

The Economic Impacts of the  
Value Added Regional Distribution Industry  
In the Portland Area

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By  
Martin Associates  
2938 Columbia Ave, Suite 602  
Lancaster, PA 17603

**Executive Summary**

Martin Associates was retained by the Port of Portland to develop an economic impact assessment methodology and analysis of the distribution industry’s contribution to the regional economy, as defined by the counties of Clackamas, Clark, Multnomah and Washington counties. In addition to the quantification of the economic impacts and the linkages to the local economic sectors, the scope of analysis also includes a narrative of the distribution industry serving the Portland region, as well as an identification of the key factors drawing distribution activity to the Portland region. This analysis is of the value added sector of the entire Portland metro region wholesale distribution industry. That industry includes wholesale trade, warehousing and transportation sectors. The focus of the analysis is on the value added operations, high velocity facilities and cross-dock/transloading operations

It is the goal of the study to provide a tool for public issue management, planning and decision making for the Port of Portland and public policy agencies throughout the region and state.

The economic impacts generated by these tenants are measured in terms of jobs, personal income, business sales revenue, and state and local taxes. The impacts are measured using a methodology similar to the one Martin Associates has used to measure the impacts of the Port of Portland seaport and airport activity, as well as the activity of real estate tenants of the Port of Portland.

Table E-1 summarizes the economic impacts generated by the Value Added Distribution Industry on the Portland regional economy.

Table E-1  
Summary of the Economic Impacts of the Value Added  
Distribution Activity on the Portland Regional Economy

*\*totals may not add due to rounding*

Jobs	
Direct	7,864
Induced	4,283
Indirect	<u>5,095</u>
Total	17,242
Personal Income (Thousands)	
Direct	\$ 278,287
Induced	\$ 363,723
Indirect	<u>\$ 167,801</u>
Total	\$ 809,811
Business Revenue (Thousands)	\$ 2,814,173
Local Purchases (Thousands)	\$ 347,464
State/Local Taxes (Thousands)	\$ 88,550

The impact analysis is based on a survey of 67 distribution operations in the Portland area that provide value added services in addition to traditional warehousing operations. The distribution

firms represent specific sectors of the Portland distribution industry. These sectors, with an example company of each type called out, are listed below:

- Apparel Distribution Centers (Columbia Sportswear)
- National Grocery Chain Operations with Regional Distribution Centers in Portland (Safeway)
- Local Food/Seafood Distribution Centers (Pacific Seafood)
- Paper/Paper Goods Distribution Centers (Pacific Paper Trading)
- Beverages Distribution Centers (Mt. Hood Beverage)
- Steel/Steel Products Distribution Centers (Green Transfer)
- Lumber and Forest Products Distribution Centers (Morgan, CFS)
- General Commodities/Third Party Logistics Providers/Retail (Holman Distribution Center)
- Miscellaneous, including bulk distribution and animal feed distribution (Pacific Hide and Fur)

In the year 2003, distribution activity of these firms generated the following economic impacts to the Portland regional economy:

***17,242 total direct, induced and indirect jobs in the Portland region were generated by distribution center activity. These jobs consist of:***

- 7,864 direct jobs were employed directly by the firms engaged in distribution activity in the Portland region. These are full-time equivalent jobs in the distribution centers and include jobs with truckers serving the distribution facilities
- 4,283 induced jobs. These induced jobs are with local and regional industries supplying goods and services to the 7,864 directly employed workers
- 5,095 indirect jobs are supported in the local economy as the result of the local purchases of goods and services by the distribution centers. These jobs are with local packaging material firms, insurance brokers/agents, trucking support operations, maintenance and repair firms, and utilities

***The Portland regional distribution center industry created a total of \$810 million of direct, induced and indirect personal earnings***

- The 7,864 direct employees earned \$278.3 million in wages and salaries
- When the respending effect of this direct income is considered, an additional \$363.7 million of income and regional consumption activity is created
- The indirect job holders received \$167.8 million in wages and salaries

***\$2.8 billion of revenue was created in the Portland regional economy as the result of distribution center activity***

***\$347.5 million of local purchases were made by the distribution center industry, which supported the indirect jobs***

***State and local governments received \$88.6 million of state and local tax receipts from the distribution center activity***

On a per firm or operation basis, distribution activities of general commodities tend to generate the greatest number of direct jobs per sq. ft. of operation. This reflects the various value added services being performed at these facilities, such as transloading/cross-dock operations, which is relatively labor intensive. Other key services provided include sorting, labeling and bar coding. In addition, about 60 percent of general commodities distribution operations include the use of local financial services. In general, the majority of the other distribution activities support between 0.5 and 0.6 jobs per 1,000 square feet.

Local food distribution operations tend to generate the greatest local spending per square foot, primarily for maintenance and repair, transportation equipment and goods not inventoried. Food/perishable goods distribution centers are followed by paper and paper products distribution operations in terms of local purchases per square foot of operation. On average, lumber and forest products distribution centers have the smallest impact in terms of direct jobs per 1,000 square feet and also generate relatively small levels of local purchases per sq. ft.

Apparel distribution and food/perishable good distribution for national chains are characterized by the highest average annual earnings per employee, while the jobs associated with the local food distribution activity pay the lowest earnings.

From a land/facilities requirement perspective, food distribution centers developed by national grocery chains require the largest facilities, averaging about 800,000 square feet per operation. These typically are located on 42 acres of land. Steel distribution centers are characterized by relatively small sized facilities, as are miscellaneous commodities/bulk distribution centers.

The value added distribution logistics segment of jobs (direct, indirect and influenced) makes up 1.8% of the total employment in this region, or approximately 17,250 jobs out of the region's total employment of 967,000 jobs. The overall distribution logistics industry is a key employer in the PMSA, which accounts for one in every 10 jobs, or 109,700 jobs out of 967,900 jobs for all industries in the PMSA. The average wage for all industries in the PMSA is \$37,000, while distribution logistics is \$46,113.

In addition to jobs, income and economic impacts of this sector, there are significant additional benefits of distribution operations. Of tangible importance is the provision of infrastructure and movement of goods this industry provides, which helps maintain the Portland region's advantages as a traded sector hub and which build on the region's geographic advantages.

The distribution center operations in the Portland region create a significant economic impact to the Portland economy in terms of jobs, income and tax revenue. The distribution center sector employs 7,864 workers, direct, indirect and induced. With this magnitude of economic impact, a

focus on the development of additional distribution facilities is a positive strategy in terms of stimulating economic growth.

The report is organized as follows. Chapter I presents an overview of the methodology followed to estimate the economic impacts and describes the structure of the analysis and the impacts measured. Chapter II provides an overview of the Portland area distribution center industry, while chapter III provides the results of the impact analysis.

