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**CITY OF SCAPPOOSE**  
**ECONOMIC OPPORTUNITIES ANALYSIS**  
**JANUARY 10, 2011**

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## I. EXECUTIVE SUMMARY

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The purpose of the “Economic Opportunity Analysis” (EOA) is to determine the City’s economic goals, policies and land needs concerning commercial and industrial development within City limits and the Urban Growth Boundary and ultimately inform the City’s Economic Element of the Comprehensive Plan.

The element is intended to satisfy the requirements of the Oregon Administrative Rules, Chapter 660, Division 9. The State Planning Goal 9 EOA methodology guidelines call for a four-step approach to economic development planning and resulting quantification of employment (industrial, retail, office, institutional, etc.) land need for urban growth boundary planning purposes. These four steps largely guide this resulting analysis of City of Scappoose’s need for urbanized land. The required Goal 9 analytical steps that roughly comprise the outline of this document are:

1. Economic Trends Analysis: Identification of national, state, regional and local economic trends that have shaped recent economic performance as well as likely 20-year economic activity that will determine employment land need over the duration of the study period.
2. Industry & Job Growth Forecasts: Detailed forecasts of job growth by industry within Scappoose over the planning period that will in turn drive demand, if any, for different employment land categories.
3. Land Need Forecasts: Job growth forecasts translated into land demand forecasts based on industry and space type usage and floor area ratio (FAR) patterns anticipated into the future.
4. Land/Parcel Need Quality: A detailed treatment of employment land need in terms of specific parcel types, sizes, quantities and other qualities appropriate to economic growth anticipated by the jurisdiction.

The first three sections provide an Economic Opportunities Analysis that includes: an analysis of significant national, state and local trends and an analysis of Scappoose’s competitive position and target industries. The fourth section provides a forecast of employment followed by the demand for employment lands in the fifth through seventh sections. Finally, the last section of the document outlines the City’s economic goals and policies that will guide the City through the twenty-year planning period (2010-2030).

### SUMMARY OF FINDINGS

This section presents an overview of key findings. The context and methodology for these finding is discussed in greater detail in the following sections of this report.

- This report has been completed in the climate of a severe national recession. The depth of the downturn relative to other modern downturns color recent trends and make it difficult to forecast the nature and timing of the eventual recovery.
- Beyond the near-term, the United States economy is expected to return to a more typical growth cycle, averaging 3.1% annual Gross Domestic Product growth from 2011 to 2019, as well as employment growth. In the coming growth cycle, the United States’ commitment to renewable energy transition is expected to play a major role.
- The most prominent industry clusters in Scappoose currently are the Aviation Manufacturing and Services, Retail and Nursery industries.
- Figure 1 outlines the City of Scappoose employment forecast through 2030. As shown, the employment forecast anticipates an increase of 8,068 jobs (7.6% AAGR). Professional & Business Services, Other Services, Manufacturing, and Retail Trade, are expected to account for approximately 67% of net new growth over the forecast period. Other promising sectors are Transportation,

Warehousing & Utilities, Education & Health and Leisure & Hospitality, accounting for an additional 25% of new net growth.

**FIGURE 1: 20-YEAR EMPLOYMENT FORECAST (2010-2030)<sup>1</sup>**

| Employment Forecast<br>NAICS | Base Year    | Employment Forecast |              |              |               | 2010-2030 Growth |             |
|------------------------------|--------------|---------------------|--------------|--------------|---------------|------------------|-------------|
|                              | 2010         | 2015                | 2020         | 2025         | 2030          | Jobs             | AAGR        |
| Natural Resources            | 0            | 0                   | 0            | 0            | 0             | 0                | 0.0%        |
| Construction                 | 119          | 150                 | 189          | 239          | 301           | 182              | 4.7%        |
| Manufacturing                | 215          | 523                 | 894          | 1,359        | 1,970         | 1,755            | 11.7%       |
| Wholesale Trade              | 24           | 36                  | 54           | 81           | 122           | 98               | 8.5%        |
| Retail Trade                 | 519          | 773                 | 1,051        | 1,357        | 1,698         | 1,179            | 6.1%        |
| T.W.U.                       | 81           | 153                 | 241          | 351          | 494           | 412              | 9.4%        |
| Information                  | 78           | 80                  | 82           | 85           | 87            | 9                | 0.5%        |
| Financial Activities         | 76           | 101                 | 135          | 179          | 239           | 163              | 5.9%        |
| Professional & Business      | 101          | 192                 | 350          | 628          | 1,126         | 1,025            | 12.8%       |
| Education & Health           | 652          | 815                 | 1,014        | 1,258        | 1,557         | 905              | 4.4%        |
| Leisure & Hospitality        | 281          | 389                 | 538          | 745          | 1,030         | 749              | 6.7%        |
| Other Services               | 225          | 374                 | 620          | 1,028        | 1,707         | 1,481            | 10.7%       |
| Public Administration        | 54           | 71                  | 94           | 124          | 164           | 110              | 5.7%        |
| <b>TOTAL</b>                 | <b>2,425</b> | <b>3,657</b>        | <b>5,261</b> | <b>7,433</b> | <b>10,492</b> | <b>8,068</b>     | <b>7.6%</b> |

SOURCE: Oregon Employment Department and Johnson Reid LLC

- The potential for growth in Scappoose is based on several factors. First, the City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008
- Figure 2 below projects both net and total land demand for the City of Scappoose. There will be a projected need for close to 400 net acres to accommodate projected employment growth. After accommodating infrastructure (streets, utilities, etc.) and other site improvements, this translates to a need for 483 gross acres.

**FIGURE 2: PROJECTED AGGREGATE LAND NEED IN THE SCAPPOOSE UGB, 2010-2030 (NET & GROSS ACRES)**

| Need For Land       |              |              |
|---------------------|--------------|--------------|
| Use Type            | Net Acres    | Gross Acres  |
| INDUSTRIAL          | 217.9        | 269.0        |
| OFFICE COMMERCIAL   | 54.7         | 64.4         |
| RETAIL COMMERCIAL   | 33.6         | 39.6         |
| CITY RESIDENTS      | 26.7         | 31.4         |
| REGION/TOURISTS 1/  | 7.0          | 8.2          |
| SPECIALIZED USES 2/ | 93.5         | 110.0        |
| <b>TOTAL</b>        | <b>399.8</b> | <b>483.0</b> |

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

<sup>1</sup> It should be noted that employment forecasts are speculative over a twenty year horizon.

- Figure 3 provides a detailed assessment of Scappoose employment land need through 2030 in terms of land use categories, number of sites, and gross acres needed by site size.

**FIGURE 3: EMPLOYMENT LAND DEMAND BY SITE SIZE FOR SCAPPOOSE (2030)**

| Land Demand by Site Size       |                               |                    |           |              |
|--------------------------------|-------------------------------|--------------------|-----------|--------------|
|                                |                               | Demand Projections |           |              |
|                                |                               | Typical Acreage    | Sites     | Gross Acres  |
| Office                         | Large                         | 25.0               | 0         | 11.6         |
|                                | Medium                        | 10.0               | 1         | 7.7          |
|                                | Small                         | 5.0                | 9         | 45.1         |
|                                | <b>SubTotal</b>               |                    | <b>10</b> | <b>64.4</b>  |
|                                |                               |                    |           |              |
| Commercial Retail              | Large                         | 20.0               | 0         | 0.0          |
|                                | Medium                        | 7.0                | 4         | 25.8         |
|                                | Small                         | 1.0                | 6         | 6.3          |
|                                | <b>SubTotal</b>               |                    | <b>10</b> | <b>32.1</b>  |
|                                |                               |                    |           |              |
| Industrial                     | Large                         | 50.0               | 2         | 107.6        |
|                                | Medium                        | 30.0               | 1         | 35.0         |
|                                | Small                         | 7.0                | 7         | 51.1         |
|                                | Tech/Flex                     | 12.0               | 2         | 21.5         |
|                                | Airpark Emp.                  | 5.0                | 11        | 53.8         |
|                                | <b>SubTotal</b>               |                    | <b>23</b> | <b>269.0</b> |
|                                |                               |                    |           |              |
| Lodging Related                | Lodging                       | 1.5                | 2         | 3.0          |
|                                | Lodging-supportive commercial | 1.0                | 5         | 4.5          |
|                                | <b>SubTotal</b>               |                    | <b>7</b>  | <b>7.5</b>   |
|                                |                               |                    |           |              |
| <b>Employment Uses Totals:</b> |                               |                    | <b>50</b> | <b>373.0</b> |
| Public Uses                    | <u>Special Uses</u>           |                    |           |              |
|                                | Hangar Reserve                |                    | 1         | 40.0         |
|                                | Runway Extension              |                    | 1         | 50.0         |
|                                | PCC Campus                    |                    | 1         | 20.0         |
|                                | <b>SubTotal</b>               |                    | <b>3</b>  | <b>110.0</b> |
| <b>GRAND TOTALS:</b>           |                               |                    | <b>53</b> | <b>483.0</b> |

SOURCE: JOHNSON REID

## II. TRENDS ANALYSIS

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The Trend Analysis section provides the foundation of economic information that will shape realizable economic opportunity potential for a jurisdiction, resulting potential job growth scenarios, and ultimately employment land need over the determined planning horizon.

In conducting the Trend Analysis, it is underscored that given the current economic climate, during the course of analysis, economic circumstances at the global, national, state and local levels significantly changed in response to economic and political events and objectives. Through September of 2009 some of the key factors affecting the economic environment include:

- New Presidential administration and significant changes in federal economic policies, including the response to economic distress of recent years;
- Numerous federal bail-out proposals and agreements for financial institutions and U.S. automakers;
- Credit crisis in the financial markets due to the uncertain future of “toxic” financial assets that include billions of dollars in “sub-prime” mortgages;
- A return of the Dow Jones Industrial Average to pre-1998 levels; and
- A fourth quarter 2008 drop in U.S. Gross Domestic Product (GDP) of 6.2%, the worst since the severe 1980-82 U.S. recession.<sup>2</sup>

Alternatively, in late 2008 the Federal government passed an unprecedented \$850 billion stimulus bill meant to help create jobs with targeted infrastructure investments, state and local government budget stop-gaps, and various tax credits and investment incentives for housing, alternative energy, and numerous other targeted industries and economic activities nationwide.

Ultimately, current economic times make it virtually impossible to produce a timely national trend analysis. JOHNSON REID, therefore, has continued to utilize the economic forecast “of record” by the federal government, the non-partisan Congressional Budget Office biannual economic forecast. As that official forecast makes clear, economic times are uncertain, but Trend Analysis consistency with its findings—even those that have changed in only a few months—is preferable to constantly shifting speculation.

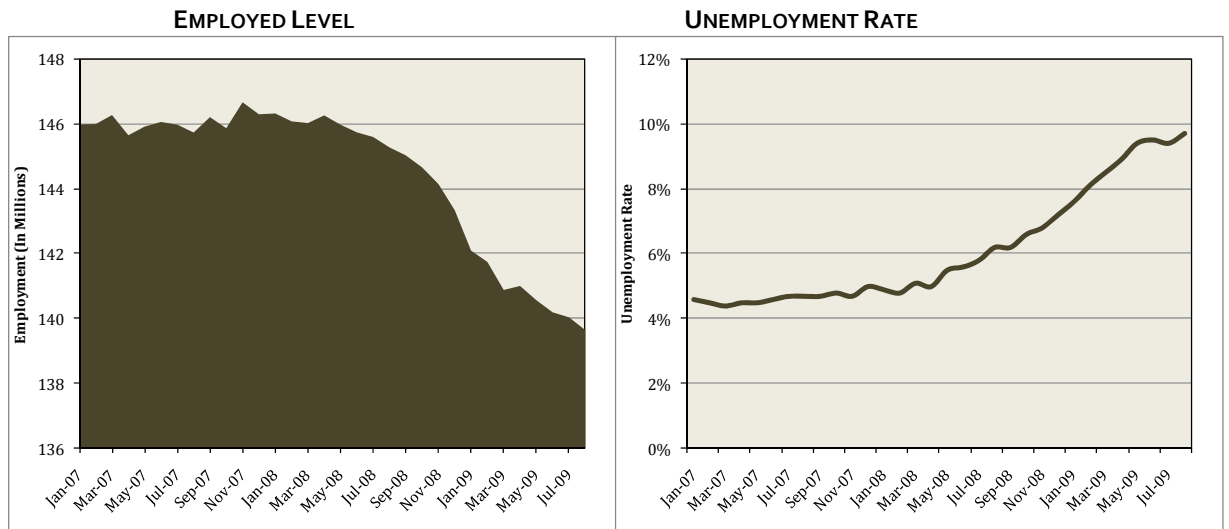
### SHORT-TERM OUTLOOK

In December of 2008, the National Bureau of Economic Research (NBER), an organization charged with officially dating economic cycles, announced that the country has been in a contraction period (recession) since December of 2007, ending a 73-month expansionary period dating to November of 2001. Since December of 2007, the national economy has shed over 6.9 million jobs with unemployment rising to 9.7%, its highest level since the recession of 1981-1982, as shown in Figure 1.

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<sup>2</sup> Gross Domestic Product (GDP) is a widely-used measure of the total economic output of the economy. It is equal to the market value of all final goods and services produced within a country, usually measured annually, or by quarter.

**FIGURE 1: U.S. EMPLOYMENT**

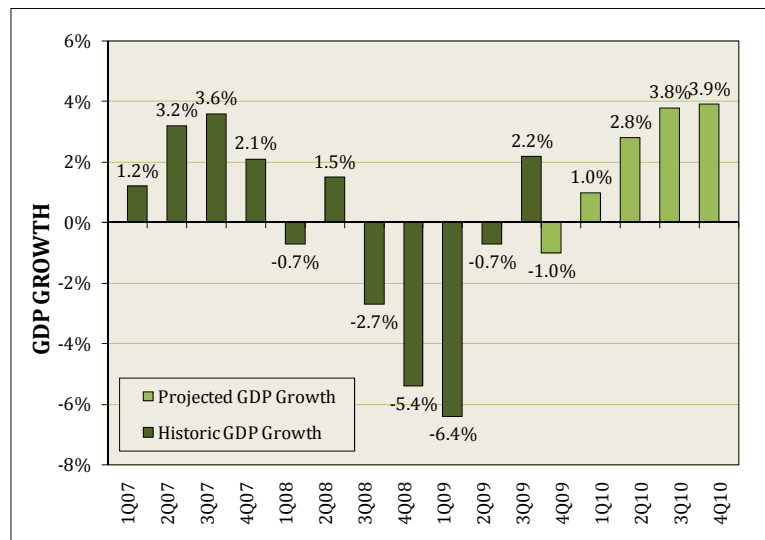


Source: U.S. Bureau of Labor Services

The current recession was catalyzed by a mix of economic conditions that drastically curtailed economic growth. Principally, a drop in housing prices and subsequently housing starts severely undermined the solvency of the nation's financial institutions, disrupting financial markets and exacerbating a tense period of uncertainty. In addition, a historic rise in the price oil and other commodity inputs markedly limited economic activity. For a time, contractionary pressure was partially offset by strong export growth driven by emerging markets and a favorable currency position. Aggressive monetary and fiscal policy also played a role, with the Federal Reserve slashing interest rates and the Bush Administration's \$100 billion tax rebate package in the first half of 2008.

However, as Figure 2 demonstrates, output growth began to weaken by mid-2008, with GDP posting negative growth (-2.7%) in the third quarter of 2008. The economic condition continued to deteriorate further into 2009 as the financial crisis intensified. GDP growth in the first quarter of 2009 contracted by 6.4%, the largest such decline since 1982.

**FIGURE 2: REAL GROSS DOMESTIC PRODUCT**



Source: U.S. Bureau of Labor Services, and Congressional Budget Office

Historically, sharp economic contractions are abruptly followed by a rapid return to growth. However, the near-term outlook is likely to be more abridged, as economic conditions in place may not facilitate a "typical" recovery, specifically:

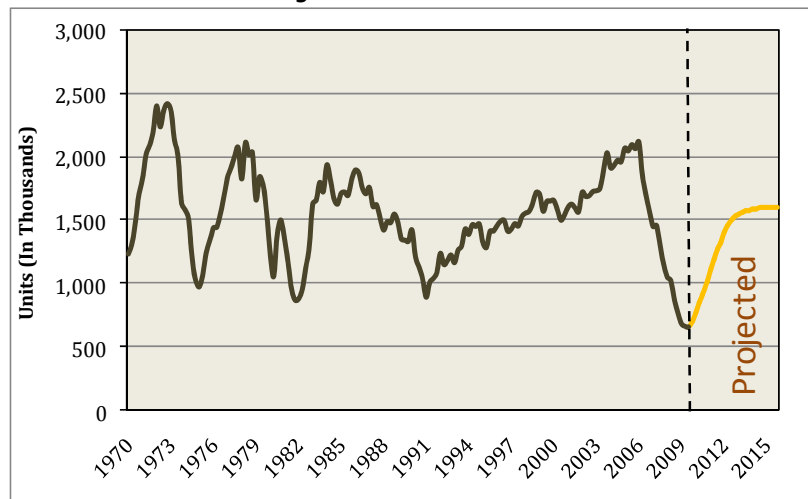
1. The pace of recovery will be restrained by the on-going uncertainty and functionality of financial markets and institution's ability to recovery from default losses. This will continue to limit the availability of credit and increase the cost of capital investment for several years;
2. Housing vacancy currently sits at 2.9%, its highest level on record, while housing starts are also at record lows. Excess supply of housing units is expected to postpone the typical rebound in construction;
3. High unemployment and declining household wealth are expected to curtail personal consumption spending in the near-term; and
4. For a time, it was theorized that economies in emerging markets would be less impacted by recessionary pressure, and would help moderate contraction domestically through strong exports. However, foreign economies are now weakening as well.

Real Gross Domestic Product fell in 2009. A soft recovery is projected into begin in 2010. While GDP is expected to recover by mid-2010, the employment situation characteristically lags recovery in output. Unemployment is likely to peak at a level between 10% and 11% by mid-2010.

### HOUSING MARKET OUTLOOK

As mentioned above, the inventory of unsold housing units remains historically high, and the correction in the U.S. housing market is expected to continue through the end of 2009. Housing vacancy sits at its highest level on record, and housing starts are near record lows. Housing starts are not expected to recover until 2010, stabilizing near 2000 levels by 2015. (See Figure 3)

FIGURE 3: NATIONAL HOUSING STARTS



Source: National Association of Home Builders

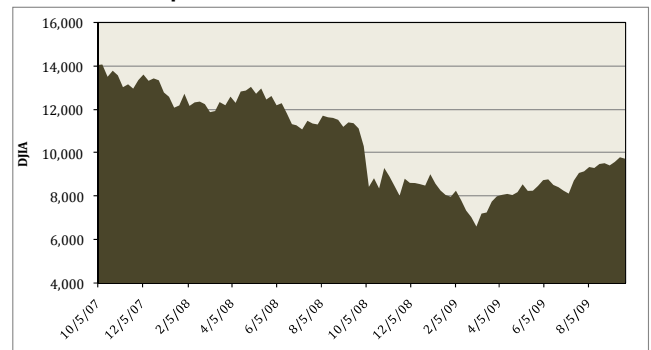
The next six months are expected to bring further declines in national housing prices. Home values are expected to trim an additional 10% - 15% nationally in 2010. Falling home values may continue to intensify losses to institutions holding mortgage-backed securities. However, various sources project that the housing market may begin to find a floor on pricing in the latter half of 2010.

The effectiveness of the Federal Government's efforts to stabilize the housing market remains to be seen. Taken together, President Obama's Homeowner Affordability and Stability Plan, coupled with the 2009 American Recovery and Reinvestment Act extended the Home-Buyer Tax Credit to \$8,000, removing the repayment criteria, and provide upwards of \$75 billion for the modification and refinancing of trouble mortgages owned by Fannie Mae and Freddie Mac. In addition, the program was expanded to extend a tax credit to current homeowners as well. While these efforts are likely to put downward pressure on escalating foreclosure rates, foreclosures are expected to remain well above historical norms in the near term.

## FINANCIAL MARKET OUTLOOK

Signs of the impending financial crisis emerged in summer 2007, coincident with the peak and subsequent turn in the national housing market. The crisis intensified over the following twelve months, as housing prices and a sputtering economy created significant losses of major financial institutions caused a near collapse of the nation's financial system. In September 2008, the interbank market for short-term loans seized significantly, compounding liquidity problems among wavering banks.

**FIGURE 4: DOW JONES INDUSTRIAL AVERAGE**



Source: Dow Jones & Company

The spread between the rate at which banks borrow from the Federal Reserve (Federal Funds Rate) and the rate at which banks borrow from each other skyrocketed to over 3.6%, reflecting the outstanding risk and uncertainty that financial institutions felt in dealing with each other. In response to the financial crisis, the Federal Reserve has pumped liquidity into the market, both through aggressive interest rate cuts and through extending its loan facilities by accepting as collateral assets that have been shunned by the open lending market. The Department of Treasury has also begun its effort to stabilize the U.S. financial system through its highly publicized Troubled Asset Relief Program (TARP). In fall of 2008 congress authorized \$700 billion across various facilities with the aim of re-establishing the flow of credit. The reception to Federal Government's aggressive intervention has been mixed. Faith in some credit markets has improved significantly, with inter-bank lending rates back down near the historical norm.

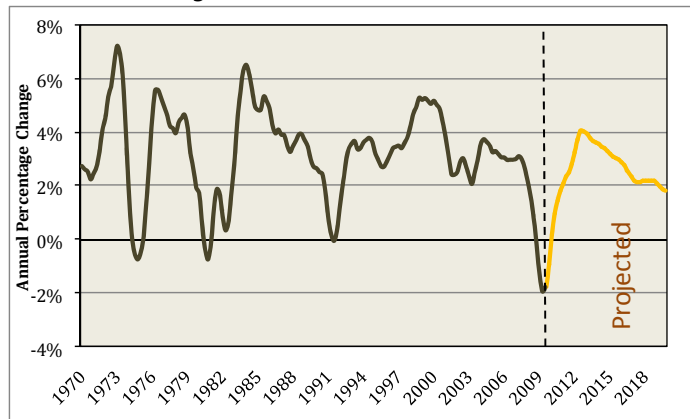
The stock market extended losses into 2009. By March, the Dow Jones Industrial Average had fallen roughly 47% off peak with the S&P 500 off 49% (see Figure 4). A new rally began in March and has lasted into 2010. Roughly half of losses to the indexes have been regained, but many investors removed their money at the end of 2008, and have not participated in the rebound.

The impact of stock market devaluation as it relates to economic recovery is the impact on household wealth. The decline of equity wealth—over \$6 trillion thus far—is a key factor affecting household spending on the horizon.

## PERSONAL CONSUMPTION OUTLOOK

As typical with most periods of contraction, personal consumption spending lagged in the second half of 2008 and in 2009 (see Figure 5). More specifically, three principal factors have contributed to waning spending: declining employment, significant deterioration of wealth, and tight consumer credit conditions. These effects are expected to continue to constrain spending over the short-term. These conditions however, have been partially offset by falling prices of petroleum imports, which have the effective impact of a consumer tax cut.

FIGURE 5: PERSONAL CONSUMPTION SPENDING



Source: Bureau of Labor Statistics

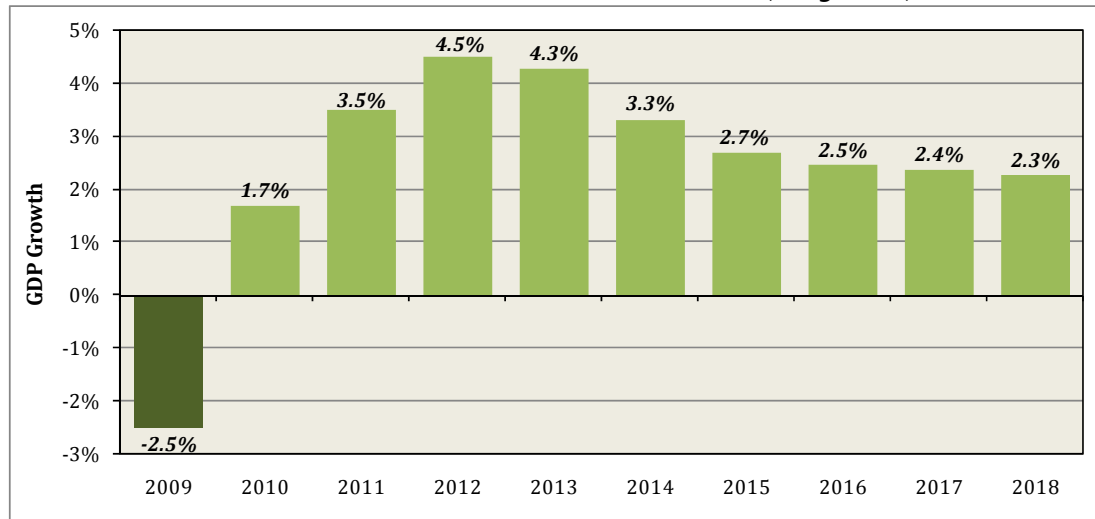
Evaluated individually, the aforementioned variables are expected to have the following impact on Personal Consumption Spending in the near-term:

- **Employment:** The employed level is projected to fall by 2% during 2009, with hours worked falling by 3%. While falling energy prices will partially off-set the impact, disposable income is expected to grow at a lackluster 0.5% annual pace in the near-term.
- **Wealth Deterioration:** The combination of falling housing and asset prices have reduced the net worth of U.S. households by over 25%, which in-turn places downward pressure on personal consumption. The Congressional Budget Office estimates the wealth effect will constrict personal consumption spending growth by roughly 1% in the near-term.
- **Credit Availability:** According to the Federal Reserve's survey of senior loan officers, banks' willingness to make consumer loans has dropped to its lowest level since 1980. The combination of limited borrowing opportunities and diminished collateral will continue to limit consumer credit availability, shaving roughly 1.5% off consumption growth in the near term.

## LONG-TERM OUTLOOK

Beyond the near-term, the United States economy is expected to return to a more typical growth cycle, averaging 3.1% annual GDP growth from 2011 to 2019—slightly faster than potential GDP, narrowing the GDP gap by 2015. In other words, the widened gap between real GDP and its potential level created as a result of slow growth in 2008 and 2009 will be narrowed by accelerated growth from 2011 to 2014. Beyond 2014 real output is expected to grow at the same pace, on average, as potential GDP through 2019—keeping the output gap proximate to zero (see Figure 6).

FIGURE 6: FORECASTED U.S. REAL GDP GROWTH (2009-2018)



SOURCE: Congressional Budget Office (CBO)

Nationally, employment is expected to grow at an average annual rate of 0.7% from 2011 to 2019, indicating further increase in worker productivity on the horizon. Over the long-term, the inflation rate will largely be determined by monetary policy decisions, assuming that the Federal Reserve can, on average, maintain core inflation around 2.2% through 2019 (as measured by the Personal Consumption Expenditures price index from the Bureau of Economic Analysis).

In the coming growth cycle, the United States' commitment to renewable energy transition is expected to play a major role—a reality that is likely to garner greater political support following the outcome of the 2008 election cycle. Specifically, the passage of the 2009 American Recovery and Reinvestment Act will provide billions in federal dollars for the advancement of this sector. In addition to environmental concerns, growth in domestic energy production, through both renewable and non-renewable sources, is being increasingly discussed through the prism of energy independence and energy security—the foundation of which is sufficient, reliable, and affordable energy. The economic advantages of this transition encompass the macroeconomic benefits of investment in new technologies, greater economic productivity, and improvements in the U.S. balance of trade. At a microeconomic level, benefits include lower business costs and reduced household energy expenditures. Taken together, these advantages are manifested in job growth, income growth, and ancillary benefits to the environment.

Over the next ten years, green industries are expected to create over 2.5 million new jobs in the United States across a range of manufacturing and service industries. Over a longer 30-year horizon, forecasted job growth is expected to reach 4.2 million new jobs in the U.S. economy (see Figure 7).

FIGURE 7: NEW GREEN JOBS (2008-2038)

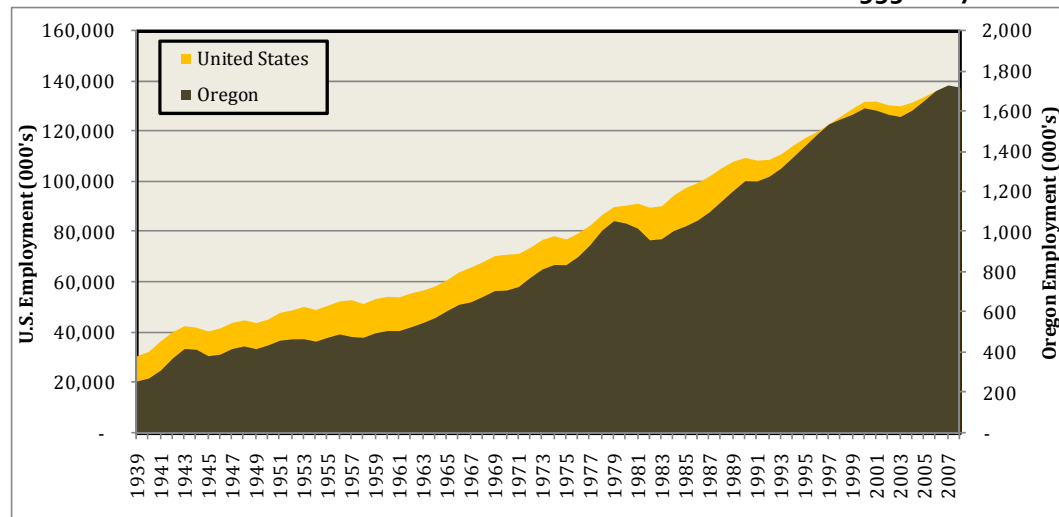
|                                            | 2018             | 2028             | 2038             |
|--------------------------------------------|------------------|------------------|------------------|
| Renewable Power generation                 | 407,200          | 802,000          | 1,236,800        |
| Residential & Commercial Retrofitting      | 81,000           | 81,000           | 81,000           |
| Renewable Transportation Fuels             | 1,205,700        | 1,437,700        | 1,492,000        |
| Engineering, Legal, Research, & Consulting | 846,900          | 1,160,300        | 1,404,900        |
| <b>TOTAL</b>                               | <b>2,540,800</b> | <b>3,481,000</b> | <b>4,214,700</b> |

SOURCE: Global Insight, "U.S. Metro Economies: Current and Potential Green Jobs," 2008

## STATE, REGIONAL AND LOCAL TRENDS

Oregon experienced exceptional employment growth between mid-2003 and 2007. Growth began slowing towards the end of 2006 and continued through 2007. Figure 8 demonstrates how closely tied the Oregon economy is to economic trends at the national level. Since 1939, Oregon has tracked the peaks and valleys of the U.S. economy. Also illustrated is improved diversity in Oregon's economy as evidenced by alleviation of the volatility that plagued Oregon during the 1980's recession.

**FIGURE 8: U.S. AND OREGON HISTORICAL EMPLOYMENT TREND: 1939-2007**



Source: U.S. Department of Labor

As of the second quarter of 2009, Oregon's recession had spread to all sectors of the economy. The hardest hit sectors include housing, manufacturing and construction but service sectors are also suffering substantial declines. Moreover, employment across all sectors is forecasted to decline through the end of 2009. The Oregon Office of Economic Analysis (OEA) now expects the State to see 5.1% employment decline in 2009 with a 0.5% job decline for the calendar year 2010 reflecting a recovery beginning in latter 2010.

The manufacturing sector declined by 15.3%, or 7,200 jobs during second quarter. OEA's 2009 annual forecast for the sector is expected to see an overall decline of 13.3% with a 5.3% decline in 2010. The sector is expected to rebound slightly with jobs gains by 2011. Retail trade declined by 3.3% while education and health services, on the other hand, gained jobs at a rate of 0.7% during second quarter.

