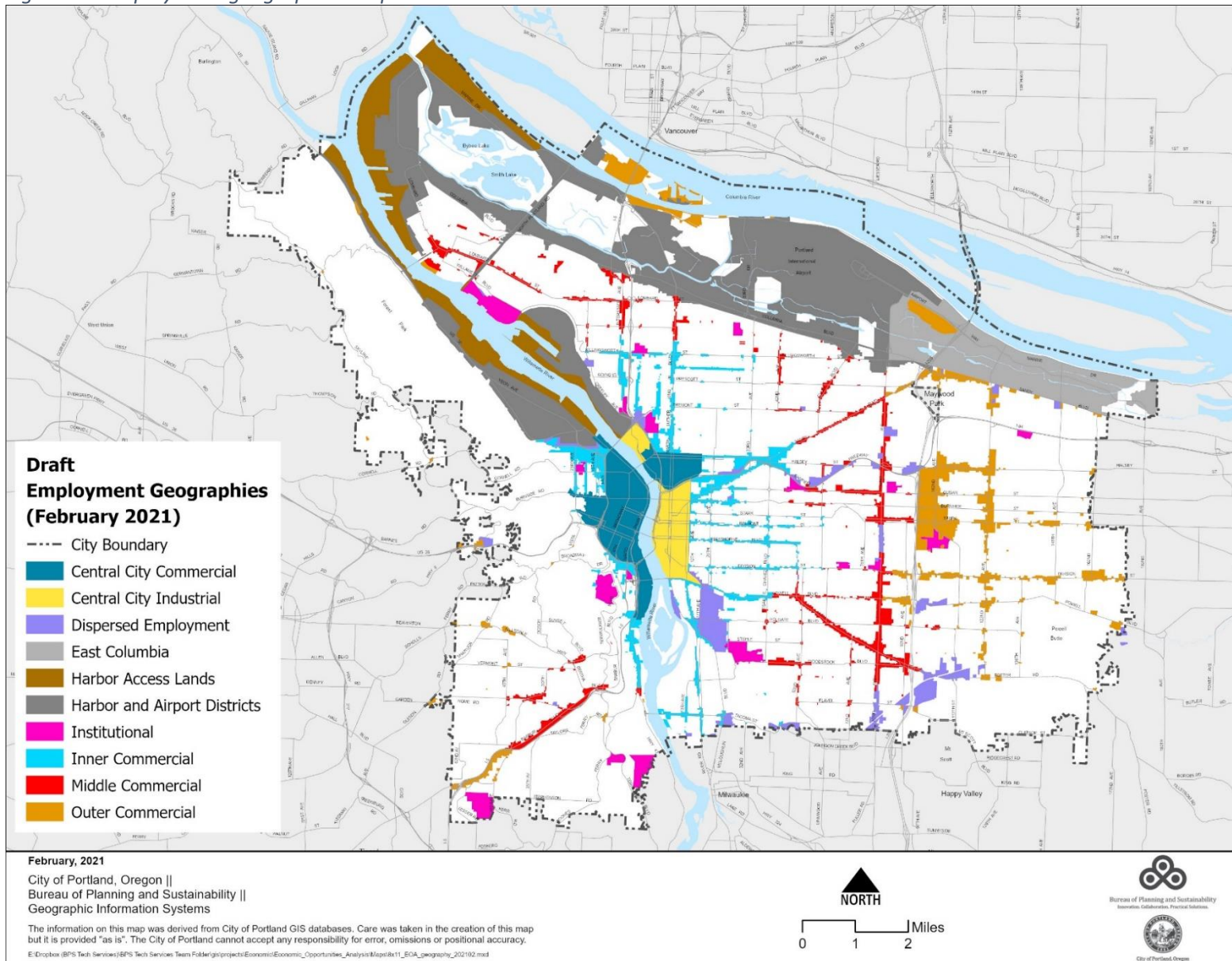


Figure 31. Sector specializations of employment geographies in 2019

Employment Geography	= primary specializations				= secondary specializations					
	2019 Total Jobs in all sectors	Area % of sectors	Office Sectors		Production & Distrib.		Education & Healthcare		Retail & Consumer Svcs.	
			Sectors % of area	Area % of sectors	Sectors % of area	Area % of sectors	Sectors % of area	Area % of sectors	Sectors % of area	Area % of sectors
Central City Commercial	124,947	27%	58%	52%	7%	9%	11%	12%	24%	27%
Central City Industrial	27,496	6%	29%	6%	34%	9%	14%	4%	23%	6%
Harbor & Airport Districts	57,510	12%	17%	7%	69%	39%	2%	1%	12%	6%
Harbor Access Lands	8,507	2%	31%	2%	67%	6%	0%	0%	2%	0%
Columbia East	22,870	5%	19%	3%	53%	12%	9%	2%	19%	4%
Dispersed Employment	15,199	3%	30%	3%	56%	8%	3%	0%	10%	1%
Inner Commercial	62,771	14%	26%	12%	13%	8%	25%	14%	36%	20%
Middle Commercial	23,081	5%	15%	2%	9%	2%	17%	3%	60%	12%
Outer Commercial	31,185	7%	19%	4%	6%	2%	26%	7%	48%	13%
Institutions	39,763	9%	1%	0%	0%	0%	98%	35%	2%	1%
Residential	51,084	11%	22%	8%	14%	7%	44%	20%	20%	9%
<b>Total</b>	<b>464,413</b>	<b>100%</b>	<b>30%</b>	<b>100%</b>	<b>22%</b>	<b>100%</b>	<b>24%</b>	<b>100%</b>	<b>24%</b>	<b>100%</b>
<b>Aggregate Geography</b>										
Central City	152,443	33%	53%	58%	12%	17%	11%	16%	24%	32%
Industrial	104,086	22%	20%	15%	64%	64%	4%	4%	12%	12%
Commercial	117,037	25%	22%	19%	10%	12%	24%	25%	44%	46%
Institutions	39,763	9%	1%	0%	0%	0%	98%	35%	2%	1%
Residential	51,084	11%	22%	8%	14%	7%	44%	20%	20%	9%
<b>Centers &amp; Corridors</b>										
Gateway Regional Center	9,493	2%	14%	1%	5%	0%	51%	4%	30%	3%
Town Centers	57,365	12%	26%	11%	11%	6%	26%	14%	36%	19%
Neighborhood Corridors	50,179	11%	19%	7%	10%	5%	15%	7%	56%	25%

Source: BPS from QCEW data



supply. Methodologically, the geographies represent a way of linking 20-year market demand by site type to location advantages and developable land supply.

The boundaries of employment geographies are based on the land use designations in the 2035 Comprehensive Plan map. This map starts with the employment geographies identified in the existing EOA (2016) and 2035 Comprehensive Plan, except that the ‘Commercial’ map areas outside of the Central City were reconfigured in this report. The urban design boundaries of the Commercial geographies in the 2016 EOA (Gateway Regional Center, Town Centers, and Neighborhood Commercial) were revised in this report to Inner, Middle, and Outer Commercial employment geographies, in order to more distinguish their contrasting market conditions and trends. Employment and growth trends were also analyzed both ways in this section, by urban design types and market areas. The West Portland Commercial geography may be separated for forecast demand and supply analysis in EOA Volume 2, based on contrasting conditions with the Outer Commercial areas in East Portland.

The EOA’s ten employment geographies are also summarized into four larger aggregate geographies (see Figures 32 and 33): Central City, Industrial, Commercial, and Institutions. The aggregate geographies have sector specializations consistent with the land-use sector groups reviewed in Section 4. Employment trends in the rest of the city (outside of the ten employment geographies) is also analyzed in this section as the Residential geography, where dispersed employment is primarily associated with neighborhood schools, self-employment tracked at home addresses, home occupations (such as childcare), non-conforming business uses, and ancillary employment in open space areas (such as golf courses and parks).

**Job growth by sector groups**

The mix of Portland’s job growth by the land-use sector groups analyzed in Section 4 is occurring across the aggregate employment geographies, as summarized in Figure 32.

*Figure 32. Sector growth trends by employment geography types*

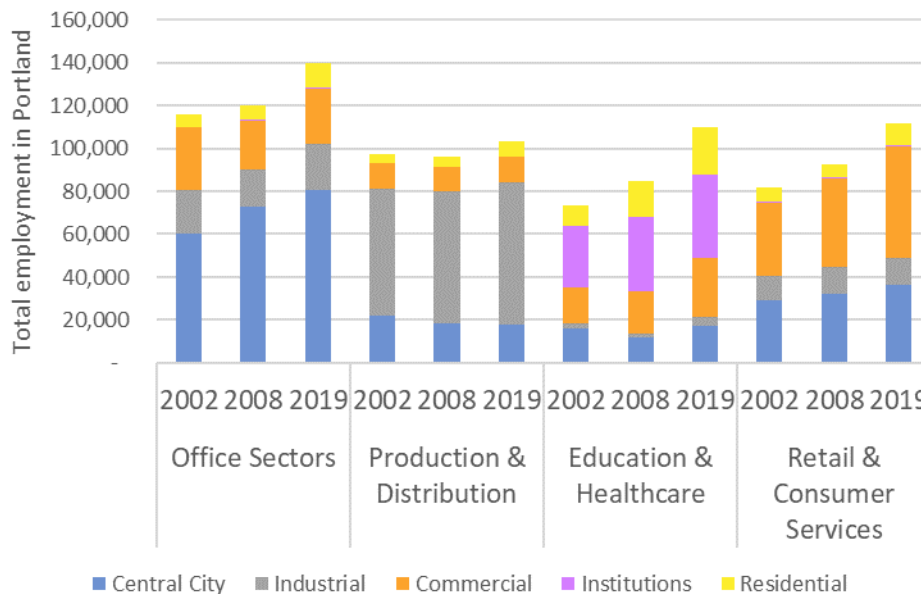


Figure 33. Job growth trends by employment geography and sector group, 2008-2019

	= Major source of job growth						= Faster job growth rate								
	All sectors			Office Sectors			Production & Distrib.			Education & Healthcare			Retail & Consumer Svcs.		
	Change,	AAGR		Change,	AAGR		Change,	AAGR		Change,	AAGR		Change,	AAGR	
Employment Geography	2008-2019	2008-2019	2002-2019	2008-2019	2008-2019	2002-2019	2008-2019	2008-2019	2002-2019	2008-2019	2008-2019	2002-2019	2008-2019	2008-2019	2002-2019
Central City Commercial	11,306	0.9%	0.6%	4,537	0.6%	1.3%	-129	-0.1%	-2.4%	4,922	4.3%	3.3%	1,976	0.6%	0.9%
Central City Industrial	6,120	2.3%	2.4%	3,786	6.0%	8.1%	-175	-0.2%	0.3%	709	1.8%	-4.6%	1,800	3.1%	3.3%
Harbor & Airport Districts	6,756	1.1%	1.4%	3,442	4.2%	3.9%	2,357	0.6%	1.0%	513	4.4%	0.3%	444	0.6%	1.1%
Harbor Access Lands	-1,483	-1.5%	-1.8%	409	1.6%	1.2%	-1,696	-2.3%	-2.7%	24	11.1%	12.1%	-220	-7.0%	-5.5%
Columbia East	3,360	1.5%	1.8%	-554	-1.1%	-4.5%	1,745	1.4%	1.8%	1,536	12.4%	10.7%	633	1.5%	1.9%
Dispersed Employment	1,794	1.1%	0.2%	-111	-0.2%	1.0%	1,878	2.3%	0.6%	81	1.7%	-1.3%	-54	-0.3%	-1.2%
Inner Commercial	15,065	2.5%	2.3%	3,196	2.0%	1.4%	477	0.6%	0.1%	4,974	3.6%	3.6%	6,418	3.0%	3.4%
Middle Commercial	3,117	1.3%	1.2%	-179	-0.5%	-1.3%	-113	-0.5%	-0.7%	998	2.8%	4.2%	2,411	1.8%	1.7%
Outer Commercial	3,808	1.2%	1.4%	423	0.7%	-3.8%	257	1.3%	1.3%	1,596	2.0%	1.9%	1,532	1.0%	1.9%
Institutions	4,203	1.0%	1.7%	-38	-1.1%	-1.3%	-150	-15.7%	-10.8%	4,339	1.1%	1.8%	52	0.8%	1.8%
Residential	16,955	3.7%	2.6%	4,722	5.1%	4.3%	2,796	4.6%	3.6%	5,684	2.7%	5.1%	3,753	4.2%	2.8%
<b>Total</b>	<b>71,001</b>	<b>1.5%</b>	<b>1.4%</b>	<b>19,633</b>	<b>1.4%</b>	<b>1.1%</b>	<b>7,247</b>	<b>0.7%</b>	<b>0.4%</b>	<b>25,376</b>	<b>2.4%</b>	<b>2.4%</b>	<b>18,745</b>	<b>1.7%</b>	<b>1.8%</b>
<b>Aggregate Geography</b>															
Central City	17,426	1.1%	0.9%	8,323	1.0%	1.7%	-304	-0.2%	-1.2%	5,631	3.7%	0.3%	3,776	1.0%	1.2%
Industrial	10,427	1.0%	1.0%	3,186	1.5%	0.2%	4,284	0.6%	0.7%	2,154	7.2%	3.3%	803	0.6%	0.8%
Commercial	21,990	1.9%	1.8%	3,440	1.3%	-0.6%	621	0.5%	0.1%	7,568	3.0%	3.1%	10,361	2.1%	2.4%
Institutions	4,203	1.0%	1.7%	-38	-1.1%	-1.3%	-150	-15.7%	-10.8%	4,339	1.1%	1.8%	52	0.8%	1.8%
Residential	16,955	3.7%	2.6%	4,722	5.1%	4.3%	2,796	4.6%	3.6%	5,684	2.7%	5.1%	3,753	4.2%	2.8%
<b>Centers &amp; Corridors</b>															
Gateway Regional Center	1,086	1.1%	1.1%	253	1.9%	1.9%	-208	-3.2%	-0.3%	824	1.7%	2.1%	217	0.7%	-0.3%
Town Centers	12,297	2.2%	1.9%	2,122	1.4%	-1.7%	47	0.1%	-0.2%	5,254	4.0%	3.8%	4,874	2.5%	2.9%
Neighborhood Corridors	8,607	1.7%	1.9%	1,065	1.1%	1.3%	782	1.6%	0.5%	1,490	2.0%	2.4%	5,270	1.9%	2.5%

Source: BPS from QCEW data

- Office sector jobs are most concentrated (58% in 2019) and growing substantially (42% of office growth from 2008 to 2019) in the Central City. Office jobs are also substantially located and growing in the Commercial and Industrial geographies.
- Industrial (production and distribution) sector jobs are especially concentrated (64% in 2019) and growing mostly (59% from 2008 to 2019) in the Industrial geographies. Industrial sectors also have a sizable share of jobs in the Central City and Commercial geographies.
- Institutional (education and healthcare) sector jobs and their extensive growth (25,380 new jobs from 2008 to 2019) are widely distributed across the Institutional, Commercial, Central City, and Residential geographies.
- Retail and consumer-service sector jobs are substantially concentrated (46% in 2019) and growing mostly (55% from 2008 to 2019) in the Commercial geographies. These sectors are also substantially concentrated (32% in 2019) and growing in the Central City.

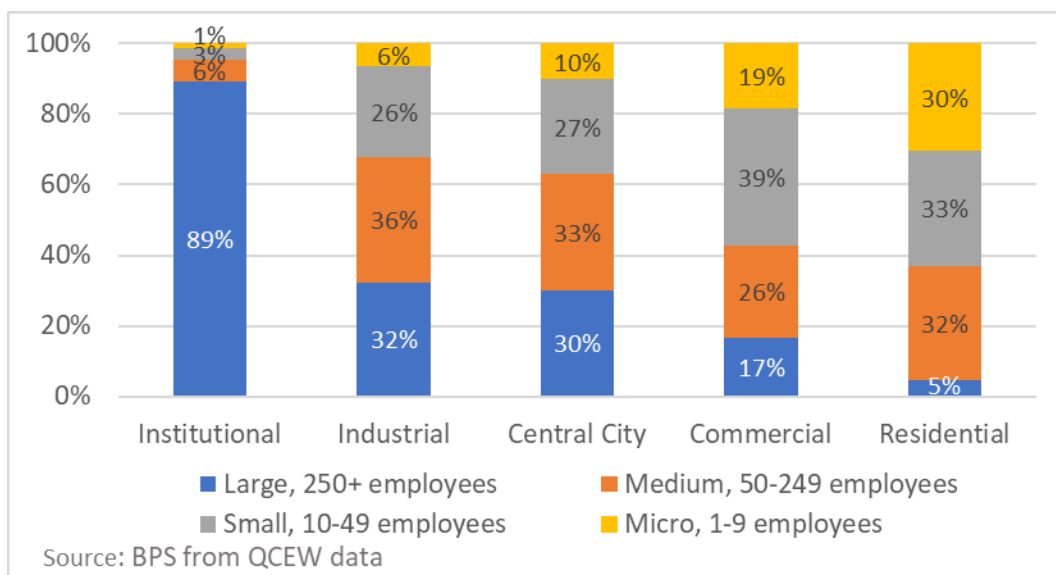
Portland’s fastest growing employment geographies in the last business cycle were the Inner Commercial areas (2.5% AAGR), which had balanced commercial growth, and Central City Industrial (2.3% AAGR), which had concentrated growth in office and retail/consumer service sectors. Job growth rates were relatively balanced across the other geographies.

The specialized and land-constrained Harbor Access Lands geography lost 1,480 jobs overall in the last business cycle, including 2,060 fewer jobs in Manufacturing, while adding 470 new jobs (at 1.8% AAGR) in the transportation sector. Cargo, employment, and development trends in the Harbor Access Lands geography are described extensively in Portland’s Marine Industrial Land Analysis (Appendix 2).

**Business size distribution of employment geographies**

The predominant size of businesses varies by business district type, as shown in Figure 34. Small businesses (fewer than 50 employees) and micro-sized businesses (fewer than 10 employees) make up

Figure 34. Establishment size distribution of employment geographies



most of the employment in the neighborhood commercial and residential geographies. Medium-sized businesses (50 – 250 employees) make up the largest share of Central City and industrial district jobs. And campus institutional jobs, where the fastest growing health care and education jobs are most concentrated, are predominately large establishments (greater than 250 employees).

## 7. Local specializations, traded sectors, and competitive advantages

The sector specializations of metropolitan regions and large cities tend to have leading roles in their economies. Specializations typically represent local competitive advantages, unique opportunities for continuing growth, and traded sector activity that expands regional prosperity. Portland’s diverse specializations as a large city economy are reviewed in this section, relative to the target industry specializations of the state, region, and city.

### Summary findings

- Portland is an important location for Oregon’s traded sectors. A wide range of state, regional and city target industries are major employers in Multnomah County. Most of these target industries are concentrated in the industrial and office sectors.
- The Portland Region’s exports are concentrated in manufacturing, measuring the output and income of traded sectors in global markets. This region ranked 17<sup>th</sup> among U.S. metropolitan areas in real exports in 2017, compared to 24<sup>th</sup> in total jobs. Among the region’s largest export sectors, semiconductor and computer equipment manufacturing accounted for 40% of the region’s \$21.0 billion in export income that year and other manufacturers made up an additional 30%.
- Prosper Portland’s target industries are Athletic & Outdoor, Green Cities, Metals & Machinery, and Technology & Media, which represent local specializations among the region’s traded sector clusters. Portland also has a major presence in other target industries of the region and state.
- Large-city economic specializations that are not target industries are also generating some of the largest levels of local job growth. Examples include warehousing and wholesale trade, building construction and building contractors, drinking places (tourism), miscellaneous (specialty) stores, other health practitioners, and others. These specializations often serve statewide or Columbia Basin markets, representing distinct economic opportunities as Oregon’s largest city and employment center.

‘Traded sectors’ are a conventional focus of economic development efforts as ‘target industries’ that bring income and jobs into regions. Traded sectors are typically export sectors that serve markets outside of the region. Traded sectors have competitive pressure to locate and grow where they have relative location advantages.

### Distinguishing local sectors and traded sectors

Regional economies are made up of ‘local sectors’ that serve neighborhood and regional markets (such as consumer services and retail trade) and ‘traded sectors’ that serve markets outside the region (such as manufacturing and headquarters offices). The factors that drive growth in local and traded sectors differ. Local sectors expand with the local population and income levels. Portland’s livability advantages are often cited as a driver in the city’s accelerated in-migration and resulting consumer demand.

In contrast, the factors that drive growth of traded sectors vary more by sector. Traded sectors tend to agglomerate in regions where they have competitive advantages (such as specialized workforce,

resources, or infrastructure) to serve their larger market area. Traded sectors tend to serve global or national markets. Large city economies like Portland also typically have substantial employment in other traded sectors that serve statewide (or similar scale) markets, diversifying the range of products and services available in those markets.

### **Target industries in Portland**

Economic development strategies at the city, regional, and state levels identify overlapping groups of traded sector specializations that are targeted for business assistance and marketing services. Portland has a major presence in most of these target industries, as shown in Figure 36.

- [Prosper Portland](#): Athletic & outdoor; Green Cities; Metals & machinery; and Technology & media.
- [Greater Portland Inc](#): Athletic & outdoor; Clean technology; Computers & electronics; Emerging industries; Health sciences & technology; Metals & machinery; and Software & media.
- [Business Oregon](#): Advanced manufacturing; Business services; Food & beverages; Forestry & wood products; High technology; and Outdoor gear & apparel.

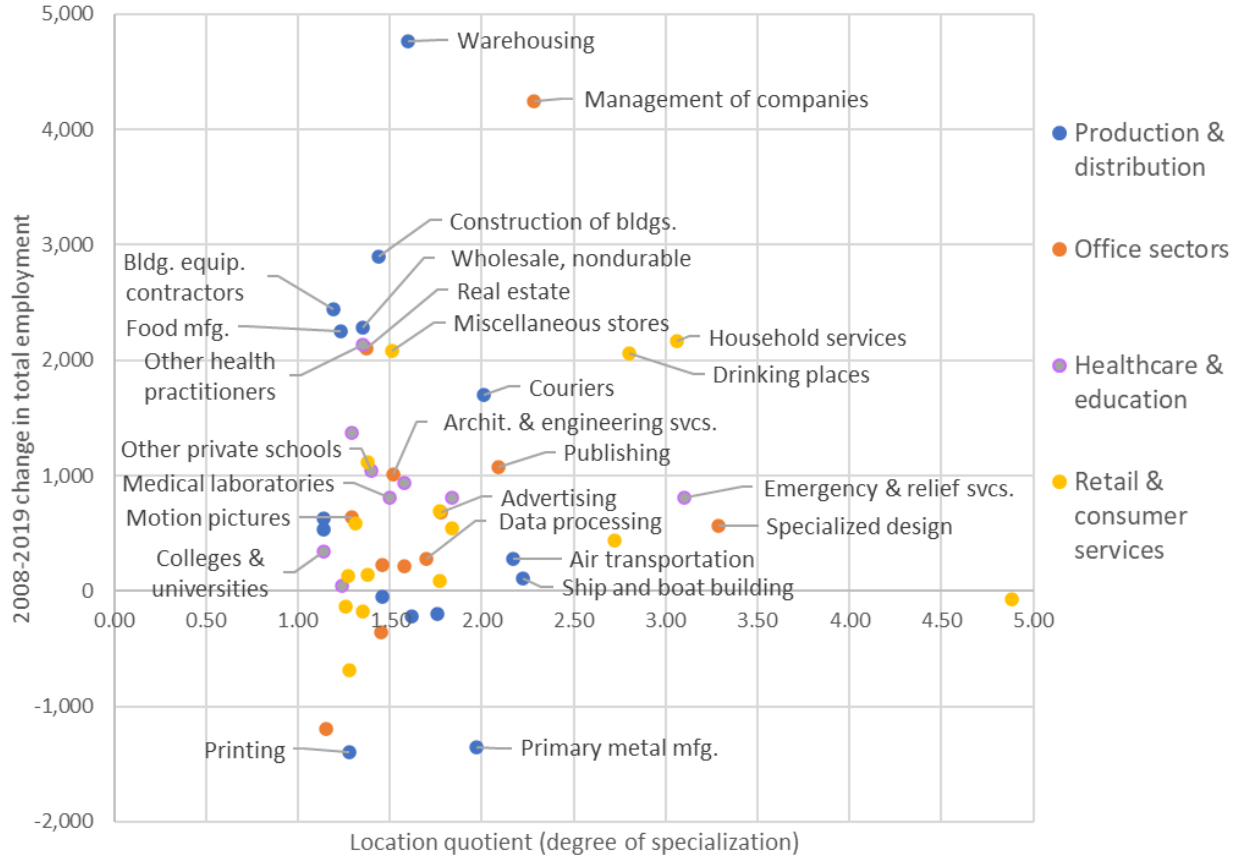
### **Exports**

Exports measure traded sector activity in global markets. The Portland-Vancouver-Hillsboro MSA (7-County Region) had \$21.1 billion of real exports in 2017, ranking 17<sup>th</sup> among U.S. metropolitan regions ([Brookings Institution, 2018](#)). Manufacturing accounted for 70% of the region's exports in 2017. Among the largest sources of the region's exports in 2017, 40% was in semiconductors and computer equipment manufacturing; 30% in other manufacturing industries; 12% was in information and technology sectors; and 6.7% was in travel and tourism.

### **Traded sectors by business district type**

In addition to state and local target industries, Portland has a variety of large-city economic specializations that are also generating some of the largest levels of local job growth, as shown in Figures 35 and 36.

Figure 35. Land types and job-growth trends of Multnomah County sector specializations



Examples of Multnomah County’s economic specializations that generated 1,000 or more new jobs in the last business cycle varied widely by market area:

- Regional markets and local tastes – household services (such as cleaning), miscellaneous (specialty) stores, drinking places, other health practitioners, and assisted living;
- State and Columbia Basin markets – warehousing and couriers, wholesale trade, building construction and contractors, real estate, and private schools;
- Global and domestic markets – management of companies, food manufacturing, publishing, architecture and engineering.

