

Port of Arlington

# WILLOW CREEK INDUSTRIAL SITE FEASIBILITY PLAN

November 2024



Facilitated by



**POINTS**  
CONSULTING



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PLANNING SERVICES

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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, our project team submitted monthly reports to the Port to track progress. We also attended multiple commissioners' meetings to obtain feedback which has since been integrated into the report. (Both of these steps are included under Management and Reporting.)

The Site Overview provides an in-depth background of the Port, Gilliam 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, covering population change, regional demographic data, and commuter data.

During the project, our project team hosted a community townhall to gauge the needs of the immediate community, through the lens of both industry and recreation. Our team also conducted in-depth interviews of both private and public sector representatives of the region. While the private sector interviews provided insight into the private market and overall development interest, public sector interviews informed our project team of ongoing projects and upcoming needs within the community.



## 2. Development Scenario Recommendations

The scenarios outlined below are PC's official recommendations for the Willow Creek Site. These scenarios blend market demand outcomes with feasibility based on physical and utility constraints of the site. In addition to accounting for market outcomes and physical constraints, our project team developed potential cost estimates for each scenario based on land development costs. Finally, after conducting a charrette on July 22, 2024, and 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 it more suitable for other uses, such as roadside retail. All three parcels are completely undeveloped, except for roughly eight acres of the easternmost parcel, which are occupied by a gravel quarry.

Figure 2.1: Willow Creek Site



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

Figure 2.2: Willow Creek Site Gravel Quarry

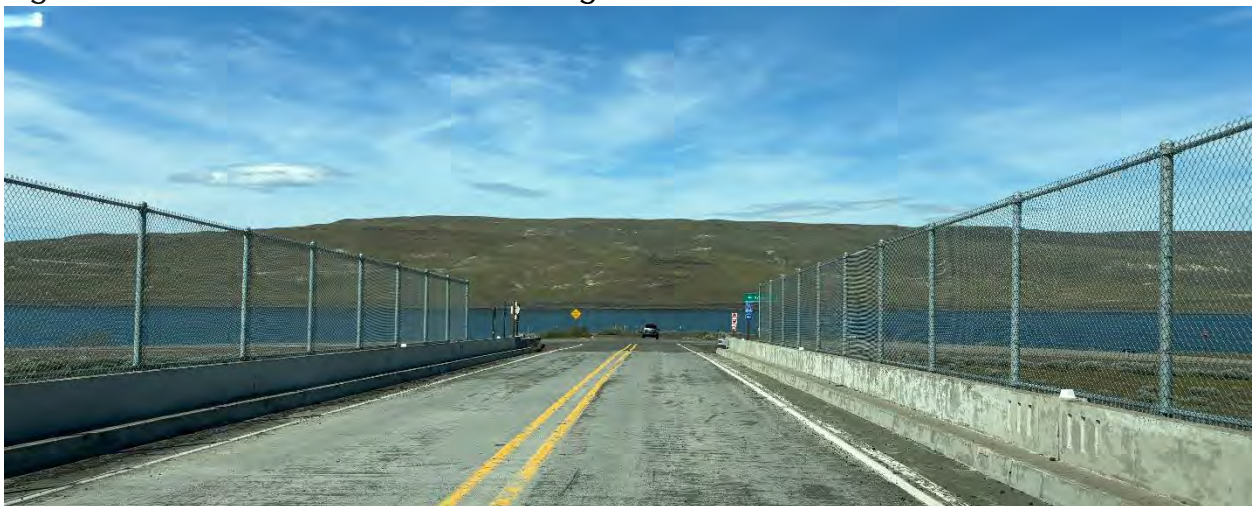


Source: Points Consulting, On-site Visit, April 2024

The gravel quarry—though only occupying part of one parcel—plays an important role, as it represents the only value currently extracted from the site. Though gravel extraction may not be the most complementary use, and the Port could choose not to renew its lease, quarry expansion is possible.

The Union Pacific Railroad separates the two parcels along the Columbia River from the parcel closest to I-84. To access the northernmost parcels, a two-lane bridge was constructed in 2006. It stretches over the railroad and is the only feasible way for the Port and 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

The physical site features described above are addressed in the following recommendations. Throughout the rest of the report, the parcels described above will be referred to by the following designations: The parcel closest to I-84 and set apart from the rest is Lot A; The eastern-most parcel with the gravel quarry is Lot C; and the completely undeveloped parcel is Lot B. The physical constraints and current features create a natural separation of the parcels, forming the basis for separation of development uses.



## Scenario #1: Future Options Open

The first development scenario involves the least amount of land development and Port investment. This scenario is focused on ensuring development optionality in the future. Rather than invest more resources into Willow Creek directly, **we recommend expanding the gravel quarry and utilizing all of Lot C at least.** As resources are consistently extracted from the site, the Port could direct the earned income from the quarry and any occurring royalties towards other projects more feasible at the time of this study. Figure 2.4 illustrates Scenario 1.

Figure 2.4: Development Scenario 1



Source: Points Consulting and Nexus Planning Services, 2024

One advantage to this scenario is that it would not exacerbate the housing shortage in the Gilliam County/Arlington area. A partnership with a large private sector entity could easily put more stress on the local housing market if too many new employees must find workforce housing. Conversely, an expansion of the gravel quarry would avoid this problem.

Compared to Oregon, Gilliam County and Arlington report a relatively older population. Because of this, focusing on maximizing revenue rather than creating jobs might be prudent. If a perfect partnership becomes apparent in the future, the Port could halt quarry operations and allow the site to be redeveloped for other purposes.

Given recent growth of the property development market, leaving the site open for future development makes sense. One conversation with the current gravel quarry operator (L3) indicated there is growing demand to develop in eastern Oregon. Perhaps given the production of renewable energy in Gilliam County, the site could be an attractive spot for a future data center.

Lot A would remain largely unused in the short-run time span of this scenario. However, its proximity to the freeway means it could be used for roadside retail purposes. This would generate more money for the County and potentially create more demand in the market. Under this scenario, Lots A and B could be used as laydown yards to complement development in the Arlington area in the future.

Along with being separate development scenarios, each option can also be thought of as different phases in the process of developing the Willow Creek Site. Scenario 1 would be the first phase in which the Port expands the gravel quarry and extracts the value from resources held in the site. The second and third scenarios could represent additional phases in development, rather than being standalone scenarios.

### **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, costs for Lot A could range from \$0 (if the Port decides to leave it undeveloped or recruit a private partner to develop it) to potentially \$5 million should the Port put in a full-scale gas station. 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 the entirety 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 building would result in a total cost of \$10.5 million. However, should the Port find a private partner willing to develop the lot, total cost would be \$0. With the expansion of the gravel quarry, Lot C would remain undeveloped by the Port in Scenario 1.

In summary, Scenario 1 could range from \$0 to \$15.5 million if 100% of Lots A and B were developed. These are rough cost estimates based on site work, specifically site leveling, and no costs associated with building structures on the site. If the Port selects this scenario, an additional study should be conducted to gather more data on physical aspects of the site and specific locations of utility access to determine building costs in greater detail.

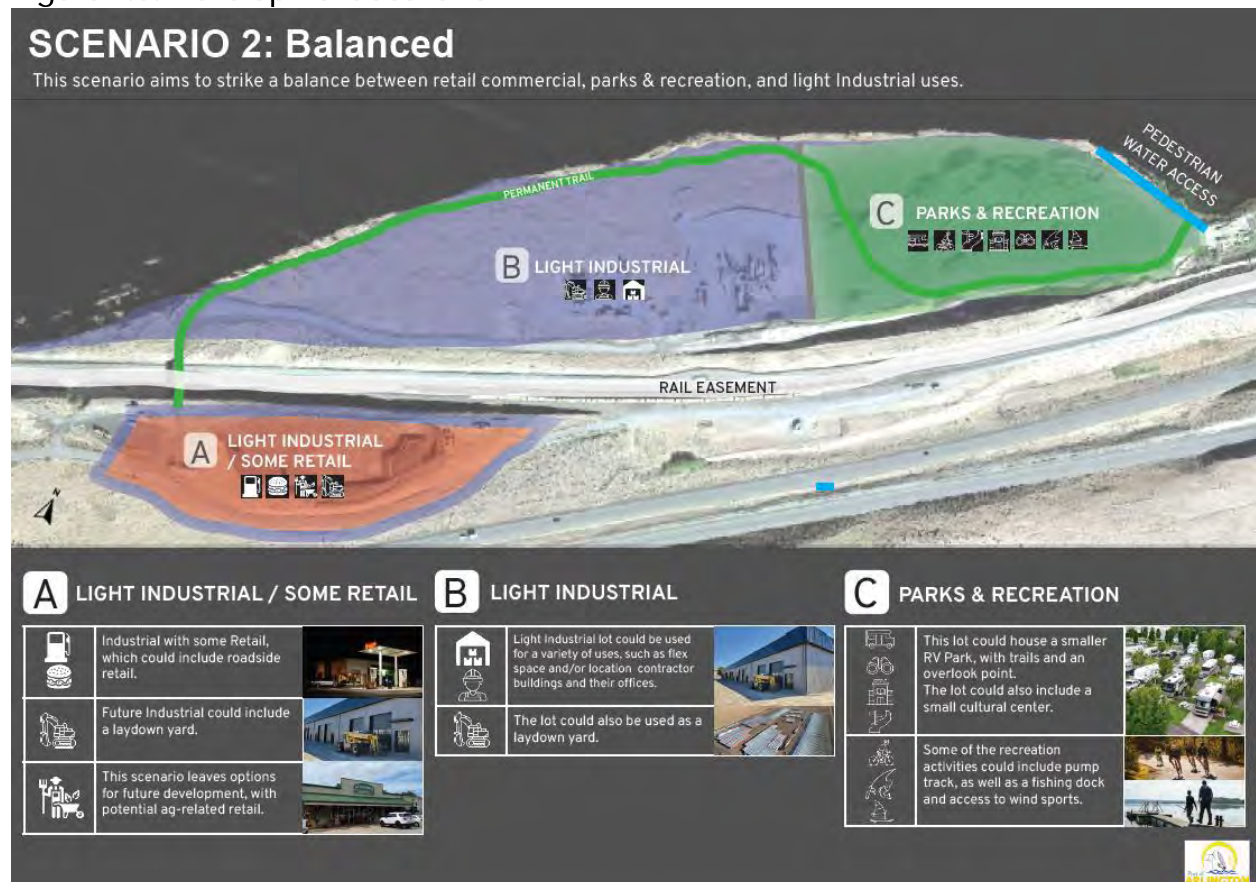
## Scenario #2: Balanced

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

Through conversations with the Port and input from the community townhall, we learned there aren't many recreational opportunities in the area. Given the size of a property like Willow Creek, the Port could easily accommodate recreational use.

Because light industrial uses on Lot B—such as contractor buildings, flex spaces, and laydown yards—are low enough intensity, they could be feasibly mixed with recreational opportunities. Space could be allocated for a pump track for wheeled sports equipment, or wind sports access. Discussions with the Oregon Windsurf Association indicate the Willow Creek Site would be an ideal location for windsurfing. The recreational opportunities possible on Lot C could also complement a small-scale RV park. This would provide cash flow for the Port and would help address the need for temporary housing in the area.

Figure 2.5: Development Scenario 2



Source: Points Consulting and Nexus Planning Services, 2024

Alternatively, as the second phase of development at Willow Creek, recreational areas could be a placeholder for future development in Scenario 3. Developing light industrial uses on Lot B could be the first step toward developing the site in Scenario 3.



### **Scenario 2 Cost Estimates**

Cost estimates for Scenario 2 differ from those of Scenario 1 primarily because greater Port involvement would be expected.

Assuming the same square footage and cost per sf for Lot A, the cost estimates for both scenarios 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.

In Scenario 2, Lot B would also yield the same results as Scenario 1 in terms of cost. At the same 1.2M sf and \$9 per sf, light industrial building site work would cost roughly \$10.5 million. (We are assuming 100% of the lot would be developed.)

Scenario 2 introduces substantive development costs for Lot C. Should the Port choose not to expand the gravel quarry and pursue recreational uses for the site, costs would hover between \$12 to \$15 per sf. Assuming 600K sf would be developed, total cost to develop Lot C would be between \$7.2 million and \$9 million.

In summary, Total costs for Scenario 2 would range from \$22.2 million to \$24.5 million. As mentioned previously, cost estimates are based on site leveling. It's also important to note estimates could be scaled up or down according to the square footage developed on each site. (These estimates range from \$9 per sf for light industrial to upwards of \$15 per sf for recreation.) If the Port selects Scenario 2, 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: Industrial Park**

The third option for development—a large industrial park—would likely necessitate the highest investment from the Port and the most hands-on involvement without a private partner.

An industrial park would be a more feasible use for the site according to the current zoning, requiring the least amount of potential zoning changes. Only Lot A may need to have a zoning change to accommodate retail uses. The industrial park could include similar low intensity developments, such as flex buildings, contractor buildings, and lay down yards. More aspirational uses could be any type of manufacturing plant, or even a potential location to be used in a future hydrogen supply chain. The development scenario could also include a recreational spot on the west side of the site, taking up the western-most area of Lot B past the access bridge.

The site's location would be an advantage for industrial use scenarios, as easy access to I-84 allows for efficient transportation of goods and production inputs. Any industrial development that could require higher amounts of energy would also find Willow Creek to be a beneficial site as Gilliam County is one of the top producing renewable energy counties in the State of Oregon. The stand-alone development would require high investment costs but could also be thought of as the final phase of development at the site as the Port works through each scenario.

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 narrow range, depending on the development cost per sf of the recreational space on the west side of Lot B. Total cost is above \$0 because Port involvement is expected. Lot A has a similar total cost to Scenarios 1 and 2. However, Lot C would now be assumed to be used for industrial purposes.

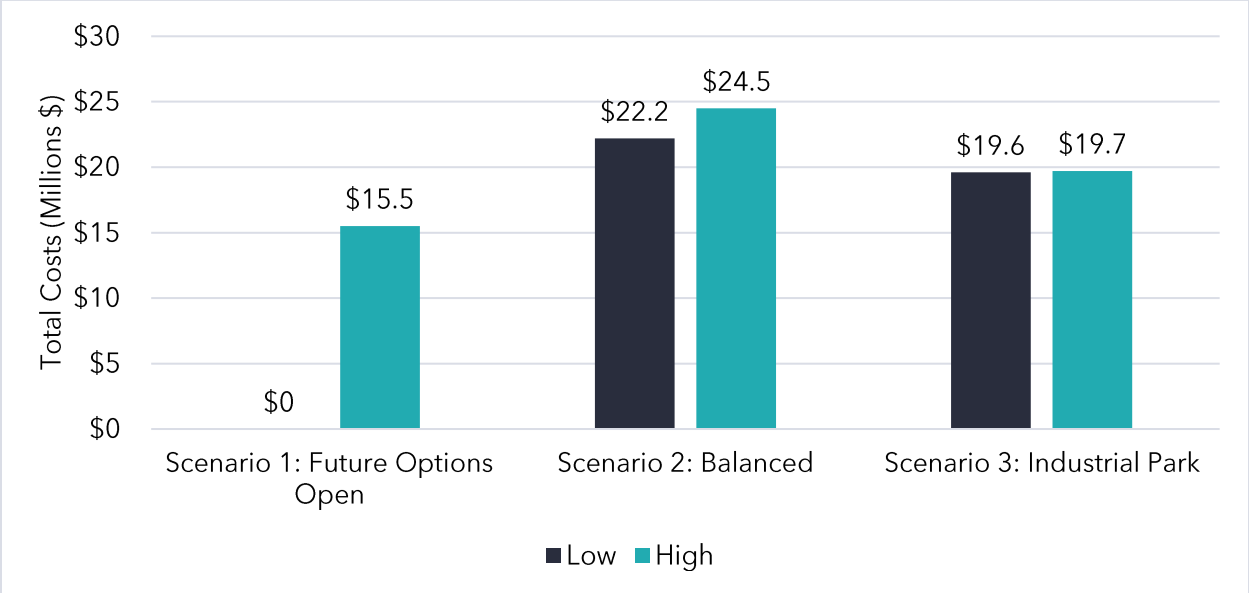
Pursuing development on Lot A could involve installing a gas station, or roadside retail if the Port prefers a lower intensity option. At 503K sf, development on Lot A would range from \$8 per sf for retail and \$10 per sf for a gas station. Assuming 100% of the parcel is developed, total cost estimates range from \$4 million to \$5 million.

Lot B is roughly 1.2M sf. Developing the majority of the lot at about \$9 per sf for a light industrial, flex space building would result in a total cost of \$9.4 million. However, should the Port find a private partner willing to develop the lot, total cost would be \$0. Assuming about 31.5K sf is developed at \$12-\$15 per sf for recreational purposes, \$380K to \$470K would be added to the light industrial costs.

Scenario 3 cost estimates for Lot C differ from Scenarios 1 and 2 as the lot would be developed at light industrial intensities. At approximately 600K sf, the lot could be developed at \$9 per sf. Assuming 100% of the lot is developed, total costs could be about \$5.4 million.

Based on site leveling, total costs could range from \$19.6 million to \$19.7 million for the entire site, depending on the quality desired for recreational use. Development could be scaled down if only a portion of each lot were developed, 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

### Infrastructure Specific Costs

As we mentioned earlier, the total costs associated with each development scenario were based on site work and leveling only. These costs notably exclude funding needed for water and sewer, along with electrical. However, a lack of data detailing exactly where water, sewer, and electrical access lies is unavailable. Thus, costs including utilities are not able to be calculated.

Further detailing the assumptions of total cost estimates, site work is specifically site leveling. This does not include utility costs explicitly or implicitly by overestimating other development costs. Site leveling also does not include excavation costs. Unfortunately, there are no grading plans available, making it impossible to estimate excavation costs. Platting or foundational work was also not included in the site leveling costs. Commercial septic or package plants could be feasible models for sewage, but our team does not have expertise in this realm.

In an effort to capture additional costs for utility work, the project team contacted one of the Port Commissioners for assistance. They were able to receive a quote for the cost to drill a well at the Willow Creek Site. A groundwater well would be the most feasible way to service

the site with water, though the intensity of the well that would be permitted is uncertain. A quote from Courtney Well Drilling, LLC estimated the total cost to drill a well at the site to be around \$42K. Assumptions made for this well were drilling to 500 ft in a worst-case scenario, along with using 6 inch steel liner. The quote is available in Appendix C.

Drilling a well is not the only costs that need to be considered when putting a well in at Willow Creek. With Port Commissioner assistance, we also received quotes for a pump, piping, and electrical for the proposed well, from Purswell Pump Company. The estimates range to some degree. But at the high end, these costs total about \$91.5K. Combining these additional costs with the cost to drill a well brings the total cost for a well at Willow Creek to about \$133.1K. These quotes are also available in Appendix C, and include more details on the pump, pipe, and electrical specifics.

The cost to develop the well at the site is marginal compared to the overall site leveling costs. Figure 2.8 illustrates that the costs are nearly identical, including the well.

