ECONOMIC OPPORTUNITIES ANALYSIS
(OREGON STATEWIDE PLANNING GOAL 9)

Prepared For:

City of Cornelius, Oregon

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Acknowledgments

Johnson Economics prepared this report for the City of Cornelius. Johnson Economics and the City of Cornelius thank the many people who helped to develop this document.

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I. INTRODUCTION

This report introduces analytical research presenting an Economic Opportunities Analysis (EOA) for the City of Cornelius, Oregon.

Cities are required to reconcile estimates of future employment land demand with existing inventories of vacant and redevelopable employment land within their Urban Growth Boundary (UGB). The principal purpose of the analysis is to provide an adequate land supply for economic development and employment growth. This is intended to be conducted through a linkage of planning for an adequate land supply to infrastructure planning, community involvement and coordination among local governments and the state.

To this end, this report is organized into six primary sections:

- **Economic Trends:** Provides an overview of national, state, and local economic trends affecting Washington County and the City of Cornelius, including population projections, employment growth and a demographic profile.
- **Economic Development Potential:** A discussion of the comparative advantages of the local community and work force.
- **Target Industries:** Analysis of key industry typologies the City should consider targeting as economic opportunities over the planning period.
- **Employment Land Needs:** Examines projected demand for industrial and commercial land based on anticipated employment growth rates by sector.
- **Capacity:** Summarizes the City's inventory of vacant and redevelopable industrial and commercial land (employment land) within City of Cornelius' UGB area.
- **Reconciliation:** Compares short- and long-term demand for employment land to the existing land inventory to determine the adequacy and appropriateness of capacity over a five and twenty-year horizon.
- **Conclusions and Recommendations:** Summary of findings and policy implications.

II. COMMUNITY ECONOMIC DEVELOPMENT OBJECTIVES

The City of Cornelius is preparing an Economic Opportunities Analysis (EOA) based on a 20-year forecast of population and job growth. An initial task in preparing an EOA is to draft a Statement of Community Economic Development Objectives (CEDOs). CEDOs define and sustainable vision for economic development in Cornelius by considering the city's economic history, changes affecting that tradition, and new and emerging opportunities.

Reverse the worsening trend of bedroom community status for Cornelius with a thriving jobs-housing balance by expanding and diversifying employment opportunity and industry profile and presence, thus supporting public systems and services.

Bedroom communities, such as Cornelius, face the challenge of serving growing neighborhoods without employment uses to help fund robust services and infrastructure. This remains difficult as Cornelius's local median income is over 20% lower than the median income of Washington County. Attracting diverse manufacturing and industrial businesses to locate within the city will help to increase tax revenue and public investments that make Cornelius a desirable place to live and work.

Focus on local job growth that will allow residents to live and work in Cornelius resulting in increased activity within Cornelius' town center, resident spending in the local economy, and use of active and public transportation modes.

Cornelius residents commute an average of 29 minutes to work in other neighboring cities. The City of Cornelius hopes to reverse this growing trend by attracting well-paying jobs and reducing the number of residents that need to commute outside of the city. Resident spending is more likely to take place locally throughout the day if active and public transportation options are utilized, forging a stronger town center.

Leverage Cornelius' educational partnerships, freight-ready roads, proximity to the Silicon Forest, and other crucial and necessary infrastructure to attract high-tech industries, manufacturing, light industrial facilities, and businesses of varying sizes.

Cornelius sits adjacent to the local high-tech corridor within Washington County and remains a prime location for businesses within that sector. The location of Cornelius to serve the high-tech sector, development and manufacturing, and other businesses is also optimized through Cornelius' infrastructure and unique land ownership pattern that allows for consolidation of multiple parcels. Educational partnerships through local schools, such as Forest Grove High School, work to support pathways in high-tech mechatronics, allowing students to pursue the technology sector early on.

III. ECONOMIC TRENDS

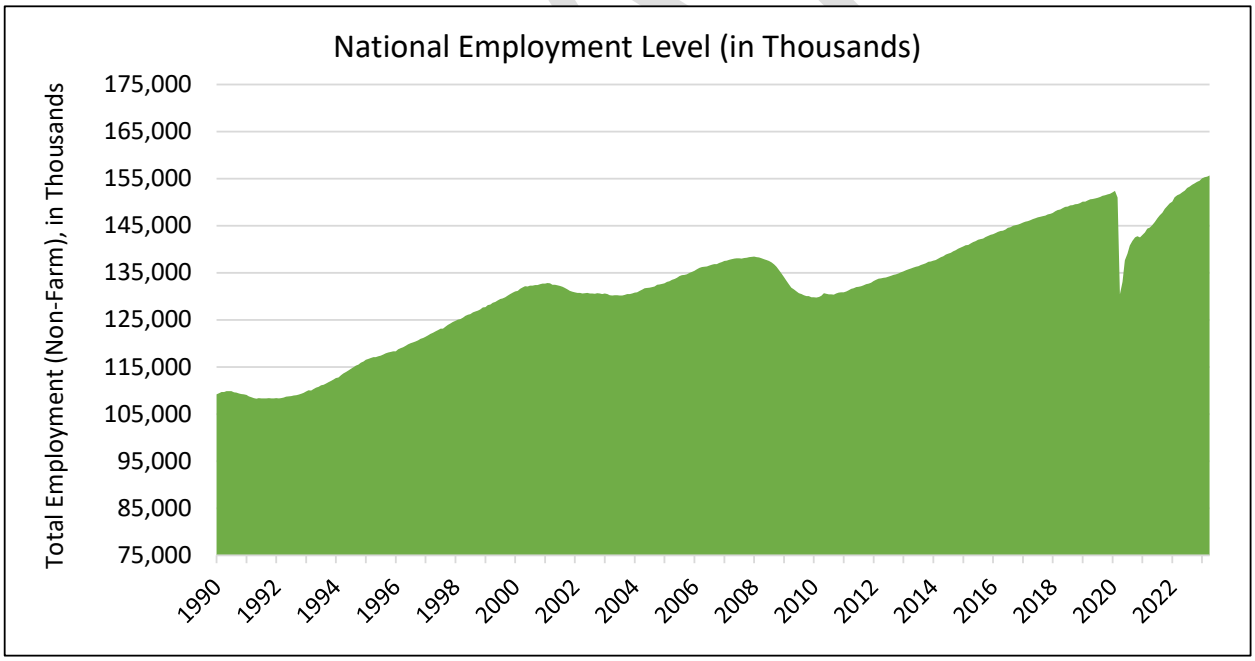
This report section summarizes long and intermediate-term trends at the national, state, and local level that will influence economic conditions in the City of Cornelius over the 20-year planning period. This section is intended to provide an economic context for growth projections and establish a socioeconomic profile of the community. This report's national evaluation has a focus on potential changes in structural socioeconomic conditions both nationally and globally. Our localized analysis considers local growth trends, demographics, and economic performance.

A. NATIONAL TRENDS

After a decade of sustained economic expansion in the 2010's, the national economy has been significantly impacted in the last few years by the COVID-19 pandemic, which led to a sharp decrease in employment and economic and lifestyle disruptions in 2020 and 2021. During this period, workforce patterns changed as many workplaces were shut and employees transitioned to working from home, while others were laid off. Many other frontline or service workers continued to work in person as their jobs were essential or necessary to maintain shopping and other service needs.

Employment: In the first months of the pandemic, the nation lost nearly 22 million jobs, or 14% of total employment. But the recovery has been remarkable swift. As of mid-2022, employment had returned to pre-pandemic levels nationwide, and as of Spring 2023 is 2% higher than the prior peak of early 2020 (Figure 3.1).

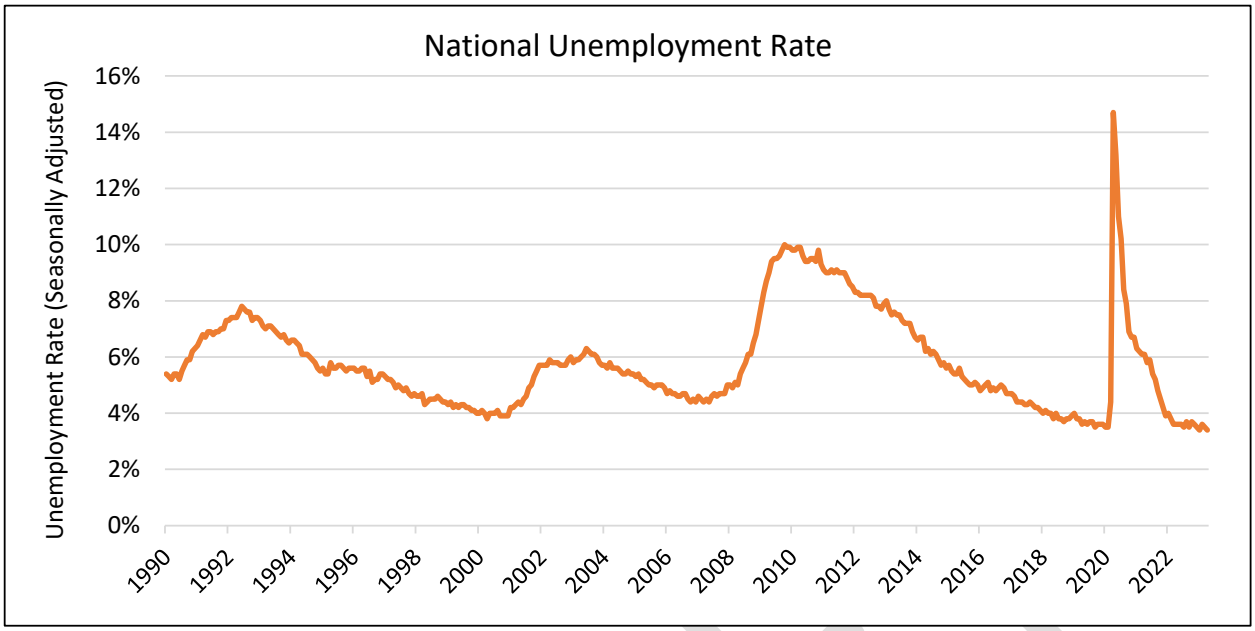
FIGURE 3.01: NATIONAL EMPLOYMENT (1990 – 2023)



Source: U.S. Federal Reserve Bank of St. Louis

Unemployment Rate: The national unemployment rate spiked to nearly 15% in 2020 as many businesses paused operations or closed permanently in the first months of the pandemic. However, the unemployment rate began to decline almost immediately, and by mid-2022 has fallen back to roughly 3.5%. As of Spring 2023, the seasonally adjusted unemployment rate is 3.4%, the lowest levels seen in decades (Figure 3.2).

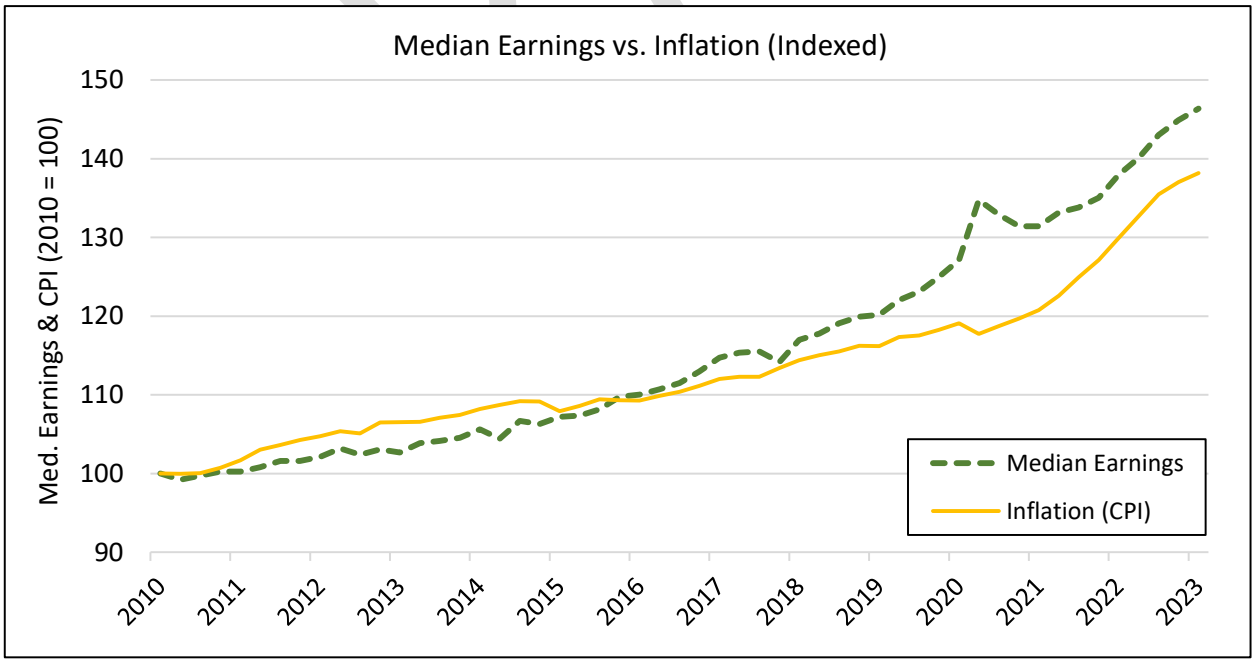
FIGURE 3.02: NATIONAL UNEMPLOYMENT RATE (1990 – 2023)



Source: U.S. Federal Reserve Bank of St. Louis

Inflation: The counter story to this strong positive rebound in employment has been a rising rate of inflation coming out of the pandemic. Various stimulus measures, combined with supply shortages, led to rising prices for many consumer products, energy, and food. The rate of inflation accelerated in 2021 and began moderating towards the end of 2022, though the rate remains elevated (Figure 3.3).

FIGURE 3.03: MEDIAN EARNINGS INDEX VS. INFLATION INDEX (2010 – 2023)

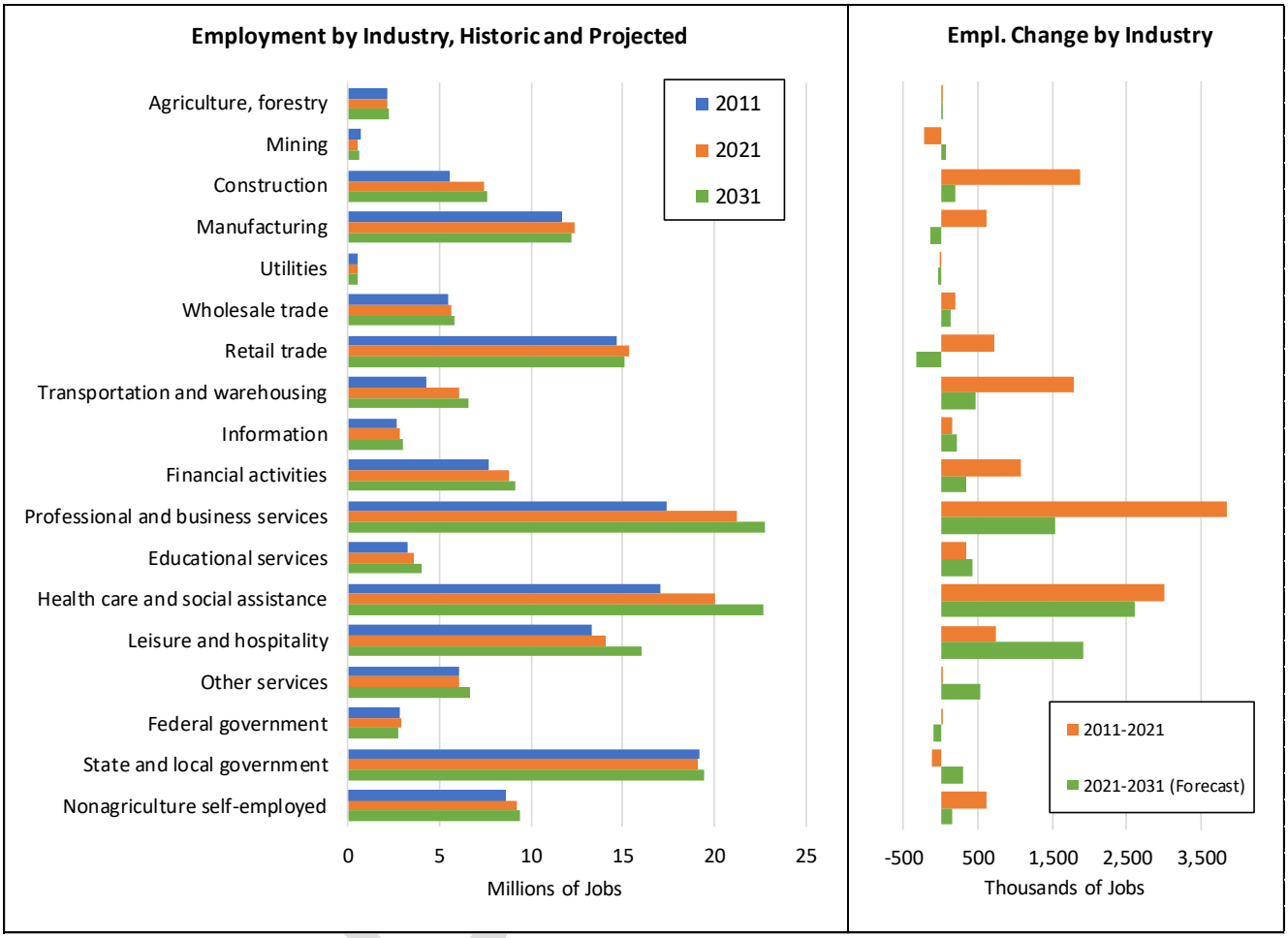


Source: U.S. Federal Reserve Bank of St. Louis; Consumer Price Index for Urban Consumers (US); Median Earnings for Full-Time Employees, Seasonally Adjusted.

Wages: On a positive note, average household earning levels have also enjoyed growth coming out of the recession and have largely kept pace with inflation in recent years. Earnings also spiked in 2020 when government stimulus payments were added to earned wages (Figure 3.3).

Industry Sector Employment: At a national level healthcare & social assistance is projected to account for the largest share of new employment growth, followed by professional & business services, and leisure & hospitality. The aging of the population is expected to drive the healthcare sector over the next few decades.

FIGURE 3.04: NATIONAL EMPLOYMENT GROWTH BY SECTOR, HISTORIC AND PROJECTED



SOURCE: US Bureau of Labor Statistics

Recent trends and current forecasts reflect a shift from a goods economy, featuring manufacturing and natural resources, towards a service economy, which emphasizes technological innovation, research, and design.

The most dramatic spending shift in the context of real estate in recent times is the growth in online shopping, which has reduced the overall need for brick-and-mortar space, especially from retailers selling physical goods. While the share of sales accounted for by e-commerce has grown at a steady pace over the last decade, the pandemic greatly accelerated this trend. In 2020, the share of sales taking place online jumped from 12% of total retail spending to 16%. It has since settled to 14.5% of spending, which is well above the pre-pandemic share (Figure 3.05).

FIGURE 3.05: E-COMMERCE AS A PERCENT OF TOTAL RETAIL SALES, UNITED STATES

SOURCE: Retail Indicators Branch, U.S. Census Bureau, JOHNSON ECONOMICS

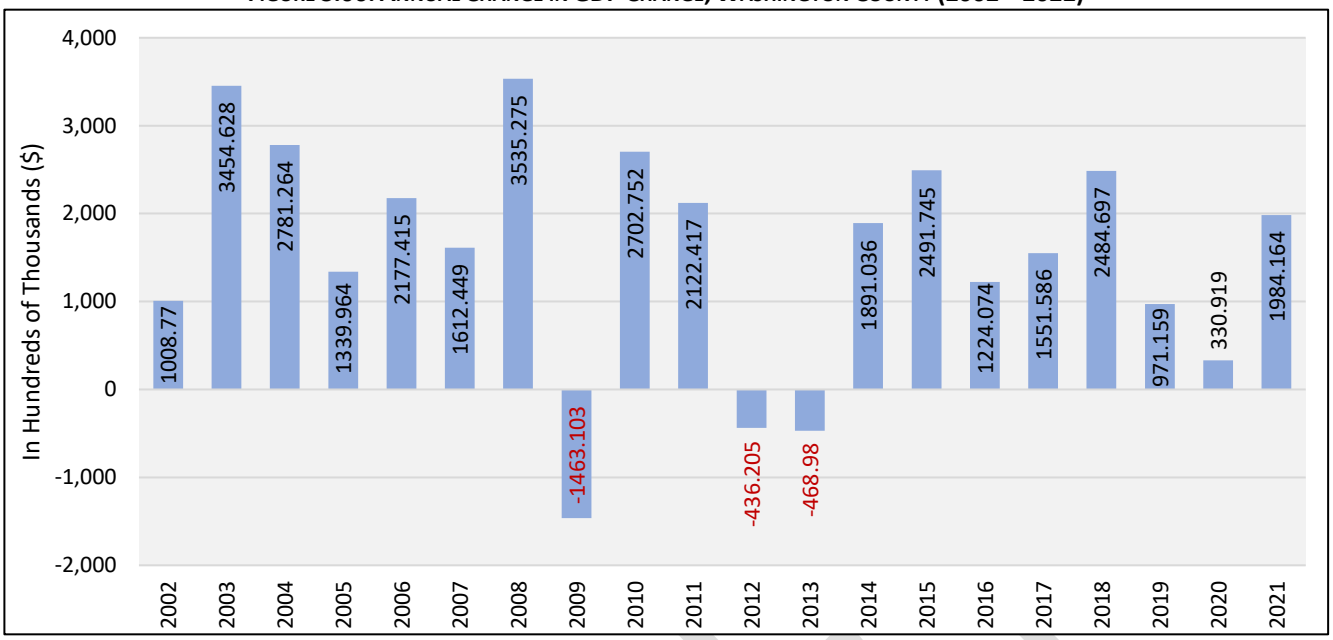
The growth in e-commerce has accelerated a shift in storage needs from retail stores to warehouses and distribution centers. At the same time, automation is causing a consolidation within the warehousing and distribution industry, leading to increasing reliance on larger third-party operators able to make heavy investments in capital and expertise. Finally, changes in the use of electronic devices and growth in online services are causing a shift in the tech sector, from hardware manufacturing to software development.

This pattern has also been reflected in the State of Oregon, with e-commerce employment increasing at the expense of brick-and-mortar retail employment. This is causing a shift in storage needs from retail stores to warehouses and distribution centers.

B. WASHINGTON COUNTY ECONOMIC TRENDS

Since 2013, Washington County's GDP has fluctuated albeit remaining positive throughout this period. Although Washington County's GDP growth decelerated significantly during the COVID pandemic, the county's GDP did not shrink during this time, unlike most geographies in the country. Moreover, the county's GDP growth recovered quite quickly by 2021 (most recent year available), growing by roughly 4% during this period.

