

## *Rolla Comprehensive Plan Update, 2005*

### **ROLLA LAND USE, LAND ABSORPTION, AND ZONING STUDY 12/14/2004**

#### Existing Land Use

The Community Development Department, with the assistance of the Public Works Department's Mapping Division, completed a comprehensive land use inventory for the City in September 2004. The land use survey was conducted using on-site inspections of property throughout Rolla, including data from the Phelps County Assessor, the R.L. Polk Directory, the City's geographic information system, and aerial photos. The purpose of the survey was to produce an accurate inventory of land utilization in Rolla to serve as an important database for the anticipated update of the City's 1996 Comprehensive Plan. The data from this inventory is presented in Table 1.

Rolla currently occupies 7,427 acres (11.6 square miles) of land. Approximately 4,745 acres or 64 percent are developed and 36 percent (2,712 acres) are undeveloped. Of the developed acreage, 1,717 acres (36.2 percent) are residential uses, 523 acres (11.0 percent) commercial/office, 169 acres (3.6 percent) are used for manufacturing, 459 acres (9.6 percent) for parkland, 672 acres (14.2 percent) utilized for public/institutional purposes, and 1,205 acres (25.4 percent) devoted to streets, highways, and railroad right-of-way.

The attached Rolla Land Use Map 2004 reflects a land use pattern typical of many American cities. Rolla's center city core serves as a hub consisting of a relatively dense mixture of commercial, institutional, and residential land uses on small lots. A large area of lower density housing fans out in a semi-concentric pattern from the core, representing the City's initial growth bands following WWII. Strip or lineal commercial swaths occupy areas along the arterial spokes, such as Highway 63, Kingshighway, and State Highway 72. Individual commercial nodes, such as the Wal-Mart Super Center, are located along the arterial spokes, having displaced the downtown as the focal point of retail sales activity. The City's supply of newer, low-density housing lies beyond, separating the urban-scale subdivisions built generally after 1965 and the new subdivisions, open pasture or forest land on the fringe of the City.

Rolla's land use ratios are surprisingly similar to average city land use ratios, with one major exception (refer to Table 1). The standard land use ratio for manufacturing is 7-10 percent of total land use, according to an American Planning Association report, while Rolla had just 3.6 percent of its land area devoted to manufacturing. Rolla's reliance on public/institutional entities, such as UMR and Phelps County Regional Medical Center, for employment and economic activity might help explain this discrepancy. While it is not recommended to use average land use ratios as a model to forecast community land use needs, they do provide a useful perspective. It is always important to consider local factors that will affect future land needs, such as a planned expansion of a major employer in or near the community.

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**TABLE 1**  
**Rolla Land Use Acreage, 1996-2004**

	<u>1996 acres*</u>	<u>% Total</u>	<u>2004 acres</u>	<u>% Total</u>	<u>Typical Ratios</u>
<b>Residential</b>	<b>1,424</b>	<b>34.8 %</b>	<b>1,717</b>	<b>36.2 %</b>	<b>35-39 %</b>
Single-family	1,250	30.6	1,408	29.7	35-41
Duplex 2-family	40	1.0	56	1.2	N/A
Multi-family	134	3.2	253	5.3	N/A
<b>Commercial/Office</b>	<b>485</b>	<b>11.9</b>	<b>523</b>	<b>11.0</b>	<b>5-7</b>
<b>Manufacturing</b>	<b>123</b>	<b>3.0</b>	<b>169</b>	<b>3.6</b>	<b>7-10</b>
<b>Parkland (Public &amp; Private)</b>	<b>356</b>	<b>8.7</b>	<b>459</b>	<b>9.7</b>	<b>10-18</b>
<b>Public/Institutional</b>	<b>649</b>	<b>15.9</b>	<b>672</b>	<b>14.1</b>	<b>12-15</b>
<b>Right-Of-Way</b>	<b>1,051</b>	<b>25.7</b>	<b>1,205</b>	<b>25.4</b>	<b>20-26</b>
<b>Total Developed</b>	<b>4,088</b>	<b>100.0</b>	<b>4,745</b>	<b>100.0</b>	
<b>Undeveloped</b>	<b>2,952</b>	<b>(41.9%)</b>	<b>2,682</b>	<b>(36.1%)</b>	
<b>Total Acres</b>	<b>7,040</b>		<b>7,427</b>		

\* The land use figures for 1996 include the Southside Annexation Area of 1,352 acres.

Source: City of Rolla Community Development Department, Public Works Department, Revised Southside Annexation Plan of Intent, American Planning Association "PAS Memo, 1992".

