

Rolla Comprehensive Plan Update, 2005

DEMOGRAPHIC TRENDS AND PROJECTION 12/15/2004

Population and Households

Rolla is constantly undergoing change as residents marry, have children and go through various life stages. In addition, people are continually moving to and from the community. By studying demographic trends a community can better understand the changes taking place and plan for the future needs of its residents. This report provides a perspective of the City's population growth trends and changes that affect Rolla today and into the future. Information about population and household trends provides a context for decision-making concerning land utilization and the nature and intensity of development to be encouraged.

Most of the information presented in this section is derived from the U.S. Census of Population and Housing report, the annual estimates made by the Census Bureau, the Missouri Office of Administration, and several commercial data vendors such as Claritas, Inc., Woods & Poole Economics, and DemographicsNow. Table 1 describes Rolla's population growth and number of households for the years 1970, 1980, 1990, and 2000 with estimates through 2004. This information forms the basis for the population projections contained in this section.

**TABLE 1
Population and Household Growth**

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Population								
Rolla	13,245	13,303	14,805	16,367	16,552	17,016	17,266	17,579
Phelps Co.	29,567	33,633	35,248	39,825	40,187	41,078	41,668	41,890
City/County Pop. Ratio	44.80	39.55	42.00	41.10	41.19	41.42	41.43	42.00
Population Increase								
Rolla	n/a	58	1,502	1,562	185	464	250	313
Phelps Co.	n/a	4,066	1,615	4,577	362	891	590	222
Percent Increase								
Rolla	n/a	.44	11.29	10.55	1.38	2.80	1.47	1.81
Phelps Co.	n/a	13.75	4.80	12.98	.91	2.22	1.43	.53
Households								
Rolla	n/a	4,501	5,578	6,514	6,546	6,669	6,707	6,938
Phelps Co.	n/a	11,529	13,277	15,683	15,791	16,105	16,279	16,705
Household Increase								
Rolla	n/a	n/a	1,077	968	32	123	38	231
Phelps Co.	n/a	n/a	1,748	2,406	108	314	174	426
Percent Increase								
Rolla	n/a	n/a	23.92	16.78	.49	1.88	.57	3.44
Phelps Co.	n/a	n/a	15.16	18.12	.69	1.99	1.08	2.62

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Sources: U.S. Census Bureau Decennial Census and U.S. Census Bureau Population Estimates Program for 2001-2003, City of Rolla Community Development Department 2004 population estimate, Claritas, Inc. household estimates.

TABLE 2
Rolla/Phelps County Household Size

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Avg. Household Size								
Rolla	2.78	2.95	2.65	2.51	2.21	2.19	2.19	2.19
Phelps Co.	2.95	2.92	2.66	2.54	2.38	2.38	2.37	2.37

Source: U.S. Census Bureau, Claritas, Inc.

Rolla has shown consistent population growth since 1980. Table 1 shows that the population of Rolla has grown at an average annual rate of approximately 178 residents from 1980 through 2004. Since 2000 the average annual rate has been an astounding 303 new residents, based on U. S. Census Bureau estimates. There are essentially four factors that can influence population growth in a Rolla. Natural increase (the level of resident births over deaths) and migration represent the bulk of most population growth. In fact, migration was responsible for 85 percent of new County residents during the '90s. The average annual number of new residents attributed to migration has actually increased to 552 during the first three years of this decade. The annexation of additional populated territory is the fourth factor and accounts for a relatively small proportion of Rolla's population growth. The decision to pursue annexation is influenced by the expense and complexity of Missouri's annexation statutes impacting municipalities.

Household growth typically tracks population growth (a household includes all the people who occupy a housing unit, regardless of relationship). Households form the basis for housing demand, the single largest land use in virtually every community. Rolla's household growth has been steady with an annual average growth of 102 new households from 1980 through 2004, or 1.94 percent average increase per year. The annual rate from 2000 to 2004 was 106 new households. Persons residing in group-quarters, such as dormitories, fraternity/sorority houses, or nursing homes, are not counted as living in a household. In 2000 there were 1,745 individuals living in Rolla group-quarters. This fact may account for any apparent imbalance between population growth and household formation in Rolla. Nationally, as well as locally, average household size (Table 2) has been declining due to trends toward lower birth rates, higher divorce rates/delays in marriage, and increased longevity producing more single-person senior households.

