

**Population Projection for Newberg,  
Yamhill County, Oregon:  
2000 to 2040**

Prepared by

Barry Edmonston  
Director, Population Research Center

Population Research Center  
Portland State University  
Portland, Oregon 97207

March 25, 2004

## INTRODUCTION

This report presents a population projection for the City of Newberg, Oregon for the 2000 to 2040 period. The projection is benchmarked to the 1990 and 2000 censuses.

I recommend that policy makers view population projections as one of several available sources of information about likely future conditions. The forecasts in this report are based on assumptions developed from analysis of historical trends and expectations of the future. While the past gives some indication of what is likely to happen in the future, there always the possibility of unforeseen events that could have a significant impact of population change. Thus, users of this projection should be aware that new changes could occur and that it is wise to evaluate projections periodically in future years. Local policy makers, for example, often have informed judgments about the future outlook for economic changes and repercussions for employment. Other sources of information can be helpful in thinking about the outlook for population changes and I recommend that other information, in addition to these demographic forecasts, be used in judging the outlook for local populations.

Given that these projections are developed for long-term trends, they are conservative. This means that they do not assume drastic changes to the population trends that have developed over recent decades.

All work cited in this report are listed as references at the end of the report.

## METHODS AND ASSUMPTIONS

This report relies on two approaches for projecting the population in the City of Newberg.<sup>1</sup> The first approach is the ratio method. It provides a projection for the total population, by five years intervals, from 2000 to 2040. The second approach is the cohort-component technique. It is used to reconstruct the Newberg population, by age and sex, from 1990 to 2000 and to provide a projection to 2040 (the actual projection is shown in the appendix). The cohort-component method requires fairly extensive assumptions for modeling the population. It is used here to double-check the ratio method for the Newberg population and to provide information about changes in the age-sex composition of the population.

### Ratio Method

The basic idea of the ratio method is that local populations are affected by the same influences of change as the surrounding county population. In particular, we can assume that the influences of population change (fertility, mortality, and migration) are similar in Newberg and surrounding Yamhill County. So, rather than make detailed assumptions about local mortality, fertility, and migration levels for Newberg, we can presume a link between population changes in Yamhill County and Newberg.

The results in this report are based on two assumptions.

- First, the projections rely on the population forecasts for Yamhill County, for 2000 to 2040, that have been prepared by Yamhill County's Department of Planning and Development (cited in a report

---

<sup>1</sup> The population projections in this report are for the existing City of Newberg population. Although the report discusses the role of annexations – and includes the population effects of future annexations – the approach taken in this report does not include an explicit modeling of the different population trends within city limits, within the urban growth boundary, and within the City of Newberg's urban reserve area. A greater expanded study, which would involve population censuses or surveys to count the population within the urban growth boundary and the urban reserve area, would need to assess future population trends for all three areas.

discussing population and employment forecasts and available on Yamhill County's Department of Planning and Development's website and cited in the References for this report). Yamhill's County forecast, based on county population trends from 1940 to 1993, forecasts a county population of 116,975 in 2014. Subsequently, a county population forecast of 143,908 in 2020 was prepared in 1997 (cited in an email from Ken Friday to Kanhaiya Vaidya entitled "RE: Long-Term State and County Population Forecast", dated March 25, 2003). Apparently, the official Yamhill County's population projections are limited to projections for 2014 and 2020. For long-term projections for Yamhill County for 2020 and 2040, I assume population growth rates that are used in the forecasts of the State of Oregon's Office of Economic Analysis (described later).

I rely on these county forecasts for the following:

- The April 1, 2000 census count for Yamhill County was 84,992. Assuming a county population of 116,975 in 2014, this implies an annual rate of population growth of 2.24 percent between 2000 and 2014. This further implies an interpolated population figure of 106,967 in 2010, which I use in this report. Assuming a county population of 143,908 in 2020, this implies an annual rate of population growth of 2.97 percent between 2010 and 2020.<sup>2</sup> After 2020, I assume that the county population growth rate steadily declines to 1.8 percent per year by 2040. I rely on a figure of 1.8 percent per year by 2040 because this assumes that Yamhill's County's growth rate will decline to 1.5 percent per year after 2040, the same rate assumed by the State of Oregon's Office of Economic Analysis, described next.
- Oregon's Office of Economic Analysis (OEA) prepares population forecasts for Oregon's counties. The OEA is the state's economic analysis office and, among other duties, forecasts the state's tax revenues. OEA's county forecasts are available at: [http://www.oea.das.state.or.us/demographic/longterm/co\\_pop.htm](http://www.oea.das.state.or.us/demographic/longterm/co_pop.htm). OEA's forecast assumes that annual population growth for Yamhill County decreases from its recent level of 2.6 percent (for the 1990 to 2000 period) to 1.6 percent in 2000-2010, increases slightly to 1.8 percent in 2010-2020, and about 1.5 percent thereafter. The OEA forecast is based on analysis of population trends in the county for the past thirty years.
- I did not undertake an independent evaluation of county population projections for Yamhill County. This would involve a detailed appraisal of housing and employment trends and prospects, among other factors affecting population change. Rather, the ratio method population projections in this report are based on the county population trends expected by Yamhill County's Department of Planning and Development, with the qualification that I extrapolated population trends for the county for the 2020 to 2040 period based on population growth rates similar to those in Office of Economic Analysis's Yamhill County's forecast for 2020 to 2040. I believe that Yamhill County planners are most familiar with employment, housing, and population prospects for the County, and that it is reasonable to base the ratio method's projections on local county forecasts.
- Second, the proportion of Yamhill County's population that resides in Newberg increased from 13.0 percent in 1960, 16.2 percent in 1970, 18.8 percent in 1980, 20.0 percent in 1990, and 21.2 percent in 2000. Based on the overall average trend for the 1960 to 2000 period, this report assumes that there will be modest increases in the proportion of the county's population residing in Newberg, and that the percent will reach 22.0 percent in 2010, 23.3 percent in 2020, 24.3 in 2030, and increase to 25.3

