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Willow Creek Draft Industrial Site Feasibility Plan



For: The Port of Arlington

From: Points Consulting

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1. Introduction

The Port of Arlington strives to support the creation, retention, expansion, and recruitment of businesses and jobs that will enhance the economy and quality of life in Gilliam County. As a part of this mission, the Port contracted with Points Consulting (PC) to complete a feasibility study for the Willow Creek Industrial Site.

This study examines the economic marketplace surrounding the site, with a scope of work including:

- Management and Reporting
- Site Overview
- Site Analysis
- Community Townhall
- In-depth Interviews
- Presentations
- Draft Site Feasibility Plan
- Final Site Feasibility Plan

Throughout the project, PC submitted monthly reports to the Port to track progress as time went on. PC also attended multiple commissioners' meetings to obtain feedback to be integrated to the report. Both steps being part of the management and reporting scope.

The Site Overview provides an in-depth background of the Port, the county, and the broader region to inform the final development scenario recommendations. The Site Analysis provides a data-driven perspective on the relevant geographic areas, such as sources of population change, regional demographic data, and commuters. PC completed a community townhall to gauge the needs of the immediate community, both industry wise and recreational.

In-depth interviews were completed of both private and public sector actors in the region. Private sector interviews informed our view of the private market and overall interest in development in the region. Meanwhile, public sector interviews informed the project team of ongoing projects and upcoming needs.

2. Development Scenario Recommendations

The scenarios outlined in this section are PC's official recommendations for the Willow Creek site. These scenarios blend market demand outcomes together with feasibility based on physical and utility constraints of the site. Along with accounting for market outcomes and physical constraints, cost estimates for the investment that could be required were developed for each scenario based on land development costs.

The consulting team conducted a charrette on July 22, 2024. After consolidating our top ideas, we workshopped the scenarios with the Port Commissioners on August 8, 2024. Earlier versions of the scenarios can be found in Appendix A.

Site Features

The Willow Creek site is 64 acres in total, spread across three parcels. The site is accessible by the I-84 Heppner Junction in Gilliam County. One of the parcels is split from the other two and is much closer to I-84. This makes the parcel more suitable for other uses, such as roadside retail, than the other two. All three parcels are completely undeveloped, except for about 8 acres of the eastern most parcel being occupied by a gravel quarry.

Figure 2.1: Willow Creek Site



Source: Points Consulting, On-site Visit, April 2024

The gravel quarry is only leased for 8 acres of one parcel but plays an important role for the Port in that it is the only way value is being extracted from the site currently. The gravel quarry could be expanded, or the Port may need to not renew the lease as it's not a highly complementary use.

Figure 2.2: Willow Creek Site Gravel Quarry



Source: Points Consulting, On-site Visit, April 2024

Additionally, the Union Pacific Railroad separates the two parcels along the Columbia River from the parcel closest to I-84. To access the northern most parcels, an access bridge was constructed in 2006. The two-lane bridge goes over the railroad and is the only realistic way for the Port or private stakeholders to access the greater portion of the site.

Figure 2.3: Willow Creek Site Access Bridge



Source: Points Consulting, On-site Visit, April 2024

These physical site features shape the site and are addressed in the following recommendations. The parcel closest to I-84 and set apart from the rest becomes Lot A. The eastern most parcel with the gravel quarry becomes Lot C. The completely undeveloped parcel becomes Lot B. The physical constraints and current features create a natural separation of the parcels, forming the separation of development uses.

Scenario #1: Future Options Open

The first development scenario includes the least amount of land development and required investment by the Port. The scenario is focused on leaving the options for the site open for future development options that may come along. In fact, instead of the Port investing more resources into Willow Creek directly, we recommend expanding the gravel quarry. This way, the site is still utilized, and resources are still able to be extracted from it. As this happens, the Port is free to put the income earned from the gravel quarry lease and any royalties that occur towards other projects that may be more feasible at the time of this study (Figure 2.4).

Figure 2.4: Development Scenario 1



Source: Points Consulting and Nexus Planning Services, 2024

The scenario complements other aspects of the Gilliam County/Arlington market as well, such as the housing problem. Bringing in too many employees from a private sector partner will put greater stress on the local housing market. But continuing to extract resources from the property ensures benefit to the Port without such issues. With Gilliam County and Arlington having a relatively older population compared to the state, using the site for dollar creation instead of jobs isn't necessarily a misuse of the site either. The door also remains open if the perfect partner emerges and decides to purchase and develop the site themselves with the strengths accompanying it.

Expanding the gravel quarry reflects the growth of the property development market as well. Our conversation with the current gravel quarry operator (L3) indicated that there is growing demand to develop in eastern Oregon. Leaving the Willow Creek site open for future development could also make it an attractive spot for a future data center, given the production of renewable energy in Gilliam County.

Lot A is largely unused in the short-run time span of this scenario. But it is right off the freeway and can be utilized as roadside retail to attract more traffic off the road. Any number of new individuals or households spending some money in Gilliam County is more money to be circulated and more demand created for the market overall. Lots A and B could be used as lay down yards in this scenario also to complement development in the Arlington area in the near future.

Scenario 1 Cost Estimates

Cost estimates will differ for each scenario. For Scenario 1 specifically, estimates could range in the low of \$0 in the short-term, to upwards of \$15.5 million. By lot, Lot A could range from \$0 if the Port decides to leave it undeveloped and recruit a private partner to develop it, to potentially \$5 million if the Port attempted to put in a full-scale gas station in. Developing all 503K square feet (sf) of Lot A at about \$10 per sf for a gas station would result in a total cost of \$5 million. Developing all 503K sf of Lot A at about \$9 per sf for lower impact retail would result in a total cost of \$4.5 million.

Lot B is roughly 1.2M sf. Developing the entire lot at about \$9 per sf for a light industrial, flex space type building would result in a total cost of \$10.5 million. However, leaving the lot undeveloped and finding a private partner to develop the lot would result in a total cost of \$0. Lot C would not be further developed by the Port in this scenario with an expansion of the gravel quarry.

In total, this scenario could range from \$0 to \$15.5 million if 100% of Lots A and B were developed. These are rough cost estimates and are based on site work, not buildings. If the Port selects this scenario, an additional study should be done to gather more data on physical aspects of the site and specific locations of utility access to determine costs in greater detail.

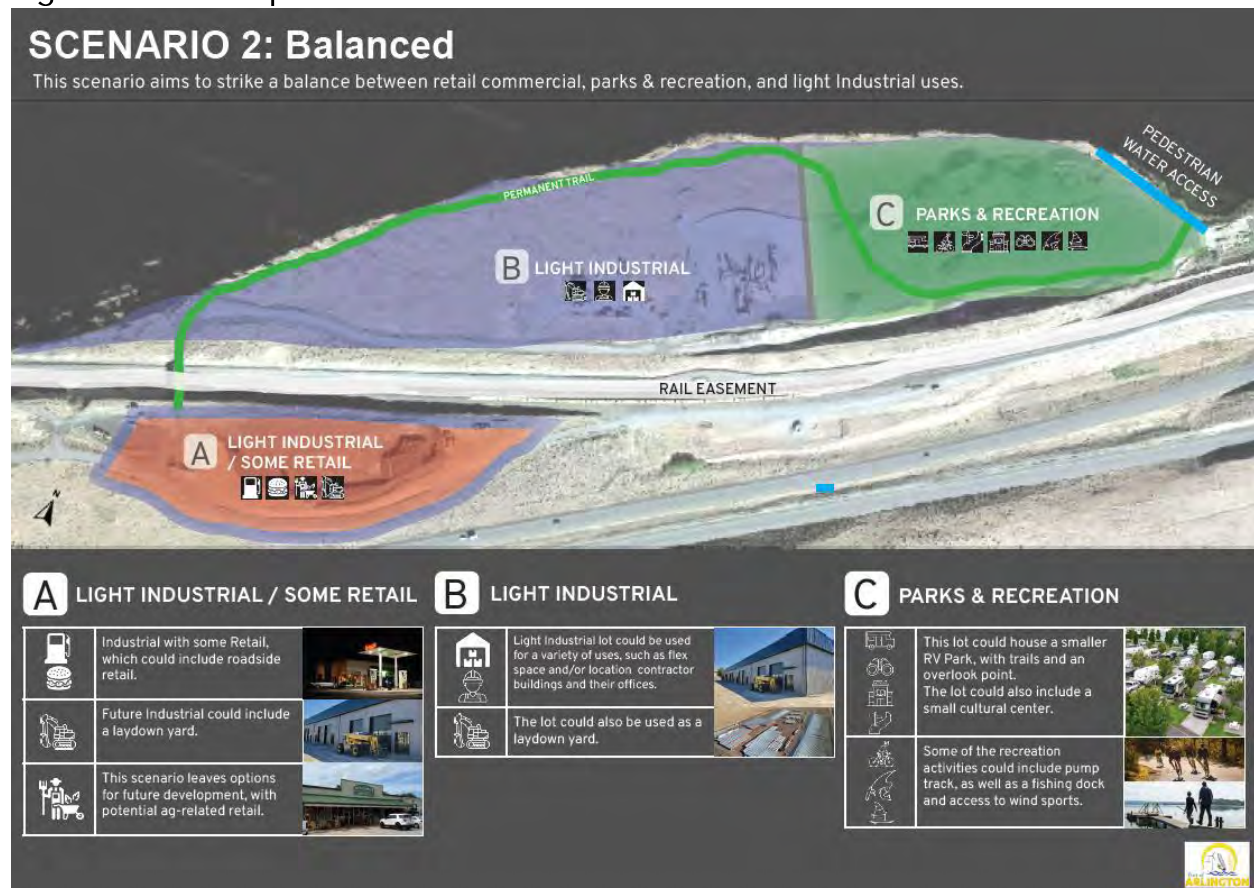
Scenario #2: Balanced

The second recommended scenario aims to take a balanced approach to developing the site. This includes light industrial opportunities, recreational opportunities, and the option of roadside retail or more light industrial on Lot A (Figure 2.5).

Scenario 2 also introduces the land use option of recreation. Through conversations with the Port and input from the community townhall, it was noted that there are not many recreational opportunities in the area. With a large property like Willow Creek, multiple uses could be accommodated including recreational.

Light industrial uses on Lot B, like contractor buildings, flex spaces, and lay down yards, are low enough intensity that they could be mixed with recreational opportunities. Such activities may be a pump track, or access to the river for wind sports. Discussions with the Oregon Windsurf Association indicate that the Willow Creek site would be an ideal location for windsurfing. The recreational opportunities on Lot C could also be paired with a small-scale RV park. This would offer cash flow for the Port and would complement the need for temporary housing in the area due to increased development projects.

Figure 2.5: Development Scenario 2



Scenario 2 Cost Estimates

Cost estimates for Scenario 2 differ from those of Scenario 1 in the fact that there is no assumption of no involvement on the Port's part. So, the low estimate for this scenario will not be \$0.

Assuming the same square footage and cost per sf for Lot A, the cost estimates are the same. Based on site work, a gas station would cost around \$5 million while other retail or light industrial building would cost around \$4.5 million.

Lot B would also yield the same results in terms of cost. At the same 1.2M sf and \$9 per sf, a light industrial building site work would cost about \$10.5 million. Again, the assumption here is 100% of the lot being developed.

Lot C now has development costs associated with it as well since the gravel quarry is not expanded in this scenario. At about 600K sf, Lot C would be developed according to recreational costs per sf of around \$12 to \$15 per sf. With 100% of this lot being developed accordingly, the total cost would be between \$7.2 million and \$9 million.

Total costs for Scenario 2 would range from \$22.2 million to \$24.5 million. Cost estimates are based on site work, not buildings. Additionally, estimates could be scaled up and down according to the square footage being developed on each site. Costs per sf of \$9 for light industrial to upwards of \$15 for recreation would remain. If the Port selects this scenario, an additional study should be done to gather more data on physical aspects of the site and specific locations of utility access to determine costs in greater detail.

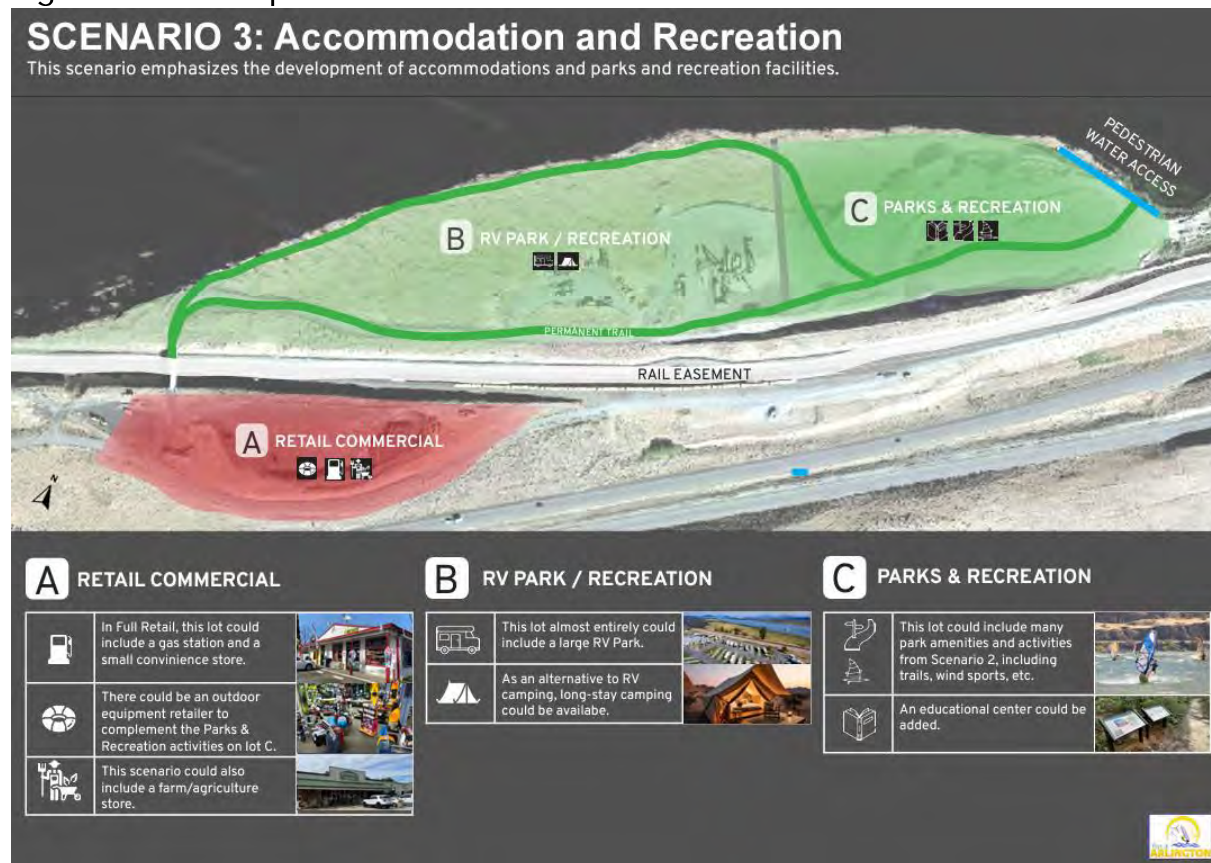
Scenario #3: Accommodation and Recreation

The third option for development would likely require the most hands-on development by the Port, and the most investment. In this scenario, a large RV park plays the main role.

The large RV park would include full amenities and hook ups and could range from short-term to extended stay. With a large-scale development set to take place on the Arlington Mesa, using the Willow Creek site as a complementary asset would be beneficial for the Port and the region in general. This is something the Port could potentially partner with the City of Arlington on in order to ensure the complementary use. An influx of workers will accompany the development on the mesa, along with an increase in housing needs. Developing a larger RV park on Lot B can be a solution.

Along with the large RV park on Lot B, Lots A and C would offer amenities for workers residing in the park. Commercial retail, which could include multiple buildings or a singular one, would offer an easy access to activity gear that could take place on Lot C. There could be walking trails and other sports available, along with pedestrian water access. In addition to the outdoor equipment store commercial retail, there could be a gas station and small convenience store. The scenario could also include a farm/agriculture store to complement the agricultural activities that are prevalent in the region (Figure 2.6).

Figure 2.6: Development Scenario 3



Source: Points Consulting and Nexus Planning Services, 2024

Scenario 3 Cost Estimates

Cost estimates for Scenario 3 have a bit broader of a range, depending on the development per site for the large RV park on Lot B. This scenario will also have a total cost above \$0 at the low point. Lots A and C have similar estimates as Scenario 2.

For a retail option on Lot A, estimates still differ based on a gas station being put in or sticking to a lower intensity option like an outdoor equipment center. At 503K sf, development could range from \$8 per sf for retail and \$10 per sf for a gas station. Assuming 100% of the parcel is developed, total cost estimates range from \$4 million to \$5 million.

At about 1.2M sf for Lot B, about 200 RV sites could be accommodated. Assuming this site on the whole lot, development costs could range from \$15K per site to \$50K per site. With 100% of the parcel being developed, costs would range from \$3 million to \$10 million.

With recreation still taking priority on Lot C, the cost estimates are largely identical to Scenario 2. At approximately 600K sf, the lot could be developed at \$12 to \$15 per sf. Assuming 100% of the lot being developed, total costs could range from \$7.2 million to \$9 million.

Based on site work and not buildings, total costs could range from \$14.2 million to \$24 million. Development could be scaled down to not develop 100% of each lot, but costs per square foot would remain the same. If the Port selects this scenario, an additional study should be done to gather more data on physical aspects of the site and specific locations of utility access to determine costs in greater detail.

Figure 2.7: Total Development Costs by Scenario



Source: Points Consulting and DCI Engineers, 2024

3. Site Overview

The Willow Creek Site is a combination of three parcels outside of city limits within Gilliam County, OR (Parcel #s: 04N22E00-00-00101, 04N22E00-00-00102, and 04N22E00-00-00105). The mapped acreage of the site is about 64 acres. After the implementation of an access bridge in 2006, the site is accessible by the Heppner Junction of Interstate 84 (I-84) and the Heppner Highway. Some strategic opportunity for the site lies with its proximity to the Columbia River and the Union Pacific Railroad (UPRR) in addition to its I-84 access point. The current condition of the site is completely undeveloped with roughly 4-8 acres being occupied by a gravel quarry. This section will establish a contextual basis for what has been happening on and around the site.

Figure 3.1: Willow Creek Parcels



Source: Points Consulting using Gilliam County Mapping, 2024

Site and Regional Background

Port Overview

The Port has several other properties that flow with its mission to foster economic growth within the district. Some of these properties include the Arlington Mesa Industrial Park and the Alkali Ridge Residential Property. The Port is in an adequate financial position but is looking to develop the Willow Creek site to take advantage of its revenue-generating asset base that hasn't reached its full potential. In a "competitive" context, the Port of Arlington has relative proximity to two other port entities, the Port of The Dalles 63 miles west and the Port of Morrow 30 miles east.

While the Port of Arlington may not offer as many services as the larger ports, it is still in a great position to continue to provide opportunities for the district. Namely, the Port's partnership with Gilliam County to purchase the Alkali Ridge Residential Property shows its willingness to diversify its efforts for the community. The Port is aiming to subdivide the 40-acre property into several plots to develop multi-family housing. This effort will address the issue of a housing shortage being suffered by the county. Fostering economic growth often

takes shape in the form of business recruitment and job creation, but without units for workers to live in, the district will be at a severe disadvantage.

One discussion with the Port signaled that their major employers are facing a labor shortage of around 20-30 jobs constantly. Taking steps to develop the Willow Creek site will increase the attractiveness to outside firms, and increasing the availability of housing expands the opportunities of the site so the firms will be able to attract labor. With a well-rounded Board of Commissioners and an experienced director, the Port has positioned itself to drive economic growth going forward.

Site Context

The site has been the topic of discussion for past development talks. In addition to the access bridge, a 2006 geotechnical study resulted in the proposal of a barge dock in order to accommodate solid waste transportation to the Waste Management landfill south of Arlington. However, miscommunications and prolonged litigation through 2015 resulted in not adding any permanent improvements to the site. Rather than focusing on this aspect of the site, the Port is looking toward other uses to create economic growth.

More recently, the Port received a permit in 2016 to operate a gravel quarry on the site. This allows for use and monetization while other development options are being considered. Additionally, there was a study done in 2018 to assess the feasibility of irrigating lower Willow Creek agricultural properties. The study concluded with high capital investment costs (upwards of \$80 million) and the fact that the Port and the City of Arlington did not have significant enough water rights for the scale proposed.