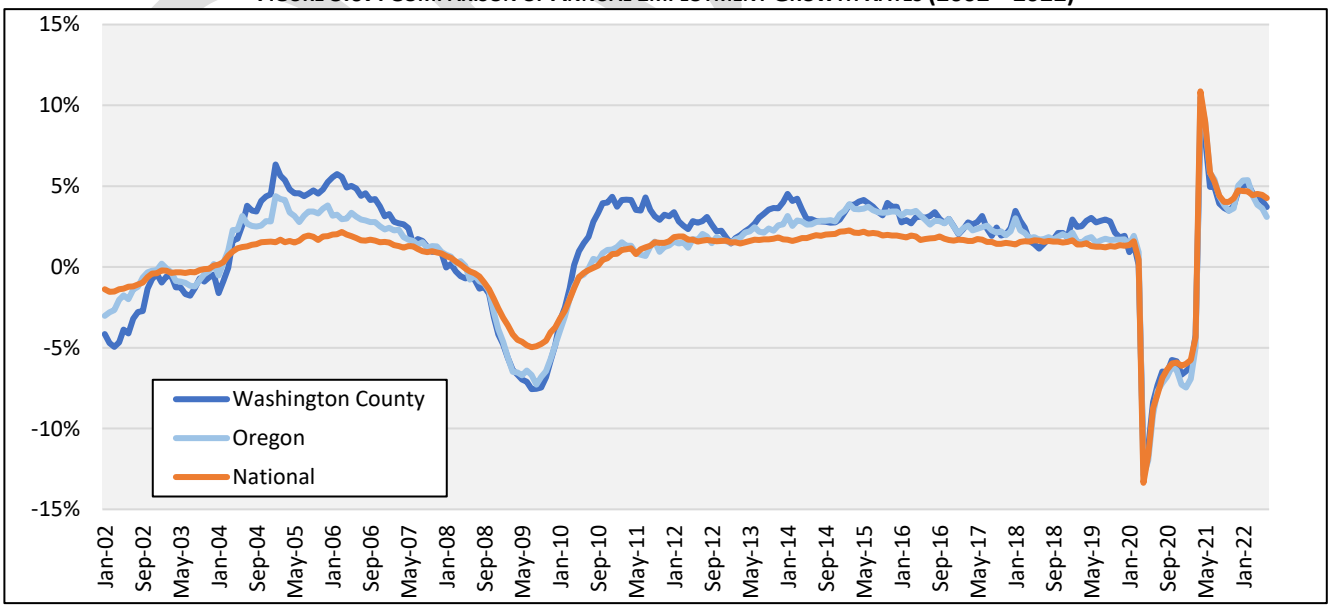
FIGURE 3.06: ANNUAL CHANGE IN GDP CHANGE, WASHINGTON COUNTY (2002 – 2022)



SOURCE: US Bureau of Economic Analysis

Washington County's employment growth has been similar to Oregon's since 2002, slightly outperforming the state in the mid 2000's and early 2010's. Furthermore, both the county and state have consistently outperformed national employment growth in the last two decades. During the pandemic, all three geographies trended with each other. From March 2020 to April 2020, base employment in Washington County decreased by roughly 12%, while both Oregon and the United States decreased by roughly 13%. During the recovery, Washington County experienced slightly slower growth when compared to the state. From March 2020 to April 2021, Washington County's base employment recovered by roughly 9% while both the state and country's employment growth was closer to 11%.

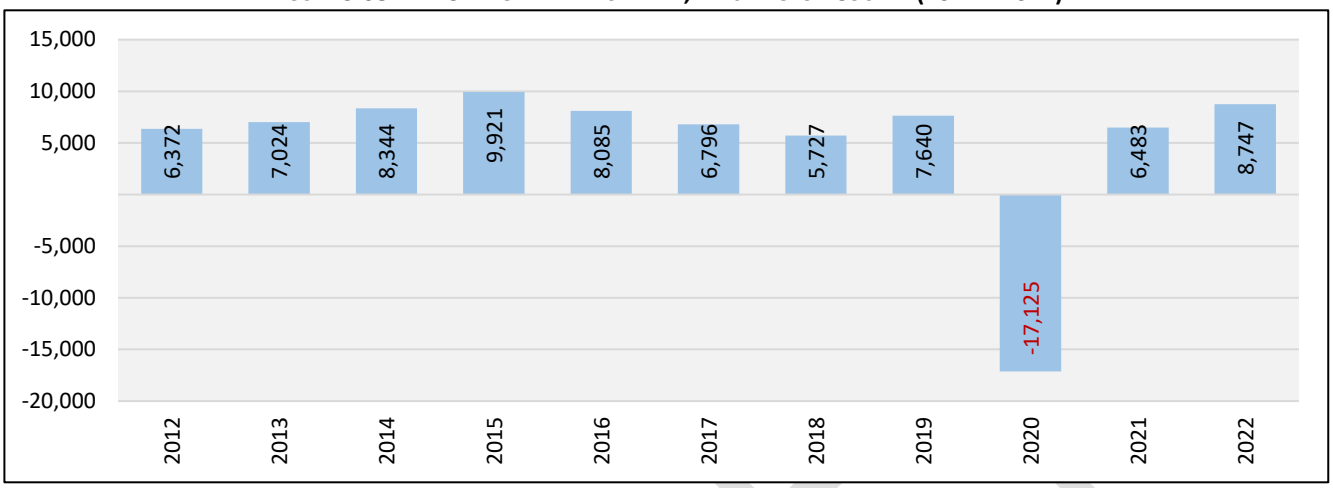
FIGURE 3.07: COMPARISON OF ANNUAL EMPLOYMENT GROWTH RATES (2002 – 2022)



SOURCE: U.S. Bureau of Labor Statistics, Oregon Employment Department, JOHNSON ECONOMICS

Recent annual employment growth in Washington County peaked in 2015 with roughly 10,000 jobs added. Following 2015, employment growth decelerated prior to the COVID pandemic, when roughly 17,000 jobs were lost in 2020. As of 2022, roughly 89% of the jobs lost in 2020 have been recovered, signifying stronger recovery than the state that had only recovered roughly 81% of the jobs lost during the pandemic by 2022.

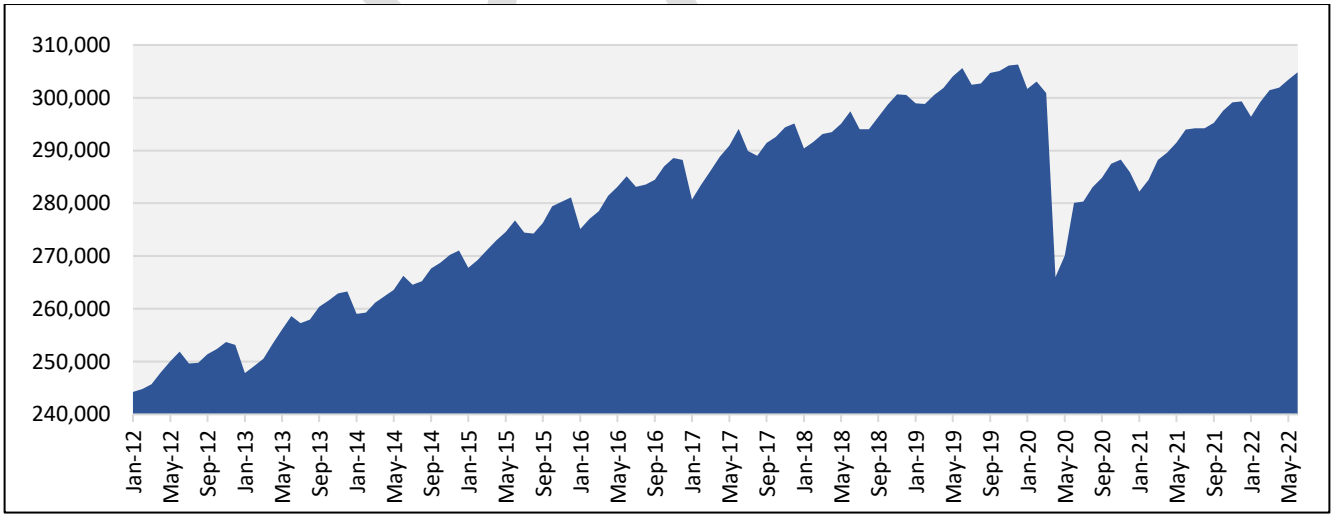
FIGURE 3.08: NET CHANGE IN EMPLOYMENT, WASHINGTON COUNTY (2012 – 2022)



SOURCE: Oregon Employment Department, JOHNSON ECONOMICS

Washington County's total employment level drops cyclically during the winter months. Employment levels typically peak from May into the Fall. The overall employment level has been consistently increasing in the last decade. In the beginning of 2012, average employment level hovered around 250,000 and as of 2022, the employment level averaged above 300,000 jobs.

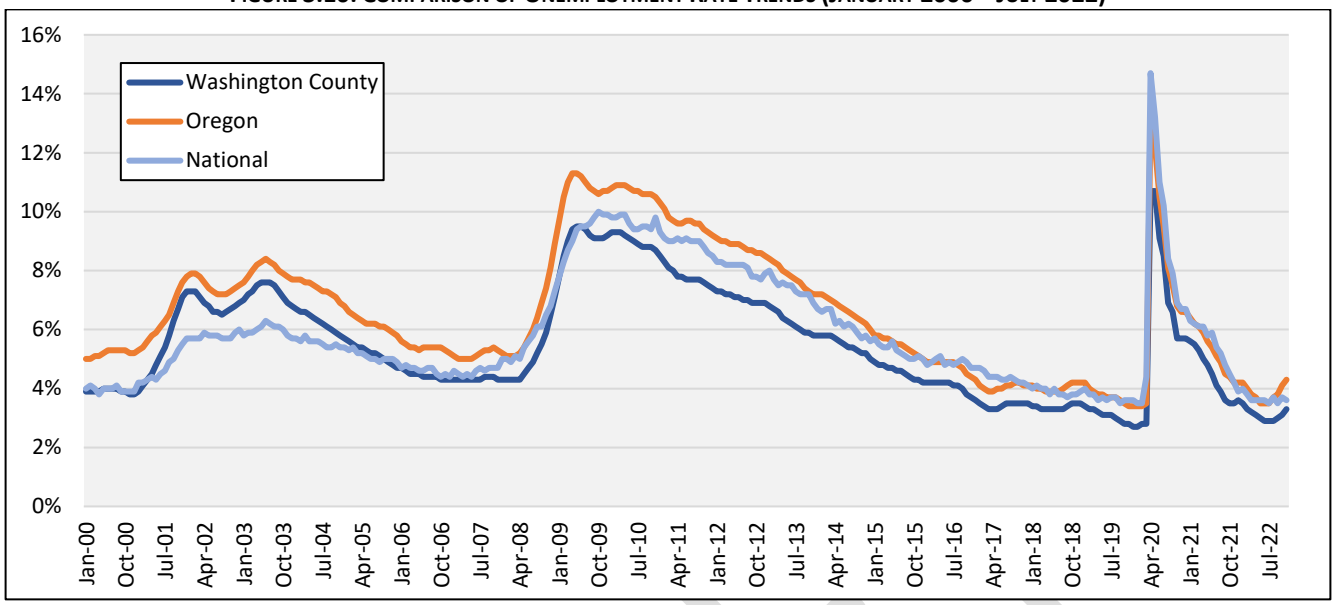
FIGURE 3.09: WASHINGTON COUNTY EMPLOYMENT LEVEL BY MONTH (JANUARY 2012 – JUNE 2022)



SOURCE: Oregon Employment Department, JOHNSON ECONOMICS

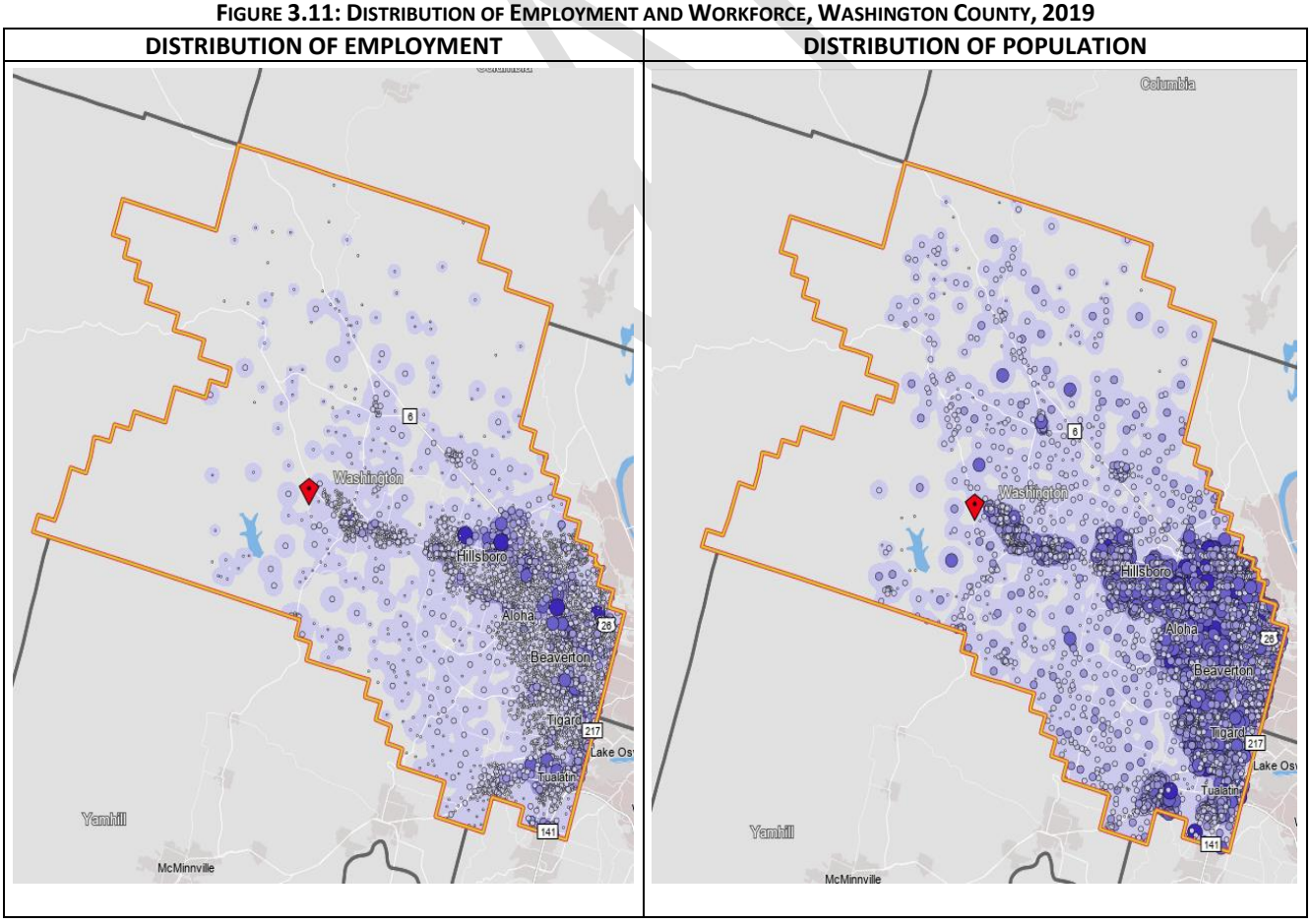
The Washington County unemployment rate has historically been lower than that of Oregon or the nation. The unemployment rate reached over 11% during the pandemic but has since dropped to near historically low levels near 3%. Following the 2008 - 09 recession, Washington County's unemployment rate has consistently outperformed both the state and the nation, including during the pandemic.

FIGURE 3.10: COMPARISON OF UNEMPLOYMENT RATE TRENDS (JANUARY 2000 – JULY 2022)



SOURCE: St. Louis Federal Reserve, JOHNSON ECONOMICS

FIGURE 3.11: DISTRIBUTION OF EMPLOYMENT AND WORKFORCE, WASHINGTON COUNTY, 2019



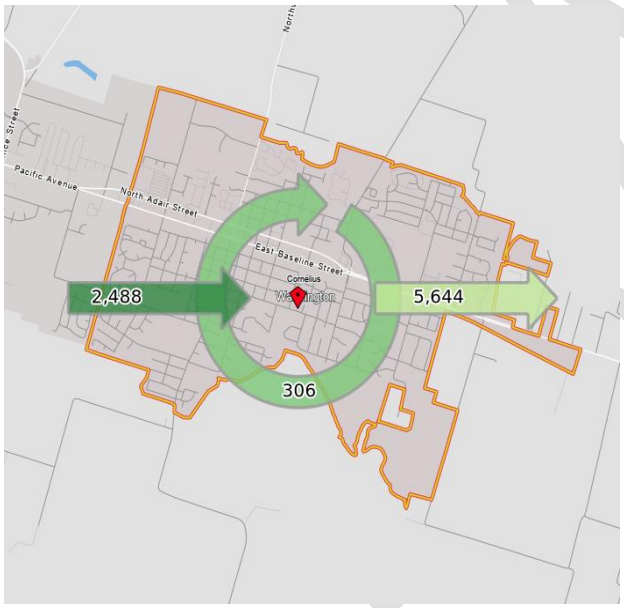
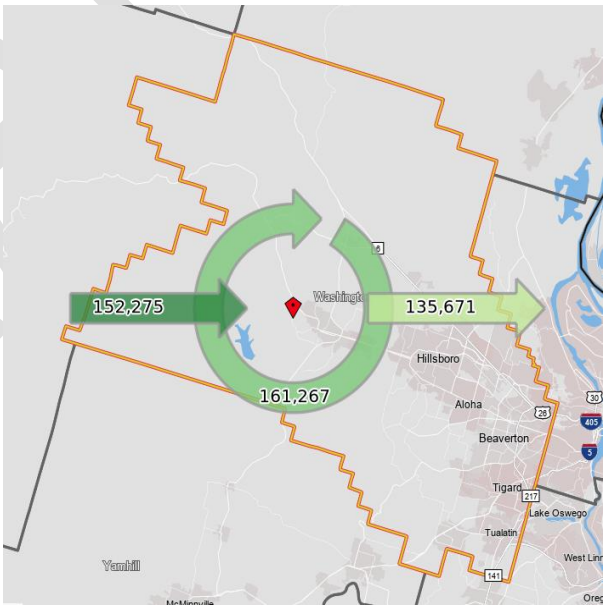
SOURCE: Census Bureau, LEHD Data

The distribution of employment in Washington County is found mostly within the Metro boundary, with the greatest concentrations around Hillsboro and Beaverton (Figure 3.11), but other concentrations in Cornelius and Forest Grove, Tigard and Wilsonville. The population is more evenly distributed, with some population centers in outlying towns within commuting distance to the Metro area.

As of 2019, the most recent pre-Covid data available, Washington County had an estimated 152,275 people commuting in for work, while 135,671 people commuting out. This indicates a relatively balanced employment/workforce base on the county-level. These figures reflect "covered employment" which refers to those jobs where the employee is covered by federal unemployment insurance. This category does not include many contract employees and self-employed workers and therefore is not a complete picture of local employment. The figure discussed here is best understood as indicators of the general pattern of commuting and not exact figures.

On the other hand, the City of Cornelius had an estimated 2,488 people commuting in and 5,644 commuting out, while roughly 300 people both lived and worked in the area. While the region is well balanced, the City of Cornelius has a jobs-to-housing imbalance, with roughly 3,000 more people commuting out of the city than local jobs available. (The estimate of total current employment in Cornelius is presented in a following section.)

FIGURE 3.12: NET INFLOW-OUTFLOW OF EMPLOYEES, 2019

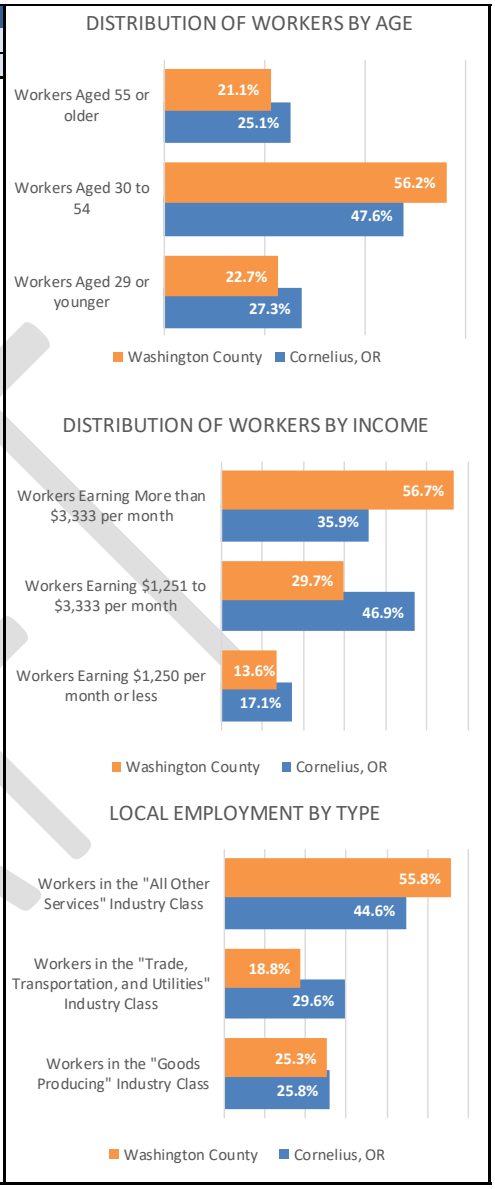
CITY OF CORNELIUS	WASHINGTON COUNTY
	

SOURCE: Census Bureau, LEHD Data

When comparing the distribution and characteristics of the labor force in Cornelius and Washington County, Cornelius has a greater share of working residents in "trade, transportation, and utilities" and a lower share of workers in the highest income category.

