


Distribution Center (DC) Analysis

Prepared for the

Oregon Economic Development Association

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Prepared by:

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In Partnership with

TranSystems

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Introduction

The Oregon Economic Development Association, through nine participating community members from across the state, commissioned Foote Consulting Group (FCG) to conduct a distribution center (DC) analysis from a site selector's perspective. The objectives of the analysis were to:

- Understand recent trends and industry perspectives
- Determine and understand freight/logistics costs versus select competitors
- Examine the entire costs of a DC project location versus select competitors.

FCG is a global site selection and economic development consulting company from the Phoenix, AZ area. FCG has vast DC experience having worked on projects for MeadWestvaco, Wal-Mart, select TranSystems clients, Staples, and many others. FCG has partnered here with TranSystems who have assisted with the freight component of the project.

Trends and Industry Perspectives

The warehouse/distribution (DC for distribution center) sector has, historically, been one of the fastest growing and largest in regards to new locations/expansions of any industry sector nationally. The sector suffered during the recent recession as locations/expansions where slowed by lower consumer demand for retail products. However, growth in online or e-commerce retailing (i.e. Amazon), has spurred new activity for DCs over the last few years.

The DC sector comprises a number of NAICS codes, including: 421 & 422 – wholesale distribution, 484 – truck transportation, 488 – transportation support, 492 – couriers, and 493 – warehouse/distribution.

The following are some key points regarding the state of logistics industry which affect DC projects today:

- Fuel prices, impacted from the demand-supply imbalance, will continue to drive rates northward.

- On the international side, port congestion is a major problem, particularly the West coast ports of Long Beach and LA.

- There are dire predictions about:
  - Drastic driver shortages
  - Continued worry about the overall transportation infrastructure
  - Likely increase in security requirements, etc.

- With these challenging issues, there's a growing desire to optimize the network of distribution centers.

With these in mind, the following DC trends are significant:

- **Freight costs drive site selection decisions.**
  - Along with labor costs they are either first or second in importance.
  - Access to customers; very specific and detailed freight modeling is done in order to optimize shipping costs and time. *You are either in the freight shipping zone or you are not, it's as simple as that.*

- **Projects are very fuel cost sensitive** – optimizing shipping distance.

- **Regionalization is occurring** – meaning the development of smaller boxes serving regional markets versus massive boxes serving larger national market area (speed to market, lower shipping costs).

- **Many companies are rethinking of integrating rail** – it will provide a cheaper shipping alternative in the future; if all else is equal, the prospect will choose the rail site over the non-rail site.

- **Direct highway access is often important** – "5 to 55" (5 minutes to reach 55 miles per hour for trucks) means immediate access to limited access Interstates and major highways.

- **Large flat sites are best** – many searches will start with available buildings, but most will end up with a build-to-suit since the buildings may not meet needed specifications.

- **Location activity was slower in 2011** (except online/e-commerce retail projects) due in part to:
  - Weak retail sales (but rebounding fast)
  - A glut of existing building space
  - Move to third party providers (3PLs).

- **DCs are attracted to port sites** (i.e. Portland; Long Beach; Houston; Charleston)
  - East coast ports, with expansions to serve "Post Panamax" ships that can pass through the expanded Panama Canal starting in 2014; will likely grow faster in order to serve the larger population base in the East. Competition between East coast ports to capture this new traffic has been intense, but in our opinion, the Port of Charleston has the inside tract as the port of choice.

- **DCs are attracted to intermodal** (rail, truck, barge, and/or air freight) sites (i.e. Joliet, IL; Kansas City; Alliance, TX; and ports cities like Portland and the Port of Morrow).

- **Retail tax issues are driving many siting decisions for online retail DCs.**

- **There is a general lack of understanding of freight modeling in the economic development community.**

Many of these trends will become more evident later in this report.

DC activity in Oregon has been slow recently. Only 3 DC-related locations/expansions took place over the last year (3rd Quarter 2011-2nd Quarter 2012). Projects:

City	State	Company	Sq.Ft.	Jobs	Type	NAICS
Wilsonville	OR	Pacific Natural Foods	302,000		DC	424490
Hillsboro	OR	Ostara Nutrients	5,000		Nutrients	562920
St. Helens	OR	ORPET	44,000	25	Plastics	326199

Key DC Site Selection Needs (by priority)

1. Access to market/transportation/freight costs
   - Access to intermodal freight terminals and ports growing in importance
2. Labor costs/availability
   - Key positions: material handlers, forklift drivers, and truck drivers
3. Electric power (costs/reliability)
4. Access to Interstate highways (within 10 miles of interchange)
5. Large sites (50 to 250 acres) or large buildings (40,000-square-foot plus)
6. Rail service for select operations
7. Incentives
   - Infrastructure
   - Training
8. Good labor/management relations.

Freight/Logistics Costs – The Model

Foote Consulting Group and partner TranSystems developed a freight model to help calculate freight costs for projects in the NW. The model:

1. Evaluates the freight cost benefits of locating a distribution center at one of four Oregon regions versus three competitive locations. The model is Microsoft Excel-based and is provided as part of the deliverables. It can be used to evaluate other destinations and modal mixes. The freight costing model is used to estimate the inbound and outbound freight costs to deliver freight to selected cities, based on shipment mix and other assumptions.

2. Defines the customer delivery points (zip codes) based on a sampling of the U.S. population density (those cities that are likely to have potential customers, stores, or distribution centers) within a targeted delivery distance (up to 600 miles) around the West.

3. Identifies three candidate sites located in competing areas outside of Oregon: 1) Sacramento, CA; 2) Tacoma, WA; and 3) Boise, ID.

4. Utilizes a map generator to estimate the over-the-road miles between distribution centers and selected city zip codes.

5. Provides map graphics for each of the relevant logistics networks (basic transportation costing model doesn't automatically generate any logistics network graphics).

6. Develops a mix of FTL, LTL, and Small Parcel shipments to analyze based on targeted industry averages. The same mix is used for each of the logistics network examples, but can be modified if desired for future cost estimates.

7. Makes assumptions on the category and weight of products shipped, which impact transportation costs. The assumptions are used for each of the logistics network examples, but can be modified by the client if desired for future cost estimates. Assumptions will be used for the outbound shipment demand that the facility will meet annually to the selected customer delivery points. The same assumptions are used for each of the facility network examples, but can be modified by the client if desired for future cost estimates.

8. Estimates the over-the-road transportation rates for FTL, LTL, and Small Parcel shipments based on targeted industry averages.