Oregon's economic growth since 2005, but prior to the current precipitous slowdown, was due in large part to explosive growth in exports. For example, between first quarter 2007 and first quarter 2008, Oregon exports increased by 23.7%, more than six points higher than the U.S. growth during the same period. Oregon's export growth is primarily due to export growth in agricultural products which grew by 82.2% and computer and electronics products which grew by 24.8%. Computer and electronics account for nearly 40% of total Oregon exports. Several other industries experienced high growth in exports during the same period: Waste and Scrap (+71.6%), Nonmetallic Mineral Products (+54.0%), Chemicals (+47.6%), Primary Metal Manufacturing (+31.0%), Miscellaneous Manufactured Commodities (+26.0%) and Wood Products (+23.8%). The first half of 2009 saw exports decline by 22.6% relative to their levels in during the same period in 2008.

## GENERAL INDUSTRY OUTLOOK

Moving beyond 2011, the assumed year by which the economy pulls out of the current slowdown, Oregon's economic growth is expected to outpace growth at the National level. By 2016, the State's employment is expected to grow by 14%. Oregon's high growth prospects are due to a number of factors:

- Population growth, primarily due to net in-migration

- Relative location near Canada and Asian countries
- High commodity prices
- Export growth
- Affordable housing
- Quality of life
- State tax incentives, including the Single Sales Factor Tax

In addition to the factors listed above are several State initiatives which may continue to change Oregon's economic landscape and drive growth in key sectors. The Oregon Innovation Council designed these initiatives as part of the 2007 Innovation Plan. Listed below, these initiatives are aimed at addressing key issues which have limited Oregon's ability to capture early stage and emerging industries in the past. For example, Oregon has lacked both "angels", investors who provide funding at the earliest stages of development, and venture capital firms. While Oregon has been closing the gap, venture capital funding is available at substantially greater levels in California and Washington. Further, Oregon has not had a strong research university and more importantly has not had strong collaboration between universities and private companies. Lastly, in many emerging industries Oregon has not had a critical mass or cluster of firms by which to attract similar companies or the management and technical workforce with the necessary experience. As mentioned above, the State initiatives below hope to address these critical vulnerabilities.

- **Manufacturing Competitiveness** - In the 2007 Oregon Innovation Plan, the Oregon Innovation Council proposed a State investment of \$5.37 million between 2007-2009 to expand workforce training programs and the Oregon University System's ability to enhance manufacturing industry innovation through equipment, top-notch faculty and partnerships with Oregon companies. As of the 2008 Oregon Business Plan Annual report, \$2.872 million had been invested into this initiative.
- **Innovation Accelerator Fund** - This plan calls for \$5 million to be invested in the "cultivation" of innovative ideas which arise every year from established and emerging firms, entrepreneurs and academic institutions.
- **Oregon Nanoscience and Microtechnology Institute (ONAMI)** - This proposal recommends an additional \$10 million investment between 2007-2009 for the continued support of this public-private partnership between the State's top public universities and leading Oregon high-technology companies. In addition to creating jobs and allowing Oregon to recruit talented researchers, already the State is realizing sizeable returns from ONAMI as technologies are transferred to the marketplace. To date an additional \$9 million has been invested into ONAMI.
- **Oregon Translational Research and Drug Development Institute (OTRADI)** - This public-private partnership seeks to support health care and biomedical research in the State by focusing on drug research and development for the treatment of infectious diseases which will feed into a separate accelerator intended to support commercialization of products by Oregon companies. The State has invested \$5.25 million to date.
- **Bio-Economy and Sustainable Technologies (BEST) Center** - This public-private partnership intends to research and develop innovations related to bio-based technology, green buildings and clean energy. BEST is intended to enhance Oregon's competitive advantage in the growing "green" industry sector. To date, \$2.5 million has been invested.
- **Senate Bill 582** - The first of two Oregon Senate bills intended to promote innovation and emerging industry in the State, Senate Bill 582 increased the amount of allowable contributable funds University's may accept in order to establish the University Venture Development Fund. The Fund supports entrepreneurial training, education, research and startup companies.

- **Senate Bill 579** – Senate Bill 579 expanded the authority of the Oregon Growth Account allowing the Board to invest in emerging firms in early stages of development. In essence, the Senate Bill promotes growth in key target industries by providing early stage funding.
- **Transportation/Infrastructure** - Lastly are initiatives at the State and regional level to improve the State's transportation infrastructure including port districts, rail lines and airports. Included in this are highway expansion plans. Widening of Highway 217 has been approved by Metro and expansion plans are on-going for Highway 26.

## PORTLAND METROPOLITAN EMPLOYMENT TRENDS

The Metro area economy, which tends to trail national trends by 6 months to a year, began to experience a decreasing rate of employment growth in September of 2008 with year-over-year net employment decreasing by 700 jobs. This year-over-year employment decline was the first seen since January of 2004. By November, the year-over-year decline had risen sharply to 12,700 net jobs. The Portland metro's overall employment had been positive over the previous five years with no year-over-year decrease in employment since the region recovered from its tech bust. September 2008 marked the end of fifty five consecutive months of employment growth and the job loss appears to be accelerating.

Total employment in July of 2009 dropped to 976,000, a 5.82% decrease from the previous year's 1,036,400. Average annual employment in 2007 was roughly 1,056,100 jobs. While 2007 employment represented a 21,550 job increase over average annual employment in 2006 (2.1% growth rate) and an increase of over 93,490 jobs compared to 2003, that trend is now rapidly reversing. The Portland metro area averaged 1,433 fewer jobs in

2008 than in 2007 (-0.1%) and the half of 2009 has averaged 44,700 fewer jobs than the same period in 2008 (-3.5%). The area's top ten employers as of 2006 are listed in Figure 9. Each of the employers listed has reduced its workforce numbers during the last year, although most cuts have been insignificant percentages of each respective company's total workforce. Portland has not experienced a large-scale business closure nor is one expected. On the other hand, the economy has experienced widespread small-scale reductions in nearly all sectors.

Year-over-year employment declines between July 2008 and July 2009 were widespread with Educational and Health Services being the only sector to experience an increase in employment (700 jobs) in the Portland Metro area. (See Figure 10.)

In terms of the magnitude of job losses, Manufacturing shed the most jobs (-13,200). Construction and Professional & Business Services also saw substantial declines in employment, losing 12,400 and 11,700 employees, respectively. In terms of rate of job losses, Construction (-19.4%) and Manufacturing (-10.6%) declined the sharpest. Average wages declined in most industries between 2008 and 2009. Only Financial Activities and Retail Trade experienced increases.

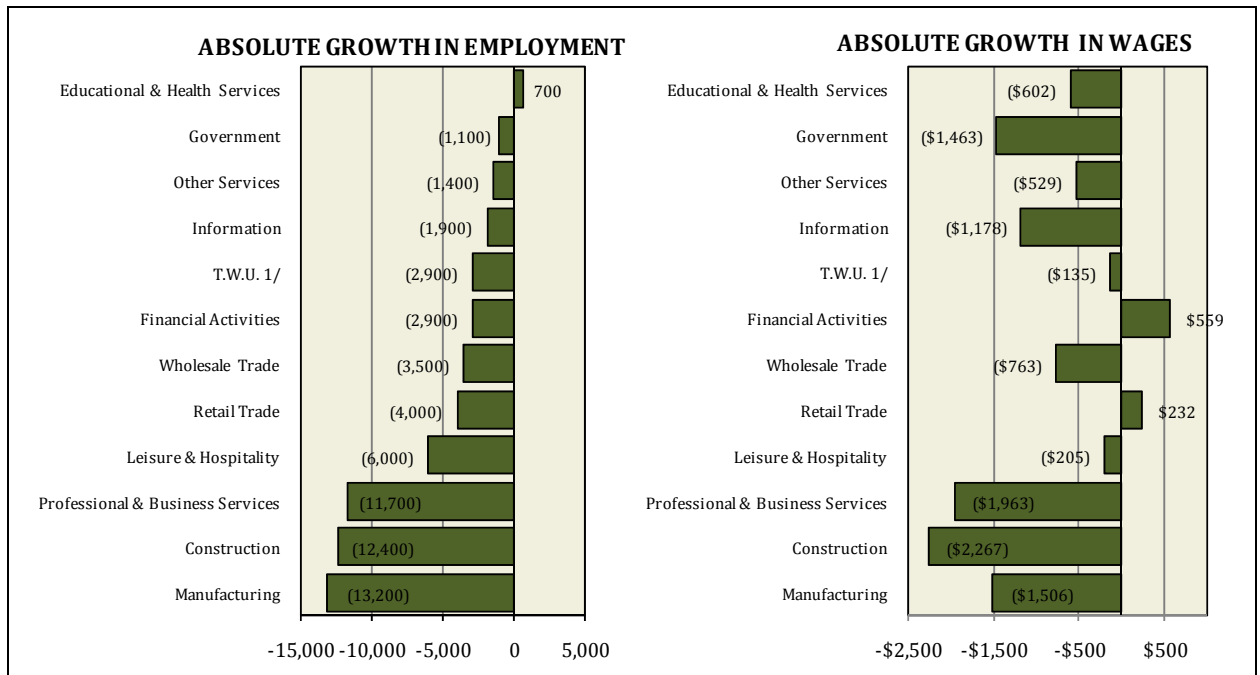
**FIGURE 9: PORTLAND TOP TEN EMPLOYERS (2006)**

| LARGEST EMPLOYERS |                                    |                           |                     |              |               |
|-------------------|------------------------------------|---------------------------|---------------------|--------------|---------------|
| Rank              | Employer                           | Product/Service           | Number of Employees | Average Wage | Job Losses 1/ |
| 1.                | Intel Corporation                  | High Tech                 | 15,000              | \$92,235     | <7%           |
| 2.                | Providence Health Systems          | Health Services/Insurance | 13,500              | \$55,478     | <1%           |
| 3.                | Safeway                            | Grocer                    | 13,000              | \$21,921     | <1%           |
| 4.                | Oregon Health & Science University | Health Services/Education | 12,900              | \$45,171     | 8%            |
| 5.                | Fred Meyer Stores                  | Retailer                  | 10,500              | \$21,451     | <1%           |
| 6.                | Kaiser Foundation                  | Health Services/Insurance | 8,747               | \$55,478     | <1%           |
| 7.                | Legacy Health Systems              | Health Services/Insurance | 8,500               | \$55,478     | <1%           |
| 8.                | State of Oregon                    | Government                | 6,700               | \$49,035     | <6%           |
| 9.                | Nike                               | Athletic Apparel          | 6,800               | \$46,440     | 7%            |
| 10.               | City of Portland                   | Government                | 5,498               | \$47,495     | <1%           |

SOURCE: Portland Business Alliance, Oregon Employment Department, Oregonian, Johnson Reid

1/ Percent of workforce reduction within the last year.

**FIGURE 10: EMPLOYMENT GROWTH & WAGES BY INDUSTRY**



Source: Oregon Employment Department (Employment growth: Jul08-Jul09, Averages wages: 2007-2008)  
1/ Transportation, warehousing and utilities

Unemployment in the Portland metro area has risen steeply since a recent seasonally-adjusted low of 4.6% in December of 2006. As of November of 2009, the region's seasonally-adjusted unemployment was 11.2%; 1.2 percentage points above the national rate of 10.0%. The unemployment rate in Columbia County was higher, at 12.7% in November 2008.

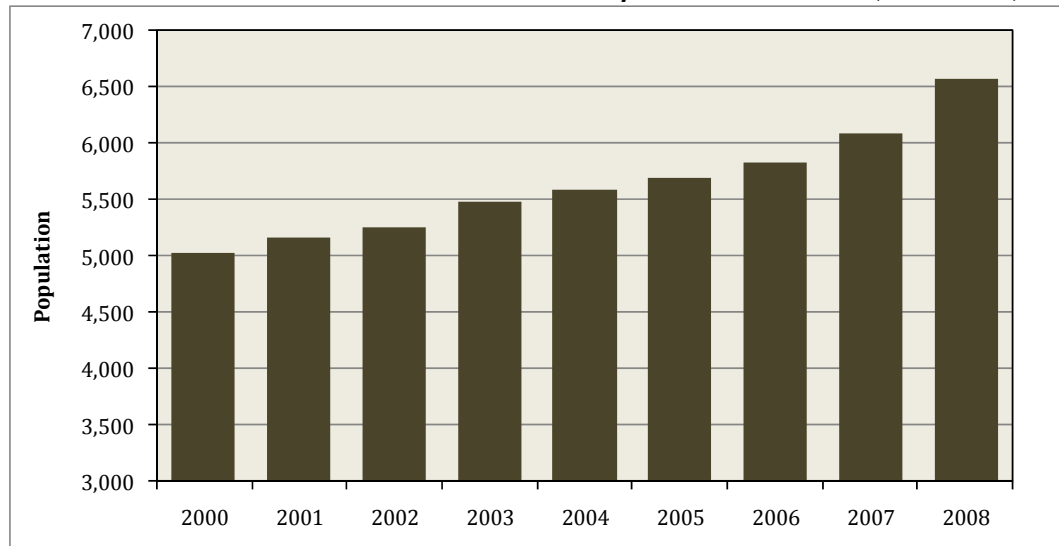
In this recession, Oregon has experienced high unemployment levels relative even to elevated national levels. In fact, in 2009, Oregon rivaled Michigan for the worst unemployment of all 50 states.

Nevertheless, Oregon's unemployment rate has seen some improvement after peaking at 12.2% in May of 2009. The current rate is still well above the peak of 8.8% hit in June of 2003 following the previous tech-related recession.

### LOCAL AREA DEMOGRAPHICS

Scappoose is a small city, with an estimated 6,580 residents in 2008. But it has steadily grown over the last decade, growing on average 3.4% a year since 2000, an increase of about one-third (see Figure 11).

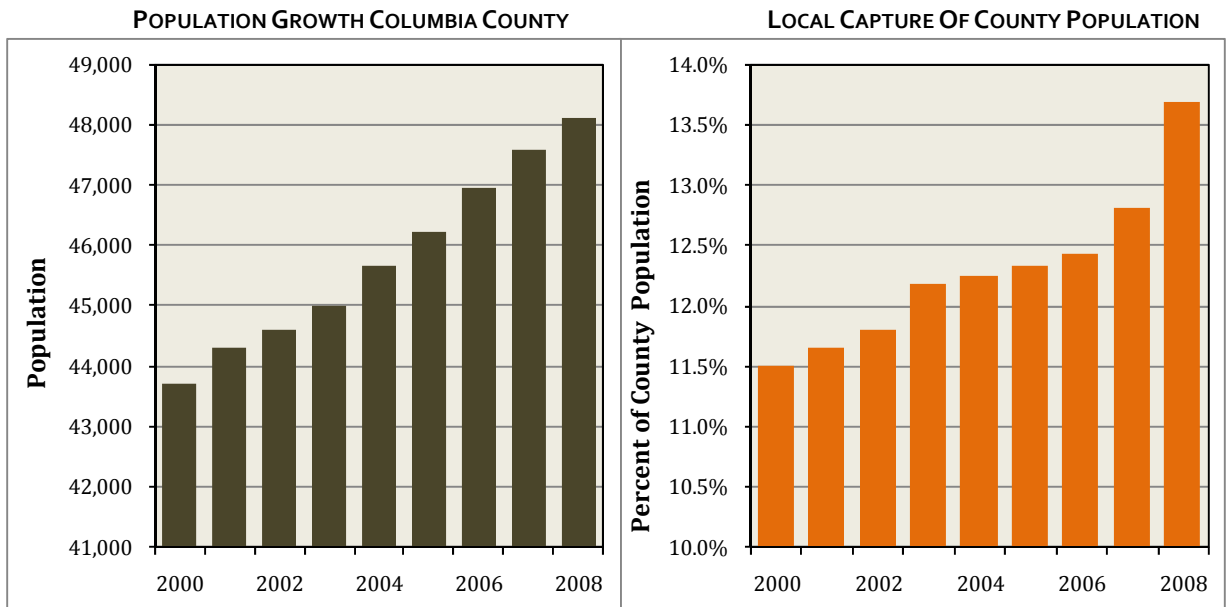
**FIGURE 11: LOCAL POPULATION GROWTH TRENDS, CITY OF SCAPPOOSE (2000-2008)**



SOURCE: Portland State University Population Research Center

Columbia County has grown at a slower rate—an average annual rate of 1.2% over the last decade. The majority of the growth has occurred in the County’s incorporated cities. Most new residents to the County are new residents to St. Helens or Scappoose while the unincorporated part of Columbia County has seen a decline in population. This trend has caused the City of Scappoose to make up a greater portion of the County’s population (see Figure 12).

**FIGURE 12: POPULATION GROWTH TRENDS (2000-2008)**

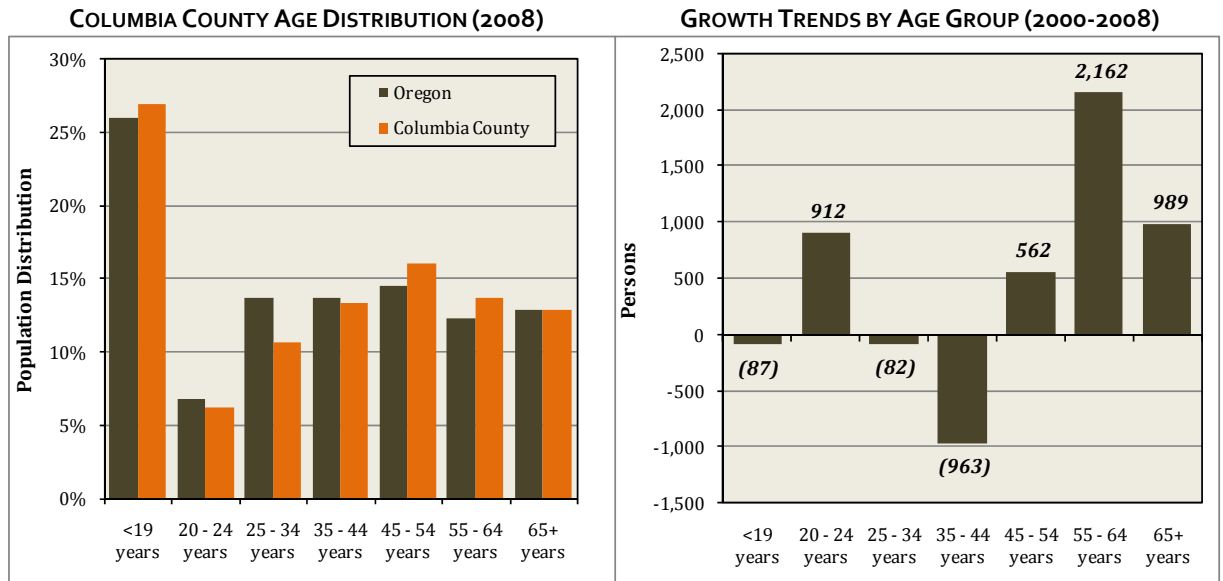


SOURCE: Portland State University Population Research Center

Population distribution by age in Columbia County closely resembles the statewide distribution pattern (Figure 13). The County has a smaller share of young, working-age adults (20 to 44 years) and a larger share of older, working-age adults (45 to 64 years). Columbia County’s population growth has been primarily caused by the in-migration of older, working-age and retirement-age residents. Over the last six years,

Columbia County has seen a very slight decline in the number of children and a larger decline in 35 to 44 year olds.

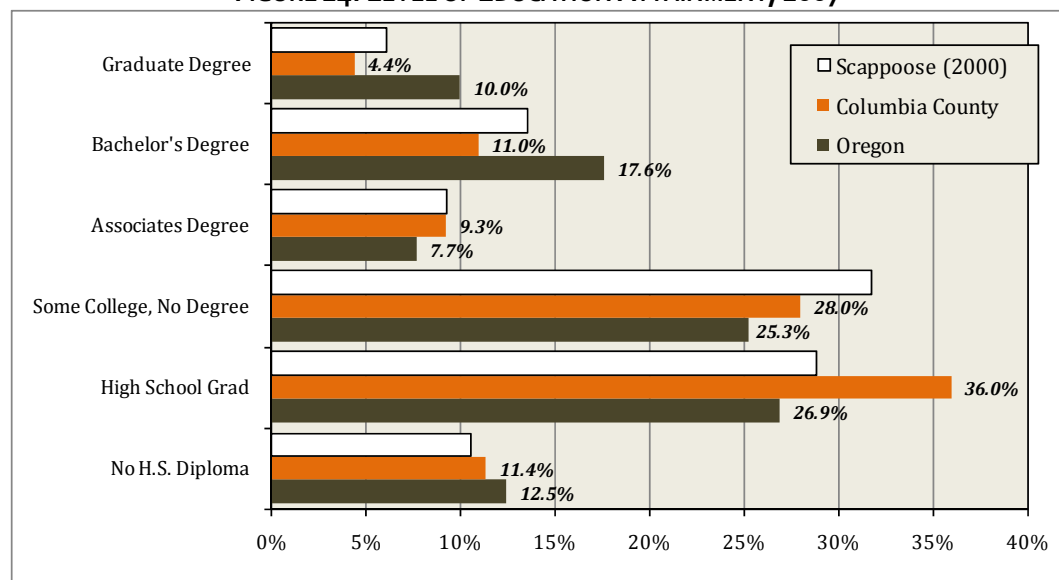
**FIGURE 13: POPULATION AGE TRENDS**



SOURCE: Portland State University Population Research Center

An area's level of educational attainment is often used as a proxy for the skill level of the population base. From an economic development perspective, Columbia County is at a slight competitive disadvantage regionally, with a lower distribution of higher educated persons—15.4% of local residents have a Bachelor's Degree or higher as compared to 27.6% at the statewide level. The City of Scappoose, however, has a higher portion of its population with a Bachelor's Degree or higher at 19.6% according to the 2000 Census. On average, the population of Scappoose is more educated than the population of Columbia County, but less educated than the statewide average, which is driven by the Portland metropolitan area. (See Figure 14.)

**FIGURE 14: LEVEL OF EDUCATION ATTAINMENT, 2007**



SOURCE: United States Census Bureau, American Community Survey. Data for Scappoose are from the 2000 Census, Oregon and Columbia County are from the 2005-2007 American Community Survey.

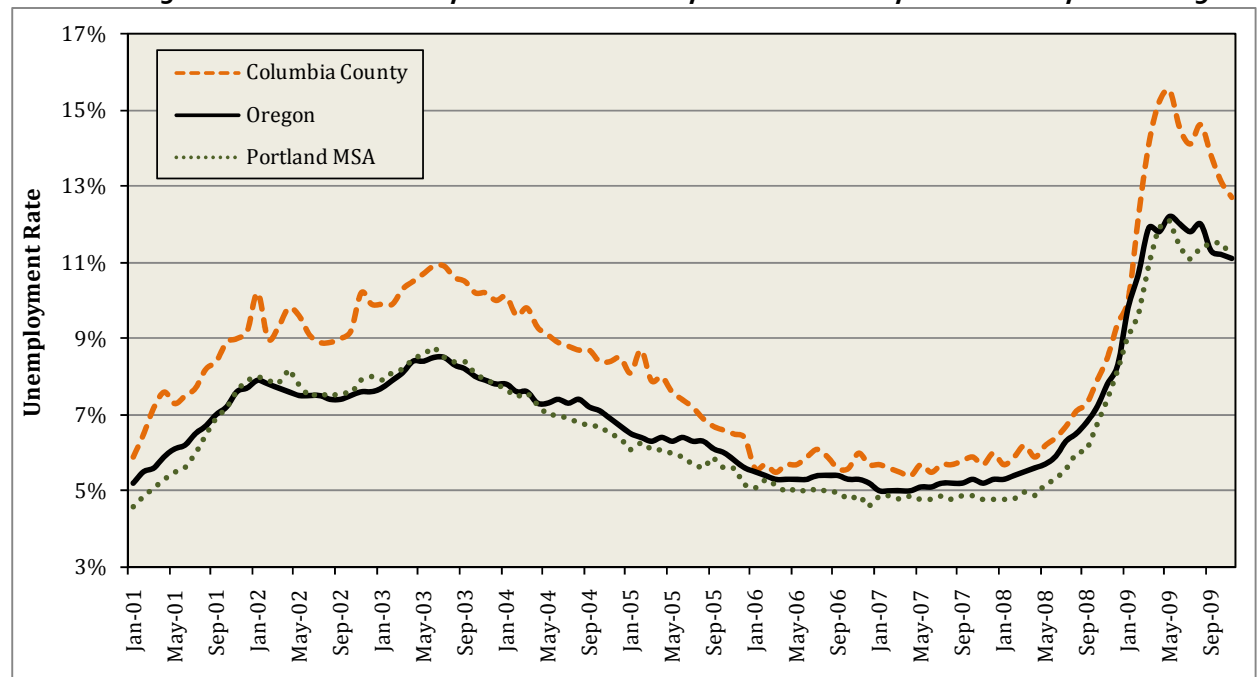
The demographic data show that Scappoose is growing rapidly and become both more integrated with and similar to the Portland metropolitan region and increasingly independent of as well as less like the rest of Columbia County.

## EMPLOYMENT

Much economic data is reported at the county level. The discussion of economic trends in this report focuses on Columbia County, because the data are not available at a more precise geography. In this section, we also discuss trends in the Portland Metropolitan Statistical Area (MSA). The federal Office of Management and Budget defines MSAs, based on standards that area applied to Census Bureau data. The Portland MSA includes Columbia County.<sup>3</sup>

The unemployment rate in Columbia County closely tracks the statewide trend. Figure 15 shows the unemployment rate for Oregon, the Portland Metropolitan Statistical Area (MSA), and Columbia County. The data show that the Portland MSA dominates the statewide trend—the state’s population is concentrated in the Portland region, so statewide averages are heavily influenced by the urban area.

**FIGURE 15: UNEMPLOYMENT RATE, COLUMBIA COUNTY, PORTLAND MSA, AND OREGON, 2001-2009**



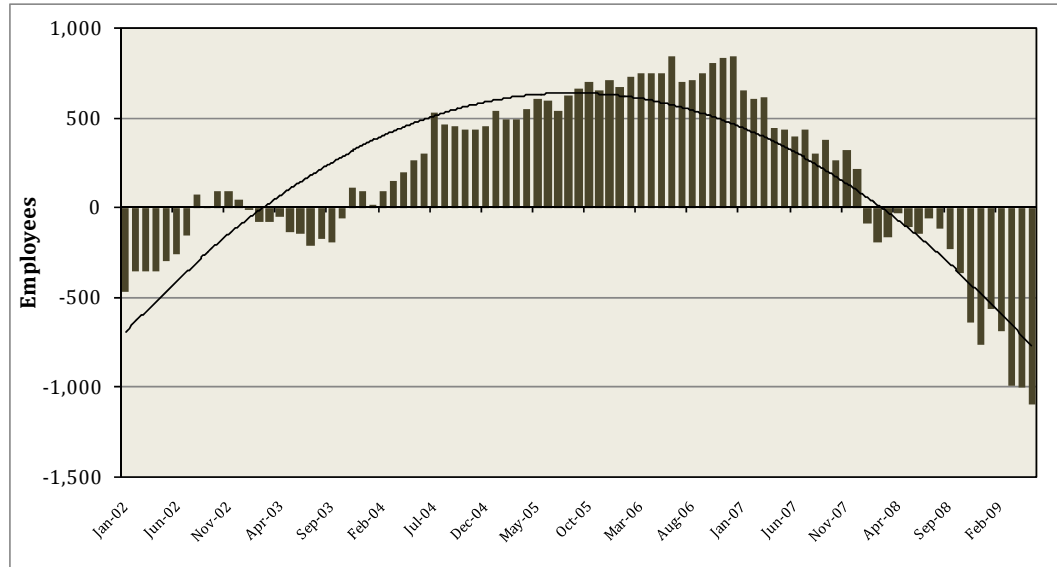
Note: The figure shows seasonally adjusted unemployment data.  
Source: Oregon Employment Department

After the high tech/stock market recession of 2001 to 2003, unemployment fell steadily until 2006. The unemployment rate was then steady at historically low levels until the second half of 2008, when it exploded upwards, following the national trend. In the year beginning May of 2008 the unemployment rate in Columbia County grew by over 9 percentage points, peaking at 15.5% in May of 2009. The rate has since begun to fall somewhat, though it remains highly elevated statewide.

<sup>3</sup> The Portland MSA includes all of Clackamas, Columbia, Multnomah, Washington and Yamhill Counties and Clark County, Washington.

Total employment in Columbia County grew about 1% a year in between 2001 and 2007 (See Figure 16). Regular year-over-year job losses began at the beginning of 2008, as the current global economic downturn took hold.

**FIGURE 16: YEAR-OVER-YEAR EMPLOYMENT GROWTH IN COLUMBIA COUNTY, 2002-2009**

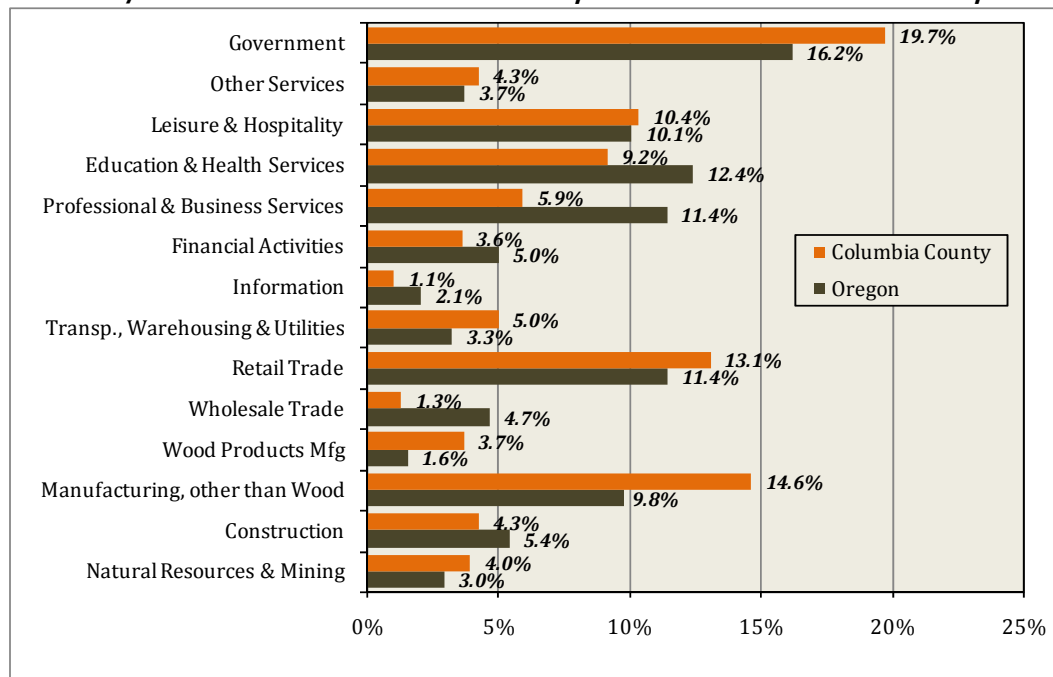


SOURCE: Oregon Employment Department

As shown in Figure 17, the industrial composition of Columbia County varies from the state:

- Columbia County has a higher portion of jobs in Manufacturing. Wood Products Manufacturing makes up 4.3% of nonfarm employment in Columbia County, a much higher portion than 1.6% in Oregon.
- Manufacturing other than Wood Products makes up 14.6% of nonfarm employment in Columbia County, higher than the statewide portion of 9.8%.
- Government makes up a higher portion of the Columbia County economy, making up 19.7% of jobs, higher than 16.2% in Oregon. The great majority of Government jobs in Columbia County are in Local Governments—half of all Government jobs are in the Education and Health Services sector, which includes K-12 Education.
- The County has a higher share of Retail Trade and Leisure and Hospitality jobs.
- The County has a lower share of Financial, Professional and Business, and Information jobs than the state as a whole.

