DRAFT

ECONOMIC OPPORTUNITIES ANALYSIS
BOARDMAN, OREGON

Prepared For:
City of Boardman, Oregon

July 2025

Boardman
STRATEGIC PLAN
JOBS & BUSINESSES
Making big dreams a reality.

Acknowledgments

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

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I. INTRODUCTION

This report presents an Economic Opportunities Analysis (EOA) for the City of Boardman, 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 seven primary sections:

- **Economic Development Objectives:** The community goals and policies that form the foundation for the EOA.
- **Economic Trends:** Provides an overview of national, state, and local economic trends affecting Morrow County and the City of Boardman, 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.
- **Industries Differentiation Analysis:** 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.
- **Reconciliation:** Summarizes the City's inventory of vacant and redevelopable industrial and commercial land (employment land) within City of Boardman's UGB. 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 Boardman is preparing an Economic Opportunities Analysis (EOA) based on a 20-year forecast of employment growth. This project is part of a broader Strategic Planning initiative taking place in the city that aims to modernize plans for all aspects of the community's growth and prosperity. This approximately two-year process will explore where and how to grow to accommodate new jobs, housing, parks, and other essential community needs.

Through community outreach at the outset of this process, Boardman identified the following five community goals:

- Goal 1: Expand shopping and service opportunities
- Goal 2: Provide a full range of housing options
- Goal 3: Support modest, sustainable growth with retaining the City's small-town feel
- Goal 4: Provide adequate public facilities and services
- Goal 5: Build on natural resources and other assets

All of these objectives intersect with job growth and economic development initiatives. Economic growth impacts population growth, housing availability and affordability, job quality and income levels, and the strength of the tax base to provide vital service and infrastructure to employers and residents alike.

The City of Boardman is in a somewhat rare economic position in that the wide availability of jobs located in the industrial lands of the city and at the Port of Morrow has outpaced the availability of local housing and puts stress on the adequacy of commercial and public infrastructure. Boardman is a fast-growing economy and community, and comprehensive planning is badly needed to catch up with realities on the ground.

Boardman aspires to be an attractive place to both live and work. The city would like to provide opportunities for all households to locate in the community and enjoy a high quality of life with good public services. To this end, the city will ensure that there is sufficient land for commercial and industrial employment to accommodate continued growth. The city will work with the Port and other regional partners to support economic development across the region.

Boardman supports small businesses, entrepreneurs, contractors, craftspeople and artisans who sustain economic activity in the place they live. At the same time, Boardman will be positioned to take advantage of cutting edge industries and share in the economic transformation currently underway in the Columbia Basin.

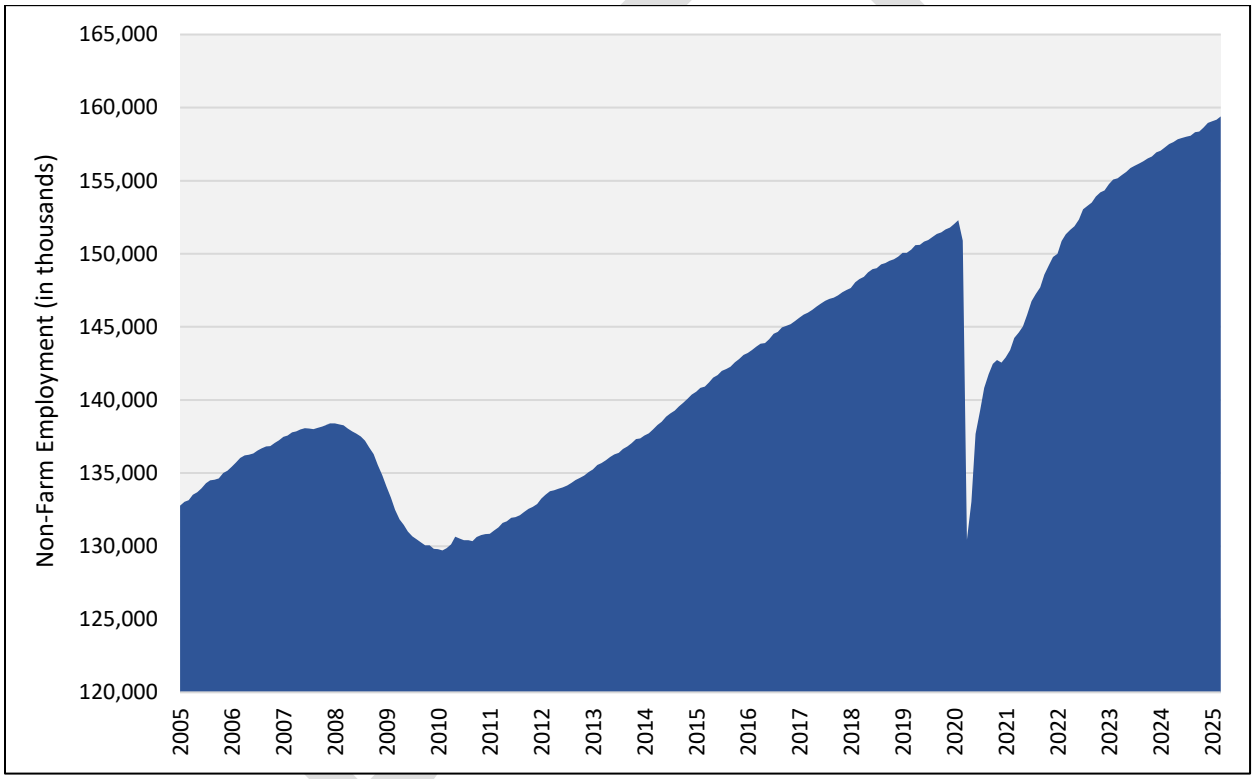
III. ECONOMIC TRENDS

This section summarizes employment and workforce trends at the national, state, and local level that will influence economic conditions in the City of Boardman over the 20-year planning period. This section is intended to provide the economic context for growth projections and establish a socioeconomic profile of the community.

A. NATIONAL TRENDS

Employment: In the first months of the 2020 pandemic, the nation lost nearly 22 million jobs, or 14% of total employment. However, the economy recovered quickly, displaying rapid growth as early as February 2021. National employment returned to pre-pandemic levels as of late 2022 and has grown to new a new record level of 162 million non-farm jobs as of March of 2025 (Figure 3.1).

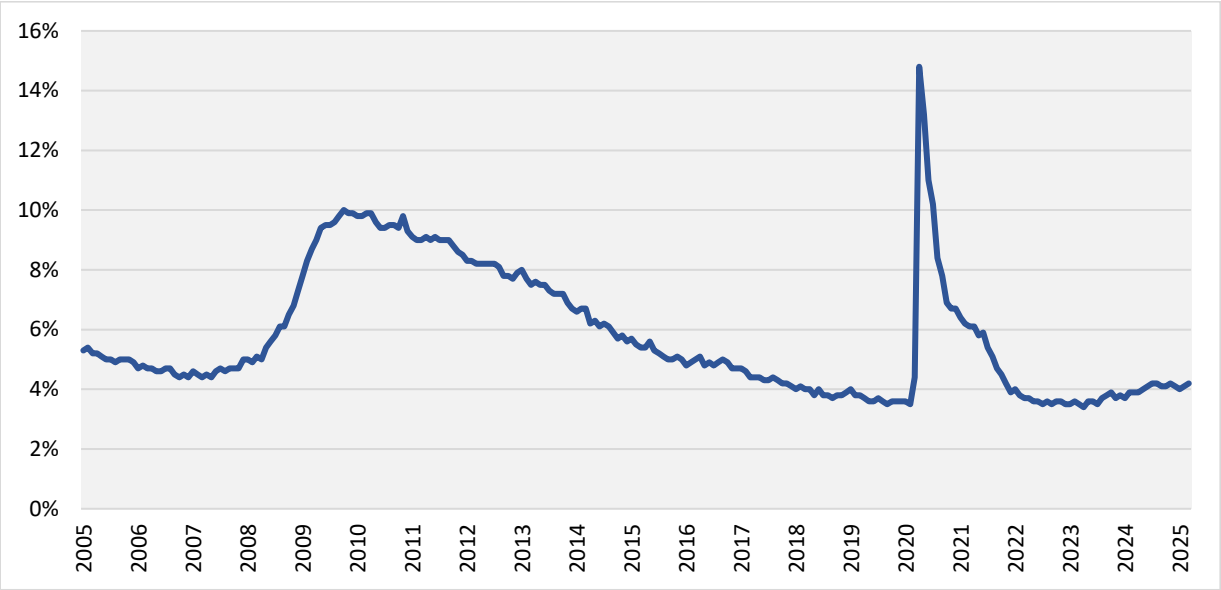
FIGURE 3.1: NATIONAL EMPLOYMENT LEVELS (JAN 2005– MAR 2025)



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 had fallen back to roughly 3.5%. After maintaining some of the lowest levels of unemployment seen in decades, there has been a slight uptick in rates since 2023. Since then, unemployment rates have hovered around 4% range as of March 2025 (Figure 3.2).

FIGURE 3.2: NATIONAL UNEMPLOYMENT RATE (JAN 2005 – MAR 2025)

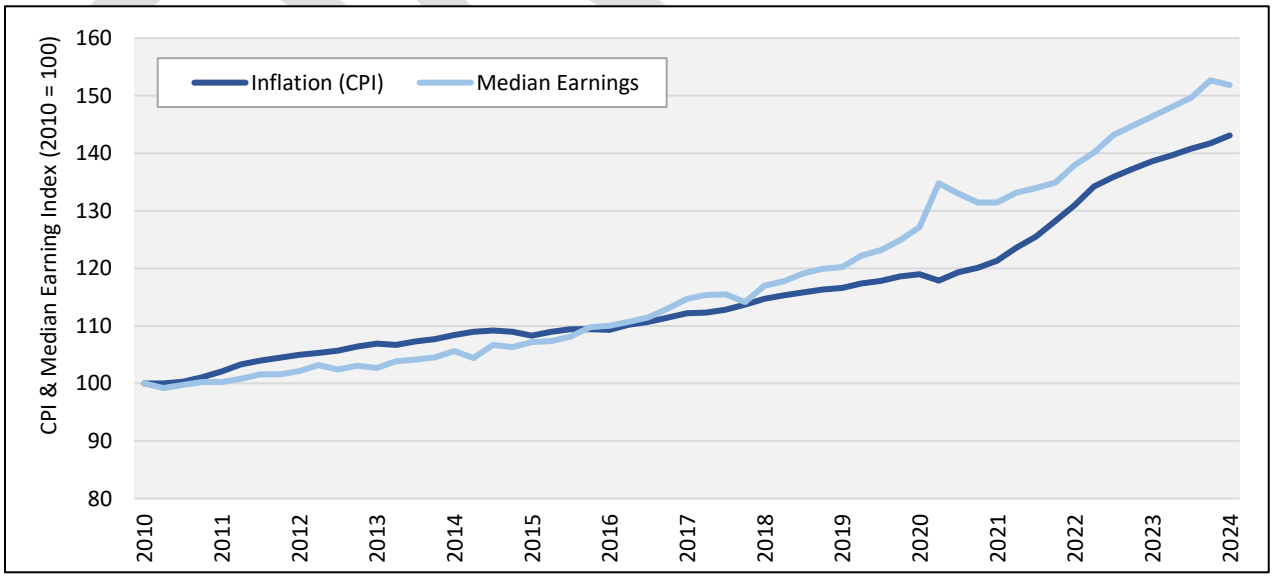


Source: U.S Federal Reserve Bank of St. Louis

Inflation: The counterpoint to the strong rebound in employment coming out of the pandemic was a rising rate of inflation. Various government 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. The inflation rate has fallen closer to the pre-COVID trend as of 2025 at under 3% inflation annually.

Wages: On a positive note, median household earnings also enjoyed growth coming out of the recession and largely outpaced inflation in the following years. Earnings spiked in 2020 when government stimulus payments were added to earned wages. However, earnings growth decelerated beginning in 2022, and fell slightly in 2024 (Figure 3.3).

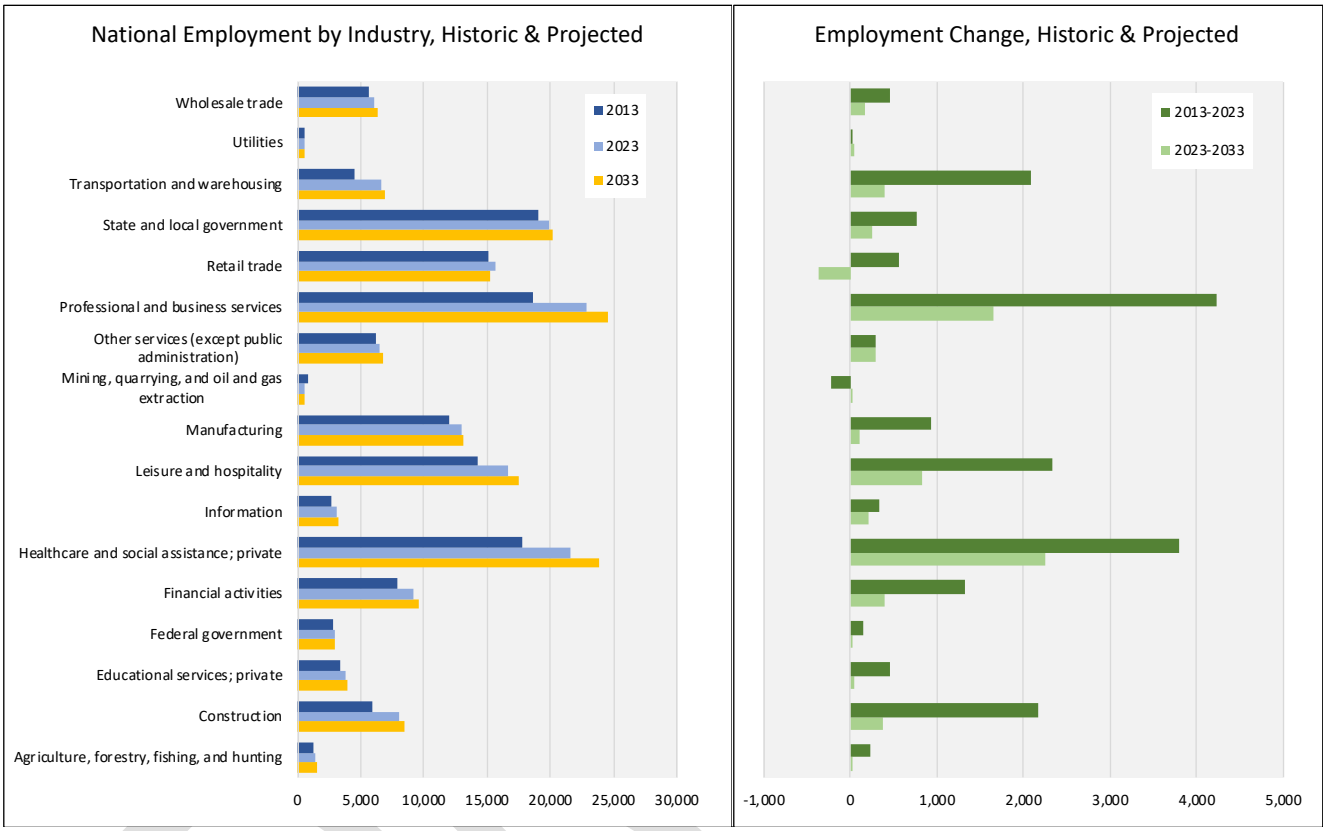
FIGURE 3.3: INFLATION INDEX VS. MEDIAN EARNINGS INDEX (2010 – 2024)



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

Industry Sector Employment: At a national level, professional and business services, and the healthcare & social assistance sector accounts for the largest share of 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 3.4: NATIONAL EMPLOYMENT BY SECTOR (2013 – 2023, 2033 PROJECTED)

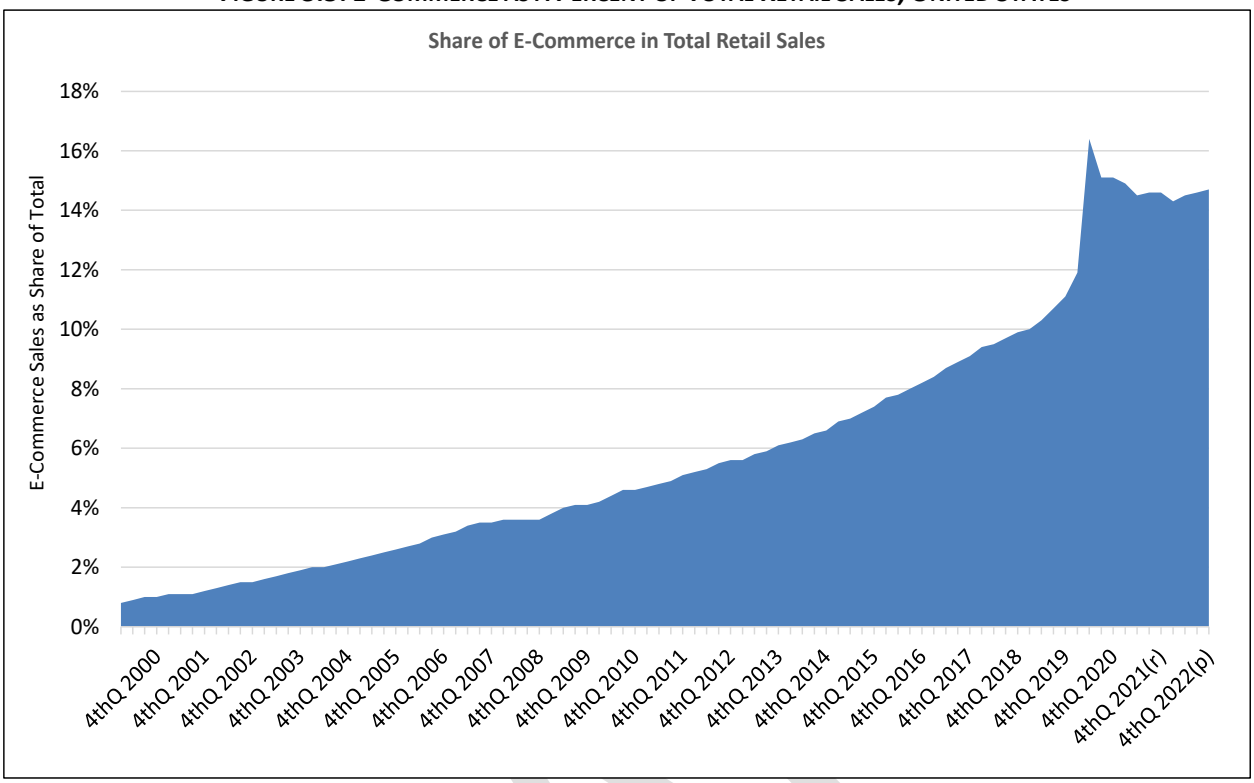


Source: U.S Bureau of Economic Analysis

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 3.5).

FIGURE 3.5: 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. This has also been one factor underlying the growth of the data center industry to facilitate the growth in online activity, which is discussed in greater detail in a following section.