Figure 36. Multnomah County sector specializations, target industries and job growth trends

NAICS	Sector or industry	Part of a 'target industry'	2019 employment			2008-19 trend	
			Estabs.	Jobs	LQ*	Change	AAGR
<b>Production &amp; distribution</b>							
493	Warehousing		112	7,035	1.60	4,764	10.8%
236	Construction of bldgs.	Green cities	975	8,406	1.44	2,902	3.9%
2382	Bldg. equipment contractors		361	9,392	1.19	2,443	2.8%
424	Wholesale, nondurable		523	10,205	1.35	2,282	2.3%
311	Food mfg.	Food & bev.	266	7,069	1.23	2,254	3.6%
4921	Couriers		42	4,994	2.01	1,704	3.9%
312	Beverage mfg.	Food & bev.	103	1,149	1.14	631	7.5%
484	Truck transportation		328	6,134	1.14	537	0.8%
481	Air transportation		22	3,844	2.17	279	0.7%
3366	Ship and boat building	Metals & mach.	14	1,107	2.22	111	1.0%
3344	Semiconductor mfg.	High tech	22	1,916	1.46	-52	-0.2%
4231	Wholesale, motor vehicles		116	2,210	1.76	-197	-0.8%
488	Transportation support		218	4,242	1.62	-219	-0.5%
331	Primary metal mfg.	Metals & mach.	14	2,668	1.97	-1,352	-3.7%
323	Printing		130	1,907	1.28	-1,394	-4.9%
<b>Office sectors</b>							
551	Management of companies	various	358	19,284	2.28	4,243	2.3%
531	Real estate		1,473	8,141	1.37	2,102	2.8%
511	Publishing	Tech. & media	785	5,552	2.09	1,072	2.0%
5413	Archit. & engineering svcs.	Business svcs.	572	8,066	1.52	1,007	1.2%
5418	Advertising	Business svcs.	286	3,064	1.78	684	2.3%
512	Motion pictures	Tech. & media	195	1,963	1.29	639	3.6%
5414	Specialized design	Business svcs.	290	1,660	3.29	566	3.9%
518	Data processing	Tech. & media	127	2,055	1.70	276	1.3%
5619	Other office support		158	1,705	1.46	227	1.3%
5321	Auto & equip. rental		68	1,259	1.58	215	1.7%
5411	Legal services		872	5,880	1.45	-357	-0.5%
524	Insurance carriers		502	9,641	1.15	-1,194	-1.1%
<b>Healthcare &amp; education</b>							
6213	Other health practitioners		760	4,574	1.35	2,136	5.9%
6233	Assisted living facilities		323	4,326	1.29	1,369	3.5%
6116	Other private schools		250	2,247	1.40	1,039	5.8%
6232	Resid. mental health facil.		169	3,587	1.58	940	2.8%
6117	Educational support svcs.		113	1,043	1.84	814	14.8%
6242	Emergency & relief svcs.		105	1,998	3.10	813	4.9%
6215	Medical laboratories	Health sciences	43	1,487	1.50	805	7.3%
6113	Colleges & universities		67	5,032	1.14	346	0.6%
6243	Vocational rehabilitation		31	1,409	1.24	49	0.3%



Figure 36 continued

NAICS	Sector or industry	Part of a 'target industry'	2019 employment			2008-19 trend	
			Estabs.	Jobs	LQ	Change	AAGR
<b>Retail &amp; consumer services</b>							
814	Household services		3,422	3,076	3.06	2,171	11.8%
453	Miscellaneous stores		511	4,469	1.51	2,082	5.9%
7224	Drinking places		369	3,945	2.80	2,057	6.9%
7223	Special food services		210	3,532	1.38	1,122	3.5%
711	Performing arts & sports		267	3,198	1.77	692	2.2%
4541	Electronic shopping		159	1,839	1.31	585	3.5%
813	Membership assns.		1,373	9,010	1.84	540	0.6%
8133	Social advocacy orgs.		299	2,147	2.72	434	2.1%
712	Museums and parks		26	829	1.38	144	1.7%
8129	Other personal services		238	1,612	1.27	131	0.8%
8132	Grantmaking services		116	907	1.77	84	0.9%
8131	Religious organizations		495	3,430	4.88	-70	-0.2%
442	Furniture stores		192	2,077	1.26	-130	-0.6%
8123	Laundry services		69	1,382	1.35	-181	-1.1%
451	Sports & book stores		224	2,469	1.28	-691	-2.2%
* LQ (location quotient) is calculated here as the sector share of total jobs in the county divided by its share in the nation. A higher LQ means a higher degree of local specialization.							
Source: BLS calculations from QCEW data.							

### Economic multiplier impacts

In addition to the traded sector impacts of economic specializations in bringing jobs into the region that would not likely occur otherwise, traded sectors also tend to have larger 'economic multiplier' impacts on the regional economy. Multiplier impacts calculate the 'induced' economic impacts of firms with larger regional supply chains (purchases from other firms in the region) and 'indirect' impact of higher wages (consumer purchases by employees from other firms in the region). A comparison of the estimated multiplier impacts by building type are shown in Figure 37.

Figure 37. Economic multipliers by building type, City of Portland

EOA Building Type	Economic Multiplier		
	Jobs	Income	Output
General Industrial	3.15	2.50	2.15
Warehouse	2.36	1.95	1.95
Flex	2.19	2.12	1.91
Office	1.95	1.87	1.98
Institution	1.62	1.69	2.13
Retail	1.64	1.76	1.97

Source: E. D. Hovee & Company, LLC based on IMPLAN, 2013

## 8. Marine industrial land analysis

Portland's marine industrial sectors that rely on channel access to Portland Harbor have an outsize role in the economy as Oregon's largest international trade gateway. Marine industrial growth is also measured differently, reflected more in cargo tonnage trends at marine terminals than in employment and development trends. This section summarizes the conditions, trends, and forecast growth analyzed by ECONorthwest in the Marine Industrial Land Analysis report, which is Appendix 2 under separate cover.

### Summary findings

- Portland's marine industrial growth trends are mixed, constrained by land availability. Marine cargo tonnage has grown moderately since 2000, including significant declines in the last five years. Employment has been flat in the last 15 years with contractions among large employers offset by expansion in others. Output, productivity, and investment have expanded substantially.
- Users in the harbor are generally optimistic about their business outlook. Portland maintains a competitive advantage relative to other Lower Columbia industrial areas for their facilities. Positive competitiveness factors identified include transportation linkages, workforce characteristics, and a well-established industrial cluster. Downside factors include land availability, regulatory environment, and prolonged uncertainty in the Superfund Cleanup.
- The volume of marine cargo through Portland terminals is expected to grow by 70 percent under the base case scenario from 2020 to 2040. Base case growth opportunities are forecast at 110 acres of land development by 2040 for new marine terminals and 260 acres for marine production and marine services development, which would conservatively support 1,900 new on-site jobs plus an additional 3,000 regional jobs. This forecast is unconstrained by currently available land and infrastructure.

### Mixed growth trends and market shifts

- Total employment in Portland Harbor has been flat over the last 15 years, with declines in manufacturing and wholesaling offset by gains in other sectors like distribution and services. For example, the transportation, warehousing, and utilities sector added 1,397 jobs from 2003 to 2018.
- Manufacturing and wholesale sector employment losses do not tell the whole story. Within marine/harbor-dependent sectors losses have been largely the result of several large employers. Most small and medium-sized firms have exhibited healthy expansion in the business cycle (pre-pandemic).
- Marine cargo tonnage handled at Lower Columbia ports expanded by 44% from 2000 to 2018. However, this trend included a recent five-year decline in marine cargo activity and loss in market share in container, breakbulk, and other cargo types.
- Over the same period output, productivity, and investment in equipment and capital have all expanded. At least 1.7 million square feet of development has occurred in the last five years, located primarily away from the riverfront.

## Marine industrial growth outlook and competitiveness

- Users in the harbor are generally optimistic about their business outlook. Their primary concerns include encroachment of non-industrial uses, and ease of doing business in the City of Portland.
- All the marine industrial firms interviewed stated intentions to grow within their existing footprint through investment in capital, equipment, and densification. However, all firms also stated that if cost-competitive land adjacent to their existing facilities were available, they would take it. These factors indicate that intentions of growing on existing sites may be a function of supply constraints and not optimized preferences.
- The Portland Harbor maintains a competitive advantage relative to other Lower Columbia industrial areas. Positive competitiveness factors identified in marine industry interviews include transportation linkages, workforce characteristics, and a well-established industrial cluster. Downside competitiveness factors include land availability, regulatory environment, and the Superfund Cleanup.
- Uncertainty caused by the Superfund Cleanup is considered the most significant impediment to new investment in the harbor. This condition is expected to continue until mechanisms to mitigate liability risk are available. The completion of remedial design is considered a critical threshold, but it remains at least three to five years away and many cost and liability uncertainties will remain beyond this milestone. Ongoing cleanup, stigma, and remaining unresolved factors will persist well into the planning period. Moreover, the EPA and the Oregon Department of Environmental Quality (DEQ) still have not fully defined roles for addressing upland and riverbank areas, resulting in uncertainty around the extent of liability for in-water contamination associated with upland properties.
- Longer unit trains and larger vessel sizes will have the greatest impact on terminal land need and cargo markets over the planning period. Collectively these factors will require larger sites to accommodate modern terminal facilities. Internal rail upgrades including longer sidings and, over the long-term, railyard expansions may be necessary to remain competitive.
- Terminal capacity in the harbor has remained relatively flat in recent years. ECONorthwest documented three capacity changes at Canpotex (+1.25 million MT), Louis Dreyfus (-2.4 million MT) and Zenith (+0.25 million MT). With the exception of the Louis Dreyfus facility, this determination does not include idle capacity that could be reestablished quickly (for example, private capacity at EVRAZ).

## Marine industrial growth forecast and land demand to 2040

Marine terminal land need – The forecast methodology for marine terminal land demand is based on the approach used in the existing EOA (2016). This approach compares forecast tonnage growth by cargo type with existing terminal capacity. Capacity shortfalls are expected to support new terminal development. Projecting land need along a range, the low estimate assumes that some expected growth can occur through existing terminal expansion, and the high estimate assumes entirely new development at typical size thresholds.

The volume of marine cargo through Portland terminals is forecast by [BST Associates \(2020\)](#) to grow by 70 percent under the base case scenario (mid-range forecast) from 2020 to 2040. This rate of growth is not distributed proportionately across all cargo types, as shown in Figure 38. Relative to existing

capacity, increases in grain and auto cargo types have the highest likelihood of supporting additional terminal development (see Figure 39).

Figure 38. Marine terminal capacity and forecast range

Cargo Type	Estimated Capacity	2020 Cargo Volume Est.	2040 Forecast Range		
			Low	Base	High
Autos (units)	501,000	300,000	410,000	520,000	590,000
Containers (TEU)	640,000	22,500	0	58,400	67,100
Breakbulk	2,350,000	30,000	70,000	450,000	900,000
Grain	7,350,000	2,280,000	5,320,000	6,860,000	11,140,000
Dry Bulk (import)	16,700,000	1,600,000	1,690,000	2,080,000	2,310,000
Dry Bulk (export)		6,480,000	5,810,000	9,350,000	12,960,000
Liquid Bulk	8,530,000	2,460,000	2,760,000	3,090,000	3,420,000

Figure 39. Marine terminal capacity shortfall and land need

Cargo Type	Capacity % range	Terminal need likelihood	Terminal Land Need range	Estimated Land Need
Autos	82% to 118%	High	30 to 50 acres	50 acres
Containers	0% to 10%	Very Low	N/A	0 acres
Breakbulk	3% to 38%	Very Low	20 to 30 acres	0 acres
Grain	72% to 152%	Moderate	40 to 60 acres	50 acres
Dry Bulk	35% to 91%	Moderate	40 - 100 acres	0 acres
Liquid Bulk	32% to 40%	Low	20 acres	0 acres

Marine terminal land demand summary:

- Estimated growth has the potential to support between 80 and 140 acres of new marine terminal development over the planning period. This forecast is unconstrained by currently available land and infrastructure.
- Under the most optimistic growth scenario, cargo demand for dry bulk commodities could trigger a need for an additional dry bulk terminal (80 to 100 acres) as well.

Marine-Dependent Production and Services Land Need – The future trajectory of marine-dependent production and services growth in the harbor will be a function of structural economic trends, recent and planned investments, preferences and land needs of existing and potential users, the timing of resolving Superfund liability, and policy actions taken by the City. Growth opportunities are estimated in three scenarios that account for this range of market factors. This forecast is unconstrained by currently available land and infrastructure.

- Base case: Moderate Growth with Industrial Protection – This scenario reflects reconciliation of factors negatively impacting the harbor’s competitiveness, including proactive investments and policies that protect and maximize the utilization of industrial land; manufacturing expansion consistent with regional forecasts; improvement in Superfund Cleanup liability issues within 5 years and improved marketability of brownfields in the latter half of the planning period. Scenario results: 10 to 15 percent increase in marine industrial land need, equating to 215 to 325 acres of land to accommodate marine-dependent industrial users.
- Low scenario: A Declining Industrial Harbor – This scenario reflects downside risks, including one or more large employers ceasing operations in the harbor, no proactive measures to preserve

industrial land, and continuing complications and uncertainty around the Superfund Cleanup. Scenario results: net-reduction of marine-dependent industrial land need in the study area totaling 100 to 160 acres.

- High scenario: Revived Working Waterfront – This scenario reflects the most optimistic outlook, including cargo volumes and manufacturing growth that exceed base case forecasts; proactive measures to achieve Superfund Cleanup earlier in the planning cycle, releasing pent-up investment from new and existing firms; aggressive preservation and expansion of industrial land supply in the harbor by the City; tools and incentives to increase brownfield reuse; and redeveloping the former Cargill property at Terminal 4. Scenario results: a 30% increase in marine-dependent industrial land need over current levels, equating to roughly 650 acres of land demand.

### **Opportunity costs of land need outcomes**

Economic impacts – Conservative estimates of direct (on-site) jobs with the base-cast forecast from 2020 to 2040 is 1,900 new jobs, using QCEW data that undercounts jobs of longshore, rail, and trucking activity at marine sites (see Figure 71 in Appendix 1). Direct employment estimates of the low and high scenarios range from -650 to 4,250 jobs. Maritime jobs have a multiplier effect of 1.6, meaning for every job an additional 1.6 jobs are created elsewhere in the economy. Multiplier employment impacts of forecast growth are 4,940 new jobs for the base-case scenario and range from -1,690 to 11,050 job change between the low and high scenarios.

Maritime functions alone also account for over \$1 billion in annual business revenues and \$111 million in annual state and local taxes. Regional traded-sector firms rely on efficient and cost-competitive options for the receipt of inputs in their supply chains and delivery of their products to customers. An erosion of this function reduces Portland’s attractiveness to traded-sector users, which in-turn further deteriorates economic productivity in the harbor and elsewhere in the region.

Racial income equity impacts – ECONorthwest through analysis of census data found that industries in Portland harbor uniquely provide lower educated and BIPOC workers greater upward mobility, housing stability, and achievable income than other sectors of the economy on average. Nearly all non-white racial & ethnic groups earn higher median incomes in the harbor sector than outside of it, constituting a larger than expected share of income in the sector for BIPOC communities. Calculating labor utilization across land demand scenarios, the differential between the low and high land need scenario could cost access to 725 to 910 high-mobility jobs for non-white workers.

Regional substitution potential – Over the second half of the planning cycle (10 to 20 years out), the collective Lower Columbia region will become increasingly competitive from a land perspective with Longview’s Barlow Point, Vancouver’s Columbia Gateway, Columbia County’s Port Westward, and potentially Woodland’s Austin Point coming closer to reality. However, land availability is not the only factor in location decisions. Alternative locations are well-positioned to respond to market changes in the grain market. Alternative locations (Vancouver is an exception) may be less competitive to respond to growth in autos cargo, in which Portland has 70% market share on the Lower Columbia. Less substitutability is foreseen for non-terminal production and service uses. These industries have a greater reliance on other factors such as a skilled-labor pool, agglomeration of related firms, and reliance on key

anchors. For example, firms downstream from activity at the Portland Shipyard want to be in proximity to the Portland Shipyard.

## 9. Income inequality and racial equity trends

The social benefits of economic growth are unevenly distributed. Responding to inequitable growth trends and racial disparities, new policy directions in the 2035 Comprehensive Plan call for analyzing social burdens and benefits in planning decisions. This section reviews regional labor market trends in terms of social burdens and benefits, particularly considering inequitable trends and disparities.

### Summary Findings

- Three inequitable growth trends stand out as downsides of how the regional economy has grown in the last two decades: increasing income inequality, persistent racial income disparities, and declining affordability. Core land use policies contribute to these trends by supporting wage-polarized job growth and constraining middle-wage job growth.
- Increasing income inequality is occurring faster in the Portland region than other parts of the country, driven by wage-polarized job growth. The region's new job growth from 2000 to 2018 has a 'J-shaped' wage distribution, such that high-wage occupations grew by 65%, middle-wage jobs by 3%, and low-wage jobs by 36%. This job-growth trend is also mirrored in the J-shaped income distribution of the region's new households.

Increasing 'income inequality' concerns the shifting distribution of the population to haves and have-nots with a shrinking middle. The middle-wage occupations that made up 58% of regional jobs in 2000 have had minimal growth since then, while the region's above-average job growth has been concentrated in high- and low-wage occupations.
- The burdens of wage-polarized job growth fall primarily on people without bachelor's degrees and disproportionately on workers of color, who rely primarily on middle-wage jobs for upward income mobility. High-wage jobs typically require bachelor's degrees or higher, but only 44% of regional workers and 36% of BIPOC workers have bachelor's degrees.
- Middle-wage jobs support inclusive prosperity by extending mid-level wages to most (about 400,000 jobs in 2019) of the workers who don't have bachelor's degrees. Industrial occupations made up 61% of these middle-wage jobs held by people without bachelor's degrees in 2019, office support occupations made up 27%, and healthcare support 9%.

Upward-mobility wage scales (75<sup>th</sup> percentile) of high, middle, and low-wage occupations in 2019:

  - High-wage: \$90K - \$145K
  - Middle-wage: \$47K - \$82K
  - Low-wage: \$32K - \$39K
- Most U.S. regions with higher job growth rates also had healthy middle-wage job growth (0.8% average annual growth rate (AAGR) or higher from 2000 to 2018), compared to the flatter middle-wage growth in the Portland region (0.1% AAGR). The leading middle-wage occupation types in the faster growing regions were Transportation and Office Support. These faster growing occupations typically correspond to lower-density industrial and back-office land uses.
- Wage-polarized job growth is contributing to racial income disparities. The regional median income of Black, Indigenous, and Hispanic households was only 57%, 75% and 77% respectively of the median for all races in 2019 (5-year average). Job growth and land development can

reduce or increase racial income disparities. A comparison of the distribution of jobs among employment land types by wage, race, and educational attainment shows that industrial- and (to a lesser extent) office-sector jobs have higher BIPOC incomes (Black, Indigenous, and People of Color) relative to other sectors. While Portland's faster job growth in the neighborhood commercial and institutional sectors has reduced BIPOC incomes relative to other sectors.

- Declining income self-sufficiency (or affordability) is another inequitable impact of widening income inequality. Rising local prices of basic needs have outpaced the relatively flat wages of low- and middle-wage occupations. Multnomah County's share of households in need, measured by the Income Self-Sufficiency Standard, increased from 23% in 2008 to 34% in 2017. Market impacts of wage-polarized growth contribute to this trend, as concentrated local growth of high-wage jobs and high-income households puts upward pressure on local prices.
- Local land use policy directions emphasizing compact development contribute to the region's wage-polarized job growth trend, by facilitating growth in higher-density districts with a wage-polarized mix of jobs and by constraining growth in lower-density middle-wage industrial and back-office districts. In contrast, other regions such as Austin, Las Vegas, Sacramento, and Salt Lake City, all similar in size to Portland, are generating moderate to robust middle-wage job growth through mixed densities.

### **Middle-wage occupations support inclusive prosperity**

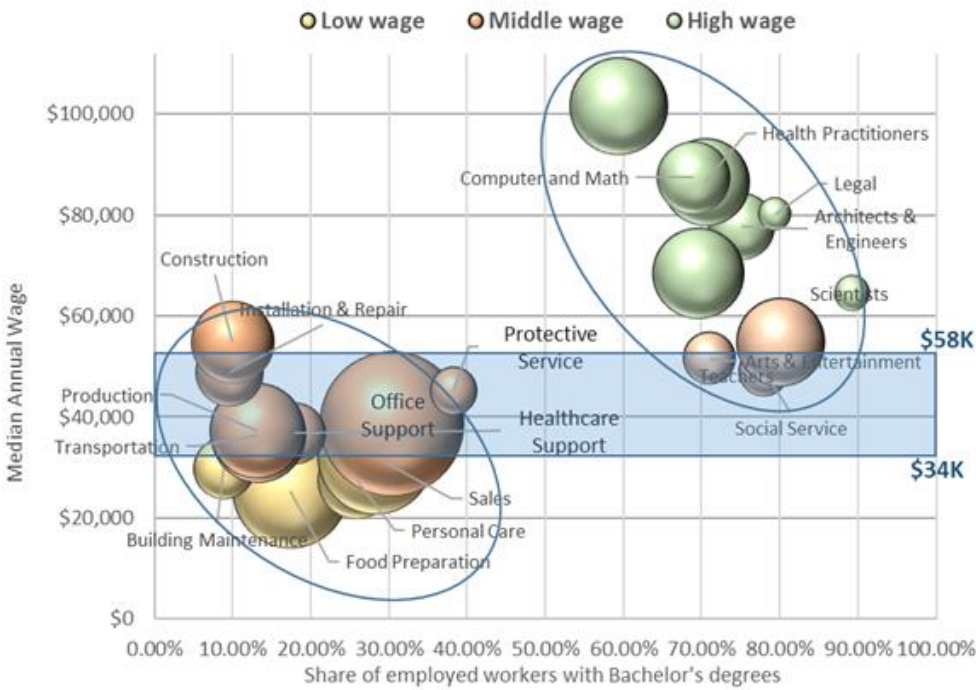
The regional labor market is bifurcated in its wage distribution (operating like two separate labor markets) by the advanced education requirements of high-wage jobs, as shown in Figure 40. High-wage occupations typically require bachelor's degrees or higher, either competitively or as an entry-level credential. However, most jobs don't require bachelor's degrees, and most workers don't have them. Nationally, 26% of all jobs are in occupations with an entry-level requirement for a bachelor's degree or higher in 2018 ([Bureau of Labor Statistics](#)). Only 44% of workers in the Portland Region and 36% of BIPOC workers have bachelor's degrees or higher (IPUMS, 2019 5-year average). For other workers with less or no college, middle-wage jobs support inclusive prosperity as a higher-paying alternative to low-wage occupations.

Figure 40 compares major occupation types in the 7-County Region by their median wages, bachelor's degree attainment, and number of jobs, distinguishing the low-, middle- and high-wage occupations. The middle-wage occupations have median wages roughly between \$35,000 and \$60,000 annually in 2018. Middle-wage occupations made up 48% of regional jobs in 2018, while low- and high-wage occupations each made up 26%.

The industrial and office support occupations make up most of the middle-wage jobs that require little or no college, and these job types typically rely on locations in industrial and back-office districts (described in Section 5 of EOA Volume 1). Industrial occupations include transportation, production (primarily manufacturing), construction, and installation. The region had 395,000 jobs in middle-wage occupations held by people without bachelor's degrees in 2019, of which 61% were in industrial

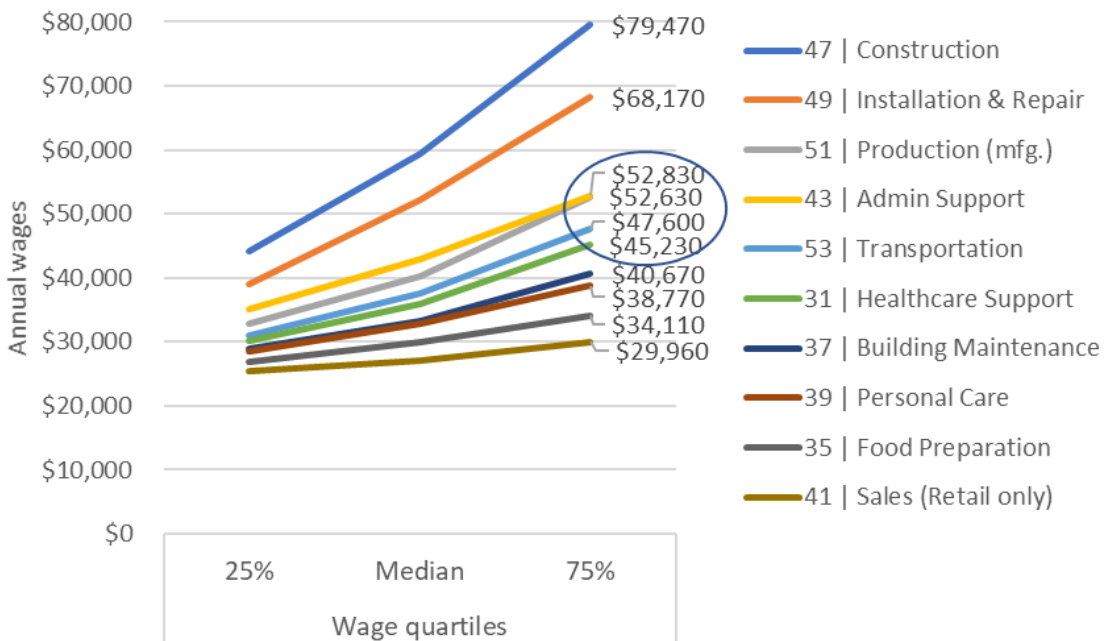


Figure 40. Occupations by median wage and bachelor's degree share, in the 7-County Region, 2018



Source: BPS from OES 2019, PUMS 2019 5-year avg. Circles scaled to number of employees.

