



**JOHNSON REID**  
LAND USE ECONOMICS

**ECONOMIC OPPORTUNITIES ANALYSIS  
& LONG-TERM URBAN  
LAND NEEDS ASSESSMENT**

Prepared For:  
CITY OF NORTH PLAINS, OREGON

July 31, 2009





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## STATEMENT OF PURPOSE

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### INTRODUCTION

The City of North Plains, along with all other jurisdictions in Washington County, Oregon, is currently undertaking the State-mandated process of analyzing and planning 50-Year Urban and Rural Reserve designations for lands proximate, but outside of the present Portland metropolitan area Urban Growth Boundary.

As part of this effort, the City of North Plains retained JOHNSON REID to provide research and analysis of potential urban growth scenarios with which the City may consider urban reserves needs over the fifty-year planning period. Several economic and planning issues indicated need for independent land need analysis over the planning horizon. These include:

- The adequacy of existing, available lands suitable for target industry uses within the current Urban Growth Boundary;
- The nature of commercial land need driven by new industry and population growth affected by primary industry and workforce growth over the planning horizons;
- Characterization of growth potential in the context of the physical and infrastructure qualities of lands within Urban Reserve consideration for the City; *and*
- Determination of the ability of North Plains to accommodate economic growth potential and how sub-regional coordination with the Cities of Hillsboro, Forest Grove, Cornelius and Banks may affect or enhance long-term high-tech industry growth in Washington County and the State of Oregon in general.

### URBAN LAND NEED ANALYSIS

To document the potential nature of urban lands required by the City of North Plains over a twenty-year period and a fifty-year period, JOHNSON REID formally utilized a methodology for long-range land need substantiation consistent with State of Oregon land use planning requirements. Specifically, employment land demand consistent with State Planning Goal 9 Economic Opportunities Analysis (“EOA”) methodology and documentation requirements was used in this analysis.

### GOAL 9 – NORTH PLAINS EMPLOYMENT LAND

The State Planning Goal 9 EOA methodology guidelines call for a six-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 six steps largely guide this resulting analysis of City of North Plains’ need for urbanized land. The required Goal 9 analytical steps that roughly comprise the outline of this document are:

1. *Economic Planning Area Definition:* A determination of the geography of interest for 20-year and 50-year economic development potential, included as an appendix in this study.
2. *Economic Trends Analysis:* Identification of global, 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.
3. *Public/Stakeholder Input Process:* Outreach for this effort was limited to key Economic Stakeholders identified as being able to provide targeted, existing and emerging industry perspective.
4. *Industry & Job Growth Forecasts:* Detailed forecasts of job growth by industry within North Plains over the planning period that will in turn drive demand, if any, for different employment land categories.



5. *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.
6. *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.

## TRENDS ANALYSIS

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### INTRODUCTION

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 during the course of analysis, economic circumstances at the global, national, state and local levels have significantly shifted and continue to do so significantly at the publication date of this document. Through March of 2008 and since, the economy has experienced the following:

- New Presidential administration and significant changes in federal economic policies, including in response to economic distress of recent months;
- Numerous federal bail-out proposals and agreements for numerous financial institutions and U.S. automakers;
- Continued 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. GDP of 6.2%, the worst since the severe 1980-82 U.S. recession.

Alternatively, 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 highly 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 consistent with its findings – even those that have changed in only a few months – is preferable to constantly shifting speculation. Where appropriate, changes to economic performance or expectations have been updated for accuracy.



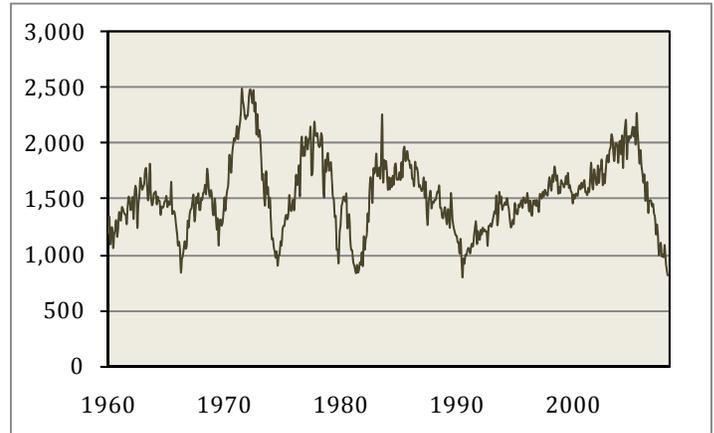
## NATIONAL ECONOMIC TRENDS

### SHORT-TERM OUTLOOK

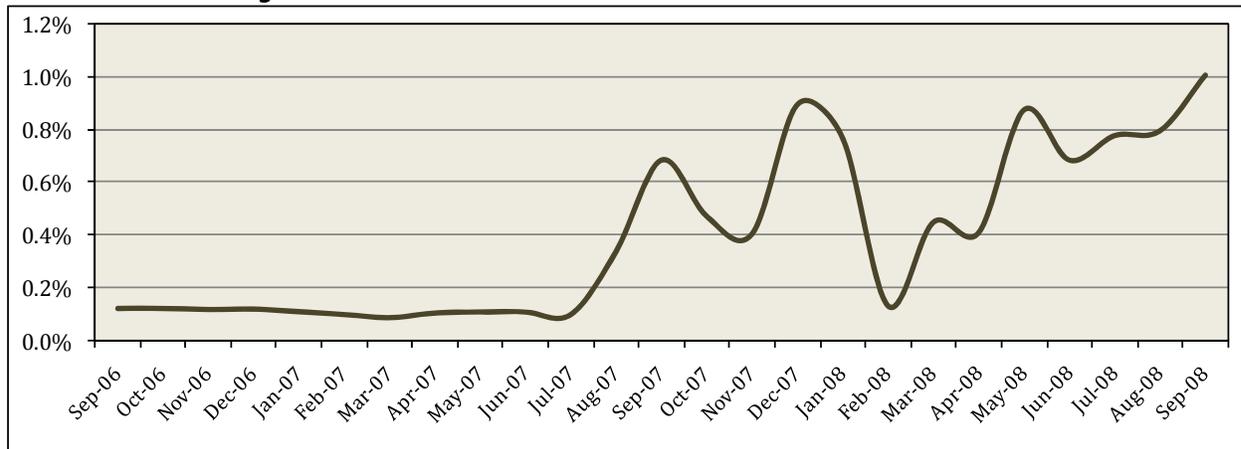
Economic turbulence is likely to remain in the national economy in the near-term. The decline in housing prices has contributed both to slower consumer spending growth and a sharp falloff in residential construction activity. The effect of falling home values, slow real income growth, and a sputtering economy will delay the recovery in housing construction until late 2009 as excess inventory is drawn down.

Foreclosures and delinquencies have created large losses for many financial institutions and holders of mortgage backed securities, thereby reducing capital value and limiting banks' ability to support new lending. As a result, a climate of risk aversion has emerged in financial markets, as banks are tightening credit standards for new loans, not only for residential mortgages and consumer loans, but also for business loans, such as those for commercial real estate and industrial loans. Additionally, interbank lending has come to a halt, compounding liquidity problems among wavering banks, with the spread between the Federal Funds Rate and the 3-month LIBOR skyrocketing. However, the Federal government's financial bailout plan includes elements to foster liquidity, and the LIBOR has since fallen sharply, although Fed rate cuts have kept the spread high. Ultimately, lingering weakness in the housing market may lead to additional mortgage losses, forcing lenders to markedly curtail the availability of credit. If realized, this effect will delay the pace of economic recovery.

**FIGURE 1: HOUSING STARTS**



**FIGURE 2: SPREAD ON 3-MONTH LIBOR AND FEDERAL FUNDS RATE**



In addition to woes in the housing market, rising food and energy prices have seen notable escalation in recent years, further limiting real purchasing power and putting upward pressure on consumer prices. The higher price of agricultural products has had a smaller effect on the economy than oil, but the increased cost of food has constrained non-food spending. To many, the extent of the rise in agricultural food prices was unexpected. As with oil, a steady increase in global demand played a key role in the run-up. Supply shocks as a result of poor weather (in the case of wheat) and rising demand for biofuel feedstocks also drove agricultural prices.



Nevertheless, energy and commodity prices are not likely to lead to persistently high inflation similar to the 1970's. During the 1970s large price hikes for commodities and import goods triggered higher inflation by igniting a wage-price spiral in which an initial price shock sets off higher wage growth. However, measures of wages and salaries from the BLS have not yet provided evidence that higher prices are affecting wages. Moreover, unlike the 1970s, the Federal Reserve is far more likely to utilize monetary influence to prevent such an outcome from transpiring. As a result, we find that Inflation in both food and energy is likely to abate in the near term. The price of oil has fallen sharply since July 2008 and strong global harvests are likely to push food commodity prices lower. Prices for corn, wheat, and soybeans have already begun this trend. Additionally, slowing global economic growth is likely to curb demand for both food and energy in the near-term.

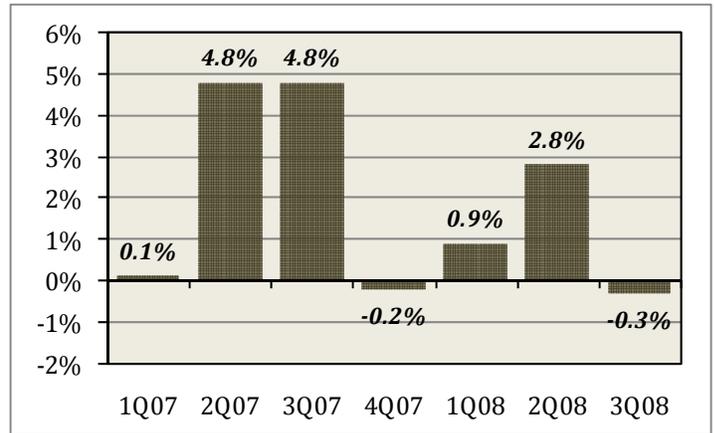
**FIGURE 3: CRUDE OIL PRICE**



The trade-weighted value of the U.S. dollar has been in decline since 2002. More recently, from July 2007 to March 2008 the U.S. dollar fell at an even more accelerated pace. This rapid fall was primarily a response to easing monetary policy both domestic and foreign, in addition to the Chinese Government's decision to allow the Chinese currency to appreciate more rapidly against the dollar than in the past. All together, Real GDP among the United States' major trading partners will grow more slowly, but still faster, on average, than Real GDP in the United States in the near-term. However, exports, which have been a rare bright spot in the economy in 2008, will likely fall off markedly in 2009 on declining global demand and a strengthening dollar.

Taken together, the United States economy is thought to be roughly halfway through an extended period of slow economic growth. Preliminary estimates for the 3<sup>rd</sup> quarter of 2008 indicate a second of the last four periods posting negative economic growth. It is widely anticipated that the 4<sup>th</sup> quarter of 2008 will also be negative, marking two consecutive quarters of negative GDP growth and classifying the current cycle as recessionary under a standard rule of thumb. It is forecasted that Real GDP growth will average around an annual rate of 1% through the end of 2009 before recovery takes form in 2010. Employment growth is expected to remain weak through much of 2009, keeping unemployment measurably above 6% in the near-term. Anticipated near-term weakness in the economy is likely to further dampen spending by households, businesses, and State/Local governments. A sustained fall in the revenues of state and local governments as a result of the weak economy is likely to force spending cutbacks in that sector in coming years.

**FIGURE 4: GDP GROWTH**



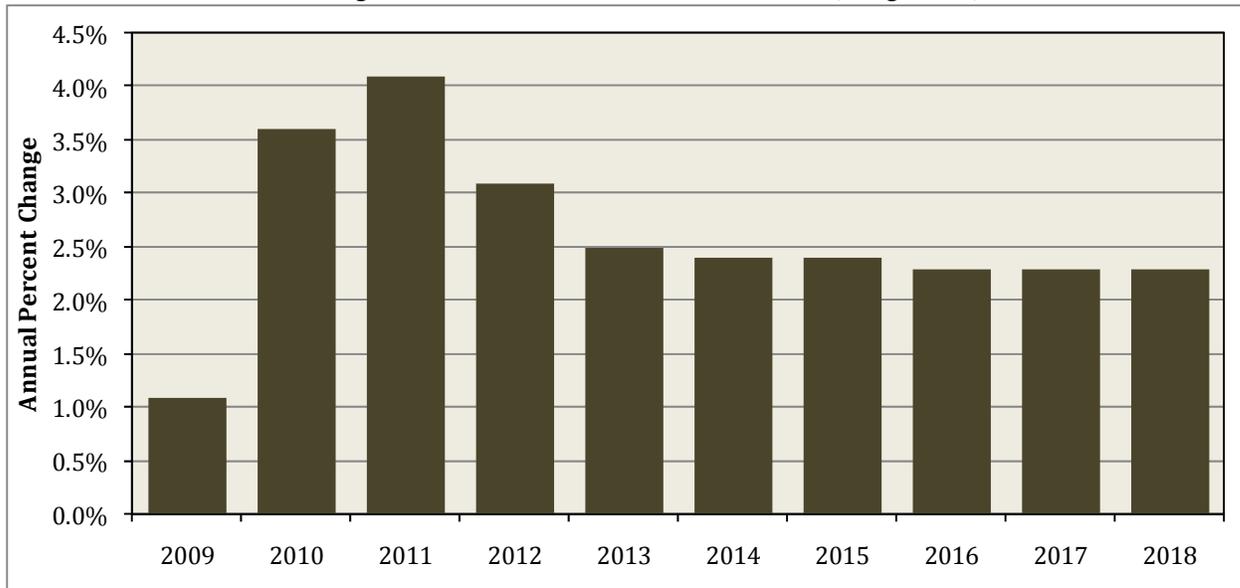
Concerns remain that the economy's current challenges—falling housing prices, problems in financial markets, and high input prices could cause the current downturn to be deeper and more pronounced than recent recessionary periods. Many experts predict the current downturn to resemble that witnessed during 1990-91 recession. The economic outlook could deteriorate even further if many banks become insolvent or if the financial crisis spreads more widely to global financial markets. However, it appears that global coordinated efforts among central bankers and governments to foster stability in the financial sector have successfully abated structural failures of the financial system.



## LONG-TERM OUTLOOK

Beyond the near-term, the United States economy is expected to return to a typical growth cycle, averaging 2.7% annual GDP growth from 2010 to 2018—slightly faster than potential GDP, which will average 2.4% over the same interval. 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 2010 to 2012. Beyond 2012 real output is expected to grow at the same pace, on average, as potential GDP through 2018—keeping the output gap proximate to zero.

FIGURE 5: 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 2010 to 2018, indicating further increase in worker productivity on the horizon. Over the long-term, the inflation rate will largely be determined by monetary policy decisions, specifically, that the Federal Reserve can, on average, maintain core inflation (as measured by the PCE price index) around 2% through 2018. Consumer inflation, as measured by the CPI-U is expected to average 2.2% annually over the same interval.

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. 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.



**FIGURE 6: POTENTIAL NEW GREEN JOBS, (2008-2038)**

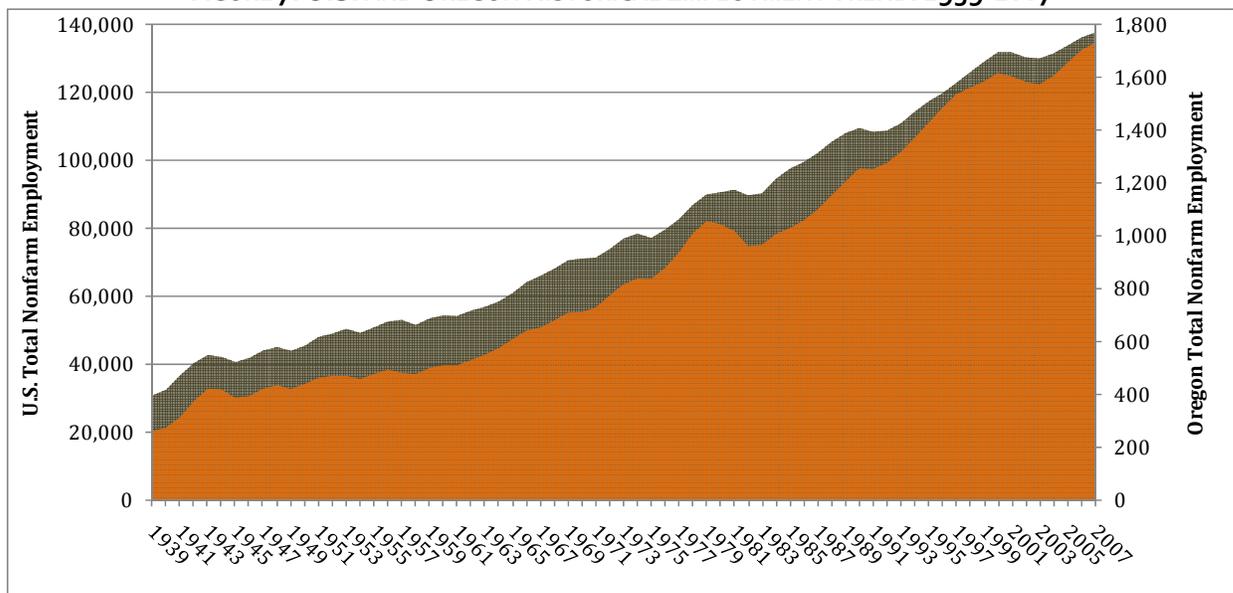
	2018	2028	2038
Renewable Power generation	407,200	802,000	1,236,800
Residential & Commercial Retrofitting	81,000	81,000	81,000
Renewable Transportation Fuels	1,205,700	1,437,700	1,492,000
Engineering, Legal, Research, & Consulting	846,900	1,160,300	1,404,900
<b>TOTAL</b>	<b>2,540,800</b>	<b>3,481,000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

SOURCE: Global Insight

## STATE & REGIONAL TRENDS

Oregon experienced exceptional employment growth between mid-2003 until 2007. Growth began slowing towards the end of 2006 and continued through 2007. The Oregon Employment Department's employment decline estimates for second quarter 2008 indicate that Oregon is following the U.S. economy into a slowdown. Figure 7 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 7: U.S. AND OREGON HISTORICAL EMPLOYMENT TREND: 1939-2007**



Source: Bureau of Labor Statistics

The sectors contributing to job decline in Oregon are roughly parallel to sectors dragging down the U.S. economy, namely Construction, Manufacturing, Retail Trade, Information, Financial Activities and Leisure & Hospitality. Considering the turmoil and uncertainty in the financial markets at the National level, it is not surprising that employment across all sectors is forecasted to decline through the end of 2009. The Oregon Office of Economic Analysis (OEA) reports a jobs decline of 6.8% (2.5% year-over-year) during the fourth quarter of 2008. OEA projections for 2009 indicate an overall decline of 4.3% for the year with growth of 0.1% expected in 2010 as job losses stabilize. First and second quarters 2009 are expected to see job declines of 7.2% and 3.6%, respectively.<sup>1</sup>

The computer and electronics equipment sector declined by 4.5%, nearly 39,000 jobs, during 2008. OEA forecasts further declines of about 10.9% in 2009. The sector is expected to rebound with jobs gains by 2010. Private

<sup>1</sup> Oregon Office of Economic Analysis, Economic and Revenue Forecast, Vol. 29, No. 1, March 2009.



education and health services, on the other hand, gained jobs at a rate of 3.9% during 2008 and is expected to experience 3.0% growth during 2009.

The Portland Metro area's job growth has been slowing since second quarter 2006 and estimates for the fourth quarter 2008 show job decline of 1.9%. The current weakness is largely due to the housing slowdown and its impact on construction which has rippled through to finance and other closely related sectors, such as wood products. In addition, high-tech manufacturers have been shedding workers with Washington County leading the decline—the County has lost 5% of its high-tech employment since mid-2007.

Oregon's economic growth since 2005 is 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%).

## STATE & REGIONAL OUTLOOK

Moving beyond 2010, 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
- Some of the lowest business costs in the nation

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 investment 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.

## STATE & REGIONAL INDUSTRY CLUSTER TRENDS

### HIGH TECH<sup>2</sup>

Oregon's high tech cluster was formed during the 1990s and experienced rapid growth until 2000. The industry employed just under 40,000 people in 1990 and by 2001 employed nearly 70,000 people. Following the dotcom era, the cluster went through a period of steep decline, shedding more than 10,000 jobs. However, since 2003 the cluster has shown moderate growth to reach a total employment of 57,900 people as of mid-2008.

Computer and electronics manufacturing accounts for a 69% share of the State's high tech cluster. Nearly 66% of State employment in the sector is located in Washington County. In addition, the semi-conductor manufacturing sector is a predominant driver—accounting for three-quarters of total sector employment. Moreover, the computer and electronics manufacturing sector is characterized by relatively high wages. In 2007, the average wage per worker in the sector was \$88,222—more than double the \$39,566 Statewide average wage for all workers. The average wage for computer and electronics manufacturing workers in Washington County was \$98,068.

Systems design accounts for 16% of total State high tech employment or 9,200 jobs. Job growth in systems design is down nearly 20% from its 2001 high. Similar to computer and electronics manufacturing, the sector enjoys a relatively high average wage per worker of \$75,838. The third sector in the high tech cluster is software publishing. Unlike the computer and electronics manufacturing and systems design, it grew by 12.3% in 2007 after declining by a relatively negligible 1.1% between 2001 and 2006. It has a State high tech employment share of 15% or 9,100 employees. The sector's average wage per worker is \$89,910.

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<sup>2</sup> Unless otherwise cited, data in this section is from the Oregon Employment Department.

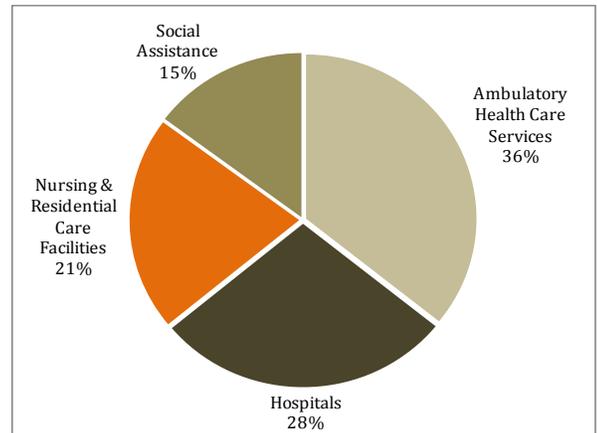


The OED outlook for high tech is mixed. While computer and electronics manufacturing is expected decline by approximately 3% by 2016, systems design and software publishing are expected to grow by 14% and 18%, respectively. JOHNSON REID's analysis of the outlook for high tech in Washington County departs from OED's forecasts due in part to the indirect impacts of solar manufacturing in the region, as well as the outlook of major employers in the area. Regionally, Intel, a bellwether for high tech activity in the area has indicated that their capacity for two additional fabs at their Ronler Acres facility will most likely come online during the next 20 years. Questions remain whether Hillsboro will have sufficient opportunities to accommodate growth by way of suitable and affordable land. If not, spillover effects to neighboring jurisdiction, including North Plains is likely.

### HEALTH CARE<sup>3</sup>

Oregon's health care industry has shown astounding growth during the last 13 years, adding 61,000 employees or 51.2%. It has grown to be counted among Oregon's largest sectors—capturing an 11.5% share of employment—roughly similar to Manufacturing, Retail Trade and Professional & Business Services. The projected Health Care sector employment gains of 51,300 employees (+29%) through 2016 far exceed statewide projections of 14% or projections for any other occupational group (the next largest group is Other Services, projected to grow by 19%). Of the sector's included within Health Care: Ambulatory Health Care Services is projected to grow by 35%; Nursing and Residential Care Facilities by 30%; Hospitals by 26% and Social Assistance by 19%. Much of the expected growth in Health Care is driven by demographic changes as the U.S. population age 65 and older is expected to grow by 50% by 2020 and close to 125% by 2050.

**FIGURE 8: OREGON'S HEALTH CARE INDUSTRY**



Source: Oregon Employment Department, 2007

The current composition of Oregon's health care industry is shown in Figure 8. Ambulatory Health Care Services has an average annual salary of \$53,803 and Hospitals, \$49,942. The second two sectors have significantly lower annual wages: \$22,193 for Nursing and Residential Care Facilities and \$20,658 for Social Assistance.

Washington County has the second largest share of health care in the State as measured by employment. Multnomah County accounts for nearly 26.7% while Washington County accounts for 11.7% or 21,166 employees. Ambulatory and Health Care Services accounts for about 44% of Washington County's health care industry. The Oregon Employment Department projects a gain of 18,500 health care workers by 2016 in Washington and Multnomah Counties. In North Plains, basic health services are available locally, however, residents must travel into Hillsboro for services beyond family practitioners.

### SOLAR MANUFACTURING

Oregon has witnessed explosive growth over the past couple years in Solar Photovoltaic (PV) manufacturing. This highly competitive industry is growing worldwide, but many European and Asian companies are choosing to locate in the U.S. Oregon has successfully recruited four manufacturers and is actively working with at least a half dozen more. Solar companies indicate interest in Oregon, and in particular, Washington County due to its semiconductor manufacturing cluster. The technological similarity of the two industries offer solar companies choosing to locate in Washington County a highly trained workforce with knowledge directly applicable to the Solar PV manufacturing process. Within Washington County, Hillsboro is most competitive in attracting Solar PV manufacturing firms interested in the region—offering better proximity to the metro area, suitable land supply, and an existing workforce. That said, considerable ancillary benefits are likely to impact the entire region, as suppliers, vendors, and support services to the process find expanded opportunities in the region—of which jurisdictions like North Plains have opportunities to recruit.