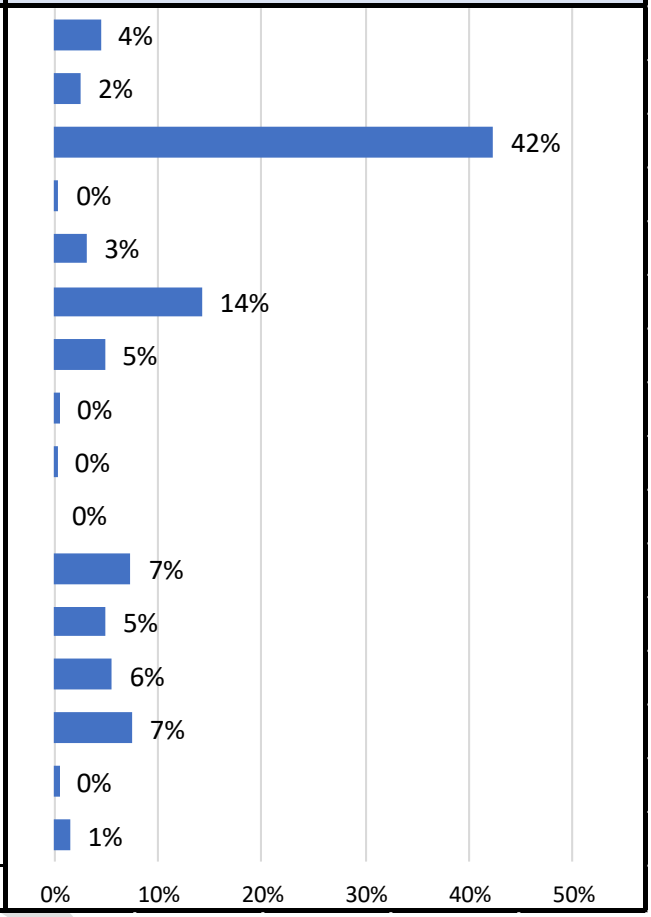
B. CITY OF BOARDMAN EMPLOYMENT AND FIRMS

As of 2025, the City of Boardman is home to roughly 150 businesses with nearly 3,500 workers, including the self-employed (inside the city's Urban Growth Boundary or UGB). The largest industries by employment are manufacturing which includes food processing, utilities, administrative services which includes security firms, and leisure and hospitality which includes dining and tourism-related companies. Data Center employment is included under the "information" sector which has growth rapidly over the past decade.

Boardman has the lowest estimated employment representation in some of the "white collar" professional services such as finance & insurance, real estate & professional sectors. (Industry sectors are discussed in more detail in Section IV of this report)

FIGURE 3.6: ESTIMATED EMPLOYMENT BY INDUSTRY SECTOR, CITY OF BOARDMAN (2025)

Major Industry Sector	Estimated Employment 2025	Share of Employment
Agr., forestry, outdoor	154	4%
Construction	87	2%
Manufacturing	1,475	42%
Wholesale Trade	14	0%
Retail Trade	108	3%
Transport., Warehousing, Utilities	498	14%
Information	168	5%
Finance & Insurance	17	0%
Real Estate	9	0%
Professional & Technical Services	0	0%
Administration Services	257	7%
Education	170	5%
Health Care/Social Assistance	193	6%
Leisure & Hospitality	261	7%
Other Services	15	0%
Government	52	1%
TOTAL	3,479	



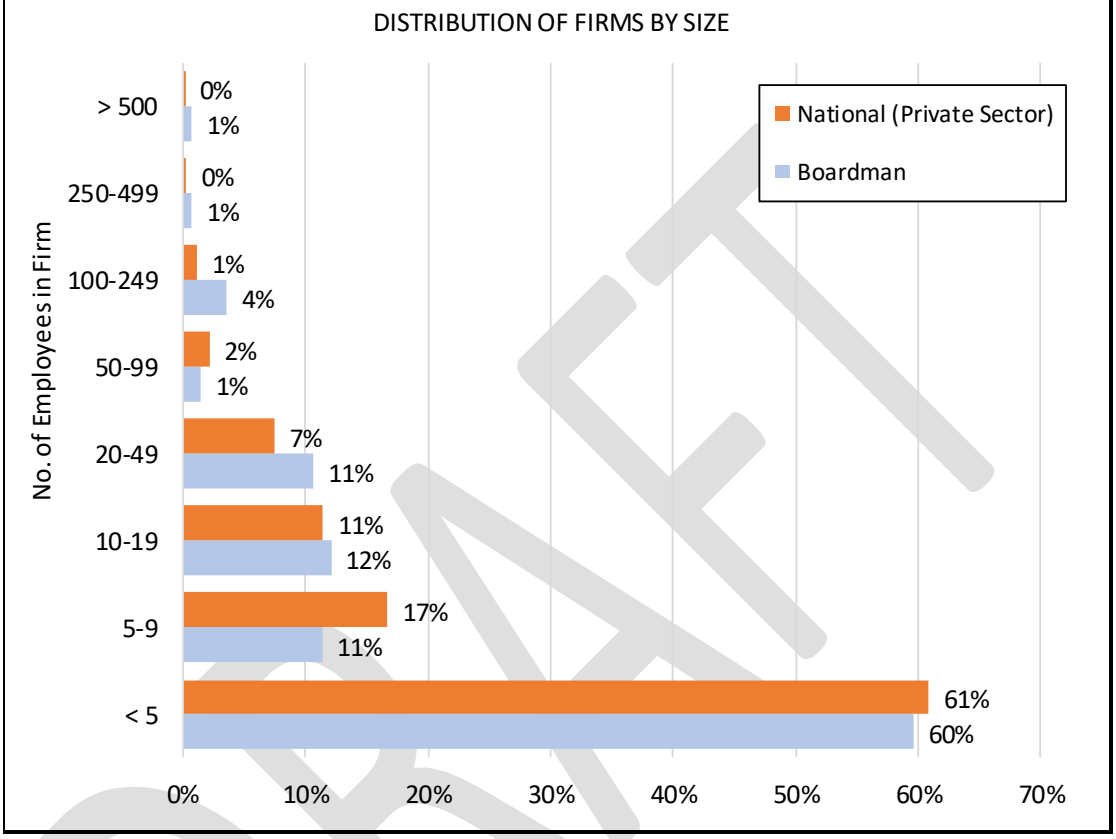
SOURCE: Oregon Employment Department, 2023 QCEW data projected to 2025, Johnson Economics

The local employment base is dominated by relatively small firms, with over 70% of businesses having fewer than 10 employees, and nearly 85% of businesses having fewer than 20 employees (Figure 3.7). However, this trend is in keeping with the national averages. Most businesses are small businesses. (This is based on the most recent 2023 QCEW data for unemployment-insurance covered employment and therefore doesn't include all self-employment or owner/operator businesses.) Only a handful of firms and organizations have more than 100 employees. This is again, in keeping with national trends.

As of 2023 (most recent granular data available from Oregon Employment Department), there were an estimated 140 firms in Boardman with covered employees.

FIGURE 3.6: DISTRIBUTION OF FIRMS BY SIZE, CITY OF BOARDMAN - 2023

	Size of Firm/Employees								
	< 5	5-9	10-19	20-49	50-99	100-249	250-499	> 500	Total
TOTAL	84	16	17	15	2	5	1	1	141

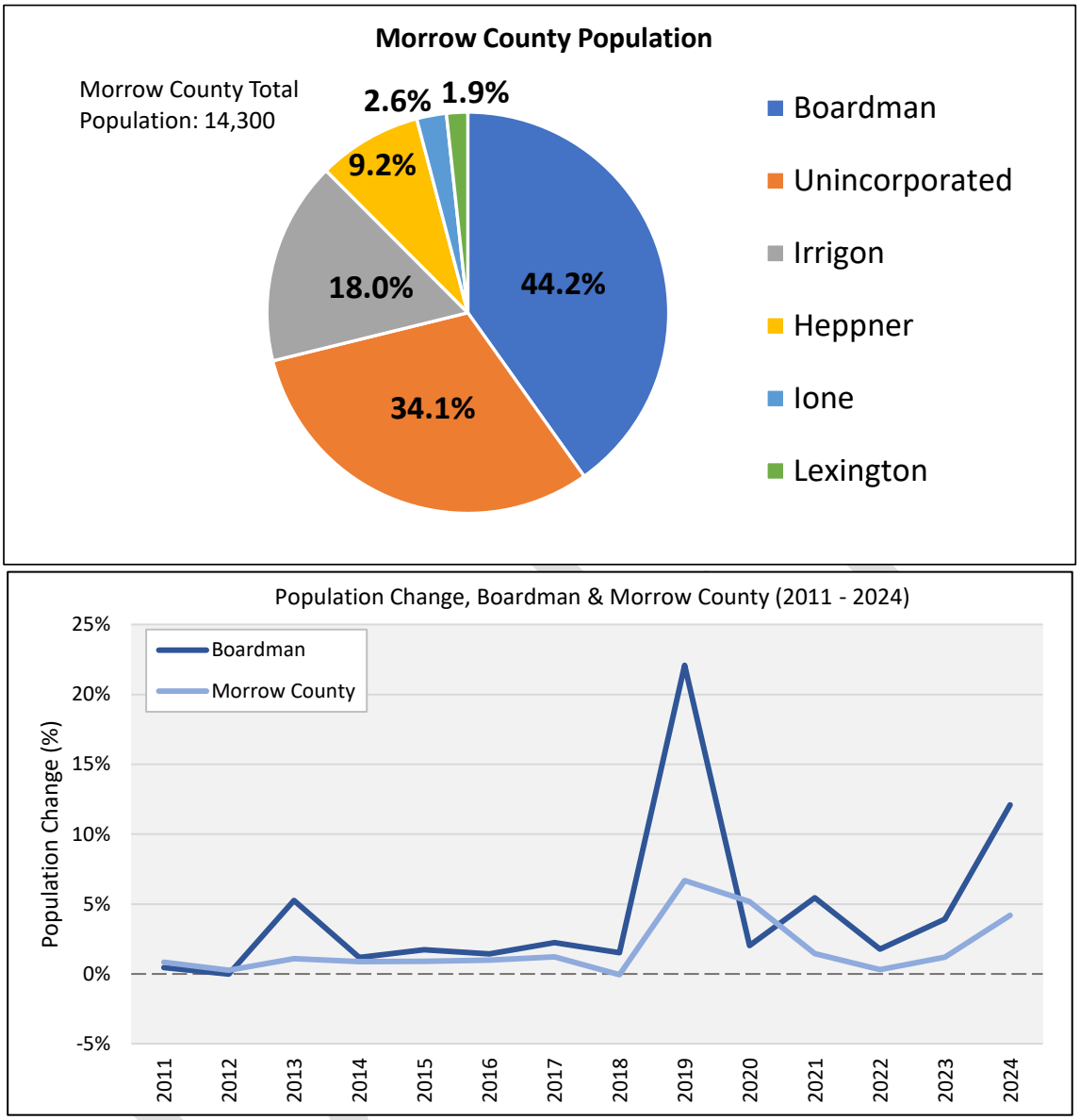


Source: Oregon Employment Department, QCEW data

B. LOCAL POPULATION AND WORKFORCE TRENDS

Population: The City of Boardman was estimated to have a population of 5,750 as of 2024, representing over 44% of Morrow County's overall population and is the county's largest city. Boardman is estimated to have grown at a rate of 4.4% per year since 2010, well over double the county's growth rate (1.8% per year). The city has grown by over 2,500 residents since 2010, which accounts for 80% of the county's growth in that period. Portland State University projects that by 2045 Boardman's population will have grown to 6,630 residents, though past trends suggest this projection may prove conservative.

FIGURE 3.7: POPULATION TRENDS, BOARDMAN & MORROW COUNTY (2024)

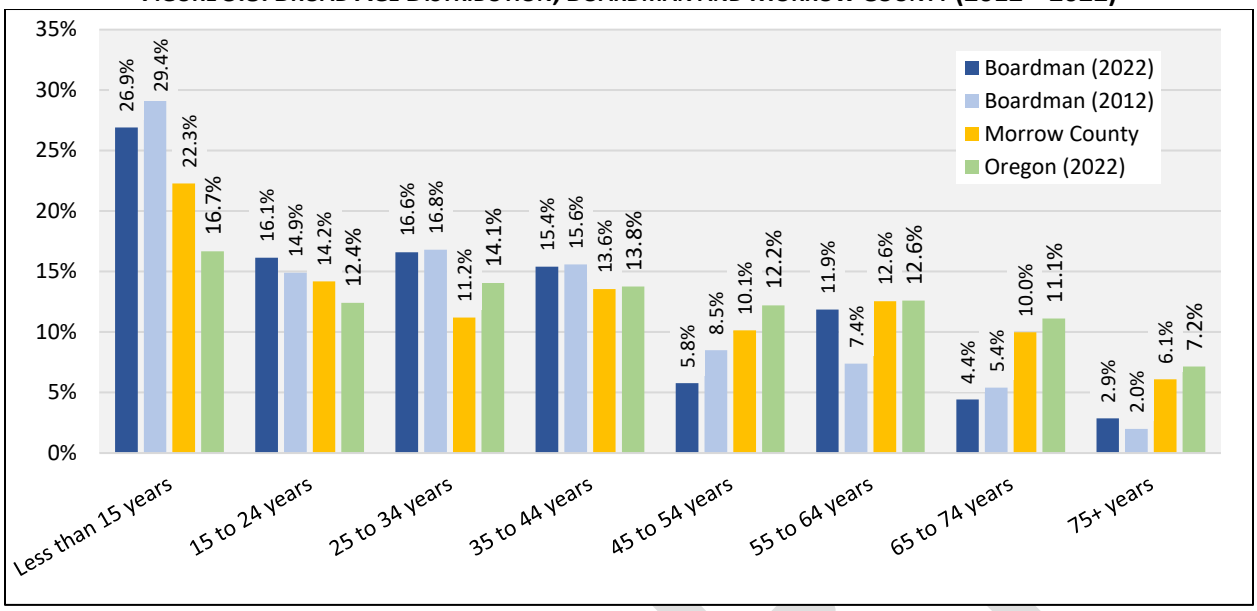


SOURCE: Population Research Center, Portland State University

The City of Boardman has a larger proportion of children and young adults when compared to the county and state as of 2022. Nearly 75% of the city's population is younger than 45 years old according to the Census (Figure 3.8). Overall, those aged 15 or younger is the largest age group in the city, estimated to be over 25% of the population. The next largest age cohort are those aged 25 to 34.

The share of Boardman residents in the traditional retirement age bracket (65+) is much lower than seen in the county or statewide. In Oregon, this group averages over 18% of the population, while in Boardman it is an estimated 8% of the population.

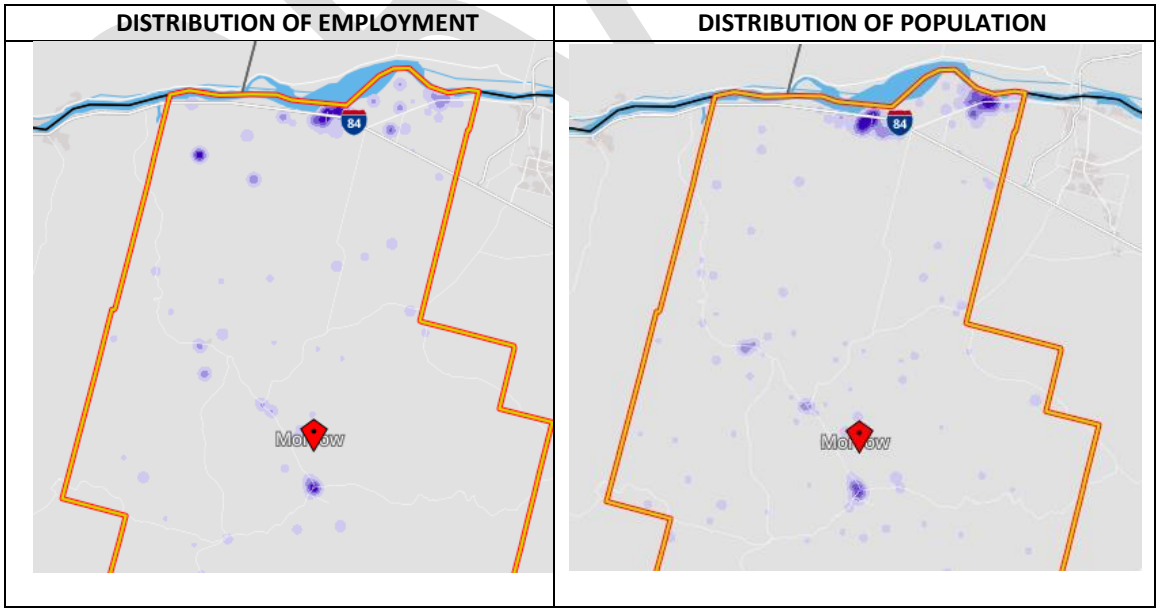
FIGURE 3.8: BROAD AGE DISTRIBUTION, BOARDMAN AND MORROW COUNTY (2012 – 2022)



SOURCE: U.S Census Bureau, ACS 5-Year Estimate

Despite this, between 2012 and 2022, the 55 to 64 age bracket grew the most as a share of the population, growing by roughly 4 percentage points. The 75+ age bracket also saw growth. This reflects a nationwide trend attributed to the aging of the large Baby Boom generation. The first half of this generation is now well past the traditional retirement age, while much of the younger half will be retiring over the coming decade.

FIGURE 3.9: DISTRIBUTION OF EMPLOYMENT AND WORKFORCE, MORROW COUNTY, 2022



SOURCE: Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Data

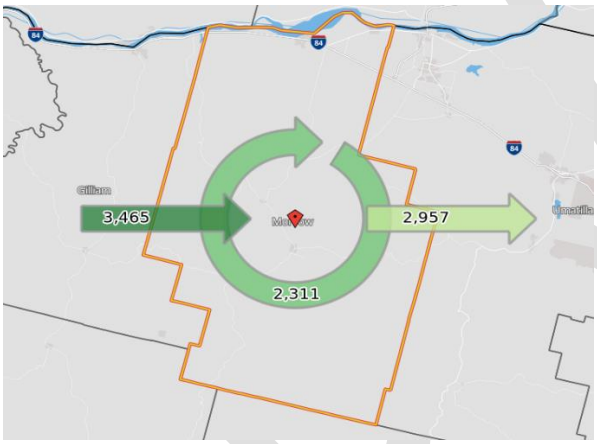
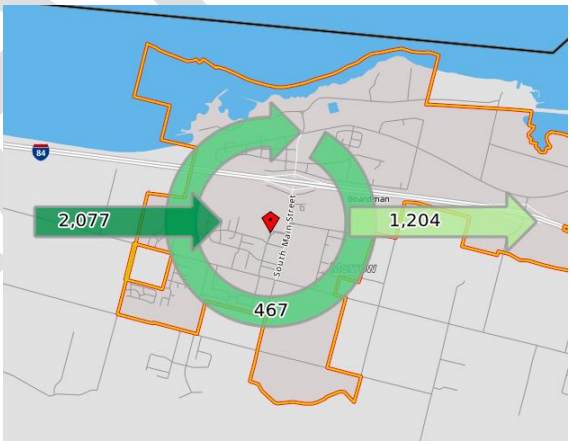
Employment and Population Concentrations: As Figure 3.9 shows, employment in Morrow County is concentrated around the city of Boardman and the Port of Morrow at the north end of the county along the Columbia River; smaller concentrations of employment are found in the county's smaller cities and in some rural locations. The distribution of population is similar, however with more households spread throughout the unincorporated areas of the county around Boardman and Irrigon.

Commuting Trends: In 2022 (the most recent data available), the City of Boardman was estimated to have roughly 2,075 people commuting in for work, while 1,200 people commuted out; 470 residents both lived and worked in the city. As for the county, it is estimated that 3,450 people commuted in for work, 3,000 commuted out for work, while 2,300 live and work in the county during 2022.

These figures reflect "covered employment" as of 2022, the most recent year available. Covered employment refers to those jobs where the employee is covered by federal unemployment insurance. This category does not include many contract employees and the self-employed and therefore is not a complete picture of local employment. The figures discussed here are best understood as indicators of the general pattern of commuting and not exact figures.

Of those residents who work outside of the city, the most common commute destinations are Hermiston, Pendleton, Umatilla, and Portland. For local employees who commute in from outside of Boardman, most live in Hermiston, Kennewick, Umatilla, Irrigon, or Richland.