Figure 41. Wage distribution in low- and middle-wage occupations, 7-County Region, 2020



Source: BPS from OES data

occupations (241,000 jobs); office support made up 27%; healthcare support 9%; and the rest were in other fields (see Figure 63 in Appendix 1, included at the end of this document). Industrial occupations also employed 72% of the middle-wage workers with high school degrees or less (132,000 jobs in 2019).

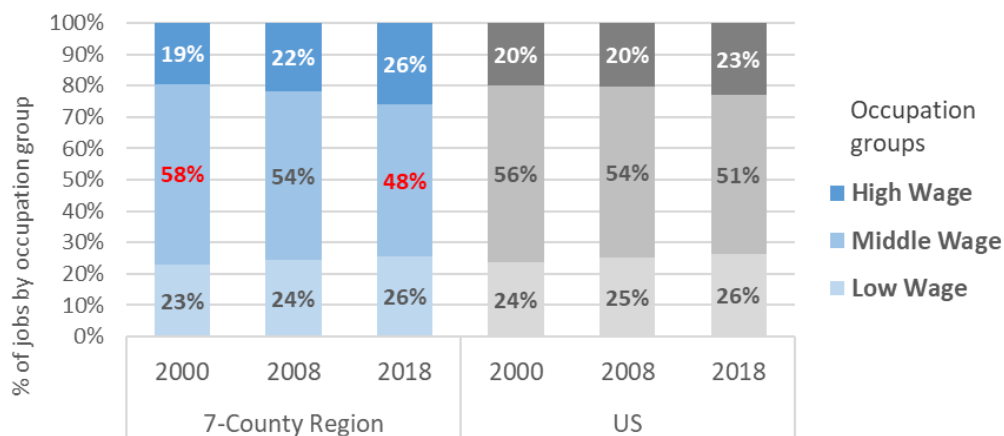
In addition to higher median pay shown in Figure 40, the overall earnings advantage of middle-wage jobs typically includes a combination of full-time work, benefits (such as health insurance and retirement accounts), and upward wage mobility over careers, which can transform working class households. The upward wage mobility potential of middle wage occupations for workers without bachelor’s degrees is estimated in Figure 41 by the 75<sup>th</sup> percentile wage, which means the starting wage of the highest paid fourth of workers in an occupation. For most (356,000 jobs in 2020) of the region’s middle-wage-occupation jobs held by workers without bachelor’s degrees, the 75<sup>th</sup> percentile wages are in the \$45,000-\$53,000 range, representing mid-level earnings potential. Regional statistics on middle-wage occupations that require less or no college are detailed in Appendix 1, Figure 64 (included at the end of this document), showing total jobs, quartile wages, and share of workers with bachelor’s degrees.

The region’s growing warehouse and distribution jobs are sometimes mistakenly characterized as low-paying jobs, but the 75<sup>th</sup> percentile wage of the region’s 98,580 jobs in the Transportation occupation in 2020 was \$47,600, grouped within the \$45,000-\$53,000 range of most middle-wage jobs. ‘Average-wage’ statistics of business sectors can contribute to this mistaken perception, being skewed upward by the highest paid job types and not accounting for educational credentials. For example, the higher ‘average wage’ of the manufacturing industry relates to its higher share of jobs in professional (white collar) occupations compared to the Transportation and Administrative Support sectors; but the 75<sup>th</sup> percentile wage of the Production occupation (essentially shopfloor manufacturing jobs) is \$52,630, comparable to most middle-wage jobs.

### Accelerated wage inequality in the Portland region

Increasing income inequality in the national economy has become a common theme of economic literature in the last two decades (Barube & Thacher, 2004; Holzer, 2009; Autor, 2010 and 2018), generally citing wage-polarized job growth around a shrinking middle. The national ‘job polarization’ trend (declining share of middle-wage jobs) is occurring faster in the Portland region (see Figure 42). The 7-County Region’s share of jobs in middle-wage occupations declined from 58% in 2000 to 48% in 2018, nearly twice as much as the national change in share from 56% to 51% in this period.

Figure 42. Job polarization in the 7-County Region, 2000-2018



Source: BPS from OES data data

National and regional job growth since 2000 has been concentrated in high- and low-wage occupations, as shown in Figure 43. Thus, the middle-income economy of previous decades is shifting to a more divided income distribution of high- and low- wage workers, driven primarily by the types of jobs that are growing. The U-shaped national trend of wage-polarized job growth shown in Figure 43 has more of a J-shaped pattern in the Portland region, reflecting faster job growth in high-wage than low-wage occupations. The J-shaped wage distribution of regional job growth is also mirrored in a J-shaped income distribution of regional household growth (net new households primarily from in-migration) between 2007 and 2017, as shown in Figure 44.

Figure 43. Wage-polarized job growth in the 7-County Region, 2000-2018

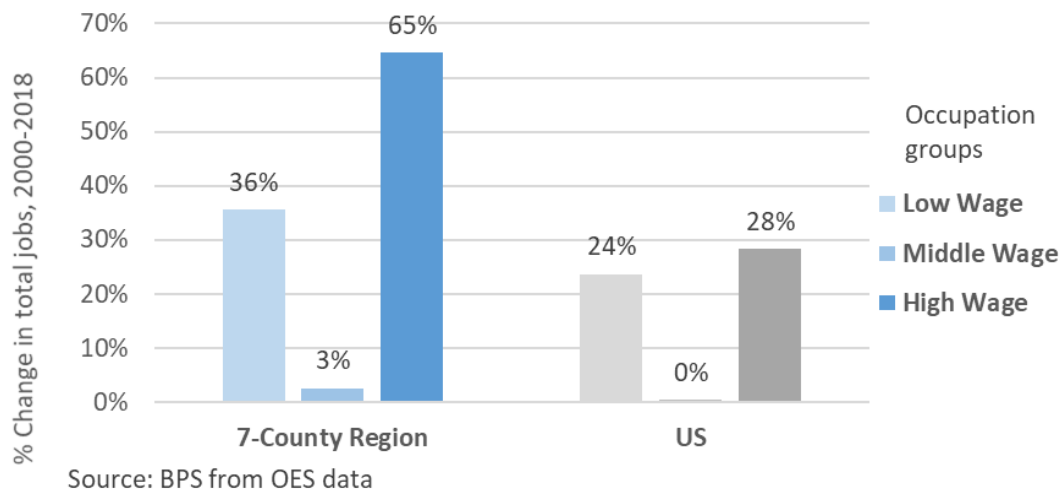
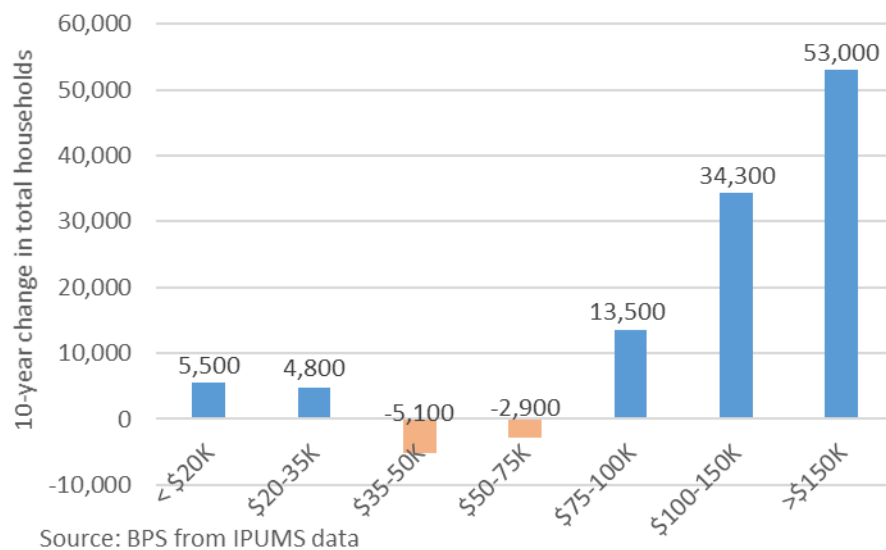


Figure 44. Income-polarized growth of new households in the 7-County Region, 2007-2017

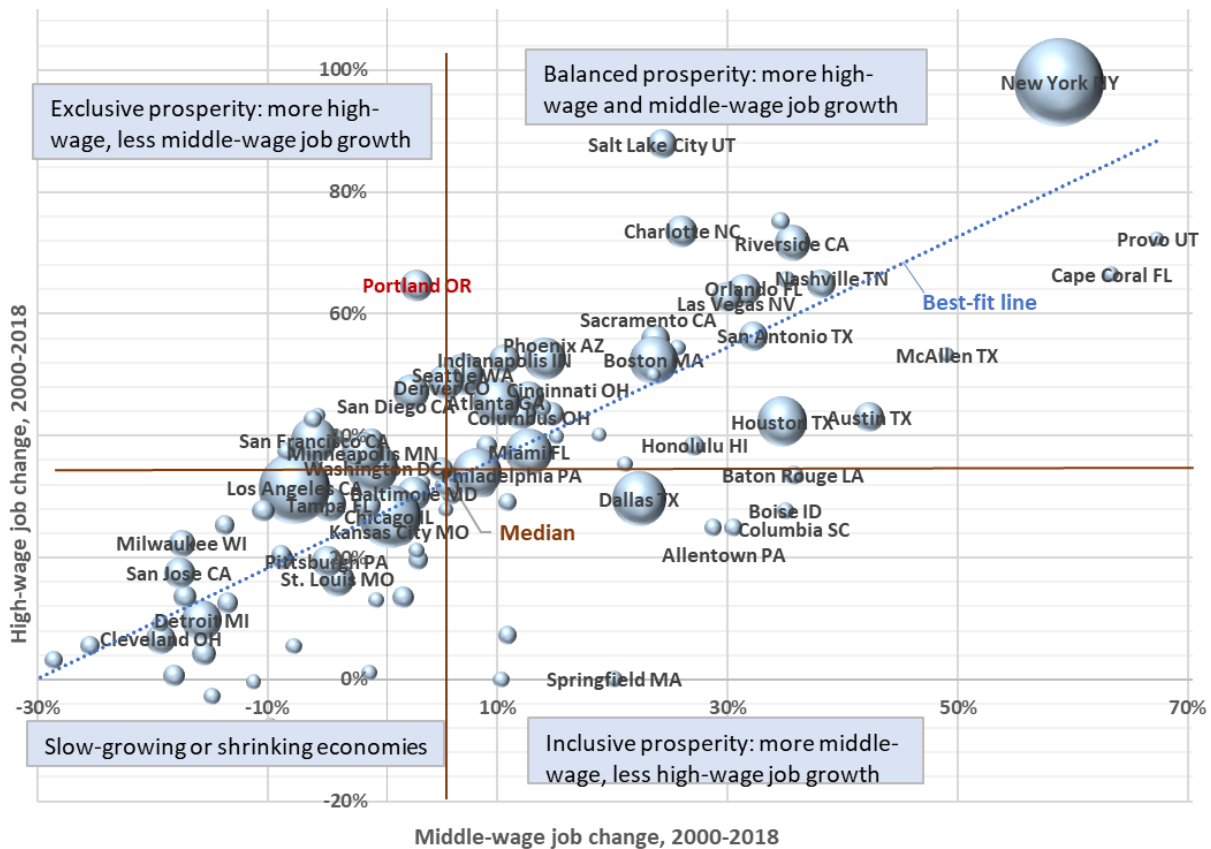


## Uneven growth in middle-wage jobs among regions

The flat national trend in middle-wage job growth over recent decades was inconsistent with the widely varying trends among metropolitan regions, as shown in Figures 45-46. Instead, the national trend was made up generally by moderate middle-wage job growth among faster growing regions and moderate decline of middle-wage jobs in shrinking and slower-growing regions. Comparing the largest 100 U.S. regions, Portland was among those with above-median job growth (0.8% average annual growth rate (AAGR) or higher) from 2000 to 2018. However, most of these faster growing regions (31 of 50) also had healthy middle-wage job growth (0.8% AAGR or higher), unlike the flatter middle-wage growth trajectory in the Portland region (0.1% AAGR).

Figure 45 compares the widely varying growth trends in high- and middle-wage occupations among the 100 largest regions from 2000 to 2018. Applying a burdens-and-benefits lens, the chart groups regions into quadrants by their inclusive prosperity benefits in middle-wage job growth relative to high-wage growth. Figure 46 compares middle-wage job growth trends among eight example regions with above-median job growth and similar size to Portland. Both charts show Portland's relatively low performance in middle-wage job growth among faster growing regions.

Figure 45. Varied middle-wage job growth among large metropolitan regions, 2000-2018



Source: BPS from OES data.

Figure 46. Middle-wage job growth variation in similar-sized growing regions, 2000-2018

	Portland	Seattle	Sacramento	Las Vegas	Salt Lake	Austin	Riverside, CA
Size rank in jobs	24	13	35	34	39	32	16
Sprawl rank (221 is highest)*	80	53	120	59	94	114	215
Percent change in jobs by occupation group, 2000-2018							
High wage	65%	50%	56%	63%	88%	43%	72%
Middle wage	3%	7%	23%	25%	24%	42%	35%
Change in middle-wage jobs by major occupation (SOC code), 2000-2018							
<b>Total middle-wage jobs change</b>	<b>14,400</b>	<b>57,180</b>	<b>86,310</b>	<b>89,040</b>	<b>96,870</b>	<b>138,950</b>	<b>211,560</b>
Less-/no-college occupations	-6,360	29,550	53,480	52,640	62,390	97,810	164,030
43   Admin Support	690	-21,650	9,750	23,100	34,670	49,850	52,360
53   Transportation	-1,880	18,820	25,220	15,790	14,640	19,210	76,870
51   Production	-24,870	-2,470	-2,990	110	640	-10,390	-13,700
47   Construction	8,550	13,720	5,250	-9,990	6,150	13,420	6,780
49   Installation & Repair	-1,620	3,320	8,940	3,820	3,150	7,030	17,900
31   Healthcare Support	10,450	13,600	7,850	9,390	5,020	10,050	11,270
33   Protective Service	2,320	4,210	-540	10,420	-1,880	8,640	12,550
Bachelor's-credential occupations	20,760	27,630	32,830	36,400	34,480	41,140	47,530
21   Community Service	4,960	3,100	8,050	4,600	6,660	5,510	13,150
25   Teachers	4,790	18,590	21,380	24,860	22,130	24,760	30,490
27   Arts & Entertainment	11,010	5,940	3,400	6,940	5,690	10,870	3,890

Source: BPS from OES data. Sprawl rank (\*) from Smart Growth America (2014).

What types of middle-wage jobs are increasing in growing regions? We reviewed the 2000-2018 job trends among middle-wage occupations in the 100 largest regions to compare impacts by occupation type.

- The leading occupations that accelerated middle-wage job growth in the faster growing regions were Transportation and Administrative Support. The larger scale of middle-wage job growth in these occupations shown among example regions in Figure 46 was typical of regions with moderate (0.8% AAGR or higher) to robust middle-wage job growth.
- Job losses in the Production (manufacturing) occupation were common among regions, but they were generally offset by larger gains in other middle-wage occupations among faster growing regions. The larger middle-wage job impact of Production job losses was in slower growing regions (such as the 45% decline of Production jobs in Los Angeles and 29% decline in San Francisco) and shrinking regions (such as the 32% decline of Production jobs in New Orleans and 37% decline in Cleveland).
- Construction and healthcare support also had positive but smaller impacts on middle-wage job impacts in the faster growing regions, as shown in Figure 46, growing at scale with the regional economies.

Has middle-wage job growth been concentrated in sprawling regions? The trend is mixed. The faster growing middle-wage occupations in transportation and admin support typically correspond to lower-density industrial and back-office land uses, but faster middle-wage job growth spanned both more sprawling and less sprawling regions. We compared sprawl ratings of regions by Smart Growth America (2014) with middle-wage job growth trends (see Figure 46), and the results varied.

- Some Western U.S. examples of regions with moderate (Portland-level) sprawl also had moderate to robust middle-wage job growth, including Austin, Las Vegas, Sacramento, and Salt Lake City. These regions indicate potential for increasing middle-wage job growth in Portland with limited sprawl impact.
- At first glance, regions with the fastest middle-wage job growth were ranked among the most sprawling (such as Riverside California, Nashville, Charlotte, and Orlando), but others like Austin are exceptions.
- Some of the most compact regions had declining middle-wage jobs (such as San Francisco and Los Angeles) while others had moderate middle-wage job growth (such as New York and Boston).

Why are some regions growing middle-wage jobs faster than others? Economists have explained widening national income inequality trends in different ways. Common explanations include automation trends that replace routine jobs ([Divorkin, 2016](#)), globalization trends that off-shore middle-wage jobs to developing nations ([Milanovik, 2016](#)), institutional differences that shape national and regional economies ([Stiglitz, 2018](#)), and others. The varying wage-inequality trends by region indicate that global factors like automation and off-shoring drive only part of the nation’s widening income inequality. Moreover, the Production (manufacturing) job losses most often attributed to automation and globalization trends had relatively small middle-wage job impact in faster growing regions.

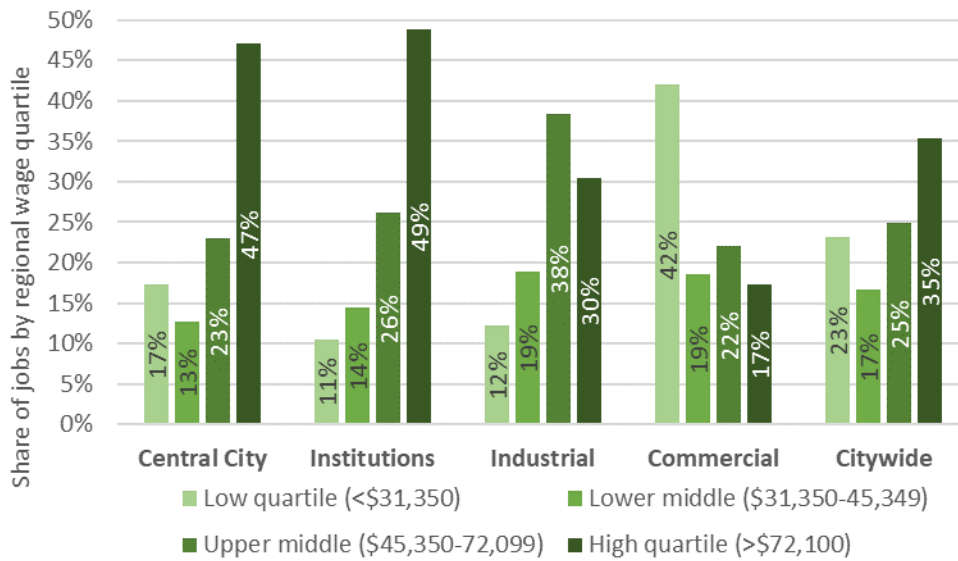
Instead, the widely varying middle-wage job growth among regions is more consistent with the policy-choice explanations of income inequality, which highlight regional policy differences that shape their economies. In particular, the larger-scale middle-wage job growth in Transportation and Administrative Support relies on adequate regional growth capacity to support these types of growth, including developable industrial and back-office land supply, career and technical education for new workers, and infrastructure to accommodate increasing freight volumes.

### **Land use policy impacts on wage-polarized job growth**

The emphasis on compact development in local and regional land use policy has likely had major impacts in accelerating Portland’s wage-polarized job growth. This is occurring in three ways. First, policy emphasis on compact development facilitates growth in higher-density, mixed-use districts that have a wage-polarized mix of jobs, while underemphasizing growth in lower-density industrial and back-office districts that support mostly middle-wage job growth, as shown below in Figures 47 and 48.

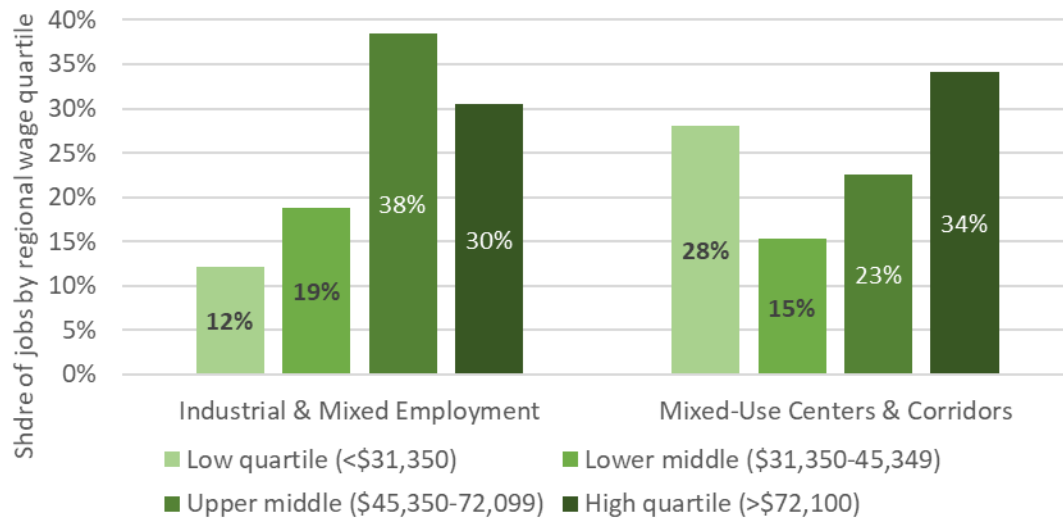
- The primarily office jobs in the Central City and the campus institutional jobs employ more high-wage workers in fields that typically require bachelor’s degrees or higher.
- Neighborhood commercial corridors employ primarily low-wage service workers in consumer service, retail, and similar jobs.
- The industrial and mixed-employment (‘back office’) areas provide primarily middle-wage jobs.

Figure 47. Wage distribution of employment geographies by MSA wage quartiles, 2019



Source: BPS from QCEW and OEWS data

Figure 48. Wage distribution of jobs in mixed-use centers and corridors, 2019



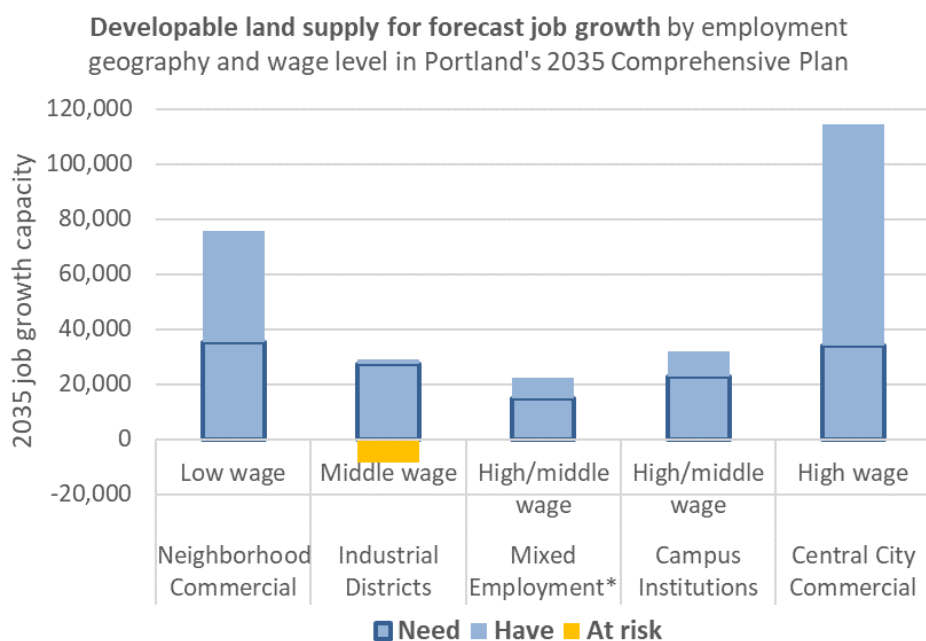
Source: BPS from QCEW and OEWS data

A second way that compact development policies increase wage-polarized job growth is that concentrated growth through redevelopment at higher density has caused major displacement of lower density industrial building space and associated middle-wage jobs in the Central City and other commercial zones, as shown in Figure 16 from Section 5 of this report. Growth through redevelopment is meeting employment land demand incompletely and has disproportionate equity costs through middle-wage job displacement in close-in locations.

A third way that land-use policy choices increase wage-polarized growth is in providing less room to grow middle wage jobs. Market opportunities to expand middle-wage job growth have been

constrained by the tighter planned growth capacity in Portland’s industrial districts and larger impacts of regulatory costs on development feasibility (shown in the trend-based brownfield and environmental discount factors in the Buildable Land Inventory) in lower-density/lower-priced industrial and back-office land uses, as shown in Figure 49. The tighter real estate market for industrial buildings in the region has increased industrial rents (see Section 5 of EOA Volume 1) faster than other building types, which makes the region less competitive for industrial development compared to other regions. In Portland, tighter industrial and mixed employment growth capacity is also an implicit policy choice of the 2035 Comprehensive Plan. Portland’s industrial and back office growth capacity grows tighter in these districts.

Figure 49. Job growth capacity and forecast demand by geography in 2035 Comprehensive Plan



\* 'At-risk' capacity addresses reliance on new investments (brownfield incentives, freight infrastructure) and proposed environmental zoning.

With tight or inadequate development capacity for industrial and back-office job growth, the default trend of focused development in higher-density, mixed-use districts will primarily accommodate wage-polarized job growth. Other regional factors can also constrain middle-wage job growth through limited access to business resources, such as career and technical education and training, reliable freight infrastructure to accommodate increasing volumes, competitive regulatory and fee environment, and economic development resources that leverage middle-wage private investment.