<sup>3</sup> Unless cited otherwise, data in this section is from the Oregon Employment Department.



**FIGURE 9: OREGON'S RECENT SOLAR PV MANUFACTURING ACTIVITY**

Company	Year Est. 1/	Location	Projected Jobs
PV Powered	2001	Bend	60 by 2008
Solaicx	2006	North Portland	100 by 2008
SolarWorld	2007	Hillsboro	2,000 by 2010
Peak Sun Silicon	2007	Millersburg	500 by 2011
XsunX	2008	Wood Village	160 by 2009
SpectraWatt	2008	Hillsboro	135 by 2009 2/
Sanya Electric Co.	2008	Salem	180 by 2009
<b>Total</b>			<b>3,135</b>

Source: Oregon Department of Energy, Oregonian

1/ Year company established operations in Oregon.

2/ SpectraWatt has indicated that their workforce may increase to 1,000 employees with the opening of a second plant in an undecided location.

Over the long-term, the solar industry’s success depends on its ability to continue to make cost and efficiency improvements—currently, solar cannot compete with wind power on a cost basis. Moreover, the industry’s continued growth is highly dependent on federal investment tax credits, which Congress recently extended for another eight years. The investment tax credit extension allows tax credits for residential and commercial solar installations through 2016. The tax credits are seen as an economic driver, not only for solar manufacturing, but for the construction industry as well. The number of solar installations increased by 119% between 2005 and 2007. Since 2003, annual installed capacity has increased by about 250% sustaining an annual average growth rate of about 36%.<sup>4</sup>

Oregon manufacturers have the added benefit of the Business Energy Tax Credit (BETC), which offers a tax exemption up to 50% (limit \$10 million) of project costs for the construction of an alternative energy manufacturing facility. This tax credit was instrumental in recruiting SolarWorld and Sanyo Electric Co.

The solar industry is projected to add 62,000 jobs nationally by 2015 and about 10 million jobs worldwide by 2030.<sup>5</sup> Oregon is projected to add nearly 15,000 jobs by 2028, with most of the growth occurring in the next ten years.<sup>6</sup>

**AGRICULTURE & FOOD PROCESSING**

Over the past year, Oregon has seen significant export growth, increasing to \$15.1 billion, a year-over-year increase of 25.8%. In addition to Computer & Electronics Manufacturing, Agricultural products are a large factor in Oregon’s realized export growth. Among all of Oregon’s export industries, Agriculture Products second in export value, contributing \$2.3 billion or 15% of total export value. This represented an annual increase of 64.5%, the largest jump among Oregon industries. Food & Kindred Goods provided an additional \$300 million. While Agriculture and Food Products have benefited largely from recent high commodity prices, the last two quarters have seen food prices retreat notably, a trend that is likely to continue in coming periods.

The OED’s outlook for Agriculture and Food Manufacturing in Oregon is rather bearish through 2016, with only 600 new jobs (0.25% AAGR) expected in Food Manufacturing. Non-farm agriculture employment is not forecasted by the OED.

<sup>4</sup> Solar Energy Industries Association and Prometheus Institute, “US Solar Industry Year in Review,” 2007.

<sup>5</sup> Solar Energy Industries Association and Prometheus Institute, “US Solar Industry Year in Review,” 2007 and Greenpeace International and European Photovoltaic Industry Association, “Solar Generation V,” 2008.

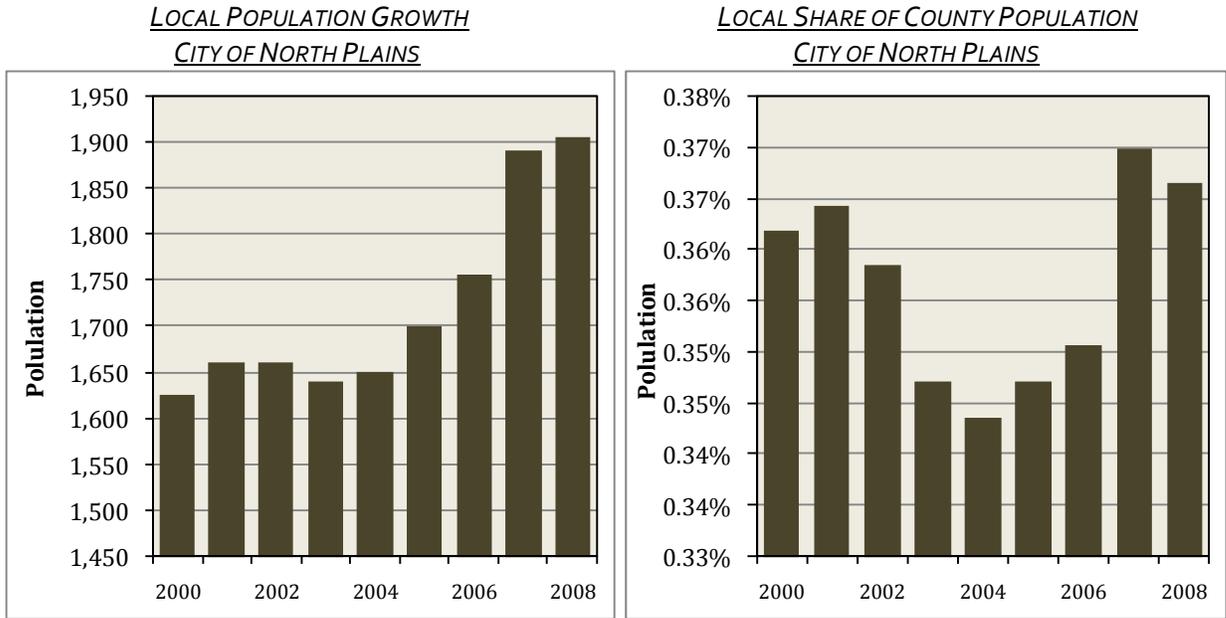
<sup>6</sup> Climate Solutions and Clean Edge, Inc., “Carbon-Free Prosperity 2025,” October, 2008 and Oregon Department of Energy.



## DEMOGRAPHICS

The City of North Plains is among Washington County’s smallest jurisdictions in terms of both size and character. It is largely a bedroom community with a small town feel serving employment centers on the western edge of the Metro Urban Growth Boundary, namely Hillsboro. North Plains' population has grown by 17.2% (2.3% AAGR) since the 2000 Census. However, roughly three-quarters of growth this decade has occurred during the past three years, when escalating housing prices increased pressure on exurban communities in the metro area.

**FIGURE 10: LOCAL POPULATION GROWTH TRENDS**



SOURCE: Portland State University Population Research Center

Unlike many Oregon counties, Washington County has not gained a large share of retirement age population. In 2007, Washington County’s share of population age 65 and older was significantly below State levels; 8.8% versus 12.5%. Washington County has a greater population of age 19 and younger and 25 to 44 year olds relative to the State distribution; 60.6% versus 53.2%.

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, Washington County is at a slight competitive advantage regionally, with a higher distribution of higher educated persons—36.6% of local residents have a Bachelor’s Degree or higher as compared to 34.7% at the Portland metro level. The City of North Plains has a 15.3% share of higher educated local residents according to the 2000 census. This is substantially less than the regional share, and that of neighboring job centers, namely Hillsboro, and reflects the concentration of the existing job base in Wood Products and Construction industries. This relative education level highlights concerns locally about the extent to which the local skill base matches the needs of high growth industry opportunities.

Presumably reflecting the Portland metro area’s relatively younger demographic, all three metro counties have had a positive natural increase in population since 2000. However, net in-migration appears to be the larger contributor to demographic growth in Multnomah and Clackamas Counties by a share of 75% while natural increase is the larger contributor in Washington County by a share of 63%. Evaluating sources of in-migration is useful in understanding the interconnectedness of Washington County to the Portland metro area as well as to other regions in Oregon or elsewhere. According the United States Internal Revenue Service (IRS), Washington County is most closely associated with Multnomah and Clackamas Counties, which together account for just over a quarter of net in-migration. This follows anticipated logic given the geographical proximity of these areas. Lane, Benton, Jackson and Marion Counties also account for net in-migration, while Yamhill, Columbia, Deschutes and SW Washington Counties, such as Clark, Cowlitz and Skamania, account for a large portion of out-migration. However, the bulk of net



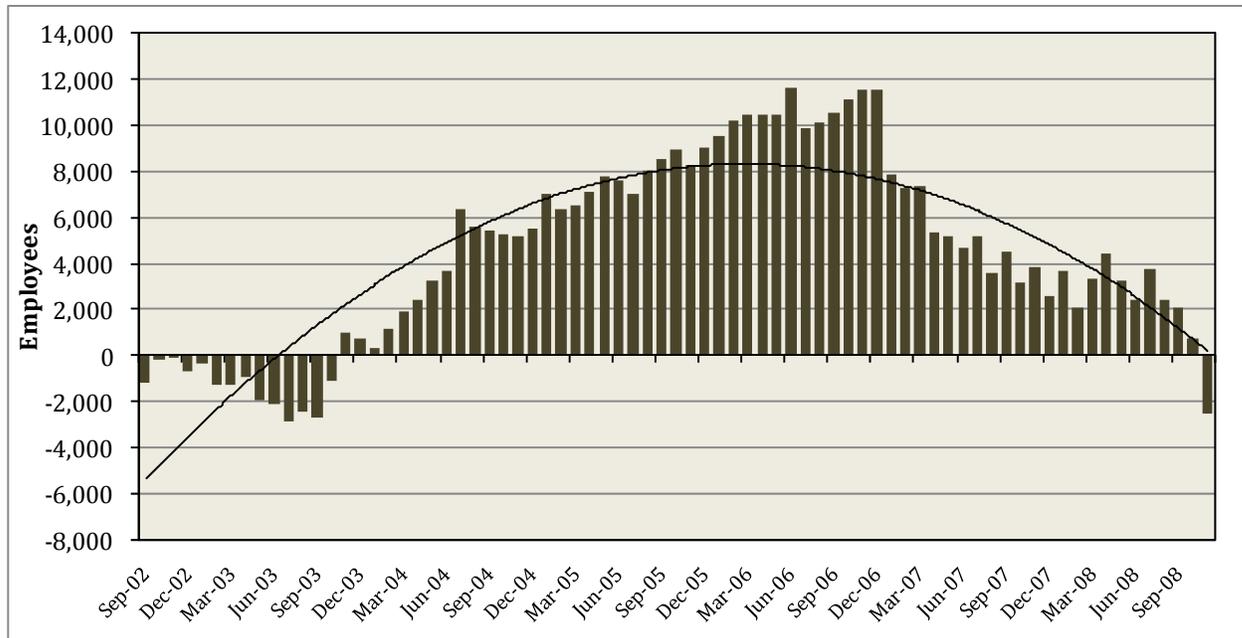
in-migration originates from California, accounting for nearly 70% of net-migration. In aggregate, Washington County gained 10,043 migrants, about 2% of total population, between 2000 and 2006.

## EMPLOYMENT

Unemployment in the Portland metro area has consistently remained lower than the broader State economy. In other words, regional volatility—as measured by unemployment is significantly lower than at the State level. Similarly, unemployment in Washington County has consistently remained lower than that in the Portland metro area.

Since 2002, total employment growth in Washington County had remained strong, gaining 11.3%. The county's growth cycle, which began in late 2003, maintained momentum until early 2007. In November of 2008, the County entered negative territory in terms of year-over-year growth for the first period in five years. Moreover, the slowing and possibly further contraction is expected to extend through early to mid-2009 and impact most industries.

**FIGURE 11: YEAR-OVER-YEAR EMPLOYMENT GROWTH IN WASHINGTON COUNTY: 2002-2008**



Source: Oregon Employment Department

The largest sectors of the Washington County economy diverge somewhat from sector rankings of the State and metro area. For example, Manufacturing accounts for 19% of Washington County's economy whereas the share is nearly 12% at the State and metro area. On the other hand, Public Administration accounts for a correspondingly large share at the State (16.8%) and metro area (12.7%), but only an 8.5% share in Washington County. Portland metro and Washington County both have a relatively greater share of Professional & Business Services employment, 13.6% and 14.0%, respectively while the overall State share is 11.4%. However, in other sectors Washington County's employment share is roughly similar to State and metro levels. The City of North Plains deviates somewhat from broader county trends, as the economy is heavily concentrated in "traditional" industries in Oregon, namely nursery products, agriculture, wood products manufacturing and wholesaling, and a growing construction industry. Over 60% of the North Plains economy in terms of employment is concentrated in the Construction and Manufacturing industries.

Regionally, Washington County had numerous strong sectors during the five year period between 2002 and 2007, including Education & Health Services (+5,497 jobs), Public Administration (+3,821 jobs), Leisure & Hospitality Services (+3,606 jobs), Retail Trade (+3,246 jobs), Construction (+3,153 jobs), Professional & Business Services



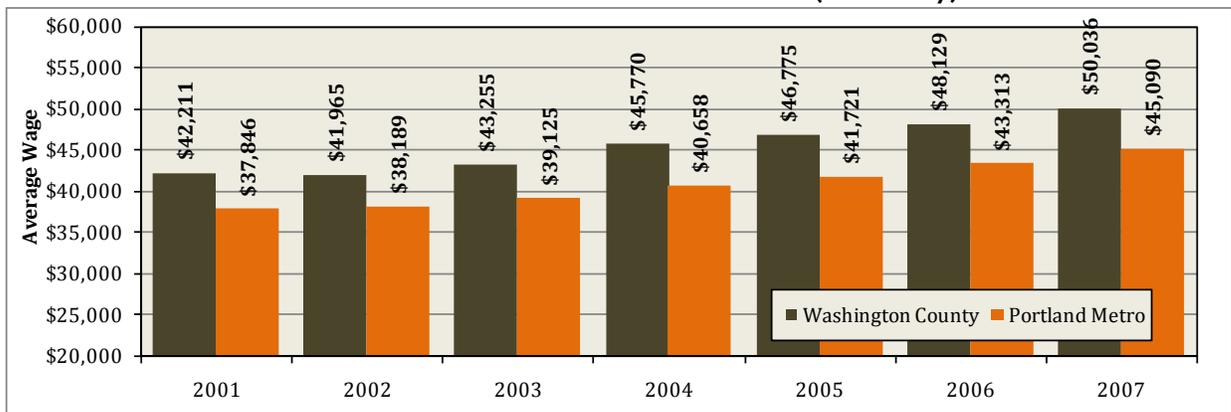
(+2,901 jobs), Wholesale Trade (+2,713 jobs) and Financial Activities (2,086 jobs) In all, the only industry to lose jobs was Transportation, Warehousing, & Utilities which shed about 827 jobs.

Between 2002 and 2007, the City of North Plains' employment grew sizably in percentage terms, albeit from a relatively small base. According to the Oregon Employment Department's ES-202 data on covered employment, employment in North Plains grew at a rate of roughly 10.7% AAGR while adding 450 new jobs. This of course represented only a marginal share of Washington County's covered employment gain.

## WAGES

With the exception of Public Administration, Leisure & Hospitality Services, Professional & Business Services and Financial Activities, average wage levels by sector in Washington County are at or above wage levels in the Portland metro area. Across all industries, Washington County wages averaged \$50,036, again 11.0% above the Portland metro \$45,090 average and 31.5% above the \$38,057 Oregon average. Since 2002, wage levels in Washington County have averaged 2.9% annual growth, slightly below the 3.3% annual growth at the State level. Similarly, at 3.2%, North Plains has remained roughly consistent with State wage growth. However, in 2007, the average wage in North Plains was \$37,345. While the average wage level in North Plains is well below Washington County and Portland Metro area averages, it is roughly on par with statewide average and markedly higher than that of other smaller jurisdiction in Washington County, including Forest Grove (\$33,732), Cornelius (\$28,156), and Banks (\$29,495).

FIGURE 12: AVERAGE ANNUAL WAGE GROWTH (2002-2007)



Source: Oregon Employment Department

In Washington County, the highest paid industry sector is Wholesale Trade (\$90,315 annually), followed by Information (\$77,653) and Manufacturing (\$75,788). The lowest paid industries are Leisure & Hospitality (\$16,363) and Retail Trade (\$27,034). The City of North Plains' highest paid industries are Construction (\$48,513) and Public Administration (\$47,104). Its lowest paid industries are Leisure & Hospitality (\$12,628) and Retail Trade (\$13,311).

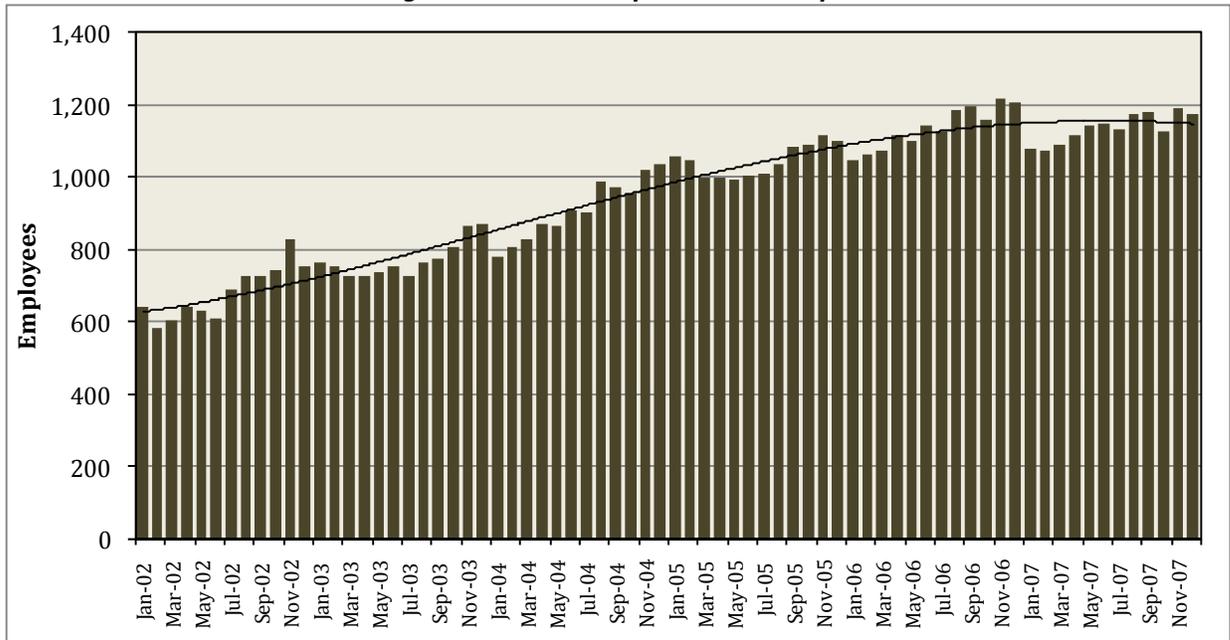
## THE NORTH PLAINS ECONOMY & TARGETED INDUSTRIES

The City of North Plains can best be categorized as a bedroom community serving as an affordable residential center for employment hubs in Washington County, namely Hillsboro. Census data from the Local Employment Household Dynamics (LEHD) program indicates that roughly 36% of employed North Plains residents commute to Hillsboro for employment, included within the over 95% who commute to work outside of the City of North Plains.

However, the City has seen significant employment growth on a percentage basis during the current cycle. According to the Oregon Employment Department's ES-202 data on covered employment, the employment base in North Plains grew by 66% between 2002 and 2007, reaching over 1,100 positions in 2007.



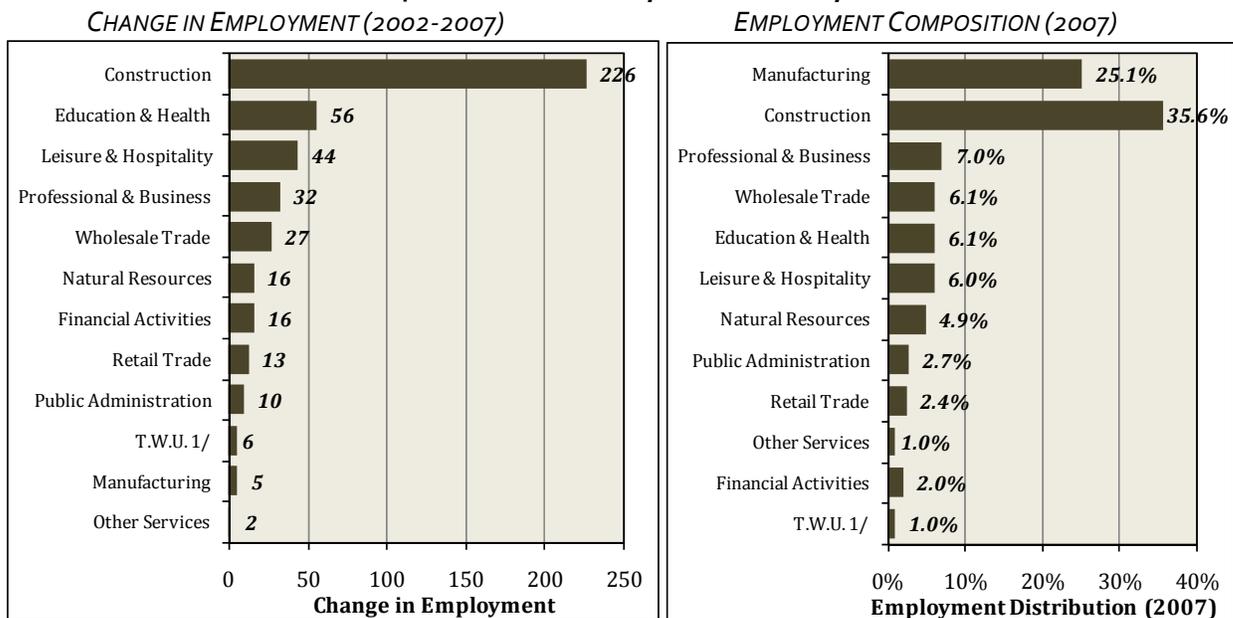
**FIGURE 13: EMPLOYED LEVEL, NORTH PLAINS, OREGON**



SOURCE: Oregon Employment Department, ES-202 covered employment

The local economy is largely concentrated in Construction and Manufacturing, which combine to comprise over 60% of local employment. The majority of Manufacturing employment is concentrated in Wood Products. Over the last five years, the construction industry had seen notable growth locally, with several new firms entering the economy. Construction growth was largely a function of the housing boom across the region and in Washington County. Growth in Education and Health were largely organically driven public education growth resulting from a larger population base.

**FIGURE 14: ECONOMIC PROFILE, NORTH PLAINS, OREGON**



1/ Transportation, Warehousing, & Utilities

SOURCE: Oregon Employment Department, ES-202 covered employment



For a bedroom community, retail and food service employment is lower than is typical in North Plains. Because local retailing is limited, the retail dollars of local residents are "leaked" outside the community as local residents meet their retail needs by driving to larger communities such as Hillsboro. As the demographic base continues to grow, increased retail pressure is likely to trigger higher intensity retail than is currently established in North Plains.

Geographically, the City of North Plains is physically distanced from the major economic hubs of the metro area by over five miles of prime agricultural land. This characteristic has certainly proven to be an advantage in some respects, as it gives North Plains a rural exurban atmosphere that makes it attractive over many alternative suburban locations. Additionally, North Plains' location along Highway 26 offers regional connectivity and access to the Oregon Coast less than one-hour removed. However, the distance also proves challenging economically the distance limits the synergy of clustered economic activity in the Westside.

Moving forward, the opportunity for economic growth is multifaceted. Principally, on the margin North Plains will see organic growth out of existing economic concentrations. It's proximity to critical production inputs in its economy, namely timber and agriculture, will facilitate competitiveness in those industries, but structural growth in the industry is uncertain. However, the City has witnessed signs of an emerging vendor and light manufacturing growth cluster. The Construction sector will rebound commensurately with the broader economy and more specifically the housing sector. As the economy matures, Professional and Business Services will likely see significant growth as the economy becomes increasingly able to support service operators locally. Other organic growth areas are likely to be demographically driven, namely retail and other household services.

A second source of economic growth locally will come as a result of regional economic development pressure originating from existing and emerging high-tech economic clusters Washington County, specifically concentrated in the Hillsboro economy. JOHNSON REID's assessment of economic growth in Hillsboro forecasts 80,000 to 130,000 new jobs through 2035, translating into gross land need of roughly 5,100 to 8,300 acres. Between 8,100 and 13,000 of new growth positions could be driven by emerging solar manufacturing and bio-tech industries, including indirect and induced effects from vendors, suppliers, etc. From a policy perspective, the City of Hillsboro likely will have insufficient land capacity to meet its forecasted need.

By establishing a process of regional coordination, several jurisdictions in Washington County, including North Plains, have made it a policy goal to retain as much economic growth regionally as possible. Through coordinated economic development, this coalition of jurisdictions can plan to provide opportunities for growth in the region, supplying suitable land alternatives outside of Hillsboro but within the region. With its strong transportation assets, livability, and location less than five miles from downtown Hillsboro, North Plains is well positioned to capture spillover economic growth from Western Washington County regional pressure.



# TWENTY-YEAR EMPLOYMENT FORECAST

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## INTRODUCTION

This analysis outlines a forecast of employment within the City of North Plains Urban Area, referred to hereafter in this section simply as “North Plains”. The employment forecasts were generated through 2035. The primary source of data on current employment patterns was derived from the State of Oregon Employment Department’s ES-202 reports.

North Plains’ employment forecast is estimated according to two varying methods. First, North Plains’ employment forecast is determined in terms of its “organic” growth potential; in other words, growth it may achieve based on its existing and future industries as well as its individual competitive advantage. The methodology used to reach this baseline forecast is expounded in detail below.