The Entire Cost of a DC Project Location

The E-Commerce and Retail Distribution Center (DC) Site Selection Analysis identifies business costs (pre-incentive) associated with the development of a new DC operation in the Northwest. Foote Consulting Group (FCG) prepared this analysis with assistance from partner, TranSystems. The report compares costs in four regions of Oregon:

- Portland (including the partner location of the Port of Portland)
- Eastern Oregon (including the partner locations of the Port of Morrow, Hermiston, Pendleton, and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR).
- Central Oregon (including the partner locations of Albany, Lebanon, and Salem)
- Southern Oregon (including the partner location of Roseburg)

Versus:

- Boise, ID
- Sacramento, CA
- Tacoma, WA

Costs are drawn from a hypothetical DC project (see model description on page 7), which was based on our actual site selection experience. Key site location cost factors are examined in this report including:

- Freight (from the FCG/TranSystems Freight Model, 2013)
- Salary and wages
- Fringe benefits
- Build-to-suit costs
- Select taxes
- Electric power
- Cost of living

The cost comparison spreadsheet follows the model description. Costs were derived from actual field research in the Northwest region. The latest available data was used for all cost comparisons.

Project Model
E-Commerce & Retail Distribution Center (DC)

Purpose: Distribution of consumer goods to consumers and stores in major markets of the Northwest.

Hours of Operation: 3 shift; 7 days per week

Labor: 500 total

9 – Managerial/engineering
20 – Inventory control clerks
21 – Maintenance mechanics
200 – Material handlers
150 – Warehouse laborers
100 – Semi-truck drivers

Utilities: Electric Power – Demand: 1,800 KW; Energy: 1,000,000 KwH/month (average)

Building: 825,000 square feet – 800,000 warehouse; 25,000 square feet of office/shop space

Land: 75 level acres in a fully improved industrial area with rail service a plus.

Investment: machinery and equipment (M&E) – $18,750,000; inventory – $37,500,000; land & building – $30,000,000; e-commerce sales – $25,000,000

Freight: Inbound: 70% from Asia (10% Port of Long Beach; 30% Port of Oakland; 30% Port of Portland; 30% Port of Seattle); 30% domestic (NW sourced); Based on average miles and rates from suppliers via 54% TL and 46% rail.

Outbound: NW (600-mile radius) Marketplace (San Francisco (South) to Vancouver BC (North)) to Salt Lake and Boise (East); Product classification – 85; 12,000,000 units/year; weight per unit – 10 lbs.; 75% TL, 20% LTL, 20% rail, 5% small parcel.

Other Critical Factors: Good access to reasonably priced workforce; reliable and economic electric power supply; good flexible training programs; good quality of life.

Please see the Model spreadsheet on the following page.

Project Model: E-Commerce & Retail Distribution Center (DC): Spreadsheet

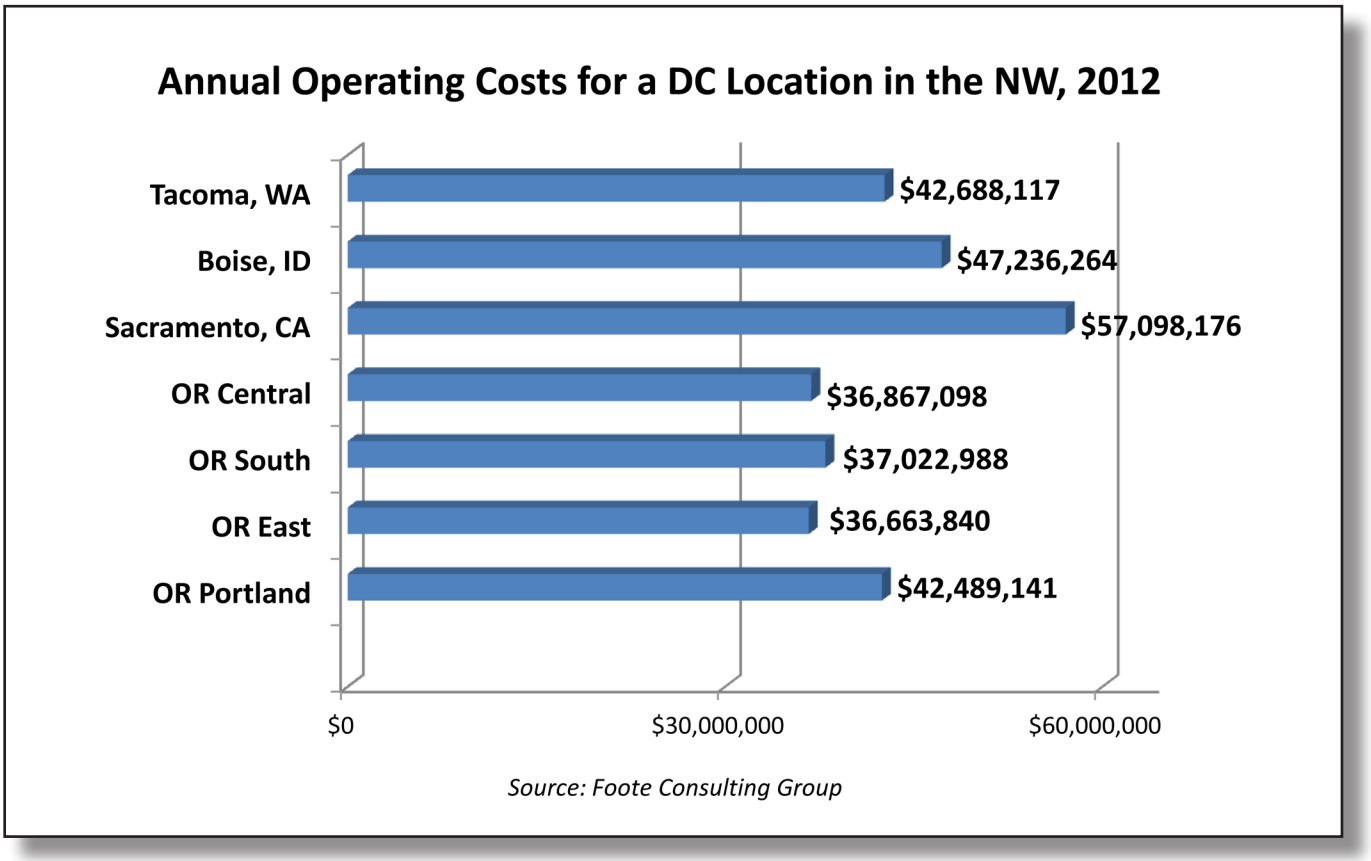
Estimated Pre-Incentive First Year Operating Costs