---

<sup>2</sup> The population figure for the County of Yamhill for 2020 is 143,908. This figure is cited in a July 1, 2003 letter from Kanhaiya Vaidya to Michael Brandt. Although the letter listed the figure of 143,908 as the "County's Forecast", it is my understanding that this figure is not officially accepted by Yamhill County or City of Newberg officials. The figure 143,908 is the sum of local projections and, as has been explained to me by City of Newberg staff, is not an official local population projection for Yamhill County.

percent in 2040. This increase will result from increasing urbanization, faster population in Newberg than in the surrounding county, and from city annexations.

Based on decennial census data (see Table 1), Newberg grew from 4,204 residents in 1960 to 18,064 residents in 2000. Population growth has varied in the past. Except for the 1980s, when the population increased by 2.3 percent per year, average annual population growth rates have been in the range of 3.2 to 4.4 percent during the 1960 to 2000 period. Overall, the population of Newberg grew by 3.2 percent per year during the 1990 to 2000 decade.

I combine the two assumptions above, multiplying Yamhill County's Department of Planning and Development's forecast for Yamhill County times the forecast for the proportion of the population residing in Newberg to obtain a forecast for the City of Newberg. We call this the "medium" population forecast for Newberg. It assumes that Yamhill County will grow in the future at rates above 2 percent a year, with more rapid growth of slightly less than 3 percent during 2010 to 2020 (still, a growth rate for the county that is below that experienced during the 1970 to 1980 period, when the population increased at a rate of 3.2 percent per year). It also assumes that the proportion of Yamhill County residing in Newberg increases at steady rate.

In order to take into account variation in the two assumptions above, we make further assumptions about the low and high ranges that they might take. For the low growth assumption, we assume that (a) annual population growth in Yamhill County is 20 percent slower than forecast by Yamhill County's Department of Planning and Development and (b) the increase in the percentage of Yamhill County that resides in Newberg is at a 10 percent slower rate. For the high growth assumption, we assume that (a) population growth in Yamhill County is 20 percent faster than forecast by Yamhill County's Department of Planning and Development and (b) the increase in the percentage of Yamhill County that resides in Newberg is at a 10 percent faster rate. I believe that these are reasonable assumptions that help to bracket the range of possible future population growth.

The overall results for population growth for Newberg are shown in Table 1. Table 2 shows the spreadsheet and assumptions used to derive Table 1. We discuss both tables in a later section entitled "Results".

### **Cohort-Component Method**

The component technique for population projections relies on separating population change into its components and projecting each component independently. Projecting the components (births, deaths, and migration) separately requires a model of the population by age and sex that simulates actual processes of change. In such a model, the age and sex structure of the base population interacts with the projected fertility, mortality, and migration rates to produce projected age and sex cohorts as well as population totals.

We use a cohort-component technique here for two reasons. First, the components of population change are usually very age sensitive. We want to model the components of change for Newberg between 1990 and 2000 and to double-check the forecasts from the ratio method for the near future.

The second reason for selecting a cohort-component model is that it produces projections by age and sex. We provide results in the Appendix that offer age and sex detail for projections to 2040. These projections may be helpful for city planning in coming decades.

The cohort-component model is demographically fairly simple. The baseline data used here are from the 1990 and 2000 censuses. The census gives counts by age and sex for Newberg. The baseline population is survived forward five years using survival rates to determine the number of survivors in the population.

Fertility rates are applied to the female population in the childbearing ages to determine the number of births during the five-year period. These births are then survived the appropriate number of years and become the population aged 0 to 4 years. Finally, migrants are added and/or subtracted from the cohorts of the survived population. This entire process is repeated for each five-year period.

For the fertility component, we use age-specific fertility rates for Yamhill County for 1995. The sum of these age-specific fertility rates is the total fertility rate (TFR), which is defined as the average number of children that a woman would have during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year. Based on recent fertility data for Yamhill County, we assume that the current and future TFR for Newberg is 2.02, a rate that is slightly higher than the state average of about 2.01. Although Yamhill County has almost the same TFR as the Oregon average, age-specific fertility rates in the County are higher for younger women and lower for older women, reflecting that childbearing occurs at younger ages in Yamhill County than for women in other counties of Oregon.

For the mortality component, we calculate age-specific mortality rates for males and females based on recent mortality tables for Oregon. We assume that age-specific mortality rates for Newberg continue to decrease, with improvements in life expectancy similar to those forecast for Oregon.

For the migration component, we estimate the age-sex composition of migrants based on data from the 1990 and 2000 censuses. These estimates reveal that net in-migration was positive for Newberg during the 1990 to 2000 period, and considerably higher than the preceding 1980 to 1990 period. For the 2000-2005 period, we assume that net migration is consistent with current population changes and similar to net migration rates for the late 1990s: this implies average net in-migration of about 450 persons per year. Based on the ratio method results, we assume that average net in-migration increases after 2005 to about 850 persons per year in the 2015-2020 period. After 2020, we assume only modest increases in the number of annual net in-migrants.

It is important to note that the cohort-component method captures two sources of population change for the City of Newberg: (a) natural increase, which is the excess of births minus deaths, and (b) net in-migration. But, the cohort-component approach is based on the existing city population, residing within the current city boundaries. This method does not directly include the effects of possible future increases in city boundaries (and the city's population) by annexation. In comparing projection results for the ratio and cohort-component methods, therefore, the ratio method typically shows a larger population because it includes future population gains from annexation.<sup>3</sup> Nevertheless, with this caution in mind, the two methods offer a check on each other.