## **I. INTRODUCTION AND METHODOLOGY**

Martin Associates was retained by the Port of Portland to develop an economic impact assessment methodology and analysis of the value added distribution industry's contribution to the regional economy, as defined by the counties of Clackamas, Clark, Multnomah and Washington counties. In addition to the quantification of the economic impacts and the linkages to the local economic sectors, the scope of analysis also includes a narrative of the value added distribution industry serving the Portland region, as well as an identification of the key factors drawing distribution activity to the Portland region. The focus of the analysis is on value added operations, high velocity facilities and cross-dock/transloading operations, rather than on traditional warehousing operations that are involved in longer-term storage.

It is the goal of the study to provide a tool for public issue management, planning and decision making for the Port of Portland and public policy agencies throughout the region and state.

The impacts are measured for the year 2003, and are measured in terms of jobs, personal income, local purchases and state and local taxes generated by the distribution activity throughout the region. Initially, a total of 277 firms engaged in some type of warehousing or trucking activity were identified for the Portland Region from several sources. The Port of Portland provided Martin Associates with an initial listing of firms in the region that are engaged in some type of warehousing and trucking operations. This list was then augmented by additional distribution center contacts provided by the Port of Portland, as well as internal lists of distribution firms maintained by Martin Associates. In total, 67 local distribution firms were identified that met the criteria of operations providing value added services such as transloading, labeling, bar coding, sorting, repair and modifications, and packaging as well as long term storage.

The transloading service/cross-dock operation involves the breaking down and then reloading the merchandise in domestic trucks. In some cases the cargo in the containers are sorted and stored for a short time prior to the reloaded into the larger domestic trailers. In some cases the merchandise is repackaged in the warehouse, as well as repaired or modified. In other instances the merchandise is labeled with a bar code for use in tracking and while still in other cases apparel is even pre-racked for delivery directly to the retail store. In all cases, the distribution center is adding value to the product and providing a relatively rapid turn. In most cases, the merchandise remains in storage only for a short time, and the distribution center is not geared for long term storage. In cases in which the warehouse serves the international market, imports are often stored with domestic items, or items from other parts of the country in order to serve the local markets. The blending of both international cargo with domestic cargo in a warehouse reduces overall unit costs of operation and improves the competitive advantage of the user of the distribution center.

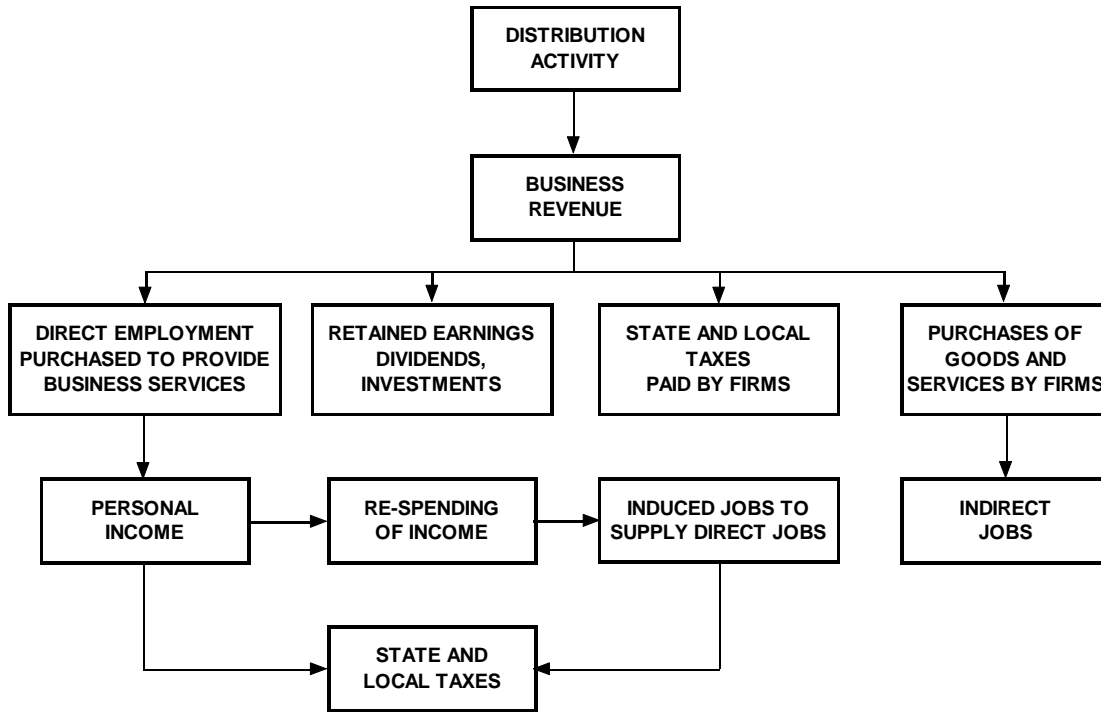
The 67 firms served as the universe of firms to be interviewed to collect the relevant impact data. It is the opinion of the consultant that these firms represent a large sector of the value added Portland distribution industry, as defined above. In addition, nine leading national distribution/logistics/retail firms were identified to be interviewed to collect operational data including facility size and locations, logistics characteristics, and employment and utilization levels.

In the remainder of this chapter, the structure of the distribution impact analysis is explained, as is the methodology used in developing the impacts. Chapter 2 describes the various distribution industry sectors, as well as characteristics of these firms in terms of physical dimensions, services provided, and factors impacting a Portland location. A description of the large national distribution firms is also provided in this chapter. The impacts of the existing distribution industry in the Portland region are detailed in the final chapter of the report.

## **1. IMPACT STRUCTURE**

Economic activity by a distribution operation contributes to Portland's economy by providing employment and income to individuals, taxes to state, county and local governments and revenue to firms providing the distribution operations.

Exhibit I-1



Flow of Economic Activity throughout the Local Economy

Exhibit I -1 illustrates the flows of economic impacts generated by a firm or industry throughout the region's economy. As this figure shows, economic activity by a distribution operation creates business revenue. This revenue is in turn used for several purposes:

- To hire employees to provide the services
- To pay stockholders dividends, retire debt, and invest
- To buy goods and services from other firms
- To pay taxes

As can be seen from Exhibit I-1, the flow of economic impacts throughout the economy creates four separate and non-additive types of impacts. These are:

- Employment impact
- Personal earnings impact
- Business revenue impact
- Tax impact



The definition of each of the impacts, as well as the methodology followed in estimating the impacts for a specific type of distribution sector, are described below.

## **2. DATA COLLECTION**

Martin Associates conducted a telephone survey of the 67 local and nine national distribution operations. The focus of the telephone surveys conducted by Martin Associates was to collect data at the firm level regarding physical attributes of the distribution operation, types of services provided by the operation, employment and payroll levels, region served by truck and rail, lease information, local purchases from various sectors of the Portland regional economy, and advantages and disadvantages of a Portland location for the distribution function.