FIGURE 3.13: NET INFLOW-OUTFLOW DETAIL, CITY OF CORNELIUS AND WASHINGTON COUNTY, 2019

	Cornelius, OR 2019		Washington County 2019	
	Count	Share	Count	Share
Selection Area Labor Market Size (All Jobs)				
Employed in the Selection Area	2,345	100%	271,466	100%
Living in the Selection Area	5,036	215%	247,931	91%
Net Job Inflow (+) or Outflow (-)	-2,691	-	23,535	-
In-Area Labor Force Efficiency (All Jobs)				
Living in the Selection Area	5,036	100%	247,931	100%
Living and Employed in the Selection Area	258	5%	136,564	55%
Living in the Selection Area but Employed Outside	4,778	95%	111,367	45%
In-Area Employment Efficiency (All Jobs)				
Employed in the Selection Area	2,345	100%	271,466	100%
Employed and Living in the Selection Area	258	11%	136,564	50%
Employed in the Selection Area but Living Outside	2,087	89%	134,902	50%
Outflow Job Characteristics (All Jobs)				
External Jobs Filled by Residents	4,778	100%	111,367	100%
Workers Aged 29 or younger	1,271	27%	25,499	23%
Workers Aged 30 to 54	2,484	52%	61,604	55%
Workers Aged 55 or older	1,023	21%	24,264	22%
Workers Earning $1,250 per month or less	708	15%	14,876	13%
Workers Earning $1,251 to $3,333 per month	1,934	40%	32,792	29%
Workers Earning More than $3,333 per month	2,136	45%	63,699	57%
Workers in the "Goods Producing" Industry Class	1,656	35%	16,991	15%
Workers in the "Trade, Transportation, and Utilities" Industry Class	832	17%	23,689	21%
Workers in the "All Other Services" Industry Class	2,290	48%	70,687	63%
Inflow Job Characteristics (All Jobs)				
Internal Jobs Filled by Outside Workers	2,087	100%	134,902	100%
Workers Aged 29 or younger	572	27%	30,812	23%
Workers Aged 30 to 54	999	48%	75,058	56%
Workers Aged 55 or older	516	25%	29,032	22%
Workers Earning $1,250 per month or less	347	17%	18,876	14%
Workers Earning $1,251 to $3,333 per month	982	47%	40,116	30%
Workers Earning More than $3,333 per month	758	36%	75,910	56%
Workers in the "Goods Producing" Industry Class	498	24%	29,417	22%
Workers in the "Trade, Transportation, and Utilities" Industry Class	675	32%	29,432	22%
Workers in the "All Other Services" Industry Class	914	44%	76,053	56%
Interior Flow Job Characteristics (All Jobs)				
Internal Jobs Filled by Residents	258	100%	136,564	100%
Workers Aged 29 or younger	69	27%	30,738	23%
Workers Aged 30 to 54	117	45%	77,467	57%
Workers Aged 55 or older	72	28%	28,359	21%
Workers Earning $1,250 per month or less	55	21%	18,084	13%
Workers Earning $1,251 to $3,333 per month	118	46%	40,589	30%
Workers Earning More than $3,333 per month	85	33%	77,891	57%
Workers in the "Goods Producing" Industry Class	106	41%	39,312	29%
Workers in the "Trade, Transportation, and Utilities" Industry Class	19	7%	21,709	16%
Workers in the "All Other Services" Industry Class	133	52%	75,543	55%

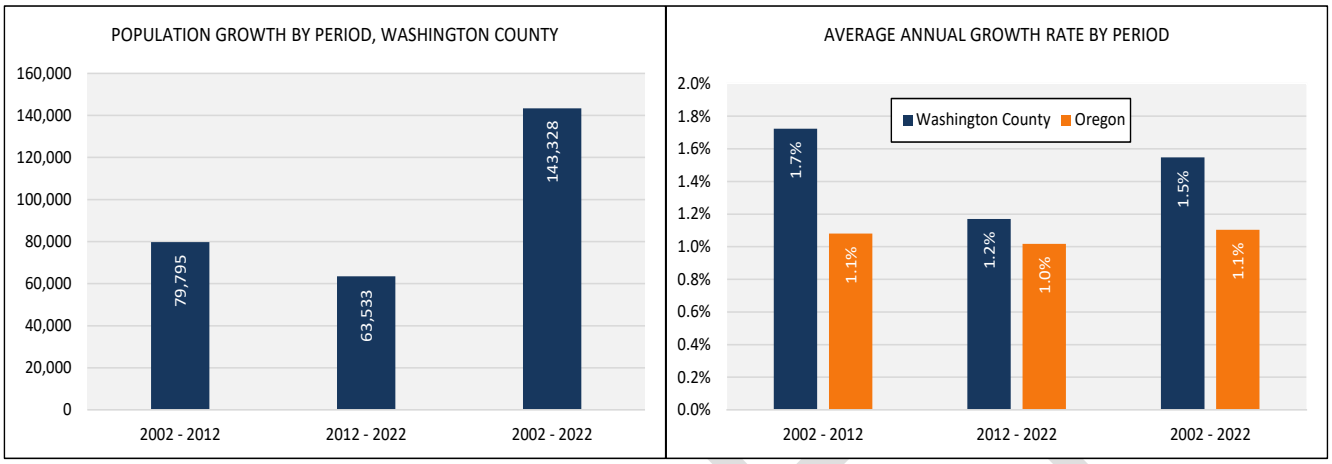


SOURCE: US Census Burea, LEHD Origin-Destination Employment Statistics

C. POPULATION AND WORKFORCE

Washington County has consistently seen a growth rate that has outperformed the rest of the state. Over the last 20 years, the County has averaged growth of 1.5% annually, compared to 1.1% statewide. The county added an estimated 143k people between 2002 and 2022.

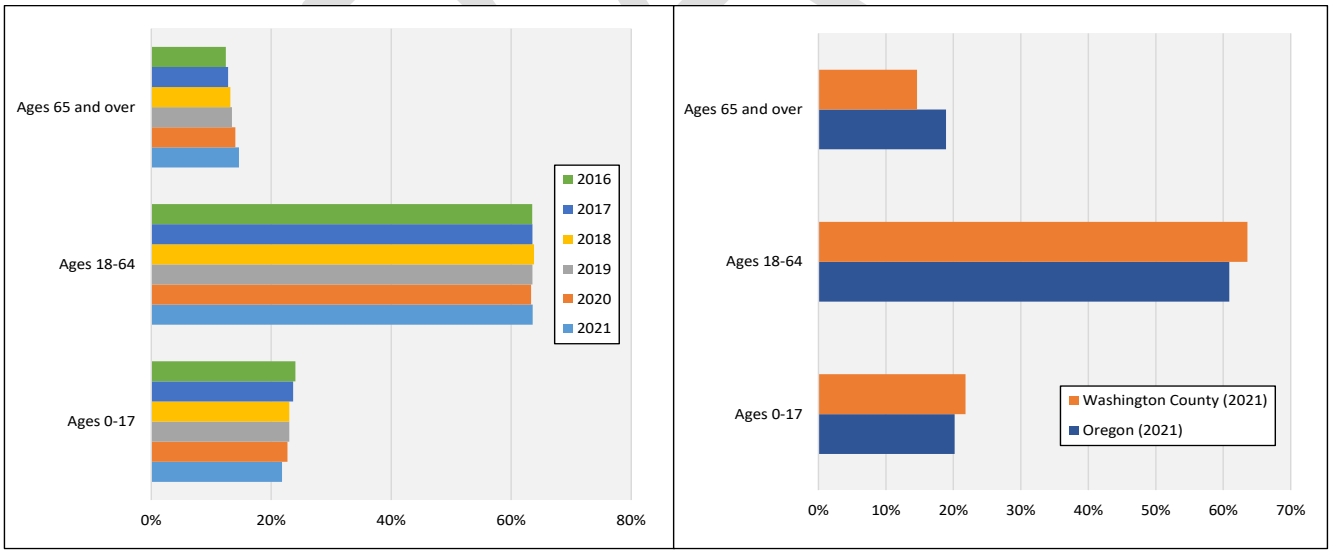
FIGURE 3.14: HISTORIC POPULATION TRENDS, WASHINGTON COUNTY



SOURCE: Population Research Center, Portland State University

When compared to the rest of the state, Washington County has more children and working aged people, and a smaller share of seniors, meaning the county has a proportionally larger work force than the state.

FIGURE 3.15: BROAD AGE DISTRIBUTION, WASHINGTON COUNTY

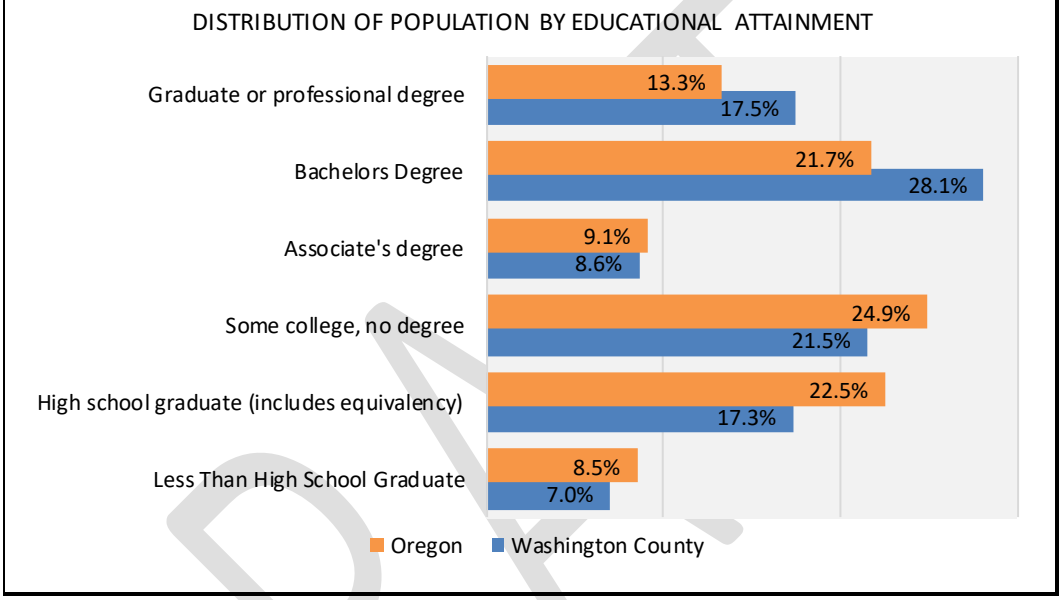


SOURCE: Population Research Center, Portland State University

Washington County has higher average education levels than the state, with 54% of the county's adult population holding an associate degree or higher. Washington County's concentration of high-tech and other large companies likely contributes to a greater concentration of educated workforce.

FIGURE 3.16: EDUCATIONAL ATTAINMENT PROFILE, 2021

Population 25 years and older	Washington County		State of Oregon	
	Count	%	Count	%
Less Than High School Graduate	28,950	7.0%	252,602	8.5%
High school graduate (includes equivalency)	71,481	17.3%	668,083	22.5%
Some college, no degree	88,918	21.5%	739,245	24.9%
Associate's degree	35,614	8.6%	270,372	9.1%
Bachelors Degree	116,062	28.1%	644,813	21.7%
Graduate or professional degree	72,197	17.5%	396,281	13.3%
Total	413,222		2,971,396	



SOURCE: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates

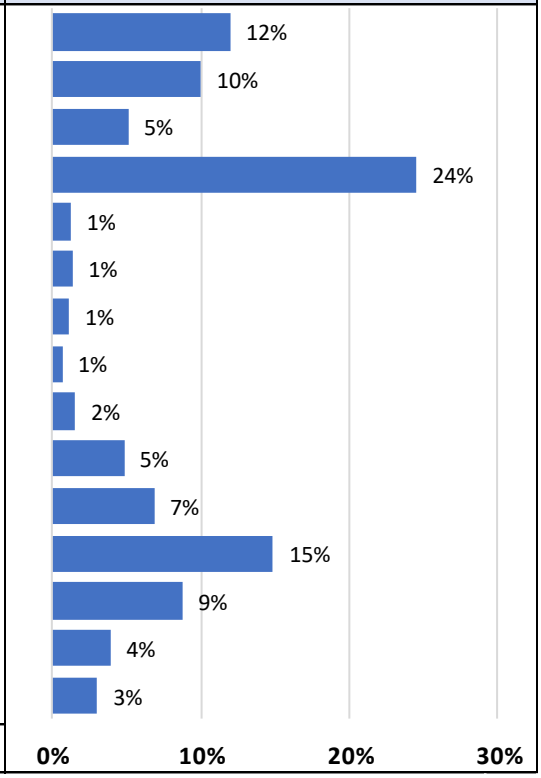
D. CORNELIUS FIRMS AND EMPLOYMENT

As of 2023, the City of Cornelius is home to over 300 businesses with roughly 3,000 total employees. The largest industries by employment are retail, health care, construction, and manufacturing. Cornelius has the lowest employment representation in professional and administrative sectors. (Industry sectors are discussed in more detail in Section III of this report.)

Figure 3.17 presents an estimate of employment in Cornelius as of 2023. This estimate is derived from 2021 data on actual firms and employment provided by the Oregon Employment Department. Average growth rates by sector for Washington County, between 2021 and 2023, were applied to estimate growth since 2021.

FIGURE 3.17: ESTIMATED EMPLOYMENT BY INDUSTRY SECTOR, CITY OF CORNELIUS 2021

Major Industry Sector	Estimated Employment 2023	Share of Employment
Construction	363	12%
Manufacturing	304	10%
Wholesale Trade	156	5%
Retail Trade	743	24%
T.W.U.	39	1%
Information	42	1%
Finance & Insurance	35	1%
Real Estate	21	1%
Professional & Technical Services	47	2%
Administration Services	146	5%
Education	208	7%
Health Care/Social Assistance	452	15%
Leisure & Hospitality	266	9%
Other Services	120	4%
Government	93	3%
TOTAL	**3,035**	



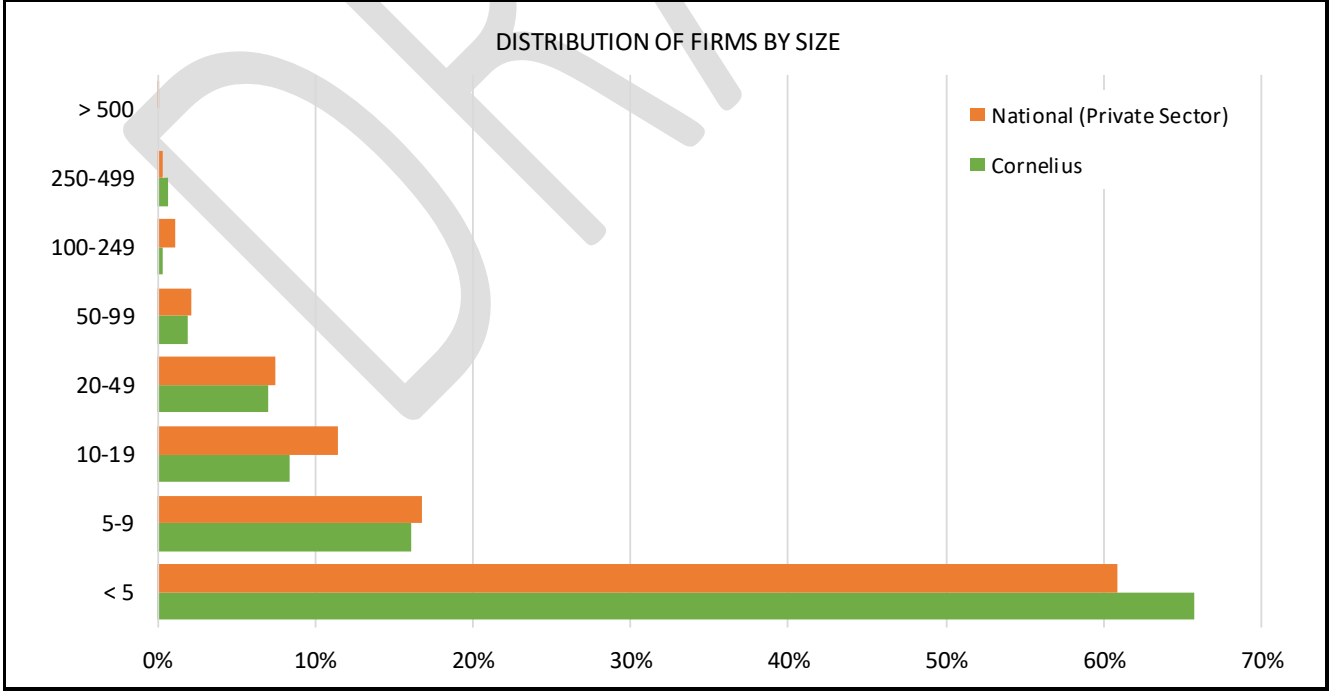
SOURCE: Oregon Employment Department, 2021 QCEW data, Johnson Economics

As of 2021, the local employment base was largely dominated by relatively small firms, with roughly 90% of businesses having fewer than 20 employees (Figure 3.18). This trend is in keeping with the national average, as most businesses are small businesses. (This is based on the most recent QCEW data for covered employment, and therefore doesn't cover all self-employment owner/operator businesses.) Just 1% of firms have more than 100 employees. This is again, in keeping with national trends.

As of 2021 there were approximately 312 firms in Cornelius with covered employees. When employment growth and sole-proprietorship businesses are taken into account, the number of individual businesses in Cornelius is likely close to 350.

FIGURE 3.18: DISTRIBUTION OF FIRMS BY SIZE, CITY OF CORNELIUS - 2021

Industry	Size of Firm/Employees								Total
	< 5	5-9	10-19	20-49	50-99	100-249	250-499	> 500	
Agriculture, forestry, fishing, and hunting	1	1	0	1	0	0	0	0	3
Mining	0	0	0	0	0	0	0	0	0
Construction	43	8	3	4	0	0	0	0	58
Food Manufacturing	2	0	1	0	0	0	0	0	3
Wood Manufacturing	1	1	0	1	0	0	0	0	3
Metals Manufacturing	3	0	2	2	0	1	0	0	8
Utilities	0	0	0	0	0	0	0	0	0
Wholesale trade	3	2	4	3	0	0	0	0	12
Retail trade	12	8	3	1	0	0	2	0	26
Transportation	3	0	2	0	0	0	0	0	5
Delivery and warehousing	0	0	1	0	0	0	0	0	1
Information	0	0	1	1	0	0	0	0	2
Finance and Insurance	9	3	0	0	0	0	0	0	12
Real Estate and Rental	9	1	0	0	0	0	0	0	10
Professional, Scientific, and Technical Services	10	0	0	1	0	0	0	0	11
Management of Companies and Enterprises	0	0	0	0	0	0	0	0	0
Administrative and Wast Management	21	0	0	0	1	0	0	0	22
Educational services	1	0	0	2	2	0	0	0	5
Health care and social assistance	56	14	5	1	2	0	0	0	78
Arts, Entertainment, and Recreation	0	0	0	0	0	0	0	0	0
Accommodation and Food Services	10	3	4	5	0	0	0	0	22
Other services	21	9	0	0	0	0	0	0	30
Government	0	0	0	0	1	0	0	0	1
TOTAL	**205**	**50**	**26**	**22**	**6**	**1**	**2**	**0**	**312**

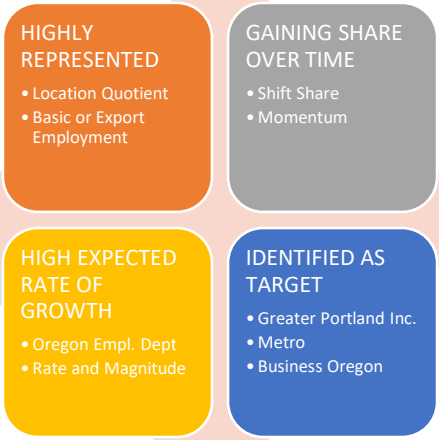


Source: Oregon Employment Department, QCEW data

IV. INDUSTRY DIFFERENTIATION ANALYSIS

This element of the Economic Opportunities Analysis utilizes analytical tools to assess the economic landscape in Washington County and the City of Cornelius. The objective of this process is to identify a range of industry types that can be considered targeted economic opportunities over the planning period.

A range of analytical tools to assess the local and regional economic landscape are used to determine the industry typologies the county and individual cities should consider targeting over the planning period. Where possible, we look to identify the sectors that are likely to drive growth in current and subsequent cycles.



A. ECONOMIC SPECIALIZATION (WASHINGTON CO.)

A common analytical tool to evaluate economic specialization is a location quotient analysis. This metric compares the concentration of employment in an industry at the local level to a larger geography. All industry categories are assumed to have a quotient of 1.0 on the national level, and a locality's quotient indicates if the local share of employment in each industry is greater or less than the share seen nationwide. For instance, a quotient of 2.0 indicates that locally, that industry represents twice the share of total employment as seen nationwide. A quotient of 0.5 indicates that the local industry has half the expected employment.

A location quotient analysis was completed for Washington County, which evaluated the distribution of local employment relative to national averages, as well as average annual wage levels by industry (Figure 4.01). Among major industries, the manufacturing industry has the strongest representation, with information and professional services being the next most over-represented. The industries that are well-represented countywide are good candidates for growth in localities such as Cornelius. The city has the potential to tap into regional advantages to grow locally.

FIGURE 4.01: INDUSTRY SECTOR SPECIALIZATION BY MAJOR INDUSTRY, WASHINGTON COUNTY, 2021

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Total Average Weekly Wage	Annual Wages per Employee	Employment LQ
101 Goods-producing	2,997	72,435	$7,787,130,685	$107,505	$2,067	$107,506	1.66
1011 Natural resources and mining	235	3,174	$139,391,573	$43,917	$844	$43,912	0.89
1012 Construction	1,889	17,757	$1,399,270,320	$78,801	$1,515	$78,803	1.18
1013 Manufacturing	873	51,504	$6,248,468,792	$121,320	$2,333	$121,321	2.06
102 Service-providing	18,371	198,376	$15,930,266,992	$80,303	$1,544	$80,304	0.96
1021 Trade, transportation, and utilities	3,359	52,906	$3,310,079,125	$62,565	$1,203	$62,565	0.94
1022 Information	715	7,409	$957,202,964	$129,195	$2,485	$129,200	1.28
1023 Financial activities	1,931	14,823	$1,271,775,857	$85,797	$1,650	$85,796	0.87
1024 Professional and business services	4,418	53,853	$7,037,294,979	$130,676	$2,513	$130,677	1.24
1025 Education and health services	3,519	37,227	$2,144,286,058	$57,600	$1,108	$57,600	0.81
1026 Leisure and hospitality	1,600	22,581	$607,721,750	$26,913	$518	$26,914	0.79
Federal Government	27	900	$72,307,819	$80,342	$1,546	$80,379	0.15
Local Government	242	18,587	$1,253,135,756	$67,420	$1,297	$67,419	0.67
State Government	33	2,176	$159,947,920	$73,505	$1,414	$73,517	0.24

SOURCE: Bureau of Labor Services

A more detailed industry analysis shows that the industries with the highest LQ in the county are semiconductor & other electronic component manufacturing, industrial machinery manufacturing, and computer & electronic product manufacturing. As a whole, the manufacturing industry employs the most amount of people in the county, employing roughly 61% more people than the second largest industry by employment, the health care and social assistance industry. The most under-represented industries are the mining, federal government, and accommodation industries.