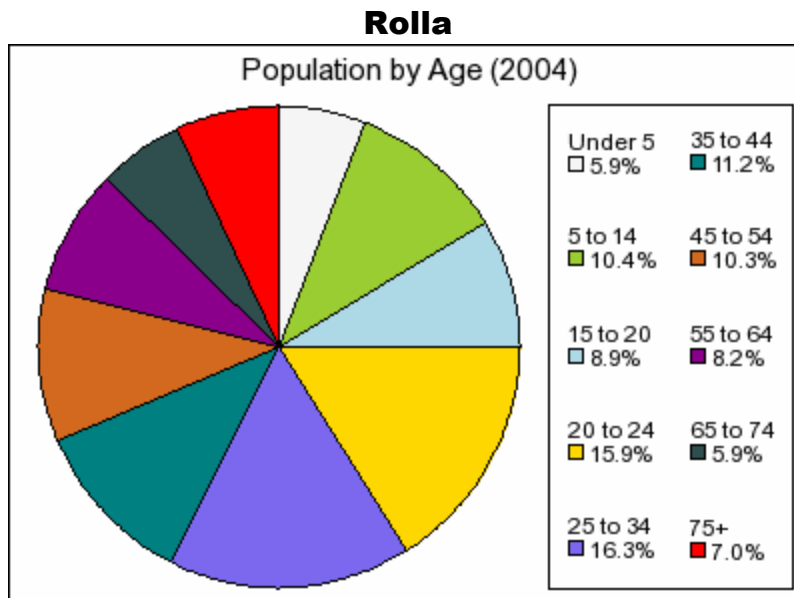
Population Age

Rolla's population has continued to age, corresponding to state and national trends. The median age of the City's population, a commonly used measure, increased by one year from 27.7 in 1990 to 28.7 in 2000, and is expected to continue rising over the next 15 to 20 years due to the aging of the large baby-boom population cohorts. As a point of comparison, Phelps County's median age in 2000 was 34.9. The significant difference in

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rates between the City and County can partially be attributed to enrollment at UMR. The 2000 census found that Rolla's population between the ages of 18 to 24 represented 23 percent of the Rolla's population or 3,781 persons out of a 16,367 total. UMR's enrollment was 4,748 in 2000 and has grown to 5,407 as of 2004. Increasing enrollment, should current trends continue, will likely impact the demand for multi-family rental units and may necessitate the physical expansion of the campus over the next 15 years to accommodate parking and new or renovated building space needs.

Rolla's aging population may contribute to a need for more residential facilities catering to the special requirements/concerns of many seniors. By 2020, Phelps County is projected to have almost 9,000 persons above the age of 65 or 17.9 percent of total County population. An aging population will also consume increased medical services. Rolla's second largest institution (in terms of employment), the Phelps County Regional Medical Center, should consider building expansion needs and traffic flow around its existing campus to support growth driven by an aging regional population.



Population Projections 2005-2020

Preparing population projections is a critical early step in developing accurate land use forecasts. Understanding future population growth patterns for a community, particularly when combined with land utilization estimates, can assist public and private sector planners/developers in determining infrastructure needs and identifying community investment opportunities. There are a variety of projection methods available to planners. One of the simplest and most accurate methods for municipal short to mid-range projections (5 to 15 years) is the "step-down" technique. Use of the step-down projection technique relies on a population projection from a larger area, in this case Phelps County. The step-down method assumes an on-going proportional relationship. A second approach, the exponential method, will be used for contrast. The assumption behind the

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exponential population projection technique is that an area's population will increase or decrease at a given rate each year.

The Phelps County projections used for the step-down method were derived from the Woods & Poole Economics, Inc. 2004 series. Woods & Poole is a nationally recognized leader in the provision of long-term county projections utilizing over 900 variables to complete national/regional forecasts and county projections. Woods & Poole combines economic factors, specifically employment and earnings projections, that become the principal explanatory variables used to estimate population and households. County projections are then prepared using a cohort survival model and net migration calculations to determine future age, sex, and race based on projected employment trends.