**Figure 2.8: Total Development Costs, Including Costs for a Well**



Source: Points Consulting, DCI Engineers, and Quote from Courtney Well Drilling, LLC, 2024

An additional scenario serving the Willow Creek Site with water and sewer could include extending services from the City of Arlington. Extending water and sewer this far is significant compared to the site leveling costs. Assuming twelve-inch pipes at approximately \$100 per foot for water would cost about \$6 million. Additionally, a sewer line would cost another \$5 million and would likely need to include one or two lift stations at approximately \$200K each. If a significant amount of rock excavation is needed to facilitate this option, the cost could double. At a total of \$11.2 million to \$11.4 million, extending water and sewer from Arlington is not feasible. However, the team felt this option was necessary to be included should the development situation change drastically in the future.

Figure 2.9: Total Development Costs, Including the Cost of Extending Water and Sewer from the City of Arlington



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 roughly 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. Currently, it is completely undeveloped, though roughly 4-8 acres are occupied by a gravel quarry. The site's proximity to the Columbia River and the Union Pacific Railroad (UPRR), as well as its I-84 access point, provide some strategic opportunity. 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

Several other properties owned by the Port are aligned with the Port's 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 considering development at the Willow Creek Site to take advantage of a revenue-generating asset base which hasn't yet 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).

Though the Port of Arlington may not offer as many services as the larger ports do, it is still in a great position to continue to provide opportunities for the district. As one example, the Port's partnership with Gilliam County to purchase the Alkali Ridge Residential Property demonstrates a willingness to diversify its efforts for the community. To help address the widespread housing shortage across the country, the Port plans to subdivide the 40-acre property into several plots for multi-family housing development. Often economic growth

initiatives are centered around business recruitment and job creation, but the Port has also emphasized the importance of housing solutions. Without adequate workforce housing, any district will be at a severe disadvantage.

During one discussion with representatives, the Port indicated their major employers continually face a labor shortage of around 20-30 jobs. Development at the Willow Creek Site would make the region more attractive to potential residents and possibly even outside firms. Development would naturally complement the Port's other efforts to increase housing availability and attract business. 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 Willow Creek site has been a topic of discussion for many past development talks. In addition to the access bridge, a 2006 geotechnical study resulted in a proposal for a barge dock which would accommodate solid waste transportation to the Waste Management landfill south of Arlington. However, due to miscommunications and prolonged litigation through 2015, no permanent improvements were added to the site. The Port is now considering other ways to use this site to promote 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 considered.** Additionally, there was a study done in 2018 to assess the feasibility of irrigating lower Willow Creek agricultural properties. The study concluded by flagging high capital investment costs (upwards of \$80 million) and noted the Port and the City of Arlington lacked adequate water rights for the scale proposed.

Access to utilities and water are no doubt significant challenges to the development of the site. There is currently no power serving the site and no water or sewer. Because of the site's location (about 8 miles from the city) there will be constraints on service delivery. Based on conversations with Port staff, power is potentially 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 Oregon's Department of Land Conservation and Development (DLCD), which is principally concerned with the preservation of historic agricultural and forestry areas before expansion of utilities lines can authorized 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 cities can annex. **While there are significant challenges with serving the Willow Creek Site, it has tremendous potential with proximity to three modes of transportation.** Conversations with one of the commissioners indicated there is a healthy amount of freight traffic by truck around the I-84 Heppner Junction, which is verified by data from ODOT. Given the significant agricultural

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

### **Regional Background**

In addition to an on-site visit and preliminary data gathering, our project team reviewed a collection of documents for regional background and overview. These documents included comprehensive plans, strategic business plans, and economic development reports. Several reports and conversations emphasized the importance of agriculture in and around Gilliam County. According to the 2017 Census of Agriculture County Profile for Gilliam County, 153 farms manage 612,000 acres of land across the County. The net cash from farm income amounts to over \$18 million, translating to just over \$120,000 per farm operation.

Government subsidies will ensure domestic agriculture is protected from collapse, but it is also important for the County to diversify its economic base both within and outside of agriculture.

The Port of Arlington’s Strategic Business Plan (2022-2023) states that the Port primarily serves agriculture and manufacturing industries. They do so by facilitating crop storage and transportation, as well as supporting the manufacturing of goods like wood, technology, and food products. However, the Port has recently expanded its area of focus to include housing and housing-related services. Recent projects include the Alkali Ridge Property and the Old Condon Grade School, which is serviced now by the Port’s Environmental Sentry Corp and could potentially be converted to workforce housing. Unrelated directly to housing but still worth noting, the Port also owns a storage facility and an aviation facility on the Arlington Mesa that experimental technology firms now can use.

According to the Oregon Employment Department forecasts, the three fastest-growing industries in Eastern Oregon are healthcare, social assistance, and construction. All three industries could be complemented by industrial development at the Willow Creek Site.

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

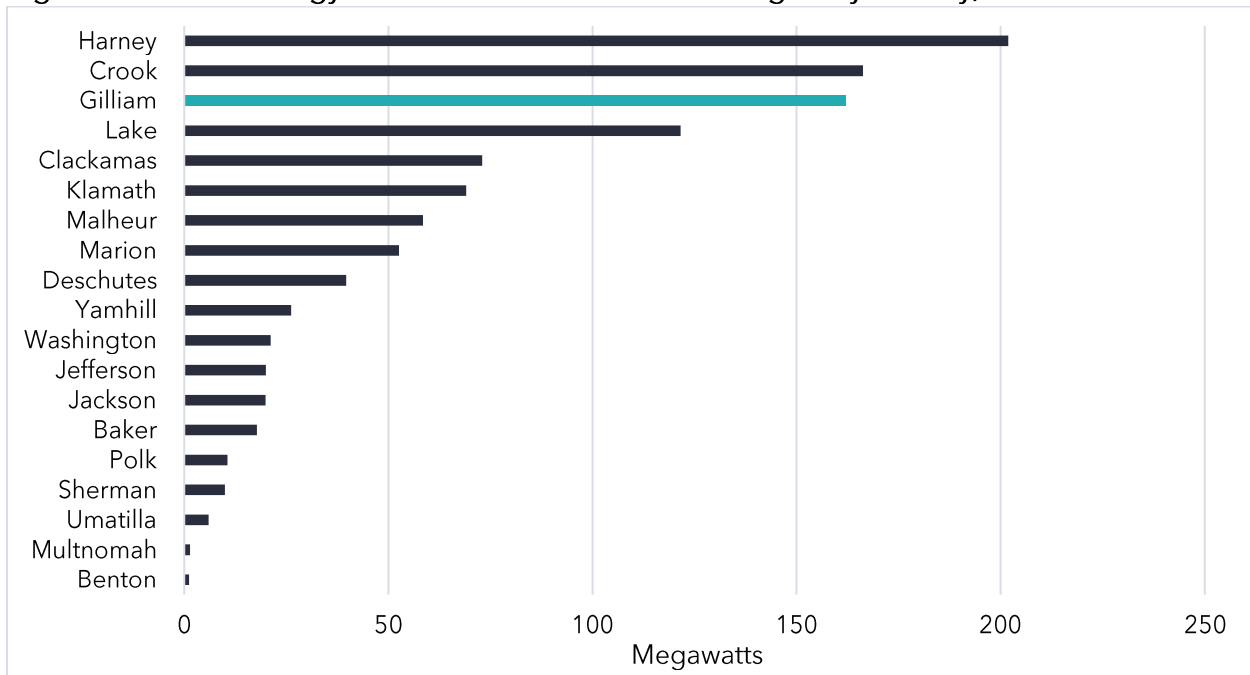
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Industries predicted to experience growth within the Columbia Gorge region include tourism, renewable energy, and manufacturing. Currently, Gilliam County—with a total MW capacity of over 160—ranks third out of 19 solar-producing counties in the State of Oregon (Figure 3.2). Figure 3.3 shows total megawatt (MW) capacity for wind energy production in six Oregon counties. These are the only six counties producing wind energy within Oregon, and

Gilliam County is the top producer with over 1,700 MW of capacity. This is 500 MW greater than Sherman County, the second highest producer.

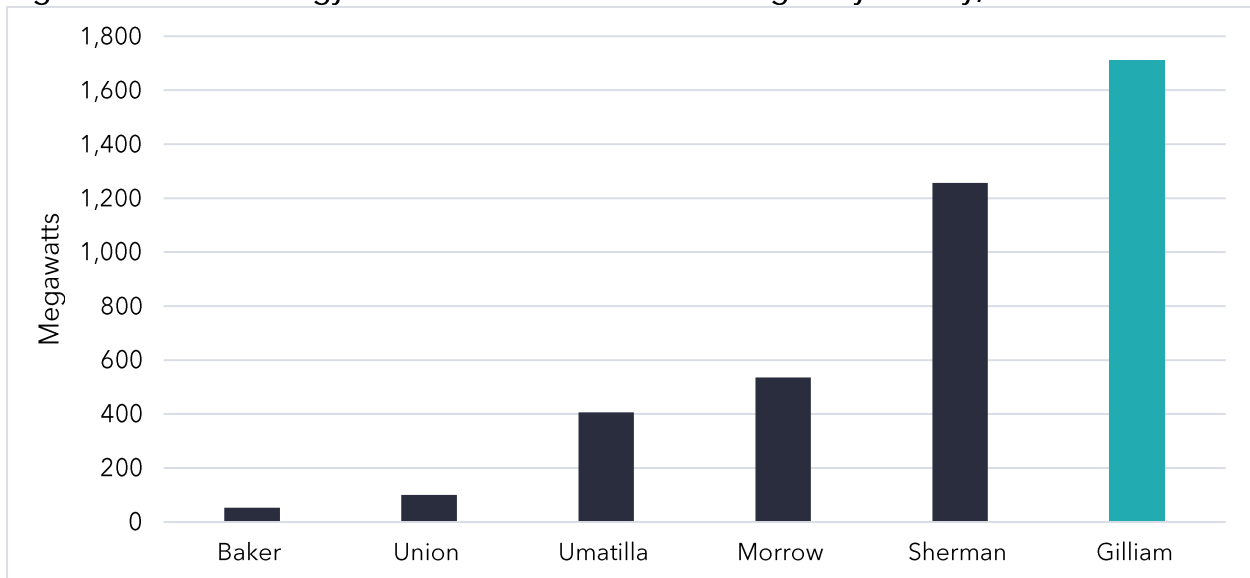


**Figure 3.2: Solar Energy Production in the State of Oregon by County, 2021**



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

A recent significant development in the region is \$1 billion in federal grant funding that was awarded to the Pacific Northwest Hydrogen Association for a “regional hydrogen hub.” This hub would create a supply chain of hydrogen energy in Washington, Oregon, and Montana. Considering this, Gilliam County could consider potentially adding an electrolysis production station or a hydrogen storage and distribution facility.

Regionally, Gilliam County is served by the Greater Eastern Oregon Development Corporation (GEODC), along with Grant, Harney, Malheur, Morrow, Umatilla, and Wheeler counties. Though the most recent comprehensive economic development strategy (CEDs) was conducted for the GEODC for the years 2014-2019, it still provides valuable insights today.

Two significant drivers for economic development are Enterprise Zones and Rural Renewable Energy Development (RRED) Zones. These development zones can attract new businesses by allowing property tax exemptions for a certain set period. All industrial development is eligible for Enterprise Zone tax exemptions, and all renewable energy projects or investments are eligible for RRED Zone tax exemptions. Gilliam County recently re-designated its Enterprise Zone in July of 2023 to extend the program through July of 2032. According to the GEODC CEDs, the County is also currently designated as a RRED Zone. These designations are highly advantageous for the Willow Creek Site and should be considered in development discussions. Though the Port owns valuable land, it is not the only entity controlling industrial parcels that could be developed. Sites such as The Umatilla Army Depot Site could pose a competitive threat.

## **Water**

As noted in the GEODC CEDs, water usage in the region is a significant development constraint. Counties along the Columbia River generally do not have sufficient water rights to support projects or corporations heavily dependent on water usage. The Port should be aware of a hydrogeological study forthcoming for the GEODC District, which will summarize the level of resources available.

Positive recent developments related to water in the region include Northeast Oregon Water Association (NOWA) efforts. Through Ordinance Project infrastructure, NOWA's goal is to help farmers switch from well water to water pumped from the Columbia River.<sup>1</sup> Groundwater well dependence is increasingly considered unsustainable, as regional aquifers become more depleted and average yearly rainfall decreases. Creative efforts to increase water supply while protecting dwindling assets may significantly benefit agriculture and development near Arlington in the future.

Though tapping into the Columbia River may alleviate water issues to some degree, water will likely remain a scarce resource for years to come. Preservation of fish and wildlife populations is also important, as well as respect for Tribal fishing rights.

As noted elsewhere in this report, practical options for the Port concerning the Willow Creek site include thoroughly investigating the potential to connect with municipal water systems and exploring the feasibility of drilling a ground well. Both options would present significant challenges, but the benefits of site development would likely outweigh the short-term costs.

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<sup>1</sup> Oregon Public Broadcasting, "Eastern Oregon group looks towards Columbia River to solve groundwater problems," accessed October 2024, <https://www.opb.org/article/2023/11/03/eastern-oregon-columbia-river-groundwater-irrigation/>.

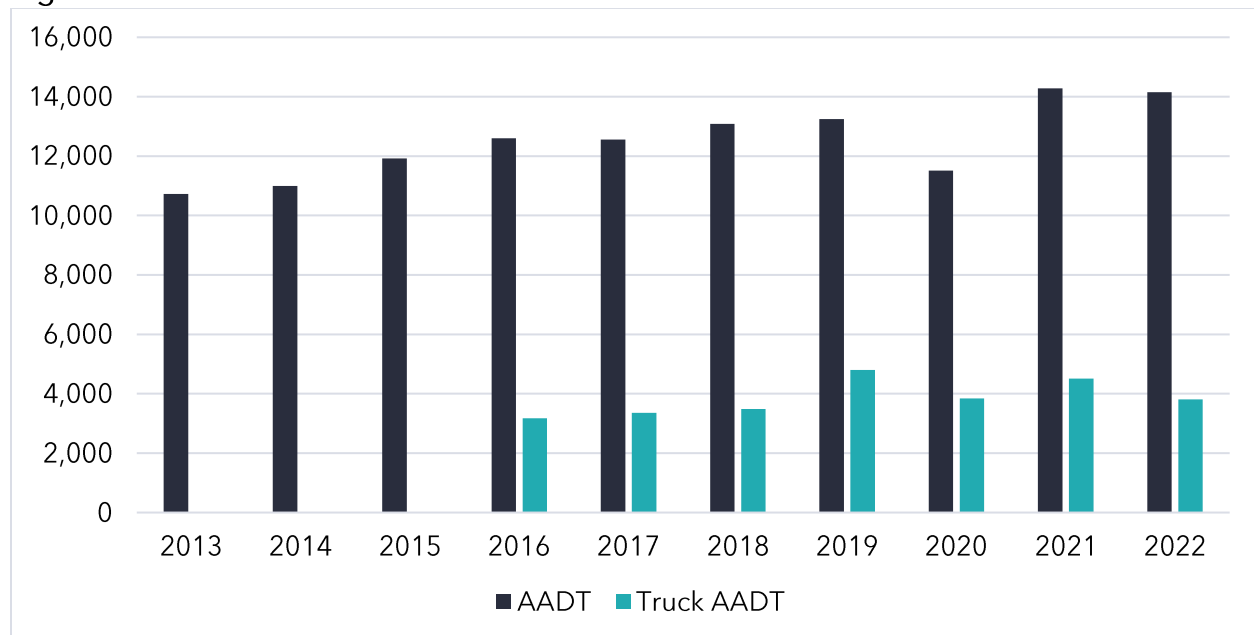
## Traffic and Trade Patterns

### Traffic

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

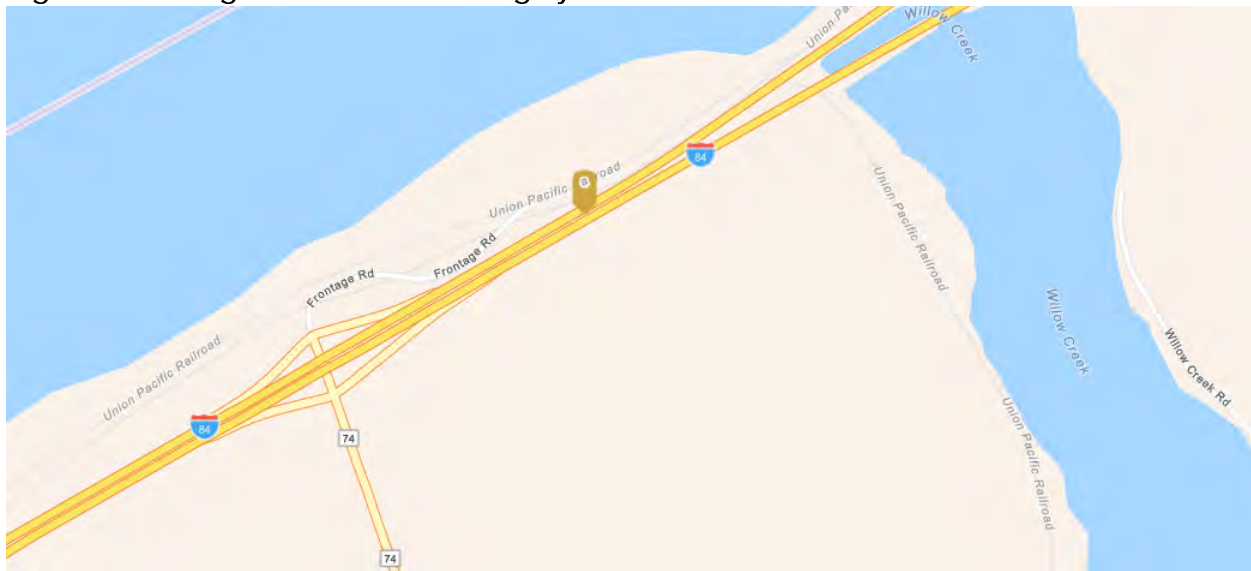
The data in Figure 3.4 indicate a clear upward trajectory of traffic at the site, escalating from about 10,700 AADTs in 2013 to 14,100 AADTs in 2022. This is a notable 31.9% increase. Though less data is available, Figure 3.4 also shows Truck AADTs as an indicator of freight activity in the area. Truck 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 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. This document is an element of the Oregon Transportation Plan and gives insight into freight demand by industry, mode, and product. ODOT reported Oregon is the 10<sup>th</sup> to 15<sup>th</sup> most trade-dependent state in the nation. In 2017, an estimated \$302 billion of freight had either an Oregon origin or destination. This number is projected to increase to \$342 billion by 2025. Trucking is by far the mode of freight in highest demand, with trucks carrying \$229 billion of product in 2023 (this represents 71.1% of freight demand by value in 2023). Air and pipeline modes are the next highest by value, each transporting \$11 billion of product.

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 shows production shares by commodity group—or what types of commodities will be exported—as well as forecasted changes for the Lower John Day ACT through 2040.