**FIGURE 17: SHARE OF INDUSTRIAL COMPOSITION, COLUMBIA COUNTY AND OREGON, 2008**



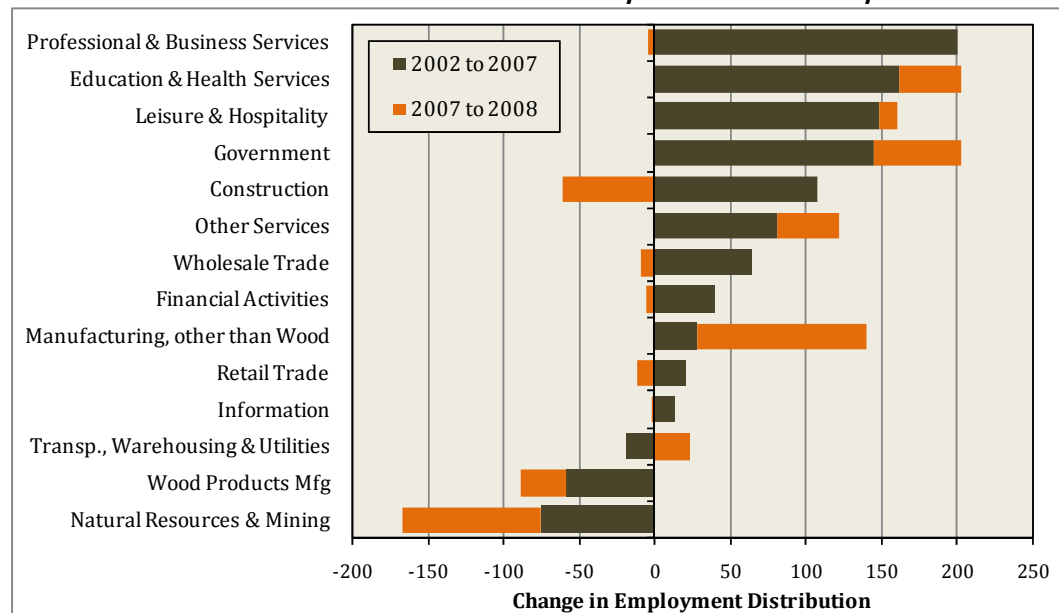
SOURCE: Oregon Employment Department

Figure 18 shows the change in employment by industrial sector during the five-year period between 2002 and 2007 and the drastic changes that occurred in 2008. The employment sectors that saw growth before 2008 include Professional and Business Services, Education and Health Services (non-government), and Leisure and Hospitality. The sectors that declined over the five-year period are Natural Resources and Mining and Wood Products Manufacturing. The shift in employment shows that the County's economy is becoming less dependent on natural resources and providing more services seen in urban areas.

The impacts of the global economic downturn can be seen in the employment changes in 2008. The Construction sector has been greatly affected across the United States, and also in Columbia County. The job losses in that sector in 2008 equal about 60% of the net gain in the previous five years. The negative growth in Wood Products Manufacturing and Natural Resources & Mining from 2002 to 2007 continued at a higher rate in 2008.

Columbia County bucked an international trend in 2008 by posting jobs gains in the Manufacturing (other than Wood) sector. The other sectors that grew in 2008—Education & Health Services, Leisure & Hospitality, and Government—are expected to continue expanding.

**FIGURE 18: EMPLOYMENT GROWTH BY INDUSTRY, COLUMBIA COUNTY, 2002-2008**

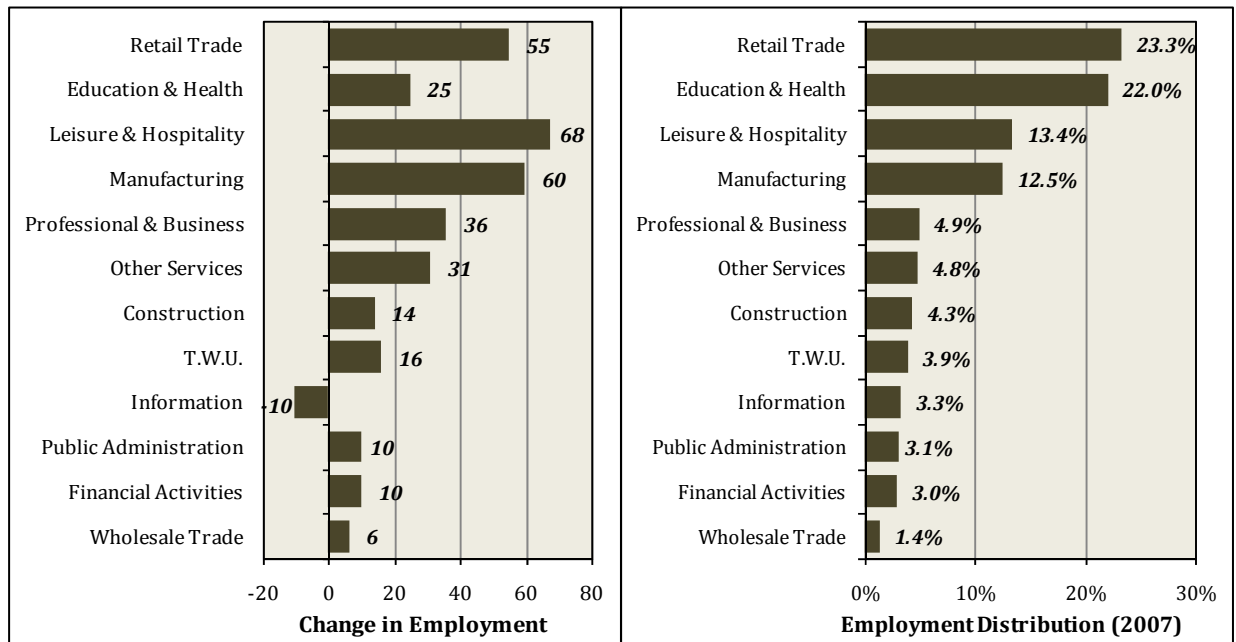


SOURCE: Oregon Employment Department

The largest employment sector in Scappoose is Retail Trade, comprising almost one-quarter of jobs in the City (see Figure 19). This sector accounts for twice the portion of jobs in Columbia County or Oregon. The high proportion of retail jobs is most likely due to the role Scappoose plays as the nearest retail center for the surrounding small towns and rural areas, and the convenience and visibility of the highway retail options.

Scappoose has a high portion of jobs in the Manufacturing sector, 12.5%. There are no jobs in the Wood Products Manufacturing sub-sector. Statewide, these jobs account for only 9.8% of all jobs. The Manufacturing sector saw significant growth since 2003, expanding by 41%. The Professional & Business sector saw strong growth since 2003 in Scappoose, but the sector makes up only 4.9% of local jobs. Statewide, the sector employs 11.4% of all jobs.

**FIGURE 19: EMPLOYMENT GROWTH AND COMPOSITION BY INDUSTRY, SCAPPOOSE, 2003-2007**

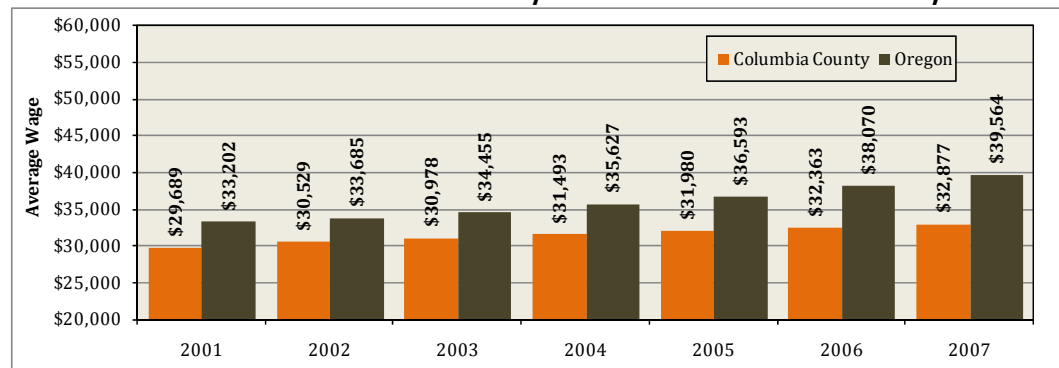


SOURCE: Oregon Employment Department

## WAGES

Columbia County's average wage levels by sector are significantly below wage levels statewide (see Figure 20). Across all industries, the Columbia County average wage was \$32,877, 17% below the Oregon average of \$39,564. Since 2002, wage levels in Columbia County have averaged 1.7% annual growth, below the 3.3% annual growth at the state level. In Scappoose, the average wage is lower than the countywide average. One reason is that the City's economy is so dominated by the Retail sector, which pays low wages.

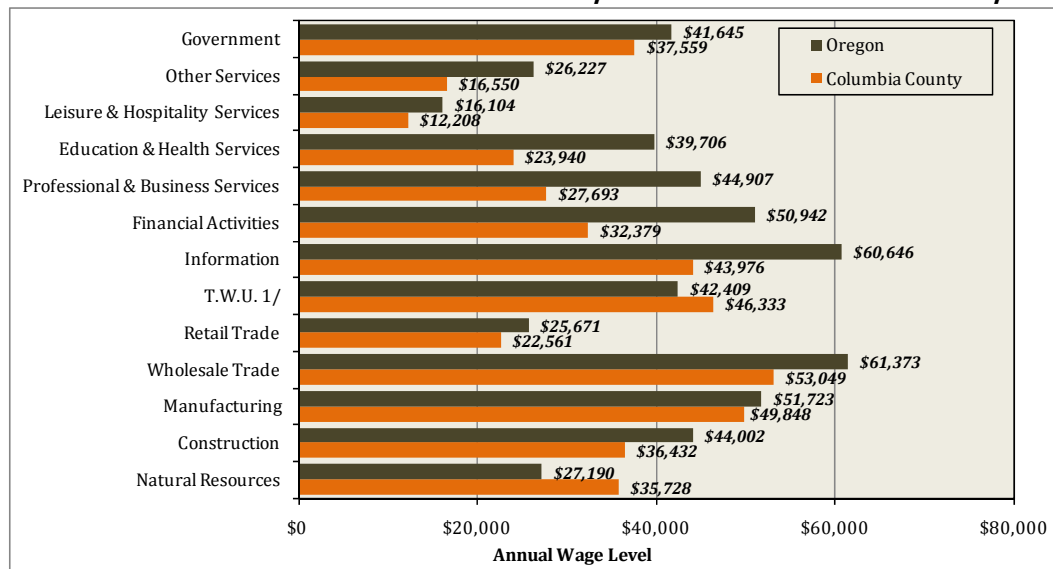
**FIGURE 20: AVERAGE ANNUAL WAGE GROWTH, COLUMBIA COUNTY AND OREGON, 2002-2007**



SOURCE: Oregon Employment Department Survey of Covered Employment & Wages

Wages by industrial sector in Columbia County (Figure 21) are lower than the statewide average, except for Natural Resources and Transportation, Warehousing and Utilities. The highest paid industries in Columbia County are Wholesale Trade (\$53,049) and Manufacturing (\$49,848). The lowest paid industries are Leisure & Hospitality (\$12,208) and Other Services (\$16,550).

**FIGURE 21: AVERAGE WAGE BY INDUSTRIAL SECTOR, COLUMBIA COUNTY AND OREGON, 2007**



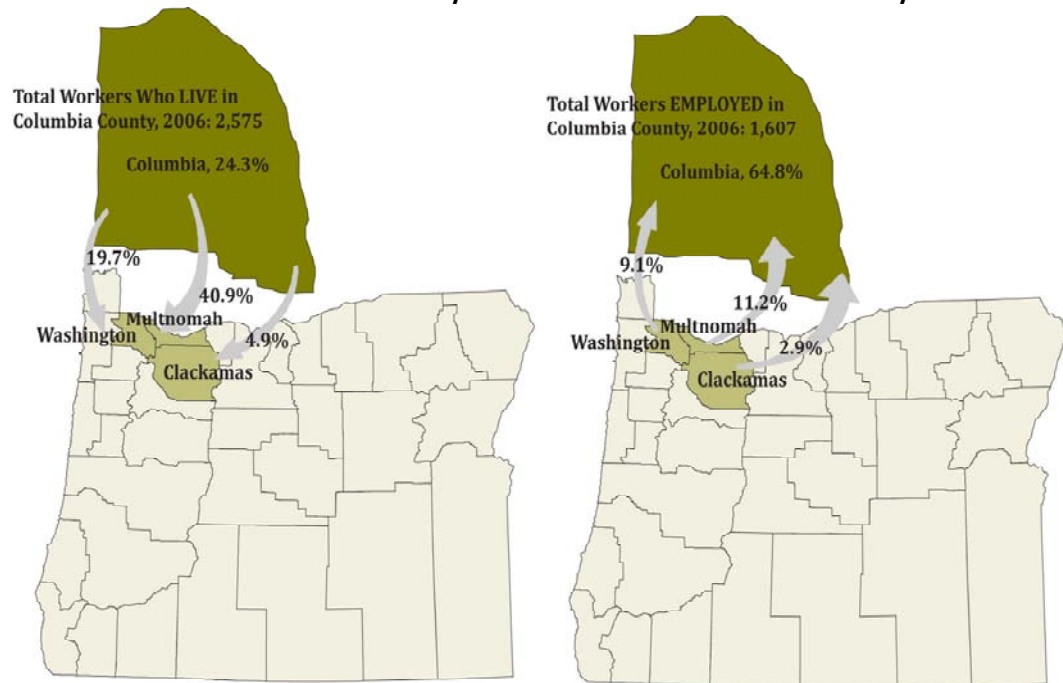
SOURCE: Oregon Employment Department Survey of Covered Employment & Wages

## COMMUTE PATTERNS

The commute patterns of workers in Scappoose and Columbia County show that the local area is integrated into the Portland economy. Figure 22 shows the portions of workers commuting into and out of Columbia County. The figure on the left shows that the portion of workers who live in Scappoose, and where they work. Only about one-quarter of working Scappoose residents work in Columbia County, while three-quarters commute to jobs outside the County. The largest portion—41%—commute to Multnomah County. About 20% commute to Washington County and 5% to Clackamas County. The remainder commutes to a wide assortment of destinations, including Clark County, Washington, Yamhill County, Marion County, and even more distant areas.

Workers from the region commute to Scappoose, but to a much lesser degree. There are fewer jobs in Scappoose than working individuals in Scappoose. The 2006 data show 1,607 jobs in Scappoose compared to 2,575 workers living in Scappoose. The great majority of individuals working in Scappoose live in Columbia County—65%. But significant portion of workers commute to Scappoose from Multnomah County (11%) and Washington County (9%). Scappoose jobs attract workers from Clackamas County, Clark and Cowlitz Counties in Washington, Marion County, and others.

**FIGURE 22: COMMUTE TRENDS, INTO AND OUT OF COLUMBIA COUNTY, 2006**



SOURCE: US Census Bureau, LED Origin-Destination Data Base

### EXISTING CLUSTERS

Sound economies are best organized around a healthy set of industry clusters—similar and related businesses and industries that are mutually supportive, regionally competitive, attract capital investment, and encourage entrepreneurship. In his pioneering book “The Competitive Advantage of Nations”, Harvard University Professor Michael Porter defines clusters as “geographic concentrations of inter-connected companies and institutions working in a common industry”. As an economic development strategy, specific clusters are targeted, and emerge, when a particular geography holds an innate competitive advantage in that industry—whether it is natural resources, human capital, political policies or geography. For example, Oregon’s oldest industries—namely forestry and agriculture, emerged from physical and environmental attributes such as its climate, trees, soils, and access to shipping and distribution networks. In turn, these industries spawned interrelated clusters that include Food Processing & Manufacturing, Wood Product Manufacturing, Wholesaling & Distribution, Machinery Manufacturing, and host of other industries.

With shared ideas, concepts, and competition, knowledge spillover within clusters encourages secondary effects—innovation, the creation of start-ups and spin-off industries, and opportunities for suppliers, manufacturers, and customers. In turn, effects from job creation wages support tertiary effects such as retail, services, construction, and institutional industries.

Johnson Reid analyzed the Quarterly Census of Employment and Wages<sup>4</sup> data for Scappoose to determine industries and industry clusters in which the local economy is both regionally competitive and/or has growth potential. The data show firm-level employment and wages in the City of Scappoose. Johnson Reid reviewed the data to determine industries that have clustered in the area. Johnson Reid also interviewed individuals at the Employment Department, the City, the Chamber of Commerce, and local business representatives.

Based on the interviews and data analysis, we identified three industry clusters with an existing competitive presence in Scappoose, described below.

<sup>4</sup> The Quarterly Census of Employment and Wages (QCEW) is prepared by the U.S. Bureau of Labor Statistics

### **Aviation Manufacturing and Services**

Scappoose is the center of a cluster of aviation-related firms. The majority of firms in the cluster are classified in the Manufacturing industrial sector, but others are in the Transportation, Warehousing, and Utilities sector, and some are in the Professional and Business Services sector. The cluster provides jobs at a variety of skill and wage levels.

The cluster includes firms that provide basic airport services, such as airplane repairs and fuel. But most of the firms produce innovative aircraft-related equipment. The Scappoose Airport website shows the following firms are located at the Scappoose Industrial Airpark:

- Columbia Aviation Center – Aircraft maintenance and flight training
- Composites Universal – Manufacturer of composite aircraft components
- Evergreen Aviation Services and Restoration – Aircraft restoration and parts
- MetalCraft Machine Inc. – Aerospace and general CNC machining
- Oregon Aero Inc. – Manufacturer of aircraft seats, helmets, and accessories
- Overall Aircraft Services – Aeroplane and helicopters parts and maintenance
- Scappoose Jet Center – Hangar space and jet aircraft sales
- Sherpa Aircraft – Manufacturer of Sherpa airplanes
- Sport Copter – Gyroplane manufacturing and flight instruction
- TransWestern Aviation, Inc. – Fuel, parts, supplies, courtesy cars.

The Scappoose Airport has played an essential role in attracting these firms to the area. There are 16 public-use airports within a 30 nautical-mile (nm) radius of Scappoose Industrial Airpark. Only three of these airports have a runway 5,000 feet or greater, which is generally preferred by corporate aviation departments operating turbine aircraft. This makes this airport ideal for many turbine aircraft and enhances the airport's role as a major local airport in the Portland Metropolitan Area for general aviation. In addition, the airport is considering a runway extension, potentially amounting to an additional 20% to 30% increase in length. Portland International Airport, whose longest runway is 11,000 feet, is the only commercial service airport within 30 nautical miles.<sup>5</sup>

The Port of St. Helens owns and manages the Scappoose Industrial Airpark and the Airport. The firms are all renters—the Port does not sell the land, it only leases it. The City sees little gain from the industrial activity; the site does not generate property tax because it is publicly owned. At this time, the City does not directly benefit greatly from the cluster. It would gain more from new firms locating off Port property.

The aviation-related cluster has room to grow in Scappoose. Although much of the industry is struggling in the current economic downturn, the firms in Scappoose are well positioned to grow when the economy turns. Some of the firms specialize in lightweight aircraft and aircraft parts, which improves aircraft fuel efficiency. The products are expected to be in demand as fuel prices increase, a likely event when the worldwide economy enters an expansionary period.

The Scappoose Airport has the ability to provide aviation-related businesses access both from Port property, and “through the fence” operations from adjacent private property. The ability to provide “through the fence” options is attractive to many firms looking to invest in their own land and property value, rather than renting from the Port. This feature would be rare in Oregon and would likely offer a material competitive advantage to Scappoose in attracting aviation-related businesses.

Aviation firms have attempted to locate in Scappoose. Oregon Business Development Department (OBDD) staff report that firms have tried to find a site in Scappoose, but there is a lack of suitable land. OBDD has to turn away firms seeking to locate in Scappoose.

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<sup>5</sup> *Airpark Master Plan Update for Scappoose Industrial Airpark, Scappoose, Oregon.* Prepared for the Port of St. Helens by W&H Pacific. September 2004.

## **Retail**

The largest industrial sector in Scappoose, in terms of number of jobs, is Retail Trade. Almost one-quarter of all jobs within Scappoose are Retail jobs, a significantly higher portion than in Columbia County (13%) or Oregon (11%). One reason for the large number of Retail Trade jobs is simply the small number of jobs overall. As the discussion about commute trends in the previous section showed, many more workers live in Scappoose and commute elsewhere, than work in Scappoose. Retail makes up a large piece of the employment pie in Scappoose because the whole employment pie is smaller.

If one compares the ratio of population to Retail Trade jobs, there are relatively more Retail Trade jobs in Scappoose. In Scappoose, there are about 16 residents for every Retail Trade job. Across Oregon, there are about 19 residents for every Retail Trade job.

Columbia County captures some retail sales from Washington residents because of the lack of sales tax. Scappoose's advantage for retail stems mostly from its location as the first stop for Columbia County residents returning home from employment in the Portland area. The Fred Meyer store in Scappoose attracts shoppers from outside of Scappoose.

There is one large retail strip in Scappoose, located on Havlik Drive just south of the Fred Meyer. Built in 2001, the project is about 20,600 square feet. The property has experienced some vacancy.

In addition to auto-oriented retail centers near Highway 30, Downtown Scappoose offers pedestrian-scale retail and commercial service space, with access from civic and business users, and surrounding neighborhoods. The Downtown features its own retail profile which leverages its walkable scale and local offerings.

The retail sector has an opportunity to grow. At this time, Scappoose is under-retailed. Many goods and services are not available. Some of the interviewed individuals felt that there is an opportunity for new retail and service firms (accountants, attorneys, etc.) that would serve the local population. Scappoose is likely to become more service oriented in the future, as the number of residences grows. These firms will seek small to medium retail sites.

In the case of the Fred Meyer store, Scappoose has demonstrated that it is a successful central location for a larger-format store to serve the surrounding smaller communities and rural areas. While overall, an estimated 36% of local resident spending leaves the area, in the "general merchandise" category which includes Fred Meyer, the city attracts 75% more spending than is accounted for by local residents alone. Thus, Scappoose may be a good candidate for additional large-format retailers, representing regional or national chains, in categories which do not directly compete with the Fred Meyer store. Such retailers would seek larger sites, with access and visibility from the highway.

## **Nurseries**

Through our research on the Scappoose economy, a number of individuals familiar with the Scappoose economy reported that the area is home to a Nursery Products cluster. The Scappoose area traditionally included extensive farming. The farming industry has declined, but the nursery industry had gained a strong foothold.

The nurseries in the area, however, are located outside the UGB. None of the firms appeared in Johnson Reid's analysis of the QCEW employment data. The firms are an agricultural use and they require agricultural lands. It would be inappropriate to plan to accommodate the firms within the City's Urban Growth Boundary.

### III. TWENTY-YEAR EMPLOYMENT FORECAST

This analysis updates the employment forecasts within the city of Scappoose's urban growth boundary. The employment forecasts were generated from 2010 through 2030. The primary source of data on current employment patterns was derived from the State of Oregon Employment Department's ES-202 reports.

#### CREATING A BASE YEAR

For the year 2006, ES-202 reports estimate employment in Scappoose to total 1,641 employees. However, the source ES-202 data reports "covered employment" only—employer firms that are tracked through unemployment insurance. Because this data omits a significant portion of the workforce who are not covered (i.e. sole-proprietors, self-employed, commission workers), the estimates must be revised to reflect true employment. Estimates from the Bureau of Economic Analysis (BEA) indicate that in 2006 covered employment accounted for approximately 67.9% of total employment in Columbia County, with individual estimates reported by broad sector. Assuming that Scappoose roughly tracks the countywide trend, the total employed level in 2006 is estimated to be in the area of 2,418 employees, as depicted in Figure 23.

**FIGURE 23: CONVERSION OF COVERED EMPLOYMENT TO TOTAL EMPLOYMENT (2006)**

| NAICS                             | Scappoose UGB<br>Covered Employment 1/ | Covered Share of<br>Total Employment 2/ | Estimated Scappoose UGB<br>Total Employment |
|-----------------------------------|----------------------------------------|-----------------------------------------|---------------------------------------------|
| Natural Resources                 | -                                      | 87.5%                                   | -                                           |
| Construction                      | 71                                     | 52.8%                                   | 135                                         |
| Manufacturing                     | 206                                    | 89.5%                                   | 230                                         |
| Wholesale Trade                   | 22                                     | 88.9%                                   | 25                                          |
| Retail Trade                      | 383                                    | 73.1%                                   | 523                                         |
| Transportation, Warehousing and U | 64                                     | 81.8%                                   | 78                                          |
| Information                       | 54                                     | 68.9%                                   | 79                                          |
| Financial Activities              | 49                                     | 63.5%                                   | 77                                          |
| Professional & Business Services  | 81                                     | 79.9%                                   | 101                                         |
| Education & Health Services       | 362                                    | 57.9%                                   | 625                                         |
| Leisure & Hospitality             | 221                                    | 77.4%                                   | 285                                         |
| Other Services                    | 79                                     | 37.8%                                   | 208                                         |
| Public Administration             | 51                                     | 97.2%                                   | 52                                          |
| <b>TOTAL</b>                      | <b>1,641</b>                           | <b>67.9%</b>                            | <b>2,418</b>                                |

1/ From the Oregon Employment Department ES-202 data

2/ Data from the Bureau of Economic Analysis for 2007, the most recent year complete data is available. Assumptions displays the percent of total wage and salary (covered) employment to total nonfarm employment in Columbia County

SOURCE: Oregon State Employment Department, U.S. Bureau of Economic Analysis, and JOHNSON REID

The second step to creating the base year estimate is updating the 2006 total employment estimate to the current period. This process involves the evaluation of countywide economic trends between 2006 and 2010 in addition to current knowledge about local economic activity in Scappoose. Outlined in Figure 24, it is assumed that between 2006 and 2010 the Scappoose economy grew at a modest pace, averaging 0.1% annual growth to 2,425 total employees. This low level of growth reflects the period of job losses in 2008 and 2009.

This estimate of 2010 employment will be utilized as the basis of the long-term employment forecast.

**FIGURE 24: UPDATING 2007 TOTAL EMPLOYMENT TO THE CURRENT PERIOD (2010)**

| NAICS                                     | 2006 Total<br>Employment | Short Term Annual<br>Growth Assumption 1/ | 2010 Total<br>Employment Estimate |
|-------------------------------------------|--------------------------|-------------------------------------------|-----------------------------------|
| Natural Resources                         | -                        |                                           | -                                 |
| Construction                              | 135                      | -3.1%                                     | 119                               |
| Manufacturing                             | 230                      | -1.7%                                     | 215                               |
| Wholesale Trade                           | 25                       | -1.5%                                     | 24                                |
| Retail Trade                              | 523                      | -0.2%                                     | 519                               |
| Transportation, Warehousing and Utilities | 78                       | 1.1%                                      | 81                                |
| Information                               | 79                       | -0.2%                                     | 78                                |
| Financial Activities                      | 77                       | -0.3%                                     | 76                                |
| Professional & Business                   | 101                      | -0.2%                                     | 101                               |
| Education & Health                        | 625                      | 1.1%                                      | 652                               |
| Leisure & Hospitality                     | 285                      | -0.3%                                     | 281                               |
| Other Services                            | 208                      | 2.0%                                      | 225                               |
| Public Administration                     | 52                       | 0.7%                                      | 54                                |
| <b>TOTAL</b>                              | <b>2,418</b>             | <b>0.1%</b>                               | <b>2,425</b>                      |

1/ Based on 2006 to 2009 realized growth trend. Oregon Employment Department.

Source: Oregon Employment Department and JOHNSON REID

Figure 25 outlines historical growth rates between 2003 to 2007 for Oregon, Region 1 (Clatsop, Tillamook and Columbia counties) and the City of Scappoose and as well as the State of Oregon's most recent employment growth forecast for Region 1. Further, Figure 25 indicates that the City of Scappoose has experienced a level of overall growth that has outpaced State and regional growth: 5.6% versus 2.6% and 2.8%, respectively.

Scappoose's expansion has been driven by exceptional growth in certain industries. Particularly notable are Manufacturing [9.0% Average Annual Growth Rate (AAGR)], Wholesale Trade (8.5% AAGR), Trade, Warehousing and Utilities (7.6% AAGR), Financial Activities (5.9% AAGR), Professional & Business Services (15.8% AAGR), Leisure & Hospitality (9.6% AAGR), Other Services (13.3% AAGR) and Public Administration (5.7% AAGR). Explained in further detail in the next section, the historical growth rates and the state's growth projections outlined in Figure 25 are used as baseline estimates to forecast the rate of employment growth by industry in this analysis.

**FIGURE 25: HISTORICAL GROWTH AND ANTICIPATED REGIONAL GROWTH**

| NAICS                   | 2003-2007 AAGR |             |                   | Region 1 Forecast |               | Avg. Annual<br>Growth Rate |
|-------------------------|----------------|-------------|-------------------|-------------------|---------------|----------------------------|
|                         | Oregon         | Region 1    | City of Scappoose | 2006              | 2016          |                            |
| Natural Resources       | -              | -           | -                 | 890               | 890           | 0.0%                       |
| Construction            | 7.7%           | 7.4%        | 5.6%              | 2,120             | 2,560         | 1.9%                       |
| Manufacturing           | 1.1%           | 0.3%        | 9.0%              | 5,490             | 5,570         | 0.1%                       |
| Wholesale Trade         | 2.1%           | 6.0%        | 8.5%              | 420               | 460           | 0.9%                       |
| Retail Trade            | 2.1%           | 2.1%        | 3.9%              | 4,900             | 5,740         | 1.6%                       |
| T.W.U.                  | 1.3%           | 0.6%        | 7.6%              | 1,120             | 1,240         | 1.0%                       |
| Information             | 1.8%           | -0.2%       | -4.2%             | 370               | 390           | 0.5%                       |
| Financial Activities    | 0.6%           | 2.2%        | 5.9%              | 1,500             | 1,680         | 1.1%                       |
| Professional & Business | 3.9%           | 7.0%        | 15.8%             | 1,690             | 2,020         | 1.8%                       |
| Education & Health      | 2.9%           | 2.7%        | 1.8%              | 3,630             | 4,660         | 2.5%                       |
| Leisure & Hospitality   | 3.3%           | 3.8%        | 9.6%              | 5,930             | 6,980         | 1.6%                       |
| Other Services          | 1.9%           | 4.0%        | 13.3%             | 1,300             | 1,470         | 1.2%                       |
| Public Administration   | 2.2%           | 2.4%        | 5.7%              | 6,790             | 7,250         | 0.7%                       |
| <b>TOTAL</b>            | <b>2.6%</b>    | <b>2.8%</b> | <b>5.6%</b>       | <b>36,150</b>     | <b>40,910</b> | <b>1.2%</b>                |

SOURCE: Oregon Employment Department

Over the forecast period (2006–2016), the region's employment growth is projected to average 1.2% across all industries. The Education & Health (2.5% AAGR) sector is expected to display accelerated growth at the regional level during the period with Construction (1.9% AAGR), Professional & Business (1.8% AAGR), Retail

Trade (1.6% AAGR) and Leisure & Hospitality (1.6% AAGR) also expecting solid growth rates. Modest rates of growth are expected in the Manufacturing (0.1% AAGR) and Information (0.5% AAGR).

## **EMPLOYMENT FORECAST BY INDUSTRY SECTOR**

This section presents the forecast of total employment in Scappoose between 2010 and 2030. The projections are based on the current estimated total employment in Figure 24. From this starting point, the forecast utilizes the City of Scappoose historical growth rates by industry (Figure 25), interviews with State and local officials as well as the State of Oregon Region 1 projected growth rates by sector (Figure 25) to project employment through 2030. In the case of Scappoose, an example of the impact the former sources have on employment projections will be noticed in the manufacturing sector. The 2006-2016 OED forecast projects manufacturing growth in Region 1 of only 80 jobs (0.1% AAGR) over the ten year period. The forecast below indicates a 9.0% AAGR reflecting a strong ES-202 trend, a positive outlook by area business and State representatives working in the area.

It could also be argued that it is inappropriate to apply Region 1 forecasts to the City of Scappoose. Apart from the Oregon Employment Department's regional classifications, Scappoose and Columbia County are generally considered part of the Portland Metropolitan Statistical Area (MSA). In other words, Scappoose is highly influenced by Portland economic trends and it is far more appropriate to consider Scappoose's future employment growth in terms of expected Portland area trends rather than those of the coastal counties of Clatsop and Tillamook, which are dependent on entirely different forces.