Labor Costs (500 total jobs)	OR Portland	OR East	OR South	OR Central	Sacramento, CA	Boise, ID	Tacoma, WA
Managers							
Number	2	2	2	2	2	2	2
Annual Salary	$54,641	$47,684	$48,894	$49,760	$57,184	$61,961	$58,058
Quality Control Engineers							
Number	7	7	7	7	7	7	7
Annual Salary	$54,665	$48,472	$47,283	$50,003	$58,142	$62,999	$55,905
Total Managerial/Engineering Salary	$491,937	$434,672	$428,769	$449,541	$521,362	$564,915	$507,451
Inventory Control Clerks							
Number	20	20	20	20	20	20	20
Annual Salary	$29,408	$25,544	$25,699	$27,035	$29,594	$32,375	$29,838
Total Management/Clerical Salary	$1,080,097	$945,552	$942,749	$990,241	$1,113,242	$1,212,415	$1,104,211
Maintenance Mechanics							
Number	21	21	21	21	21	21	21
Annual Salary	$38,820	$34,089	$33,656	$35,258	$39,213	$43,453	$39,862
Material Handlers							
Number	200	200	200	200	200	200	200
Annual Salary	$27,069	$27,069	$27,069	$27,069	$27,495	$27,543	$27,970
Total MM/MH Salary	$6,229,020	$6,129,669	$6,120,576	$6,154,218	$6,322,473	$6,421,113	$6,431,102
Truck Drivers							
Number	100	100	100	100	100	100	100
Annual Salary	$39,077	$34,041	$34,700	$35,273	$39,559	$43,306	$41,454
Total Salary	$3,907,700	$3,404,100	$3,470,000	$3,527,300	$3,955,900	$4,330,600	$4,145,400
Unskilled Laborers/Warehouse							
Number	150	150	150	150	150	150	150
Annual Salary	$24,866	$22,110	$22,482	$22,538	$24,525	$26,634	$26,084
Total Salary	$3,729,900	$3,316,500	$3,372,300	$3,380,700	$3,678,750	$3,995,100	$3,912,600
Total Annual Salary Costs	$15,438,654	$14,230,493	$14,334,394	$14,502,000	$15,591,727	$16,524,143	$16,100,764
Fringe Benefits							
Medical/Dental/Vision @ 15%	$2,315,798	$2,134,574	$2,150,159	$2,175,300	$2,338,759	$2,478,621	$2,415,115
Disability @.15 % (CA @ 1.2%)	$23,158	$21,346	$21,502	$21,753	$187,101	$24,786	$24,151
FICA @ 7.5 %	$1,157,899	$1,067,287	$1,075,080	$1,087,650	$1,169,380	$1,239,311	$1,207,557
Life @ .75 %	$115,790	$106,729	$107,508	$108,765	$116,938	$123,931	$120,756
Unemployment Insurance Rate	2.40%	2.40%	2.40%	2.40%	3.40%	3.40%	5.82%
UI Cost	$348,000	$348,000	$348,000	$348,000	$119,000	$119,000	$1,111,620
Workers Comp Rate-Warehouse (per $100)	$1.93	$1.93	$1.93	$1.93	$10.89	$6.27	$5.28
Workers Comp Rate-Office (per $100)	$0.14	$0.14	$0.14	$0.14	$0.53	$0.25	$0.92
Workers Compensation Cost	$197,840	$185,935	$187,019	$188,870	$1,127,982	$678,578	$573,268
Fringe Benefit Load Factor	26.94%	27.15%	27.13%	27.10%	32.45%	28.23%	33.86%
Total Annual Fringe Benefits Costs	$4,158,485	$3,863,870	$3,889,267	$3,930,338	$5,059,159	$4,664,227	$5,452,467
Build to Suit Costs							
Square Feet Office	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Square Feet Warehouse	800,000	800,000	800,000	800,000	800,000	800,000	800,000
Total Square Feet Required	825,000	825,000	825,000	825,000	825,000	825,000	825,000
Cost per Square Foot of Office	$95.00	$50.00	$50.00	$55.00	$155.74	$80.00	$55.00
Cost per Square Foot of Warehouse	$50.00	$18.00	$30.00	$31.00	$83.02	$40.00	$25.00
Total Building Cost	$42,375,000	$15,650,000	$25,250,000	$26,175,000	$70,309,500	$34,000,000	$21,375,000

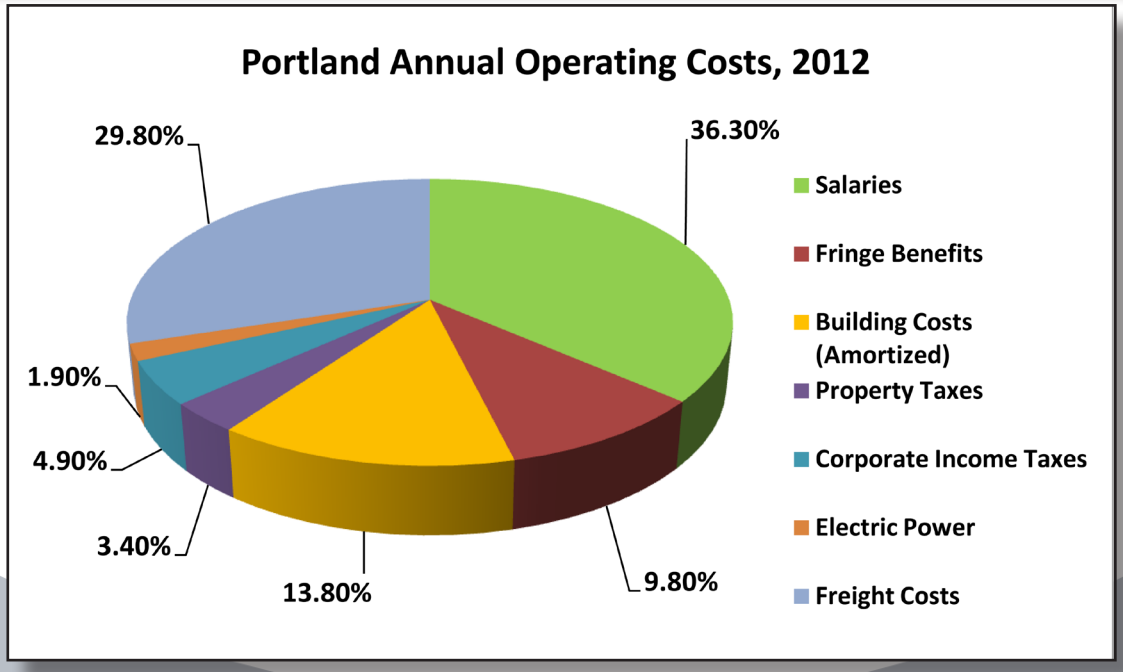
	OR Portland	OR East	OR South	OR Central	Sacramento, CA	Boise, ID	Tacoma, WA
Land Costs							
Cost per Acre	$250,470	$25,000	$20,000	$108,900	$108,900	$76,608	$109,336
Acres Required	75	75	75	75	75	75	75
Total Land Cost	$18,785,250	$1,875,000	$1,500,000	$8,167,500	$8,167,500	$5,745,600	$8,200,200
Total Building & Land Cost	$61,160,250	$17,525,000	$26,750,000	$34,342,500	$78,477,000	$39,745,600	$29,575,200
Annual Payment (@ 5%, 15 yrs)	$5,892,318	$1,688,399	$2,577,156	$3,308,635	$7,560,654	$3,829,182	$2,849,342
Property Tax Costs							
Value of Real Estate	$61,160,250	$17,525,000	$26,750,000	$34,342,500	$78,477,000	$39,745,600	$29,575,200
Assessment Ratio	100%	100%	100%	100%	100%	100%	100%
Property Tax Rate/Percentage	18.09	19.677	18.91	17.17	1.14%	1.83%	13.65
Real Estate Taxes	$1,106,389	$344,839	$505,843	$589,661	$894,638	$726,947	$403,701
Machinery & Equipment Value	$18,750,000	$18,750,000	$18,750,000	$18,750,000	$18,750,000	$18,750,000	$18,750,000
Personal Property Tax Rate	18.09	19.677	18.91	17.17	1.14%	1.83%	0.86
Assessment Ratio	100%	100%	100%	100%	100%	100%	100%
Personal Property Tax	$339,188	$368,944	$354,563	$321,938	$213,750	$342,938	$236,742
Value of Inventory	$37,500,000	$37,500,000	$37,500,000	$37,500,000	$37,500,000	$37,500,000	$37,500,000
Inventory Tax Rate	0	0	0	0	0	0	0
Inventory Tax	$0	$0	$0	$0	$0	$0	$0
Total Annual Property Taxes	$1,445,576	$713,783	$860,405	$911,598	$1,108,388	$1,069,885	$640,444
Corporate Income Taxes							
Adjusted State Taxable Income	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000
Tax Rate (Federal)	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Tax Rate (State)	6.60%	6.60%	6.60%	6.60%	8.84%	7.40%	0.484%
Total Federal and State taxes	$2,080,000	$2,080,000	$2,080,000	$2,080,000	$2,192,000	$2,120,000	$1,774,200
Special Fees & Assessments	0	0	0	0	$10,017,000	0	0
Online Sales Taxes (assume $25 million)							
Taxable Sales (point of purchase)	$3,750,000	$750,000	$1,500,000	$1,500,000	$5,000,000	$5,000,000	$7,500,000
Tax Rate (State)	0.00%	0.00%	0.00%	0.00%	7.25%	6.00%	6.595%
Total Taxes	$0	$0	$0	$0	$362,500	$300,000	$494,625
Electric Power Costs							
KW Demand	1,800	1,800	1,800	1,800	1,800	1,800	1,800
KwH/Month Usage	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Cost/KwH	$0.0679	$0.0684	$0.0680	$0.0680	$0.0972	$0.1030	$0.0481
Total Annual Electric Power Cost	$814,421	$413,750	$413,750	$413,750	$1,166,400	$1,235,982	$576,948
Freight Costs (see freight model)							
Inbound	$3,986,916	$4,534,040	$4,125,388	$4,047,944	$4,689,444	$8,109,236	$5,534,444
Outbound	$8,672,770	$9,139,505	$8,742,628	$7,672,833	$9,350,904	$9,383,609	$9,264,883
Total	$12,659,686	$13,673,545	$12,868,016	$11,720,777	$14,040,348	$17,492,845	$14,799,327
TOTALS							
Annual Operating Costs	**$42,489,141**	**$36,663,840**	**$37,022,988**	**$36,867,098**	**$57,098,176**	**$47,236,264**	**$42,688,117**
Operating costs greater than OR East	*$5,825,301*	*$0*	*$359,148*	*$203,258*	*$20,434,336*	*$10,572,424*	*$6,024,277*
Percentage greater than OR East	*13.71%*	*0.00%*	*0.97%*	*0.55%*	*35.79%*	*22.38%*	*14.11%*