**BIPOC income disparities are widening, moderated by industrial and office job growth**

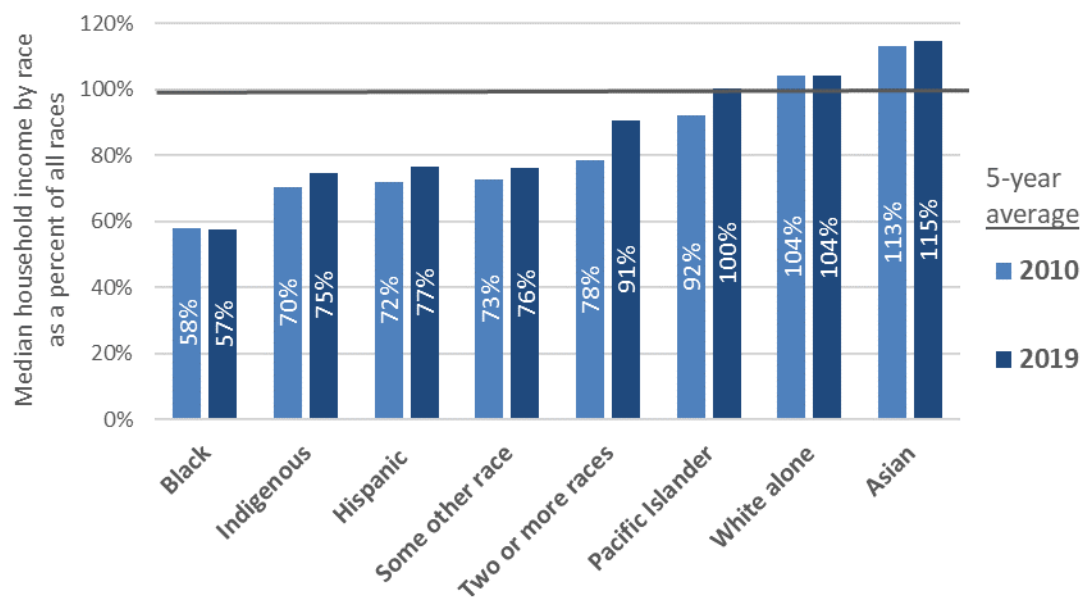
Racial income disparities are persistent inequities of the national economy, explained by a variety of socioeconomic factors that have been widely researched. The impact of labor markets on racial income disparities is the focus of analysis in this report. For example, taking educational attainment into account, a national study of occupational segregation ([Hamilton, Austin and Darity, 2011](#)) found that black men are persistently overrepresented in low-wage jobs and underrepresented in high-wage jobs, concluding that discrimination in high-wage occupations has been a long-term attribute of the labor



market. Figure 51 shows similar disparities of BIPOC underrepresentation in high-wage occupations in the Portland region. Longitudinal research of racial ‘wealth’ disparities also indicates that they are driven primarily by racial ‘income’ disparities ([Cleveland Federal Reserve Bank, 2019](#)), pointing out the importance of access to good paying jobs to broadly increase wealth.

Highlighting the impact of income-inequality trends on racial disparities, one recent study compared the effects of factors on the median family income ratio in Black and White families nationally ([Manduca, 2018](#)), which at 56% in 2016 has not improved since the 1968 Civil Rights Act. He found that the economy’s increasing income inequality disproportionately burdens people of color and is negating other racial equity gains affecting income, including rising Black educational attainment. Similar explanations of racial income disparity point out that wage disparities declined substantially between Black and White men between 1940 and 1970, during a period known for racial segregation and explicit discrimination, while the wage gap flattened out after the 1970s and increased after 2000 with the economy’s shrinking share of middle-wage jobs and unionization ([Porter, 2021](#)). The Portland region’s income inequality trends and varying occupational profiles by race, as described below, are consistent with these national trends.

Figure 50. Widening racial disparities in median household income, 7-County Region



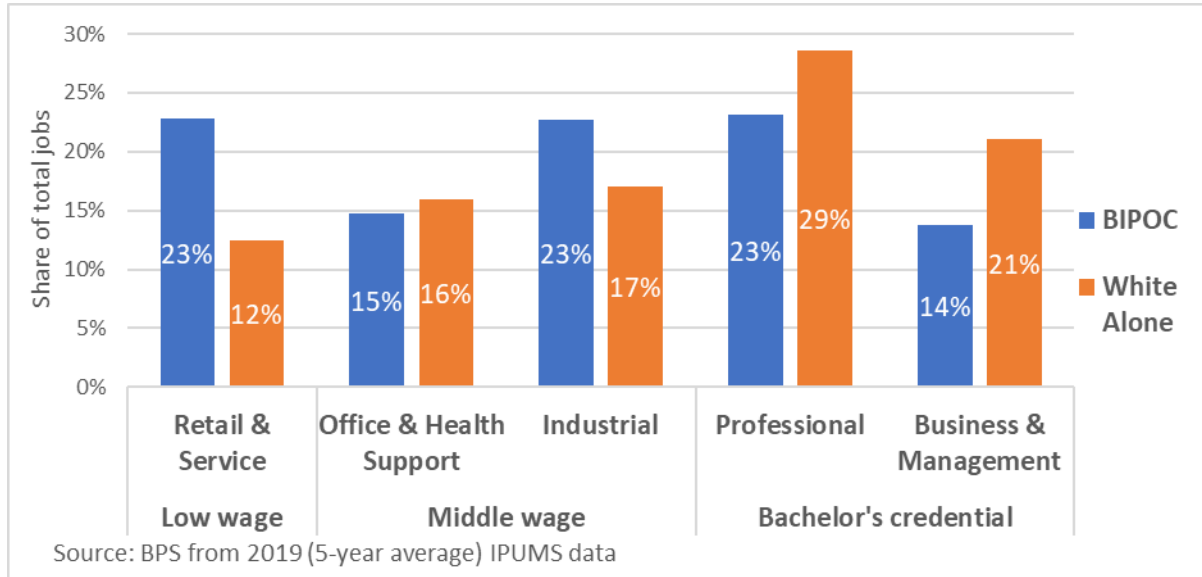
Source: BPS from ACS data. Estimated error rate exceeds 10% for Indigenous and Pacific Islander incomes.

The Portland region’s racial income disparities shown in Figure 50 point out the economy’s widely uneven economic opportunities by race. Among the region’s widest disparities, median income in Black households was 57% of the all-races median in 2019 (5-year average), 75% in indigenous households, and 77% in Hispanic households.

Widening BIPOC income disparities are consistent with the region’s occupational profile of BIPOC workers and the mix of jobs that are growing (see Figure 51). Job polarization trends result in a higher number of workers of color in the growing low-wage occupations and more white workers in the growing high-wage occupations. Middle-wage jobs are more racially balanced, and among them,

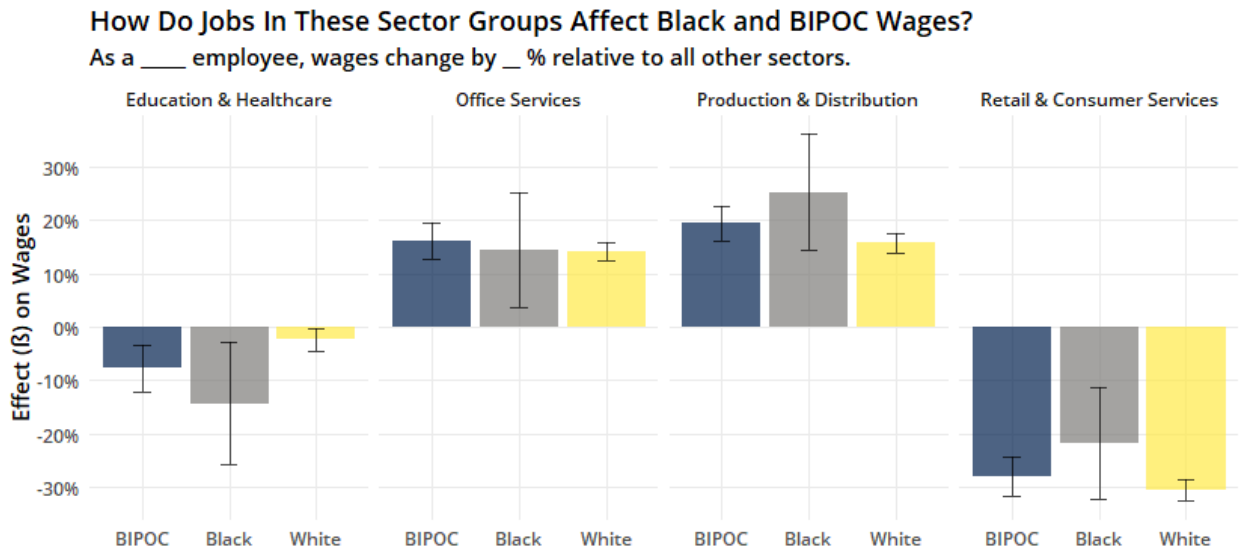
industrial jobs particularly reduce racial disparities. Only the industrial occupations among the region’s middle- and high-wage occupation groups employ proportionally more workers of color than white workers.

Figure 51. Racial employment disparities by occupation and wage groups in the 7-County Region, 2019



What types of job growth increase BIPOC incomes? Figure 52 shows that industrial and office jobs increase Black and BIPOC incomes relative to other job types. Industrial jobs also raise White incomes, but their larger effect is in raising Black and BIPOC incomes. Specifically, regional job growth in the industrial sectors (production and distribution) raises BIPOC income by 20% and Black incomes by 25% relative to all other sectors in 2018, and office jobs raise BIPOC incomes by 16%. In contrast, job growth in retail and consumer services reduces BIPOC incomes by 28% relative to all other sectors, and healthcare and education jobs reduce BIPOC incomes by 8%. Portland’s faster rates of job growth in healthcare, education, and hospitality (particularly food service) are reducing Black and BIPOC incomes overall relative to job growth in the rest of the economy.

Figure 52. Industrial and office jobs raise BIPOC incomes, 7-County Region

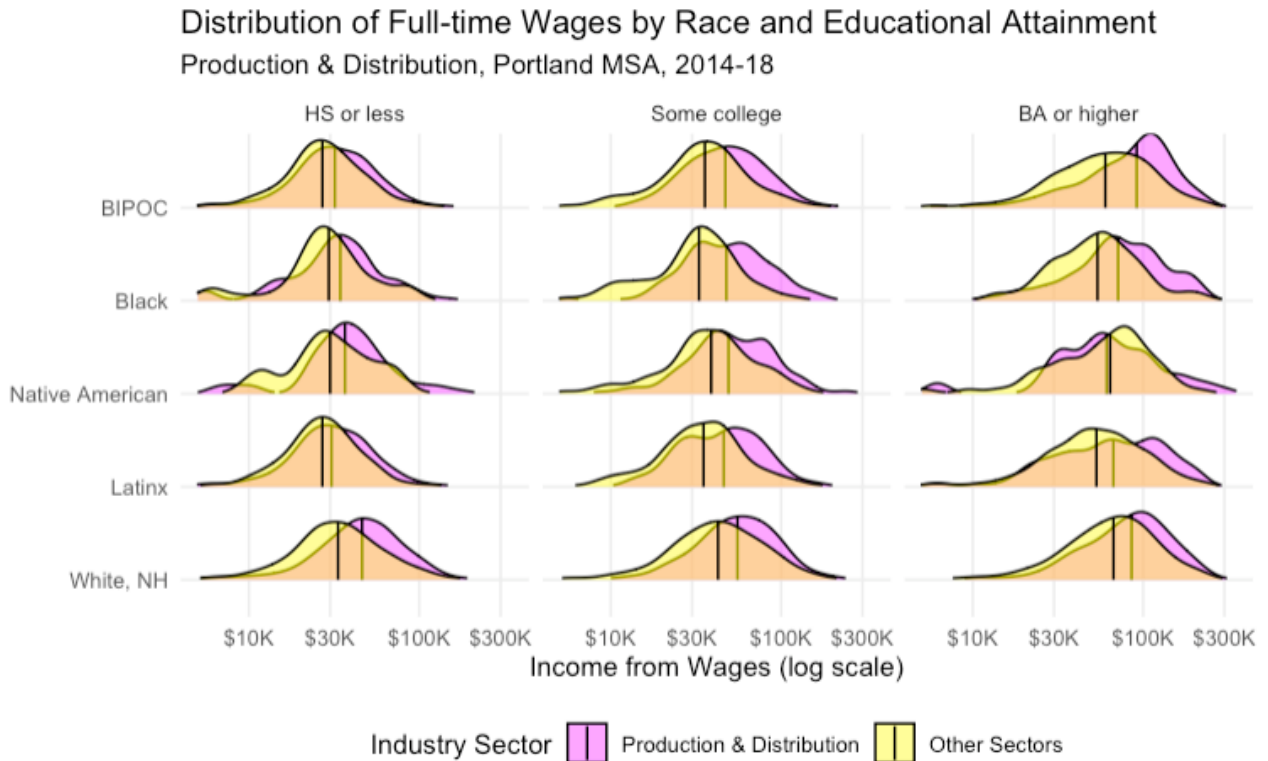


Source: University of Minnesota, IPUMS-USA; 2018 ACS 5-year estimates; Prepared by Portland Bureau of Planning & Sustainability.

Delving deeper, the income benefit of jobs that raise BIPOC incomes vary by race and education level. The analysis in Figure 52 is based on a detailed comparison of regional employment distribution by wage income, race, education, and sector types. The version of that analysis for industrial sectors is shown in Figure 53. The BIPOC income advantages of industrial jobs primarily benefit workers with some college or less, but Figure 53 shows that industrial jobs also substantially raise incomes of workers with bachelor’s degrees or higher relative to other sectors. To read this chart, the area of colors on the right that don’t overlap represent more jobs that pay higher wages. The vertical lines in the charts are medians, so medians on the right also indicate more jobs that pay higher wages. Charts like Figure 53 for the office, institutional, and consumer service sectors, along with transportation and warehousing specifically, are included in Appendix 1 (Figures 66-69).

Caution is warranted in relying on the low sample sizes of regional PUMS or ACS data by race and occupation or industry, but it is the only current employment data available by race and ethnicity for the regional labor market. We attempted to interpret the statistical reliability of these estimates and only publish those we have reasonable confidence in. However, due to small sample sizes in some race categories, care should be taken to ensure statistical significance using margins of error.

Figure 53. Wage benefits of industrial jobs by race and educational attainment, 7-County Region



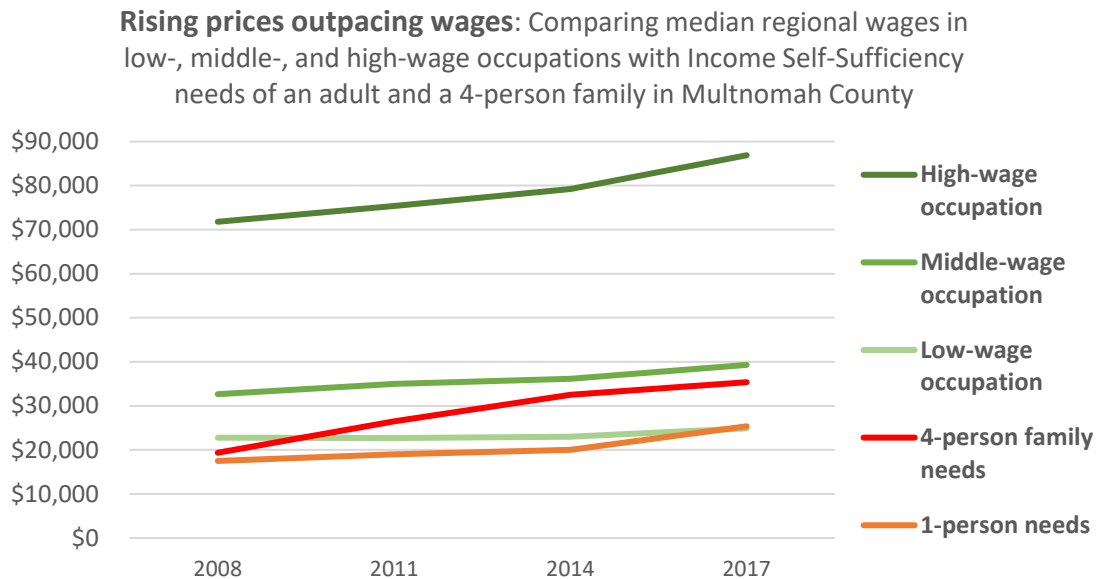
Source: University of Minnesota, IPUMS-USA; 2018 ACS 5-year estimates.  
Note: Includes only employed persons working 32 hours or greater.

### Local income self-sufficiency is declining, as rising prices outpace wages

The hardship of increasing income inequality is widely felt in the declining share of income self-sufficiency among households across the region. Income self-sufficiency is declining largely because the rising local cost-of-living is outpacing the relatively flat wages of low- and middle-wage workers, as shown in Figures 54 and 55. These charts measure local cost-of-living trends by the [Income Self-Sufficiency Standard](#) (ISS), which calculates the cost of basic needs by family type at county-level prices. In contrast to the federal measures of ‘poverty’ in Census data by food budgets and ‘low-income’ in HUD housing subsidies by housing budgets, ‘income self-sufficiency’ is a more comprehensive measure, analyzing a full range of basic needs, diverse family types, and local prices. ISS data aims to track changes in the cost of living for people who barely make ends meet, something like a working-class inflation rate, in contrast to broader inflation measures that measure all consumer spending.

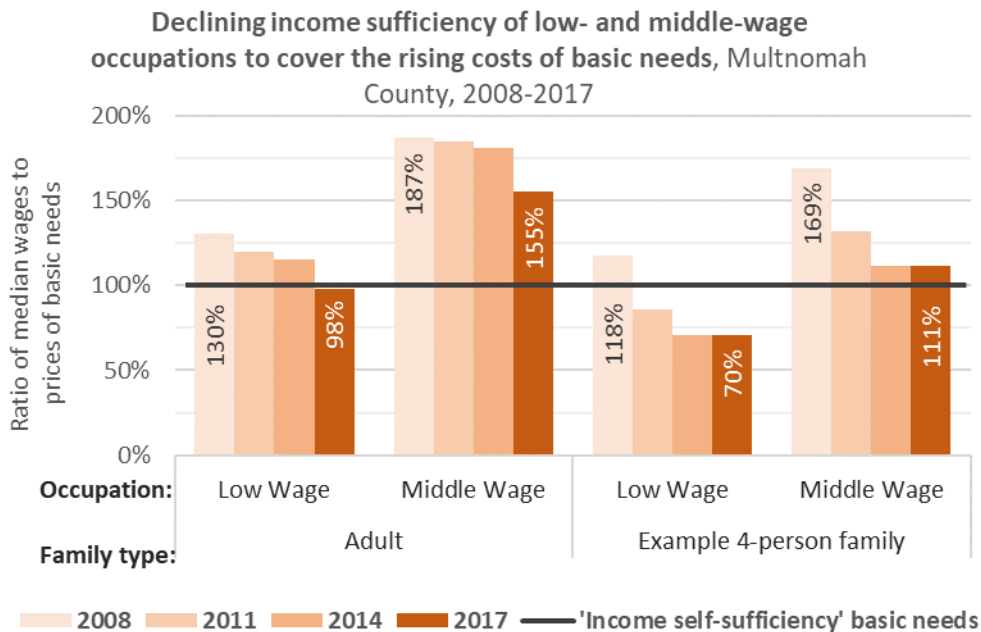
Median regional wages are compared to the rising cost-of-living trends for basic needs in Multnomah County during the last business cycle in Figures 54 and 55. In Multnomah County, ISS estimates of prices for housing, childcare, transportation, healthcare, miscellaneous household needs, and taxes all grew faster between 2008 and 2017 than the regional median wages of low- and middle-wage occupations.

Figure 54. Median-wage and cost-of-living trends, 2008-2017



Source: BPS from OES and ISS data (Pearce). Nominal \$ (not inflation adjusted). Example 4-person family: 2 working adults, preschooler and school-age child.

Figure 55. Declining real income of low- and middle-wage workers, 2008-2017



Source: BPS from OES and ISS data (Pearce). Nominal \$ (not inflation adjusted) Example 4-person family: 2 working adults, preschooler and school-age child.

Market impacts of increasing income inequality appears to be a major factor in declining local income self-sufficiency: the declining share of middle-wage jobs puts downward market pressure on wages for non-college workers, while concentrated local growth of high-wage jobs and high-income households

puts upward pressure on local prices. Figure 54 also indicates that most workers in high-wage occupations are relatively insulated from the economy's rising ISS cost pressures. The region's J-shaped wage distribution of new jobs, combining concentrated high-wage job growth and stagnant middle-wage jobs, appears to be making low- and middle-wage workers poorer, as indicated by their declining local buying power (real income) in Figure 55. More growth of high-wage jobs is widely considered a positive outcome for local job growth, but the wage distribution of new jobs is arguably a more apt measure of inclusive prosperity that clarifies who benefits.

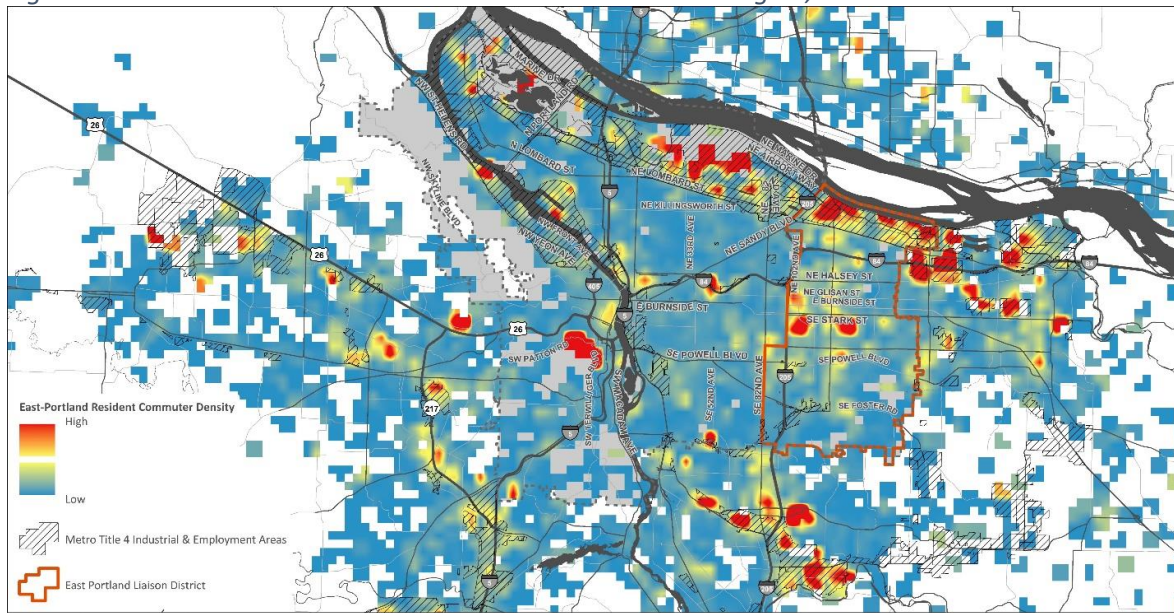
Thus, a larger share of the community is struggling financially. In Multnomah County, 34% of households were 'poor' in 2017, compared to 23% of households in 2008, measured by incomes that fall short of the Income Self-Sufficiency Standard. National research has similarly found downward wage mobility of non-college workers in large metropolitan area, called a diminishing 'urban wage premium,' reversing the historic trend that attracted the working class into large cities to get ahead ([Autor, 2018](#)).

### **Portland's working-class geographies**

Portland's industrial districts and eastern neighborhoods have become unique working-class geographies in an increasingly higher-income city. These geographies provide economic equity advantages benefiting communities of color and working-class communities. The industrial districts are the city's largest source of jobs in middle-wage occupations that require less or no college. The East Portland neighborhoods have the largest shares of low- and moderate-income households. Laborshed analysis shows the mutual benefit and interdependence of these geographies as sources of workers and jobs. 'Working class' here refers loosely to people who rely on jobs that don't require bachelor's degrees. These geographies are approximated by Portland's major industrial districts and East Portland.

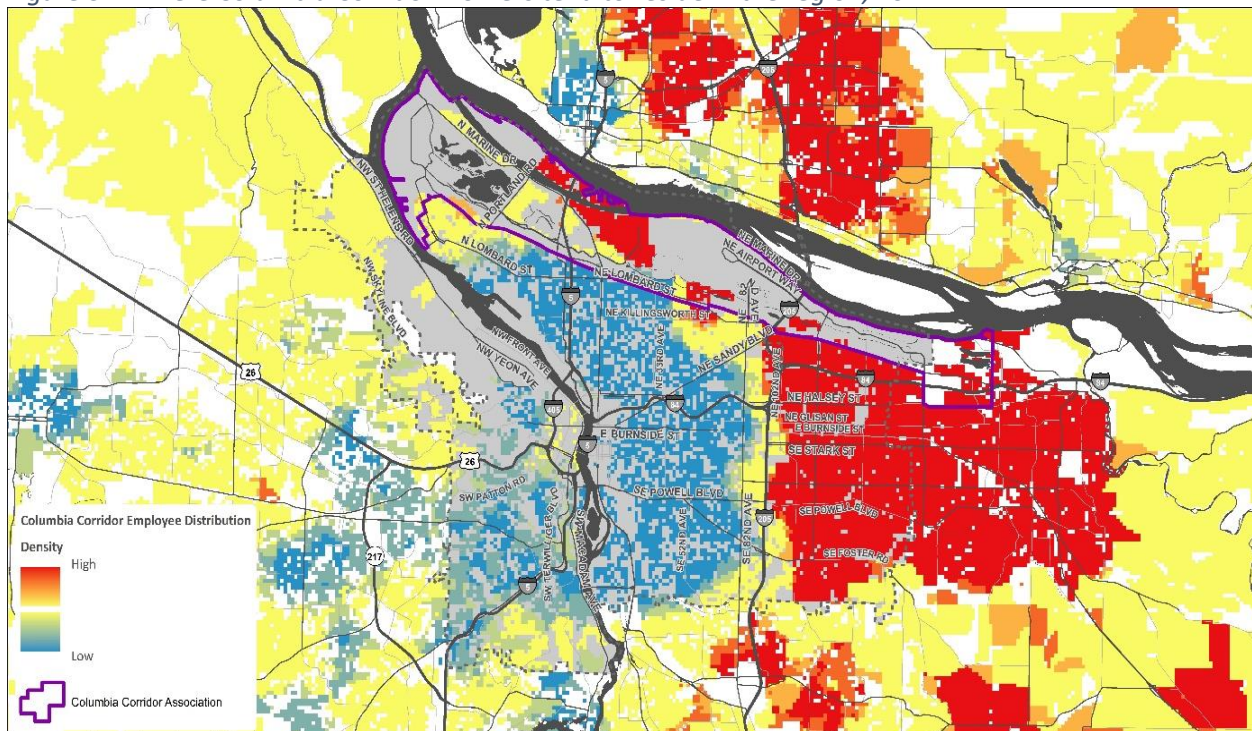
Working class laborshed benefits of middle-wage jobs – Portland's more economically vulnerable, racially diverse neighborhoods are concentrated in East Portland (see Figure 71 map in Appendix 1), as identified in updated Gentrification and Displacement Analysis citywide ([BPS, 2018](#)). The laborshed of East Portland (Figure 56), is a regional heat map showing where East Portland residents tend to work. Red areas show high concentrations of employment by East Portlanders, blue areas show relatively lower employment of East Portlanders, and yellow areas are neutral. The map shows that East Portlanders tend to work at higher concentrations in the region's industrial and 'mixed employment' (meaning generally back office and small industry) districts, which are shown by the cross-hatched areas in Figure 56, and hospitals. The nearby Columbia Corridor, Oregon's largest industrial district, stands out as providing the most significant employment benefits to East Portland neighborhoods. Most of the smaller, distributed concentrations correspond to the regional hospitals. As a regional job center, Portland's business districts generally serve the regional labor market, but individual neighborhoods benefit most from business districts across the region that match their workforce demographics, as shown in Figure 56. Working class neighborhoods benefit from industrial, back office, and hospital job growth.