Access to utilities and water are significant challenges to the development of the site. There is currently no power serving the site and no water or sewer. Because of the location of the site (about 8 miles from the city) there will be limits on how to get these services there. Based on conversations with Port staff, power may be available from the south side of I-84 directly across from the site. However, the nearest water and sewer utilities appear to be in Arlington city limits. No GIS data has been found to confirm these assumptions. Between the distance required to extend the utilities and the prevalence of shallow rock in the area, utility extensions would be quite costly. Developments of this sort would also require some input from the state's Department of Land Conservation and Development (DLCD), which is principally concerned with the preservation of historic agricultural and forestry areas prior to authorizing the expansion of utilities lines outside of Urban Growth Boundaries. Well water and septic drain fields may be a more cost-effective solution, but hydrogeologic and geotechnical evaluations will be required to determine if they are feasible.

State regulations limit the ability to extend utilities outside Urban Growth Boundaries (UGBs). UGB expansion requires justification through a comprehensive plan update, housing needs study or economic opportunities analysis to identify the land that cities can annex and justify the expansion of UGBs. While there are significant challenges with serving the site, it has tremendous potential with its proximity to three modes of transportation. Conversations with one of the commissioners indicated that there is a healthy dose of freight traffic by truck around the I-84 Heppner Junction, which is verified by data from ODOT. With significant

agricultural activity in the county, developing some sort of complementary service would benefit the community as well.

Regional Background

In addition to our on-site visit and preliminary data gathering, the project team reviewed several documents for regional background and overview. Some of these documents included comprehensive plans, strategic business plans, and economic development reports. Several reports and conversations indicate that agriculture is one of the leading industries in and around Gilliam County. The 2017 Census of Agriculture County Profile for Gilliam County shows that there are around 612,000 acres of farmland in the county spread across 153 farms. The net cash from farm income amounts to over \$18 million, translating to just over \$120,000 per farm operation. Government subsidies will ensure that the domestic agriculture industry is protected from collapse. But there is a need to diversify the economic base, both within and outside of agriculture. As mentioned, the farm operations provide income to the owners. However, not everyone is able to earn that income from agriculture.

Stated in the Port of Arlington's Strategic Business Plan is that the Port primarily serves the agriculture and manufacturing industries. They do so by facilitating storage and transportation for crops, as well as opportunities for manufactured goods like wood, technology, and food products. However, the Port has been taking action to promote more diverse options. This comes in the form of addressing housing issues with the Alkali Ridge Property, and the Port's Environmental Sentry Corp servicing the Old Condon Grade School to potentially provide workforce housing. The Port also owns a storage facility and an aviation facility on the Arlington Mesa, offering experimental technology firms the option to operate there.

The Oregon Employment Department forecasts healthcare, social assistance, and construction as the fastest-growing industries in Eastern Oregon, offering examples of industries that could be complemented by industrial development at the Willow Creek site.

Currently, the county ranks third out of nineteen solar producing counties in the state with a total MW capacity of over 160.

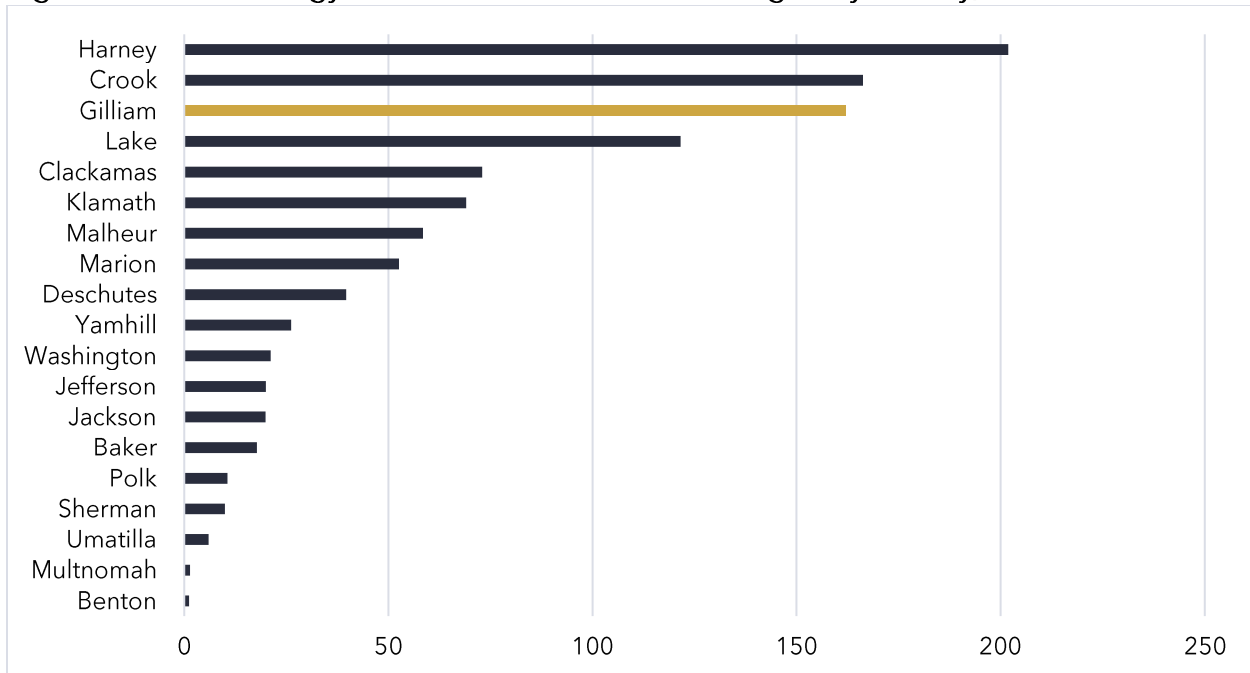
Gilliam County lies within the Columbia Gorge region. Some industries that are predicted to have growth here are tourism, renewable energy, and manufacturing. Figures X and X show Gilliam County's ranks of solar and wind energy production in terms of total megawatt (MW) capacity compared to other counties in Oregon. Currently, the county ranks third out of nineteen solar producing counties in the state with a total MW capacity of over 160 (Figure 3.2).

While there are only six counties in Oregon that produce wind energy, Gilliam County is the top producer with over 1,700 MW of capacity, 500 MW more than the next closest (Figure 3.3). Whether there are future opportunities to tap into the renewable energy supply chain remains to be seen, but there are some promising options on that front.

A recent development in the region is the Pacific Northwest Hydrogen Association winning \$1 billion in federal grant funding for a "regional hydrogen hub," meant to create a supply

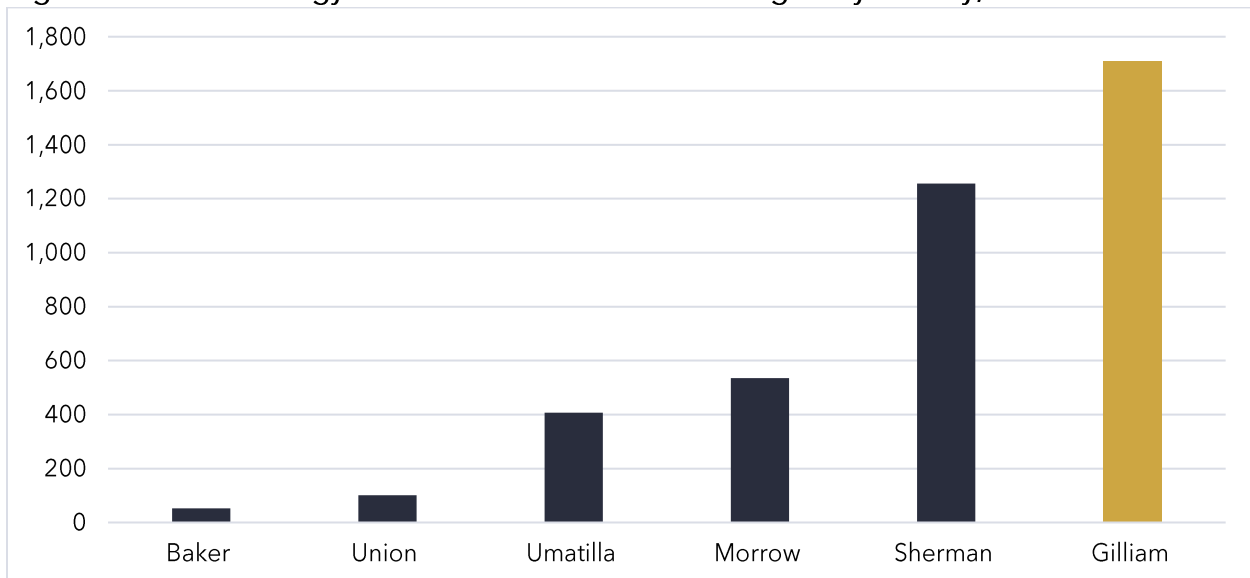
chain of hydrogen energy in Washington, Oregon, and Montana. A potential electrolysis production station or hydrogen storage and distribution facility could be complementary with Gilliam County having absolute advantages in renewable energy production.

Figure 3.2: Solar Energy Production in the State of Oregon by County, 2021



Source: US Energy Information Administration, US Energy Atlas

Figure 3.3: Wind Energy Production in the State of Oregon by County, 2021



Source: US Energy Information Administration, US Energy Atlas

Regionally, Gilliam County is served by the Greater Eastern Oregon Development Corporation (GEODC), along with Grant, Harney, Malheur, Morrow, Umatilla, and Wheeler

counties. The most recent comprehensive economic development strategy (CEDS) was conducted for the GEODC for the years 2014-2019, but it still has some valuable insights.

One significant driver for economic development comes in the form of Enterprise Zones and Rural Renewable Energy Development (RRED) Zones. These development zones can attract new businesses by allowing property tax exemptions for a certain amount of years. All industrial development is eligible for Enterprise Zone tax exemptions, and all renewable energy projects or investments are eligible for RRED Zone tax exemptions. The county recently re-designated its Enterprise Zone in July of 2023 and will be available until July of 2032. The 2014-2019 CEDS for the GEODC also indicated that Gilliam County is a designated RRED zone. These are both advantages for the Willow Creek site and should be utilized.

Other insights from the 2014-2019 CEDS were some potential limitations or challenges within the region. For example, the Port does not offer the only industrial land that is developable in the region. The Umatilla Army Depot Site redevelopment could prove to be a competitive site for industrial development. Although, other port entities are starting to run low on industrial lands to develop, which could be an opportunity for the Port of Arlington. Water usage is also listed as a constraint for development in the region. Even counties along the Columbia River generally do not have sufficient water rights to support large-scale water users. As such, industries requiring large amounts of water may not be an appropriate target for the site. A hydrogeological study is forthcoming for the District, but it is yet to be seen what level of resources will be available.

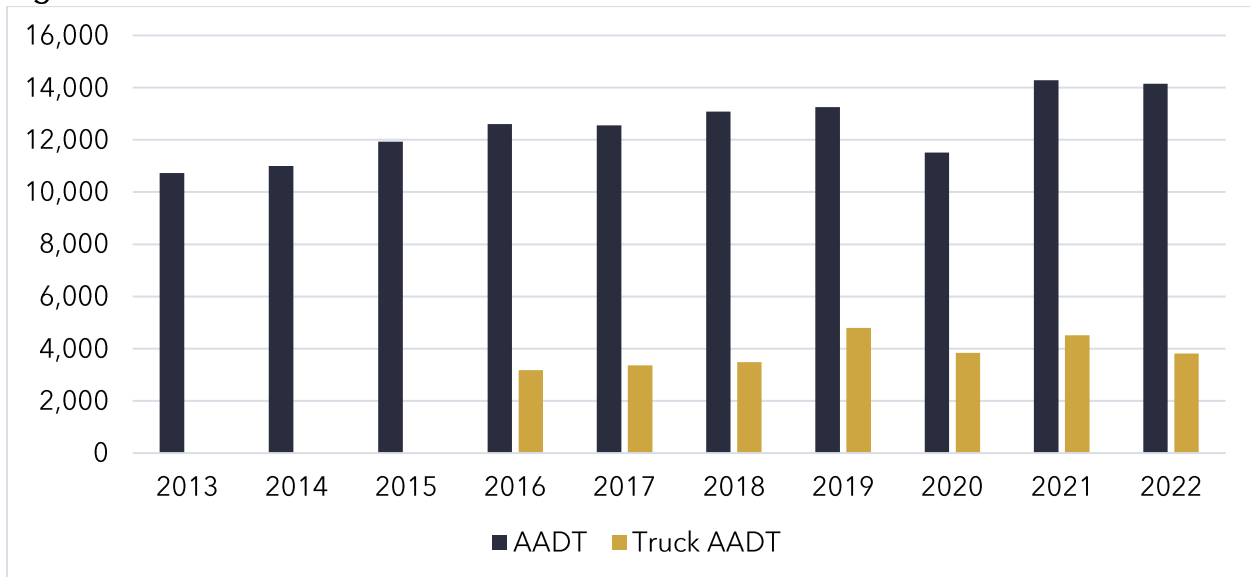
Traffic and Trade Patterns

Traffic

The Oregon Department of Transportation (ODOT) tracks traffic patterns at certain intersection points throughout the state. The data are useful for transportation and infrastructure planning purposes but also provide a useful metric for mobility and therefore the viability of different kinds of developments. Fortunately, ODOT has multiple traffic readers along I-84 and the intersection with the Heppner Highway, which is where the access point for the Willow Creek site is. The reader used for the traffic pattern analysis was the Oregon Traffic Monitoring System (OTMS) site 11009. The reader would be passed by any westbound traffic heading to the site or towards Arlington and would be passed by any eastbound traffic leaving the site or towards Morrow County. The technical measure of vehicles per day in the transportation industry is Annual Average Daily Traffic, or AADTs for short.

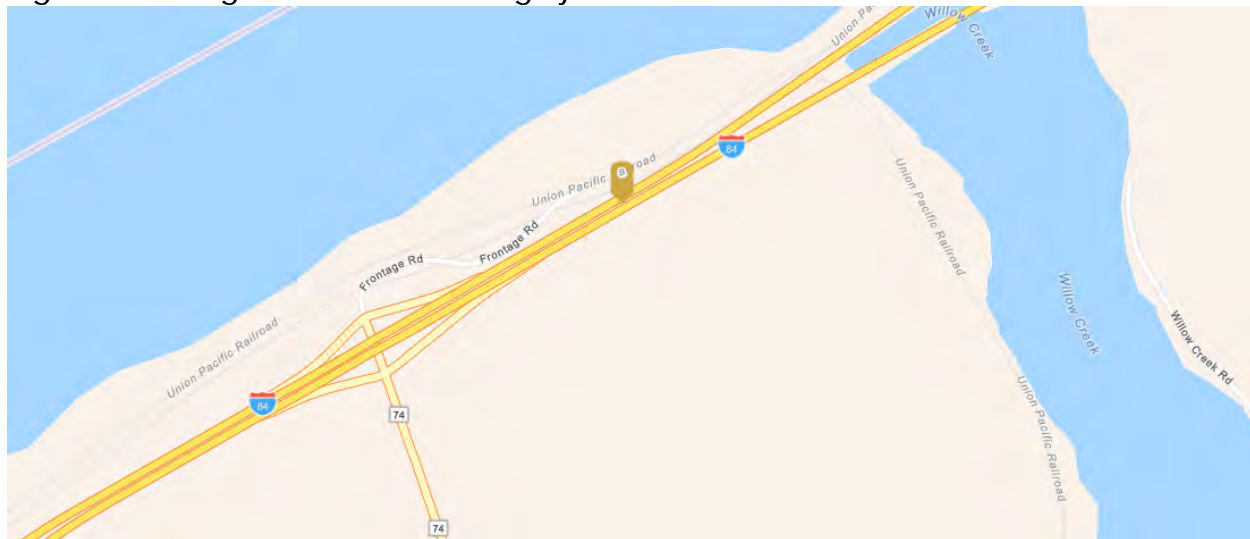
The data in Figure 3.4 indicate a clear upward trajectory of traffic at the site, escalating from about 10,700 AADTs in 2013 to 14,100 AADTs in 2022, a 31.9% increase. Though less data is available, Figure 3.4 also shows Truck AADTs as an indicator of freight activity in the area. Truck AADTs have seen a similar increase from about 3,200 AADTs in 2016 to 3,800 AADTs in 2022, a 20.0% increase. ODOT's data also shows that Truck AADTs make up a significant portion of total AADTs at the site, 29.5% on average since 2016. Figure 3.5 shows the mapped location of OTMS site 11009.

Figure 3.4: AADTs Near Willow Creek Site



Source: Oregon Traffic Monitoring System

Figure 3.5: Oregon Traffic Monitoring System Site 11009



Source: Points Consulting using Esri Business Analyst

Trade

The Oregon State Department of Transportation recently revised its Oregon Freight Plan in March of 2023, which is an element of the Oregon Transportation Plan. This report gave insight to freight demand by industry, mode, and product. ODOT reported that Oregon is the 10th to 15th most trade dependent state in the nation, with an estimated \$302 billion of freight that had either an Oregon origin or destination in 2017. This number is projected to increase to \$342 billion by 2025. Trucking is by far the highest demanded mode of freight, carrying \$229 billion of product in 2023 (71.1% of freight demand by value in 2023). The air and pipeline modes are the next highest by value with \$11 billion each.

Different transportation regions are captured by Area Commissions on Transportation (ACTs). Gilliam County is covered by the Lower John Day ACT, along with Wasco, Sherman, and Wheeler Counties. Table 3.1 depicts production shares by commodity group, or what types of commodities will be exported, and forecasted changes for the Lower John Day ACT.

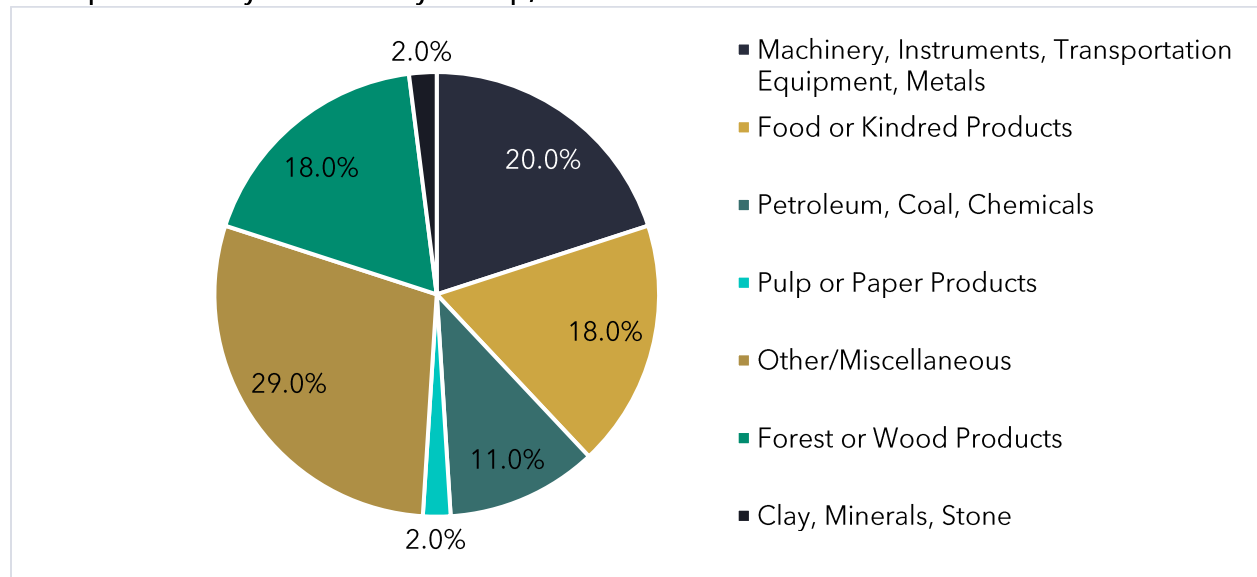
The commodity group with the largest share in 2019 is Machinery, Instruments, Transportation Equipment, & Metals with a share of 24.0%. Food or Kindred Products and Forest or Wood Products are the next highest commodity groups by share, each with 18.0%. Industries that support these commodity groups could be complemented by development at the Willow Creek site. Table 3.2 represents consumption shares by commodity group for the Lower John Day ACT, or what types of commodities will be imported to the ACT.