The 67 distribution firms represent specific sectors of the Portland value added distribution industry. These sectors are:

- Apparel Distribution Centers
- National Grocery Chain Operations with Regional Distribution Centers in Portland
- Local Food/Seafood Distribution Centers
- Paper/Paper Goods Distribution Centers
- Beverages Distribution Centers
- Steel/Steel Products Distribution Centers
- Lumber and Forest Products Distribution Centers
- General Commodities/Third Party Logistics Providers/Retail
- Miscellaneous, including bulk distribution and animal feed distribution

## **3. IMPACT DEFINITIONS**

The distribution activity in these industry sectors generates impacts in terms of:

- Direct, Induced and Indirect Jobs
- Personal Income and Consumption Expenditures
- Business Revenue
- State and Local Taxes

Each of these impacts is described in the remainder of this section.

### **3.1 Employment Impact**

The employment impact measures the number of full-time equivalent jobs generated by the distribution activity of each operation. The direct jobs not only include those employees on-site at each distribution center, but also trucking jobs generated by moving cargo to and from the distribution centers. For each distribution operation, Martin Associates not only collected specific direct employment data, but also the number of trucks loaded and unloaded per day and the average number of daily trips to and from the warehouse made by one driver. Therefore, the direct jobs also include direct truck jobs.<sup>1</sup> Care was taken to not double count these jobs.

With the exception of the trucking jobs, the direct employees, as well as other impact measures such as salaries, revenue, local purchases, physical dimensions, etc. are estimated directly from the survey of distribution operations. As a result, the direct impacts can be traced to a specific firm level of detail and hence the analysis is highly defensible.

Those directly employed by firms in a given industry receive wages and salaries. A portion of the wages and salaries is saved, another portion is used to pay personal taxes, while a final portion is used to purchase goods and services. A percentage of these purchases are made in the Portland metropolitan area, while some consumption purchases are made outside the area.

These consumption purchases, in turn, generate additional jobs in those firms supplying the goods and services. The induced jobs measured in this study are only those generated in the Portland region.

Based on the fact that most consumption expenditures are made locally, it is assumed that the majority of the retail purchases made by individuals directly employed by distribution operations are made within the area. Furthermore, the wholesale jobs generated to supply the retail goods and services are also likely to be at the regional level. However, impacts generated at the third level of purchases, i.e., with firms producing the goods and services, are not included, since it is not possible to determine where this production occurs geographically.

To estimate these induced jobs, a personal earnings multiplier for the Portland Regional Economy, warehouse and distribution sector, was developed from data developed for Martin Associates by the Bureau of Economic Analysis, Regional Input-Output Modeling System. This income multiplier is used to estimate the total personal earnings generated in the Portland area, defined as the area consisting of the above noted counties. A portion of this total personal earnings impact is next allocated to specific local purchases as determined from consumption data for Portland residents, as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2002. These purchases are next converted into retail and wholesale induced jobs in the regional economy.

Jobs, which are created due to the purchases by firms, not individuals, are classified as indirect jobs. These jobs are estimated based on the local purchases made by the distribution operations

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<sup>1</sup> These trucking jobs do not include the in-house truck jobs that are direct employees of the distribution centers.

surveyed. Actual local expenditures by these operations were collected as part of the interview process. These local purchases were then used to estimate the indirect jobs and indirect income impacts. To estimate the indirect economic impact, local purchases, by type of purchase, were collected from each of the 67 firms interviewed. These local purchases were then combined with employment to sales ratios in local supplying industries, developed from the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System for the Portland Regional economy. These jobs to sales ratios capture the numerous spending rounds associated with the supply of goods and services. Special care has been exercised to avoid double counting the indirect impacts, and to specifically include only the expenditures by the directly dependent firms that are, in fact, local.

### **3.2 Income Impact**

The income impact consists of the level of wage and salary earnings associated with the jobs created by the real estate tenants, and is adjusted to reflect respending throughout the economy. The personal income impact is, for the most part, based on salary and annual earnings data provided from the survey conducted by Martin Associates. For each firm, the personal earnings impact is estimated by multiplying the average annual direct employment, by the average annual earnings in that firm.

As described above, individuals directly employed by a firm use a portion of their income to purchase goods and services. A portion of these purchases is made from firms located in the Portland area, while another portion is used for out-of-region purchases. Respensing of income within a geographical region is measured by an income multiplier. The size of the multiplier varies by region depending on the proportion of in-region goods and services purchased by individuals. The higher this percentage, the lower the income leakage out-of-region.

The 7,864 directly employed individuals earned \$278.3 million of wages and salaries. A portion of this income was spent on local purchases, in turn generating additional consumption expenditures and income in the Portland region. The personal income multiplier used to estimate this respensing impact is based on data developed by the Bureau of Economic Analysis, Regional Input-Output Division. The personal income multiplier is derived from the underlying marginal propensity to consume, which is the measure of the percentage of income received that is used for local purchases of goods and services. For example, the 2.307 personal income multiplier used in this study is based on the fact that for every dollar earned, about 57 percent is used for local consumption. This respensing effect occurs as follows. For one dollar of income received, about 57 percent, or \$0.57, is used to purchase local goods and services. The balance is saved, and/or used for purchases of goods and services produced outside the region. The \$0.57 received by those providing the goods and services represents the second round of income. Of that \$0.57 of income and consumption, 57 percent (or \$0.32) is again used for local purchases. Again, of the \$0.32 received as income, another 57 percent is used for respensing at the next round of purchases. These successive rounds of respensing will continue until the sum of the purchases is equal to \$1.30. Hence, for every one dollar earned, another \$1.30 of personal income and consumption expenditures occur throughout the region for which the multiplier is defined.

### **3.3 Business Revenue Impact**

The revenue impact is the measure of gross sales generated by the distribution activity at each firm. Not included as part of the revenue impact is the value of the goods handled by the distribution centers. It is to be emphasized that this revenue impact is not necessarily money that remains within the Portland region. Only those portions of the revenue paid out in wages and salaries to those directly employed, used by the tenants for local purchases of goods and services, and that portion of revenue paid in taxes to the local and county governments, can be defensibly identified as remaining in the Portland region.

Revenue estimates per square foot were developed for each firm surveyed by Martin Associates. The revenue per square foot multiplied by the covered square footage associated with a given distribution firm produces an estimated revenue impact.

### **3.4 Tax Impact**

The state, county and local tax revenues generated by distribution activity comprise the tax impact. The property tax impact is estimated using average property tax per sq.ft. as provided to Martin Associates during the interviews/survey program. Other state and local taxes are developed based on data from the Tax Foundation for the state of Oregon. These state and local tax burdens are then multiplied by the total personal wage and salary impacts (direct, induced and indirect wages and salaries).

The taxes include:

- State and local income tax
- State sales tax
- Motor vehicle registration and licensing tax
- State motor fuel tax
- County property tax
- Local city taxes such as the possessory interest tax, utility consumption tax, sewer service charge tax, and the business license tax are included

The methodology used to estimate the impacts is summarized in the following section.