Total Project Operating Costs

The Oregon regions are the lowest cost locations for this DC project. Over $20 million per year could be saved by locating this project in the Eastern Oregon area versus the highest cost area, Sacramento.



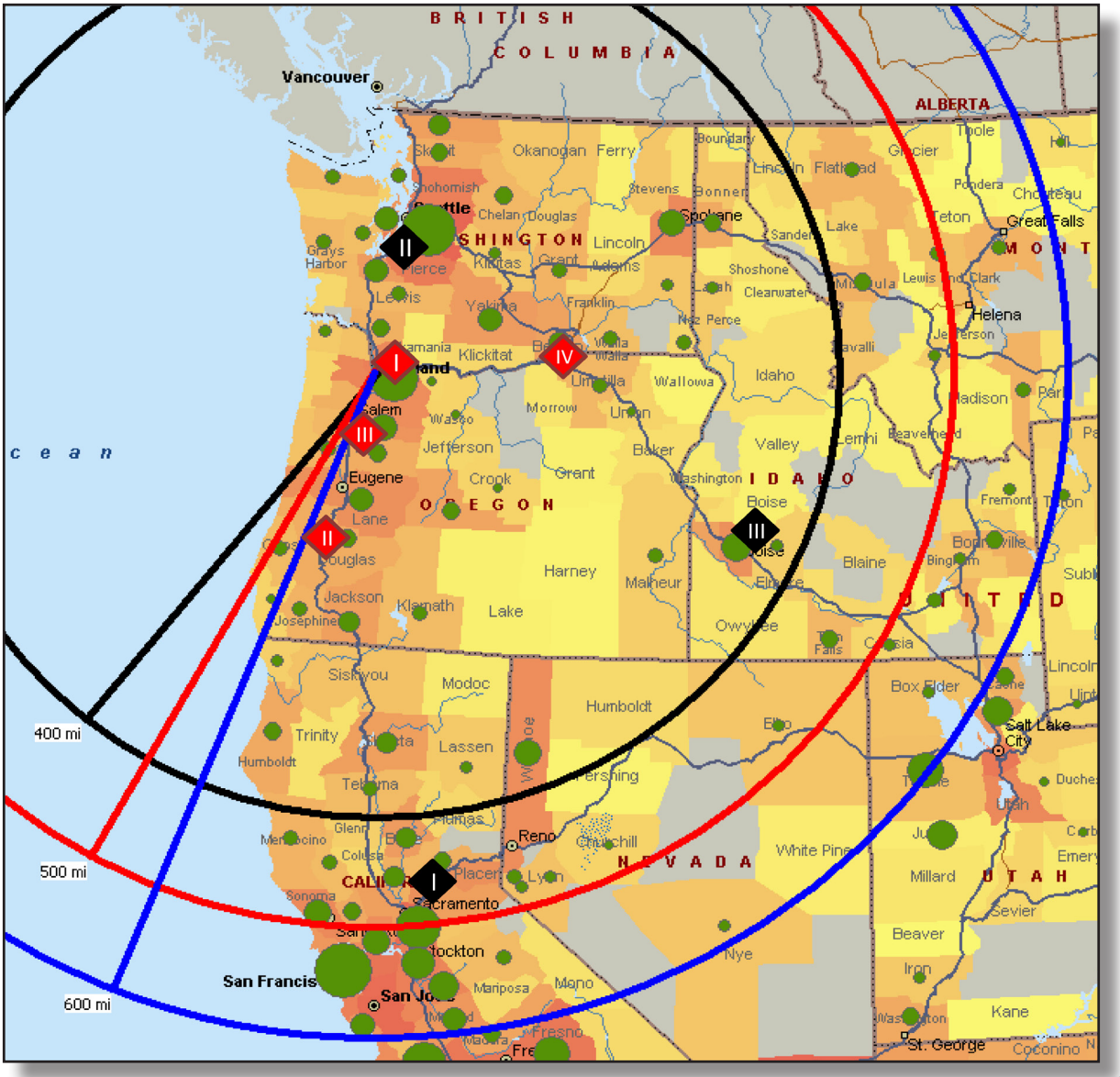
Source: Foote Consulting Group



Freight

Freight costs represent the second largest annual operating cost item for this project, approximately 30%. A separate, detailed freight model is available and can be used as a reference.

