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TO: Greg Winterowd
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SUBJECT: WOODBURN OCCUPATION/WAGE FORECAST

BACKGROUND

In 2001, ECONorthwest and WPS completed an Economic Opportunities Analysis (EOA) for the City of Woodburn. The EOA included a local economic development strategy that was adopted by the Woodburn City Council. That strategy requires substantial amendments to the City's planning documents, including justification for an Urban Growth Boundary expansion.

In early 2002, Winterbrook Planning (Winterbrook) began work with the City to prepare the necessary plan amendments and findings to justify the UGB expansion. As a part of Winterbrook's preliminary work, ECO developed revised population and employment forecasts. To supplement previous work conducted by ECO, Winterbrook requested ECONorthwest complete additional research on three issues:

1. The impact the City's economic development strategies will have on household incomes;
2. Demand for non-residential land implied by the revised employment forecast; and
3. Site needs for industries targeted as part of the City's economic development strategy.

This memorandum addresses the first task: the impact the City's economic development strategies will have on household incomes. The second and third tasks are addressed in separate memoranda.

METHOD

The Oregon Employment Department collects wage data for occupations. To match occupational wage data to the employment forecast for Woodburn, we had to convert employment by industry in the forecast to employment by occupation. To make this conversion, the Oregon Employment Department provided ECONorthwest with data estimating 2000 employment by occupation for each industry in Workforce Analysis Region 3, which consists of Marion, Polk, and Yamhill County. (That is the smallest geography for

which the data is available.) The occupational employment data also includes a forecast of occupational employment by industry for 2010.

ECONorthwest grouped occupational employment by industry into occupational employment by the seven economic sectors used in our employment forecast for Woodburn: Agriculture, Industrial, Retail, Service, Education, Government, and Other. The industries included in these sectors (as defined by their Standard Industrial Classification at the two-digit level) is shown in Table 1.

Table 1. Industries included in sectors used for Woodburn employment forecast

Sector	SICs
Agriculture	00-09
Industrial	10-14, 22, 24-39
Retail	52-59
Service	48-49, 60-67, 70-81, 83-89
Education	82
Government	91-94
Other	15-17, 19-20, 23, 40-47, 50-51, 95-99
Total	

Source: ECONorthwest.

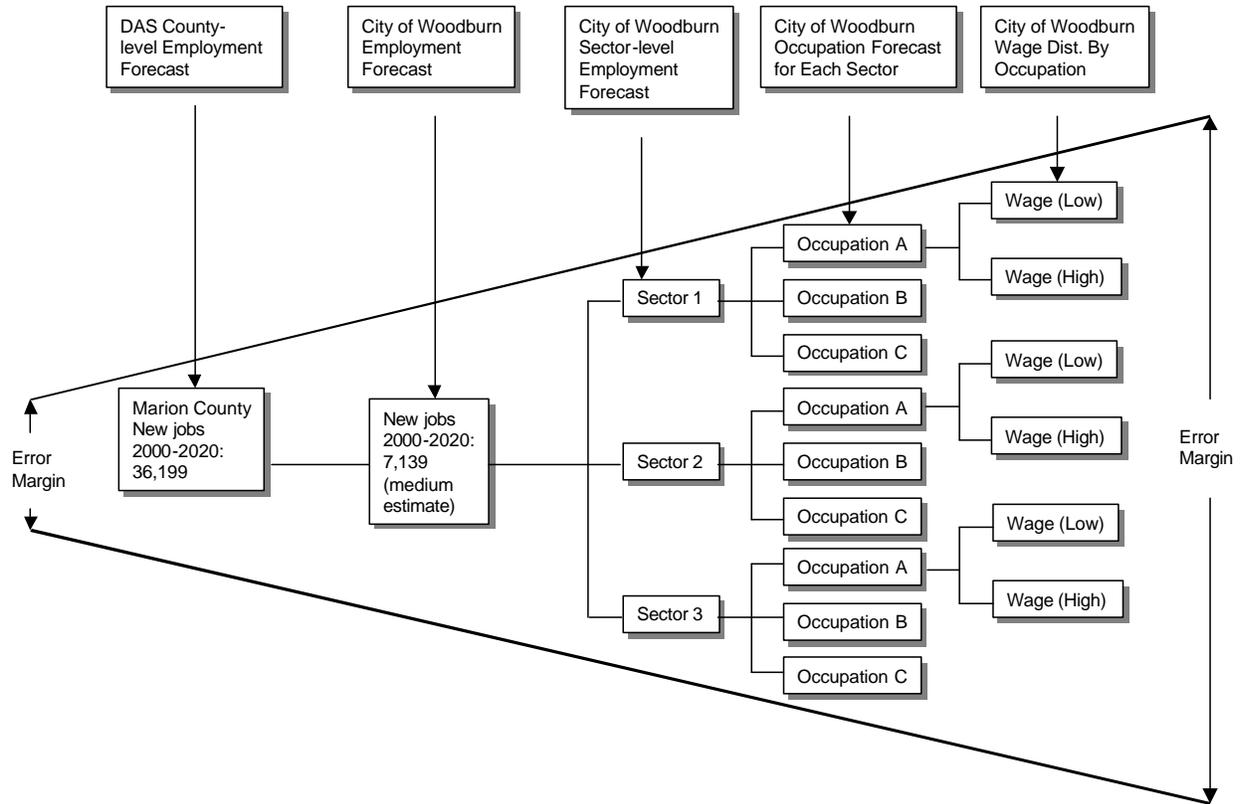
Once we had occupational employment by sector, we calculated the percentage share of total employment in each sector by occupation. Woodburn's total employment by sector was then applied to the distribution of employment by occupation to estimate employment by occupation in Woodburn. Forecast 2020 employment in Woodburn by sector was applied to the forecasted 2010 distribution of employment by occupation. This method captures some of the expected shifts in occupational employment. ECONorthwest did not have enough information to reasonably project occupational employment to 2020.