## RESULTS

The table below summarizes the results provided in this paper using the ratio (columns 2, 3 and 4) and cohort-component (column 6) methods. The table also shows forecasts prepared by the City of Newberg (column 7; cited in a letter from Newberg City Manager James H. Bennett to Yamhill County Department

---

<sup>3</sup> This is no standard demographic method for incorporating annexations within a cohort-component approach. The problem for dealing with annexations is that the population numbers and the age-sex distribution of annexed populations are difficult to know. Annexations can vary greatly in the age-sex distribution of the population: some may be new suburbs with a higher proportion of younger couples and children and youth; some may be older outlying established housing areas with a greater proportion of older couples; and some may be apartments or rental housing with a higher number of younger single adults. If we knew the average annual number of people living in areas of future annexations and could make assumptions about their age-sex distribution, one possible approach (with the cohort-component framework) would be to "add in" the annexed population each year to the existing resident population.

of Planning and Development’s Michael Brandt, dated June 10, 2003) and forecasts using the ratio method applied to recent OEA’s preliminary 2003 county forecasts for Yamhill County. Several points are apparent in this comparison table:

- In the near-term period until 2020, the forecasts for the City of Newberg center around a population figure of 33,000, reported as (a) the ratio method’s medium growth assumption, (b) by assuming current net migration trends for the cohort-component method, and (c) by the City of Newberg’s Urban Reserve Project’s method. The low forecast for 2020 is in the range of 29,000-30,000, reported (a) by the ratio’s method’s low growth assumption and (b) the ratio method applied to OEA county forecasts. The high forecast for 2020 is 38,000, reported by the ratio method’s high growth assumption.
- In the long-term period until 2040, the central range for forecasts, it seems to me, is for a population figure of 46,000 to 57,000. The figure of 57,000, reported as the ratio method’s medium growth assumption, assumes continued annexation that is based on past trends. If future annexation is less than in the past, I believe that a central range of forecasts for 2040 might be more appropriately restricted to about 46,000 to 53,000. The low forecast for 2040 is in the range of 41,000-44,000, reported (a) by the ratio’s method’s low growth assumption and (b) the ratio method applied to OEA county forecasts. The high forecast for 2040 is 73,000, reported by the ratio method’s high growth assumption.

Year	Ratio Method Based on Yamhill County’s Department of Planning and Development’s Forecasts			Ratio Method Based on OEA County Forecasts	Cohort-Component Method	City of Newberg’s Urban Reserve Projects’ Method
	Low	Medium	High			
2000	18,064	18,064	18,064	18,064	18,064	18,064
2010	22,000	24,000	25,000	22,000	24,000	27,000
2020	29,000	33,000	38,000	30,000	33,000	33,000
2030	37,000	45,000	55,000	34,000	42,000	39,000
2040	44,000	57,000	73,000	41,000	53,000	46,000

Table 1 presents results for the ratio method for population change in the City of Newberg for 1960 to 2040. The population figures for 1960 to 2000 are based on decennial census data. The figures for 2000 to 2040 are projected values. The medium values for Newberg assume (a) the county population projections from the Yamhill County’s Department of Planning and Development for 2000 to 2020 and my extrapolation of slightly slower county population growth for 2020 to 2040 and (b) a continuation in current trends for an increasing proportion of the county population residing in Newberg. Table 2 shows the worksheet, with figures for Yamhill County and the proportion of the county residing in Newberg, that are used to produce Table 1.

For the City of Newberg, the ratio method results are as follows:

- For the medium projection, Newberg is expected to increase from 18,064 in 2000 to 57,181 in 2040, a gain of 39,117 or more than a 2.1-fold increase.
- For the low projection, Newberg is forecasted to increase from 18,064 in 2000 to 43,673 in 2040. Even in the low projection, there will be substantial population increase over the next 37 years.
- For the high projection, Newberg is expected to more than increase from 18,064 in 2000 to 73,001 in 2040. This projection assumes that Yamhill County increases by more than 2.0 percent a year,

on average, during 2000 to 2040 and that Newberg increases its share of the county's population to almost 30 percent by 2040.

For the City of Newberg, we expect that the cohort-component method results will be somewhat lower in the long-term than the medium growth assumptions for the ratio method. As noted earlier, the ratio method includes, by its reliance on the past history of urban population change, future population gains by annexation, which are likely to add population to the City of Newberg. The key results from the cohort-component method (presented in the appendix) are as follows:

- Detailed results on the age and sex of the population, from 2000 to 2040, using the cohort-component method, are shown in the Appendix. Results are shown for the fertility, mortality, and net migration assumptions, as well as for the projected five-year populations by age and sex.
- Newberg is expected to have annual net in-migration of about 450-550 persons in the coming decade, and increasing numbers of net in-migrants in the following decades. There is net in-migration for all age groups, except for the 20-24 year-olds, which assumes a net out-flow of young adults who typically depart for military service, after completion of college, or to pursue job training. There is a higher net in-flow of younger couples and couples with children.
- Age-sex population figures are presented for absolute numbers and percentages in the appendix. Although there is likely to be increases for all age-sex groups, the most rapid gains in the next decade are for the population aged 45 to 65 years. After 2010, the population will continue to age, with considerable increases in the population age 65 years and older (increasing from 10.6 percent of Newberg's population in 2000 to 18.4 percent in 2040). Although there will be increases in the school-age years, the proportion of the overall population in the kindergarten-grade 12 years is likely to decrease (from 20.8 percent in 2000 to 17.9 percent in 2040).
- As the population ages, the number of births (relative to the population size) will decrease and the number of deaths (relative to the population size) will increase. As a result the excess of births minus deaths will diminish in the future, as it will for most Oregon communities. By about 2025-2035, we expect that there will be about the same number of deaths as births in the City of Newberg. At this time, the city's population growth will be primarily dependent upon the number of people moving into and out of the city.