Figure 56. Where East Portland residents tend to work in the region, 2014



Conversely, the residential laborshed of Columbia Corridor jobs is represented in Figure 57, which is a regional heat map showing where Columbia Corridor workers tend to reside. Columbia Corridor workers commute from working class neighborhoods around the region, including the nearby East Portland, Cully, and East Columbia neighborhoods. Varying neighborhood affordability appears to result in occupational segregation across the regional labor market, reflecting the lower commuter density of Columbia Corridor workers from Portland’s inner and westside neighborhoods.

Figure 57. Where Columbia Corridor workers tend to reside in the region, 2014



## 10. COVID recession recovery

The trend analysis in the EOA is focused on a long-term trajectory to analyze 20-year growth opportunities, rather than short-term business cycle fluctuations. However, the EOA also aims to identify and resolve gaps in the short-term land supply to support recession recovery, the next upswing, and equitable long-term growth. This section reviews regional trends in the current and recent recessions that may affect upcoming growth opportunities and equity outcomes.

### Summary findings

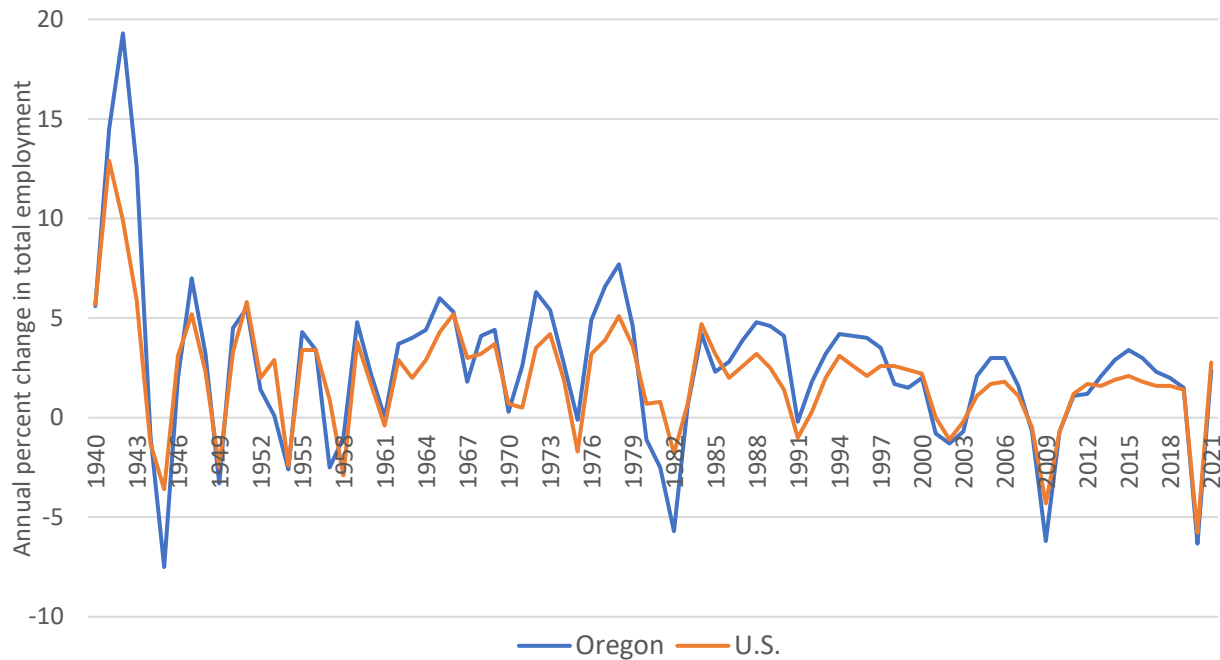
- The 2020 COVID Recession was deeper and steeper than previous recessions, both in the downswing and the recovery. The regional economy returned to full employment by September 2021. The region's peak unemployment rate of 13.1% in April 2020 had declined to 3.3% by November 2021. Extensive federal stimulus investments and COVID vaccinations contributed to the economy's rapid turnaround.
- COVID variants, supply-chain disruptions, and accelerated inflation pose lingering constraints on the next upswing. The Omicron variant delayed full recovery in the consumer service and institutional sectors, while continuing remote work in the office sectors has slowed the Central City's return to commercial vitality. Rising wages suggest expanding prosperity as the labor market tightened in 2021, but consumer prices rose even faster from with supply chain disruptions and pent-up consumer demand, such that inflation-adjusted wages declined in 2020 and 2021.
- Comparing recent recessions, the sectors most impacted have shifted. The industrial sectors had the largest employment downswings in the two previous recessions of 2001 and 2009, while consumer services, healthcare, and education had the bigger downswings in the current recession. Portland's tightening industrial land market has emerged as the primary short-term land supply issue to address in the EOA Update, both for the community to weigh in on policy trade-offs and to respond to current market opportunities. The EOA's short-term land supply consists of readily developable land (excluding brownfields, for example).
- Some COVID recession trends signal potential structural changes in business district growth going forward. Examples include reduced office space demand due to higher levels of remote work in office jobs; expanding demand for industrial space due to increased e-commerce and less industrial downsizing during the recession; and increased economic reliance on public health resilience measures, particularly in tourism, entertainment, and consumer services.

### Oregon's cyclical economy

The economy is cyclical, and national business cycles have lasted about 7-12 years since the mid-1970s, including the recessions and upswings ([NBER](#)). Oregon has an unusually cyclical economy, meaning that the national recessions and upswings have been steeper here, as shown in Figure 58. Two reasons that have been frequently cited for Oregon's cyclicity are 1) that faster rates of population growth through in-migration exposes the state to a higher share of cyclical construction activity, and 2) the higher share of durables manufacturing in the state's economic base is more cyclical.



Figure 58. Business cycles by annual employment change, Oregon and U.S.



Source: BLS from CES data

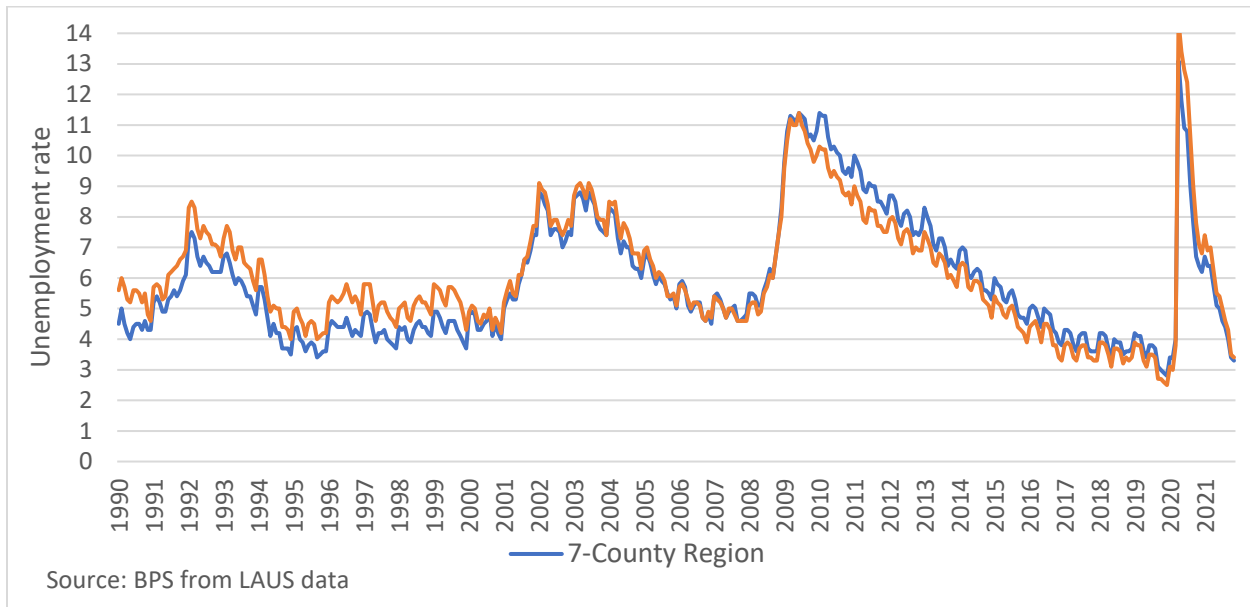
### Recessions and labor market recovery

One of ways that the 2020 COVID Recession has differed from previous recessions is in the depth and steepness of both the downswing and the recovery. The regional economy had already recovered to full employment, which is commonly pegged at 4%, by September 2021. As of November 2021 (the latest available data at this writing), the unemployment rate was 3.3% in the 7-County Region and 3.4% in the City of Portland, as shown in Figure 59.

How long recessions last depend on how they are measured. Recessions are the downswing part of the business cycle, and they are primarily tracked by GDP (gross domestic product) downturns, which have commonly lasted 6-18 months nationally since the 1930s Great Depression, [as measured by the National Bureau of Economic Research](#) (NBER). In contrast, NBER estimated the length of the COVID recession at 2 months from February to April 2020.

Employment downturns and labor market recovery from recessions typically take longer than GDP recovery. The employment downturn in the Portland region lasted 29 months in the 2001 recession and 19 months in the 2009 recession, but only 2 months in the COVID recession from February to April 2020. Even after the jobs start growing again, getting back to full employment has commonly taken several years in previous recessions. However, the region’s peak unemployment rate during COVID of 13.1% in April 2020 dropped to 4% within 18 months, an exceptional rebound. Extensive federal stimulus investments in early 2020 and 2021 have supported this expansion and reduced recession hardships, while widespread COVID vaccinations in early 2021 have helped to slow the pandemic and ease social-distancing impacts on the economy.

Figure 59. Monthly unemployment rate in Portland and the 7-County Region, 1990-2021

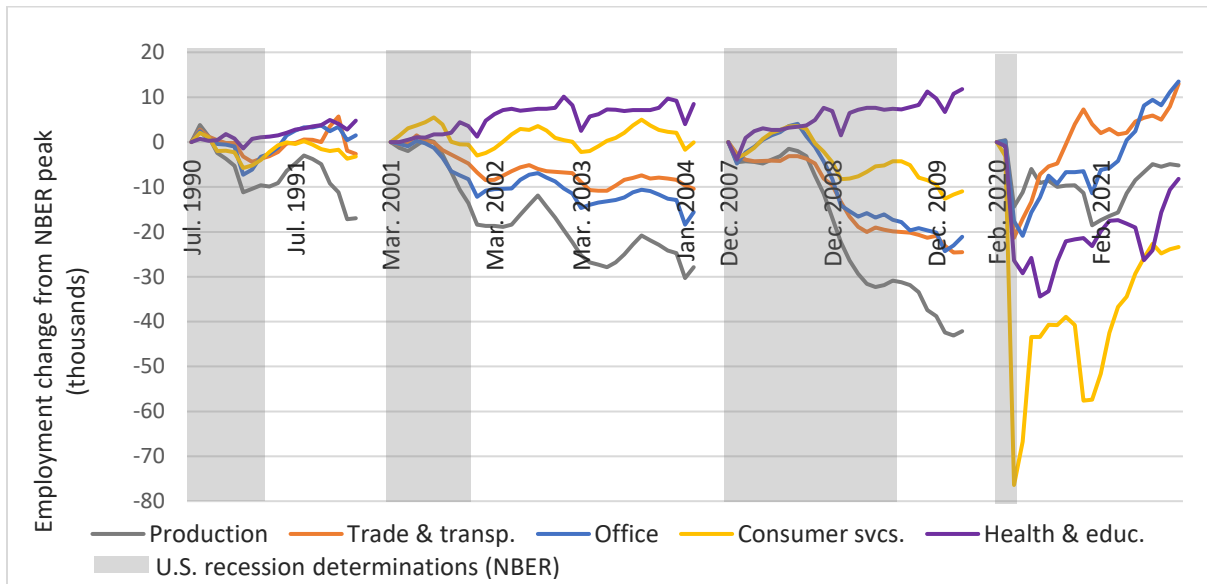


### Recessions and cyclical sectors

Recessions affect sectors of the economy differently. The region's more cyclical sectors have been particularly consistent in recent recessions, but not in the current recession, as shown in Figure 60.

- Consumer services - Job losses in the 2020 recession have been most concentrated in consumer services, including food service, accommodations, entertainment, and other personal services. In contrast, personal services were among the region's most stable sectors in the previous three recessions.
- Production - The production sectors of manufacturing and construction were the region's biggest job-loss sectors of the last three recessions. Production job losses also tended to occur later in the recent recessions. These sector trends are consistent with [economist's explanations](#) of steeper declines in industrial production and international trade during recessions, while swings in overall consumer demand tend to be more moderate.
- Healthcare and education – These institutional sectors have been generally recession-proof and continued to grow jobs through recent recessions. However, they had substantial losses in 2020, especially in childcare that is grouped with healthcare.

Figure 60. Employment change in recessions by sector group, 7-County Region



### Lingering disruptions: COVID variants, supply chains, and inflation

Despite the rapid economic and labor market recovery from the 2020 recession, a variety of COVID-related disruptions continue to have major impacts on the economy:

- COVID variants have extended the pandemic. One of the major economic impacts of lingering COVID health risks is in slowing recovery in the sectors with high social contact risks, including consumer services, hospitality and entertainment, healthcare, and education (see Figure 60). A second major economic impact of the ongoing pandemic is that most office workers continue to work remotely as of this writing, which has stalled the Central City’s recovery of retail and active-commercial vitality that comes with dense foot traffic. Reduced incidence of COVID infections and Governor Brown’s lifting of most requirements for masks and social distancing in March 2022 will optimistically reduce these lingering downturn issues in 2022.
- Supply-chain disruptions of the global pandemic have slowed recovery of economic activity by delaying producer and consumer purchases. Part of the supply-chain disruptions have come from transportation logistics congestion in delivering products. Examples include container ship congestion in the Ports of LA/Long Beach and driver shortages that rippled through the national freight transportation networks. The inability or uncertainty of manufacturers to import manufacturing inputs from China and globally has also reduced manufacturing activity and slowed recovery, affecting for example the availability of computer equipment and parts, automobiles, and construction materials.
- Rising wages in 2021 have not kept up with rising prices – Despite rising nominal wages with the tightening U.S. labor market in 2021, consumer prices rose even faster. Real wages (inflation adjusted) are estimated to have declined overall nationally by 2.4% in 2021 and by 1.2% annually since December 2019 ([Peterson Institute, 2022](#), based on BLS Employment Cost Index data). That analysis found that real wages declined in nearly all sectors since December 2019,

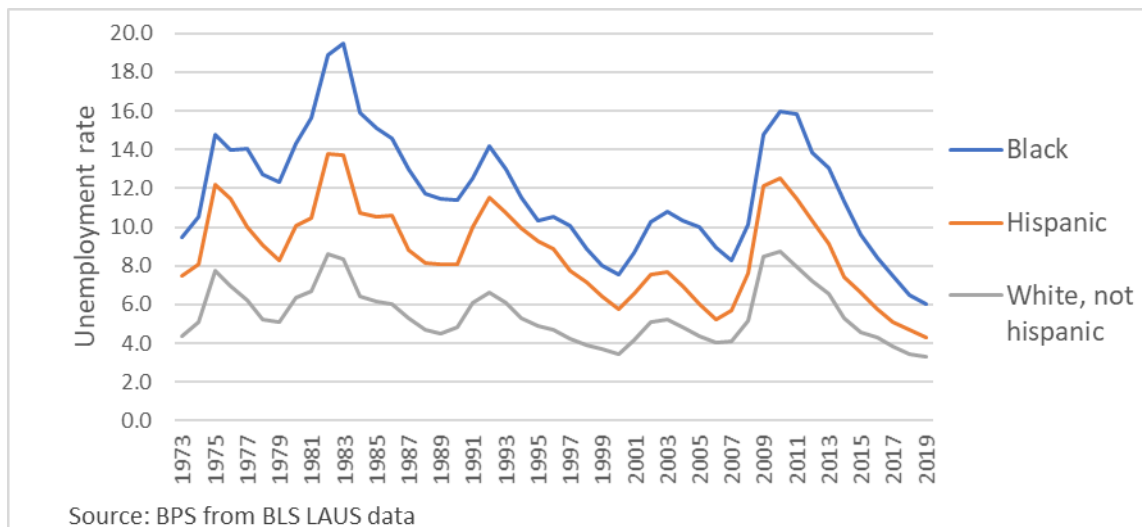
expanding only in Retail Sales and Leisure and Hospitality (low-wage sectors). Explanations of recent inflation include pent-up consumer demand during COVID, delayed product availability with supply-chain disruptions, and the tightening labor market in 2021. COVID recovery and future interest-rate adjustments by the Federal Reserve are expected to reduce inflation and labor market tightness going forward.

### Equity burdens of the recession

Recessions bring the economy’s inequitable hardships into focus.

- Recession hardships concentrated on most vulnerable – The COVID recession’s national and regional job losses have been most concentrated in the lower-wage consumer service sectors (see Figure 60), thus most impacting workers with fewer resources. These economic burdens add to the widely publicized public health disparities of the pandemic.
- Racial unemployment disparities - Typical of previous recessions, the economy’s rising unemployment rates have been persistently higher for workers of color and workers in occupations that require less or no college education. As shown in Figure 61, high unemployment during recessions in the 7-County Region over the last half century has disproportionately burdened workers of color. For example, the unemployment peak during the Great Recession was about 8% for white workers, 12% for Hispanic or Latinx workers, and 16% for Black workers.
- Extensive stimulus packages reduced inequitable burdens – The federal stimulus investments in response to the COVID recession (CARES, CAA, and ARP) far exceeded federal stimulus investments in other recent recessions. Examples included direct cash payments to families and individuals, expanded and extended unemployment insurance, and overall stimulus impacts that accelerated economic and labor market recovery.
- Less impact on middle-wage jobs and income inequality in 2020 – Another could-have-been-worse result of the COVID recession was the moderated losses of middle-wage jobs that increase incomes of workers with less or no college. In comparison, most of the regional job losses in the two previous recessions were in middle-wage (primarily industrial) occupations.

Figure 61. Racial unemployment disparities, 7-County Region



## Potential long-term economic changes to employment land demand

As of early 2022, the likely structural changes in the economy and employment real estate markets following the pandemic are speculative, and short-term trends could change quickly. The next EOA update in 5-7 years will provide a more timely opportunity to analyze COVID-related structural changes. Still, some adjustments made during the recession signal potential for long-term economic changes:

- Expanded share of remote work in office sectors – The concentration of remote work in office occupations could result in proportionally less demand for office space. A large, phased national survey found that 20% of full-time workdays will be from home after the pandemic, compared to 5% beforehand ([NBER, 2021](#)). More information is expected in 2022 on office workplace adjustments and office space demand as more office employees return to work at the office.
- Diversification and acceleration of industrial job growth – Compared to previous recessions, industrial downsizing in manufacturing and construction was moderate during COVID. This moderate downswing is likely to increase industrial job growth above the long-term trend in two ways: by starting with a higher number of jobs at the trough of the cycle; and by adapting to COVID supply-chain disruptions by expanding the regional share of supply-chain purchases. Business surveys in 2020 and 2021 on management responses to increase inventories and supply-chain resilience ([McKinsey, 2022](#)) have emphasized expansion and diversification of regional wholesaling and on-shoring production.
- E-commerce growth expected to continue – Technology improvements, consumer convenience advantages, and expanded offerings have made e-commerce growth likely to continue apace after the pandemic. The e-commerce share of national retail sales expanded steadily from 7% in 2015 to 14% in 2021 (First Quarter), and increased reliance on e-commerce during the recession with expanded innovation investments, technological improvements, and consumer convenience expectations ([Sorin Garber Associates, 2021](#)). Industrial development trends in the Columbia Corridor indicate that industrial space absorption rebounded in the 4<sup>th</sup> quarter of 2020, that 2.7 million square feet (sf) of industrial construction is underway citywide, and another 3.8 million sf is planned (Columbia Corridor Association webinar, 2021). An international investors forecast projects e-commerce sales to grow 10% annually to 2030 ([UBC, 2021](#)). Oregon Employment Department similarly forecasts robust job growth in the affected Transportation and Warehousing sector in the Tri-County Region to 1.65% average annual growth (AAGR) from 2020 to 2030.
- Public health resilience – The public health and economic costs of the pandemic are likely to prompt a variety of long-term interventions and facility design changes to improve public health resilience. COVID-19 experience suggests that the ‘contact’ sectors (consumer services, hospitality and entertainment, health care, and education) have been the most vulnerable to the spread of infectious disease and recession impacts. National research indicates that adapting firms in the ‘contact’ sectors shifting to safer products and processes had advantages that will continue long beyond the pandemic ([NBER, 2022](#)).

Recessions are a formative time for business decisions about how and where to invest in the next upswing, so strategic stimulus investments in new infrastructure, employment land supply, and workforce development to address business expansion prospects can accelerate regional recovery and the next upswing.

## 11. Economic development and interrelated policies

This section reviews the economic development policies in Portland’s Comprehensive Plan and interrelated policies that shape and benefit from local economic growth. These policies set current choices about how the community wants the population to thrive, the economy to grow, and the built environment to develop. These policies are the starting point for growth capacity choices and strategies in the EOA Update to accommodate growth to 2040.

### Summary findings

- The Portland Plan and 2035 Comprehensive Plan set three overall policy directions for economic development, calling for a diverse and growing city economy, competitive traded sectors, and equitable household prosperity. These economic priorities respond to key trends seen as shaping local prosperity and affordability in recent and coming decades: job sprawl, economic globalization, and rising income inequality of economic growth. This economic vision was integrated with other public goals addressing the city’s growth and development to 2035 in the intergovernmental *Portland Plan* (adopted in 2013) and the land use and public facility policies of the *2035 Comprehensive Plan* (acknowledged and in effect in 2018) that replaced its 1980 version.
- Industrial districts have been a leading geography to implement this economic vision, particularly to support equitable prosperity and traded sector competitiveness. As industrial growth capacity continues to tighten in Portland and the region, meeting this inclusive-prosperity vision is expected to require new strategies to optimize growth of middle-wage jobs and traded sectors.
- Portland’s Comprehensive Plan also sets a framework of interrelated land use policies that influence and benefit from economic growth, including community participation, urban form and development, housing, environmental and watershed health, and public facilities and transportation. These interrelated land-use disciplines recognize the complementarities and tradeoffs of comprehensive planning, and in combination they demonstrate compliance with Oregon’s full range of statewide planning goals.
- Looking beyond land use, a broad range of interagency policy directions and strategies also policy directions also shape and benefit from economic development, including business development, workforce development, public health and human services, and climate action. Employment land planning and development capacity are integral to the economic development roles of these other public policy disciplines.

### Economic development vision: growing, competitive, and equitable

The 1980 Comprehensive Plan advanced economic development primarily through direction addressing the city’s physical development, including an expanded Central City, a regional light rail system, industrial sanctuary zoning, and industrial annexation of Columbia South Shore. In comparison, the [Portland Plan](#) (adopted in 2013) and [2035 Comprehensive Plan](#) (adopted in 2016, acknowledged and effective in 2018) set three overall policy directions for economic development aimed at broadening community prosperity, responding to prevalent, long-term economic issues:

1. A diverse and growing city economy – This policy section of the 2035 Comprehensive Plan responded to decades of national job-sprawl trends that typically made large core cities less prosperous. This policy response instead emphasizes the scale and diversity advantages of core cities as economic centers. Examples of policies include support for growth as a diverse economic center that supports diverse population growth, fiscal stability, and economic resilience (Policies 6.1-6.5); a 25% target share of regional job growth (6.3), low-carbon and small business growth opportunities (6.6 and 6.9), and strengthened competitive advantages and business environment (6.7, 6.8, and 6.12).
2. Competitive traded sectors – This policy section responds to economic globalization trends since the 1990s that made regional prosperity more reliant on competitive advantages for traded sector growth. Example policies include support for local specializations (clusters) and traded sector diversity (6-21-6.22); an improved business environment for traded sectors (6.20), trade and freight hub investment (6.23), and traded sector land supply (6.24).
3. Equitable household prosperity – This policy section responds to the economy’s increasing income inequality in recent decades and persistent racial income disparities, calling for inclusive benefits of economic growth. Examples policies support increasing income self-sufficiency and support industrial districts as a leading source of middle-wage jobs that don’t require 4-year college degrees (6.27); more living-wage job growth in East Portland (6.28); poverty reduction (6.29); reducing racial and other income disparities (6.29), and minority- and women-owned business development (6.30).