Table 3.1: Lower John Day Area Commission on Transportation Production Shares by Commodity Group, 2019 to 2040 by Value

Commodity Group	Commodity Share 2019	20-Year CAGR	Commodity Share 2040
Machinery, Instruments, Transportation Equipment, Metals	24.0%	1.1%	20.0%
Food or Kindred Products	18.0%	2.0%	18.0%
Petroleum, Coal, Chemicals	11.0%	1.8%	11.0%
Pulp or Paper Products	10.0%	4.5%	2.0%
Other/Miscellaneous	24.0%	2.9%	29.0%
Forest or Wood Products	18.0%	1.8%	18.0%
Clay, Minerals, Stone	3.0%	-0.8%	2.0%
Total	100.0%	1.7%	100.0%

Source: Oregon Freight Plan, Revised March 2023

Figure 3.6: Forecasted Production Shares in the Lower John Day Area Commission on Transportation by Commodity Group, 2040



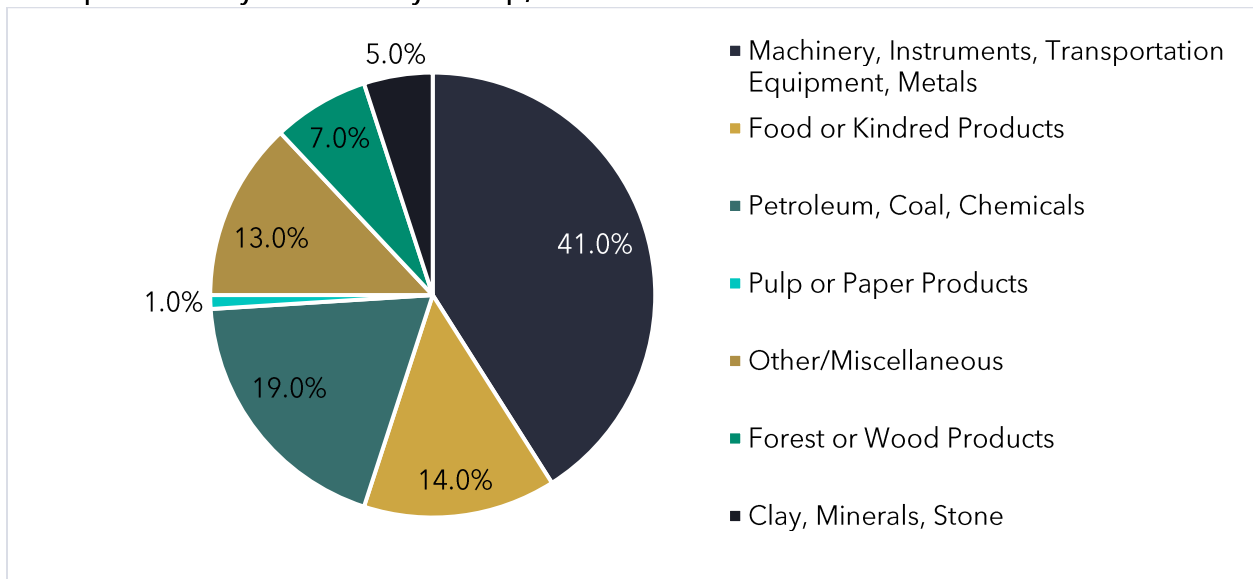
Source: Oregon Freight Plan, Revised March 2023

Table 3.2: Lower John Day Area Commission on Transportation Consumption Shares by Commodity Group, 2019 to 2040 by Value

Commodity Group	Commodity Share 2019	20-Year CAGR	Commodity Share 2040
Machinery, Instruments, Transportation Equipment, Metals	50.0%	0.3%	41.0%
Food or Kindred Products	13.0%	1.8%	14.0%
Petroleum, Coal, Chemicals	10.0%	4.4%	19.0%
Pulp or Paper Products	2.0%	-3.1%	1.0%
Other/Miscellaneous	16.0%	0.3%	13.0%
Forest or Wood Products	5.0%	2.8%	7.0%
Clay, Minerals, Stone	4.0%	2.5%	5.0%
Total	100.0%	1.0%	100.0%

Source: Oregon Freight Plan, Revised March 2023

Figure 3.6: Forecasted Consumption Shares in the Lower John Day Area Commission on Transportation by Commodity Group, 2040



Source: Oregon Freight Plan, Revised March 2023

Some key trends and industry practices emerged from the Oregon Freight Plan as well. In 2017, gravel was the second largest commodity by tonnage at 13% of total tonnage transported. Gravel is expected to stay at this level through 2050, a positive sign for the Port’s gravel quarry. Pharmaceuticals is one of the fastest growing, high-value commodities in the state, expected to grow from 4% of value in 2017 to 7% of value in 2050. With the Willow Creek site’s proximity to the UPRR, basic chemicals is the fastest growing user of the rail system by tonnage in Oregon, along with fertilizers. The plan indicates that keeping heavy goods on rail can reduce the maintenance costs of Oregon roads and so the Willow Creek site may be complementary to that notion.

Additionally, the value of freight moved into and out of Oregon is expected to increase at a greater rate (92%) than the tonnage is expected to increase (64%) between 2017 and 2050. The trend here is indicative of a shift to higher-value commodities being transported throughout the state and shows there will be opportunities to take advantage of greater value in the transportation and warehousing industry. Additionally, the volume of the commodity group Machinery, Instruments, Transportation Equipment, & Metals is expected to increase by 2.2% per year through 2050.

Firms with high-value-added manufacturing industries (such as machinery manufacturing) are relatively mobile and tend to locate near places with access to ports and relatively congestion-free highway corridors. ODOT also says green technology is a sector that Oregon seeks to promote and develop. Wind turbine farms are clustering along the Columbia River Gorge, along with central and eastern Oregon where strong wind currents combine with sparsely populated land to facilitate the installation of wind farms.

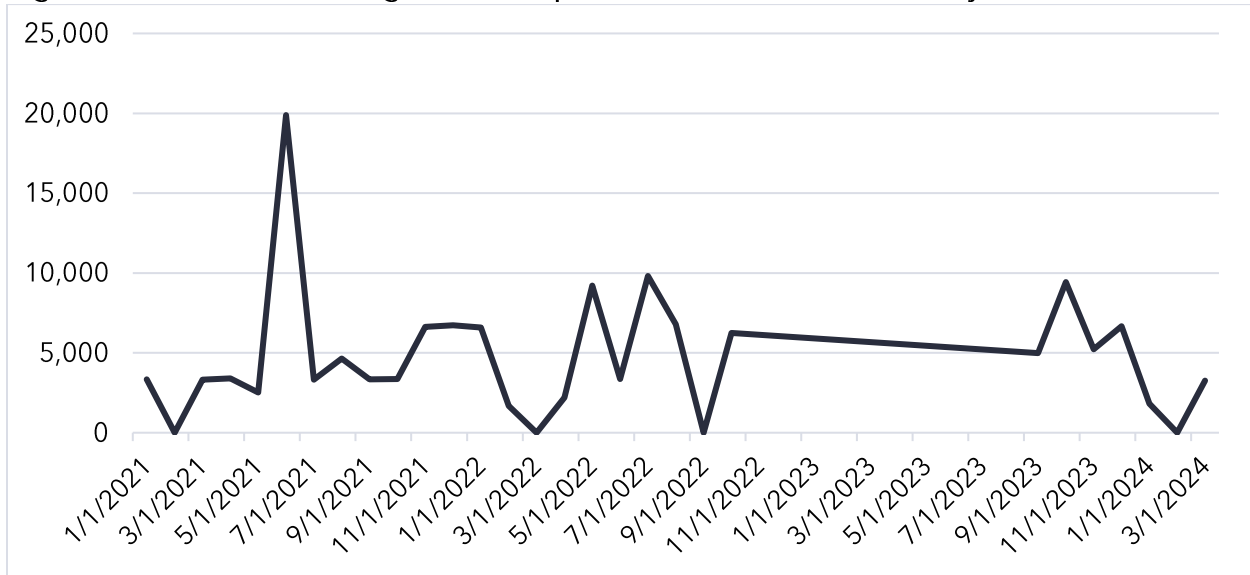
Most food manufacturers are located in the western half of the state, but some clusters are in eastern Oregon as well. This industry is somewhat more dispersed than others because location decisions tend to be driven by proximity to cheaper, inexpensive land, rail corridors, and raw materials. The industry could certainly prove to be complemented by development at the Willow Creek site. Growth in the wind industry will depend on having sufficient transportation to rural locations and planned wind farm facilities for delivering the heavy and large wind turbine components. I-84 accounts for nearly a quarter of the value of commodity flows throughout the state at 24%, second only to I-5 at 45% of the value.

Aside from general freight data and state trends, the project team took a deeper look at trade modes from other data sources, such as the USDA, Oregon Wheat, and the Association of American Railroads (AAR). The USDA's Barge Dashboard offers data on barge movements by commodity at the Bonneville Lock and Dam (Lock 1) and the McNary Lock and Dam (Lock 24). For the Columbia River locks specifically, the USDA started to collect and publish the data monthly in February 2021. The dashboard notes that the majority of barged wheat moved on the Columbia/Snake River System is for export markets, and about 80% of those exports are destined to east or southeast Asia.

... the majority of barged wheat moved on the Columbia/Snake River System is for export markets, and about 80% of those exports are destined to east or southeast Asia.

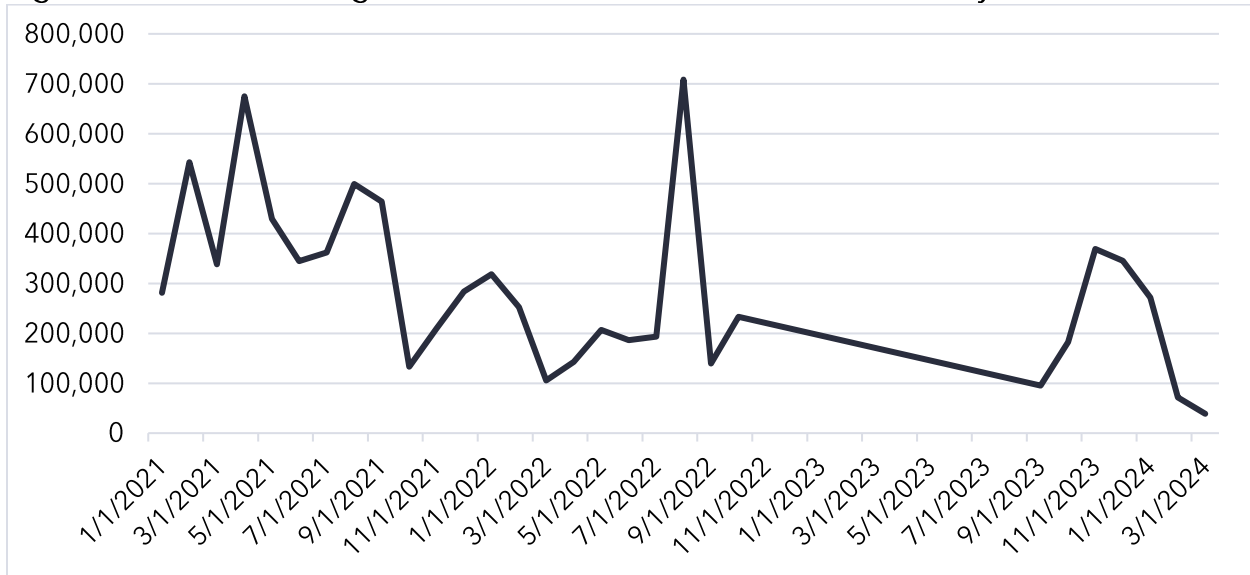
From the USDA data, we found that the two main commodities moved up and down the Columbia/Snake River system are fertilizer and wheat. Figure 3.7 shows the flows of fertilizer throughout the system while Figure 3.8 shows the flows of wheat. One of the drawbacks of this data is that there is a large gap of missing data throughout most of 2023. This makes it difficult to determine the true trend of each commodity, especially recently. Fertilizer does appear to be a slightly more stable commodity moving throughout the region with a steady trend. Surprisingly, wheat appears to have a generally decreasing trend since 2021, but this could be an outcome of missing data.

Figure 3.7: Fertilizer Tonnage Moved Up the Columbia/Snake River System at Lock 1



Source: USDA, Agricultural Marketing Service's Barge Dashboard

Figure 3.8: Wheat Tonnage Moved Down the Columbia/Snake River System at Lock 24



Source: USDA, Agricultural Marketing Service's Barge Dashboard

Oregon Wheat reports that the Columbia/Snake River System is the nation's largest wheat export gateway, moving over 60% of all US wheat to international markets.¹ They also note that eleven states export through the system with over 15 million metric tons of wheat in 2020. Proponents of using the dam and river system explain that the system reduces traffic

¹ Oregon Wheat Growers League, "Wheat on the Columbia Snake River System," <https://www.owgl.org/p/policy/dams>.

congestion and pollution from truck freight and each year nearly 10% of all US wheat exports move by barge along the Snake River, making it a major advantage to the regional economy.

Additional rail insights come from the AAR and "GoRail." In Oregon, there are 2,369 freight railroad miles spread across 22 freight railroads. In 2021, The largest single commodity group of freight by carload is Lumber & Wood Products at 17.0% of total carloads originating in Oregon.² Among carloads terminating in Oregon, Chemicals are the largest single commodity group with 12.1% of total carloads.

The railroad industry is also vital to agriculture in the US. In fact, railroads haul around 1.6 million carloads of grain and other farm products in a typical year.³ An added benefit of rail freight is that it is more efficient than other freight modes in terms of greenhouse gas emissions (GHGs). There were 630,000 truckloads of freight saved, translating to a saving of 2.47 million tons of GHGs in 2021.⁴ The efficiency of rail freight syncs well with Oregon's climate goals, and may be a complementary industry for the Willow Creek site.

Planning and Zoning Context

Gilliam County designates parcels in the study area for Limited Industrial (LI) use. The LI district is for general industrial developments, with several outright permitted transportation related uses.⁵ Such uses include, but are not limited to:

- Normal operation, maintenance, repair, and preservation activities of existing transportation facilities
- Installation of culverts, pathways, medians, fencing, and guardrails
- Projects specifically identified in the Transportation System Plan as not requiring further land use regulation
- Landscaping as part of a transportation facility
- Construction of a street or road as part of an approved subdivision or land partition
- Public and private transportation depots and terminals

Per the Gilliam County Zoning and Development Ordinance (GCZ&DO), a number of outright permitted uses have been discussed as options for the site. These uses are relevant to the regional economy, and include agricultural sales and services, engineering with research and development. They also include light manufacturing along with warehousing with storage and distribution of equipment, commodities, and products. Importantly, there is a permitted use that is designated as "other uses determined by the Planning Director to be similar to the above uses." This offers an option for some flexibility in development opportunities. Conditional uses are often subject to additional standards and conditions but are relevant as

² AAR, "US Freight Railroad Industry Snapshot: Oregon," <https://www.aar.org/data-center/railroads-states/#>.

³ AAR, "Freight Rail & Agriculture," <https://www.aar.org/issue/freight-rail-agriculture-industry/>.

⁴ GoRail, "Oregon Stats," <https://gorail.org/state/oregon>.

⁵ See Gilliam County Zoning and Land Development Code, Section 4.050.

well. The relevant conditional uses are a utility facility or an industrial storage and maintenance facility that may include outdoor storage/uses.

Other potential uses not currently permitted outright or through a conditional use permit process would require a code amendment with the county commission.

On-Site Summary

The project team carried out an on-site visit to the Port of Arlington in early April for this industrial site overview report. During this visit, the team met with the Executive Director, Jed Crowther and President of the Board of Commissioners, Leah Shannon. Also present for part of the visit was Ryan DeGrofft, the Regional Development Officer from Business Oregon for Gilliam, Morrow, Umatilla, and Wheeler Counties. To gain a wholistic view of how the Port operates, we toured several properties and facilities owned and managed by the Port. Such properties were:

- The Port offices and Marina
- The Alkali Ridge Residential Property
- The Arlington Mesa Industrial Park
- The Arlington Municipal Airport
- The Gronquist Building
- The Willow Creek Site

In addition to the properties on the guided tour, PC viewed various renewable energy project locations, the Waste Management facility, and the Old Condon Grade School. Some key themes from the on-site are listed below.

Previous and Current Economic Development: The Port has done an excellent job at creating opportunities for firms to come in and produce demand in the economic market. Notable features include the building previously occupied by Insitu, the Shutler Station Industrial Park, and partnering with the City of Arlington on the Mesa. There is also discussion under a non-disclosure agreement for a firm to purchase property on the Mesa and develop it. With the agriculture industry having such a great presence, it would make sense to develop a complementary facility at the Willow Creek site. Renewable energy is also strong in the county and could be paired with development.

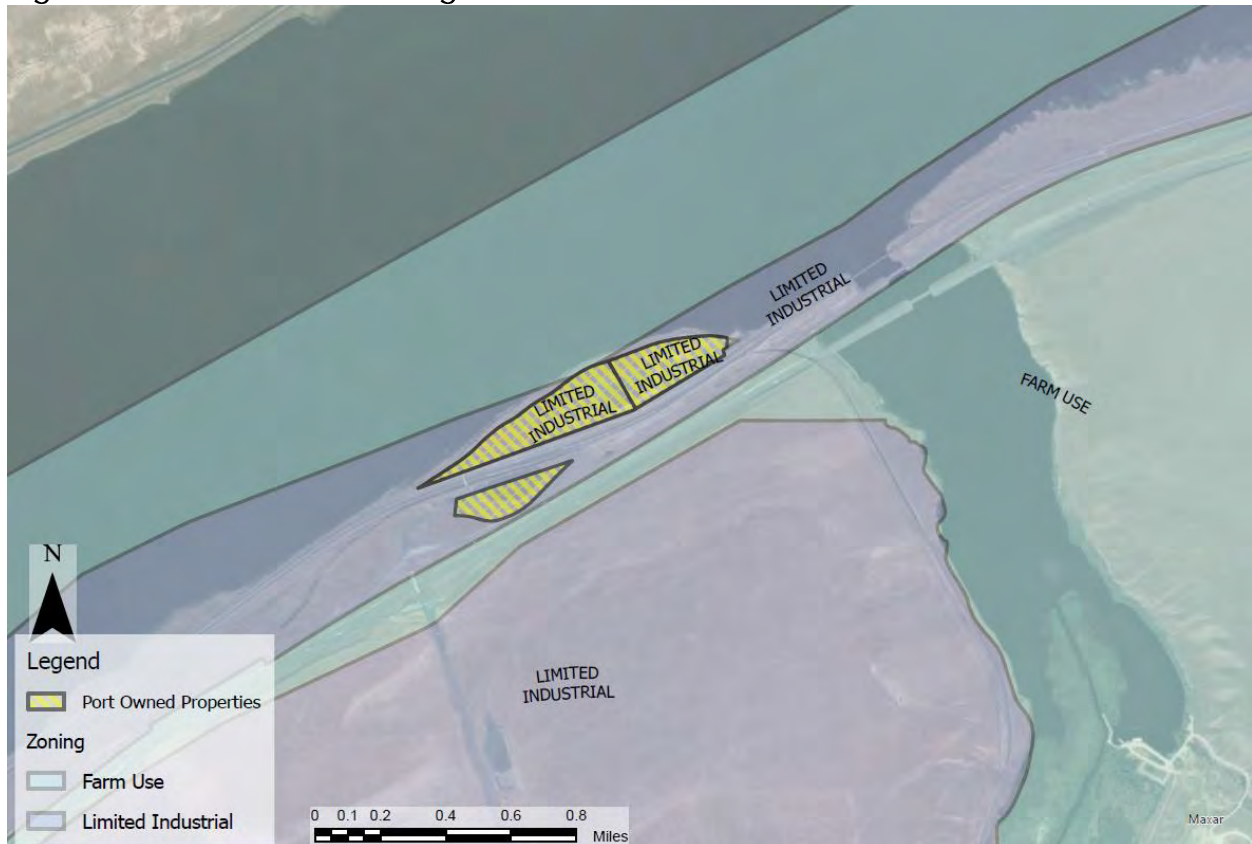
Community Challenges: There is a clear issue of housing and labor shortages within and around the Arlington area. Discussions with the Port indicated that there are potentially 20-30 vacant job opportunities at any time in the county. Due to this, Waste Management has been using shuttle buses to get employees to their Arlington facility. Similarly, lack of housing affordability presents a major challenge. There is currently only one “apartment building” in Arlington, with a manufactured home community and single-family homes. This points to “missing middle” housing opportunities that can assist with availability and affordability. The Port is now taking action on this front with the Alkali Ridge Property and the potential renovation of the Old Condon Grade School.