Consumer products will be shipped outbound from the DC to consumers (internet sales), major consumer centers, and third-party distribution points within a 600-mile radius. The largest markets are Seattle, Portland, and Northern California (including San Francisco). The following map depicts the desired distribution area up to a 600-mile radius, and covers the major markets of the Northwest.



The Oregon regions offer the lowest freight costs. Almost $5.8 million can be saved by locating in Central Oregon instead of Boise.

Source: FCG/TranSystems Freight Study

Labor

Wages/Salaries and Fringe Benefits

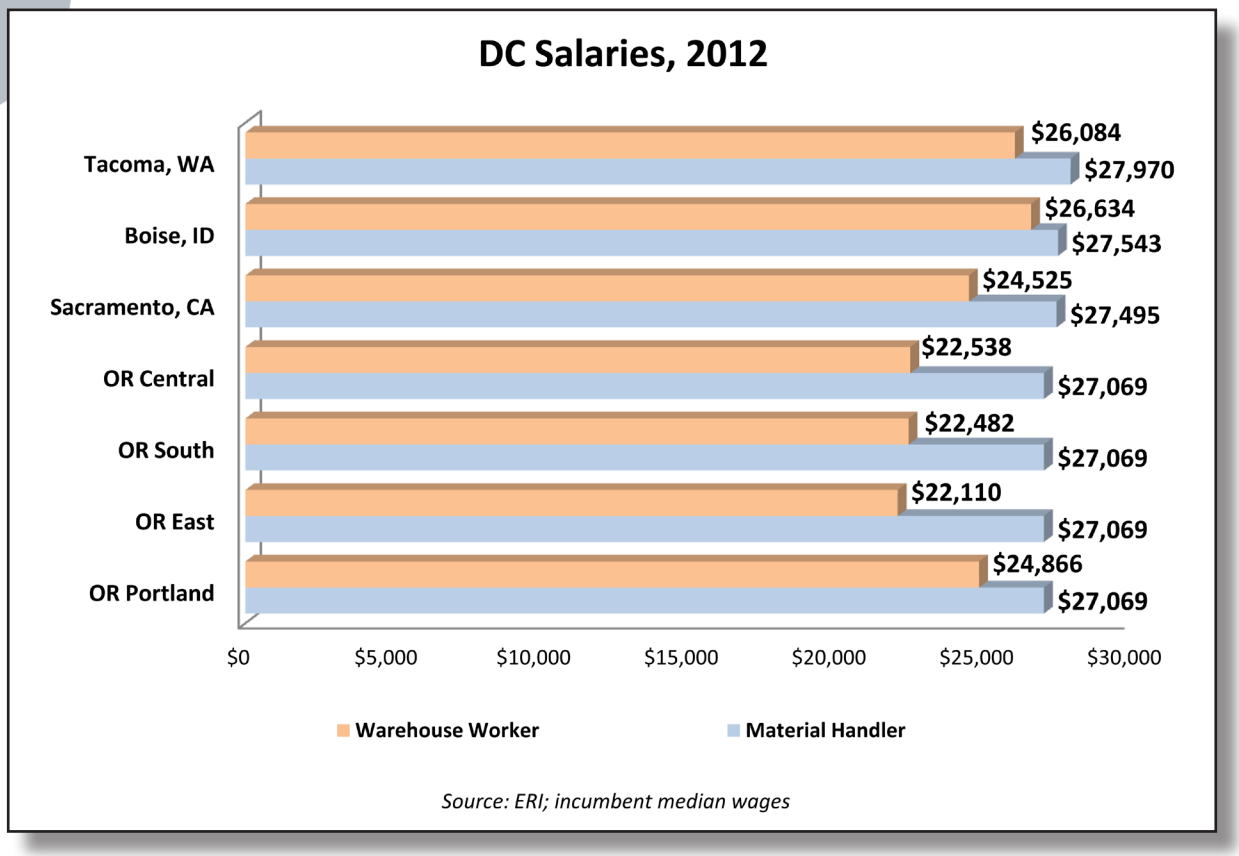
Labor costs (wage/salary/fringe benefits) represent over 46% of the total operating costs for this project. These are the largest single annual cost factor.

Wages and salaries are used in the model are for incumbent worker median salary range positions. All wages come from our national data resource, Economic Research Institute (ERI), 2nd Quarter 2012.

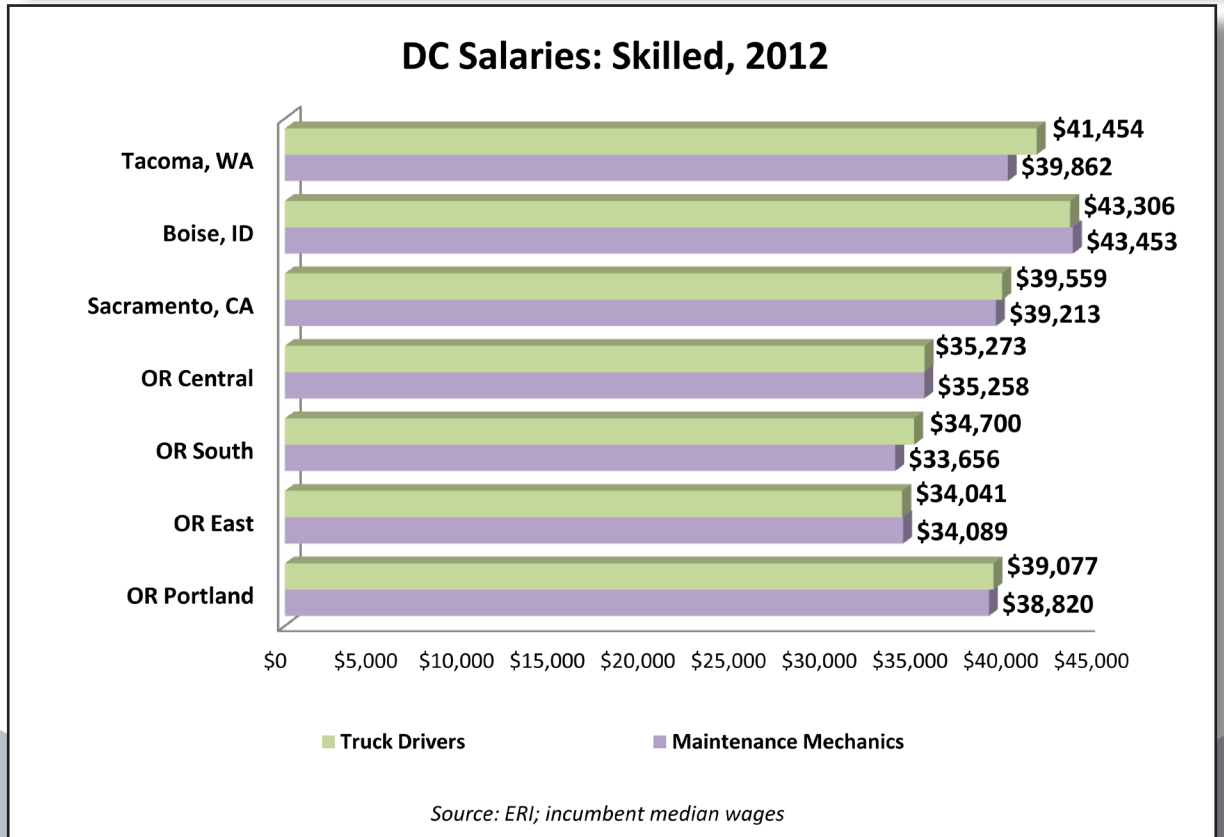
Eastern Oregon has the lowest overall wage/salary costs. Almost $2.3 million could be saved annually by locating this project in Eastern Oregon instead of the highest cost locale, Boise.