Estimated employment by occupation in Woodburn for 2000 and 2020 was then matched to occupational wage data provided by the Oregon Employment Department. That data includes an estimate of the annual income supported by the mean wage for each occupation based on full-time employment. That annual income estimate was used to show the distribution of Woodburn's employment by annual income range in 2000 and 2020.

By matching current occupational wage data to forecast occupational employment in 2020, this method shows the projected future income distribution in constant year-2000 dollars. By using current occupational wage data, this method implicitly does not reflect any expected shifts in relative occupational wages (wages in some occupations will grow faster or slower than wages for all occupations).

Figure 1-1 shows the steps in estimating the wage ranges. We note that uncertainty is compounded with every step in the process. The process begins with the County-level employment forecasts by the Office of Economic Analysis (OEA). ECO then used the OEA forecast as a control total to estimate employment in Woodburn. An additional margin of error is introduced when the City total is disaggregated into industrial sectors. Each industry may include a range of occupations; each occupation has a range of wages. Our point is that the margin of error of the wage distributions could be as large as 100%.

Figure 1-1. Methods to develop wage distribution estimate



The purpose of this analysis is to develop a better idea of the relationship between future jobs, incomes, and housing affordability in Woodburn. To our knowledge, Corvallis is the only other City that has attempted this level of analysis to estimate wages for each of its forecasted additional employees.¹ Our conclusion is that the data do not support being able to do this kind of analysis with any greater confidence than what we have described.

Moreover, the available data sets do not allow a direct empirical linkage between job growth and housing affordability. The missing factor is the relationship between wages (earned by individuals) and total household income (many households include more than one wage earner). Thus, the best we can do with this analysis is to develop a forecast of the wage distribution implied by forecasted job growth in Woodburn.

RESULTS

ESTIMATED WAGE DISTRIBUTION

Table 2 shows the estimated annual income distribution of occupational employment in Woodburn in 2000 and 2020. This table shows that occupations that support an annual

¹ That work was completed by ECONorthwest in 2000.

income of \$20,000–\$29,999 are expected to have the largest share of total employment growth (38%), followed by occupations supporting an income of \$30,000 to \$39,999 (17%). It also shows that the share of workers in occupations with incomes above \$20,000 will increase, while the share of workers in occupations with incomes between \$10,000 and \$19,999 will decrease.