Site Opportunities and Limitations: The Willow Creek site clearly has a strategic location with its proximity to three modes of transportation. Along with agriculture, renewable energy and Waste Management being anchors in the region give the site importance and potential. The major limitations have to do with the utility servicing at the site. Power is likely to be less of a challenge depending on the magnitude of development, but water and sewer will limit the options of what is possible.

Site Mapping

The Site is fully encapsulated by Gilliam County's 'Limited Industrial' zoning designation. Current land uses south along Highway 74, include an industrial-sized wind farm. Zoning south of I-84 and east of the railway's southern spur is designated for 'Farm Use'. For reference, Limited Industrial Zone use allows for a variety of industrial uses such as animal/agriculture sales, light manufacturing, automotive sales, printing/publishing, engineering, aggregate processing, and warehousing.

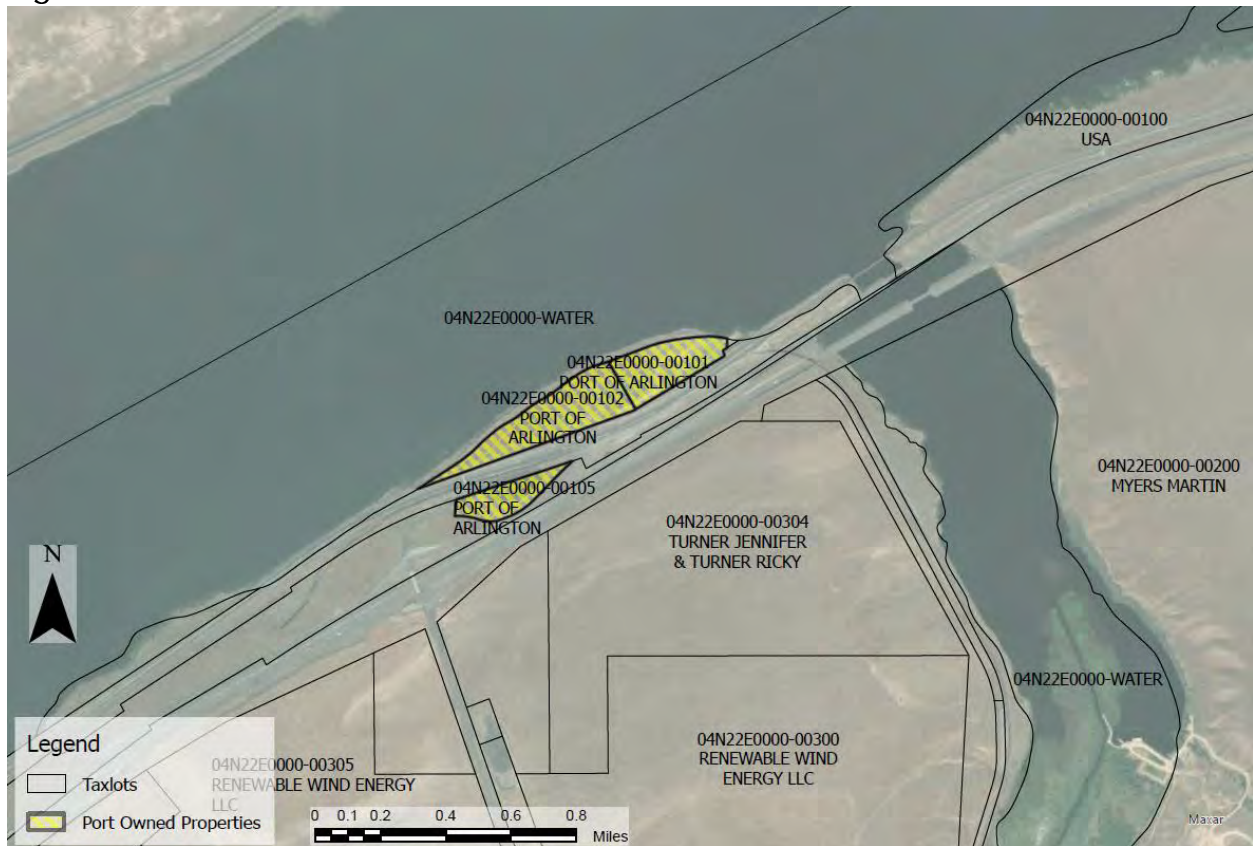
Figure 3.9: Willow Creek Zoning



Source: Nexus Planning Services using Harney County Planning Dept and USGS

Six lots surround the Port of Arlington's site. They include the Army Core of Engineers to the Northeast, ODOT adjacent to the Interstate, Jennifer & Ricky Turner own the large lots immediately on the opposite end of the highway, and the Renewable Wind Energy Properties are to the Southwest behind the Legend. Large lot ownership of surrounding properties makes communication and coordination of on-site activities less complex.

Figure 3.10: Willow Creek Tax Lots



Source: Nexus Planning Services using Harney County Planning Dept and USGS

According to the US Geological Survey (USGS), the Port of Arlington's site contains a 50 ft rise in 0.4 miles (2,112 ft) from the shoreline to the southern portion of I-84.

Figure 3.11: Willow Creek Topographic Contours



Source: Nexus Planning Services using Harney County Planning Dept and USGS

The Port of Arlington's property is accessed from I-84 (Federal Interstate), and adjacent to State Highway (Hwy 74), Railway (Union Pacific), and the Columbia River. The site's location lends itself to multi-modal transportation. Previous feasibility assessments suggested land use related to logistics, transportation, and freight-related businesses.

Figure 3.12: Willow Creek Transportation



Source: Nexus Planning Services using Harney County Planning Dept and USGS

4. Site Analysis

While the Site Overview relayed background and context for this project, the Site Analysis will dive into the markets at work around the site. More broadly, the project team will analyze socioeconomic outcomes of the region, while also comparing to other relevant geographies. Much of the socioeconomic analysis will contribute to labor market outcomes and what the relevant labor supply looks like for the Willow Creek site along with how it can benefit from the region’s human capital and labor availability. Additionally, we will show a closer look at the data showing greater industry demand, both quantitatively and qualitatively.

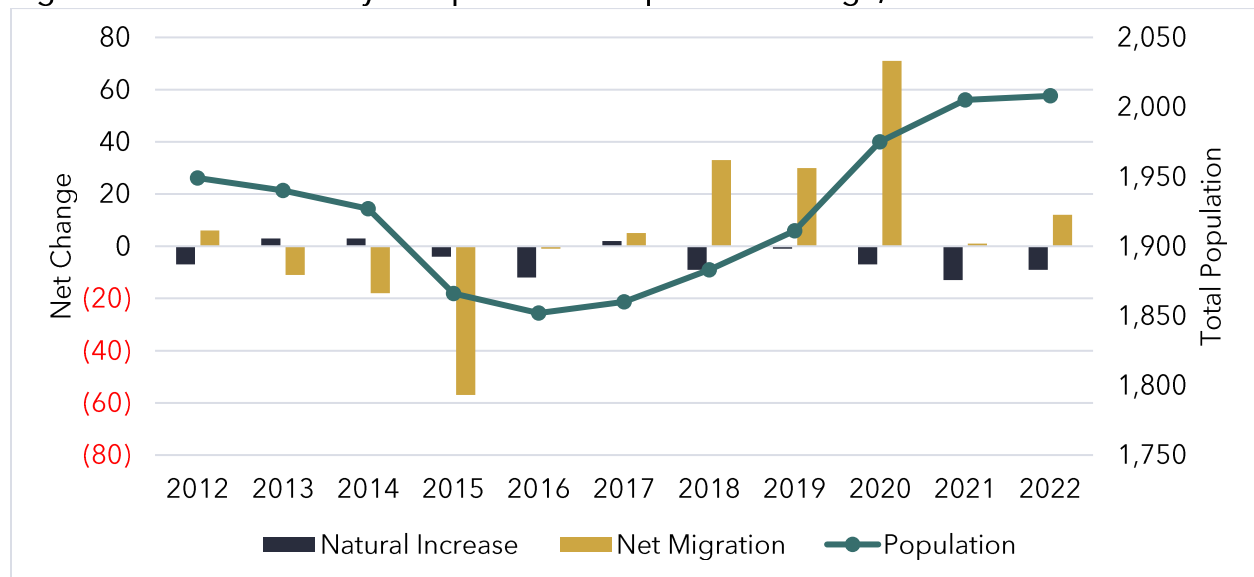
Population and Workforce Characteristics

Sources of Population Change and Migration

A region’s population is a major contributing factor to labor supply and therefore the economic growth that can be sustained. Population growth is primarily influenced by three factors: births, deaths, and migration. Figure 4.1 illustrates how these sources of population change have evolved from 2012 to 2022. From 2013 to 2016, migration in Gilliam County was negative and overall population growth was negative from 2012 to 2016. Beginning in 2017, population change was positive, driven by net migration with the county’s population growing to just over 2,000 as of 2022.

Population growth accelerated in 2020, with a net migration of 71 people. However, in 2021 and 2022, net migration has fallen to below 15 in each year, with more deaths than births in the county since 2019. In general, population growth can induce and sustain economic growth, but more economic opportunities can also induce an influx of population.

Figure 4.1: Gilliam County Components of Population Change, 2012-2022



Source: US Census Bureau, Population Estimates, 2022

Table 4.1 shows the total net migration numbers for those moving into (left column) and out of Gilliam County (right column) between 2016 and 2020. Most inflows of people to Gilliam

County come from the Pacific Northwest, mainly other Oregon counties and a few Washington counties. Aside from these, Cuyahoga County, OH, (Cleveland area) is the 2nd highest contributor. With a low population overall, it's not surprising to see small numbers of net migration. It also seems some of the top migration counties are nearby, such as Multnomah County, Lane County, and Morrow County.

It's unclear why Gilliam County residents are choosing other Oregon counties to migrate to, but a common theme heard by the project team was that there are few amenities in the county. Some workers also choose jobs closer to their place of residence, and it's not speculation to assume that workers would move closer to a job they enjoy and want to keep.

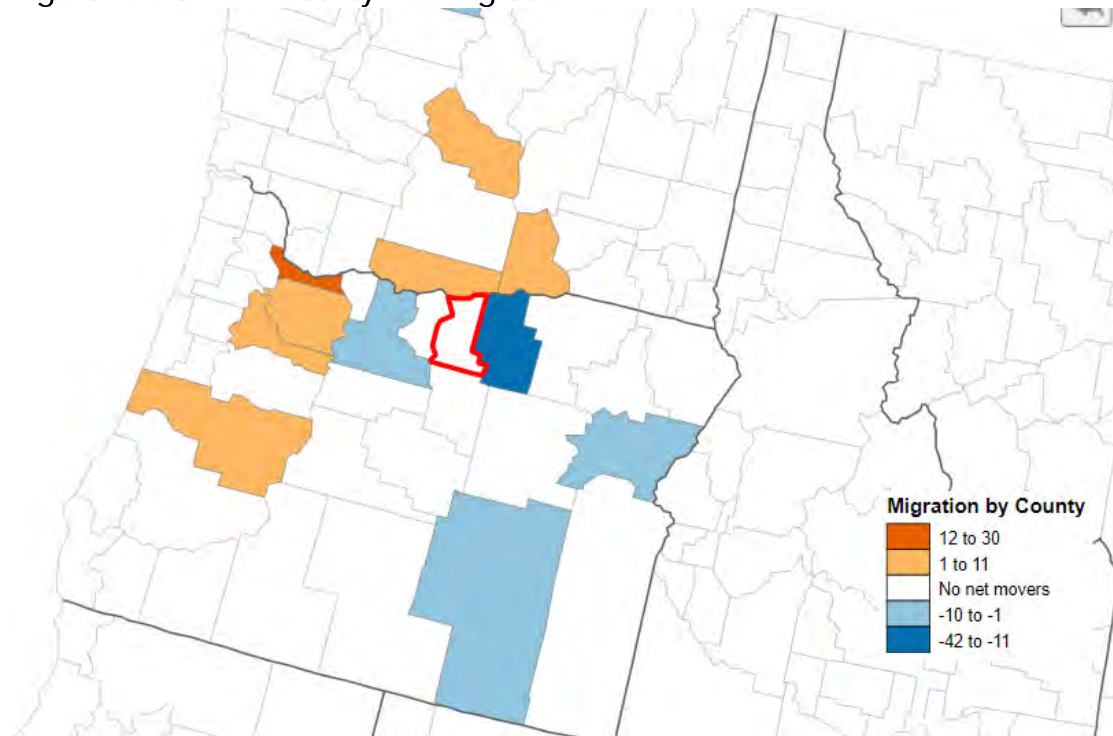
Table 4.1: Gilliam County In and Out Migration, 2016-2020

Positive Net Migration From		Negative Net Migration to	
Multnomah County, OR	+30	Wasco County, OR	(3)
Cuyahoga County, OH	+20	Skagit County, WA	(3)
Lane County, OR	+11	Baker County, OR	(7)
Klickitat County, WA	+9	Harney County, OR	(8)
Benton County, WA	+7	Morrow County, OR	(11)
Los Angeles County, CA	+3	Jefferson County, TN	(42)

Source: US Census Bureau, Census Flows Mapper, 2020 5-Year Estimates

Figure 4.2 maps these movements. Brown indicates migration to Gilliam County, and blue indicates migration from Gilliam County to those areas.

Figure 4.2: Gilliam County Net Migration



Source: US Census Bureau, Census Flows Mapper, 2020 5-Year Estimates

Regional Demographic Data

Educational attainment, vocational training, and experience say more about skills that individuals have, but people from different backgrounds and other races/ethnicities will bring different experiences to the equation. Table 4.2 reports the race/ethnicity distribution for Gilliam County, the City of Arlington, and Oregon. From the data, Gilliam County is the least diverse of the three regions with 88.2% of its population being White Alone. Other notable values include 7.7% reporting as Two or More Races and 5.7% reporting as having Hispanic Origin. Arlington is slightly more diverse with 3.2% of the population being American Indian Alone, along with 8.9% reporting as Two or More Races. Oregon has the lowest share of the three being White Alone at 73.7%, and having 4.8% of its population as Asian alone, along with 14.7% being of Hispanic Origin.

Table 4.2: Gilliam County Race/Ethnicity Distribution, 2023⁶

Region	White Alone	Black Alone	American Indian Alone	Asian Alone	Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic Origin
Gilliam County	88.2%	0.2%	1.5%	0.4%	0.5%	1.4%	7.7%	5.7%
Arlington	84.4%	0.2%	3.2%	0.5%	1.0%	1.9%	8.9%	7.5%
Oregon	73.7%	2.0%	1.5%	4.8%	0.5%	6.6%	10.9%	14.7%

Source: PC Using Esri Business Analyst, 2023

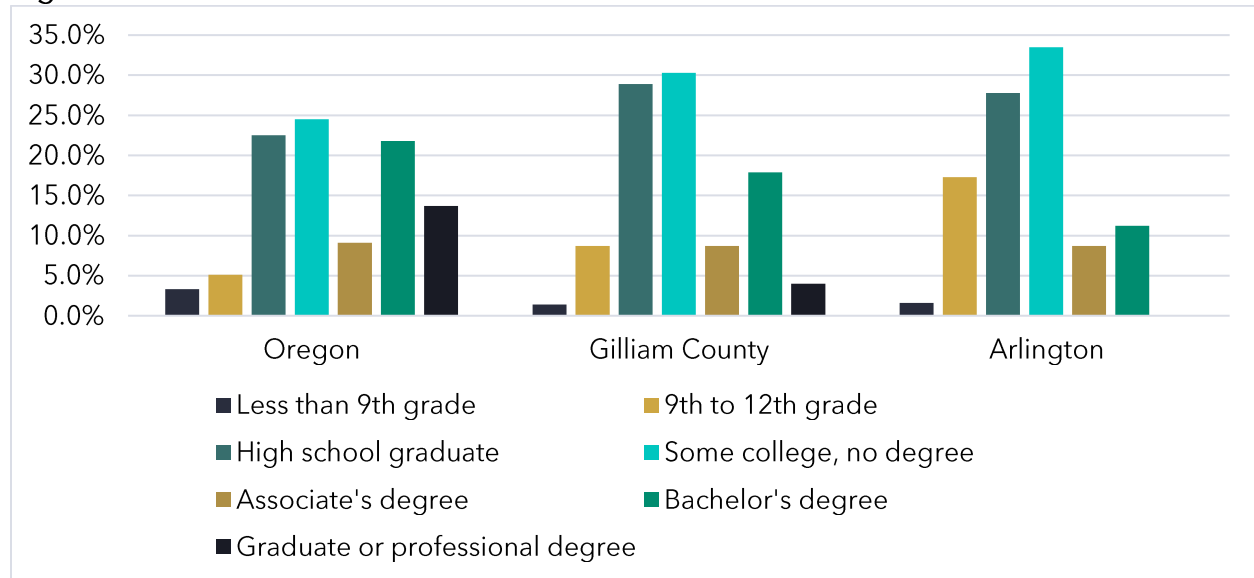
Figure 4.3 provides a snapshot of educational attainment. The values that stand out most here are Arlington having only 11.2% of its population with a Bachelor’s degree or higher and Gilliam County having only 21.9% of its population in the same category. College degrees typically represent skilled labor and wage premiums. Compared to Oregon’s population with 35.5% with a Bachelor’s degree or higher, Gilliam County and Arlington are relatively low in skilled labor. If drawing from the local labor supply, jobs in industries requiring education may not be the way to go. However, with the goal of attracting a handful of well-paying jobs, the Port could still look to adding these higher-skill positions by attracting commuters. Relatively low availability of housing in the area will also be a threat to attracting these jobs.

⁶ Values in the table will not sum to 100% because Hispanic Origin is categorized as an ethnicity and is distributed amongst the different races.

Percent of Population with a Bachelor's Degree or higher:

- Oregon: 35.5%
- Gilliam County: 21.9%
- Arlington: 11.2%

Figure 4.3: Educational Attainment

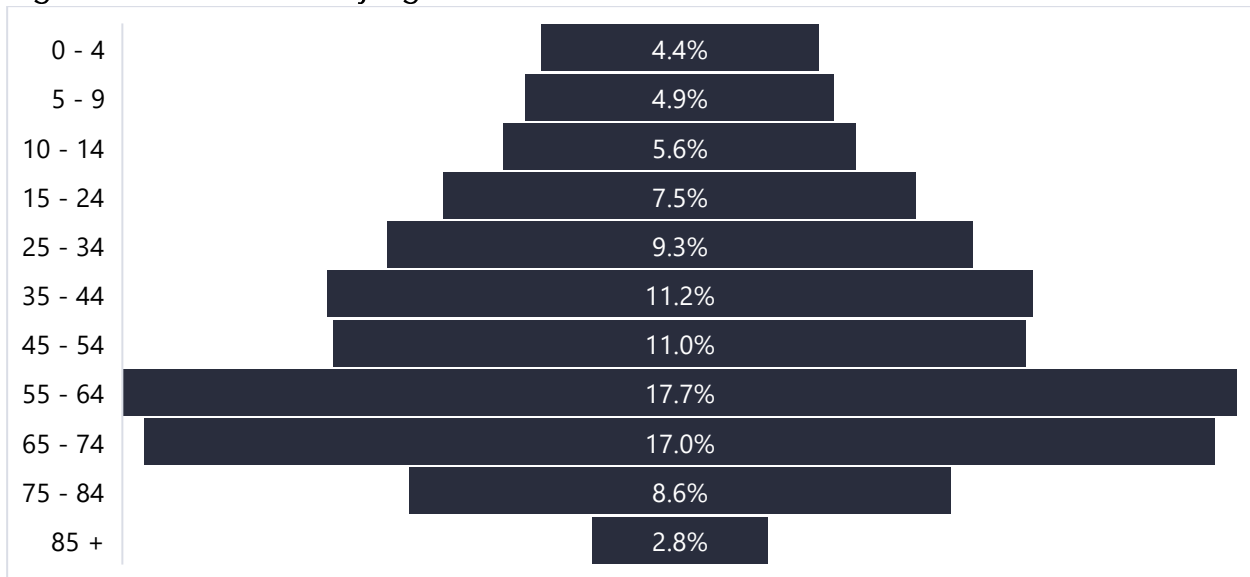


Source: US Census Bureau, 2022 5-Year Estimates

Age distributions can give valuable information to the labor supply in a region, such as the ability to create/sustain economic growth with prime working-age individuals and the experience levels of workers. Figures 4.4 and 4.5 represent the populations of Gilliam County, Arlington, and Oregon by age. Of the three regions represented, **Gilliam County has the lowest share of individuals in their prime working age at 31.5%**. Having a relatively lower population in the prime working age category doesn't always mean there will be an issue as long as there is a larger share of the population upcoming to replace those workers. However, Gilliam County also has the highest share of its population aged 65+ and the lowest share of its population below prime working age. This points out a very practical factor that any significant employment increases in Gilliam County, will need to correspond with increased in-commuting from surrounding counties or increase migration to the county.