Source: ERI

Source: ERI; median 1-year experience

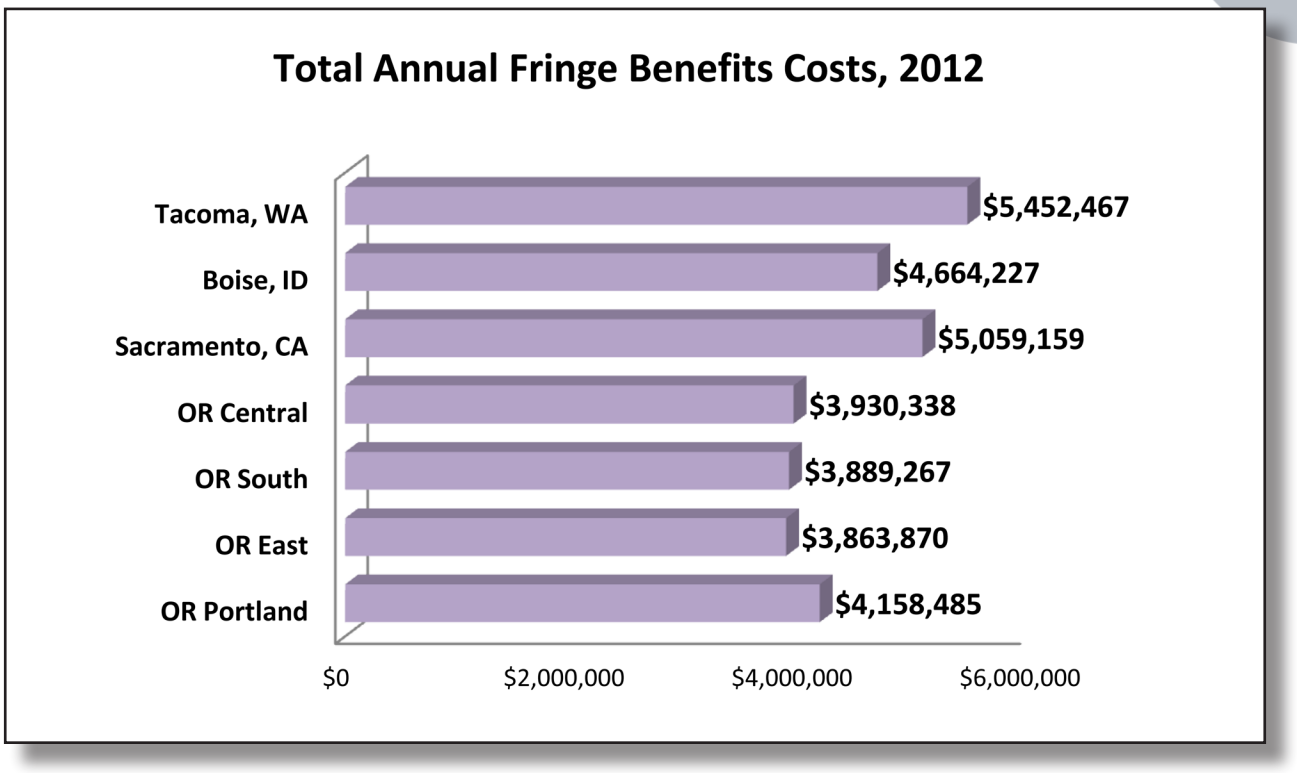


Source: ERI; incumbent median wages



Source: ERI; incumbent median wages

Oregon regions have the lowest fringe benefit load.



Built-To-Suit Costs

Annual building and site costs represent approximately 14% of total annual operating costs in the model. These costs are amortized over 15 years.

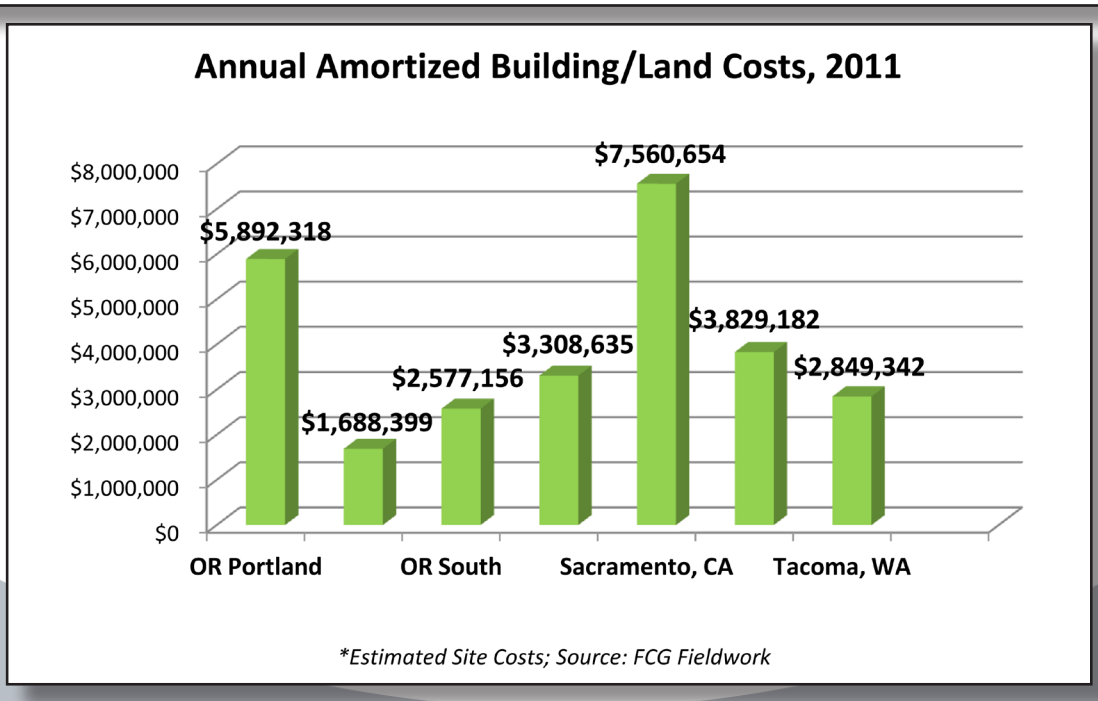
FCG toured and reviewed a number of industrial sites in Oregon. Oregon offers a variety of attractive fully improved sites, some with rail. These Oregon sites were compared against sites in the competitor areas:

- Portland – Port of Portland sites of:
  - Troutdale Reynolds Industrial Park (TRIP)
  - Rivergate Industrial District
- Eastern Oregon
  - Port of Morrow
  - Hermiston (Cook Industrial Site)
  - Pendleton (Airport Industrial Site)
  - CTUIR (Coyote Business Park)
- Central Oregon
  - Albany (South Albany Industrial Park [PepsiCo Site]; East Albany Industrial Park)
  - Lebanon (Burkhart Industrial Site; Reeves Industrial Park; Rodeo Industrial Site)
  - Salem (Mill Creek Corporate Center)

- Southern Oregon
  - Roseburg (Back Nine Site; Speedway Industrial Site)

Versus (collected via correspondence):

- Boise, ID (Karcher Road Site; Marathon Cheese Site)
- Sacramento, CA (Southport Business Park; Port of Sacramento)
- Tacoma, WA (Holdener Industrial Park in Frederickson, WA).



Taxes

Property, Corporate Income, and Sales Taxes

Property taxes consist of real estate and personal property taxes, which may include taxes on machinery and equipment (M&E). They represent approximately 3% of the annual operating costs.

Oregon property tax rates are generally competitive. California property taxes are limited to approximately 1% of the value of real estate, however, high fees and assessments are added on (see spreadsheet).

Corporate income taxes represent approximately 5% of the annual operating costs. Corporate income taxes were figured on an adjusted taxable income of $5,000,000. Oregon corporate income taxes are lowest, except versus Washington.

Sales taxes on e-commerce transactions are typically paid at the "point of sale" or by the person that buys the goods based on his or her home state sales tax rate. The company collects this tax and pays it to the state. The model here assumes that in this NW region that consumers live: 30% in Oregon (50% Portland, 20% Southern, 20% Central, and 10% Eastern); 30% in Washington; 20% in Idaho; and 20% in California. The company will not collect from consumers or pay tax in Oregon.

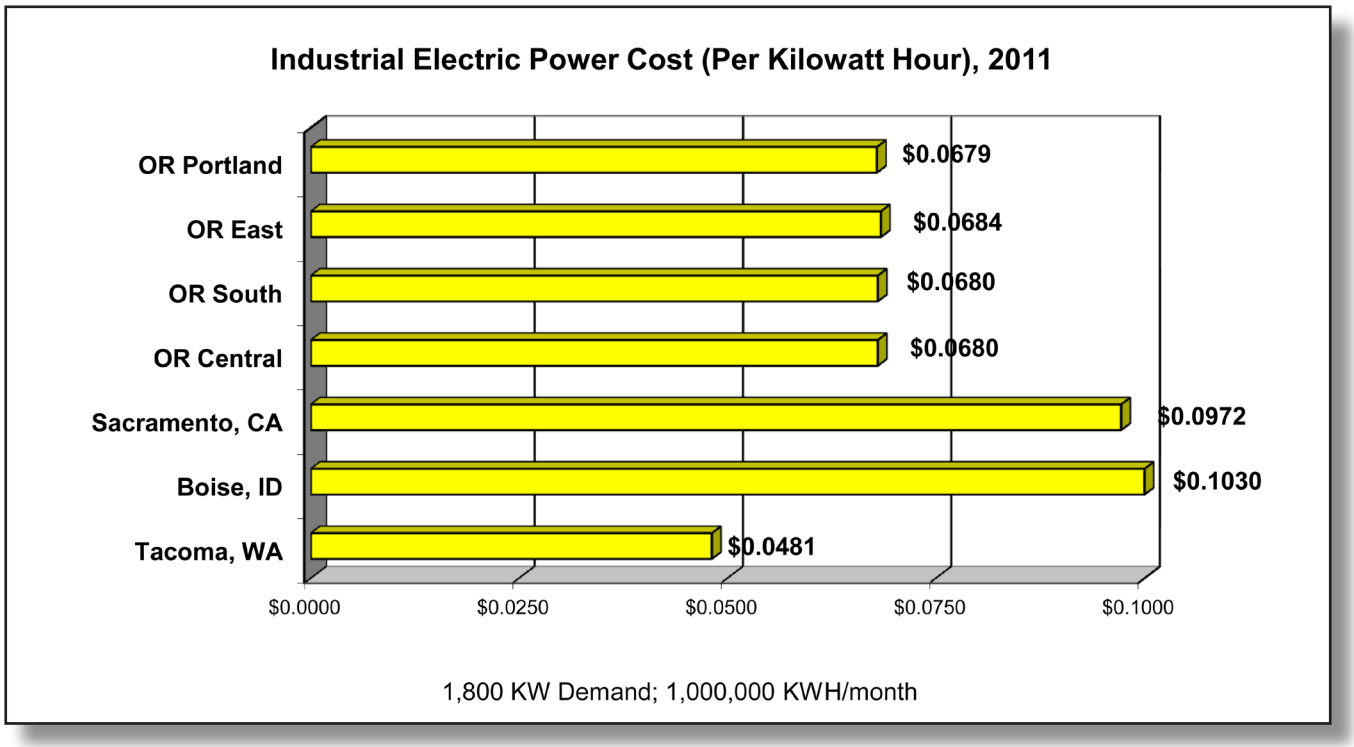
In the past, many online retailers, including Amazon, have avoided collecting and paying sales taxes by choosing to have no physical presence in the select states where the tax is being avoided (i.e. California and Texas). However, this practice is rapidly changing, and most online retailers are now or will soon be collecting and paying retail taxes; in the case of Amazon, negotiating special lower rates in exchange for project locations (including California and Texas).