Metro's recent Urban Growth Report (UGR) forecasts employment for the Portland MSA through 2030. The purpose of Metro's employment forecasts are to eventually project employment within its urban growth boundary (UGB). While Scappoose is part of the Portland MSA and thereby included within the overall employment forecasts produced by Metro, it is not part of the Metro region UGB and therefore outside of Metro's forecast specific to the UGB. Metro's 2030 employment forecast for the Portland MSA ranges from a total employment of 1,252,200 under a low-growth scenario to 1,695,300 under a high growth scenario. Metro then assumes that 73% of the growth realized by 2030 will be captured within the Metro region UGB. That leaves 27% of growth through 2030 or total employment of 338,094 under a low-growth scenario to 457,731 under a high-growth scenario going to the MSA outside of Metro's UGB. A substantial portion of the expected remaining growth will go to Clark County with the smaller jurisdictions of Skamania, Multnomah, Clackamas, Yamhill, Washington and Columbia counties capturing the remainder. According to the forecast for the City of Scappoose in Figure 26, Scappoose would need to capture a conservative 1.9% of the remaining growth under the low-growth scenario or 1.4% under the high growth scenario. Assuming Scappoose continues its successful growth pattern, this will easily be achieved.

Figure 26 outlines the City of Scappoose employment forecast through 2030. As shown, the employment forecast anticipates an increase of 8,068 jobs (7.6% AAGR). Professional & Business Services, Other Services, Manufacturing, and Retail Trade, are expected to account for approximately 67% of net new growth over the forecast period. Other promising sectors are Transportation, Warehousing & Utilities, Education & Health and Leisure & Hospitality, accounting for an additional 25% of new net growth.

**FIGURE 26: 20-YEAR EMPLOYMENT FORECAST (2010-2030)<sup>6</sup>**

| Employment Forecast<br>NAICS | Base Year    | Employment Forecast |              |              |               | 2010-2030 Growth |             |
|------------------------------|--------------|---------------------|--------------|--------------|---------------|------------------|-------------|
|                              | 2010         | 2015                | 2020         | 2025         | 2030          | Jobs             | AAGR        |
| Natural Resources            | 0            | 0                   | 0            | 0            | 0             | 0                | 0.0%        |
| Construction                 | 119          | 150                 | 189          | 239          | 301           | 182              | 4.7%        |
| Manufacturing                | 215          | 523                 | 894          | 1,359        | 1,970         | 1,755            | 11.7%       |
| Wholesale Trade              | 24           | 36                  | 54           | 81           | 122           | 98               | 8.5%        |
| Retail Trade                 | 519          | 773                 | 1,051        | 1,357        | 1,698         | 1,179            | 6.1%        |
| T.W.U.                       | 81           | 153                 | 241          | 351          | 494           | 412              | 9.4%        |
| Information                  | 78           | 80                  | 82           | 85           | 87            | 9                | 0.5%        |
| Financial Activities         | 76           | 101                 | 135          | 179          | 239           | 163              | 5.9%        |
| Professional & Business      | 101          | 192                 | 350          | 628          | 1,126         | 1,025            | 12.8%       |
| Education & Health           | 652          | 815                 | 1,014        | 1,258        | 1,557         | 905              | 4.4%        |
| Leisure & Hospitality        | 281          | 389                 | 538          | 745          | 1,030         | 749              | 6.7%        |
| Other Services               | 225          | 374                 | 620          | 1,028        | 1,707         | 1,481            | 10.7%       |
| Public Administration        | 54           | 71                  | 94           | 124          | 164           | 110              | 5.7%        |
| <b>TOTAL</b>                 | <b>2,425</b> | <b>3,657</b>        | <b>5,261</b> | <b>7,433</b> | <b>10,492</b> | <b>8,068</b>     | <b>7.6%</b> |

SOURCE: Oregon Employment Department and Johnson Reid LLC

The potential for growth in Scappoose is based on several factors. First, the City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008.

Scappoose's success is due in part to its distinct location, which offers both close proximity to Portland and Hillsboro as well as a convenient route to by-pass Portland in order to reach Interstate 5 to the north through Longview. In addition, Scappoose is uniquely connected to the Columbia River as well as a regional airport, which is expected to be the next expansionary airport as Portland International Airport (PDX) and the Hillsboro airport confront both congestion and residential encroachment.

Some firms will find the location unsuitable—particularly the high-tech firms that require seismically stable land. Scappoose lies on deep gravel beds, not bedrock. It is not considered likely to attract those firms. But many other firm types will find Scappoose an attractive location. The ability of Scappoose to attract employers depends on its ability to provide basic urban infrastructure to sites meeting the following criteria:

- Large acreage, best if a mix of sizes is available, ranging from 50 to 200 acres
- Flat topography
- Regular shape, such as a square or rectangle
- No environmental contamination
- Free of wetlands
- Industrially zoned
- Direct access to Highway 30, along an uncongested road with no tight turns
- Direct freight rail access
- Airport

Second, much of Scappoose's potential is due to external factors related to its proximity to the Portland metro area and Hillsboro. Johnson Reid conducted interviews with representatives from the Oregon Business Development Department (OBDD) to identify the regional factors that affect economic development in Scappoose. OBDD staff reported the following factors that will affect Scappoose's long-term potential:

- Oregon has a scarcity of large industrial sites, specifically sites 100 acres or greater.

<sup>6</sup> It should be noted that employment forecasts are speculative over a twenty year horizon.

- The great majority of firms seeking to locate in Oregon are searching for a site between 10 and 200 acres. About half the firms require a site between 10 and 50 acres and another third require a site between 50 and 200 acres.
- Industrial parcels of versatile size and reasonable development cost have grown scarce in the Willamette Valley near Interstate 5, particularly in the Portland metro area. The decision by Walmart to locate its distribution center in Hermiston, for example, was driven in part by the issue of industrial land availability with excellent transportation access and reasonable cost.
- OBDD has been turning away firms with interest in locating in Scappoose because the City lacks large, shovel-ready sites.
- Currently, much of Scappoose's potential is connected to the aviation industries clustering at the Scappoose Industrial Airpark. These industries typically need large sites due to the large components with which they work as well as need for staging and future development. The Airpark benefits from both available Port locations and private lands with potential "through the fence" access to the airport.

Metro's recently prepared Urban Growth Report and associated research reveal an undersupply of large industrial lots in the Metro region.<sup>7</sup> A review by Johnson Reid of all employment parcels included in the published inventory, regardless of parcel ratings as established by Metro, indicates the following:

| Size     | Gross Acreage | Net Buildable Acreage |
|----------|---------------|-----------------------|
| Median   | 2.2           | 1.8                   |
| Mean     | 4.9           | 4.0                   |
| Modal 1/ | 1.05          | 0.9                   |

1/ Modal size refers to the most common size available

In other words, the vast majority of the employment land inventory—regardless of quality rating—as published, is predominantly very small and unsuitable for the vast majority of industrial land development types regardless of potential FAR realized on site. In short, the Metro region lacks large industrial lots. Moreover, it seems that Metro has adopted policies which may exacerbate Portland's lack of industrial land. In the UGR report, Metro concluded the following:

"The current employment demand forecast and the analysis of employment capacity within the UGB do not indicate a need to add land to the boundary for industrial or non-industrial purposes at the regional level to meet statutory requirements to ensure sufficient capacity to support the region's forecasted employment at the low end of the demand range. However, the analysis does show a need for additional capacity through investments, policy changes, or expansions to support the high end of the demand range for non-industrial employment. Further analysis of preferences for large lots and the current inventory results in a small potential gap in the land needed to support current preferences for large lot formats for single and multi-tenant users."

If the Metro area does not expand its UGB, the implication for Scappoose is that there will be some spillover demand for large industrial sites within the UGB, giving Scappoose an opportunity to capture considerable spillover growth from the Portland metro area. As Scappoose is not part of Metro's jurisdiction, but is part of the Portland regional economy, the City is well placed to provide the large land types that Metro has limited.

<sup>7</sup> See Metro's report at [http://library.oregonmetro.gov/files/3b-urban\\_growth\\_report.pdf](http://library.oregonmetro.gov/files/3b-urban_growth_report.pdf)

## IV. EMPLOYMENT LAND NEEDS ANALYSIS

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### INTRODUCTION

This section summarizes the projected demand for commercial and industrial land associated with the employment projections through 2030. Results are followed by a description of the methodology employed by JOHNSON REID to project the demand for commercial and industrial space, and subsequently, commercial and industrial land.

Determining the City's required site types for various, future employers and users involves qualitative and quantitative analysis. The qualitative analysis describes the site characteristics expected to be demanded by firms during the planning period. There are three components to the quantitative analysis. The first describes the types of firms likely to locate in the City of Scappoose during the planning period. This component was completed through the Target Industry Opportunities Analysis above. The second component involves projections of employment. These employment projections were summarized in the previous section. The third component combines these employment projections with the qualitative component of the Site Requirements analysis to project the commercial and industrial land demand and the demanded numbers of sites.

### SUMMARY OF EMPLOYMENT LAND DEMAND FINDINGS

The results summarized in Figure 27 highlight projections of net new demand within current and potentially future urbanized Scappoose for commercial and industrial land between 2010 and 2030. Detailed findings by use type and growth scenario are included in the technical appendix.

- Through 2030, net new demand for employment land is expected to reach 400 net buildable acres and 483 gross acres.
- Industrial land demand is expected to predominate net new land demand through 2030, accounting for approximately 56% of new land need.

Figure 27 projections reflect **net** suitable land, required only for building and impervious surface space requirements. Roads, right-of-ways, parks and public facilities, among other things necessary to serve projected land development, are not included. While the methodology is not based on a set density per acre assumption, the output reflects the following average jobs per net acre by broad employment land development categories across the planning period.

| AVERAGE JOBS/NET ACRE      |      |
|----------------------------|------|
| INDUSTRIAL                 | 14.3 |
| OFFICE COMMERCIAL          | 37.9 |
| RETAIL COMMERCIAL /LODGING | 35.0 |
| SPECIALIZED USES           | 11.4 |

In addition to the demand for actual sites, the need for public rights of way and infrastructure must be estimated in order to project the total amount of lands that would be required in the event the Urban Growth Boundary were expanded to provide land for needed employment sites.

It is estimated that in general, 15% of gross land area will be used for extending infrastructure into new areas to serve new development. Thus net buildable acreage equals 85% of the gross acreage. For industrial uses, a greater 19% of gross acreage was assumed to reflect the greater shared infrastructure necessary at airport development to allow for the movement of aircraft.

Figure 27 below projects both net and total land demand for the City of Scappoose.

**FIGURE 27: PROJECTED AGGREGATE LAND NEED IN THE SCAPPOOSE UGB, 2010-2030 (NET & GROSS ACRES)**

| Need For Land              |              |              |
|----------------------------|--------------|--------------|
| Use Type                   | Net Acres    | Gross Acres  |
| <b>INDUSTRIAL</b>          | <b>217.9</b> | <b>269.0</b> |
| <b>OFFICE COMMERCIAL</b>   | <b>54.7</b>  | <b>64.4</b>  |
| <b>RETAIL COMMERCIAL</b>   | <b>33.6</b>  | <b>39.6</b>  |
| CITY RESIDENTS             | 26.7         | 31.4         |
| REGION/TOURISTS 1/         | 7.0          | 8.2          |
| <b>SPECIALIZED USES 2/</b> | <b>93.5</b>  | <b>110.0</b> |
| <b>TOTAL</b>               | <b>399.8</b> | <b>483.0</b> |

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

## INDUSTRIAL AND OFFICE LAND DEMAND METHODOLOGY

Demand for industrial and office commercial land is a direct function of employment growth in industrial sectors that occupy this type of space. As a result, the projections of industrial and office demand are based on forecasted employment growth by industrial sector within the City of Scappoose. Methodology for forecasting demand for industrial and office commercial land follow a standard, multi-step process, summarized below. A number of exhibits are referenced, which are found in the technical appendix to this document.

### DEMAND FOR OFFICE BUILDING SPACE AND LAND

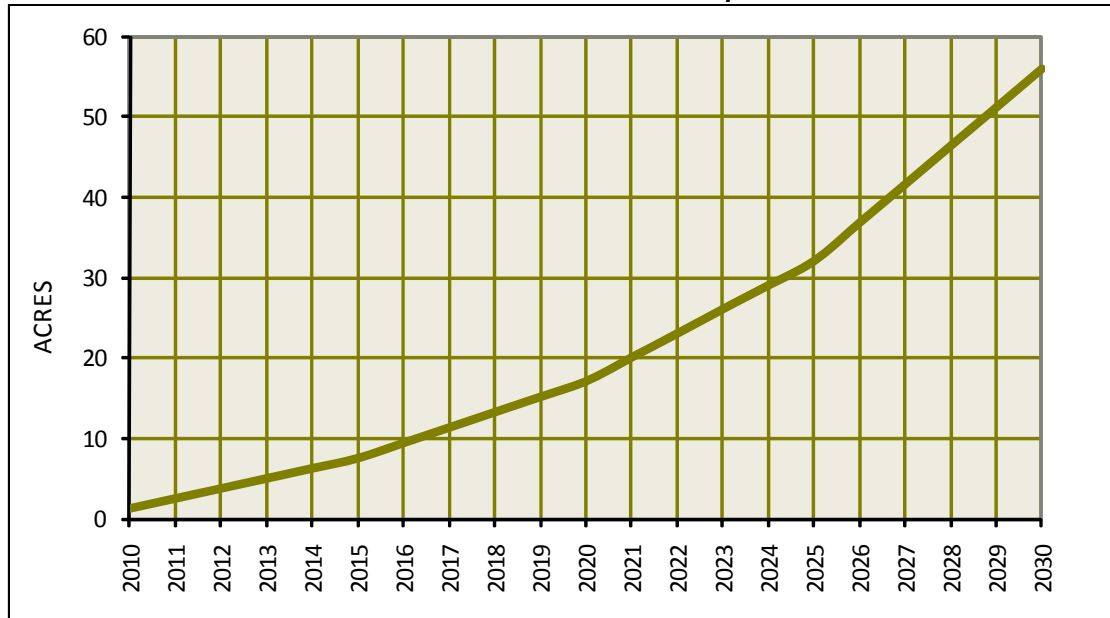
Sector employment growth is converted into growth in office employment based on typical percentages of jobs, or capture factors, by sector that will be located in office development rather than industrial development. Employment density ratios, the average space in square feet necessary per office job, were utilized to calculate total office space demand given projected employment growth. Ratios and densities utilized are from the Urban Land Institute.<sup>8</sup>

Demand for office land is a conversion of demand for space by an office floor area ratio (FAR). FAR is defined as the gross leasable building area divided by the buildable land area used. For example, a 5,000 square foot office building on a 10,000 square foot site would be an example of a 0.50 FAR. For Scappoose projections, JOHNSON REID assumed a relatively conservative 0.35 FAR.<sup>9</sup> (See Figure 28)

<sup>8</sup> See Technical Appendix: Exhibits 1.01 and 1.02

<sup>9</sup> See Technical Appendix: Exhibit 1.03

**FIGURE 28: CUMULATIVE OFFICE LAND DEMAND, SCAPPOOSE UGB**



SOURCE: Johnson Reid, LLC

#### **DEMAND FOR INDUSTRIAL BUILDING SPACE**

Scappoose's projected industry employment growth is converted into growth in industrial employment based on typical percentages of employment by sector that will be located in industrial space. Employment is then further stratified by type of space, including warehouse/distribution, general industrial and high-tech/flex space. Finally, employment density ratios, calculated as average square feet of space necessary per industrial job, were utilized to calculate total space demand by industrial space type given projected employment growth. These ratios and densities are based on industry standards.<sup>10</sup>

#### **DEMAND FOR INDUSTRIAL LAND**

Demand for industrial land is a conversion of demand for space by floor area ratios (FARs) by industrial development type and the addition of non-industrial use demand for industrial land typical of business park space. Projections utilize the following FARs:

- Warehouse/Distribution: 0.31
- General Industrial: 0.30; and
- High-Tech/Flex: 0.26.

Second, a 20% non-industrial use demand for land was assumed for industrial land projections.<sup>11</sup>

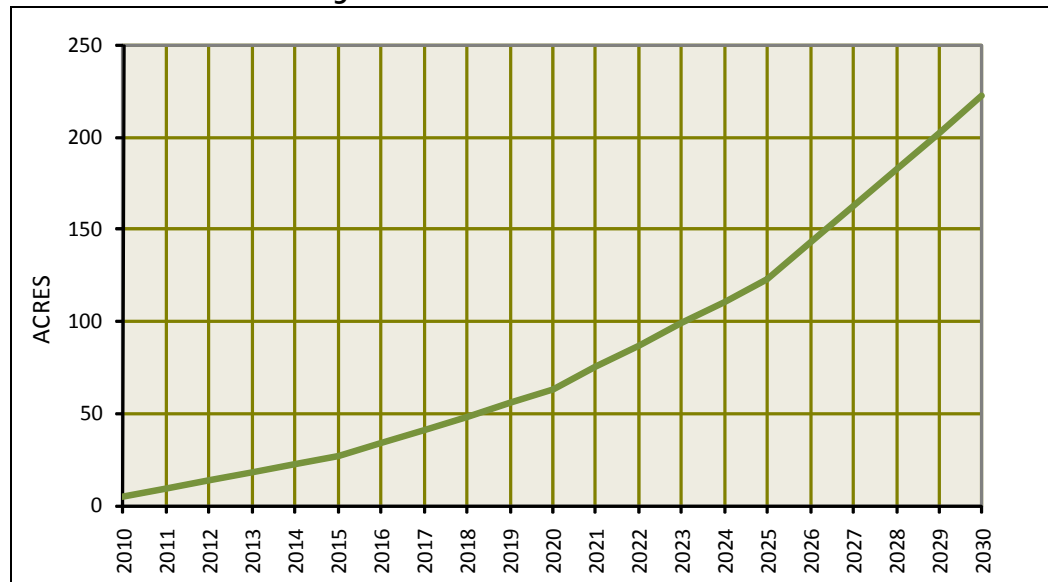
Finally, a stable market vacancy rate of 10% was assumed.<sup>12</sup> (See Figure 29)

<sup>10</sup> See Technical Appendix: Exhibits 1.06 through 1.07

<sup>11</sup> Non industrial uses include office space and/or retail which support the industrial uses. See Appendix: Exhibits 1.08 and 1.09

<sup>12</sup> See Technical Appendix: Exhibits 1.11 and 1.12

**FIGURE 29: CUMULATIVE INDUSTRIAL LAND DEMAND**



SOURCE: Johnson Reid LLC

## **RETAIL COMMERCIAL LAND METHODOLOGY**

Unlike industrial and office commercial land need, retail land need is a direct function of households moving into Scappoose, typical spending patterns by those households and visitor/tourist spending. Methodology for forecasting retail commercial land need is summarized below.

### **HOUSEHOLD GROWTH PROJECTIONS**

For modeling growth in retail commercial land need driven by residential growth, Johnson Reid utilized the population growth rates projected in Metro's 20 and 50 year Regional Population and Employment Range Forecasts for the Portland metropolitan area through year 2025.<sup>13</sup> Medium, high and low growth scenarios, and resulting household growth projections through 2030, were estimated as follows:

- Medium Growth Scenario: Assumes population growth rate of 1.28% annually.
- High Growth Scenario: Assumes population growth rate of 1.43% annually.
- Low Growth Scenario: Assumes population growth rate of 1.12% annually.

### **ESTIMATE SCAPPOOSE'S PER-HOUSEHOLD RETAIL SPENDING**

Johnson Reid estimated per-household annual spending by retail category utilizing data derived from the US Bureau of Labor Statistics Consumer Expenditure Survey (see Figure 30). Categories are as detailed in the following table by the North American Industry Classification System (NAICS).

<sup>13</sup> Metro's report can be found at this link: [http://www.oregonmetro.gov/files/planning/2030-2060\\_forecast\\_april\\_09.pdf](http://www.oregonmetro.gov/files/planning/2030-2060_forecast_april_09.pdf)

**FIGURE 30: AVERAGE HOUSEHOLD EXPENDITURES ON RETAIL GOODS, SCAPPOOSE UGB**

| NAICS Category                  |                                              | Per Household Expenditures 1/ |
|---------------------------------|----------------------------------------------|-------------------------------|
| 441                             | Motor Vehicles and Parts Dealers             | \$8,493                       |
| 442                             | Furniture and Home Furnishings Stores        | \$1,017                       |
| 443                             | Electronics and Appliance Stores             | \$986                         |
| 444                             | Building Materials and Garden Equipment      | \$4,709                       |
| 445                             | Food and Beverage Stores                     | \$5,058                       |
| 446                             | Health and Personal Care Stores              | \$1,828                       |
| 448                             | Clothing and Clothing Accessories Stores     | \$1,835                       |
| 451                             | Sporting Goods, Hobby, Book and Music Stores | \$804                         |
| 452                             | General Merchandise Stores                   | \$4,909                       |
| 453                             | Miscellaneous Store Retailers                | \$1,089                       |
| 722                             | Foodservices and Drinking Places             | \$3,874                       |
| <b>Totals/Weighted Averages</b> |                                              | <b>\$34,603</b>               |

SOURCE: Claritas Inc.

Future retail sales originating within Scappoose were simply calculated as the product of future household counts under the medium, high, and low growth scenarios through 2030 and annual average retail sales by category.<sup>14</sup>

#### SPENDING LEAKAGE & VISITOR SPENDING PROJECTIONS

Scappoose's estimated resident expenditures exceed retail sales by a 37% margin, reflecting a widespread tendency for residents to purchase household goods outside of Scappoose. This retail "spending leakage" represents spending by local residents which could be captured by new retail in the area.

The only category in which the city does not exhibit that tendency is in General Merchandise Stores where retail sales exceed resident expenditures by about \$9 million. It was assumed within the analysis that this ratio would remain constant, and that regional/visitor spending would grow at an equivalent rate to locally originating retail sales. (See Figure 31)

**FIGURE 31: RETAIL OPPORTUNITY GAP FOR SCAPPOOSE**

|                                           | Resident Expenditures 1/ | Retail Sales 2/     | Retail Opportunity  |
|-------------------------------------------|--------------------------|---------------------|---------------------|
| <b>Total Retail Sales</b>                 | <b>\$104,879,096</b>     | <b>\$66,669,630</b> | <b>\$38,209,466</b> |
| Motor Vehicle and Parts Dealers           | \$21,330,624             | \$5,766,506         | 15,564,118          |
| Furniture and Home Furnishings Stores     | \$2,554,863              | \$80,540            | 2,474,323           |
| Electronics and Appliance Stores          | \$2,477,507              | \$419,857           | 2,057,650           |
| Building Material, Garden Equip Stores    | \$11,825,738             | \$3,056,409         | 8,769,329           |
| Food and Beverage Stores                  | \$12,702,882             | \$8,797,932         | 3,904,950           |
| Health and Personal Care Stores           | \$4,589,723              | \$4,468,303         | 121,420             |
| Gasoline Stations                         | \$11,556,069             | \$11,488,801        | 67,268              |
| Clothing and Clothing Accessories Stores  | \$4,608,098              | \$1,127,454         | 3,480,644           |
| Sporting Goods, Hobby, Book, Music Stores | \$2,018,232              | \$121,173           | 1,897,059           |
| General Merchandise Stores                | \$12,329,234             | \$21,402,090        | (9,072,856)         |
| Miscellaneous Store Retailers             | \$2,736,049              | \$1,051,400         | 1,684,649           |
| Non-Store Retailers                       | \$6,420,351              | \$571,065           | 5,849,286           |
| Foodservice and Drinking Places           | \$9,729,726              | \$8,318,100         | 1,411,626           |

Source: Claritas, Inc.

1/ Data from the Consumer Expenditure Survey which reflects expenditures made by Scappoose residents.

2/ Data from the Census of Retail Trade which reflects retail sales made within the City of Scappoose.

<sup>14</sup> See Technical Appendix: Exhibit 1.12

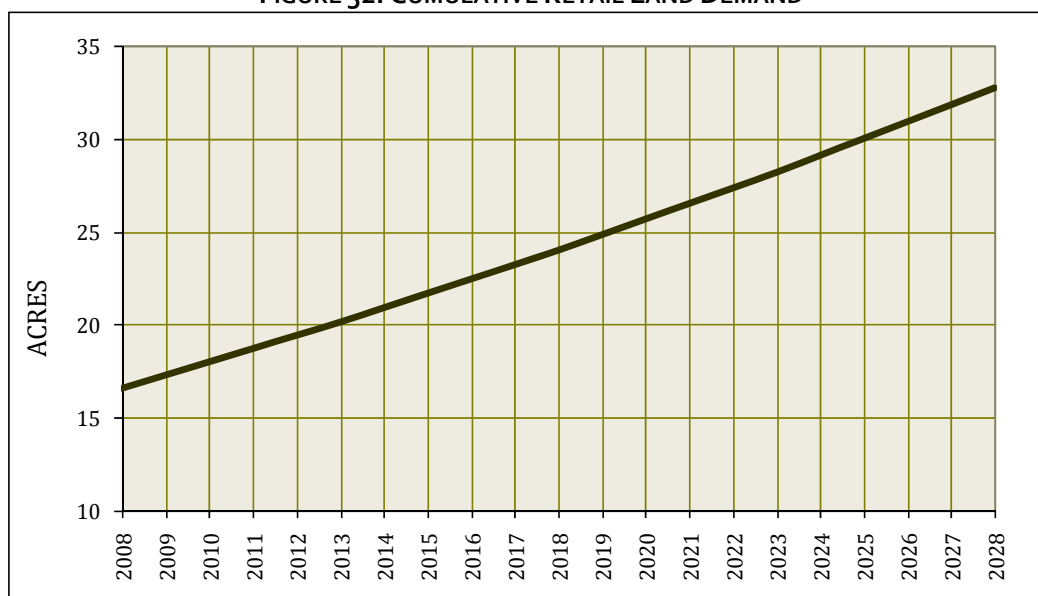
#### DEMAND FOR RETAIL COMMERCIAL SPACE

Future retail sales are converted into need for developed retail space by calculating the product of future Scappoose retail sales by category to a category-specific Sales Support Factor. The Sales Support Factor is the national average retail sales per square foot of space for each category of retail. Sales support factors are from the Urban Land Institute publication Dollars & Cents.<sup>15</sup>

#### DEMAND FOR RETAIL COMMERCIAL LAND

Demand estimates for developed retail space at different time points was then converted into demand for retail commercial land by applying an average retail Floor Area Ratio (FAR) of 0.30. The FAR is based on a survey of developed Scappoose properties, as well as the standard site needs of retail businesses, as presented in Section VI of this report. This FAR also reflects the city's requirement of one parking space per 400 square feet of retail floor area.<sup>16</sup> (See Figure 32)

**FIGURE 32: CUMULATIVE RETAIL LAND DEMAND**



SOURCE: Johnson Reid LLC

<sup>15</sup> See Technical Appendix: Exhibit 1.13

<sup>16</sup> See Technical Appendix: Exhibit 1.14

## V. PROJECTED NUMBER OF SITES DEMANDED

### PROJECTED GROSS ACRES AND NUMBER OF SITES NEEDED BY SIZE

The final step in establishing the City's land demand projections is to arrive at the number of sites expected to be needed according to development pattern types during the planning horizon. Because there are subjective components to this analysis, it is important to understand basic assumptions utilized in the analysis. The principal assumptions relate to methodology for identifying and categorizing medium and large sites and these include the following:

The vast proportion of the employment land base, from the standpoint of total acreage, is consumed by sites larger than half an acre. Some of these are held for speculation and will be divided further, but the vast majority of these parcels are developed and used by going concerns.

It is much easier to divide employment land into small parcels to meet the needs of smaller users than it is to aggregate small parcels in fractured ownerships to meet the needs of a larger user. Figure 33 provides a detailed assessment of Scappoose employment land need through 2030 in terms of number of sites and gross acres needed by site size.

FIGURE 33: EMPLOYMENT LAND DEMAND BY SITE SIZE FOR SCAPPOOSE (2030)

| Land Demand by Site Size       |                               |                    |           |              |
|--------------------------------|-------------------------------|--------------------|-----------|--------------|
|                                |                               | Demand Projections |           |              |
|                                |                               | Typical Acreage    | Sites     | Gross Acres  |
| Office                         | Large                         | 25.0               | 0         | 11.6         |
|                                | Medium                        | 10.0               | 1         | 7.7          |
|                                | Small                         | 5.0                | 9         | 45.1         |
|                                | <b>SubTotal</b>               |                    | <b>10</b> | <b>64.4</b>  |
| Commercial Retail              | Large                         | 20.0               | 0         | 0.0          |
|                                | Medium                        | 7.0                | 4         | 25.8         |
|                                | Small                         | 1.0                | 6         | 6.3          |
|                                | <b>SubTotal</b>               |                    | <b>10</b> | <b>32.1</b>  |
| Industrial                     | Large                         | 50.0               | 2         | 107.6        |
|                                | Medium                        | 30.0               | 1         | 35.0         |
|                                | Small                         | 7.0                | 7         | 51.1         |
|                                | Tech/Flex                     | 12.0               | 2         | 21.5         |
|                                | Airpark Emp.                  | 5.0                | 11        | 53.8         |
|                                | <b>SubTotal</b>               |                    | <b>23</b> | <b>269.0</b> |
| Lodging Related                | Lodging                       | 1.5                | 2         | 3.0          |
|                                | Lodging-supportive commercial | 1.0                | 5         | 4.5          |
|                                | <b>SubTotal</b>               |                    | <b>7</b>  | <b>7.5</b>   |
| <b>Employment Uses Totals:</b> |                               |                    | <b>50</b> | <b>373.0</b> |
| Public Uses                    | <u>Special Uses</u>           |                    |           |              |
|                                | Hangar Reserve                |                    | 1         | 40.0         |
|                                | Runway Extension              |                    | 1         | 50.0         |
|                                | PCC Campus                    |                    | 1         | 20.0         |
|                                | <b>SubTotal</b>               |                    | <b>3</b>  | <b>110.0</b> |
| <b>GRAND TOTALS:</b>           |                               |                    | <b>53</b> | <b>483.0</b> |

## OFFICE

**Site Need:** Scappoose's economic growth is estimated to drive the need for 13 office commercial sites by 2030. The majority of sites for office commercial can be expected in the "Small" category, with typical parcel size of 5.0 acres. **Land Need:** Scappoose economic growth can be expected to drive 64.4 acres of gross office land need by 2030.

## INDUSTRIAL

**Site Need:** Scappoose's economic growth is expected to generate need for a minimum of 23 industrial sites by 2030. **Land Need:** Scappoose economic growth is expected to generate need for a minimum of 269 gross acres by 2030. Although most individual sites needed will average seven acres, large site need (50+ acres) will account for the largest share of total land need through 2030.

Forecasted demand for airport-dependent industries leads to a demand projection of 53.8 acres of airport employment land, a subset of general industrial use which is dependent on a location adjacent to an airport.

Similarly, there is a forecasted need for 21.5 acres of industrial land for high-tech/flex manufacturing uses.

Industrial operations may include some supportive office uses on-site. This supportive office employment is included in the projected demand for industrial sites and is not double counted under projected office demand.

## RETAIL

**Site Need:** Scappoose population growth, resulting from economic growth opportunity, combined with a share of current retail expenditures leaking from the market is expected to create need for 10 commercial sites by 2030. The majority of sites needed will be one acre in size ("Small"). **Land Need:** Scappoose economic growth and resulting population growth is expected to create need for a minimum of 32.1 gross commercial retail acres by 2030.

## OVER-NIGHT LODGING

**Site Need:** Employment growth and recreational opportunities in the Scappoose area are expected to create need for two commercial lodging sites by 2030, and five sites of additional retail and commercial services supported by lodging customers. Prospective lodging sites will be located near future employment clusters and/or the highway. Lodging-supportive retail and commercial services would be located adjacent to or very near lodging. **Land Need:** The average lodging site needed will be 1.5 acres in size ("Small"), leading to a forecasted need of 3 gross acres for lodging by 2030. The average site for lodging-supported commercial space will be 1 acre in size ("Small"), with a total need of 4.5 acres by 2030.

## PUBLIC OR SEMI-PUBLIC NEEDS:

**Site Need:** Three planned future public or institutional uses were identified during this process. They are the identified need for an airport runway extension (50 acres), 40-acres reserved for new Port hangar space, and 20 acres for a future Portland Community College location. PCC has identified a need for a facility in Columbia County to serve growing demand from the area. The PCC facility would be a possible location for aviation-related programs which could leverage a location near the airport and/or safety and rescue training programs in conjunction with police and other emergency service agencies.