## References

Bennett, James H.

2003 Letter addressed to Michael Brandt, Yamhill County's Department of Planning and Development. City of Newberg, City Manager's Office, June 10.

Brandt, Michael

2003 Letter addressed to James H. Bennett, City of Newberg's City Manager's Office. Yamhill County, Department of Planning and Development, September 30.

City of Newberg

1993 Urban Reserve Area Project. City of Newberg, Oregon, July.

Department of Planning and Development, Yamhill County

2003 Yamhill County's Official Population Projection. Department of Planning and Development, Yamhill County, downloaded on December 22 from:  
[www.co.yamhill.or.us/plan/planning/planning.asp?sel==11](http://www.co.yamhill.or.us/plan/planning/planning.asp?sel==11).

Friday, Ken

2003 Email entitled: RE: Long-term State and County Population Forecast. Addressed to Kanhaiya Vaidya, State of Oregon's Office of Economic Analysis, March 25.

Office of Economic Analysis, State of Oregon

2003 Population Projections for the Counties of Oregon. Office of Economic Analysis, State of Oregon, downloaded on December 16 from:  
[www.oea.das.state.or.us/demographic/longterm/co\\_pop.htm](http://www.oea.das.state.or.us/demographic/longterm/co_pop.htm).

Vaidya, Kenhaiya

2003 Letter addressed to Michael Brandt, Yamhill County's Department of Planning and Development. State of Oregon's Office of Economic Analysis, July 1.

<b>Table 1. Population Projection for Newberg, Oregon: Observed Population for 1960 to 2000; Projected Population for 2000 to 2040</b>								
					<b>Average Annual Population Growth Rate for Previous Five Years</b>			
<b>Population Size:</b>								
<b>Growth Assumptions</b>					<b>Growth Assumptions</b>			
<b>Year</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>		<b>Low</b>	<b>Medium</b>	<b>High</b>	
<b>1960</b>	4,204	4,204	4,204		---	---	---	
<b>1965</b>	5,230	5,230	5,230		4.37%	4.37%	4.37%	
<b>1970</b>	6,507	6,507	6,507		4.37%	4.37%	4.37%	
<b>1975</b>	8,224	8,224	8,224		4.68%	4.68%	4.68%	
<b>1980</b>	10,394	10,394	10,394		4.68%	4.68%	4.68%	
<b>1985</b>	11,663	11,663	11,663		2.30%	2.30%	2.30%	
<b>1990</b>	13,086	13,086	13,086		2.30%	2.30%	2.30%	
<b>1995</b>	15,375	15,375	15,375		3.22%	3.22%	3.22%	
<b>2000</b>	18,064	18,064	18,064		3.22%	3.22%	3.22%	
<b>2005</b>	19,889	20,595	21,316		1.92%	2.62%	3.31%	
<b>2010</b>	21,976	23,557	25,199		2.00%	2.69%	3.35%	
<b>2015</b>	25,283	28,118	31,135		2.80%	3.54%	4.23%	
<b>2020</b>	29,020	33,467	38,311		2.76%	3.48%	4.15%	
<b>2025</b>	32,651	39,002	46,069		2.36%	3.06%	3.69%	
<b>2030</b>	36,516	45,056	54,743		2.24%	2.89%	3.45%	
<b>2035</b>	40,254	51,206	63,842		1.95%	2.56%	3.08%	
<b>2040</b>	43,673	57,181	73,001		1.63%	2.21%	2.68%	

Note: Table 1 is based on the ratio method described in the report. Table 1 is derived from the spreadsheet shown in Table 2.

Year	Yamhill County						City of Newberg									Year
	Low		Medium		High		Low			Medium			High			
	Pop.No.	Pop.Gr.	Pop.No.	Pop.Gr.	Pop.No.	Pop.Gr.	%City of County	Pop.No.	Pop.Gr.	%City of County	Pop.No.	Pop.Gr.	%City of County	Pop.No.	Pop.Gr.	
1960	32,438	---	32,438	---	32,438	---	12.96%	4,204	---	12.96%	4,204	---	12.96%	4,204	---	1960
1965	36,117	2.15%	36,117	2.15%	36,117	2.15%	14.48%	5,230	4.37%	14.48%	5,230	4.37%	14.48%	5,230	4.37%	1965
1970	40,213	2.15%	40,213	2.15%	40,213	2.15%	16.18%	6,507	4.37%	16.18%	6,507	4.37%	16.18%	6,507	4.37%	1970
1975	47,171	3.19%	47,171	3.19%	47,171	3.19%	17.43%	8,224	4.68%	17.43%	8,224	4.68%	17.43%	8,224	4.68%	1975
1980	55,332	3.19%	55,332	3.19%	55,332	3.19%	18.78%	10,394	4.68%	18.78%	10,394	4.68%	18.78%	10,394	4.68%	1980
1985	58,837	1.23%	58,837	1.23%	58,837	1.23%	19.82%	11,663	2.30%	19.82%	11,663	2.30%	19.82%	11,663	2.30%	1985
1990	65,551	2.16%	65,551	2.16%	65,551	2.16%	19.96%	13,086	2.30%	19.96%	13,086	2.30%	19.96%	13,086	2.30%	1990
1995	76,108	2.99%	76,108	2.99%	76,108	2.99%	20.20%	15,375	3.22%	20.20%	15,375	3.22%	20.20%	15,375	3.22%	1995
2000	84,992	2.21%	84,992	2.21%	84,992	2.21%	21.25%	18,064	3.22%	21.25%	18,064	3.22%	21.25%	18,064	3.22%	2000
2005	94,258	2.07%	95,349	2.30%	96,451	2.53%	21.10%	19,889	1.92%	21.60%	20,595	2.62%	22.10%	21,316	3.31%	2005
2010	104,535	2.07%	106,967	2.30%	109,455	2.53%	21.02%	21,976	2.00%	22.02%	23,557	2.69%	23.02%	25,199	3.35%	2010
2015	119,464	2.67%	124,070	2.97%	128,854	3.26%	21.16%	25,283	2.80%	22.66%	28,118	3.54%	24.16%	31,135	4.23%	2015
2020	136,526	2.67%	143,908	2.97%	151,690	3.26%	21.26%	29,020	2.76%	23.26%	33,467	3.48%	25.26%	38,311	4.15%	2020
2025	154,163	2.43%	164,708	2.70%	175,974	2.97%	21.18%	32,651	2.36%	23.68%	39,002	3.06%	26.18%	46,069	3.69%	2025
2030	171,745	2.16%	185,708	2.40%	200,805	2.64%	21.26%	36,516	2.24%	24.26%	45,056	2.89%	27.26%	54,743	3.45%	2030
2035	188,767	1.89%	206,268	2.10%	225,391	2.31%	21.32%	40,254	1.95%	24.82%	51,206	2.56%	28.32%	63,842	3.08%	2035
2040	204,693	1.62%	225,693	1.80%	248,846	1.98%	21.34%	43,673	1.63%	25.34%	57,181	2.21%	29.34%	73,001	2.68%	2040