#### 4. METHODOLOGY

The impacts are estimated from the results of interviews with the 67 distribution operations in the Portland region. These distribution operations represent a wide range of industry segments in the Portland economy. The individual operations were grouped into industry sectors as identified in the previous section.

For each distribution operation the following data was collected:

- Total Employment
  - Employment by category:
    - ✓ Management
    - ✓ Administrative
    - ✓ Trucking
    - ✓ Warehousing
    - ✓ Maintenance/Repair
    - ✓ Miscellaneous
  
- Salary/wages
  
- Physical attributes of facility:
  - Covered storage
  - Parking
  - Outside storage
  - Acres
  - Length of lease
  - Years in Portland
  
- Revenue
  - Revenue/Sq. Ft.
  - Property Taxes/Sq.Ft.
  
- Types of operations performed:
  - Packaging
  - Bar Coding
  - Labeling
  - Sorting
  - Simple Storage
  - Repairs/Modifications
  - Transloading/Cross Dock operations
  - Import/Export activity

- Trucking operations:
  - Number of trucks loaded per day
  - Average length of haul – area serviced
  - Trips per day per driver
  - Free-time
  
- Rail cars loaded per day
  
- Local purchases for:
  - Transportation
  - Goods not inventoried
  - Utilities
  - Insurance
  - Packaging materials
  - Maintenance & Repair
  - Transportation Equipment
  - Capital Improvements
  
- Use of local financial sectors
  
- Advantages/Disadvantages of Portland from a distribution center perspective

For the nine national distribution/retail firms interviewed, key areas of the interviews focused on size of facility, employment and factors influencing location choice.

Using this firm/operation specific data, Martin Associates developed an impact structure to determine the baseline impacts of the distribution industry in Portland, as well as the impacts created in each distribution industry subsector. Furthermore, typical firm impacts can then be estimated for each industry category. A typical firm profile represents the "average" firm in the distribution sector.

A typical firm profile in each sector consists of the following information:

- Employment per square foot (including trucking)
- Average salary
- Average square foot per operation
- Average revenue/sq.ft.
- Property taxes/sq.ft.
- Truck trips per day (in and out)
- Average local purchases per square foot

Also described for each type of operations is the type of value added service performed, as well as the use of the local financial infrastructure and the advantages/disadvantages of a Portland location.

The typical firm profiles in a specific value added distribution industry sector can be used when evaluating the potential impacts or spatial requirements of a new company or firm considering location in Portland.

## **II. Overview of the Portland Value Added Distribution Industry**

This Chapter provides an overview of the value added distribution activity in the Portland region. The descriptions based on interviews with 67 major distribution firms in the region. These operations are characterized by value added type of operations rather than standard storage and warehousing operations, as described in the previous chapter. The distribution industry consisting of these 67 firms is further broken down into industry sectors, based on the types of products handled and services provided by the specific firms. The key sectors are:

- Apparel Distribution
- Food Products Distribution by National Supermarket Chains
- Local Food/Perishable Distribution
- Beverages Distribution
- Paper and Paper Products Distribution
- Steel/Other Metals Distribution
- Lumber and Forest Products Distribution
- General Commodities/Retail/Wholesale Distribution
- Miscellaneous Bulk Distribution

It is important to emphasize that the distribution industry is critical to the Portland economy not only because of the number of jobs it creates, but also the infrastructure that has developed to support the distribution activity. For example, support services for the trucking industry typically develop around these facilities, as do export packers, maintenance and repair operations specifically focused on supplying services both to the distribution center physical plant as well as to the products handled in the distribution centers. Furthermore, the impact of the distribution center development is also a catalyst to regional economic activity. The location of distribution centers can be used to leverage other businesses to locate or serve the region. For example, the location of distribution centers has become a key factor in attracting steamship line service at the port cities in which the centers are located. To the extent that the distribution center provides an immediate local market which the Ports can “sell” to perspective ocean carriers, additional service or new service may be attracted to a port. With increased vessel service driven by the distribution center location, other importers and exporters in the region will benefit with increased frequency of service and the minimization of overland drays to a more distant port. Similarly, as distribution centers develop the demand for air cargo services may increase, which may provide critical volumes necessary to attract additional air cargo service at PDX. To the extent that the distribution centers rely on over-night delivery, synergies between the seaport (for the receipt of Asian cargo) and overnight air cargo service (FedEx and UPS) available at PDX may develop. In fact, the availability of both container service at the Port of Portland marine terminals and express air cargo service at PDX should be used to market to distribution centers that rely on catalog and internet sales.

Another key benefit of the development of distribution centers is the level of truck service that accompanies these operations. With a greater level of truck service available due to the distribution center activities, the likelihood of securing backhauls for local and regional businesses increases, hence lowering transportation costs and providing a level of truck service.

While the distribution centers attract additional ocean carrier service and truck service, it is also critical that some level of ocean carrier service and trucking exists in order to initially attract the distribution centers to the area. Portland has an advantage in this respect in that the area is served by a deepwater seaport, a navigable river system connecting the seaport to the inland areas of Oregon and Washington, as well as an established trucking industry and rail network. While adequate to attract the current level of distribution activity, it is also necessary to further invest in this infrastructure to maintain and grow the distribution industry in Portland.

A description of each distribution sector analyzed follows.

## **1. APPAREL DISTRIBUTION**

The apparel distribution sector in Portland consists of two distribution operations specializing in the distribution of apparel and footwear, as well as a large apparel manufacturer that also distributes from the area. While these two types of apparel distribution activities are actually modeled separately due to differences in square footage and employment levels, both types of apparel distribution activity -- distribution only and manufacturing/distribution -- are discussed in this section in order to protect confidential data.

All three distribution operations in this sector are engaged in value added services to some degree. All firms provide packaging, labeling, bar coding, sorting and transloading operations, while two of the three firms provide storage, repairs and modifications, and are engaged in international trade. Truck is the major mode of transportation used, with an average of 40 truckloads per day at the distribution only operations. The distribution centers serve an area of about 500 miles. The two distribution only firms have an average warehouse size of about 87,000 sq.ft., and occupy about 8.25 acres per firm. The manufacturer/distributor has more than 800,000 sq.ft. of covered storage and covers 25 acres. The distribution only firms make about \$53 of local purchases per sq.ft. and employ about 0.36 jobs per 1,000 square feet. The average salary is \$41,600.

Two of the three firms own their property in Portland, while the other leases. The term of the lease is 5 years.

Only one of the firms uses local financial services, and this company is the smallest of the three included in this category. Key advantages to a Portland location were identified as the most manufacturing activity in Oregon and the largest population base, while another firm indicated the proximity to the Port was an initial advantage to a Portland location. However, the limited container services at the Port of Portland were identified as a factor limiting expansion and, in fact, a growing concern as to the Portland location.