FIGURE 3.10: NET INFLOW-OUTFLOW OF EMPLOYEES, BOARDMAN AND MORROW COUNTY, 2022

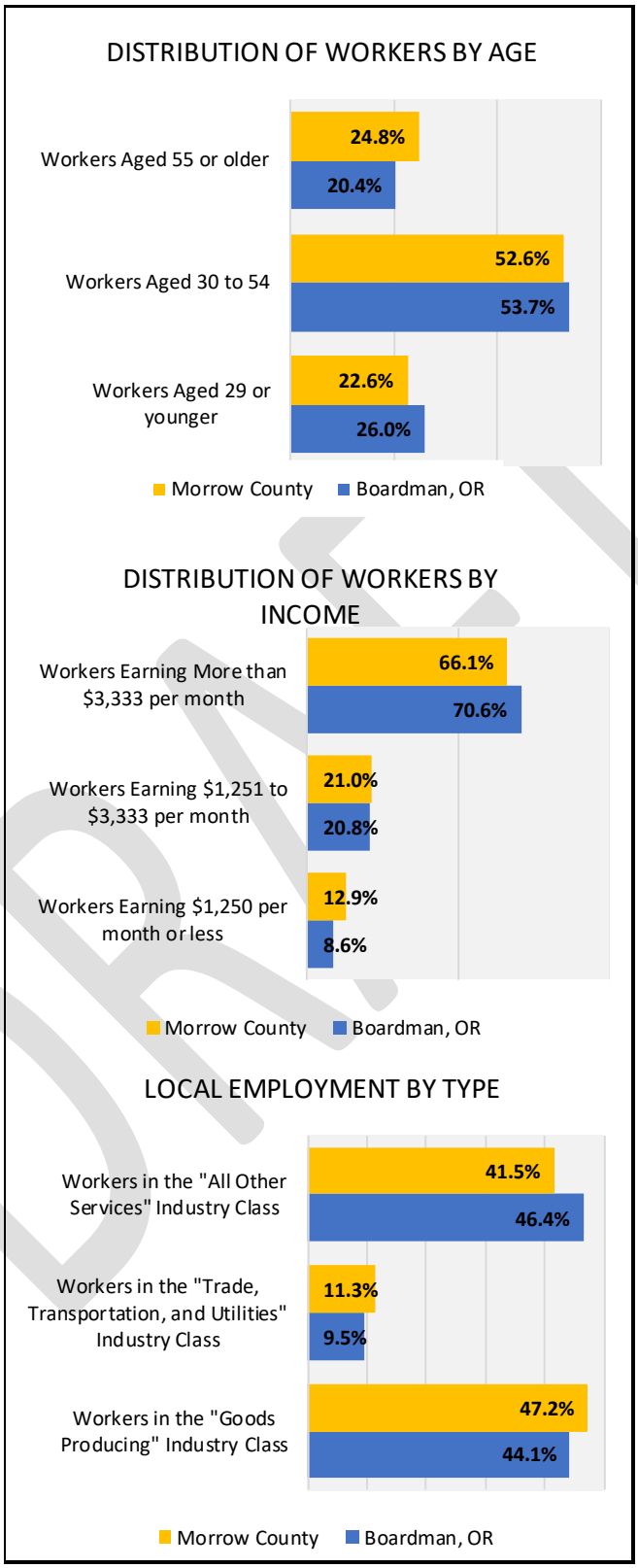
MORROW COUNTY COMMUTING TRENDS	BOARDMAN COMMUTING TRENDS
	

SOURCE: Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Data

Some amount of cross-commuting is common in most communities, as residents are willing to consider a larger employment market beyond the city boundaries, and as workers in the broader area search for available housing that may be in other cities. However, it is estimated that less than 10% of Boardman's population both live and work in the city, which is a relatively low share compared to other communities in the county.

Labor Force Characteristics: The figures below show a comparison of labor force distribution in the City of Boardman and Morrow County. Boardman has a distribution of workers similar to the county in age and income characteristics.

FIGURE 3.11: WORKER CATEGORIES, BOARDMAN AND MORROW COUNTY, 2022

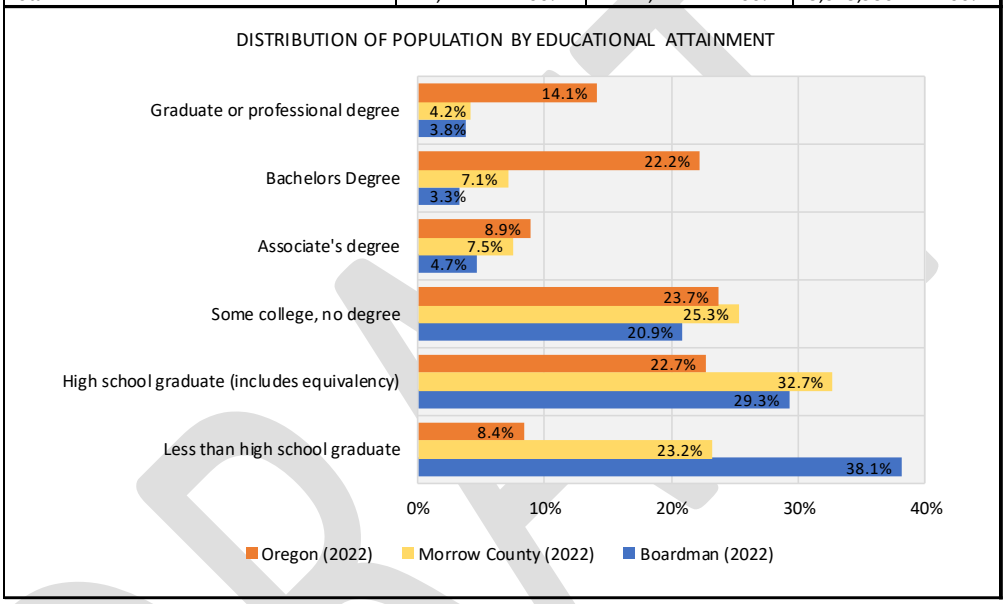


SOURCE: Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) Data

The figure below summarizes the adult population's educational attainment in Boardman compared to the county and state. On average, the City of Boardman has lower-education levels in comparison to the county or state (Figure 3.12).

FIGURE 3.12: EDUCATIONAL ATTAINMENT PROFILE FOR THE POPULATION 25 AND OVER, 2023

	Boardman (2023)		Morrow Co. (2023)		Oregon (2023)	
Population 25 years and older	Count	%	Count	%	Count	%
Less than high school graduate	846	38.1%	1,790	23.2%	254,596	8.4%
High school graduate (includes equivalency)	650	29.3%	2,522	32.7%	690,248	22.7%
Some college, no degree	464	20.9%	1,948	25.3%	721,161	23.7%
Associate's degree	104	4.7%	581	7.5%	271,686	8.9%
Bachelors Degree	74	3.3%	547	7.1%	675,825	22.2%
Graduate or professional degree	84	3.8%	324	4.2%	430,414	14.1%
Total	2,222	100%	7,712	100%	3,043,930	100%



SOURCE: U.S. Census Bureau, 2019-2023 ACS 5-Year Estimates

- Roughly 38% of the local population 25 and older have not completed high school, as compared to 8.4% statewide.
- Roughly 30% of the city's adults only have a high school education, higher than both the county (33%) and the state (23%).
- 33% of the adult population has some education beyond high school, compared to 44% countywide, and 69% statewide.
- 12% of local adults have completed a post-secondary degree, compared to 19% of the county population, and 45% of the state population.

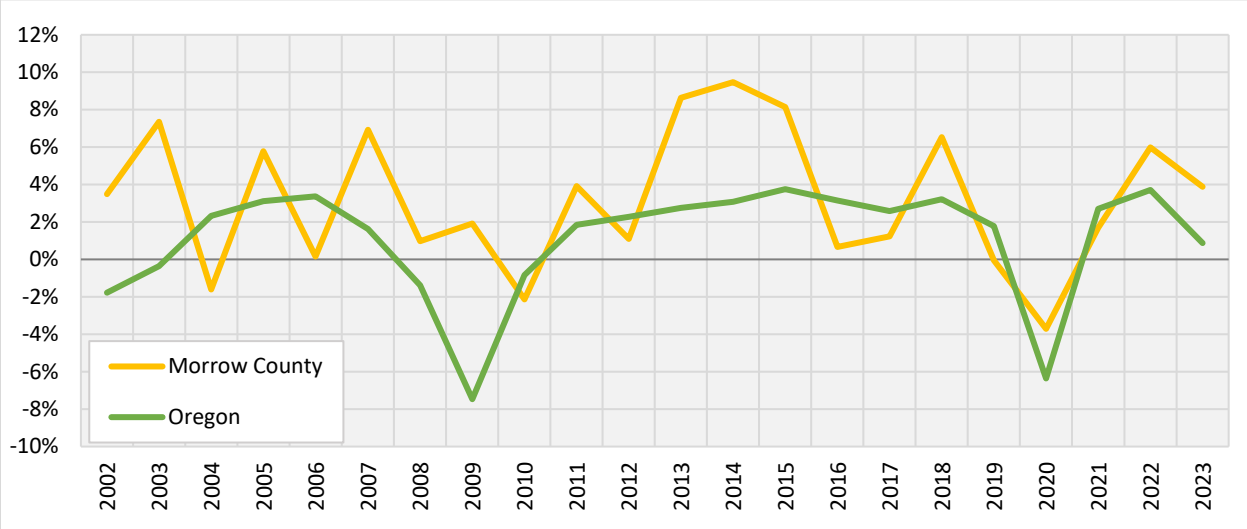
The local workforce has good capacity to fill many information technology (IT) jobs, a field which has seen growing demand due to the region becoming an emerging data center hub. Contrary to popular belief, many IT jobs do not require a college degree. For example, data from Indeed.com shows that as of 2023, 36% of "Data Center Technician" job openings only require a high school diploma or GED, while 31% require a bachelor's degree, 27% require an associate's degree, and 6% require a master's degree [1].

Regional Employment Growth: Morrow County has tended to display stronger employment growth when compared to the State of Oregon. Throughout the 2010's Morrow County's employment growth ranged from 1.5% to 9% annually.

[1] https://www.indeed.com/career/data-center-technician/career-advice

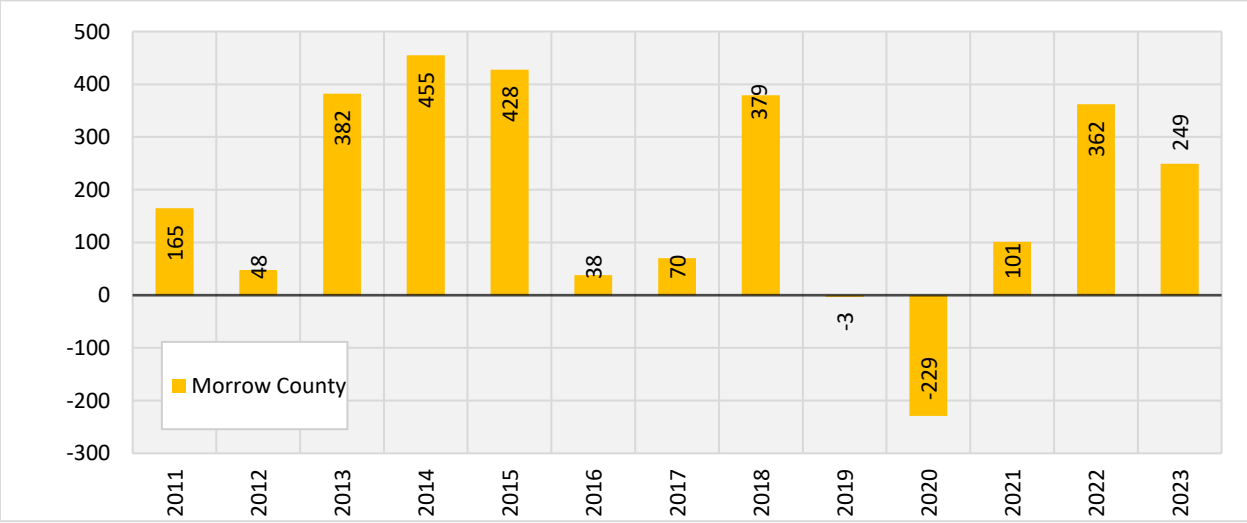
In comparison, the state's employment growth rate hovered consistently around the 2% to 4% range, averaging at 2.4% annually in the same time span. Morrow County has been less affected by recent shocks such as the '08 – '09 and COVID recessions. This is most likely due to a large share of the county's employment base being historically employed in agriculture, government, and the health care and social assistance sectors which are more resilient to economic shocks. During the most recent COVID recession, Morrow County's employment base decreased by 4% while the state's employment base decreased by 7%.

FIGURE 3.13: YEAR-OVER-YEAR EMPLOYMENT GROWTH RATE, BOARDMAN, MORROW COUNTY & OREGON (2002 – 2023)



Source: Oregon Employment Department, QCEW Estimates

FIGURE 3.14: NET CHANGE IN EMPLOYMENT, MORROW COUNTY (2011 – 2023)



Source: Oregon Employment Department, QCEW Estimates

Employment growth in Morrow County in the 2010's was generally robust with more years of strong job growth than not throughout the decade. As with most of the nation, the county experienced significant job less in 2020 due to the COVID pandemic but quickly rebounded in the following years. As of 2022, all the jobs lost in 2020 were recovered, while the state had only recovered roughly 80% of the jobs lost by the end of that year.

IV. COMMUNITY ECONOMIC DEVELOPMENT POTENTIAL

The economic climate of a community helps foster growth of existing firms and industry clusters and make the area attractive for new businesses. The City of Boardman has several existing advantages that boost its potential as a location for current and future business.

Location: Boardman's location is an advantage for some industries and a challenge for others. Located on the I–84 Freeway in Eastern Columbia River Gorge, the addressable market for goods and service providers in Boardman stretches from Arlington to the Hermiston area and smaller Morrow County communities to the south. However, the market for small local, non-traded sector businesses is limited by population size and density.

The location has strong benefits for some industry, in particular agriculture and ag support businesses, food processing and manufacturing, warehousing and freeway distribution, businesses benefiting from river access and transport, and those drawing from the ample power, water, and land resources, which notably includes the data center industry over the past decade.

Transportation Connectivity: Boardman has strong regional transportation access, being located on the I-84 freeway, and near multiple state and federal highways. Access to I-82 is located roughly 15 miles to the east. I-84 is the main route for commuters, freight, and travelers between Boise and Portland, while I-82 provides direct access to the Tri-Cities area in Washington State to the north. Boardman has roughly 20-min access to its nearest neighboring communities including smaller Morrow County cities as well as Hermiston and Umatilla. Pendleton is located roughly 45 miles to the east, and the Dalles an hour to the west.

Businesses in the north industrial area have access points to freight rail service with connections to the remainder of the Northwest. There are small municipal airports located in Boardman and nearby Hermiston, and the larger Tri-Cities airport is located an hour to the north. Portland International Airport is located roughly three hours to the west, and Boise Airport four hours to the east.

Labor Market: The availability of ample and skilled labor is a key factor in economic development potential. Beyond the talent pool of Boardman residents, the city's location and freeway access give local businesses the ability to draw on a larger labor pool from the region. In Oregon, Boardman draws on a labor pool from across Morrow and Umatilla counties, and as far as La Grande. The Tri-Cities metro area, with a population of over 300,000, is located 60 minutes to the north and is an important source of skilled labor across the region.

However, the limited size of the local workforce, and housing to grow that workforce have been an ongoing challenge in Boardman. The small community is home to a large amount of employment in the industrial lands of the city and Port of Morrow. Employers in this area commonly have job openings that are difficult to fill given the limited size of the local workforce and need to recruit from a broader area. Also, the limited size of the workforce means that some needed skillsets may be hard to find among residents.

To grow the local workforce at a range of income and skill levels, there must be sufficient housing available at a range of price points. The community has grown quickly, but not yet fast enough to meet the demand for new housing affordable to everyone in the workforce.

Regionwide, common workforce issues include finding qualified workers with the proper basic and technical skills, training entry-level workers effectively, and successfully employing contractors from staffing agencies. With the ongoing development of large data center facilities in Morrow County, a specialized industry that hardly existed 15 years ago, along with other employment growth, drawing sufficient skilled workers to the area may remain a challenge for the foreseeable future. The continued population growth in Boardman and ready access to the broader region will help this effort. New and existing local businesses can also assist in developing the specific skills and education they will need from their workforce.

Quality of Life: Boardman offers a high quality of life and urban amenities to attract new workers and businesses to the city. The city offers a mixture of small-town lifestyle, diverse cultural activities, with access to nature and rural amenities, while also being a quick trip away from other communities with additional urban amenities. The community features relatively affordable housing in comparison to other parts of the region, good schools, parks, and ample shopping and local services. Achieving sustainable growth and protecting the small town character of Boardman was identified as a community goal during the strategic planning process that preceded this project.

Boardman's location on the gorge in Northeastern Oregon offers ready access to a full range of river and mountain recreation, including camping, hiking, fishing, and hunting.

Utilities: The City of Boardman and Morrow County have ready access to ample green energy from regional dams on the Columbia River watershed, and area wind and solar projects. The area also has ample water resources to meet the needs of agriculture and water-dependent industry. This combination has made Morrow and Umatilla counties attractive to the data center industry over the past decade as they need dependable sources of both.

Flat, Buildable, Land: The study area has a diversity of potentially available land to accommodate a range of uses and intensity of uses. This diversity can expand regional marketability and offers the flexibility to plan uses meeting specific site criteria. Within the State of Oregon, there are limited opportunities for large-lot industrial development. The region's potential supply of large sites can provide a strong competitive advantage, if it is made available. While the land in the county may be hypothetically suitable however, the right amount, location, and sizes of development sites for different employers may not be currently available within the Urban Growth Boundary.

Economic Development Partnerships: Boardman has several partners in economic development, including the Boardman Chamber of Commerce, the Port of Morrow, Morrow County, neighboring cities, NEOEDD, and Business Oregon. Nearby Hermiston features a Blue Mountain Community College campus to offer ongoing education and training to the local workforce.

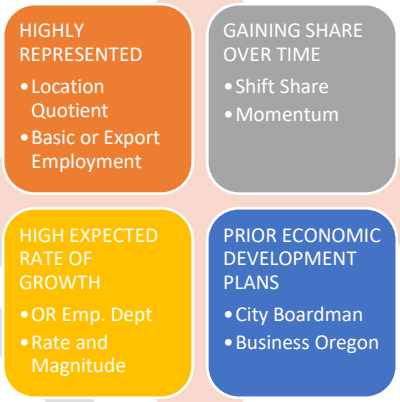
Local and regional employers are also key partners in promoting and growing their industries. Boardman works with these and other regional partners to provide the infrastructure and services needed to retain and attract businesses to the city.

Economic Development Tools: Boardman features the Columbia River Enterprise Zone (CREZ) which allows for tax abatements to incentivize new business development across most of the employment lands in the city. The Enterprise Zone covers most of the industrial land of the city and port, as well as land to the west of Boardman around Tower Road and the airport. Boardman also features an Urban Renewal (TIF) Agency that administers two TIF districts, on the north and west sides of the city.

V. INDUSTRY DIFFERENTIATION ANALYSIS

This element of the Economic Opportunities Analysis utilizes analytical tools to assess the economic landscape in Morrow County and the City of Boardman. 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.



ECONOMIC SPECIALIZATION (MORROW COUNTY)

A common analytical tool to evaluate economic specialization is 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.