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%
<b>Total</b>	<b>100.0%</b>	<b>1.7%</b>	<b>100.0%</b>

Source: Oregon Freight Plan, Revised March 2023

In 2019 the commodity group with the largest share (24.0%) is Machinery, Instruments, Transportation Equipment, & Metals. Food or Kindred Products and Forest or Wood Products are the next highest commodity groups by share, each reported at 18.0%. Industries supporting these commodity groups could be complemented by development at the Willow Creek Site.

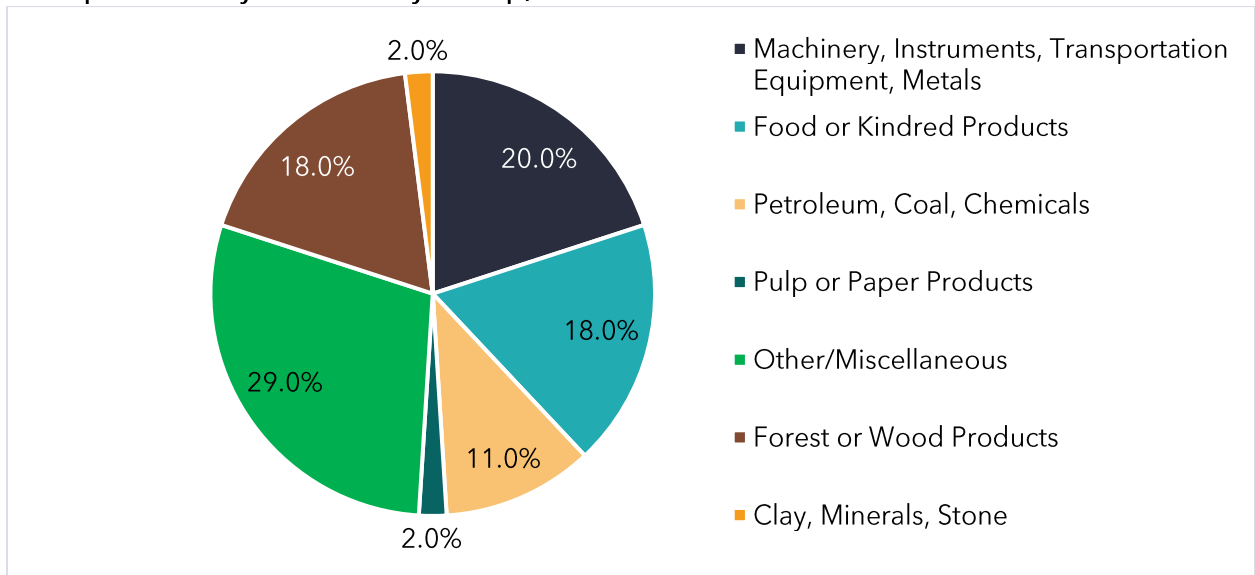
**Table 3.2: Lower John Day Area Commission on Transportation Consumption Shares by Commodity Group, 2019 to 2040 by Value**

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%
<b>Total</b>	<b>100.0%</b>	<b>1.0%</b>	<b>100.0%</b>

Source: Oregon Freight Plan, Revised March 2023

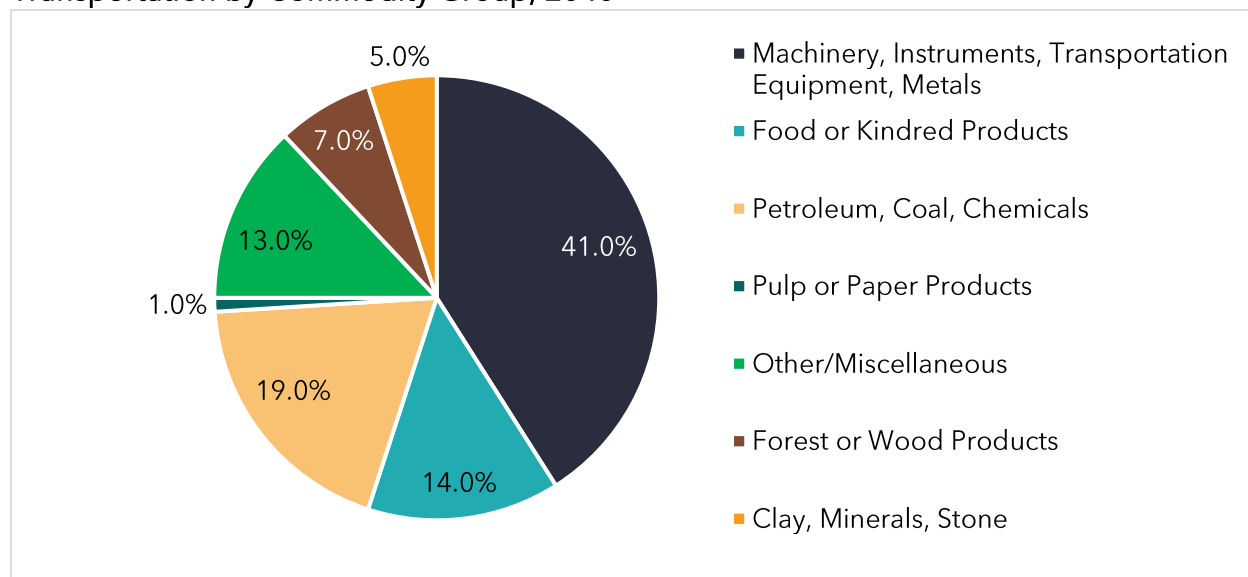
Table 3.2 represents consumption shares by commodity group for the Lower John Day ACT, or what types of commodities will be imported to the ACT. Machinery, Instruments, Transportation Equipment, & Metals represents the highest percentage, at 50.0%.

**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

Figure 3.7: Forecasted Consumption Shares in the Lower John Day Area Commission on Transportation by Commodity Group, 2040



Source: Oregon Freight Plan, Revised March 2023

The Oregon Freight plan reveals some key trends and industry practices. 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 Oregon and is expected to grow from 4% of total value in 2017 to 7% of total value in 2050. By tonnage, basic chemicals and fertilizers are the fastest growing user of the rail system in Oregon. The Freight Plan observes that continuing to transport a variety of heavy goods on rail will reduce the maintenance costs of Oregon roads.

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*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...*

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Notably, the value of freight moved into and out of Oregon is expected to increase between 2017 and 2050 at a greater rate (92%) than total tonnage is expected to increase (64%). This trend indicates a shift to higher-value commodities transported throughout the State and suggests **there will be opportunities to take advantage of the rising value within the transportation and warehousing industry.** It’s also worth noting the volume of the commodity group Machinery, Instruments, Transportation Equipment, & Metals is expected to increase 2.2% per year through 2050.

Below are a few points the Port might consider in development discussions concerning the Willow Creek Site:

- Firms in **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 states green technology is a sector Oregon seeks to promote and develop. Wind turbine farms have clustered along the Columbia River Gorge, where strong

wind currents pass over sparsely populated land. Growth in the wind industry will depend on having sufficient transportation to rural locations and planned wind farm facilities. The heavy and large wind turbine components can be challenging to transport.

- Most **food manufacturers** are in the western half of the State, but some clusters are found in eastern Oregon as well. Companies within this industry is somewhat more dispersed than in others because location decisions tend to be driven by proximity to cheaper, inexpensive land, rail corridors, and raw materials. **Development at the Willow Creek Site could certainly complement this industry cluster.**
- I-84 accounts for nearly a quarter of the value of commodity flows throughout the state (24%), second only to I-5 (45%)

Aside from general freight data and state trends, our 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 most of the barged wheat moved on the Columbia/Snake River System is destined for export markets. (Around 80% of those exports are sent to east or southeast Asia.)

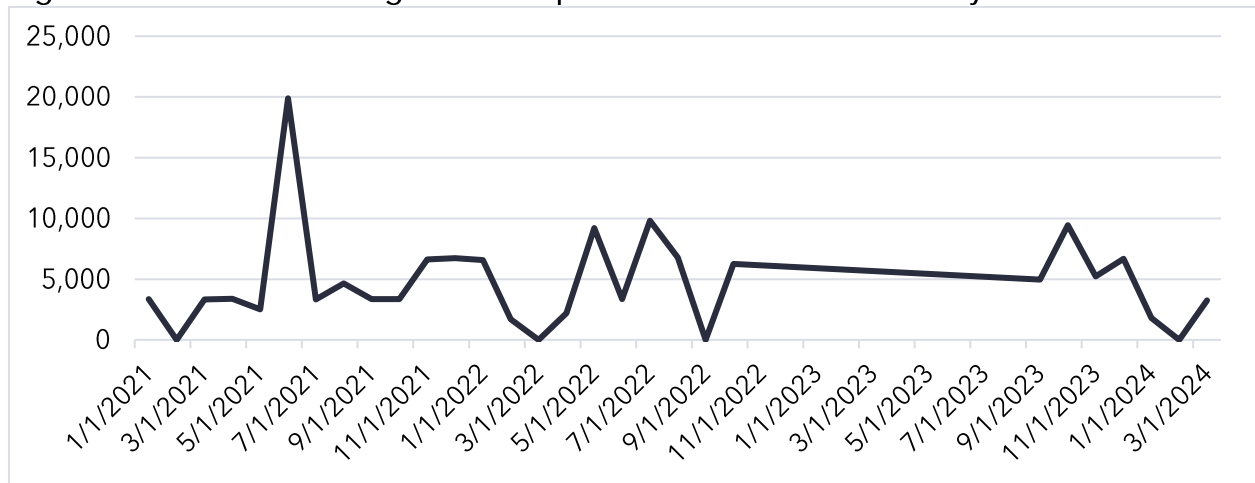
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*... the majority of barged wheat moved on the Columbia/Snake River System is for export markets, and about 80% of those exports are destined to east or southeast Asia.*

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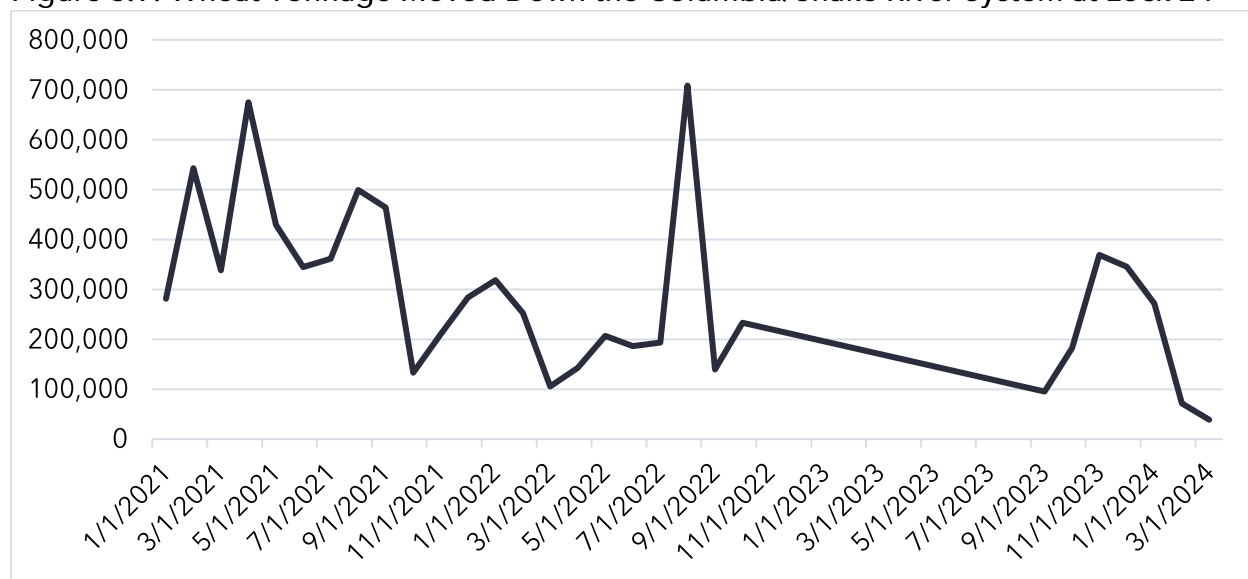
According to USDA data, the two main commodities moved up and down the Columbia/Snake River system are fertilizer and wheat. Figure 3.7 shows the flows of fertilizer throughout the system while Figure 3.8 shows the flows of wheat. One of the drawbacks of this data is there is a large gap of missing data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

**Figure 3.8: Fertilizer Tonnage Moved Up the Columbia/Snake River System at Lock 1**



Source: USDA, Agricultural Marketing Service’s Barge Dashboard

Figure 3.9: Wheat Tonnage Moved Down the Columbia/Snake River System at Lock 24



Source: USDA, Agricultural Marketing Service’s Barge Dashboard

Oregon Wheat reports the Columbia/Snake River System is the nation’s largest wheat export gateway, moving over 60% of all US wheat to international markets.<sup>2</sup> Eleven states export through the System with over 15 million metric tons of wheat in 2020. Each year **nearly 10% of all US wheat exports move by barge along the Snake River**. Proponents of using the dam and river for transport explain that the system reduces traffic congestion and pollution from truck freight.

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**, which represents 17.0% of total carloads originating in Oregon.<sup>3</sup> Among carloads terminating in Oregon, **Chemicals** are the largest single commodity group, representing 12.1% of total carloads.

The railroad industry is vital to agriculture in the US. Railroads haul around 1.6 million carloads of **grain and other farm products** in a typical year.<sup>4</sup> An added benefit of rail freight is it is more efficient than other freight modes in terms of greenhouse gas emissions (GHGs). In 2021, 630,000 truckloads of freight were saved through rail transport. This translates to a saving of 2.47 million tons of GHGs.<sup>5</sup> Syncing well with Oregon’s climate goals, rail freight may be a complementary industry the Willow Creek Site could better serve.

<sup>2</sup> Oregon Wheat Growers League, “Wheat on the Columbia Snake River System,” accessed September 2024, <https://www.owgl.org/p/policy/dams>.

<sup>3</sup> AAR, “US Freight Railroad Industry Snapshot: Oregon,” accessed September 2024, <https://www.aar.org/data-center/railroads-states/#>.

<sup>4</sup> AAR, “Freight Rail & Agriculture,” accessed September 2024, <https://www.aar.org/issue/freight-rail-agriculture-industry/>.

<sup>5</sup> GoRail, “Oregon Stats,” accessed September 2024, <https://gorail.org/state/oregon>.



## 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.<sup>6</sup> 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), many 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, as well as 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 designated as “other uses determined by the Planning Director to be similar to the above uses.” This provides some flexibility in future development. Conditional uses are relevant to site discussion, although they are often subject to additional standards and conditions. The relevant conditional uses include use as 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 from the county commission.

## On-Site Summary

To complete this industrial site overview report, our project team visited the Port of Arlington and the Willow Creek Site in early April. During this visit, the team met with the Executive Director, Jed Crowther and President of the Board of Commissioners, Leah Shannon. Also present for a portion 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, the team toured several properties and facilities owned and managed by the Port. Such properties included:

- 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

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<sup>6</sup> See Gilliam County Zoning and Land Development Code, Section 4.050.



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

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

**Previous and Current Economic Development:** The Port has done an excellent job creating opportunities for firms to produce demand in the economic market. Our project team noted the building previously occupied by Insitu, the Shutler Station Industrial Park, and the partnership with the City of Arlington on the Mesa. There is also discussion (under a non-disclosure agreement) concerning a firm who plans to purchase and develop property on the Mesa. Specifically considering the Willow Creek Site, it would make sense to for development to complement the presence of agriculture and/or renewable energy in the region.

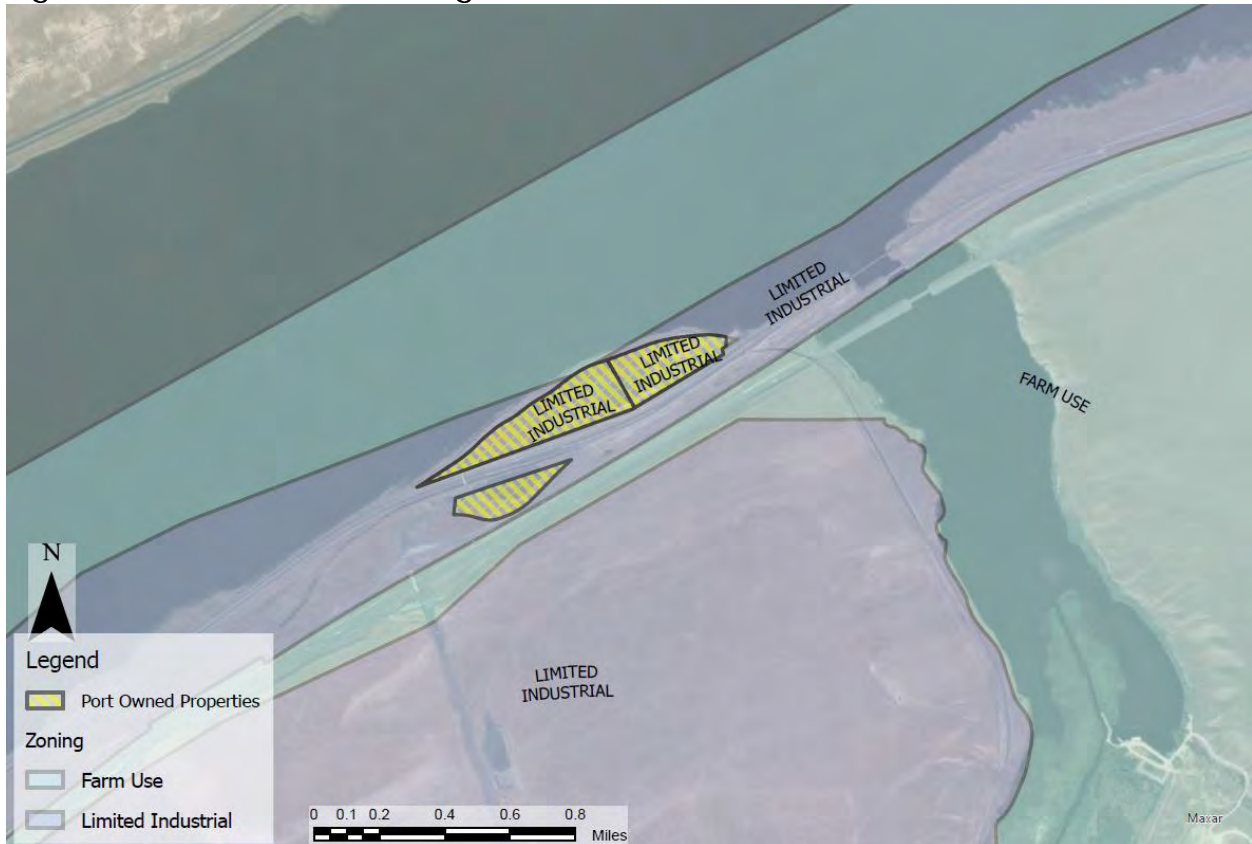
**Community Challenges:** Labor shortages are a significant issue within and around the Arlington area. Discussions with the Port indicated there are potentially 20-30 vacant job opportunities at any time in the County. Due to this, Waste Management has resorted to transporting employees to their Arlington facility by shuttle bus. Similarly, a lack of housing affordability presents another major challenge. There is currently only one “apartment building” in Arlington, in addition to a manufactured home community and various single-family homes. More workforce and middle-income housing would alleviate frustration related to availability and affordability. The development of the Alkali Ridge Property and the potential renovation of the Old Condon Grade School are two important steps forward.