FIGURE 4.02: INDUSTRY SECTOR SPECIALIZATION BY DETAILED INDUSTRY, WASHINGTON COUNTY, 2021

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Total Average Weekly Wage	Annual Wages per Employee	Employment LQ
NAICS 3344 Semiconductor and other electronic component manufacturing	73	24921	$4,161,429,638	$166,987	$3,211	$166,985	31.94
NAICS 3332 Industrial machinery manufacturing	23	3400	$471,751,815	$138,754	$2,668	$138,751	15.01
NAICS 334 Computer and electronic product manufacturing	141	28870	$4,580,914,632	$158,674	$3,051	$158,674	11.35
NAICS 55 Management of companies and enterprises	178	15871	$4,350,098,031	$274,092	$5,271	$274,091	5.06
NAICS 31-33 Manufacturing	873	51504	$6,248,468,792	$121,321	$2,333	$121,320	2.56
NAICS 111 Crop production	173	2391	$99,259,665	$41,520	$798	$41,514	1.75
NAICS 42 Wholesale trade	1460	13816	$1,612,302,774	$116,698	$2,244	$116,698	1.21
NAICS 321 Wood product manufacturing	27	1007	$65,025,375	$64,557	$1,241	$64,573	1.12
NAICS 23 Construction	1889	17757	$1,399,270,320	$78,803	$1,515	$78,801	1.04
NAICS 56 Administrative and support and waste management and remediation services	1300	21886	$1,187,464,424	$54,257	$1,043	$54,257	1.01
NAICS 11 Agriculture, forestry, fishing and hunting	231	2939	$119,673,419	$40,718	$783	$40,719	0.89
NAICS 51 Information	715	7409	$957,202,964	$129,200	$2,485	$129,195	0.85
NAICS 44-45 Retail trade	1562	31558	$1,321,029,910	$41,860	$805	$41,860	0.84
NAICS 53 Real estate and rental and leasing	903	4201	$262,201,884	$62,408	$1,200	$62,414	0.65
NAICS 62 Health care and social assistance	3178	31961	$1,913,635,959	$59,874	$1,151	$59,874	0.64
NAICS 72 Accommodation and food services	1345	19573	$520,997,273	$26,618	$512	$26,618	0.64
NAICS 61 Educational services	341	5266	$230,650,099	$43,800	$842	$43,800	0.54
NAICS 54 Professional, scientific, and technical services	2940	16096	$1,499,732,524	$93,175	$1,792	$93,174	0.51
NAICS 52 Finance and insurance	1029	10622	$1,009,573,973	$95,047	$1,828	$95,046	0.48
NAICS 71 Arts, entertainment, and recreation	256	3007	$86,724,477	$28,838	$555	$28,841	0.37
NAICS 115 Support activities for agriculture and forestry	32	321	$10,499,185	$32,699	$629	$32,708	0.27
NAICS 721 Accommodation	75	1031	$31,301,257	$30,348	$584	$30,360	0.21
NAICS 21 Mining, quarrying, and oil and gas extraction	4	235	$19,718,154	$83,818	$1,612	$83,907	0.14
Federal Government	27	900	$72,307,819	$1,546	$80,342	$80,342	0.15
State Government	33	2176	$159,947,920	$1,414	$73,505	$73,505	0.24
Local Government	242	18587	$1,253,135,756	$1,297	$67,420	$67,420	0.67

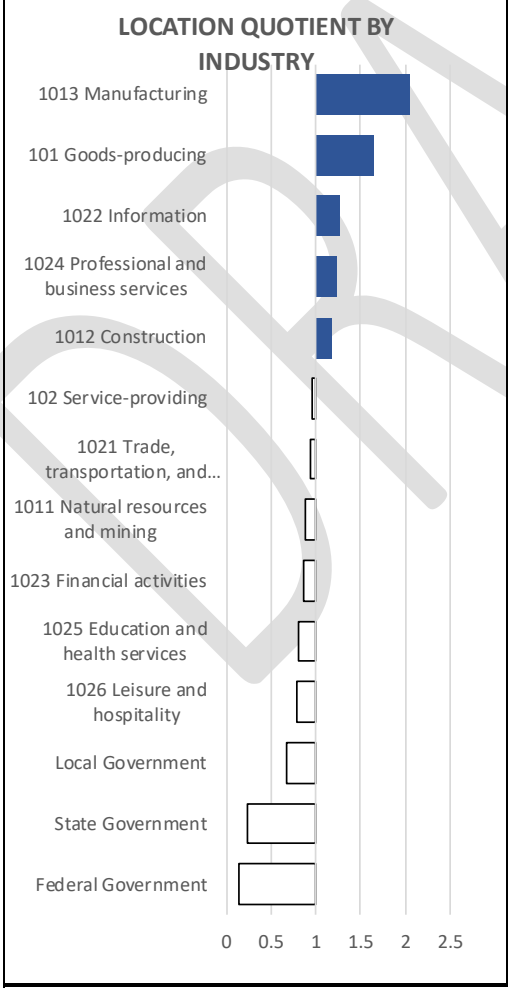
SOURCE: Bureau of Labor Services

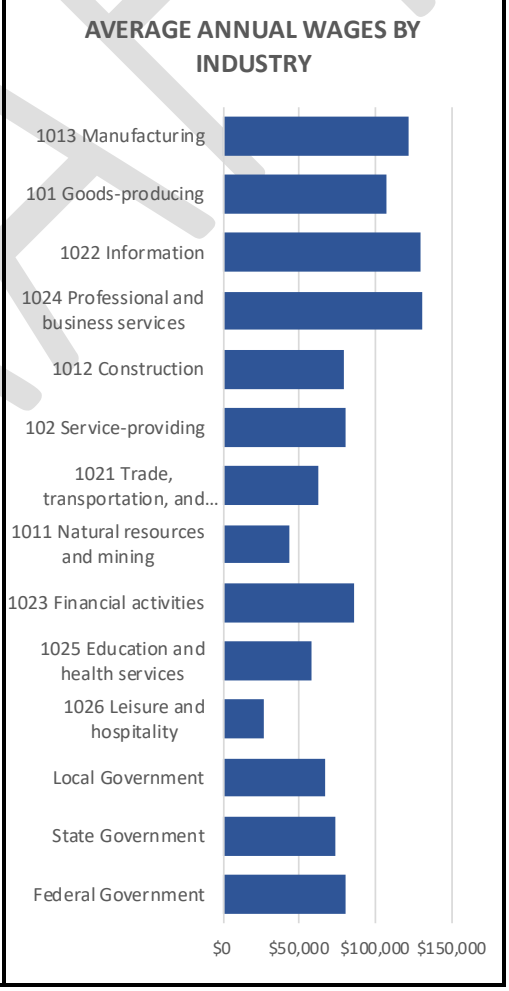
We can estimate the level of indicated export employment by sector by combining the location quotients and overall employment levels. The industries with the highest level of export employment are manufacturing (mainly semiconductor, industrial machinery, and computer manufacturing), other goods-producing, and agriculture, forestry, fishing, and hunting. The industries with the highest total employment are service industries including professional services, and trade and transportation.

FIGURE 4.03: TOP TEN INDUSTRIES IN TERMS OF TOTAL AND EXPORT EMPLOYMENT, WASHINGTON COUNTY

Industry	Total Employment
102 Service-providing	198,376
101 Goods-producing	72,435
1024 Professional and busines	53,853
1021 Trade, transportation, an	52,906
NAICS 31-33 Manufacturing	51,504
1025 Education and health ser	37,227
NAICS 62 Health care and socia	31,961
NAICS 44-45 Retail trade	31,558
1026 Leisure and hospitality	22,581
NAICS 56 Administrative and s	21,886

Industry	Export Employment
Manufacturing	31,385
Goods-producing	28,799
NAICS 55 Management of con	12,734
1024 Professional and busine	10,423
1012 Construction	2,709
NAICS 42 Wholesale trade	2,398
1022 Information	1,621
NAICS 111 Crop production	1,025
NAICS 23 Construction	683
NAICS 56 Administrative and	217





SOURCE: Bureau of Labor Services

B. Economic Specialization (City of Cornelius)

The same analysis applied to the city of Cornelius reveals high levels of employment concentration in industries such as manufacturing (metals and wood), education, retail trade, agricultural support, and construction.

Figure 4.04: Industry Sector Specialization by Detailed Industry, City of Cornelius, 2021

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Employment LQ
Agriculture, forestry, fishing, and hunting	3	48	$801,669	$16,701	2.00
Mining	0	0	$0	$0	0.00
Construction	58	282	$15,678,603	$55,598	1.97
Food Manufacturing	3	16	$874,613	$54,663	0.51
Wood Manufacturing	3	51	$3,580,741	$70,211	7.55
Metals Manufacturing	8	214	$11,579,334	$54,109	31.91
Utilities	0	0	$0	$0	0.00
Wholesale trade	12	149	$7,162,750	$48,072	1.36
Retail trade	26	725	$22,809,315	$31,461	2.45
Transportation	5	29	$1,504,399	$51,876	0.25
Delivery and warehousing	1	11	$735,076	$66,825	0.10
Information	2	38	$2,778,614	$73,121	0.70
Finance and Insurance	12	34	$1,575,454	$46,337	0.29
Real Estate and Rental	10	20	$638,862	$31,943	0.47
Professional, Scientific, and Technical Services	11	40	$1,861,576	$46,539	0.21
Management of Companies and Enterprises	0	0	$0	$0	0.00
Administrative and Wast Management	22	124	$4,411,713	$35,578	0.71
Educational services	5	190	$9,303,125	$48,964	3.49
Health care and social assistance	78	412	$18,215,893	$44,213	1.08
Arts, Entertainment, and Recreation	0	0	$0	$0	0.00
Accommodation and Food Services	22	210	$4,914,843	$23,404	0.90
Other services	30	87	$2,501,252	$28,750	1.09
Government	1	85	$3,069,949	$36,117	0.21
Total	312	2,765	$113,997,781	$41,229	

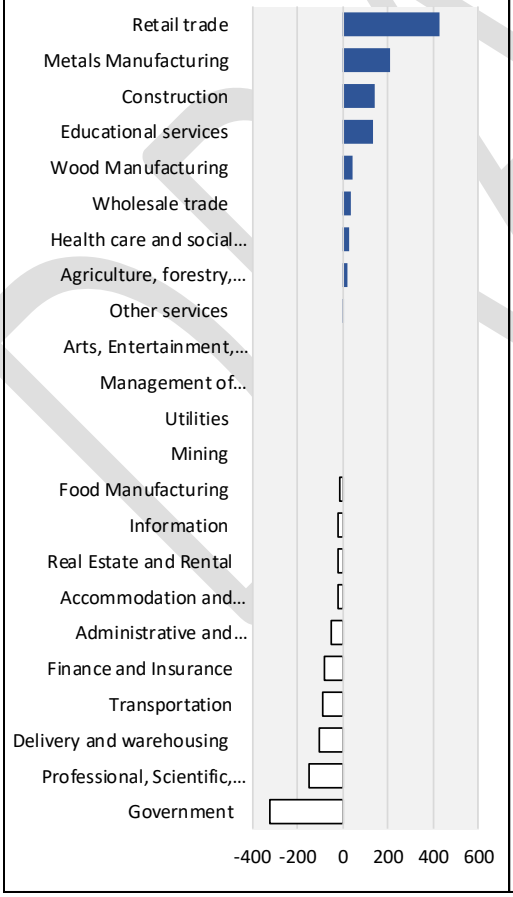
SOURCE: Oregon Employment Department

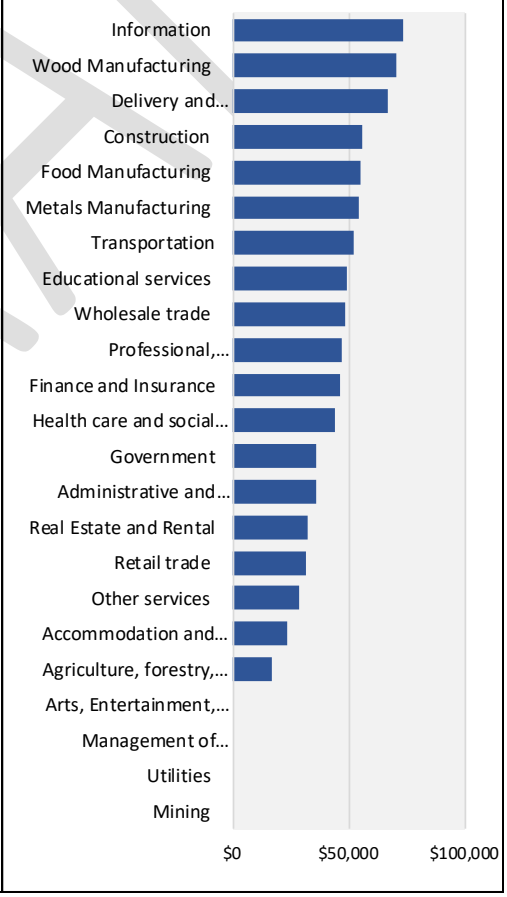
The top industries in terms of overall employment were retail trade, health care and social assistance, construction, and metals manufacturing. There were nine industries with positive export employment, the largest being retail trade, metals manufacturing, construction, and educational services. Moreover, there are four industries with very little representation in Cornelius, these being the mining, utilities, arts & entertainment, and management of companies & enterprises industries.

FIGURE 4.05: TOP TEN INDUSTRIES IN TERMS OF TOTAL AND EXPORT EMPLOYMENT, CITY OF CORNELIUS, 2021

Industry	Total Employment
Retail trade	725
Health care and social assistan	412
Construction	282
Metals Manufacturing	214
Accommodation and Food Ser	210
Educational services	190
Wholesale trade	149
Administrative and Wast Mana	124
Other services	87
Government	85

Industry	Location Quotient
Metals Manufacturing	31.91
Wood Manufacturing	7.55
Educational services	3.49
Retail trade	2.45
Agriculture, forestry, fishing,	2.00
Construction	1.97
Wholesale trade	1.36
Other services	1.09
Health care and social assistar	1.08
Accommodation and Food Se	0.90





SOURCE: Oregon Employment Department and Bureau of Labor Services

C. ECONOMIC DRIVERS

The identification of the economic drivers of a local or regional economy are critical in informing the character and nature of future employment, and by extension land demand over a planning cycle. To this end, we employ a shift-share analysis of the local economy emerging out of the latter half of the recent expansion cycle[1].

A shift-share analysis is an analytical procedure that measures local effect of economic performance within a particular industry or occupation. The process considers local economic performance in the context of national economic trends—indicating the extent to which local growth can be attributed to unique regional competitiveness or simply growth in line with broader trends. For example, consider that Widget Manufacturing is growing at a 1.5% rate locally, about the same rate as the local economy. On the surface we would consider the Widget Manufacturing industry to be healthy and contributing soundly to local economic expansion. However, consider also that Widget Manufacturing is booming across the country, growing at a robust 4% annually. In this context, local widget manufacturers are struggling, and some local or regional condition is stifling economic opportunities.

We can generally classify industries, groups of industries, or clusters into four groups:

Growing, Outperforming: Industries that are growing locally at a rate faster than the national average. These industries have characteristics locally leading them to be particularly competitive.

Growing, Underperforming: Industries that are growing locally but slower than the national average. These industries generally have a sound foundation, but some local factor is limiting growth.

Contracting, Outperforming: Industries that are declining locally but slower than the national average. These industries have structural issues that are impacting growth industry wide. However, local firms are leveraging some local or regional factor that is making them more competitive than other firms on average.

Contracting, Underperforming: Industries that are declining locally at a rate faster than the national average. These industries have structural issues that are impacting growth industry wide. However, some local or regional factor is making it increasingly tough on local firms.

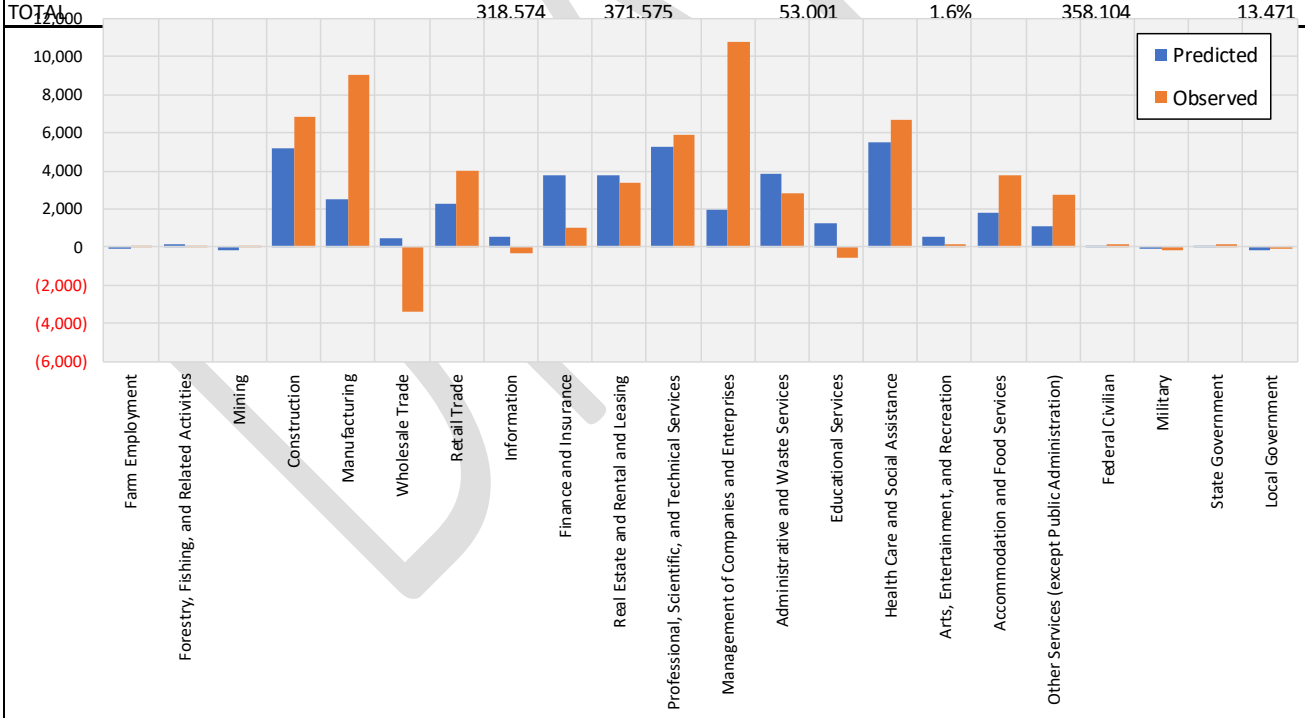
The average annual growth rate by industry from 2011 to 2021 in Washington County was compared to the national rate. The observed local change was compared to a standardized level reflecting what would be expected if the local industry grew at a rate consistent with national rates for that industry.

As shown in Figure 4.06, most industries grew at a slower rate than the rest of the country, although a fair number of industries outperformed national trends. The sectors that experienced the greatest positive regional shift in employment during this period were management of companies & enterprises, manufacturing, accommodation and food services, retail trade, and construction. The only sectors that comfortably outperformed expectations were management of companies & enterprises, manufacturing, and accommodation & food services. Sectors with the greatest negative regional shift in employment were wholesale trade, finance & insurance, and administrative and educational services.

1 Measured from 2011 through 2021

FIGURE 4.06: INDUSTRY SECTOR SHIFT SHARE ANALYSIS, WASHINGTON COUNTY (2011 – 2021)

Industry	Average Employment 2011	Average Employment 2021	Net Change Total	Net Change AAGR	Standardized Level - 2021*	Regional Shift
Farm Employment	4,441	4,534	93	0.2%	4,355	179
Forestry, Fishing, and Related Activities	1,483	1,499	16	0.1%	1,606	(107)
Mining	525	541	16	0.3%	390	151
Construction	15,423	22,270	6,847	3.7%	20,588	1,682
Manufacturing	44,391	53,419	9,028	1.9%	46,919	6,500
Wholesale Trade	19,108	15,691	(3,417)	-2.0%	19,591	(3,900)
Retail Trade	34,751	38,763	4,012	1.1%	37,065	1,698
Information	9,652	9,305	(347)	-0.4%	10,205	(900)
Finance and Insurance	18,546	19,549	1,003	0.5%	22,301	(2,752)
Real Estate and Rental and Leasing	13,830	17,185	3,355	2.2%	17,619	(434)
Professional, Scientific, and Technical Services	22,030	27,914	5,884	2.4%	27,282	632
Management of Companies and Enterprises	5,988	16,768	10,780	10.8%	7,926	8,842
Administrative and Waste Services	24,540	27,372	2,832	1.1%	28,379	(1,007)
Educational Services	9,492	8,900	(592)	-0.6%	10,770	(1,870)
Health Care and Social Assistance	30,756	37,434	6,678	2.0%	36,264	1,170
Arts, Entertainment, and Recreation	7,379	7,521	142	0.2%	7,926	(405)
Accommodation and Food Services	18,233	22,000	3,767	1.9%	20,046	1,954
Other Services (except Public Administration)	14,878	17,657	2,779	1.7%	16,010	1,647
Federal Civilian	780	910	130	1.6%	785	125
Military	1,531	1,368	(163)	-1.1%	1,419	(51)
State Government	1,954	2,114	160	0.8%	1,958	156
Local Government	18,863	18,861	(2)	0.0%	18,700	161
TOTAL	318,574	371,575	53,001	1.6%	358,104	13,471



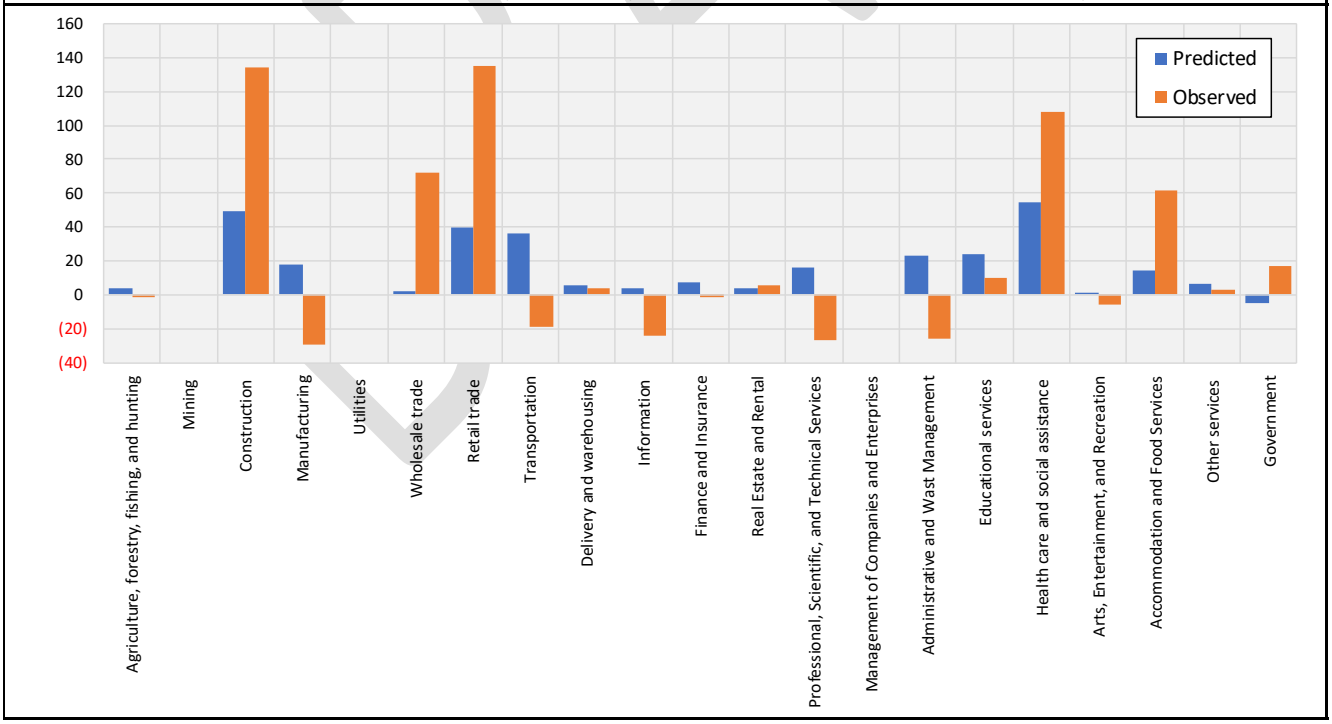
* Employment level in each industry had it grown at the same rate as its counterparts at the national level over the same period.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis

When the shift share analysis is applied to the city of Cornelius, growth was also slow compared to the rest of the country. The best performing sectors on this measure in the local economy were retail trade, wholesale trade, construction, healthcare & social services, accommodation & food service, and government.