**Appendix**

Cohort-Component Population Projection  
by Age and Sex, 2000 to 2040,  
for the City of Newberg, Oregon

**Population Projection for City of Newberg, 2000 to 2040**

**Model Assumptions**

FERTILITY

Sex ratio at birth: 105.0 males per 100 females

Distribution by age of fertility (percent)

Age	2000	2005	2010	2015	2020	2025	2030	2035	2040
10-14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
15-19	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%
20-24	12.57%	12.57%	12.57%	12.57%	12.57%	12.57%	12.57%	12.57%	12.57%
25-29	24.90%	24.90%	24.90%	24.90%	24.90%	24.90%	24.90%	24.90%	24.90%
30-34	34.19%	34.19%	34.19%	34.19%	34.19%	34.19%	34.19%	34.19%	34.19%
35-39	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%	19.56%
40-44	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%	4.22%
45-49	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%	0.13%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Age-specific fertility schedule

Age	2000	2005	2010	2015	2020	2025	2030	2035	2040
10-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15-19	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93
20-24	50.77	50.77	50.77	50.77	50.77	50.77	50.77	50.77	50.77
25-29	100.61	100.61	100.61	100.61	100.61	100.61	100.61	100.61	100.61
30-34	138.13	138.13	138.13	138.13	138.13	138.13	138.13	138.13	138.13
35-39	79.01	79.01	79.01	79.01	79.01	79.01	79.01	79.01	79.01
40-44	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03	17.03
45-49	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
TFR	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
GRR	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
NRR	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Mean Age	30.16	30.07	30.22	30.34	30.08	29.85	29.99	30.16	30.23

Population Projection for City of Newberg, 2000 to 2040

Model Assumptions

MORTALITY

e(0)	2000	2005	2010	2015	2020	2025	2030	2035	2040
Females	79.57	80.21	80.83	81.42	82.00	82.55	83.08	83.59	84.09
Males	73.86	74.93	75.96	76.94	77.87	78.76	79.61	80.42	81.19
Both	76.72	77.57	78.40	79.18	79.94	80.66	81.35	82.01	82.64
IMR									
Females	4.69	4.22	3.81	3.44	3.12	2.83	2.57	2.34	2.13
Males	10.26	8.87	7.68	6.66	5.80	5.05	4.42	3.87	3.40
Both	7.54	6.60	5.79	5.09	4.49	3.97	3.52	3.12	2.78

**Population Projection for City of Newberg, 2000 to 2040**

**Model Assumptions**

NET MIGRATION (annual numbers; age at beginning of interval)

Age	2000	2005	2010	2015	2020	2025	2030	2035	2040
<b>Females</b>									
0 - 4	18	22	30	34	34	38	40	40	40
5 - 9	22	27	37	42	42	47	50	50	50
10 - 14	31	38	52	59	59	66	70	70	70
15 - 19	45	55	75	85	85	95	100	100	100
20 - 24	-41	-50	-68	-77	-77	-86	-90	-90	-90
25 - 29	9	11	15	17	17	19	20	20	20
30 - 34	17	21	28	32	32	36	37	37	37
35 - 39	11	14	19	21	21	24	25	25	25
40 - 44	11	14	19	21	21	24	25	25	25
45 - 49	4	5	7	8	8	9	10	10	10
50 - 54	6	7	9	11	11	12	12	12	12
55 - 59	6	7	9	11	11	12	12	12	12
60 - 64	5	7	9	10	10	12	12	12	12
65 - 69	11	13	18	20	20	23	24	24	24
70 - 74	12	15	21	24	24	27	28	28	28
75 - 79	15	19	26	30	30	34	36	36	36
80 - 84	10	12	17	19	19	21	22	23	23
85+	---	---	---	---	---	---	---	---	---
<b>Total</b>	<b>194</b>	<b>237</b>	<b>324</b>	<b>368</b>	<b>369</b>	<b>413</b>	<b>435</b>	<b>435</b>	<b>436</b>
<b>Males</b>									
0 - 4	18	22	30	34	34	38	40	40	40
5 - 9	22	27	37	42	42	47	50	50	50
10 - 14	31	38	52	59	59	66	70	70	70
15 - 19	45	55	75	85	85	95	100	100	100
20 - 24	-23	-28	-38	-43	-43	-48	-50	-50	-50
25 - 29	4	5	7	8	8	9	10	10	10
30 - 34	17	21	28	32	32	36	37	37	37
35 - 39	11	14	19	21	21	24	25	25	25
40 - 44	11	14	19	21	21	24	25	25	25
45 - 49	4	5	7	8	8	9	10	10	10
50 - 54	6	7	9	10	11	12	12	12	12
55 - 59	5	7	9	10	10	12	12	12	12
60 - 64	5	7	9	10	10	11	12	12	12
65 - 69	10	13	17	20	20	22	24	24	24
70 - 74	10	12	17	19	19	22	23	23	23
75 - 79	14	17	23	27	27	30	32	32	33
80 - 84	6	8	11	12	12	14	14	15	15
85+	---	---	---	---	---	---	---	---	---
<b>Total</b>	<b>199</b>	<b>244</b>	<b>333</b>	<b>378</b>	<b>379</b>	<b>424</b>	<b>447</b>	<b>448</b>	<b>449</b>
<b>Grand Total</b>	<b>393</b>	<b>481</b>	<b>657</b>	<b>746</b>	<b>747</b>	<b>837</b>	<b>882</b>	<b>884</b>	<b>885</b>