Table 2. Annual income distribution of estimated occupational employment in Woodburn, 2000–2020 (2000 dollars)

Annual Income	2000	2020	Change	% Change
< \$10,000	0	0	0	0%
\$10,000 - \$19,999	3,112	3,993	881	28%
\$20,000 - \$29,999	3,539	6,328	2,789	79%
\$30,000 - \$39,999	1,369	2,678	1,309	96%
\$40,000 - \$49,999	1,062	1,982	920	87%
\$50,000 +	956	1,826	870	91%
Unknown	1,201	1,861	660	55%
Total	11,239	17,528	7,140	100%

Source: ECONorthwest.

Table 2 shows that the annual income associated with about 10% of the occupations in Woodburn is unknown, because wage data for these occupations is not reported by the Oregon Employment Department. Table 3 shows the occupations estimated to have over 50 employees in Woodburn for which we do not have wage data. Employment in these occupations represents about 60–70% of all employment in occupations for which we do not have wage data. Table 3 shows roughly 1/3 of employment in occupations that we do not have wage data for are in Nursery Workers and Student Workers, occupations that are likely to pay wages that support incomes of \$10,000 to \$19,999.

Table 3. Woodburn employment in occupations with unknown wages

Occupation Title	2000	2020	Likely Income Range
Nursery Workers	359	241	\$10,000 - \$19,999
Student Workers	154	292	\$10,000 - \$19,999
Other Hand Material Movers	68	115	\$20,000 - \$29,999
Leased Workers	54	105	\$20,000 - \$29,999
Other Professional & Tech Wkrs	74	137	\$30,000 - \$39,999
Other Management Support Workers	62	107	\$30,000 - \$39,999
Other Managers & Administrators	79	143	\$40,000 - \$49,999
Total	851	1,140	

Source: ECONorthwest.

Note: Table 3 shows only occupations with 50 or more employees.

The income distribution in Table 2 has indirect implications for the distribution of household income in Woodburn, for two reasons. First, Table 2 shows the distribution for individual occupations but many households will have more than one wage earner, so total household income will be affected by the earnings of all household members. Second, not everybody who works in Woodburn lives in Woodburn, and some residents of Woodburn work outside of the city.

Table 4 shows the estimated distribution of employment by income for Woodburn in 2000, 2020, and for new employment added between 2000 and 2020. The results show that implementation of the City's economic development strategy will result in much faster growth in jobs paying more than \$20,000 annually. Forty-three percent of new jobs are forecast to have annual incomes of more than \$30,000.

Table 4. Estimated distribution of employment by income, Woodburn 2000-2020

Annual Income	Total Employment		New Emp
	2000	2020	2000-2020
< \$20,000	28%	23%	12%
\$20,000 - \$29,999	31%	36%	39%
\$30,000 - \$39,999	12%	15%	18%
\$40,000 - \$49,999	9%	11%	13%
\$50,000 +	9%	10%	12%
Unknown	11%	11%	9%
Total	100%	100%	100%

Source: ECONorthwest.

Another way to analyze future income shifts is by using hourly wages. Occupational wage data from the Oregon Employment Department were used to estimate the number of new jobs in Woodburn by wage level. Table 5 shows our forecast of new jobs by wage level in Woodburn between 2000 and 2020. The results indicate that more than half the jobs created will pay more than \$12.00 per hour.

Table 5. Forecast of new jobs by wage level in Woodburn, 2000-2020

Average Hourly Wage	2000	2020	Change	% Change
< \$7.99	1,389	1,605	216	3%
\$8 - \$11.99	3,525	5,731	2,206	31%
\$12 - \$15.99	1,660	3,302	1,642	23%
\$16 - \$19.99	943	1,829	886	12%
\$20 - \$23.99	447	893	446	6%
\$24 and over	884	1,693	809	11%
Unknown	1,540	2,475	935	13%
Total	10,388	17,528	7,140	100%

Source: ECONorthwest

Note: Table does not include occupations for which no wage data is available from the Oregon Employment Department.

Table 6 shows the estimated distribution of employment by income for Woodburn in 2000, 2020, and for new employment added between 2000 and 2020. The results show that implementation of the City's economic development strategy will result in much faster growth in jobs paying more than \$12.00 per hour. Fifty-two percent of new jobs are forecast to have annual incomes of more than \$12.00 per hour.