FIGURE 4.07: INDUSTRY SECTOR SHIFT SHARE ANALYSIS, CITY OF CORNELIUS (2011 – 2021)

Industry	Average Employment 2011	Average Employment 2021	Net Change Total	Net Change AAGR	Standardized Level - 2021*	Regional Shift
Agriculture, forestry, fishing, and hunting	49	48	(1)	-0.2%	53	(5)
Mining	0	0	0	0.0%	0	0
Construction	148	282	134	6.7%	198	84
Manufacturing	310	281	(29)	-1.0%	328	(47)
Utilities	0	0	0	0.0%	0	0
Wholesale trade	77	149	72	6.8%	79	70
Retail trade	590	725	135	2.1%	629	96
Transportation	48	29	(19)	-4.9%	85	(56)
Delivery and warehousing	7	11	4	4.6%	12	(1)
Information	62	38	(24)	-4.8%	66	(28)
Finance and Insurance	35	34	(1)	-0.3%	42	(8)
Real Estate and Rental	14	20	6	3.6%	18	2
Professional, Scientific, and Technical Services	67	40	(27)	-5.0%	83	(43)
Management of Companies and Enterprises	0	0	0	0.0%	0	0
Administrative and Wast Management	150	124	(26)	-1.9%	173	(49)
Educational services	180	190	10	0.5%	204	(14)
Health care and social assistance	304	412	108	3.1%	358	54
Arts, Entertainment, and Recreation	6	0	(6)	-100.0%	6	(6)
Accommodation and Food Services	148	210	62	3.6%	163	47
Other services	84	87	3	0.4%	90	(3)
Government	68	85	17	2.3%	63	22
TOTAL	2,347	2,765	418	1.7%	2,651	114



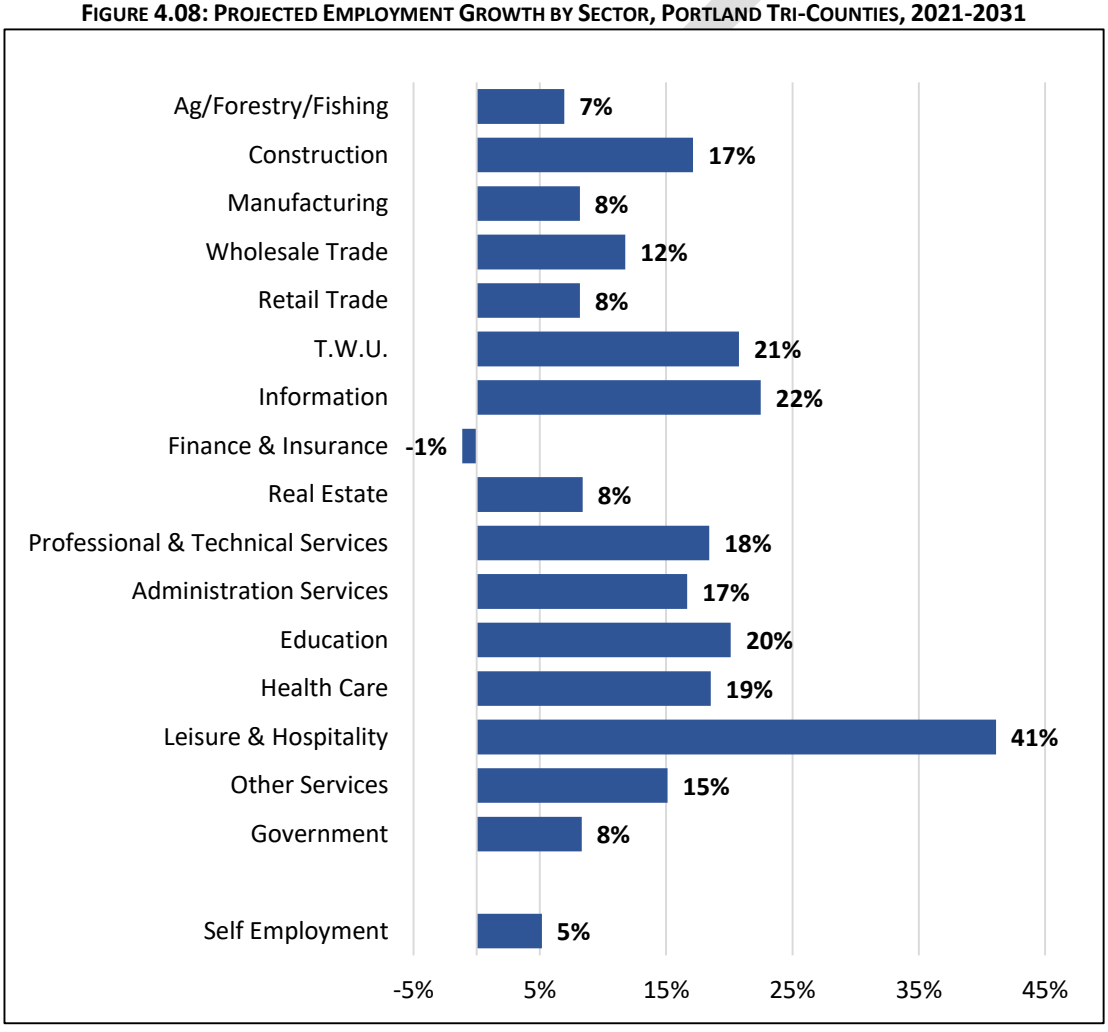
* Employment level in each industry had it grown at the same rate as its counterparts at the national level over the same period.
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis

D. REGIONAL EMPLOYMENT PROJECTION (OED)

The State of Oregon produces employment forecasts by sector at the broader regional level, which groups Clackamas, Multnomah, and Washington Counties together. The most recent forecast anticipates a gain of 148,500 jobs from 2021 through 2031, reflecting an average annual growth rate of roughly 1.4% during the period. This area has historically seen strong growth, and recovery from the COVID pandemic has been promising.

In this region, the industries projected to experience the most growth are leisure & hospitality, information, trade/warehousing/utilities, and education. Only the finance sector is projected to experience negative growth in the coming years.

FIGURE 4.08: PROJECTED EMPLOYMENT GROWTH BY SECTOR, PORTLAND TRI-COUNTIES, 2021-2031



SOURCE: Oregon Employment Department, Workforce and Economic Research Division

V. CORNELIUS TARGET INDUSTRIES ANALYSIS

The preceding analysis provides a basis for narrowing of target industries for the City of Cornelius. These indicators point to sectors of past and potential growth, as well as locally expressed economic development vision for the community. The following is a summary of targeted sectors and indicators for Cornelius.

Cornelius Targets and Indicators

CITY OF CORNELIUS Current Largest Employers
Retail Trade
Health Care and Social Assistance
Construction
Manufacturing
Leisure & Hospitality
Education

STRONG SHIFT SHARE INDICATOR
Retail Trade
Construction
Wholesale Trade
Health Care and Social Assistance
Accommodation and Food Service

STRONG LOCATION QUOTIENT
Metal Manufacturing
Wood Manufacturing
Education
Retail Trade
Agricultural Services
Construction

BUSINESS OREGON - Statewide Targets
Outdoor Gear and Apparel
Forestry & Wood Products
Advanced Manufacturing
Business Services
Food & Beverage
Bioscience
Metals & Machinery
High Technology

These broader analyses arrived at similar conclusions of the advantageous industries for Cornelius, including manufacturing, construction, health care, education, wholesale and retail, and agricultural support services.

CITY OF CORNELIUS TARGET INDUSTRIES

The preceding analysis of industry strengths and regional priorities provided a foundation for the discussion of local target industries for the City of Cornelius. Through the EOA planning process, the community recommends the following list of priority sectors to help meet the community's economic development goals.

The selected industries reflect the community's historical strengths and advantages, regional trends, and local goals and objectives. These are discussed in more detail in the following pages:

- Manufacturing
- Health Care
- Retail Trade
- Construction
- Education
- Wholesale Trade

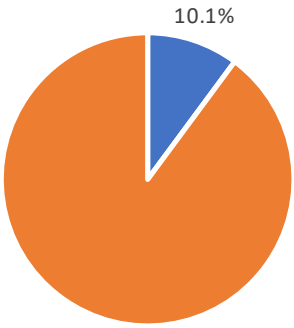
Note: The following discussion of target sectors relies on the most recent QCEW data from the Oregon Employment Department, dating to 2021. Total employment figures are updated to an estimate for 2023 in the following section of this report.

A. MANUFACTURING

Manufacturing has been a long-standing target sector for the City of Cornelius, and the sector is well represented among current businesses. Local employers manufacture products include metal prodcucts, wood products, metals, and electronic components. This sector has a strong location quotient indicator in Cornelius. Manufacturing provides good average incomes and skill building opportunities to blue-collar workers.

SECTOR SUMMARY: MANUFACTURING

SHARE OF EMPLOYMENT



TARGET SECTOR STATS	
2021 EMPLOYMENT	281
AVERAGE ANNUAL WAGE	$57,063
GROWTH 2011-2021	12
ESTIMATED EXPORT EMPLOYMENT	236

MAJOR LOCAL EMPLOYERS
SHELDON MANUFACTURING
TRUSS COMPONENTS OF OREGON INC
EAGLE PRECISION SHEETMETAL INC
KAUFFMAN ENGINEERING LLC
SUMMIT FOODS INC

NAICS	Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
321	Wood Product Manufacturing	50	11	28.2%	$71,524
332	Metal Product Manufacturing	42	-10	-19.2%	$56,193
333	Machinery Manufacturing	107	107	-	$58,590
334	Computer & Electronics Manufacturing	2	-41	-95.3%	$16,410
	Other	122	-54	-30.7%	$41,550
Total		323	12	3.9%	$57,063

The overall employment level in this sector was 281 in 2021, representing roughly 10% of the local employment base. The average annual wage was approximately $57,063 per year in 2021. Employment levels in the sector increased by roughly 4% from 2011 through 2021.

Cluster Strengths

- Good foundation of existing manufacturing businesses and recent growth.
- Diversified inputs and product types.
- Experienced manufacturing work force, and training opportunities.
- Solid wages in many manufacturing subsectors.

Cluster Challenges

- Scaling up the skilled workforce quickly.
- Increasing shortage of appropriate industrial sites.

While manufacturing has experienced secular decline nationwide over many decades, there are still many opportunities for producers that benefit from proximity to inputs and the intended market, advanced production techniques and skills. Cornelius has demonstrated the ability to foster and grow this sector.

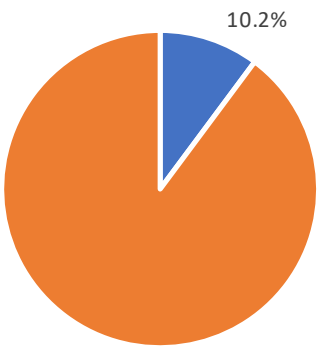
B. CONSTRUCTION

Construction is well-represented in Cornelius, with a strong location quotient and shift share indicators. Many large contracting companies are located in the community. Construction firms offer generally well-paying blue-collar jobs with excelling on-the-job training and transferrable skills development. Construction firms benefit from the same centralized location in the Metro area as many other sectors, with contractors able to access job sites across the region with their equipment and workforce.

The construction sector accounted for 282 jobs in 2021, representing roughly 10% of the local employment base. The average annual wage was approximately $55,598 per year in 2021. The sector showed very strong growth from 2011 to 2021, growing by 91%.

SECTOR SUMMARY: CONSTRUCTION

SHARE OF EMPLOYMENT



TARGET SECTOR STATS	
2021 EMPLOYMENT	282
AVERAGE ANNUAL WAGE	$55,598
GROWTH 2011-2021	134
ESTIMATED EXPORT EMPLOYMENT	139

MAJOR LOCAL EMPLOYERS
KEN LEAHY CONSTRUCTION INC
H P S CONSTRUCTION INC
JACKSON INDUSTRIES, LLC
SONICOM CORPORATION
SERVPRO OF YAMHILL & TILLAMOOK COUN
HYBRID HEATING & AIR CONDITIONING

NAICS	Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
236	Building Construction	61	35	134.6%	$41,982
237	Civil/Infrastructure Construction	58	10	20.8%	$66,404
238	Subcontractors	163	89	120.3%	$56,848
Total		282	134	91%	$55,598

Cluster Strengths

- Ongoing demand for construction firms in a growing city and region.
- Centralized location with access for equipment and workforce to Washington County market.
- Experienced construction work force, and training opportunities.
- Generally high blue-collar wages.

Cluster Challenges

- Increasing shortage of appropriate industrial land.

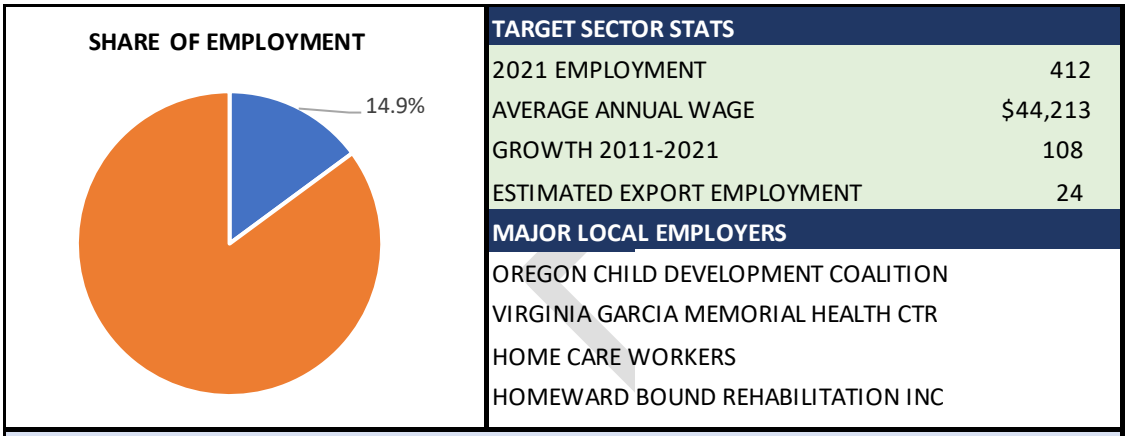
Construction is generally a resilient sector in areas that continue to experience organic growth in population and jobs such as Oregon. Even as broader economic trends may depress some aspects of real estate development, other sectors are often healthy or growing, and specialties such as public infrastructure development are resistant to economic cycles. This sector is a good industry for a relatively young, diverse, and less educated workforce.

C. Health Care and Social Services

With 15% of local employment, the Health Care and Social Services sector is the second largest employer in Cornelius behind Retail. The sector has a strong location quotient and shift share, having growth swiftly over the last decade.

Like most communities, Cornelius will increasingly face growing health care needs from a growing and aging population. The health care needs of the Baby Boom generation, the oldest of which are approaching 80 years old and the youngest approaching 60, are expected to increase the need for health care facilities and workforce over the next 20 years.

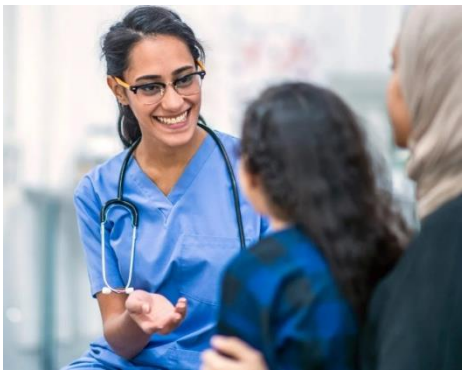
SECTOR SUMMARY: Health Care and Social Services



TARGET SECTOR STATS	
2021 EMPLOYMENT	412
AVERAGE ANNUAL WAGE	$44,213
GROWTH 2011-2021	108
ESTIMATED EXPORT EMPLOYMENT	24
MAJOR LOCAL EMPLOYERS	
OREGON CHILD DEVELOPMENT COALITION	
VIRGINIA GARCIA MEMORIAL HEALTH CTR	
HOME CARE WORKERS	
HOMEWARD BOUND REHABILITATION INC	

NAICS	Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
62	Health Care & Social Services	412	108	36%	$44,213
Total		412	108	36%	$44,213

The overall employment level in this sector was 412 in 2021, representing roughly 15% of the local employment base. The average annual wage was approximately $44,200 per year in 2021, with a significant range between wages for social workers and health care workers. Employment levels in the sector increased by 36% from 2011 to 2021.



Cluster Strengths

- Growing and aging population base.
- Low local competition for many specialties and more advanced healthcare.
- Ability to serve larger market of western Washington County.

Cluster Challenges

- Potential competition from other Metro medical clusters.

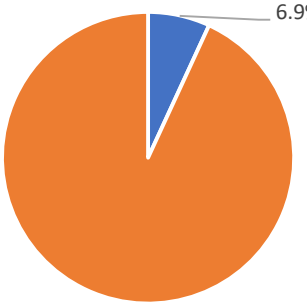
D. Educational Services

Education is a large sector in Cornelius with a strong location quotient. Most local education employment is in the public school system however the community has identified the potential to increase adult education and training opportunities for the local workforce. This might be pursued through partnerships with local resources like Portland Community College, Pacific University, and economic development partners.

Overall, the educational services sector represents roughly 7% of all employment in the city of Cornelius. This translates to 190 jobs in 2021 with an average annual wage of $48,964. Employment in the cluster grew by 5.6% from 2011 through 2021, adding 10 jobs in total.

SECTOR SUMMARY: EDUCATIONAL SERVICES

SHARE OF EMPLOYMENT



TARGET SECTOR STATS	
2021 EMPLOYMENT	190
AVERAGE ANNUAL WAGE	$48,964
GROWTH 2011-2021	10
ESTIMATED EXPORT EMPLOYMENT	136
MAJOR LOCAL EMPLOYERS	
CORNELIUS ELEM SCHOOL	
ECHO SHAW ELEM	
CENTRO CULTURAL	
FREE ORCHARDS ELEMENTARY	
NW YOUTH BASEBALL LLC	

NAICS Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
611 Educational Services	190	10	5.6%	$48,964
Total	190	10	5.6%	$48,964

Cluster Strengths

- Growing unmet market for local on-going education and workforce training
- Available public and private sector partners

Cluster Challenges

- Few challenges.

E. RETAIL TRADE

The retail trade sector makes up a significant portion of Cornelius' employment base representing roughly 26.3% of all employees within the city. While the city seeks to diversify its employment opportunities into more sectors, the area remains a strong location for retail businesses, and has experienced rapid growth over the past decade.

The retail trade sector makes up a significant portion of Cornelius' employment base employing roughly 26.3% of all employees within the city, translating to an employment level of 727 in 2021. During this period, the sector's average wage was $31,168. The sector grew by roughly 23% during this period or 137 jobs from 2011 to 2021.

Cluster Strengths

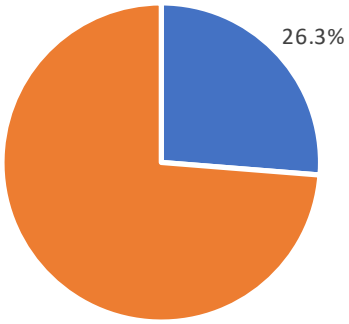
- Strong location quotient for retail businesses serving a regional market.
- Commercial real estate development supports a balanced fiscal profile for the City.
- Large, experienced workforce.

Cluster Weakness

- Generally low-wage jobs.
- Diminishing number of buildable commercial sites.

SECTOR SUMMARY: RETAIL TRADE

SHARE OF EMPLOYMENT



TARGET SECTOR STATS	
2021 EMPLOYMENT	727
AVERAGE ANNUAL WAGE	$31,168
GROWTH 2011-2021	137
ESTIMATED EXPORT EMPLOYMENT	430

MAJOR LOCAL EMPLOYERS
WAL MART ASSOCIATES INC
FRED MEYER
COASTAL FARM & RANCH
WALGREENS
CORNELIUS FOOD/OIL LLC

NAICS	Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
444	Building Material & Garden Equipment Dealers	53	49	1225%	$29,127
445	Food & Beverage Retailers	29	7	31.8%	$29,214
446	Health & Personal Care Stores	25	-22	-46.8%	$39,848
447	Gas Stations	21	1	5.0%	$27,400
452	General Merchandise Stores	568	114	25.1%	$31,442
	Other	31	-12	-27.9%	$27,010
Total		727	137	23.2%	$31,168

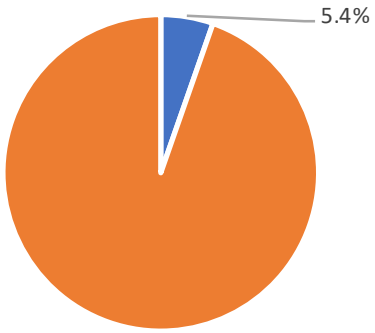
F. WHOLESALE TRADE

Wholesale trade has grown quickly in Cornelius, nearly doubling in employment over the past decade. This sector offers relatively high wages for low-skilled workers. This industry often uses warehousing or commercial space, sometimes with yard storage for large items. These businesses often have the flexibility to use either industrial or commercial land. As other industries grow in the area, as well as ecommerce, wholesale businesses tend to thrive.

The overall employment level in this sector was 149 in 2021, representing roughly 5.4% of the local employment base. The average annual wage was approximately $48,072 per year in 2021. Employment in the wholesale trade sector saw relatively strong growth adding 72 new jobs from 2011 to 2021, or growing by 93.5%.

SECTOR SUMMARY: WHOLESALE TRADE

SHARE OF EMPLOYMENT



TARGET SECTOR STATS	
2021 EMPLOYMENT	149
AVERAGE ANNUAL WAGE	$48,072
GROWTH 2011-2021	72
ESTIMATED EXPORT EMPLOYMENT	39

MAJOR LOCAL EMPLOYERS
WILCO FARMERS
HILLSBORO PUMP SERVICE PIPE & SUPPL
PAPE MACHINERY INC
BURROWS EQUIPMENT LLC
CROP PRODUCTION SERVICES

NAICS	Description	2021 Employment	Growth '11-'21 Total	Growth '11-'21 %	Average Wage
423	Durable Goods Wholesaler	65	43	195.5%	$55,569
424	Nondurable Goods Wholesalre	83	29	53.7%	$42,206
425	Electronic Markets and Agents	1	0	0%	$47,683
Total		149	72	93.5%	$48,072

Cluster Strengths

- Strong growth for wholesale businesses serving a regional market.
- Flexible businesses can use a range of sites and locations.
- Higher wages than retail trade, on-the-job skill building.

Cluster Weakness

- Diminishing number of large buildable sites.

VI. FORECAST OF EMPLOYMENT AND LAND NEED

CITY OF CORNELIUS EMPLOYMENT FORECASTS

Goal 9 requires that jurisdictions plan for a 20-year supply of commercial and industrial capacity. Because employment capacity is the physical space necessary to accommodate new workers in the production of goods and services, employment need forecasts typically begin with a forecast of employment growth in the community.

The previous analysis of economic trends and targeted industries set the context for these estimates. This analysis translates those trends into estimates of employment growth by broad industry. Forecasts are produced at the sector or subsector level (depending on available information), and subsequently aggregated into two-digit North American Industry Classification System (NAICS) sectors. Estimates in this analysis are intended for long-range land planning purposes and are not designed to predict or respond to business cycle fluctuation.

The projections in this analysis are built on an estimate of employment in 2023, the commencement year for the planning period. Employment growth will come as the result of net-expansion of existing businesses in the community, new business formation, or the relocation/recruitment of new firms. Forecast scenarios consider a range of factors influencing growth. Long-range forecasts typically rely on a macroeconomic context for growth. The forecast does not consider the impact of a significant exogenous shift in employment such as recruitment of a major employer.

A. OVERVIEW OF EMPLOYMENT FORECAST METHODOLOGY

Our methodology starts with employment forecasts for major commercial and industrial sectors. Forecasted employment is allocated to building type, and a space demand is a function of the assumed square footage per employee ratio multiplied by projected change. The need for space is then converted into land and site needs based on assumed development densities using floor area ratios (FARs).