Second, two alternative employment forecasts are estimated based on the growth potential of the City of Hillsboro. During the course of completing its own Economic Opportunity Analysis, the City of Hillsboro determined that its growth potential exceeds its ability to provide sufficient land of the sizes and types that its targeted high-tech clusters will require, particularly over the fifty-year horizon. While the City of Hillsboro has decided that it will focus its economic development efforts on targeting “cluster anchor” industrial users, or those that generally require large industrial parcels, the coordination of economic development and employment land provision between the members of the Western Washington County subarea—Hillsboro, North Plains, Cornelius, North Plains and Banks—is integral to regional growth prospects. Without the provision of industrial acreage in more moderate parcel and site sizes by the partner cities in Western Washington County, larger high-tech cluster industrial recruitment in general may likely be compromised. Although the impact of Hillsboro’s growth on the region is most important over the fifty-year planning period, the twenty-year horizon will require increasing coordination among the five cities as well as North Plains’ ability to accommodate spillover industry. These assumptions provide the basis of the alternative medium and high employment forecasts, which both assume North Plains captures a varying percentage of Hillsboro’s spillover growth. As with the baseline forecast, the methodology used to reach the medium and high forecasts is provided in detail below.

## CREATING A BASE YEAR ESTIMATE

### CONVERSION TO TOTAL EMPLOYMENT

For the year 2007, ES-202 reports estimate employment in North Plains to total 1,134 employees. However, our source ES-202 data reports “covered employment” only—employer firms that tracked through unemployment insurance. Because this data omits a significant portion of the workforce that are not covered (i.e. sole-proprietors, self-employed, commission workers) we must revise our estimates to reflect true employment. Estimates from the Bureau of Economic Analysis (BEA) indicate that covered employment accounts for approximately 85% of total employment in Washington County, with individual estimates reported by broad sector. Assuming that North Plains roughly tracks regional trends, we estimate the *total* employed level in 2007 to be in the area 1,368 employees.



**FIGURE 13: CONVERSION OF COVERED EMPLOYMENT TO TOTAL EMPLOYMENT (2007)**

NAICS	2007 Observed 2/	Covered Share of Total Employment /2	Estimated Total Employment (2007)
Natural Resources	55	54.6%	101
Construction	404	81.9%	493
Manufacturing	285	97.8%	291
Wholesale Trade	70	88.9%	78
Retail Trade	27	85.5%	32
T.W.U. 1/	11	81.8%	13
Information	ND	90.5%	ND
Financial Activities	23	63.5%	36
Professional & Business	80	79.9%	100
Education & Health	69	73.4%	94
Leisure & Hospitality	68	87.2%	78
Other Services	11	56.0%	20
Public Administration	31	100.0%	31
<b>TOTAL</b>	<b>1,134</b>	<b>82.9%</b>	<b>1,368</b>

1/ Transportation, Warehousing, & Utilities

2/From Oregon Employment Department ES-202 Data

3/ Bureau of Economic Analysis (BEA), Share for Washington County

Source: JOHNSON REID

#### CONVERSION TO TOTAL EMPLOYMENT

The second step to creating our base year estimate is updating our 2007 total employment estimate to the current period. This process involves the evaluation of countywide economic trends between 2007 and 2008 in addition to current knowledge about the local economic activity in North Plains. Outlined in Figure 14, we assume that between 2007 and 2008 the North Plains economy contracted slightly, by a margin of -2.2% to 1,312 employees. This estimate will be utilized as the basis of our long-term employment forecast.

**FIGURE 14: UPDATING 2007 TOTAL EMPLOYMENT TO THE CURRENT PERIOD (2008)**

NAICS	2007 Total Employment	Short-Term Annual Growth Assumption 2/	2008 Total Employment Estimate
Natural Resources	101	0.0%	101
Construction	493	-6.9%	459
Manufacturing	291	-5.5%	275
Wholesale Trade	78	0.0%	78
Retail Trade	32	-1.3%	31
T.W.U. 1/	13	0.0%	13
Information	ND	2.5%	ND
Financial Activities	36	-5.8%	34
Professional & Business	100	-3.7%	96
Education & Health	94	-0.4%	94
Leisure & Hospitality	78	1.0%	79
Other Services	20	-2.6%	20
Public Administration	31	0.9%	31
<b>TOTAL</b>	<b>1,368</b>	<b>-4.1%</b>	<b>1,312</b>

1/ Transportation, Warehousing, & Utilities

2/Assumes that growth in North Plains roughly tracks Washington County between 2007 and 2008

Source: JOHNSON REID



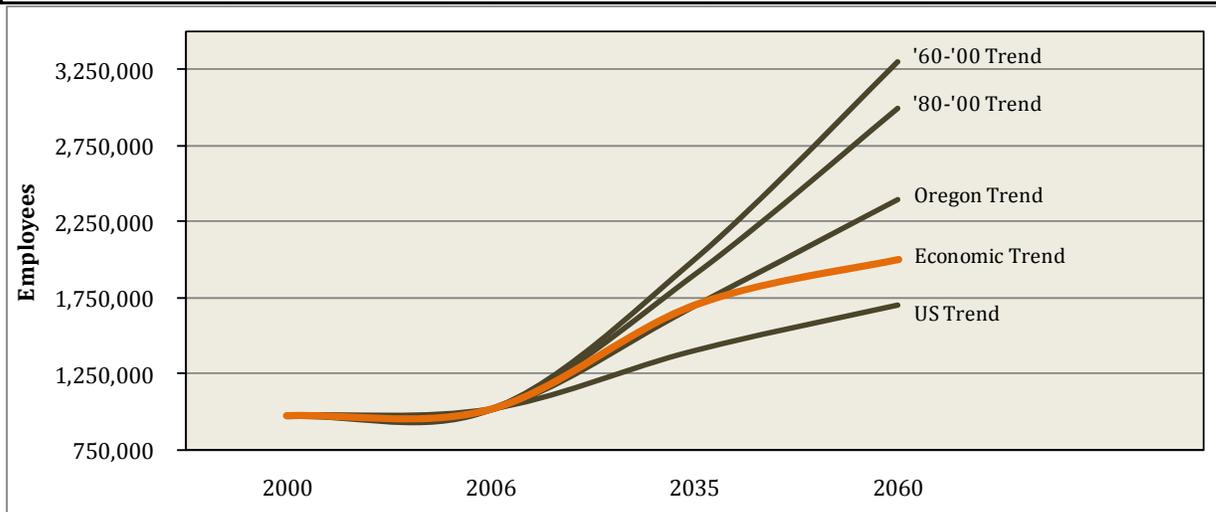
## ANTICIPATED REGIONAL GROWTH

In May 2008, Metro released its preliminary 2060 population and employment forecast for the Portland Metropolitan Area. Based on a range of assumptions and growth rates, Metro’s Data Resource Center produced a series of forecast scenarios, presented in Figure 16. Metro’s preferred option, the *Economic Trend*, relies on national growth factors, migration trends, and birth/death rate from local vital records. Employment is assumed to be correlated with population levels in Metro’s regional econometric model.

- *The forecast does not stratify growth across counties or industries and is presented broadly across the metropolitan area. It presents point estimates to the year 2035 and 2060.*
- *Over the 2035 forecast period, Metro estimates anywhere from 1.4 million to 2.0 million employees in the metro area. Under the preferred Economic Trend the region will have 1.7 million employees by 2035.*
- *The long-range 2060 forecast estimates anywhere from 1.7 to 3.3 million jobs in the region.*

**FIGURE 15: ANTICIPATED REGIONAL GROWTH, PORTLAND METRO AREA**

Year	METRO CONSOLIDATED EMPLOYMENT FORECAST				
	<u>US Trend</u> (0.9%)	<u>Economic Trend</u> (1.2%)	<u>Oregon Trend</u> (1.4%)	<u>'80-'00 Trend</u> (1.8%)	<u>'60-'00 Trend</u> (2.0%)
1990	730,400	730,400	730,400	730,400	730,400
1995	845,700	845,700	845,700	845,700	845,700
2000	973,200	973,200	973,200	973,200	973,200
2006	1,015,300	1,015,300	1,015,300	1,015,300	1,015,300
2035	1,400,000	1,700,000	1,700,000	1,900,000	2,000,000
2060	1,700,000	2,000,000	2,400,000	3,000,000	3,300,000



SOURCE: Metro

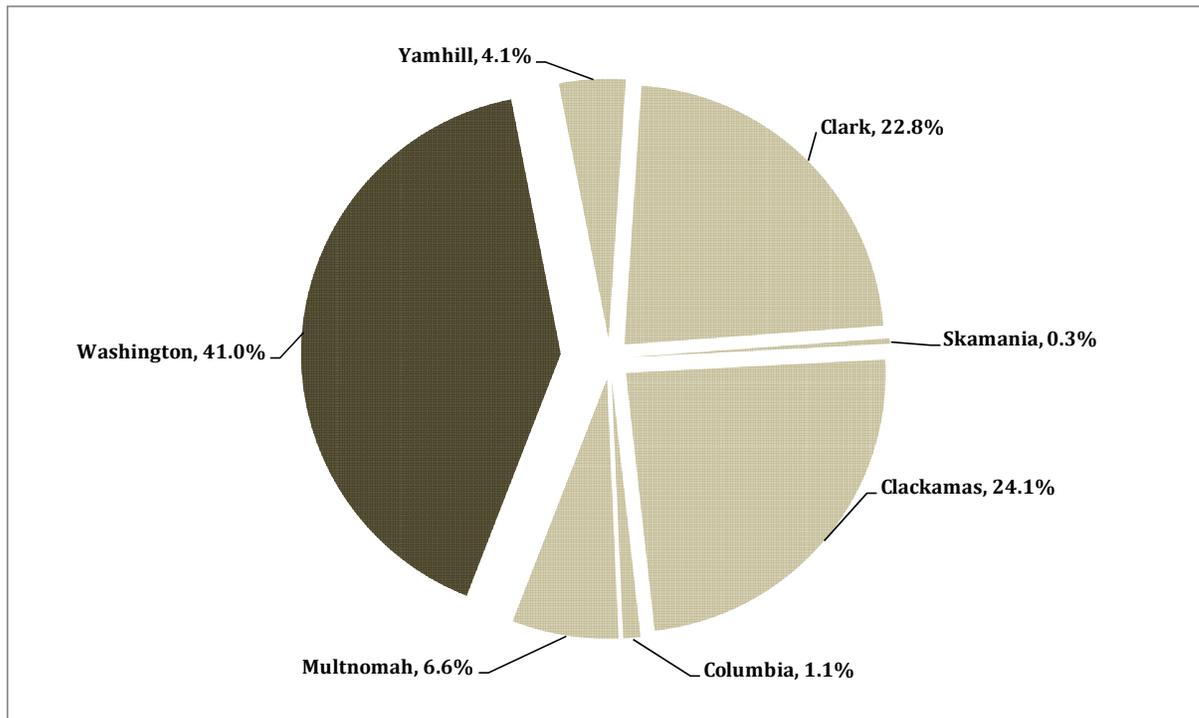
## ESTIMATING WASHINGTON COUNTY GROWTH

Because Metro’s regional forecast does not allocate employment across subregions, we must make estimates as to what share of regional growth Washington County should conceivably capture. We reviewed historical employment data from the Bureau of Economic Analysis (BEA) and employment departments in Oregon and Washington. Over the last ten years, Washington County has captured 41% of total employment growth across the Portland Metropolitan Area. This interval includes the only period of economic contraction (2001-2002 following the tech bubble) Washington County has seen in the last 25 years.

Coupled with the fact that Washington County is home to a significant share of the region’s employment land suitable for tomorrow’s industry, we can reasonably expect this trend to continue into the foreseeable future. When applied to Metro’s regional employment forecast, extrapolated to 2008 and 2035 periods, Washington County can expect to capture better than 200,000 new jobs through 2035.



**FIGURE 16: WASHINGTON COUNTY'S HISTORICAL CAPTURE OF REGIONAL GROWTH**



## **BASELINE NORTH PLAINS EMPLOYMENT GROWTH**

To estimate the share of regional employment likely to take place in North Plains we applied a simple regression analysis based on recent historical trends in North Plains. This method is preferred over a top down allocation as North Plains' share of regional employment is negligible and localized trends are likely to be a better indicator. Our analysis assumes baseline "organic" growth of will average roughly 400 jobs every five years or 3.9% AAGR through the forecast period. This rate is measurably lower than the observed increase over the previous five-year growth cycle. This method translates into a baseline forecast of 2,400 new jobs in North Plains over the next 27 years.

### **BASELINE NORTH PLAINS EMPLOYMENT FORECAST BY INDUSTRY SECTOR**

For the purposes of identifying land need, we now stratify total employment growth estimated across employment sectors in the North Plains economy. This in an important step in the analysis as different industry sectors require varying types and characteristics of land. In Figure 17, the baseline total employment forecast is stratified across industry sectors based on Oregon Employment Department (OED) Region 2 forecasts, historical trends from ES-202 reports, interviews with major employers in the area and State and local officials and lastly, the policy goals and objectives outlined by the City.

Figure 17 presents a forecast of total employment for North Plains between 2008 and 2035. As shown, the baseline employment forecast anticipates an increase of 2,400 jobs, reflecting an average annual growth rate of 3.9%. Significant employment gains are expected in existing employment sectors including Construction, Manufacturing and Professional & Business Services. Currently, the Professional & Business Services sector is somewhat underrepresented in the North Plains economy, with an employment density for the sector roughly 50% of the national average. Currently, these services, which include everything from law services and administration to waste remediation are likely being provided by regional firms outside of North Plains, namely Hillsboro and Portland. Over the course of the planning period, we expect the maturation of the North Plains economy and potential spillover effects from on-going economic growth regionally to produce noteworthy growth in professional services on the margin.



**FIGURE 17: ORGANIC EMPLOYMENT FORECAST BY SECTOR, NORTH PLAINS, OREGON (2008-2035)**

Baseline/Organic Forecast NAICS	Base Year		Employment Forecast					2008-2035 Growth	
	2008	2013	2018	2023	2028	2030	2035	Jobs	AAGR
Natural Resources	101	124	156	188	213	223	242	141	3.3%
Construction	459	532	628	719	786	810	859	400	2.3%
Manufacturing	275	328	400	470	523	543	582	307	2.8%
Wholesale Trade	78	106	148	195	234	250	281	203	4.8%
Retail Trade	31	47	74	107	136	149	175	143	6.6%
T.W.U. 1/	13	21	35	53	70	77	93	79	7.5%
Financial Activities	34	48	70	96	119	128	147	114	5.6%
Professional & Business 2/	96	148	239	355	462	506	601	505	7.0%
Education & Health	94	129	184	246	299	320	363	270	5.2%
Leisure & Hospitality	79	103	138	175	206	217	241	162	4.2%
Other Services	20	24	29	34	38	39	42	22	2.8%
Public Administration	31	40	52	65	75	79	86	55	3.8%
<b>TOTAL</b>	<b>1,312</b>	<b>1,648</b>	<b>2,152</b>	<b>2,704</b>	<b>3,160</b>	<b>3,340</b>	<b>3,712</b>	<b>2,400</b>	<b>3.9%</b>

1/ Transportation, Warehousing, & Utilities  
 2/ Includes Information, for disclosure purposes  
 SOURCE: JOHNSON REID

## ALTERNATIVE GROWTH SCENARIOS

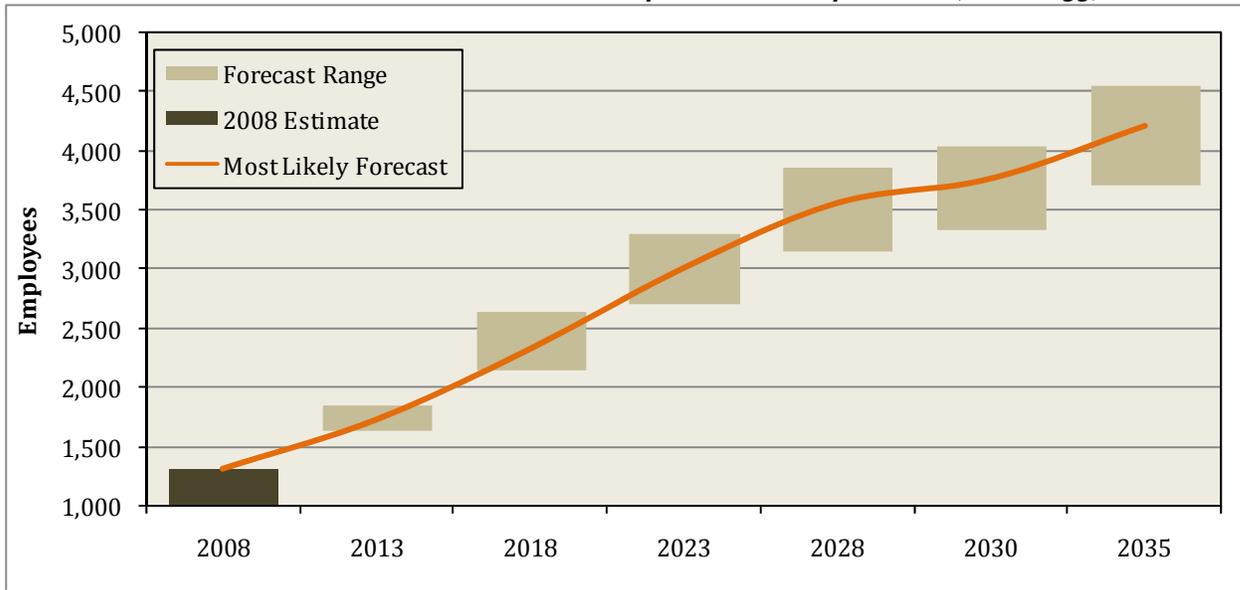
The baseline scenario evaluated above is based on the estimated organic growth potential originating around already existing and emerging industrial growth in North Plains. However, as discussed above, Washington County's principal economic engine, Hillsboro, is establishing a policy objective to create a solar energy cluster in Hillsboro and Washington County, considering the recent activity in Hillsboro with the operations of SolarWorld SpectraWatt already slated to bring 2,000-2,500 solar manufacturing jobs to Hillsboro in the next two years alone, this objective is increasingly viable. The City's policy is to plan for local growth similar to the tech boom that hit Hillsboro in the 1990's. This path could lead to the creation of thousands of manufacturing jobs in the local economy. Between 1987 and 2000 Washington County's high tech manufacturing employment nearly doubled, adding close to 15,000 jobs. During that period, the Washington County economy added over 115,000 jobs growing by an annual average rate of 5.7%.

The region has also targeted the biotech sector. Oregon's biotech projections are uncertain due to challenges the industry faces at the State level such as a lack of seed and venture capital funding, lack of major biomedical research university and agglomeration. With this said, the potential for Hillsboro to attract biotech companies is greatly increased by the presence of Genentech. The most viable addition to Hillsboro is biotech contract manufacturing.

This analysis assumes North Plains' ability to capture the equivalent of 10% of indirect and induced impacts of regional economic activity created by the emergence of solar and biotechnology clusters outlined in JOHNSON REID'S Hillsboro analysis. This methodology translates into an additional 503 to 836 jobs beyond the baseline capture forecast presented in Figure 17.



**FIGURE 18: TOTAL EMPLOYMENT FORECAST, NORTH PLAINS, OREGON (2008-2035)**



The alternative forecasts have the greatest impact on the manufacturing sector, of which the majority of direct employment in the emerging cluster is expected to be concentrated. Additionally, Professional & Business Services also displays a notable uptick under the alternative scenarios.

**FIGURE 19: ALTERNATIVE GROWTH FORECASTS BY SECTOR, NORTH PLAINS, OREGON (2008-2035)**

High Growth Scenario NAICS	Base Year	Employment Forecast						2008-2035 Growth	
	2008	2013	2018	2023	2028	2030	2035	Jobs	AAGR
Natural Resources	101	143	180	217	246	257	279	178	3.8%
Construction	459	613	724	829	906	935	992	532	2.9%
Manufacturing	275	468	669	786	889	961	1,064	788	5.1%
Wholesale Trade	78	126	181	237	284	305	344	266	5.6%
Retail Trade	31	63	106	148	186	205	241	210	7.8%
T.W.U. 1/	13	27	48	70	91	101	121	108	8.5%
Financial Activities	34	60	94	126	155	168	194	160	6.7%
Professional & Business 2/	96	175	285	420	545	598	711	614	7.7%
Education & Health	94	214	364	463	554	614	706	613	7.8%
Leisure & Hospitality	79	129	183	230	269	289	323	244	5.3%
Other Services	20	36	53	63	71	78	86	67	5.6%
Public Administration	31	51	73	90	104	112	125	94	5.3%
<b>TOTAL</b>	<b>1,312</b>	<b>2,105</b>	<b>2,961</b>	<b>3,679</b>	<b>4,301</b>	<b>4,623</b>	<b>5,185</b>	<b>3,873</b>	<b>5.2%</b>
Medium Growth Scenario NAICS	Base Year	Employment Forecast						2008-2035 Growth	
	2008	2013	2018	2023	2028	2030	2035	Jobs	AAGR
Natural Resources	101	143	180	217	246	257	279	178	3.8%
Construction	459	612	723	828	905	934	990	531	2.9%
Manufacturing	275	412	535	672	774	826	907	631	4.5%
Wholesale Trade	78	123	174	231	278	298	336	257	5.5%
Retail Trade	31	58	92	136	174	192	225	194	7.6%
T.W.U. 1/	13	25	43	66	87	96	115	102	8.3%
Financial Activities	34	57	85	119	148	160	184	150	6.5%
Professional & Business 2/	96	172	279	415	539	592	703	607	7.6%
Education & Health	94	173	266	380	470	516	591	498	7.1%
Leisure & Hospitality	79	122	167	217	256	273	305	226	5.1%
Other Services	20	31	40	52	60	65	71	51	4.8%
Public Administration	31	48	65	83	97	103	115	83	4.9%
<b>TOTAL</b>	<b>1,312</b>	<b>1,976</b>	<b>2,649</b>	<b>3,416</b>	<b>4,035</b>	<b>4,311</b>	<b>4,820</b>	<b>3,508</b>	<b>4.9%</b>

1/ Transportation, Warehousing, & Utilities  
 2/ Includes Information, for disclosure purposes  
 SOURCE: JOHNSON REID



# TWENTY-YEAR EMPLOYMENT LAND NEEDS ANALYSIS

## INTRODUCTION

This section summarizes the projected need for commercial and industrial land associated with the employment projections through 2035. Results are followed by a description of the methodology employed by JOHNSON REID to project the need for commercial and industrial space, and subsequently, commercial and industrial land.

Determining the City’s required site types 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 North Plains during the planning period. This component was completed through the Target Industry Evaluation 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 need and the demanded numbers of sites.

## SUMMARY OF COMMERCIAL AND INDUSTRIAL LAND NEED FINDINGS

The results summarized in Figure 20 highlight projections of net new demand within the North Plains Urban Area for commercial and industrial land between 2008 and 2035. Detailed findings by use type and growth scenario are included in the technical appendix. Over the next twenty years, net new demand for commercial and industrial land is expected to range from 190 to 259 net buildable acres, contingent upon North Plains’ realized growth pattern through 2035. The organic baseline scenario indicates that North Plains can expect aggregate commercial and industrial land need in the vicinity of 190 acres through 2035; additional acreage may be necessary to accommodate particular numbers and types of sites expected to be demanded.

These projections reflect *net* developable 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.

AVERAGE JOBS/NET ACRE	
OFFICE COMMERCIAL	37.9
INDUSTRIAL	16.7
RETAIL COMMERCIAL	9.4
OVERNIGHT LODGING	1.6
SPECIALIZED USES 2/	19.7

The forecast reflects an expectation that future employment space needs will reflect a fairly consistent allocation across commercial office and industrial uses.



**FIGURE 20: PROJECTED AGGREGATE NEED FOR COMMERCIAL AND INDUSTRIAL LAND IN THE NORTH PLAINS AREA (NET BUILDABLE ACRES) (2008-2035)**

Use Type	Need For Land (Acres) By Scenario:		
	Organic Baseline	High Growth	Medium Growth
<b>OFFICE COMMERCIAL</b>	<b>21.8</b>	<b>30.6</b>	<b>27.1</b>
<b>INDUSTRIAL</b>	<b>83.2</b>	<b>109.9</b>	<b>99.2</b>
<b>RETAIL COMMERCIAL</b>	<b>69.0</b>	<b>101.0</b>	<b>86.6</b>
CITY RESIDENTS	55.2	80.8	69.3
REGION/TOURISTS 1/	13.8	20.2	17.3
<b>OVERNIGHT LODGING</b>	<b>3.7</b>	<b>4.5</b>	<b>4.2</b>
<b>SPECIALIZED USES 2/</b>	<b>12.0</b>	<b>13.3</b>	<b>13.2</b>
<b>TOTAL</b>	<b>189.6</b>	<b>259.3</b>	<b>230.2</b>

1/ Assumes regional/tourist demand normalizes at 20% of retail support, given targeted opportunities outlined in the EOA.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized. Assumes 20 employees per acre

SOURCE: JOHNSON REID

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. The DLCDC Goal 9 guidebook recommends 25% for City's that would largely be extending infrastructure into new areas to serve new development. This would be the predominant pattern for the City of North Plains lands outside the UGB and so the below figure converts the acreages from Figure 20 to total gross land demand by category. Figure 21 projects the total land demand for the City of North Plains.