Table 6. Estimated distribution of employment by income, Woodburn 2000-2020

Average Hourly Wage	Total Employment		New Emp 2000-2020	
	2000	2020	Number	Percent
< \$7.99	13%	9%	216	3%
\$8 - \$11.99	34%	33%	2,206	31%
\$12 - \$15.99	16%	19%	1,642	23%
\$16 - \$19.99	9%	10%	886	12%
\$20 - \$23.99	4%	5%	446	6%
\$24 and over	9%	10%	809	11%
Unknown	15%	14%	935	13%
Total	100%	100%	7,140	100%

Source: ECONorthwest.

COMPARISON TO OTHER CITIES

Woodburn's economic development strategy is to increase high-wage employment. The previous section described why it is difficult to develop an accurate estimate of future wage levels. Moreover, ECO stopped short of using the wage estimates to develop a future distribution of household incomes. ECO identified a number of Oregon cities to compare with Woodburn to better understand the relationship between various socio-economic characteristics.

Table 7 presents a set of Census variables for Woodburn and other selected Oregon cities.² ECO chose the comparable cities primarily based on size, and secondarily based on recent growth and economic trends. While it is difficult to draw definitive conclusions from the data, ECO makes the following observations:

- With the exception of Bend and McMinnville, more than 50% of the labor force in the comparable cities worked in a different place. Woodburn is closely comparable to the nearby cities of Tigard, Wilsonville, and Tualatin.
- With the exception of McMinnville, Springfield, and Woodburn, the comparable cities have 33% to 40% of their households in incomes ranging between \$50,000 and \$100,000.
- Springfield and Woodburn have the lowest median household incomes—about \$33,000. Median household income in the comparable communities was much higher, ranging from \$40,000 in Bend to \$55,000 in Tualatin.
- Woodburn, Forest Grove, and Hillsboro had the highest percentage of residents in manufacturing industries.

² The U.S. Census counts the number of residents that are employed by location of residence, not location of employment. Thus, employment figures do not represent the number of jobs in a specific city.

- Woodburn has a lower percentage of residents employed in Education, Health and Social Services and Other Services than any of the comparable communities. It also has a relatively low percentage of residents employed in Professional Services.

Table 7. Comparison of Census variables, Woodburn and selected cities, 2000

Variable	Bend	Forest Grove	Hillsboro	McMinnville	Oregon City	Springfield	Tigard	Tualatin	Wilsonville	Woodburn
Population	51,808	17,524	69,883	26,552	25,533	52,729	41,261	22,587	13,905	20,076
Labor Force										
Total	26,106	7,854	35,797	11,244	12,647	24,458	21,619	12,419	7,371	7,364
Worked in place of residence	82%	34%	43%	59%	26%	38%	27%	25%	28%	29%
Worked outside place of residence	18%	66%	57%	41%	74%	62%	73%	75%	72%	71%
Household Income										
Total	21,050	6,310	25,028	9,356	9,493	20,423	16,499	8,617	5,927	6,250
Less than \$10,000	7%	10%	5%	9%	8%	12%	4%	4%	4%	9%
\$10,000 to \$14,999	7%	7%	4%	7%	4%	8%	5%	3%	4%	8%
\$15,000 to \$19,999	7%	5%	5%	6%	6%	10%	6%	3%	6%	8%
\$20,000 to \$24,999	7%	8%	5%	6%	5%	8%	6%	5%	5%	8%
\$25,000 to \$29,999	8%	6%	5%	7%	6%	7%	5%	6%	6%	9%
\$30,000 to \$34,999	8%	7%	6%	7%	8%	8%	6%	8%	7%	10%
\$35,000 to \$39,999	6%	6%	6%	9%	6%	7%	6%	4%	5%	7%
\$40,000 to \$44,999	6%	6%	6%	8%	7%	6%	6%	5%	7%	7%
\$45,000 to \$49,999	6%	6%	5%	7%	7%	6%	5%	6%	4%	5%
\$50,000 to \$59,999	10%	11%	12%	10%	12%	9%	10%	11%	8%	9%
\$60,000 to \$74,999	11%	11%	14%	9%	12%	9%	11%	11%	13%	9%
\$75,000 to \$99,999	10%	10%	14%	8%	13%	6%	15%	15%	15%	6%
\$100,000 to \$124,999	4%	3%	7%	3%	5%	2%	7%	9%	8%	3%
\$125,000 to \$149,999	2%	1%	3%	1%	2%	1%	3%	4%	3%	0%
\$150,000 to \$199,999	2%	1%	2%	1%	1%	0%	3%	4%	3%	1%
\$200,000 or more	2%	1%	1%	1%	1%	1%	2%	3%	3%	0%
Median Household Income	40,857	40,135	51,737	38,953	45,531	33,031	51,581	55,762	52,515	33,722
Source of Income										
Percent Wage and Salary	76%	74%	88%	73%	84%	80%	83%	89%	82%	64%
Employment										
Total employees	26,565	8,004	36,427	11,437	12,830	24,855	21,893	12,523	7,451	7,448
Manufacturing	10%	24%	28%	17%	13%	17%	15%	17%	16%	22%
FIRE	7%	4%	6%	6%	6%	6%	10%	10%	9%	3%
Professional Services	9%	9%	10%	6%	8%	8%	12%	13%	12%	10%
Ed, Health & Social Services	19%	24%	15%	21%	19%	18%	15%	15%	15%	11%
Other Services	16%	9%	9%	12%	11%	15%	13%	9%	11%	11%
Public Administration	3%	2%	3%	6%	6%	4%	3%	2%	4%	2%