FIGURE 6.01: OVERVIEW OF EMPLOYMENT FORECAST METHODOLOGY

The first analytical step of the analysis is to update covered employment from the 2021 data to the 2023 base year. The Quarterly Census of Employment and Wages (QCEW) data was used to determine the City of Cornelius' covered employment by industry through 2021. To update these estimates, we use observed industry specific growth rates for Washington County between 2021 and 2023.

The second step in the analysis is to convert "covered"[2] employment to "total" employment. Covered employment only accounts for a share of overall employment in the economy. Specifically, it does not consider sole proprietors or commissioned workers. Covered employment was converted to total employment based on observed ratios at the national level derived from the Bureau of Economic Analysis. The adjusted 2023 total employment base for the city of Cornelius is 3,035 jobs.

FIGURE 6.02: UPDATE TO 2023 BASELINE AND CONVERSION OF COVERED TO TOTAL EMPLOYMENT
CITY OF CORNELIUS (2021 – 2023)

	QCEW Employment				
Major Industry Sector	2021 Employment	'21-'23 County Δ[1]	2023 Estimate	Total Emp. Conversion[2]	2023 Estimate
Construction	282	2.7%	298	82%	363
Manufacturing	281	2.8%	297	98%	304
Wholesale Trade	149	1.1%	152	98%	156
Retail Trade	725	-1.2%	708	95%	743
T.W.U.	40	-6.2%	35	91%	39
Information	38	2.6%	40	95%	42
Finance & Insurance	34	-2.5%	32	92%	35
Real Estate	20	-2.5%	19	92%	21
Professional & Technical Services	40	3.6%	43	91%	47
Administration Services	124	3.6%	133	91%	146
Education	190	2.3%	199	96%	208
Health Care/Social Assistance	412	2.3%	431	96%	452
Leisure & Hospitality	210	9.5%	252	95%	266
Other Services	87	8.6%	103	86%	120
Government	85	4.4%	93	100%	93
TOTAL	**2,717**	**4.4%**	**2,835**	**93%**	**3,035**

1/Growth rate calculated using CES data for Washington County

2/ Bureau of Economic Analysis (2020 National Averages)

B. "SAFE HARBOR" EMPLOYMENT GROWTH RATES

Oregon Administrative Rules do not require cities to utilize a specific methodology for forecasting future employment growth. Instead, the rules state that cities *may* use some methods, or safe harbor approaches, to forecast job growth [OAR 660-024-0040(5) and (9)]. Cities are encouraged to base forecasts on identified national, state, and local trends (660-009-0015).

The OAR mentioned some potential "safe harbor" sources on which the forecasted job growth *may* be based are:

- Most recent adopted population growth rate for the City (Metro Urban Growth Report, 2021)
- Most recent forecasted employment growth for the City (Metro Urban Growth Report, 2021)
- Most recent sectoral job growth forecast for the tri-county region (Oregon Employment Department, 2021 – 2031)

For this analysis *these potential assumptions were considered, but ultimately rejected*, to generate the 20-year job forecast for Cornelius. Each of these forecasts imply very low employment growth rates that are insufficient to capture the

2 The Department of Labor's Quarterly Census of Employment and Wages (QCEW) tracks employment data through state employment departments. Employment in the QCEW survey is limited to firms with employees that are "covered" by unemployment insurance.

employment needs from recent and forecasted residential growth in the City, as well as the location advantages of the city for attracting large employers going forward.

C. METRO VS. STATE EMPLOYMENT FORECASTS

Through its periodic forecasting efforts (via the Urban Growth Report), Metro generates growth forecasts for population, households, and employment for the cities in the region, as well as the three-county region (Washington, Multnomah, Clackamas Counties).

However, a comparison of the three-county employment forecasts prepared by Metro itself, and the three-county employment forecasts prepared by the OED show that Metro is not planning to accommodate nearly as much employment as the state is predicting (Figure 6.02).

FIGURE 6.02: PORTLAND THREE-COUNTY EMPLOYMENT FORECAST, METRO AND OED

	2020/1	2030/1	Employment Growth		Share of OED Forecast
OED Projection (2021-2031)[1]					
3-County Area:	1,010,500	1,159,000	148,500	15%	100%
Metro Projection (2020-2030)[2]					
3-County Area:	1,026,032	1,091,568	65,536	6%	44%
Metro UGB Cities:	869,782	916,928	47,146	5%	32%
Unincorporated Areas:	142,058	160,054	17,996	13%	12%
Non-Metro Cities:	14,192	14,586	394	3%	0.3%

[1] Portland Tri-County Industry Projections 2021-2031, Oregon Employment Department (11/21)

[2] 2045 Distributed Forecast of Population, Households, and Employment, Metro (2/21)

Metro has growth projections dating from 2021 and covering the 2020 to 2030 period, while OED has growth projections covering the similar 2021 to 2031 period. Metro's projection includes all land and communities within the three counties, not just those within the UGB, and will be used in Metro's updated Urban Growth Report. Some of the findings are summarized below:

- Metro projects just 44% of the total job growth projected by OED in the three counties (65k vs. 148k).
- OED projects an average annual employment growth rate of 1.4% per year during this period, while Metro projects a much lower rate of 0.6% per year.
- Metro's projected employment growth rate is much lower than the average annual *population* growth rate experienced over the last 10- or 20-year periods. In fact, Metro is planning for far fewer new jobs (65k) than Metro's accompanying projection of the number of new households (114k) over the same period. (This would be less than 0.6 new jobs for each new household.)
- As Metro uses this adopted employment forecast for regional land use planning, it will plan for only enough employment lands (commercial and industrial) to accommodate a fraction of what state economists predict the three-county region will see.
- Even if the Metro UGB were to absorb 100% of Metro's own projected employment growth, this would leave nearly 83k jobs (or 54% of the total) from the OED forecast for the three counties, unaccounted for over the next 10 years.

- In short, the Metro employment forecast does not seem in keeping with historical and projected household growth rates and economic development goals to maintain sufficient employment land to facilitate business formation and job opportunities.

In the case of Cornelius, the latest adopted Metro forecast (2021) seems too low to match recent community growth, or local economic goals. Metro's forecasted employment growth rate (1.2%) is lower than the forecasted population (1.3%) or household (1.6%) growth rates over the same period, which would exacerbate the already low jobs-to-housing balance in the city (see next section).

D. JOBS/HOUSING BALANCE - CORNELIUS

The City of Cornelius has long identified an imbalance between the number of local residents and the number of local jobs as an economic and fiscal challenge to the community. Communities with a low jobs-to-housing ratio, like Cornelius, face a fiscal mismatch between a relatively high number of households, which often place a higher demand on public services than they pay in local taxes, and relatively fewer commercial and industrial land uses which tend to provide net-positive tax revenue to pay for public services.

"Bedroom communities" face the challenge of serving growing residential neighborhoods without the employment uses to help fund robust services and infrastructure. The challenge is even more acute in communities with lower average incomes and property value levels, such as Cornelius. According to the latest Census data, the local median income is over 20% lower than median income of Washington County.

Cornelius also emphasizes greater local job growth so that local working residents can find employment closer to home. Proximity of employment makes it easier for workers to use active transportation and public transit for commuting and creates a more cohesive community where more resident spending takes place locally throughout the day.

As of 2023, the City of Cornelius had an estimated 3,035 local jobs available for its 4,702 households (Metro). This is a jobs-to-household ratio of 0.64 jobs for each household. At the same time, it is estimated that there are an average of 1.5 workers for each household in Cornelius. The Census estimates that only 5% of local working residents work in Cornelius, while the remainder commute to other communities to find employment.

Improving local employment opportunities, including adding high-wage jobs in growing industries, is a key economic development goal, as identified in the adopted 2017 EOA report. **Balancing the jobs-to-housing ratio in Cornelius forms the basis of the forecasted job growth and land need discussed in the following section.**

E. ADOPTED EMPLOYMENT GROWTH RATE FORECAST (CORNELIUS)

As noted, the Goal 9 statute does not have a required method for employment forecasting, but outlines several safe harbor methods, which are intended to provide jurisdictions an accepted methodological approach. In this case, the safe harbor approaches, reliant on either low Metro growth forecasts, or OED sector forecasts applied to the low current local employment base, are both inadequate to meet local economic development goals. The safe harbor approaches would maintain and even exacerbate the longstanding fiscal and jobs/housing imbalances the City seeks to solve.

For that reason, this analysis has adopted an alternative growth scenario aimed at reflecting a more balanced local employment base:

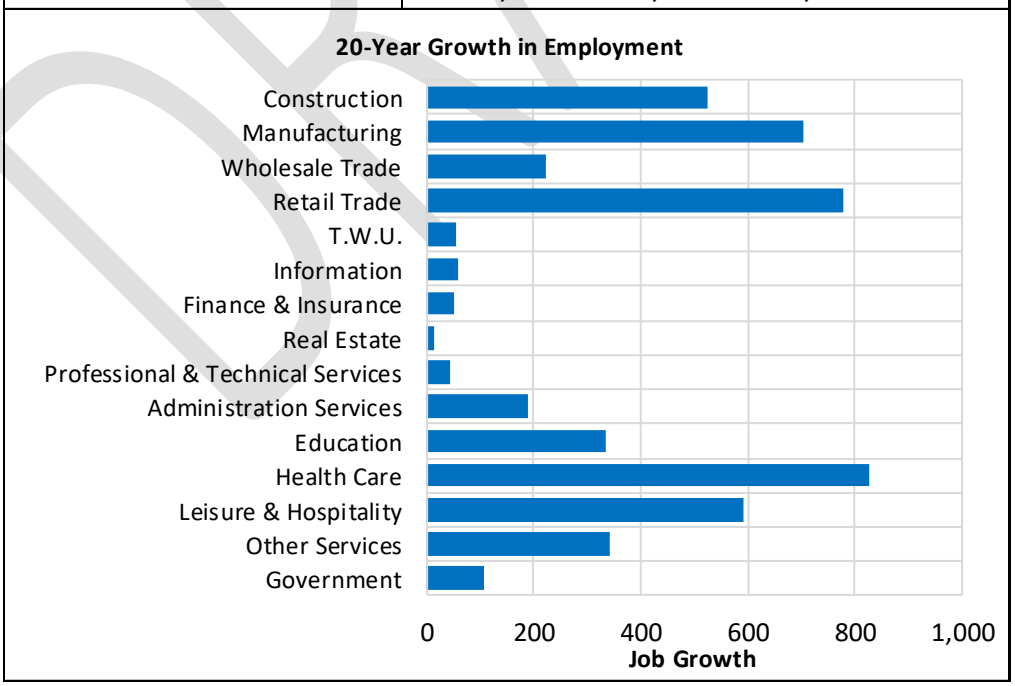
- **Cornelius Growth Scenario:** Achieve a 1:1 balance of jobs-to-*workers* by 2043. This means that at least one local opportunity would be available for each local working resident. There are an estimated average 1.5 working

residents per each household, so this is a higher number and is the higher growth scenario. The number of households in Cornelius (5,421) in 2043 is derived from Metro's most recent adopted forecast.

Figure 6.03 presents the results of the forecasted growth scenario. The projected annual growth rate of 4.9% results in a finding of 4,850 jobs in 2043, to achieve a jobs-to-worker balance.

FIGURE 6.03: 20-YEAR EMPLOYMENT FORECAST, CITY OF CORNELIUS (2023-2043)

Industry	Growth Scenario (1:1 Jobs/Worker)			
	2023	2043	Chg.	AAGR
Construction	363	888	525	4.6%
Manufacturing	304	1,009	705	6.2%
Wholesale Trade	156	378	222	4.5%
Retail Trade	743	1,523	780	3.7%
T.W.U.	39	94	55	4.5%
Information	42	101	59	4.5%
Finance & Insurance	35	87	51	4.6%
Real Estate	21	35	14	2.7%
Professional & Technical Services	47	91	44	3.3%
Administration Services	146	337	190	4.3%
Education	208	542	333	4.9%
Health Care	452	1,281	829	5.4%
Leisure & Hospitality	266	858	592	6.0%
Other Services	120	463	344	7.0%
Government	93	202	109	4.0%
TOTAL:	**3,035**	**7,888**	**4,853**	**4.9%**



Source: Oregon Employment Department, Census, Johnson Economics

Broader economic trends are useful in creating a baseline understanding of growth prospects by industry. Forecasts grounded in broad based economic variables do not account for the realities of local businesses and trends among evolving industries. Any long-term forecast is inherently uncertain and should be updated on a regular basis to reflect more current information. This is particularly true in a smaller jurisdiction such as Cornelius, in which a single large firm's location and/or operational decision may substantively impact the rate of growth.

EMPLOYMENT LAND NEED FORECAST (CORNELIUS)

The next step in this analysis is to convert projections of employment into forecasts of land demand over the planning period. The methodology begins by allocating employment by sector into a distribution of building types in which those economic activities typically locate. As an example, insurance agents typically locate in traditional office space, usually along commercial corridors. However, a percentage of these firms locate in commercial retail space adjacent to retail anchors. Cross tabulating this distribution provides an estimate of employment in each real estate typology.

The next step converts employment into space using estimates of the typical square footage exhibited within each typology. Adjusting for typical market vacancy we arrive at an estimate of total space demand for each building type.

Finally, we can consider the physical characteristics of individual building types and the amount of land they typically require for development. The site utilization metric commonly used is referred to as a "floor area ratio" or FAR. For example, assume a 25,000-square foot general industrial building requires roughly two acres to accommodate its structure, setbacks, parking, and necessary yard/storage space. This building would have an FAR of roughly 0.29. Demand for space is then converted to net acres using a standard floor area ratio FAR for each development form.

A. 20-YEAR LAND DEMAND ANALYSIS

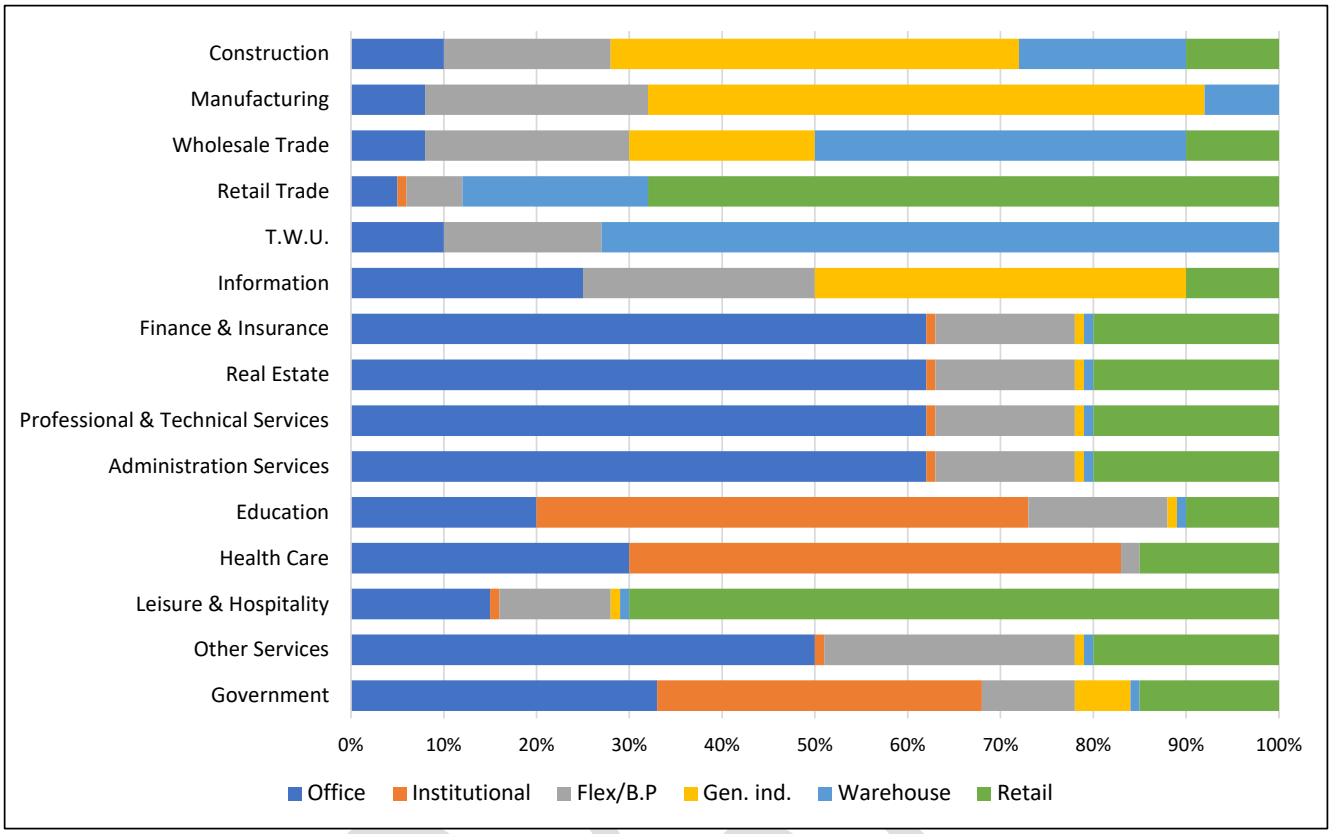
In this analytical step we allocate employment growth into standard building typologies. The building typology matrix represents the share of sectoral employment that locates across various building types.

FIGURE 6.04: DISTRIBUTION OF EMPLOYMENT BY SPACE TYPE, CITY OF CORNELIUS

	20-year Job Forecast		BUILDING TYPE MATRIX					
Industry Sector	Number	AAGR	Office	Institutional	Flex/B.P	Gen. ind.	Warehouse	Retail
Construction	525	4.6%	10%	0%	18%	44%	18%	10%
Manufacturing	705	6.2%	8%	0%	24%	60%	8%	0%
Wholesale Trade	222	4.5%	8%	0%	22%	20%	40%	10%
Retail Trade	780	3.7%	5%	1%	6%	0%	20%	68%
T.W.U.	55	4.5%	10%	0%	17%	0%	73%	0%
Information	59	4.5%	25%	0%	25%	40%	0%	10%
Finance & Insurance	51	4.6%	62%	1%	15%	1%	1%	20%
Real Estate	14	2.7%	62%	1%	15%	1%	1%	20%
Professional & Technical Services	44	3.3%	62%	1%	15%	1%	1%	20%
Administration Services	190	4.3%	62%	1%	15%	1%	1%	20%
Education	333	4.9%	20%	53%	15%	1%	1%	10%
Health Care	829	5.4%	30%	53%	2%	0%	0%	15%
Leisure & Hospitality	592	6.0%	15%	1%	12%	1%	1%	70%
Other Services	344	7.0%	50%	1%	27%	1%	1%	20%
Government	109	4.0%	33%	35%	10%	6%	1%	15%
TOTAL	**4,853**	**4.9%**	**20%**	**14%**	**14%**	**15%**	**9%**	**27%**

Source: Johnson Economics

FIGURE 6.05: ASSUMED DISTRIBUTION OF SPACE BY TYPE AND INDUSTRY SECTOR, CITY OF CORNELIUS



Source: Johnson Economics

FIGURE 6.06: NET CHANGE IN EMPLOYMENT ALLOCATED BY BUILDING TYPE, CITY OF CORNELIUS – 2023-2043

	NET CHANGE IN EMPLOYMENT BY BUILDING TYPE - 2023-2043						
Industry Sector	**Office**	**Institutional**	**Flex/B.P**	**Gen. Ind.**	**Warehouse**	**Retail**	**Total**
Construction	53	0	95	231	95	53	525
Manufacturing	56	0	169	423	56	0	705
Wholesale Trade	18	0	49	44	89	22	222
Retail Trade	39	8	47	0	156	531	780
T.W.U.	5	0	9	0	40	0	55
Information	15	0	15	24	0	6	59
Finance & Insurance	32	1	8	1	1	10	51
Real Estate	9	0	2	0	0	3	14
Professional & Technical Services	27	0	7	0	0	9	44
Administration Services	118	2	29	2	2	38	190
Education	67	177	50	3	3	33	333
Health Care	249	440	17	0	0	124	829
Leisure & Hospitality	89	6	71	6	6	414	592
Other Services	172	3	93	3	3	69	344
Government	36	38	11	7	1	16	109
TOTAL	**984**	**675**	**670**	**744**	**453**	**1,328**	**4,853**

Source: Johnson Economics

Under the employment forecast scenario, employment housed in retail and office space accounts for the greatest share of growth, followed by employment housed in institutional, general industrial, flex/business park, and warehouse/distribution space.

Employment growth estimates by building type are then converted to demand for physical space. This conversion assumes the typical space needed per employee on average. This step also assumes a market average vacancy rate, acknowledging that equilibrium in real estate markets is not 0% vacancy. We assume a 10% vacancy rate for office, retail, and flex uses, as these forms have high rates of speculative multi-tenant usage. A 5% rate is used for general industrial and warehouse—these uses have higher rates of owner occupancy that lead to lower overall vacancy. Institutional uses are assumed to have no vacancy.

The demand for space is converted into an associated demand for acreage using an assumed Floor Area Ratio (FAR). The combined space and FAR assumptions further provide estimates indicated of job densities, determined on a per net-developable acre basis.

FIGURE 6.07: NET ACRES REQUIRED BY BUILDING TYPOLOGY, CITY OF CORNELIUS– 20-YEAR

	DEMAND BY GENERAL USE TYPOLOGY, 2020-2040						
	Office	Institutional	Flex/B.P	Gen. Ind.	Warehouse	Retail	Total
Employment Growth	984	675	670	744	453	1,328	4,853
Avg. SF Per Employee	350	600	990	600	1,500	500	660
Demand for Space (SF)	344,400	404,800	663,000	446,500	679,000	664,100	3,201,800
Floor Area Ratio (FAR)	0.30	0.30	0.30	0.25	0.25	0.25	
Market Vacancy	10.0%	0.0%	10.0%	5.0%	5.0%	10.0%	
Implied Density (Jobs/Acre)	33.6	21.8	11.9	17.2	6.9	19.6	16.6
Net Acres Required	29.3	31.0	56.4	43.2	65.6	67.8	293.2
Share for infrastructure (Net-to-Gross)	20%	20%	15%	15%	15%	20%	17%
Gross Acres Required	36.6	38.7	66.3	50.8	77.2	84.7	354.3

Source: Johnson Economics

Commercial office and retail densities are 33 and 20 jobs per acre, respectively. Industrial uses range from 17 for general industrial to 7 jobs per acre for warehouse/distribution. The overall weighted employment density is over 16.5 jobs per acre, with the projected 4,850-job expansion in the local employment base through 2043 requiring an estimated **293 net acres (354 gross acres)** of employment land. This includes the need for an estimated **165 buildable industrial acres (194 gross), and 128 commercial acres (160 gross)**.

B. BUILDABLE EMPLOYMENT LAND SUPPLY (CORNELIUS)

The City of Cornelius has completed a Buildable Lands Inventory (BLI) of employment lands. The inventory includes properly zoned employment land in the City boundary, and areas outside the City boundary, but within the UGB which have been assigned to Cornelius for planning and future annexation.

The following table presents a summary of commercial and industrial lands found in the BLI. (A map of the BLI is attached as Appendix A.) The BLI found 63 individual sites that were either vacant or partially vacant for future development of employment uses. For the purposes of this analysis, sites which are located next to each other, under common ownership, have been consolidated into single development sites.