**Population Projection for City of Newberg, 2000 to 2040**

**Projection Results**

POPULATION PROJECTION

Age	2000	2005	2010	2015	2020	2025	2030	2035	2040
<b>Females</b>									
0 - 4	686	730	812	902	990	1,104	1,266	1,442	1,603
5 - 9	667	776	839	961	1,071	1,159	1,294	1,466	1,641
10 - 14	677	779	913	1,027	1,173	1,284	1,396	1,543	1,716
15 - 19	878	834	972	1,175	1,324	1,471	1,616	1,746	1,893
20 - 24	1,008	1,102	1,109	1,346	1,600	1,748	1,945	2,115	2,246
25 - 29	623	805	854	771	963	1,216	1,320	1,494	1,665
30 - 34	652	667	859	929	855	1,047	1,311	1,419	1,594
35 - 39	686	735	769	998	1,087	1,013	1,224	1,497	1,605
40 - 44	691	740	802	861	1,103	1,191	1,130	1,347	1,620
45 - 49	602	743	805	892	964	1,205	1,306	1,252	1,468
50 - 54	444	618	764	836	928	1,000	1,245	1,348	1,296
55 - 59	310	464	643	800	878	970	1,049	1,295	1,399
60 - 64	219	329	486	674	835	913	1,011	1,093	1,337
65 - 69	186	234	346	510	698	855	940	1,041	1,123
70 - 74	260	220	278	405	571	749	912	1,002	1,102
75 - 79	243	274	258	337	462	609	784	941	1,029
80 - 84	227	247	290	318	398	498	635	788	923
85+	265	273	301	360	416	487	587	718	869
<b>Total</b>	<b>9,324</b>	<b>10,573</b>	<b>12,100</b>	<b>14,101</b>	<b>16,315</b>	<b>18,520</b>	<b>20,971</b>	<b>23,548</b>	<b>26,128</b>
<b>Males</b>									
0 - 4	756	762	848	943	1,036	1,156	1,327	1,511	1,681
5 - 9	722	845	871	997	1,112	1,205	1,345	1,526	1,710
10 - 14	676	834	982	1,058	1,209	1,324	1,442	1,595	1,775
15 - 19	773	832	1,025	1,243	1,354	1,505	1,656	1,791	1,944
20 - 24	867	996	1,106	1,398	1,666	1,777	1,978	2,154	2,289
25 - 29	682	752	856	916	1,183	1,451	1,537	1,726	1,902
30 - 34	666	703	778	892	957	1,224	1,496	1,585	1,775
35 - 39	704	748	804	917	1,049	1,114	1,400	1,682	1,771
40 - 44	682	756	813	894	1,020	1,152	1,230	1,522	1,803
45 - 49	578	731	818	900	994	1,120	1,265	1,349	1,641
50 - 54	411	589	746	843	931	1,025	1,156	1,304	1,389
55 - 59	298	423	603	770	874	962	1,063	1,197	1,345
60 - 64	194	305	431	617	786	890	986	1,091	1,225
65 - 69	169	199	307	437	618	781	891	991	1,097
70 - 74	174	190	230	348	477	643	807	921	1,021
75 - 79	163	176	202	258	366	476	629	781	889
80 - 84	116	169	195	247	304	383	482	609	732
85+	109	123	158	201	251	301	369	454	558
<b>Total</b>	<b>8,740</b>	<b>10,132</b>	<b>11,772</b>	<b>13,879</b>	<b>16,187</b>	<b>18,488</b>	<b>21,060</b>	<b>23,788</b>	<b>26,545</b>
<b>Grand Total</b>	<b>18,064</b>	<b>20,704</b>	<b>23,872</b>	<b>27,980</b>	<b>32,502</b>	<b>37,008</b>	<b>42,030</b>	<b>47,336</b>	<b>52,673</b>

**Population Projection for City of Newberg, 2000 to 2040**

**Projection Results**

ANNUAL POPULATION CHANGE (change in previous 5 years)