FIGURE 5.1: INDUSTRY SECTOR SPECIALIZATION BY MAJOR INDUSTRY (PRIVATE), MORROW COUNTY, 2023

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Employment LQ
102 Service-providing	248	2,704	$193,378,251	$71,522	0.57
101 Goods-producing	128	2,913	$194,693,598	$66,842	2.96
1011 Natural resources and mining	61	1,148	$69,174,830	$60,244	14.39
1012 Construction	52	211	$21,655,629	$102,796	0.61
1013 Manufacturing	16	1,554	$103,863,139	$66,843	2.78
1021 Trade, transportation, and utilities	70	852	$53,833,005	$63,160	0.68
1023 Financial activities	20	57	$2,891,962	$51,185	0.15
1024 Professional and business services	27	339	$19,290,606	$56,974	0.34
1025 Education and health services	50	285	$15,362,214	$53,855	0.27
1026 Leisure and hospitality	31	250	$5,391,588	$21,602	0.35
1027 Other services	27	65	$2,203,027	$33,677	0.33
Total	354	4,761	$681,737,849	$143,192	

SOURCE: U.S. Bureau of Labor Statistics

A location quotient analysis was completed for Morrow County, which evaluated the distribution of local employment relative to national averages, as well as average annual wage levels by industry (Figure 5.1). The industries that are well-represented countywide are good candidates for growth in localities such as Boardman as the city has the ability to tap into regional advantages to grow locally.

Among major industries, the natural resources sector (which includes agriculture) was the most strongly manufacturing, which includes food processing, being the next. Trade, transportation, and utilities and construction have the next highest representation though still somewhat lower than the national average. Recent additions to employment in the information sector from data center development are not adequately reflected in this 2023 data.

The professional & business services and financial activities sector were the most under-represented major industries. The utilities sector provided the highest average wages among these industries, while the leisure and hospitality industry (dining and tourism) has the lowest average wages.

A more detailed analysis shows that the industries with the highest LQ in the county are the "natural resources" category followed by utilities, manufacturing, transportation & warehousing, and government. The industries that employ the most people in the county are agriculture, manufacturing, and the local government. The most under-represented industries are finance, real estate, and health care and social services.

FIGURE 5.2: INDUSTRY SECTOR SPECIALIZATION BY DETAILED INDUSTRY (PRIVATE + GOVT.), MORROW COUNTY, 2023

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Employment LQ
Natural Resources & Mining	62	1,149	$69,211,555	$60,236	14.40
Utilities	8	99	$12,840,733	$129,814	3.96
Construction	52	211	$21,655,629	$102,796	0.61
Manufacturing	16	1,554	$103,863,139	$66,843	2.78
Wholesale trade	16	107	$9,090,390	$84,957	0.40
Retail trade	25	295	$9,464,417	$32,128	0.44
Transportaion and warehousing	20	352	$22,437,465	$63,773	1.26
Information	-	-	-	-	-
Finance and Insurance	11	41	$2,331,573	$56,409	0.15
Real Estate and Rental	9	15	$560,389	$36,949	0.14
Professional and business services	27	339	$19,290,606	$56,904	0.34
Educational services	-	-	-	-	-
Health care and social assistance	50	285	$15,362,214	$53,855	0.31
Leisure and Hospitality	31	250	$5,391,588	$21,566	0.35
Other services	27	65	$2,203,027	$33,677	0.33
Unclassified	-	-	-	-	-
Government	49	1,037	$68,002,661	$65,576	1.09
Total	426	6,655	$456,126,941	$68,539	

SOURCE: U.S. Bureau of Labor Statistics

The level of indicated export employment per sector is estimated by combining the location quotients and overall employment levels. Export industries are important in that they grow the overall size of the local economy by bringing in dollars from outside the community, rather than recirculating internal spending.

The industries with the highest level of export employment are agriculture followed by manufacturing, government, warehouse & transportation, and utilities.

ECONOMIC SPECIALIZATION (CITY OF BOARDMAN)

The same analysis for the City of Boardman reveals high levels of employment concentration in the food manufacturing which has an employment LQ of 32 in 2023. Following this, the next industries with a notable employment concentration in the city are utilities, delivery and warehousing, agriculture, and educational services. [Figure 5.3 presents data based on *covered employment* from 2023 (the most recent year available), not including self-employment.]

Overall, the professional, technical, and "white collar" sectors tend to have an LQ below 1, indicating that the city's employment concentration is less than what is expected nationwide on average. As with the countywide data, the reality of job growth in the information sector from data centers is not yet reflected in this data set.

FIGURE 5.3: INDUSTRY SECTOR SPECIALIZATION BY DETAILED INDUSTRY, CITY OF BOARDMAN, 2023

Industry	Annual Establishments	Average Employment	Total Annual Wages	Average Annual Wages	Employment LQ
Agriculture, forestry, fishing, and hunting	6	77	$4,331,962	$56,259	3.22
Mining	-	-	-	-	-
Construction	25	66	$7,347,429	$111,325	0.43
Food Manufacturing	6	1,470	$97,420,332	$66,272	32.37
Wood Manufacturing	-	-	-	-	-
Metals Manufacturing	-	-	-	-	-
Utilities	3	187	$15,967,425	$85,387	16.99
Wholesale trade	3	14	$1,680,142	$120,010	0.12
Retail trade	9	90	$2,563,987	$28,489	0.30
Transportation	3	22	$1,844,078	$83,822	0.33
Delivery and warehousing	2	200	$13,214,459	$66,072	3.56
Information	5	20	$782,024	$39,101	0.35
Finance and Insurance	4	16	$954,639	$59,665	0.13
Real Estate and Rental	4	9	$390,860	$43,429	0.20
Professional, Scientific, and Technical Services	-	-	-	-	-
Management of Companies and Enterprises	1	6	$443,026	$73,838	0.12
Administrative and Waste Management	5	195	$8,139,027	$41,739	1.09
Educational services	4	129	$7,846,370	$60,825	2.16
Health care and social assistance	18	146	$8,730,407	$59,797	0.36
Arts, Entertainment, and Recreation	-	-	-	-	-
Accommodation and Food Services	17	217	$4,569,706	$21,059	0.81
Other services	2	13	$354,981	$27,306	0.15
Government	2	50	$3,893,528	$77,871	0.12
Unclassified	7	7	$61,209	$8,744	0.19
Total	126	2,934	$180,535,591	$61,532	

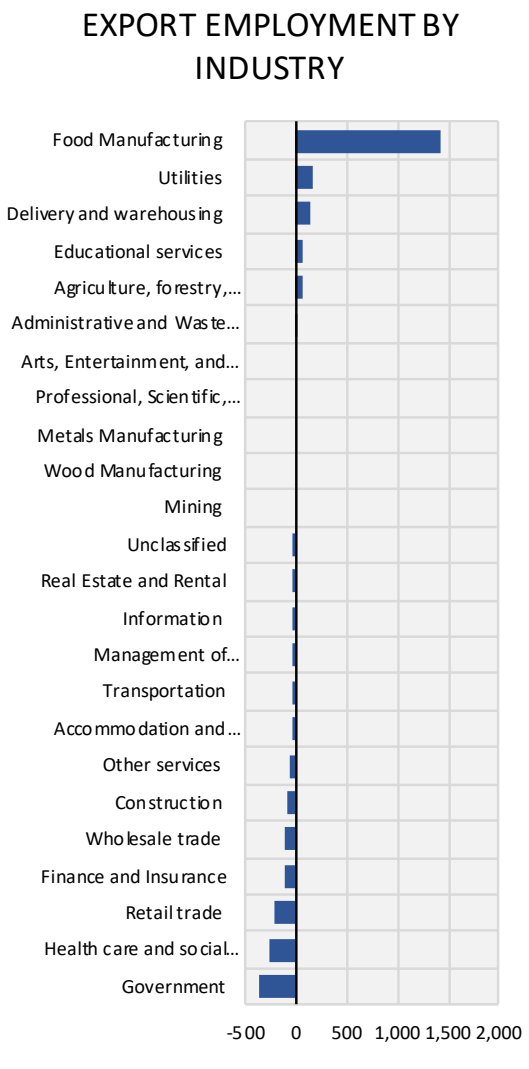
SOURCE: Oregon Employment Department

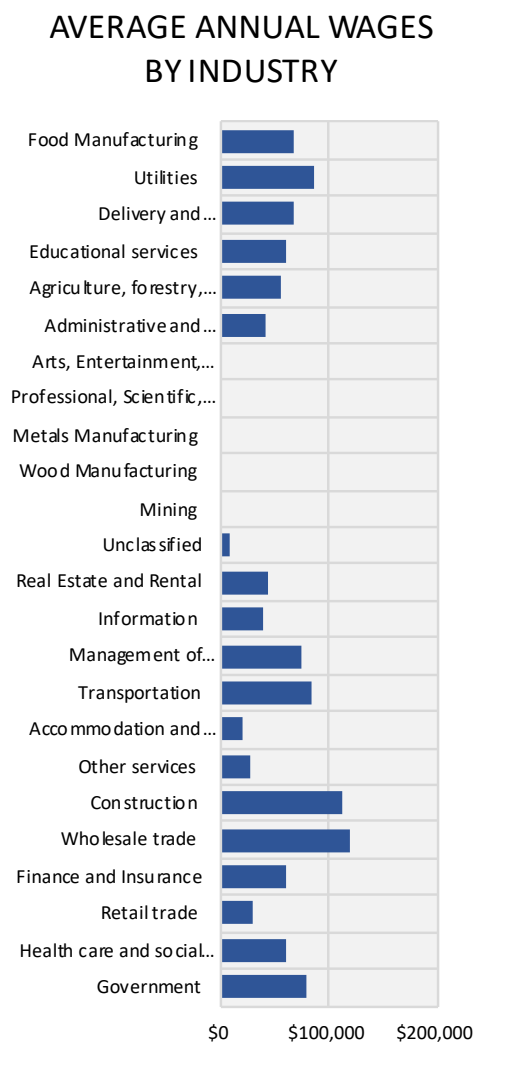
The top sectors in terms of overall employment were food manufacturing, utilities, and warehouse and deliveries. Manufacturing is a strong export industry, with most product leaving the city and county and bringing outside dollars into the local economy. The large and long-established food processing plants located in the city and Port's industrial lands are large contributors to the traded sector. Data centers also sell their services to customers largely beyond the local area, and are similarly considered export businesses.

FIGURE 5.4: TOP TEN INDUSTRIES IN TERMS OF TOTAL AND EXPORT EMPLOYMENT, CITY OF BOARDMAN (2023)

Industry	Total Employment
Food Manufacturing	1470
Accommodation and Food Services	217
Delivery and warehousing	200
Administrative and Waste Management	195
Utilities	187
Health care and social assistance	146
Educational services	129
Retail trade	90
Agriculture, forestry, fishing, and hunting	77
Construction	66

Industry	Location Quotient
Food Manufacturing	32.37
Utilities	16.99
Delivery and warehousing	3.56
Agriculture, forestry, fishing, and hunting	3.22
Educational services	2.16
Administrative and Waste Management	1.09
Accommodation and Food Services	0.81
Construction	0.43
Health care and social assistance	0.36
Information	0.35





SOURCE: Oregon Employment Department and Bureau of Labor Statistics

ECONOMIC DRIVERS

Shift Share Analysis

The identification of the economic drivers of a local or regional economy is 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[2].

A shift-share analysis measures the 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 conditions are 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 factors are 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 factors are making it increasingly tough on local firms.

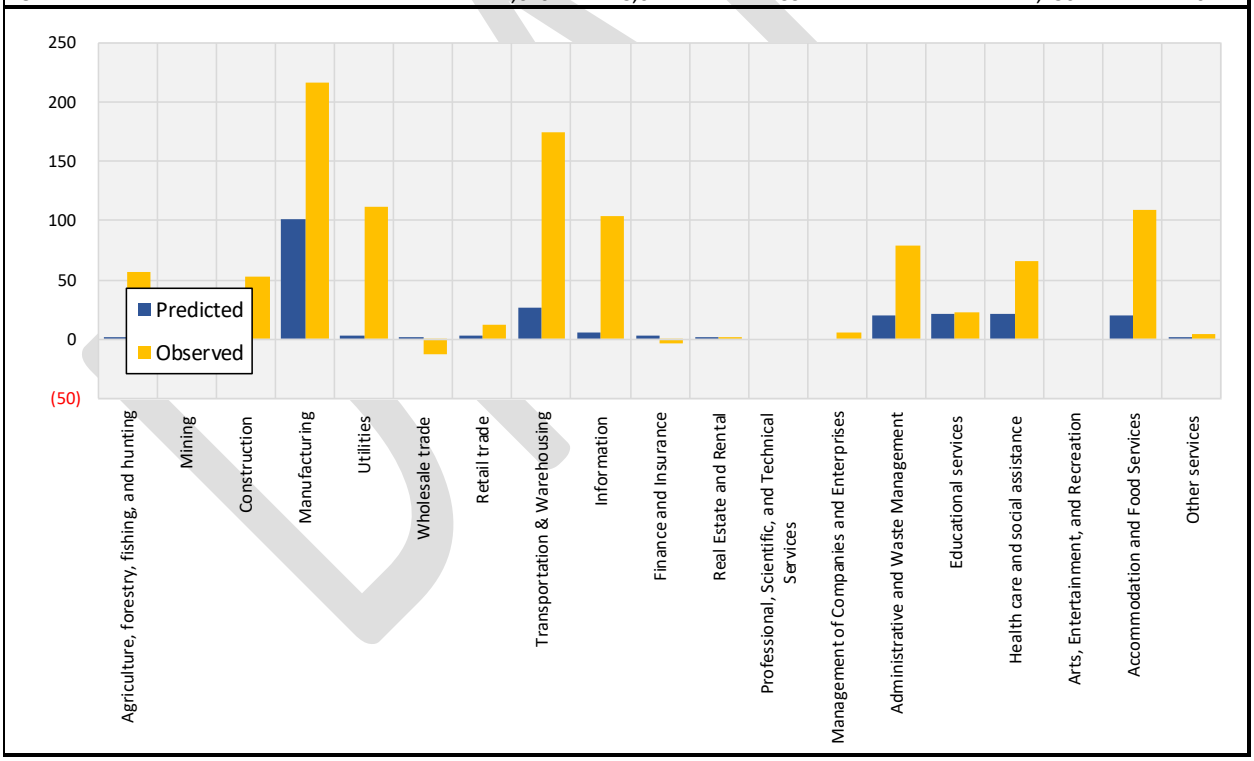
The average annual growth rate by industry from 2013 to 2023 (the latest available data) in Boardman was compared to the national rate. The observed local change was compared to a standardized level reflecting what would be expected if the local industry grew at a rate consistent with national rates for that industry.

As shown in Figure 5.6, most local industries grew at a faster rate than the rest of the country. Sectors that did experience a notable positive regional shift in employment during this period were manufacturing, utilities, delivery and warehousing, and information. Sectors with a negative regional shift in employment compared to the national growth rate include wholesale trade and some professional sectors, however the size of the negative trend is not large.

2 Measured from 2012 through 2022

FIGURE 5.5: INDUSTRY SECTOR SHIFT SHARE ANALYSIS, CITY OF BOARDMAN (2013 – 2023)

Industry	Average Employment 2013	Average Employment 2023	Net Change Total	Net Change AAGR	Standardized Level - 2022*	Regional Shift
Agriculture, forestry, fishing, and hunting	20	77	57	14.4%	21	56
Mining	3	0	(3)	0.0%	2	(2)
Construction	13	66	53	17.6%	19	47
Manufacturing	1,254	1,470	216	1.6%	1,355	115
Utilities	75	187	112	0.0%	79	108
Wholesale trade	27	14	(13)	0.0%	29	(15)
Retail trade	78	90	12	1.4%	81	9
Transportation & Warehousing	48	222	174	16.5%	74	148
Information	56	160	104	11.1%	62	98
Finance and Insurance	19	16	(3)	-1.7%	21	(5)
Real Estate and Rental	8	9	1	1.2%	10	(1)
Professional, Scientific, and Technical Services	0	0	0	#NUM!	0	0
Management of Companies and Enterprises	0	6	6	#NUM!	0	6
Administrative and Waste Management	116	195	79	5.3%	136	59
Educational services	106	129	23	2.0%	127	2
Health care and social assistance	80	146	66	6.2%	101	45
Arts, Entertainment, and Recreation	0	0	0	#NUM!	0	0
Accommodation and Food Services	108	217	109	7.2%	128	89
Other services	9	13	4	3.7%	9	4
TOTAL	2,020	3,017	997	4.1%	2,256	761



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

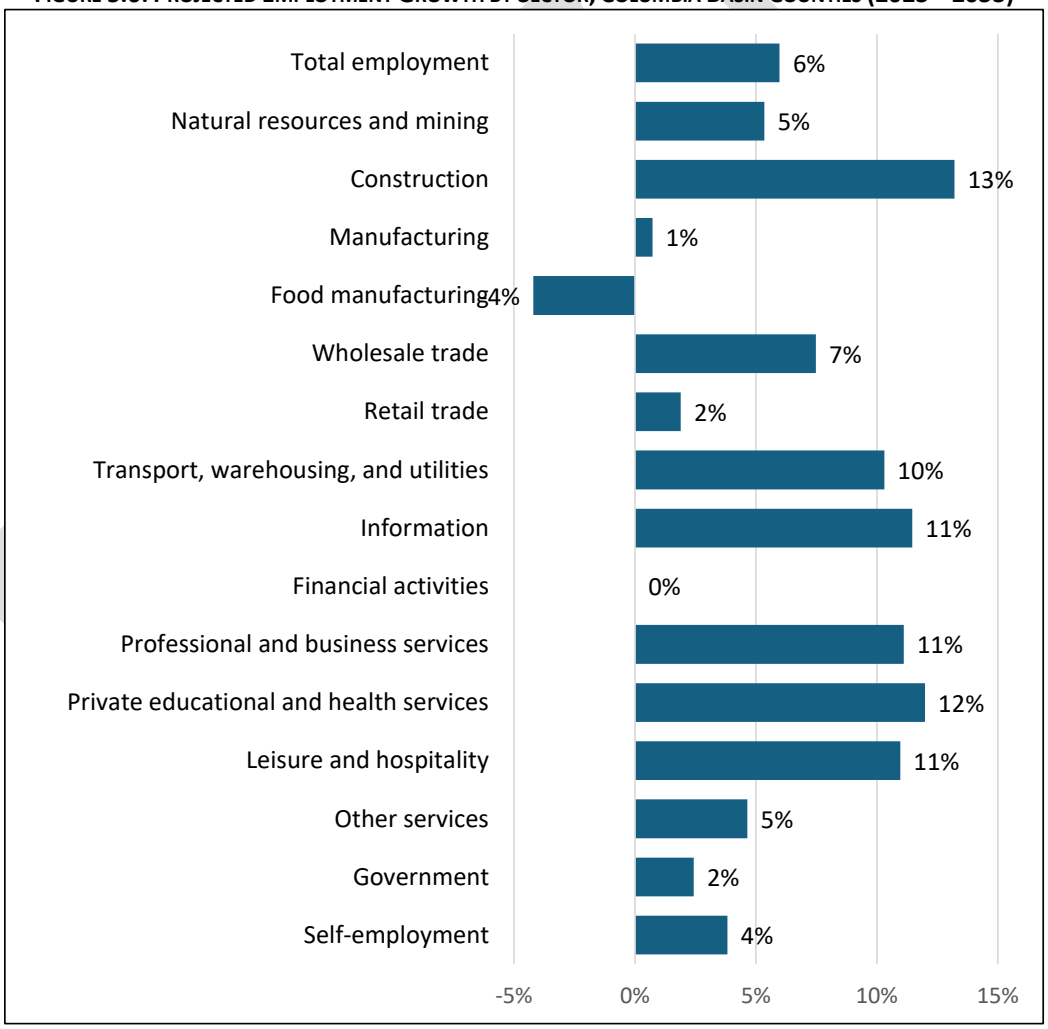
SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, Bureau of Labor Statistics

PROJECTED EMPLOYMENT GROWTH (OED)

The State of Oregon produces employment forecasts by sector at the broader regional level, which groups the Morrow and Umatilla counties together into one Columbia Basin region. The most recent forecast anticipated an average annual growth rate of less than 1% during the 2023 – 2033 period. This growth projected growth rate would be slower than Morrow County's historical average annual growth rate of 3% per year since 2002 as highlighted in Section III.