In the Portland Plan, these core economic development directions framed interagency partnerships and strategic actions on economic and business development, workforce development, land use, ports and transportation, affordable housing, poverty reduction, and others. In the Comprehensive Plan, these core directions framed other policy sections on employment land development, business-district land use, and transportation. These comprehensive planning projects involved thousands of Portlanders in extensive community participation. The 2035 Comprehensive Plan adopted was a once-in-a-generation rewrite of Portland’s 1980 Comprehensive Plan. Citywide comprehensive plan updates are an uncommon opportunity for large cities. The EOA Update underway is expected to build on this current economic vision, extending the growth-capacity planning horizon from 2035 to 2040.

*Industrial districts have been a leading geography to implement the equitable prosperity and traded sector components of this economic vision. As industrial growth capacity tightens in Portland and the region, meeting this vision will depend on new strategies to optimize growth of middle-wage jobs and traded sectors while also meeting other city goals. Opportunities include to better integrate industrial growth and watershed/public health in industrial districts, retain and expand middle-wage jobs in other geographies, and expand industrial land regionally to meet the market’s distribution-focused demand.*

Other economic development policy sections of the 2035 Comprehensive Plan that set direction for land development citywide and across the city’s different employment geographies. These other sections show compliance with Statewide Planning Goal 9 that requires adequate growth capacity by employment land type, as explained in the [existing EOA \(2016\)](#).

Employment land development policies – These policies support adequate employment land supply and growth capacity strategies. Examples of policies include provision of adequate employment land by type

to meet forecast 20-year and short-term growth (6.13 and 6.17); overcoming financial barriers to redevelop at least 60% of brownfield acreage by 2035 (6.14); improved regulatory climate to encourage predictability and job growth (6.15); and EOA updates every 5-7 years (6.18).

#### Employment geography policies:

- *Central City policies* support job growth at pace with the region as a diverse central business district (6.33) and protection of central industrial districts while supporting their evolution into places with a broad mix of businesses and higher employment densities (6.44).
- *Industrial and employment area policies* support protection of industrial sanctuaries for primarily manufacturing and distribution uses to encourage industrial growth (6.37); long-term retention of freight-hub districts as ‘prime industrial land’ (6.38); stability of industrial and employment area types (6.38-6.43); improvement of clean, safe, and green performance in industrial districts (6.47), industrial growth capacity strategies (6.44-6.53); and provision of neighborhood buffers (6.54-6.55).
- *Expanded industrial growth-capacity* is integrated with watershed health policies, emphasizing efficient use of existing industrial land before expansion onto greenfield sites: strengthen industrial sanctuary retention through prime industrial zoning; encourage industrial intensification with strategic freight investments and supportive regulatory business climate; and concurrent implementation of watershed health and industrial capacity improvements.
- *Campus institution policies* support the stability and growth of hospital and college campuses as an employment land type (6.56-6.57) while limiting development impacts on surrounding neighborhoods (6.58-6.60).
- *Neighborhood business district policies* support their growth and vitality as a foundation of neighborhood livability and centers (6.62-6.63 and 6.73); promotion of small, independent and neighborhood-serving businesses (6.64-6.67); community economic development and prioritized commercial-revitalization investments in underserved neighborhoods (6.68 and 6.72); and limitation of commercial displacement (6.70).

#### **Other land use policies related to the economy**

Portland’s Comprehensive Plan sets a broad framework of interrelated land use policies that influence and benefit from economic development. These interrelated disciplines of land use planning highlight the complementarities and tradeoffs of comprehensive planning. In combination, these interrelated policies also demonstrate compliance with Oregon’s full range of statewide planning goals.

Community participation policies – Participation policies related to the economy promote partnerships that include businesses and workers, equity through participation, and informed involvement. Example policies support partnerships that encompass residents and businesses, employees who live in and outside the city, and other government jurisdictions (2.1); broadly defined environmental justice that equitably distributes economic/environmental/community burdens and benefits (2.3 and 2.4); and community learning (2.5-2.6) and demographic analysis (2.9) in planning and investment projects.

Urban form and development policies – These policies related to the economy promote growth and stability, equitable development, Portland’s employment land framework of business district types, and health-sensitive design. Examples of policies include concentrated commercial and residential growth in centers and corridors as complete neighborhoods, promoting stability in other employment and



residential areas (3.2 and 3.12); equitable development that mitigates impacts on income disparity and affordability (3.3 and 3.9); citywide employment diversity through specialized office, industrial, institutional, and neighborhood commercial districts (3.67) and pattern areas; and development design that supports health and safety (4.10-4.14), walkability (4.20-4.21), limited off-site impacts (4.30-4.33), resource efficiency (4.60), design with nature (4.73), and hazard resilience (4.79).

Housing policies – These policies related to the economy support a growing population and housing affordability. Examples of policies include provision of adequate housing supply by type consistent with the [Housing Needs Analysis](#) and Statewide Planning Goal 10 (5.1-5.4); mitigation of gentrification and displacement (5.15-5.16); affordable housing preservation and production (5.25-5.27), including inclusionary zoning (5.35) moderate-income workforce housing (5.38), homelessness prevention (5.46), and renter protections (5.54).

Environmental and watershed health policies – These policies related to the economy support natural resource protection that also considers economic and social impacts, resilient development, and the economic value of ecosystem services. Example policies support improving environmental quality and resilience (7.1 and 7.5-7-11); environmental equity (7.2); ecosystem services (7.3); reduction of carbon emissions (7.4); planning for natural resource protection that considers environmental/social/economic impacts, consistent with the [Natural Resources Inventory](#) and Statewide Planning Goal 5 (7.19-7.22); avoid/minimize/mitigate regulatory approaches (7.24-7.26); and watershed-specific policies.

Transportation and public facilities planning – These policies related to the economy support adequate growth capacity, transit- and freight-oriented development, prosperity considerations, and cost effectiveness. Examples of policies include support for comprehensive urban services delivery (8.1); system growth capacity and asset management (8.21-8.26); equitable, affordable service and cost effectiveness (8.22 and 8.27); public service benefits that consider economic prosperity and equity (8.31-8.32); strategized transportation planning for people movement and goods movement (9.6-9.7); balanced transportation system modes, including multimodal freight-hub goods movement that supports economic development and industrial land use (9.29-9.36); and PDX as an international hub airport (9.41-9.44).

## **Intergovernmental policies and strategies related to the economy**

A broad range of interagency public services and policy directions also shape and are influenced by the local economy. Policy plans and supportive research are reviewed here on a limited range of related topics, including economic and business development, workforce development, public health services, and climate action. Employment land planning and real estate development capacity are integral to the economic development roles of these other public policy disciplines.

Economic and business development – Prosper Portland, Greater Portland Inc., and Business Oregon provide economic and business development programs that support inclusive prosperity, target cluster support, and business retention/expansion/attraction services. Workforce development, employment land planning, and public facility planning complement these business development programs. Target cluster growth in Portland is analyzed in Section 7.

- Prosper Portland Strategic Plan – The [2015-2020 Strategic Plan](#) advanced five overall objectives and strategic actions and programs to implement them: healthy, complete neighborhoods; access to high quality employment; equitable wealth creation; 21<sup>st</sup> Century civic networks, institutions and partnerships; and effective stewardship. A [2019 Status Report](#) of the Strategic Plan summarized results. Preparation of a 3-to-5-year Economic Recovery Strategy is underway in 2021.
- Comprehensive Economic Development Strategy (CEDS) – CEDS is a regional economic development strategy. Greater Portland Inc. and Metro prepared a [May 2021 Draft](#) of the CEDS that is being reviewed for revisions and adoption later in 2021. The draft sets 2022-2026 directions to foster upward economic mobility, support a competitive economy, and build a resilient region.

Workforce development – A broad mix of school districts, community colleges and universities, training programs, agencies, and community organizations provide training and education to support a quality regional workforce, workforce growth capacity, and inclusive prosperity.

- Oregon’s 40-40-20 Goal – The Oregon legislature in 2011 adopted [this goal](#) for the state’s higher education system to improve equitable education outcomes that fill jobs across the income distribution, targeting that 40% of adults over 25 will have a 4-year degree by 2025, 40% will have a 2-year degree or certificate, and 20% will have a high school degree or equivalent. The [Higher Education Coordinating Commission](#) adopted a strategic plan and coordinated approach to meet this goal, implemented by public universities and community colleges. A similar approach could be considered for employment land planning to support equitable development capacity outcomes and middle-wage job growth. The legislature adopted a supplemental goal in 2018 specifically connecting educational outcomes to expected job growth and industry needs.
- Workforce development system – The federal [Workforce Innovation and Opportunity Act \(WIOA\)](#) funds and authorizes [Local Workforce Development Boards](#) that oversee job placement, training and other workforce development services, consistent with state WIOA plans. Oregon’s [2020-2023 WIOA Plan](#) sets program priorities for services, including career pathway approaches and sector strategies. [Worksystems Inc.](#) (WSI) implements workforce development programs in Multnomah/Washington County area. WSI’s [Local WIOA Plan](#) for 2020-2024 analyzes career

pathway strategies and identifies four ‘in demand’ sectors that are key to the local economy: tech, advanced manufacturing, healthcare, and construction.

- Career and technical education (CTE) at Portland Public Schools – The Portland School District has [expanded CTE programs](#), offering a series of courses/pathways that combine academic knowledge with technical skills and job-related experiences and help students prepare for high-demand careers.

Public health and the economy – The effects of local economic growth on public health are complex. Examples include improved health outcomes with higher incomes, urban form that promotes active lifestyles, workplace safety from injuries and illnesses, and land use compatibility of traffic and off-site impacts. Federal, state and county public health authorities analyze and set policy/program directions on a broad range of factors that affect public health.

- Public health policy – Oregon’s [2020-2024 State Health Improvement Plan](#) identifies population-wide priorities and strategies for improving public health. The plan sets an equity-focused vision and identifies five priorities that represent the most urgent health challenges: institutional bias; adversity, trauma and toxic stress; behavioral health; economic drivers of health; and access to equitable preventive health care. The [2018 Public Health Assessment](#) analyzes statewide factors affecting health outcomes.
- County health programs – Multnomah County’s operates [health programs](#) for maternal and child health services, lead poisoning, school-based health clinics, vector pest control, and WIC vouchers for nutritious foods. The County publishes [reports and data](#) on various threats and conditions that impact community health.
- Occupational injuries and illnesses – Occupational health protections are regulated by the federal Occupation Safety and Health Administration (OSHA). Sectors with the Oregon’s highest rates of private sector injuries and illnesses in the [2019 survey](#) were 4.6 per 100 full-time workers in transportation, 3.4 in retail trade, and 3.3 in agriculture and forestry, compared 2.4 in all firms combined.
- Air quality regulations – The US EPA and Oregon DEQ regulate emission technologies, fuels, and air toxic sources that impact air quality. The EPA, for example, set higher [diesel fuel standards](#) in 2006 and [diesel engine standards](#) in 2007 and 2010 to reduce harmful emissions from both on-road and non-road diesel sources by more than 90%. The [Cleaner Air Oregon](#) program adopted more stringent rules in 2018 and 2019 on air toxic emissions after communities raised concerns about their exposure to industrial sources.

Climate action and the economy –Portland’s [Climate Action Plan](#) (2015) sets out objectives and actions to reach carbon reduction targets, seeing Portland as a global leader in the transition to becoming a low-carbon community. Examples of actions related to the local economy and business districts are summarized:

- 2050 Vision – The Plan’s vision integrates directions to be prosperous, connected, healthy and resilient, and equitable. The vision concludes that, “The intertwined challenges of climate change, social inequity, economic volatility, degraded natural systems and the rising cost of living demand an integrated response that goes far beyond cutting carbon.”
- Carbon reduction target – The City and County set target goals in the Plan to reduce local carbon emissions 80 percent from 1990 levels by 2050, with an interim goal of 40 percent by 2030,

proposing an agenda of objectives and actions to reach this goal. These targets were accelerated in Portland's 2017 and 2020 Climate Resolutions to achieve 100% renewable energy by 2050 and 50% carbon emissions reduction by 2030.

- Emissions by sector – Local carbon emissions in 2013 came 37% from transportation, 24% from residential, 20% from commercial, and 18% from industrial sectors. [Progress by 2020](#) indicates that transportation emissions are increasing (falling behind on the goal), but carbon reduction in other sectors is on-track, with the fastest reduction in industrial sectors.
- Transportation and urban form – Plan objectives shaping commercial and industrial district growth include that 80% of residents live in neighborhoods with walking/bicycle access to daily needs and that efficiency of regional freight movement is improved. Example actions include new multimodal transportation funding; advocacy for growth within the existing Urban Growth Boundary; transportation demand management programs for major employers; protection of intermodal freight facilities and regionally significant industrial areas for their energy efficiency; and freight system improvements to meet increased freight demand.
- Buildings, development, and urban forest – Plan objectives shaping development include reduced energy use in pre-2010 buildings by 25%, net-zero carbon emissions in new buildings, and expanded urban forest canopy to cover 15% of the central city and industrial areas. Example actions include carbon pricing (while reducing regressive impacts and prioritizing local investments that create jobs and benefit low-income populations and communities of color); partnerships to reduce the carbon content of electricity by 3% per year; market expansion in Oregon for renewable energy; and a fossil fuel export policy.
- Technological change – Plan objectives that rely on industrial and business innovation include that 50% of energy used in buildings be from renewable resources, reduced carbon emissions of transportation fuels by 20%, and reduced carbon intensity of business supply chains.
- Climate justice and prosperity – The plan embraces social equity as a parallel priority, stating that, “Our vision for a climate-positive future cannot be achieved without advancing equitable outcomes and addressing existing disparities.” Plan objectives also embrace economic growth and family-wage job growth, clarifying that “climate action policies and programs can strengthen the local economy by driving demand for innovative products, processes and services that improve efficiency while competing favorably on price or performance.”

## 12. Community outreach

This section is forthcoming. Community outreach and meetings will be conducted to review this report as a discussion draft. This section will summarize comment themes of that community engagement process.

## 13. Glossary and methodology

This section includes a glossary of commonly used terms in the EOA and summary notes on data analysis and methodologies.

### Glossary

Average annual growth rate (AAGR) – The annual percentage change of a variable over a specific number of years. AAGR is calculated as a compounded annualized rate of growth. AAGR is used in the EOA to measure growth rates of variables such as jobs and occupied building space, to compare long-term trends over one or more business cycles, and to project growth trends forward into the EOA forecast.

Building type – a building type with distinct market demand. Commercial real estate data distinguishes multi-family residential, industrial, office and retail building types and associated subtypes.

Business Cycle - The recurring expansion and contraction of the economy. A single business cycle consists of a sequential recession and upswing.

Economic Opportunities Analysis (EOA) – Oregon cities and counties prepare EOAs to analyze existing supply and 20-year demand opportunities for developable land in different types of business districts. EOAs are adopted as supportive background documents of comprehensive plans. The required contents of EOAs are specified in Oregon’s Statewide Planning Goal 9 Administrative Rule.

Employment (or jobs) – An estimate of full- or part-time jobs with nonagricultural employers for any part of the pay period which includes the 12th of the month. Because this estimate comes from a survey of employers and is a count of jobs, persons who work for two different companies would be represented twice. Persons may receive pay from a job if they are temporarily absent due to illness, bad weather, vacation, or labor-management dispute. This estimate is based on where the jobs are located, regardless of where the workers reside

Employment geography – The combined geographic area of a specific business-district type in a city or county. Employment geographies are identified in the EOA to compare the developable land supply and demand for a business district type.

Goal 9 – Oregon’s Statewide Planning Goal 9 (the Economic Development Goal) requires cities and counties to provide an inventory to developable land to accommodate forecast job growth.

Gross Domestic Product (GDP) – GDP is an annual measure of economic output, estimated by the U.S. Bureau of Economic Analysis (BEA). GDP is expressed in the dollar price of goods and services produced. Real GDP is adjusted for inflation by BEA, which supports trend analysis over a specific time.

Income - A recurring benefit, usually measured in money, that is received by a person from labor performed or from returns on capital investments. The major elements of income are wages (including tips and bonuses), rents, interest and dividends, transfer payments, and proprietor’s withdrawals.

Income Self-Sufficiency – The Self-Sufficiency Standard defines the amount of income necessary to meet basic needs (such as housing and childcare) at county-level prices by family type without public subsidies.

Industry (or sector) – A group of private or public establishments that produce similar products or provide similar services, categorized by the North American Industrial Classification System (NAICS). A sector is a group of industries.

Industrial – A distinct segment of the economy, referring to Industrial sectors (including transportation, wholesale trade, manufacturing, construction, and utilities), Industrial buildings (including warehouse, distribution, and manufacturing), Industrial districts (primarily used by industrial sectors), and Industrial occupations (including production, transportation, construction, and installation).

Inflation - The rate of increase of prices of a set group of goods and services.

Median – A statistical measure of middle value, calculated by the midpoint of values listed in ascending or descending order.

Mean or average - A statistical measure of middle value, calculated by the ratio of the sum of all observations to the total number of observations.

Metropolitan Statistical Area (MSA) or Region (see also Portland Region) – MSAs are a geographic approximation of a regional economies. MSAs are generally defined by a regional labor market, which geographically represents a contiguous urban commute-shed where employees reside and work. MSAs are metropolitan areas designated by the federal Office of Management and Budget and commonly used in census and economic data. MSAs typically consist of urban counties surrounded by rural counties.

Occupation – A type of work. Workers are classified into occupational categories based upon the work they perform and their skills, education, training, and credentials. A collection of jobs with similar duties (for example secretary, machinist, accountant, truck driver), regardless of industry. Most occupations are found in more than one industry.

Percentile Wages – A statistical measure wage distribution, calculated by the percentage of workers in an occupation (or other group) that earn less than a given wage.

- 10th percentile: 10% of workers earn less than the stated wage and 90% earn more.
- 25th percentile: 25% of workers earn less than the stated wage and 75% earn more.
- 50th percentile: 50% of workers earn less than the stated wage and 50% earn more.
- 75th percentile: 75% of workers earn less than the stated wage and 25% earn more.
- 90th percentile: 90% of workers earn less than the stated wage and 10% earn more.

Portland Region or 7-County Region (see also Metropolitan Statistical Area) – Portland’s metropolitan region is the Portland-Vancouver-Hillsboro MSA, which represents the regional economy and labor market. The MSA includes Clackamas, Multnomah, Columbia, Washington, and Yamhill Counties in

Oregon and Clark and Skamania Counties in Washington. Businesses in the City of Portland draw workers from throughout the regional labor market.

Recession - A period of decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy.

Region (see Metropolitan Statistical Area).

Sector – A group of industries (see industry).

Traded sectors – Industries that primarily serve markets outside of the metropolitan region, also called export sectors or the region’s economic base. Metropolitan regions tend to have distinctive traded-sector specializations, which are identified by customer/supplier agglomerations in particular industries, an associated workforce with specialized skills, and competitive regional location advantages. Traded sectors are commonly prioritized in economic development efforts because they bring jobs and income into the region.

Wages (see income).

## Notes on data analysis and methodology

### General approach

- Long-term growth and market trends to inform forecasts – The State Planning Goal 9 task of land use planning for employment growth capacity commonly takes several years to implement, such as to make infrastructure improvements and overcome development constraints. Thus, we analyzed long-term trends to inform 20-year forecasts in the EOA.
- Business cycles and long-term trends – Business cycles are a recurring feature of the national and global economy that complicate trends analysis. Given the focus of EOA demand analysis on 20-year land needs, we generally analyzed peak-to-peak (or trough-to-trough) periods of recent business cycles throughout this report to estimate long-term trends. This method is intended to sidestep the short-term fluctuations of the business cycle.
- Comparing economic output, employment, real estate development trends – The pace of growth and leading growth sectors tend to vary by how growth is measured. Thus, we analyzed economic output trends by sector in Section 3, employment trends by sector in Section 4 and by business district type in Section 6, and real estate development trends in Section 5.
- Economic geographies – We reviewed growth and market trends in three primary economic geographies of interest in the EOA: the 7-County metropolitan region, City of Portland, and business district types. Local economies are generally regional, which represent both the regional labor markets and business agglomerations (specializations) that form each region’s distinctive economic base. Portland is analyzed both as the political geography of the EOA and as a distinct economic geography as a large city nationally and regional economic center. And business districts are analyzed both as a particular range of land use types (the geographic focus of State Planning Goal 9) and as distinctive districts of the regional economy. For example, Portland’s Central City is Oregon’s high-rise office center; Portland/Vancouver Harbor and



Columbia Corridor industrial districts are a West Coast trade and distribution gateway; and the Silicon Forest in Washington County is the center of Oregon’s largest traded sector in high tech.

- Economic development policy implementation trends – Portland’s Comprehensive Plan sets three core policy goals for economic development: diverse employment growth as an economic center; traded sector competitiveness, and equitable prosperity. Implementation of the first goal is analyzed throughout this report in growth and market trends. We analyzed traded sector specialization trends in Sections 7 and 8 and economic equity trends in Section 9. We further explained and reviewed implementation of these goals and related policy directions in Section 11.

### **Employment trends – Sections 2 (pages 4-7), 4 (pages 11-19), 6 (pages 33-40), and 10 (pages 68-74) methodology notes**

Employment data – Employment data was used in Section 2 to compare local and national growth trends, Section 4 to review sector growth trends, Section 6 to review employment geography trends, and Section 10 to review recession trends.

- CES and QCEW employment data – We reviewed employment trends by sector primarily through Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW) data. Both datasets are published by Oregon Employment Department and the U.S. Bureau of Labor Statistics by sector and industry (NAICS codes).
  - CES data in regional and larger geographies – Regional, state and national employment trends were reviewed by CES (also called Non-Farm) data. Advantages of CES data for these larger geographies include that it is updated monthly (generally available within 2-3 months) and because Metro uses CES data for regional forecasting. CES data is based on surveys and not available at the district, city, and county levels.
  - QCEW data in city and district geographies – QCEW data enables annual-average employment and wage analysis in small geographies, such as districts. QCEW is also a more comprehensive data source, as a quarterly census of employers covered by state unemployment insurance programs, rather than a random sampled survey. However, QCEW data has some uncovered exceptions (such as railroads), and it is published annually (through the ES202 Program) rather than monthly.
- Peak to peak trends and exceptions – While we generally compared long-term trends between business cycle employment peaks (including 1990, 2000, 2008, and 2019), QCEW data on business locations in Portland has been considered less reliable for trend analysis before 2002, because of location methodology changes of employers in previous years. As a result, we typically compared employment change from 2002, rather than the 2000 business-cycle peak. However, jobs in Multnomah County are a reasonable approximation of Portland jobs for longer-term trends. Portland made up 89% of countywide jobs in 2019 (QCEW data), 88% in 2008, and 86% in 2002.
- Land-use sector groups – We generally reviewed employment trends through land-use sector groups that represent different business district types, including office, industrial, institutional, and consumer service (or retail related) sector groups. The breakdown of land-use sector groups is clarified in Figure 12.

### **Economic output (real GDP) – Section 3 (pages 8-10) methodology notes**

- Economic output – GDP measures the annual value of the final goods and services produced, or economic output. GDP is a comprehensive measure of the economy and its growth. The U.S. Bureau of Economic Analysis (BEA) publishes annual data on local GDP for the 7-County MSA and Multnomah County, but not the City of Portland. BEA suppressed the region’s GDP data in a variety of sectors, but Multnomah County data is more complete (see Figure 60 in Appendix 1).
- Real GDP – BEA calculates ‘real GDP’ as an inflation-adjusted measure in chained 2012 dollars. Real GDP estimates by year make economic output suitable for trends analysis, such that a higher GDP in 2012 dollars represents a proportionally larger economy.

### **Real estate development and occupancy – Section 5 (pages 20-32) methodology notes**

- CoStar data – Real estate market trends are reviewed in this section by total occupied building space, new construction (new building deliveries), building vacancy rates, and lease prices (adjusted for inflation), using private CoStar data. CoStar is a major international source of ‘commercial real estate’ data, which refers to leasable space rather than commercial business occupants. CoStar data excludes single-family housing and some unleased government and other institutional facilities. A glossary of commercial real estate terms used in CoStar data is [here](#).
- Permit data – BPS also analyzed real estate development trends at a site-by-site scale using permit data from the Bureau of Development Services. Permit data will primarily be used in EOA Volume 2 for land supply analysis in the Buildable Land Inventory, identifying sites likely to redevelop and the effect of various development constraints based on trends in the last business cycle.

### **Employment geographies – Section 6 (pages 33-40) methodology notes**

- Adopted 2016 EOA geographies – The boundaries of employment geographies reviewed for conditions and trends in this report are based primarily on the current EOA map adopted in 2016. These boundaries generally reflect the land use designations of the Comprehensive Plan map in place when the trends were occurring, except that various map changes were made in the Dispersed Employment geography adopted in the 2035 Comprehensive Plan.
- Commercial market areas – Proposed employment geography changes are explained in Section 6. The primary change is that the urban design boundaries of the Commercial geographies in the 2016 EOA (Gateway Regional Center, Town Centers, and Neighborhood Commercial) were revised in this report to Inner, Middle, and Outer Commercial employment geographies, as explained in Section 5. This change was made to better distinguish their contrasting market conditions and to apply consistent boundaries in multifamily residential trends analysis.

### **Traded sector specializations and location quotients – Section 7 (pages 41-45) methodology notes**

The 2035 Comprehensive Plan sets traded sector competitiveness as one of three core policy goals for economic development. To gauge local performance on this goal, Section 7 analyzes regional export activity and county job growth in local industry specializations. Additionally, Section 8 analyzes marine industrial growth trends in Portland and other Lower Columbia ports as a West Coast export gateway.