## **2. FOOD PRODUCTS DISTRIBUTION BY NATIONAL CHAINS**

This sector consists of six large distribution centers operated by national grocery chains with distribution operations in Portland. These distribution centers are engaged to some degree in all aspects of value added distribution. Two thirds of these six food products distribution firms provide simple warehousing storage services, and two-thirds are also involved in exporting and importing operations. Fifty percent of the firms provide packaging, sorting, repair and modifications, and transloading/cross-dock operations, while one-third provide bar coding and labeling services.

The typical size of the distribution facilities is about 800,000 sq.ft. covering about 42 acres per firm. These companies employ about 0.54 jobs per 1,000 sq.ft. and pay about \$42,000 per year in salary. Truck is the major mode of transportation, and each facility averages about 12 trucks per day. These distribution centers serve a radius of about 320 miles and use rail to a very limited extent to serve the Chicago and New York markets, primarily for seafood.

The firms spend on average about \$36 per square foot for local purchases, primarily consisting of capital improvements, transportation equipment and local trucking services. All six companies own their facilities, and have been in Portland for an average of 35 years. Two of the six distribution centers have been located in Portland for more than 80 years.

Only one of the six national chain food distribution operations uses local financial services. Except for the purchase of local produce and some maintenance and repair services, these firms do not make large purchases for support services from the local economy. Central location to retail outlets was cited by the majority of the firms as the key Portland location. One-third of the firms indicated that labor cost was becoming an issue, along with increasing real estate costs. Other disadvantages to the Portland location cited were slow rail service, high tax structure and growing regulations by municipal governments. One company noted lack of container service at the Port or Portland was offset by the service at the Puget Sound ports of Seattle and Tacoma.

## **3. FOOD DISTRIBUTION – LOCAL COMPANIES**

In addition to the national chain food products distribution centers, Portland is also home to 5 additional major food products distribution centers. These are smaller in scale than the national chain stores, and include warehousing services for local produce and seafood. All of these firms provide packaging, sorting and labeling services, while 80 percent provide bar coding, simple storage, repairs and modifications, transloading and are involved in import/export activity.

On average, the typical size of a facility in this industry sector is 198,000 square feet covering six acres. A typical distributor of local produce and seafood employs about 0.544 direct jobs per 1,000 square feet, with an average salary of \$26,756.

There about 11 truck trips per day, and the average service area is 150 miles. Nearly two-thirds of the truck trips have a backhaul, while rail is used to distribute seafood products.

All of the local food distributors use the Portland banking and financial network, and these firms also make significant purchases from the local regional business base. About \$76 per square foot of purchases are made by firms in this category primarily for trucking services and goods not inventoried.

The participants in this category indicated that the major advantage offered by Portland is location to nearby freeways, proximity to the Port and availability of rail cars. The key disadvantages noted are the growing cost of labor, local government regulations and limited container service at the Port of Portland.

#### **4. BEVERAGE DISTRIBUTION**

Six beverage distribution firms were identified from the data provided to Martin Associates. Of these six firms, about two-thirds of the firms are engaged in providing simple storage and bar coding activities. Fifty-percent of the firms provide labeling and transloading activity, while one-third provide sorting and repair and modifications. One-third of the firms are also involved in import and export activity. Finally, only two of the six firms provide packaging services.

On average, the typical size of a beverage distribution facility is 166,000 square feet covering an average of about 9.15 acres per firm. Typically these firms employ about 0.57 jobs per 1,000 square feet and pay an average salary of \$30,574. These firms handle an average of 39 trucks per day per firm, and serve a market within 100 miles of Portland. Most truck moves are one way moves, there are very few backhaul opportunities. Rail is used to a limited extent to receive wine from California, beer from Fort Collins, CO and liquor from Los Angeles.

The beverage distribution firms do not make large purchases from local vendors, averaging only about \$5.00 per sq.ft. Typically, these purchases are for packaging material, wines and paper products. However, all six of the firms use local banks and financial institutions. Four of the six firms own their facilities, while the other two lease, with an average length of lease of nine years. On average, these firms have been in the Portland area for nearly 18 years.

The majority of the firms identified the ease of access to highways and available acreage as the key advantages of a Portland location, as these factors drive the locations of beverage distribution facilities. However, despite the highway access as a major factor drawing the distributors to Portland, 4 of the six companies indicated that congestion and highway access are now becoming the major disadvantages of the Portland location. In addition, city and county taxes were cited by two of the six firms as major disadvantages to the Portland location.

## **5. PAPER PRODUCTS DISTRIBUTION**

Four paper products distribution centers were identified. Fifty-percent of these firms provide packaging, sorting and transloading services. Twenty-five percent of the firms provide labeling, storage, and repair and modifications, while 25 percent are also involved in international trade.

These paper distribution operations typically consist of 87,000 square feet of covered storage, and utilize about 4.75 acres. The firms employ about 0.6 jobs per 1,000 square feet and pay an average salary of \$31,011. About 60 percent of the firms lease the facilities, with an average lease of about 4.33 years. The paper distribution operations have typically been in Portland for an average of 3.5 years.

Truck is the dominant mode used for distribution, with an average of 11 trucks loaded per facility per day. The average market area served is about a 442-mile radius. Rail is used to a limited extent to serve the Los Angeles market. Fifty percent of the firms use local banking and financial services, and these distribution firms tend to make relatively large purchases from the local economy, averaging about \$73 per square foot. The leading local purchases are for insurance, maintenance and repair, trucking services and capital expenditures. Major advantages of the Portland location include access to the Port of Portland, labor availability, and freeway access, while PUC taxes were cited as a clear disadvantage of a Portland location.

## **6. LUMBER DISTRIBUTION**

Three firms are included in the lumber distribution sector. All firms are involved in transloading operations, while 67 percent of the firms provide labeling and packaging, and simple storage. One-third offer bar coding, sorting and repairs and modifications.

A typical facility in the lumber distribution sector consist of 195,000 square feet on 10.8 acres. These operations tend not to be relatively labor intensive, employing only about 0.09 jobs per 1,000 square feet. The average salary in this sector is \$27,863. Two-thirds of the companies lease the facilities, and the average length of the lease ranges from 1 to 5 years. Two of the firms have been in the Portland area for an average of 44 years per firm.

Both truck and rail are used in the distribution activities. Typically these facilities load an average of 4 rail cars per day per facility, while about 14 trucks are loaded/unloaded per day at each facility. The truck service area is about 220 miles. Rail is used to serve the East Coast as well as to shuttle cargo to and from Seattle.

All of the firms use the local banking and financial infrastructure, but overall these firms do not make large purchases from the local Portland region. On average, only about \$5.52 per square foot of local purchases are made, the majority of the purchases are for local trucking services as well as insurance coverage from local agents. The major advantage of Portland is low competition for their products, as well as proximity to the Port of Portland, while the major disadvantage is the lack of container service at the Port compared to Puget Sound ports.

## **7. STEEL PRODUCTS DISTRIBUTION**

This category consists of two sub-categories – the distribution activities by a firm also engaged in steel manufacturing, as well two firms that are involved only in the distribution of steel products. Two-thirds of the firms perform packaging, sorting, storage and repair and modifications. One firm provided only labeling, bar coding, transloading, and was engaged in import/export activity.