FIGURE 6.08: BUILDABLE LAND INVENTORY OF EMPLOYMENT LANDS, CORNELIUS

ZONE	# of Sites	Total Acres	Buildable Acres	Number of Sites by Acreage <1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
C2	22	22.0	19.7	14	8	0	0	0	0
CC	3	1.5	1.3	3	0	0	0	0	0
CMU	10	2.4	2.2	10	0	0	0	0	0
COM	1	6.6	5.3	0	0	1	0	0	0
GMU	5	31.5	15.7	2	2	1	0	0	0
I	3	57.4	40.2	0	1	0	1	1	0
LI	2	3.9	2.0	1	1	0	0	0	0
M1	17	36.4	21.8	9	8	0	0	0	0
	63	161.7	108.1	39	20	2	1	1	0

ZONE	# of Sites	Total Acres	BLI	<1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
Commercial:	41	64.0	44.1	29	10	2	0	0	0
Industrial:	22	97.7	64.0	10	10	0	1	1	0
TOTAL:	63	161.7	108.1	39	20	2	1	1	0

ZONE	# of Sites	Total Acres	BLI	<1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
Commercial:	65%	40%	41%	71%	24%	5%	0%	0%	0%
Industrial:	35%	60%	59%	45%	45%	0%	5%	5%	0%
TOTAL:	100%	100%	100%	62%	32%	3%	2%	2%	0%

Source: 3J Consulting, City of Cornelius

- Cornelius has a total of 63 consolidated buildable employment sites. Adjacent taxlots under common ownership are counted as one contiguous site.
- 65% of these sites are commercial, while 35% are industrial.
- In terms of total acreage, there is greater acreage of buildable industrial land (64 acres) than commercial land (44 acres).
- There is a single remaining contiguous industrial site, under common ownership, of 24.3 acres, and another industrial site of 12.6 acres. All other industrial sites (90%) are less than 5 acres in size, and 45% are less than one acre in size.
- There are two commercially zoned sites of between 5 and 10 acres, with the largest being 8.2 acres. 71% of remaining commercial sites are less than one acre in size.
- Note that there is a significant distinction between capacity and readily available site supply. The readily available inventory must currently have appropriate entitlements and infrastructure capacity to accommodate short-term development.

C. Comparison of 20-Year Land Need to Buildable Supply

As discussed in the prior section, there is an estimated total need of 293 net acres of employment lands over the coming 20-year period to meet the City's economic goals and create a strong fiscal and employment balance in the community.

Figure 6.09 summarizes the comparison of forecasted need and remaining buildable supply. There is not sufficient buildable land supply in either acreage or number and types of sites to accommodate the anticipated growth or meet the needs of Cornelius' growth and the regional industrial cluster of which it is part. The analysis finds a need for roughly 84 net acres of additional Commercial land and 101 net acres of additional Industrial land over 20 years to accommodate the forecasted need.

Figure 6.09: Reconciliation of Forecasted Land Need and Buildable Land Inventory, Cornelius

	Supply (BLI)			Demand (20-yr)	Land Need
ZONE	# of Sites	Total Net Acres	Buildable Net Acres	Land Need (Acres)	Surplus or (Deficit)
Commercial:	41	64.0	44.1	128.0	(83.9)
Industrial:	22	97.7	64.0	165.2	(101.2)
Total:	*63*	*161.7*	*108.1*	*293.2*	*(185.1)*

Source: Johnson Economics, 3J Consulting

This is a bulk land need finding that does not take into account the types and sizes of individual sites needed for the forecasted types of employment growth. As noted in the previous chapter, Cornelius is home to a larger share of large employers than the national trend. In addition, regional trends point to the need for more consolidated large-lot sites, particularly for industrial users in the coming decades. This is discussed in the following sections.

VII. LARGE LOT LAND NEED

REGIONAL LARGE-LOT INDUSTRIAL LAND SHORTAGE

The shortage of large industrial sites in Oregon, shovel-ready or not, is well established and has been an on-going topic of discussion in localities, the Portland Metro region, and statewide. The recent passage of the $52 billion Federal CHIPS Act, which should be a boon to the region's important semiconductor sector has triggered a renewed assessment of the industrial land inventory available to respond quickly when economic development opportunities arise.

The preliminary results of the Oregon Semiconductor Competitiveness Task Force, chaired by the Oregon's Governor, US Senator, and the CEO of Portland General Electric has recently reached dire conclusions about the State's ability to accommodate new large industrial users and suppliers with the available industrial land and site sizes available.

Metro has studied land readiness over the last decade, periodically updating its inventory of remaining industrial sites and assessing them for readiness. The sites are ranked in Tiers, indicating readiness for near-term development, with Tier 1 sites being ready and Tier 3 being the least ready. When last updated in 2017, there were 47 sites over 25 acres in size. The Task Force recently updated the inventory to find that the supply had fallen by 40% to 28 total sites. Only two non-contiguous Tier 1 sites remain, totaling 82 acres, and these sites lack the size to be adequate for large industrial users.

FIGURE 7.01: PORTLAND METRO INVENTORY OF LARGE INDUSTRIAL SITES

	2011 Inventory	2014 Inventory	2017 Inventory	2022 Inventory
Tier 1	9	14	10	2
Tier 2	16	17	11	6
Tier 3	31	23	26	20
Total	56 sites	54 sites	47 sites	28 sites

Source: Oregon Semiconductor Competitiveness Task Force, Mackenzie

While the Task Force is focused on the semiconductor industry (discussed more below), it should be noted that this is the total industrial inventory available for all categories of industrial users in the Metro boundary. As the Tier categories imply, much of the remaining inventory also faces barriers to quick access and infrastructure service.

These findings support the conclusion that the region currently has few to no sites to offer a large new industrial business recruitment or major expansion of an established industry. As the Task Force points out:

> A major component of economic competitiveness is the time it takes to assemble the baseline ingredient of development: industrial land. In many states and countries this isn't a challenge, but in Oregon, it has become a serious barrier in achieving our goals surrounding shared economic prosperity.
>
> As established in this report's "Opportunity" section, Oregon is on the cusp of a 1990s-like semiconductor boom when billions were invested and industry employment more than doubled. That boom was facilitated by 2,000+ acres of industrial land.

> As discussed [in the report], this subcommittee found that Oregon faces a serious shortage of available, development-ready large industrial sites relative to 1990s-like demand. If left unaddressed, the shortage presents a critical threat to Oregon's semiconductor industry competitiveness….
>
> …Our lack of industrial land is a chronic problem that has been vividly exposed by the surge [of] interest in semiconductor expansion[3]
>
> - Oregon Semiconductor Competitiveness Task Force

CHIPS ACT AND SEMICONDUCTOR INDUSTRY

The shortage of industrial sites is made especially pressing by the passage of the $52 billion CHIPS Act which is aimed to benefit domestic semiconductor chip manufacturers and suppliers. The Act also signals a strong commitment to boost the industry that may produce additional future funding and incentives as well.

A major beneficiary if not the largest beneficiary of this federal spending will be Intel, the world's largest semiconductor company and the largest private employer in Oregon with an estimated 22,000 employees statewide. Considering that Intel's Oregon campuses are the company's "largest and most comprehensive" sites, they may see a sizable allocation of the CHIPS subsidies to Intel. The allocation of funding to different companies, and thus states or regions, is unknown at this time but financial and stock analysts have predicted that the company could see a benefit of $10 to $19 billion.

Intel is also the center of the large cluster of industry partners, competitors, and suppliers that Intel has attracted in the "Silicon Forest." This cluster is already arguably the most important statewide economic engine outside of natural resources, supplying very high-wage employment, attracting talent and investment, and driving high tech innovation in the state.

Besides Intel, Oregon is home to roughly 150 related companies employing 10,000 additional workers. Oregon's economic output from this sector is second only to Texas.[4] And the state is home to an estimated 15% of the sector's domestic workforce.

As the Task Force's initial report finds "the semiconductor industry is especially prone to clustering" due to efficiencies of pooling talent, suppliers, and collaborators in one region. For this reason, the economic impact of the CHIPS Act is anticipated to be *especially strong in the Portland metropolitan area, and Washington County where this cluster is already established*. The report concludes that the industry "…is highly likely to continue clustering in the Metro region, with smaller but significant nodes of supplier-related activity in the Willamette Valley."

The Task Force concludes there is a "short-term" need for the following, with a goal to make progress "heading in to the 2023 legislative session":

- **Engaging local jurisdictions within Portland Metro and Willamette Valley** to determine land availability and site readiness for semiconductor expansion in their respective communities.
- Reviewing responses against criteria to create an updated map of sites of significance for semiconductor expansion **both inside and outside the Urban Growth Boundary *based on planning documents and community interest.***

[3] "Seizing Opportunity, Initial Report and Subcommittee Findings", Oregon Semiconductor Competitiveness Task Force, August 2022. Pages 20, 23.

[4] Terry, Lynne. "Semiconductor bill that would benefit Oregon passes first hurdle," Oregon Capital Chronicle, July 2022.

- Creating an updated map to identify sites most suitable for semiconductor expansion during this next growth cycle, including the following, *keeping in mind demand could exceed these needs*:
  - **Two sites of approximately 500 acres** to accommodate large-scale semiconductor R&D and/or production fabrication operations.
  - **Four sites of 50-100 acres** suitable for independent device manufacturers or major semiconductor equipment manufacturers.
  - **At least eight sites of 15-35 acres** to enable key suppliers to the semiconductor cluster to expand.[5]

[All emphasis added]

- Oregon Semiconductor Competitiveness Task Force

As noted, the region does not currently offer sites of anywhere near 500 acres, or even Tier 1 sites of 50+ acres. This new inventory must be identified quickly, as nearly half the funds of the CHIPS Act are planned to be spent in the first two years, and all funds over five years.

In a matter of months, the Task Force narrowed down the potential location of two 500-acre sites, *both located in western Washington County*. These sites are aimed at very large, high investment industrial tech employers. The recruitment of these employers would *encourage the growth of complementary businesses in that industry cluster*, each needing large-lot development sites of their own.

Local Readiness

The short-term process outlined by the Task Force specifies collaborating with local jurisdictions to find partners interested in making land and sites available quickly, "both inside and outside the Urban Growth Boundary".

Because of the deliberative nature of Oregon land use planning and the Urban Growth Boundary amendment process it will be a challenge for most communities to respond expeditiously to this short-term need. This will increase the importance and priority of communities with the current "planning documents and community interest," as specified. These communities will be able to move the quickest to make more industrial land available to serve regional and state needs.

Cornelius is expediting a UGB Amendment study to identify the need for new employment land, including large sites. As a community underway in the planning process and located directly adjacent to the North Hillsboro semiconductor (and other industrial) cluster in the Silicon Forest, Cornelius is an excellent potential partner for facilitating short-term industrial land readiness in keeping with the goals and identified needs of the State Task Force. The recruitment of large-lot industrial users is in alignment with the findings of this EOA, and the future target industries identified to improve the City's current jobs to housing imbalance.

[5] "Seizing Opportunity, Initial Report and Subcommittee Findings", Oregon Semiconductor Competitiveness Task Force, August 2022. Pages 22.

VIII. FINDINGS AND RECOMMENDATIONS

SUMMARY OF FINDINGS

The EOA report points to several key conclusions regarding economic development goals and target industries in Cornelius over the next 20 years. It also quantifies projected employment growth and land need within the UGB, and the adequacy of the current supply of employment land to meet that need.

Employment Growth

Cornelius is home to an estimated 3,035 jobs as of 2023. The largest sectors by number of jobs are retail trade, health care and social assistance, construction, and manufacturing.

Based on a forecasted annual growth rate of 4.9%, the city is expected to add roughly 4,850 jobs by 2043. The greatest growth in number of jobs is projected to be in many of the same strong sectors, along with education and wholesale trade. The forecasted 20-year employment growth would improve the current imbalance in locally available jobs to the number of workers in Cornelius, which currently exports most of its labor to neighboring communities. It would also emphasize higher wage industries to support these local households.

Broken down into broad categories of employment that tends to use commercial office/retail space, or that tends to use industrial space, the analysis forecasts that the 20-year demand for new employment land will be somewhat more weighted towards industrial land (56%) than commercial land (44%).

Expanding & Target Industries

The city has current advantages in several key industries including manufacturing of a wide range of product types, construction, retail, and health care. However, in keeping with the identified economic objectives, a range of potential target industries for growth were identified through this process.

The target industries reflect industries where the area has shown historic strength, as well as sectors with robust growth potential and consistency with the locally expressed vision for the community:

1) Manufacturing
2) Construction
3) Health Care and Social Assistance
4) Education
5) Retail Trade
6) Wholesale Trade

Supporting growth in a range of industries will help the community build a more diverse and sustainable employment and tax base for the future and be more resilient to economic impacts on the traditional local industries.

Employment Land Need

The EOA analysis finds that the forecasted 20-year job growth by industry will translate to a need for 293 total net acres (354 gross acres) of land zoned for employment uses. The distribution of land demand between commercial uses (Office, Institutional, Retail) and industrial uses (Industrial, Warehouse, Business Park) leans towards industrial (56% vs. 44%).

A range of site sizes will be needed ranging from small to large to accommodate the projected business expansion. Different commercial and industrial users have different site requirements driven by the specific nature of their business operations, firm size, location and infrastructure requirements, and other factors.

Adequacy of Employment Land Supply

The Buildable Land Inventory (BLI) of employment lands completed in conjunction with the EOA found a total of 115 net buildable acres in Commercial and Industrial zones.

- The projected 20-year need for Commercial land trails the supply significantly, with an estimated 51 net acres of commercial land remaining to meet a projected need for 128 net acres. This indicates a deficit of 77 net acres, or 97 gross acres of Commercial land.
- There is a projected supply of 64 net acres of Industrial land to meet the forecasted need of 165 net acres. This indicates a deficit of 101 net acres, or 120 gross acres of Industrial land.
- The total estimated deficit of employment land is 179 net acres, or 216 gross acres.
- 98% of the remaining contiguous development sites in Cornelius are under 10 acres in size, with most being one acre or less. Only one contiguous site of over 20 acres remains. Cornelius is without land to meet the needs of many medium to large employers, including the large-lot industrial users and CHIP act beneficiaries that the City, County, region, and state have identified as economic development targets.
- The City of Cornelius has adequate infrastructure for transportation, water, sewer, and stormwater ready to extend into the likely path of growth for future employment lands to the north of the City. Having this area ready to serve will be a significant incentive for attracting prospective industries.
- North 10th Avenue, which becomes NW Cornelius Schefflin Road, is a county-designated truck route with recent improvements to bridge and rural intersection infrastructure to accommodate traffic from new employment uses, including truck freight. This facility also provides direct access to the Tualatin Valley Highway (Hwy 8) corridor to the south, and US Highway 26 seven miles to the north. These connections can provide regional and interstate access to local employers.
- Adequate City water, sewer, and stormwater infrastructure is currently stubbed at both the N 10th Avenue bridge and at N 19th Avenue at the northern city boundary. If employment lands were made available to the north of this area, this infrastructure could readily be extended to meet the needs of new industry seeking to locate there.
- The City is currently in discussions with PGE about the location of a new power substation in the general area. The presence of a new substation will greatly increase the attractiveness of the area for industry in general, and power-intensive industry in particular. The findings of this EOA are supportive of the need to increase power capacity to best utilize the remaining and future industrial lands in north and northwest Cornelius.

EOA Implementation Recommendations

This section discusses a range of strategies and/or action items that the city may consider that are consistent with the findings of this report. (Adoption of this report does not imply official commitment to any of these steps although some of these strategies may be incorporated in Comprehensive Plan policies in some form.)

PROVIDE AN ADEQUATE SUPPLY OF EMPLOYMENT LAND & SITES		
CORE INITIATIVE		
	Actions	**Notes**
MEET INDUSTRIAL AND COMMERCIAL LAND NEEDS		
1	Establish and maintain a competitive short-term and long-term supply of employment land, in readily developable sites.	The City should maintain an inventory of available employment land to meet the 20-year economic development needs of the community, including identifying sites of varying sizes that can be readily served with new infrastructure in the short-term. Options: UGB swap or expansion to increase the land supply; rezoning of other land categories to employment categories; public effort to prioritize and serve key employment areas.
2	Prioritize serving key subareas and sites identified in the TSP, Capital Improvement Plan, Urban Growth Report and Regional Trans. Plan	Given limited public resources, ensure that all planning efforts reflect the prioritization and sequencing of infrastructure projects to serve key sites and areas.
4	Encourage infill, redevelopment and/or adaptive reuse of obsolete or underused properties in current employment zones.	Existing commercial and retail space in the Downtown area and along commercial corridors might be more intensively used, accommodating more job growth in existing employment areas. More intensive development and mixed-use construction often encounter a feasibility gap between costs and end value. Common approaches to bridging this gap include TIF funding, tax credit programs, tax incentives, and public/private partnerships.
5	Inventory properties that might be good opportunity sites for potential public/private catalyst projects.	Public control of a property by the City, TIF agency, or other public agency provides the public with a valuable incentive with which to forge a public/private deal that provides public benefits that a private development might not. Examples include incentivizing the developer to build at greater density, mixed uses, design elements, transit-oriented or other design elements, and other public goods.
6	Evaluate assisting in wetland mitigation to increase developable land inventory, including creating or partnering in a wetland mitigation bank	Costs of mitigating can be prohibitive for industrial users while on-site mitigation reduces usable site area and can be difficult for a business operator to maintain over time. Mitigation banks allow for off-site mitigation. Credits at existing banks can be difficult or expensive to obtain. A local bank would provide more certainty for mitigation; however, an extensive interagency process is involved.
7	Facilitate clean up and utilization of identified brownfield sites	Work with the appropriate agencies to identify requirements, as well as potential funding sources, to bring environmentally contaminated sites to productive use. Possible incentives include local and state tax abatement programs, and surcharge-based clean up funds.

POLICY AND CODE STRATEGIES		
8	Continue to improve and streamline development regulations and review processes where possible, to reduce cost and time, and provide predictability.	The community and city work to be development and employer friendly.
9	Ensure that applicable Comp Plan designations and zoning allow the mix of uses sought in employment areas, and if necessary, limit those uses that don't contribute to goals.	Ensure that the desired zones are in place and permit the uses that are foreseen in the City's existing and future employment areas. Where current zoning does not match the vision, consider rezoning, or amending zone standards.
10	Review and update Development Code language to support the desired development types and streetscape initiatives.	A review of code standards can reveal where the adopted standards for elements like building height, setbacks, floor-area-ratio, parking, etc. may be posing difficulties in achieving feasible development in the target industries. Some large-lot commercial businesses and industrial users may benefit from more flexibility in site and building design to allow for creative design solutions and make projects more feasible.

TARGET INDUSTRIES AND BUSINESS DEVELOPMENT		
CORE INITIATIVE		
	Actions	Notes
SUPPORT AND EXPAND EMPLOYMENT IN TARGETED INDUSTRIES		
11	Adopt and regularly update target industry profiles.	Industry patterns can change significantly over time, and target industries should be assessed regularly for progress on metrics like job creation and new firms.
12	Maintain and enhance business outreach and communication.	Coordinate business cluster and employment district networking opportunities. Participate in efforts of major regional economic development partners. Potential actions in support of this strategy include developing and updating marketing materials, attending industry tradeshows, following up on referrals by partner organizations, publicizing the success of local businesses, and highlighting competitive advantages of the area for proposals.
13	Develop a marketing plan to attract businesses within the identified target industry business sectors.	Assemble and distribute materials of specific interest to targeted industries and identify key industry groups.
14	Support and engage regional and statewide partners.	Regularly meet and coordinate with groups such as the Chamber of Commerce, Westside Economic Alliance, Greater Portland Inc., Washington County, and Business Oregon. Promote available employment space and land.
15	Regularly update Oregon Prospector to promote available employment space and land to site selectors.	Business Oregon provides the Oregon Prospector tool which provides open, free data on available employment lands across the state, including both industrial and commercial properties. Ensure that all key sites are listed, and information is accurate and up to date.

16	Promote locally available tools: Enterprise Zone and Urban Renewal Grant Programs.	In all site listings and marketing materials, ensure that the benefits of the existing zones are mentioned where applicable.
SUPPORT SMALL BUSINESS DEVELOPMENT		
17	Develop and/or market programs to assist emerging and under-capitalized firms	Technical assistance, micro loans, storefront improvement programs, master leases, and credit enhancement. Refer businesses to partner agencies providing grants, training, and other programs.
18	Evaluate development of incubator space.	A shared work or incubator space, often affiliated with a college, economic development agency, or other agency, to provide space for small but promising companies to work and collaborate in a subsidized environment while they grow.
19	Evaluate development of shared small emerging business, fabrication space, and/or "makers" collective.	Look for opportunities to repurpose existing space to support multi-tenant small business spaces. These provide small spaces for craftsmen and artisans to work and share tools and knowledge, to incubate new businesses. A good fit for a local economy with a diverse manufacturing base and workforce. The community has a density of very small, low-barrier businesses providing such as food service, craftspeople, and personal services that may not be able to afford their own dedicated space.
20	Connect small business opportunities with property owners.	The City can serve as a clearinghouse or matchmaker, matching business needs with local property owners. This could include food carts, which can serve as an incubator for future food service tenants.
21	Study Anti-Displacement methods to protect existing small businesses in the town center.	The City should study opportunities to protect established small and local businesses from gentrification and displacement pressures that can accompany new job growth and property appreciation. The City recently received a Metro 2040 grant to study anti-displacement measures.
WORKFORCE INITIATIVES		
22	Support connections between local industry, K-12, PCC, Pacific U, and state education and training courses.	Help match training programs to employers, potentially coordinating internships, or regular interaction with local businesses. Ensure that these programs address target industries in particular and stay up to speed on rapidly evolving industry norms and technology.
23	Promote workforce training resources.	Increase knowledge of existing resources for job seekers.
24	Ensure the housing policies allow for an appropriate mix of housing for the local workforce.	The community should strive to provide the full range of housing types and price points to meet the needs to the full workforce and encourage residents to both live and work in Cornelius.
25	Support local affordable housing developers	Low-wage positions are a foundational component of any local economy, and most industries rely on this workforce either primarily, or through their supporting firms. Subsidized affordable housing is one key segment of the workforce housing puzzle.

26	Prioritize childcare as a workforce readiness issue.	Childcare is a commonly identified need for working households if all adults are working, or working unusual hours, etc. This topic is increasingly raised as an important part of attracting and maintaining an available workforce. Home-based childcare businesses are also usually a category of self-employment, which is identified as a target industry.

APPENDIX A: INDUSTRY SITE REQUIREMENTS

This section presents a series of tables that summarize key site requirements for a range of prospective tenant types.[6] This is followed by further discussion of needs for some industry sectors relevant to the local market.

The 14 site requirements listed on the matrix provide a basis for establishing a profile of the physical and other site needs of the identified industry. The site requirements are intended to address the typical needs of each of the industry categories, and it is recognized that there will likely be unique or non-typical needs of a specific user that will need to be evaluated by on a case-by-case basis.

The following describes a few general requirements that apply to *all* industry type categories under consideration and then an overview of the 14 site requirements listed on the matrix.