**FIGURE 21: PROJECTED AGGREGATE NEED FOR COMMERCIAL AND INDUSTRIAL LAND IN THE NORTH PLAINS URBAN AREA (GROSS BUILDABLE ACRES) (2008-2035)**

Use Type	Need For Land (Acres) By Scenario:		
	Organic Baseline	High Growth	Medium Growth
<b>OFFICE COMMERCIAL</b>	<b>27.2</b>	<b>38.3</b>	<b>33.9</b>
<b>INDUSTRIAL</b>	<b>103.9</b>	<b>137.4</b>	<b>124.0</b>
<b>RETAIL COMMERCIAL</b>	<b>86.2</b>	<b>126.3</b>	<b>108.2</b>
CITY RESIDENTS	69.0	101.0	86.6
REGION/TOURISTS 1/	17.2	25.3	21.6
<b>OVERNIGHT LODGING</b>	<b>4.7</b>	<b>5.6</b>	<b>5.3</b>
<b>SPECIALIZED USES 2/</b>	<b>15.0</b>	<b>16.6</b>	<b>16.4</b>
<b>TOTAL</b>	<b>237.0</b>	<b>324.1</b>	<b>287.8</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 NEED 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, our projections of industrial and office demand are based on forecasted



employment growth by industrial sector within the City of North Plains. Methodology for forecasting need 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**

Sector employment growth for each of the three economic scenarios 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.

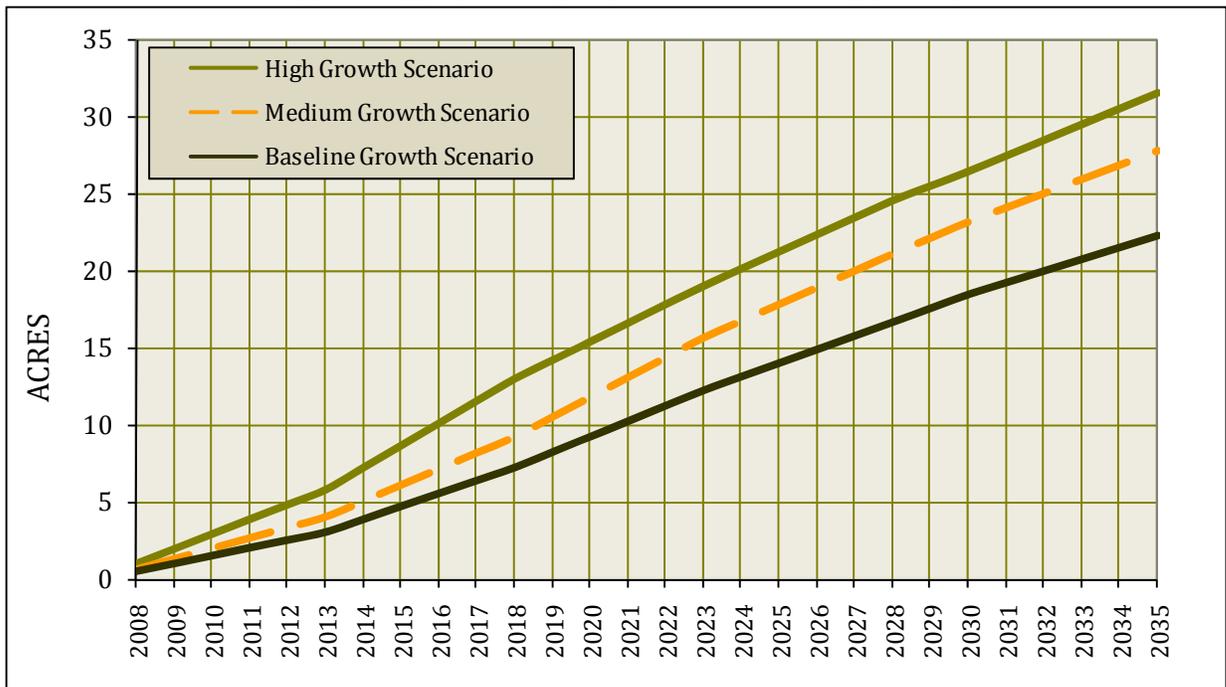
[Exhibits 1.01 and 1.02]

**DEMAND FOR OFFICE COMMERCIAL LAND**

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 projections under each of the three North Plains economic scenarios, JOHNSON REID assumed a relatively conservative average 0.30 FAR. While surface parked office space can be produced at an FAR up to 0.50, the historic pattern in North Plains has included more single storey structures at a substantially lower ratio.

[Exhibit 1.03]

**FIGURE 21: CUMULATIVE OFFICE LAND DEMAND BY SCENARIO**



**DEMAND FOR INDUSTRIAL BUILDING SPACE**

North Plains' industry employment growth for each of the three economic scenarios 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.



[Exhibits 1.05 through 1.07]

### DEMAND FOR INDUSTRIAL LAND

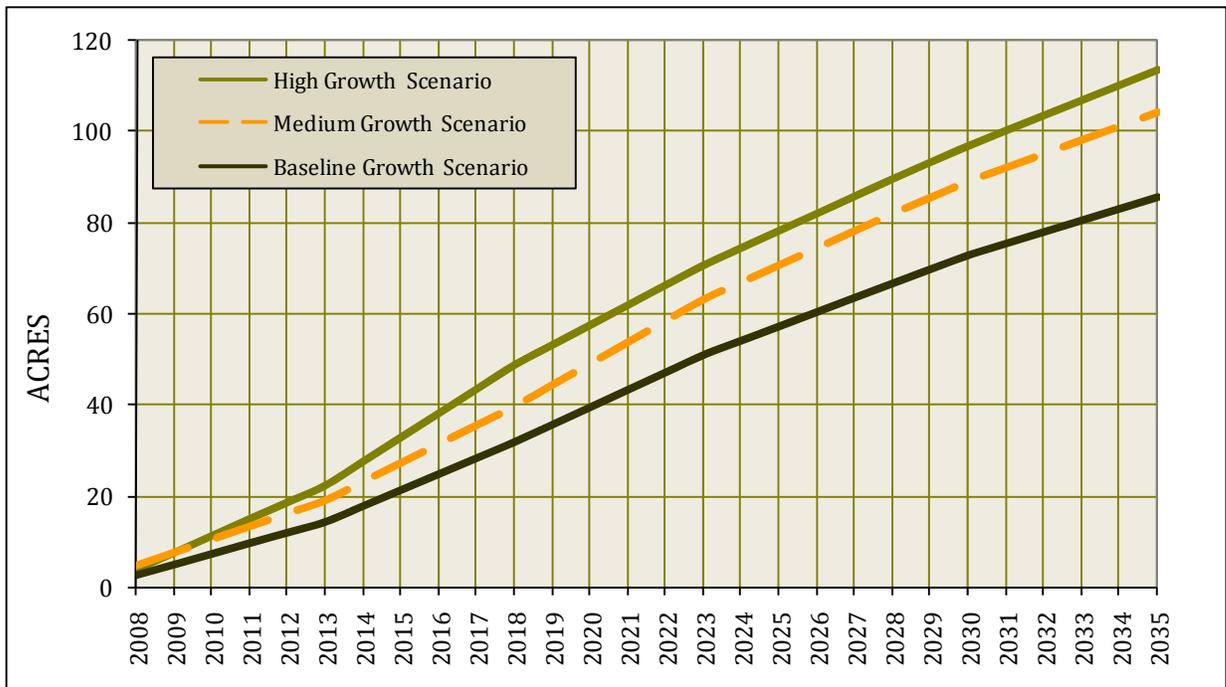
Demand for industrial land is a conversion of demand for space by floor area ratios (FARs) by industrial development type and the addition of non-industrial use demand for industrial land typical of business park space. Projections utilize the following FARs:

- 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>7</sup>

[Exhibits 1.08 and 1.09]

FIGURE 22: CUMULATIVE INDUSTRIAL LAND DEMAND BY SCENARIO



### RETAIL COMMERCIAL LAND METHODOLOGY

Unlike industrial and office commercial land need, retail land need is a direct function of households moving into North Plains, 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 a population/household growth range consistent with rates outlined in the City's Comprehensive Plan. Medium, high and low growth scenarios, and resulting household growth projections through 2035, were estimated as follows:

<sup>7</sup> Non industrial uses in industrial districts include office space as well as support retail.



- *Baseline Growth Scenario: Assumes population growth rate of 4% annually.*
- *High Growth Scenario: Assumes population growth rate of 4.5% annually.*
- *Medium Growth Scenario: Assumes population growth rate of 5.0% annually.*

**ESTIMATE NORTH PLAINS CITY 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. Categories are as detailed in the following table by the North American Industry Classification System (NAICS). In the forecast, real income was adjusted upward at a conservative rate of 2% annually. This assumed rate is half the observed rate of real income growth in North Plains between the 1990 and 200 census.

**FIGURE 23: AVERAGE HOUSEHOLD EXPENDITURES ON RETAIL GOODS, NORTH PLAINS UGB**

NAICS	Category	Per Household Expenditures 1/
441	Automotive Parts, Accessories and Tire Stores	\$10,011
442	Furniture and Home Furnishings Stores	\$1,218
443	Electronics and Appliance Stores	\$1,139
444	Building Materials and Garden Equipment	\$5,513
445	Food and Beverage Stores	\$5,783
446	Health and Personal Care Stores	\$2,105
448	Clothing and Clothing Accessories Stores	\$2,180
451	Sporting Goods, Hobby, Book and Music Stores	\$937
452	General Merchandise Stores	\$5,739
453	Miscellaneous Store Retailers	\$1,278
722	Foodservices and Drinking Places	\$4,324
<b>Totals/Weighted Averages</b>		<b>\$40,226</b>

**ESTIMATE FUTURE CITY OF NORTH PLAINS RESIDENT-DRIVEN RETAIL SALES**

Future retail sales originating within the City of North Plains were simply calculated as the product of future City of North Plains household counts under the medium, high, and low growth scenarios through 2035 and annual average retail sales by category.

[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 City of North Plains 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*.

[Exhibit 1.13]

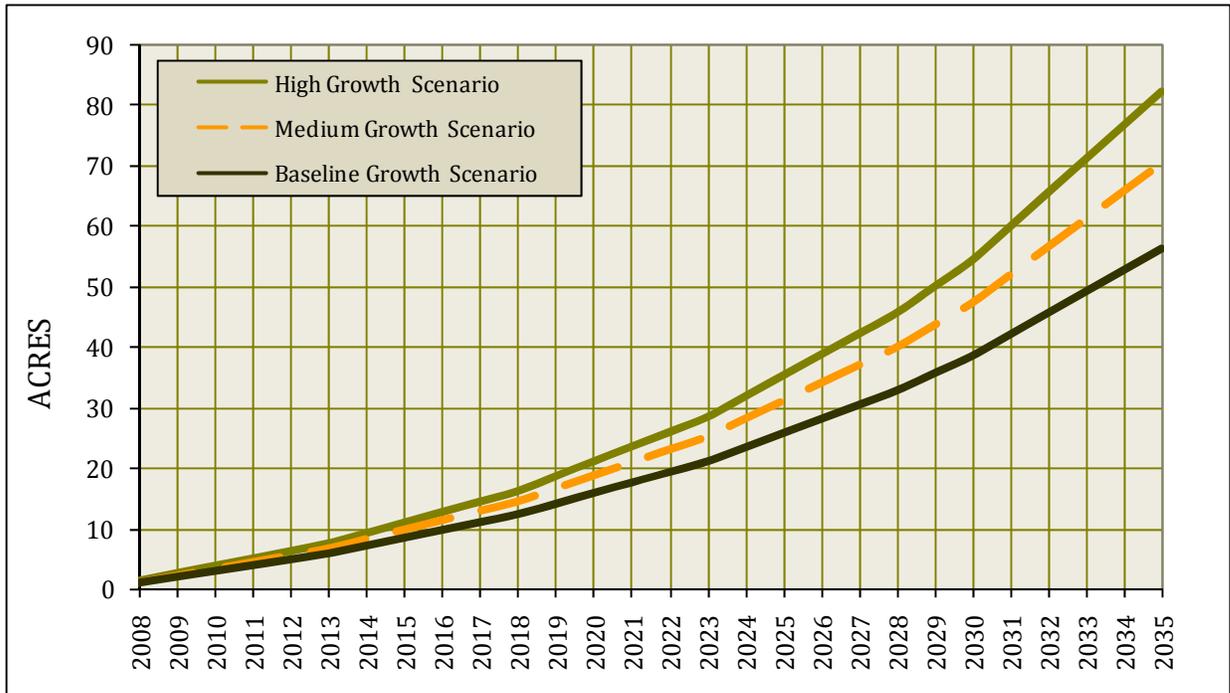
**DEMAND FOR RETAIL COMMERCIAL LAND**

Demand estimates for developed retail space at different time points was then converted into demand for retail commercial land by applying the industry-standard retail Floor Area Ratio (FAR) of 0.25. The FAR assumes standard suburban retail space requiring one parking space per 1,000 square feet of retail floor area.

[Exhibit 1.14]



**FIGURE 26: CUMULATIVE RETAIL LAND DEMAND BY SCENARIO**



**REGION/VISITOR SPENDING PROJECTIONS**

The City of North Plains' estimated retail sales exceed locally originating sales by a slight margin, reflecting the City's position along a major transportation corridor, capturing a certain degree of general retail spending, particularly Food Services. It was assumed within our analysis that this ratio would remain constant, and that regional/visitor spending would grow at an equivalent rate to locally-originating retail sales.



# TWENTY-YEAR EMPLOYMENT LAND DEMAND SITE QUALITIES

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## INTRODUCTION

The previous section of this analysis provided cumulative, net and gross acreage estimates of employment land demand for the City of North Plains, based on economic opportunities identified, over the planning horizon through 2035. This section of the Economic Opportunities Analysis translates total, cumulative demand for employment land into crucial details of employment site needs by various physical and infrastructure criteria, among other qualities. This section is divided into two employment land need discussions:

- *Qualitative Site Requirements by Use:* Market, industry, and user-specific requirements for employment sites over the planning horizon based on known historical patterns and identified industry trends.
- *Employment Site Demand by Site Quality:* Cumulative land demand is translated into use and orientation demand categories including use type, user type, and site sizes consistent with site requirement findings. A reconciliation with existing City land supply is included, with conclusions of additional land need by use and site type discussed.

## QUALITATIVE SITE REQUIREMENTS BY DESIGNATION & USE

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 development matrix tables identify site improvement orientation requirements according to four major land use categories: Office, Commercial Retail, Industrial and Campus/Institutional.

The level of specificity provided in the required site types will inform land demand and supply analyses and land use designation category development.<sup>8</sup> 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.<sup>9</sup> However, by identifying and planning for typical patterns, the widest range of development patterns has been considered in an effort to analyze demand from these many perspectives.

The subsequent description of site requirements does not include extensive discussions of environmental constraints. This is because employment land development patterns are generally less sensitive to environmental constraints than residential development patterns. Generally, the described acreages assume sites that are largely free from environmental constraints such as slopes, wetlands, and floodplains.

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<sup>8</sup> The typical development pattern presented in this section do not equate to land use districts; nor are they intended to function as *Uses with Special Siting Characteristics* (As that term is used in OAR 660-009-0025(8)).

<sup>9</sup> Site sizes are actually continuous phenomena. The segmentation into size ranges is not statistically defined, but is nonetheless useful for analysis and planning purposes. Hybrid and overlapping development patterns already exist and are common; others hybrids and overlaps may emerge during the planning period including various high-tech uses.



## OFFICE DEVELOPMENT PATTERN TYPES MATRIX

	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/Leasing Patterns	Parking, Loading, Storage (Loading & Storage not major issues for Offices)
Large Office Users (150-1200+ Employees; 60k-500+k sq. ft. built space)	Main Branch/Headquarters 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. Proximity to Government offices may be a factor. Convenient airport access is almost always important. Convenient public transportation may be a consideration, especially for a downtown site.	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.	Downtown – Large users sometimes occupy high-rise structures in downtown areas. Site sizes are usually 0.75 to 4 acres per user arrayed among traditional downtown development patterns. Large tenants critical in pre-lease requirements for high-rise construction.	Typically own or long-term leases from affiliated real estate company. Sometimes independent long-term leases.	Parking must be reasonably adequate and convenient- Often structured. Usually a mix of private and public if structured.
				Business/Office Park- Usually two to three story buildings. Users usually have 3.5 to 15 acre sites clustered within a larger park of 50 to 400 hundred acres. Large users may also prefer a campus siting, and may land bank for potential future expansion.	Typically Own or lease from affiliated real estate company.	Usually uses on-site surface parking.
				Under-performing Commercial Sites – Usually adaptive reuse of an under-performing commercial site 2 to 20 acres arrayed within a larger commercial node of 20 to 500 acres.	Typically discount lease structure, but may own	Usually uses on-site existing surface parking
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. Proximity to Government offices may be a factor. High visibility access to customers is essential for the consumer oriented users. Airport access is important. Convenient public transportation may be a consideration, especially for a downtown site.	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. Site sizes come from existing configurations. The size of these tenants and their ability to pre-commit on space make building new speculative space difficult at the scale seen in more urban locations.	Limited ownership opportunities may be a limiting factor. Leases prevalent.	Tends to utilize public supplied parking downtown that may include leases of public spaces.
				Business/Office Park- Occupy buildings individually or with a group of tenants. Users often seek sites near campus development patterns with which they interact. Sites are typically 0.5 to 3 acres per user within a larger park of 30 to 100 acres.	Ownership or leases from affiliated companies common and may be deciding factor.	Usually uses on-site surface parking.
				Commercial Centers-These are the preferred development patterns for consumer oriented medium sized office users such as branch banks and real estate offices. Users often seek sites near campus development patterns with which they interact. Sites are typically 0.5 to 3 acres per user within a larger community commercial node of 10 to 200 acres.	Ownership varies with the user requirements.	Usually on-site, but may be shared parking with adjoining commercial uses.



	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/Leasing Patterns	Parking, Loading, Storage (Loading & Storage not major issues for Offices)
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. Executive housing concentrations are important for many small users, minimizing commute times for executives that don't rely upon specific locations. Proximity to Government offices may be a factor. These office uses can be served by all functional street functional classifications Airport access is important. Convenient public transportation may be a consideration, especially for a downtown site.	Water, sewer, and storm drainage must be adequate. Site should have, but may not always, require modern telecommunic ations.	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.	Most are done as leases. Some small ownerships available through condominiums.	Tends to utilize public supplied parking downtown that may include leases of public spaces.
				Business/Office Park- 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 sizes are typically driven by larger users except when small companies pool resources to occupy sites. Sites are typically are typically 0.5 to 3 acres within a larger park of 30 to 100 acres.	Most space is leased. A collection of small users sometimes pool their resources to jointly own and lease back a 'medium' sized building /site or as a condominium/padlot.	Usually uses on-site surface parking.
				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 tend to be predetermined by the larger users. These sites are most important to consumer oriented users such as insurance agents.	Most space is leased.	Usually on-site, but may be shared parking with adjoining commercial uses.
				Residential to Office Conversions – These offices tend to be in older transitional areas where commercial and office uses are supplanting residential. Sites tend to be .12 to .75 acres	These are typically owned by the Company or the Companies' owner(s), often central issue in the decision.	Usually a combination of public on-street and private off-street. Parking can often be limiting factor.
				Home Based Businesses – These offices exist within residences and the use is considered accessory to the residence. Site sizes are dictated by residential standards.	Ownership through home ownership is often central to the decision to operate a home based office business.	Customer parking typically restricted or not allowed per residential standards.



## COMMERCIAL RETAIL DEVELOPMENT PATTERN TYPES MATRIX

	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/Leasing Patterns	Parking, Loading, Storage
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. Convenient public transportation may be a consideration, especially for a downtown site. Pedestrian traffic on public sidewalks is very important to Downtown Sites and elevated pedestrian connections between buildings can be important as well, Internal pedestrian traffic is essential for Malls, and Lifestyle Centers.	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.	Downtown – Downtown retail sites for large users typically occupy the ground floor and sometimes additional stories. They may occupy existing buildings or the lower floors of new multi-story office buildings. Large Downtown anchors are typically furniture stores and Department stores. Typical site sizes are .5 to 2 acres. Downtown anchors are no longer seen as vital to downtown revitalization, with smaller format <b>unanchored specialty retail more common tenant types.</b>	No known definitive ownership/leasing practices.	Parking is usually a combination of public and private and may be structured. Loading and storage needs can be limiting factor due to existing development patterns. Loading tends to be on-street or in alleys
				Regional Malls- Regional malls are a well-known development pattern and are large physical structures that contain a cluster of small and medium retailers anchored by three to seven large retail users in one to three stories. Large anchors are often Department stores. Some <i>outlet malls</i> are also configured in a traditional regional mall pattern. Typical site sizes are 3.5 to 10 acres within the larger 50 to 100+ acre mall site.	The large anchors sometimes own their building and portions of the Mall site – Otherwise they are done as Triple Net Leases from the Mall owner that is often a commercial REIT	Use on-site shared parking that is sometimes structured. Loading is generally off-hours in designated areas, loading docks and/or vacant parking spaces, storage is almost always indoors.
				Open –Air Centers – Lifestyle Centers are an example, which are a newer trend in retail development patterns that is a hybrid between an enclosed Mall and a Downtown. It has the concentration of retailers similar to an enclosed mall, but with open air pedestrian connections between stores similar to a Downtown. Some newer <i>outlet malls</i> are configured in a lifestyle center pattern. Typical site sizes are 2.5 to 7 acres within the larger 25 to 60+ acre. <sup>10</sup>	The large anchors sometimes own their building and portions of the Mall site – Otherwise they are typically done as Triple Net Leases.	Use on-site center-wide parking that is sometimes structured. Loading is generally off-hours in designated areas. Modern loading bays are one benefit of the lifestyle concept. Storage is almost always indoors.
				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) Individual user site sizes are typically 6 to 14 acres and large format retail tends to seek sites that are clustered with other large format retailers in regional commercial centers that are 55 to 350+ acres.	These sites are typically owned by the retail company or an affiliated real estate company.	Usually use on-site surface parking that is sometimes structured and may be shared with adjacent properties. Loading is generally non peak-hours in designated areas, storage is mostly indoors, but some out.
				Vehicle/Equipment Salesplex – These are large vehicle and equipment sales yards that serve a wide regional market area. Typical site sizes are 15 to 40+ acres often within a larger cluster of 50 to 200+ acres of similar uses.	These sites are typically owned by the retail company or an affiliated real estate company.	Outdoor storage areas are dominant feature with surface customer parking on-site. Loading is often in designated areas on-site.

<sup>10</sup> This definition is broader than the typical definition of “Lifestyle Center” in the retail industry.



	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/Leasing Patterns	Parking, Loading, Storage
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. Convenient public transportation may be a consideration, especially for a downtown site. Pedestrian traffic on public sidewalks is very important to Downtown Sites and elevated pedestrian connections between buildings can be important as well, Internal pedestrian traffic is essential for Malls, and Lifestyle Centers	Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecom.	Downtown- Medium users tend to utilize one or two floors of an existing building. Downtown can be cost-prohibitive for some medium sized retail uses. Site sizes are dictated by existing development patterns or as a result of a large user or speculative development project. Second floor retail is typically seen as having limited appeal, unless a multi-floor tenant is found with ground floor presence.	Limited ownership opportunities may be a limiting factor. Leases prevalent.	Tends to utilize public and private supplied parking downtown that may include leases of public spaces. Downtown sites rarely have outdoor storage. Loading often done in alleys and may be a limiting factor.
				Neighborhood Shopping Centers- Typically use 3-10 acres, with leasable area of 30,000 to 100,000. Centers are typically anchored by grocers. These centers serve localized populations, and typically locate near population concentrations.	Ownership or leases from affiliated companies common and may be deciding factor.	Usually use on-site surface parking.
				Community Shopping Areas/Centers- Typically use 10 to 30 acres, with leasable area of 100,000 to 450,000. Anchors often include junior department stores, large variety, discount or department stores.	Ownership or leases from affiliated companies common and may be deciding factor.	Usually use on-site surface parking.
				Regional Malls- Regional malls are a well-known development pattern and are large physical structures that contain a cluster of small and medium retailers anchored by three to seven large retail users in one to three stories. Large anchors are often Department stores. Some <i>outlet malls</i> are configured in a traditional regional mall pattern. Typical site sizes are 3.5 to 10 acres within the larger 50 to 100+ acre mall site.	The medium anchors rarely own their building and portions of the Mall site – Otherwise they are done as Triple Net Leases from the Mall owner that is often a REIT	Use on-site mall-wide parking that is sometimes structured. Loading is generally off-hours in designated areas or vacant parking spaces, storage is almost always indoors.
				Open Air-Centers – Lifestyle centers are an example, which are a newer trend in retail development patterns that is a hybrid between an enclosed Mall and a Downtown. It has the concentration of retailers similar to an enclosed mall, but with open air pedestrian connections between stores similar to a Downtown. Some newer <i>outlet malls</i> are configured in a lifestyle center pattern. Typical site sizes are 2.5 to 7 acres within the larger 25 to 60+ acre site.	The medium anchors sometimes own their building and portions of the site – Otherwise they are typically done as Triple Net Leases.	Use on-site center-wide parking that is sometimes structured. Loading is generally off-hours in designated areas. Modern loading bays are one benefit of the lifestyle concept. Storage is almost always indoors.
				Vehicle/Equipment Dealership– These are medium sized vehicle and equipment sales yards that serve a community market area. Typical site sizes are 4 to 15 acres	Ownership varies with the user requirements.	Outdoor inventory storage areas are dominant feature with surface customer parking on-site. Loading is often in designated areas on-site.
				Truck Center– These are unique uses that serve regional shippers needs for quick services near statewide freight routes. Typical site sizes are 8 to 20 acres	Ownership varies with the user requirements.	Surface tractor trailer customer parking is usually the dominant feature. Limited outdoor storage. Stacking for fuel stations is important.