**Site Opportunities and Limitations:** Given its proximity to three modes of transportation, the location of the Willow Creek Site is clearly strategic. Since agriculture, renewable energy and Waste Management are anchor industries within the region, the site’s potential to complement these industries is important. While major limitations to development involve utility servicing at the site, power may be more feasible than anticipated depending on the magnitude of the development. For this site, servicing water and sewer will be the greatest challenge.

## Site Mapping

The Site is fully encapsulated by Gilliam County's 'Limited Industrial' zoning designation. South along Highway 74, current land uses include an industrial-sized wind farm. Zoning south of I-84 and east of the railway's southern spur is designated for 'Farm Use' (Figure 3.10). 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.

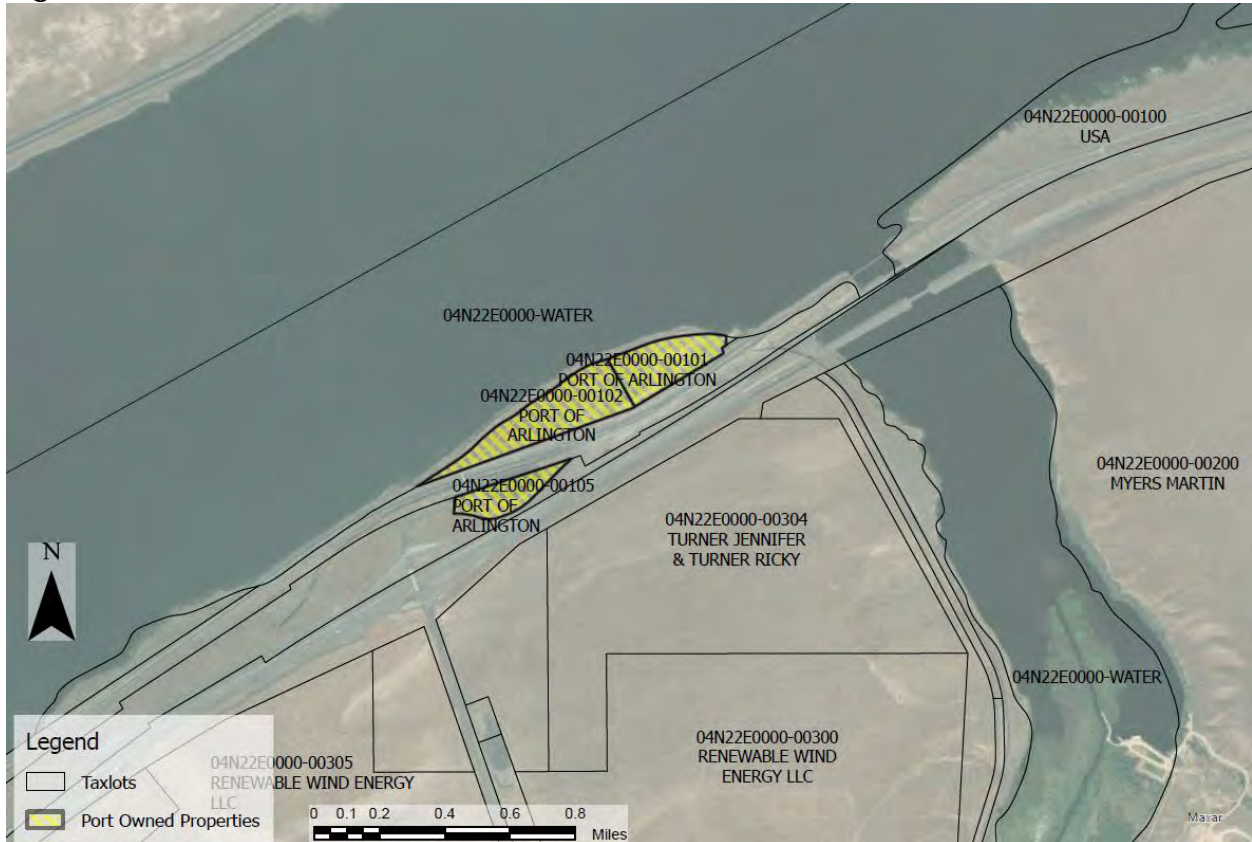
Figure 3.10: Willow Creek Zoning



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

Six lots surround the Willow Creek Site (Figure 3.11). To the Northeast, a lot is owned by the Army Corps of Engineers to the Northeast. ODOT owns a lot adjacent to the Interstate, while Jennifer & Ricky Turner own the large lots immediately on the opposite end of the highway. Finally, the Renewable Wind Energy Properties are to the Southwest behind the Legend. This pattern of large lot ownership of surrounding properties means communication and coordination of on-site activities at Willow Creek would be less complex.

**Figure 3.11: 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 3.12).

Figure 3.12: 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 recommended land use related to logistics, transportation, and freight-related businesses.

Figure 3.13: Willow Creek Transportation



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

# 4. Site Analysis

While the Site Overview provided project background and context, the Site Analysis section explores the markets at work around the site. Our project team analyzed socioeconomic outcomes of the region, while also comparing the region to other relevant geographies. Much of the socioeconomic analysis examining labor market outcomes shows what relevant labor supply looks like for the site, and how the site can benefit from the region’s human capital and labor availability. Additionally, we discuss data (both quantitative and qualitative) showing industry demand.

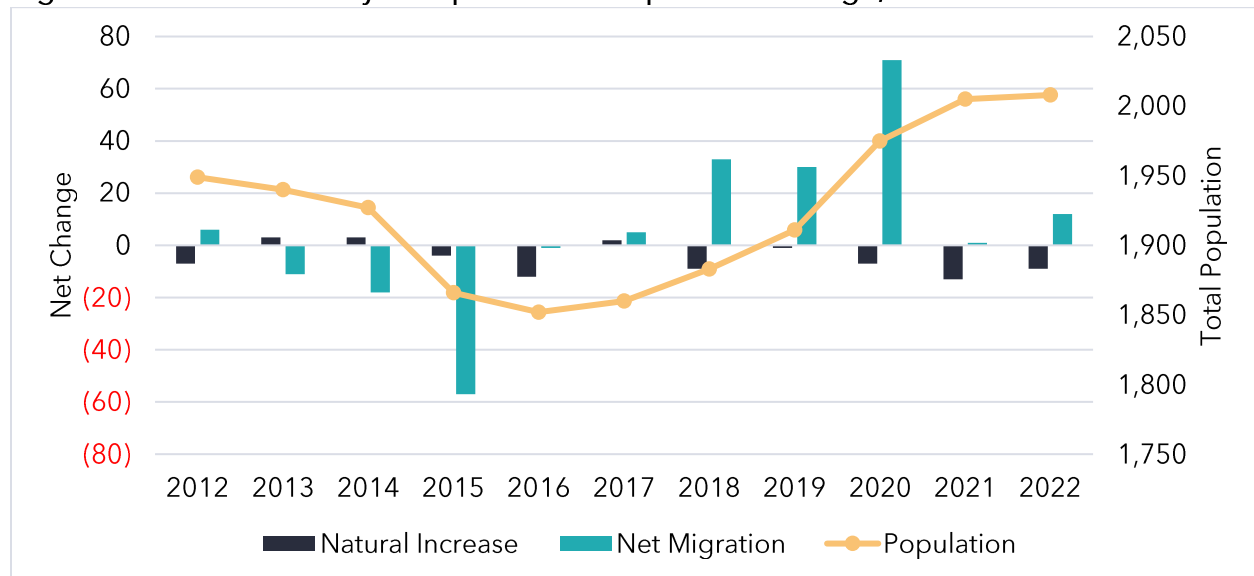
## Population and Workforce Characteristics

### Sources of Population Change and Migration

The region’s population is a major contributing factor to labor supply, and thus determines how much economic growth 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. As of 2022, the County’s population had grown to just over 2,000.

Population growth accelerated in 2020, with a net migration of 71 people. However, in 2021 and 2022, net migration has fallen to below 15 each year, with more deaths than births reported in the County since 2019. In general, population growth can induce and sustain economic growth. Increased economic opportunities can also lead to 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 and out of Gilliam County between 2016 and 2020 (left column shows positive migration, right column shows

negative migration). Most people moving into Gilliam County come from other counties within Oregon or Washington State. After Oregon and Washington counties, Cuyahoga County, OH, (Cleveland area) is the next highest contributor. Considering Gilliam’s low population overall, it’s not surprising to see small numbers of net migration. Many of the top migration counties are nearby, such as Multnomah County, Lane County, and Morrow County.

It’s unclear why Gilliam County residents are specifically choosing to migrate to other counties in Oregon. A common theme we observed is a population drift towards regions with more amenities and jobs. This is at least partly explained by a widespread preference among people to pursue employment close to where they live.

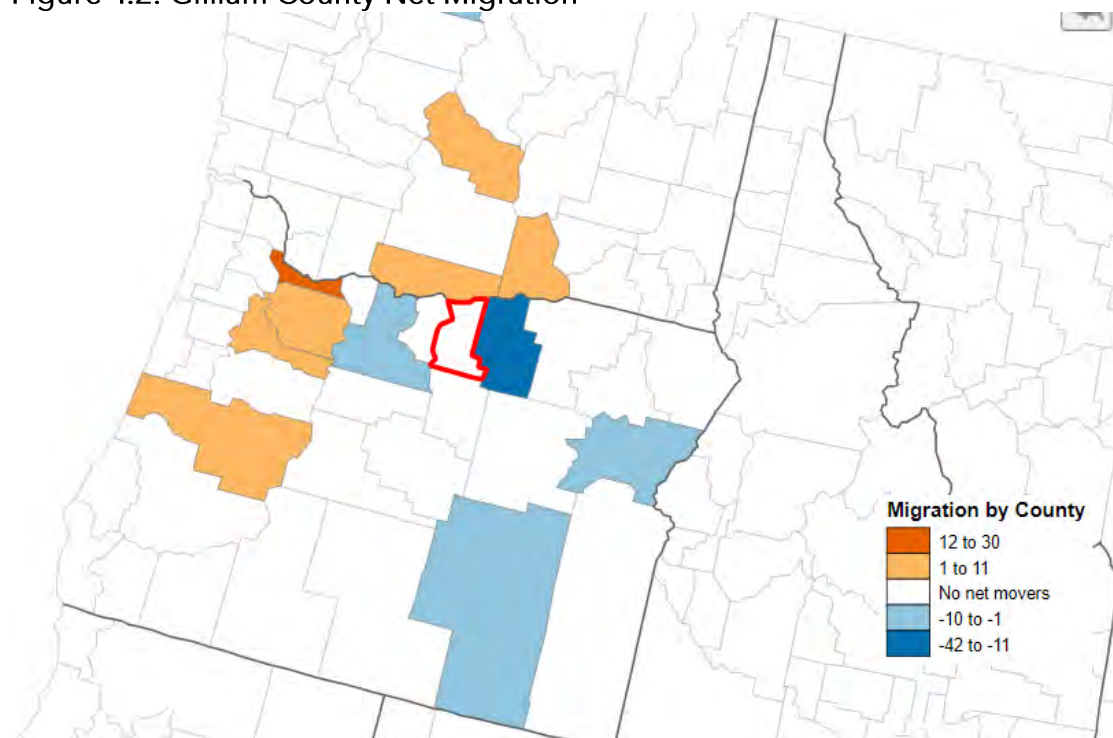
**Table 4.1: Gilliam County In and Out Migration, 2016-2020**

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 migration moves movements. Brown indicates migration to Gilliam County, and blue indicates migration from Gilliam County.

**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 all reflect valuable workforce skills. Regional diversity in backgrounds, races and ethnicities may also influence various workforce dynamics. Table 4.2 reports the race/ethnicity distribution for Gilliam County, the City of Arlington, and Oregon. The data shows Gilliam County is the least diverse of the three regions, with 88.2% of its population reporting as White Alone. Notably 7.7% of the population reports as Two or More Races and 5.7% as having Hispanic Origin. Arlington is slightly more diverse with 3.2% of the population reporting as American Indian Alone, along with 8.9% reporting as Two or More Races. For comparison, at the state level 73.7% of the population reports as White Alone and 4.8% as Asian alone. Around 14.7% reports being of Hispanic Origin.

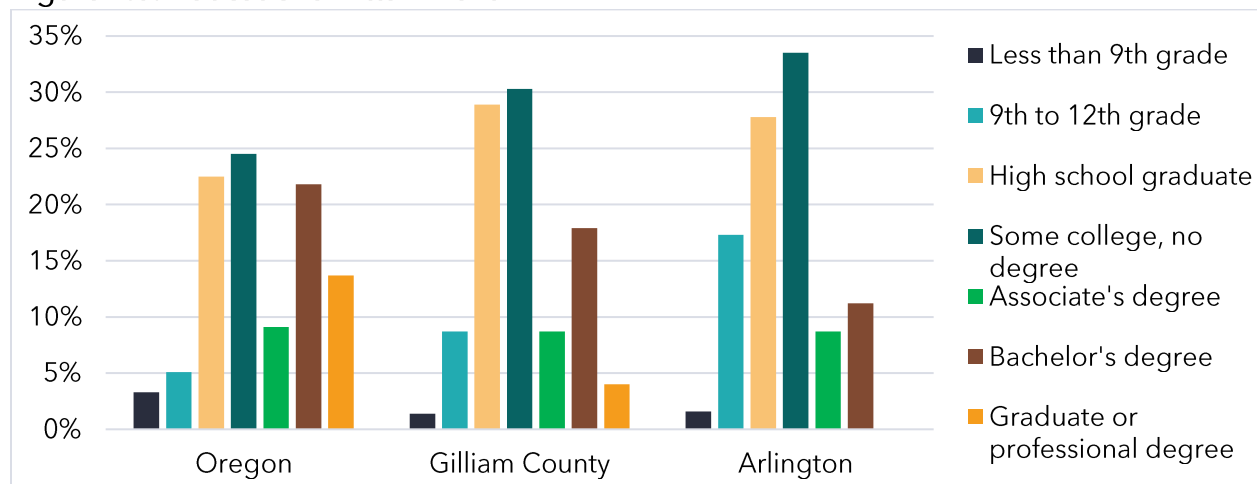
**Table 4.2: Gilliam County Race/Ethnicity Distribution, 2023<sup>7</sup>**

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. Only 11.2% of the population of Arlington reports having a bachelor's degree or higher. In Gilliam County, this percentage is higher (21.9%). For comparison, 35.5% of the population at a state level reports a bachelor's degree or higher. This is noteworthy, as college degrees typically represent skilled labor and wage premiums. A lower regional attainment of college degrees tends to signal low skilled labor. Though heavily relying on skilled labor may not be feasible for Gilliam County and Arlington, the Port could focus on attracting commuters to fill higher-skilled positions.

**Figure 4.3: Educational Attainment**



Source: US Census Bureau, 2022 5-Year Estimates

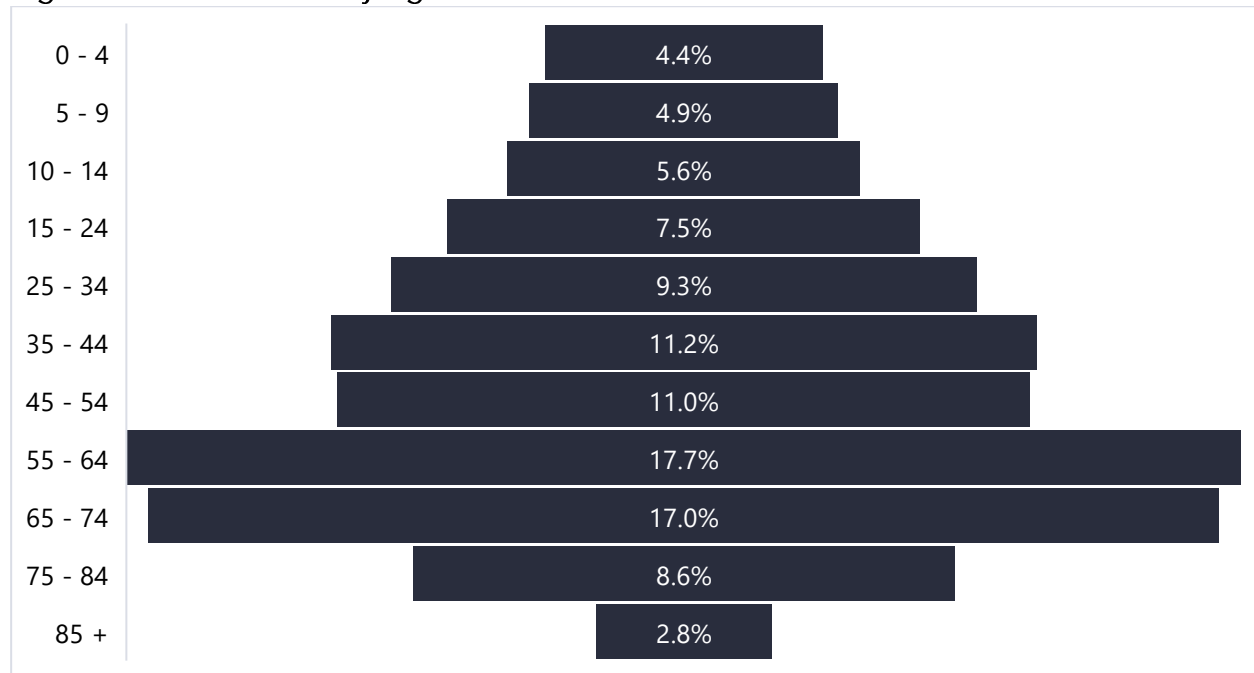
<sup>7</sup> Values in the table will not sum to 100% because Hispanic Origin is categorized as an ethnicity and is distributed amongst the different races.

Age distributions provide valuable insight into labor supply in a region. Prime working age of individuals—as well as experience levels attained through participation in the workforce—heavily contribute to a region’s ability to create and sustain economic growth. Figures 4.4 and 4.5 show the populations of Gilliam County, Arlington, and Oregon by age. Of the three regions represented, **Gilliam County reports the lowest share of individuals in prime working age (31.5%)**. This isn’t necessarily problematic, if there is a larger share of the population set to replace the prime working-age population. However, Gilliam County reports the lowest share of population below prime working age, as well as the the highest share of population aged 65+. Any significant employment increases in Gilliam County will need to correspond with an increase in migration into the County (or increase in commuting from surrounding areas).