A. GENERAL REQUIREMENTS:

- The underlying zoning on the site must allow the use outright within the identified category. For example, no zone change, conditional use and/or similar land use review is necessary. Many jurisdictions typically require a design or development review which is acceptable, since the timeframe for obtaining such design-related approvals will be addressed in the State's rating system.
- The site under consideration must be located geographically within a UGB.
- The site is not located within a 100-year floodplain as mapped by FEMA, although sites with approved FEMA map amendments (e.g., LOMA & LOMR) are acceptable.
- The net contiguous developable area (NCDA) of the site does not include hazardous contaminants as verified by a Level 1 Environmental Report, or a Level 2 Report that has received a No Further Action approval from DEQ; or existing wetlands or other natural features which are regulated at the State, Federal or local level; or federally endangered species.
- The NCDA does not contain any cultural or historical resources that have been identified for protection at the State, Federal or local level.
- The NCDA does not have mitigation plans that can be implemented in 180 days or less.

B. SITE REQUIREMENTS:

1. **Total Site Size:** The site size is taken to mean the size of the building footprint and includes buffers, setbacks, parking, mitigation, and expansion space.
2. **Competitive Slope:** Most industrial uses require relatively large building footprints that do not accommodate steps in floor slabs, and sloping topography will require extensive excavation and retaining systems that increase development cost over flat sites. The figures given are the preferred maximum average slope across the developable portion of the site, recognizing that sites with additional area outside the building, or developments with multiple building pads, generally will have lower slope earthwork costs than sites with limited space outside the building footprint.

6 Business Oregon, Mackenzie.

3. **Trip Generation:** Sites are frequently limited by a jurisdiction to a specified total number of vehicle trips entering and exiting the site. This site requirement is an estimate of the minimum number of average daily trips per acre (based on the range of building coverage) that should be available for each of the industrial categories based on the Institute of Traffic Engineers (ITE) Manual-Ninth Edition. The following table lists the ITE codes used to estimate average trips for the industry profiles represented in the matrix.

4. **Miles to Interstate or Freight Route:** With few exceptions, access to major freeways or freight routes is critical for the movement of goods. This site requirement indicates the typical maximum range of distance, in miles, from the site to the freeway or highway access. The roadways/intersections between the site and freeway/highway must generally operate at a level of service 'D' or better in accordance with the Highway Capacity Manual methodologies and general engineering standards.

5. **Miles to Frequent Transit Service:** Businesses located walking distance (within one-quarter of a mile) to a bus stop that is serviced by a frequent bus line enjoy a competitive advantage over others that are more limited in transportation access options.[7]

6. **Railroad Access:** The need for access to railroad for the movement of goods within each industrial category is dependent upon individual users, so the site requirements are identified as either "Preferred," "Not Required," or "Avoid" in some cases where the presence of rail may be considered a deterrent to business.

7. **Proximity to Marine Port:** The need for access to a marine port for the movement of goods within each industrial category is dependent upon individual users.

8. **Proximity to International/Regional Airport:** The need for access to a regional airport for the movement of goods or business travel within each industrial category is dependent upon individual users.

9. **Availability of Water:** This requirement indicates the minimum sizes of domestic water and fire lines immediately available to the site. In certain rural cases, a comparable supply from an on-site water system (i.e., well or reservoir with available water rights) may be acceptable. In addition to lines sizes, preference for high-pressure water capabilities and average flow demand in gallons per day is specified for each industry type.

10. **Availability of Sanitary Sewer:** This requirement indicates the minimum size of public sanitary sewer service line immediately available to the site. In certain rural cases, an on-site subsurface system providing a comparable level of service may be acceptable. Sewer flow requirements were determined by calculating a percentage of the water flow for each industry type.

11. **Natural Gas:** This requirement indicates the minimum size natural gas line that is immediately available to the site. It is assumed that the pressure demand for all industry categories is 40-60 psi.

12. **Electricity:** This requirement indicates the minimum electrical demand readily available to each industry and where proximity to a substation and redundancy dependency rank on the continuum of less critical to more critical. Estimated demand is based on review of existing usage from local utility providers, referencing industrial NAICS codes for the various profiles.

13. **Telecommunications:** This requirement indicates whether the availability of telecommunication systems are readily available, and where major commercial capacity, route diversity and fiber optic lines rank on the continuum of less critical to more critical. All sites are assumed to have a T-1 line readily available.

14. **Special Considerations:** Notes on industry-specific factors.

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7 We have defined "frequent bus line" as one with service occurring in no longer than 15 minute intervals.

	CRITERIA / PROFILE		A Computer & Electronic Manufacturing (High-Tech R&D)	B Software & Media	C Multi-Tenant Office	D Food Processing	E Other Manufacturing	F Life/Bioscience R&D Campus	G Wholesaling	H Retail	I Data Center	J Incubator
	GENERAL REQUIREMENTS		Use is permitted outright, located in UGB or equivalent and outside flood plain; and site (NCDA) does not contain contaminants, wetlands, protected species, or cultural resources or has mitigation plan(s) that can be implemented in 180 days or less.									
	PHYSICAL SITE											
1	TOTAL SITE SIZE*	Competitive Acreage**	5 - 100+	5 - 15	5 - 20	5 - 25+	5 - 15+	20 - 100+	10 - 25	5 - 20	10 - 25+	5 - 25+
2	COMPETITIVE SLOPE:	Maximum Slope	0 - 5%	0 - 7%	0 - 7%	0 - 5%	0 - 5%	0 - 7%	0 - 3%	0 - 7%	0 - 7%	0 - 5%
	TRANSPORTATION											
3	TRIP GENERATION:	Average Daily Trips per Acre	40 - 60	80 - 200[1]	120 - 240[2]	50 - 60	40 - 50	60 - 150	50 - 60[3]	400 - 500[4]	20 - 30	40 - 50
4	MILES TO INTERSTATE OR FREIGHT ROUTE:	Miles	w/in 10	w/in 5	w/in 5	w/in 30	w/in 20	w/in 5	w/in 5	w/in 5	w/in 30	N/A
5	MILES TO FREQUENT TRANSIT SERVICE (15 MIN OR LESS)	Miles	0.6	0.5	0.8	< 0.1	0.2	0.1	0.3	< 0.1	0.1	< 0.1
6	RAILROAD ACCESS:	Dependency	Preferred	Not Required	Not Required	Preferred	Preferred	Preferred	Preferred	Avoid	Avoid	N/A
7	PROXIMITY TO MARINE PORT:	Dependency	Preferred	Not Required	Not Required	Preferred	Preferred	Preferred	Preferred	Not Required	Not Required	N/A
8	PROXIMITY TO INTERNATIONAL/ REGIONAL AIRPORT:	Dependency	Competitive	Required	Preferred	Preferred	Preferred	Required	Not Required	Not Required	Competitive	N/A
		Distance (Drivetime)	The City of Cornelius is located roughly 45 minutes from the Portland International Airport, and roughly 15 minutes from the smaller Hillsboro Airport. These distances are acceptable to mediuma and large regional and international corporations.									

			PROFILE	A	B	C	D	E	F	G	H	I	J
			CRITERIA	Computer & Electronic Manufacturing (High-Tech R&D)	Software & Media	Multi-Tenant Office	Food Processing	Other Manufacturing	Life/Bioscience R&D Campus	Wholesaling	Retail	Data Center	Incubator
	UTILITIES												
9	WATER:	Min. Line Size (Inches/Dmtr)		12" - 16"	6" - 8"	8" - 10"	12" - 16"	6" - 10"	8" - 12"	6" - 10"	8" - 12"	16"	4" - 8"
		Min. Fire Line Size (Inches/Dmtr)		12" - 18"	8" - 10"	8" - 12"	10" - 12"	8" - 10"	8" - 12"	8" - 10"	8" - 12"	10"-12"	6" (or alternate source)
		High Pressure Water Dependency		Required	Not Required	Not Required	Required	Not Required	Preferred	Not Required	Not Required	Required	Not Required
		Flow (Gallons per Day per Acre)		5,200	1,200	1,500	3,150	1,850	2,450	1,200	1,800s	50 - 200†	1,200
10	SEWER:	Min. Service Line Size (Inches/Dmtr)		12" - 18"	6" - 8"	8" - 10"	10" - 12"	6" - 8"	10" - 12"	6" - 8"	6" - 10"	8"- 10"	4" - 6" (or on-site source)
		Flow (Gallons per Day per Acre)		4,700	1,000	2,000	2,600	1,700	2,000	1,000	1,500s	1,000‡	1,000
11	NATURAL GAS:	Preferred Min. Service Line Size (Inches/Dmtr)		6"	4"	4"	4"	4"	6"	4"	4" - 6"	4"	N/A
		On Site		Competitive	Preferred	Competitive	Preferred	Competitive	Competitive	Preferred	Competitive	Preferred	Preferred
12	ELECTRICITY:	Minimum Service Demand		4 - 6 MW	1 - 2 MW	0.5 - 1 MW	2 - 6 MW	0.5 MW	2 - 6 MW	0.5 MW	0.5 - 1 MW	5 - 25 MW	1 MW
		Close Proximity to Substation		Competitive	Competitive	Preferred	Not Required	Preferred	Competitive	Not Required	Preferred	Required, could be on site	Not Required
		Redundancy Dependency		Preferred	Preferred	Preferred	Not Required	Not Required	Competitive	Not Required	Preferred	Required	Not Required
13	TELECOMMUNICATIONS:	Major Communications Dependency		Required	Required	Required	Preferred	Required	Required	Preferred	Required	Required	Preferred
		Route Diversity Dependency		Required	Required	Required	Not Required	Not Required	Required	Preferred	Preferred	Required	Not Required
		Fiber Optic Dependency		Required	Required	Required	Preferred	Preferred	Required	Competitive	Preferred	Required	Not Required

	PROFILE	A	B	C	D	E	F	G	H	I	J
	CRITERIA	Computer & Electronic Manufacturing (High-Tech R&D)	Software & Media	Multi-Tenant Office	Food Processing	Other Manufacturing	Life/Bioscience R&D Campus	Wholesaling	Retail	Data Center	Incubator
14	SPECIAL CONSIDERATIONS:	Acreage allotment includes expansion space (often an exercisable option). Very high utility demands in one or more areas common. Sensitive to vibration from nearby uses.	[1]: Research & Development @ 80 ADTs per acre on the low end, estimated 200 ADTs per acre for general office on the high end. Location specific.	[2]: Range represents FAR 0.25 - 0.5 of office uses. Location to other cluster industries.	May require high volume/supply of water and sanitary sewer treatment. Often needs substantial storage/yard space for input storage. Onsite water pre-treatment needed in many instances.	Adequate distance from sensitive land uses (residential, parks) necessary. Moderate demand for water and sewer. Higher demand for electricity, gas, and telecom.	High diversity of facilities within business parks. R&D facilities benefit from close proximity to higher education facilities. Moderate demand on all infrastructure systems.	[3]: General warehousing rates	[4]: Based on discount warehouse @ 0.25 FAR [5]: Dependent on use, i.e., brewery vs. restaurant. Location to cluster industries.	Site size differs due to land cost and availability. Urban-area centers may require 10-20 acres, while E. Oregon centers will typically use larger sites. Also the trend is towards increasing site size as cloud storage needs continue to increase. Power delivery, water supply, and security are critical. Surrounding environment (vibration, air quality, etc.) is crucial. May require high volume/supply of water and sanitary sewer treatment.	Often established by municipalities and have symbiotic relationships with colleges and/or universities.

Terms:

More Critical ↑ Less Critical	**'Required'** factors are seen as mandatory in a vast majority of cases and have become industry standards.
	'Competitive' significantly increases marketability and is *highly recommended by Business Oregon* . May also be linked to financing in order to enhance the potential reuse of the asset in case of default.
	'Preferred' increases the feasibility of the subject property and its future reuse. Other factors may, however, prove more critical.
	'Not Required' does not apply for this industry and/or criteria.
	'Avoid' factors act as deterrents to businesses in these industries because of negative impacts.
*Total Site: Building footprint, including buffers, setbacks, parking, mitigation, and expansion space.	
**Competitive Acreage: Acreage that would meet the site selection requirements of the majority of industries in this sector.	
† Data Center Water Requirements: Water requirement is reported as gallons per MWh to more closely align with the Data Center industry standard reporting of Water Usage Effectiveness (WUE).	
‡ Data Center Sewer Requirements: Sewer requirement is reported as 200% of the domestic usage at the Data Center facility. Water and sewer requirements for Data Centers are highly variable based on new technologies and should be reviewed on a case-by-case basis for specific development requirements.	

Source: Business Oregon, Mackenzie

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APPENDIX B: BLI METHODOLOGY

MEMORANDUM

To: **Brendan Buckley**
Johnson Economics

From: **Steve Faust, AICP**
Julia Reisemann

Date: **November 29, 2023**

Project Name: **Cornelius Economic Opportunities Analysis**
RE: **Buildable Lands Inventory Methodology**

3J Consulting prepared an estimate of buildable land (BLI) within Cornelius' Urban Growth Boundary (UGB) to determine whether the land supply is sufficient to meet employment needs. The BLI analysis was conducted in accordance with OAR 660-009-0015(3) and uses the most current Geographic Information Systems (GIS) data available for the Cornelius UGB.

Methodology

The objective of the BLI is to determine the amount of developable land available for future economic development within the UGB. The steps taken to perform this analysis are as follows:

1. Calculate gross acres by plan designation, including classifications for fully vacant and partially-vacant parcels. This step entails "clipping" all of the tax lots that are bisected by the current UGB to eliminate land outside the current UGB from consideration for development at this time. City staff provided quality assurance.

2. Calculate gross buildable acres by plan designation by subtracting land that is constrained from future development, such as existing public right-of-way, parks and open space, slopes, and floodplains.

3. Calculate net buildable acres by plan designation, by subtracting future public facilities such as roads and utilities from gross buildable acres.

The detailed steps used to create the land inventory are described below.

Employment Land Base

The employment land base reflects current Cornelius zoning and comprehensive plan designations. Properties that are within the employment land base include the following land use and zone classifications:

Commercial

- Commercial (COM)
- Highway Commercial (C2)
- Corridor Commercial (CC)
- Central Mixed Use (CMU)
- Gateway Mixed Use (GMU)

Industrial

- Industrial (I)
- Light Industrial (LI)
- General Industrial (M1)

These classifications have been kept consistent throughout the analysis.

Land Classifications

The next step in the BLI analysis includes classifying each tax lot (parcel) into one of the following categories. In some cases, tax lots had to be split to accompany different plan classifications. Split tax lots are treated as individual and might go into any of the categories described below.

Vacant land: Properties with no structures or have buildings with very little value. For purpose of the BLI, employment lands with improvement value less than $5,000 are considered vacant and the improvement value is 5% or less than the land value. These lands were also subjected to review using satellite imagery via Google Earth. If the land is in a committed use such as a parking lot, an assessment has been made to determine if it is to be classified as vacant, part vacant or developed.

Partially vacant land: Properties that are occupied by a use (e.g., a home or building structure with value over $5,000) but have enough land to be subdivided without the need for rezoning. This determination is made using tax assessor records and satellite imagery. For lots with structures that have an estimated value of 40% or less than their land value, it is assumed that half of the lot is developed and the other half is vacant. Or lots of at least one acre in size that have one half-acre of unimproved land.

Redevelopment Potential: Occupied properties with a higher land value than the on-site structure. Properties must be at least 20,000 sq.ft. to be considered of interest for redevelopment. (No such examples were identified in this Buildable Land Inventory.)

Developed: Properties unlikely to yield additional employment development for one of two reasons: they possess existing structures at densities that are unlikely to redevelop over the planning period; or they include parcels with land designations that do not permit commercial or industrial development.

Other: Properties which are regarded as unlikely to be developed because they are restricted by existing uses such as: public parks, schools, ballfields, roads, and public right-of-way (ROW), common areas held by Homeowners Associations, cemeteries, power substations, and future residential lots not yet assessed.

These tax lot classifications were validated using satellite imagery, street view, building permit data, and assessor records. Preliminary results were refined based on comments from City staff.

Development Constraints

The BLI methodology for identifying and removing development constraints is consistent with state guidance on buildable land inventories per OAR 660-009-0015 (3) and 660-038-0130. The BLI is intended to include land that is "suitable, available, and necessary for residential and economic uses." "Buildable Land" includes residential and economic designated land within the UGB, including vacant, partially vacant; and suitable, available, and necessary for employment uses. Public-owned land is generally not considered to be available for new growth unless the underlying zoning permits it. It should be noted that "available" in this context does not mean that the land is presently on the market. It is assumed in this analysis that such land has the potential to come on the market within the 20-year timeframe of this study. Land is "suitable for new development" unless it:

- Is severely constrained by natural hazards as determined by the Statewide Planning Goal 7;
- Is subject to natural resource protection measures determined under Statewide Planning Goals 5, 6, 15, 16, 17 or 18;
- Has slopes over 25 percent;
- Is within the 100-year flood plain; or
- Cannot be provided or served with public facilities

Based on state guidelines and data provided by the City of Cornelius, the following constraints have been deducted from the employment lands inventory.

- Land within floodways is considered 100% constrained.
- Land within the 100-year floodplain is reduced by 50%.
- Land in public ownership with no development potential.
- Industrial land with slopes greater than 10%

Buildable Land Inventory

Based on the methodology described, a Buildable Lands Inventory (BLI) was prepared for the City of Cornelius, identifying the remaining buildable parcels of land in the city's commercial and industrial zones. The available inventory for both commercial and industrial users is limited by the prior build-out of most of the city's employment land. The BLI is summarized in the following map and table.

Figure 1. Buildable Land Inventory of Employment Lands, City of Cornelius, 2023

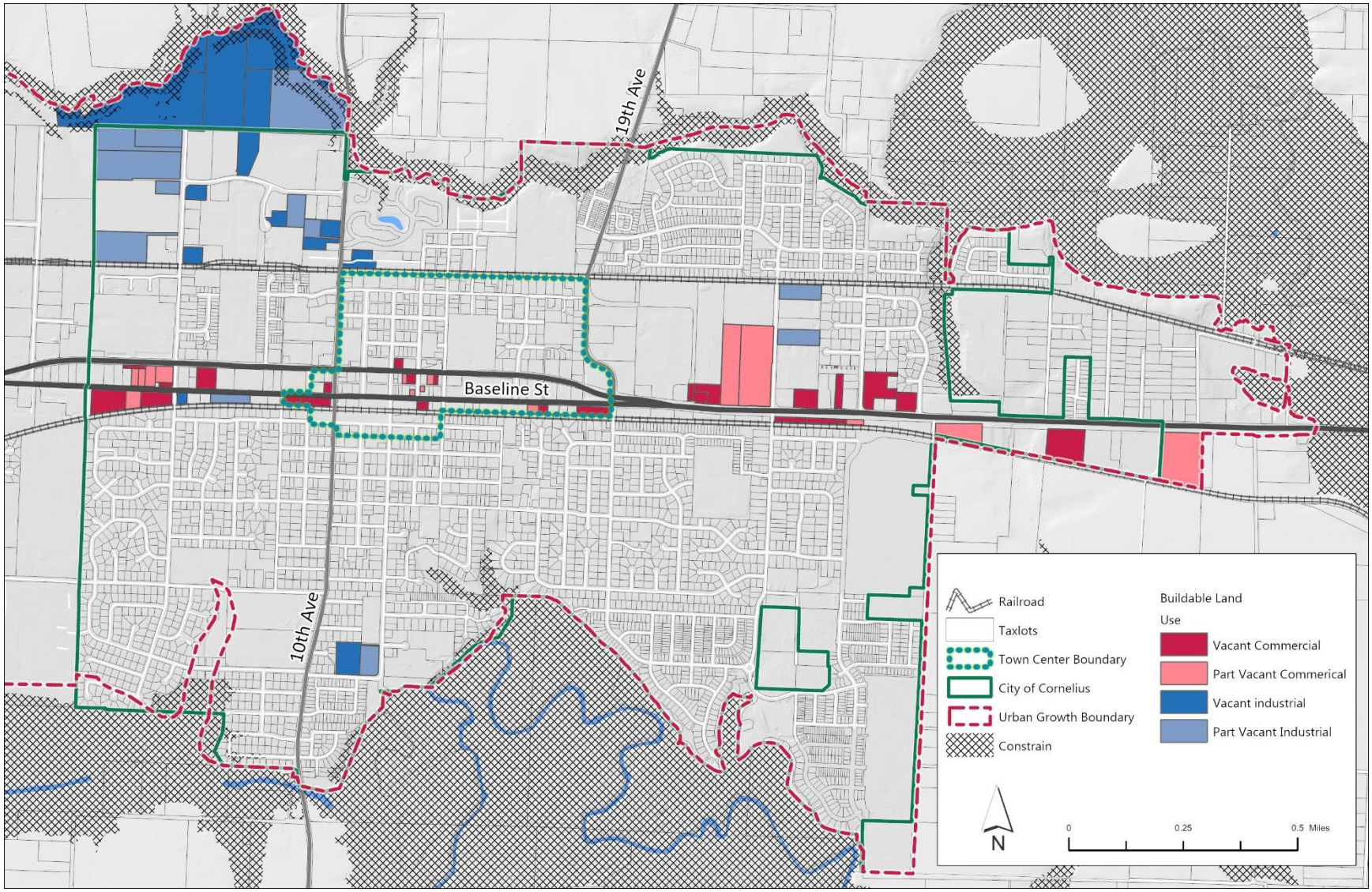

Figure 2. Summary of Buildable Land Inventory of Employment Lands, City of Cornelius, 2023

ZONE	# of Sites	Total Acres	Buildable Acres	Number of Sites by Acreage <1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
C2	22	22.0	19.7	14	8	0	0	0	0
CC	3	1.5	1.3	3	0	0	0	0	0
CMU	10	2.4	2.2	10	0	0	0	0	0
COM	1	6.6	5.3	0	0	1	0	0	0
GMU	5	31.5	15.7	2	2	1	0	0	0
I	3	57.4	40.2	0	1	0	1	1	0
LI	2	3.9	2.0	1	1	0	0	0	0
M1	17	36.4	21.8	9	8	0	0	0	0
	63	161.7	108.1	39	20	2	1	1	0

ZONE	# of Sites	Total Acres	BLI	<1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
Commercial:	41	64.0	44.1	29	10	2	0	0	0
Industrial:	22	97.7	64.0	10	10	0	1	1	0
TOTAL:	63	161.7	108.1	39	20	2	1	1	0

ZONE	# of Sites	Total Acres	BLI	<1.0	1 - 4.9	5 - 9.9	10 - 19.9	20 - 39.9	40+
Commercial:	65%	40%	41%	71%	24%	5%	0%	0%	0%
Industrial:	35%	60%	59%	45%	45%	0%	5%	5%	0%
TOTAL:	100%	100%	100%	62%	32%	3%	2%	2%	0%

- Cornelius has a total of 63 consolidated buildable employment sites. Adjacent taxlots under common ownership are counted as one contiguous site.
- 65% of these sites are commercial, while 35% are industrial.
- In terms of total acreage, there is greater acreage of buildable industrial land (64 acres) than commercial land (44 acres).
- There is a single remaining contiguous industrial site, under common ownership, of 24.3 acres, and another industrial site of 12.6 acres. All other industrial sites (90%) are less than 5 acres in size, and 45% are less than one acre in size.
- There are two commercially zoned sites of between 5 and 10 acres, with the largest being 8.2 acres. 71% of remaining commercial sites are less than one acre in size.
- Note that there is a significant distinction between capacity and readily available site supply. The readily available inventory must currently have appropriate entitlements and infrastructure capacity to accommodate short-term development.