	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/ Leasing Patterns	Parking, Loading, Storage
Small Retail and Commercial Services (200 to 15k square feet and/or less than 5 acres outdoor storage)	Retail Trade (Neighborhood 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 and elevated pedestrian connections between buildings can be important as well, Internal pedestrian traffic is essential for Malls, and Lifestyle Centers.	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.	Most space is leased. Some small ownerships available through condominiums.	Tends to utilize public supplied parking downtown that may include leases of public spaces. These uses have small amounts of inventory so loading and storage is rarely a limiting factor.
				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. Site sizes are .5 to 2 acres co-located within larger projects such as lifestyle centers, regional malls, clusters of large format retailers and community shopping centers.	Space is leased and owned. Many uses are corporate and seek sites with ownership.	Usually uses on-site surface parking, may be shared parking with adjoining commercial uses. These uses have small amounts of inventory so loading and storage is rarely a limiting factor.
				Attached Boutique/Specialty- These retail sites are co-located within larger buildings that house anchor users in larger projects such as lifestyle centers, regional malls, clusters of large format retailers and community shopping centers. Small sites are the individual lease suites within larger site.	Most space is leased from larger building owners – often commercial REITs.	Usually on-site surface parking shared with adjoining commercial uses. These uses have small amounts of inventory so loading and storage is rarely a limiting factor.
				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 uses are sometimes occur in residential to commercial conversion areas. These uses tend to be neighborhood service and convenience retail uses such as coffee shops and neighborhood markets. Sites are usually an acre or less within a smaller cluster that is up to three acres.	Space may be leased or owned.	Usually on-site surface parking. Pre-existing ratios may be a limiting factor. These uses have small amounts of inventory so loading and storage is rarely a limiting factor.
				Stand-Alone Legacy Commercial Sites – These are sites in older commercial areas that lack a cohesive development pattern or theme. This development pattern is often linear and arrayed along major transportation corridors. Sites are typically .5 to 4 acres arrayed in within areas containing similar uses along with small scale industrial uses.	Space may be leased or owned. Ownership patterns tend to be fractured.	Usually on-site surface parking. Pre-existing ratios may be a limiting factor. These uses have small amounts of inventory so loading and storage is rarely a limiting factor.
				Vehicle/Equipment Sales Lots- These are medium sized vehicle and equipment sales yards that serve a community market area. Typical site sizes are .5 to 3.5 acres	Space is usually leased, but may be owned.	Outdoor inventory storage areas are dominant feature with surface customer parking on-site.



## INDUSTRIAL DEVELOPMENT PATTERN TYPES MATRIX

	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/ Leasing Patterns	Parking, Loading, Storage
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- 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 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 uses typically have moderate to high levels of airborne emissions, noise production, and waste products. Access to rail can be essential. Site Sizes are typically 40 acres to 200+ acres and may cluster with similar uses in areas that are 1000+ acres.	Typically Corporate Owned (Or Affiliate)	Uses can typically accommodate employee parking easily. These uses typically require large outdoor storage areas for raw materials. Large loading areas are typically needed for trucks and/or railcars.
				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 uses may not require proximity to large labor forces. These uses typically produce moderate to high levels of airborne emissions and noise associated with high volumes of truck traffic, rail yard activities, etc. Site sizes are typically 50 to 400+ acres and can cluster with similar uses in freight centers that are 2,000+ acres.	Usually sites are corporate or gov. owned, but many will include flex space for smaller users.	Uses can typically accommodate employee parking easily. These uses are essentially one large storage and loading area with large amounts of land for indoor and outdoor storage and loading areas for trucks, railcars, and sometimes airplanes.
				Transmission-Regional utility transmission facilities such regional substations and 500kv lines. Noise, emissions and waste levels vary considerably from facility to facility. Site sizes are typically 20+ acres, although some uses can be very large such as solar arrays that cover thousands of acres.	Almost always Corporate Owned.	Parking, loading and storage needs are minimal.
				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. Uses 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. Site Sizes are typically 20 to 200+ acres and users often require sufficient area to accommodate long-term expansion. Users may seek integration with office developments.	Typically Corporate Owned	These uses can have a large labor forces requiring large parking areas. Uses typically have large loading areas and some outdoor storage is usually required.
				Waste Handling – These development patterns include sanitary landfills, regional transfer stations, recycling plants, and sewage treatment plants and large salvage yards. Uses typically have large amounts of outdoor storage/processing. These uses typically have moderate to high levels of airborne emissions and noise production. Site sizes vary considerably from 20 acres to 150+ acres.	Typically Corporate Owned.	Uses can typically accommodate employee parking easily. These uses are essentially usually require large outdoor storage areas. Solid waste disposal facilities typically require large loading areas.
				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. Sites can be 4 to 25 acres.	REIT and Private Equity Ownership	Flex space typically has employee and customer parking and a loading door for each suite. Little outdoor storage is utilized.



	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/ Leasing Patterns	Parking, Loading, Storage
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 uses often have very unique site requirements specific to each industrial processes. These uses typically have moderate levels of airborne emissions, noise production, and waste products. Site Sizes are typically 6 to 25 acres and users often require sufficient area to accommodate medium-term expansion planning. Users often seek sites clustered in industrial areas of 100+ acres.	Mix of ownership and leasing	Uses can typically accommodate employee parking easily. These uses include large amounts of land for indoor and outdoor storage and loading areas for trucks, railcars, and sometimes airplanes.
				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 uses may not require proximity to large labor forces. These uses typically produce moderate levels of airborne emissions and noise associated with high volumes of truck traffic and rail yard activities. Site sizes are typically 4 to 20 acres and can cluster with similar uses in freight centers that are 2,000+ acres.	Sites are corporate or developer owned, but may include some leased space for smaller users.	Uses can typically accommodate employee parking easily. These uses are essentially one large storage and loading area with large amounts of land for indoor and outdoor storage and loading areas for trucks, railcars, and sometimes airplanes.
				Transmission-These are local and small regional substations, natural gas pressure reduction stations for local distribution, and micro power generation uses. These uses typically have low levels of airborne emissions, noise production, and waste products. These uses are typically 4 to 10 acres.	Almost universally corporate owned.	Parking and loading requirements are minimal. The facilities themselves are kind of outdoor storage.
				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 uses 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 Sizes are typically 4 to 20 acres and 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.	Usually Corporate owned or affiliate owned.	These uses can have moderately sized labor forces requiring large parking areas. Uses typically have large loading areas and some outdoor storage is usually required. Rail and/or air loading areas are sometimes required.
				Personal Storage – Sites should be convenient for access from residential areas. Vehicle storage is typically outdoors while other storage is typically fully enclosed. Low to very low levels of airborne emissions, noise production and waste products. Sites can be 4 to 25 acres.	Some Corporate and Private Equity Ownership	Employees parking is minimal. Customer parking/loading must be provided for use of each unit
				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. Sites can be 4 to 25 acres.	REIT and and Private Equity Ownership	Flex space typically has employee and customer parking and a loading door for each suite. Little outdoor storage is utilized.



	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Ownership/ Leasing Patterns	Parking, Loading, Storage
Small (Less than 30k square ft built space and/or less than 5 acres 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 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. Uses typically contain indoor activities, but typically more than 25 percent of the site is devoted to outdoor inventory and processes on individual lots. These uses typically have moderate levels of airborne emissions, noise production, and waste products. Site Sizes are typically 1 to 5 acres.	Mix of ownership and leasing	Uses can typically accommodate employee parking easily. These uses need some land for indoor and outdoor storage and loading areas for trucks rarely railcars and airplanes.
				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 uses typically have low to moderate levels of airborne emissions, noise production, and waste products. Site Sizes are typically .5 to 5 acres and 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.	Usually Corporate owned or affiliate owned.	These uses can have moderately sized labor forces requiring large parking areas. Uses typically have large loading areas and some outdoor storage is usually required.
				Personal Storage – Sites should be convenient for access from residential areas. Vehicle storage is typically outdoors while other storage is typically fully enclosed. Low to very low levels of airborne emissions, noise production and waste products. Sites can be .5 to 5 acres.	Most are Private Equity Ownership	Employee parking is minimal. Customer parking/loading must be provided for use of each unit
				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. Sites can be .5 to 5 acres.	Most are Private Equity Ownership	Flex space typically has employee and customer parking and a loading door for each suite. Little outdoor storage is utilized.



## CAMPUS/INSTITUTIONAL DEVELOPMENT PATTERN TYPES MATRIX

Campus/Institutional development patterns are just that. 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	Target Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Parking, Loading, Storage
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 connections to I-5 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 purchase wholesale energy can be essential for some.	Major University/National Laboratory- These campuses serve statewide, national and international populations. These campuses are very large and are usually at least 50 acres and can be as large as a 1000+ acres. 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.	Loading and storage needs are minimal as a percentage of the overall site sizes for Major Universities. National Labs sometimes require larger storage areas for outdoor scientific equipment. Significant amounts of parking are usually required and may be structured.
				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 campuses can vary in size considerably from less than 20 acres to 200+ acres. These uses need excellent connections to regional transportation systems and need convenient air service for passengers and freight	Loading and storage needs are not extensive, but some storage can be required for outdoor scientific equipment. Amount of parking is proportional to the campus.
				Small College/Community College - These campuses serve regional populations primarily. These may or may not have on-site dormitories. Campuses are typically 20 to 40 acres outside downtown areas. These campuses are sometimes arrayed like a large office user when they are located in a downtown area.	Some Community Colleges have trade programs that require loading and storage areas. Most do not require significant loading and storage. Significant amounts of parking are usually required and may be structured.
				Junior High School/High School - These campuses serve local and regional populations and can be public or private. Campuses are typically 15 to 40 acres. Findings Sites that balance the need to be near residential centers that have access to local and regional transportation networks can be challenging.	Storage needs are not extensive. Student drop-off/pick-up areas are important. High Schools demand more parking than Junior Highs. Parking demands can be reduced by extend of bus services.



# FIFTY-YEAR ECONOMIC OPPORTUNITIES ANALYSIS

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## INTRODUCTION

The City of North Plains, along with all other jurisdictions within the Portland metropolitan area, has been charged with determining candidate Urban Reserves areas for long-term, 50-year urbanization potential in the context of Portland Metro Urban Growth Boundary planning. This section of the City’s Long-Term Economic Opportunities Analysis seeks to address economic development factors that will drive the need for urbanized employment lands through the planning year 2060. Analytical steps for identifying 50-year economic opportunities are analogous to those utilized for the preceding 20-Year (2035) Economic Opportunities Analysis.

North Plains’ long-term employment land is estimated in terms of North Plains’ organic growth: growth inherent to the City’s economic potential given existing and future industries and its individual competitive advantage. Second, it is estimated in relation to the long-term growth potential of the City of Hillsboro. During the course of completing its own Economic Opportunity Analysis, the City of Hillsboro determined that its long-term growth potential significantly exceeds its ability to provide sufficient land of the sizes and types that its targeted high-tech clusters will require. While the City of Hillsboro has decided that it will focus its economic development efforts on targeting “cluster anchor” industrial users, or those that generally require large industrial parcels, the coordination of economic development and employment land provision between the members of the Western Washington County subarea—Hillsboro, Forest Grove, Cornelius, North Plains and Banks—is integral to regional growth prospects. Without the provision of industrial acreage in more moderate parcel and site sizes by the partner cities in Western Washington County, larger high-tech cluster industrial recruitment in general may likely be compromised. The well-documented multiplier effects and dependent cluster of firms and sectors supporting and supported by new high-tech anchors will not be able to grow within a land-constrained Hillsboro over the long-term and must seek proximate industrial sites in nearby cities.

## 50-YEAR ECONOMIC FORECASTING ISSUES

Key differences do exist, however, between the 20-year analysis and analysis in support of employment land urbanization over the much longer planning period through 2060. Greater, myriad uncertainties over a fifty-year planning period significantly modify the analytical approach to identifying economic development opportunities for the City of North Plains. These most notably include, among others:

- *Economic & Financial Uncertainties;*
- *Geopolitical Uncertainties;*
- *Fiscal & Public Financial Unknowns;*
- *Climate Change Risks;* and
- *Possible Demographic & Migration Pattern Changes.*

Detailed speculation regarding all of the above is beyond the scope of this analysis. However, providing “bottom-up” specific forecasts of individual industries in the City of North Plains over a 50-year period, as conducted for the 20-year analysis, is rendered impractical.

## 50-YEAR ECONOMIC OPPORTUNITIES ANALYSIS METHODOLOGY

Despite the above outlined uncertainties, the following are available as tools for identifying North Plains’ growth issues over the 2060 planning horizon:

- Growth and land need projections for the City of North Plains through 2035;
- Economic Stakeholder/Industry perspectives for long-term growth in North Plains;



- Growth and land need projections for the Western Washington County subarea, particularly for the City of Hillsboro through 2060; and
- Portland metro area population and employment growth scenario forecasts conducted by Metro (Figure 15 in this document) as discussed previously in this document.

As discussed throughout this document, North Plains has distinct features and economic assets attractive for expanding industries. The current diversity of the North Plains economy, based both on natural resources as well as a strong high-tech presence, offers flexibility along with several opportunities for agglomeration connected to the City's existing industry as well as industry connected to the broader Western Washington County subarea.

Given these findings, JOHNSON REID made the following general assumptions about North Plains and the Portland metro area economy for fifty-year opportunities consideration:

1. *Long-term water and power capacity suitable for North Plains' industry competitive advantage will be retained and expanded over the long-term.*
2. *Land use planning regime in the State of Oregon and the Portland metropolitan area will not dramatically change over the 50-year period, ensuring retention and thoughtful planning of future, high-priority industrial lands.*
3. *Natural environment and amenities, urban amenities, and land use planning and policy intended to attract and retain an innovative workforce will be successful over the long-term.*
4. *The above policies and priorities will continue to retain and attract innovative firms in existing and identified emerging industry clusters.*
5. *Future modifications to the State and local fiscal system will not dramatically curb the funding and delivery of key public infrastructure serving both industry and households.*
6. *A coordinated approach to employment land provision and economic development initiatives in Western Washington County based on individual and joint Economic Opportunities Analysis findings.*

Through this concept of economic development and competitive advantage over the long-term, North Plains fifty-year economic growth is not solely dependent upon the potential of its specific target industries. Instead, North Plains economic opportunity can reasonably be linked to that of the Western Washington County subarea with the City of Hillsboro driving long-term growth potential.

The City of Hillsboro's long-term growth potential significantly exceeds its ability to provide sufficient land of the sizes and types that targeted high-tech clusters will require over the twenty-year and fifty-year period. The primary implication is that Hillsboro has decided that it will focus its economic development efforts, and resulting industrial land provision, targeting "cluster anchor" industrial users, or those that generally require large industrial parcels, i.e. 90-100 or more acres each. Hillsboro's infrastructure, physical qualities of industrial lands, technical expertise and existing cluster of high-tech firms have provided it with a competitive advantage in recruiting such users vis-à-vis elsewhere across North America.

Although large users may choose to site in Hillsboro, a wide array of industrial site types less than 100 acres in size will be demanded across the planning horizon by the various types of "ripple effect" job growth resulting from the attraction of a cluster anchor. These include vendors, service providers, competitors, and customers who may require anywhere from an individual five-acre facility to a 60-acre flex space business park of various engineering, light manufacturing and research uses.

#### **HIGH-TECH INDUSTRY GROWTH THROUGH 2060**

Figure 29 provides a comparison of employment land demand potential in the City of Hillsboro along with the quantity of industrial land the City of Hillsboro seeks for urban reserves over the 2060 planning horizon for high-tech cluster anchors. The City of Hillsboro presently plans to seek up to 3,500 gross acres in urban reserves to strategically target high-tech industrial cluster anchors typically requiring sites 100 acres or greater in size. In contrast, industry growth demand could reach as high as 15,000 gross acres of industrial land by 2060 assuming maximum potential success in growing targeted industries.



**FIGURE 29: HILLSBORO URBAN AREA EMPLOYMENT LAND DEMAND (GROSS BUILDABLE ACRES 2008-2060)**

Use Type	Need For Land (Acres) By Scenario:			Urb. Reserve Request (Approx.)
	Baseline Growth	High Growth	Medium Growth	
<b>OFFICE COMMERCIAL</b>	<b>1,728.5</b>	<b>4,979.1</b>	<b>3,077.9</b>	
<b>INDUSTRIAL</b>	<b>4,476.3</b>	<b>15,054.9</b>	<b>8,704.5</b>	<b>3,500.0</b>
<b>RETAIL COMMERCIAL</b>	<b>2,970.4</b>	<b>6,225.4</b>	<b>4,698.2</b>	
CITY RESIDENTS	2,632.9	5,518.0	4,164.3	
REGION/TOURISTS 1/	337.5	707.4	533.9	
<b>OVERNIGHT LODGING</b>	<b>48.3</b>	<b>117.8</b>	<b>82.9</b>	
<b>SPECIALIZED USES 2/</b>	<b>1,657.1</b>	<b>2,309.8</b>	<b>2,008.6</b>	
<b>TOTAL</b>	<b>10,880.6</b>	<b>28,687.1</b>	<b>18,572.0</b>	<b>3,500.0</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.

Because Hillsboro’s strategy is to target larger users based on its identified competitive advantage, overall success in fostering economic growth will greatly depend upon the availability of additional industrial land, in a wide array of site sizes, suitable for the various types of “ripple effect” economic growth associated with the presence of larger users and their industrial synergy.

Provided North Plains-area economic development emphasis balances coordination with the initiatives of the Western Washington County subarea with the goals and targets related to specific target industries in which the City has a competitive advantage over the long-term, we find it reasonable to assume that at worst, North Plains will retain its projected twenty-year growth path and comprise at least its recent, historical share of Portland metro area employment and economic activity.

This assumption, that North Plains at least retains its share of growth based upon its innovation competitive advantages, indicates that fifty-year growth (through 2060) will at least materialize as a continuation of trend established over the last ten years and projected through 2035 in the previous section.



## 2060 NORTH PLAINS POTENTIAL EMPLOYMENT FORECAST

Figures 30 and 31 below provide industry employment forecasts for the City of North Plains through 2060 analogous to the forecast provided for the year 2035 (Figures 17 and 19). In this case, however, the 2060 industry forecast does not suppose to reasonably predict individual industry or cluster employment growth behavior over the urban reserve planning period. Rather, we depend upon the finding that North Plains' industry base and connection to the City of Hillsboro enable the local economy to sustain industry trends established through 2035 by previous analysis.

Accordingly, Baseline, Medium Growth and High Growth scenario forecasts have been established assuming the three analogous scenarios for the Twenty-Year analysis perpetuate. As in the Twenty-Year analysis, the Baseline forecast represents organic growth inherent in North Plains' potential given its own existing and future industries and individual competitive advantage. The High and Medium Growth forecasts assume that City of North Plains captures varying shares of the City of Hillsboro's growth potential.

Finally, it should be underscored that the resulting employment forecast should be interpreted as *potential opportunity* for North Plains planning purposes rather than supply-constrained, realized demand. This forecast does not attempt to model the exact timing or nature of such physical constraint, but rather attempts to document total possible demand the City may strategically accommodate based on its own analysis of physical and fiscal constraints to growth over the 2060 planning horizon.

### BASELINE LONG-TERM EMPLOYMENT GROWTH

The baseline long-term employment forecast maintains the assumptions established in the Twenty-Year analysis. The Twenty-Year analysis applied a simple regression analysis based on historical trends in order to forecast future growth. The Fifty-Year analysis utilizes the same methodology albeit at a slower rate of growth during the overall fifty-year forecast period. The long-term forecasts assume the success of the City's economic development objectives; namely, the expansion of its target industries. In addition, implicit in the baseline organic forecast is the assumption that the City's potential long-term growth is grounded in a scenario in which the City operates in isolation of other cities in the Western Washington County subarea (as opposed to the scenario captured in subsequent high and medium forecasts in which the City coordinates with Hillsboro and other Washington County jurisdictions).

Employment growth continues through 2060 at an annual average growth rate of 2.0% (vs. 3.9% from 2008 to 2035) with 9,049 jobs added, inclusive of the 2,400 jobs added through 2035. As in the Twenty-Year analysis, North Plains' professional services sector is expected to continue significant growth through 2060, due both to maturation in the City's economy as well as spillover effects from regional economic growth.

**FIGURE 30: EMPLOYMENT FORECAST BY INDUSTRY SECTOR, NORTH PLAINS (2008-2060)**

Baseline Growth Scenario NAICS	Base Year	Employment Forecast						2008-2060	
	2008	2035	2040	2045	2050	2055	2060	Jobs	AAGR
Natural Resources	101	242	279	323	374	433	500	399	1.7%
Construction	459	859	954	1,059	1,175	1,305	1,448	989	1.2%
Manufacturing	275	582	659	747	847	960	1,087	812	1.5%
Wholesale Trade	78	281	348	431	534	661	818	739	2.5%
Retail Trade	31	175	232	310	412	549	731	700	3.4%
T.W.U.	13	93	128	177	245	340	470	457	3.8%
Financial Activities	34	147	188	241	308	395	505	471	2.9%
Professional & Business	96	601	817	1,110	1,507	2,047	2,781	2,684	3.6%
Education & Health	94	363	455	571	717	899	1,127	1,034	2.6%
Leisure & Hospitality	79	241	291	350	422	508	612	533	2.2%
Other Services	20	42	48	54	61	69	78	59	1.5%
Public Administration	31	86	102	121	144	170	202	171	2.0%
<b>TOTAL</b>	<b>1,312</b>	<b>3,712</b>	<b>4,502</b>	<b>5,494</b>	<b>6,746</b>	<b>8,334</b>	<b>10,361</b>	<b>9,049</b>	<b>2.0%</b>

SOURCES: Oregon Employment Department Regional Forecasts, Oregon ES-202 reports, Local Interviews, and JOHNSON REID.



## ALTERNATIVE LONG-TERM GROWTH SCENARIOS

In determining North Plains' long-term alternative growth scenarios, the City's baseline organic growth is aggregated by expected growth at the regional level. As mentioned previously, the City of Hillsboro has the potential to drive significant regional growth during the next twenty to fifty-year period. To accomplish this, Hillsboro has devised a two-part strategy:

1. A focus on larger, "anchor" users that help to crystallize high-tech industry cluster presence in the City and Washington County in general.
2. Coordination with neighboring western Washington County jurisdictions on industry and cluster growth, specifically provision of various industrial parcels suitable for cluster anchor ripple effects, including vendors, suppliers, spin-offs, and competitors.

Over the fifty-year horizon, Hillsboro intends to seek up to 3,500 gross acres in urban reserves to strategically target high-tech industrial cluster anchors. However assuming Hillsboro achieves maximum success in growing targeted industries, demand could reach as high as 15,000 gross acres of industrial land by 2060. In keeping with the second part of their strategy, Hillsboro and North Plains along with Forest Grove, Cornelius and Banks have agreed to coordinate economic development efforts and industrial land provision in order to accommodate growth within the region. For North Plains, this translates into the opportunity to provide industrial parcels less than 100 acres in size to allow for growth based on the ripple effects of a cluster anchor situating in Hillsboro. Therefore, it is reasonable for North Plains' alternative growth scenarios to reflect a share of regional growth, which will likely become more important to the City's economy over the 50-year period.

Figure 31 illustrates the high and medium growth scenarios. The high growth forecast assumes North Plains captures 10% of the growth opportunity created by the emergence of solar and biotechnology clusters estimated for Hillsboro through 2060 under its high growth scenario outlined in JOHNSON REID's Hillsboro analysis. According to the high growth forecast, job growth through 2060 occurs at a 2.7% annual average pace (vs. 5.2% from 2008 to 2035). On the other hand, North Plains' medium growth forecast assumes the City captures 10% of Hillsboro's growth opportunity created by the emergence of solar and biotechnology clusters under its medium growth scenario outlined in the same analysis. According to the medium growth forecast, employment growth continues at an annual average growth rate of 2.5% (vs. 4.9% from 2008 to 2035).



**FIGURE 31: ALTERNATIVE GROWTH FORECASTS BY INDUSTRY SECTOR, NORTH PLAINS (2008-2060)**

High Growth Forecast NAICS	Base Year	Employment Forecast						2008-2060	
	2008	2035	2040	2045	2050	2055	2060	Jobs	AAGR
Natural Resources	101	279	331	392	464	550	651	550	2.0%
Construction	459	992	1,127	1,282	1,458	1,657	1,885	1,425	1.5%
Manufacturing	275	1,064	1,333	1,671	2,095	2,626	3,292	3,017	2.6%
Wholesale Trade	78	344	441	564	722	925	1,184	1,106	2.9%
Retail Trade	31	241	339	477	670	942	1,325	1,293	4.0%
T.W.U.	13	121	175	253	367	531	769	756	4.3%
Financial Activities	34	194	259	348	466	624	836	802	3.4%
Professional & Business	96	711	993	1,387	1,937	2,707	3,781	3,685	3.9%
Education & Health	94	706	991	1,389	1,949	2,733	3,833	3,739	4.0%
Leisure & Hospitality	79	323	408	517	653	827	1,046	967	2.7%
Other Services	20	86	111	141	181	231	296	276	2.9%
Public Administration	31	125	157	198	250	315	397	365	2.7%
<b>TOTAL</b>	<b>1,312</b>	<b>5,185</b>	<b>6,665</b>	<b>8,619</b>	<b>11,212</b>	<b>14,667</b>	<b>19,293</b>	<b>17,981</b>	<b>2.7%</b>

Medium Growth Forecast NAICS	Base Year	Employment Forecast						2008-2060	
	2008	2035	2040	2045	2050	2055	2060	Jobs	AAGR
Natural Resources	101	279	330	391	463	548	650	548	2.0%
Construction	459	990	1,125	1,279	1,454	1,653	1,879	1,420	1.5%
Manufacturing	275	907	1,106	1,350	1,648	2,011	2,454	2,179	2.3%
Wholesale Trade	78	336	428	546	697	888	1,133	1,055	2.8%
Retail Trade	31	225	313	435	604	839	1,167	1,135	3.9%
T.W.U.	13	115	165	237	341	490	703	690	4.2%
Financial Activities	34	184	244	324	431	573	761	727	3.3%
Professional & Business	96	703	980	1,367	1,906	2,658	3,707	3,610	3.9%
Education & Health	94	591	805	1,096	1,492	2,031	2,764	2,671	3.6%
Leisure & Hospitality	79	305	382	478	599	751	940	861	2.6%
Other Services	20	71	88	109	135	167	207	187	2.5%
Public Administration	31	115	143	177	220	273	340	308	2.5%
<b>TOTAL</b>	<b>1,312</b>	<b>4,820</b>	<b>6,110</b>	<b>7,791</b>	<b>9,990</b>	<b>12,883</b>	<b>16,705</b>	<b>15,393</b>	<b>2.5%</b>

SOURCES: Oregon Employment Department Regional Forecasts, Oregon ES-202 reports, Local Interviews, and JOHNSON REID.