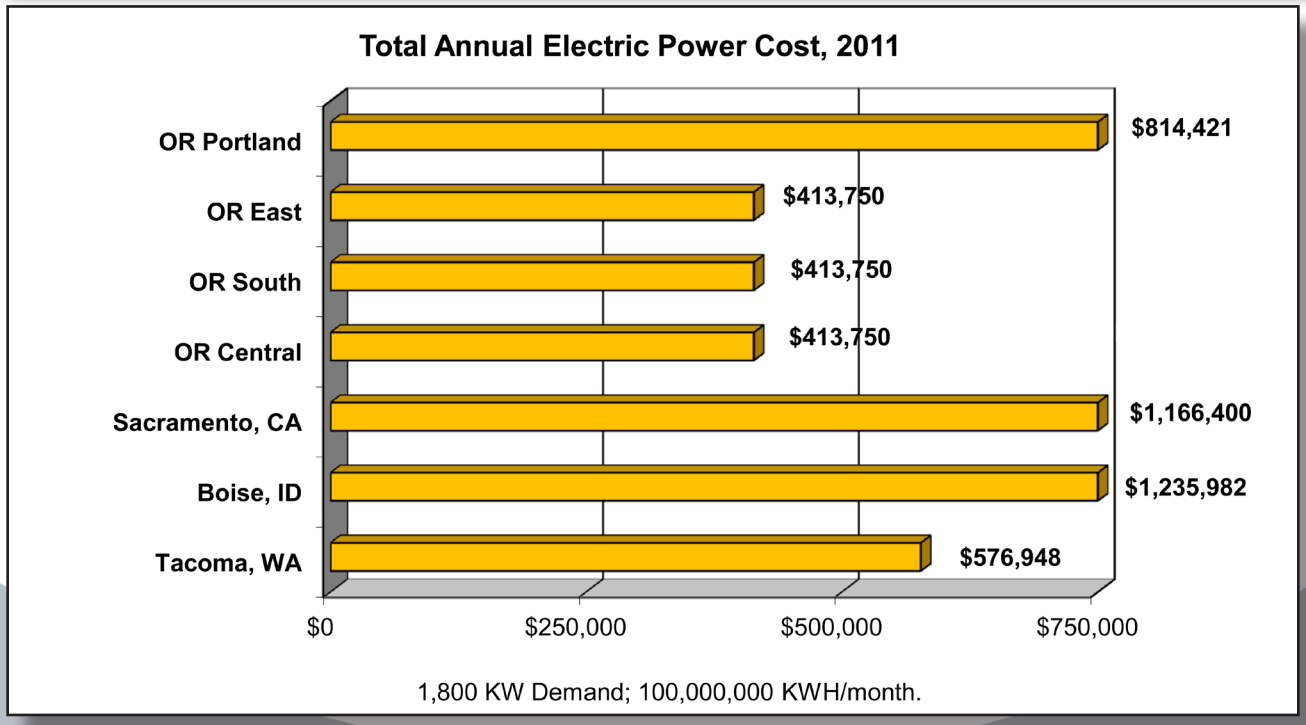
It is likely that national legislation will soon require the collection and payment of retail sales thus leveling the playing field for all states. This "leveling" will offer advantages to companies serving consumers in states who do not charge sales taxes, including Oregon.

Utilities

Electric Power

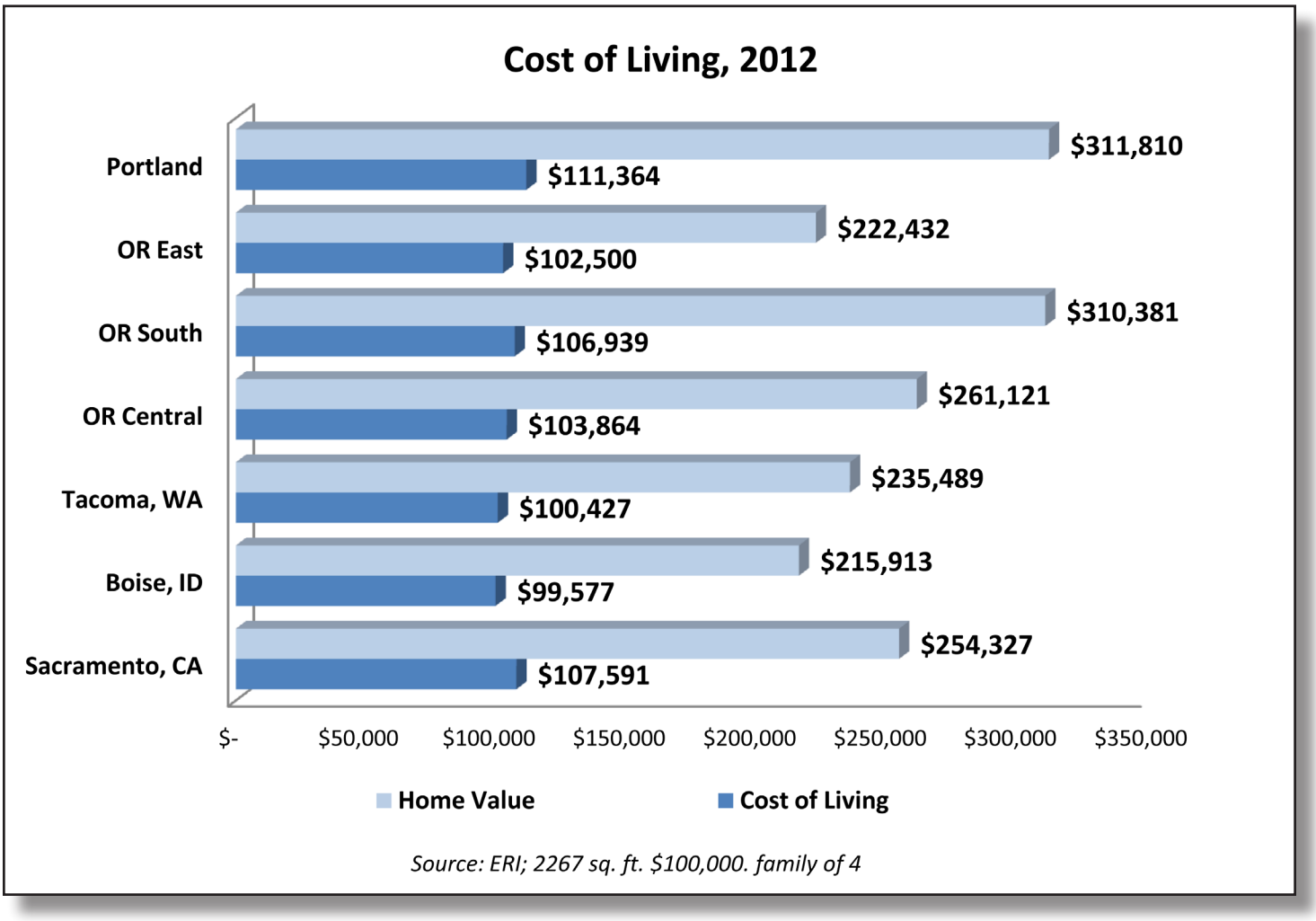
Power costs represent only about 2% of total operating costs for this project. Oregon offers some of the the lowest electric power costs.





Cost of Living

The cost of living will influence the relocation of key personnel to the project city. Portland has the highest cost of living, and Boise has the lowest.



Source: ERI; 2267 sq. ft. $100,000. family of 4

Oregon Strengths for DC Firms – Summary

- Lowest overall annual costs versus Boise, Sacramento, and Tacoma
- Excellent accessibility to NW regional markets means the lowest freight rates
- Lowest wage rates versus Boise, Sacramento, and Tacoma
- Excellent site and build-to-suit opportunities at competitive prices
- Reliable and competitively priced electric power
- Competitive tax rates, including no tax on retail sales.

For More Information Regarding This Report, Please Contact:

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