Source: 2000 Census

Note: Census counts employment by place of residence not by place of work

ESTIMATED 2020 INCOME DISTRIBUTION

The final step in this analysis was to develop a 2020 income distribution. The previous sections discussed the difficulties and uncertainties of developing such a distribution. The reason for developing such a distribution is to provide input to the DLCD/HCS *Housing Needs Model*. In short, the City desires to model housing needs based on anticipated future incomes.

The distribution presented in Table 8 represents ECO's best estimate of what incomes in Woodburn will look like if the City is successful in implementing its economic development strategy. The 2020 distribution assumes a 2020 population of 34,919. At an average household size of 2.7 persons, we estimate Woodburn will have 12,932 households in 2020.

Table 8. Estimated 2020 income distribution, Woodburn UGB

HH Income	2000		2020	
	Number	Percent	Number	Percent
<10k	538	8.6%	992	7.7%
10k <20k	1,005	16.1%	1,810	14.0%
20k <30k	1,088	17.4%	1,552	12.0%
30k <40k	1,097	17.6%	1,833	14.2%
40k <50k	744	11.9%	2,134	16.5%
50k <75k	1,152	18.4%	2,586	20.0%
75k+	626	10.0%	2,029	15.7%
Total	6,250	100.0%	12,932	100.0%

Source: Estimates by ECONorthwest

CONCLUSION

Our analysis of the relationship between employment forecasts and wage levels lead to several conclusions:

- *Woodburn will add 7,139 jobs between 2000 and 2020. This forecast accounts for 20% of all job growth forecast for Marion County.*
- *More than 50% of new jobs created between 2000 and 2020 are expected to pay less than \$30,000 annually on a full-time equivalent basis.³ This is a range of \$7.00 to \$15.00 per hour expressed as an hourly wage. About 18% will pay between \$30,000 and \$39,000 annually, and about 13% will pay more than \$40,000 to \$49,000 annually.*
- *The successful implementation of Woodburn's economic development strategy will have a significant impact on the city's wage distribution. The strategy will result in fewer low-paying retail and service jobs, and more high-wage manufacturing, construction, and skilled occupations.*

The analysis described in this section intended to make a linkage between new employment, wages, and households' ability to purchase housing. The data, unfortunately, did not allow us to make the leap from a wage distribution to housing affordability.

The wage distribution analysis, however, suggests that a higher percentage of new jobs created in Woodburn between 2000 and 2020 will pay more than existing jobs. This result will impact household home purchase decisions, which will affect the City's housing need. The general impact will be to create more demand for single-family housing types and a broader range of prices. This suggests that the City should plan for a range of housing types and designate lands consistent with that range.

³ A full-time equivalent assumes 1980 hours annually. We recognize that many new jobs in Woodburn are likely to be part-time jobs that will not equate to the annual salary estimates. The base data, however, do not make a distinction between full-time and part-time employment.