## 2060 NORTH PLAINS POTENTIAL EMPLOYMENT LAND DEMAND

### INTRODUCTION

An analysis of potential employment land demand through the year 2060 was conducted with methodology analogous to employment land need findings for the year 2035. For a detailed summary of land demand methodology as a function of employment growth, please refer to the section titled Twenty-Year Employment Land Needs Analysis. The resulting total, potential demand estimates will be of use to the City for strategic planning purposes in deciding economic opportunities to engage once policy and physical constraints are introduced.

### SUMMARY OF EMPLOYMENT LAND DEMAND FINDINGS

The results summarized in Figure 32 highlight projections of gross, potential new demand within the North Plains Urban Area for commercial and industrial land through 2060. Detailed findings by use type and growth scenario are included in the technical appendix.

- Through 2060, potential new gross demand for employment land is expected to range from 933 to 1,904 gross buildable acres, contingent upon both North Plains’ realized growth pattern and economic development policy preferences as well as that at the regional level.
- The Organic scenario indicates that North Plains can see employment land demand of roughly 933 acres through 2060.
- Under the Medium Growth scenario in which North Plains captures 10% of Hillsboro’s Medium Growth Scenario emerging growth through 2060, the City can realize employment land demand of 1,589 acres.
- Under the High Growth scenario in which North Plains captures 10% of Hillsboro’s High Growth Scenario emerging growth through 2060, the City can see employment land demand as much as 1,904 acres.



- Demand for Industrial land represents acreage ranging from 379 under the Organic Baseline scenario to 697 under the High Growth scenario.
- Potential Office Commercial demand is estimated to range between 126 and 222 acres during the period, but figures generally reflect maximums. North Plains will permanently be at a competitive disadvantage to the more centrally located areas for various office uses.
- Potential, gross retail commercial acreage is estimated to range from 311 to 697 acres through 2060. While some improvement is expected in North Plains' retail commercial capture due to the development of target industries as well as regional spill over growth like office uses, more centrally-located areas will enjoy a competitive advantage for sizeable retail commercial development.

**FIGURE 32: NORTH PLAINS URBAN AREA EMPLOYMENT LAND DEMAND (GROSS BUILDABLE ACRES 2008-2060)**

Use Type	Need For Land (Acres) By Scenario:		
	Organic Baseline	High Growth	Medium Growth
<b>OFFICE COMMERCIAL</b>	<b>126.3</b>	<b>221.9</b>	<b>197.3</b>
<b>INDUSTRIAL</b>	<b>379.1</b>	<b>697.3</b>	<b>614.6</b>
<b>RETAIL COMMERCIAL</b>	<b>310.6</b>	<b>696.5</b>	<b>546.3</b>
CITY RESIDENTS	248.5	557.2	437.1
REGION/TOURISTS 1/	62.1	139.3	109.3
<b>OVERNIGHT LODGING</b>	<b>15.3</b>	<b>27.7</b>	<b>24.7</b>
<b>SPECIALIZED USES 2/</b>	<b>102.1</b>	<b>260.9</b>	<b>205.9</b>
<b>TOTAL</b>	<b>933.4</b>	<b>1,904.3</b>	<b>1,588.9</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



## APPENDIX: EXHIBITS

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**EXHIBIT 1.01**  
**PROJECTIONS OF OFFICE SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

Baseline Growth Scenario Employment Sector	Total Employment 1/							Office Share 2/	Office Space-Utilizing Employment							'08-35
	2008	2013	2018	2023	2028	2030	2035		2008	2013	2018	2023	2028	2030	2035	
Construction	459	532	628	719	786	810	859	2%	9	11	13	14	16	16	17	8
Manufacturing	275	328	400	470	523	543	582	5%	14	16	20	24	26	27	29	15
Wholesale Trade	78	106	148	195	234	250	281	5%	4	5	7	10	12	12	14	10
Retail Trade	31	47	74	107	136	149	175	5%	2	2	4	5	7	7	9	7
Transportation, Warehousing & Utilities	13	21	35	53	70	77	93	30%	4	6	10	16	21	23	28	24
Financial Activities	34	48	70	96	119	128	147	90%	30	43	63	87	107	115	132	102
Professional & Business Services	96	148	239	355	462	506	601	90%	87	133	215	320	416	455	541	455
Education & Health Services	94	129	184	246	299	320	363	40%	37	51	73	98	120	128	145	108
Leisure & Hospitality	79	103	138	175	206	217	241	25%	20	26	34	44	51	54	60	41
Other Services	20	24	29	34	38	39	42	40%	8	9	12	14	15	16	17	9
Government	31	40	52	65	75	79	86	85%	27	34	44	55	64	67	73	47
<b>Total</b>	<b>1,211</b>	<b>1,524</b>	<b>1,996</b>	<b>2,516</b>	<b>2,947</b>	<b>3,117</b>	<b>3,470</b>	<b>25%</b>	<b>241</b>	<b>337</b>	<b>496</b>	<b>686</b>	<b>854</b>	<b>922</b>	<b>1,066</b>	<b>825</b>
<b>High Growth Scenario</b>	<b>Total Employment 1/</b>							<b>Office</b>	<b>Office Space-Utilizing Employment</b>							
<b>Employment Sector</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>Share 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-35</b>
Construction	459	533	630	721	788	813	862	2%	9	11	13	14	16	16	17	8
Manufacturing	275	418	609	715	810	849	940	5%	14	21	30	36	41	42	47	33
Wholesale Trade	78	110	159	208	249	266	300	5%	4	6	8	10	12	13	15	11
Retail Trade	31	56	95	132	166	180	211	5%	2	3	5	7	8	9	11	9
Transportation, Warehousing & Utilities	13	24	42	62	80	88	106	30%	4	7	13	19	24	26	32	28
Financial Activities	34	52	80	108	133	143	165	90%	30	47	72	97	120	129	148	118
Professional & Business Services	96	220	405	550	690	749	886	90%	87	198	365	495	621	674	798	711
Education & Health Services	94	140	214	286	348	355	404	40%	37	56	85	115	139	142	162	124
Leisure & Hospitality	79	113	163	209	247	247	276	25%	20	28	41	52	62	62	69	49
Other Services	20	30	46	56	65	59	65	40%	8	12	18	23	26	24	26	18
Government	31	41	54	68	78	81	90	85%	27	35	46	58	67	69	76	50
<b>Total</b>	<b>1,211</b>	<b>1,738</b>	<b>2,497</b>	<b>3,116</b>	<b>3,656</b>	<b>3,830</b>	<b>4,305</b>	<b>28%</b>	<b>241</b>	<b>423</b>	<b>696</b>	<b>925</b>	<b>1,135</b>	<b>1,207</b>	<b>1,400</b>	<b>1,159</b>
<b>Medium Growth Scenario</b>	<b>Total Employment 1/</b>							<b>Office</b>	<b>Office Space-Utilizing Employment</b>							
<b>Employment Sector</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>Share 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-35</b>
Construction	459	532	629	720	787	812	861	2%	9	11	13	14	16	16	17	8
Manufacturing	275	363	475	602	695	727	798	5%	14	18	24	30	35	36	40	26
Wholesale Trade	78	108	152	202	243	259	293	5%	4	5	8	10	12	13	15	11
Retail Trade	31	51	81	120	154	167	197	5%	2	3	4	6	8	8	10	8
Transportation, Warehousing & Utilities	13	22	38	58	76	84	100	30%	4	7	11	17	23	25	30	26
Financial Activities	34	49	74	103	127	137	158	90%	30	44	66	93	115	123	142	112
Professional & Business Services	96	175	299	460	599	652	773	90%	87	158	269	414	539	587	695	609
Education & Health Services	94	133	192	261	319	341	388	40%	37	53	77	105	127	136	155	118
Leisure & Hospitality	79	106	145	188	222	235	262	25%	20	27	36	47	56	59	66	46
Other Services	20	26	34	42	49	51	56	40%	8	10	13	17	20	20	22	14
Government	31	40	53	66	76	80	88	85%	27	34	45	56	65	68	75	49
<b>Total</b>	<b>1,211</b>	<b>1,605</b>	<b>2,170</b>	<b>2,823</b>	<b>3,348</b>	<b>3,545</b>	<b>3,973</b>	<b>26%</b>	<b>241</b>	<b>369</b>	<b>566</b>	<b>809</b>	<b>1,014</b>	<b>1,093</b>	<b>1,267</b>	<b>1,026</b>

1/ Johnson Reid, LLC

2/ Share of industry employment that utilizes office space. From the Urban Land Institute converted to NAICS by Johnson Reid, LLC.

\* Estimate

**EXHIBIT 1.02**  
**DEMAND PROJECTIONS FOR COMMERCIAL OFFICE SPACE BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

<b>Baseline 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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Per Job 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	9	11	13	14	16	16	17	8	366	3,699	4,285	5,056	5,788	6,327	6,526	6,917	3,218
Manufacturing	14	16	20	24	26	27	29	15	366	5,537	6,603	8,048	9,462	10,526	10,924	11,713	6,176
Wholesale Trade	4	5	7	10	12	12	14	10	366	1,577	2,129	2,981	3,928	4,714	5,023	5,662	4,084
Retail Trade	2	2	4	5	7	7	9	7	366	633	946	1,484	2,148	2,745	2,990	3,514	2,880
Transportation, Warehousing & Utilities	4	6	10	16	21	23	28	24	366	1,600	2,522	4,200	6,390	8,442	9,305	11,178	9,578
Financial Activities	30	43	63	87	107	115	132	102	366	12,184	17,224	25,393	34,926	43,122	46,417	53,312	41,128
Professional & Business Services	87	133	215	320	416	455	541	455	366	34,901	53,604	86,690	128,726	167,307	183,358	217,887	182,987
Education & Health Services	37	51	73	98	120	128	145	108	366	15,060	20,703	29,584	39,654	48,123	51,488	58,467	43,407
Leisure & Hospitality	20	26	34	44	51	54	60	41	366	7,956	10,338	13,871	17,650	20,690	21,870	24,273	16,316
Other Services	8	9	12	14	15	16	17	9	366	3,198	3,813	4,648	5,465	6,079	6,309	6,765	3,567
Government	27	34	44	55	64	67	73	47	366	10,704	13,591	17,769	22,133	25,581	26,907	29,585	18,881
<b>Total</b>	<b>241</b>	<b>337</b>	<b>496</b>	<b>686</b>	<b>854</b>	<b>922</b>	<b>1,066</b>	<b>825</b>	<b>366</b>	<b>97,048</b>	<b>135,759</b>	<b>199,724</b>	<b>276,270</b>	<b>343,655</b>	<b>371,117</b>	<b>429,272</b>	<b>332,223</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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Per Job 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	9	11	13	14	16	16	17	8	366	3,699	4,292	5,072	5,807	6,348	6,549	6,944	3,245
Manufacturing	14	21	30	36	41	42	47	33	366	5,537	8,423	12,259	14,396	16,307	17,084	18,932	13,395
Wholesale Trade	4	6	8	10	12	13	15	11	366	1,577	2,224	3,201	4,186	5,016	5,345	6,039	4,461
Retail Trade	2	3	5	7	8	9	11	9	366	633	1,133	1,915	2,654	3,337	3,622	4,253	3,620
Transportation, Warehousing & Utilities	4	7	13	19	24	26	32	28	366	1,600	2,923	5,127	7,475	9,714	10,660	12,766	11,166
Financial Activities	30	47	72	97	120	129	148	118	366	12,184	18,815	29,075	39,239	48,176	51,802	59,622	47,439
Professional & Business Services	87	198	365	495	621	674	798	711	366	34,901	79,625	146,892	199,251	249,952	271,413	321,074	286,173
Education & Health Services	37	56	85	115	139	142	162	124	366	15,060	22,625	34,402	46,131	56,060	57,167	65,121	50,062
Leisure & Hospitality	20	28	41	52	62	62	69	49	366	7,956	11,347	16,400	21,049	24,856	24,851	27,766	19,809
Other Services	8	12	18	23	26	24	26	18	366	3,198	4,887	7,339	9,083	10,512	9,481	10,482	7,284
Government	27	35	46	58	67	69	76	50	366	10,704	13,901	18,547	23,180	26,863	27,824	30,660	19,956
<b>Total</b>	<b>241</b>	<b>423</b>	<b>696</b>	<b>925</b>	<b>1,135</b>	<b>1,207</b>	<b>1,400</b>	<b>1,159</b>	<b>366</b>	<b>97,048</b>	<b>170,195</b>	<b>280,229</b>	<b>372,451</b>	<b>457,142</b>	<b>485,798</b>	<b>563,659</b>	<b>466,611</b>
<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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Per Job 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	9	11	13	14	16	16	17	8	366	3,699	4,288	5,062	5,798	6,340	6,540	6,933	3,234
Manufacturing	14	18	24	30	35	36	40	26	366	5,537	7,299	9,556	12,118	13,997	14,625	16,054	10,517
Wholesale Trade	4	5	8	10	12	13	15	11	366	1,577	2,166	3,060	4,067	4,895	5,217	5,889	4,311
Retail Trade	2	3	4	6	8	8	10	8	366	633	1,018	1,639	2,420	3,101	3,370	3,958	3,325
Transportation, Warehousing & Utilities	4	7	11	17	23	25	30	26	366	1,600	2,675	4,532	6,974	9,206	10,119	12,133	10,533
Financial Activities	30	44	66	93	115	123	142	112	366	12,184	17,833	26,712	37,247	46,157	49,651	57,107	44,923
Professional & Business Services	87	158	269	414	539	587	695	609	366	34,901	63,559	108,246	166,686	216,931	236,255	279,944	245,044
Education & Health Services	37	53	77	105	127	136	155	118	366	15,060	21,345	30,975	42,102	51,323	54,899	62,469	47,409
Leisure & Hospitality	20	27	36	47	56	59	66	46	366	7,956	10,675	14,600	18,935	22,370	23,661	26,374	18,417
Other Services	8	10	13	17	20	20	22	14	366	3,198	4,172	5,424	6,832	7,867	8,215	9,000	5,803
Government	27	34	45	56	65	68	75	49	366	10,704	13,694	17,993	22,529	26,098	27,458	30,232	19,528
<b>Total</b>	<b>241</b>	<b>369</b>	<b>566</b>	<b>809</b>	<b>1,014</b>	<b>1,093</b>	<b>1,267</b>	<b>1,026</b>	<b>366</b>	<b>97,048</b>	<b>148,723</b>	<b>227,797</b>	<b>325,708</b>	<b>408,285</b>	<b>440,009</b>	<b>510,093</b>	<b>413,045</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

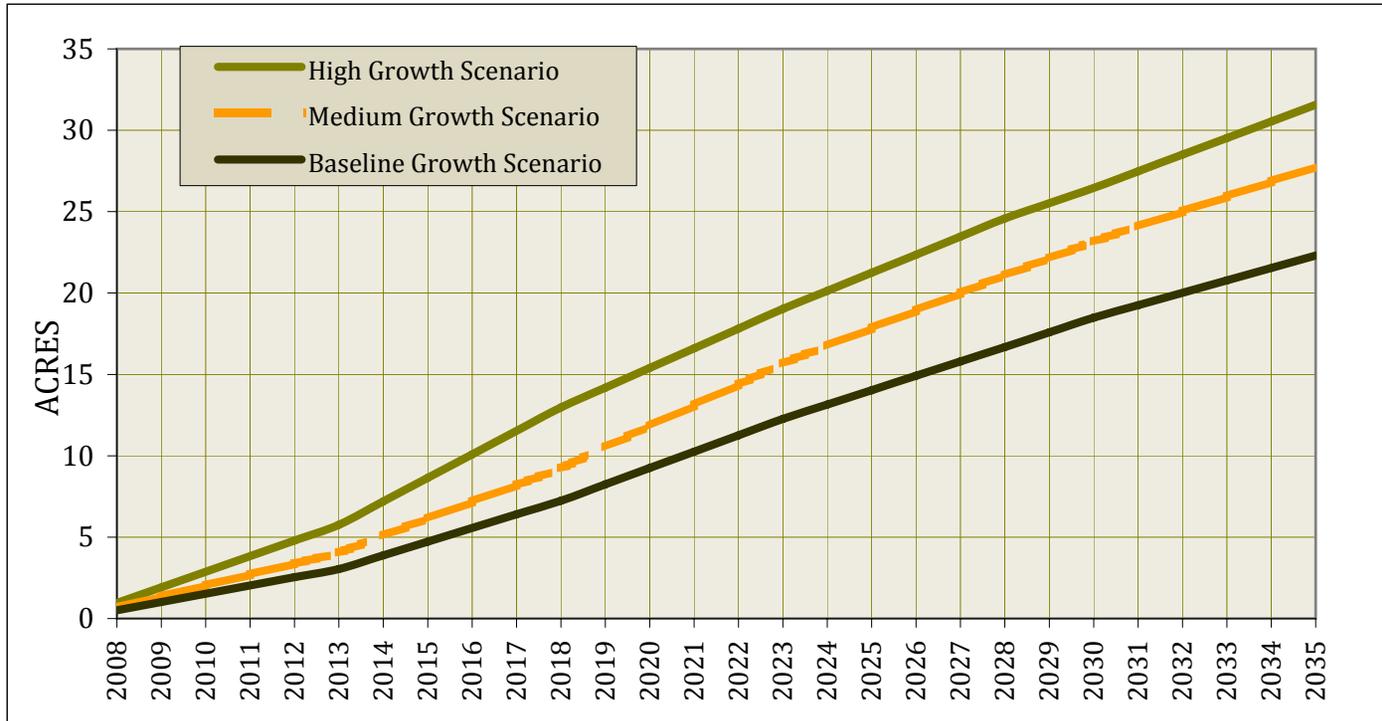
**EXHIBIT 1.03**  
**DEMAND PROJECTIONS FOR COMMERCIAL OFFICE LAND BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

Baseline Growth Scenario		Projected Office Space Need 1/							Floor to		Predicted Land Need (Acres)							
Employment Sector	2008	2013	2018	2023	2028	2030	2035	'08-'35	Area Ratio	2008	2013	2018	2023	2028	2030	2035	'08-'35	
Construction	3,699	4,285	5,056	5,788	6,327	6,526	6,917	3,218	0.35	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.2	
Manufacturing	5,537	6,603	8,048	9,462	10,526	10,924	11,713	6,176	0.35	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.4	
Wholesale Trade	1,577	2,129	2,981	3,928	4,714	5,023	5,662	4,084	0.35	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	
Retail Trade	633	946	1,484	2,148	2,745	2,990	3,514	2,880	0.35	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
Transportation, Warehousing & Utilities	1,600	2,522	4,200	6,390	8,442	9,305	11,178	9,578	0.35	0.1	0.2	0.3	0.4	0.6	0.6	0.7	0.6	
Financial Activities	12,184	17,224	25,393	34,926	43,122	46,417	53,312	41,128	0.35	0.8	1.1	1.7	2.3	2.8	3.0	3.5	2.7	
Professional & Business Services	34,901	53,604	86,690	128,726	167,307	183,358	217,887	182,987	0.35	2.3	3.5	5.7	8.4	11.0	12.0	14.3	12.0	
Education & Health Services	15,060	20,703	29,584	39,654	48,123	51,488	58,467	43,407	0.35	1.0	1.4	1.9	2.6	3.2	3.4	3.8	2.8	
Leisure & Hospitality	7,956	10,338	13,871	17,650	20,690	21,870	24,273	16,316	0.35	0.5	0.7	0.9	1.2	1.4	1.4	1.6	1.1	
Other Services	3,198	3,813	4,648	5,465	6,079	6,309	6,765	3,567	0.35	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.2	
Government	10,704	13,591	17,769	22,133	25,581	26,907	29,585	18,881	0.35	0.7	0.9	1.2	1.5	1.7	1.8	1.9	1.2	
<b>Total</b>	<b>97,048</b>	<b>135,759</b>	<b>199,724</b>	<b>276,270</b>	<b>343,655</b>	<b>371,117</b>	<b>429,272</b>	<b>332,223</b>	<b>0.35</b>	<b>6.4</b>	<b>8.9</b>	<b>13.1</b>	<b>18.1</b>	<b>22.5</b>	<b>24.3</b>	<b>28.2</b>	<b>21.8</b>	
High Growth Scenario		Projected Office Space Need 1/							Floor to		Predicted Land Need (Acres)							
Employment Sector	2008	2013	2018	2023	2028			'08-'35	Area Ratio	2008	2013	2018	2023	2028	2030	2035	'08-'35	
Construction	3,699	4,292	5,072	5,807	6,348	6,549	6,944	3,245	0.35	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.2	
Manufacturing	5,537	8,423	12,259	14,396	16,307	17,084	18,932	13,395	0.35	0.4	0.6	0.8	0.9	1.1	1.1	1.2	0.9	
Wholesale Trade	1,577	2,224	3,201	4,186	5,016	5,345	6,039	4,461	0.35	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.3	
Retail Trade	633	1,133	1,915	2,654	3,337	3,622	4,253	3,620	0.35	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	
Transportation, Warehousing & Utilities	1,600	2,923	5,127	7,475	9,714	10,660	12,766	11,166	0.35	0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.7	
Financial Activities	12,184	18,815	29,075	39,239	48,176	51,802	59,622	47,439	0.35	0.8	1.2	1.9	2.6	3.2	3.4	3.9	3.1	
Professional & Business Services	34,901	79,625	146,892	199,251	249,952	271,413	321,074	286,173	0.35	2.3	5.2	9.6	13.1	16.4	17.8	21.1	18.8	
Education & Health Services	15,060	22,625	34,402	46,131	56,060	57,167	65,121	50,062	0.35	1.0	1.5	2.3	3.0	3.7	3.7	4.3	3.3	
Leisure & Hospitality	7,956	11,347	16,400	21,049	24,856	24,851	27,766	19,809	0.35	0.5	0.7	1.1	1.4	1.6	1.6	1.8	1.3	
Other Services	3,198	4,887	7,339	9,083	10,512	9,481	10,482	7,284	0.35	0.2	0.3	0.5	0.6	0.7	0.6	0.7	0.5	
Government	10,704	13,901	18,547	23,180	26,863	27,824	30,660	19,956	0.35	0.7	0.9	1.2	1.5	1.8	1.8	2.0	1.3	
<b>Total</b>	<b>97,048</b>	<b>170,195</b>	<b>280,229</b>	<b>372,451</b>	<b>457,142</b>	<b>485,798</b>	<b>563,659</b>	<b>466,611</b>	<b>0.35</b>	<b>6.4</b>	<b>11.2</b>	<b>18.4</b>	<b>24.4</b>	<b>30.0</b>	<b>31.9</b>	<b>37.0</b>	<b>30.6</b>	
Medium Growth Scenario		Projected Office Space Need 1/							Floor to		Predicted Land Need (Acres)							
Employment Sector	2008	2013	2018	2023	2028			'08-'35	Area Ratio	2008	2013	2018	2023	2028	2030	2035	'08-'35	
Construction	3,699	4,288	5,062	5,798	6,340	6,540	6,933	3,234	0.35	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.2	
Manufacturing	5,537	7,299	9,556	12,118	13,997	14,625	16,054	10,517	0.35	0.4	0.5	0.6	0.8	0.9	1.0	1.1	0.7	
Wholesale Trade	1,577	2,166	3,060	4,067	4,895	5,217	5,889	4,311	0.35	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	
Retail Trade	633	1,018	1,639	2,420	3,101	3,370	3,958	3,325	0.35	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	
Transportation, Warehousing & Utilities	1,600	2,675	4,532	6,974	9,206	10,119	12,133	10,533	0.35	0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.7	
Financial Activities	12,184	17,833	26,712	37,247	46,157	49,651	57,107	44,923	0.35	0.8	1.2	1.8	2.4	3.0	3.3	3.7	2.9	
Professional & Business Services	34,901	63,559	108,246	166,686	216,931	236,255	279,944	245,044	0.35	2.3	4.2	7.1	10.9	14.2	15.5	18.4	16.1	
Education & Health Services	15,060	21,345	30,975	42,102	51,323	54,899	62,469	47,409	0.35	1.0	1.4	2.0	2.8	3.4	3.6	4.1	3.1	
Leisure & Hospitality	7,956	10,675	14,600	18,935	22,370	23,661	26,374	18,417	0.35	0.5	0.7	1.0	1.2	1.5	1.6	1.7	1.2	
Other Services	3,198	4,172	5,424	6,832	7,867	8,215	9,000	5,803	0.35	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.4	
Government	10,704	13,694	17,993	22,529	26,098	27,458	30,232	19,528	0.35	0.7	0.9	1.2	1.5	1.7	1.8	2.0	1.3	
<b>Total</b>	<b>97,048</b>	<b>148,723</b>	<b>227,797</b>	<b>325,708</b>	<b>408,285</b>	<b>440,009</b>	<b>510,093</b>	<b>413,045</b>	<b>0.35</b>	<b>6.4</b>	<b>9.8</b>	<b>14.9</b>	<b>21.4</b>	<b>26.8</b>	<b>28.9</b>	<b>33.5</b>	<b>27.1</b>	