- Export activity – International export income is reviewed as an annual measure of traded sector activity. Brookings Institution analysis of export income is cited in Section 7 because it includes both export services and products, while federal export data is focused on exported products.
- Target industries – Prosper Portland, Greater Portland Inc., and Business Oregon provide business assistance services for target industries that are major examples of our traded sector specializations (also called clusters). These industries represent city, regional, and state priorities for limited business assistance resources. Target industries with substantial representation in Portland from all three lists are identified in Section 7.
- Location quotient analysis – We also used location quotient analysis in Section 7 to identify local industry specializations that extend beyond target industries, particularly those generating substantial job growth. The location quotients of a given business sector is calculated by its share of regional jobs (or other smaller geography) divided by its share of national jobs (or other larger geography). While ‘local sectors’ that primarily serve local consumers tend to be evenly distributed, traded sectors are unevenly distributed and agglomerate where they have competitive advantages. The local specializations identified in Figures 36 and 37 are based primarily on location quotients exceeding 1.2, which have a 20% larger share of jobs in Multnomah County than the U.S. A few sectors that have location quotients above 1.1 and more than 5,000 jobs in the county are also included as specializations.

**Marine industrial growth and market trends – Section 8 (pages 46-50 and Appendix 2)  
methodology notes**

- Factors influencing marine industrial land demand – ECONorthwest analyzed a variety of growth and market trends that affect demand for marine-dependent industrial land in Portland Harbor. That work is presented in Appendix 2 as a separate report and is summarized in Section 8. The analysis was based on six research papers on the following topics, which are included in Appendix 2 as separate appendices:
  - Economic Shifts in the Portland Harbor: An Evaluation of Employment, Wages, and Investment in the Study Area and Data Sources;
  - Impacts of Changes in Marine Terminal Design and Land Needs on Portland Harbor Competitiveness;
  - Assessment of Marine Industrial Competitiveness among Lower Columbia Ports (including marine industry interviews);
  - Analysis of the Portland Harbor Superfund Site Impact on Marine Industrial Land;
  - Assessment of the Economic Function of the Marine Industry on the Regional Economy;
  - Race and Educational Equity in Harbor-Dependent Sectors of the Portland Economy.
- Three types of marine industrial land analyzed – ECONorthwest analyzed marine industrial land demand in three separate categories: marine terminals; marine/harbor-dependent production (such as manufacturing and construction facilities that need dock access); and marine service users (such as barge lines and various vessel services). Marine/harbor-dependent users are those that require direct or indirect river access or are integrally reliant on location within the harbor (for example, container repair services). Trends were also examined in a larger study area that includes the harbor industrial districts extending eastward to I-5.

## Income inequality and racial equity trends – Section 9 (pages 51-67) methodology notes

New policy directions in the 2035 Comprehensive Plan emphasize equitable outcomes and call for analyzing social burdens and benefits in planning decisions. The Comprehensive Plan also sets equitable prosperity as one of three core policy goals for economic development. To gauge local performance on these goals, we analyzed the outcomes of city and regional job growth trends in three areas: income inequality, racial income disparities, and declining affordability.

Income inequality and wage-polarized job growth:

- Tracking job growth by wage distribution and educational attainment – Wage trends in an industry or geography are conventionally tracked by ‘average’ or ‘median’ measures, despite predominant wage-polarization trends for decades that compromise their middle-oriented meaning. Moreover, the Portland region’s rising ‘median’ income is sometimes mistakenly seen as an indicator of inclusive prosperity, even though it instead reflects widening income inequality with concentrated growth near the top of the income distribution (which moves the median upward). Additionally, the region’s concentrated job growth trends in high-wage occupations tend to require bachelor’s degrees or higher, so they are not accessible to most workers. In order to track the income-inequality impacts of job growth and working-class accessibility of new jobs by workers without bachelor’s degrees, we combined regional occupation data (OES) that tracks the wage distribution of job-growth and regional census data (PUMS) on educational attainment by occupation. We also used occupation data on the quartile wage-distribution of low- and middle-wage jobs to estimate the upward wage mobility potential of occupations for workers without bachelor’s degrees.
- Job polarization trends – Growing income inequality has become a widely analyzed national and international trend. The methodology used in Figures 40-42 to identify middle-wage jobs by occupation types and job polarization trends is based on previous national and statewide studies ([Abel and Dietz, Federal Reserve Bank of NY, 2012](#); [Lehner, 2013](#)). Occupation trends are reviewed from 2000 to 2018 in this section, rather than 2019, because of major SOC occupation classification changes in 2019 among middle- and low-wage occupations.
- Middle-wage job growth among regions – The same job-polarization analysis used in Figures 40-42 was also applied to the 100 largest metropolitan areas (MSAs) nationally, to compare the Portland Region’s trends in middle-wage job growth with the widely varying performance among similar regions nationally in Figures 45-46.
- Income inequality of population growth – We similarly reviewed the income distribution of net new households (see Figure 44) added in the last business cycle from regional census data (PUMS) to compare with the wage distribution of job-growth trends. The income-distribution values of households were adjusted for inflation to support trend analysis.
- Impacts of job growth by business district type on income inequality – Wage-distribution data by occupation is not available for district geographies. In order to estimate the wage-distribution impacts of business-district growth trends, we used two data sources. QCEW employment data on the employment and average wage by establishment was used to estimate the wage-distribution of jobs in EOA employment geographies within regional wage quartiles (based on OES occupation data for all industries) in that year. Given the limitations of this method for very large employers, recently available OEWS data in 2020 for Oregon was used to estimate the

wage distribution of jobs in the Campus Institutional geography of hospitals and colleges. The wage-distribution results by business district type appear to be generally consistent with the wage distribution of comparable occupation types.

- Regional labor markets – Regional labor market data also has the advantage of representing the employees of Portland businesses and the jobs of Portland residents better than city data. In order to track the equity benefits of employment in serving East Portland residents, we used LEHD laborshed data to prepare a heat map of where East Portland residents are most likely to work. Since the highest concentration found was in the Columbia Corridor industrial district, we also prepared a heat map of where Columbia Corridor employers are most likely to work. The two maps indicate the labor market interrelationship of these two geographies.

#### Persistent racial income disparities

- Regional income disparities by race and ethnicity – Disparities of median household income by race are estimated in Figure 50 for the 7-County Region from ACS Census data in 2010 and 2019 (5-year averages). The results indicate that the region’s widest racial income disparity in Black households did not improve in the last economic upswing. The results do show major increases in Indigenous and Pacific Islander incomes, but caution is warranted in interpreting these results because of the low sample sizes (and higher margins of error) of the data on these two racial groups.
- BIPOC underrepresentation in high-wage occupations – The occupational makeup of BIPOC and White Alone racial groups was compared in Figure 51, in order to gauge potential BIPOC underrepresentation in high-wage occupations found in national research.
- Impacts of job growth by land-use sector type on racial income disparities – The effect on BIPOC incomes of jobs and job growth in particular land-use sector groups relative to the rest of the economy is estimated in Figure 62. This analysis is based on the region’s distribution of jobs by sector, race, educational attainment, and wage in 2018 (5-year average) based on PUMS Census data, as shown in Figures 53 and 66-69. Caution is warranted in relying on the low sample sizes of regional PUMS or ACS data by race and occupation or industry, but it is the only current employment data available by race and ethnicity for the regional labor market. We are generally confident in the results of the combined BIPOC category but more cautious about the low sample size results of available data on the Indigenous (Native American) residents.

#### Declining affordability and income self-sufficiency

- Advantages of the Income Self-Sufficiency Standard (ISS) – The ISS measures the adequacy of income to cover a full-range of basic needs by county level prices and family type. ISS is widely used among states, and it is the primary metric set for equitable household prosperity in the Portland Plan. It is a more comprehensive measure of need than the federal poverty rates that are based on food budgets, particularly in growing metropolitan regions with faster increases in local cost of living.
- Declining buying power (real wages) in low- and middle-wage occupations – National research has recognized the economy’s relatively flat median wages in recent decades adjusted for inflation by the Consumer Price Index. In Figure 55, we inflation-adjusted regional median wages in low- and middle-wage occupations based on Multnomah County ISS analysis, which is more like a working-class inflation rate, covering basic needs for people on a bare-bones budget.

The results indicate substantial declines in real wages of workers in in low-/middle-wage jobs living in Multnomah County and ISS prices were found to be even higher in Washington and Clackamas Counties.

## Appendix 1. Various tables and charts

Figure 62. Real GDP trends in 2012 dollars by sector in Multnomah County

NAICS	Sector	2019 Countywide GDP (\$000)			2008-2019 Change (\$000)			Average annual growth rate (AAGR)			
		Total	% of County	County % of MSA	Change in County	Change in MSA	Capture rate	County		MSA	
								2008-2019	2001-2019	2008-2019	2001-2019
<b>Countywide Total</b>		<b>63,193,837</b>	<b>100%</b>	<b>40%</b>	<b>14,703,159</b>	40,153,857	37%	<b>2.4%</b>	<b>1.9%</b>	2.7%	3.3%
<b>Industrial sectors</b>		<b>14,622,869</b>	<b>23%</b>	<b>29%</b>	<b>1,788,557</b>	(D)	(D)	<b>1.2%</b>	<b>1.1%</b>	(D)	<b>0.2%</b>
31-33	Manufacturing	4,725,154	7%	17%	866,264	8,015,386	11%	1.9%	2.6%	3.2%	6.7%
	Durable goods	3,224,373	5%	13%	751,823	(D)	(D)	2.4%	3.5%	(D)	(D)
	Nondurable goods	1,509,061	2%	42%	138,579	(D)	(D)	0.9%	0.7%	(D)	(D)
48-49	Transp. & Warehousing	2,987,110	5%	67%	644,661	(D)	(D)	2.2%	2.4%	(D)	(D)
42	Wholesale Trade	4,015,855	6%	38%	61,551	(D)	(D)	0.1%	0.2%	(D)	(D)
23	Construction	2,291,795	4%	36%	120,119	803,101	15%	0.5%	-0.2%	1.2%	(D)
22	Utilities	358,950	1%	50%	-27,953	65,671	-43%	-0.7%	0.1%	0.9%	(D)
11-21	Agriculture & Mining	235,725	0%	18%	99,777	-234,141	-43%	5.1%	-2.1%	-1.5%	(D)
<b>Office sectors</b>		<b>35,905,033</b>	<b>57%</b>	<b>(D)</b>	<b>10,295,547</b>	(D)	(D)	<b>3.1%</b>	<b>2.2%</b>	(D)	(D)
54	Professional Services	6,665,168	11%	(D)	2,681,756	(D)	(D)	4.8%	3.7%	(D)	(D)
53	Real estate & rental	9,058,934	14%	41%	2,779,952	6,713,454	41%	3.4%	2.0%	3.3%	(D)
52	Finance & insurance	3,647,418	6%	53%	909,228	1,713,213	53%	2.6%	1.2%	2.6%	(D)
55	Management	2,656,860	4%	(D)	837,261	(D)	(D)	3.5%	1.1%	(D)	(D)
56	Administrative Support	1,646,298	3%	37%	320,219	1,183,214	27%	2.0%	2.0%	2.9%	(D)
51	Information	3,922,354	6%	(D)	1,580,861	(D)	(D)	4.8%	4.9%	(D)	(D)
92	Government	8,308,001	13%	55%	1,186,270	1,807,571	66%	1.4%	1.2%	1.2%	1.2%
<b>Institutional sectors</b>		<b>5,995,613</b>	<b>9%</b>	<b>46%</b>	<b>1,209,057</b>	<b>3,043,200</b>	<b>40%</b>	<b>2.1%</b>	<b>2.8%</b>	<b>2.5%</b>	<b>3.4%</b>
62	Healthcare & Social Asst.	5,218,380	8%	(D)	1,133,304	(D)	(D)	2.3%	2.9%	(D)	(D)
61	Education	789,232	1%	(D)	93,323	(D)	(D)	1.2%	2.0%	(D)	(D)
<b>Retail &amp; Consumer Services</b>		<b>6,894,705</b>	<b>11%</b>	<b>(D)</b>	<b>1,632,240</b>	(D)	(D)	<b>2.5%</b>	<b>1.6%</b>	(D)	(D)
44-45	Retail	2,661,982	4%	36%	525,871	1,673,038	31%	2.0%	1.3%	2.3%	1.8%
72	Accommodation & Food	2,039,147	3%	48%	629,606	1,408,636	45%	3.4%	2.6%	3.7%	2.9%
81	Other Services	1,281,731	2%	(D)	14,337	(D)	(D)	0.1%	0.2%	(D)	(D)
71	Arts & Entertainment	911,845	1%	(D)	462,426	(D)	(D)	6.6%	3.0%	(D)	(D)

Source: BPS from BEA data of Real GDP (inflation adjusted) in chained 2012 dollars. The (D) notation means that BEA suppressed the data.

Figure 63. Regional growth trends in occupied building space by type and geography

Building types by area	2019			2008-2019 Change			
	Total	% of area	% of MSA	SF change	% of area	AAGR	% of MSA
<b>Central City</b>	<b>72,178,853</b>	<b>100%</b>	<b>11.3%</b>	<b>6,419,811</b>	<b>100%</b>	<b>0.9%</b>	<b>8.8%</b>
Multi-family	15,900,866	22%	8.0%	8,025,442	125%	6.6%	23.6%
Industrial	7,938,972	11%	3.9%	-1,561,339	-24%	-1.6%	-8.0%
Office	31,033,800	43%	31.0%	744,356	12%	0.2%	8.7%
Flex	871,558	1%	4.0%	364,696	6%	5.1%	8.2%
Retail	16,433,657	23%	14.0%	-1,153,345	-18%	-0.6%	-17.6%
<b>Portland Industrial</b>	<b>78,232,368</b>	<b>100%</b>	<b>12.3%</b>	<b>7,594,435</b>	<b>100%</b>	<b>0.9%</b>	<b>10.4%</b>
Industrial	69,145,982	88%	35.0%	6,623,143	87%	0.9%	19.5%
Office	4,982,642	6%	2.5%	791,132	10%	1.6%	4.1%
Flex	1,722,605	2%	1.7%	90,919	1%	0.5%	1.1%
Retail	2,294,894	3%	10.5%	82,520	1%	0.3%	1.9%
Multi-family	86,246	0%	0.1%	6,721	0%	0.7%	0.1%
<b>Other City Geographies</b>	<b>89,361,286</b>	<b>100%</b>	<b>14.0%</b>	<b>11,432,617</b>	<b>100%</b>	<b>1.3%</b>	<b>15.7%</b>
Multi-family	48,958,866	55%	24.8%	9,169,471	80%	1.9%	27.0%
Industrial	5,348,020	6%	2.7%	-384,953	-3%	-0.6%	-2.0%
Office	14,545,647	16%	14.5%	1,017,748	9%	0.7%	11.9%
Flex	980,563	1%	4.5%	-101,996	-1%	-0.9%	-2.3%
Retail	19,528,192	22%	16.6%	1,732,346	15%	0.8%	26.4%
<b>Portland</b>	<b>239,772,507</b>	<b>100%</b>	<b>37.6%</b>	<b>25,446,863</b>	<b>100%</b>	<b>1.0%</b>	<b>34.9%</b>
Multi-family	64,945,977	27%	32.9%	17,201,634	68%	2.8%	50.7%
Industrial	82,432,973	34%	41.0%	4,676,852	18%	0.5%	24.1%
Office	50,562,088	21%	50.5%	2,553,236	10%	0.5%	29.8%
Flex	3,574,726	1%	16.4%	353,620	1%	1.0%	7.9%
Retail	38,256,743	16%	32.6%	661,521	3%	0.2%	10.1%
<b>MSA</b>	<b>637,964,446</b>	<b>100%</b>	<b>100.0%</b>	<b>72,957,589</b>	<b>100%</b>	<b>1.1%</b>	<b>100.0%</b>
Multi-family	197,619,788	31%	100.0%	33,935,994	47%	1.7%	100.0%
Industrial	201,057,876	32%	100.0%	19,422,474	27%	0.9%	100.0%
Office	100,050,493	16%	100.0%	8,581,085	12%	0.8%	100.0%
Flex	21,773,365	3%	100.0%	4,452,853	6%	2.1%	100.0%
Retail	117,462,924	18%	100.0%	6,565,184	9%	0.5%	100.0%
<b>Rest of MSA</b>	<b>398,191,939</b>	<b>100%</b>	<b>62.4%</b>	<b>47,510,726</b>	<b>-3043%</b>	<b>1.2%</b>	<b>65.1%</b>
Multi-family	132,673,811	33%	67.1%	16,734,360	-1072%	1.2%	49.3%
Industrial	118,624,903	30%	59.0%	14,745,623	-944%	1.2%	75.9%
Office	49,488,405	12%	49.5%	6,027,848	-386%	1.2%	70.2%
Flex	18,198,640	5%	83.6%	4,099,233	-263%	2.3%	92.1%
Retail	79,206,181	20%	67.4%	5,903,663	-378%	0.7%	89.9%

Source: BPS by CoStar data. 'Portland Industrial' in this data includes the Columbia Corridor and harbor districts.



Figure 64. Quartile wages in less-/no-college occupations, 7-County MSA, 2019

Employment and wages in occupations that typically do not require bachelor's degrees, 7-County Region, 2019									
	Total jobs, 2019 (OES)	Annual wage quartiles (OES)			Educational attainment (IPUMS)			Middle-wage jobs, no bachelor's	
		25th Percentile	Median	75th Percentile	HS or less	Some college	Bachelor's or higher	Jobs	Share
<b>Total, all occupations</b>	<b>1,209,420</b>	<b>31,350</b>	<b>45,350</b>	<b>72,100</b>	<b>23%</b>	<b>32%</b>	<b>44%</b>		
<b>Middle-wage occupations</b>	<b>568,450</b>							<b>394,755</b>	<b>100%</b>
<b>Industrial occupations</b>	<b>273,770</b>							<b>240,870</b>	<b>61%</b>
Transportation	98,070	28,800	35,910	47,210	49%	37%	13%	85,033	22%
Production	77,430	30,980	38,760	51,190	49%	38%	13%	67,225	17%
Construction	58,190	41,620	57,540	77,310	51%	39%	10%	52,367	13%
Installation & Repair	40,080	37,340	50,340	64,920	39%	51%	10%	36,245	9%
<b>Office &amp; health support</b>	<b>294,680</b>							<b>153,884</b>	<b>39%</b>
Office Support	153,550	33,650	41,080	51,400	24%	46%	30%	106,886	27%
Healthcare Support	42,840	28,360	34,020	43,960	29%	53%	18%	35,145	9%
Protective Service	19,200	29,510	45,860	79,150	18%	44%	38%	11,853	3%
<b>Low-wage occupations</b>	<b>388,950</b>								
Sales	111,950	26,780	33,840	53,900	24%	37%	39%		
Retail Sales	54,890	25,355	27,822	32,061	32%	40%	28%		
Food Preparation	112,720	25,200	27,760	32,450	45%	38%	17%		
Building Maintenance	30,280	26,760	31,820	39,420	61%	31%	9%		
Personal Care	32,770	26,410	31,300	37,600	32%	42%	26%		
Farming	3,830	25,680	29,330	36,370	80%	12%	8%		

Source: Employment from OES 2019 data. Education from IPUMS 2019 5-year average data.

Figure 65. Industrial sectors with employment reduction in commercial geographies, 2008-2019

NAICS Code	Sector	Central City Commercial	Central City Industrial	Inner Commercial	Middle/Outer Commercial	Total
32-33	Durables Manufacturing	-614	-331	-223	-123	-1,291
42, 48-49	Wholesale, Transp.	-537	-1,102	-295	-37	-1,971
Combined losses		-1,151	-1,433	-518	-160	-3,262

Source: BPS from QCEW data

Figure 66. Reliance on middle-wage, less-/no-college occupations by race, 7-County Region, 2019

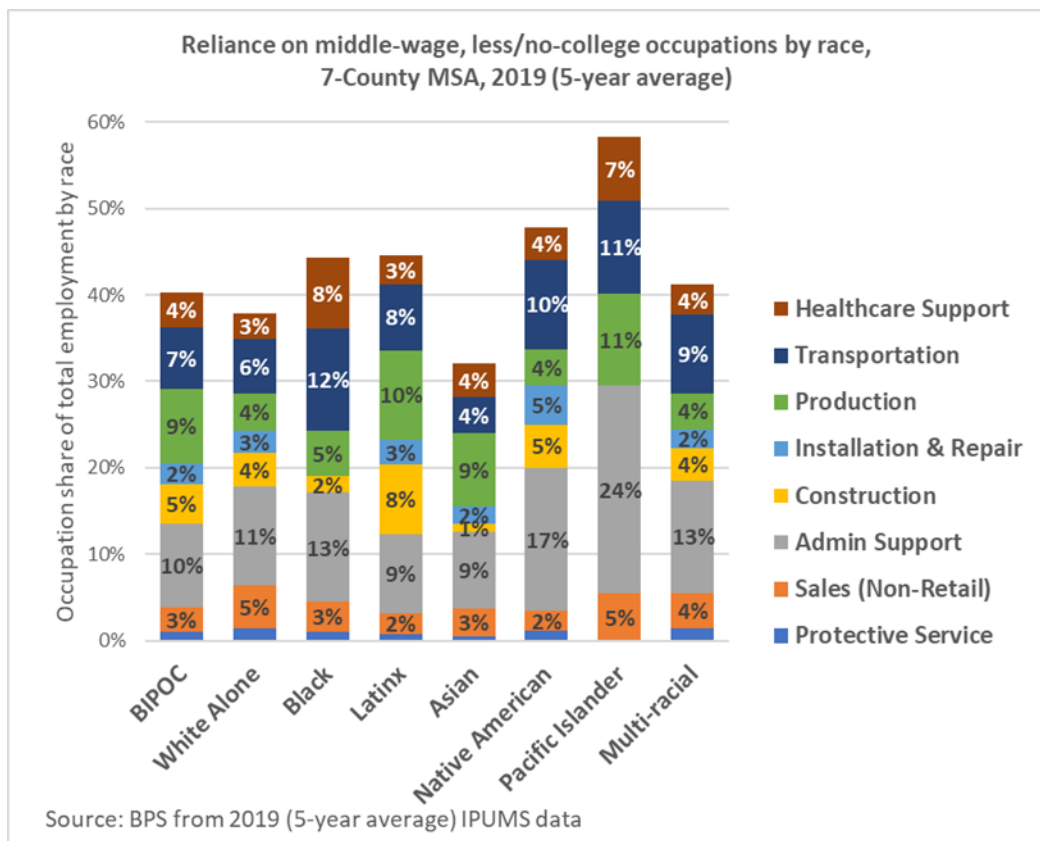


Figure 67. Wage impacts of office jobs by race and educational attainment

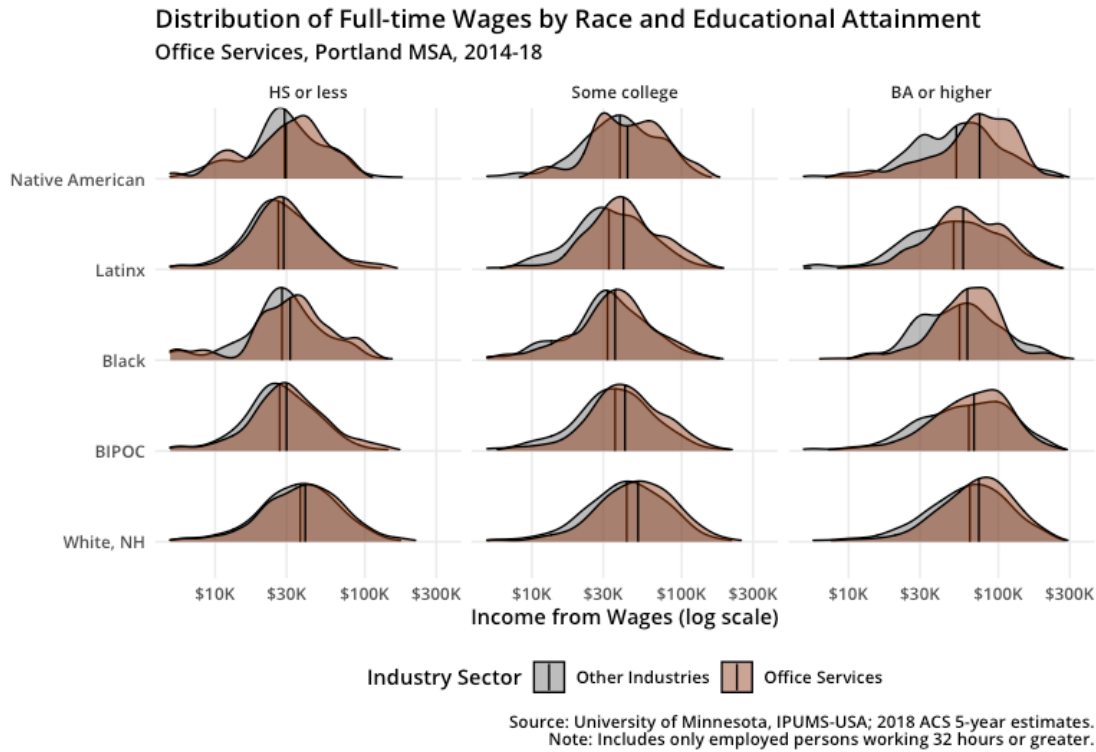


Figure 68. Wage impacts of education and healthcare jobs by race and educational attainment