Component	2005	2010	2015	2020	2025	2030	2035	2040
Population size	528	634	821	904	901	1,004	1,061	1,067
Yearly births	301	334	371	407	454	521	593	659
Yearly deaths	222	251	300	353	403	466	531	591
Natural Increase	78	84	71	54	51	54	61	67
Net yearly migrants	450	550	750	850	850	950	1,000	1,000
Rate of change (per 1,000):								
Birth rate	15.51	14.99	14.32	13.46	13.07	13.17	13.26	13.18
Death rate	11.48	11.24	11.56	11.66	11.59	11.80	11.89	11.83
Natural increase	4.03	3.75	2.76	1.80	1.47	1.38	1.37	1.35
Net Migration	23.21	24.68	28.93	28.11	24.46	24.04	22.38	20.00
Population increase	5.45	5.69	6.34	5.98	5.19	5.08	4.75	4.27

**Population Projection for City of Newberg, 2000 to 2040**

**Projection Results**

RATES OF CHANGE IN POPULATION BY AGE GROUP (percent per year in previous 5 years)

Age	2005	2010	2015	2020	2025	2030	2035	2040
<b>Females</b>								
0 - 4	1.23%	2.13%	2.11%	1.86%	2.19%	2.74%	2.59%	2.13%
5 - 9	3.02%	1.58%	2.71%	2.17%	1.57%	2.20%	2.50%	2.26%
10 - 14	2.82%	3.16%	2.35%	2.68%	1.80%	1.68%	2.00%	2.12%
15 - 19	-1.02%	3.05%	3.80%	2.38%	2.11%	1.88%	1.55%	1.62%
20 - 24	1.79%	0.11%	3.88%	3.45%	1.78%	2.14%	1.68%	1.19%
25 - 29	5.12%	1.19%	-2.06%	4.45%	4.67%	1.64%	2.48%	2.16%
30 - 34	0.47%	5.05%	1.56%	-1.65%	4.05%	4.49%	1.59%	2.32%
35 - 39	1.39%	0.91%	5.21%	1.69%	-1.40%	3.78%	4.02%	1.40%
40 - 44	1.38%	1.60%	1.43%	4.94%	1.54%	-1.04%	3.51%	3.68%
45 - 49	4.22%	1.60%	2.05%	1.55%	4.46%	1.61%	-0.84%	3.19%
50 - 54	6.63%	4.23%	1.80%	2.08%	1.49%	4.38%	1.60%	-0.80%
55 - 59	8.08%	6.51%	4.37%	1.87%	1.99%	1.56%	4.22%	1.54%
60 - 64	8.11%	7.82%	6.54%	4.29%	1.79%	2.04%	1.56%	4.03%
65 - 69	4.63%	7.77%	7.76%	6.29%	4.07%	1.89%	2.03%	1.52%
70 - 74	-3.30%	4.64%	7.56%	6.84%	5.42%	3.94%	1.89%	1.90%
75 - 79	2.38%	-1.18%	5.33%	6.35%	5.51%	5.04%	3.66%	1.79%
80 - 84	1.72%	3.20%	1.81%	4.50%	4.49%	4.86%	4.32%	3.15%
85+	0.61%	1.92%	3.57%	2.91%	3.14%	3.76%	4.01%	3.82%
Total	2.51%	2.70%	3.06%	2.92%	2.53%	2.49%	2.32%	2.08%
<b>Males</b>								
0 - 4	0.15%	2.15%	2.13%	1.87%	2.20%	2.75%	2.60%	2.13%
5 - 9	3.14%	0.61%	2.71%	2.19%	1.60%	2.21%	2.52%	2.28%
10 - 14	4.20%	3.26%	1.49%	2.68%	1.82%	1.70%	2.02%	2.14%
15 - 19	1.48%	4.17%	3.85%	1.71%	2.12%	1.90%	1.57%	1.64%
20 - 24	2.77%	2.09%	4.70%	3.50%	1.29%	2.15%	1.70%	1.22%
25 - 29	1.96%	2.59%	1.35%	5.12%	4.08%	1.16%	2.32%	1.94%
30 - 34	1.07%	2.04%	2.73%	1.40%	4.93%	4.02%	1.16%	2.25%
35 - 39	1.21%	1.44%	2.63%	2.71%	1.20%	4.57%	3.67%	1.03%
40 - 44	2.07%	1.45%	1.90%	2.63%	2.45%	1.30%	4.26%	3.39%
45 - 49	4.70%	2.25%	1.92%	1.98%	2.38%	2.44%	1.29%	3.91%
50 - 54	7.19%	4.72%	2.46%	1.98%	1.93%	2.40%	2.41%	1.26%
55 - 59	7.00%	7.09%	4.89%	2.53%	1.93%	2.00%	2.37%	2.33%
60 - 64	9.05%	6.91%	7.17%	4.85%	2.49%	2.04%	2.03%	2.32%
65 - 69	3.26%	8.70%	7.06%	6.94%	4.67%	2.63%	2.12%	2.03%
70 - 74	1.77%	3.78%	8.34%	6.30%	5.95%	4.56%	2.64%	2.06%
75 - 79	1.49%	2.80%	4.90%	7.01%	5.21%	5.60%	4.33%	2.58%
80 - 84	7.47%	2.91%	4.70%	4.17%	4.64%	4.61%	4.67%	3.67%
85+	2.36%	5.13%	4.74%	4.43%	3.64%	4.12%	4.14%	4.13%
Total	2.96%	3.00%	3.29%	3.08%	2.66%	2.60%	2.44%	2.19%
Grand Total	2.73%	2.85%	3.18%	3.00%	2.60%	2.54%	2.38%	2.14%