1/ From Exhibit 1.02

\*Estimate

**EXHIBIT 1.04**  
**COMPARISON OF CUMULATIVE DEMAND FOR OFFICE LAND**  
**MEDIUM, HIGH AND LOW EMPLOYMENT GROWTH SCENARIOS**  
**2008-2035**



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.05**  
**PROJECTIONS OF INDUSTRIAL SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

<b>Baseline Growth Scenario</b>		<b>Total Employment 1/</b>						<b>Industrial</b>	<b>Industrial Space-Utilizing Employment</b>							
<b>Employment Sector</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>Share 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	459	532	628	719	786	810	859	30%	138	160	188	216	236	243	258	120
Manufacturing	275	328	400	470	523	543	582	95%	261	312	380	447	497	516	553	291
Wholesale Trade	78	106	148	195	234	250	281	95%	74	100	141	185	222	237	267	193
Retail Trade	31	47	74	107	136	149	175	0%	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	13	21	35	53	70	77	93	70%	9	15	24	37	49	54	65	56
Financial Activities	34	48	70	96	119	128	147	0%	0	0	0	0	0	0	0	0
Professional & Business Services	96	148	239	355	462	506	601	10%	10	15	24	36	46	51	60	51
Education & Health Services	94	129	184	246	299	320	363	0%	0	0	0	0	0	0	0	0
Leisure & Hospitality	79	103	138	175	206	217	241	0%	0	0	0	0	0	0	0	0
Other Services	20	24	29	34	38	39	42	60%	12	14	17	20	23	24	25	13
Government	31	40	52	65	75	79	86	15%	5	6	8	10	11	12	13	8
<b>Total</b>	<b>1,211</b>	<b>1,524</b>	<b>1,996</b>	<b>2,516</b>	<b>2,947</b>	<b>3,117</b>	<b>3,470</b>	<b>39%</b>	<b>509</b>	<b>621</b>	<b>782</b>	<b>950</b>	<b>1,084</b>	<b>1,136</b>	<b>1,241</b>	<b>732</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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>Share 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	459	533	630	721	788	813	862	30%	138	160	189	216	237	244	259	121
Manufacturing	275	418	609	715	810	849	940	95%	261	398	579	679	770	806	893	632
Wholesale Trade	78	110	159	208	249	266	300	95%	74	105	151	198	237	252	285	211
Retail Trade	31	56	95	132	166	180	211	0%	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	13	24	42	62	80	88	106	70%	9	17	30	43	56	62	74	65
Financial Activities	34	52	80	108	133	143	165	0%	0	0	0	0	0	0	0	0
Professional & Business Services	96	220	405	550	690	749	886	10%	10	22	41	55	69	75	89	79
Education & Health Services	94	140	214	286	348	355	404	0%	0	0	0	0	0	0	0	0
Leisure & Hospitality	79	113	163	209	247	247	276	0%	0	0	0	0	0	0	0	0
Other Services	20	30	46	56	65	59	65	60%	12	18	27	34	39	35	39	27
Government	31	41	54	68	78	81	90	15%	5	6	8	10	12	12	13	9
<b>Total</b>	<b>1,211</b>	<b>1,738</b>	<b>2,497</b>	<b>3,116</b>	<b>3,656</b>	<b>3,830</b>	<b>4,305</b>	<b>41%</b>	<b>509</b>	<b>726</b>	<b>1,024</b>	<b>1,236</b>	<b>1,419</b>	<b>1,487</b>	<b>1,652</b>	<b>1,143</b>
<b>Medium Growth Scenario</b>		<b>Total Employment 1/</b>						<b>Industrial</b>	<b>Industrial Space-Utilizing Employment</b>							
<b>Employment Sector</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>Share 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	459	532	629	720	787	812	861	30%	138	160	189	216	236	244	258	121
Manufacturing	275	363	475	602	695	727	798	95%	261	344	451	572	661	690	758	496
Wholesale Trade	78	108	152	202	243	259	293	95%	74	102	144	192	231	246	278	203
Retail Trade	31	51	81	120	154	167	197	0%	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	13	22	38	58	76	84	100	70%	9	16	26	40	53	59	70	61
Financial Activities	34	49	74	103	127	137	158	0%	0	0	0	0	0	0	0	0
Professional & Business Services	96	175	299	460	599	652	773	10%	10	18	30	46	60	65	77	68
Education & Health Services	94	133	192	261	319	341	388	0%	0	0	0	0	0	0	0	0
Leisure & Hospitality	79	106	145	188	222	235	262	0%	0	0	0	0	0	0	0	0
Other Services	20	26	34	42	49	51	56	60%	12	16	20	25	29	31	34	22
Government	31	40	53	66	76	80	88	15%	5	6	8	10	11	12	13	9
<b>Total</b>	<b>1,211</b>	<b>1,605</b>	<b>2,170</b>	<b>2,823</b>	<b>3,348</b>	<b>3,545</b>	<b>3,973</b>	<b>40%</b>	<b>509</b>	<b>661</b>	<b>868</b>	<b>1,102</b>	<b>1,282</b>	<b>1,347</b>	<b>1,488</b>	<b>979</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, LLC.

\* Estimate

**EXHIBIT 1.06**  
**INDUSTRIAL EMPLOYMENT DENSITY WORKSHEET BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

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

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

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

**EXHIBIT 1.07**  
**DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL SPACE BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

Baseline Growth Scenario	Local Area Jobs in Industrial Space 1/							Avg. Space	Projected Industrial Space Need 3/								
Employment Sector	2008	2013	2018	2023	2028	2030	2035	'08-'35	Per Job 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
Construction	138	160	188	216	236	243	258	120	517	78,293	90,706	107,024	122,527	133,921	138,139	146,414	68,121
Manufacturing	261	312	380	447	497	516	553	291	517	148,462	177,048	215,786	253,711	282,226	292,908	314,062	165,600
Wholesale Trade	74	100	141	185	222	237	267	193	2,518	206,211	278,323	389,643	513,489	616,158	656,641	740,095	533,884
Retail Trade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	9	15	24	37	49	54	65	56	1,707	17,407	27,448	45,707	69,539	91,869	101,260	121,642	104,235
Financial Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Professional & Business Services	10	15	24	36	46	51	60	51	467	4,948	7,600	12,290	18,250	23,720	25,995	30,891	25,943
Education & Health Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	12	14	17	20	23	24	25	13	517	6,769	8,072	9,839	11,568	12,868	13,355	14,319	7,550
Government	5	6	8	10	11	12	13	8	909	4,689	5,953	7,783	9,695	11,206	11,786	12,960	8,271
<b>Total</b>	<b>509</b>	<b>621</b>	<b>782</b>	<b>950</b>	<b>1,084</b>	<b>1,136</b>	<b>1,241</b>	<b>732</b>	<b>834</b>	<b>466,779</b>	<b>595,150</b>	<b>788,072</b>	<b>998,779</b>	<b>1,171,967</b>	<b>1,240,084</b>	<b>1,380,382</b>	<b>913,603</b>
High Growth Scenario	Local Area Jobs in Industrial Space 1/							Avg. Space	Projected Industrial Space Need 3/								
Employment Sector	2008	2013	2018	2023	2028	2030	2035	'08-'35	Per Job 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
Construction	138	160	189	216	237	244	259	121	517	78,293	90,851	107,360	122,921	134,383	138,630	146,989	68,697
Manufacturing	261	398	579	679	770	806	893	632	517	148,462	225,857	328,708	385,998	437,246	458,076	507,612	359,149
Wholesale Trade	74	105	151	198	237	252	285	211	2,518	206,211	290,761	418,419	547,200	655,662	698,731	789,418	583,206
Retail Trade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	9	17	30	43	56	62	74	65	1,707	17,407	31,805	55,789	81,350	105,709	116,007	138,923	121,515
Financial Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Professional & Business Services	10	22	41	55	69	75	89	79	467	4,948	11,289	20,825	28,248	35,436	38,479	45,520	40,572
Education & Health Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	12	18	27	34	39	35	39	27	517	6,769	10,345	15,536	19,227	22,253	20,070	22,188	15,419
Government	5	6	8	10	12	12	13	9	909	4,689	6,089	8,124	10,154	11,767	12,188	13,431	8,742
<b>Total</b>	<b>509</b>	<b>726</b>	<b>1,024</b>	<b>1,236</b>	<b>1,419</b>	<b>1,487</b>	<b>1,652</b>	<b>1,143</b>	<b>834</b>	<b>466,779</b>	<b>666,997</b>	<b>954,762</b>	<b>1,195,098</b>	<b>1,402,456</b>	<b>1,482,181</b>	<b>1,664,080</b>	<b>1,197,301</b>
Medium Growth Scenario	Local Area Jobs in Industrial Space 1/							Avg. Space	Projected Industrial Space Need 3/								
Employment Sector	2008	2013	2018	2023	2028	2030	2035	'08-'35	Per Job 2/	2008	2013	2018	2023	2028	0	0	'08-'35
Construction	138	160	189	216	236	244	258	121	517	78,293	90,762	107,144	122,739	134,198	138,434	146,760	68,467
Manufacturing	261	344	451	572	661	690	758	496	517	148,462	195,720	256,219	324,914	375,309	392,129	430,464	282,002
Wholesale Trade	74	102	144	192	231	246	278	203	2,518	206,211	283,081	399,947	531,634	639,878	681,925	769,758	563,547
Retail Trade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation, Warehousing & Utilities	9	16	26	40	53	59	70	61	1,707	17,407	29,115	49,317	75,896	100,179	110,119	132,035	114,627
Financial Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Professional & Business Services	10	18	30	46	60	65	77	68	467	4,948	9,011	15,346	23,632	30,755	33,495	39,689	34,741
Education & Health Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	12	16	20	25	29	31	34	22	517	6,769	8,831	11,482	14,463	16,652	17,389	19,052	12,283
Government	5	6	8	10	11	12	13	9	909	4,689	5,999	7,882	9,869	11,432	12,028	13,243	8,554
<b>Total</b>	<b>509</b>	<b>661</b>	<b>868</b>	<b>1,102</b>	<b>1,282</b>	<b>1,347</b>	<b>1,488</b>	<b>979</b>	<b>834</b>	<b>466,779</b>	<b>622,518</b>	<b>847,337</b>	<b>1,103,145</b>	<b>1,308,404</b>	<b>1,385,519</b>	<b>1,551,000</b>	<b>1,084,220</b>

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**  
**NORTH PLAINS, OREGON**  
**2008-2035**

Baseline Growth Scenario Employment Sector	Distribution by Building Type 1/			FAR by industry sector 2/			Average Space per Job			Weighted Average
	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	
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 & Utilities	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, LLC.

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

**EXHIBIT 1.09**  
**DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL LAND BY INDUSTRY SECTOR**  
**NORTH PLAINS, OREGON**  
**2008-2035**

<b>Baseline 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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Ratio 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	78,293	90,706	107,024	122,527	133,921	138,139	146,414	68,121	0.29	7.4	8.6	10.2	11.6	12.7	13.1	13.9	6.5
Manufacturing	148,462	177,048	215,786	253,711	282,226	292,908	314,062	165,600	0.29	14.1	16.8	20.5	24.1	26.8	27.8	29.8	15.7
Wholesale Trade	206,211	278,323	389,643	513,489	616,158	656,641	740,095	533,884	0.31	18.6	25.1	35.2	46.4	55.7	59.3	66.8	48.2
Retail Trade	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation, Warehousing & Utilities	17,407	27,448	45,707	69,539	91,869	101,260	121,642	104,235	0.31	1.5	2.4	4.1	6.2	8.2	9.0	10.8	9.3
Financial Activities	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Professional & Business Services	4,948	7,600	12,290	18,250	23,720	25,995	30,891	25,943	0.26	0.5	0.8	1.3	1.9	2.5	2.8	3.3	2.7
Education & Health Services	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Services	6,769	8,072	9,839	11,568	12,868	13,355	14,319	7,550	0.29	0.6	0.8	0.9	1.1	1.2	1.3	1.4	0.7
Government	4,689	5,953	7,783	9,695	11,206	11,786	12,960	8,271	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>466,779</b>	<b>595,150</b>	<b>788,072</b>	<b>998,779</b>	<b>1,171,967</b>	<b>1,240,084</b>	<b>1,380,382</b>	<b>913,603</b>		<b>42.9</b>	<b>54.6</b>	<b>72.2</b>	<b>91.3</b>	<b>107.1</b>	<b>113.3</b>	<b>126.0</b>	<b>83.2</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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Ratio 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	78,293	90,851	107,360	122,921	134,383	138,630	146,989	68,697	0.29	7.4	8.6	10.2	11.7	12.8	13.2	14.0	6.5
Manufacturing	148,462	225,857	328,708	385,998	437,246	458,076	507,612	359,149	0.29	14.1	21.5	31.2	36.7	41.5	43.5	48.2	34.1
Wholesale Trade	206,211	290,761	418,419	547,200	655,662	698,731	789,418	583,206	0.31	18.6	26.3	37.8	49.4	59.2	63.1	71.3	52.7
Retail Trade	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation, Warehousing & Utilities	17,407	31,805	55,789	81,350	105,709	116,007	138,923	121,515	0.31	1.5	2.8	5.0	7.2	9.4	10.3	12.3	10.8
Financial Activities	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Professional & Business Services	4,948	11,289	20,825	28,248	35,436	38,479	45,520	40,572	0.26	0.5	1.2	2.2	3.0	3.8	4.1	4.8	4.3
Education & Health Services	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Services	6,769	10,345	15,536	19,227	22,253	20,070	22,188	15,419	0.29	0.6	1.0	1.5	1.8	2.1	1.9	2.1	1.5
Government	4,689	6,089	8,124	10,154	11,767	12,188	13,431	8,742	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>466,779</b>	<b>666,997</b>	<b>954,762</b>	<b>1,195,098</b>	<b>1,402,456</b>	<b>1,482,181</b>	<b>1,664,080</b>	<b>1,197,301</b>		<b>42.9</b>	<b>61.4</b>	<b>87.9</b>	<b>109.8</b>	<b>128.8</b>	<b>136.1</b>	<b>152.8</b>	<b>109.9</b>
<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>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>	<b>Ratio 2/</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2023</b>	<b>2028</b>	<b>2030</b>	<b>2035</b>	<b>'08-'35</b>
Construction	78,293	90,762	107,144	122,739	134,198	138,434	146,760	68,467	0.29	7.4	8.6	10.2	11.7	12.7	13.2	13.9	6.5
Manufacturing	148,462	195,720	256,219	324,914	375,309	392,129	430,464	282,002	0.29	14.1	18.6	24.3	30.9	35.7	37.2	40.9	26.8
Wholesale Trade	206,211	283,081	399,947	531,634	639,878	681,925	769,758	563,547	0.31	18.6	25.6	36.1	48.0	57.8	61.6	69.5	50.9
Retail Trade	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transportation, Warehousing & Utilities	17,407	29,115	49,317	75,896	100,179	110,119	132,035	114,627	0.31	1.5	2.6	4.4	6.7	8.9	9.8	11.7	10.2
Financial Activities	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Professional & Business Services	4,948	9,011	15,346	23,632	30,755	33,495	39,689	34,741	0.26	0.5	1.0	1.6	2.5	3.3	3.5	4.2	3.7
Education & Health Services	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leisure & Hospitality	0	0	0	0	0	0	0	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Services	6,769	8,831	11,482	14,463	16,652	17,389	19,052	12,283	0.29	0.6	0.8	1.1	1.4	1.6	1.7	1.8	1.2
Government	4,689	5,999	7,882	9,869	11,432	12,028	13,243	8,554	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>466,779</b>	<b>622,518</b>	<b>847,337</b>	<b>1,103,145</b>	<b>1,308,404</b>	<b>1,385,519</b>	<b>1,551,000</b>	<b>1,084,220</b>		<b>42.9</b>	<b>57.2</b>	<b>77.7</b>	<b>101.2</b>	<b>119.9</b>	<b>127.0</b>	<b>142.1</b>	<b>99.2</b>

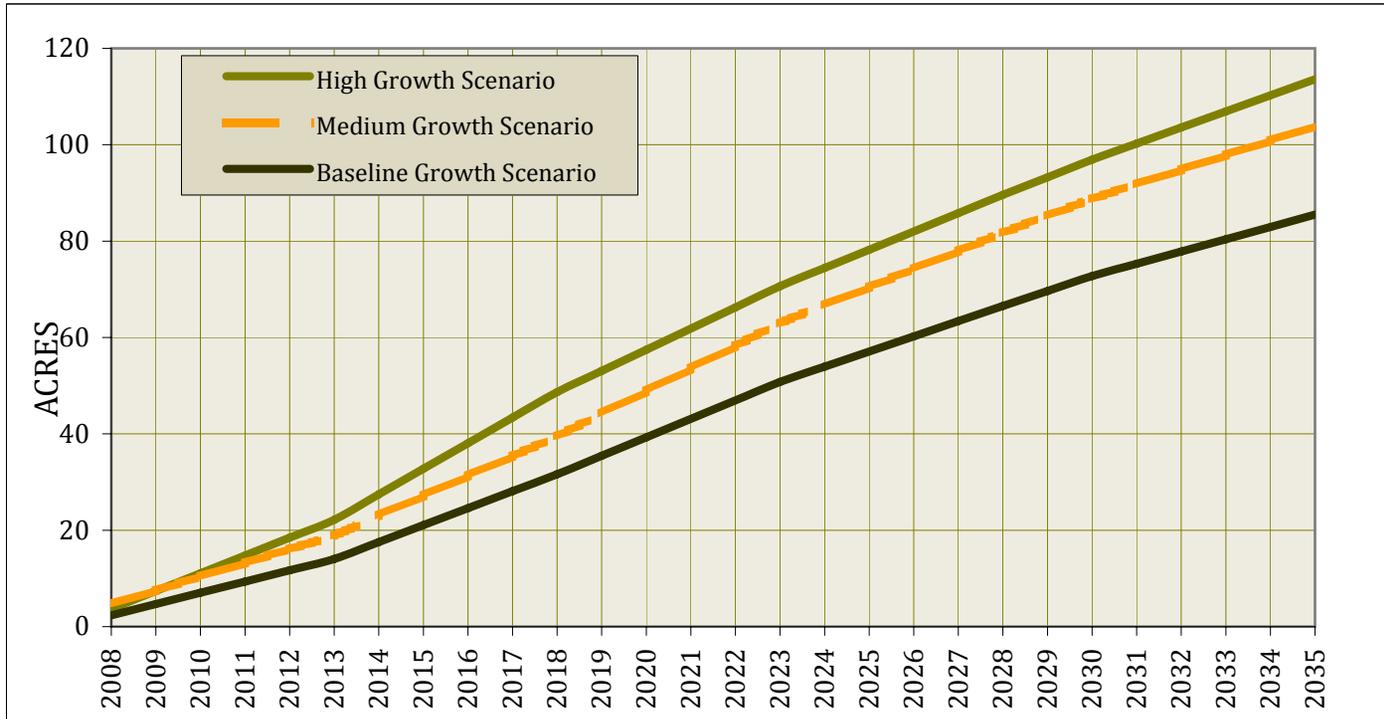
1/ From Exhibit 1.07

2/ From Exhibit 1.08

3/ Assumes a non-traditional industrial land use factor of 10% 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**  
**2008-2035**



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.11**  
**PROJECTIONS OF HOUSEHOLD RETAIL SALES**  
**NORTH PLAINS, OREGON**  
**2008-2035**

NAICS	Category	Per Household Expenditures 1/	Household Retail Spending in Millions (Households)							'08-'35
			2008	2013	2018	2023	2028	2030	2035	
441	Motor Vehicles and Parts Dealers	\$10,011	\$7.2	\$9.7	\$13.0	\$17.5	\$23.5	\$26.5	\$35.6	\$28.4
442	Furniture and Home Furnishings Stores	\$1,218	\$0.9	\$1.2	\$1.6	\$2.1	\$2.9	\$3.2	\$4.3	\$3.5
443	Electronics and Appliance Stores	\$1,139	\$0.8	\$1.1	\$1.5	\$2.0	\$2.7	\$3.0	\$4.1	\$3.2
444	Building Materials and Garden Equipment	\$5,513	\$4.0	\$5.3	\$7.2	\$9.6	\$13.0	\$14.6	\$19.6	\$15.6
445	Food and Beverage Stores	\$5,783	\$4.2	\$5.6	\$7.5	\$10.1	\$13.6	\$15.3	\$20.6	\$16.4
446	Health and Personal Care Stores	\$2,105	\$1.5	\$2.0	\$2.7	\$3.7	\$4.9	\$5.6	\$7.5	\$6.0
448	Clothing and Clothing Accessories Stores	\$2,180	\$1.6	\$2.1	\$2.8	\$3.8	\$5.1	\$5.8	\$7.8	\$6.2
451	Sporting Goods, Hobby, Book and Music Stores	\$937	\$0.7	\$0.9	\$1.2	\$1.6	\$2.2	\$2.5	\$3.3	\$2.7
452	General Merchandise Stores	\$5,739	\$4.1	\$5.5	\$7.5	\$10.0	\$13.5	\$15.2	\$20.4	\$16.3
453	Miscellaneous Store Retailers	\$1,278	\$0.9	\$1.2	\$1.7	\$2.2	\$3.0	\$3.4	\$4.5	\$3.6
722	Foodservices and Drinking Places	\$4,324	\$3.1	\$4.2	\$5.6	\$7.6	\$10.2	\$11.4	\$15.4	\$12.3
<b>Totals/Weighted Averages</b>		<b>\$40,226</b>	<b>\$28.9</b>	<b>\$38.9</b>	<b>\$52.3</b>	<b>\$70.3</b>	<b>\$94.5</b>	<b>\$106.4</b>	<b>\$143.1</b>	<b>\$114.2</b>

High Growth Scenario		Per Household Expenditures 1/	Household Retail Spending in Millions (Households)							'08-'35
NAICS	Category		2008	2013	2018	2023	2028	2030	2035	
441	Motor Vehicles and Parts Dealers	\$10,011	\$7.2	\$10.2	\$14.3	\$20.2	\$28.5	\$32.7	\$46.1	\$38.9
442	Furniture and Home Furnishings Stores	\$1,218	\$0.9	\$1.2	\$1.7	\$2.5	\$3.5	\$4.0	\$5.6	\$4.7
443	Electronics and Appliance Stores	\$1,139	\$0.8	\$1.2	\$1.6	\$2.3	\$3.2	\$3.7	\$5.2	\$4.4
444	Building Materials and Garden Equipment	\$5,513	\$4.0	\$5.6	\$7.9	\$11.1	\$15.7	\$18.0	\$25.4	\$21.4
445	Food and Beverage Stores	\$5,783	\$4.2	\$5.9	\$8.3	\$11.7	\$16.5	\$18.9	\$26.6	\$22.5
446	Health and Personal Care Stores	\$2,105	\$1.5	\$2.1	\$3.0	\$4.2	\$6.0	\$6.9	\$9.7	\$8.2
448	Clothing and Clothing Accessories Stores	\$2,180	\$1.6	\$2.2	\$3.1	\$4.4	\$6.2	\$7.1	\$10.0	\$8.5
451	Sporting Goods, Hobby, Book and Music Stores	\$937	\$0.7	\$1.0	\$1.3	\$1.9	\$2.7	\$3.1	\$4.3	\$3.6
452	General Merchandise Stores	\$5,739	\$4.1	\$5.8	\$8.2	\$11.6	\$16.3	\$18.7	\$26.4	\$22.3
453	Miscellaneous Store Retailers	\$1,278	\$0.9	\$1.3	\$1.8	\$2.6	\$3.6	\$4.2	\$5.9	\$5.0
722	Foodservices and Drinking Places	\$4,324	\$3.1	\$4.4	\$6.2	\$8.7	\$12.3	\$14.1	\$19.9	\$16.8
<b>Totals/Weighted Averages</b>		<b>\$40,226</b>	<b>\$28.9</b>	<b>\$40.8</b>	<b>\$57.5</b>	<b>\$81.2</b>	<b>\$114.5</b>	<b>\$131.4</b>	<b>\$185.3</b>	<b>\$156.4</b>

Medium Growth Scenario		Per Household Expenditures 1/	Household Retail Spending in Millions (Households)							'08-'35
NAICS	Category		2008	2013	2018	2023	2028	2030	2035	
441	Motor Vehicles and Parts Dealers	\$10,011	\$7.2	\$9.9	\$13.7	\$18.8	\$25.9	\$29.4	\$40.5	\$33.3
442	Furniture and Home Furnishings Stores	\$1,218	\$0.9	\$1.2	\$1.7	\$2.3	\$3.2	\$3.6	\$4.9	\$4.1
443	Electronics and Appliance Stores	\$1,139	\$0.8	\$1.1	\$1.6	\$2.1	\$2.9	\$3.3	\$4.6	\$3.8
444	Building Materials and Garden Equipment	\$5,513	\$4.0	\$5.5	\$7.5	\$10.4	\$14.3	\$16.2	\$22.3	\$18.4
445	Food and Beverage Stores	\$5,783	\$4.2	\$5.7	\$7.9	\$10.9	\$15.0	\$17.0	\$23.4	\$19.3
446	Health and Personal Care Stores	\$2,105	\$1.5	\$2.1	\$2.9	\$4.0	\$5.4	\$6.2	\$8.5	\$7.0
448	Clothing and Clothing Accessories Stores	\$2,180	\$1.6	\$2.2	\$3.0	\$4.1	\$5.6	\$6.4	\$8.8	\$7.3
451	Sporting Goods, Hobby, Book and Music Stores	\$937	\$0.7	\$0.9	\$1.3	\$1.8	\$2.4	\$2.8	\$3.8	\$3.1
452	General Merchandise Stores	\$5,739	\$4.1	\$5.7	\$7.8	\$10.8	\$14.8	\$16.9	\$23.2	\$19.1
453	Miscellaneous Store Retailers	\$1,278	\$0.9	\$1.3	\$1.7	\$2.4	\$3.3	\$3.8	\$5.2	\$4.3
722	Foodservices and Drinking Places	\$4,324	\$3.1	\$4.3	\$5.9	\$8.1	\$11.2	\$12.7	\$17.5	\$14.4
<b>Totals/Weighted Averages</b>		<b>\$40,226</b>	<b>\$28.9</b>	<b>\$39.8</b>	<b>\$54.9</b>	<b>\$75.5</b>	<b>\$104.1</b>	<b>\$118.3</b>	<b>\$162.9</b>	<b>\$134.0</b>

1/ Claritas, Inc. average retail sales figures for Hillsboro, Oregon in 2007 dollars.