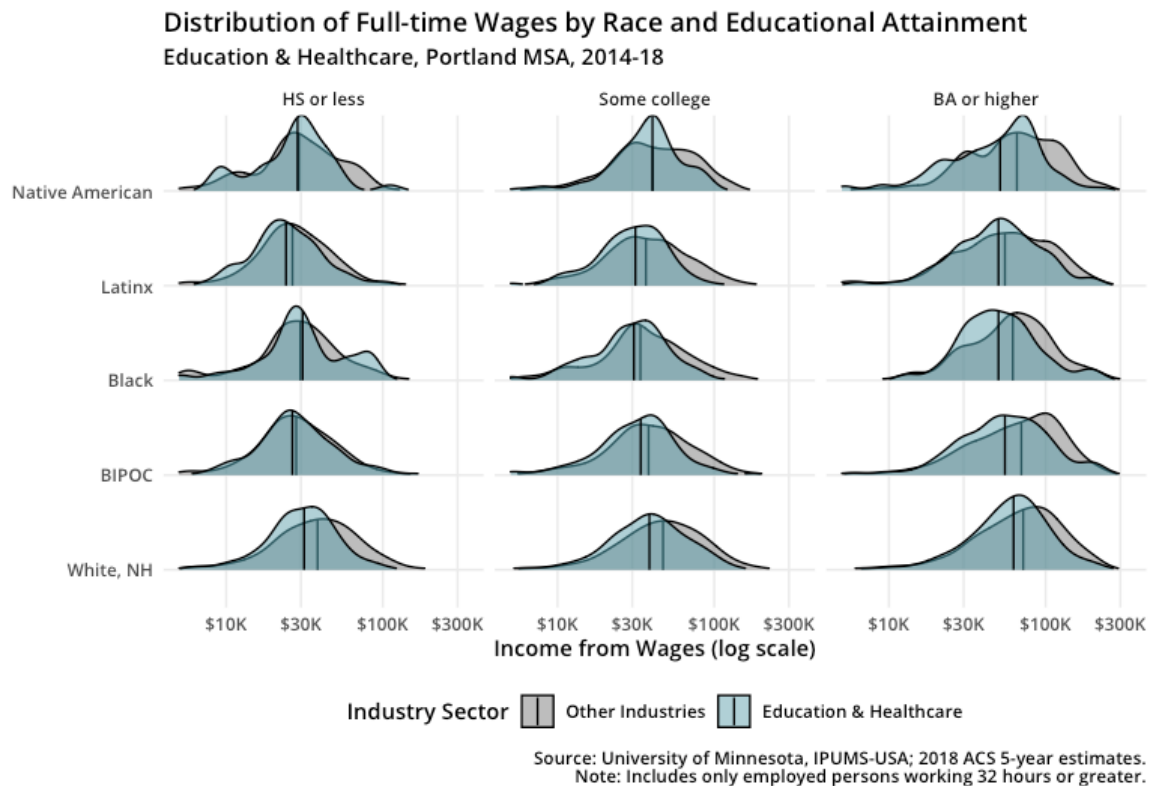
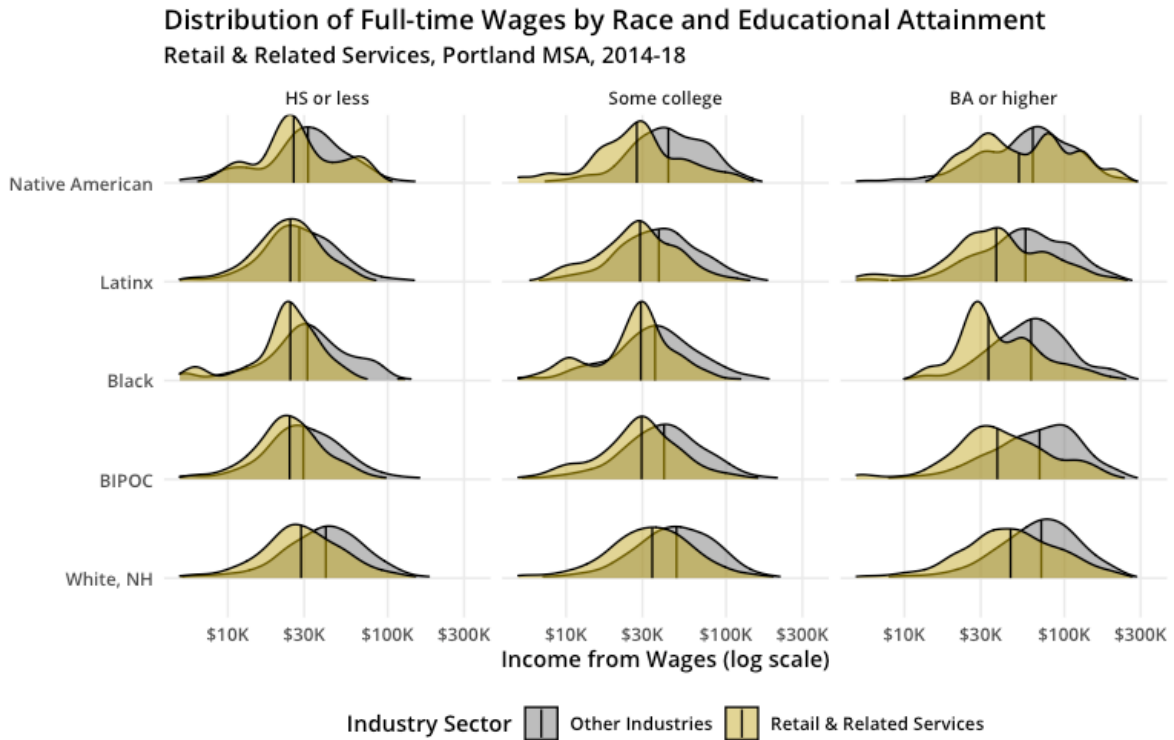
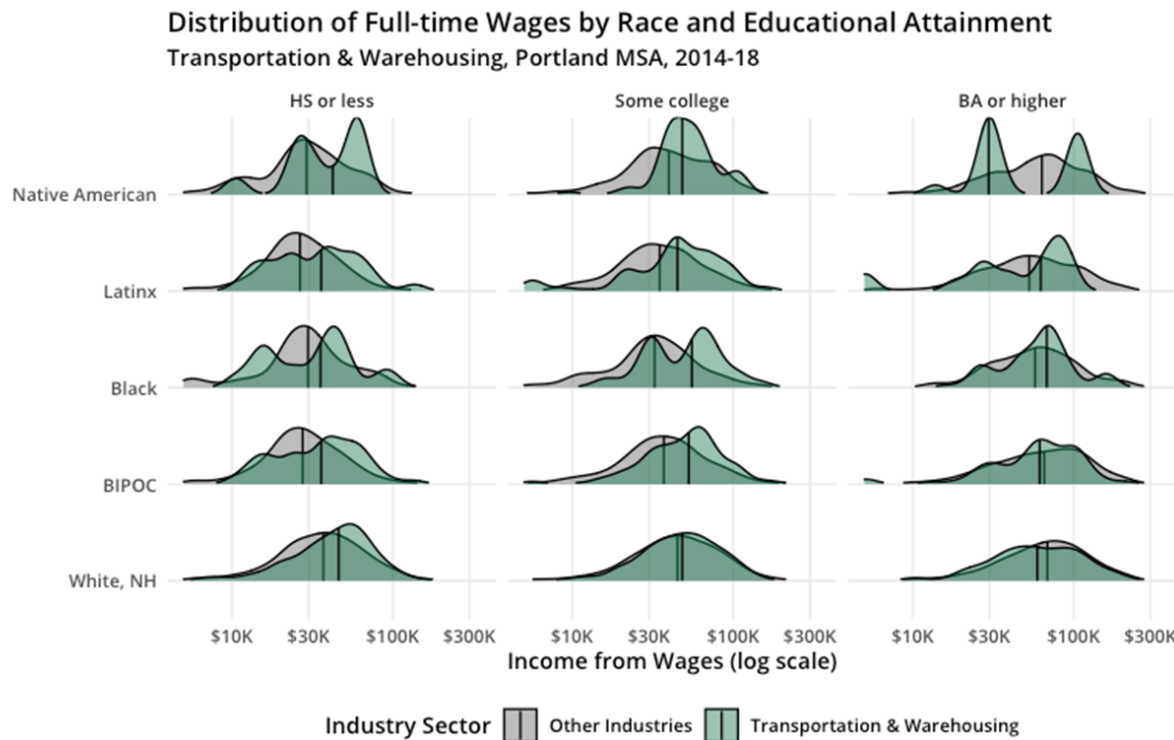


Figure 69. Wage impacts of retail and consumer service jobs by race and educational attainment



Source: University of Minnesota, IPUMS-USA; 2018 ACS 5-year estimates.  
Note: Includes only employed persons working 32 hours or greater.

Figure 70. Wage impacts of transportation and warehousing jobs by race and educational attainment



Source: University of Minnesota, IPUMS-USA; 2018 ACS 5-year estimates.  
Note: Includes only employed persons working 32 hours or greater.

Figure 71. Gentrification typology and risk assessment, 2018

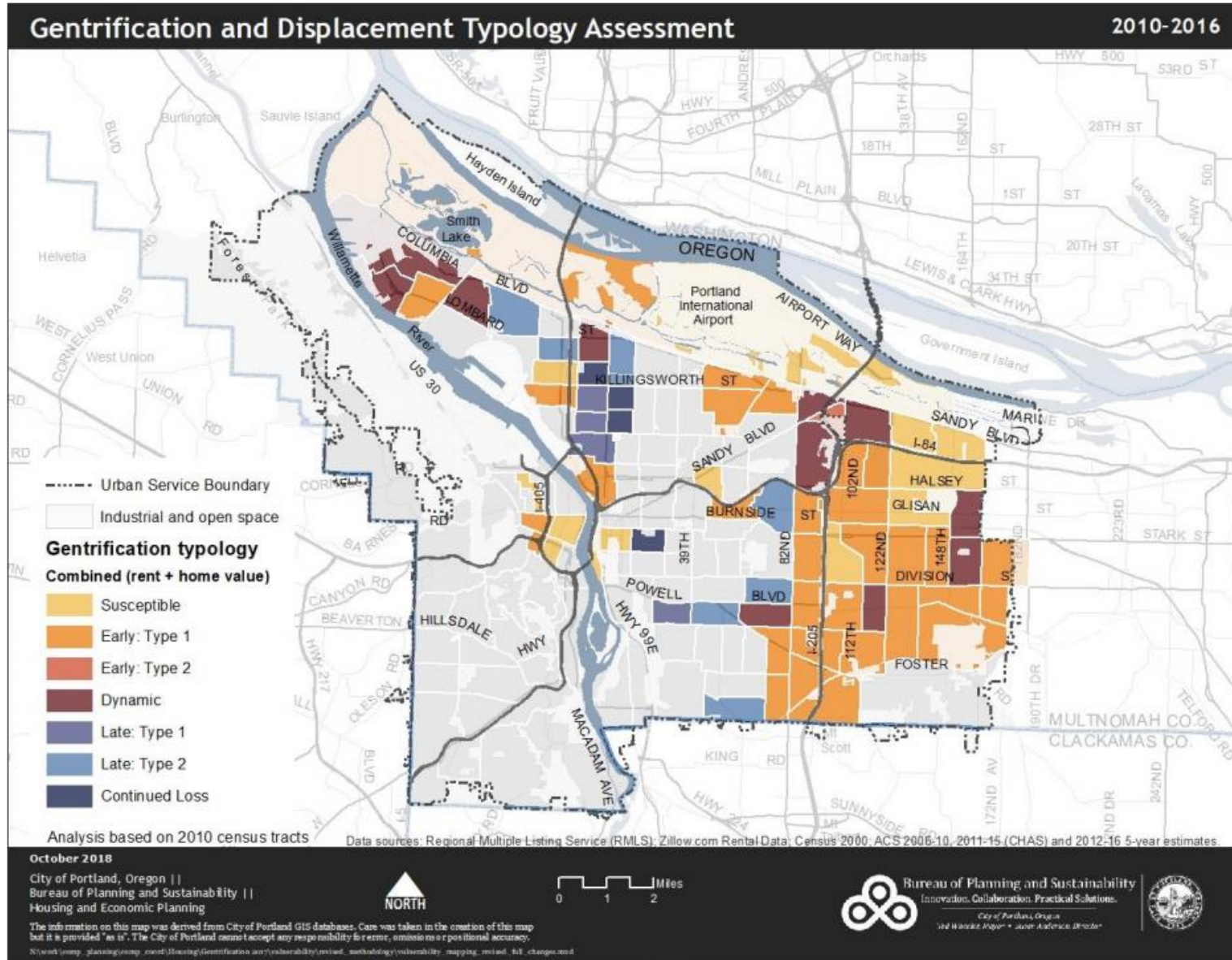


Figure 72. Economically vulnerable communities assessment, 2018

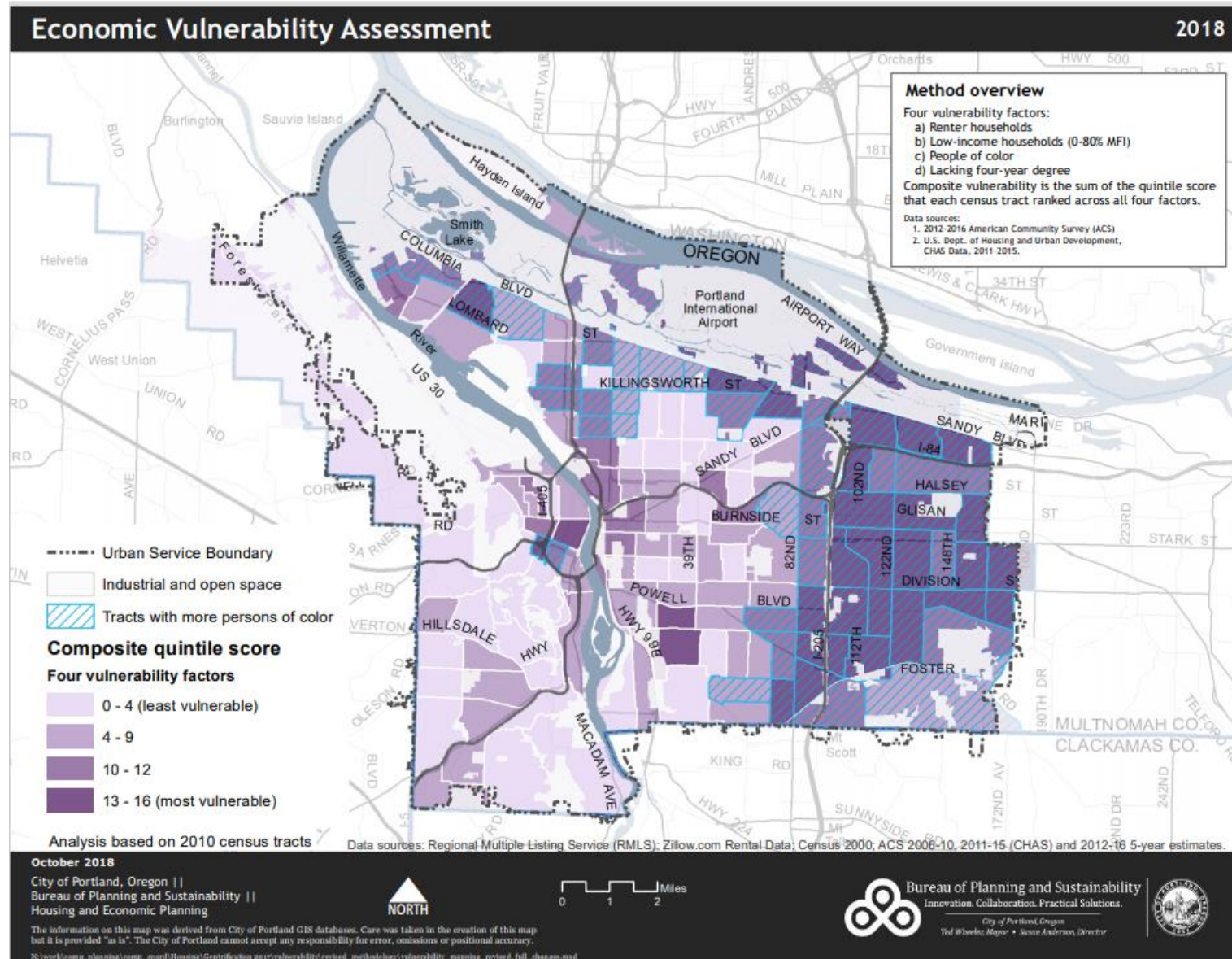
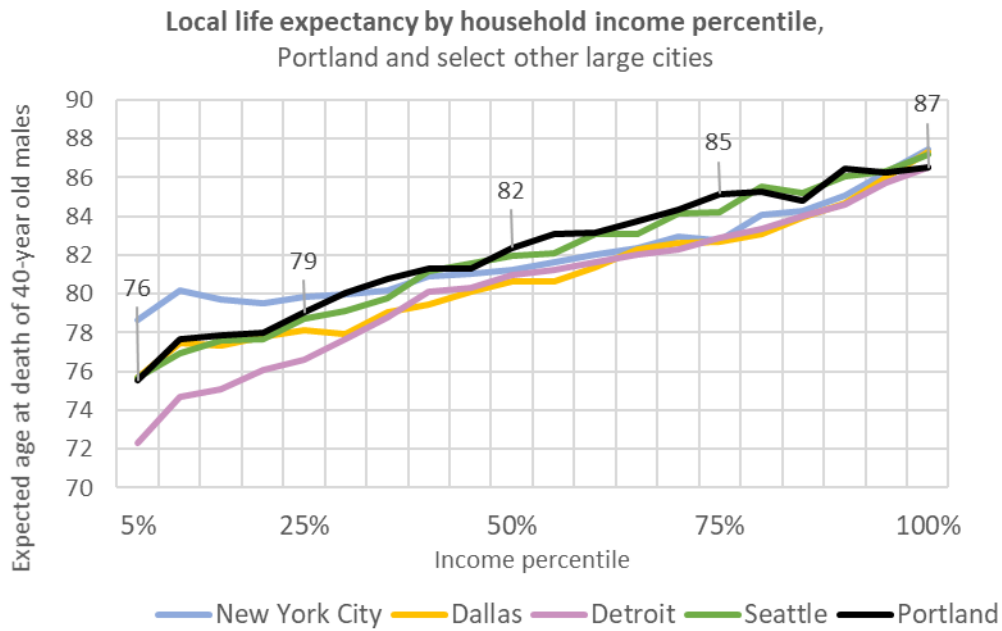


Figure 73. Life expectancy by income distribution



Source: Chetty, et al., 2016, race-adjusted

Figure 74. Marine Industrial Land Forecast in Portland, ECONorthwest, 2021

	Forecast scenarios, 2020-2040		
	Low	Base case	High
Land demand (acres)	-130	380	850
Terminals		110	200
Production/services	-130	270	650
Direct QCEW jobs*	-650	1,900	4,250
Terminals		550	1,000
Production/services	-650	1,350	3,250
Employment impact**	-1,690	4,940	11,050
Terminals		1,430	2,600
Production/services	-1,690	3,510	8,450
* Conservative QCEW estimate undercounts marine transport jobs.			
** Multiplier impact of 2.6 (direct job + 1.6), Martin Associates.			



Figure 75. Regional map of industrial employment by sector, 2015

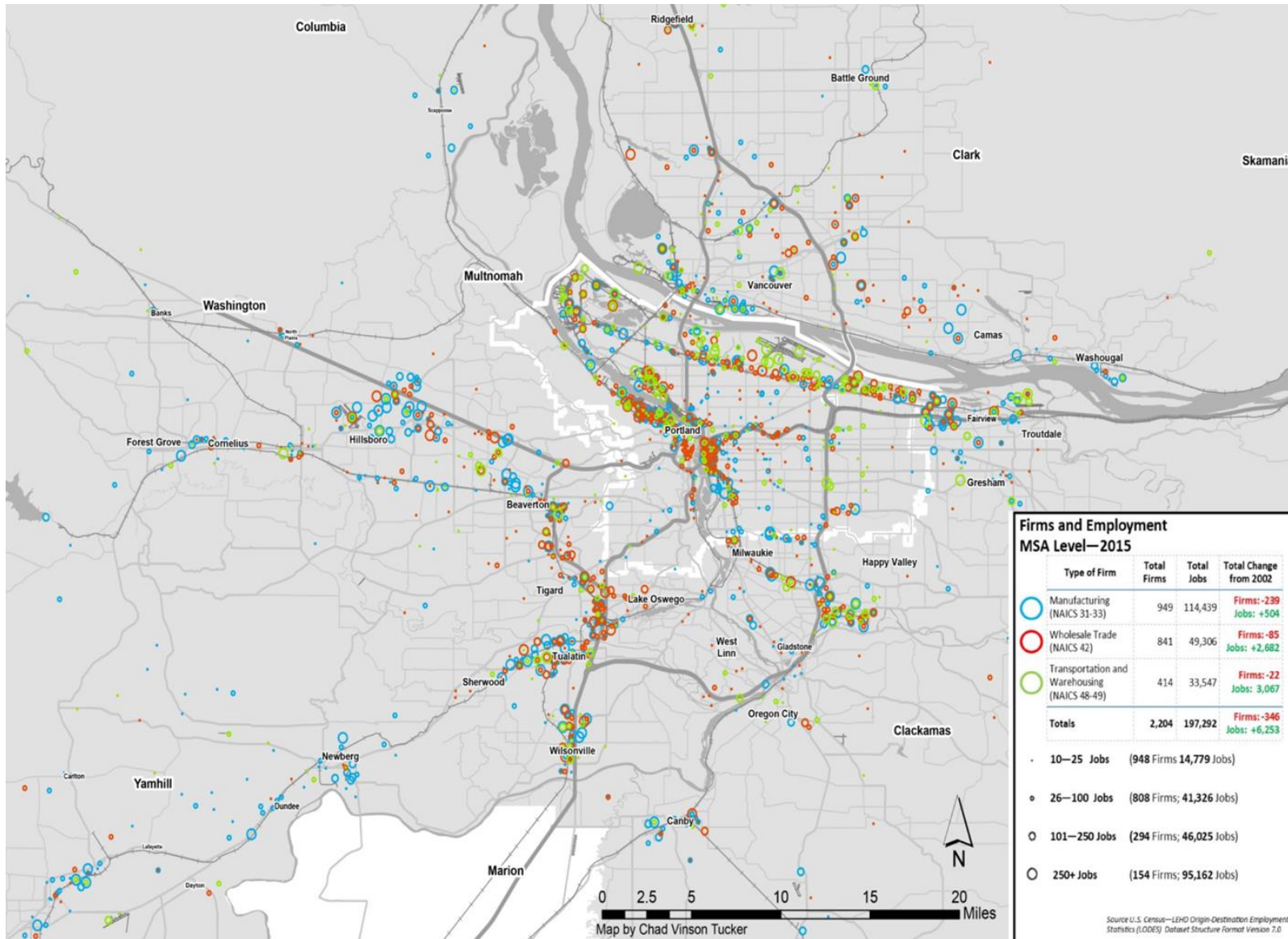
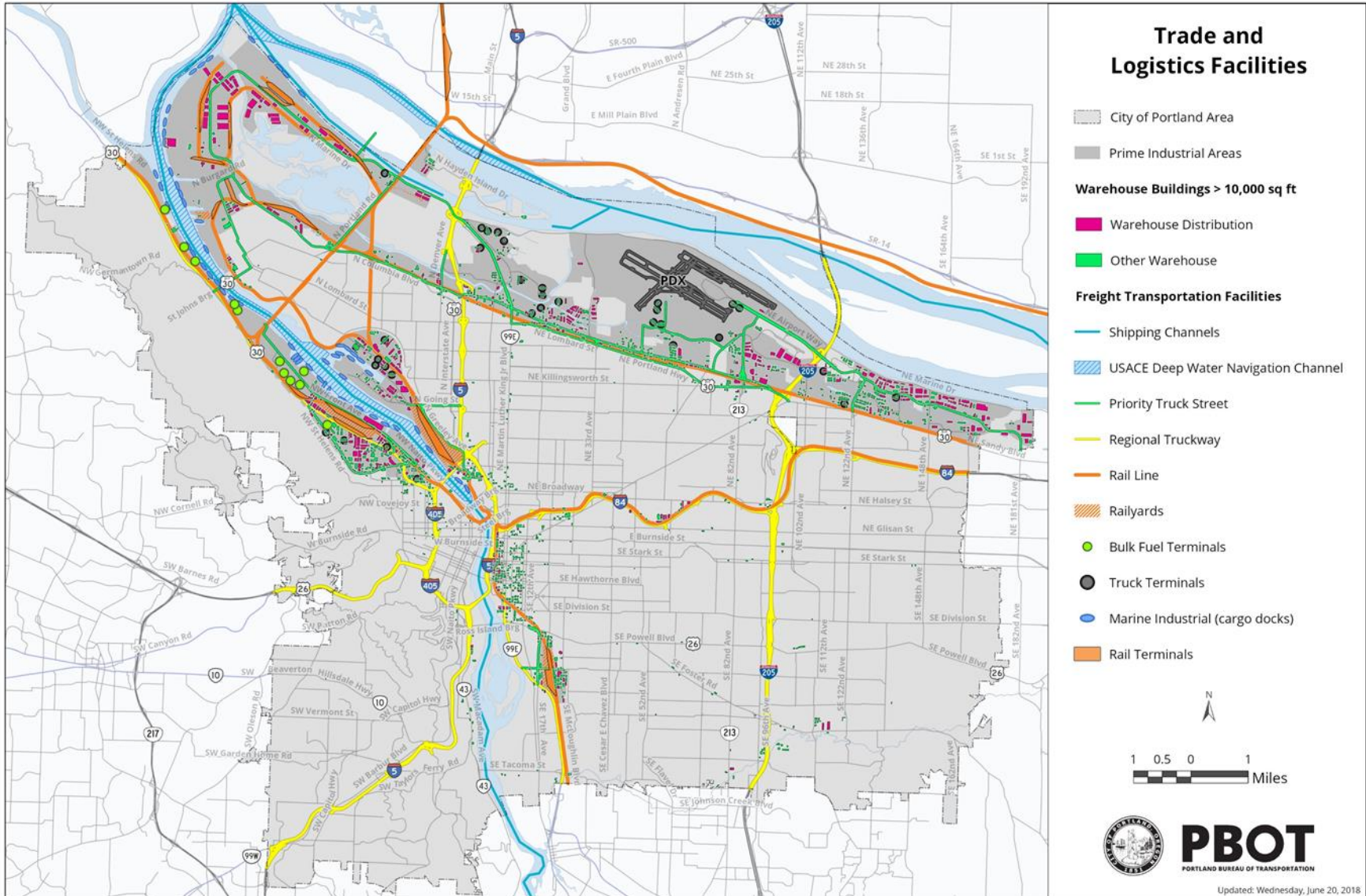


Figure 76. Portland map of trade and logistics facilities and infrastructure, 2018



## Appendix 2. Marine Industrial Land Analysis

Under separate cover.