As Baby Boomers continue to age, they will place a greater stress on community resources and the working population. This is certainly true in Gilliam County. While an older workforce represents more experience, it can also mean additional challenges for younger workers hoping to climb the income ladder. While 13.6% of Oregonians are between the ages of 25 and 34, only 9.3% of Gilliam County’s population is reported in this age cohort (Figure 4.5)

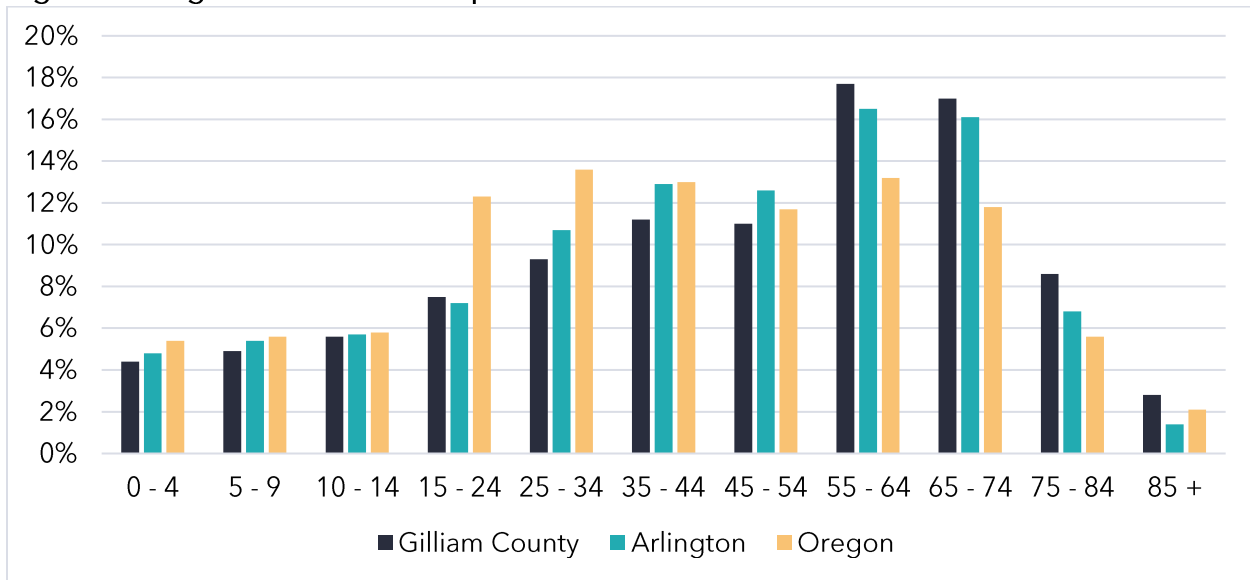
An older workforce is also concerning as large numbers of retirees leaving the workforce can result in labor shortages. Creating jobs that will attract more young workers should be a high priority for the Port.

**Figure 4.4: Gilliam County Age Distribution**



Source: PC Using Esri Business Analyst, 2023

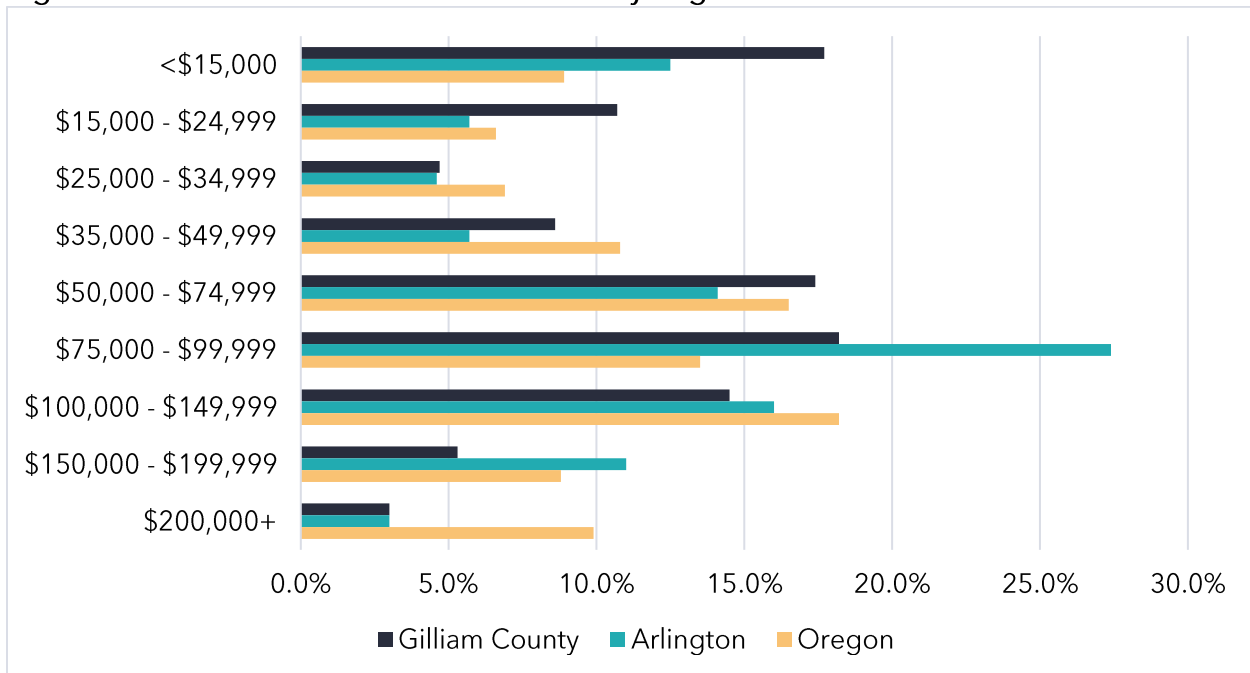
**Figure 4.5: Age Distribution Comparison**



Source: PC Using Esri Business Analyst, 2023

In terms of median household income (MHHI), an odd dynamic exists 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 indicates Arlington’s households are bringing Gilliam County’s overall income distribution up, and other areas (such as unincorporated communities) are driving it down. The statistics beneath the surface of these averages are revealing. While over a quarter of Arlington’s households (27.4%) are in the \$75K to \$100K cohort, more than 15.0% of the County’s households are earning below \$15K (Figure 4.6).

**Figure 4.6: Household Income Distribution by Region**



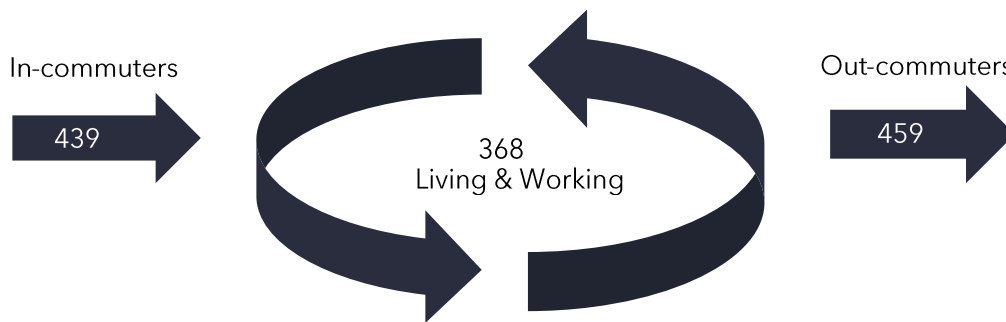
Source: PC Using Esri Business Analyst, 2023

## Commuters

The commute data show the interconnected nature of income, job/career opportunities, and living decisions. These data also reflect the reality that many workers commute from the Boardman area (or even the Tri Cities) but would likely rather work closer to their homes. With plenty of available land for both industrial and residential development, the Port has ample opportunity to change this narrative.

Commuter flows for Gilliam County are shown in Figure 4.7 and characteristics of those workers are reported in Table 4.3. On net, Gilliam County is losing workers. Around 459 residents are working outside of the County, while 439 workers commute to work in the County. Data show 368 people are both living and working in the County.

Figure 4.7: Commuter Inflow and Outflow from Gilliam County



Source: US Census Bureau, OnTheMap, 2021

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. Around 48.8% of County residents commuting elsewhere to work are prime working-age individuals, and 44% are earning more than \$40K per year. Notably, the majority are working in the Services industry (54.7%). If the Port hopes to generate attractive jobs in the region, these are important characteristics to consider. The Port could also potentially consider persuading in-commuters to move into the County. Among other benefits, this would produce more tax revenue.

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, covering Arlington and the central Gilliam County area. Please note 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 are 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 showing employment loss are minimal, and mostly show the loss of potentially part-time employees. Total employment numbers for these industries (including Transportation & Warehousing, and Finance & Insurance) have stayed relatively steady over the last five years. The only industry that has shrunk more than marginally is Administrative Support & Waste Management/Remediation services, which reports a loss of 46 workers over the past 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
<b>Total</b>	<b>443</b>	<b>445</b>	<b>2</b>	<b>0.5%</b>	<b>\$55,229</b>

Source: Data Tactical Group, 2024

Tables 4.5 and 4.6 examine growth in the last 10 years in the same zip code area by 6-digit NAICS industry. Considering 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 industries, demonstrating strong market growth by demand over the past decade, continue to need more labor.

Considering total earnings, industries with highest earnings growth include Power/Communication Line & Related Structures Construction, Solid Waste Landfill, and Other Justice, Public Order, & Safety Activities (Table 4.6). To meet market demand, these industries have had to increase wages over time to retain workers.

**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

Table 4.7 reports private sector employment in the zip code by industry and relative location quotients (LQs). In this context, LQs compare relative concentrations of industries to the national average. For example, Construction represents 7.2% of private sector employment within the 97812 zip code. Since the zip code shows a slightly higher share of employment in this particular industry than the US does, an LQ of 1.18 (greater than 1) is assigned to the area for Construction. LQs ultimately provide helpful information about which industries have clustered in the area.

For Zip Code 97812, industries with the largest LQs include:

- Agriculture/Forestry/Fishing & Hunting (8.96): This industry is well represented in the County, as shown by USDA data featured in the Regional Background section and the Trade section.

- Administrative Support & Waste Management/Remediation Services (7.45): This is the anchor employer of Gilliam County and related to the Chemical Waste Management industry.
- Utilities (7.04): While utilities are usually served by public sector employment, there is strong industry presence in the private sector here due to solar and wind farm activities (see Regional Background section of this report).

The Port might consider development options at the site that naturally complement and support the industries listed above.

**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

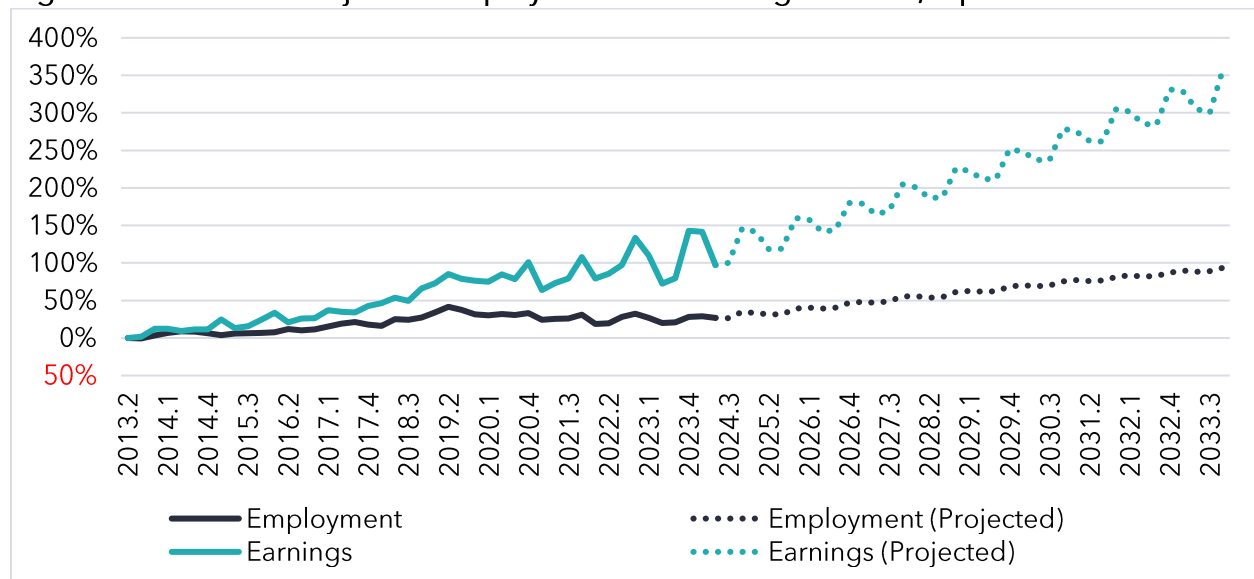
Source: Data Tactical Group, 2024

Past and projected growth for employment and earnings in the zip code is shown in Figure 4.8. According to the data, employment in the area peaked in the second quarter of 2019 and declined going 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 before then.

Fortunately, earnings have rebounded well post-pandemic and are expected to grow steadily, outpacing even employment. Earnings outpacing employment is a positive sign, as it not only indicates workers are earning more, but that companies are hiring more workers. The heavy cyclic nature of employment and earnings in the Arlington area may be due to the construction industry. Conversations with the Port suggest when there is a new project in the region, workers park their RVs and mobile homes nearby until the project is finished. Once the project is complete, they move to a different area.



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



Source: Data Tactical Group, 2024

### Stakeholder Interviews Summary

Our 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 completed through interviewing key stakeholders in the region. Interviewees ranged from executive directors of nonprofits to CEOs in the private sector. Summaries of our conversations are included below.

#### Mid-Columbia Economic Development District

Gilliam County is not a part of the Mid-Columbia Economic Development District (MCEDD), but we considered their executive director’s perspective valuable, as MCEDD operates within the Columbia Gorge region. While this economic development district is not heavily involved in private sector recruitment, they do collect information about counties in the region. MCEDD reports various value-added regional agriculture activities happening within its partner counties involving small food manufacturers, cherry growers, and even tofurkey producers. MCEDD also mentioned various renewable energy projects, such as solar installations in South Wasco County and a pump storage facility in Goldendale. Counties within the MCEDD district may be similar in many ways to Gilliam County and could provide inspiration and guidance to the Port.

#### Painted Hills Natural Beef

Painted Hills Natural Beef (PHNB) operates out of Fossil, Oregon and is a wholesale beef operation. Recently, a shortage of cattle nationwide increased costs for all facets of operation. The shortage was caused by a drought, which led to increased liquidation of herds. With the ensuing price escalation, ranchers were incentivized to continue liquidation while prices remained high to receive more profit. This has impacted the beef market and has also caused consumers to switch to other products. Because a variety of other producers are involved in value-added beef manufacturing, PHNB doesn’t provide this service. While PHNB considered the Port of Arlington, Morrow, and Walla Walla as potential locations for their

own facility, market conditions prevented development. During our conversation, a storage and distribution center was mentioned as a likely future project. While most action in this industry happens along the I-5 corridor and in the Tri Cities, the Willow Creek Site could provide valuable access to additional markets.

### **Oregon Wheat**

Oregon Wheat covers a commission for the industry in Oregon, funded through a league of wheat growers, as well as assessments on wheat and barley. We learned most wheat product from the Eastern Oregon region is destined for export, rather than for manufacturing. The 2022 Pendleton Grain Growers mill fire exacerbated an already limited domestic capacity for value-added manufacturing in agriculture. Morrow County Grain Growers (MCGG) is a key leader within the region and provides most of the wheat that could be processed regionally.

In addition to manufacturing, there is also great opportunity for increased domestic output by truck, rail, or river shipments. While our conversation with Oregon Wheat suggested a strong need for another flour mill in the area, it may be challenging to achieve sufficient water and power at the Willow Creek Site.

### **Avista Utilities**

Our project team spoke with the Oregon Regional Business Director of Avista Utilities. We discussed the idea of a cooperative or common facility for companies seeking to load freight onto a river barge or rail cars. Port of Portland's concept of a multimodal transportation and warehousing facility for local manufacturers was the inspiration for this idea. The Willow Creek Site is strategically located near paths of river and rail transportation and could be an excellent place for this kind of facility. Demand would likely be high in the Columbia Gorge or the Eastern Oregon region. Considering Gilliam County's advantages in renewable energy, a storage and distribution facility for renewable energy maintenance could be a feasible opportunity as well.

### **Oregon Windsurf Association**

To assess demand for recreational activities at the Willow Creek Site, we interviewed a representative from the Oregon Windsurf Association. Current launch sites are located in the Rufus area (a very popular spot for the sport) and at the Port of Arlington's marina. High gusts of wind from the Columbia Gorge create ideal conditions for windsurfing. The Association representative stated the site would be an ideal location for wind sports and believes athletes would travel long distances to use an optimized launch site.

Several amenities would be necessary to attract athletes and their families to the location, starting with a 75-foot area for surfers to enter the water. Play structures for children, a sandy beach featuring a cove protected from winds and current, and a wind protection/shelter may also be needed to draw visitors. Valuable features at the Rufus site include a garbage dump area, and a well-designed parking lot.

The Oregon Windsurf Association representative told us they would be willing to do a focus group for the site. They did warn a launch site at Willow Creek would not be suitable for unsupervised beginners, due to swells on the Columbia River. The site would be designed for experienced athletes, or perhaps private or group lessons (this matters when considering

a target demographic for the site). If the Port were to pursue a launch site, athletes and families could be a source of additional money for the County.

### **Greater Eastern Oregon Economic Development Corporation**

Our interview with the Greater Eastern Oregon Economic Development Corporation (GEODC) coincided with the completion of their comprehensive economic development strategy (CEDS). They were well equipped to explain some needs of the region. Multiple needs related to childcare, infrastructure, and community resilience. We also discussed housing.

The GEODC didn't emphasize industrial needs, but they did mention the cluster of unmanned aerial systems (UAS) companies in the Hood River area. Thanks to a testing facility in Pendleton, there may be an opportunity to attract another UAS manufacturing company. GEODC agreed that a fertilizer mixing and production facility or a grain/flour mill would complement agriculture demand in the region. Other options recommended included a smaller Amazon-type storage and distribution center or a truck stop. **Key information we gained from the conversation is that the GEODC will soon receive EDA funding to help communities receive 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 in the Arlington area. Because of this, our project team contacted WM to assess any potential interest they might have in expanding their operation to the Willow Creek Site.

WM Subtitle C (hazardous waste disposal) continuously explores new technologies to deal with the waste, and Subtitle D (nonhazardous solid waste disposal) already has some new developments in the works. However, it's unclear exactly how Willow Creek could directly benefit WM. WM is by nature independent and the development they pursue depends on how much they are interested in investing in the area. If the Willow Creek Site does undergo some infrastructure development, we believe it would be worthwhile to initiate another conversation with WM.

### **Laser Land Leveling**

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

According to L3, the market for gravel in the Columbia Gorge region is growing. For projects west of Hermiston, it makes sense to use gravel from the Willow Creek Site. This gives the Port a strong competitive advantage. L3 explained the overall increasing construction activity in the area (specifically related to data centers and solar and wind power) is driving the growing market for gravel. We also learned through this conversation that Willow Creek is comprised of basalt. Given its proximity to the river, it would be difficult to set up a wash site for washed rock.