**Land Need:** The above needs account for 110 total gross special needs acres by 2030.

## VI. DESCRIPTIONS OF REQUIRED SITE TYPES

The qualitative component of the site requirements analysis identifies factors such as site sizes (acreage), loading, parking, storage, public facilities, utilities, ownership patterns, surrounding development patterns, proximity to labor, proximity to customers, access to transportation infrastructure, and other site amenities unique to the specific industry.

The subsequent table identifies archetypal site requirements according to three major land use categories: Office, Commercial Retail, and Industrial. A detailed matrix including more special uses is included later in this section.

|                   | Building Size/SF | Typical Acreage Ranges |
|-------------------|------------------|------------------------|
| <b>OFFICE</b>     |                  |                        |
| Large             | 60,000-500,000+  | 3.5-20                 |
| Medium            | 12,000-70,000    | 0.5-3.0                |
| Small             | 400-13,000       | 0.12-3.0               |
| <b>INDUSTRIAL</b> |                  |                        |
| Large             | 90,000-750,000+  | 20-200+                |
| Medium            | 25,000-100,000   | 4.0-25                 |
| Small             | 500-30,000       | 0.5-5.0                |
| <b>COMMERCIAL</b> |                  |                        |
| Large             | 45,000-500,000+  | 7.0-100                |
| Medium            | 12,000-50,000    | 3.5-15                 |
| Small             | 0.5              | 0.5-5                  |

These general development pattern categories are not intended to be exhaustive, but rather are intended to capture the typical patterns observed in the market today and expected for the future. However, by identifying and planning for typical patterns, the widest range of development patterns have been considered in an effort to analyze demand from these many perspectives.

Other than the Downtown pattern and the Airpark Business pattern, none of the other patterns are intended to have a necessary geography or area associated with them—although some areas of the City will contain more of some archetypes and less of others—reflecting locational characteristics, historical development patterns, existing land use regulations, and market forces.

### GENERAL REQUIREMENTS OF SUITABLE COMMERCIAL SITES

All commercial sites share some general characteristics necessary for retail, office or industrial uses to operate. Developers will seek sites which meet these requirements and generally disregard sites which do not, as they will be undevelopable, or bear significant additional costs which render the real estate product unprofitable and uncompetitive. These general characteristics are discussed below, and apply to all development types presented in the tables on the following pages.

#### Environmental Constraints:

In order to be suitable, the site must be flat or nearly flat, having a slope of less than 10%. The site must be able to provide appropriately sized and configured developable areas free of wetlands, floodplains, riparian constraints, or other known environmental constraints which will significantly preclude, delay, or significantly increase the cost of the development of all or a portion of the site.

**Serviceability:**

In order to be suitable, the site must be currently served by transportation and utilities, or serviceable within the window of planned development. (The preferred level of service by user and development type is presented in the following tables.)

**Transportation and Access:**

The following table presents adequate transportation facilities by user and development type. Convenient access to the listed facility types ideally means direct access via frontage, but may also be satisfied by close access via a facility that is adequate to accommodate the commercial traffic of all commercial sites in the area, without conflicting with other types of traffic (see Compatibility below).

In general, retail sites will require direct access or direct visibility from the facility type listed. Office and industrial sites, on the other hand, are not as reliant on direct access and visibility. In the context of Scappoose, convenient access for office and industrial sites will generally mean they lie within .25 mile of a collector facility, and 2 miles of Highway 30. However, connectors between the site and these facilities must be adequate for the amount and weight of commercial traffic and should not conflict with other land uses.

The Downtown and Airpark Business Park design types are location-dependent. The airpark model requires a location directly adjacent to an airport as these businesses rely on ferrying aircraft to and from their facilities.

**Site Size and Configuration:**

Sites may be unsuitable if they have an unusual size or shape configuration, with a square or rectangular parcel representing the “norm.” Such poorly configured parcels may have spurs or wedges which prevent efficient site planning and use of the full parcel. These unsuitable sites may also be situated in such a way that access and/or visibility are insufficient for commercial users (e.g. a “flag lot”). Through any combination of the above, these sites may have sufficient acreage on paper, while not presenting enough contiguous, unencumbered space to be efficiently planned and utilized.

**Compatibility:**

Suitable sites must be compatible with surrounding uses, and residential uses in particular. Heavily used commercial and industrial sites should have direct access from an arterial street, and not require driving through residential areas. Sites should generally not abut residential areas on more than one side, and the site size and configuration must allow for sufficient buffer depending on the intensity of the commercial activity.

## Commercial Office Development Pattern Types

|                                                                         | Common Industries                                                                                                                                                                                              | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                                                                                           | Public Facilities/ Utilities                                                                                                                                      | Site Sizes and Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                | Required Site Size | FAR         |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------|
| Large Office Users (150-1200+ Employees; 60k-500+k sq. ft. built space) | Main Branch/Head-quarters Offices for Banking, Security and Commodity, Real Estate, and Insurance Carriers, Healthcare, Communications, Transportation Services, Back Office Processing                        | Transportation system that provides access to labor is essential and may require convenient connections to major arterial roadways and State Highways. Convenient airport access is almost always important.                                                                                                                                                                                            | Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecommunications. Multiple energy suppliers may be a consideration. | Business/Office Park- Usually two to three story buildings. Users are clustered within a larger park of 50 to 400 hundred acres. Large users may also prefer a campus sites and may land bank for potential future expansion.                                                                                                                                                                | 3.5 to 15 acres    | .25 to .75  |
|                                                                         |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                   | Under-performing Commercial Sites - Usually adaptive reuse of an under-performing commercial site arrayed within a larger commercial node of 20 to 500 acres.                                                                                                                                                                                                                                | 2 to 20 acres      | .25 to 1.50 |
| Medium Office Users (35-175 employees; 12k-70k sq. ft.)                 | Community Branches for Banking, Security and Commodity, Real Estate, and Insurance Carriers, and Community Healthcare. Professional Business Services, Legal Services, Communications, Transportation Services | Transportation system that provides access to labor is important and will require convenient connections to at least a minor collector and may require convenient connections to major arterial roadways and State Highways. High visibility access to customers is essential for the consumer oriented users. Airport access is important.                                                             | Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecommunications.                                                   | Downtown- Medium users tend to utilize one or two floors of an existing building. Downtown can be cost-prohibitive for uses that require ground floor customer visibility.                                                                                                                                                                                                                   | n/a                | .35 to 2.00 |
|                                                                         |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                   | Business/Office Park (Mixed Use) - Occupy buildings individually or with a group of tenants. Users often seek sites near campus development patterns with which they interact. Sites are typically within a larger park of 30 to 100 acres. Such parks often contain a small amount of consumer-oriented business service, retail or dining space.                                           | 0.5 to 3 acres     | .25 to .75  |
|                                                                         |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                   | Commercial Centers-These are the preferred development patterns for consumer oriented medium sized office users such as branch banks and real estate offices. Sites are typically within a larger community commercial node of 10 to 200 acres.                                                                                                                                              | 0.5 to 3 acres     | .25 to 1.50 |
| Small (1-40 employees; 400 to 13k square feet)                          | Sole proprietor or small partnership of professional service offices for Banking, Security & Commodity, Real Estate, Insurance Agents and Brokers, Business Services and Legal Services                        | Access to customer base very important to consumer oriented users such as insurance agents/brokers and real estate agents/brokers. Transportation system that provides access to labor is important, but these users may have to compromise convenient access to labor as a cost saving measure. These office users can be served by all street functional classifications Airport access is important. | Water, sewer, and storm drainage must be adequate. Site should have, but may not always, require modern telecommunications.                                       | Downtown- These small user companies absorb the smaller spaces downtown that are too small or have limitations for larger users. Site sizes downtown are predetermined by existing development patterns and to a lesser extent by redevelopment.                                                                                                                                             | n/a                | n/a         |
|                                                                         |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                   | Business/Office Park (Mixed Use) - These small user companies absorb the smaller spaces in larger projects that are too small or have limitations for larger users or occupy expansion areas for medium and large users. Sites are typically within a larger park of 30 to 100 acres. Such parks often contain a small amount of consumer-oriented business service, retail or dining space. | 0.5 to 3 acres     | .30 to .5   |
|                                                                         |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                   | Commercial Centers - These small user companies absorb the smaller spaces in larger projects that are too small or have limitations for larger users or occupy expansion areas for medium and large users. These sites are most important to consumer oriented users such as insurance agents.                                                                                               | 0.5 to 3 acres     | .25 to .50  |

## Commercial Retail Development Pattern Types

|                                                                                                        | Common Industries                     | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                           | Public Facilities/ Utilities                                                                                                                                     | Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                                 | Required Site Size | FAR         |
|--------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------|
| Large Retail Users (45k-500+k sq. ft./; and/or 15+ acres of outdoor storage)                           | Retail Trade (Regional Retail)        | Transportation system that provides convenient connections and very high visibility from major arterial roadways and state highways is essential. Pedestrian connections between buildings can be important as well.                                                                                                                    | Water, sewer and storm drainage must be adequate. Site must be able to be served by modern telecommunications. Multiple energy suppliers may be a consideration. | Large Format Retail – These are large auto oriented stores that house a collection of goods within a single store. A recent trend has seen smaller vendors co-locate within the larger store (Such as a McDonalds within a Wal-Mart). Large format retailers tend to seek sites that are clustered with other large format retailers in regional commercial centers that are 55 to 350+ acres. | 6 to 14 acres      | .25 to .75  |
| Medium Retail Users (12k-50k sq. ft./; and/or 3 to 15 acres of outdoor inventory)                      | Retail Trade (Community Retail)       | Transportation system that provides convenient connections and very high visibility from major arterial roadways and state highways is essential. Pedestrian connections between buildings can be important as well.                                                                                                                    | Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecom.                                                             | Community Shopping Centers- Typically use leasable area of 30,000 to 100,000. Centers are typically anchored by grocers or “big box” retailers. These centers serve localized populations, and typically locate near population concentrations. They seek frontage on a highway or major arterial.                                                                                             | 3 to 10 acres      | .30 to .75  |
| Small Retail and Commercial Services (200 to 15k square feet and/or less than 5 acres outdoor storage) | Retail Trade (Downtown and Specialty) | Transportation system that provides convenient connections and visibility from higher order roadways and state highways is important and essential for some users. Convenient public transportation may be a consideration, especially for a downtown site. Pedestrian traffic on public sidewalks is very important to Downtown Sites. | Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecom.                                                             | Downtown-Small retailers tend to seek ground floor downtown sites. Users tend to be specialty retail, restaurants, bars and similar uses. Site sizes are dictated by existing development patterns or as a result of a large user or speculative development project.                                                                                                                          | n/a                | .75 to 2.00 |
|                                                                                                        |                                       |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  | Free-Standing Shopping Center Pads- These uses are typically service commercial uses such as restaurants, bars and convenience retail such as convenience marts and fuel stations. Sites are very highest visibility within larger projects. Users are co-located within larger projects such as large format retailers and community shopping centers.                                        | 0.5 to 2 acres     | .25 to .40  |
|                                                                                                        |                                       |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  | Attached Boutique/Specialty- These retail sites are co-located within larger buildings that house anchor users in larger projects such as medium to large format retailers and community shopping centers.                                                                                                                                                                                     | 0.5 to 1 acre      | .40 to .75  |
|                                                                                                        |                                       |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  | Neighborhood Commercial – These are small stand alone users that usually locate along higher order transportation facilities and sometimes cluster with a few other similar sized users. These users tend to be neighborhood service and convenience retail uses such as coffee shops and neighborhood markets. Sites are usually within a smaller cluster that is up to three acres.          | 0.5 to 1 acre      | .25 to .40  |
|                                                                                                        |                                       |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  | Business/Office Park (Mixed Use) - These small retail companies absorb the small retail spaces in larger office-oriented business parks. These spaces are too small or have limitations for larger users. These spaces offers support retail, dining or commercial spaces to the business park and the local neighborhood.                                                                     | 0.25 to 0.5 acre   | .25 to .35  |
|                                                                                                        |                                       |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                  | Lodging Supportive Retail – These small businesses offer retail, dining and commercial services to over night lodgers. These spaces offers support retail, dining or commercial spaces to recreational and business travelers and the local neighborhood.                                                                                                                                      | 0.5 to 1.0 acre    | .40 to .75  |

## Industrial Development Pattern Types

|                                                                                                                   | Common Industries                                                                                                                                                        | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Public Facilities/ Utilities                                                                                                                                                                                                                                                                                                                                               | Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Required Site Size      | FAR        |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------|
| Large Industrial Users (90k-750+k sq. ft. built space /; and/or 20+ acres of outdoor inventory /production areas) | Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation | Transportation system that provides convenient connections to state highways is very important. Proximity to natural resources can be important for uses that utilize natural resource inputs. Rail access is important to many uses and can be essential for some. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to many users and essential for some. | Water, sewer, and storm drainage must be adequate; some of these uses can consume very large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecomm. Multiple energy suppliers are important to most users and the ability purchase wholesale energy can be essential for some. | Indoor/Outdoor Industrial Processes - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, Agri-business, etc. These development patterns typically process raw materials into intermediate industrial input materials and include lumber mills, plywood plants, aggregate processing plants and co-gen power plants. These users typically have moderate to high levels of airborne emissions, noise production, and waste products. Access to rail can be essential. Users may cluster with similar uses in areas that are 1000+ acres.         | 40 to 200 or more acres | .30 to .50 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Logistics/Warehousing/Transportation Hubs- These development patterns are extremely transportation infrastructure sensitive and require sites with efficient and direct access to the transportation facilities they utilize. Some of these users may not require proximity to large labor forces. These users typically produce moderate to high levels of airborne emissions and noise associated with high volumes of truck traffic, rail yard activities, etc. Users may cluster with similar uses in freight centers that are 2,000+ acres.                            | 50 to 400 or more acres | .30 to .75 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Transmission-Regional utility transmission facilities such as regional substations and 500kv lines. Noise, emissions and waste levels vary considerably from facility to facility.                                                                                                                                                                                                                                                                                                                                                                                          | 20 or more acres        | .30 to .75 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Enclosed Manufacturing – These development patterns contain a wide variety of uses from food production to microchip processors and typically process intermediate materials into finished goods and/or parts. Users are predominantly indoors within enclosed buildings. Convenient access to skilled labor force is essential. These uses typically have low to moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate long-term expansion. Users may seek integration with office developments. | 20 to 200 or more acres | .30 to .50 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Waste Handling – These development patterns include sanitary landfills, regional transfer stations, recycling plants, and sewage treatment plants and large salvage yards. Users typically have large amounts of outdoor storage/processing. These users typically have moderate to high levels of airborne emissions and noise production.                                                                                                                                                                                                                                 | 20 to 150 or more acres | .30 to .50 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Spec/Flex Space – Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants. Often multiple tenants occupy a single building. Low to very low levels of airborne emissions, noise production and waste products.                                                                                                                                                                                                                                                              | 4 to 25 acres           | .25 to .50 |
|                                                                                                                   |                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                            | Airpark Business Park – This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.                                                                                                          | 10 to 40 acres          | .15 to .40 |

## Industrial Development Pattern Types (Continued)

|                                                                                                                     | Common Industries                                                                                                                                                                                                                                                                                                   | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Public Facilities/ Utilities                                                                                                                                                                                                                                                                                | Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Required Site Size | FAR        |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|
| Medium Industrial Users (25k-100k sq. ft. built space/; and/or 4 to 25 acres of outdoor inventory/production areas) | Instruments, Electronic Equipment, Printing & Publishing, Transit Transportation Services, Business Services Communications, Construction, Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation | Transportation system that provides convenient connections to state highways is very important- and especially Interstate 5. Proximity to natural resources can be important for uses that utilize natural resource inputs. Rail access is important to many uses and can be essential for some uses. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to many users and essential for some. | Water, sewer, and storm drainage must be adequate; some of these uses can consume large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecommunications. Multiple energy suppliers are important to most users. | Indoor/Outdoor Industrial Processes - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, Agri-business, etc. Uses typically contain indoor activities, but typically more than 25 percent of the site is devoted to outdoor inventory and processes on individual lots. Convenient access to skilled labor force is essential. These users often have very unique site requirements specific to each industrial processes. These users typically have moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate medium-term expansion planning. Users often seek sites clustered in industrial areas of 100+ acres.                                          | 6 to 25 acres      | .30 to .50 |
|                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                             | Trucking/Warehousing/Distribution/Waste Transfer Substations/Staging- These development patterns are transportation infrastructure sensitive and require sites with efficient and direct access to the transportation facilities they utilize. Some of these users may not require proximity to large labor forces. These users typically produce moderate levels of airborne emissions and noise associated with high volumes of truck traffic and rail yard activities. Users may cluster with similar uses in freight centers that are 2,000+ acres.                                                                                                                                                                                                        | 4 to 20 acres      | .30 to .75 |
|                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                             | Transmission-These are local and small regional substations, natural gas pressure reduction stations for local distribution, and micro power generation uses. These users typically have low levels of airborne emissions, noise production, and waste products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4 to 10 acres      | .30 to .75 |
|                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                             | Enclosed Industrial Processes – Including Manufacturing, Repair, Remanufacturing, etc. Uses are predominantly indoors within enclosed buildings on individual lots with typically less than 30 percent of the site devoted to outdoor storage. Convenient access to skilled labor force is essential. These users often have very unique site requirements specific to each industrial processes. These uses typically have low to moderate levels of airborne emissions, noise production, and waste products. Site Users often require sufficient area to accommodate medium-term expansion planning. Users often seek sites clustered in industrial/business parks of 100+ acres and some may seek integrated projects with commercial and office patterns. | 4 to 20 acres      | .30 to .50 |
|                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                             | Spec/Flex Space – Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants within a complex and usually there are multiple tenants occupying a single building. Low to very low levels of airborne emissions, noise production and waste products.                                                                                                                                                                                                                                                                                                                                                                                                              | 4 to 25 acres      | .30 to .50 |
|                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                             | Airpark Business Park – This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.                                                                                                                                                                                                                                                                                             | 5 to 20 acres      | .15 to .40 |

### Industrial Development Pattern Types (Continued)

|                                                                                                         | Common Industries                                                                                                                                                                                                                                                                                                      | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                                                                                                                                                                                | Public Facilities/ Utilities                                                                                                                                           | Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Required Site Size | FAR        |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|
| Small (Less than 30k square ft built space and/or less than 5 acres outdoor inventory/production areas) | Instruments, Electronic Equipment, Printing & Publishing Transit and Transportation Services, Business Services Communications, Construction, Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation | Transportation system that provides reasonably convenient connections to state highways is important. Rail access is important to some uses and is occasionally essential. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to some and can be essential. | Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecommunications. Multiple energy suppliers are important to some users. | Indoor/Outdoor Industrial Uses - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, etc. Users typically contain indoor activities, but typically more than 25 percent of the site is devoted to outdoor inventory and processes on individual lots. These users typically have moderate levels of airborne emissions, noise production, and waste products.                                                                                                                                                                                                                                                           | 1 to 5 acres       | .30 to .50 |
|                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                        | Enclosed Industrial Processes – Including Manufacturing, Repair, Remanufacturing, etc. Users are predominantly indoors within enclosed buildings on individual lots with typically less than 30 percent of the site devoted to outdoor storage. Convenient access to skilled labor force is essential. These users typically have low to moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate limited expansion. Users often seek sites clustered in industrial/business parks of 100+ acres and some may seek integrated projects with commercial and office patterns. | 0.5 to 5 acres     | .30 to .50 |
|                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                        | Flex Space – Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants. Often multiple tenants occupy a single building. Low to very low levels of airborne emissions, noise production and waste products.                                                                                                                                                                                                                                                                                                                                          | 0.5 to 5 acres     | .30 to .50 |
|                                                                                                         |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                        | Airpark Business Park – This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.                                                                                                                                                                                 | 5 to 20 acres      | .15 to .40 |

### Campus/Institutional Development Pattern Types

Campuses are large and medium sized developments usually with a single or very limited set of ownerships. While the many uses within a campus can vary considerably, all the uses within a campus/institutional development are usually aimed at a common purpose or goal. The nature of this common purpose or goal is what shapes the design, site requirements and other characteristics of each individual campus/institutional development. For this reason, the below table describes the site characteristics according to the principal goal of each campus/institution; some uses are merely identified because their requirements will vary too greatly for each particular use.

| Type                                   | Common Industries                                                                                                                                                                                                                                                     | Transportation; Access to Labor and Customers                                                                                                                                                                                                                                                                                                                                                                                 | Public Facilities/ Utilities                                                                                                                                                                                                                                                                                                                                                                                             | Development Pattern Discussion                                                                                                                                                                                                                                                                                                                                                                          | Required Site Size        |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Intellectual/Academic                  | Intellectual and Academic Campuses support the development of intellectual labor capital. Over time, the organic process that is intellectual development tends to intertwine with and support the target industry opportunities in the communities where they exist. | The transportation needs for each campus depends on the type of campus and purpose of the campus. In general, intellectual campuses should have reasonably convenient highway connections and have direct connections to two or more arterials. These uses are often served by public transit and can have high alternative transportation use if facilities are well planned. Good air transportation is essential for some. | Water, sewer, and storm drainage must be adequate; some of these uses can consume large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecomm and demands on telecomm facilities can be immense. Multiple energy suppliers can be important as can the ability to purchase wholesale energy which can be essential for some. | Major University/National Laboratory- These campuses serve statewide, national and international populations. University campuses usually have on-site dormitories. A wide variety of accessory commercial uses is often necessary to serve the campus population. These uses need excellent connections to regional transportation systems and need convenient air service for passengers and freight. | 50 to 1,000 or more acres |
|                                        |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                          | Post-Grad Technology – These can be private and/or public and usually involve research and development. These campuses serve statewide, national and international populations. These users need excellent connections to regional transportation systems and need convenient air service for passengers and freight.                                                                                   | 20 to 200 or more acres   |
|                                        |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                          | Small College/Community College – These campuses serve regional populations primarily. These may or may not have on-site dormitories. These campuses are sometimes arrayed like a large office user when they are located in a downtown area.                                                                                                                                                           | 20 to 40 acres            |
| Medical                                | Healthcare                                                                                                                                                                                                                                                            | Transportation system that provides reasonably convenient connections to state highways is important. Heliport access is important for many and essential for some. Convenient access to well trained and qualified workforce is essential                                                                                                                                                                                    | Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm and demands on telecomm facilities can be immense. Multiple energy suppliers can be important.                                                                                                                                                                                                                      | Regional Hospital – These campuses serve regional populations. Regional hospitals can cause large-scale clustering effects with high degrees of interaction with office users (doctor's offices, surgery centers, clinics, etc) on surrounding lands. Regional hospital sites typically result in clustered office areas around or near its perimeter.                                                  | 10 to 30 or more acres    |
| Religious                              | N/A                                                                                                                                                                                                                                                                   | Use Dependent                                                                                                                                                                                                                                                                                                                                                                                                                 | Use Dependent                                                                                                                                                                                                                                                                                                                                                                                                            | These campus uses are not local places of worship. These are regional and national headquarters, seminaries, and similar uses. The nature and configuration of these uses vary by its purpose, but land use demands can be significant. Under RLUIPA, City's may occasionally need to plan for these uses.                                                                                              | 15 or more acres          |
| Military                               | N/A                                                                                                                                                                                                                                                                   | Use Dependent                                                                                                                                                                                                                                                                                                                                                                                                                 | Use Dependent                                                                                                                                                                                                                                                                                                                                                                                                            | These are federally owned and operated, so they are exempt from Oregon Land Use Laws. However, they can have far reaching implications for land use planning and a City may need to revise its land use plan significantly if a new military institution or installation use is established.                                                                                                            | Varies                    |
| Continuing Care Retirement Communities | Residential Healthcare Services                                                                                                                                                                                                                                       | These uses need reasonably convenient access to the regional transportation system and air services. Access to labor is important.                                                                                                                                                                                                                                                                                            | Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm.                                                                                                                                                                                                                                                                                                                    | These uses serve local, statewide and national populations. CCRC's are large retirement destinations. These uses have extensive residential components, but also require on-site healthcare, recreation facilities, and many accessory commercial uses.                                                                                                                                                 | Varies                    |
| Correctional                           | N/A                                                                                                                                                                                                                                                                   | These uses are often not well served by transportation systems by intention.                                                                                                                                                                                                                                                                                                                                                  | Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm                                                                                                                                                                                                                                                                                                                     | These users serve regional, statewide or national populations. These may be super-sited, so they are exempt from Oregon Land Use Laws. Large correctional institutions can have far reaching implications for land use planning and a City may need to revise its land use plan significantly if a new correctional institution or installation use is established.                                     | Varies                    |

## VII. TECHNICAL APPENDIX

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## FACTORS THAT AFFECT SITE SELECTION

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### FIRM REQUIREMENTS

The Oregon Business Development Department (OBDD) provided Johnson Reid with a small sample of “lead sheets” for firms seeking to locate a new or expanded industrial facility. The firms represent a wide range of industries, from distribution centers to solar panel manufacturers to wool products manufacturers. They are typically fairly large employers, large enough to work with the OBDD to find a suitable site. The lead sheets are from the last half of 2008 and the first quarter of 2009. The sheets often report the expected number of jobs at the proposed facility; they range from fewer than 10 to 3,500 new jobs.

The lead sheets and data provided to Johnson Reid by OBDD staff to represent a cross-section of businesses interested in locating facilities in Oregon. While they are representative of the firms looking at locating in Oregon, they do not represent a comprehensive review of all recruitments staffed by OBDD.

The lead sheets summarize the firms’ locational needs—they itemize the site, utility, and labor requirements for each firm. OBDD staff works with the firms and connects them to local communities that may have a suitable site. Many of the firms are looking for a site across a wide geography, including Washington, Idaho, and California. Oregon is competing with those states to attract the firms.

This section describes the key factors that affect these firms’ locational decisions. The data in this section is useful to understand what actual firms need now in order to develop an operating industrial facility.

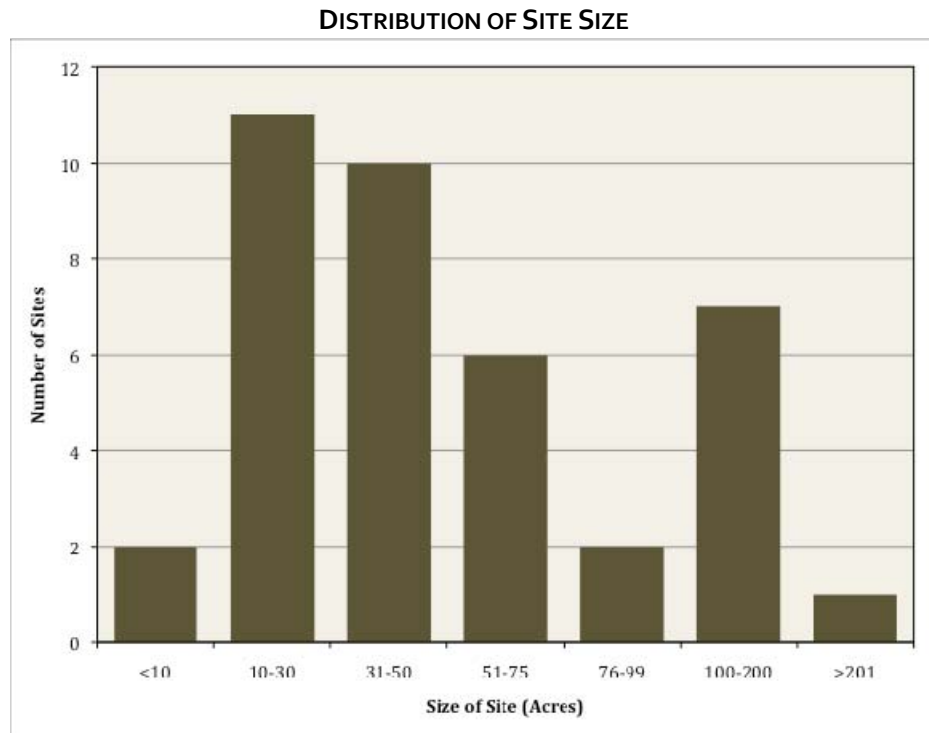
### Site Size

All the lead sheets showed specific requirements for the size of the site. Many of the firms intend to build large manufacturing facilities, and they have inflexible requirements about site size.

In addition to the sample of lead sheets, OBDD provided a larger list that identified the number of acres the firm desired. In total, Johnson Reid had access to data for 36 firms. The figure below shows the distribution of desired site size for those firms. It is important to note that the figure does not show site requirements for all firms, but only a subset of firms that contacted OBDD.

Only 6% of the sample is seeking a site smaller than 10 acres. Almost all the firms (92%) require a site between 10 and 200 acres. Only one of the 39 firms required a very large site—1,000 acres. A little over half of the firms require a site between 10 and 50 acres, and about 40% require a site between 51 and 99 acres.

The data clearly show that firms seeking to locate or expand in the region require large sites. A site smaller than 10 acres is highly unlikely to attract one of these growing employers—there is little demand for small sites. There is great demand for lots larger than 10 acres. This sample of firms is from late 2008 and early 2009, during the greatest economic downturn the U.S. has seen since the 1930s. Demand for sites will very likely increase when the economy improves.



Source: OBDD and Johnson Reid

### Transportation

The lead sheets included information about transportation requirements.

- Highway. Most of the firms want a good connection to major highways. Some had explicit needs regarding Interstates, such as “within 30 miles of I-5” or “5 miles to Interstate.” Some require access to the Interstate, but the description of the need is not explicit, simply that freeway access is very important. Many of the firms require access to a major highway or a 4-lane highway. The key factor is direct access to that highway.
- Rail. A few of the firms required rail access, either direct or close by. A few firms required that no rail be near the site. Those firms have specific requirements about seismic stability, and they can tolerate no vibrations on the site.
- Air. Many of the firms want good access to a commercial airport, and some require an international airport. One firms identified “good access” as within 25 miles, another as within 1.5 hours of the site.

### Utilities

Many of the firms have explicit and substantial requirements for utilities. The key utilities are electricity, water, and telecommunications.

- Electricity. Many of the firms have large electricity demands. The information was presented in both kilowatt-hours (kwh) and megawatts (MW). Demand ranged from 300,000 kwh per month to 68,700,000 kwh per month. Electricity capacity ranged from 15 MW to 200 MW, with most firms requiring fewer than 20 MW.
- Water. Some of the manufacturing firms have large demands for water—the largest user requires 1.8 million gallons per day. The water requirements for the remaining firms range from 2,000 gallons per day to 621,000 gallons per day.
- Telecommunications. Most of the firms require high quality and capacity telecommunications systems.

**Physical Features**

The most common physical feature required by the firms was a flat site. A few of the manufacturing firms in the solar industry have explicit requirements regarding the stability of the site—they need seismically stable site, with no vibrations caused by nearby rail line or rock crushing operations. Those firms also require stable soils that are not liquefiable. One firm will not consider any site within the 500-year floodplain. Another explicitly excluded brownfield sites.

**Zoning and Permits**

Many of the lead sheets note that the firm requires land that is zoned for industrial uses. Some of the firms have fast-paced schedules, seeking to become operational within less than one year. Therefore, the site must be truly shovel-ready and permits must be quickly processed. Any site that has legal hurdles before it can be used in an industrial capacity is not competitive.

**Operating Costs**

The firms that discuss operating costs focused on tax and utility rates. Wages did not appear to be a factor.

**Ownership**

The firms had mixed preferences regarding ownership. Some preferred a lease; others preferred to own the property. The lead sheets did not show a clear trend.