On average, the steel distribution facilities average 55 square feet and are located on 3 acres. The steel distribution operations employed 0.56 jobs per 1,000 square feet. While the ratio is lower for the firms engaged in both manufacturing and steel distribution. All three steel operations own their factories and have been in the Portland area for an average of 40 years.

Both truck and rail serve the distribution facilities and an average of 23 trucks per day are handled at each of the two distribution facilities. About 100 trucks and rail cars are loaded at the steel manufacturer/distributor. The steel distribution firms serve a small local market, averaging about 20 miles in radius from Portland. The steel manufacturer serves a 500-mile market by truck, and rail is used for distribution throughout the U.S. and Canada.

All three firms use local financial services, and except for trucking services, do not make large purchases from the local economy, averaging about \$2.00 per square foot. All the firms indicated that they are locked into the Portland location but are overall displeased with the area. The firms indicated that the major disadvantages of Portland are high taxes and the fact that the local government does not have a pro business agenda.

## **8. GENERAL COMMODITIES DISTRIBUTION**

This sector of the distribution industry in Portland is the largest in terms of the number of firms engaged in the distribution of general commodities. These commodities range from small parcel services to electronics to auto parts. Nearly 85 percent of the firms are involved in handling imports and exports, as well as in simple storage operations. Three-quarters of the firms are engaged in transloading/cross dock operations, while two-thirds provide sorting services and 50 percent of the firms provide packaging and labeling services. About 40 percent of the firms provide bar coding, while only one-third provide repair and modifications to the general merchandise.

The general commodities distribution centers are characterized by facilities averaging about 122,500 square feet and cover about 4.5 acres. These companies employ about 0.9 jobs per 1,000 square feet and pay an average annual salary of \$27,387. One-half of the firms lease their facilities, with an average lease of about 6.6 years. On average, these firms have been in the Portland area for about 16 years. Truck is the major mode of distribution, with an average of 27 truck trips per day per facility. The average distance served by the general commodities distribution operations is 266 miles, with about half of the trucks returning with a backhaul to that facility. Seven of the twelve firms use local financial services. The firms make about \$10.70 per square foot of local purchases. Key purchases are for maintenance and repair services, insurance, and utilities, followed by transportation equipment, parts not inventoried,

utilities, and trucking services. The advantages of the Portland location are easy access to highways and freeways, abundance of labor and no B&O (business and occupation) taxes. The key disadvantages of a Portland location are Interstate 5 bottlenecks, limited international flights at Portland International Airport, limited direct domestic flights, and limited steamship line service at the Port of Portland. Air service is critical for two reasons. Non-stop international air service is important for special order merchandise, as well as for the shipment of specific high value parts and commodities, such as flowers and electronics components that are shipped via air.

## **9. MISCELLANEOUS DISTRIBUTION OPERATIONS**

The category consists of seven distribution operations. These firms handle a range of cargoes, primarily dry bulk and liquid bulk cargo. One operation included is the distribution operation of a large manufacturer in the Portland area. The majority (67%) of these firms provide transloading services, while one-third provide storage services. None of the firms provide packaging services nor repair or modification services. Only one firm is engaged in international trade.

The firms are characterized by an average warehouse size of about 69,400 square feet and cover an average of 1.6 acres. The distribution firms in this sector employ about .54 jobs per 1,000 square feet and with an average salary of \$32,096. The majority of the firms lease the facilities, with an average lease of about 3.75 years. On average, the firms have been in the Portland region for about 24 years. Both truck and rail are used to transport the cargo. One firm loads about 20 rail cars per day, while on average, about 18 trucks are handled each day per firm. The miscellaneous distribution operations serve about a 200 mile market.

About two thirds of the companies use local financial services, and spend about \$40.7 dollars per square foot on local purchases. The key purchases are for parts non-inventoried and repair and maintenance, followed by local purchases for insurance services from local agents.

## **10. NATIONAL DISTRIBUTION FIRMS NOT CURRENTLY LOCATED IN PORTLAND**

In addition to the detailed survey of the 67 distribution firms located in the Portland region, Martin Associates collected data from nine of the largest distribution oriented firms in the United States. These firms are typically retail firms, that operate large distribution centers throughout the United States. The firms contacted include: Wal-Mart, Target, Sears, J.C. Penney, Mattel, PayLess Shoes, Hasbro, and Hub City. Interviews with these retail/distribution firms revealed that there are no clear trends of common operating practices. Several of the retailers have a limited number of key distribution centers in selected cities, while others tend to locate the major distribution centers in Southern California near the San Pedro Bay ports of Los Angeles and Long Beach. These distribution centers handle both domestic and imported cargo, and the majority are involved in transloading operations.

There is no rule of thumb for warehouse size or logistics strategies. For example, one key importer/retailer uses an 80,000 square foot warehouse in Los Angeles for transloading

operations, as well as specialized products lines. The majority of the transloaded cargo is then moved inland to an 800,000. square foot facility which is used to replenish inventories throughout the U.S. More than 500 jobs are supported by this inland distribution center. Toy importers typically have a limited number of distribution centers, located near the port of entry (typically Southern California), and then a larger inland distribution center. Most inland distribution centers are located in the Southern portions of the United States tied to the growing population centers in the Southeastern portions of the United States. These distribution centers range in size from 800,000 square feet to 1,000,000 square feet. Still other large importers use third party logistics providers to handle the distribution activities and use third party distribution centers. Typically, these are in excess of 1,000,000 square feet and leases are very flexible and range from three to six months depending, on demand. These large distribution centers near the port of entry are used to transload the goods from marine containers into domestic 53 foot containers in order to move the cargo more cost effectively to inland regional distribution centers. Other importers have dedicated distribution centers for specific lines of business – shoes, furniture and apparel. These “lines of business warehouses” are then used to serve regional distribution centers that support retail outlets in specific geographic regions.

Overall, there appears to be a trend towards the establishment of new distribution centers in the Southeastern United States. These distribution centers are locating near such ports as Savannah, Charleston and Norfolk and will be used to serve East Coast markets, particularly the growing population markets in the Southeast. For these key importers, there will be less reliance on West Coast ports to serve eastern U.S. markets. This shift is in part due to the West Coast labor instability in the fall of 2002. In addition, security concerns have lead to a re-examination of logistics strategies, as firms attempt to minimize risks of stock shortages, but still strive to minimize inventory carrying costs. The factors driving the location choice include steamship line service and the size of local and regional markets. The majority of the local and regional markets are being served by truck, 53-ft. domestic trailers, and hence the availability of trucking services in the port area is critical, as is the ability to handle and store 500- 700 chassis for the larger distribution operations. On average these large distribution centers employ about 1 job per 1,000 square feet, including trucking operations. This is very similar to the 0.9 jobs per 1,000 square foot employed by general commodities distribution centers in Portland.