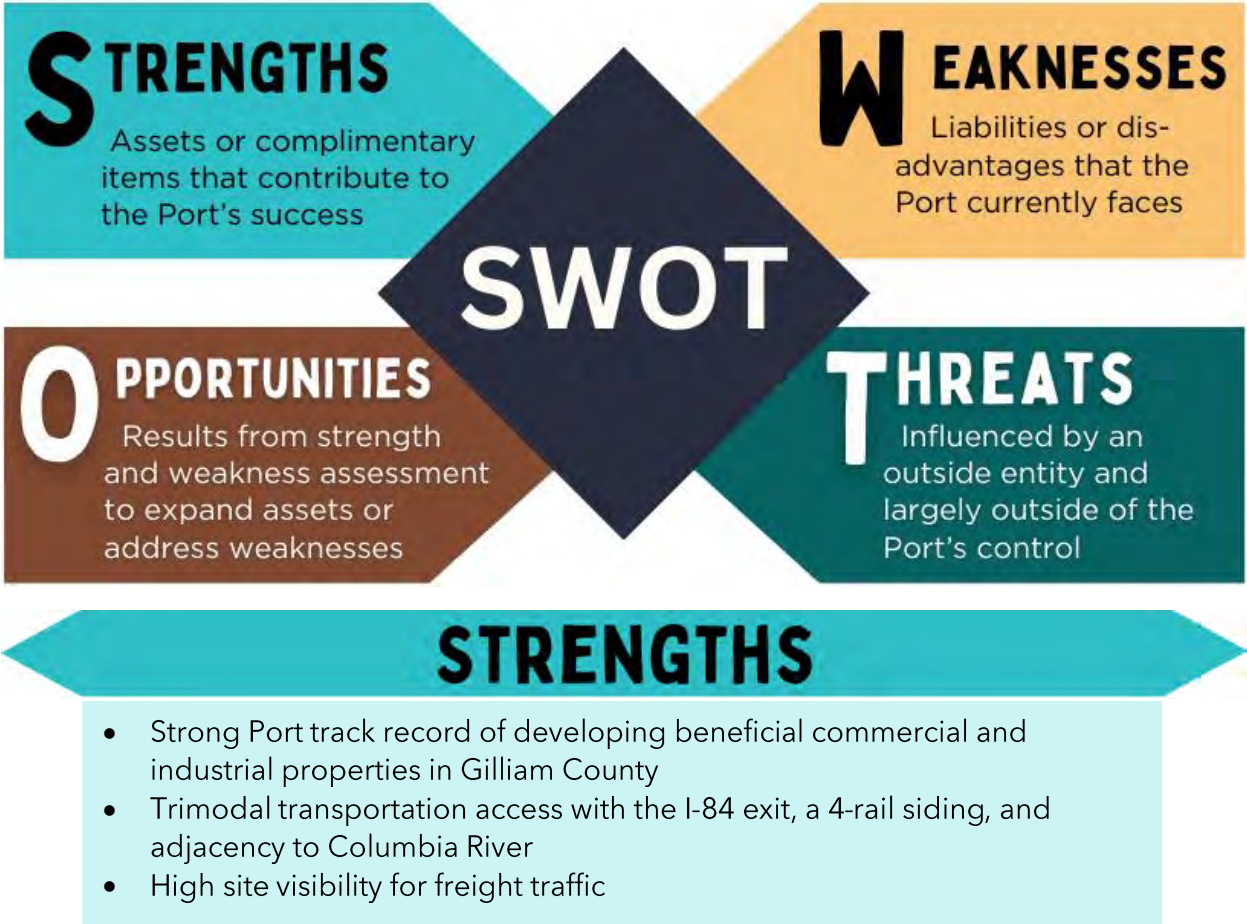
Given the increase construction in the region, L3 believes there is ongoing demand for gravel material and an expansion of the gravel quarry across the rest of the site would make sense. Any construction projects happening in the Arlington Area would benefit from receiving gravel extracted from the Willow Creek Site.

**SWOT Analysis**

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a strategic planning tool which helps businesses, organizations, and other entities understand their unique competitive advantages within the marketplace. For this SWOT, our focus is the Willow Creek site and not the Port of Arlington in general. (The Port’s 2023-2033 Strategic Business Plan contains more information related to the Port itself.)

Our project team reviewed the site to accurately assess this asset within the economic marketplace. We honed the list below throughout the course of the project, as we gained additional information from the Port and through extensive research. Throughout April and May of 2024, we completed interviews with several stakeholders in the Columbia Gorge and Eastern Oregon regions and update the SWOT analysis to reflect these discussions.

The following are definitions of the SWOT components:



- 12.5 mile distance to nearest truck stop (a Love's in the Boardman area)
- Housing stock (single and multi-family) currently under development in Arlington, setting the area apart from other low-inventory locations along the Columbia
- Inclusion within the Gilliam County Enterprise Zone, active through June of 2032
- Gilliam County designation as a Rural Renewable Energy Development Zone
- Recent economic development successes in the area likely leading to UGB expansion soon

## WEAKNESSES

- No current municipal sewer, water, or electrical service to the site
- Existing usage of the gravel quarry not highly complementary to other uses
- Current electrical service through Pacific Power not considered the highest quality service in the eastern Columbia Gorge area
- Climate and precipitation limits curbing growth opportunities in Gilliam County and surrounding areas, limiting complementary agricultural options
- Lack of shade and landscaping at the site limiting existing recreational opportunities
- Limited utility access due to eight mile distance from the City of Arlington's UGB
- Severely rocky terrain

## OPPORTUNITIES

- Development of Arlington Mesa industrial parcel could provide overall economic boost to the City of Arlington
- 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)
- Generation of interest and awareness for the City of Arlington as an economic development hub through the activation of a data center project in Arlington

- Opportunity to feed into Pacific Northwest Hydrogen Association’s regional hydrogen supply chain
- 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 Rhea Road
- Potential commercial lodging opportunity as an accessory to a gas station/truck stop (limited lodging opportunities in the Arlington area)
- Prospect of expanding business for Waste Management via a solid waste barge
- Potential creation of a flour mill after the fire at Pendleton’s flour mill created 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 due to trade route access
- Funding for infrastructure expansion to the site through funding award to the Greater Eastern Oregon Development Corporation
- Limited barriers to zoning changes for potential land use needs at the site

## THREATS

- Compromised history and interactions with federal and CTUIR authorities related to a barge dock
- DLCD requirements related to Goal 9 and Goal 14 analysis of economic development requirements before UGB expansion or site annexation
- Potential capacity issues with water pressure of future well (well water analysis necessary)
- High employee turnover (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)
- Limited labor availability during parts of the year due to driving conditions on the windy, two-lane highway from Arlington to Condon
- Concerns that development outside of the City of Arlington could result in a diversion of spending and economic activity away from businesses in town
- Lack of available workforce housing in the region limiting the type of development at the site

## Options for Development

### Infrastructure Needs

The most significant constraint on the Willow Creek Site development is that there is no simple solution for connecting the site to municipal water and sewer systems. Though connection with the City of Arlington is potentially feasible, all other reasonable options must be explored before the State of Oregon will allow such a significant sewer extension. Even if this proposed extension were approved, it would need to 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.”

Water and sewer restraints will no doubt dictate feasible development at the site. Well water and septic drain fields may suffice for lower-intensity development options but will not be adequate to support 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 cost projections (and even development options themselves), especially related to infrastructure expansion. To facilitate projects potentially impacted by this, GEODC is currently receiving funding to help entities in Eastern Oregon receive funding for infrastructure upgrades. The Port should consider reaching out to the GEODC to thoroughly assess funding opportunities.

### Market Demand Potential

The Port should consider multiple options 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. a cold storage facility). However, other opportunities might require lower capital investment. The Port should consider its own strengths and those of the site, in addition to quantitative and qualitative analyses. **The site’s competitive advantage—thanks to its proximity to multiple modes of transportation and ability to access other markets—is worth emphasizing again. Many of the highlighted options below would be suitable given the site’s locational strength.**

### Low-Intensity Development

A low-intensity development option could include 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 conservative approach to the site would generate revenue for the Port, which could be used to fund other projects in closer vicinity to city utilities and general services. Pursuing a low-intensity option would take advantage of I-84 traffic, both freight trucking and passenger

vehicles. 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 other personal items.

### ***Mid-Intensity Development***

A flexible-use cooperative building is one example of a mid-intensity development approach. This kind of building could have storage and distribution capabilities, commercial components, as well as manufacturing spaces. The flex building on the Arlington Mesa is one regional example of such a building (though on a smaller and less diverse scale). Though greater investments would be necessary to service utilities, the potential opportunities another flex building could provide to the region are significant.

Mid-intensity development would allow goods-producing firms to take advantage of the strategic shipping and distribution opportunities at the site. Raw agricultural products could be more efficiently distributed throughout the region. More entrepreneurial or technological companies might be interested in using the space, particularly if they could benefit from other nearby regional assets. As one example, private sector renewable energy firms could store, distribute, and potentially even service their technology in this space—complementing Gilliam County’s current advantages in this area.

### ***High-Intensity Development***

One high-intensity development option for the site is a grain/flour mill. The demand for domestic production of flour is high in the region, given the presence of the agriculture sector and the recent gap in the market following the destruction of the Pendleton Grain Growers mill. Another development option complementing the agriculture sector is a fertilizer manufacturing facility. Steady demand for fertilizer is shown through barge shipment numbers and the prevalence of agriculture in the area. Both options, however, would require heavy use of water and power.

One final high-intensity development option is a full truck stop, equipped with a convenience store, refueling station, and rest area. A truck stop would be appropriate given shipping along the I-84 corridor.



## 5. Agency Outreach

Multi-agency coordination is essential for a successful development. Our project team attempted to engage with and interviewed several parties with the goal of establishing strong communication with the Port and enabling seamless information transfer for permits and project engagement. Key parties we 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 strong standing relationship with several members within CTUIR, due to previous work we completed for them. Thanks to this relationship, CTUIR responded to our outreach and completed an interview. Our conversation revealed the Tribes still value the Willow Creek area as a fishing site. This means attempting another barge dock development may not be feasible. However, we spoke with Buck Jones, one of the most significant fishery rights representatives for the Tribes in Oregon. Additionally, the relationship between the Port and CTUIR is warming as well, as demonstrated by friendly communication between the Tribe and the Port Director.

#### ***Union Pacific Railroad***

In conversations throughout the project, Union Pacific Railroad (UPRR) seems to be very independent in their operations. Our project team, following complete outreach protocol, did not receive a response from UPRR. This could be a sign that railroad use may not be a feasible option for development at Willow Creek. It's also possible that UPRR may not currently perceive the site as beneficial to them.

#### ***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. According to the Port, highlights from each project are the collaborations happening to make the projects successful. Support from Business Oregon and regional partners, construction funding from multiple sources, and quality consulting work done by private contractors have been invaluable.

#### ***Gilliam County***

The highest traffic area for Gilliam County is the I-84 corridor on the north side. With the Willow Creek site situated along this corridor, we pursued the County to better understand their perspective on needs and opportunities at the site. Following our full outreach methodology, we received no response from the County.

#### ***City of Arlington***

A meeting with the City of Arlington emphasized one of its primary needs is more workforce housing. At the same time, the City (partnering with the Port) is already focused on a project to develop a large site on the Arlington Mesa. The influx of construction workers necessary to complete this development will no doubt place further stress on the area's housing needs.

Anticipating this, the City is preparing to demolish the site of an old motel to create additional RV spots for temporary workers.

Our interview with the City revealed a previously undiscussed potential use for the Willow Creek Site. If the site were even slightly developed with basic infrastructure and platting, the Port could lease the land to the company set to develop on the Mesa. The site could then be used as a laydown, storage, and/or repair area. If the Port chooses to move in this direction, potential future partnerships to advance the Arlington Mesa project might be feasible.

### **Oregon Water District 21**

The Water Master of District 21 met over the phone with our project team to discuss water rights and permits related to development at the site. The Water Master recommended the Port immediately apply for a groundwater right, no matter what plans for the site it chooses to pursue. Because the permitting process can be long and potentially costly, it is better to apply sooner than later.

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*... recommended the Port immediately apply for a groundwater right, no matter what plans for the site it chooses to pursue.*

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*... recommends reaching out to the Water Resources Department for further information about groundwater well permitting.*

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From this conversation we also learned that in general, wells in the area are dropping and not regenerating. This may present an obstacle to future site development. Water District 21 recommends reaching out to the Water Resources Department for further information 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) to gain information on regulatory requirements related to site development at Willow Creek. USACE specified a low to moderate impact on resource use for development purposes. Our project team sought to specifically discuss CTIUR's role in development along the Columbia River. We also made an explicit attempt to discuss CTUIR's role in development along the Columbia River.

Concerning applicable federal or state laws related to development, USACE pointed to the following entity requirements:

- Oregon Department of Environmental Quality permit (needed for water quality certification)
- Department of State Lands removal permit (necessary)
- Federal Endangered Species Act survey (needs to be completed, specifically for steelhead and sockeye salmon preservation)
- The National Historic Preservation Office (may need to be involved)
- USACE approval from Tribes (if tribal land will be developed)

A recurring theme from our discussion with USACE is the benefit of starting conversations early, whether with USACE itself or the Tribes. Sending even preliminary development options to USACE is helpful as it enables them to understand what is in the regional development pipeline. Early communication with the Tribes is also beneficial. USACE

mentioned the Tribes generally express more interest in a project when the USACE has an actual proposal in hand to discuss.

### **Oregon Water Resources Department**

As recommended by the Oregon Water District 21, we completed an interview with the Oregon Water Resources Department (OWRD) to gain information on water potential at the site. The well permit process begins with an application form available on the OWRD website. It contains key questions about the proposed use and depth of a well. OWRD advises agencies to hire certified contractors to handle the application process.

The application to drilling phase is usually long and can sometimes take up to a year or more. In our conversation OWRD noted there is currently a major backlog of well applications. While OWRD continues to process these applications, the small size of the department constrains processing speed. If a proposed well could impact a stream or specific type of ecosystem, entities such as Fish and Wildlife may become involved in the application process. OWRD evaluates the technical aspects of the proposed well.

OWRD told us they are unable to predict the approval of any given application, for liability reasons. However, the decline of aquifers in the area means there is a lower likelihood in general of application approval, particularly if the proposed well is deep.

OWRD did note that an application for a shallower well on the site may have a higher likelihood of being approved. The well currently serving Biggs Junction is an example of this type of well, with a water right of 0.9 CFS.

### **Methodology**

For each agency, our project team first contacted individuals recommended by the Port. If the Port had no contacts for the agency, we then used web-based search tactics to determine the appropriate officials to interview. Using contact information from both the Port and our own research, we then sent emails to each agency requesting an interview to discuss the site, specific procedures the Port may need to follow, and who should be contacted going forward. If initial emails did not elicit response, our project team made additional efforts to call contacts, leave voicemails, and send follow-up emails.

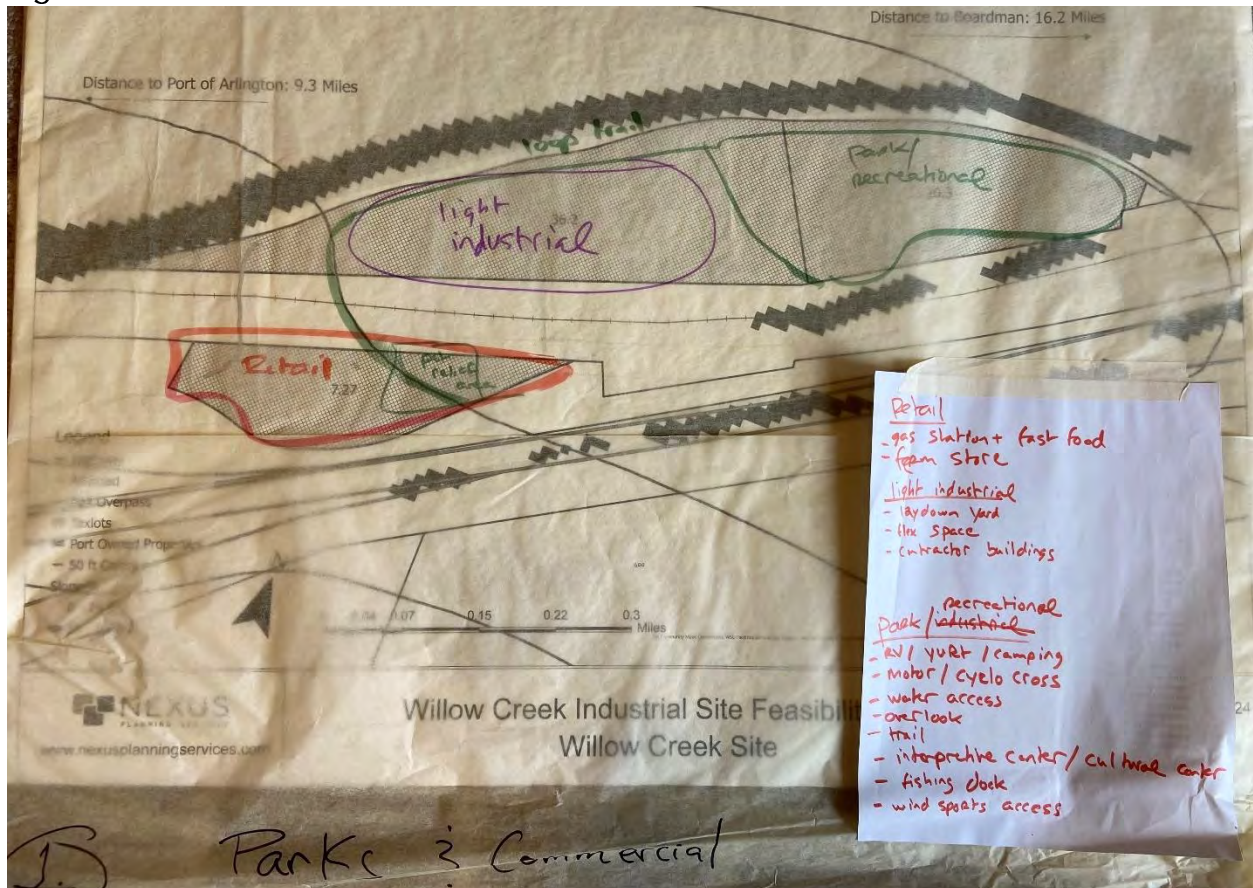
# Appendix A: Project Documentation & Visuals

Table A.1: Community Engagement Documentation

Date	Engagement Type	Notes
April 1st, 2024	Onsite Visit	The consulting team visited Arlington to engage with Port personnel. Visit included tour of Port facilities in Arlington, Willow Creek, and Condon
May 9th, 2024	Commissioners Meeting Presence	Points Consulting joined the May Commissioners Meeting to discuss the Site Overview Report
June 13th, 2024	Commissioners Meeting Presence	Points Consulting joined the June Commissioners Meeting to discuss the Site Analysis Report
June 26th, 2024	Onsite Community Townhall	Points Consulting visited Arlington for a community townhall presentation in an effort to get feedback from community members
August 8th, 2024	Onsite Work Session Presentation	Points Consulting joined the August Commissioners meeting onsite for a work session with the commissioners on development scenarios and land use designations
October 10th, 2024	Commissioners Meeting Presence	Points Consulting joined the October Commissioners meeting to receive feedback on the Willow Creek Draft Industrial Site Feasibility Plan