**EXHIBIT 1.01**  
**PROJECTIONS OF OFFICE SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario                  |       | Total Employment 1/ |       |       |        |          | Office | Office Space-Utilizing Employment |       |       |       |        |  |
|-----------------------------------------|-------|---------------------|-------|-------|--------|----------|--------|-----------------------------------|-------|-------|-------|--------|--|
| Employment Sector                       | 2010  | 2015                | 2020  | 2025  | 2030   | Share 2/ | 2010   | 2015                              | 2020  | 2025  | 2030  | '10-30 |  |
| Construction                            | 119   | 150                 | 189   | 239   | 301    | 2%       | 2      | 3                                 | 4     | 5     | 6     | 4      |  |
| Manufacturing                           | 215   | 374                 | 650   | 1,132 | 1,970  | 5%       | 11     | 19                                | 33    | 57    | 98    | 88     |  |
| Wholesale Trade                         | 24    | 36                  | 54    | 81    | 122    | 5%       | 1      | 2                                 | 3     | 4     | 6     | 5      |  |
| Retail Trade                            | 519   | 698                 | 939   | 1,263 | 1,698  | 5%       | 26     | 35                                | 47    | 63    | 85    | 59     |  |
| Transportation, Warehousing & Utilities | 81    | 128                 | 201   | 315   | 494    | 30%      | 24     | 38                                | 60    | 94    | 148   | 124    |  |
| Information                             | 78    | 80                  | 82    | 85    | 87     | 90%      | 70     | 72                                | 74    | 76    | 78    | 8      |  |
| Financial Activities                    | 76    | 101                 | 135   | 179   | 239    | 90%      | 68     | 91                                | 121   | 161   | 215   | 147    |  |
| Professional & Business Services        | 101   | 184                 | 337   | 616   | 1,126  | 90%      | 91     | 166                               | 303   | 554   | 1,013 | 922    |  |
| Education & Health Services             | 652   | 810                 | 1,007 | 1,252 | 1,557  | 40%      | 261    | 324                               | 403   | 501   | 623   | 362    |  |
| Leisure & Hospitality                   | 281   | 389                 | 538   | 745   | 1,030  | 25%      | 70     | 97                                | 135   | 186   | 258   | 187    |  |
| Other Services                          | 225   | 374                 | 620   | 1,028 | 1,707  | 40%      | 90     | 149                               | 248   | 411   | 683   | 593    |  |
| Government                              | 54    | 71                  | 94    | 124   | 164    | 85%      | 46     | 61                                | 80    | 106   | 139   | 94     |  |
| Total                                   | 2,425 | 3,395               | 4,846 | 7,057 | 10,492 | 31%      | 761    | 1,057                             | 1,510 | 2,218 | 3,352 | 2,591  |  |
| High Growth Scenario                    |       | Total Employment 1/ |       |       |        |          | Office | Office Space-Utilizing Employment |       |       |       |        |  |
| Employment Sector                       | 2010  | 2015                | 2020  | 2025  | 2030   | Share 2/ | 2010   | 2015                              | 2020  | 2025  | 2030  | '10-30 |  |
| Construction                            | 119   | 159                 | 212   | 283   | 377    | 2%       | 2      | 3                                 | 4     | 6     | 8     | 5      |  |
| Manufacturing                           | 215   | 425                 | 842   | 1,669 | 3,306  | 5%       | 11     | 21                                | 42    | 83    | 165   | 155    |  |
| Wholesale Trade                         | 24    | 39                  | 65    | 108   | 179    | 5%       | 1      | 2                                 | 3     | 5     | 9     | 8      |  |
| Retail Trade                            | 519   | 750                 | 1,083 | 1,564 | 2,259  | 5%       | 26     | 37                                | 54    | 78    | 113   | 87     |  |
| Transportation, Warehousing & Utilities | 81    | 142                 | 248   | 433   | 756    | 30%      | 24     | 43                                | 74    | 130   | 227   | 202    |  |
| Information                             | 78    | 81                  | 83    | 86    | 89     | 90%      | 70     | 73                                | 75    | 78    | 80    | 10     |  |
| Financial Activities                    | 76    | 108                 | 155   | 221   | 315    | 90%      | 68     | 97                                | 139   | 199   | 284   | 215    |  |
| Professional & Business Services        | 101   | 212                 | 445   | 937   | 1,972  | 90%      | 91     | 191                               | 401   | 844   | 1,775 | 1,684  |  |
| Education & Health Services             | 652   | 854                 | 1,120 | 1,468 | 1,924  | 40%      | 261    | 342                               | 448   | 587   | 770   | 509    |  |
| Leisure & Hospitality                   | 281   | 421                 | 629   | 941   | 1,407  | 25%      | 70     | 105                               | 157   | 235   | 352   | 281    |  |
| Other Services                          | 225   | 421                 | 786   | 1,470 | 2,747  | 40%      | 90     | 168                               | 315   | 588   | 1,099 | 1,009  |  |
| Government                              | 54    | 76                  | 108   | 152   | 214    | 85%      | 46     | 65                                | 91    | 129   | 182   | 136    |  |
| Total                                   | 2,425 | 3,688               | 5,777 | 9,331 | 15,546 | 31%      | 761    | 1,147                             | 1,804 | 2,962 | 5,062 | 4,301  |  |
| Low Growth Scenario                     |       | Total Employment 1/ |       |       |        |          | Office | Office Space-Utilizing Employment |       |       |       |        |  |
| Employment Sector                       | 2010  | 2015                | 2020  | 2025  | 2030   | Share 2/ | 2010   | 2015                              | 2020  | 2025  | 2030  | '10-30 |  |
| Construction                            | 119   | 142                 | 169   | 201   | 240    | 2%       | 2      | 3                                 | 3     | 4     | 5     | 2      |  |
| Manufacturing                           | 215   | 327                 | 498   | 760   | 1,158  | 5%       | 11     | 16                                | 25    | 38    | 58    | 47     |  |
| Wholesale Trade                         | 24    | 32                  | 44    | 60    | 82     | 5%       | 1      | 2                                 | 2     | 3     | 4     | 3      |  |
| Retail Trade                            | 519   | 650                 | 812   | 1,016 | 1,271  | 5%       | 26     | 32                                | 41    | 51    | 64    | 38     |  |
| Transportation, Warehousing & Utilities | 81    | 115                 | 161   | 227   | 319    | 30%      | 24     | 34                                | 48    | 68    | 96    | 71     |  |
| Information                             | 78    | 80                  | 81    | 83    | 85     | 90%      | 70     | 72                                | 73    | 75    | 76    | 6      |  |
| Financial Activities                    | 76    | 94                  | 117   | 145   | 180    | 90%      | 68     | 85                                | 105   | 131   | 162   | 94     |  |
| Professional & Business Services        | 101   | 159                 | 252   | 399   | 632    | 90%      | 91     | 143                               | 227   | 359   | 569   | 478    |  |
| Education & Health Services             | 652   | 768                 | 905   | 1,066 | 1,257  | 40%      | 261    | 307                               | 362   | 427   | 503   | 242    |  |
| Leisure & Hospitality                   | 281   | 359                 | 459   | 587   | 750    | 25%      | 70     | 90                                | 115   | 147   | 188   | 117    |  |
| Other Services                          | 225   | 331                 | 486   | 713   | 1,048  | 40%      | 90     | 132                               | 194   | 285   | 419   | 329    |  |
| Government                              | 54    | 67                  | 82    | 101   | 125    | 85%      | 46     | 57                                | 70    | 86    | 106   | 60     |  |
| Total                                   | 2,425 | 3,123               | 4,068 | 5,360 | 7,147  | 31%      | 761    | 973                               | 1,266 | 1,673 | 2,249 | 1,488  |  |

1/ JOHNSON REID

2/ Share of industry employment that utilizes office space. From the Urban Land Institute converted to NAICS by JOHNSON REID.

\* Estimate

**EXHIBIT 1.02**  
**DEMAND PROJECTIONS FOR COMMERCIAL OFFICE SPACE BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| <b>Medium Growth Scenario</b>           |             | <b>Local Area Jobs in Office Space 1/</b> |              |              |              |               | <b>Avg. Space</b> | <b>Projected Office Space Need 3/</b> |                |                |                  |                  |                  |
|-----------------------------------------|-------------|-------------------------------------------|--------------|--------------|--------------|---------------|-------------------|---------------------------------------|----------------|----------------|------------------|------------------|------------------|
| <b>Employment Sector</b>                | <b>2010</b> | <b>2015</b>                               | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> | <b>Per Job 2/</b> | <b>2010</b>                           | <b>2015</b>    | <b>2020</b>    | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    |
| Construction                            | 2           | 3                                         | 4            | 5            | 6            | 4             | 366               | 959                                   | 1,209          | 1,525          | 1,922            | 2,424            | 1,465            |
| Manufacturing                           | 11          | 19                                        | 33           | 57           | 98           | 88            | 366               | 4,320                                 | 7,520          | 13,089         | 22,782           | 39,653           | 35,333           |
| Wholesale Trade                         | 1           | 2                                         | 3            | 4            | 6            | 5             | 366               | 477                                   | 718            | 1,081          | 1,626            | 2,447            | 1,969            |
| Retail Trade                            | 26          | 35                                        | 47           | 63           | 85           | 59            | 366               | 10,453                                | 14,057         | 18,903         | 25,420           | 34,184           | 23,732           |
| Transportation, Warehousing & Utilities | 24          | 38                                        | 60           | 94           | 148          | 124           | 366               | 9,837                                 | 15,434         | 24,216         | 37,996           | 59,616           | 49,779           |
| Information                             | 70          | 72                                        | 74           | 76           | 78           | 8             | 366               | 28,297                                | 29,052         | 29,827         | 30,622           | 31,439           | 3,142            |
| Financial Activities                    | 68          | 91                                        | 121          | 161          | 215          | 147           | 366               | 27,466                                | 36,595         | 48,759         | 64,966           | 86,559           | 59,093           |
| Professional & Business Services        | 91          | 166                                       | 303          | 554          | 1,013        | 922           | 366               | 36,468                                | 66,690         | 121,957        | 223,025          | 407,850          | 371,382          |
| Education & Health Services             | 261         | 324                                       | 403          | 501          | 623          | 362           | 366               | 104,976                               | 130,494        | 162,216        | 201,649          | 250,668          | 145,692          |
| Leisure & Hospitality                   | 70          | 97                                        | 135          | 186          | 258          | 187           | 366               | 28,300                                | 39,152         | 54,165         | 74,936           | 103,672          | 75,372           |
| Other Services                          | 90          | 149                                       | 248          | 411          | 683          | 593           | 366               | 36,252                                | 60,153         | 99,813         | 165,620          | 274,815          | 238,563          |
| Government                              | 46          | 61                                        | 80           | 106          | 139          | 94            | 366               | 18,461                                | 24,376         | 32,185         | 42,496           | 56,110           | 37,648           |
| <b>Total</b>                            | <b>761</b>  | <b>1,057</b>                              | <b>1,510</b> | <b>2,218</b> | <b>3,352</b> | <b>2,591</b>  | <b>366</b>        | <b>306,267</b>                        | <b>425,450</b> | <b>607,735</b> | <b>893,060</b>   | <b>1,349,436</b> | <b>1,043,169</b> |
| <b>High Growth Scenario</b>             |             | <b>Local Area Jobs in Office Space 1/</b> |              |              |              |               | <b>Avg. Space</b> | <b>Projected Office Space Need 3/</b> |                |                |                  |                  |                  |
| <b>Employment Sector</b>                | <b>2010</b> | <b>2015</b>                               | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> | <b>Per Job 2/</b> | <b>2010</b>                           | <b>2015</b>    | <b>2020</b>    | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    |
| Construction                            | 2           | 3                                         | 4            | 6            | 8            | 5             | 366               | 959                                   | 1,279          | 1,706          | 2,276            | 3,036            | 2,077            |
| Manufacturing                           | 11          | 21                                        | 42           | 83           | 165          | 155           | 366               | 4,320                                 | 8,559          | 16,957         | 33,594           | 66,553           | 62,232           |
| Wholesale Trade                         | 1           | 2                                         | 3            | 5            | 9            | 8             | 366               | 477                                   | 791            | 1,312          | 2,176            | 3,608            | 3,131            |
| Retail Trade                            | 26          | 37                                        | 54           | 78           | 113          | 87            | 366               | 10,453                                | 15,097         | 21,804         | 31,492           | 45,483           | 35,030           |
| Transportation, Warehousing & Utilities | 24          | 43                                        | 74           | 130          | 227          | 202           | 366               | 9,837                                 | 17,169         | 29,968         | 52,306           | 91,295           | 81,458           |
| Information                             | 70          | 73                                        | 75           | 78           | 80           | 10            | 366               | 28,297                                | 29,243         | 30,220         | 31,231           | 32,275           | 3,978            |
| Financial Activities                    | 68          | 97                                        | 139          | 199          | 284          | 215           | 366               | 27,466                                | 39,219         | 56,001         | 79,964           | 114,182          | 86,715           |
| Professional & Business Services        | 91          | 191                                       | 401          | 844          | 1,775        | 1,684         | 366               | 36,468                                | 76,725         | 161,419        | 339,606          | 714,490          | 678,022          |
| Education & Health Services             | 261         | 342                                       | 448          | 587          | 770          | 509           | 366               | 104,976                               | 137,590        | 180,338        | 236,366          | 309,803          | 204,827          |
| Leisure & Hospitality                   | 70          | 105                                       | 157          | 235          | 352          | 281           | 366               | 28,300                                | 42,326         | 63,305         | 94,681           | 141,609          | 113,309          |
| Other Services                          | 90          | 168                                       | 315          | 588          | 1,099        | 1,009         | 366               | 36,252                                | 67,753         | 126,627        | 236,658          | 442,301          | 406,049          |
| Government                              | 46          | 65                                        | 91           | 129          | 182          | 136           | 366               | 18,461                                | 26,068         | 36,809         | 51,976           | 73,393           | 54,932           |
| <b>Total</b>                            | <b>761</b>  | <b>1,147</b>                              | <b>1,804</b> | <b>2,962</b> | <b>5,062</b> | <b>4,301</b>  | <b>366</b>        | <b>306,267</b>                        | <b>461,821</b> | <b>726,467</b> | <b>1,192,327</b> | <b>2,038,028</b> | <b>1,731,761</b> |
| <b>Low Growth Scenario</b>              |             | <b>Local Area Jobs in Office Space 1/</b> |              |              |              |               | <b>Avg. Space</b> | <b>Projected Office Space Need 3/</b> |                |                |                  |                  |                  |
| <b>Employment Sector</b>                | <b>2010</b> | <b>2015</b>                               | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> | <b>Per Job 2/</b> | <b>2010</b>                           | <b>2015</b>    | <b>2020</b>    | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    |
| Construction                            | 2           | 3                                         | 3            | 4            | 5            | 2             | 366               | 959                                   | 1,142          | 1,360          | 1,620            | 1,930            | 971              |
| Manufacturing                           | 11          | 16                                        | 25           | 38           | 58           | 47            | 366               | 4,320                                 | 6,584          | 10,034         | 15,291           | 23,303           | 18,982           |
| Wholesale Trade                         | 1           | 2                                         | 2            | 3            | 4            | 3             | 366               | 477                                   | 650            | 886            | 1,208            | 1,646            | 1,169            |
| Retail Trade                            | 26          | 32                                        | 41           | 51           | 64           | 38            | 366               | 10,453                                | 13,075         | 16,354         | 20,456           | 25,586           | 15,134           |
| Transportation, Warehousing & Utilities | 24          | 34                                        | 48           | 68           | 96           | 71            | 366               | 9,837                                 | 13,842         | 19,478         | 27,409           | 38,570           | 28,733           |
| Information                             | 70          | 72                                        | 73           | 75           | 76           | 6             | 366               | 28,297                                | 28,862         | 29,437         | 30,025           | 30,624           | 2,327            |
| Financial Activities                    | 68          | 85                                        | 105          | 131          | 162          | 94            | 366               | 27,466                                | 34,114         | 42,371         | 52,627           | 65,364           | 37,898           |
| Professional & Business Services        | 91          | 143                                       | 227          | 359          | 569          | 478           | 366               | 36,468                                | 57,734         | 91,400         | 144,699          | 229,077          | 192,609          |
| Education & Health Services             | 261         | 307                                       | 362          | 427          | 503          | 242           | 366               | 104,976                               | 123,694        | 145,750        | 171,738          | 202,361          | 97,385           |
| Leisure & Hospitality                   | 70          | 90                                        | 115          | 147          | 188          | 117           | 366               | 28,300                                | 36,171         | 46,231         | 59,089           | 75,524           | 47,224           |
| Other Services                          | 90          | 132                                       | 194          | 285          | 419          | 329           | 366               | 36,252                                | 53,251         | 78,222         | 114,902          | 168,781          | 132,529          |
| Government                              | 46          | 57                                        | 70           | 86           | 106          | 60            | 366               | 18,461                                | 22,772         | 28,090         | 34,649           | 42,740           | 24,279           |
| <b>Total</b>                            | <b>761</b>  | <b>973</b>                                | <b>1,266</b> | <b>1,673</b> | <b>2,249</b> | <b>1,488</b>  | <b>366</b>        | <b>306,267</b>                        | <b>391,892</b> | <b>509,615</b> | <b>673,713</b>   | <b>905,507</b>   | <b>599,240</b>   |

1/ From Exhibit 1.01

2/ Average office employment density by industry sector based on Urban Land Institute guidelines.

3/ Assumes a market-clearing 10% office space vacancy rate.

\*Estimate

**EXHIBIT 1.03**  
**DEMAND PROJECTIONS FOR COMMERCIAL OFFICE LAND BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario                  |                | Projected Office Space Need 1/ |                |                |                  |                  | Floor to    | Predicted Land Need (Acres) |             |             |             |              |             |
|-----------------------------------------|----------------|--------------------------------|----------------|----------------|------------------|------------------|-------------|-----------------------------|-------------|-------------|-------------|--------------|-------------|
| Employment Sector                       | 2010           | 2015                           | 2020           | 2025           | 2030             | '10-30           | Area Ratio  | 2010                        | 2015        | 2020        | 2025        | 2030         | '10-30      |
| Construction                            | 959            | 1,209                          | 1,525          | 1,922          | 2,424            | 1,465            | 0.35        | 0.1                         | 0.1         | 0.1         | 0.1         | 0.2          | 0.1         |
| Manufacturing                           | 4,320          | 7,520                          | 13,089         | 22,782         | 39,653           | 35,333           | 0.35        | 0.3                         | 0.5         | 0.9         | 1.5         | 2.6          | 2.3         |
| Wholesale Trade                         | 477            | 718                            | 1,081          | 1,626          | 2,447            | 1,969            | 0.35        | 0.0                         | 0.0         | 0.1         | 0.1         | 0.2          | 0.1         |
| Retail Trade                            | 10,453         | 14,057                         | 18,903         | 25,420         | 34,184           | 23,732           | 0.35        | 0.7                         | 0.9         | 1.2         | 1.7         | 2.2          | 1.6         |
| Transportation, Warehousing & Utilities | 9,837          | 15,434                         | 24,216         | 37,996         | 59,616           | 49,779           | 0.35        | 0.6                         | 1.0         | 1.6         | 2.5         | 3.9          | 3.3         |
| Information                             | 28,297         | 29,052                         | 29,827         | 30,622         | 31,439           | 3,142            | 0.35        | 1.9                         | 1.9         | 2.0         | 2.0         | 2.1          | 0.2         |
| Financial Activities                    | 27,466         | 36,595                         | 48,759         | 64,966         | 86,559           | 59,093           | 0.35        | 1.8                         | 2.4         | 3.2         | 4.3         | 5.7          | 3.9         |
| Professional & Business Services        | 36,468         | 66,690                         | 121,957        | 223,025        | 407,850          | 371,382          | 0.35        | 2.4                         | 4.4         | 8.0         | 14.6        | 26.8         | 24.4        |
| Education & Health Services             | 104,976        | 130,494                        | 162,216        | 201,649        | 250,668          | 145,692          | 0.35        | 6.9                         | 8.6         | 10.6        | 13.2        | 16.4         | 9.6         |
| Leisure & Hospitality                   | 28,300         | 39,152                         | 54,165         | 74,936         | 103,672          | 75,372           | 0.35        | 1.9                         | 2.6         | 3.6         | 4.9         | 6.8          | 4.9         |
| Other Services                          | 36,252         | 60,153                         | 99,813         | 165,620        | 274,815          | 238,563          | 0.35        | 2.4                         | 3.9         | 6.5         | 10.9        | 18.0         | 15.6        |
| Government                              | 18,461         | 24,376                         | 32,185         | 42,496         | 56,110           | 37,648           | 0.35        | 1.2                         | 1.6         | 2.1         | 2.8         | 3.7          | 2.5         |
| Allocated to Industrial Space 2/        | 61,253         | 85,090                         | 121,547        | 178,612        | 269,887          | 208,634          | 0.35        | 4.0                         | 5.6         | 8.0         | 11.7        | 17.7         | 13.7        |
| <b>Total Net</b>                        | <b>245,013</b> | <b>340,360</b>                 | <b>486,188</b> | <b>714,448</b> | <b>1,079,549</b> | <b>834,535</b>   | <b>0.35</b> | <b>16.1</b>                 | <b>22.3</b> | <b>31.9</b> | <b>46.9</b> | <b>70.8</b>  | <b>54.7</b> |
| High Growth Scenario                    |                | Projected Office Space Need 1/ |                |                |                  |                  | Floor to    | Predicted Land Need (Acres) |             |             |             |              |             |
| Employment Sector                       | 2010           | 2015                           | 2020           | 2025           | 2030             | '10-30           | Area Ratio  | 2010                        | 2015        | 2020        | 2025        | 2030         | '10-30      |
| Construction                            | 959            | 1,279                          | 1,706          | 2,276          | 3,036            | 2,077            | 0.35        | 0.1                         | 0.1         | 0.1         | 0.1         | 0.2          | 0.1         |
| Manufacturing                           | 4,320          | 8,559                          | 16,957         | 33,594         | 66,553           | 62,232           | 0.35        | 0.3                         | 0.6         | 1.1         | 2.2         | 4.4          | 4.1         |
| Wholesale Trade                         | 477            | 791                            | 1,312          | 2,176          | 3,608            | 3,131            | 0.35        | 0.0                         | 0.1         | 0.1         | 0.1         | 0.2          | 0.2         |
| Retail Trade                            | 10,453         | 15,097                         | 21,804         | 31,492         | 45,483           | 35,030           | 0.35        | 0.7                         | 1.0         | 1.4         | 2.1         | 3.0          | 2.3         |
| Transportation, Warehousing & Utilities | 9,837          | 17,169                         | 29,968         | 52,306         | 91,295           | 81,458           | 0.35        | 0.6                         | 1.1         | 2.0         | 3.4         | 6.0          | 5.3         |
| Information                             | 28,297         | 29,243                         | 30,220         | 31,231         | 32,275           | 3,978            | 0.35        | 1.9                         | 1.9         | 2.0         | 2.0         | 2.1          | 0.3         |
| Financial Activities                    | 27,466         | 39,219                         | 56,001         | 79,964         | 114,182          | 86,715           | 0.35        | 1.8                         | 2.6         | 3.7         | 5.2         | 7.5          | 5.7         |
| Professional & Business Services        | 36,468         | 76,725                         | 161,419        | 339,606        | 714,490          | 678,022          | 0.35        | 2.4                         | 5.0         | 10.6        | 22.3        | 46.9         | 44.5        |
| Education & Health Services             | 104,976        | 137,590                        | 180,338        | 236,366        | 309,803          | 204,827          | 0.35        | 6.9                         | 9.0         | 11.8        | 15.5        | 20.3         | 13.4        |
| Leisure & Hospitality                   | 28,300         | 42,326                         | 63,305         | 94,681         | 141,609          | 113,309          | 0.35        | 1.9                         | 2.8         | 4.2         | 6.2         | 9.3          | 7.4         |
| Other Services                          | 36,252         | 67,753                         | 126,627        | 236,658        | 442,301          | 406,049          | 0.35        | 2.4                         | 4.4         | 8.3         | 15.5        | 29.0         | 26.6        |
| Government                              | 18,461         | 26,068                         | 36,809         | 51,976         | 73,393           | 54,932           | 0.35        | 1.2                         | 1.7         | 2.4         | 3.4         | 4.8          | 3.6         |
| Allocated to Industrial Space 2/        | 61,253         | 92,364                         | 145,293        | 238,465        | 407,606          | 346,352          | 0.35        | 4.0                         | 6.1         | 9.5         | 15.6        | 26.7         | 22.7        |
| <b>Total Net</b>                        | <b>245,013</b> | <b>369,457</b>                 | <b>581,174</b> | <b>953,862</b> | <b>1,630,422</b> | <b>1,385,409</b> | <b>0.35</b> | <b>16.1</b>                 | <b>24.2</b> | <b>38.1</b> | <b>62.6</b> | <b>106.9</b> | <b>90.9</b> |
| Low Growth Scenario                     |                | Projected Office Space Need 1/ |                |                |                  |                  | Floor to    | Predicted Land Need (Acres) |             |             |             |              |             |
| Employment Sector                       | 2010           | 2015                           | 2020           | 2025           | 2030             | '10-30           | Area Ratio  | 2010                        | 2015        | 2020        | 2025        | 2030         | '10-30      |
| Construction                            | 959            | 1,142                          | 1,360          | 1,620          | 1,930            | 971              | 0.35        | 0.1                         | 0.1         | 0.1         | 0.1         | 0.1          | 0.1         |
| Manufacturing                           | 4,320          | 6,584                          | 10,034         | 15,291         | 23,303           | 18,982           | 0.35        | 0.3                         | 0.4         | 0.7         | 1.0         | 1.5          | 1.2         |
| Wholesale Trade                         | 477            | 650                            | 886            | 1,208          | 1,646            | 1,169            | 0.35        | 0.0                         | 0.0         | 0.1         | 0.1         | 0.1          | 0.1         |
| Retail Trade                            | 10,453         | 13,075                         | 16,354         | 20,456         | 25,586           | 15,134           | 0.35        | 0.7                         | 0.9         | 1.1         | 1.3         | 1.7          | 1.0         |
| Transportation, Warehousing & Utilities | 9,837          | 13,842                         | 19,478         | 27,409         | 38,570           | 28,733           | 0.35        | 0.6                         | 0.9         | 1.3         | 1.8         | 2.5          | 1.9         |
| Information                             | 28,297         | 28,862                         | 29,437         | 30,025         | 30,624           | 2,327            | 0.35        | 1.9                         | 1.9         | 1.9         | 2.0         | 2.0          | 0.2         |
| Financial Activities                    | 27,466         | 34,114                         | 42,371         | 52,627         | 65,364           | 37,898           | 0.35        | 1.8                         | 2.2         | 2.8         | 3.5         | 4.3          | 2.5         |
| Professional & Business Services        | 36,468         | 57,734                         | 91,400         | 144,699        | 229,077          | 192,609          | 0.35        | 2.4                         | 3.8         | 6.0         | 9.5         | 15.0         | 12.6        |
| Education & Health Services             | 104,976        | 123,694                        | 145,750        | 171,738        | 202,361          | 97,385           | 0.35        | 6.9                         | 8.1         | 9.6         | 11.3        | 13.3         | 6.4         |
| Leisure & Hospitality                   | 28,300         | 36,171                         | 46,231         | 59,089         | 75,524           | 47,224           | 0.35        | 1.9                         | 2.4         | 3.0         | 3.9         | 5.0          | 3.1         |
| Other Services                          | 36,252         | 53,251                         | 78,222         | 114,902        | 168,781          | 132,529          | 0.35        | 2.4                         | 3.5         | 5.1         | 7.5         | 11.1         | 8.7         |
| Government                              | 18,461         | 22,772                         | 28,090         | 34,649         | 42,740           | 24,279           | 0.35        | 1.2                         | 1.5         | 1.8         | 2.3         | 2.8          | 1.6         |
| Allocated to Industrial Space 2/        | 61,253         | 78,378                         | 101,923        | 134,743        | 181,101          | 119,848          | 0.35        | 4.0                         | 5.1         | 6.7         | 8.8         | 11.9         | 7.9         |
| <b>Total Net</b>                        | <b>245,013</b> | <b>313,513</b>                 | <b>407,692</b> | <b>538,971</b> | <b>724,405</b>   | <b>479,392</b>   | <b>0.35</b> | <b>16.1</b>                 | <b>20.6</b> | <b>26.7</b> | <b>35.4</b> | <b>47.5</b>  | <b>31.4</b> |

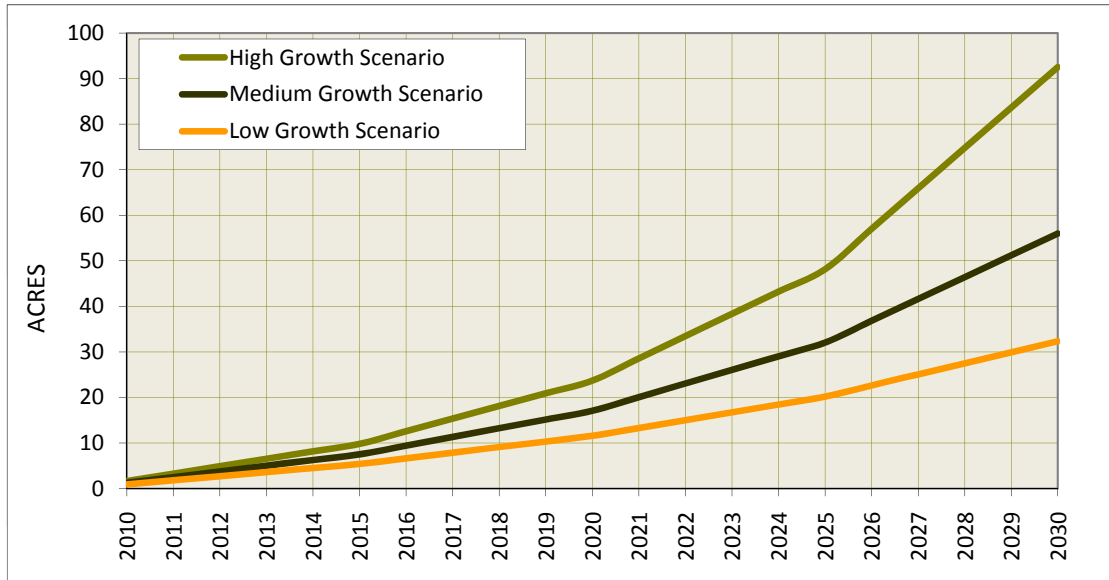
1/ From Exhibit 1.02

2/ A portion of office demand is allocated to industrial space in Exhibit 1.09. We are assuming this is largely office space and have shifted the indicated industrial need to office.