**Population Projection for City of Newberg, 2000 to 2040**

**Projection Results**

PROPORTIONS OF TOTAL POPULATION BY SEX

Age	2000	2005	2010	2015	2020	2025	2030	2035	2040
<b>Females</b>									
0 - 4	7.36%	6.90%	6.71%	6.40%	6.07%	5.96%	6.04%	6.12%	6.14%
5 - 9	7.15%	7.34%	6.94%	6.82%	6.57%	6.26%	6.17%	6.22%	6.28%
10 - 14	7.26%	7.37%	7.54%	7.28%	7.19%	6.93%	6.66%	6.55%	6.57%
15 - 19	9.42%	7.89%	8.03%	8.33%	8.11%	7.94%	7.71%	7.42%	7.25%
20 - 24	10.81%	10.43%	9.16%	9.55%	9.80%	9.44%	9.28%	8.98%	8.60%
25 - 29	6.68%	7.61%	7.06%	5.47%	5.90%	6.57%	6.29%	6.35%	6.37%
30 - 34	6.99%	6.31%	7.10%	6.58%	5.24%	5.65%	6.25%	6.03%	6.10%
35 - 39	7.36%	6.95%	6.36%	7.08%	6.66%	5.47%	5.84%	6.36%	6.14%
40 - 44	7.41%	7.00%	6.63%	6.11%	6.76%	6.43%	5.39%	5.72%	6.20%
45 - 49	6.46%	7.03%	6.66%	6.33%	5.91%	6.50%	6.23%	5.32%	5.62%
50 - 54	4.76%	5.85%	6.32%	5.93%	5.69%	5.40%	5.94%	5.73%	4.96%
55 - 59	3.32%	4.39%	5.31%	5.67%	5.38%	5.24%	5.00%	5.50%	5.35%
60 - 64	2.35%	3.11%	4.01%	4.78%	5.12%	4.93%	4.82%	4.64%	5.12%
65 - 69	1.99%	2.22%	2.86%	3.61%	4.28%	4.62%	4.48%	4.42%	4.30%
70 - 74	2.79%	2.08%	2.30%	2.88%	3.50%	4.04%	4.35%	4.26%	4.22%
75 - 79	2.61%	2.59%	2.13%	2.39%	2.83%	3.29%	3.74%	4.00%	3.94%
80 - 84	2.43%	2.34%	2.40%	2.25%	2.44%	2.69%	3.03%	3.35%	3.53%
85+	2.84%	2.58%	2.49%	2.55%	2.55%	2.63%	2.80%	3.05%	3.32%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
<b>Males</b>									
0 - 4	8.65%	7.52%	7.21%	6.80%	6.40%	6.25%	6.30%	6.35%	6.33%
5 - 9	8.26%	8.34%	7.40%	7.18%	6.87%	6.52%	6.39%	6.41%	6.44%
10 - 14	7.73%	8.23%	8.34%	7.62%	7.47%	7.16%	6.85%	6.70%	6.69%
15 - 19	8.84%	8.22%	8.71%	8.96%	8.36%	8.14%	7.86%	7.53%	7.32%
20 - 24	9.92%	9.83%	9.39%	10.07%	10.29%	9.61%	9.39%	9.05%	8.62%
25 - 29	7.80%	7.43%	7.27%	6.60%	7.31%	7.85%	7.30%	7.26%	7.16%
30 - 34	7.62%	6.94%	6.61%	6.43%	5.91%	6.62%	7.11%	6.67%	6.69%
35 - 39	8.05%	7.38%	6.83%	6.60%	6.48%	6.03%	6.65%	7.07%	6.67%
40 - 44	7.80%	7.47%	6.91%	6.44%	6.30%	6.23%	5.84%	6.40%	6.79%
45 - 49	6.61%	7.22%	6.95%	6.49%	6.14%	6.06%	6.01%	5.67%	6.18%
50 - 54	4.70%	5.81%	6.33%	6.07%	5.75%	5.54%	5.49%	5.48%	5.23%
55 - 59	3.41%	4.17%	5.12%	5.55%	5.40%	5.20%	5.05%	5.03%	5.07%
60 - 64	2.22%	3.01%	3.66%	4.44%	4.86%	4.81%	4.68%	4.59%	4.61%
65 - 69	1.93%	1.96%	2.61%	3.15%	3.82%	4.23%	4.23%	4.16%	4.13%
70 - 74	1.99%	1.88%	1.95%	2.51%	2.95%	3.48%	3.83%	3.87%	3.84%
75 - 79	1.86%	1.73%	1.72%	1.86%	2.26%	2.57%	2.99%	3.28%	3.35%
80 - 84	1.33%	1.66%	1.66%	1.78%	1.88%	2.07%	2.29%	2.56%	2.76%
85+	1.25%	1.21%	1.35%	1.45%	1.55%	1.63%	1.75%	1.91%	2.10%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
<b>Selected age groups:</b>									
0-14	23.16%	22.82%	22.05%	21.04%	20.28%	19.54%	19.20%	19.19%	19.22%
15-24	19.52%	18.19%	17.64%	18.45%	18.28%	17.57%	17.12%	16.49%	15.89%
25-44	29.82%	28.53%	27.38%	25.65%	25.28%	25.43%	25.34%	25.93%	26.07%
45-64	16.92%	20.30%	22.18%	22.63%	22.12%	21.85%	21.60%	20.98%	21.07%
65+	10.58%	10.17%	10.74%	12.22%	14.03%	15.62%	16.74%	17.42%	17.74%
75+	6.22%	6.09%	5.88%	6.15%	6.76%	7.44%	8.30%	9.07%	9.49%
85+	2.07%	1.91%	1.92%	2.00%	2.05%	2.13%	2.28%	2.48%	2.71%
<b>School-Age</b>									
K-12	20.81%	20.47%	20.24%	19.80%	19.14%	18.42%	17.85%	17.55%	17.45%
College	10.14%	9.37%	8.98%	8.85%	8.45%	8.07%	7.77%	7.44%	7.14%