Source: Points Consulting

Figure A.1: Charrette Visual Scenario 1



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

Figure A.2: Charrette Visual Scenario 2\*

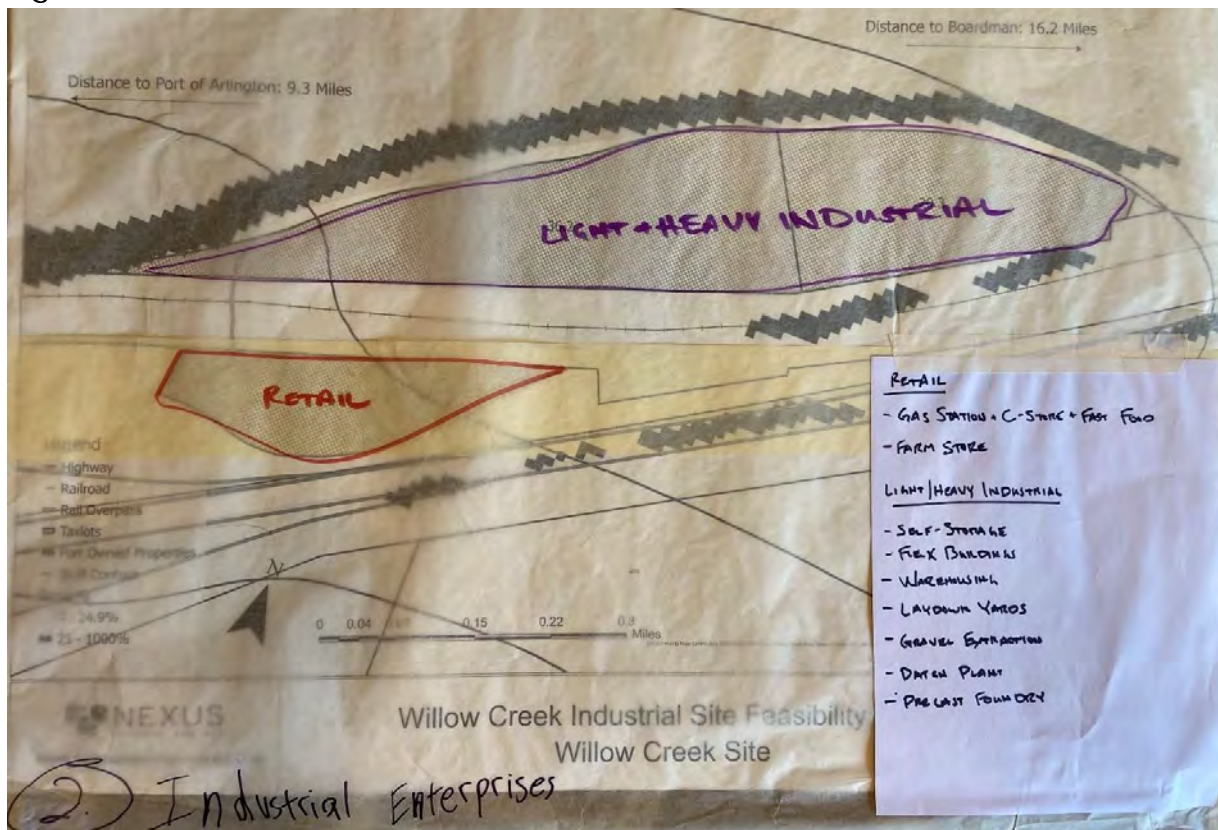
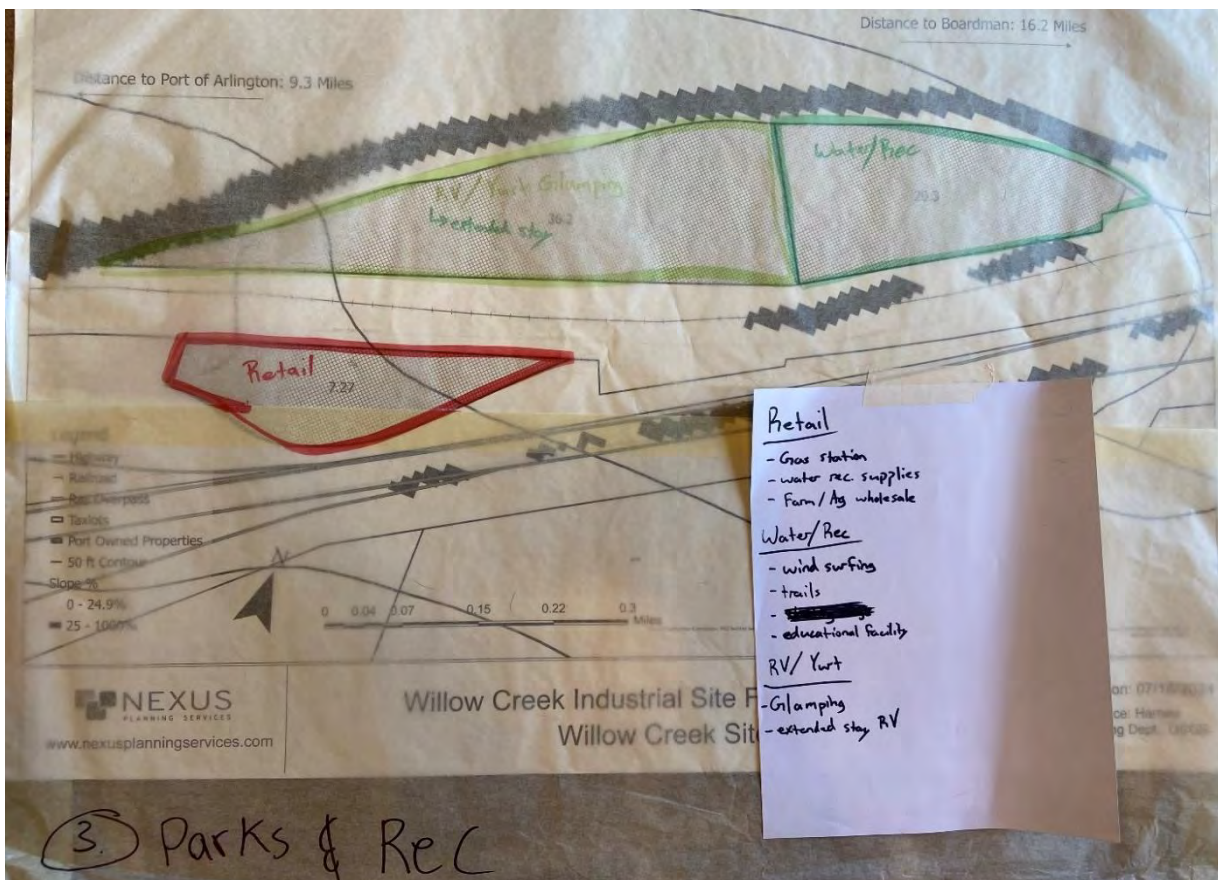


Figure A.3: Charrette Visual Scenario 3\*



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

Figure A.4: Charrette Visual Scenario 4\*

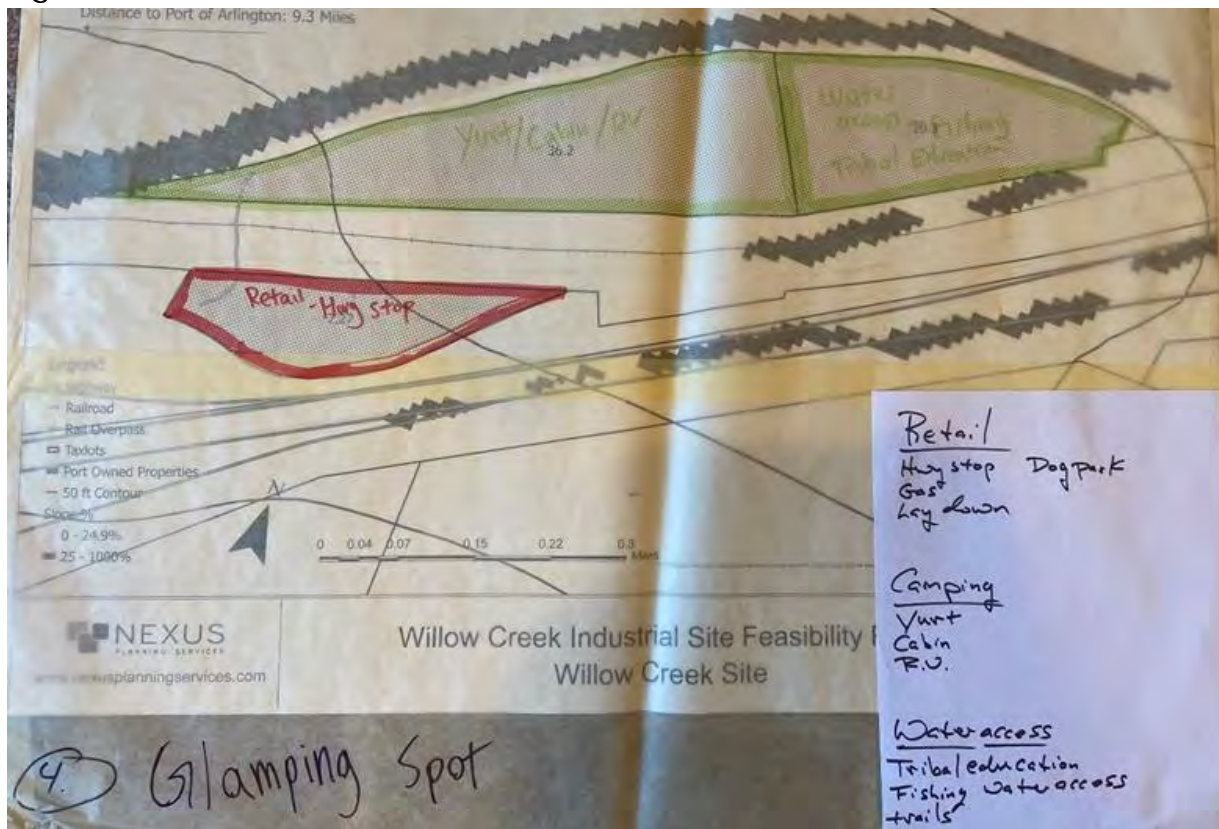
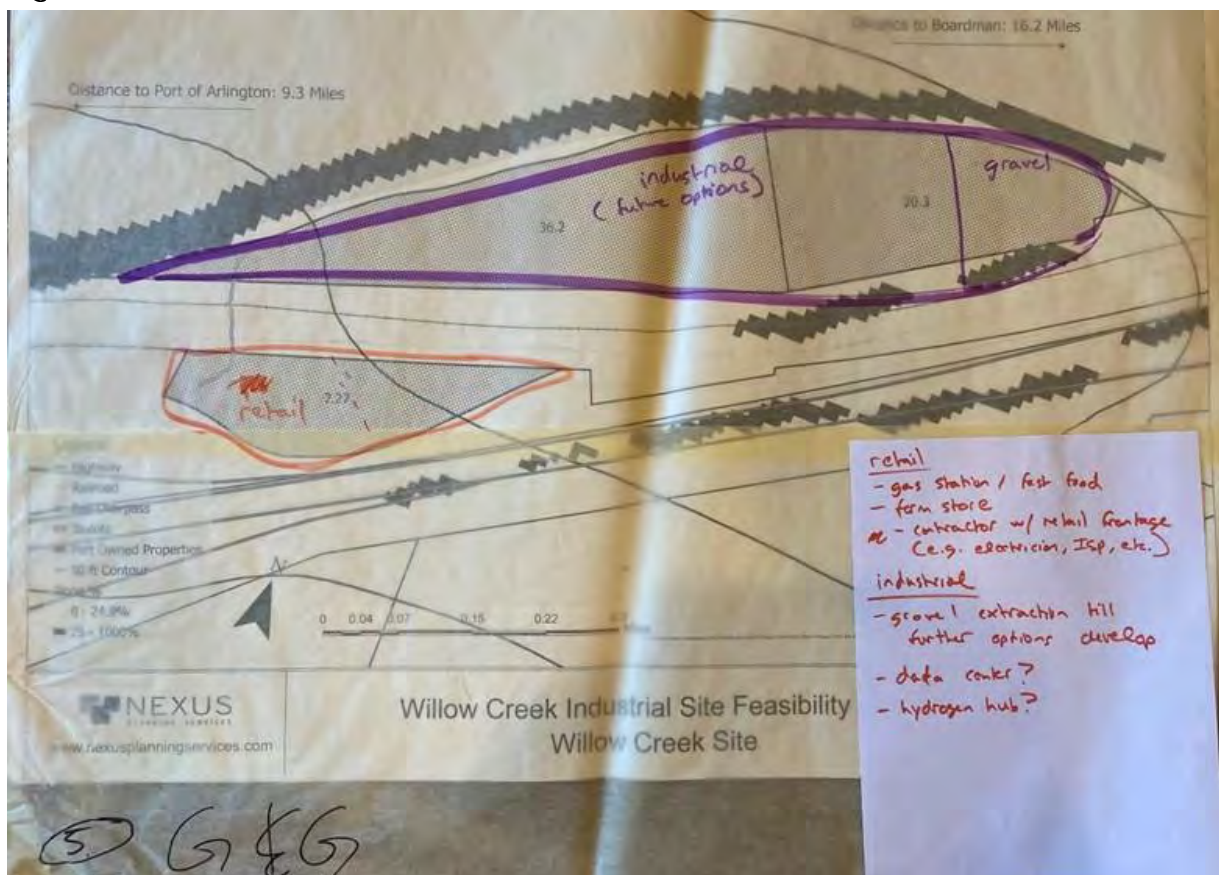
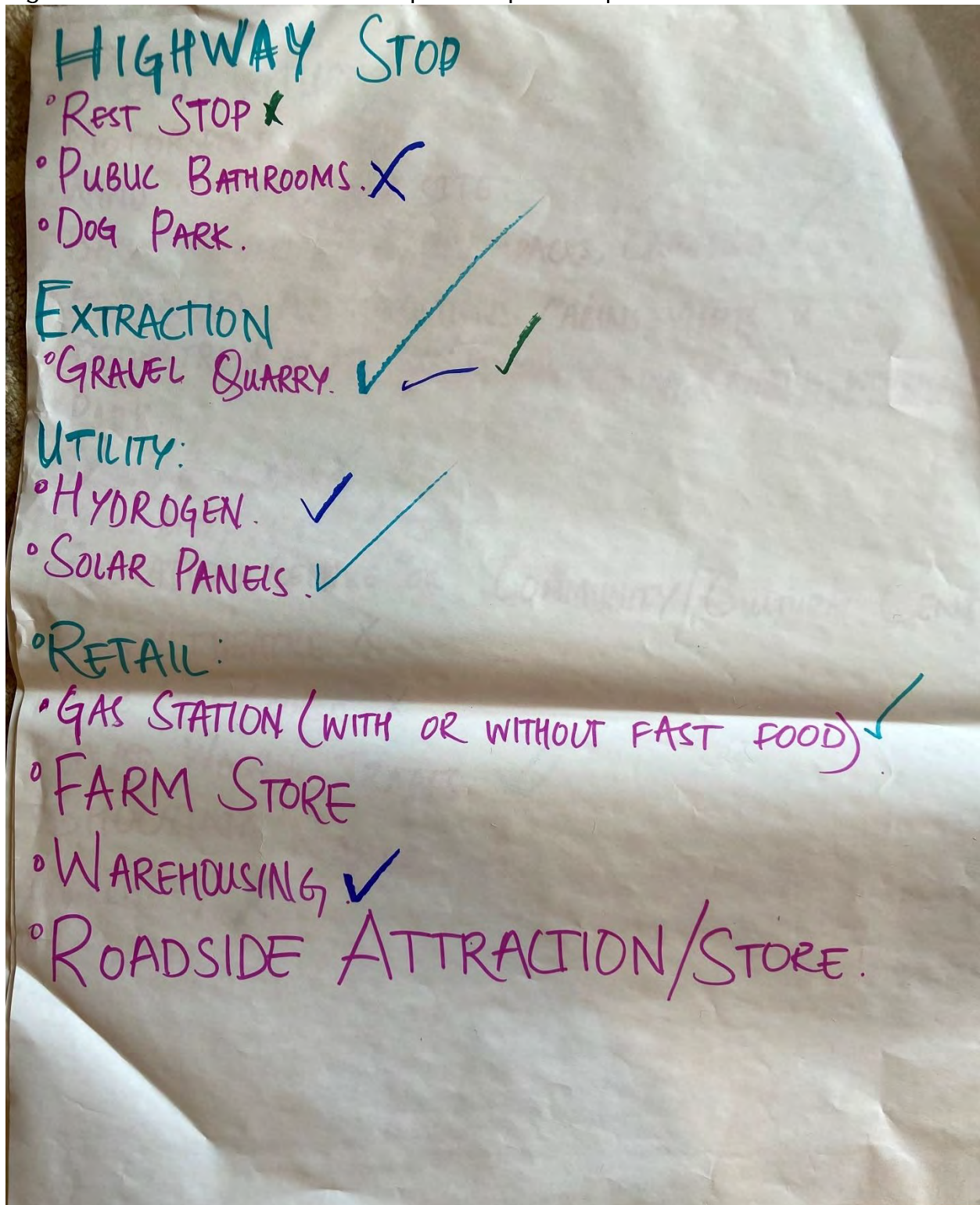


Figure A.5: Charrette Visual Scenario 5\*



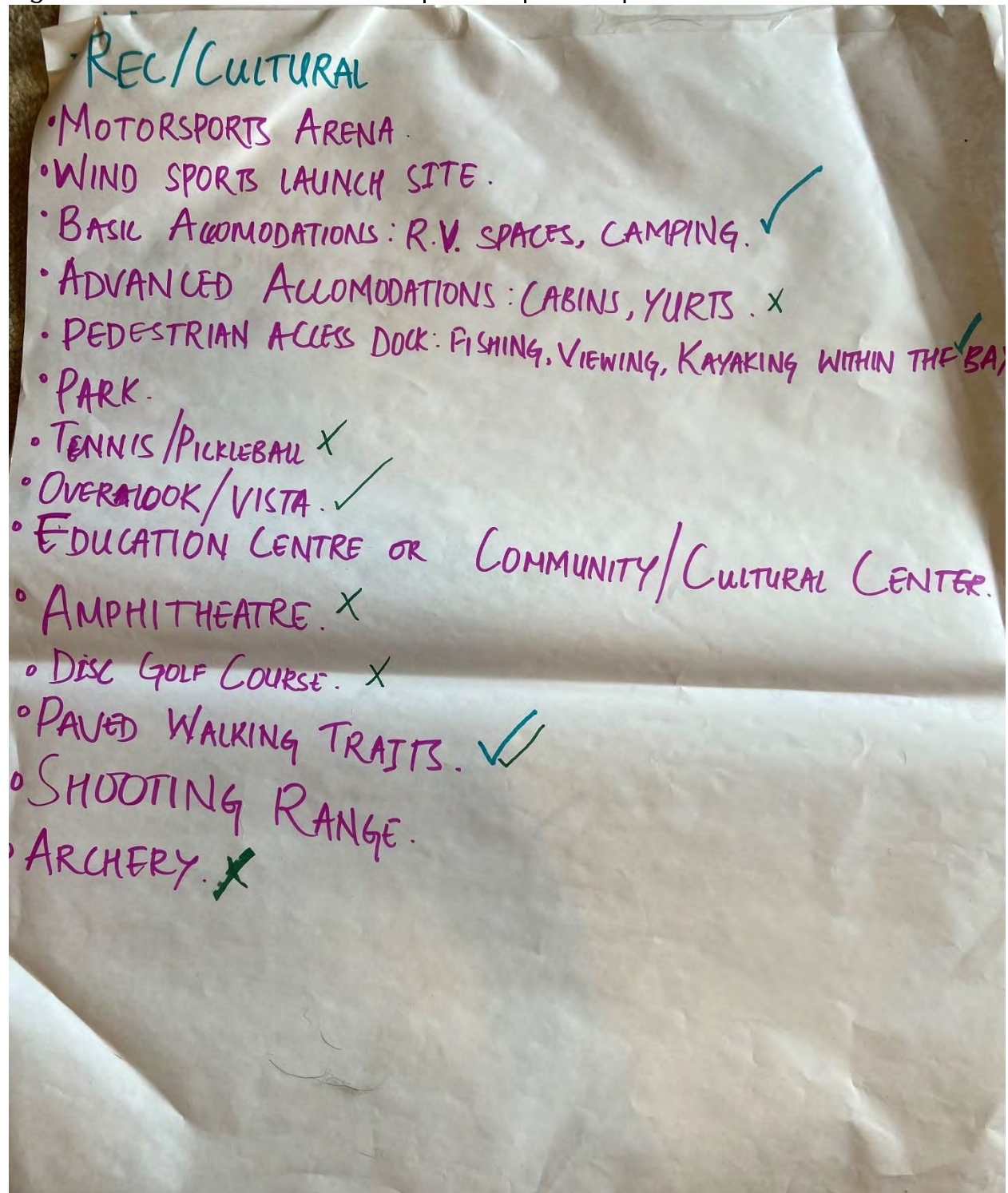
\* Source: Points Consulting, Nexus Planning Services, and DCI Engineers, 2024