In this region, the major industries with the fastest projected growth rates are information including data centers, private educational & health services (including nursing facilities), construction, and professional services. Food manufacturing, which is important to the region, is projected to shrink slightly, while some other sectors are expected to experience flat or very low growth. The projected large increase in the information industry is, in part, due to the influx of data centers that have been recently constructed and planned to be introduced in the region.

FIGURE 5.6: PROJECTED EMPLOYMENT GROWTH BY SECTOR, COLUMBIA BASIN COUNTIES (2023 – 2033)



SOURCE: Oregon Employment Department, Workforce and Economic Research Division

DATA CENTER DEVELOPMENT ACTIVITY – MORROW COUNTY

This EOA analysis would be incomplete without addressing the recent history of data center development in the area, including Morrow County and adjacent Umatilla County. These facilities have been attracted to the area, as well as Central Oregon, due to the availability of ample affordable power and water resources that meet the criteria for data center campuses, as well as large, flat development sites to house these substantial facilities. Local and state financial incentives have also helped attract this development.

Data centers accommodate the physical equipment necessary to store, manage, process, and transmit digital information over the internet. Demand for data centers has and continues to increase rapidly, especially as cloud computing, streaming services, e-commerce, and artificial intelligence (AI) become more prevalent.

While data centers come in a wide variety of sizes and capacities, development in Morrow and Umatilla Counties has been almost exclusively of "hyperscale" data center campuses, which serve the needs of the largest internet and cloud computing companies including Amazon, Google, Facebook, Apple, and Microsoft. These companies are among the largest and best capitalized in the world with the resources to make these massive investments.

National Growth

A 2024 report[3] by Cushman and Wakefield on the data center (DC) market finds that new development of these facilities is still accelerating globally, with the amount of new development known to be in the current pipeline (excluding those in land planning stage) expected to increase DC capacity by 2.5 times in the Americas market alone. (The data center industry measures capacity in megawatts of power to run equipment.) The report forecasts that DC revenues from cloud storage and AI customers is expected to grow by nearly 900% within the next 5 years.

The hyperscale DC category has been the fastest growing type in terms of capacity. As of 2010, hyperscale campuses represented an estimated 13% of total capacity among data centers. As of 2022, they represented an estimated 77% of total capacity.[4] With the largest technology companies needing their own dedicated data centers to accommodate their own storage and AI needs or run cloud operations, the growth of hyperscale centers is expected to continue to outpace other categories. McKinsey & Company estimates that hyperscale DC capacity will grow by another 2.5 times by 2030.[5]

Co-location centers, owned by third-party operators with capacity that is leased to multiple other businesses, are also expected to continue to grow, but less quickly (1.8 times). Growth in small "enterprise centers", run by smaller individual businesses for their own needs, has stagnated as they increasingly rely on outsourcing to the other two categories for their data storage and processing needs. Enterprise now make up 10% of data center capacity and this share is falling year to year.

Physical capacity in land, facilities, power and water will be needed globally, nationally, and regionally to meet this strong demand that is not slowing but accelerating. The United States remains the leading market in the world for DC development, capacity, and usage.

[3] "Global Data Center Market Comparison." Cushman and Wakefield, 2024.

[4] "*What do you Need to Know About Designing Data Centers?",* Consulting Specifying Engineer, May/June 2023

[5] "Investing in the rising data center economy." McKinsey & Company, 2023.

Regional Growth (Oregon)

Oregon is now an established major market for data center development with the largest data center clusters focused on the eastern Columbia Basin (Morrow and Umatilla counties), Portland metro area, and Prineville. Currently, the Portland metro area has the greatest number of data centers, with most in the Hillsboro area. However, these tend to be smaller data centers in the co-location category. Land constraints and shortage of available industrial sites in the Metro area restrict the size and expansion of DC campuses. The Prineville area is home to a small number of very large campuses, specifically Apple and Meta (Facebook) campuses of roughly 150 and 360 acres respectively.

The Columbia Basin is home to the greatest concentration of hyperscale data centers in the state, with a much larger number of similarly sized campuses averaging roughly 100 to 125 acres (see more below).

Oregon is a globally significant data center market. The Cushman and Wakefield report assesses Oregon to be the #8 DC market in the world, and #4 in the United States. Oregon is now home to hyperscale data centers for many of the largest tech companies in the world. Established markets have advantages for DC operators including vendors, construction expertise, and state and local governments and utilities that are familiar with the industry and its needs. Oregon ranks even better in some categories, including:

- #3 globally in IT load (computation capacity), #2 nationally
- #6 globally in presence of cloud operators, #4 nationally
- #5 globally in renewable power options, #1 nationally
- #1 in tax structure nationally

Regional Growth (Morrow and Umatilla Counties)

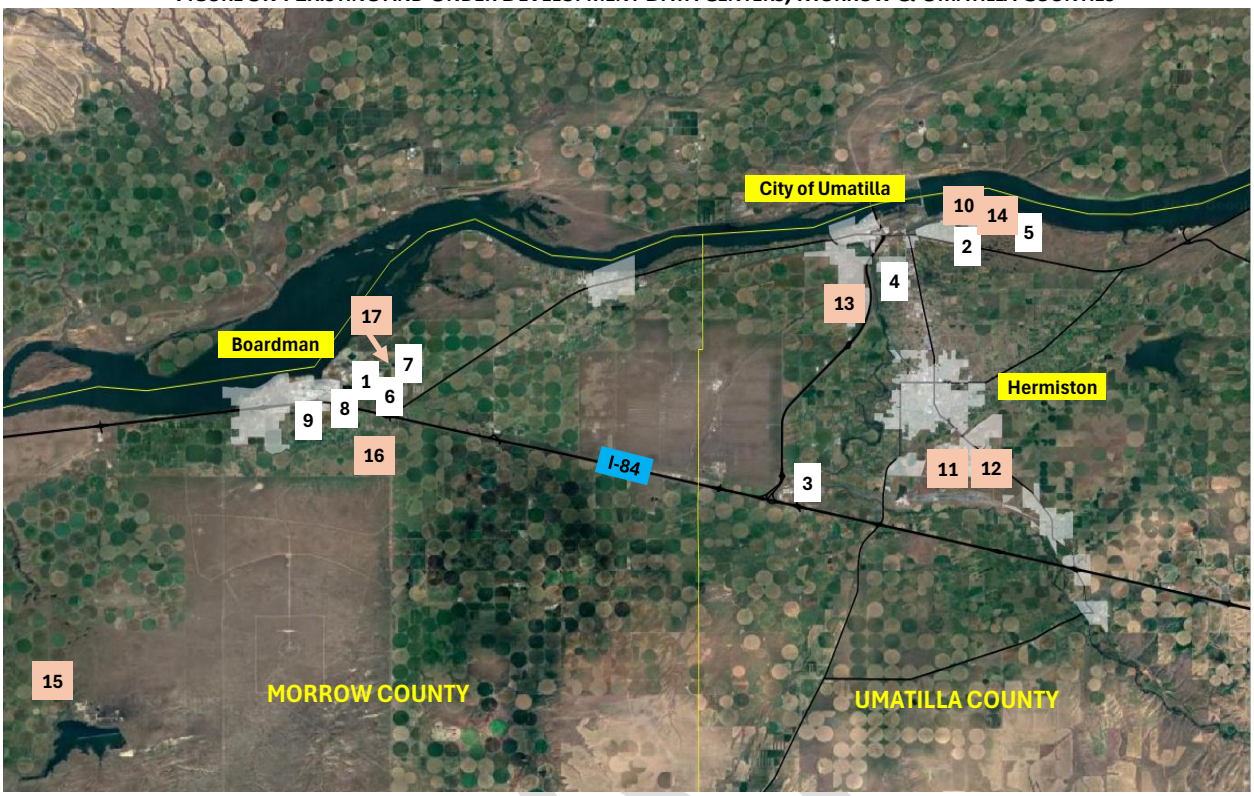
Over the last decade, investment and jobs growth in this sector has been extremely robust and outstripped growth in any other sector in the region. Since roughly 2014, nine large data center campuses have been developed in Umatilla and Morrow Counties. These campuses include 34 individual data center buildings of roughly 200k-225k square feet each, and cover an estimated 850 acres, including accompanying substations. There are currently eight additional campuses currently under construction or in advanced planning, for a total of 17 hyperscale data center campuses expected to be completed over a period of roughly 12 years. (And multiple known campuses *in addition* to these are in less advanced planning and proposed phases.)

Most of this development (7 of 9 completed campuses, with 28 buildings) has taken place just in the last five years, with an average of 1.5 centers completed each year across the two counties. At an average of 108 acres per campus, this is average land development of roughly 160 acres per year for hyperscale data centers.

In Morrow County, there have been five campuses developed over a decade (four in the past five years), three more under development, and more in planning. These developments (existing and proposed) will average 130 acres in size, with an average of four large buildings per campus, qualifying as hyperscale data center campuses. Morrow County is expected to average development of two sites per year over the next three years. Recently, a land use application was approved to allow the region's first "exascale" data center of over 1,000 acres in Morrow County. The campus might hold 16 or more data center buildings after it is completed in phases.

The following map and table (Figure 5.17) summarize the existing and planned hyperscale data center developments in Umatilla and Morrow Counties. Two of these were built prior to 2019, but all the remaining have been built in the last five years, with eight more under construction or in advanced planning, and more in earlier planning stages.

FIGURE 5.7: EXISTING AND UNDER DEVELOPMENT DATA CENTERS, MORROW & UMATILLA COUNTIES



Site #	Years Built (Est.)	Total Acres	DC Buildings
Completed			
1	2014-2017	60	3
2	2014-2022	35	3
3	2022-2023	126	4
4	2023	187	4
5	2023-2024	83	4
6	2021-2022	108	4
7	2023	100	4
8	2019-2023	68	4
9	2021-2023	82	4
Under Development/Planned			
10	2024	131	4
11	2024-2025	100	4
12	2024-2025	114	4
13	2024-2025	194	4
14	2025-2026	133	4
15	2024-2025	100	4
16	2024-2025	125	4
17	2024-2025	130	4
TOTALS:		17	1,876	66
Since 2019:		15	1,781	60
Avg. Annual (Since 2019):		2.5	297	10

SOURCE: Baxtel, Data Centers.com, Umatilla and Morrow County assessors and GIS, Google Earth, Johnson Economics

Continuous growth over the last five years indicates that large technology companies have the will and resources to develop hyperscale data center campuses at a rate of one to two per year, consuming somewhere between 100 to 300 acres per year, for the foreseeable future.

Data Center Employment

Data from the Oregon Employment Department for Morrow and Umatilla Counties indicates that between 2014 and 2024 job growth in the "Information" sector that includes data centers far outpaced the growth rate in all other sectors. The sector added an estimated 800 new jobs over that decade with most of this growth taking place in the second half of the period. It is important to note that this data is lagging and does not include at least one new data center facility that came online in 2024, which is estimated to have added hundreds of additional jobs in this sector.

The 800 new jobs represented growth of 300% in this sector between 2014 and 2024, or 15% per year. The second fastest growing sector in the county was Construction, which grew at 4% annually (roughly 600 new jobs). The accelerated growth in construction jobs is also at least partially attributable to the development of these large data center campuses.

Data center operators maintain confidentiality over details of their operation. As noted, the most recent year of employment data available from both BEA and QCEW data provided by the state is 2023, which does not include the completion of most of the data centers in the area.

However, a handful of real-world examples analyzed by Johnson Economics finds an average estimated employment at 35 to 40 employees per building (avg. hyperscale building of roughly 200k to 250k sqft). Industry sources also estimate that employment at data centers can be anywhere from 20 – 50 employees per building. So that a hyperscale campus, typically of four buildings, might have an average of 140 employees once it is in operation. This assumption is applied in the following section to estimate average employment at hyperscale data centers.

Indirect and Induced Employment

Due to the sheer size of data center investments, the new direct employment they bring, and continued spending by the enterprise in the local economy, DC development is estimated to have large secondary impacts in other sectors.

Using the IMPLAN (IMPact for PLANning)[6] economic multiplier model, Johnson Economics estimated the impact of the data center operations activity on secondary employment in the broader economy. Large data center campuses are very high-value investments that generate significant additional spending in the region. This added economic activity helps generate new jobs across support industries. These are called indirect or induced effects.

IMPLAN Methodology: IMPLAN models the magnitude and distribution of economic impacts, and measures three types of effects. These are the direct, indirect, and induced changes within the economy. The following is a brief definition of the three impact types:

> ***Direct Impacts***: The actual change in activity affecting the local economy. For example, if a new industrial building is constructed, direct economic impacts represent the value-added output for that firm/user, as well as the jobs required for development and the labor income paid.

6 IMPLAN is an economic impact model designed for analyzing the effects of industry activity (employment, income, or business revenues) upon all other industries in an economic area. Minnesota IMPLAN Group (MIG), Stillwater, Minnesota

Indirect Impacts: Indirect impacts reflect the response of all other local businesses within the geographic area to the direct impact. Continuing the previous example, indirect impacts of a new institutional user would comprise revenues for related venders (e.g., real estate services, vendors, etc.), and the jobs and labor income thereby generated.

Induced Impacts: These reflect the response of households within the geographic area affected by direct and indirect impacts. In the given example, induced impacts would be the increase in all categories of spending by households in the geography directly or indirectly employed by the businesses' activities.

Due to the sheer size of the data center investments in a relatively rural county, the resulting indirect and induced employment across other industries is estimated at roughly 2/3 of the direct data center employment. Figure 5.8 shows an estimate of the amount of additional employment generated by the on-going operating activities of one hyperscale data center campus (four buildings of roughly 225k sqft each, with 140 avg. total employees).

FIGURE 5.8: ESTIMATED INDIRECT AND INDUCED IMPACTS
STANDARD HYPERSCALE DATA CENTER (140 JOBS)

Employment Category	Jobs	Share of Total	Share of Direct Jobs
Direct (DC per Bldg)	140	59%	
Indirect	80	34%	57%
Induced	18	7%	13%
TOTAL:	238	100%	70%

Source: Minnesota IMPLAN Group, Johnson Economics

IMPLAN estimates that the ongoing operations of a data center will support secondary employment equal to 70% of the direct DC employment. In the case of a 140-employee DC (building), this amounts to an additional 98 employees in secondary industries. Figure 5.9 presents an estimate of the top ten industries that this activity would support.

FIGURE 5.9: ESTIMATED INDIRECT AND INDUCED IMPACTS BY SECTOR

Sector	Description	Est. Share of Indirect/ Induced Empl.
51	Data processing, hosting, ISP, web search portals and related services	40.1%
22	Electric power generation, transmission, and distribution	12.2%
72	Food services and drinking places	7.4%
54	Employment services	4.1%
53	Real estate establishments	3.5%
62	Offices of physicians, dentists, and other health practitioners	3.3%
23	Maintenance and repair construction of nonresidential structures	2.2%
44	Retail Stores - Food and beverage	1.9%
45	Retail Stores - General merchandise	1.7%
62	Private hospitals	1.7%

Source: Minnesota IMPLAN Group, Johnson Economics

The indirect and induced impacts, while significant, are distributed over many other sectors. Indirect and induced impacts are discussed more in the following section, and these figures help form the assumptions for estimated impacts.

VI. FORECAST OF EMPLOYMENT AND LAND NEED

CITY OF BOARDMAN EMPLOYMENT FORECAST

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 2025, the commencement year for the planning period. Employment growth will come as the result of the 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 an unforeseen major employer, as these events are difficult to predict. (This forecast **does** include the anticipated employment at data center facilities currently under construction, because this employer is known at the time of this analysis. More detail below.)

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 6.1: UPDATE TO BASELINE YEAR AND CONVERSION OF COVERED TO TOTAL EMPLOYMENT

The first analytical step of the analysis is to update covered employment to the 2025 base year. The Quarterly Census of Employment and Wages (QCEW) data was used to determine the City of Boardman's covered employment by industry through 2023, the latest year available. To update these estimates, we use observed industry specific growth rates for Morrow County between 2014 and 2024.

The second step in the analysis is to convert "covered"[7] 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 county level derived from the Oregon Employment Department. The adjusted 2025 total employment base for the City of Boardman is just under 3,500 jobs.

FIGURE 6.2: UPDATE TO 2025 BASELINE AND CONVERSION OF COVERED TO TOTAL EMPLOYMENT, CITY OF BOARDMAN (2023 – 2025)

	QCEW Employment				
Major Industry Sector	2023 Employment	'23-'25 County Δ[1]	2025 Estimate	Total Emp. Conversion[2]	2025 Estimate
Agriculture, forestry, outdoor	77	0.0%	77	50%	154
Construction	66	2.6%	71	82%	87
Manufacturing	1,470	-0.7%	1,438	97%	1,475
Wholesale Trade	14	0.0%	14	98%	14
Retail Trade	90	4.7%	103	96%	108
Transport., Warehousing, Utilities	409	3.2%	449	90%	498
Information	160	0.0%	160	95%	168
Finance & Insurance	16	-1.3%	15	92%	17
Real Estate	9	-1.3%	9	92%	9
Professional & Technical Services		5.4%	0	92%	0
Administration Services	201	5.4%	236	92%	257
Education	129	8.2%	163	96%	170
Health Care/Social Assistance	146	8.2%	185	96%	193
Leisure & Hospitality	217	4.4%	247	95%	261
Other Services	13	0.0%	13	85%	15
Government	50	1.3%	52	100%	52
TOTAL	**3,067**	**5.4%**	**3,232**	**93%**	**3,479**

Source: Johnson Economics, Oregon Employment Department
1/Growth rate calculated using CES data for Morrow County
2/ Bureau of Economic Analysis (2022 County Averages)

BASELINE SCENARIO: BASELINE "SAFE HARBOR" FORECAST

The Goal 9 statute does not have a required method for employment forecasting. However, OAR 660-024-0040(9)(a) outlines several safe harbor methods, which are intended to provide jurisdictions with an agreed-upon methodological approach to job forecasting. The recommended approach for the City of Boardman is 660-024-0040(9)(a)(B), which uses the most recent 20-year coordinated population forecast for the city prepared by Portland State University Population Research Center and assume that the employment growth matches population growth rate.

The second safe harbor method would use the regional employment forecast by industry, published by the Oregon Employment Department (see Figure 5.6), to the current estimated employment base of the city. In the case of Boardman, the first method results in a somewhat higher growth rate. The baseline growth rate shown in Figure 6.3 (following page) is based on the forecasted population growth rate (0.9% annually). The OED employment growth rate (0.6% annually) is not used.

The baseline forecast projects the creation of roughly 650 new jobs over the 20-year forecast period.

7 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.

ADJUSTED EMPLOYMENT FORECAST: DATA CENTER GROWTH, AND ECONOMIC IMPACTS

A second forecast scenario presented in Figure 6.3 is an adjusted forecast. It was influenced by the analysis conducted in the EOA, and specific known employment-use developments that are proposed in Boardman and adjacent parts of Morrow County. The adjusted forecast adopts the employment growth of the baseline scenario as a starting point, but accounts for additional forecasted growth stemming from:

- The anticipated employment created by hyperscale data center developments, including known and proposed projects;
- An estimate of additional "indirect and induced" employment that will result from the economic activity generated in the general community from these large investments;
- An additional estimate of growth in the construction sector employment given the scale and on-going nature of very large and high-investment data center construction projects.
- Additional need for household serving sectors such as retail, education, and health to reflect the rapid permitting and construction of new housing in recent years.