In the next chapter the impacts of the local Portland distribution center activity is quantified.

### **III. RESULTS**

This chapter presents the economic impacts on the Portland region that are created by distribution center activities. The first section describes the total impacts generated by the distribution activity on the Portland economy. The second section describes the impacts by distribution sector, and the third section presents the impacts of "typical firms" in each distribution industry sector.

#### **1. TOTAL ECONOMIC IMPACTS**

The economic impacts created by the Portland regional distribution industry summarized in Exhibit III-1.

Exhibit III-1  
Economic Impacts of the Distribution Activity

Jobs	
Direct	7,864
Induced	4,283
Indirect	5,095
Total	17,242
Personal Income (Thousands)	
Direct	\$ 278,287
Induced	\$ 363,723
Indirect	\$ 167,801
Total	\$ 809,811
Business Revenue (Thousands)	\$ 2,814,173
Local Purchases (Thousands)	\$ 347,464
State/Local Taxes (Thousands)	\$ 88,550

*\*Totals may not add due to rounding.*

*\*Excludes revenue from the sales of the products.*

As this exhibit shows, the warehouse activity in the Portland region generated 17,242 direct, induced and indirect jobs in the Portland region. Of these total jobs, the distribution centers directly employed 7,864 individuals, including truckers serving the distribution centers. Both in-bound and outbound truck operations are included in the analysis.

The 7,864 directly employed individuals earned \$278.3 million of wages and salaries. A portion of this income was spent on local purchases, in turn generating additional consumption expenditures and income in the Portland region. The personal income multiplier used to estimate this responding impact is based on data developed by the Bureau of Economic Analysis, Regional Input-Output Division. The personal income multiplier is derived from the underlying

marginal propensity to consume, which is the measure of the percentage of income received that is used for local purchases of goods and services. For example, the 2.307 personal income multiplier used in this study is based on the fact that for every dollar earned, about 57 percent is used for local consumption. This respending effect occurs as follows. For one dollar of income received, about 57 percent, or \$0.57, is used to purchase local goods and services. The balance is saved, and/or used for purchases of goods and services produced outside the region. The \$0.57 received by those providing the goods and services represents the second round of income. Of that \$0.57 of income and consumption, 57 percent (or \$0.32) is again used for local purchases. Again, of the \$0.32 received as income, another 57 percent is used for respending at the next round of purchases. These successive rounds of respending will continue until the sum of the purchases is equal to \$1.30. Hence, for every one dollar earned, another \$1.30 of personal income and consumption expenditures occur throughout the region for which the multiplier is defined.

Using the income multiplier, the use of the direct earnings for local purchases resulted in additional income and consumption expenditures totaling \$363.7 million. These local purchases supported the 4,283 induced jobs in the region.

The distribution firms identified \$2.8 billion of direct business sales. This revenue is only from transportation and distribution services and does not include the value of the cargo/products distributed. Part of this \$2.8 billion of gross revenue is also used to purchase goods and services from other local firms. The distribution operations identified \$347.5 million of purchases from other local businesses. These local purchases include purchases for goods and parts not inventoried, office supplies, communication services and utilities, maintenance and repair services, packaging supplies, and local capital/new construction expenditures. These local purchases supported 5,095 indirect jobs in the Portland regional economy.

Finally, the distribution operations generated about \$88.6 million of state and local tax revenues, of which nearly \$8 million of the tax receipts were from property taxes collected from the distribution centers. The distribution of these taxes are shown in Exhibit III-2.

Exhibit III-2  
Distribution of Tax Impact

Tax	Millions
State Taxes:	
Income	\$56.3
Corporate Income	\$3.0
Insurance	\$0.7
Gift	\$0.2
Tobacco	\$0.1
Other	\$0.0
<b>Total State Taxes</b>	<b>\$60.3</b>
County/Local Taxes	\$21.0
Tri-Met Tax	\$7.3
<b>Total Tax Impacts</b>	<b>\$88.6</b>



## **2. ECONOMIC IMPACTS BY SECTOR**

In this section the economic impacts generated by each sector are discussed. Exhibit III-3, summarizes the economic impacts generated by each sector of the Portland distribution industry. As this chart shows, the national grocery chain food products distribution centers generate the largest job impact, 3,126 direct jobs, and 7,572 total jobs. The relatively large value of local purchases made by the national grocery chain food products distribution sector, are reflected by the relative size of indirect jobs to direct jobs. These food and perishable distribution centers make local purchases for capital expansion projects, maintenance and repair of refrigeration units and facilities, as well as make local purchases for transportation equipment and local produce.

General commodities distribution operations create the next largest job impact, generating nearly 2,500 total jobs in the Portland region. The local food products distribution operations create nearly 2,000 direct, induced and indirect jobs, despite the fact that this sector creates only 572 direct jobs. The high ratio of total jobs to direct jobs is reflected by the fact that the local food products distributors are tied into the local support services in the Portland region. The relatively large value of local purchases made by these firms for support services such as goods not inventoried, trucking services, and packaging materials results on the large number of indirect jobs supported in the economy.

Apparel distribution is also a key job generator in the Portland region, supporting more than 1,500 total jobs in the area and contributing \$75.5 million of local wages and salaries in the Portland economy.

Lumber and forest products distribution generates the smallest impact in terms jobs, while the relatively low levels of purchases in the local economy by steel distribution services and the beverages distribution centers are reflected in the small number of indirect jobs these sectors support.

Exhibit III-3  
Impacts by Sector

	Direct Jobs	Induced Jobs	Indirect Jobs	Total Jobs	Direct Income \$1,000	Induced Income \$1,000	Indirect Income \$1,000	Total Income \$1,000	Property \$1,000	Other Taxes \$1,000	Total Taxes \$1,000
<b>National Chain Food Products</b>	3,126	1,901	2,545	7,572	\$130,136	\$170,088	\$84,459	\$384,683	\$2,972	\$38,276	\$41,248
<b>General Commodities</b>	1,495	722	229	2,447	\$43,812	\$57,262	\$7,899	\$108,973	\$382	\$10,843	\$11,225
<b>Apparel Distribution</b>	786	432	303	1,521	\$28,218	\$36,881	\$10,388	\$75,487	\$1,101	\$7,511	\$8,612
<b>Beverages</b>	654	332	69	1,055	\$20,783	\$27,163	\$2,341	\$50,287	\$468	\$5,004	\$5,472
<b>Steel/Other Metals</b>	609	309	85	1,003	\$19,309	\$25,237	\$2,731	\$47,277	\$1,352	\$4,704	\$6,056
<b>Local Food Distribution</b>	572	265	1,137	1,974	\$15,699	\$20,519	\$35,401	\$71,619	\$507	\$7,126	\$7,633
<b>Miscellaneous/Bulk</b>	333	176	291	799	\$11,241	\$14,692	\$9,698	\$35,631	\$484	\$3,545	\$4,029
<b>Paper Products</b>	228	116	374	719	\$7,274	\$9,507	\$12,794	\$29,575	\$451	\$2,943	\$3,394
<b>Lumber/Forest Products</b>	61	30	62	153	\$1,816	\$2,374	\$2,090	\$6,280	\$257	\$625	\$882
<b>TOTAL</b>	7,864	4,283	5,095	17,242	\$278,287	\$363,723	\$167,801	\$809,811	\$7,974	\$80,576	\$88,550