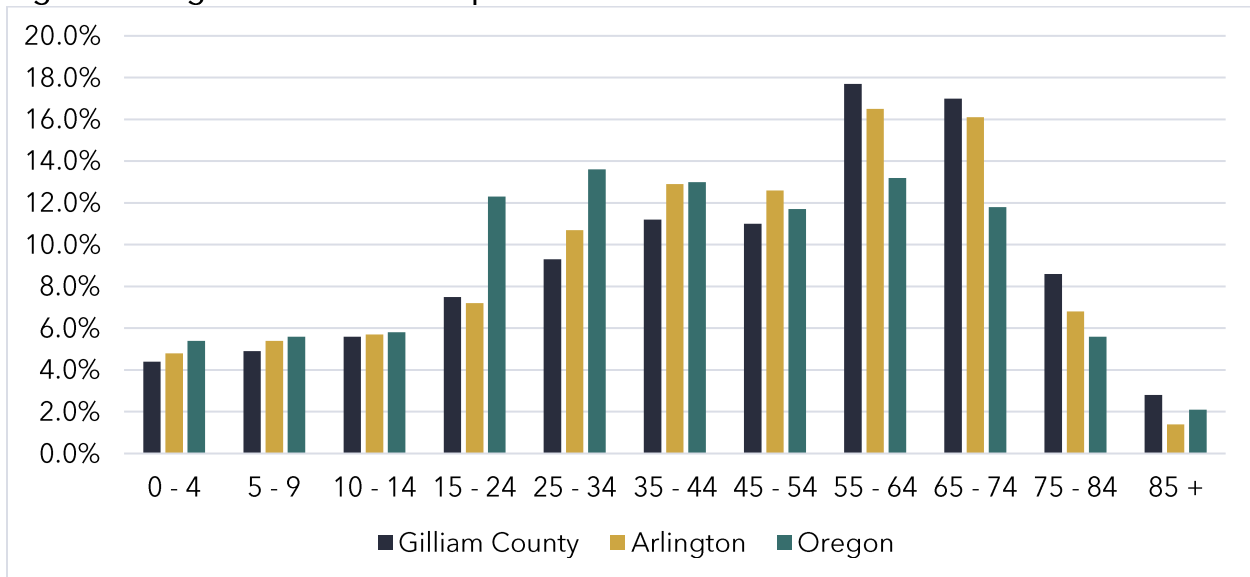
As Baby Boomers age nationwide, they will become a greater burden on the working population, and the situation is no different in Gilliam County. While having more workers that are older would reflect a more experienced labor force, they may also be holding opportunities back from younger workers looking to climb the income ladder. Figure 4.5 shows the discrepancy between Gilliam County and Oregon overall in having relatively less young people. More workers getting ready to retire is also a threat to the region as it could cause a labor shortage. Attempting to create jobs to attract younger workers would be beneficial to the Port District.

Figure 4.4: Gilliam County Age Distribution



Source: PC Using Esri Business Analyst, 2023

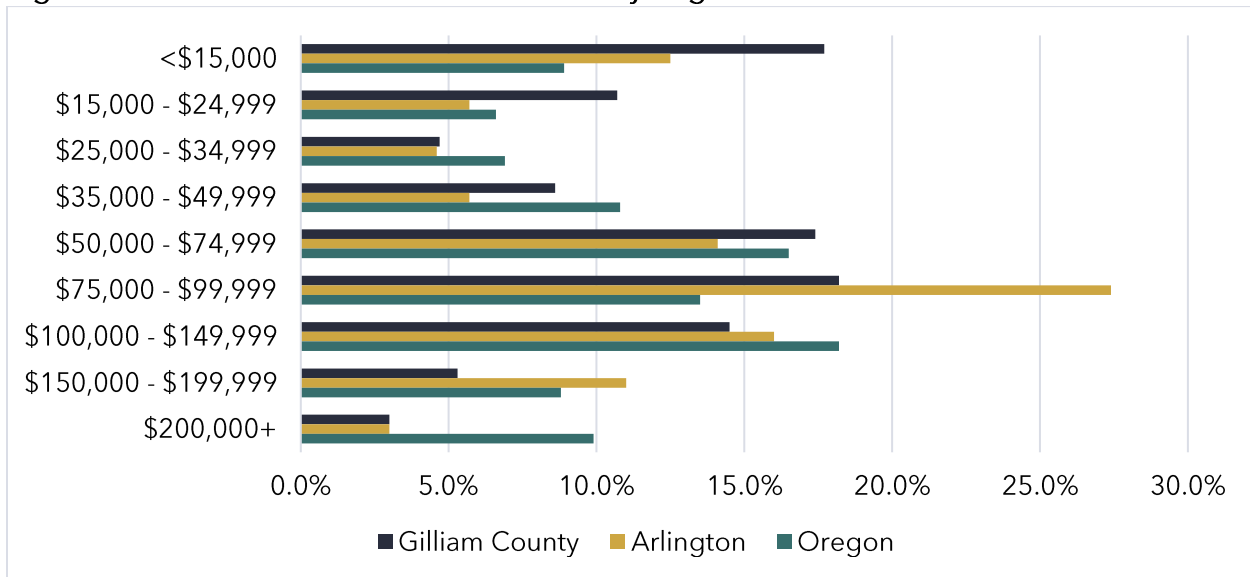
Figure 4.5: Age Distribution Comparison



Source: PC Using Esri Business Analyst, 2023

In terms of median household income (MHHI), there appears to be an odd dynamic in the region. Gilliam County has a relatively low MHHI at just below \$60K, but Arlington’s MHHI is much closer to the state level at nearly \$80K. This points to the fact that Arlington’s households are bringing Gilliam County’s overall income distribution up, and other areas (such as unincorporated communities) would be bringing it down. The statistics beneath the surface of these averages are telling. Over a quarter of Arlington’s households (27.4%) are in the range from \$75K to \$100K, whereas the over 15.0% of the county’s households are earning below \$15K (Figure 4.6).

Figure 4.6: Household Income Distribution by Region



Source: PC Using Esri Business Analyst, 2023

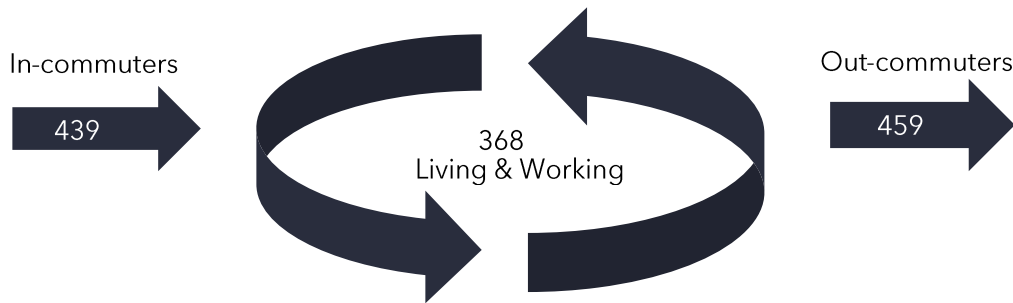
Commuters

The commute data indicate the interconnected nature of income, job/career opportunities, and living decisions. These data also reflect what the project team has been told regarding the workforce in the region, that many workers do commute from the Boardman area or even the Tri Cities but would perhaps rather work closer to their homes. The Port has opportunities to change this narrative with available land for both industrial and residential development.

Commuter flows for Gilliam County are shown in Figure 4.7 and characteristics of those workers are reported in Table X. On net, Gilliam County is losing workers with 459 residents working outside of the county and only 439 workers commuting to work in the county, while 368 people are living and working in the county. Age, income, and industry characteristics of commuters are broken down in Table 4.3. For reference, ages 30-54 represent prime working age and \$3,333 per month is about \$40K per year.

County residents that are commuting to work elsewhere are prime working-age individuals (48.8%), earning more than \$40K per year (44.0%), and the majority are working in the Services industry (54.7%). These would be the characteristics of jobs that the Port should be looking to generate jobs for to attract workers back to the district. There is also a healthy dose of in-commuters that the Port could look to attract to live in the district, which would produce more tax revenue for the county.

Figure 4.7: Commuter Inflow and Outflow from Gilliam County



Source: US Census Bureau, OnTheMap, 2021

Table 4.3: Gilliam County Commuter Characteristics

Characteristic	Residents Working Elsewhere	Non-Resident Workers in Gilliam	Jobs Filled by Gilliam Residents
Workers Aged 29 or younger	23.7%	21.0%	18.8%
Workers Aged 30 to 54	48.8%	48.1%	45.1%
Workers Aged 55 or older	27.5%	31.0%	36.1%
Workers Earning \$1,250 per month or less	23.7%	14.6%	25.5%
Workers Earning \$1,251 to \$3,333 per month	32.2%	25.3%	26.4%
Workers Earning More than \$3,333 per month	44.0%	60.1%	48.1%
Workers in "Goods Producing"	20.7%	18.7%	12.8%
Workers in "Trade, Transportation, and Utilities"	24.6%	15.5%	8.7%
Workers in "All Other Services"	54.7%	65.8%	78.5%

Source: US Census Bureau, OnTheMap, 2021

Industry Demand Analysis

The North American Industry Classification System (NAICS) is a system used by the federal government, which groups businesses into industries for data analysis. NAICS codes at the 2-digit level are the highest level of classification, while the 6-digit level is the most specific.

Table 4.4 shows the 2-digit industry summary in the 97812 zip code area, focusing in on the Arlington and central Gilliam County area. Please note that with such a small geographic area, there is a justifiable margin of error to these estimates. Rather than suppressing the small values, our team has opted to publish them with the understanding that the Port and its partners are aware of these limitations.

Top industries by 2023 employment include Administrative Support & Waste Management/Remediation Services, Public Administration, and Health Care & Social Assistance. The top growing industries with more than 10 workers would be Construction, Public Administration, and Health Care & Social Assistance. Industries with the highest

earnings per worker with more than 10 workers include Construction, Administrative Support & Waste Management/Remediation Services, and Public Administration.

Industries that have shown employment loss are minimal, mostly showing the loss of potentially part-time employees as total employment numbers have stayed relatively even over the last five years in those industries. Such industries would be Manufacturing, Transportation & Warehousing, and Finance & Insurance. The only industry that has shrunk more than marginally would be Administrative Support & Waste Management/Remediation services, with a loss of 46 workers in the last five years. However, this industry remains the top employer and an anchor in the region.

Table 4.4: Zip Code 97812 Industry Summary, 2023

Industry	2018 Employment	2023 Employment	Change	% Change	Earnings Per Worker
Agriculture/Forestry/Fishing & Hunting	26	26	0	1.2%	\$46,965
Utilities	5	9	5	93.5%	\$82,198
Construction	7	24	17	227.2%	\$88,564
Manufacturing	4	4	0	(-3.3%)	\$90,945
Retail Trade	12	13	1	5.8%	\$24,250
Transportation & Warehousing	4	4	0	(-11.5%)	\$59,984
Information	2	2	0	0.0%	\$48,128
Finance & Insurance	4	2	-2	(-55.1%)	\$45,846
Real Estate & Rental Leasing	1	2	1	66.2%	\$21,333
Professional/Scientific & Technical Services	2	3	1	31.1%	\$65,835
Management of Companies & Enterprises	2	4	2	150.4%	\$86,564
Administrative & Support & Waste Management & Remediation Services	206	160	-46	(-22.4%)	\$84,468
Educational Services	13	14	1	9.0%	\$43,929
Health Care & Social Assistance	56	67	11	19.7%	\$40,301
Arts/Entertainment & Recreation	1	1	0	15.8%	\$37,011
Accommodation & Food Services	20	20	1	4.1%	\$17,155
Other Services (except Public Administration)	2	2	0	(-23.4%)	\$61,221
Public Administration	76	89	12	16.4%	\$49,417
Total	443	445	2	0.5%	\$55,229

Source: Data Tactical Group, 2024

Tables 4.5 and 4.6 look at growth in the last 10 years by 6-digit NAICS industry in the same zip code area. Specifically, the fastest growing industries by employment and earnings. Looking at industries with more than 10 workers, the fastest growing by employment are Power/Communication Line & Related Structures Construction, Solid Waste Landfill, and Offices of Physicians (except Mental Health Specialists). These are industries that have had market growth by demand over the last 10 years, with a need to hire more workers to fill the consumer demand.

Looking at total earnings, the industries with highest earnings growth is similar, correlated to an increase in employment. Those industries would be Power/Communication Line & Related Structures Construction, Solid Waste Landfill, and Other Justice, Public Order, & Safety Activities (Table 4.6). These industries would have also needed to increase their wages to workers to keep them in order to continue filling the demand in the market.

Table 4.5: Fastest Employment Growth by 6-Digit NAICS Industry, Zip Code 97812

Industry	2013	2023	Change	% Change	Earnings per worker
Power & Communication Line & Related Structures Construction	1	13	12	1,025.2%	\$103,861
Other Individual & Family Services	0	1	1	244.1%	\$45,011
New Single-Family Housing Construction (except For-Sale Builders)	1	2	1	229.7%	\$36,491
Solid Waste Landfill	39	117	78	199.6%	\$79,413
Lessors of Nonresidential Buildings (except Mini warehouses)	1	2	1	189.3%	\$21,333
Wired Telecommunications Carriers	1	1	1	95.5%	\$70,522
Veterinary Services	1	1	1	80.9%	\$45,876
Hunting & Trapping	2	3	1	63.1%	\$70,617
Offices of Physicians (except Mental Health Specialists)	22	33	11	49.0%	\$43,371
Full-Service Restaurants	14	20	6	46.0%	\$17,155
Executive Offices	3	5	2	45.4%	\$66,095
Timber Tract Operations	1	1	0	42.5%	\$75,892
Postal Service	2	3	1	40.4%	\$58,671
Other Justice, Public Order, & Safety Activities	8	11	3	37.7%	\$65,912
Beef Cattle Ranching & Farming	6	8	2	32.2%	\$36,816

Source: Data Tactical Group, 2024

Table 4.6: Fastest Earnings Growth by 6-Digit NAICS Industry, Zip Code 97812

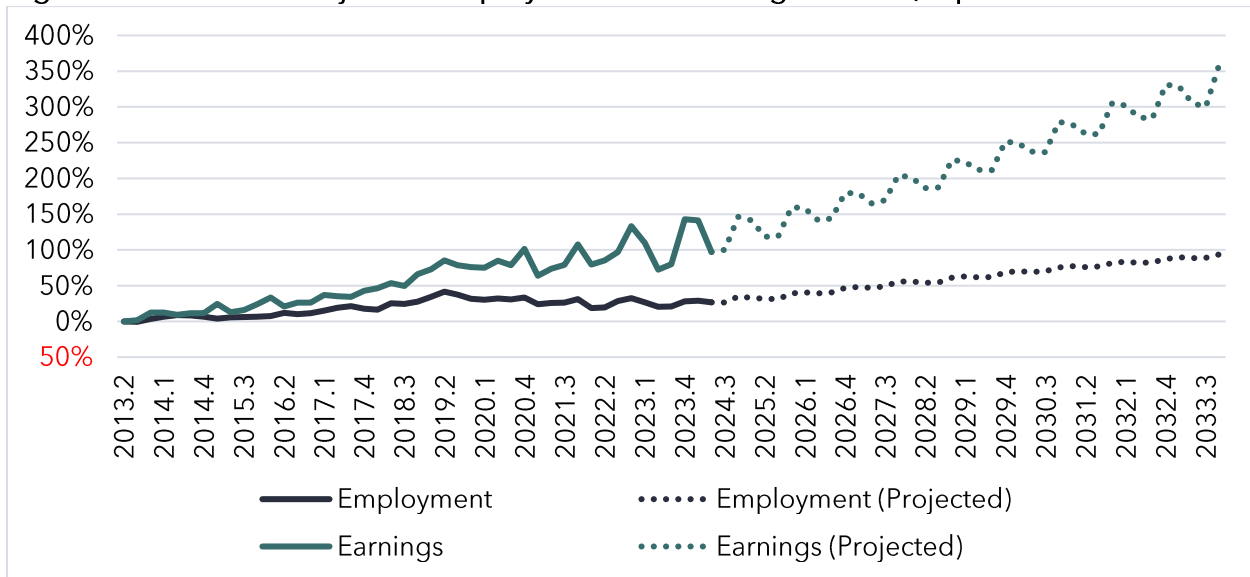
Industry	2013 Earnings	2023 Earnings	Change	% Change	2023 Workers	Earnings Per Worker
Power & Communication Line and Related Structures Construction	\$69,177	\$1,379,011	\$1,309,833	1893.4%	13	\$103,861
Other Individual & Family Services	\$5,318	\$43,885	\$38,567	725.2%	1	\$45,011
Solid Waste Landfill	\$1,163,044	\$9,287,547	\$8,124,504	698.6%	117	\$79,413
Hunting & Trapping	\$32,406	\$213,792	\$181,386	559.7%	3	\$70,617
General Automotive Repair	\$4,167	\$25,152	\$20,985	503.5%	0	\$60,244
Other Justice, Public Order, & Safety Activities	\$227,451	\$757,491	\$530,040	233.0%	11	\$65,912
Museums	\$8,744	\$27,284	\$18,541	212.0%	1	\$41,497
New Single-Family Housing Construction (except For-Sale Builders)	\$24,834	\$76,995	\$52,161	210.0%	2	\$36,491
Corporate, Subsidiary, & Regional Managing Offices	\$100,237	\$291,339	\$191,102	190.6%	3	\$86,773
Child Care Services	\$12,566	\$34,149	\$21,583	171.8%	2	\$20,697
Full-Service Restaurants	\$135,575	\$349,874	\$214,299	158.1%	20	\$17,155
Beef Cattle Ranching & Farming	\$118,659	\$301,245	\$182,587	153.9%	8	\$36,816
Postal Service	\$77,683	\$195,815	\$118,131	152.1%	3	\$58,671
Wired Telecommunications Carriers	\$29,517	\$73,520	\$44,002	149.1%	1	\$70,522
Lessors of Nonresidential Buildings (except Mini warehouses)	\$15,346	\$36,408	\$21,062	137.2%	2	\$21,333

Source: Data Tactical Group, 2024

Shown in Figure 4.8 is the past and projected growth for employment and earnings in the zip code. According to the data, employment in the area peaked in the second quarter of 2019 and declined into the COVID-19 Pandemic. Since then, total employment has been slow to recover, with some cyclical ups and downs. Employment is projected to reach pre-pandemic levels by the end of 2026, assuming there is no significant increase until then.

On the other hand, earnings have rebounded well post-pandemic and are expected to grow steadily, outpacing employment. Earnings outpacing employment is a positive sign for the area as that indicates that workers are earning more in addition to earnings going up with more workers being hired. The heavy cyclic nature of employment and earnings in the area may be due to the construction industry. Conversations with the Port indicated that when there is a new project in the region, workers park their RVs and mobile homes nearby until the end of the project. When completed, the parks deplete and there aren't open housing units in the area to support long-term living.

Figure 4.8: Past and Projected Employment and Earnings Growth, Zip Code 97812



Source: Data Tactical Group, 2024

Table 4.7 reports employment by industry in the private sector in the zip code area and their relative location quotients (LQs). In this context, LQs compare relative concentrations of industries to the national average. For example, Construction makes up about 7.2% of private sector employment in the 97812 zip code with an LQ of 1.18. This means that the zip code has a slightly higher share of employment in private sector Construction than the US as a whole. Ultimately, LQs can tell which industries have clustered in the area.