*Residential Uses*

This category includes single-family residential (excluding mobile homes); two-family residential (duplexes); and multi-family residential (all structures with three or more dwelling units plus mobile home parks). In Rolla, as in most communities, residential land uses occupy the highest percentage of land. Rolla's relatively low population density

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per developed residential acre (10 persons/acre) is indicative of the low density housing types popular in smaller, less urban communities. In 2004 slightly over 36 percent of the City's developed land area was devoted to residential use – an increase of 1.8 percent above the 1996 figure. The percentage used for single-family development has declined over the past eight years from 30.1 percent in 1996 to 29.7 percent in 2004, while the two-family and multi-family ratios increased.

The land use ratio for single-family development should continue to decline due to a combination of economic, demographic, and regulatory trends that are decreasing effective demand for the traditional single family detached home. Increasing land and construction costs, along with slow household income growth, have reduced the number of prospective eligible homebuyers. Demographic changes, such as reduced household sizes and increased life spans, have reduced the amount of living space needed for many households currently living in single-family detached homes. Increased regulatory measures, particularly related to environmental protection and storm water management, have also added to the cost of single-family development making it less affordable. The result can be observed in Rolla particularly with the increase in the proportion of acres used for multi-family development.

### *Commercial/Office Uses*

Commercial/Office uses total 11 percent of the City's developed area. This percentage is slightly above the 5 to 7 percent found in many smaller communities, and is probably attributable to the fact that Rolla is a regional commercial and service center.

Commercial/Office uses are concentrated next to Rolla's arterial streets and in the center city along Pine Street. Rolla's primary commercial area lies next to south U.S. Highway 63. Over time the amount of land devoted to commercial uses have increased in most communities partially due to the introduction of parking regulations and an increase in average size of retail buildings.

One critical issue for Rolla's future is the scarcity of suitable, undeveloped land zoned for commercial or retail use. The redevelopment of deteriorated commercial buildings and obsolete parcels along some of Rolla's established arterial streets, such as U.S. Highway 63 and Kingshighway, may provide a partial solution. The annexation of adjacent tracts with retail potential to Rolla, particularly near the intersection of major streets, is another. Community leaders must be willing to work with property owners to secure investment that generates sales tax receipts since the City depends so heavily on this revenue stream.

### *Manufacturing Uses*

Most of the 169 acres currently used for manufacturing are located on Rolla's extremity in the Hy-Point Industrial Park; on the north side of Old St. James Road, near 18<sup>th</sup> Street, and west on Bridge School Road. The national trend most impacting manufacturing land allocation is the shift from manufacturing and other heavy industry to more of a service-based economy. This shift has led to the conversion of industrial buildings into other uses, such as office and commercial space. There is no evidence, however, that the conversion of manufacturing space has occurred to any significant degree in Rolla. If

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anything, Rolla lacks an adequate supply of suitable vacant industrially zoned land and has almost no vacant manufacturing-type buildings available for sale or rent.

### *Parkland Uses*

The 2004 land use survey identified 459 acres of parkland. This statistic does not include playgrounds or athletic fields owned by the Rolla Public School District. School District property was not included in this calculation because it is generally not open to the public for recreation use outside of scheduled activities. Consequently, the total acreage available in Rolla may appear as though less land is available for parks than really exists. Rolla's inventory of parkland has steadily increased over time through the addition of parkland given to the City through the subdivision ordinance's mandatory dedication requirement and through land acquisition by private sector entities. Between 1996 and 2004, 103 acres of parkland was added to the community. The Audubon Society's recent acquisition of the approximately 58 acre Art and Nature Center in northwest Rolla is a good example and a significant part of this addition. Rolla has been fortunate to have private not-for-profit sector organizations willing to help provide recreation space at no cost to the community.

Over time, the development of lower density single-family homes has impacted the use, thus the types, of public parkland acquired and developed by the City. Most single-family homeowners in Rolla have their own private front and back yards. This explains why, in part, suburban areas typically have a lower percentage of land in the parks category. The emphasis now is on the development of community or neighborhood-scale parks greater than 10 acres in area and the provision of biking and hiking trails to connect the recreation nodes. Higher residential densities will encourage this type of parkland development

### *Public/Institutional Uses*

Examples of public/institutional uses include schools, churches, government buildings and other property, such as cemeteries. Most of Rolla's public/institutional uses are located in or near the center city and represent four primary users. They include the University of Missouri-Rolla, the Rolla Public Schools, Phelps County Regional Medical Center, and the City of Rolla. The percentage of land occupied by public/institutional uses increased moderately since 1996, following a national trend. Rolla's proportion of public/institutional uses actually declined when compared to other uses.