Pace of Hyperscale Development Activity (Morrow County and City of Boardman)

As discussed in Section V, the data center industry has grown rapidly in the region over the past decade, with eight hyperscale data center campuses finished or under development in Morrow County. Three campuses are currently under development or advanced planning in or nearby the City of Boardman. These three campuses cover roughly 360 acres, are assumed to include 12 individual data center buildings, and will house hundreds of future jobs (reflected as future growth in the "Information" sector in Figure 6.3 below).

As Section VII of this report discusses, after the development of these three identified sites, there will be few buildable sites remaining within the UGB suitably large enough for data center development. The remaining supply of large-lot industrial land has largely been exhausted in recent years.

Morrow and Umatilla counties have experienced rapid growth in hyperscale campus development over the last decade, and particularly in the last five years. Considering the pace of development over the past five years, plus anticipated additions over the next three years, the region has experienced the addition of at least two hyperscale data centers per year on average. If appropriate large sites continue to be available, Johnson Economics concludes that this pace will be sustainable for the foreseeable future, Sufficient interest in available sites has already been expressed by multiple developers to maintain this pace for at least the next ten years.

This pace implies an estimated 20 new data center developments in Morrow County over the 20 year planning period of this report, of which the City of Boardman could reasonably expect to capture a significant share if appropriate land is available. The proposed ongoing development of multiple new hyperscale campuses in the immediate area is credible, supported by very large and well-capitalized technology companies.

Based on this analysis, high employment growth has been forecasted in the Information sector as shown in Figure 6.3. As multiple data center developers have demonstrated that they have the intent and the resources to make these large investments on an ongoing basis, this analysis finds that they are not speculative and are feasible if suitable sites are available.

Direct Data Center Employment (Information Industry Sector)

- The adjusted forecast estimates the creation of 955 information sector jobs over the 20-year period, of which 700 would be anticipated to be direct data center employment. At an average of 140 employees per campus, this implies up to 5 potential campuses.
- The remaining 250 information sector jobs are expected to be those induced in related industries and vendors as this sector continues to boom (see below), but these jobs will not be housed directly at data center sites.

Indirect and Induced Employment (Across Sectors)

- Using the IMPLAN (IMPact for PLANning)[8] economic multiplier model, Johnson Economics estimated the impact of the data center development and operation activity on the broader economy. Large data center campuses are very high-value investments that generate significant additional spending in the region, in the building and operations phases. This added economic activity helps generate new jobs across support industries. These are called indirect or induced effects. Due to the sheer size of the data center investments and ongoing economic activity, the resulting indirect and induced employment across other industries is estimated at roughly 70% of the direct data center employment. (See Section V)
- This analysis indicates that an additional 490 indirect and induced jobs are expected over the 20-year period as the data center development takes place. These jobs are distributed over all sectors as they experience some indirect impact of the new investment and direct employment. However, the employment is not expected to be distributed evenly, with an estimated 40% being in support industries and vendors serving the data center industry. Utilities sector is expected to account for 12% of the indirect growth, with all other sectors experiencing diminishing shares.

Increased Direct Construction Employment

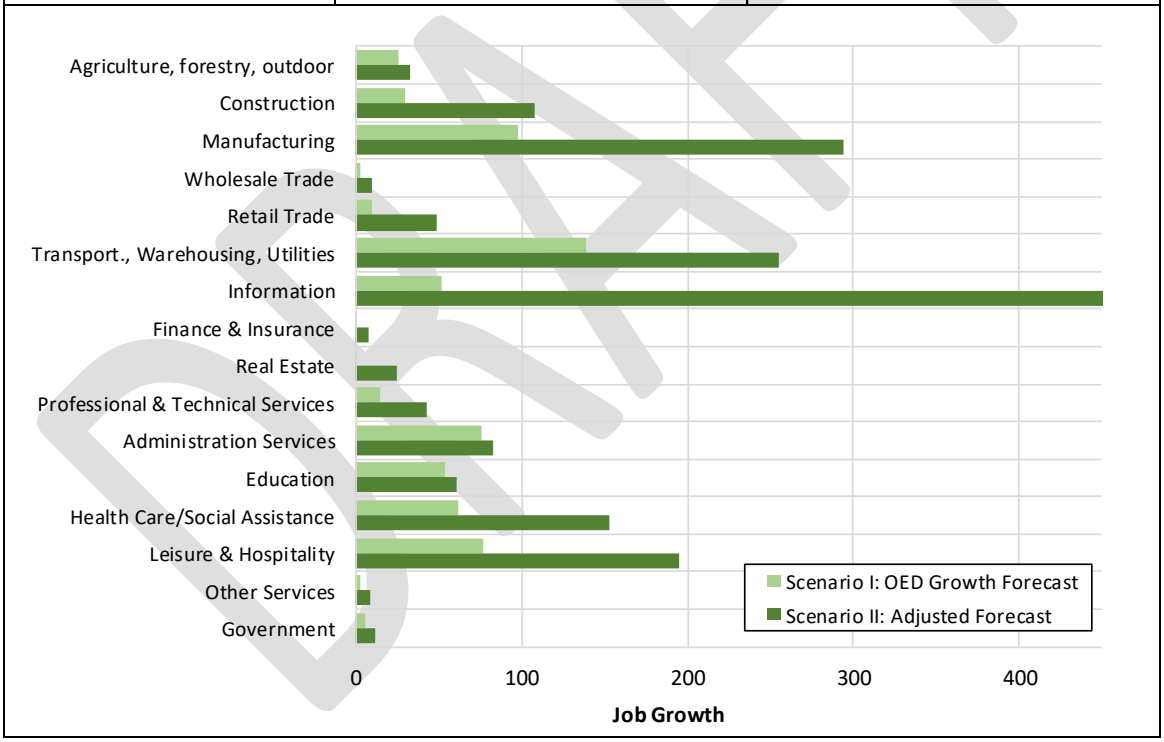
- Employment in the construction sector in the region has grown at a rate of 4% over the decade 2014 to 2024, adding roughly 600 jobs. The amount and pace of large data center development, construction investments that may approach or exceed $1B each, has greatly increased since that data was current. Each project is estimated to require hundreds or thousands of individual specialists over the course of the construction phase.
- For this reason, this analysis assumes that the county will experience continued growth in the construction sector beyond the 1.5% reflected in the OED regional forecast. Applying this 1.5% forecast to the baseline scenario results in growth of only 30 jobs over 20 years.
- Assuming continued growth of 4% over the coming 20 years in the county would imply more robust growth. Given the continued local development of high-investment mega-scale construction projects, this seems realistic over a 20-year period. If Boardman growths at this recent trend rate of 4%, that implies over 100 additional construction jobs over the 20-year planning period, which is t reflected in Figure 6.3.

As summarized in Figure 6.3 below, this adjusted growth forecast estimates an average annual growth rate of 2.6% for the period, for a total addition of nearly 2,300 new jobs. The forecasted rate of 2.6% while robust would actually be lower than the realized employment growth rate since 2010 of 4.0% per year, (source: Oregon Employment Department, QCEW data).

8 IMPLAN is an economic impact model designed for analyzing the effects of industry activity (employment, income, or business revenues) upon all other industries in an economic area. Minnesota IMPLAN Group (MIG), Stillwater, Minnesota

FIGURE 6.3: ADJUSTED GROWTH FORECAST, CITY OF BOARDMAN (2025 - 2045)

Industry	SCENARIO I (Population Forecast)				SCENARIO II (Adjusted Forecast)			
	2025	2045	Chg.	AAGR	2025	2045	Chg.	AAGR
Agriculture, forestry, outdoor	154	180	26	0.8%	154	186	32	1.0%
Construction	87	117	30	1.5%	87	195	108	4.1%
Manufacturing	1,475	1,573	97	0.3%	1,475	1,769	294	0.9%
Wholesale Trade	14	17	3	1.0%	14	24	10	2.6%
Retail Trade	108	118	10	0.4%	108	157	49	1.9%
Transport., Warehousing, Utilities	498	637	139	1.2%	498	754	255	2.1%
Information	168	220	51	1.3%	168	1,123	955	10.0%
Finance & Insurance	17	18	1	0.2%	17	24	8	1.9%
Real Estate	9	10	0	0.2%	9	34	24	6.6%
Professional & Technical Services	0	15	15	14.5%	0	43	43	20.7%
Administration Services	257	333	76	1.3%	257	339	83	1.4%
Education	170	225	54	1.4%	170	231	61	1.5%
Health Care/Social Assistance	193	254	61	1.4%	193	345	153	3.0%
Leisure & Hospitality	261	337	77	1.3%	261	455	195	2.8%
Other Services	15	18	2	0.7%	15	24	9	2.3%
Government	52	57	5	0.5%	52	64	12	1.0%
TOTAL:	**3,479**	**4,128**	**649**	**0.9%**	**3,479**	**5,769**	**2,290**	**2.6%**



Source: Oregon Employment Department, Johnson Economics

FIVE-YEAR INCREMENTAL FORECAST

The adjusted growth forecast, accounting for the development of hyperscale data centers, estimates an annual growth rate of 2.6%, or 2,300 new jobs over the 20-year period. Roughly 950 of these new jobs in the information sector, attributable mostly to data center development, would account for over 40% of the total anticipated growth.

Forecasts grounded in broad based economic variables cannot account for all 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 Boardman, in which a single large firm's location and/or operational decision may substantively impact the rate of growth.

The adjusted growth forecast was further broken down into four five-year increments, assuming a consistent rate of growth over the period. We expect that in reality the twenty-year period will include multiple business cycles, and that the growth rate will be variable over that time.

FIGURE 6.4: GROWTH FORECAST, 5-YEAR INCREMENTS, CITY OF BOARDMAN (2025 - 2045)

Industry	Overall Employment					Net Change by Period				Total
	2025	2030	2035	2040	2045	25-30	30-35	35-40	40-45	25-45
Adjusted Growth Forecast										
Agriculture, forestry, outdoor	154	162	169	178	186	8	8	8	9	32
Construction	87	106	130	159	195	19	24	29	35	108
Manufacturing	1,475	1,544	1,616	1,691	1,769	69	72	75	79	294
Wholesale Trade	14	16	18	21	24	2	2	3	3	10
Retail Trade	108	119	130	143	157	11	12	13	14	49
Transport., Warehousing, Utilities	498	553	613	680	754	54	60	67	74	255
Information	168	271	435	699	1,123	102	164	264	424	955
Finance & Insurance	17	18	20	22	24	2	2	2	2	8
Real Estate	9	13	18	25	34	4	5	7	9	24
Professional & Technical Services	0	10	20	30	43	10	10	10	13	43
Administration Services	257	275	295	316	339	19	20	21	23	83
Education	170	184	199	214	231	14	15	16	17	61
Health Care/Social Assistance	193	223	258	299	345	30	35	40	47	153
Leisure & Hospitality	261	300	344	396	455	39	45	52	59	195
Other Services	15	17	19	22	24	2	2	2	3	9
Government	52	55	58	61	64	3	3	3	3	12
TOTAL:	**3,479**	**3,865**	**4,343**	**4,955**	**5,769**	**386**	**478**	**612**	**815**	**2,290**

Source: Oregon Employment Department, Johnson Economics

EMPLOYMENT LAND FORECAST

The next step in the 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 typologies that those economic activities typically use. As an example, insurance agents typically locate in traditional office space, often along commercial corridors. However, a percentage of these firms are also located in commercial retail space adjacent to retail anchors. Cross tabulating this distribution provides an estimate of employment in each typology.

The next step converts employment growth into real estate space using estimates of the typical square footage exhibited within each typology. Adjusting for the average 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 a site of roughly 100k square feet to accommodate its structure, setbacks, parking, and necessary yard/storage space. This building would have an FAR of roughly 0.25. Demand for space is then converted to net acres using a standard floor area ratio FAR for each development form.

LAND DEMAND ANALYSIS – ADJUSTED GROWTH FORECAST

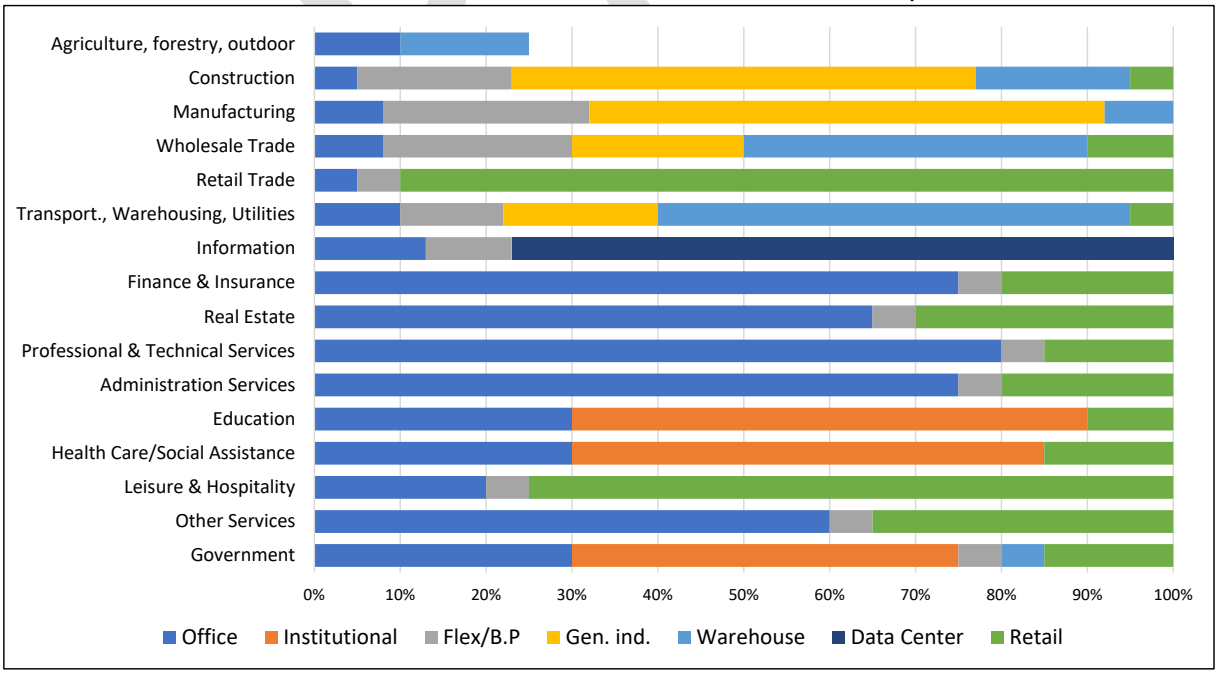
In this step we allocate employment growth to the standard building typologies. The building typology matrix represents the share of sectoral employment that is located across various building types. (Note that only a fraction of employment in the agricultural sector is assumed to need urban real estate, as many of these companies operate in unincorporated areas in the region around the city. Food processing operations are captured under "manufacturing.")

FIGURE 6.5: DISTRIBUTION OF EMPLOYMENT BY SPACE TYPE, CITY OF BOARDMAN (ADJUSTED FORECAST)

	BUILDING TYPE MATRIX						
Industry Sector	**Office**	**Institutional**	**Flex/B.P**	**Gen. ind.**	**Warehouse**	**Data Center**	**Retail**
Agriculture, forestry, fishing, hunting	10%	0%	0%	0%	15%	0%	0%
Construction	5%	0%	18%	54%	18%	0%	5%
Manufacturing	8%	0%	24%	60%	8%	0%	0%
Wholesale Trade	8%	0%	22%	20%	40%	0%	10%
Retail Trade	5%	0%	5%	0%	0%	0%	90%
T.W.U.	10%	0%	12%	18%	55%	0%	5%
Information	13%	0%	10%	0%	0%	77%	0%
Finance & Insurance	75%	0%	5%	0%	0%	0%	20%
Real Estate	65%	0%	5%	0%	0%	0%	30%
Professional & Technical Services	80%	0%	5%	0%	0%	0%	15%
Administration Services	75%	0%	5%	0%	0%	0%	20%
Education	30%	60%	0%	0%	0%	0%	10%
Health Care	30%	55%	0%	0%	0%	0%	15%
Leisure & Hospitality	20%	0%	5%	0%	0%	0%	75%
Other Services	60%	0%	5%	0%	0%	0%	35%
Government	30%	45%	5%	0%	5%	0%	15%
TOTAL	**16%**	**6%**	**9%**	**7%**	**5%**	**43%**	**11%**

Source: Johnson Economics

FIGURE 6.6: ASSUMED DISTRIBUTION OF SPACE BY TYPE AND INDUSTRY SECTOR, CITY OF BOARDMAN



Source: Johnson Economics

Under the adjusted employment forecast scenario, employment housed in data center developments accounts for the greatest share of growth, followed by employment housed in office and retail space. If we exclude the forecasted data center employment (~700 jobs), the combined employment forecast in commercially zoned space (~815 jobs) is greater than that forecast for other (non-data center) industrially zoned space (~715 jobs). Note that the 2,266 total jobs shown here is less than the total employment in the adjusted forecast (2,290 jobs) because not all agricultural jobs require real estate space.

FIGURE 6.7: NET GROWTH IN EMPLOYMENT BY BUILDING TYPE, CITY OF BOARDMAN (ADJUSTED FORECAST) 2025-2045

	20-year Job Forecast		NET CHANGE IN EMPLOYMENT BY BUILDING TYPE - 2025-2045							
Industry Sector	Number	AAGR	Office	Institutional	Flex/B.P	Gen. ind.	Warehouse	Data Center	Retail	Total
Agriculture, forestry, fishing, hunting	32	1.0%	3	0	0	0	5	0	0	8
Construction	108	4.1%	5	0	19	58	19	0	5	108
Manufacturing	294	0.9%	24	0	71	177	24	0	0	294
Wholesale Trade	10	2.6%	1	0	2	2	4	0	1	10
Retail Trade	49	1.9%	2	0	2	0	0	0	44	49
T.W.U.	255	2.1%	26	0	31	46	140	0	13	255
Information	955	10.0%	124	0	95	0	0	735	0	955
Finance & Insurance	8	1.9%	6	0	0	0	0	0	2	8
Real Estate	24	6.6%	16	0	1	0	0	0	7	24
Professional & Technical Services	43	20.7%	35	0	2	0	0	0	6	43
Administration Services	83	1.4%	62	0	4	0	0	0	17	83
Education	61	1.5%	18	37	0	0	0	0	6	61
Health Care	153	3.0%	46	84	0	0	0	0	23	153
Leisure & Hospitality	195	2.8%	39	0	10	0	0	0	146	195
Other Services	9	2.3%	5	0	0	0	0	0	3	9
Government	12	1.0%	4	5	1	0	1	0	2	12
TOTAL	**2,290**	**2.6%**	**415**	**126**	**239**	**283**	**193**	**735**	**275**	**2,266**

Source: Johnson Economics

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 and data centers are assumed to have no vacancy, as they are typically purpose-built for healthcare, nonprofit, government, or the data center operators.