**EXHIBIT 1.12  
PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED  
NORTH PLAINS, OREGON  
2008-2035**

Baseline Growth Scenario		Household Retail Spending (millions) 1/							Sales Support		Spending-Supported Retail Demand (SF) 3/							
NAICS	Category	2008	2013	2018	2023	2028	2030	2035	'08-'35	Factor 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	\$7.2	\$9.7	\$13.0	\$17.5	\$23.5	\$26.5	\$35.6	\$28.4	\$171	46,307	62,267	83,727	112,584	151,385	170,422	229,158	182,850
442	Furniture and Home Furnishings Stores	\$0.9	\$1.2	\$1.6	\$2.1	\$2.9	\$3.2	\$4.3	\$3.5	\$213	4,528	6,088	8,186	11,008	14,801	16,663	22,406	17,878
443	Electronics and Appliance Stores	\$0.8	\$1.1	\$1.5	\$2.0	\$2.7	\$3.0	\$4.1	\$3.2	\$246	3,662	4,925	6,622	8,904	11,973	13,479	18,124	14,462
444	Building Materials and Garden Equipment	\$4.0	\$5.3	\$7.2	\$9.6	\$13.0	\$14.6	\$19.6	\$15.6	\$157	27,692	37,236	50,069	67,325	90,528	101,912	137,036	109,344
445	Food and Beverage Stores	\$4.2	\$5.6	\$7.5	\$10.1	\$13.6	\$15.3	\$20.6	\$16.4	\$384	11,917	16,025	21,547	28,974	38,959	43,859	58,974	47,057
446	Health and Personal Care Stores	\$1.5	\$2.0	\$2.7	\$3.7	\$4.9	\$5.6	\$7.5	\$6.0	\$283	5,883	7,911	10,638	14,304	19,234	21,652	29,115	23,231
448	Clothing and Clothing Accessories Stores	\$1.6	\$2.1	\$2.8	\$3.8	\$5.1	\$5.8	\$7.8	\$6.2	\$267	6,458	8,684	11,677	15,701	21,113	23,768	31,959	25,501
451	Sporting Goods, Hobby, Book and Music Stores	\$0.7	\$0.9	\$1.2	\$1.6	\$2.2	\$2.5	\$3.3	\$2.7	\$240	3,089	4,154	5,585	7,510	10,099	11,369	15,287	12,198
452	General Merchandise Stores	\$4.1	\$5.5	\$7.5	\$10.0	\$13.5	\$15.2	\$20.4	\$16.3	\$171	26,546	35,695	47,998	64,540	86,783	97,696	131,367	104,821
453	Miscellaneous Store Retailers	\$0.9	\$1.2	\$1.7	\$2.2	\$3.0	\$3.4	\$4.5	\$3.6	\$236	4,278	5,752	7,735	10,401	13,985	15,744	21,170	16,892
722	Foodservices and Drinking Places	\$3.1	\$4.2	\$5.6	\$7.6	\$10.2	\$11.4	\$15.4	\$12.3	\$290	11,780	15,840	21,300	28,640	38,511	43,354	58,296	46,516
<b>Totals/Weighted Averages</b>		<b>\$28.9</b>	<b>\$38.9</b>	<b>\$52.3</b>	<b>\$70.3</b>	<b>\$94.5</b>	<b>\$106.4</b>	<b>\$143.1</b>	<b>\$114.2</b>		<b>152,142</b>	<b>204,577</b>	<b>275,084</b>	<b>369,891</b>	<b>497,372</b>	<b>559,918</b>	<b>752,892</b>	<b>600,750</b>
High Growth Scenario		Household Retail Spending (millions) 1/							Sales Support		Spending-Supported Retail Demand (SF) 3/							
NAICS	Category	2008	2013	2018	2023	2028	2030	2035	'08-'35	Factor 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	\$7.2	\$10.2	\$14.3	\$20.2	\$28.5	\$32.7	\$46.1	\$38.9	\$139	56,952	80,334	113,315	159,836	225,457	258,713	364,927	307,975
442	Furniture and Home Furnishings Stores	\$0.9	\$1.2	\$1.7	\$2.5	\$3.5	\$4.0	\$5.6	\$4.7	\$213	4,528	6,386	9,008	12,707	17,924	20,567	29,011	24,484
443	Electronics and Appliance Stores	\$0.8	\$1.2	\$1.6	\$2.3	\$3.2	\$3.7	\$5.2	\$4.4	\$246	3,662	5,166	7,287	10,279	14,499	16,637	23,468	19,805
444	Building Materials and Garden Equipment	\$4.0	\$5.6	\$7.9	\$11.1	\$15.7	\$18.0	\$25.4	\$21.4	\$157	27,692	39,061	55,097	77,717	109,623	125,793	177,438	149,746
445	Food and Beverage Stores	\$4.2	\$5.9	\$8.3	\$11.7	\$16.5	\$18.9	\$26.6	\$22.5	\$384	11,917	16,810	23,711	33,446	47,177	54,136	76,361	64,444
446	Health and Personal Care Stores	\$1.5	\$2.1	\$3.0	\$4.2	\$6.0	\$6.9	\$9.7	\$8.2	\$283	5,883	8,299	11,706	16,512	23,291	26,726	37,698	31,815
448	Clothing and Clothing Accessories Stores	\$1.6	\$2.2	\$3.1	\$4.4	\$6.2	\$7.1	\$10.0	\$8.5	\$267	6,458	9,110	12,850	18,125	25,566	29,337	41,382	34,923
451	Sporting Goods, Hobby, Book and Music Stores	\$0.7	\$1.0	\$1.3	\$1.9	\$2.7	\$3.1	\$4.3	\$3.6	\$240	3,089	4,357	6,146	8,670	12,229	14,033	19,794	16,705
452	General Merchandise Stores	\$4.1	\$5.8	\$8.2	\$11.6	\$16.3	\$18.7	\$26.4	\$22.3	\$171	26,546	37,445	52,818	74,502	105,088	120,590	170,097	143,551
453	Miscellaneous Store Retailers	\$0.9	\$1.3	\$1.8	\$2.6	\$3.6	\$4.2	\$5.9	\$5.0	\$236	4,278	6,034	8,512	12,006	16,935	19,433	27,412	23,134
722	Foodservices and Drinking Places	\$3.1	\$4.4	\$6.2	\$8.7	\$12.3	\$14.1	\$19.9	\$16.8	\$290	11,780	16,617	23,439	33,061	46,634	53,513	75,483	63,703
<b>Totals/Weighted Averages</b>		<b>\$28.9</b>	<b>\$40.8</b>	<b>\$57.5</b>	<b>\$81.2</b>	<b>\$114.5</b>	<b>\$131.4</b>	<b>\$185.3</b>	<b>\$156.4</b>		<b>162,787</b>	<b>229,619</b>	<b>323,888</b>	<b>456,860</b>	<b>644,423</b>	<b>739,479</b>	<b>1,043,071</b>	<b>880,285</b>
Medium Growth Scenario		Household Retail Spending (millions) 1/							Sales Support		Spending-Supported Retail Demand (SF) 3/							
NAICS	Category	2008	2013	2018	2023	2028	2030	2035	'08-'35	Factor 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	\$7.2	\$9.9	\$13.7	\$18.8	\$25.9	\$29.4	\$40.5	\$33.3	\$139	56,952	78,439	108,033	148,792	204,929	232,923	320,800	263,848
442	Furniture and Home Furnishings Stores	\$0.9	\$1.2	\$1.7	\$2.3	\$3.2	\$3.6	\$4.9	\$4.1	\$213	4,528	6,236	8,588	11,829	16,292	18,517	25,503	20,976
443	Electronics and Appliance Stores	\$0.8	\$1.1	\$1.6	\$2.1	\$2.9	\$3.3	\$4.6	\$3.8	\$246	3,662	5,044	6,947	9,569	13,179	14,979	20,630	16,968
444	Building Materials and Garden Equipment	\$4.0	\$5.5	\$7.5	\$10.4	\$14.3	\$16.2	\$22.3	\$18.4	\$157	27,692	38,139	52,529	72,347	99,642	113,254	155,982	128,290
445	Food and Beverage Stores	\$4.2	\$5.7	\$7.9	\$10.9	\$15.0	\$17.0	\$23.4	\$19.3	\$384	11,917	16,413	22,606	31,135	42,881	48,739	67,128	55,210
446	Health and Personal Care Stores	\$1.5	\$2.1	\$2.9	\$4.0	\$5.4	\$6.2	\$8.5	\$7.0	\$283	5,883	8,103	11,160	15,371	21,170	24,062	33,140	27,257
448	Clothing and Clothing Accessories Stores	\$1.6	\$2.2	\$3.0	\$4.1	\$5.6	\$6.4	\$8.8	\$7.3	\$267	6,458	8,895	12,251	16,873	23,238	26,413	36,378	29,920
451	Sporting Goods, Hobby, Book and Music Stores	\$0.7	\$0.9	\$1.3	\$1.8	\$2.4	\$2.8	\$3.8	\$3.1	\$240	3,089	4,255	5,860	8,071	11,116	12,634	17,401	14,311
452	General Merchandise Stores	\$4.1	\$5.7	\$7.8	\$10.8	\$14.8	\$16.9	\$23.2	\$19.1	\$171	26,546	36,562	50,356	69,354	95,520	108,568	149,529	122,983
453	Miscellaneous Store Retailers	\$0.9	\$1.3	\$1.7	\$2.4	\$3.3	\$3.8	\$5.2	\$4.3	\$236	4,278	5,892	8,115	11,177	15,393	17,496	24,097	19,819
722	Foodservices and Drinking Places	\$3.1	\$4.3	\$5.9	\$8.1	\$11.2	\$12.7	\$17.5	\$14.4	\$290	11,780	16,225	22,346	30,777	42,388	48,179	66,356	54,575
<b>Totals/Weighted Averages</b>		<b>\$28.9</b>	<b>\$39.8</b>	<b>\$54.9</b>	<b>\$75.5</b>	<b>\$104.1</b>	<b>\$118.3</b>	<b>\$162.9</b>	<b>\$134.0</b>		<b>162,787</b>	<b>224,203</b>	<b>308,791</b>	<b>425,293</b>	<b>585,748</b>	<b>665,763</b>	<b>916,944</b>	<b>754,157</b>

1/ From Exhibit 1.11

2/ Based on national averages derived from "Dollars & Cents of Shopping Centers," Urban Land Institute, 2000.

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

\* Estimate

**EXHIBIT 1.13  
PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED  
NORTH PLAINS, OREGON  
2008-2035**

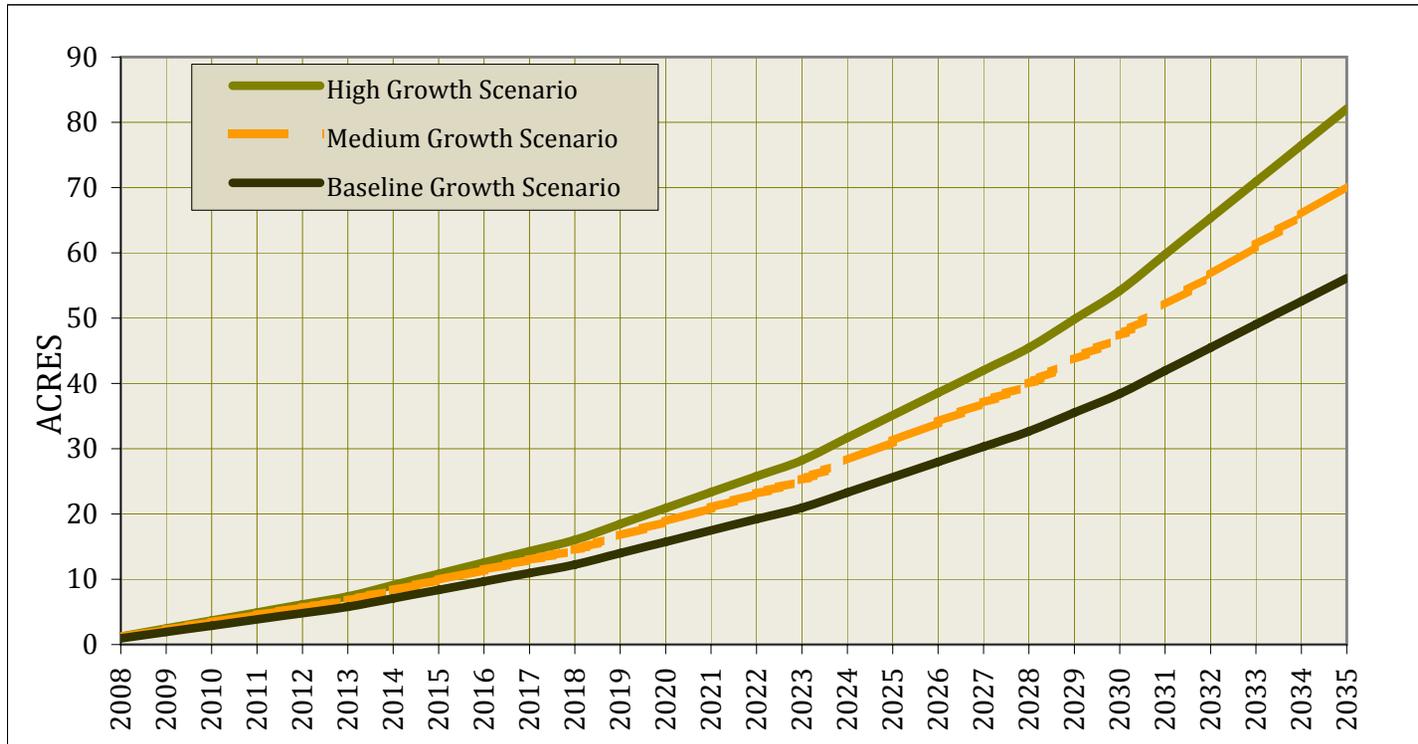
Baseline Growth Scenario		Spending-Supported Retail Demand (SF) 1/							Retail	Commercial Retail Land Need (Acres)								
NAICS	Category	2008	2013	2018	2023	2028	2030	2035	'08-'35	F.A.R 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	46,307	62,267	83,727	112,584	151,385	170,422	229,158	<b>182,850</b>	0.25	4.3	5.7	7.7	10.3	13.9	15.6	21.0	<b>16.8</b>
442	Furniture and Home Furnishings Stores	4,528	6,088	8,186	11,008	14,801	16,663	22,406	<b>17,878</b>	0.25	0.4	0.6	0.8	1.0	1.4	1.5	2.1	<b>1.6</b>
443	Electronics and Appliance Stores	3,662	4,925	6,622	8,904	11,973	13,479	18,124	<b>14,462</b>	0.25	0.3	0.5	0.6	0.8	1.1	1.2	1.7	<b>1.3</b>
444	Building Materials and Garden Equipment	27,692	37,236	50,069	67,325	90,528	101,912	137,036	<b>109,344</b>	0.25	2.5	3.4	4.6	6.2	8.3	9.4	12.6	<b>10.0</b>
445	Food and Beverage Stores	11,917	16,025	21,547	28,974	38,959	43,859	58,974	<b>47,057</b>	0.25	1.1	1.5	2.0	2.7	3.6	4.0	5.4	<b>4.3</b>
446	Health and Personal Care Stores	5,883	7,911	10,638	14,304	19,234	21,652	29,115	<b>23,231</b>	0.25	0.5	0.7	1.0	1.3	1.8	2.0	2.7	<b>2.1</b>
448	Clothing and Clothing Accessories Stores	6,458	8,684	11,677	15,701	21,113	23,768	31,959	<b>25,501</b>	0.25	0.6	0.8	1.1	1.4	1.9	2.2	2.9	<b>2.3</b>
451	Sporting Goods, Hobby, Book and Music Stores	3,089	4,154	5,585	7,510	10,099	11,369	15,287	<b>12,198</b>	0.25	0.3	0.4	0.5	0.7	0.9	1.0	1.4	<b>1.1</b>
452	General Merchandise Stores	26,546	35,695	47,998	64,540	86,783	97,696	131,367	<b>104,821</b>	0.25	2.4	3.3	4.4	5.9	8.0	9.0	12.1	<b>9.6</b>
453	Miscellaneous Store Retailers	4,278	5,752	7,735	10,401	13,985	15,744	21,170	<b>16,892</b>	0.25	0.4	0.5	0.7	1.0	1.3	1.4	1.9	<b>1.6</b>
722	Foodservices and Drinking Places	11,780	15,840	21,300	28,640	38,511	43,354	58,296	<b>46,516</b>	0.25	1.1	1.5	2.0	2.6	3.5	4.0	5.4	<b>4.3</b>
<b>Totals/Weighted Averages</b>		<b>152,142</b>	<b>204,577</b>	<b>275,084</b>	<b>369,891</b>	<b>497,372</b>	<b>559,918</b>	<b>752,892</b>	<b>600,750</b>	<b>0.25</b>	<b>14.0</b>	<b>18.8</b>	<b>25.3</b>	<b>34.0</b>	<b>45.7</b>	<b>51.4</b>	<b>69.1</b>	<b>55.2</b>
High Growth Scenario		Spending-Supported Retail Demand (SF) 1/							Retail	Commercial Retail Land Need (Acres)								
NAICS	Category	2008	2013	2018	2023	2028			'08-'35	F.A.R 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	56,952	80,334	113,315	159,836	225,457	258,713	364,927	<b>307,975</b>	0.25	5.2	7.4	10.4	14.7	20.7	23.8	33.5	<b>28.3</b>
442	Furniture and Home Furnishings Stores	4,528	6,386	9,008	12,707	17,924	20,567	29,011	<b>24,484</b>	0.25	0.4	0.6	0.8	1.2	1.6	1.9	2.7	<b>2.2</b>
443	Electronics and Appliance Stores	3,662	5,166	7,287	10,279	14,499	16,637	23,468	<b>19,805</b>	0.25	0.3	0.5	0.7	0.9	1.3	1.5	2.2	<b>1.8</b>
444	Building Materials and Garden Equipment	27,692	39,061	55,097	77,717	109,623	125,793	177,438	<b>149,746</b>	0.25	2.5	3.6	5.1	7.1	10.1	11.6	16.3	<b>13.8</b>
445	Food and Beverage Stores	11,917	16,810	23,711	33,446	47,177	54,136	76,361	<b>64,444</b>	0.25	1.1	1.5	2.2	3.1	4.3	5.0	7.0	<b>5.9</b>
446	Health and Personal Care Stores	5,883	8,299	11,706	16,512	23,291	26,726	37,698	<b>31,815</b>	0.25	0.5	0.8	1.1	1.5	2.1	2.5	3.5	<b>2.9</b>
448	Clothing and Clothing Accessories Stores	6,458	9,110	12,850	18,125	25,566	29,337	41,382	<b>34,923</b>	0.25	0.6	0.8	1.2	1.7	2.3	2.7	3.8	<b>3.2</b>
451	Sporting Goods, Hobby, Book and Music Stores	3,089	4,357	6,146	8,670	12,229	14,033	19,794	<b>16,705</b>	0.25	0.3	0.4	0.6	0.8	1.1	1.3	1.8	<b>1.5</b>
452	General Merchandise Stores	26,546	37,445	52,818	74,502	105,088	120,590	170,097	<b>143,551</b>	0.25	2.4	3.4	4.9	6.8	9.6	11.1	15.6	<b>13.2</b>
453	Miscellaneous Store Retailers	4,278	6,034	8,512	12,006	16,935	19,433	27,412	<b>23,134</b>	0.25	0.4	0.6	0.8	1.1	1.6	1.8	2.5	<b>2.1</b>
722	Foodservices and Drinking Places	11,780	16,617	23,439	33,061	46,634	53,513	75,483	<b>63,703</b>	0.25	1.1	1.5	2.2	3.0	4.3	4.9	6.9	<b>5.8</b>
<b>Totals/Weighted Averages</b>		<b>162,787</b>	<b>229,619</b>	<b>323,888</b>	<b>456,860</b>	<b>644,423</b>	<b>739,479</b>	<b>1,043,071</b>	<b>880,285</b>	<b>0.25</b>	<b>14.9</b>	<b>21.1</b>	<b>29.7</b>	<b>42.0</b>	<b>59.2</b>	<b>67.9</b>	<b>95.8</b>	<b>80.8</b>
Medium Growth Scenario		Spending-Supported Retail Demand (SF) 1/							Retail	Commercial Retail Land Need (Acres)								
NAICS	Category	2008	2013	2018	2023	2028	2030	2035	'08-'35	F.A.R 2/	2008	2013	2018	2023	2028	2030	2035	'08-'35
441	Automotive Parts, Accessories and Tire Stores	56,952	78,439	108,033	148,792	204,929	232,923	320,800	<b>263,848</b>	0.25	5.2	7.2	9.9	13.7	18.8	21.4	29.5	<b>24.2</b>
442	Furniture and Home Furnishings Stores	4,528	6,236	8,588	11,829	16,292	18,517	25,503	<b>20,976</b>	0.25	0.4	0.6	0.8	1.1	1.5	1.7	2.3	<b>1.9</b>
443	Electronics and Appliance Stores	3,662	5,044	6,947	9,569	13,179	14,979	20,630	<b>16,968</b>	0.25	0.3	0.5	0.6	0.9	1.2	1.4	1.9	<b>1.6</b>
444	Building Materials and Garden Equipment	27,692	38,139	52,529	72,347	99,642	113,254	155,982	<b>128,290</b>	0.25	2.5	3.5	4.8	6.6	9.1	10.4	14.3	<b>11.8</b>
445	Food and Beverage Stores	11,917	16,413	22,606	31,135	42,881	48,739	67,128	<b>55,210</b>	0.25	1.1	1.5	2.1	2.9	3.9	4.5	6.2	<b>5.1</b>
446	Health and Personal Care Stores	5,883	8,103	11,160	15,371	21,170	24,062	33,140	<b>27,257</b>	0.25	0.5	0.7	1.0	1.4	1.9	2.2	3.0	<b>2.5</b>
448	Clothing and Clothing Accessories Stores	6,458	8,895	12,251	16,873	23,238	26,413	36,378	<b>29,920</b>	0.25	0.6	0.8	1.1	1.5	2.1	2.4	3.3	<b>2.7</b>
451	Sporting Goods, Hobby, Book and Music Stores	3,089	4,255	5,860	8,071	11,116	12,634	17,401	<b>14,311</b>	0.25	0.3	0.4	0.5	0.7	1.0	1.2	1.6	<b>1.3</b>
452	General Merchandise Stores	26,546	36,562	50,356	69,354	95,520	108,568	149,529	<b>122,983</b>	0.25	2.4	3.4	4.6	6.4	8.8	10.0	13.7	<b>11.3</b>
453	Miscellaneous Store Retailers	4,278	5,892	8,115	11,177	15,393	17,496	24,097	<b>19,819</b>	0.25	0.4	0.5	0.7	1.0	1.4	1.6	2.2	<b>1.8</b>
722	Foodservices and Drinking Places	11,780	16,225	22,346	30,777	42,388	48,179	66,356	<b>54,575</b>	0.25	1.1	1.5	2.1	2.8	3.9	4.4	6.1	<b>5.0</b>
<b>Totals/Weighted Averages</b>		<b>162,787</b>	<b>224,203</b>	<b>308,791</b>	<b>425,293</b>	<b>585,748</b>	<b>665,763</b>	<b>916,944</b>	<b>754,157</b>	<b>0.25</b>	<b>14.9</b>	<b>20.6</b>	<b>28.4</b>	<b>39.1</b>	<b>53.8</b>	<b>61.1</b>	<b>84.2</b>	<b>69.3</b>

1/ From Exhibit 1.12

2/ Assumes typical suburban retail profile: single-story with four parking spaces per 1,000 square feet of developed space.

\*Estimate

**EXHIBIT 1.14**  
**COMPARISON OF CUMULATIVE DEMAND FOR COMMERCIAL RETAIL LAND**  
**MEDIUM, HIGH AND LOW GROWTH SCENARIOS**  
**2008-2035**



SOURCE: Johnson Reid, LLC