Totals may not add due to rounding

\* Includes apparel distribution and manufacturing sector to protect confidential data

\*\* Includes steel distribution and manufacturing sector to protect confidential data

### 3. ECONOMIC IMPACTS PER FIRM

The impacts created by a typical distribution operation are addressed in this section. Per firm impacts are important in evaluating the potential economic impacts of a new distribution center. While Martin Associates has developed a model to assist decision makers in assessing potential impacts of various types of distribution center development, these average “typical firm” impact factors provide a useful first-cut look at the potential impacts of a particular type of distribution activity. The individual firm data as not been included for the steel manufacturing/distribution sector and the apparel manufacturing/distribution operations in order to protect data confidentiality. Exhibit III-4 summarizes the impact factors associated with a typical distribution operation in each sector.

Exhibit III-4  
Economic Impact Factors for a Typical Distribution Operation in Portland

Sector	Jobs/1,000 SF	Acres/Firm	SF/Firm	Annual Salary	Revenue/SF	Property Tax/SF	Purchases/SF
General Commodities	0.86	4.5	122.5	\$27,387	68	0.26	\$10.70
Paper Products	0.60	4.8	86.7	\$31,011	161	1.30	\$73.20
Beverages	0.57	9.2	166.0	\$30,574	29	0.47	\$5.00
Steel/Other Metals	0.56	3	55.0	\$30,029	30	0.65	\$2.00
Local Food Distribution	0.54	6.1	198.7	\$26,756	270	0.51	\$78.66
National Chain Food Products	0.54	42	799.0	\$41,956	270	0.62	\$36.61
Miscellaneous/Bulk	0.54	1.6	69.4	\$32,096	51	1.00	\$40.75
Apparel Distribution	0.36	8.3	87.0	\$41,600	55	0.63	\$53.14
Lumber/Forest Products	0.09	10.8	195.0	\$27,863	30	0.44	\$5.53

On a per firm or operation basis, distribution activities of general commodities tends to generate the greatest number of direct jobs per sq. ft. of operation. This reflects the various value added services being performed at these facilities, including transloading/cross-dock operations, which is relatively labor intensive. Other key services provided include sorting, labeling and bar coding. In addition, about 60 percent of general commodities distribution operations include the use of local financial services. In general, the majority of the other distribution activities support between 0.5 and 0.6 jobs per 1,000 sq. ft.

Local food distribution operations tend to generate the greatest local spending per sq. ft., primarily for maintenance and repair, transportation equipment and goods not inventoried. Food/perishable goods distribution centers are followed by paper and paper products distribution operations in terms of local purchases per sq. ft. of operation. On average, lumber and forest products distribution centers have the smallest impact in terms of direct jobs per 1,000 square feet and also generate relatively small levels of local purchases per square foot.

Apparel distribution and food/perishable good distribution for national chains are characterized by the highest average annual earnings per employee, while the jobs associated with the local food distribution activity pay the lowest earnings.

From a land/facilities requirement perspective, food distributions centers developed by national grocery chains require the largest facilities, averaging about 800,000 square feet per operation. These typically are located on 42 acres of land. Steel distribution centers are characterized by relatively small sized facilities, as are miscellaneous commodities/bulk distribution centers.

#### **4. SUMMARY**

It is important to underscore the fact that this report focuses on the impacts of the value added segment of the entire distribution logistics industry. The impacts of this segment are not a complete picture of the economic importance of the distribution and logistics industry in the Portland region. Rather the report endeavors to depict a modern industry, where value added activities contribute positively to the economic impact the industry has in this region.

The value added distribution logistics segment of jobs (direct, indirect and influenced) makes up 1.8% of the total employment in this region, or approximately 17,250 jobs out of the region's total employment of 967,000 jobs. The overall distribution logistics industry is a key employer in the PMSA, which accounts for one in every 10 jobs, or 109,700 jobs out of 967,900 jobs for all industries in the PMSA. The average wage for all industries in the PMSA is \$37,000, while distribution logistics is \$46,113.

In addition to jobs, income and economic impacts of this sector, there are significant additional benefits of distribution operations. Of tangible importance is the provision of infrastructure and movement of goods this industry provides, which help maintain the Portland region's advantages as a traded sector hub and which build on the region's geographic advantages.

The infrastructure development supports DC operations, including truck support operations, supply services (M & R, and parts suppliers) and financial sector support. They also provide leverage to attract other businesses, including steamship lines, air service, trucking and rail. This improved level of freight transportation service benefits local industry by increasing equipment availability, lowering rates through economies of increased supply and increasing frequency of service availability.

The distribution center operations in the Portland region create a significant economic impact to the Portland economy in terms of jobs, income and tax revenue. The distribution center sector employs 7,864 workers, direct, indirect and induced. With this magnitude of economic impact, a focus on the development of additional distribution facilities is a positive strategy in terms of stimulating economic growth.

However, as identified, there are several obstacles that must be addressed in order to further attract distribution operations. While freeways and highway access were cited as positive attributes in locating in the Portland region, traffic congestion is becoming an issue with the current distribution industry. Most of the firms interviewed also expressed some concern with the attitude of local government with respect to business development and taxes. Of equal concern is the lack of container service and international and non-stop direct air service, particularly for the general commodities distribution operations. Furthermore, the large retailers that dominate the distribution center market for international cargo cited limited population base and ocean service as impediments to the development of large retail oriented distribution centers in the Portland area similar to the scale that has developed at Southern California Ports, as well as those that are now developing at South Atlantic ports such as Savannah, Georgia, and Norfolk, Virginia. However, with changes in distribution strategies after the West Coast port shutdown in September 2002, as well as in response to security issues and potential supply chain disruptions, the Portland area, despite its smaller population base, limited container service, and proximity to Seattle and Tacoma, may have a window of opportunity to market directly to the larger retail distribution centers as a diversification strategy.

As policy makers move ahead to target the distribution industry, it is imperative to address the concerns of the current distribution center base industry. This will require further analysis as to traffic congestion issues as well as tax and local government issues, and the continual efforts by the Port of Portland in maintaining and growing the container service at the Port. Similar efforts to attract more domestic non-stop and international air service will also be needed to better position Portland in the growing the distribution center industry, as direct non-stop international service is critical for special order parts as well as high value commodities, including electronics products, flowers and seafood. Domestic non-stop air service is also a consideration for the location of large national distribution firm. Non-stop air service to a large number of domestic markets is important to facilitate travel between different distribution centers, as well as to move special orders between distribution centers in other geographical markets.