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 6.8: NET ACRES REQUIRED BY BUILDING TYPOLOGY, CITY OF BOARDMAN (ADJUSTED FORECAST) – 20-YEAR

	DEMAND BY GENERAL USE TYPOLOGY, 2025-2045							
	Office	Institutional	Flex/B.P	Gen. Ind.	Warehouse	Data Center	Retail	Total
Employment Growth	415	126	239	283	193	735	275	2,266
Avg. SF Per Employee	350	350	990	600	1,800	6,000	500	2,423
Demand for Space (SF)	145,300	44,000	237,000	169,500	346,800	4,410,500	137,600	5,490,700
Floor Area Ratio (FAR)	0.30	0.30	0.25	0.25	0.25	0.18	0.25	0.17
Market Vacancy	10.0%	0.0%	10.0%	5.0%	5.0%	0.0%	10.0%	1.4%
Implied Density (Jobs/Acre)	33.6	37.4	9.9	17.2	5.7	1.3	19.6	3.4
Net Acres Required	12.4	3.4	24.2	16.4	33.5	562.5	14.0	666.4
Share for infrastructure (Net-to-Gross)	20%	20%	15%	15%	15%	10%	20%	11%
Gross Acres Required	15.4	4.2	28.4	19.3	39.4	625.0	17.5	749.4

* Average of Totals excludes data centers, due to distorting effect.
Source: Johnson Economics

Commercial office and retail densities are 34 and 20 jobs per acre, respectively. Industrial uses range from 17 for general industrial to less than 6 jobs per acre for warehouse/distribution. Data centers have low employment density due to the very large buildings and large-acreage sites typical of this use.

The projected 2,300-job expansion in the local employment base through 2045 requires an estimated 665 net acres, and 750 gross acres of employment land. A large majority of this needed land (625 gross acres) will be very large industrial sites suitable for planned and new hyperscale data center development. This growth in the data center industry represents 33% of forecasted employment growth, and the bulk of the land need (83%).

Due to the large impact of this identified future use, Figure 6.9 separates out data centers from other industrial uses to better represent the need from other sectors over the planning period. Excluding data centers, there is a forecasted need for 125 gross acres to house job growth in other commercial and industrial categories.

FIGURE 6.9: EMPLOYMENT GROWTH AND LAND NEED BY BUILDING TYPOLOGY, CITY OF BOARDMAN

	Land Use (Excluding D.C.)				
	Commercial	Industrial	Subtotal	Data Center	Total
20-Year Job Growth:	816	715	1,531	735	2,266
Job Share:	*53%*	*47%*	*100%*	*32%*	*100%*
Net Needed Acres:	29.8	74.1	103.8	562.5	666.4
Gross Needed Acres:	37.2	87.2	124.4	625.0	749.4
Land Need Share:	*30%*	*70%*	*100%*	*83%*	*100%*

Source: Oregon Employment Department, Portland State University, City of Boardman, Johnson Economics LLC

Despite the higher number of commercial jobs, the gross acreage of industrial land needed is 70% of the gross (non-data center) land need, and commercial is 30%. This is because of the relatively lower average job density of industry users requires more land to accommodate the same number of jobs.

VII. RECONCILIATION OF EMPLOYMENT LAND NEED AND INVENTORY

The inventory of buildable employment land provides a snapshot of the current local capacity to accommodate more businesses and jobs over the planning period. This current available land is compared to the forecasted need for new land over the 20-year planning period, presented in Section VI.

SUMMARY OF LAND DEMAND (ACRES)

The estimate of future land need is re-presented below. A total need for roughly 750 gross acres was identified across a range of land use and building types, based on the adjusted growth forecast. Data centers account for 625 gross acres of this need. Other industrial uses account for 87 gross acres of need, and commercial uses 37 gross acres.

FIGURE 7.1: SUMMARY OF FORECASTED 20-YEAR LAND NEED BY BUILDING TYPOLOGY (BOARDMAN)

	Land Use (Excluding D.C.)				
	Commercial	Industrial	Subtotal	Data Center	Total
20-Year Job Growth:	816	715	1,531	735	2,266
Job Share:	*53%*	*47%*	*100%*	*32%*	*100%*
Net Needed Acres:	29.8	74.1	103.8	562.5	666.4
Gross Needed Acres:	37.2	87.2	124.4	625.0	749.4
Land Need Share:	*30%*	*70%*	*100%*	*83%*	*100%*

Source: Oregon Employment Department, City of Boardman, Johnson Economics LLC

SUMMARY OF LAND SUPPLY (ACRES)

To assess the remaining supply of buildable employment land suitable to accommodate the 20-year land need, an inventory of land with the proper zoning was conducted. Figure 7.2 is a summary of the results on that inventory. A more detailed explanation of the methodology and findings of the Buildable Land Inventory (BLI) is presented as an appendix to this report.

FIGURE 7.2: BUILDABLE LAND INVENTORY, NET DEVELOPABLE ACRES BY ZONE (BOARDMAN)

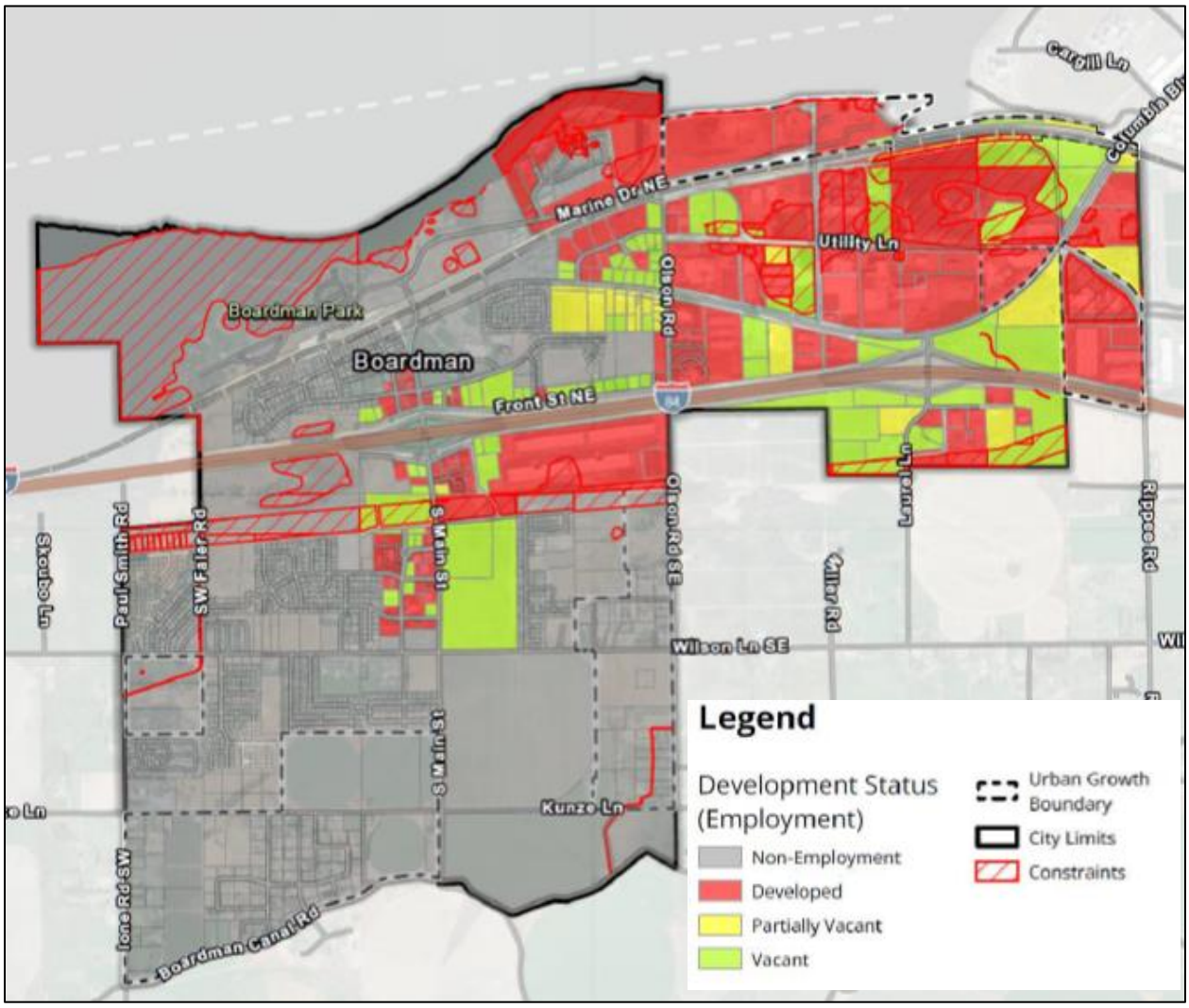
Zoning	Net Developable Acres	
	Vacant and Partially Vacant Lots	*Net Developable Acres*
Industrial		
General Industrial (County)	1	.01
Port Industrial (County)	0	0
Light Industrial	42	38.3
General Industrial	22	93.8
Commercial		
Commercial	9	54.9
Commercial (Service Center Sub District)	15	73.3
Commercial (Tourist Commercial Sub District)	24	25.9
Total	**113**	**286.4**

Source: City of Boardman, MIG

The BLI filtered the zoned employment land in Boardman by Commercial or Industrial zoning category, environmental constraints that will limit development, and whether the parcel is already developed, vacant, or partially vacant (see Appendix for more detail). The inventory was vetted to address development projects in the pipeline and known limitations on specific sites that will prevent development on all or a portion of the site.

The preceding figure presents the estimated net developable acres of land by zone. There are an estimated 154 net acres of buildable Commercial land and an estimated 132 net acres of buildable Industrial land.

FIGURE 7.3: BUILDABLE LAND INVENTORY, EMPLOYMENT LAND BY DEVELOPMENT STATUS (BOARDMAN)



Source: City of Boardman, MIG

RECONCILIATION OF 20-YEAR LAND SUPPLY AND DEMAND (GROSS ACRES)

Comparing the Buildable Land Inventory to the 20-year forecast of employment land need indicates that the City of Boardman faces a deficit of employment land over the planning period, specifically in large-lot sites for hyperscale or larger data center campuses (discussed more below).

There is sufficient *gross* buildable Commercial land and general Industrial land. However, as discussed more below, there is also a shortage of large lot parcels remaining for other commercial and industrial users.

Figure 7.4 shows gross acres of buildable land which reflects the net acres shown in Figure 7.2, plus an assumption of 20% for Commercial land and 15% for Industrial land to accommodate internal streets, right of way, and other infrastructure. This is the same net-to-gross assumption used in preparing the BLI.

A summary of the comparison of land supply and demand in gross acres is presented below.

FIGURE 7.4: RECONCILIATION OF LAND SUPPLY AND 20-YEAR DEMAND (BOARDMAN)

EMPLOYMENT ZONING DESIGNATION	20 YR. DEMAND (Gross Acres)	BUILDABLE LAND (Gross Acres)[1]	SURPLUS OR (DEFICIT) (Gross Acres)
Commercial (Office, Institutional, Retail)	37.2	184.9	147.7
Industrial (Gen. Ind., Warehouse, Flex)	87.2	151.9	64.8
Data Center Campus	625.0	0	(625.0)
TOTAL:	**749.4**	**336.8**	**(412.5)**

[1] While the buildable land inventory found a surplus of industrial land in gross terms, none of the remaining sites meet the specific unique requirments of hyperscale data center campuses. Most importantly, remaining buildable sites lack the size to house a new campus. Following the development of the three known sites identified above, no additional appropriate large-lot sites will remain.

Source: Johnson Economics, City of Boardman, MIG

- This analysis indicates that Boardman has sufficient *gross* acres of general Commercial land, and (non-data center) general Industrial land to accommodate the forecasted 20-year demand for land (other than for large-lot data centers).
- It is important to note that some of the forecasted growth will include employers who may have specific site needs and preferences that are not reflected in the available buildable inventory. (See Appendix A for more details on site preferences for certain key industries.) There is forecasted demand for more suitable large-lot commercial and industrial sites while relatively few of these sites were found to remain in the inventory that are unconstrained. This is discussed in greater detail below.
- Based on proposed data center projects in the Boardman area, and the rate of development of data centers generally in Boardman and neighboring Morrow Counties over the past decade, there is a strong identified need for significant acreage for large-lot industrial sites appropriate for these developments.
- In keeping with recent data center campuses in the county, hyperscale data centers require an average of 100 to 120 acres of buildable land to accommodate at least four buildings. Each campus is also accompanied by an electrical substation to meet power needs, that typically requires an additional five to fifteen acres (see Appendix A). The average site size of hyperscale data center campuses in Morrow and Umatilla Counties over the past decade is 110 acres, with more recent developments averaging 128 acres.
- There is an estimated need for 625 gross acres in the Boardman area to accommodate multiple hyperscale data center campuses of 110 or more acres. These campuses may take the form of individual hyperscale centers, or one or more consolidated mega campuses as seen recently in Morrow County. Over a 20-year period, this forecasted rate of development would be in keeping with the observed development of these facilities in the County over the past decade.

SITE SUPPLY VS. SITE DEMAND (NUMBER AND SIZE OF SITES)

This section compares the more specific site requirements of projected future commercial and industrial users with the specific inventory of prospective employment sites identified within the UGB. Oregon Administrative Rules requires a determination of 20-year employment land need, as well as a determination of need for suitable, readily serviceable land to meet short-term demand.

The following definitions from OAR 660-009-005 are relevant to this discussion:

> (2) "Development Constraints" means factors that temporarily or permanently limit or prevent the use of land for economic development. Development constraints include, but are not limited to, wetlands, environmentally sensitive areas such as habitat, environmental contamination, slope, topography, cultural and archeological resources, infrastructure deficiencies, parcel fragmentation, or natural hazard areas….
>
> (10) "Short-term Supply of Land" means suitable land that is ready for construction within one year of an application for a building permit or request for service extension. Engineering feasibility is sufficient to qualify land for the short-term supply of land. Funding availability is not required. "Competitive Short-term Supply" means the short-term supply of land provides a range of site sizes and locations to accommodate the market needs of a variety of industrial and other employment uses.
>
> (11) "Site Characteristics" means the attributes of a site necessary for a particular industrial or other employment use to operate. Site characteristics include, but are not limited to, a minimum acreage or site configuration including shape and topography, visibility, specific types or levels of public facilities, services or energy infrastructure, or proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes.
>
> (12) "Suitable" means serviceable land designated for industrial or other employment use that provides, or can be expected to provide the appropriate site characteristics for the proposed

As noted in the prior section, the Buildable Land Inventory was screened for major constraints, including current development, floodways, wetlands, steep slopes, and federal ownership. The remaining parcels in the inventory may be buildable but may not meet the specific site requirements of certain users. Others may be part of the long-term supply but not be well-suited for the short-term supply.

ESTIMATED 20-YEAR SITE NEEDS VS. CURRENT SUPPLY

The following figures represent the findings of estimated need (Section VI) and current supply (Section VII) of sites by size. Note that the estimate of future needs is approximate, as economic growth is dynamic and difficult to predict. Communities should maintain flexibility and ensure a supply of a variety of site types with short-term availability, as allowed through the Goal 9 EOA process.

Figure 7.5 presents the estimated supply of sites by zoning and site size as found in the BLI. As shown, there are few remaining Commercial or Industrial sites over 10 acres in size in the inventory. In total, there are 65 commercial sites remaining, mostly under 5 acres in size.

There are some remaining Industrial sites over 10 acres, however, none over 20 acres. There are no remaining medium or large lot industrial sites within the UGB. This will greatly limit the types of firms that can locate in the area unless additional land supply is made available.

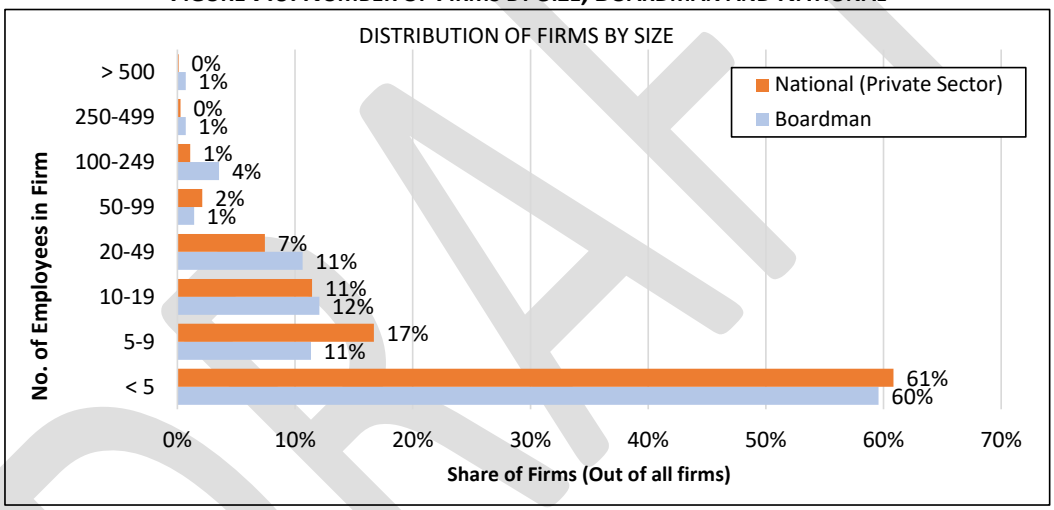
FIGURE 7.5: SUMMARY OF SITE SUPPLY BY LAND USE SIZE (ACRES), BOARDMAN

	Number of Lots		
Size Classification	Industrial Designation	Commercial Designation	Total
<1 Acre	19	15	34
1-5 Acres	32	20	52
5-10 Acres	7	7	14
10-50 Acres	7	6	13
Total	**65**	**48**	**113**

Source: City of Boardman, MIG

As is the trend nationwide, most firms in Boardman are small businesses. The number of firms under five employees is 61% nationally, and 60% in Boardman. Those with fewer than 10 employees are 78% of businesses nationwide and 70% locally. However, while large firms or organizations of at least 100 employees make up a small percentage of businesses, their high employment means they still represent a significant share of overall employment.

FIGURE 7.6: NUMBER OF FIRMS BY SIZE, BOARDMAN AND NATIONAL



Source: Bureau of Economic Analysis

By applying assumptions of the amount of space and land firms require based on size, we come to an estimate of the number of sites needed for commercial and industrial users from the 20-year growth forecast. Note that many of the smallest firms of one to four people will likely include home businesses, those sharing space, in multi-tenant commercial centers and other arrangements than strictly needing their own sites. Most of the larger firms likely will need their own sites, particularly industrial businesses with externalities that make it difficult to operate in shared space.

While need is weighted towards smaller sites for most businesses that have five or fewer employees, there is also a need for sites at larger sizes to provide opportunities for new businesses to locate and allow existing businesses to expand.

Need for medium and large sites: The comparison of forecasted land demand to the remaining inventory found that there is a surplus of commercial land and general industrial land. Through the EOA process, and discussion of interim findings, the advisory committee and local officials expressed the community's desire to have additional medium

(10+ acres) and larger sites (20+ acres) and very large sites (50+ acres) available for commercial and industrial users, so that the city can competitively recruit larger businesses.

So while there is surplus of industrial land measured in gross acres, this land is mostly found in fragmented smaller sites. This means that there is a finding of need for additional industrial land and sites to meet the identified community goals.

There is a need for additional sites of 20+ acres for commercial users, and 20+, 50+, and 100+ acres for industrial users (Figures 7.7 and 7.8).