The industries with the largest LQs include:

- Agriculture/Forestry/Fishing & Hunting (8.96)
- Administrative Support & Waste Management/Remediation Services (7.45), and
- Utilities (7.04).

Agriculture/Forestry/Fishing & Hunting is well represented in Gilliam County. This can be seen by the USDA data shown in the Regional Background section and the Trade section. Administrative Support & Waste Management/Remediation Services is the industry that Chemical Waste Management supports in the region and is the anchor employer of Gilliam County. The Utilities industry is usually served by public sector employment, but there is a strong presence in the private sector for this industry due to the activity induced by solar and wind farms, also shown in the Regional Background section of this report. These are the natural clusters in Gilliam County, and the Port may also consider development options to complement and support the industries to continue growth through them.

Table 4.7: Industry Location Quotients (LQs), Private Sector, Zip Code 97812

NAICS	Industry	% of Private Employment	Private Sector LQ
11	Agriculture/Forestry/Fishing & Hunting	8.5%	8.96
22	Utilities	3.1%	7.04
23	Construction	7.2%	1.18
31-33	Manufacturing	1.4%	0.14
44-45	Retail Trade	4.3%	0.36
48-49	Transportation & Warehousing	0.1%	0.02
51	Information	0.3%	0.15
52	Finance & Insurance	0.6%	0.12
53	Real Estate & Rental & Leasing	0.0%	N/A
54	Professional/Scientific & Technical Services	0.9%	0.10
55	Management of Companies & Enterprises	1.3%	0.67
56	Administrative & Support & Waste Management & Remediation Services	52.9%	7.45
61	Educational Services	0.5%	0.19
62	Health Care & Social Assistance	11.1%	0.68
71	Arts/Entertainment & Recreation	0.5%	0.25
72	Accommodation and Food Services	6.8%	0.64
81	Other Services (except Public Administration)	0.5%	0.15
92	Public Administration	0.3%	0.95

Source: Data Tactical Group, 2024

Stakeholder Interviews Summary

The project team completed a quantitative analysis of industries and opportunities in the Population and Workforce Characteristics section and the Industry Demand Analysis section. To supplement these data, a qualitative analysis was done by interviewing key stakeholders in the region. The positions of the individuals range from executive directors of nonprofits to CEOs in the private sector. Summaries of our conversations can be found in this section of the report.

Mid-Columbia Economic Development District

Gilliam County is not a part of the Mid-Columbia Economic Development District (MCEDD), but PC found it beneficial to hear the thoughts of their executive director because both areas are in the Columbia Gorge region. MCEDD doesn't do a lot pertaining to private sector recruitment, but they have information on what is happening in their counties. The economic development district does have some value-added agriculture activity in the way of small food manufacturers, cherry growers, and even tofurkey. Counties in this district also have some renewable energy projects going on, like solar projects in South Wasco County and a pump storage facility in Goldendale. MCEDD counties have some similarities to Gilliam, so the Port could look to their activities for development ideas as well.

Painted Hills Natural Beef

Painted Hills Natural Beef (PHNB) operates out of Fossil, Oregon and is a wholesale beef company. Recently, there has been a shortage of cattle nationwide pushing up costs in all facets of operation. The shortage was brought on by a drought causing ranchers to liquidate their herds. With the price escalation, the incentive for ranchers was to continue liquidating while prices are high to receive more profit. This has impacted the beef market but has also caused consumers to switch to other product markets. PHNB doesn't do any value-added manufacturing with their beef because there are a variety of other producers providing this service throughout the PNW. The Port of Arlington, Morrow, and Walla Walla were potential targets for PHNB to put in their own facility, but the market conditions wouldn't facilitate it. A storage and distribution center came out of this conversation as a likely target. Most action in this industry happens on the I-5 corridor and the Tri Cities, but the Port's property is positioned with opportunity to access more markets.

Oregon Wheat

Oregon Wheat is an organization that covers a commission for the industry in Oregon, funded through assessments on wheat and barley, and a league of wheat growers. We found that most product from the Eastern Oregon region is designed for export, rather than designed to be manufactured. Domestic capacity for value-added manufacturing in agriculture was already limited, and this was exacerbated by the fire to the Pendleton Grain Growers mill. Morrow County Grain Growers (MCGG) appear to be the biggest player in the agriculture sector in the region, where most of the input comes from. There is also opportunity for domestic output by truck or rail shipments, in addition to the river system which is designed greatly for export. Overall, the opportunity that arose from this conversation is the possibility of another flour mill being brought into the area, though there would be little compromise on water and power for that kind of facility.

Avista Utilities

The project team had the opportunity to speak with the Oregon Regional Business Director of Avista Utilities. The main idea that was presented was the idea of a cooperative or common facility for companies that needed to get onto a river barge or rail cars, as the site is strategically located on these avenues of transportation. The idea was sparked by the Port of Portland's idea of a multimodal transportation and warehousing facility for local manufacturers. If there is a demand for this in the Columbia Gorge or Eastern Oregon region, the Willow Creek site would be an excellent position for it. With regard to Gilliam County's advantages in renewable energy, a storage and distribution facility for renewable energy maintenance is an opportunity as well.

Oregon Windsurf Association

To assess demand for recreational activities at the Willow Creek site, PC interviewed a representative from the Oregon Windsurf Association. In terms of windsurfing, there are launch sites in the Rufus area and at the Port of Arlington's marina. High gusts of wind from the Columbia Gorge make these spots great for windsurfing. Those that practice these sports could be a new target for bringing money into Gilliam County. The representative noted that

the Willow Creek site would be an effective location for wind sports, and athletes would travel long distances to use it, if it were optimized for wind sport use.

Several amenities would be needed to attract athletes and their families to the location, starting with a 75-foot space for surfers to get in the water. Play structures for children, a sandy beach, with a cove protected from winds and current, and wind protection/shelter may also be needed to maximize activity. Additionally, Rufus is a very popular spots for these sports. Reasons for the popularity include that there is a garbage dump area, and a lot of work was put into the location as far as parking goes.

The Oregon Windsurf Association representative explained they would be willing to do a focus group for the site. They also said this site would not be a beginner's site because of the swells on the Columbia River. The site would be for lessens or specifically where experienced athletes go, which matters for the target demographic for the site.

Greater Eastern Oregon Economic Development Corporation

The interview with the Greater Eastern Oregon Economic Development Corporation (GEODC) came at a time when they were just finishing up their comprehensive economic development strategy (CEDS), so they were well equipped to explain some needs of the region. Some of the specifics included needs for childcare, infrastructure, and community resilience. A related topic that also needs to be addressed is housing in the region.

The GEODC wasn't positive on industrial needs, but they did mention the cluster of unmanned aerial systems (UAS) companies in the Hood River area. There may be an opportunity to attract another UAS company for manufacturing to take advantage of the testing facility in Pendleton. GEODC agreed that fertilizer mixing/production and a grain/flower mill would fit the agriculture demand in the region. Other options that emerged from the conversation were a smaller Amazon-type storage and distribution center or a truck stop-type of development as the I-84 corridor has healthy trucking traffic. The key information that came from the conversation was that the GEODC is going to receive funding from the EDA to help communities get funding for infrastructure improvements and expansions.

Waste Management

As the anchor employer in the community, Waste Management (WM) provides the largest number of employment opportunities for future workers to stay in the Arlington area. For this reason, the project team felt that it would be appropriate to contact WM and assess any possibility of augmenting their operation with the Willow Creek Site.

WM Subtitle C (hazardous waste disposal) continuously works on new technologies to find new ways to deal with the waste and Subtitle D (nonhazardous solid waste disposal) has some new developments in the works. But it's unclear exactly how Willow Creek could directly benefit WM if it were developed. From the conversation, WM is independent in its nature and development coming from them would depend on how much they want to invest in the area. It is worth another conversation if Willow Creek does undergo some infrastructure development.

Laser Land Leveling

The current gravel quarry operator, Laser Land Leveling (L3), has a lease on eight acres of the Willow Creek Site for three years with an option to add an additional two years at the end of the term. L3 currently has a large project in the area that they are producing gravel for, with more interest for other projects as well. In total, there are 2.5 to 2.8 million tons of material on the north side of the UPRR tracks. However, L3 did mention a concern for blasting closer to the freeway if there was activity to do so for the parcel closest to I-84.

The market for gravel in the Columbia Gorge region is growing according to L3. They mentioned that for any projects west of Hermiston it makes sense to use gravel from the Willow Creek Site, a competitive advantage for the Port. They also explained that the growing construction in the area overall is driving the growing market, specifically solar and wind power, along with data center construction. An important note that was made is that Willow Creek is comprised of basalt and being right on the river it would be difficult to set up a wash site for washed rock.

Given the increased construction in the region, L3 said there is a demand for material and it would be viable to expand the current gravel quarry to the rest of the site. Depending on the location of the project, trucking costs would be a critical factor. But any projects that would be taking place in the Arlington area would stand to benefit receiving material from the Willow Creek Site.

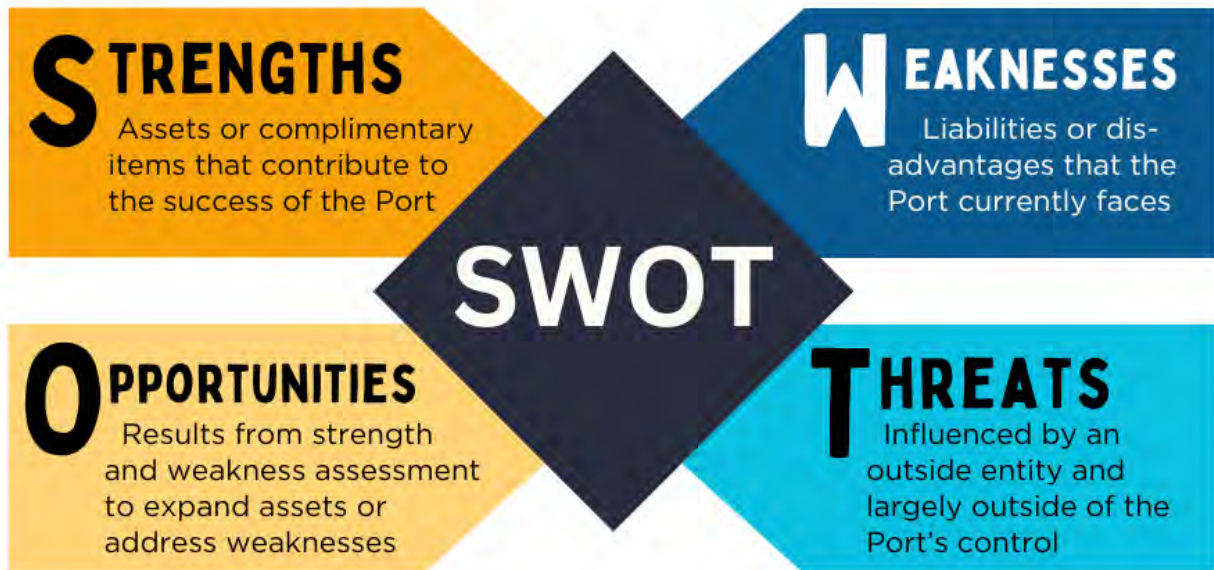
SWOT Analysis

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a strategic planning tool which provides guidance for businesses, organizations, and other entities to understand their competitive advantage in the marketplace. For this particular SWOT our focus is the Willow Creek site, and not the Port of Arlington, in general, a topic better addressed in the Port's 2023-2033 Strategic Business Plan.

The project team reviewed the Willow Creek Site to determine the position of this particular asset in the economic marketplace. This list will continue to be honed throughout the course of the project given additional information from the Port and from our team's research.

Throughout April and May of 2024, interviews with several stakeholders in the Columbia Gorge and Eastern Oregon regions were completed. In light of facts that came from these interviews the SWOT Analysis was updated to include additional opportunities. This list will continue to be honed throughout the course of the project given additional information from the Port and from our team's research.

The following are definitions of the SWOT components:



STRENGTHS

- The Port of Arlington has a track record of developing beneficial commercial and industrial properties in Gilliam County
- The site has trimodal transportation access with the I-84 exit, a 4-rail siting, and adjacency to Columbia River
- There is high visibility of the site for freight traffic
- The site is 12.5 miles from nearest truck stop, a Love's in the Boardman area
- Arlington is in the process of adding housing stock of both the single and multi-family variety, setting it apart from other low-inventory locations along the Columbia
- The industrial land is included in the Gilliam County Enterprise Zone, active through June of 2032
- Gilliam County is a designated Rural Renewable Energy Development Zone
- There have been recent economic development successes in the area and this will lead to a subsequent need to expand the City of Arlington's UGB in the near future

WEAKNESSES

- There is no current municipal sewer, water, or electrical service to the site
- The existing usage of the gravel quarry is not highly complementary to other uses
- Current electrical service through Pacific Power is not considered the highest quality service in the eastern Columbia Gorge area
- Climate and precipitation limits crop growth opportunities in Gilliam County and surrounding areas, limiting complementary agricultural options

- The lack of shade and landscaping at the site limits existing recreational opportunities
- The Willow Creek Site is approximately eight miles away from the City of Arlington's UGB, further limiting utility access
- The site's terrain is severely rocky

OPPORTUNITIES

- Development of Arlington Mesa industrial parcel could provide overall economic boost to the City.
- Potential expansion of export markets for additional crops for growers in the Mid-Columbia region on both the Oregon and Washington side of the border (e.g. flax)
- Quickly disappearing inventory of buildable lands in peer Ports (e.g. Port of The Dalles, Port of Morrow, etc.)
- Potential to co-develop economic and cultural opportunities in partnership with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
- The activation of a data center project in Arlington could generate more interest and awareness for the city as an area for economic development
- A budding opportunity to feed into Pacific Northwest Hydrogen Association's regional hydrogen supply chain
- The possibility for complementary accessory recreational opportunities that could synchronize with commercial uses (e.g.: wind surfing, primitive camping, yurts, RV park expansion, etc.)
- Natural "back road" connection with industrial park using Ray Road
- With limited lodging opportunities in the Arlington area, the site could contribute to commercial lodging as an accessory use in connection with a gas station/truck stop
- Prospect to expand business for Waste Management via a solid waste barge
- Flour mill possibility with the fire at Pendleton's flour mill creating a gap in the agriculture market
- Demand for cold storage facility by regional food producers and distributors
- Potential for a large storage and distribution facility because of access to trade routes
- Funding for infrastructure being expanded to the site through funding going to the Greater Eastern Oregon Development Corporation
- Zoning changes for potential land use needs at the site may see limited barriers

THREATS

- There is a compromised history of the barge dock and interactions with federal and CTUIR authorities on the development opportunity
- DLCDC requirements related to Goal 9 and Goal 14 analysis of economic development requirements before UGB expansion or annexation of the Willow Creek property
- Though a well water analysis will be conducted, it is unknown what capacity or degree of water pressure the well would produce

- Workers are drawn from around the region to fill jobs in the area, but consistently leave when they find other jobs closer to their residence
- The windy, two-lane highway from Arlington to Condon will limit labor availability depending on weather
- Concerns that development so far out of town could end up drawing spending and economic activity at the cost of businesses in the City of Arlington
- Lack of available housing may limit the type of development at the site as firms may not be able to attract enough workers

Options for Development

Infrastructure Needs

Development opportunity at the site faces the single most significant constraint of no simple solution for connecting with municipal water and sewer systems. Though connecting to the City of Arlington is a potential option, the state of Oregon wishes to see all other reasonable opportunities for urban growth be explored before sewer is extended such a distance and even then under the condition that it does not disrupt existing agriculture or forestry lands.

According to OAR 660-015-0000(11), "Local Governments shall not allow the establishment or extension of sewer systems outside urban growth boundaries or unincorporated community boundaries, or allow extensions of sewer lines from within urban growth boundaries or unincorporated community boundaries to serve land outside those boundaries, except where the new or extended system is the only practicable alternative to mitigate a public health hazard and will not adversely affect farm or forest land. Local governments may allow residential uses located on certain rural residential lots or parcels inside existing sewer district or sanitary authority boundaries to connect to an existing sewer line under the terms and conditions specified by Commission rules."

With that said, the Port may consider taking a step back in its development of the site so that it can better understand feasible development at the site. Well water and septic drain fields may work for lower-intensity development options but will not work for large-scale agriculture manufacturing or a full truck stop, assuming the absence of substantial private investment. Additionally, the lack of quality GIS data for the site limits the accuracy of development costs (and even development options themselves), especially infrastructure expansion costs. To remedy some of the problems surrounding this issue, the GEODC is receiving funding to help entities in Eastern Oregon get funding for infrastructure upgrades. The Port should consider reaching out to the GEODC to assess the funding opportunities.

Market Demand Potential

Outlined below are multiple options the Port of Arlington should consider based on market outcomes. Options in the high-development intensity category have been rejected in the past due to high capital investment costs (i.e. cold storage facility), but the opportunities exist regardless and could range in capacity to adjust capital investment requirements. In addition to the quantitative and qualitative analyses, it's important to play to strengths of the Port and strengths of the site. The competitive advantage that the Willow Creek Site displays best is its strategic location to multiple modes of transportation, and its ability to access other markets. As such, many of the highlighted options play to its locational strength.

Low-Intensity Development

A low-intensity development option the Port may consider is a self-service storage facility, a low-intensity truck stop area, or perhaps a combination of the two. Both types of facilities would require relatively minimal development aside from road paving and platting for storage units. This option may be a conservative approach to the site with the upside of generating revenue to assist the Port with other projects in closer vicinity to city utilities and general services. The option addresses the opportunity to take advantage of I-84 traffic, both

freight trucking and passenger vehicles. Commuters or travelers could use the storage facility for RVs or personal items at a semi-convenient area.

Mid-Intensity Development

A mid-intensity development option may be a cooperative building with flexible uses. Such uses would be storage and distribution capabilities, commercial components, along with manufacturing spaces. A good measuring stick for this level of development would be the flex building on the Arlington Mesa, but on a much larger and more diverse scale. Greater investments would need to be made here on the utility servicing front, but the options this building would provide the region could be vast and the scale of industries could be adjusted as well.

This type of development would allow firms to take advantage of the strategic location of the Willow Creek site by shipping and distributing from there. Additionally, more entrepreneurial or technological companies could be included as well (like UAS or renewable energy technology) to take advantage of other regional assets. Another use would be that private sector renewable energy firms could store, distribute, and potentially even service their technology in this space, complementing Gilliam County's advantages in this area. Value-added agriculture companies may use this space as well, and this could be a storage and distribution space for raw agriculture products.

High-Intensity Development

The demand for domestic production of flour is present in the Willow Creek area, given the presence of the agriculture sector and the recent gap created by the destruction of the Pendleton Grain Growers mill. As such, a high-intensity development option could be a grain/flour mill. Another development option to complement the agriculture sector would be fertilizer manufacturing. Demand for this product is evidenced by the barge shipments and the agriculture activities in the area. However, both facilities would require no compromises on water or power serving the site.

A full truck stop, equipped with a convenience store, refueling station, and rest area would also be a high-intensity development option. This asset would take advantage of the shipping that takes place throughout the I-84 corridor, and any growth that would be seen from the industry in the future.

5. Agency Outreach

Coordination between many agencies is essential for a successful development project. In an effort to facilitate such coordination, PC attempted to engage with and interview several parties to make connections between them and the Port. The connections would enable seamless information transfer for permits and project engagement. Key parties PC reached out to include the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the United States Army Corps of Engineers (USACE).

Interviews

Confederated Tribes of the Umatilla Indian Reservation

PC has a standing relationship with several members within CTUIR as we have completed several projects for them. Because of this relationship, CTUIR responded to our outreach and completed an interview. The most significant outcome of the conversation is that the Tribes still value the Willow Creek area as a fishing site. This indicates that attempting another barge dock development may not be feasible.

However, the project team has been connected with Buck Jones, one of the most significant fishery rights representatives for the Tribes in Oregon. The relationship between the Port and CTUIR is warming as well, citing the communication the Port Director has had with them. PC is also still working on getting connected to the appropriate contacts within CTUIR's Department of Natural Resources.

United States Army Corps of Engineers

USACE has responded to the project team's outreach, and we are working on an interview for early July.

Union Pacific Railroad

From other conversations throughout the project, Union Pacific Railroad (UPRR) seems to be very independent in their operations. This sentiment has been found by the project team as well with UPRR not responding to outreach. Our full outreach methodology was followed to no response. This could be a sign that using the railroad may not be a feasible option for development at Willow Creek. It's also possible that UPRR may not see a beneficial use for them at the site.