### *Right-Of Way Uses*

Rolla has over 1,200 acres dedicated for street and highway rights-of-way, including about 55 acres of railroad right-of-way. Land devoted to right-of-way uses consistently represents the second highest amount of acreage in cities, and Rolla is no exception. The amount of land used for right-of-way increases as the City's single-family housing stock grows. Rolla's percentage of right-of-way increased since 1996 to just over 25 percent of the developed area indicating the continued necessity to build streets to accommodate new low-density residential subdivisions, many in the Southside Annexation Area. The

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trend towards increased development density may slow the demand for new street right-of-way.

### Land Absorption Analysis

Land absorption analysis (the annualized rate at which land is used or “absorbed” in Rolla) is a useful initial step in the forecast of future land use. Rolla had an estimated population of 17,579 in 2004. Using developed acreage statistics from Table 1, Rolla had roughly ten persons per developed residential acre and 3.7 persons per developed acre in 2004. Rolla’s land absorption statistics are as follows:

**TABLE 2**  
**Rolla Land Absorption Ratios, 1996-2004**

	<u>Population Per Acre</u>	<u>Land Absorption Ratio</u>
<b>Residential</b>	10.2/Acre	32.6 Acres/Year
<b>Commercial/Office</b>	33.6	4.2
<b>Manufacturing</b>	104.0	5.1
<b>Parkland (Public &amp; Private)</b>	38.3	11.4
<b>Public/Institutional</b>	26.2	2.6
<b>Right-Of-Way</b>	14.6	17.1
<b>Total Developed</b>	3.7	48.7
<b>Undeveloped</b>	6.5	
<b>Persons/Square Mile</b>	1,515	
<b>Persons/Acre</b>	2.4	

Source: City of Rolla Community Development Department, Public Works Department, American Planning Association “PAS Memo, 1992”.

### Zoning Study

Zoning is Rolla’s primary vehicle for influencing private land use and development decisions. Ideally, the zoning classification assigned to a given piece of property should support its existing land use. A proposed change in land use would, therefore, require a re-zoning review by City Council. For example, as property zoned Rural Residential District (R-R) is converted from a large lot configuration to the smaller lots permitted in R-1 (Single-Family District) zoned areas, it is appropriate for City Council to review this

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proposed action to minimize any adverse impacts. Unhealthy land speculation occurs when there exists a significant imbalance between a property's zoning and how it is used. A good example of this is the commercially zoned property near the southeast corner of Rolla along Highway 72.

In general, Rolla's zoning pattern reflects existing land use, with some notable exceptions. The statistics on Table 3 and illustrated on the attached Rolla Zoning Map 2004 provide an analysis of zoning in Rolla.

**TABLE 3**  
**Rolla Zoning Study-2004**

<u>Zoning Classification</u>	<u>Acreeage by Category</u>	<u>% Total Zoned Land</u>
Rural Residential District (R-R)	952 Acres	15.2 %
Single-Family District (R-1)	2,258	36.1
Two-Family District (R-2)	228	3.6
Multi-Family District (R-3)	391	6.3
Government/Institutional District (G-I)	763	12.2
Office District (C-O)	10	.2
Neighborhood Business District (C-1)	163	2.6
General Retail District (C-2)	473	7.5
Highway Commercial District (C-3)	406	6.5
Center City District (C-C)	14	.3
Light Manufacturing District (M-1)	91	1.5
Heavy Manufacturing District (M-2)	445	7.1
Planned Unit Development (PUD)	59	.9
<b>Total Zoned Land</b>	<b>6,253</b>	<b>100.0</b>
Total Right-of-Way	1,174	
<b>Total Acreeage in Rolla</b>	<b>7,427</b>	

Source: City of Rolla Community Development Department, Public Works Department.

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### *The Center City Dilemma*

Rolla's center city area has been zoned R-3 for decades, (please refer to the attached Center City Zoning Map) probably dating back to the first use of zoning in Rolla. It was customary back then to "blanket" zone center city neighborhoods for multi-family use to recognize the transitional nature of these areas and the existing mixed uses that developed before zoning was introduced. The actual land use in the center city, however, remains predominately single-family (please refer to the attached Center City Land Use Map).

Several developments have occurred recently that have caused some concern due to an imbalance resulting from unit densities and lot coverage that are not consistent with adjoining uses, but are permitted as a matter of right for R-3 zoned parcels. For example, the properties at 503-505 E. 12th Street were redeveloped in a manner consistent with Rolla's R-3 zoning regulations. According to calculations, 503 E. 12th Street had a coverage factor of 28% (40% is the maximum) while 505 E. 12th Street had a coverage percentage of 39.8%. The obvious difference between these developments and their surrounding neighbors is readily apparent and may lead to further disinvestment as the existing single-family homes get older and deteriorate. Area property owners will continue to see more pressure for redevelopment projects, as demand remains high for rental units near UMR.

Down-zoning property can be done, but it is always difficult when investors have purchased property with the anticipation that they may ultimately redevelop. This is the center city dilemma. Any solution will require City Council leadership.