\*Estimate

## EXHIBIT 1.04

### COMPARISON OF CUMULATIVE DEMAND FOR OFFICE LAND MEDIUM, HIGH AND LOW EMPLOYMENT GROWTH SCENARIOS 2010-2030



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.05**  
**PROJECTIONS OF INDUSTRIAL SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| <b>Medium Growth Scenario</b>           |              | <b>Total Employment 1/</b> |              |              |               |                 | <b>Industrial</b> | <b>Industrial Space-Utilizing Employment</b> |             |              |              |              |               |
|-----------------------------------------|--------------|----------------------------|--------------|--------------|---------------|-----------------|-------------------|----------------------------------------------|-------------|--------------|--------------|--------------|---------------|
| <b>Employment Sector</b>                | <b>2010</b>  | <b>2015</b>                | <b>2020</b>  | <b>2025</b>  | <b>2030</b>   | <b>Share 2/</b> |                   | <b>2010</b>                                  | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 119          | 150                        | 189          | 239          | 301           | 30%             |                   | 36                                           | 45          | 57           | 72           | 90           | 55            |
| Manufacturing                           | 215          | 374                        | 650          | 1,132        | 1,970         | 95%             |                   | 204                                          | 355         | 618          | 1,075        | 1,871        | 1,667         |
| Wholesale Trade                         | 24           | 36                         | 54           | 81           | 122           | 95%             |                   | 23                                           | 34          | 51           | 77           | 115          | 93            |
| Retail Trade                            | 519          | 698                        | 939          | 1,263        | 1,698         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Transportation, Warehousing & Utilities | 81           | 128                        | 201          | 315          | 494           | 70%             |                   | 57                                           | 89          | 140          | 220          | 346          | 289           |
| Information                             | 78           | 80                         | 82           | 85           | 87            | 10%             |                   | 8                                            | 8           | 8            | 8            | 9            | 1             |
| Financial Activities                    | 76           | 101                        | 135          | 179          | 239           | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Professional & Business Services        | 101          | 184                        | 337          | 616          | 1,126         | 10%             |                   | 10                                           | 18          | 34           | 62           | 113          | 102           |
| Education & Health Services             | 652          | 810                        | 1,007        | 1,252        | 1,557         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Leisure & Hospitality                   | 281          | 389                        | 538          | 745          | 1,030         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Other Services                          | 225          | 374                        | 620          | 1,028        | 1,707         | 60%             |                   | 135                                          | 224         | 372          | 617          | 1,024        | 889           |
| Government                              | 54           | 71                         | 94           | 124          | 164           | 15%             |                   | 8                                            | 11          | 14           | 19           | 25           | 17            |
| <b>Total</b>                            | <b>2,425</b> | <b>3,395</b>               | <b>4,846</b> | <b>7,057</b> | <b>10,492</b> | <b>27%</b>      |                   | <b>480</b>                                   | <b>785</b>  | <b>1,294</b> | <b>2,149</b> | <b>3,592</b> | <b>3,112</b>  |
| <b>High Growth Scenario</b>             |              | <b>Total Employment 1/</b> |              |              |               |                 | <b>Industrial</b> | <b>Industrial Space-Utilizing Employment</b> |             |              |              |              |               |
| <b>Employment Sector</b>                | <b>2010</b>  | <b>2015</b>                | <b>2020</b>  | <b>2025</b>  | <b>2030</b>   | <b>Share 2/</b> |                   | <b>2010</b>                                  | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 119          | 159                        | 212          | 283          | 377           | 30%             |                   | 36                                           | 48          | 64           | 85           | 113          | 77            |
| Manufacturing                           | 215          | 425                        | 842          | 1,669        | 3,306         | 95%             |                   | 204                                          | 404         | 800          | 1,585        | 3,141        | 2,937         |
| Wholesale Trade                         | 24           | 39                         | 65           | 108          | 179           | 95%             |                   | 23                                           | 37          | 62           | 103          | 170          | 148           |
| Retail Trade                            | 519          | 750                        | 1,083        | 1,564        | 2,259         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Transportation, Warehousing & Utilities | 81           | 142                        | 248          | 433          | 756           | 70%             |                   | 57                                           | 100         | 174          | 303          | 529          | 472           |
| Information                             | 78           | 81                         | 83           | 86           | 89            | 10%             |                   | 8                                            | 8           | 8            | 9            | 9            | 1             |
| Financial Activities                    | 76           | 108                        | 155          | 221          | 315           | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Professional & Business Services        | 101          | 212                        | 445          | 937          | 1,972         | 10%             |                   | 10                                           | 21          | 45           | 94           | 197          | 187           |
| Education & Health Services             | 652          | 854                        | 1,120        | 1,468        | 1,924         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Leisure & Hospitality                   | 281          | 421                        | 629          | 941          | 1,407         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Other Services                          | 225          | 421                        | 786          | 1,470        | 2,747         | 60%             |                   | 135                                          | 252         | 472          | 882          | 1,648        | 1,513         |
| Government                              | 54           | 76                         | 108          | 152          | 214           | 15%             |                   | 8                                            | 11          | 16           | 23           | 32           | 24            |
| <b>Total</b>                            | <b>2,425</b> | <b>3,688</b>               | <b>5,777</b> | <b>9,331</b> | <b>15,546</b> | <b>28%</b>      |                   | <b>480</b>                                   | <b>882</b>  | <b>1,640</b> | <b>3,083</b> | <b>5,840</b> | <b>5,359</b>  |
| <b>Low Growth Scenario</b>              |              | <b>Total Employment 1/</b> |              |              |               |                 | <b>Industrial</b> | <b>Industrial Space-Utilizing Employment</b> |             |              |              |              |               |
| <b>Employment Sector</b>                | <b>2010</b>  | <b>2015</b>                | <b>2020</b>  | <b>2025</b>  | <b>2030</b>   | <b>Share 2/</b> |                   | <b>2010</b>                                  | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 119          | 142                        | 169          | 201          | 240           | 30%             |                   | 36                                           | 43          | 51           | 60           | 72           | 36            |
| Manufacturing                           | 215          | 327                        | 498          | 760          | 1,158         | 95%             |                   | 204                                          | 311         | 474          | 722          | 1,100        | 896           |
| Wholesale Trade                         | 24           | 32                         | 44           | 60           | 82            | 95%             |                   | 23                                           | 31          | 42           | 57           | 78           | 55            |
| Retail Trade                            | 519          | 650                        | 812          | 1,016        | 1,271         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Transportation, Warehousing & Utilities | 81           | 115                        | 161          | 227          | 319           | 70%             |                   | 57                                           | 80          | 113          | 159          | 224          | 167           |
| Information                             | 78           | 80                         | 81           | 83           | 85            | 10%             |                   | 8                                            | 8           | 8            | 8            | 8            | 1             |
| Financial Activities                    | 76           | 94                         | 117          | 145          | 180           | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Professional & Business Services        | 101          | 159                        | 252          | 399          | 632           | 10%             |                   | 10                                           | 16          | 25           | 40           | 63           | 53            |
| Education & Health Services             | 652          | 768                        | 905          | 1,066        | 1,257         | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Leisure & Hospitality                   | 281          | 359                        | 459          | 587          | 750           | 0%              |                   | 0                                            | 0           | 0            | 0            | 0            | 0             |
| Other Services                          | 225          | 331                        | 486          | 713          | 1,048         | 60%             |                   | 135                                          | 198         | 291          | 428          | 629          | 494           |
| Government                              | 54           | 67                         | 82           | 101          | 125           | 15%             |                   | 8                                            | 10          | 12           | 15           | 19           | 11            |
| <b>Total</b>                            | <b>2,425</b> | <b>3,123</b>               | <b>4,068</b> | <b>5,360</b> | <b>7,147</b>  | <b>25%</b>      |                   | <b>480</b>                                   | <b>696</b>  | <b>1,016</b> | <b>1,489</b> | <b>2,192</b> | <b>1,712</b>  |

1/ From Exhibit 1.01

2/ Share of industry employment that utilizes industrial space. Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by JOHNSON REID.

\* Estimate

**EXHIBIT 1.06**  
**INDUSTRIAL EMPLOYMENT DENSITY WORKSHEET BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Industrial Space Density<br>Employment Sector | Distribution by Building Type 1/ |                       |               | Square Feet per Job 2/ |                       |               | Average Space per Job  |                       |               |                     |
|-----------------------------------------------|----------------------------------|-----------------------|---------------|------------------------|-----------------------|---------------|------------------------|-----------------------|---------------|---------------------|
|                                               | Warehouse/<br>Distrib.           | General<br>Industrial | Tech/<br>Flex | Warehouse/<br>Distrib. | General<br>Industrial | Tech/<br>Flex | Warehouse/<br>Distrib. | General<br>Industrial | Tech/<br>Flex | Weighted<br>Average |
| Construction                                  | 0%                               | 75%                   | 25%           | 1,350                  | 533                   | 467           | 0                      | 400                   | 117           | 517                 |
| Manufacturing                                 | 0%                               | 75%                   | 25%           | 1,350                  | 533                   | 467           | 0                      | 400                   | 117           | 517                 |
| Wholesale Trade                               | 90%                              | 0%                    | 10%           | 2,746                  | 533                   | 467           | 2,471                  | 0                     | 47            | 2,518               |
| Retail Trade                                  | 0%                               | 0%                    | 0%            | 1,350                  | 533                   | 467           | 0                      | 0                     | 0             | 0                   |
| Transportation, Warehousing & Utilities       | 100%                             | 0%                    | 0%            | 1,707                  | 533                   | 467           | 1,707                  | 0                     | 0             | 1,707               |
| Information                                   | 0%                               | 0%                    | 100%          | 1,350                  | 533                   | 467           | 0                      | 0                     | 467           | 467                 |
| Financial Activities                          | 0%                               | 0%                    | 0%            | 1,350                  | 533                   | 467           | 0                      | 0                     | 0             | 0                   |
| Professional & Business Services              | 0%                               | 0%                    | 100%          | 1,350                  | 533                   | 467           | 0                      | 0                     | 467           | 467                 |
| Education & Health Services                   | 0%                               | 0%                    | 0%            | 1,350                  | 533                   | 467           | 0                      | 0                     | 0             | 0                   |
| Leisure & Hospitality                         | 0%                               | 0%                    | 0%            | 1,350                  | 533                   | 467           | 0                      | 0                     | 0             | 0                   |
| Other Services                                | 0%                               | 75%                   | 25%           | 1,350                  | 533                   | 467           | 0                      | 400                   | 117           | 517                 |
| Government                                    | 50%                              | 0%                    | 50%           | 1,350                  | 533                   | 467           | 675                    | 0                     | 234           | 909                 |

1/ Regional Industrial Land Study Phase II (Otak, Inc. et al, 1999) converted to NAICS by JOHNSON REID.

2/ Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by JOHNSON REID.

**EXHIBIT 1.07**  
**DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL SPACE BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario                  |      | Local Area Jobs in Industrial Space 1/ |       |       |       |        | Avg. Space |         | Projected Industrial Space Need 3/ |           |           |           |           |
|-----------------------------------------|------|----------------------------------------|-------|-------|-------|--------|------------|---------|------------------------------------|-----------|-----------|-----------|-----------|
| Employment Sector                       | 2010 | 2015                                   | 2020  | 2025  | 2030  | '10-30 | Per Job 2/ | 2010    | 2015                               | 2020      | 2025      | 2030      | '10-30    |
| Construction                            | 36   | 45                                     | 57    | 72    | 90    | 55     | 517        | 20,300  | 25,596                             | 32,273    | 40,694    | 51,310    | 31,011    |
| Manufacturing                           | 204  | 355                                    | 618   | 1,075 | 1,871 | 1,667  | 517        | 115,845 | 201,633                            | 350,952   | 610,849   | 1,063,213 | 947,368   |
| Wholesale Trade                         | 23   | 34                                     | 51    | 77    | 115   | 93     | 2,518      | 62,398  | 93,888                             | 141,269   | 212,561   | 319,833   | 257,435   |
| Transportation, Warehousing & Utilities | 57   | 89                                     | 140   | 220   | 346   | 289    | 1,707      | 107,051 | 167,963                            | 263,536   | 413,489   | 648,768   | 541,717   |
| Information                             | 8    | 8                                      | 8     | 8     | 9     | 1      | 467        | 4,012   | 4,119                              | 4,229     | 4,341     | 4,457     | 445       |
| Professional & Business Services        | 10   | 18                                     | 34    | 62    | 113   | 102    | 467        | 5,170   | 9,455                              | 17,290    | 31,619    | 57,822    | 52,652    |
| Other Services                          | 135  | 224                                    | 372   | 617   | 1,024 | 889    | 517        | 76,738  | 127,333                            | 211,284   | 350,585   | 581,729   | 504,991   |
| Government                              | 8    | 11                                     | 14    | 19    | 25    | 17     | 909        | 8,087   | 10,678                             | 14,098    | 18,615    | 24,578    | 16,492    |
| Total                                   | 480  | 785                                    | 1,294 | 2,149 | 3,592 | 3,112  | 757        | 399,600 | 640,664                            | 1,034,932 | 1,682,755 | 2,751,711 | 2,352,110 |

| High Growth Scenario                    |      | Local Area Jobs in Industrial Space 1/ |       |       |       |        | Avg. Space |         | Projected Industrial Space Need 3/ |           |           |           |           |
|-----------------------------------------|------|----------------------------------------|-------|-------|-------|--------|------------|---------|------------------------------------|-----------|-----------|-----------|-----------|
| Employment Sector                       | 2010 | 2015                                   | 2020  | 2025  | 2030  | '10-30 | Per Job 2/ | 2010    | 2015                               | 2020      | 2025      | 2030      | '10-30    |
| Construction                            | 36   | 48                                     | 64    | 85    | 113   | 77     | 517        | 20,300  | 27,078                             | 36,121    | 48,183    | 64,274    | 43,974    |
| Manufacturing                           | 204  | 404                                    | 800   | 1,585 | 3,141 | 2,937  | 517        | 115,845 | 229,501                            | 454,667   | 900,745   | 1,784,474 | 1,668,629 |
| Wholesale Trade                         | 23   | 37                                     | 62    | 103   | 170   | 148    | 2,518      | 62,398  | 103,464                            | 171,559   | 284,468   | 471,688   | 409,291   |
| Transportation, Warehousing & Utilities | 57   | 100                                    | 174   | 303   | 529   | 472    | 1,707      | 107,051 | 186,847                            | 326,124   | 569,218   | 993,517   | 886,466   |
| Information                             | 8    | 8                                      | 8     | 9     | 9     | 1      | 467        | 4,012   | 4,146                              | 4,284     | 4,428     | 4,576     | 564       |
| Professional & Business Services        | 10   | 21                                     | 45    | 94    | 197   | 187    | 467        | 5,170   | 10,877                             | 22,885    | 48,147    | 101,295   | 96,125    |
| Other Services                          | 135  | 252                                    | 472   | 882   | 1,648 | 1,513  | 517        | 76,738  | 143,420                            | 268,044   | 500,959   | 936,265   | 859,527   |
| Government                              | 8    | 11                                     | 16    | 23    | 32    | 24     | 909        | 8,087   | 11,419                             | 16,124    | 22,768    | 32,149    | 24,062    |
| Total                                   | 480  | 882                                    | 1,640 | 3,083 | 5,840 | 5,359  | 757        | 399,600 | 716,753                            | 1,299,807 | 2,378,916 | 4,388,238 | 3,988,638 |

| Low Growth Scenario                     |      | Local Area Jobs in Industrial Space 1/ |       |       |       |        | Avg. Space |         | Projected Industrial Space Need 3/ |         |           |           |           |
|-----------------------------------------|------|----------------------------------------|-------|-------|-------|--------|------------|---------|------------------------------------|---------|-----------|-----------|-----------|
| Employment Sector                       | 2010 | 2015                                   | 2020  | 2025  | 2030  | '10-30 | Per Job 2/ | 2010    | 2015                               | 2020    | 2025      | 2030      | '10-30    |
| Construction                            | 36   | 43                                     | 51    | 60    | 72    | 36     | 517        | 20,300  | 24,179                             | 28,799  | 34,302    | 40,857    | 20,557    |
| Manufacturing                           | 204  | 311                                    | 474   | 722   | 1,100 | 896    | 517        | 115,845 | 176,541                            | 269,038 | 409,999   | 624,816   | 508,972   |
| Wholesale Trade                         | 23   | 31                                     | 42    | 57    | 78    | 55     | 2,518      | 62,398  | 85,033                             | 115,880 | 157,917   | 215,202   | 152,805   |
| Transportation, Warehousing & Utilities | 57   | 80                                     | 113   | 159   | 224   | 167    | 1,707      | 107,051 | 150,638                            | 211,974 | 298,282   | 419,733   | 312,683   |
| Information                             | 8    | 8                                      | 8     | 8     | 8     | 1      | 467        | 4,012   | 4,092                              | 4,173   | 4,257     | 4,342     | 330       |
| Professional & Business Services        | 10   | 16                                     | 25    | 40    | 63    | 53     | 467        | 5,170   | 8,185                              | 12,958  | 20,514    | 32,477    | 27,307    |
| Other Services                          | 135  | 198                                    | 291   | 428   | 629   | 494    | 517        | 76,738  | 112,723                            | 165,580 | 243,224   | 357,277   | 280,538   |
| Government                              | 8    | 10                                     | 12    | 15    | 19    | 11     | 909        | 8,087   | 9,975                              | 12,305  | 15,178    | 18,722    | 10,635    |
| Total                                   | 480  | 696                                    | 1,016 | 1,489 | 2,192 | 1,712  | 757        | 399,600 | 571,366                            | 820,707 | 1,183,674 | 1,713,426 | 1,313,826 |

1/ From EXHIBIT 1.05

2/ From EXHIBIT 1.06

3/ Assumes a market-clearing 10% industrial space vacancy rate.

\*Estimate

**EXHIBIT 1.08**

**INDUSTRIAL FLOOR-TO-AREA RATIO (FAR) WORKSHEET BY INDUSTRY SECTOR  
SCAPPOOSE, OREGON  
2010-2030**

| Medium Growth Scenario             | Distribution by Building Type 1/ |                       |               | FAR by industry sector 2/ |                       |               | Average Space per Job  |                       |               |                     |
|------------------------------------|----------------------------------|-----------------------|---------------|---------------------------|-----------------------|---------------|------------------------|-----------------------|---------------|---------------------|
| Employment Sector                  | Warehouse/<br>Distrib.           | General<br>Industrial | Tech/<br>Flex | Warehouse/<br>Distrib.    | General<br>Industrial | Tech/<br>Flex | Warehouse/<br>Distrib. | General<br>Industrial | Tech/<br>Flex | Weighted<br>Average |
| Construction                       | 0%                               | 75%                   | 25%           | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.23                  | 0.07          | <b>0.29</b>         |
| Manufacturing                      | 0%                               | 75%                   | 25%           | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.23                  | 0.07          | <b>0.29</b>         |
| Wholesale Trade                    | 90%                              | 0%                    | 10%           | 0.31                      | 0.30                  | 0.26          | 0.28                   | 0.00                  | 0.03          | <b>0.31</b>         |
| Retail Trade                       | 0%                               | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.00          | <b>0.00</b>         |
| Transportation, Warehousing & Util | 100%                             | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.31                   | 0.00                  | 0.00          | <b>0.31</b>         |
| Information                        | 0%                               | 0%                    | 100%          | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.26          | <b>0.26</b>         |
| Financial Activities               | 0%                               | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.00          | <b>0.00</b>         |
| Professional & Business Services   | 0%                               | 0%                    | 100%          | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.26          | <b>0.26</b>         |
| Education & Health Services        | 0%                               | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.00          | <b>0.00</b>         |
| Leisure & Hospitality              | 0%                               | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.00          | <b>0.00</b>         |
| Other Services                     | 0%                               | 75%                   | 25%           | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.23                  | 0.07          | <b>0.29</b>         |
| Government                         | 0%                               | 0%                    | 0%            | 0.31                      | 0.30                  | 0.26          | 0.00                   | 0.00                  | 0.00          | <b>0.00</b>         |

1/ Regional Industrial Land Study Phase II (Otak, Inc. et al, 1999) converted to NAICS by JOHNSON REID.

2/ Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by Johnson REID.

**EXHIBIT 1.09**  
**DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL LAND BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| <b>Medium Growth Scenario</b>           |                | <b>Projected Industrial Space Need 1/</b> |                  |                  |                  |                  | <b>Floor to Area</b> | <b>Predicted Land Need (Acres) 3/</b> |             |              |              |              |               |
|-----------------------------------------|----------------|-------------------------------------------|------------------|------------------|------------------|------------------|----------------------|---------------------------------------|-------------|--------------|--------------|--------------|---------------|
| <b>Employment Sector</b>                | <b>2010</b>    | <b>2015</b>                               | <b>2020</b>      | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    | <b>Ratio 2/</b>      | <b>2010</b>                           | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 20,300         | 25,596                                    | 32,273           | 40,694           | 51,310           | 31,011           | 0.29                 | 1.9                                   | 2.4         | 3.1          | 3.9          | 4.9          | 2.9           |
| Manufacturing                           | 115,845        | 201,633                                   | 350,952          | 610,849          | 1,063,213        | 947,368          | 0.29                 | 11.0                                  | 19.2        | 33.3         | 58.0         | 101.0        | 90.0          |
| Wholesale Trade                         | 62,398         | 93,888                                    | 141,269          | 212,561          | 319,833          | 257,435          | 0.31                 | 5.6                                   | 8.5         | 12.8         | 19.2         | 28.9         | 23.3          |
| Transportation, Warehousing & Utilities | 107,051        | 167,963                                   | 263,536          | 413,489          | 648,768          | 541,717          | 0.31                 | 9.5                                   | 14.9        | 23.4         | 36.7         | 57.7         | 48.1          |
| Information                             | 4,012          | 4,119                                     | 4,229            | 4,341            | 4,457            | 445              | 0.26                 | 0.4                                   | 0.4         | 0.4          | 0.5          | 0.5          | 0.0           |
| Professional & Business Services        | 5,170          | 9,455                                     | 17,290           | 31,619           | 57,822           | 52,652           | 0.26                 | 0.5                                   | 1.0         | 1.8          | 3.4          | 6.1          | 5.6           |
| Other Services                          | 76,738         | 127,333                                   | 211,284          | 350,585          | 581,729          | 504,991          | 0.29                 | 7.3                                   | 12.1        | 20.1         | 33.3         | 55.3         | 48.0          |
| <b>Total</b>                            | <b>399,600</b> | <b>640,664</b>                            | <b>1,034,932</b> | <b>1,682,755</b> | <b>2,751,711</b> | <b>2,352,110</b> |                      | <b>36.3</b>                           | <b>58.5</b> | <b>94.9</b>  | <b>154.9</b> | <b>254.3</b> | <b>217.9</b>  |
| <b>High Growth Scenario</b>             |                | <b>Projected Industrial Space Need 1/</b> |                  |                  |                  |                  | <b>Floor to Area</b> | <b>Predicted Land Need (Acres) 3/</b> |             |              |              |              |               |
| <b>Employment Sector</b>                | <b>2010</b>    | <b>2015</b>                               | <b>2020</b>      | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    | <b>Ratio 2/</b>      | <b>2010</b>                           | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 20,300         | 27,078                                    | 36,121           | 48,183           | 64,274           | 43,974           | 0.29                 | 1.9                                   | 2.6         | 3.4          | 4.6          | 6.1          | 4.2           |
| Manufacturing                           | 115,845        | 229,501                                   | 454,667          | 900,745          | 1,784,474        | 1,668,629        | 0.29                 | 11.0                                  | 21.8        | 43.2         | 85.6         | 169.5        | 158.5         |
| Wholesale Trade                         | 62,398         | 103,464                                   | 171,559          | 284,468          | 471,688          | 409,291          | 0.31                 | 5.6                                   | 9.3         | 15.5         | 25.7         | 42.6         | 37.0          |
| Transportation, Warehousing & Utilities | 107,051        | 186,847                                   | 326,124          | 569,218          | 993,517          | 886,466          | 0.31                 | 9.5                                   | 16.6        | 29.0         | 50.6         | 88.3         | 78.8          |
| Information                             | 4,012          | 4,146                                     | 4,284            | 4,428            | 4,576            | 564              | 0.26                 | 0.4                                   | 0.4         | 0.5          | 0.5          | 0.5          | 0.1           |
| Professional & Business Services        | 5,170          | 10,877                                    | 22,885           | 48,147           | 101,295          | 96,125           | 0.26                 | 0.5                                   | 1.2         | 2.4          | 5.1          | 10.7         | 10.2          |
| Other Services                          | 76,738         | 143,420                                   | 268,044          | 500,959          | 936,265          | 859,527          | 0.29                 | 7.3                                   | 13.6        | 25.5         | 47.6         | 88.9         | 81.6          |
| <b>Total</b>                            | <b>399,600</b> | <b>716,753</b>                            | <b>1,299,807</b> | <b>2,378,916</b> | <b>4,388,238</b> | <b>3,988,638</b> |                      | <b>36.3</b>                           | <b>65.5</b> | <b>119.4</b> | <b>219.6</b> | <b>406.7</b> | <b>370.3</b>  |
| <b>Low Growth Scenario</b>              |                | <b>Projected Industrial Space Need 1/</b> |                  |                  |                  |                  | <b>Floor to Area</b> | <b>Predicted Land Need (Acres) 3/</b> |             |              |              |              |               |
| <b>Employment Sector</b>                | <b>2010</b>    | <b>2015</b>                               | <b>2020</b>      | <b>2025</b>      | <b>2030</b>      | <b>'10-30</b>    | <b>Ratio 2/</b>      | <b>2010</b>                           | <b>2015</b> | <b>2020</b>  | <b>2025</b>  | <b>2030</b>  | <b>'10-30</b> |
| Construction                            | 20,300         | 24,179                                    | 28,799           | 34,302           | 40,857           | 20,557           | 0.29                 | 1.9                                   | 2.3         | 2.7          | 3.3          | 3.9          | 2.0           |
| Manufacturing                           | 115,845        | 176,541                                   | 269,038          | 409,999          | 624,816          | 508,972          | 0.29                 | 11.0                                  | 16.8        | 25.6         | 38.9         | 59.4         | 48.3          |
| Wholesale Trade                         | 62,398         | 85,033                                    | 115,880          | 157,917          | 215,202          | 152,805          | 0.31                 | 5.6                                   | 7.7         | 10.5         | 14.3         | 19.4         | 13.8          |
| Transportation, Warehousing & Utilities | 107,051        | 150,638                                   | 211,974          | 298,282          | 419,733          | 312,683          | 0.31                 | 9.5                                   | 13.4        | 18.8         | 26.5         | 37.3         | 27.8          |
| Information                             | 4,012          | 4,092                                     | 4,173            | 4,257            | 4,342            | 330              | 0.26                 | 0.4                                   | 0.4         | 0.4          | 0.5          | 0.5          | 0.0           |
| Professional & Business Services        | 5,170          | 8,185                                     | 12,958           | 20,514           | 32,477           | 27,307           | 0.26                 | 0.5                                   | 0.9         | 1.4          | 2.2          | 3.4          | 2.9           |
| Other Services                          | 76,738         | 112,723                                   | 165,580          | 243,224          | 357,277          | 280,538          | 0.29                 | 7.3                                   | 10.7        | 15.7         | 23.1         | 33.9         | 26.6          |
| <b>Total</b>                            | <b>399,600</b> | <b>571,366</b>                            | <b>820,707</b>   | <b>1,183,674</b> | <b>1,713,426</b> | <b>1,313,826</b> |                      | <b>36.3</b>                           | <b>52.1</b> | <b>75.1</b>  | <b>108.7</b> | <b>157.8</b> | <b>121.5</b>  |

1/ From Exhibit 1.07

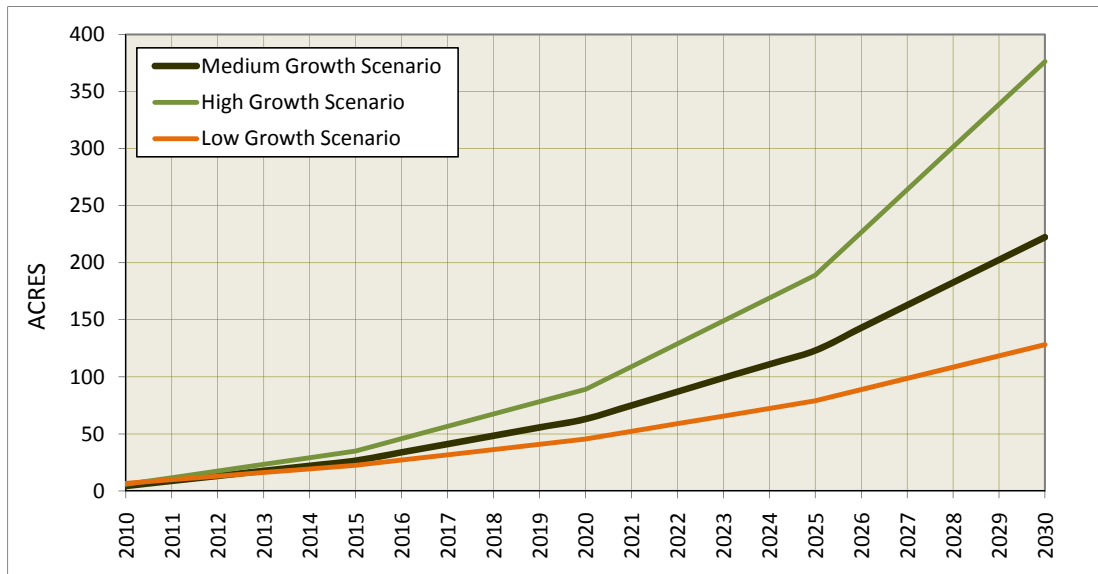
2/ From Exhibit 1.08

3/ Assumes a non-traditional industrial land use factor of 20% from Regional Industrial Land Study Phase II (Otak, Inc., et al, 1999).