TABLE 3
Rolla/Phelps County Population Projections

	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>
<u>Step-Down Method</u>				
Phelps County Projections	42,380	44,840	47,400	50,050
Rolla Projections				
Alternative 1 (41.43) Avg. of 2000-2004	17,558	18,577	19,638	20,736
Alternative 2 (41.69) Avg. of 1970-2004	17,668	18,694	19,761	20,866
Alternative 3 (44.00) Medium projection	18,647	19,730	20,856	22,022
Alternative 4 (45.00) High projection	19,071	20,178	21,330	22,523
<u>Exponential Method</u>				
Assume annual increase of 1.607 % Avg. annual increase from 1980-2004	17,861	19,343	20,837	22,566

Sources: County projections Woods & Poole Economics, Inc., Projections – City of Rolla Community Development Department.

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Assumptions: Making population and household projections is an art as well as a science, and even with the best information the future is difficult to accurately predict. The following assumptions provide a basis for offering population projections. It is assumed that there will be no large-scale economic, political, legal, or environmental crisis in the region that could impact Rolla's long-term growth. It is assumed that Rolla will have the necessary resources (water, power, land) and infrastructure to accommodate projected growth generally within the planning horizon of 16 years. It is assumed that Rolla's economic growth, in terms of jobs and income, will not deviate significantly from established levels over the past 20 years. It is assumed that Rolla will not undertake an annexation program involving significant population areas. To the extent that these assumptions vary over time, the rate of Rolla's population and household growth must be increased or decreased.

TABLE 4
Rolla/Phelps County Household Projections

	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>
<u>Rolla</u>				
Household Annual Growth Rate (1.65%) 1980-2004	7,258	7,861	8,354	8,921
<u>Phelps Co.</u>				
Household Annual Growth Rate (1.65%) 1980-2004	16,981	18,428	19,999	21,704

Source: City of Rolla Community Development Department

Additional Demographic Indicators - 2004 Estimates

	<u>Rolla</u>	<u>Phelps County</u>	<u>30 Mile Radius</u>
Avg. Household Income	\$ 39,299	\$ 42,867	\$ 43,138
Median Household Income	\$ 28,409	\$ 32,089	\$ 34,097
Per Capita Income	\$ 17,289	\$ 17,754	\$ 16,936
Median Age (yrs)	29.54	35.64	34.41
Family Households	3,746	10,830	32,876
% White Collar Workers*	37.39 %	33.73 %	27.95 %

Source: Claritas Inc.

* Management, Business, Financial/Professional and related occupations

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Rolla/Phelps County Population by Age – 2004 Estimates

	<u>Rolla</u>	<u>Phelps County</u>	<u>30 Mile Radius</u>
Age 0-4	899	2,190	7,749
Age 5-9	827	2,429	8,152
Age 10-14	884	2,813	8,927
Age 15-17	626	1,896	5,958
Age 18-20	1,929	2,799	8,332
Age 21-24	2,288	3,207	8,444
Age 25-34	2,500	5,272	16,203
Age 35-44	1,940	5,750	18,221
Age 45-49	913	2,875	8,359
Age 50-54	787	2,565	7,292
Age 55-59	757	2,411	6,343
Age 60-64	606	1,943	5,553
Age 65-74	969	2,895	8,530
Age 75-84	858	2,074	5,374
Age 85 +	393	829	2,180
2004 Median Age	29.54	35.64	34.41
2004 Average Age	35.48	35.65	36.39

Source: Claritas, Inc.

Population by Single Race Classification – 2004 Estimate

	<u>Rolla</u>	<u>Phelps County</u>	<u>30 Mile Radius</u>
White Alone	15,338	39,151	111,968
African American	577	693	5,873
American Indian	75	228	923
Asian Alone	775	903	2,202
Native Hawaiian	15	20	212
Some Other Race	120	186	1,393
Two + Races	296	767	3,046

Source: Claritas, Inc.