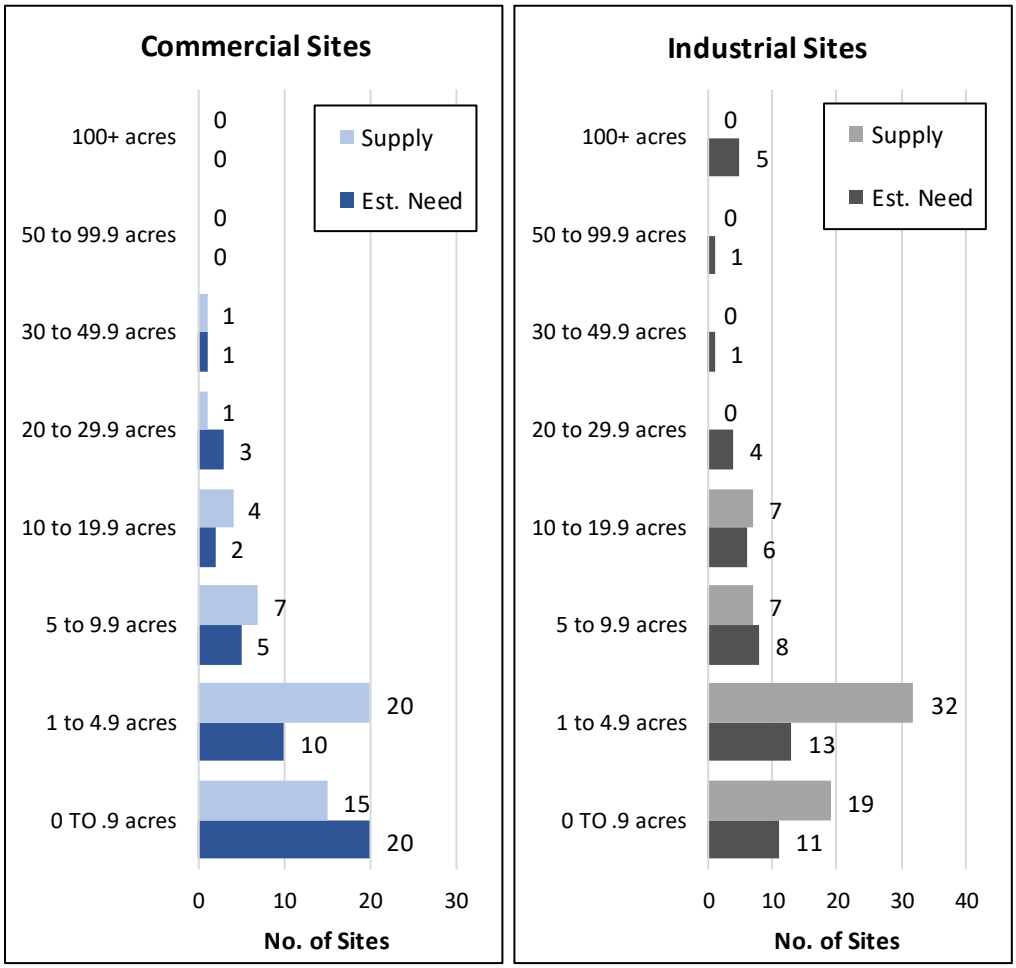
FIGURE 7.7: ESTIMATE OF FORECASTED 20-YEAR SITE NEED BY LAND USE AND SITE SIZE (ACRES)

LAND USE	0 TO .9 acres	1 to 4.9 acres	5 to 9.9 acres	10 to 19.9 acres	20 to 29.9 acres	30 to 49.9 acres	50 to 99.9 acres	100+ acres	TOTAL (sites)
Office	10	5	2	1	1	0	0	0	19
Institutional	5	1	1	0	1	0	0	0	8
Retail	5	4	2	1	1	1	0	0	14
Commercial Total:	**20**	**10**	**5**	**2**	**3**	**1**	**0**	**0**	**41**
Flex/B.P	4	3	2	1	1	0	0	0	11
Gen. Ind.	3	5	4	3	2	0	1	0	18
Warehouse	4	5	2	2	1	1	0	0	15
Industrial Total:	**11**	**13**	**8**	**6**	**4**	**1**	**1**	**0**	**44**
ata Center	0	0	0	0	0	0	0	5	5
TOTAL:	***31***	***23***	***13***	***8***	***7***	***2***	***1***	***5***	***90***

Source: Oregon Employment Department, BEA, Johnson Economics LLC

Figure 7.8 presents a side-by-side comparison of forecasted need and current supply (inventory) by site size.

FIGURE 7.8: SUMMARY OF FORECASTED 20-YEAR SITE NEED VS. SITE SUPPLY BY LAND USE AND SITE SIZE (ACRES), BOARDMAN



Source: Oregon Employment Department, Boardman, Johnson Economics LLC

The forecasted need for sites of different sizes does not match exactly with the current supply. The demand for commercial sites (retail/office/institutional) and industrial (general industrial, warehousing, multi-tenant flex park) exceeds the current supply.

It is estimated that the supply for commercial sites exceeds he 20-year need for most sizes, including small sites, however there is some need is for sites of 20 or more acres.

Similarly for industrial users, sites are estimated to be undersupplied in a range of large site sizes over 20 acres in size . The remaining sites are generally less than 20 acres, and most less than 5 acres in size.

FINDINGS OF NEW SITE NEEDS – COMMERCIAL AND INDUSTRIAL

Figure 7.9 summarizes the findings of the number and size of sites that are estimated to be needed over the 20-year planning period, *in addition* to the current remaining inventory of buildable land.

FIGURE 7.9: SUMMARY OF FORECASTED *NEW* SITE NEED & ESTIMATED ACREAGE

Site Size	Commercial		Industrial		Total	
	# of Needed Sites	Total acres (=/-)	# of Needed Sites	Total acres (=/-)	# of Needed Sites	Total acres (=/-)
< 5 acres	0	0	0	0	0	0
5 acres (+/-)	0	0	1	5	1	5
10 acres (+/-)	0	0	0	0	0	0
20 acres (+/-)	2	40	4	80	6	120
30 acres (+/-)	0	0	1	30	1	30
50 acres (+/-)	0	0	1	50	1	50
100 acres (+/-)	0	0	5	625	5	625
TOTAL:	***2*** **Sites**	***40*** **Acres (+/-)**	***12*** **Sites**	***790*** **Acres (+/-)**	***14*** **Sites**	***830*** **Acres (+/-)**

Source: Oregon Employment Department, Boardman, Johnson Economics LLC

VIII. CONCLUSIONS

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

Through this planning process, a few major economic development themes were identified:

- The City of Boardman is a pro-growth community, seeking to attract new jobs, industries, and households to continue its history of rapid expansion. The community seeks to support and build on its traditional foundation of agriculture, food processing, and supporting sectors. However, the city seeks to attract new and growing industries, and data center development specifically.
- To this end, the City has a proactive goal of ensuring an adequate supply of commercial and industrial land within the Urban Growth Boundary to provide job creation and economic growth. The City planning efforts aim to provide adequate infrastructure to support all employment activities through public and private funding sources.
- The single largest growth industry in the Boardman area is the data center industry, which has growth exponentially over the last ten years, and particularly in the last five years. Multiple additional hyperscale data centers are under construction or planned at this time, each requiring an average of 125 acres of appropriate land.
- Trends in this sector point to accelerating growth in coming years, with Oregon looking to be a top five national, and top 10 global location, if appropriate sites for expansion are available.
- The data center industry entails significant investment and on-going economic activity that supports long-term employment in other sectors. The size of this sector in Morrow County will attract competitors, suppliers and support vendors, and construction firms for on-going expansion.
- Other than the "information" and "construction" sectors directly impacted by data center development, sectors with the highest forecasted employment growth include manufacturing, health care, retail, transportation/warehousing/utilities, and tourism-related including hotel and dining.

Employment Growth

Boardman is home to an estimated 3,500 jobs as of 2025. The largest sectors by number of jobs are manufacturing including food processing, utilities, transportation and warehousing, dining and hospitality, and information. Based on a forecasted annual growth rate of 2.6%, the city is expected to add nearly 2,300 jobs by 2045. A significant share of this job growth is projected in the data center industry (33%), with accompanying growth in construction and supportive information-sector jobs among vendors and suppliers. The community's rapid household growth in recent years is anticipated to bring increased growth in service sectors such as retail, education, and health care.

Broken down into broad categories of employment that tends to use commercial/retail space, or that tends to use industrial space, the analysis forecasts roughly 65% of new employment in industrial categories (including data centers) and 35% in commercial categories.

Employment Land Need

The EOA analysis finds that the forecasted 20-year job growth by industry, will translate to a need for 750 total gross acres of land zoned for employment uses. However, this includes an estimated 625 of need for hyperscale data center development. Excluding data centers, an estimated 70% of the remaining land need is for other industrial users (Industrial, Warehouse, Business Park), and 30% of need is for commercial users (Office, Institutional, Retail).

A range of site sizes will be needed ranging from the small to the very 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 337 gross buildable acres (286 net) in commercial, industrial and mixed-use zones. While this total supply exceeds the total forecasted need (excluding data centers), the zoning categories, site sizes and site characteristics of the available supply do not fully meet the forecasted demand.

- The inventory of remaining buildable lands points to a lack of medium to large commercial and industrial sites. There are no remaining sites large enough to accommodate hyperscale data centers. There are no remaining general industrial sites over 20 acres, which is a detriment to business recruitment and expansion across industrial sectors.
- Given very strong growth trends in the data center industry, the established and growing local cluster, and known future projects under planning by credible investors, there is a need for as many as five large sites of at least 100 acres, appropriate for hyperscale data centers, or larger consolidated campuses. The projected regional, national, and global trends in this industry support this demand if appropriate sites are available.
- The following table summarizes the estimated need for new sites, in addition to the remaining buildable land inventory, to address the finding of a deficit of medium-sized commercial sites and meet the identified community goals towards economic development on industrial land.

FIGURE 8.1: SUMMARY OF FORECASTED *NEW* SITE NEED & ESTIMATED ACREAGE

Site Size	Commercial		Industrial		Total	
	# of Needed Sites	Total acres (=/-)	# of Needed Sites	Total acres (=/-)	# of Needed Sites	Total acres (=/-)
< 5 acres	0	0	0	0	0	0
5 acres (+/-)	0	0	1	5	1	5
10 acres (+/-)	0	0	0	0	0	0
20 acres (+/-)	2	40	4	80	6	120
30 acres (+/-)	0	0	1	30	1	30
50 acres (+/-)	0	0	1	50	1	50
100 acres (+/-)	0	0	5	625	5	625
TOTAL:	***2*** **Sites**	***40*** **Acres (+/-)**	***12*** **Sites**	***790*** **Acres (+/-)**	***14*** **Sites**	***830*** **Acres (+/-)**

Source: Oregon Employment Department, Boardman, Johnson Economics LLC

APPENDIX A: INDUSTRIAL COMPETITIVE SITE NEEDS

STATE OF OREGON - Infrastructure Finance Authority
Industrial Development Competitiveness Matrix

	CRITERIA	PROFILE	Production Manufacturing		Value-Added Manufacturing and Assembly		Light / Flex Industrial			Warehousing & Distribuiton		Specialized		
			A	B	C	D	E	F	G	I	H	J	K	L
			Heavy Industrial / Manufacturing	High-Tech / Clean-Tech Manufacturing	Food Processing	Advanced Manufacturing & Assembly	General Manufacturing	Industrial Business Park and R&D Campus	Business / Admin Services	Regional Warehouse / Distribution	Local Warehouse / Distribution	UVA Manufacturing / Research	Data Center	Rural Industrial
1	**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													
2	TOTAL SITE SIZE**	Competitive Acreage*	10 - 100+	5 - 100+	5 - 25+	5 - 25+	5 - 15+	20 - 100+	5 - 15+	20 - 100+	10 - 25+	10 - 25+	20 - 100+	5 - 25+
3	COMPETITIVE SLOPE:	Maximum Slope	0 to 5%	0 to 5%	0 to 5%	0 to 7%	0 to 5%	0 to 7%	0 to 12%	0 to 5%	0 to 5%	0 to 7%	0 to 7%	0 to 5%
	WORKFORCE													
4	AVAILABLE WORKFORCE POPULATION IN 50 MILE RADIUS:	People	30,000	150,000	20,000	60,000	30,000	750,000	25,000	75,000	20,000	60,000	10,000 - 25,000	1,000
	TRANSPORTATION													
5	TRIP GENERATION:	Average Daily Trips per Acre	40 to 60 (ADT / acre)	40 to 60 (ADT / acre)	50 to 60 (ADT / acre)	40 to 60 (ADT / acre)	40 to 50 (ADT / acre)	60 to 150 (ADT / acre)	170 to 180 (ADT / acre)	40 to 80 (ADT / acre)	40 to 80 (ADT / acre)	40 to 80 (ADT / acre)	20 to 30 (ADT / acre)	40 to 50 (ADT / acre)
6	MILES TO INTERSTATE OR OTHER PRINCIPAL ARTERIAL:	Miles	w/ in 10	w/ in 10	w/ in 30	w/ in 15	w/ in 20	N/A	N/A	w/ in 5 (only interstate or equivalent)	w/ in 5 (only interstate or equivalent)	N/A	w/ in 30	N/A
7	RAILROAD ACCESS:	Dependency	Preferred	Preferred	Preferred	Not Required	Preferred	Preferred	Not Required	Preferred	Preferred	Not Required	Avoid	N/A
8	PROXIMITY TO MARINE PORT:	Dependency	Preferred	Preferred	Preferred	Not Required	Preferred	Preferred	Not Required	Preferred	Preferred	Not Required	Not Required	N/A
9	PROXIMITY TO REGIONAL COMMERCIAL AIRPORT:	Dependency	Preferred	Competitive	Preferred	Competitive	Preferred	Required	Preferred	Preferred	Preferred	Preferred	Competitive	N/A
		Distance (Miles)	w/ in 60	w/ in 60	w/ in 60	w/ in 30	w/ in 60	w/ in 30	w/ in 60	w/ in 60	w/ in 60	w/ in 30	w/ in 60	N/A
10	PROXIMITY TO INTERNATIONAL AIRPORT:	Dependency	Preferred	Competitive	Preferred	Competitive	Preferred	Competitive	Preferred	Preferred	Preferred	Competitive	Preferred	N/A
		Distance (Miles)	w/ in 300	w/ in 300	w/ in 300	w/ in 100	w/ in 300	w/ in 100	w/ in 300	w/ in 300	w/ in 300	w/ in 100	w/ in 300	N/A

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STATE OF OREGON - Infrastructure Finance Authority
Industrial Development Competitiveness Matrix

	CRITERIA / PROFILE		Production Manufacturing		Value-Added Manufacturing and Assembly		Light / Flex Industrial			Warehousing & Distribuiton		Specialized		
			A	B	C	D	E	F	G	I	H	J	K	L
			Heavy Industrial / Manufacturing	High-Tech / Clean-Tech Manufacturing	Food Processing	Advanced Manufacturing & Assembly	General Manufacturing	Industrial Business Park and R&D Campus	Business / Admin Services	Regional Warehouse / Distribution	Local Warehouse / Distribution	UVA Manufacturing / Research	Data Center	Rural Industrial
	UTILITIES													
11	WATER:	Min. Line Size (Inches/Dmtr)	8" - 12"	12" - 16"	12" - 16"	8" - 12"	6" - 10"	8" - 12"	4" - 6"	4" - 8"	4" - 6"	4" - 8"	16"	4" - 8"
		Min. Fire Line Size (Inches/Dmtr)	10" - 12"	12" - 18"	10" - 12"	10" - 12"	8" - 10"	8" - 12"	6" - 10"	10" - 12"	6" - 8"	6" - 10"	10"-12"	6" (or alternate source)
		High Pressure Water Dependency	Preferred	Required	Required	Preferred	Not Required	Preferred	Not Required	Not Required	Not Required	Not Required	Required	Not Required
		Flow Gallons per Day per Acre)	1600 (GPD / Acre)	5200 (GPD / Acre)	3150 (GPD / Acre)	2700 (GPD / Acre)	1850 (GPD / Acre)	2450 (GPD / Acre)	1600 (GPD / Acre)	500 (GPD / Acre)	500 (GPD / Acre)	1600 (GPD / Acre)	50-200 (Gallons per MWh) †	1200 (GPD / Acre)
12	SEWER:	Min. Service Line Size (Inches/Dmtr)	6" - 8"	12" - 18"	10" - 12"	10" - 12"	6" - 8"	10" - 12"	6" - 8"	4"	4"	6"	8"-10"	4" - 6" (or on-site source)
		Flow (Gallons per Day per Acre)	1500 (GPD / Acre)	4700 (GPD / Acre)	2600 (GPD / Acre)	2500 (GPD / Acre)	1700 (GPD / Acre)	2000 (GPD / Acre)	1600 (GPD / Acre)	500 (GPD / Acre)	500 (GPD / Acre)	1300 (GPD / Acre)	1000 (GPD / Acre) ‡	1000 (GPD / Acre)
13	NATURAL GAS:	Preferred Min. Service Line Size (Inches/Dmtr)	4" - 6"	6"	4"	6"	4"	6"	2"	2"	2"	2"	4"	N/A
		On Site	Competitive	Competitive	Preferred	Competitive	Competitive	Competitive	Preferred	Preferred	Preferred	Preferred	Preferred	Preferred
14	ELECTRICITY:	Minimum Service Demand	2 MW	4-6 MW	2-6 MW	1 MW	0.5 MW	0.5 MW	0.5 MW	1 MW	1 MW	0.5 MW	5-25 MW	1 MW
		Close Proximity to Substation	Competitive	Competitive	Not Required	Competitive	Preferred	Competitive	Preferred	Not Required	Not Required	Not Required	Required, could be on site	Not Required
		Secondary System Dependency	Required	Preferred	Not Required	Required	Not Required	Competitive	Required	Not Required	Not Required	Not Required	Required	Not Required
15	TELECOMMUNICATIONS:	Major Communications Dependency	Preferred	Required	Preferred	Required	Required	Required	Required	Preferred	Preferred	Required	Required	Preferred
		Route Diversity Dependency	Not Required	Required	Not Required	Required	Not Required	Preferred	Required	Not Required	Not Required	Not Required	Required	Not Required
		Fiber Optic Dependency	Preferred	Required	Preferred	Required	Preferred	Required	Required	Preferred	Preferred	Required	Required	Not Required

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STATE OF OREGON - Infrastructure Finance Authority
Industrial Development Competitiveness Matrix

	CRITERIA	PROFILE	Production Manufacturing		Value-Added Manufacturing and Assembly		Light / Flex Industrial			Warehousing & Distribuiton		Specialized		
			A	B	C	D	E	F	G	I	H	J	K	L
			Heavy Industrial / Manufacturing	High-Tech / Clean-Tech Manufacturing	Food Processing	Advanced Manufacturing & Assembly	General Manufacturing	Industrial Business Park and R&D Campus	Business / Admin Services	Regional Warehouse / Distribution	Local Warehouse / Distribution	UVA Manufacturing / Research	Data Center	Rural Industrial
16	**SPECIAL CONSIDERATIONS:**		Adequate distance from sensitive land uses (residential, parks, large retail centers) necessary. High throughput of materials. Large yard spaces and/or buffering required. Often transportation related requiring marine/rail links.	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.	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.	Surrounding environment of great concern (vibration, noise, air quality, etc.). Increased setbacks may be required. Onsite utility service areas. Avoid sites close to wastewater treatment plants, landfills, sewage lagoons, and similar land uses. Lower demands for water and sewer treatment than High-Tech Manufacturing.	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.	Relatively higher parking ratios may be necessary. Will be very sensitive to labor force and the location of other similar centers in the region. High reliance on telecom infrastructure.	Transportation routing and proximity to/from major highways is crucial. Expansion options required. Truck staging requirements mandatory. Minimal route obstructions between the site and interstate highway such as rail crossings, drawbridges, school zones, or similar obstacles.	Transportation infrastructure such as roads and bridges to/from major highways is most competitive factor.	Must be located witihn or near FAA-regulated UAV testing sites. Moderate utility demands. Low reliance on transportation infrastructure.	Larger sites may be needed. The 25 acre site requirement represents the more typical site. Power capacity, water supply, and security are critical. Surrounding environment (vibration, noise, air quality, etc.) is crucial. May require high volume/supply of water and sanitary sewer treatment.	Located in more remote locations in the state. Usually without direct access (within 50 miles) of Interstate or City of more than 50,000 people.

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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.

* Competitive Acreage: Acreage that would meet the site selection requirements of the majority of industries in this sector.

**Total Site: Building footprint, including buffers, setbacks, parking, mitigation, and expansion space

† 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.

APPENDIX B: BUILDABLE LAND INVENTORY

METHODOLOGY AND FINDINGS