Oregon House of Representatives

The Port met with Representatives Greg Smith and Dan Rayfield in June of 2024. The conversation revolved around three of the Port's main projects: Akali Ridge, the Condon Grade School, and Willow Creek. As described by the Port, the highlights from each project are the collaborations happening to make the projects successful. Namely, support by Business Oregon and regional partners, construction funding from multiple sources, and quality consulting work done by private contractors.

Gilliam County

The highest traffic area for Gilliam County is the I-84 corridor on the north side of the county. With Willow Creek placed along that corridor, the project team sought a conversation from

the county to assess needs and opportunities with the site. Following our full outreach methodology, we received no response from the county for this project.

City of Arlington

After meeting with the city, it was clear one of its main needs was similar to that echoed by the Port: there is a lack of housing for workers to live in the area. At the same time, the city is focused on a project to develop a large site on the Arlington Mesa, a project the Port is partnering in. The development is said to need many construction workers, which will put further stress on the area's housing needs. To remedy this issue, the city is set to demolish the site of the old motel to create additional RV spots for the influx of workers.

A potential use for the Willow Creek Site that came out of the interview was connected to the development project on the mesa. If Willow Creek were slightly developed with infrastructure and platting, the Port could lease the land to the company that is set to develop on the mesa. The site may then be used as a lay down, storage, and/or repair area. If this direction was taken by the Port on Willow Creek, then they could potentially partner further with the city to advance the Arlington Mesa project.

Oregon Water District 21

The Water Master of District 21 met over the phone with PC to discuss water rights and permits related to development at the Willow Creek Site. One of the main outcomes of the conversation is that the Port is recommended to apply for a groundwater right no matter what to see what may come of it. The permitting process can be long and potentially costly, so the sooner the better on this front.

Other useful information that came from the meeting was the knowledge that wells in the area are dropping and not regenerating, in general. This would be an obstacle to development going forward if a project of greater intensity was of interest. Additionally, it was recommended to reach out to the Water Resources Department to inquire about groundwater well permitting.

United States Army Corps of Engineers

The Port joined PC for a meeting with the US Army Corps of Engineers (USACE) in an effort to shed some regulatory light on development at the Willow Creek Site. A low to moderate impact on resource use for development purposes was specified for USACE. We also made an explicit attempt to discuss CTUIR's role in development along the Columbia River.

As far as applicable federal or state laws go for development, USACE pointed to several:

- Oregon Department of Environmental Quality permit needed for water quality certification
- Department of State Lands removal permit is needed
- Federal Endangered Species Act survey needs to be done, specifically for steelhead and sockeye salmon
- The National Historic Preservation Office may need to be involved

- USACE itself would have to invite the Tribes to give comment if development is to occur on their past lands

A recurring theme from the discussion is that it is always beneficial to start conversations early, whether that be with USACE itself or the Tribes. Sending even preliminary development options to USACE is valuable for them so they know what is in the development pipeline. Reaching out early on in projects is also good for the relationship with the Tribes, even if they don't reach back out. It was also mentioned that the Tribes will take a project more seriously when USACE has a for sure project proposal in hand to show them.

Oregon Water Resources Department

After recommendation from the Oregon Water District 21, PC completed an interview with the Oregon Water Resources Department (OWRD) for further information on water potential at the Willow Creek Site. The process for receiving a well permit begins with filling out an application form on the OWRD website. The application is long with key questions about the proposed use of a well and how deep it would be. In fact, OWRD advised that many agencies hire certified contractors to handle the application process.

The process from application to drilling the well is usually quite long as well, sometimes can take up to a year or more. OWRD noted that there is a major backlog of well applications and they are working to get it down, but the department is relatively small which slows down the process. The application also passes through several hands in the process to approval or denial, such as Fish and Wildlife if the well may impact a stream or certain type of ecosystem, while OWRD evaluates the technical aspects of the well.

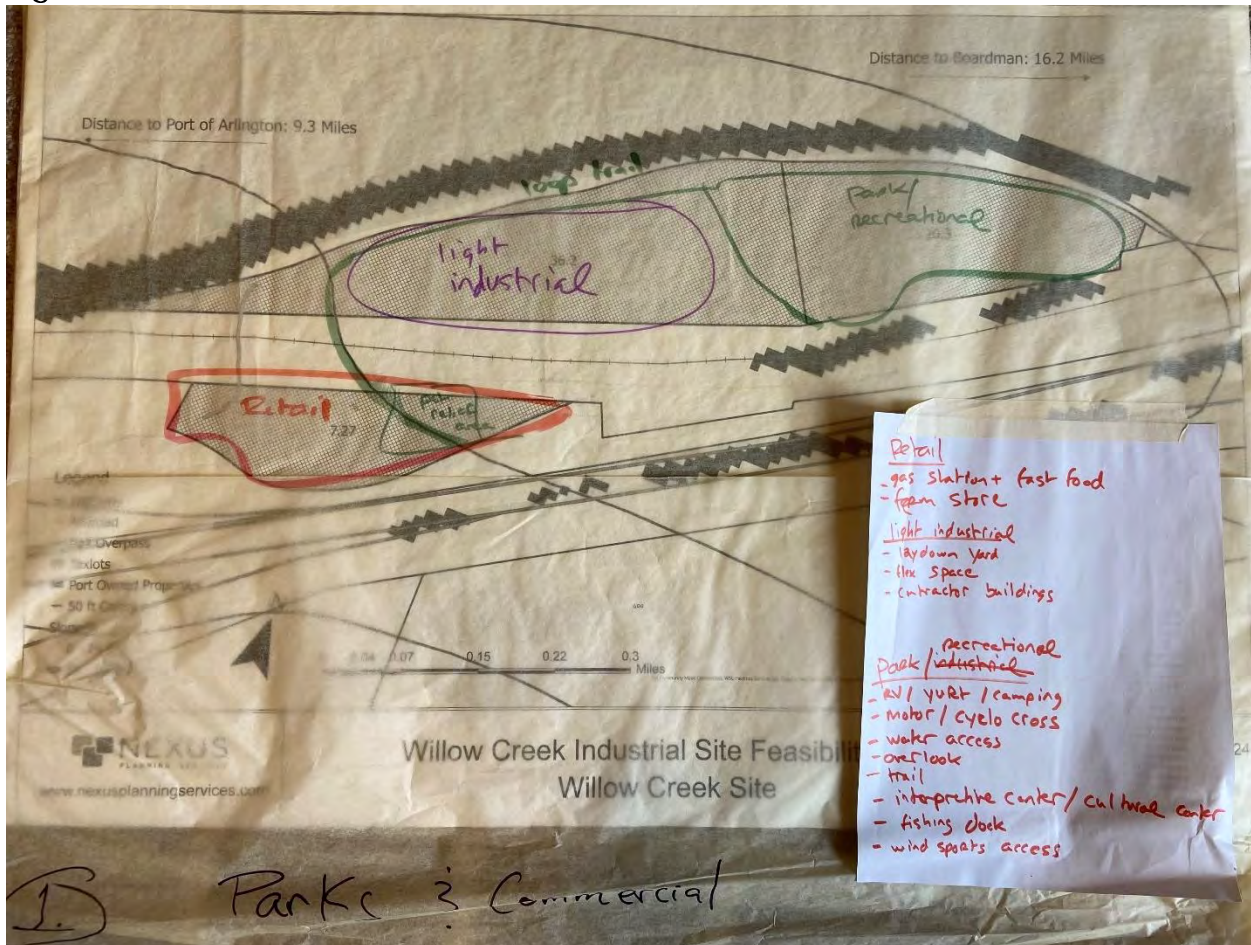
When asked about the likelihood of approval, OWRD indicated they were unable to give likely outcomes for liability reasons. However, they did explain that aquifers in the area have been declining and not regenerating, in general. Such a situation for the aquifers does give a lower likelihood of approval, especially if the well is going to be drilled deep to the nearby aquifers. OWRD did note the potential for the Port or a private entity applying for a shallower well on the site, there may be slightly better outcomes of approval. A well of this caliber could look like the one currently serving Biggs Junction, with a water right of 0.9 CFS.

Methodology

For each agency, PC first contacted individuals recommended by the Port. If the Port had no contacts for the agency, then web-based search efforts were made to determine the correct official for outreach. Using contact information from both the Port and PC's research, emails were sent to each agency requesting an interview to discuss the Willow Creek Site, to determine the processes the Port may need to go through, and who should be contacted going forward. If initial emails were not responded to, additional efforts were made to call the officials to set up an interview. If phone calls were not picked up, voicemails were left with the request and follow-up emails were sent to the official.

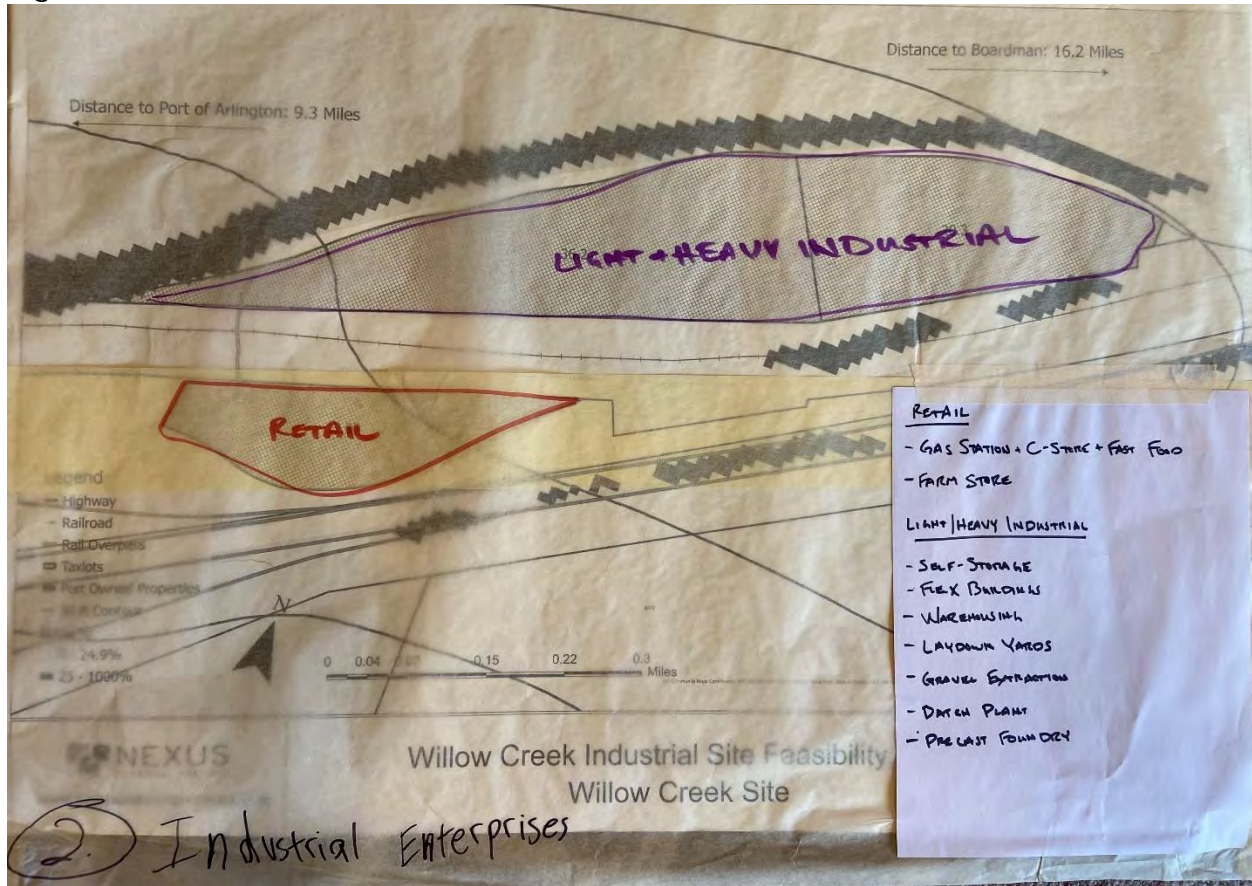
Appendix A: Project Documentation Visuals

Figure A.1: Charrette Visual Scenario 1



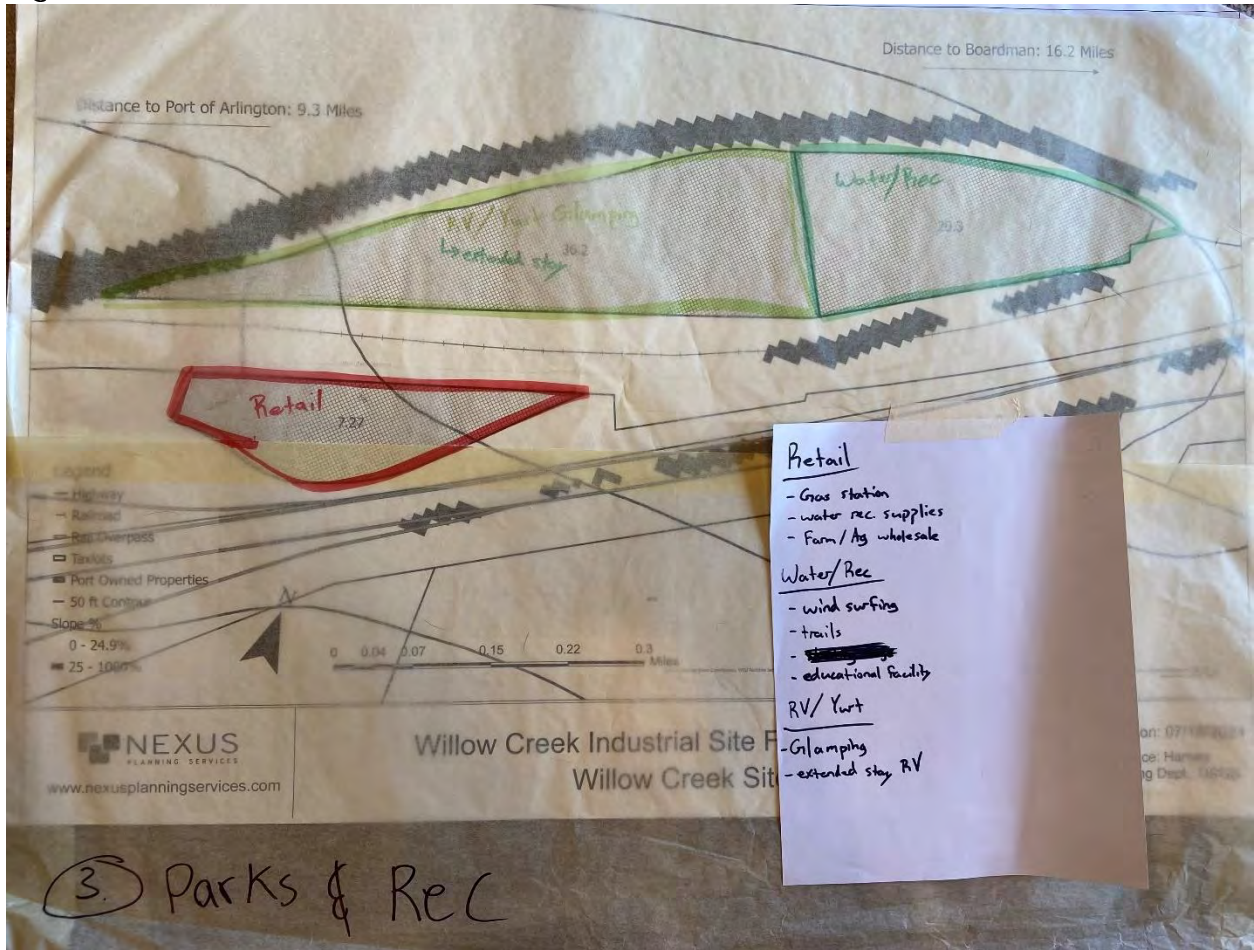
Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.2: Charrette Visual Scenario 2



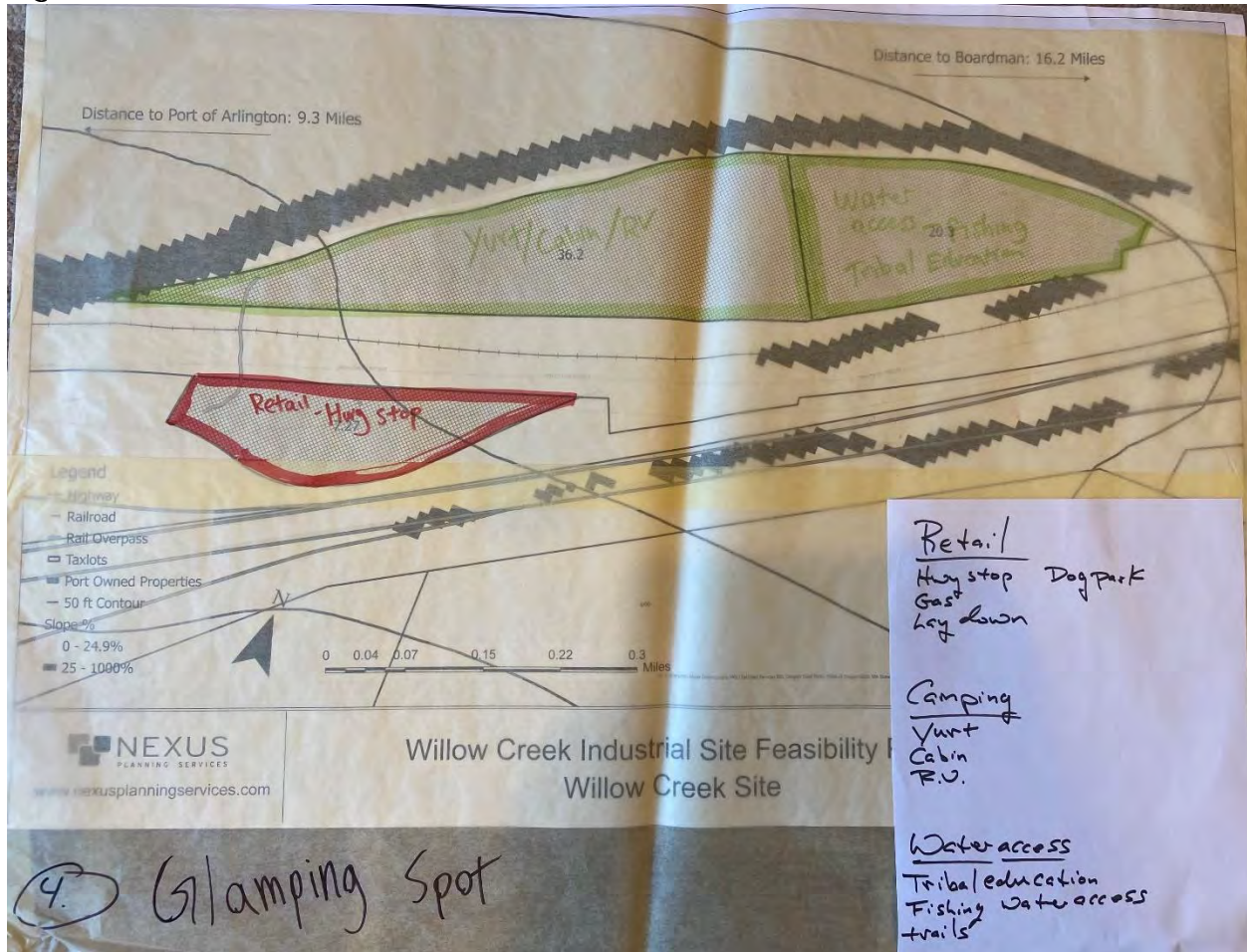
Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.3: Charrette Visual Scenario 3



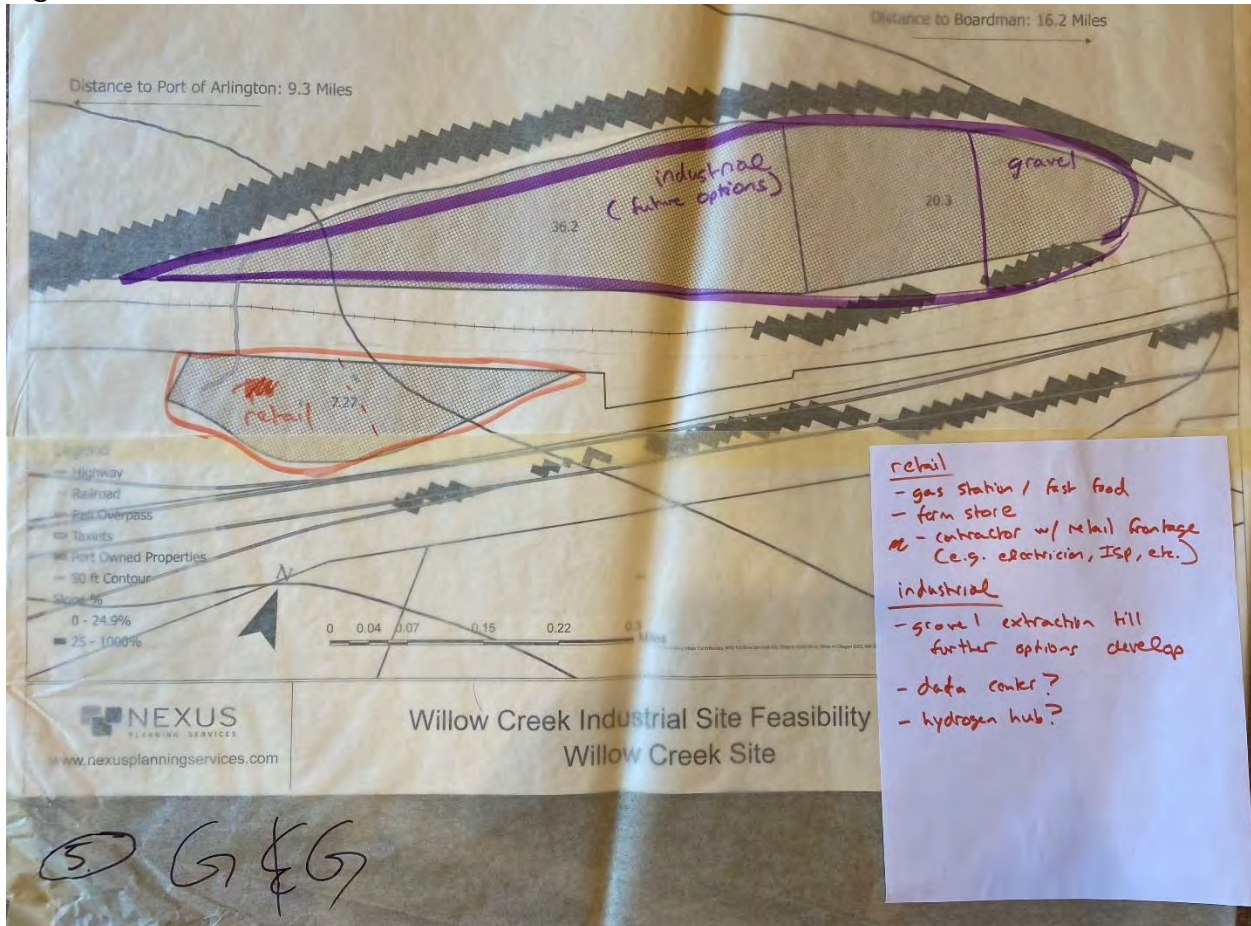
Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.4: Charrette Visual Scenario 4



Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.5: Charrette Visual Scenario 5



Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.6: Commissioners' Workshop Development Options

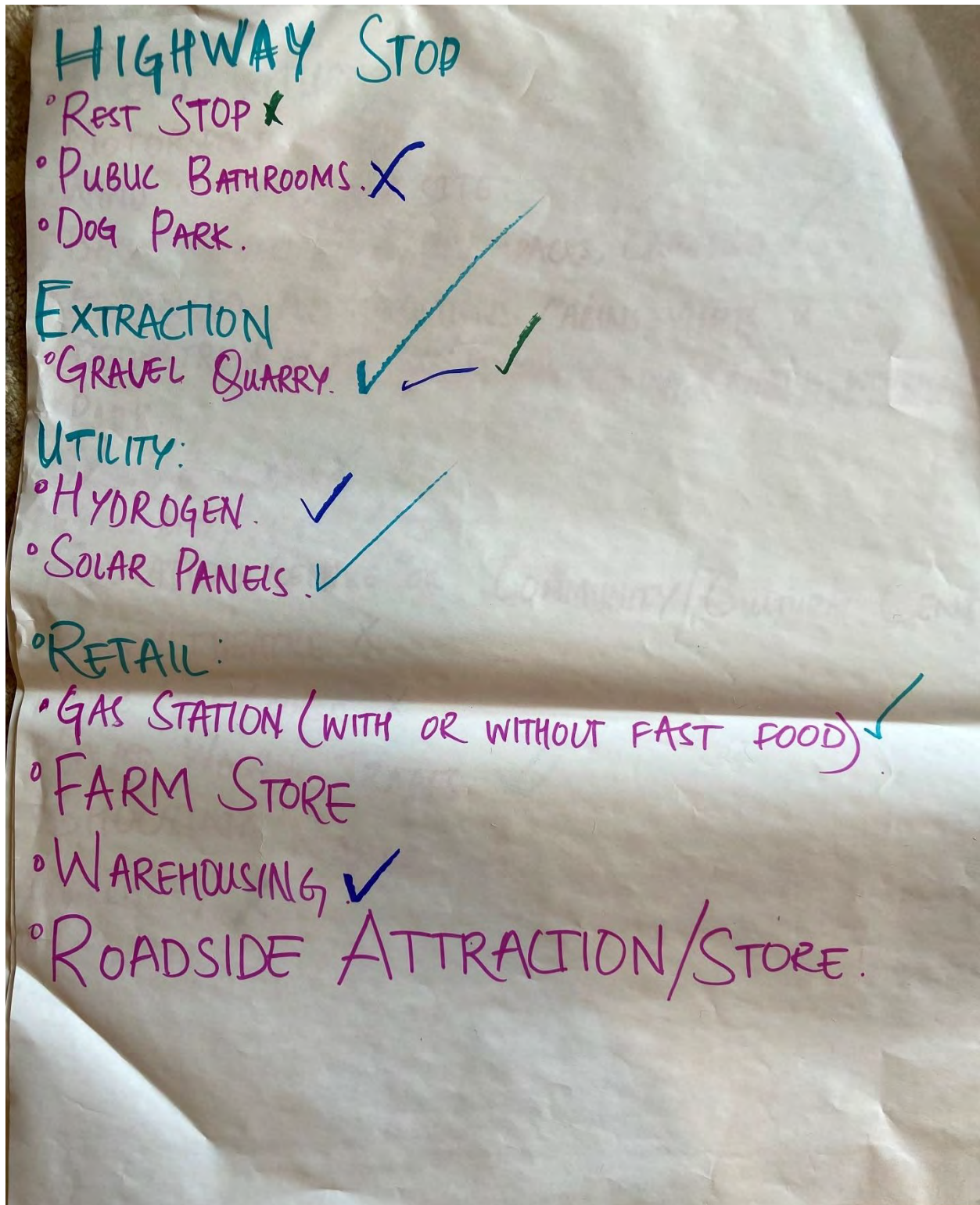


Figure A.7: Commissioners' Workshop Development Options

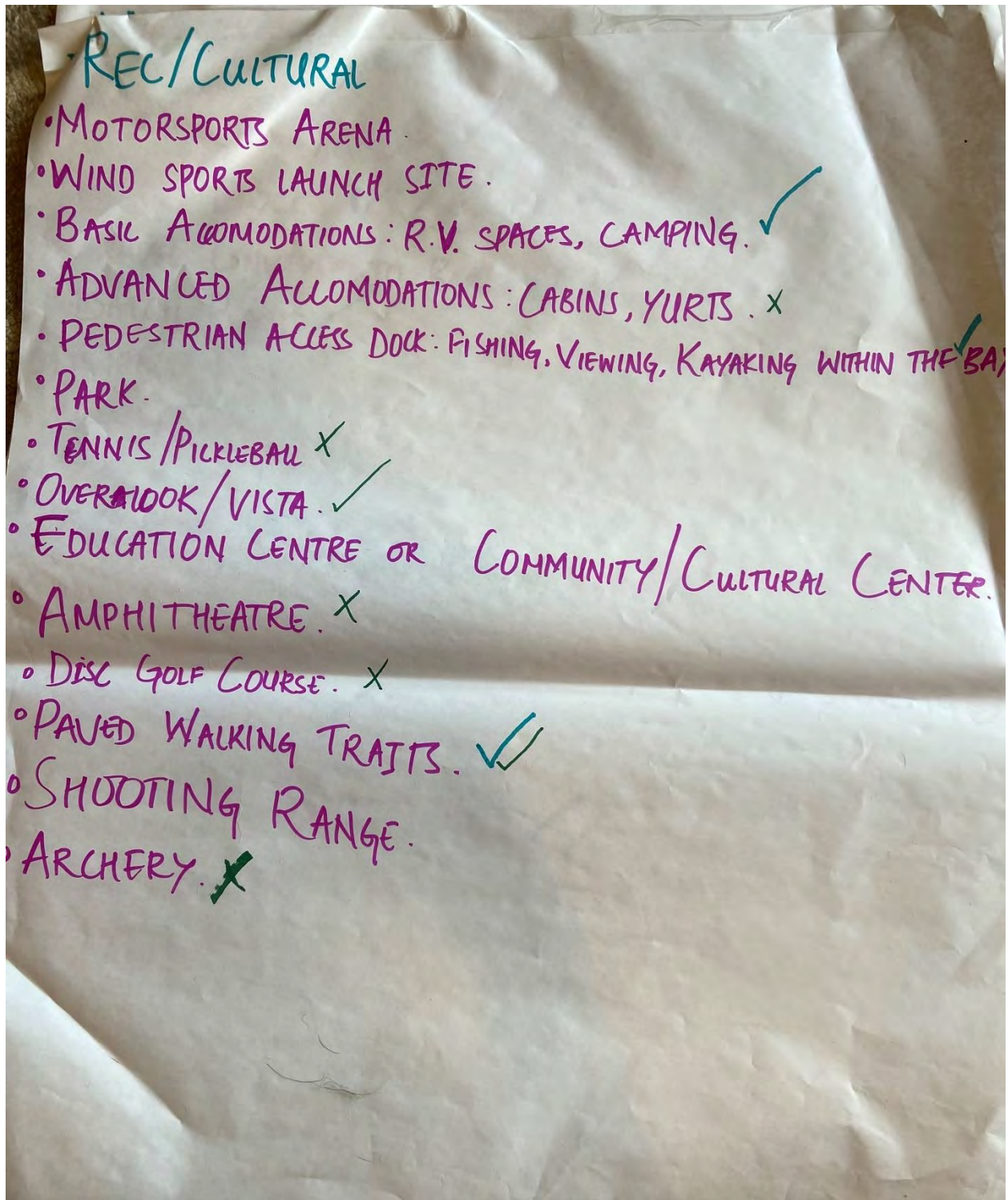
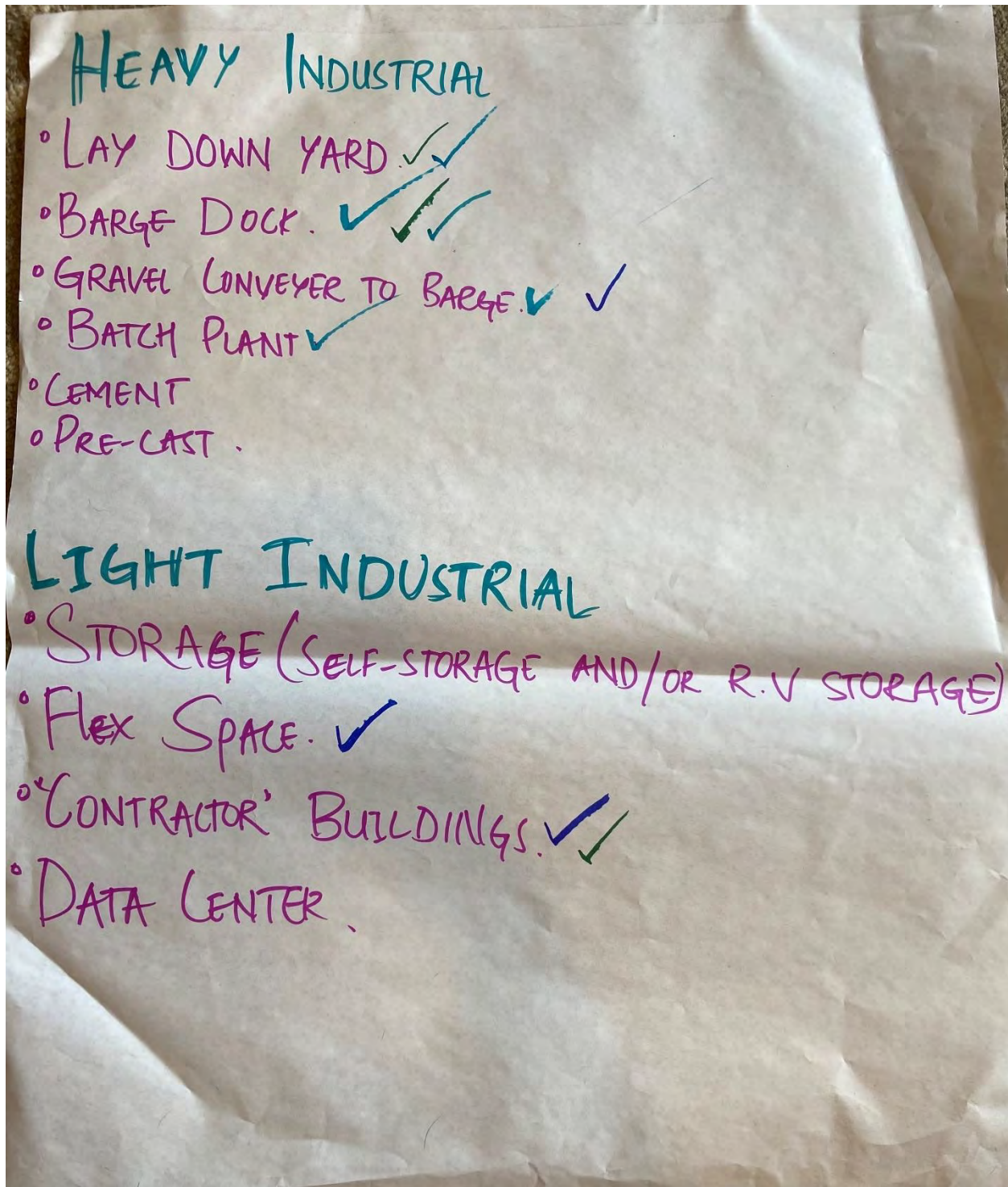


Figure A.8: Commissioners' Workshop Development Options



Appendix B: Industry Summaries

Table B.1: Transportation & Warehousing Industry Summary

Factor	Transportation and Warehousing
Annual Revenue Growth Rate ('19-'24)	1.9%
National Annual Revenue (2024 \$)	\$1.6 Trillion
Businesses	5 Million
Employees per Business	2
Revenue per Business	\$344.8K
Wages per Employee	\$43.9K
Life Cycle Stage	Mature
Capital Intensity	Moderate
Barriers to Entry	Low
Competition Level	High
Key Success Factors	Comply with government regulations; Develop contacts within key markets; Invest in new technology to enhance operational efficiency and quality; Be an early adopter of new technologies; Allocate products and/or services to areas of greatest need; Develop an extensive distribution network; Have a good reputation; Carry out all necessary maintenance to keep facilities in good condition; Accommodate environmental requirements; Closely monitor competition; Automate processes to reduce costs; Continue paying suppliers during economic downturn

Source: PC Using IBISWorld Report 48-49 Transportation & Warehousing

Table B.2: Gas Stations Industry Summary

Factor	Gas Stations
Annual Revenue Growth Rate ('19-'24)	2.5%
National Annual Revenue (2024 \$)	\$140.5 Billion
Businesses	9,919
Employees per Business	16
Revenue per Business	\$14.2 Million
Average Wage	\$34K
Life Cycle Stage	Mature
Capital Intensity	N/A
Barriers to Entry	Moderate
Competition Level	High
Key Success Factors	Leverage economies of scale to lower unit costs; Effectively manage risk; Produce a differentiated product; Quickly adopt new technology; Operate in a highly visible location; Operate in a location that is close to key markets; Leverage the company's financial position; Develop a strong reputation; Provide superior after-sales service; Establish supply contracts for key inputs

Source: PC Using IBISWorld Report 44719 Gas Stations

Table B.3: Long-Distance Freight Trucking Industry Summary

Factor	Long-Distance Freight Trucking
Annual Revenue Growth Rate ('19-'24)	0.8%
National Annual Revenue (2024 \$)	\$280.0 Billion
Businesses	616K
Employees per Business	2
Revenue per Business	\$203.0K
Average Wage	\$51.1K
Life Cycle Stage	Mature
Capital Intensity	N/A
Barriers to Entry	Low
Competition Level	High
Key Success Factors	Develop a strong market profile; Ensure appropriate pricing policy; Implement superior financial management and debt management; Invest in new technology to enhance operational efficiency and quality; Provide superior after-sales service; Operate in a location that is close to key markets; Ensure car parking availability; Conduct market research; Ensure proper licensing

Source: PC Using IBISWorld 48412 Long-Distance Freight Trucking

Table B.4: Specialized Storage Warehousing Industry Summary

Factor	Specialized Storage Warehousing
Annual Revenue Growth Rate ('18-'23)	0.9%
National Annual Revenue (2023 \$)	\$9.4 Billion
Businesses	1,133
Employees per Business	44
Revenue per Business	\$8.3 Million
Average Wage	\$68K
Life Cycle Stage	Mature
Capital Intensity	Low
Barriers to Entry	Moderate
Competition Level	Moderate
Key Success Factors	Optimum capacity utilization; Output is sold under contract- incorporate long-term sales contracts; Automation reduces costs, particularly those associated with labor; Ability to accommodate environmental requirements

Source: PC Using IBISWorld Report 49319 Specialized Storage Warehousing

Table B.5: Wind Power Industry Summary

Factor	Wind Power
Annual Revenue Growth Rate ('19-'24)	9.6%
National Annual Revenue (2024 \$)	\$49.7 Billion
Businesses	149
Employees per Business	70
Revenue per Business	\$333.8 Million
Average Wage	\$148K
Life Cycle Stage	Growth
Capital Intensity	High
Barriers to Entry	High
Competition Level	Moderate
Key Success Factors	Ability to pass on cost increases; Superior financial management and debt management; Be an early adapter of new technologies; Use specialist equipment or facilities; Optimum capacity utilization; Provide goods and/or services in diverse locations; Use new technology to contain costs and boost productivity; Ability to negotiate successfully with regulator

Source: PC Using IBISWorld Report 22111D Wind Power

Table B.6: Solar Power Industry Summary

Factor	Solar Power
Annual Revenue Growth Rate ('19-'24)	19.3%
National Annual Revenue (2024 \$)	\$19.5 Billion
Businesses	514
Employees per Business	13
Revenue per Business	\$38.0 Million
Average Wage	\$143K
Life Cycle Stage	Growth
Capital Intensity	High
Barriers to Entry	High
Competition Level	Moderate
Key Success Factors	Ability to pass on cost increases; Optimum capacity utilization; Superior financial management and debt management; Access to financing; Invest in new technology to enhance operational efficiency and quality; Use specialist equipment or facilities; Attract local support; Operate in a location with appropriate climatic conditions; Ability to negotiate contracts with downstream customers; Develop a skilled labor force; Develop effective quality control; Establish supply contracts for key inputs

Source: PC Using IBISWorld Report 22111E Solar Power

Table B.7: Wind Farm Construction Industry Summary

Factor	Wind Farm Construction
Annual Revenue Growth Rate ('18-'23)	1.2%
National Annual Revenue (2023 \$)	\$16.6 Billion
Businesses	1,502
Employees per Business	36
Revenue per Business	\$11.0 Million
Average Wage	N/A
Life Cycle Stage	Growth
Capital Intensity	N/A
Barriers to Entry	Moderate
Competition Level	High
Key Success Factors	Economies of scale; Ability to pass on cost increases; Be an early adopter of new technologies; Invest in new research and development; Guarantee supply of key inputs; Operate in a location that is close to key markets; Having links with suppliers; Highly trained workforce

Source: PC Using IBISWorld Report OD4656 Wind Farm Construction