Figure A.6: Commissioners' Workshop Development Options



Source: Points Consulting

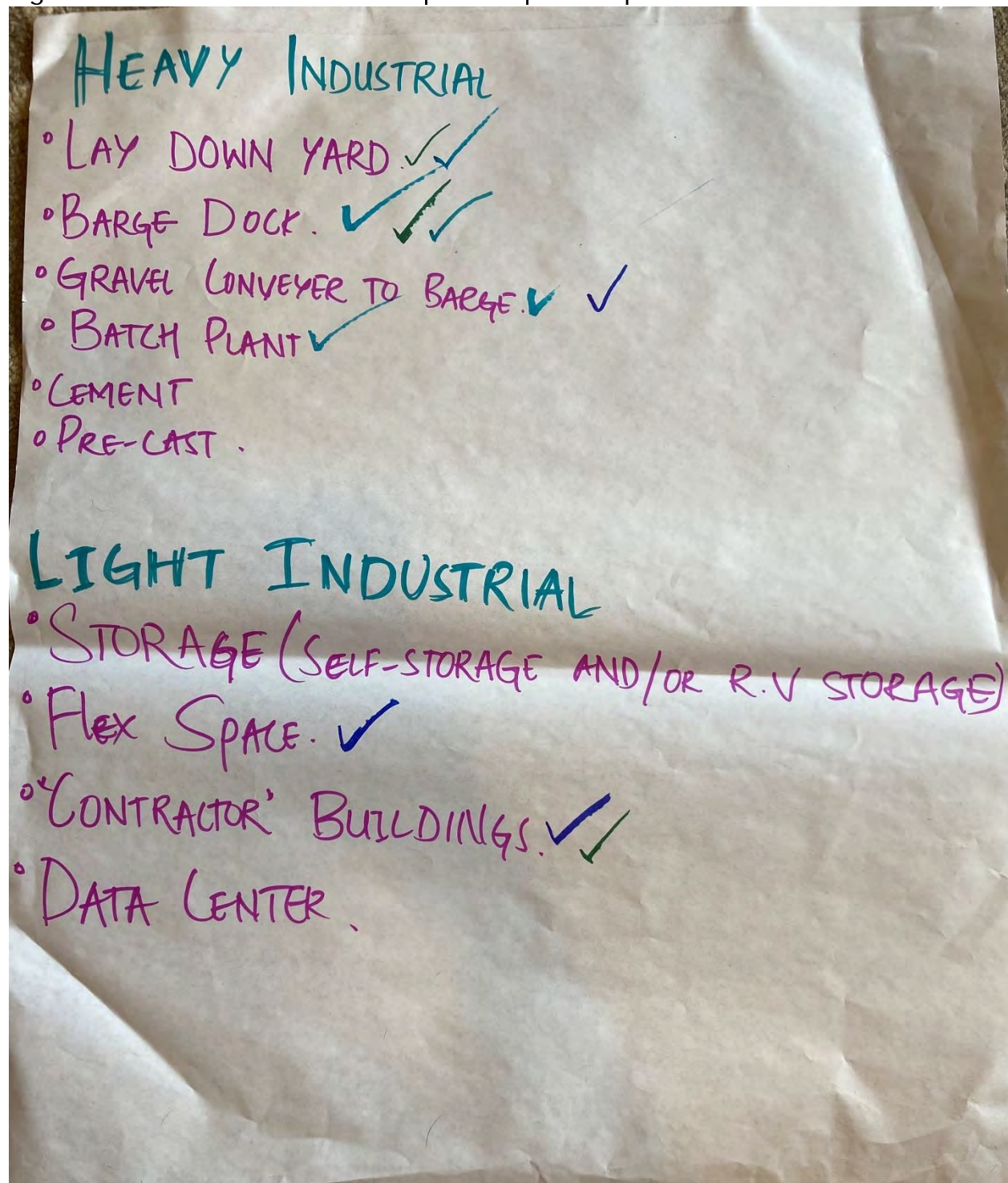
Figure A.7: Commissioners' Workshop Development Options



Source: Points Consulting



Figure A.8: Commissioners' Workshop Development Options

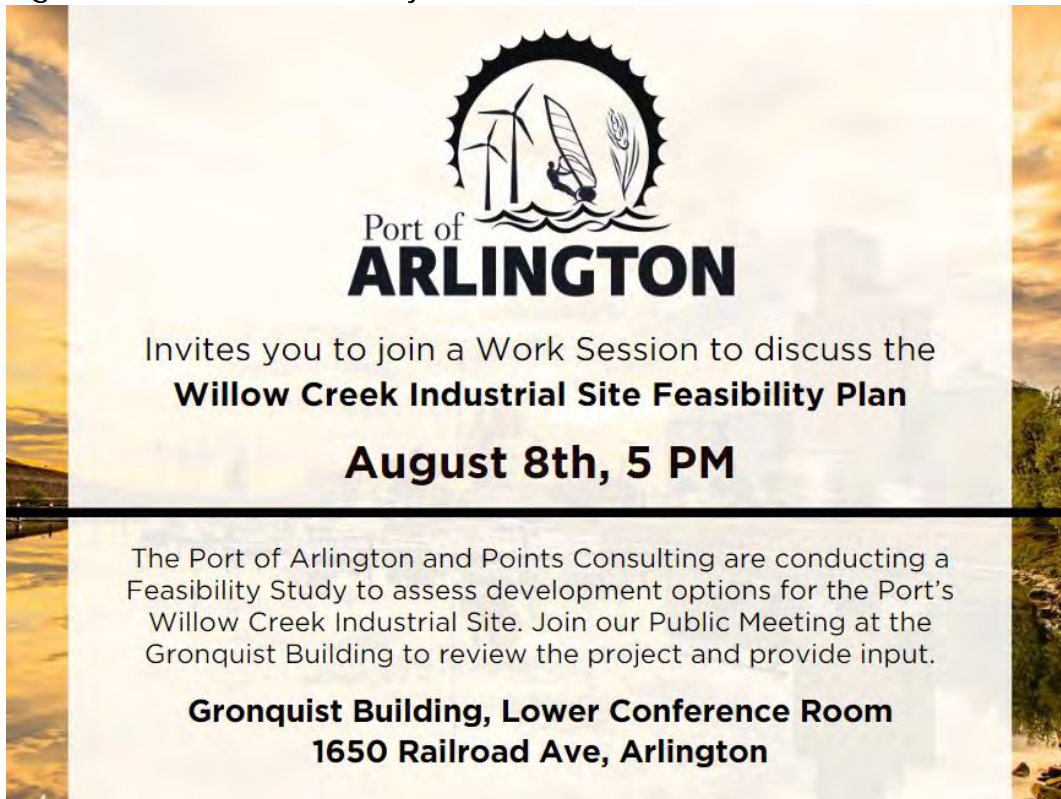


Source: Points Consulting

Figure A.9: Community Townhall Flyer\*



Figure A.10: Work Session Flyer\*



\*Source: Points Consulting

## 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 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 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 close to key markets; Having links with suppliers; Highly trained workforce

Source: PC Using IBISWorld Report OD4656 Wind Farm Construction

# Appendix C: Well Implementation Quotes

Figure C.1: Well Drilling Quote, Courtney Drilling, LLC

<b>COURTNEY WELL DRILLING, LLC</b>						
<b>PENDLETON 541-276-3681</b> MAIL: 70028 CONESTOGA DR PENDLETON, OR 97801			<b>HERMISTON 541-567-3088</b> SHOP: 2603 NE LINDELL LN PENDLETON, OR 97801			
<b>NAME</b> PORT OF ARLINGTON <b>ATTN</b> ██████████ <b>ADDRESS</b> ██████████ <b>CITY</b> ██████████ <b>STATE</b> ██████████ <b>MAP NO.</b>			<b>HOME</b> ██████████ <b>WORK PHONE</b> ██████████ <b>CELL</b> ██████████ <b>FAX PHONE</b> ██████████ <b>DATE</b> 10/16/2024 <b>NEW 8IN DOMESTIC WELL</b>			
DESCRIPTION	FROM	TO	QTY	UNIT	COST	TOTAL
OR START CARD, RECORDING & MAPPING FEE			1	EACH	\$700.00	\$700.00
DRILL 12 INCH SURFACE HOLE	0	18	18	FEET	\$54.00	\$972.00
DRILL 10 INCH CASING HOLE	18	38	20	FEET	\$45.00	\$900.00
8 INCH TUBEX SHOE			0	EACH	\$432.83	\$0.00
8 INCH CASING	-2	38	40	FEET	\$42.42	\$1,696.80
SURFACE SEAL			1	EACH	\$400.00	\$400.00
BASALT SEAL			1	EACH	\$400.00	\$400.00
ADDITIONAL BENTONITE FOR SEAL			0	SACK	\$18.00	\$0.00
DRILL 8 INCH OPEN HOLE	38	500	462	FEET	\$40.00	\$18,480.00
ALUMINUM WELL CAP			1	EACH	\$120.00	\$120.00
			0	DAY	\$0.00	\$0.00
			SUB TOTAL			\$23,668.80
<b>ADDITIONAL COSTS IF REQUIRED TO MEET OR 690 RULES</b>						
8 IN STEEL LINER	10	310	300	FEET	\$31.53	
CEMENT FLOAT SHOE			0	EACH	\$853.00	9,459.00
THREADED DRIVE SHOE			1	EACH	\$225.00	0.00
CEMENT GROUT			40	SACK	\$46.00	225.00
CEMENT GROUT PUMP & EQUIP			4	HOUR	\$570.00	1,840.00
DRILL CEMENT AND CLEAN WELL			6	HOUR	\$650.00	2,280.00
						3,900.00
<b>OR</b>						
8 IN STEEL LINER	0	0	0	FEET	\$31.53	0.00
DRIVE SHOE			0	EACH	\$95.00	0.00
THREADED DRIVE SHOE			0	EACH	\$200.00	0.00
SHALE TRAP			0	EACH	\$54.00	0.00
PERFORATE LINER-			0	HOUR	\$650.00	0.00
<b>OR</b>						
4.5IN PVC LINER	0	0	0	FEET	\$17.31	0.00
SHALE TRAP			0	EACH	\$34.14	0.00
4.5 IN PVC SCREEN	0	0	0	FEET	\$17.50	0.00
			0		\$0.00	0.00
					\$0.00	0.00
TOTAL						\$23,668.80
OR COPORATE ACTIVITY TAX						\$134.91
SUB TOTAL						\$23,803.71
50% DOWN PAYMENT						0.00
TOTAL DUE						\$23,803.71
					PVC LINER	6 IN STEEL LINER
					0.00	17,704.00
					0.00	100.91
					23,803.71	41,608.62

Source: The Port of Arlington and Courtney Well Drilling, LLC, 2024

Figure C.2: Well Pump, Piping, and Electrical Quote Low, Purswell Pump Company

Purswells Pump Company 30268 feedville road PO box 264 Hermiston, Or 97838 Office Phone: 5415672640 Mobile Phone: 5415712502 scott@purswellpump.com		Estimate Number: E241018871 Estimate Date: Oct 18, 2024 Payment Terms: Due On Receipt Estimate Creation Date: Oct 18, 2024 08:46 Estimate Amount: 35,198.50 Created By: Tyler Anderson	
Billing Address Port of Arlington P.O. Box 279 541-454-2868 Arlington, OR. 97812		Shipping Address Port of Arlington [REDACTED]	

Item #	Item Name	Quantity	Unit Price	Total
GF85S100	Grundfos 85S100-9-6	1.00	4,545.00	4,545.00
8533	Grundfos 10HP 1 ph 230v motor	1.00	3,176.00	3,176.00
7810	10 HP Deluxe Control Box	1.00	1,452.00	1,452.00
8537	8" Baker monitor pitiless	1.00	9,831.00	9,831.00
8536	3in x 21ft schedule 40 Drop pipe	273.00	15.00	4,095.00
8534	3 in VfD rated check valve	1.00	524.00	524.00
5962	4/3 submersible wire with ground	280.00	6.25	1,750.00
7609	Under Water Splice	1.00	37.50	37.50
4805	misc materials	1.00	500.00	500.00
8535	6in mag flow meter	1.00	3,138.00	3,138.00
5646	1 hour labor, 2 men install pitiless	6.00	225.00	1,350.00
5646	1 hour labor, 2 men Set pump / prep job	12.00	225.00	2,700.00
6472	1 hour 12.5 ton boom	6.00	150.00	900.00
8471	27 ton boom truck	8.00	150.00	1,200.00

Comments: [REDACTED] this Estimate is for the single phase unit that we talked about for the new port well. this unit would be 10 hp and would provide 85 gpm at 460 feet of head. if pumping from 300 feet that would be right about 70 PSI at the well head.This unit is designed to run off 230v Single phase power.	Subtotal: \$ 35,198.50 Estimate Amount \$ 35,198.50
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Source: Port of Arlington and Purswell Pump Company, 2024



Figure C.3: Well Pump, Piping, and Electrical Quote Medium, Purswell Pump Company

Purswells Pump Company 30268 feedville road PO box 264 Hermiston, Or 97838 Office Phone: 5415672640 Mobile Phone: 5415712502 scott@purswellpump.com		Estimate Number: E241018872 Estimate Date: Oct 18, 2024 Payment Terms: Due On Receipt Estimate Creation Date: Oct 18, 2024 Date: 09:15 Estimate Amount: 91,419.00 Created By: Tyler Anderson	
Billing Address Port of Arlington P.O. Box 279 541-454-2868 Arlington, OR. 97812		Shipping Address Port of Arlington [REDACTED]	

Item #	Item Name	Quantity	Unit Price	Total
6991	Grundfos 3855500-6-6 Pump De-Staged to 5 impellers to match existing pump removed from well.	1.00	7,280.00	7,280.00
8538	SME 50HP 460V 3PH motor	1.00	6,828.00	6,828.00
8537	8" Baker monitor pitiless	1.00	9,831.00	9,831.00
8541	5in X 21FT Galv drop pipe	290.00	34.00	9,860.00
5962	4/3 submersible wire with ground	300.00	6.25	1,875.00
7097	5 in VFD rated check valve	1.00	1,656.00	1,656.00
8539	VFD 1ph 230v to 3ph 460 v dv/dt filter and strikesorb	1.00	44,801.00	44,801.00
8540	6 in mag flow meter	1.00	3,138.00	3,138.00
5646	1 hour labor, 2 men install pitiless	6.00	225.00	1,350.00
5646	1 hour labor, 2 men prep/install	12.00	225.00	2,700.00
6472	1 hour 12.5 ton boom	6.00	150.00	900.00
8471	27 ton boom truck	8.00	150.00	1,200.00

Comments: [REDACTED] this estimate is for 400 GPM and set at 300 feet. This unit would be 50 HP and would provide 400 gpm at 360 feet of head with a 250 foot pumping level that would give you 50 psi at the well head. With a VFD on this system you would provide it with 230v 1 phase and it would turn it to 460 V 3 ph going out to the motor. No Estimates include electrical or excavation to install pitiless.	Subtotal: \$ 91,419.00 Estimate Amount \$ 91,419.00
--	--

Source: Port of Arlington and Purswell Pump Company, 2024

Figure C.4: Well Pump, Piping, and Electrical Quote High, Purswell Pump Company

Purswells Pump Company 30268 feedville road PO box 264 Hermiston, Or 97838 Office Phone: 5415672640 Mobile Phone: 5415712502 scott@purswellpump.com		Estimate Number: E241018873 Estimate Date: Oct 18, 2024 Payment Terms: Due On Receipt Estimate Creation Date: Oct 18, 2024 Date: 09:46 Estimate Amount: 91,522.00 Created By: Tyler Anderson	
Billing Address Port of Arlington P.O. Box 279 541-454-2868 Arlington, OR. 97812		Shipping Address Port of Arlington [REDACTED]	

Item #	Item Name	Quantity	Unit Price	Total
8542	Grundfos 385s600-8-6	1.00	8,092.00	8,092.00
8545	SME 6 in 60 Hp 460v 3 ph	1.00	7,914.00	7,914.00
8537	8" Baker monitor pitless	1.00	9,831.00	9,831.00
8541	5in X 21FT Galv drop pipe	480.00	34.00	16,320.00
8543	5in VFD rated check valve	2.00	1,656.00	3,312.00
6091	2/3 sub cable with ground	500.00	11.00	5,500.00
8540	6 in mag flow meter	1.00	3,138.00	3,138.00
5646	1 hour labor, 2 men install pitless	6.00	225.00	1,350.00
5646	1 hour labor, 2 men prep / install	12.00	225.00	2,700.00
6472	1 hour 12.5 ton boom	6.00	150.00	900.00
5511	27 Ton Boom Truck	8.00	150.00	1,200.00
8544	yaskawa 96amp 460V 1Ph in to 460V 3PH out dv/dt filter and strike sorb	1.00	31,265.00	31,265.00

Comments: [REDACTED] this estimate is for 500 feet deep. This unit will produce 400 gpm at 480 feet of head with a 350 pumping level that would give you 55psi at the well head. In order to make this work we would need a single phase of 460Volt power. This VFD would take 460V single phase and turn it to 460 Volt 3 Phase going out to the motor. No estimate includes electrical or excavation to install pitless.	Subtotal: \$ 91,522.00 Estimate Amount \$ 91,522.00
---	--

Source: Port of Arlington and Purswell Pump Company, 2024