\*Estimate

# EXHIBIT 1.10

## COMPARISON OF CUMULATIVE DEMAND FOR INDUSTRIAL LAND MEDIUM, HIGH AND LOW EMPLOYMENT GROWTH SCENARIOS 2010-2030



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.11**  
**PROJECTIONS OF HOUSEHOLD RETAIL SALES**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario          |                                              | Per Household   | Household Retail Spending in Millions (Households) |               |                |                |                |               | Current       | New Spending  |
|---------------------------------|----------------------------------------------|-----------------|----------------------------------------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|
| NAICS                           | Category                                     | Expenditures 1/ | 2010                                               | 2015          | 2020           | 2025           | 2030           | '10-30        | Sales Leakage | + Leakage     |
| 441                             | Motor Vehicles and Parts Dealers             | \$8,493         | \$21.3                                             | \$23.1        | \$25.1         | \$27.2         | \$29.5         | \$8.2         | \$15.6        | \$23.8        |
| 442                             | Furniture and Home Furnishings Stores        | \$1,017         | \$2.6                                              | \$2.8         | \$3.0          | \$3.3          | \$3.5          | \$1.0         | \$2.5         | \$3.5         |
| 443                             | Electronics and Appliance Stores             | \$986           | \$2.5                                              | \$2.7         | \$2.9          | \$3.2          | \$3.4          | \$1.0         | \$2.1         | \$3.0         |
| 444                             | Building Materials and Garden Equipment      | \$4,709         | \$11.8                                             | \$12.8        | \$13.9         | \$15.1         | \$16.4         | \$4.6         | \$8.8         | \$13.3        |
| 445                             | Food and Beverage Stores                     | \$5,058         | \$12.7                                             | \$13.8        | \$14.9         | \$16.2         | \$17.6         | \$4.9         | \$3.9         | \$8.8         |
| 446                             | Health and Personal Care Stores              | \$1,828         | \$4.6                                              | \$5.0         | \$5.4          | \$5.9          | \$6.4          | \$1.8         | \$0.1         | \$1.9         |
| 448                             | Clothing and Clothing Accessories Stores     | \$1,835         | \$4.6                                              | \$5.0         | \$5.4          | \$5.9          | \$6.4          | \$1.8         | \$3.5         | \$5.3         |
| 451                             | Sporting Goods, Hobby, Book and Music Stores | \$804           | \$2.0                                              | \$2.2         | \$2.4          | \$2.6          | \$2.8          | \$0.8         | \$1.9         | \$2.7         |
| 452                             | General Merchandise Stores                   | \$4,909         | \$12.3                                             | \$13.4        | \$14.5         | \$15.7         | \$17.1         | \$4.7         | -\$9.1        | -\$4.3        |
| 453                             | Miscellaneous Store Retailers                | \$1,089         | \$2.7                                              | \$3.0         | \$3.2          | \$3.5          | \$3.8          | \$1.1         | \$1.7         | \$2.7         |
| 722                             | Foodservices and Drinking Places             | \$3,874         | \$9.7                                              | \$10.6        | \$11.4         | \$12.4         | \$13.5         | \$3.7         | \$1.4         | \$5.2         |
| <b>Totals/Weighted Averages</b> |                                              | <b>\$34,603</b> | <b>\$86.9</b>                                      | <b>\$94.3</b> | <b>\$102.3</b> | <b>\$110.9</b> | <b>\$120.3</b> | <b>\$33.4</b> | <b>\$32.3</b> | <b>\$65.7</b> |

| High Growth Scenario            |                                              | Per Household   | Household Retail Spending in Millions (Households) |               |                |                |                |               | Current       | New Spending  |
|---------------------------------|----------------------------------------------|-----------------|----------------------------------------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|
| NAICS                           | Category                                     | Expenditures 1/ | 2010                                               | 2015          | 2020           | 2025           | 2030           | '10-30        | Sales Leakage | + Leakage     |
| 441                             | Motor Vehicles and Parts Dealers             | \$8,493         | \$21.3                                             | \$23.3        | \$25.5         | \$27.8         | \$30.4         | \$9.1         | \$15.6        | \$24.7        |
| 442                             | Furniture and Home Furnishings Stores        | \$1,017         | \$2.6                                              | \$2.8         | \$3.1          | \$3.3          | \$3.6          | \$1.1         | \$2.5         | \$3.6         |
| 443                             | Electronics and Appliance Stores             | \$986           | \$2.5                                              | \$2.7         | \$3.0          | \$3.2          | \$3.5          | \$1.1         | \$2.1         | \$3.1         |
| 444                             | Building Materials and Garden Equipment      | \$4,709         | \$11.8                                             | \$12.9        | \$14.1         | \$15.4         | \$16.9         | \$5.0         | \$8.8         | \$13.8        |
| 445                             | Food and Beverage Stores                     | \$5,058         | \$12.7                                             | \$13.9        | \$15.2         | \$16.6         | \$18.1         | \$5.4         | \$3.9         | \$9.3         |
| 446                             | Health and Personal Care Stores              | \$1,828         | \$4.6                                              | \$5.0         | \$5.5          | \$6.0          | \$6.5          | \$2.0         | \$0.1         | \$2.1         |
| 448                             | Clothing and Clothing Accessories Stores     | \$1,835         | \$4.6                                              | \$5.0         | \$5.5          | \$6.0          | \$6.6          | \$2.0         | \$3.5         | \$5.4         |
| 451                             | Sporting Goods, Hobby, Book and Music Stores | \$804           | \$2.0                                              | \$2.2         | \$2.4          | \$2.6          | \$2.9          | \$0.9         | \$1.9         | \$2.8         |
| 452                             | General Merchandise Stores                   | \$4,909         | \$12.3                                             | \$13.5        | \$14.7         | \$16.1         | \$17.6         | \$5.3         | -\$9.1        | -\$3.8        |
| 453                             | Miscellaneous Store Retailers                | \$1,089         | \$2.7                                              | \$3.0         | \$3.3          | \$3.6          | \$3.9          | \$1.2         | \$1.7         | \$2.9         |
| 722                             | Foodservices and Drinking Places             | \$3,874         | \$9.7                                              | \$10.6        | \$11.6         | \$12.7         | \$13.9         | \$4.1         | \$1.4         | \$5.6         |
| <b>Totals/Weighted Averages</b> |                                              | <b>\$34,603</b> | <b>\$86.9</b>                                      | <b>\$95.0</b> | <b>\$103.8</b> | <b>\$113.4</b> | <b>\$124.0</b> | <b>\$37.1</b> | <b>\$32.3</b> | <b>\$69.3</b> |

| Low Growth Scenario             |                                              | Per Household   | Household Retail Spending in Millions (Households) |               |                |                |                |               | Current       | New Spending  |
|---------------------------------|----------------------------------------------|-----------------|----------------------------------------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|
| NAICS                           | Category                                     | Expenditures 1/ | 2010                                               | 2015          | 2020           | 2025           | 2030           | '10-30        | Sales Leakage | + Leakage     |
| 441                             | Motor Vehicles and Parts Dealers             | \$8,493         | \$21.3                                             | \$23.0        | \$24.7         | \$26.6         | \$28.6         | \$7.3         | \$15.6        | \$22.9        |
| 442                             | Furniture and Home Furnishings Stores        | \$1,017         | \$2.6                                              | \$2.7         | \$3.0          | \$3.2          | \$3.4          | \$0.9         | \$2.5         | \$3.3         |
| 443                             | Electronics and Appliance Stores             | \$986           | \$2.5                                              | \$2.7         | \$2.9          | \$3.1          | \$3.3          | \$0.8         | \$2.1         | \$2.9         |
| 444                             | Building Materials and Garden Equipment      | \$4,709         | \$11.8                                             | \$12.7        | \$13.7         | \$14.7         | \$15.9         | \$4.0         | \$8.8         | \$12.8        |
| 445                             | Food and Beverage Stores                     | \$5,058         | \$12.7                                             | \$13.7        | \$14.7         | \$15.8         | \$17.0         | \$4.3         | \$3.9         | \$8.2         |
| 446                             | Health and Personal Care Stores              | \$1,828         | \$4.6                                              | \$4.9         | \$5.3          | \$5.7          | \$6.2          | \$1.6         | \$0.1         | \$1.7         |
| 448                             | Clothing and Clothing Accessories Stores     | \$1,835         | \$4.6                                              | \$5.0         | \$5.3          | \$5.7          | \$6.2          | \$1.6         | \$3.5         | \$5.1         |
| 451                             | Sporting Goods, Hobby, Book and Music Stores | \$804           | \$2.0                                              | \$2.2         | \$2.3          | \$2.5          | \$2.7          | \$0.7         | \$1.9         | \$2.6         |
| 452                             | General Merchandise Stores                   | \$4,909         | \$12.3                                             | \$13.3        | \$14.3         | \$15.4         | \$16.5         | \$4.2         | -\$9.1        | -\$4.9        |
| 453                             | Miscellaneous Store Retailers                | \$1,089         | \$2.7                                              | \$2.9         | \$3.2          | \$3.4          | \$3.7          | \$0.9         | \$1.7         | \$2.6         |
| 722                             | Foodservices and Drinking Places             | \$3,874         | \$9.7                                              | \$10.5        | \$11.3         | \$12.1         | \$13.1         | \$3.3         | \$1.4         | \$4.7         |
| <b>Totals/Weighted Averages</b> |                                              | <b>\$34,603</b> | <b>\$86.9</b>                                      | <b>\$93.5</b> | <b>\$100.7</b> | <b>\$108.3</b> | <b>\$116.6</b> | <b>\$29.7</b> | <b>\$32.3</b> | <b>\$62.0</b> |

1/ Claritas, Inc. average retail sales figures for Scappoose, Oregon in 2008 dollars.

**EXHIBIT 1.12**  
**PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario   |                                               | Household Retail Spending (millions) 1/ |        |         |         |         | Sales Support | Spending-Supported Retail Demand (SF) 3/ |         |         |         |         | New Spending |         |           |
|--------------------------|-----------------------------------------------|-----------------------------------------|--------|---------|---------|---------|---------------|------------------------------------------|---------|---------|---------|---------|--------------|---------|-----------|
| NAICS                    | Category                                      | 2010                                    | 2015   | 2020    | 2025    | 2030    | '10-30        | Factor 2/                                | 2010    | 2015    | 2020    | 2025    | 2030         | '10-30  | + Leakage |
| 441                      | Automotive Parts, Accessories and Tire Stores | \$21.3                                  | \$23.1 | \$25.1  | \$27.2  | \$29.5  | \$8.2         | \$171                                    | 137,253 | 148,891 | 161,515 | 175,210 | 190,067      | 52,814  | 152,962   |
| 442                      | Furniture and Home Furnishings Stores         | \$2.6                                   | \$2.8  | \$3.0   | \$3.3   | \$3.5   | \$1.0         | \$213                                    | 13,209  | 14,328  | 15,543  | 16,861  | 18,291       | 5,083   | 17,875    |
| 443                      | Electronics and Appliance Stores              | \$2.5                                   | \$2.7  | \$2.9   | \$3.2   | \$3.4   | \$1.0         | \$246                                    | 11,079  | 12,019  | 13,038  | 14,143  | 15,343       | 4,263   | 13,465    |
| 444                      | Building Materials and Garden Equipment       | \$11.8                                  | \$12.8 | \$13.9  | \$15.1  | \$16.4  | \$4.6         | \$157                                    | 82,632  | 89,639  | 97,240  | 105,485 | 114,429      | 31,796  | 93,072    |
| 445                      | Food and Beverage Stores                      | \$12.7                                  | \$13.8 | \$14.9  | \$16.2  | \$17.6  | \$4.9         | \$384                                    | 36,415  | 39,503  | 42,852  | 46,486  | 50,427       | 14,012  | 25,206    |
| 446                      | Health and Personal Care Stores               | \$4.6                                   | \$5.0  | \$5.4   | \$5.9   | \$6.4   | \$1.8         | \$283                                    | 17,848  | 19,361  | 21,003  | 22,784  | 24,716       | 6,868   | 7,340     |
| 448                      | Clothing and Clothing Accessories Stores      | \$4.6                                   | \$5.0  | \$5.4   | \$5.9   | \$6.4   | \$1.8         | \$267                                    | 18,993  | 20,603  | 22,350  | 24,246  | 26,301       | 7,308   | 21,654    |
| 451                      | Sporting Goods, Hobby, Book and Music Stores  | \$2.0                                   | \$2.2  | \$2.4   | \$2.6   | \$2.8   | \$0.8         | \$240                                    | 9,257   | 10,042  | 10,893  | 11,817  | 12,819       | 3,562   | 12,263    |
| 452                      | General Merchandise Stores                    | \$12.3                                  | \$13.4 | \$14.5  | \$15.7  | \$17.1  | \$4.7         | \$171                                    | 79,333  | 86,060  | 93,357  | 101,273 | 109,860      | 30,527  | -27,853   |
| 453                      | Miscellaneous Store Retailers                 | \$2.7                                   | \$3.0  | \$3.2   | \$3.5   | \$3.8   | \$1.1         | \$236                                    | 12,745  | 13,826  | 14,998  | 16,270  | 17,650       | 4,904   | 12,752    |
| 722                      | Foodservices and Drinking Places              | \$9.7                                   | \$10.6 | \$11.4  | \$12.4  | \$13.5  | \$3.7         | \$290                                    | 36,874  | 40,001  | 43,392  | 47,072  | 51,063       | 14,189  | 19,539    |
| Totals/Weighted Averages |                                               | \$86.9                                  | \$94.3 | \$102.3 | \$110.9 | \$120.3 | \$33.4        |                                          | 455,638 | 494,273 | 536,183 | 581,647 | 630,966      | 175,327 | 348,276   |

| High Growth Scenario     |                                               | Household Retail Spending (millions) 1/ |        |         |         |         | Sales Support | Spending-Supported Retail Demand (SF) 3/ |         |         |         |         | New Spending |         |           |
|--------------------------|-----------------------------------------------|-----------------------------------------|--------|---------|---------|---------|---------------|------------------------------------------|---------|---------|---------|---------|--------------|---------|-----------|
| NAICS                    | Category                                      | 2010                                    | 2015   | 2020    | 2025    | 2030    | '10-30        | Factor 2/                                | 2010    | 2015    | 2020    | 2025    | 2030         | '10-30  | + Leakage |
| 441                      | Automotive Parts, Accessories and Tire Stores | \$21.3                                  | \$23.3 | \$25.5  | \$27.8  | \$30.4  | \$9.1         | \$139                                    | 168,803 | 184,477 | 201,605 | 220,324 | 240,781      | 71,977  | 195,146   |
| 442                      | Furniture and Home Furnishings Stores         | \$2.6                                   | \$2.8  | \$3.1   | \$3.3   | \$3.6   | \$1.1         | \$213                                    | 13,209  | 14,435  | 15,775  | 17,240  | 18,841       | 5,632   | 18,424    |
| 443                      | Electronics and Appliance Stores              | \$2.5                                   | \$2.7  | \$3.0   | \$3.2   | \$3.5   | \$1.1         | \$246                                    | 11,079  | 12,108  | 13,232  | 14,461  | 15,804       | 4,724   | 13,926    |
| 444                      | Building Materials and Garden Equipment       | \$11.8                                  | \$12.9 | \$14.1  | \$15.4  | \$16.9  | \$5.0         | \$157                                    | 82,632  | 90,305  | 98,689  | 107,853 | 117,866      | 35,234  | 96,510    |
| 445                      | Food and Beverage Stores                      | \$12.7                                  | \$13.9 | \$15.2  | \$16.6  | \$18.1  | \$5.4         | \$384                                    | 36,415  | 39,796  | 43,491  | 47,529  | 51,942       | 15,527  | 26,721    |
| 446                      | Health and Personal Care Stores               | \$4.6                                   | \$5.0  | \$5.5   | \$6.0   | \$6.5   | \$2.0         | \$283                                    | 17,848  | 19,505  | 21,316  | 23,295  | 25,458       | 7,610   | 8,082     |
| 448                      | Clothing and Clothing Accessories Stores      | \$4.6                                   | \$5.0  | \$5.5   | \$6.0   | \$6.6   | \$2.0         | \$267                                    | 18,993  | 20,756  | 22,684  | 24,790  | 27,092       | 8,099   | 22,445    |
| 451                      | Sporting Goods, Hobby, Book and Music Stores  | \$2.0                                   | \$2.2  | \$2.4   | \$2.6   | \$2.9   | \$0.9         | \$240                                    | 9,257   | 10,116  | 11,056  | 12,082  | 13,204       | 3,947   | 12,648    |
| 452                      | General Merchandise Stores                    | \$12.3                                  | \$13.5 | \$14.7  | \$16.1  | \$17.6  | \$5.3         | \$171                                    | 79,333  | 86,699  | 94,749  | 103,546 | 113,160      | 33,827  | -24,552   |
| 453                      | Miscellaneous Store Retailers                 | \$2.7                                   | \$3.0  | \$3.3   | \$3.6   | \$3.9   | \$1.2         | \$236                                    | 12,745  | 13,929  | 15,222  | 16,635  | 18,180       | 5,435   | 13,282    |
| 722                      | Foodservices and Drinking Places              | \$9.7                                   | \$10.6 | \$11.6  | \$12.7  | \$13.9  | \$4.1         | \$290                                    | 36,874  | 40,298  | 44,039  | 48,128  | 52,597       | 15,723  | 21,073    |
| Totals/Weighted Averages |                                               | \$86.9                                  | \$95.0 | \$103.8 | \$113.4 | \$124.0 | \$37.1        |                                          | 487,189 | 532,424 | 581,859 | 635,884 | 694,925      | 207,735 | 403,706   |

| Low Growth Scenario      |                                               | Household Retail Spending (millions) 1/ |        |         |         |         | Sales Support | Spending-Supported Retail Demand (SF) 3/ |         |         |         |         | New Spending |         |           |
|--------------------------|-----------------------------------------------|-----------------------------------------|--------|---------|---------|---------|---------------|------------------------------------------|---------|---------|---------|---------|--------------|---------|-----------|
| NAICS                    | Category                                      | 2010                                    | 2015   | 2020    | 2025    | 2030    | '10-30        | Factor 2/                                | 2010    | 2015    | 2020    | 2025    | 2030         | '10-30  | + Leakage |
| 441                      | Automotive Parts, Accessories and Tire Stores | \$21.3                                  | \$23.0 | \$24.7  | \$26.6  | \$28.6  | \$7.3         | \$139                                    | 168,803 | 181,675 | 195,527 | 210,436 | 226,482      | 57,679  | 180,848   |
| 442                      | Furniture and Home Furnishings Stores         | \$2.6                                   | \$2.7  | \$3.0   | \$3.2   | \$3.4   | \$0.9         | \$213                                    | 13,209  | 14,216  | 15,300  | 16,466  | 17,722       | 4,513   | 17,305    |
| 443                      | Electronics and Appliance Stores              | \$2.5                                   | \$2.7  | \$2.9   | \$3.1   | \$3.3   | \$0.8         | \$246                                    | 11,079  | 11,924  | 12,833  | 13,812  | 14,865       | 3,786   | 12,988    |
| 444                      | Building Materials and Garden Equipment       | \$11.8                                  | \$12.7 | \$13.7  | \$14.7  | \$15.9  | \$4.0         | \$157                                    | 82,632  | 88,933  | 95,714  | 103,012 | 110,867      | 28,235  | 89,511    |
| 445                      | Food and Beverage Stores                      | \$12.7                                  | \$13.7 | \$14.7  | \$15.8  | \$17.0  | \$4.3         | \$384                                    | 36,415  | 39,192  | 42,180  | 45,396  | 48,858       | 12,443  | 23,637    |
| 446                      | Health and Personal Care Stores               | \$4.6                                   | \$4.9  | \$5.3   | \$5.7   | \$6.2   | \$1.6         | \$283                                    | 17,848  | 19,209  | 20,674  | 22,250  | 23,947       | 6,099   | 6,571     |
| 448                      | Clothing and Clothing Accessories Stores      | \$4.6                                   | \$5.0  | \$5.3   | \$5.7   | \$6.2   | \$1.6         | \$267                                    | 18,993  | 20,441  | 22,000  | 23,677  | 25,483       | 6,490   | 20,836    |
| 451                      | Sporting Goods, Hobby, Book and Music Stores  | \$2.0                                   | \$2.2  | \$2.3   | \$2.5   | \$2.7   | \$0.7         | \$240                                    | 9,257   | 9,963   | 10,722  | 11,540  | 12,420       | 3,163   | 11,864    |
| 452                      | General Merchandise Stores                    | \$12.3                                  | \$13.3 | \$14.3  | \$15.4  | \$16.5  | \$4.2         | \$171                                    | 79,333  | 85,382  | 91,892  | 98,899  | 106,440      | 27,107  | -31,272   |
| 453                      | Miscellaneous Store Retailers                 | \$2.7                                   | \$2.9  | \$3.2   | \$3.4   | \$3.7   | \$0.9         | \$236                                    | 12,745  | 13,717  | 14,763  | 15,889  | 17,100       | 4,355   | 12,203    |
| 722                      | Foodservices and Drinking Places              | \$9.7                                   | \$10.5 | \$11.3  | \$12.1  | \$13.1  | \$3.3         | \$290                                    | 36,874  | 39,686  | 42,712  | 45,968  | 49,474       | 12,600  | 17,949    |
| Totals/Weighted Averages |                                               | \$86.9                                  | \$93.5 | \$100.7 | \$108.3 | \$116.6 | \$29.7        |                                          | 487,189 | 524,337 | 564,318 | 607,347 | 653,658      | 166,468 | 362,439   |

1/ From Exhibit 1.11

2/ Based on national averages derived from "Dollars & Cents of Shopping Centers," Urban Land Institute, 2000, and have been escalated to 2010 dollars.

3/ Assumes a market-clearing retail space vacancy rate of 10%.

\* Estimate

**EXHIBIT 1.13**  
**PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Medium Growth Scenario          |                                               | Spending-Supported Retail Demand (SF) 1/ |                |                |                |                |                | Retail      | Commercial Retail Land Need (Acres) |             |             |             |             |             | New Spending |
|---------------------------------|-----------------------------------------------|------------------------------------------|----------------|----------------|----------------|----------------|----------------|-------------|-------------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| NAICS                           | Category                                      | 2010                                     | 2015           | 2020           | 2025           | 2030           | '10-30         | F.A.R 2/    | 2010                                | 2015        | 2020        | 2025        | 2030        | '10-30      | + Leakage    |
| 441                             | Automotive Parts, Accessories and Tire Stores | 137,253                                  | 148,891        | 161,515        | 175,210        | 190,067        | 52,814         | 0.30        | 10.5                                | 11.4        | 12.4        | 13.4        | 14.5        | 4.0         | 11.7         |
| 442                             | Furniture and Home Furnishings Stores         | 13,209                                   | 14,328         | 15,543         | 16,861         | 18,291         | 5,083          | 0.30        | 1.0                                 | 1.1         | 1.2         | 1.3         | 1.4         | 0.4         | 1.4          |
| 443                             | Electronics and Appliance Stores              | 11,079                                   | 12,019         | 13,038         | 14,143         | 15,343         | 4,263          | 0.30        | 0.8                                 | 0.9         | 1.0         | 1.1         | 1.2         | 0.3         | 1.0          |
| 444                             | Building Materials and Garden Equipment       | 82,632                                   | 89,639         | 97,240         | 105,485        | 114,429        | 31,796         | 0.30        | 6.3                                 | 6.9         | 7.4         | 8.1         | 8.8         | 2.4         | 7.1          |
| 445                             | Food and Beverage Stores                      | 36,415                                   | 39,503         | 42,852         | 46,486         | 50,427         | 14,012         | 0.30        | 2.8                                 | 3.0         | 3.3         | 3.6         | 3.9         | 1.1         | 1.9          |
| 446                             | Health and Personal Care Stores               | 17,848                                   | 19,361         | 21,003         | 22,784         | 24,716         | 6,868          | 0.30        | 1.4                                 | 1.5         | 1.6         | 1.7         | 1.9         | 0.5         | 0.6          |
| 448                             | Clothing and Clothing Accessories Stores      | 18,993                                   | 20,603         | 22,350         | 24,246         | 26,301         | 7,308          | 0.30        | 1.5                                 | 1.6         | 1.7         | 1.9         | 2.0         | 0.6         | 1.7          |
| 451                             | Sporting Goods, Hobby, Book and Music Stores  | 9,257                                    | 10,042         | 10,893         | 11,817         | 12,819         | 3,562          | 0.30        | 0.7                                 | 0.8         | 0.8         | 0.9         | 1.0         | 0.3         | 0.9          |
| 452                             | General Merchandise Stores                    | 79,333                                   | 86,060         | 93,357         | 101,273        | 109,860        | 30,527         | 0.30        | 6.1                                 | 6.6         | 7.1         | 7.7         | 8.4         | 2.3         | -2.1         |
| 453                             | Miscellaneous Store Retailers                 | 12,745                                   | 13,826         | 14,998         | 16,270         | 17,650         | 4,904          | 0.30        | 1.0                                 | 1.1         | 1.1         | 1.2         | 1.4         | 0.4         | 1.0          |
| 722                             | Foodservices and Drinking Places              | 36,874                                   | 40,001         | 43,392         | 47,072         | 51,063         | 14,189         | 0.30        | 2.8                                 | 3.1         | 3.3         | 3.6         | 3.9         | 1.1         | 1.5          |
| <b>Totals/Weighted Averages</b> |                                               | <b>455,638</b>                           | <b>494,273</b> | <b>536,183</b> | <b>581,647</b> | <b>630,966</b> | <b>175,327</b> | <b>0.30</b> | <b>34.9</b>                         | <b>37.8</b> | <b>41.0</b> | <b>44.5</b> | <b>48.3</b> | <b>13.4</b> | <b>26.7</b>  |
| High Growth Scenario            |                                               | Spending-Supported Retail Demand (SF) 1/ |                |                |                |                |                | Retail      | Commercial Retail Land Need (Acres) |             |             |             |             |             | New Spending |
| NAICS                           | Category                                      | 2010                                     | 2015           | 2020           | 2025           | 2030           | '10-30         | F.A.R 2/    | 2010                                | 2015        | 2020        | 2025        | 2030        | '10-30      | + Leakage    |
| 441                             | Automotive Parts, Accessories and Tire Stores | 168,803                                  | 184,477        | 201,605        | 220,324        | 240,781        | 71,977         | 0.30        | 12.9                                | 14.1        | 15.4        | 16.9        | 18.4        | 5.5         | 14.9         |
| 442                             | Furniture and Home Furnishings Stores         | 13,209                                   | 14,435         | 15,775         | 17,240         | 18,841         | 5,632          | 0.30        | 1.0                                 | 1.1         | 1.2         | 1.3         | 1.4         | 0.4         | 1.4          |
| 443                             | Electronics and Appliance Stores              | 11,079                                   | 12,108         | 13,232         | 14,461         | 15,804         | 4,724          | 0.30        | 0.8                                 | 0.9         | 1.0         | 1.1         | 1.2         | 0.4         | 1.1          |
| 444                             | Building Materials and Garden Equipment       | 82,632                                   | 90,305         | 98,689         | 107,853        | 117,866        | 35,234         | 0.30        | 6.3                                 | 6.9         | 7.6         | 8.3         | 9.0         | 2.7         | 7.4          |
| 445                             | Food and Beverage Stores                      | 36,415                                   | 39,796         | 43,491         | 47,529         | 51,942         | 15,527         | 0.30        | 2.8                                 | 3.0         | 3.3         | 3.6         | 4.0         | 1.2         | 2.0          |
| 446                             | Health and Personal Care Stores               | 17,848                                   | 19,505         | 21,316         | 23,295         | 25,458         | 7,610          | 0.30        | 1.4                                 | 1.5         | 1.6         | 1.8         | 1.9         | 0.6         | 0.6          |
| 448                             | Clothing and Clothing Accessories Stores      | 18,993                                   | 20,756         | 22,684         | 24,790         | 27,092         | 8,099          | 0.30        | 1.5                                 | 1.6         | 1.7         | 1.9         | 2.1         | 0.6         | 1.7          |
| 451                             | Sporting Goods, Hobby, Book and Music Stores  | 9,257                                    | 10,116         | 11,056         | 12,082         | 13,204         | 3,947          | 0.30        | 0.7                                 | 0.8         | 0.8         | 0.9         | 1.0         | 0.3         | 1.0          |
| 452                             | General Merchandise Stores                    | 79,333                                   | 86,699         | 94,749         | 103,546        | 113,160        | 33,827         | 0.30        | 6.1                                 | 6.6         | 7.3         | 7.9         | 8.7         | 2.6         | -1.9         |
| 453                             | Miscellaneous Store Retailers                 | 12,745                                   | 13,929         | 15,222         | 16,635         | 18,180         | 5,435          | 0.30        | 1.0                                 | 1.1         | 1.2         | 1.3         | 1.4         | 0.4         | 1.0          |
| 722                             | Foodservices and Drinking Places              | 36,874                                   | 40,298         | 44,039         | 48,128         | 52,597         | 15,723         | 0.30        | 2.8                                 | 3.1         | 3.4         | 3.7         | 4.0         | 1.2         | 1.6          |
| <b>Totals/Weighted Averages</b> |                                               | <b>487,189</b>                           | <b>532,424</b> | <b>581,859</b> | <b>635,884</b> | <b>694,925</b> | <b>207,735</b> | <b>0.30</b> | <b>37.3</b>                         | <b>40.7</b> | <b>44.5</b> | <b>48.7</b> | <b>53.2</b> | <b>15.9</b> | <b>30.9</b>  |
| Low Growth Scenario             |                                               | Spending-Supported Retail Demand (SF) 1/ |                |                |                |                |                | Retail      | Commercial Retail Land Need (Acres) |             |             |             |             |             | New Spending |
| NAICS                           | Category                                      | 2010                                     | 2015           | 2020           | 2025           | 2030           | '10-30         | F.A.R 2/    | 2010                                | 2015        | 2020        | 2025        | 2030        | '10-30      | + Leakage    |
| 441                             | Automotive Parts, Accessories and Tire Stores | 168,803                                  | 181,675        | 195,527        | 210,436        | 226,482        | 57,679         | 0.30        | 12.9                                | 13.9        | 15.0        | 16.1        | 17.3        | 4.4         | 13.8         |
| 442                             | Furniture and Home Furnishings Stores         | 13,209                                   | 14,216         | 15,300         | 16,466         | 17,722         | 4,513          | 0.30        | 1.0                                 | 1.1         | 1.2         | 1.3         | 1.4         | 0.3         | 1.3          |
| 443                             | Electronics and Appliance Stores              | 11,079                                   | 11,924         | 12,833         | 13,812         | 14,865         | 3,786          | 0.30        | 0.8                                 | 0.9         | 1.0         | 1.1         | 1.1         | 0.3         | 1.0          |
| 444                             | Building Materials and Garden Equipment       | 82,632                                   | 88,933         | 95,714         | 103,012        | 110,867        | 28,235         | 0.30        | 6.3                                 | 6.8         | 7.3         | 7.9         | 8.5         | 2.2         | 6.8          |
| 445                             | Food and Beverage Stores                      | 36,415                                   | 39,192         | 42,180         | 45,396         | 48,858         | 12,443         | 0.30        | 2.8                                 | 3.0         | 3.2         | 3.5         | 3.7         | 1.0         | 1.8          |
| 446                             | Health and Personal Care Stores               | 17,848                                   | 19,209         | 20,674         | 22,250         | 23,947         | 6,099          | 0.30        | 1.4                                 | 1.5         | 1.6         | 1.7         | 1.8         | 0.5         | 0.5          |
| 448                             | Clothing and Clothing Accessories Stores      | 18,993                                   | 20,441         | 22,000         | 23,677         | 25,483         | 6,490          | 0.30        | 1.5                                 | 1.6         | 1.7         | 1.8         | 2.0         | 0.5         | 1.6          |
| 451                             | Sporting Goods, Hobby, Book and Music Stores  | 9,257                                    | 9,963          | 10,722         | 11,540         | 12,420         | 3,163          | 0.30        | 0.7                                 | 0.8         | 0.8         | 0.9         | 1.0         | 0.2         | 0.9          |
| 452                             | General Merchandise Stores                    | 79,333                                   | 85,382         | 91,892         | 98,899         | 106,440        | 27,107         | 0.30        | 6.1                                 | 6.5         | 7.0         | 7.6         | 8.1         | 2.1         | -2.4         |
| 453                             | Miscellaneous Store Retailers                 | 12,745                                   | 13,717         | 14,763         | 15,889         | 17,100         | 4,355          | 0.30        | 1.0                                 | 1.0         | 1.1         | 1.2         | 1.3         | 0.3         | 0.9          |
| 722                             | Foodservices and Drinking Places              | 36,874                                   | 39,686         | 42,712         | 45,968         | 49,474         | 12,600         | 0.30        | 2.8                                 | 3.0         | 3.3         | 3.5         | 3.8         | 1.0         | 1.4          |
| <b>Totals/Weighted Averages</b> |                                               | <b>487,189</b>                           | <b>524,337</b> | <b>564,318</b> | <b>607,347</b> | <b>653,658</b> | <b>166,468</b> | <b>0.30</b> | <b>37.3</b>                         | <b>40.1</b> | <b>43.2</b> | <b>46.5</b> | <b>50.0</b> | <b>12.7</b> | <b>27.7</b>  |

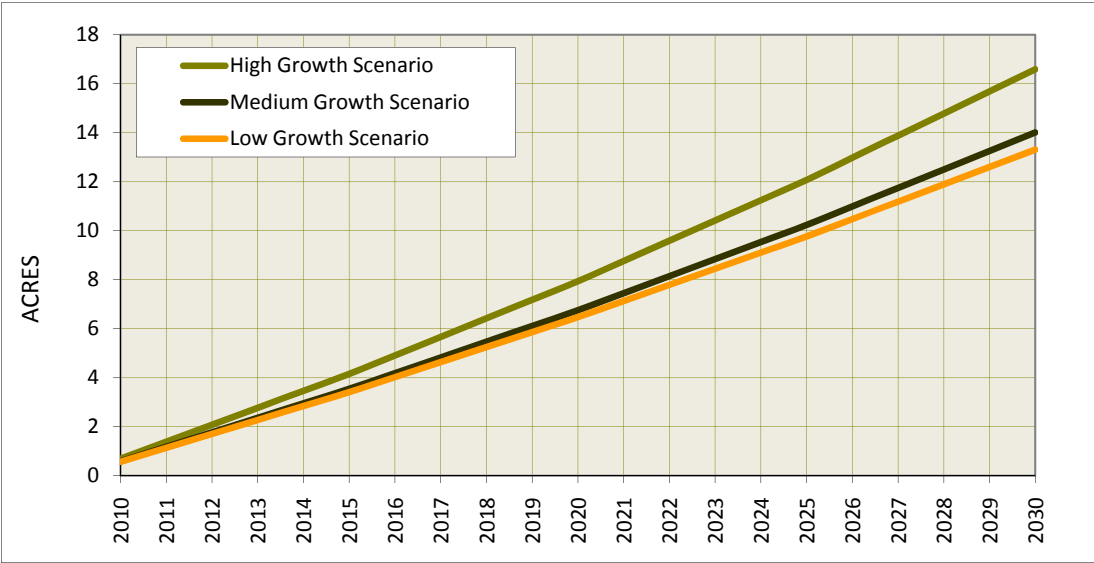
1/ From Exhibit 1.12

2/ Assumes typical suburban retail profile: single-story with one parking spaces per 400 square feet of developed space, as per city code.

\*Estimate

**EXHIBIT 1.14**

**COMPARISON OF CUMULATIVE DEMAND FOR COMMERCIAL RETAIL LAND  
MEDIUM, HIGH AND LOW GROWTH SCENARIOS  
2010-2030**



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.15**  
**GROSS NEED FOR COMMERCIAL AND INDUSTRIAL LAND**  
**SCAPPOOSE, OREGON**  
**2010-2030**

| Need For Land       |              |              |
|---------------------|--------------|--------------|
| Use Type            | Net Acres    | Gross Acres  |
| INDUSTRIAL          | 217.9        | 269.0        |
| OFFICE COMMERCIAL   | 54.7         | 64.4         |
| RETAIL COMMERCIAL   | 33.6         | 39.6         |
| CITY RESIDENTS      | 26.7         | 31.4         |
| REGION/TOURISTS 1/  | 7.0          | 8.2          |
| SPECIALIZED USES 2/ | 93.5         | 110.0        |
| <b>TOTAL</b>        | <b>399.8</b> | <b>483.0</b> |

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID