MULTI-FAMILY HOUSING AND DEVELOPMENT TRENDS IN THE TOWN OF BOONE

A Report Prepared for
The Town of Boone, North Carolina

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July 2005

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Executive Summary

The Boone Town Council instituted a 12-month moratorium in February 2005 on the construction of multi-family developments with 24 or more units. This report provides background information and data relating to the growth of multi-family housing in Boone.

The Economy

The economy of Watauga County is expanding rapidly. The unemployment rate during the 1st quarter of 2005 averaged 3.2 percent which was substantially below the state and national averages. The rate has been consistently below the state and national averages since the early 1990s, reflecting the strong performance of the county economy. Employment in March 2005 was 25,226, up 8.7 percent from March 2004. Since 1990, employment has grown at an average annual rate of 2.1 percent, outpacing the national growth rate of 1.1 percent and the state rate of 1.3 percent.

The economy of the county is dominated by service sector employment. This is the major reason for the county's relatively low unemployment rate and more rapid employment growth since 1990. The largest percent of workers are employed in accommodations and food services which accounts for 18.7 percent of all wage and salary employment. The second largest percent of workers is in retail trade which provides jobs for 15.8 percent of county workers. Educational services are 15.5 percent of county employment, reflecting the impact of Appalachian State University (ASU) in Boone. Health care represents 13.8 percent of total employment. Tourism produces $40.7 million in wages and 2,570 jobs, or 8.0 percent of wages and 12.5 percent of employment.

Per capita personal income in the county in 2003 was $24,472 compared to the state and national averages of $28,071 and $31,472 respectively. Since 2001, county income has risen 5.6 percent, outpacing income growth in both the state and nation.

County population in 2004 is estimated at 42,457. From 1970 through 2000, county growth was above the national average. In the 1990s, growth slipped below the state average, but remained above the nation. Since 2000, the Census Bureau estimates that Watauga's population has declined 0.1 percent annually. If correct, this indeed is an anomaly because it does not correspond with the rapid pace of employment and income growth and the relatively low unemployment rate in the area.

In 2000, employment in the Town of Boone totaled 5,978. Twenty-seven percent of those employed worked in educational services, attesting to the importance of Appalachian State University (ASU). Accommodations and food services and retail trade accounted for 21.9 percent and 13.9 percent respectively of all town employment.

Average household income in Boone in 2000 was $32,508; median income was $20,541. Because of the large student population in the town, a large fraction of all households are low income. In 2000, 40.9 percent of households had a reported income of less than $15,000 dollars.

The population of Boone in 2000 was 13,470. Because of the predominance of ASU students in the town, the average age of the population is very young. In 2000, the median age was 20.4 years, with 67.3 percent of the population between 15 and 24 years of age.

On-campus enrollment at ASU in the fall semester of 2004 was 13,536. From 2002 through 2004, enrollment on campus grew 1.32 percent annually. ASU estimates that 62 percent of on-campus students live off campus either in Boone or in the surrounding area.

Population in Boone is projected to grow from 13,470 in 2000 to 20,731 in 2030, or 1.4 percent annually. The number of persons aged 55 years and over is projected to grow more rapidly than any other age group, while the number of persons aged 25 to 55 is projected to grow least rapidly. The young adult population,

those aged 15 to 24, will continue to constitute the largest segment of the town's population, making up 66.3 percent of the population in 2030.

The demand for housing is dependent on population growth. The number of renter-occupied housing units is expected to expand from 3,021 in 2000 to 4,577 in 2030, an average annual growth rate of 1.4 percent. Owner-occupied units are projected to grow from 1,357 to 2,156, growing 1.6 percent annually.

Local real estate operators indicate the current market for multi-family rental property in Boone is very strong, and they estimate the current market vacancy rate is 3 percent or less. The current annual absorption rate is estimated at 3.4 percent, which is substantially above the projected long-term trend in population growth. As planned units come on the market, the current disequilibrium can be expected to correct as the absorption rate falls and vacancy rates rise.

The Economic Impact of Multi-Family Housing

The overall impact of a hypothetical 100-unit multi-family project with a construction cost of $5,315,760 is estimated as follows:

Overall Economic Impact of Multi-Family Project

Impacts:	Construction Phase (one time)	Occupancy Phase (annual)
Output	$7,692,331	$2,464,844
Employment	92	20
Labor Income	$2,642,354	$544,995
Ave. Income/Worker	$28,721	$27,250
Local Tax Revenue	$133,196	$74,968

The economic impacts in terms of output, employment, and income of the multi-family development project on the economy of Boone are substantial and long-lasting. Also, the effects on local tax revenues are significant.

The question of the overall fiscal impact of the project on local governments is difficult to answer. It is estimated that the average household in the new development will generate $667 in additional property tax revenue during the occupancy phase of the project. This compares to $968 in local property tax paid currently by the average owner-household in Boone. Whether this differential is justified by a lower demand for services cannot be determined with confidence.

For educational services, however, the demands of the new renter-households are likely to be much lower than those of owner-households. It is estimated that the average renter-household has 0.061 school-age children, while the average owner-household has 0.31 children, or more than 5 times as many. Renter-households are estimated to consume $133 of local educational services, while owner-households consume $663. The difference of $530 is much larger than the estimated differential in property taxes between the two groups.

The Impact of Multi-Family Housing on Residential Property Values

A number of academic studies have examined the effects of municipal zoning as practiced in Boone and elsewhere. These studies generally provide support for the idea that proximity to multi-family housing damages the values of single-family homes. An estimated statistical model of housing values in Boone

suggests that residential values rise 8.7 percent for every one-mile increase in the distance to the nearest apartment project. The statistical estimates of the housing model provide evidence that proximity to multi-family apartments lowers the values of single-family structures. The evidence suggests the rationale for separating single- and multi-family housing through a policy of municipal zoning.

Controlling the Detrimental Effects of Multi-Family Development

Cities and towns in North Carolina and elsewhere have a number of powers that enable them to control the character and direction of growth. These powers include planning, zoning, impact fees, and other regulatory tools.

Among developers, planners, and others across the country, a general consensus is forming toward the view that while growth is the result of market forces, it also is shaped by public policy decisions. Therefore, comprehensive planning (smart growth) to provide a wise basis for those policy choices is important for a community's economic vitality and future growth.

In 1999, the North Carolina General Assembly created the *Commission to Address Smart Growth, Growth Management, and Development Issues*. Among the recommendations of the commission is that planning be undertaken by all local governments. At a minimum, local governments are encouraged to designate *Planned Growth Areas* and *Critical Important and Sensitive* resource areas. *Planned Growth Areas* (PGAs) are areas where growth and development is encouraged and can best be accommodated and supported over a 20-year period. PGA's include existing and proposed local transportation networks, water, sewer and other utility systems, and most other infrastructure and public facilities needed to support growth. Most local, state and federal monies should be targeted in these areas. *Critical, Important and Sensitive* (CIS) areas include, but are not limited to, water supply watersheds, floodplains, jurisdictional wetlands, game lands, parks, significant areas (habitat areas, natural areas and forestlands), significant farmlands and timberlands, and similar resource or high hazard areas. Within CIS areas, transportation projects and other infrastructure and public facilities are limited or restricted to avoid or minimize negative effects on natural and agricultural resources.

Using its existing regulatory tools coupled with good planning, the Town of Boone has the power to control and direct the pattern of its future growth. It can maximize the benefits accruing from multi-family development while mitigating the costs imposed on other property owners or the community at large.

Introduction

In February 2005, the Boone Town Council instituted a 12-month moratorium on the construction of multi-family developments with 24 or more units. This report provides background information and data relating to the growth of multi-family housing in Boone. It is hoped that the information presented here will provide a basis for further discussion and debate of the issue.

The first section of the report explores current economic and demographic trends in Watauga County and the Town of Boone. It examines the patterns of population, employment, and income growth, laying out projections for future growth, and it looks at recent trends multi-family construction and vacancy rates.

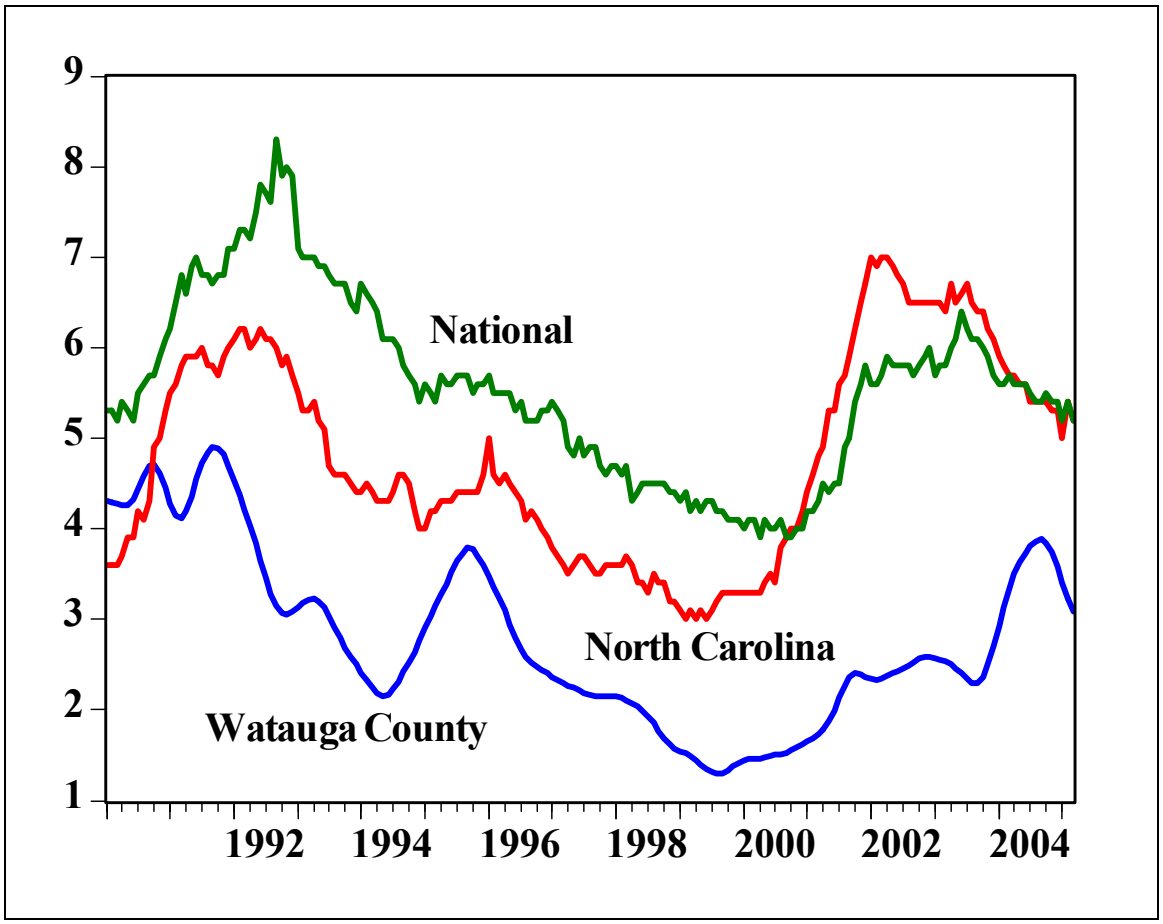
The second section considers the multi-family housing market and its impact on the local area. This section examines in detail the economic impact of multi-family housing construction on the economy of the Town of Boone, setting out the impacts on output, employment, income, and local tax revenues. It also details the impact of multi-family development on single-family housing prices.

The final section outlines the tools available to local governments to ameliorate the detrimental effects of one kind of land use on another. It discusses the regulatory powers of local governments, the use of impact fees, and the movement toward more comprehensive land use planning.

Regional Economic and Demographic Trends

The economy of Watauga County has grown rapidly since the early 1990s. The unemployment rate in March 2005 was 3.1 percent (on a seasonally adjusted basis), which was substantially below the comparable rate of 5.2 percent recorded for North Carolina and the Nation. The unemployment rate has been consistently below the state and national averages since the early 1990s (Figure 1), reflecting the strong performance of the county economy during this period.

Figure 1: Watauga County Unemployment Rate, 1990 - 2005
(seasonally adjusted)



Employment in the county in March 2005 was 25,226, up from 8.7 percent from March 2004.[1] Since 1990, employment in Watauga County has grown at an average annual rate of 2.1 percent, outpacing the national growth rate of 1.1 percent and the state rate of 1.3 percent. Since 2000, county employment has risen at an average annual rate of 1.1 percent, while national employment has grown only 0.5 percent annually and the state has gained just 0.3 percent (Figure 2).

[1] The employment numbers cited here are from the monthly household survey reported by the North Carolina Employment Security Commission and reflect employment by place of residence.

Figure 2: Watauga County Employment Growth, 1990 – 2005

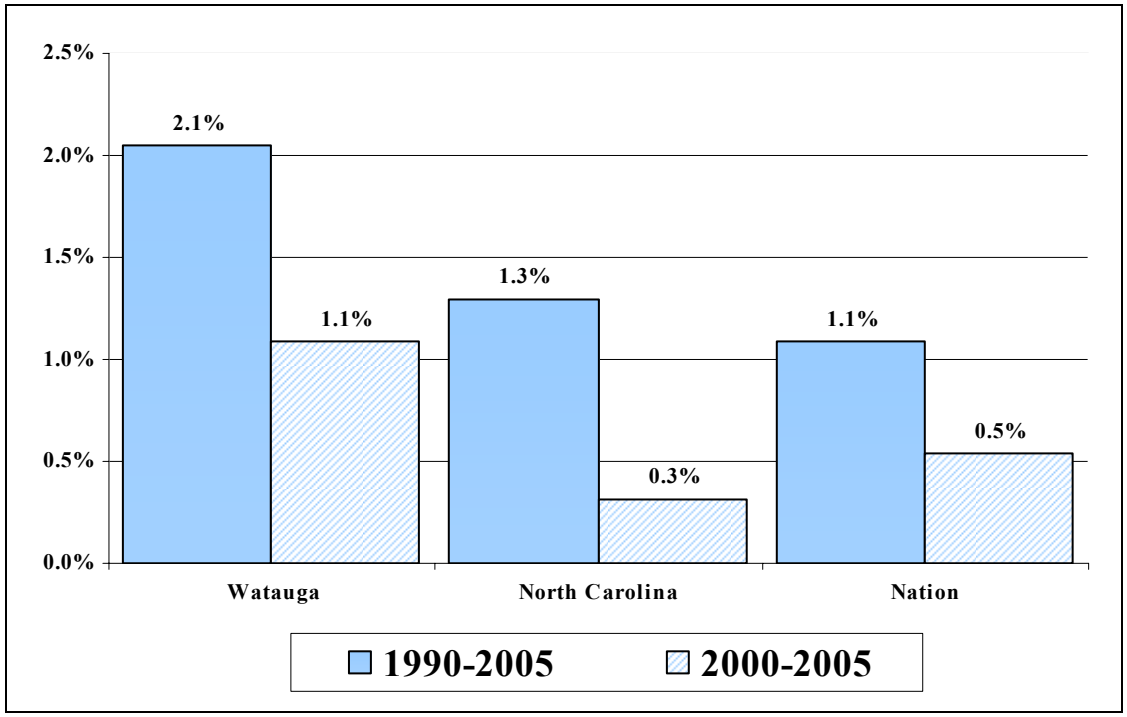


Table 1 shows the industrial distribution of county wage and salary employment in the 3rd quarter of 2004. Wage and salary employment totaled 20,862 and total wages earned were $545.3 million on an annualized basis.[2] The average worker earned $26,032, compared to a state-wide average of $33,950. County wages were highest in the educational services sector, where workers earned an average of $41,157 annually. Wholesale trade where workers averaged $36,446 was the second highest paying sector.

The economy of the county is dominated by service sector employment. This is the major reason for the county's relatively low unemployment rate and more rapid employment growth since 1990. The largest percent of workers are employed in accommodations and food services, which accounts for 18.7 percent of all wage and salary employment. The second largest percent of workers are in retail trade, which provides jobs for 15.8 percent of county workers. Educational services are 15.5 percent of county employment, reflecting the impact of Appalachian State University (ASU) in Boone. Health care represents 13.8 percent of total employment.

The importance of the travel and tourism in the county is reflected in the combined size of (1) accommodations and food services (18.7 percent), (2) retail trade (15.8 percent), and (3) arts and entertainment (3.0 percent). Together these three sectors account for 37.5 percent of all county employment. In contrast, the three sectors make up just 21 percent of total employment nationwide.

The construction sector of the county economy accounts for 6.8 percent of all employment. Construction is a larger share of total employment in Watauga County than in either North Carolina, where it is 5.8 percent, or in the nation as a whole, where it comprises 5.4 percent of total employment. The construction sector's relatively large size attests to the rapid pace of building activity and second home construction in the county.

[2]The employment numbers cited in Table 1 are from the quarterly industrial survey reported by the North Carolina Employment Security Commission and reflect employment by place of work.

Table 1: Industrial Distribution of Watauga County Employment, 2004.3

Industry:	Employment	Percent	Total Wages	Average Wage
Agriculture & Mining	76	0.4%	$2,220,728	$29,220
Construction	1,432	6.8%	$37,164,888	$25,953
Manufacturing	929	4.4%	$25,873,444	$27,851
Wholesale Trade	521	2.5%	$18,988,356	$36,446
Retail Trade	3,299	15.8%	$64,244,356	$19,474
Transportation & Utilities	285	1.4%	$9,139,248	$32,068
Information	299	1.4%	$8,031,944	$26,863
Finance and Insurance	432	2.1%	$15,347,076	$35,526
Real Estate	297	1.4%	$6,583,460	$22,167
Professional	745	3.6%	$20,205,856	$27,122
Management of Companies and Enterprises	105	0.5%	$3,597,912	$34,266
Administrative	361	1.7%	$8,239,944	$22,825
Educational Services	3,254	15.5%	$133,923,540	$41,157
Health Care	2,884	13.8%	$101,508,640	$35,197
Arts & Entertainment	622	3.0%	$9,916,172	$15,942
Accommodation & Food Services	3,907	18.7%	$45,625,848	$11,678
Other Services Except Public Admin	561	2.7%	$8,924,456	$15,908
Public Administration	853	4.1%	$23,534,268	$27,590
Total	20,862	100.0%	$543,070,136	$26,032

Source: NC Employment Security Commission.

Per capita personal income in the county in 2003 was $24,472, compared to the state and national averages of $28,071 and $31,472 respectively (Table 2). But since 2001, county income has risen 5.6 percent, outpacing income growth in both the state and nation.

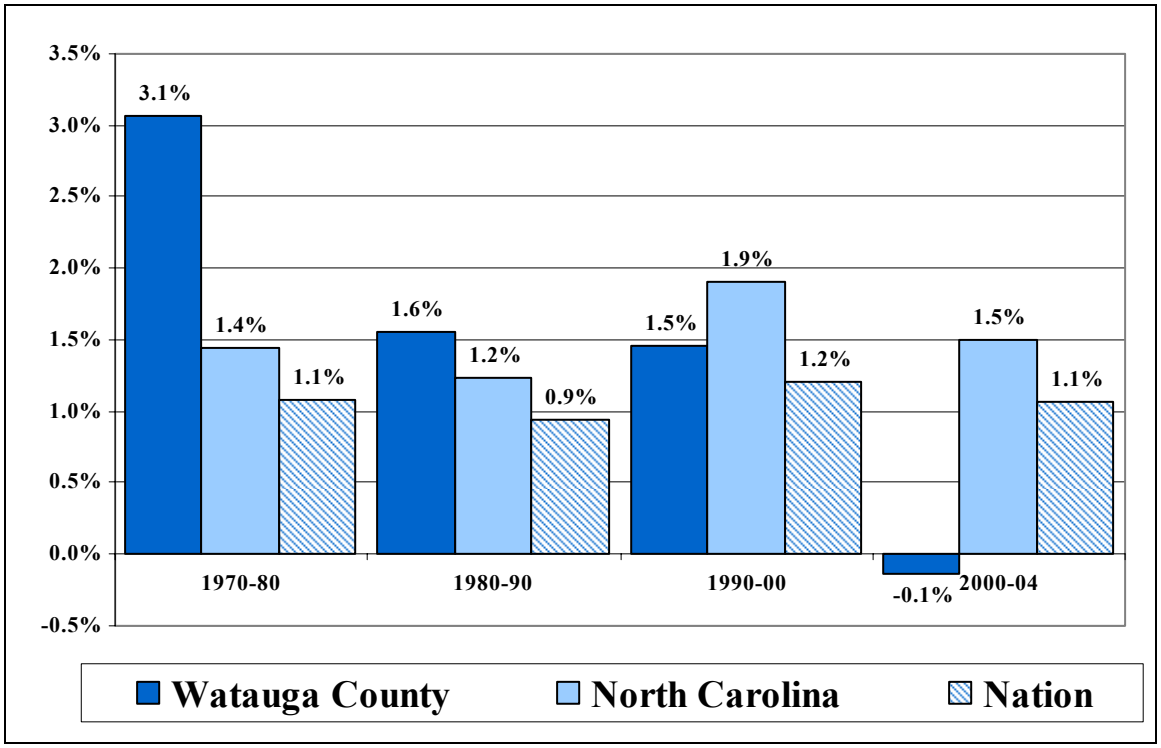
Table 2: Per Capita Personal Income, 2001-03

Area:	2001	2002	2003	% Chg.
Watauga County	$23,179	$23,613	$24,472	5.6%
North Carolina	27,493	27,640	28,071	2.1%
United States	30,575	30,804	31,472	2.9%

Source: US Bureau of Economic Analysis (BEA).

County population in 2004 is estimated at 42,457. Figure 3 shows the pace of population growth in Watauga relative to North Carolina and the nation. From 1970 through 2000, county growth was above the national average. In the 1990s, growth slipped below the state average, but remained above the nation. Since 2000, the Census Bureau estimates that Watauga's population has declined 0.1 percent annually. If correct, it indeed is an anomaly because it does not correspond with the rapid pace of employment and income growth and the relatively low unemployment rate in the area.

Figure 3: Watauga County Average Annual Population Growth, 1970 – 2004



Source: US Bureau of the Census.

Travel and Tourism in Watauga County

The NC Department of Commerce estimates that tourism generated $151.6 million in goods and services in Watauga County in 2003.[3] Tourism is estimated to produce $40.7 million in total wages and 2,570 jobs. In relative terms, tourism generates 8.0 percent of total wages in the county and 12.5 percent of total employment. State and local tax revenues from the tourism sector are estimated at $14.5 million in 2003.

[3] See: http://www.nccommerce.com/tourism/econ/indcountystats.asp.

Figure 4: Watauga County Tourism Revenues, 1990-2003
(in $1,000,000s)

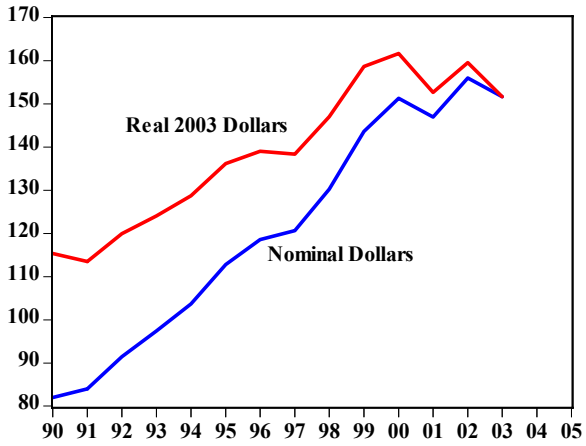


Figure 4 plots the growth of travel and tourism revenues in both nominal and real (inflation-adjusted) dollars. Since 1990, inflation-adjusted tourism revenues have grown at an average annual rate of 2.1 percent. Since 2000, real revenues have fallen 6.2 percent, largely because of the recession in the state economy. Real tourism revenues are expected to begin to increase in 2004 and beyond as the state economy moves out of the recession.

Because of the importance of travel and tourism in the county, preservation and enhancement of the natural, scenic environment is very important to the long-run health of the county economy. Any development which mars the environment threatens the tourism sector and the area's economic health.

The Town of Boone

In 2000, employment in the Town of Boone totaled 5,978. Twenty-seven percent of those employed worked in educational services (Table 3), attesting to the importance of Appalachian State University (ASU). Accommodations and food services and retail trade accounted for 21.9 percent and 13.9 percent respectively of all town employment.

Tourism in Boone is estimated to have generated $104.4 million in businesses revenues and to have created employment for 1,768 persons in 2003.[4] The relative importance of travel and tourism is apparent from the combined employment shares of accommodations and food service (21.9 percent), retail trade (13.9 percent), and arts and entertainment (3.9 percent). Together these three sectors account for 39.7 percent of employment in Boone (see Table 3). In contrast, the three tourism-related sectors are only 21 percent of employment nationally and 37.5 percent in Watauga County as a whole.

Much of visitor spending in the town is related to activities at ASU such as athletic contests, commencements, and other activities throughout the year. Also, many of those employed in tourism-related business like hotels, motels, food services, and retail trade are students at ASU. Without the large pool of student labor, much of the town's tourism-related businesses would sustain higher costs and concomitant lower output.

Second home ownership provides another important stimulant to the town's tourism industry. Thirty-five percent of the residential properties in town are owned by persons who maintain their principal residence elsewhere. Non-resident second-home owners are likely to be strongly attracted by the town's natural beauty and environmental amenities. Any development that mars the scenic beauty of the area will hurt second-home ownership and area tourism revenues.

[4] This estimate assumes that the ratio of tourism revenues to retail sales is the same in Boone as in Watauga County as a whole.

Average household income in Boone in 2000 was $32,508; median income was $20,541. Because of the large student population in the town, a large fraction of all households are low income. In 2000, 40.9 percent of households had a reported income of less than $15,000 dollars.

The population of Boone in 2000 was 13,470. Because of the predominance of ASU students in the town, the average age of the population is very young. In 2000, the median age was 20.4 years, with 67.3 percent of the population between 15 and 24 years of age.

On-campus enrollment at ASU in the fall semester of 2004 was 13,463. ASU estimates that 62 percent of on-campus students live off campus either in Boone or in the surrounding area. On-campus enrollment at ASU is projected to grow relatively slowly into the next decade. By 2012, ASU estimates its on-campus enrollment to be 14,200, an average annual growth rate of just 0.67 percent.[5] This represents a substantial slowing in the growth of on-campus enrollment. From 2000 through 2004, enrollment on campus grew 1.87 percent annually.[6]

Table 3: Industrial Distribution of Employment in the Town of Boone, 2000

Industry	Employment	Percent
Construction	147	2.5%
Manufacturing	177	3.0%
Wholesale Trade	18	0.3%
Retail Trade	833	13.9%
Trans. & Utilities	95	1.6%
Information	142	2.4%
Finance and Insurance	197	3.3%
Real Estate	136	2.3%
Professional	178	3.0%
Administrative	214	3.6%
Educational Services	1,612	27.0%
Health Care	359	6.0%
Arts & Entertainment	231	3.9%
Accommodations & Food Ser.	1,312	21.9%
Other Services	327	5.5%
Total	5,978	100.0%

Source: US Bureau of the Census.

Projections of Population and Housing in the Town of Boone

The future changes in population and housing in Boone will depend critically on ASU enrollment policies. If ASU succeeds in curbing its on-campus growth, current trends in population and housing may be dampened substantially (see Appendix A). However, the currently strong growth environment in Watauga County, spurred by the widening of Highways 327 and 421 along with the growing popularity of western North Carolina as a place for second-home and retirement living augers for substantial future growth.

[5] http://www.appstate.edu/www_docs/depart/irp/factbook/factbook0405/S11HSGrad-OnCampusEnrlGraph.pdf
[6] http://www.appstate.edu/www_docs/depart/irp/factbook/factbook0405/S9HeadcountEnrollmentHistory.pdf

Table 4 presents a series of population projections for Boone that assume that the town's future growth will mirror future trends projected for Watauga County and the state.[7] Population is projected to grow from 13,470 in 2000 to 20,731 in 2030, or 1.4 percent annually. The number of persons aged 55 years and over is projected to grow more rapidly than any other age group, while the number of persons aged 25 to 55 is projected to grow least rapidly. The young adult population, those aged 15 to 24, will continue to constitute the largest segment of the town's population, making up 66.3 percent of the population in 2030. The median age of the population is projected at 20.3 years in 2030.

The demand for housing is dependent on population growth. Table 5 shows housing projections for Boone from 2000 through 2030, assuming a 5-percent vacancy rate in the rental sector. The number of renter-occupied housing units is expected to expand from 3,021 in 2000 to 4,577 in 2030, an average annual growth rate of 1.4 percent. Owner-occupied units are projected to grow from 1,357 to 2,156, growing 1.6 percent annually.

Table 4: Population Projections for the Town of Boone, 2000-2030

						% Chg.	% Chg.
Age Group	**2000**	**2004**	**2010**	**2020**	**2030**	**2000-10**	**2000-30**
Total	13,470	14,251	16,029	18,120	20,731	19.0%	53.9%
0 - 4	192	213	230	271	319	19.6%	66.4%
5 - 9	181	179	202	230	274	11.9%	51.6%
10 - 14	226	246	246	287	337	8.7%	49.0%
15 - 19	3,434	3,894	4,361	4,893	5,487	27.0%	59.8%
20 - 24	5,636	5,664	6,557	7,206	8,253	16.3%	46.4%
25 - 29	700	682	676	838	943	-3.4%	34.7%
30 - 34	318	330	322	354	394	1.2%	24.0%
35 - 39	297	286	294	279	343	-0.9%	15.4%
40 - 44	314	335	328	328	354	4.3%	12.7%
45 - 49	336	374	406	406	380	20.9%	13.2%
50 - 54	356	393	456	476	480	28.0%	34.8%
55 - 59	291	361	425	512	518	46.1%	78.0%
60 - 64	241	284	381	484	511	58.1%	111.9%
65 - 69	198	209	260	376	455	31.1%	129.8%
70 - 74	199	196	214	340	435	7.6%	118.7%
75 - 79	231	237	240	322	477	3.9%	106.4%
80 - 84	153	174	186	211	348	21.3%	127.3%
85+	167	194	246	308	423	47.5%	153.1%
Median Age	20.4	20.3	20.3	20.3	20.3	-0.6%	-0.5%

Source: US Bureau of the Census. Projections 2004-2030 by the author.

[7] The projections employ the ratio method, that is, $B_{t+1} = (B_t/S_t)\ S_{t+1}$, where B_t = Boone population and S_t = North Carolina population. Population projections by age group for North Carolina were taken from the NC State Data Center, Office of Management and Budget, http://data.osbm.state.nc.us/.

Table 5: Housing Projections for the Town of Boone, 2000-2030

						% Chg.	% Chg.
	2000	2004	2010	2020	2030	2000-10	2000-30
Total Housing Units	4,768	4,875	5,487	6,197	7,087	15.1%	48.6%
Occupied Housing Units	4,378	4,631	5,213	5,887	6,733	19.1%	53.8%
Owner Occupied	1,357	1,447	1,576	1,857	2,156	16.2%	58.9%
Renter Occupied	3,021	3,184	3,636	4,030	4,577	20.4%	51.5%

Source: US Bureau of the Census. Projections 2004-2030 by the author.

Recent Population, Construction, and Vacancy Trends

Table 4 projects the population of Boone to grow from 13,470 in 2000 to 16,029 in 2010, an average annual growth rate of 1.75 percent. However, data from the Town's Department of Public Utilities provide some additional information on the population trend in Boone since 2000. The department shows 103 new single-family and 13 multi-family residential water taps have been added since 2000. Town building permit records indicate that the average multi-family residential project permitted since 2000 has 33 units. Combining this information, Table 6 presents an alternative estimate of population growth through 2004. It assumes that the average number of people per unit is unchanged from 2000 and the population in group quarters grows 1.4 percent annually.

Table 6: Recent Population and Housing Trends in the Town of Boone, 2000-2004

	2000			2004	2000-04
Housing Type:	Units	Population per Unit	Population	Projected Population	Ave. Annual % Chg.
Owner-occupied Units	1,357	2.13	2,890	3,110	1.8%
Renter-occupied Units	3,021	1.91	5,770	6,600	3.4%
Group Quarters	n.a.	n.a.	4,832	5,112	1.4%
Total	n.a.	n.a.	13,493	14,822	2.4%

Table 6 estimates the population in owner-occupied units is growing 1.8 percent annually and the population in renter-occupied units is expanding at a yearly rate of 3.4 percent. Total population growth is estimated at an annual rate of 2.4 percent.

Local real estate operators indicate the current market for multi-family rental property in town is very strong, and they estimate the current market vacancy rate is 3 percent or less. In 2000, there were 3,021 occupied rental units in Boone. The data from Table 6, projects the number of occupied rental units in 2004 at 3,455 (6,600/1.91). This number of occupied units suggests an annual absorption rate of 3.4 percent, which is substantially above the decadal rate of 1.9 percent implied by the projections for rental housing growth shown in Table 5.

Building permit records show that since 2000, the town has approved the construction of 635 new multi-family housing units having a total estimated value of $42,881,717 in 19 separate projects. The average value of the new units is $81,169, and the median value is $72,229. Another 70-unit project with an estimated value of $9,185,000 is pending approval. Since only 13 multi-family projects have tapped into the town water system since 2000, it can be estimated that another 6 units with an estimated 369 units will soon come on the market.[8] If all 6 new projects were to be fully rented, another 705 persons could soon be

[8] This estimate of units in the pipeline counts the 204-unit Meadowview complex plus 5 more projects with an estimated average of 33 units each.

added to the town population, which would be a 6.0 percent increase of the projected renter population shown in Table 6.

Alternatively, it is more probable that the construction of new rental units is starting to outstrip the absorption rate and the vacancy rate in the area's apartment market will begin to increase. In addition to the private units in the process of construction, ASU plans to bring on an extra 250 two-person units over the next 5 years. As the vacancy rate rises, the recent boom in multi-family construction can be expected to cool as market participants recognize that supply is out-pacing the long-run growth in demand.

Since proximity to ASU is a dominant amenity for most renters, more outlying units are less desirable: They tend to fill up last and are first to feel the effects of market over supply. Accordingly, any adjustment to market over supply is likely to be felt less in the town limits of Boone than in more outlying areas. Vacancy rates for units near ASU are likely to be both lower and more stable than rates for more distant units.

Multi-Family Housing

Multi-family housing is a substantial part of the total housing stock. In 2000, 16.1 percent of housing units in North Carolina were in structures with 2 or more units and 10.3 percent were in structures with 5 or more units (Table 7).

Table 7: Types of Housing Units, 2000

	1-Unit Detached	1-Unit Attached	2 - 4 Units	5 or More Units	Mobile Home	Other
North Carolina	64.4%	3.0%	5.8%	10.3%	16.4%	0.2%
United States	60.3%	5.6%	9.1%	17.3%	7.6%	0.2%

Source: US Bureau of the Census.

In Boone, multi-family housing is essentially synonymous with renter-occupied housing. In 2000, 86.4 percent of renters lived in buildings with two or more units. Similarly, 86.9 percent of owners lived in 1-unit structures.

The 2001 *Fannie Mae National Housing Survey* interviewed renters about why they rent. Fifty-one percent reported they chose to rent out of necessity: rental housing was the best that they could afford. But 41 percent said they rented out of choice: they could afford to buy a home, but chose to rent because rental housing best met their housing needs. Many in this category reported that they wanted to be free of the time and expense of home ownership, or they wanted to live close to work and urban cultural and entertainment amenities.

Persons aged 20 – 29 have traditionally been most likely to rent and to live in multi-family housing. In Boone, this demographic group is projected to increase 14.2 percent during the 2000-10 period (Table 4). Much of this growth is dependent on growing enrollment at ASU. Expansion of multi-family housing in Boone is needed to accommodate ASU's growing student population.

As baby boomers move into their 50s and 60s and their children leave home, some boomers will choose to downsize to an apartment or condominium for a more carefree lifestyle. Others may decide to purchase or rent a multi-family home as a second vacation or semiretirement home. Because baby boomers represent the biggest demographic group in the country, even a small percentage choosing to move to multi-family homes will generate a substantial increase in demand. In Boone, the number of persons aged 55 and over is projected to grow from 1,480 to 1,952 between 2000 and 2010, an increase of 31.9 percent (Table 4).

Environmental Impacts of Multi-Family Housing

While poorly designed and planned multi-family housing projects can become community eye sores, well-planned projects can be environmentally sound. A recent study by the Urban Land Institute suggests that higher-density housing clustered in restricted areas can have some important environmental advantages:[9]

- By housing more people on less land, multi-family housing makes possible the preservation of more open space and natural features than do single-family housing developments.
- The higher densities of multi-family developments reduce developmental pressures on the remaining underdeveloped land in an area.
- Because multi-family housing is more compact, it causes less land disturbance and creates fewer impervious surfaces, reducing water run-off and drainage problems.

[9] Richard M. Haughey, *The Case for Multifamily Housing* (Washington, DC: Urban Land Institute, 2003).

- Multi-family housing residents tend to drive fewer miles per housing unit and also tend to use more public transportation because multi-family housing allows residents to live nearer to work.

- Multi-family housing that is clustered along transportation corridors make various kinds of mass transportation more feasible.

- Because multi-family units tend to be smaller than single-family homes, multi-family units consume less electricity and water per housing unit.

- The compactness of multi-family housing creates efficiencies that make it easier and cheaper to pick up trash and recyclables and deliver mail.

Fiscal Impacts of Multi-Family Housing

Multi-family housing also may have several favorable fiscal impacts on local communities.[10] First, because it is more compact, multi-family housing may require less public infrastructure like roads, sewers, water mains, gas lines, and electrical wires. In Boone, for example, in 2000, renter households owned an average of 1.55 motor vehicles, while owner households had 1.85 vehicles.

Second, multi-family housing may have a smaller per-unit impact on the expenditures demanded of local governments. Many apartment owners pay for services, such as garbage pick-up, that are often provided as a government service to single-family residents. Also, multi-family communities demand fewer services from local schools, which are the largest single expenditure for local governments. Nationally, apartments average only 21 school-age children per 100 new apartments, compared with 64 school-age children per 100 new single-family homes. In Boone, it estimated that renter households have only 6.2 school-age children per 100 apartment units.

Student Housing Markets

Across the country, universities have been turning to the private sector to meet the housing needs of their growing student populations. In Boone, ASU estimates that 62 percent of enrolled students (about 8,392 students in 2004) live off campus. The housing needs of ASU students create a strong, growing demand for student rental housing.

A study by Lewis and Kapp of the student rental market at Brigham Young University (BYU) and Utah State University (USU) confirms that students are willing to pay for proximity to campus.[11] Using data for the 1991-92 academic year, Lewis and Kapp reported that the difference in rent between living two blocks away and six block away (about 0.4 miles) was $25.62 per month for BYU students and $36.02 for USU students. The amount students were willing to pay was related to the savings in commuting time. The relationship between distance to campus and apartment rents was shown to reflect an implicit value for student time of between $4 and $6 per hour. Generalizing from the Lewis and Kapp study suggests that apartments nearer the ASU campus have greater value than those located farther away because of the higher rents they command.

A similar result was reported by Rugg, Rhodes, and Jones in their study of student housing markets in the United Kingdom.[12] They found that because of the strong demand of students for housing near campus, student housing tends to crowd out other land uses in areas surrounding the campus. This was especially true for single-family housing. Competition for land from student housing developers was seen to force up

[10] *Ibid.*
[11] W. Cris Lewis and Tim J. Kapp, "The Distance Tradeoff for Student Housing: An Empirical Analysis," *Regional Science Perspectives* 24 (1), 1994: 42-55.
[12] Julie Rugg, David Rhodes, and Anwen Jones, *The Nature and Impact of Student Demand on Housing Markets* (York, UK: Joseph Rowntree Foundation, 2000).

the price of single-family housing and result in driving single-family housing farther out from the campus center in cities like Belfast, Oxford, St. Andrews, and others. The quality of student housing surrounding the campuses was not found to be substantially substandard or of particularly low quality.

There was a tendency for what Rugg *et al*. termed the "ghettoisation" of student housing. That is, an intensive concentration of student tenants in a given local has a substantial impact in changing the nature of the neighborhood. Traditional local retailing tends to be replaced by a high concentration of fast food restaurants, bars, and discount retailing. This shifting nature of the neighborhood together with associated parking and congestion problems tends to alienate local residents who see it as a threat to more family-oriented businesses.

On the supply side, Rugg *et al*. found that developers were quick to respond to increases in student housing demand, suggesting that the long-run supply of student housing tends to be very elastic. However, they also found that supply frequently overshoots demand resulting in temporary surpluses and high vacancy rates.

Economic Impact of Multi-Family Housing in Boone

A. Methodology

The analysis presented here examines the economic impact of the construction and subsequent occupancy of a supposed multi-family apartment complex in Boone, NC (zip code 28607). The hypothetical project is assumed to be a 100-unit complex.

The economic impact of the project is measured in terms of 1) total additional output of all industries in the area, 2) total number of new jobs created, 3) total amount of additional labor income, and 4) total amount of additional city and county tax revenue. The analysis is conducted using the IMPLAN® (IMpact Analysis for PLANing) input-output model that divides the economy into sectors, defined by the good or service produced, where the outputs of one sector are inputs of another. IMPLAN analyzes a computer model that contains 509 sectors of the local economy and reflects the existing structure of the economy using data from the U.S. Department of Labor, Bureau of the Census, and the Bureau of Economic Analysis. IMPLAN was originally developed by the U.S. Forest Service and the University of Minnesota and is now marketed by Minnesota IMPLAN Group, Incorporated. Active users of the IMPLAN model include: NC Dept of Commerce and the NC Department of Parks, Recreation, & Tourism Management.

B. Construction Phase

To analyze the effects of multi-family housing construction, the analysis assumes construction of a 100-unit project.[13] Estimated construction costs are shown in Table 8.

Table 8: Multi-Family Housing Project Example

Total Square Footage	60,000
National Ave. Sq. Footage Cost	$123.05
Location Adjustment*	72%
Adjusted Cost/Sq. Ft.	$88.60
Total Building Cost	$5,315,760
Land Cost (25 % of total cost)	$1,771,920
Total Project Cost	$7,087,680
Total Cost per Unit	$70,877

Source: Construction cost estimates taken from RS Means, *Square Foot Costs*, 2005, p. 80.
*Location adjustment is based on Asheville, NC (page 453).

Total building cost is estimated at $5,315,760. This figure represents the initial impact on the local economy. Land costs are not included in the analysis of the economic impact because they represent a transfer of ownership that does not result in any new production.

The total effect of the new construction spending is a multiple of the initial cost of the building. This occurs because the funds spent on construction create new spending as the additional revenues received by project suppliers are re-spent in the local economy. In the process, new jobs and additional labor income are created. The total impacts of the construction phase of the project are show in Table 9. These are "one-time" impacts because they apply only during period of construction.

[13] Because the IMPLAN model is linear, the estimated output effects will be proportional to project construction spending.

Table 9: Economic Impacts of the Construction Phase

Impacts:	Direct	Total	Multiplier
Added Output (2005)	$5,313,481	$7,692,331	1.45
Added Employment	58	92	1.59
Labor Income	$1,755,733	$2,642,354	1.50
Ave. Income/Worker	$30,271	$28,721	n.a.

The construction spending of $5,313,481 generates additional total output from all industries in the area which is estimated at $7,692,331. The output multiplier is 1.45 which means that for every dollar of direct construction spending, a total of $1.45 in extra output is produced in the local economy.

The spending on construction is estimated to directly result in the creation of 58 new jobs in the area and a total of 92 new jobs directly and indirectly through its associated multiplier effects on the local economy. The employment multiplier is 1.59 which means that for every one job created directly in the construction of the multi-family project a total of 1.59 jobs are created directly and indirectly in the local economy.

A total of $1,755,733 of initial construction spending goes directly to workers as labor expense. As this additional labor income is re-spent, a total of $2,642,354 in additional labor income is generated in the local economy. The labor income multiplier is 1.50 which means that for every one dollar of addition labor income spend directly in construction, a total of $1.50 in extra labor income is generated in the local economy.

Overall, the construction of the 100-unit multi-family housing complex is estimated to result in the creation directly and indirectly of 92 new jobs in the Boone area having an average annual wage of $28,721. The average wage for the new jobs is 10.3 percent above the county-wide average of $26,032.

In addition to the effects on local output, employment, and income, substantial local tax revenues will be collected during the construction phase. Like the impacts shown in Table 9 above, the estimated tax revenues are "one-time," meaning they are collected only during the construction phase.

1. Permit and Building Fees: Local government officials in Boone estimate that permit, impact, and other fees for a 60,000 square foot multi-family project total approximately $99,450.[14]

2. Local Sales and Use Tax: The North Carolina sales tax rate is 7 percent of spending on the sale, lease, or rental of tangible personal property, plus spending on the services of hotel rentals, dry cleaners, laundries, and burial. Exempt is spending on medicine, commercial feed, and fertilizers.

The local share of the 7 percent tax rate is 2.5 percent. Half of this (1.25 percent) goes to the county where the spending occurred. The other 1.25 percent is distributed statewide based on population. For example, if the Watauga County generates $100,000 in sales, the amount the county will receive from the second 1.25 percent of this revenue which will equal its share of the state population.[15]

From IMPLAN, 44.2 percent of the income generated by the multi-family construction project in Boone is subject to the sales tax. Also, Watauga County's share of the total state population is 0.5 percent. Therefore, the sales tax revenue produced for local government as a result of the construction phase is

[14] The estimated fees are:

1.	Permit fee @ $0.15/sq. foot	$ 9,000
2.	Water and sewer impact fee	$82,500
3.	Grading and zoning fees	$ 450
4.	Water & sewer tap fees	$ 7,500
	Total	$99,450

[15] Details on the local share of the state sales tax are found in *North Carolina Tax Guide, 2004*, North Carolina Office of State Budget and Management, pp. 34-37, 87-88.

found by applying the relevant rates to the $2,642,354 of income created during the construction phase:

Revenue returned to county of origin:

$ 2,642,354 * 0.442 * 0.0125 = $14,599

Revenue returned on basis of relative population:

$ 2,642,354 * 0.442 * 0.0125 * 0.005 = $73

Total local sales tax revenue: $14,599 + $73 = **$14,672**

3. Property Tax: The annual local property tax revenue generated directly through assessment of the value of the 100-unit multi-family project will be addressed in the next section on occupancy phase tax impacts.

There also will be property tax revenue generated by the business activity caused by construction of the 100-unit project. For example, if retailers see their sales increase by $1,000 as a result of residential construction, there will be some real property existing only because of these sales, and the property taxes produced by this real property may be included as an impact of construction.

The local property tax in North Carolina applies to all real and personal property with the following exclusions: (1) federal and state property, (2) personal property used for personal purposes except motor vehicles, mobile home, boats, and airplanes, (3) business inventories, (4) property operated by religious and educational entities, and several other classifications.[16] The combined city-county property tax rate in Boone is $0.75 per $100 of valuation ($0.40 for the Town of Boone and 0.35 for Watauga County). From the county tax file $2.49 of locally-owned, real property (excluding personal property) supports every $1.00 of personal income in Watauga County.

The ratio of $2.49 of locally-owned real property for every $1 of personal income is applied to the $2,642,354 of income created by the construction of the 100-unit project, less the direct taxes on the 100-unit project. (The tax value of the 100-unit project is $5,313,481.) The subtraction is needed to avoid "double-counting" the property tax revenue from the new project. These calculations yield the following:

[($2,642,354 * $2.49)/$100] * $0.75	= $49,346
($5,313,481/$100) * $0.75	= <$39,851>
Total property tax revenue	= **$ 9,495**

4. Utility Excise Tax: A tax rate of 3.09 percent is levied on the in-state gross receipts of light and power companies and the proceeds are distributed to the municipalities in which the service takes place.[17] In addition, a 4.5-percent tax is levied on the receipts of telecommunication companies and likewise distributed to municipalities.

The IMPLAN model of the Boone economy estimates that $44,577 of additional revenues will go to power companies and $57,558 of extra revenue will flow to telecommunication companies as a result of the construction phase of the 100-unit project. Applying the appropriate tax rates yields:

$44,577 * 0.0309 + $57,558 * 0.045 = $1,377 + $2,590 = **$3,967**

5. Other Revenue: The construction phase will also produce other local revenue, specifically license revenue and transportation revenue from the "Powell bill." This bill requires the state to allocate certain revenues which it collects from specific taxes to the support of local governments. These local

[16] *Ibid*., pp. 83-85.
[17] *Ibid*., pp. 89.

revenues are estimated at $61 per worker in Boone. Multiplying $61 by the 92 workers during the construction phase gives other revenue of **$5,612.**

6. Total Local Tax Revenues: The total local tax revenues generated in the construction phase of the 100-unit project are shown in Table 10. In total, $133,196 in local fees, taxes and other revenues are generated during the construction phase.

Table 10: Local Tax Revenues Generated during the Construction Phase

Revenue Source	Amount
Permit and Building Fees	$99,450
Local Sales and Use Tax	$14,672
Property Tax	$9,495
Utility Excise Tax	$3,967
Other Revenue	$5,612
Total	$133,196

C. Occupancy Phase

During the occupancy phase, it is assumed that the 100-unit multi-family rental project will be 95 percent occupied. It is further assumed that if the project were not constructed, the prospective occupants would not locate in Boone. This assumption is justified by the low vacancy rate for multi-family housing in Boone.

The median household income for households in renter-occupied housing is estimated at $16,028 in 2005. The *Consumer Expenditure Survey* for 2002 compiled by the U.S. Department of Labor (DOL) suggests that households with an income in the $15,000 to $19,999 income range actually spend more than their annual income. Based on the DOL survey, it is estimated that the median renter household in Boone spends $21,600 annually.

If the 100-unit project is 95 percent occupied, then annual spending by project occupants will total $2,052,000 ($21,600 * 95 = $2,052,000). Not all of this spending will take place in the Boone area. IMPLAN estimates that only 60.2 percent ($1,235,304) will be spend locally. The remainder will leak out of the area as residents purchase goods and services elsewhere.

Table 11: Economic Impacts of the Occupancy Phase

Impacts:	Direct	Total	Multiplier
Added Output (2005)	$2,052,000	$2,464,941	1.20
Added Employment	n.a.	20	n.a.
Labor Income	n.a.	$544,995	n.a.
Ave. Income/Worker	n.a.	27,250	n.a.

Spending by project residents will increase the output of all industries in the Boone by $2,464,941 annually. A total of 20 new jobs will be added to the town, and the 20 new workers will earn a total of $544,995 each year, or an average of $27,250 per year.

As in the construction phase, substantial local tax revenues will be collected during the occupancy phase; however, unlike the construction phase, the revenues will accrue each year, not just one time only.

1. Local Sales and Use Tax: The local share of sales tax will be based on the combined spending of the 95 new households that occupy the 100-unit project and the spending that arises from the multiplier effects on area income. With IMPLAN it is estimated that the sales tax would apply to local spending of $614,171. As in the construction phase, Watauga County's share of the total state population is 0.5%. Therefore, the sales tax revenue generated to local government as a result of the occupancy phase is found by applying the relevant rates to income and spending generated during the occupancy phase:

Revenue returned to county of origin:

$ 614,171 * 0.0125 = $7,677

Revenue returned on basis of relative population:

$ 614,171 * 0.0125 * 0.005 = $38

Total local sales tax revenue: $7,677 + $38 = **$7,715**

2. Property Tax: The annual local property tax revenue generated directly through assessment of the value of the 100-unit multi-family project is counted in the occupancy phase. Including land, the project is assumed to be valued at $7,087,680. In addition, there is property tax revenue generated by the business activity caused by the multiplier effects of the spending by project residents. As in the construction phase, it is assumed that $2.49 of locally-owned real property is associated with every $1 of personal income. Using the estimate of $544,995 of additional income created in the occupancy phase from Table 11, the following shows the estimated property tax revenues in the occupancy phase:

($7,087,680/$100) * $0.75 = $53,158
[($544,995 * $2.49)/$100] * $0.75 = $10,178

Total property tax revenue = **$63,336**

3. Utility Excise Tax: As in the construction phase, a tax rate of 3.09 percent is levied on the in-state gross receipts of light and power companies and distributed to the municipalities in which the service took place. In addition, a 4.5-percent tax is levied on the receipts of telecommunication companies and likewise distributed to municipalities.

The IMPLAN model of the Boone economy estimates that $44,577 of additional revenues will go to power companies and $57,558 of extra revenue will flow to telecommunication companies as a result of the construction phase of the 100-unit project. Applying the appropriate tax rates yields:

$38,246 * 0.0309 + $33,659 * 0.045 = $1,182 + $1,515 = **$2,697**

4. Other Revenue: The construction phase will also produce other local revenue, specifically license revenue and transportation revenue from the "Powell bill". These local revenues are estimated at $61 per worker in Boone. Multiplying $61 by the 20 workers during the construction phase gives other revenue of **$1,220**

5. Total Local Tax Revenues: The total local tax revenues generated in the occupancy phase of the 100-unit project are shown in Table 12. In total, $74,968 in local taxes and other revenues are estimated to be generated annually during the occupancy phase.

Table 12: Local Tax Revenues Generated during the Occupancy Phase

Revenue Source	Amount
Local Sales and Use Tax	$7,715
Property Tax	$63,336
Utility Excise Tax	$2,697
Other Revenue	$1,220
Total	$74,968

D. Overall Economic Impact

The overall impact of the 100-unit multi-family project is summarized in Table 13.

Table 13: Overall Economic Impact of Multi-Family Project

Impacts:	Construction Phase	Occupancy Phase
Output	$7,692,331	$2,464,844
Employment	92	20
Labor Income	$2,642,354	$544,995
Ave. Income/Worker	$28,721	$27,250
Local Tax Revenue	$133,196	$74,968

The economic impacts in terms of output, employment, and income of the multi-family development project on the economy of Boone are substantial and long-lasting. Also, the effects on local tax revenues are significant.

E. Fiscal Impacts in Watauga County and Boone

The question of the overall fiscal impact of the project on local governments is difficult to answer. With an occupancy rate of 95 percent and an estimated 1.91 persons per unit, the population of the project is estimated at 181 persons.[18] Whether the tax revenues generated by this population are sufficient to pay for the total mix of local public services consumed cannot be answered with certainty because the population's demand for public services is unknown. From Table 12 above, it can be estimated that the average household in the new development will generate $667 ($63,336/95) in additional property tax revenue during the occupancy phase of the project. This compares to $973 in local property tax paid currently by the average owner-household in Boone. Whether this differential is justified by a lower demand for services cannot be determined with confidence.

For educational services, however, the demands of the new renter-households are likely to be much lower than those of owner-households. Educational services are important because Watauga County spends more on education than on any other budget category, about 26 percent of its budget. In 2004, educational spending averaged $222 per person. From the 2000 Census, it is estimated that the average renter-household in Boone has 0.061 school-age children, while the average owner-household has 0.31children, or more than 5 times as many. Thus, it is likely that the average renter household consumes only one-fifth as much in the way of local public educational services as the average owner household.

[18] The average number of persons per renter-occupied household is taken from the 2000 Census.

Table 14 compares the use of local educational services by renter- and owner-households. The 95 renter-households are estimated to have 5.89 school-age children, while the owner-households have 29.45 children of school age. The Watauga County School District spent $2,140 per pupil from local sources in the 2003-04 school year. Multiplying this figure by the estimated number of children for each group and dividing by the number of households gives the estimated school cost per household. Renter-households are estimated to consume $133 of local educational services, while owner-households consume $663. The difference of $530 is much larger than the estimated differential in property taxes between the two groups.

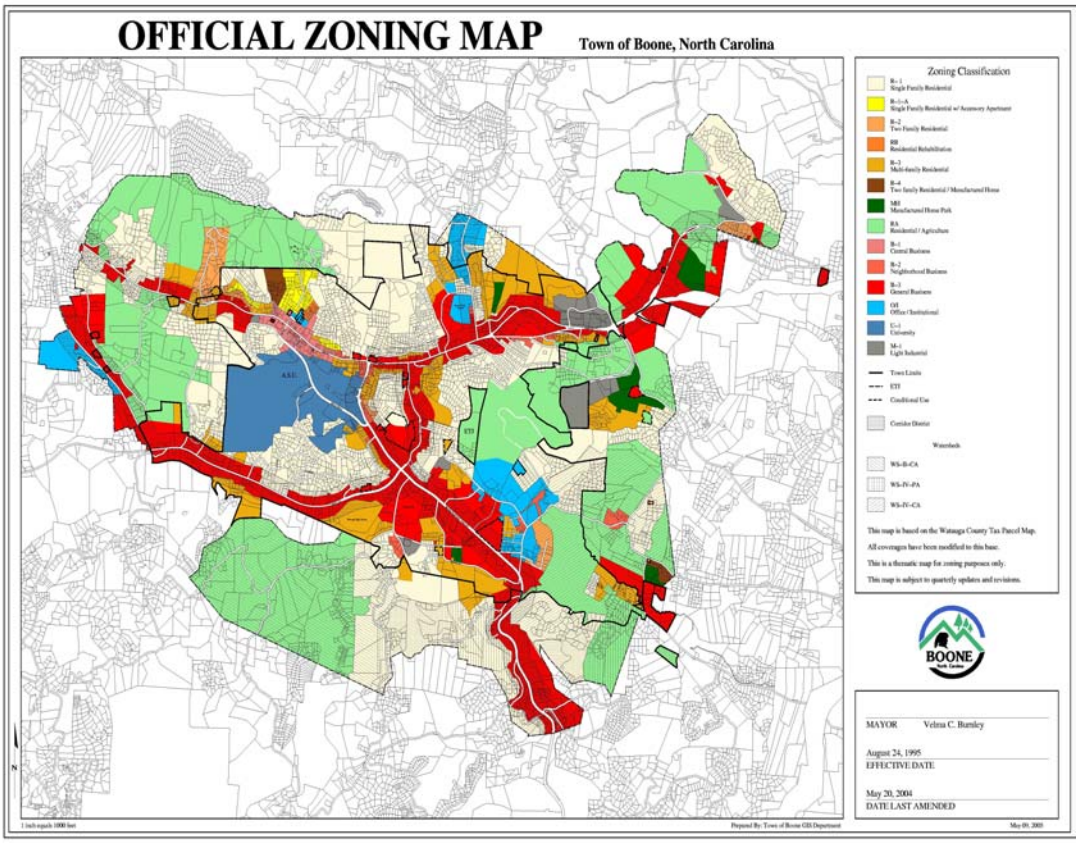
Table 14: Comparison of Renter- and Owner-Household use of Educational Services

	Renter Households	Owner Households
Number of Households	95	95
Children	5.89	29.45
Cost/Child	$2,140	$2,140
Total School Cost	$12,605	$63,023
School Cost/Household	$133	$663

The Impact of Multi-Family Housing on Residential Property Values

The Town of Boone employs a system of externality zoning which attempts to separate different types of land uses in order to minimize the negative external effects of one land use on another. Figure 4 shows the zoning districts currently extant in the Town. The areas in gold are zoned for multi-family residential. The areas in cream are single-family, and those in green are residential/agriculture. Red areas are zoned for businesses.

Figure 4: Zoning Map, Town of Boone



Source: Chris Miller, GIS Department, Town of Boone.

A number of academic studies have examined the effects of municipal zoning as practiced in Boone and elsewhere. These studies generally provide support for the idea that proximity to multi-family housing damages the values of single-family homes.[19]

To examine the impact of multi-family development on residential property values in Boone, a hedonic price model of residential property values is estimated using data from the Watauga County Tax file.[20] The estimated model is as follows:[21]

[19] J. M. Pogodzinki and Tim R. Sass, "Measuring the Effects of Municipal Zoning: A Survey," *Urban Studies* 28 (4), 1991: 597-621.
[20] Special thanks are owing to Chris Miller, GIS Department of the Town of Boone, for compiling and geocoding the property data.
[21] The form of this model follows that developed in G. Donald Jud and Terry G. Seaks, "Sample Selection Bias in Estimating Housing Sales Prices," *Journal of Real Estate Research*, 9 (3), 1994: 289-298.

(1) $\log(Value_i) = b_0 + b_1\, Dist_i + b_2\, Dapt_i + b_3\, Sqft_i + b_4\, Rooms_i + b_5\, Baths_i$

$+ b_6\, Age_i + b_7\, LSize_i + e_i$

Where:

$Value_i$ = the appraised value of the property;

$Dist_i$ = the distance in miles from the center of downtown Boone;

$Dapt_i$ = the distance in miles from the nearest multi-family apartment development;

$Size_i$ = the number of square feet in the structure (in 100s);

$Rooms_i$ = the number of rooms in the structure;

$Baths_i$ = the number of bathrooms in the structure;

Age_i = the age of the structure;

$LSize_i$ = lot size in acres;

e_i = a stochastic error term.

The theory behind the model asserts that the value of a property is determined by its attributes, or amenities. The estimated coefficients ($b_1 - b_7$) show the percentage change in the dependent variable (the value of the property) associated with a one-unit change in the corresponding independent variable (property attribute).

Equation (1) is estimated on the basis of 1,397 observations in the Town of Boone taken from the Watauga County Tax file. Figure 5 illustrates the data. The blue dots are the single-family homes and the red squares are apartment projects.

Figure 5: Apartments and Single-Family Homes

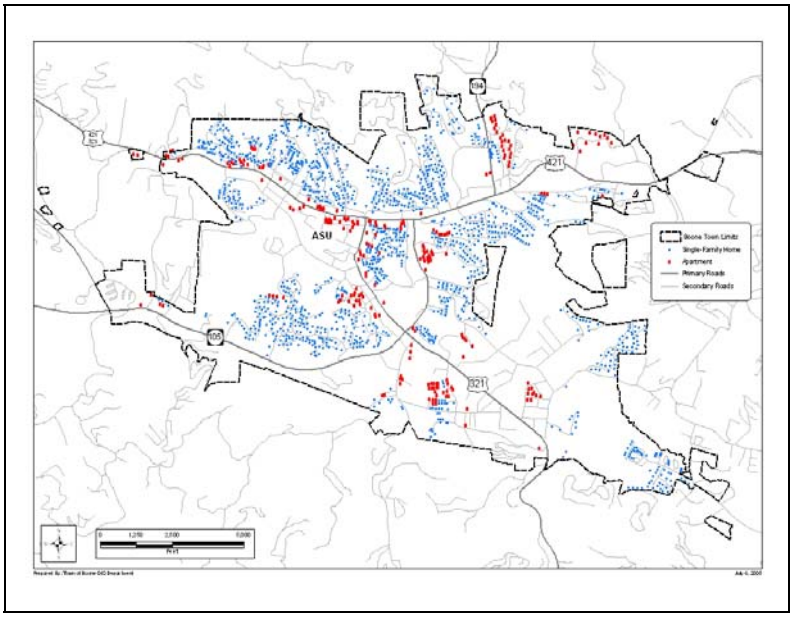


Table 15 shows the estimate of equation (1). The model is estimated using weighted least squares to correct for heteroskedasticity.[22] The adjusted R^2 is 0.73, indicating that the estimated model explains 73 percent of the observed variation in appraised values. All of the estimated coefficients except that on the $Dapt_i$ variable are statistically significant at the 5-percent level and above, suggesting that coefficients of this size would appear by chance less than 5 times out of 100.

The estimated coefficient on the apartment distance variable ($Dapt_i$) is statistically significant at the 10-percent level and above, indicating that a coefficient this large would be found by chance less than 10 times out of 100. The apartment distance coefficient is 0.087 which indicates that residential properties increase in value as the distance to the nearest apartment project rises. The coefficient suggests that residential values rise 8.7 percent for every one-mile increase in the distance to the nearest apartment project.

Looking at the other variables in the model, values are estimated to fall 4.6 percent for every 1-mile increase in distance from the center of town. Housing values rise 3.8 percent with every 100 square feet of structure. An additional room is associated with a 2.1 percent increase in value, and an extra bathroom increases the value of the property by almost 7.7 percent. Values decline 0.7 percent per year with age. And values rise 7.5 percent for every 1-acre increase in the size of the lot.

Table 15: Residential Property Values

Variable	Coefficient	Std. Error	t-Statistic
Constant	11.2563	0.0330	340.40
$Dist_i$	-0.0464	0.0195	-2.38
$Dapt_i$	0.0873	0.0456	1.92
$Size_i$	0.0375	0.0012	31.37
$Rooms_i$	0.0211	0.0039	5.36
$Baths_i$	0.0768	0.0117	6.58
Age_i	-0.0066	0.0004	-16.59
$LSize_i$	0.0749	0.0068	10.98
Adj. R-squared	0.7300		
N	1,397		

The statistical estimates of the housing model provide some evidence that proximity to multi-family apartments lowers the values of single-family structures. The evidence is not strong because the estimated coefficient on the distance to the nearest apartment ($Dapt_i$) is statistically significant only at the 10-percent level. Nevertheless, it is consistent with the results reported in other housing market studies elsewhere. Accordingly, the results suggest the rationale for separating single- and multi-family housing through a policy of municipal zoning.

[22] The weighted least squares procedure is based on the *Dist* variable. For more details, see pp 145-146 of Robert S. Pindyck and Daniel L. Rubinfeld, *Econometric Models and Economic Forecasts* (New York: McGraw-Hill Book Co., 1981).

Controlling the Detrimental Effects of Multi-Family Development

Zoning powers are the principal technique through which local governments are empowered to protect one type of land use from the detrimental effects of encroachment by another. Los Angeles adopted the first zoning ordinance in the nation in 1909. In the 1920s, Herbert Hoover, during his tenure as Secretary of Commerce, expressed concern that, without zoning, cities would lack adequate public infrastructure and property values in residential neighborhoods would suffer from the growth of incompatible land uses. Under his influence, the U.S. Department of Commerce drafted the Standard State Zoning Enabling Act (SSZEA) and the Standard City Planning Enabling Act (SCPEA).[23]

The SSZEA included provisions granting local governments the power to enact zoning ordinances dividing cities into districts, as well a language setting forth procedures for establishing, enforcing, and amending zoning laws, and for granting variances from the laws. After states adopted SSZEA-type laws authorizing municipal zoning, local governments began to adopt zoning ordinances, and subsequent court decisions have generally upheld their constitutionally. Today, Houston, Texas is the only major city in the nation without municipal zoning.

The SCPEA was a complement to the SSZEA. It authorized local governments to appoint a planning commission and required the planning commission to draw up a master plan that included among other things the recommended location and character of public investments (streets, parks, schools, etc.).

In North Carolina, the statutes enabling municipal zoning and planning are essentially the same as the 1920s model on which they were based.[24]

Regulatory Powers of Local Governments

Cities and towns in North Carolina and elsewhere have a number of powers that enable them to control the character and direction of growth. Among these powers are:[25]

1. Preparation of long-range comprehensive plans for future development and capital improvements.

2. Issuance of zoning and land development (subdivision) regulations that guide the scale and layout of development projects and their associated infrastructure, set design standards, and guide the review of individual projects for consistency with community architectural expectations.

3. Requirements of building permits prior to the construction, alternation, demolition, or removal of structures, with violations subject to heavy fines.

4. Establishment of the parameters for negotiations with developers of funding arrangements for infrastructure through project design requirements and impact fees.

5. Use of grant monies and their public financing capacity to pursue public/private partnerships, including the use of federal and state resources, tax increment financing, tax abatement for historic preservation and low-income housing, and other tools of finance to encourage quality development.

6. Power of eminent domain for public purposes.

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[23] Steward Meck, ed., *Growing Smart Legislative Guidebook* (Chicago: American Planning Association, 2002).
[24] http://www.planning.org/growingsmart/States/NorthCarolina.htm
[25] J. Terrence Farris, *Growing by Choice or Chance: State Strategies for Quality Growth in South Carolina* (Washington, DC: Urban Land Institute, 2003).

7. Decision making to support public transportation, affordable housing, code enforcement, and other public policies for community betterment.

8. Distribution of information to the development community and the citizenry on development trends, costs and benefits, fiscal impacts, opportunities for development, and land suitability analyses to assist the community in better decision making.

9. Education of the public and development community about innovative and best management practices of quality development.

Use of Impact Fees

Impact fees are financial contributions (money, land, etc.) imposed by communities on developers or builders. Many communities have begun to impose impact fees on new development to pay for the costs of new public infrastructure associated with the new development. Almost a decade ago, Altshuler and Gomex-Ibanez reported that the number of jurisdictions that are using impact fees was rising and that these fees often were more than $10,000 per house.[26]

Impact fees, however, must be reasonable. They can only be assessed for capital improvements that are a direct consequence of the new development and can not exceed the proportionate share required to serve the new development. New development cannot be required to pay a disproportionate share of improvements that also benefit other persons.

Communities have come to use impact fees, as opposed to other sources of revenue, to fund capital improvements as a way to minimize the costs of growth borne by existing residents. Some existing residents contend that the burden of paying for capital improvements should fall on new development because new residents are the ones who put pressure on the existing facilities. In addition, some traditional sources of revenue have for local governments have dried up in recent years, as fiscal responsibility has shifted from federal and state governments to local units.

A 1998 study by John Yinger examined the incidence of impact fees and special assessments. He reported that about 25 percent of any fee falls on the owners of undeveloped land.[27] The remainder of the fee is paid by the new residents. Thus, impact fees can have substantial impacts on the cost of new housing. Moreover, since new and existing housing are substitute goods, it is reasonable to expect that impact fees drive up the cost of existing housing as well. Higher prices and rents for existing housing are expected from the shift in demand that occurs as some buyers and renters begin to seek out existing structures because of higher cost of new facilities. The expectation that impact fees affect the price of existing homes is supported by research by Jud and Winkler.[28] They find that cities with more restrictive development policies, such as large impact fees, have higher rates of housing price inflation. Accordingly, impact fees affect more than just new community residents, they raise the cost of housing for all.

[26] Alan A. Altshuler and Jose A. Gomex-Ibanez, *Regulation for Revenue: The Political Economy of Land Use Extractions,* Cambridge, MA: Lincoln Institute of Land Policy, 1993.
[27] John Yinger, "The Incidence of Development Fees and Special Assessments," *National Tax Journal*, 51:1 (1998): 23-41.
[28] G. Donald Jud and Daniel T. Winkler, "The Dynamics of Metropolitan Housing Prices," *Journal of Real Estate Research*, 23:1 (2002): 29-47.

Smart Growth

Across the county among developers, planners, and others, a general consensus is forming toward the view that, while growth is the result of market forces, it also is shaped by public policy decisions. Therefore, comprehensive planning (smart growth) to provide a wise basis for those policy choices is important for a community's economic vitality and future growth.

In 1999, the North Carolina General Assembly created and funded a 37-member *Commission to Address Smart Growth, Growth Management, and Development Issues*.[29] The commission made more than 100 detailed recommendations pertaining to local and regional planning and coordination. Among the recommendations of the commission is that planning be undertaken by all local governments. At a minimum, local governments are encouraged to designate *Planned Growth Areas* and *Critical Important and Sensitive* resource areas. *Planned Growth Areas* (PGAs) are areas where growth and development is encouraged and can best be accommodated and supported over a 20-year period. PGA's include existing and proposed local transportation networks, water, sewer and other utility systems, and most other infrastructure and public facilities needed to support growth. Most local, state and federal monies should be targeted in these areas. *Critical, Important and Sensitive* (CIS) areas include, but are not limited to, water supply watersheds, floodplains, jurisdictional wetlands, game lands, parks, significant areas (habitat areas, natural areas and forestlands), significant farmlands and timberlands, and similar resource or high hazard areas. Within CIS areas, transportation projects and other infrastructure and public facilities are limited or restricted to avoid or minimize negative effects on natural and agricultural resources.

Good planning (smart growth) is necessary to deal with:

1. Transportation infrastructure and costs;

2. Adequacy of public facilities—schools, utilities, parks, police and fire facilities, libraries, and health care facilities;

3. Land use conflicts;

4. Protection of key environmental areas such as floodplains, watersheds, prime agricultural land, and timber areas;

5. Protection of property rights and values; and

6. Enhancement of the quality of residential development, including affordable housing.

Among the generally recognized benefits of planning (smart growth) are the following:

1. Good planning protects taxpayer investments. Effective planning allows communities to plan for the effects of growth so they can better anticipate and provide needed public infrastructure and services at reasonable cost.

2. Planning protects property values. Good planning anticipates the negative effects that may arise when incompatible land uses become commingled and devises strategies to mitigate these effects.

3. Planning provides for local control. The planning process produces a document that details the community's commitment to future growth by balancing private ownership and public

[29] http://www.planning.org/growingsmart/States/NorthCarolina.htm

stewardship. It identifies opportunities for future development and documents the future needs of the community.

4. Planning identifies issues that may extend beyond the local community. When issues arise that require the attention of government beyond the local level, planning provides a document that can be a basis for discussion and cooperation among governments and other various stakeholders.

Appendix A: Alternative Population Projections Assuming Slow Growth at ASU

The tables in this appendix present projections of population and housing in Boone assuming that enrollment growth at ASU slows after 2004 to just 0.67 percent annually.

Table A.1: Population Projections for the Town of Boone, 2000-2030

						% Chg.	% Chg.
	2000	2004	2010	2020	2030	2000-10	2000-30
Total	13,470	14,251	15,060	16,656	18,360	11.8%	36.3%
0 - 4	192	213	230	271	319	19.6%	66.4%
5 - 9	181	179	202	230	274	11.9%	51.6%
10 - 14	226	246	246	287	337	8.7%	49.0%
15 - 19	3,434	3,894	4,053	4,333	4,632	18.0%	34.9%
20 - 24	5,636	5,664	5,896	6,303	6,738	4.6%	19.6%
25 - 29	700	682	676	838	943	-3.4%	34.7%
30 - 34	318	330	322	354	394	1.2%	24.0%
35 - 39	297	286	294	279	343	-0.9%	15.4%
40 - 44	314	335	328	328	354	4.3%	12.7%
45 - 49	336	374	406	406	380	20.9%	13.2%
50 - 54	356	393	456	476	480	28.0%	34.8%
55 - 59	291	361	425	512	518	46.1%	78.0%
60 - 64	241	284	381	484	511	58.1%	111.9%
65 - 69	198	209	260	376	455	31.1%	129.8%
70 - 74	199	196	214	340	435	7.6%	118.7%
75 - 79	231	237	240	322	477	3.9%	106.4%
80 - 84	153	174	186	211	348	21.3%	127.3%
85+	167	194	246	308	423	47.5%	153.1%
Median Age	20.4	20.3	20.3	20.3	20.3	-0.6%	-0.5%

Table A.2: Housing Projections for the Town of Boone, 2000-2030

						% Chg.	% Chg.
	2000	2004	2010	2020	2030	2000-10	2010-30
Total Housing Units	4,768	4,875	5,147	5,683	6,256	0.8%	1.0%
Occupied Housing Units	4,378	4,631	4,890	5,399	5,943	1.1%	1.0%
Owner Occupied	1,357	1,447	1,576	1,857	2,156	1.5%	1.6%
Renter Occupied	3,021	3,184	3,314	3,543	3,787	0.9%	0.7%

As a result of the slower growth of on-campus enrollment at ASU, projected population growth shown in Table A.1 is much slower than in Table 4. In Table A.1, population is projected to grow just 1.0 percent annually from 2000 through 2030.

The demand for housing is dependent on population growth. Table A.2 shows housing projections for Boone from 2000 through 2030, assuming the slower rate of population growth shown in Table A.1. The number of renter-occupied housing units is expected to expand from 3,021 in 2000 to 3,787 in 2030, an average annual growth rate of only 0.76 percent. Owner-occupied units are projected to grow from 1,357 to 2,156, growing 1.6 percent annually.

Background of the Principal Investigator

G. Donald Jud is Professor Emeritus of Finance in the Bryan School of Business and Economics at the University of North Carolina at Greensboro and principal of *Jud & Associates*. He has taught courses in economics, finance, and real estate. Dr. Jud received his Ph.D. from the University of Iowa and MBA and BA degrees from the University of Texas. He is author of over 70 academic articles and three books.

Dr. Jud serves on the editorial boards of the *Journal of Real Estate Finance and Economics* and the *Journal of Real Estate Literature* and is a member of the *Appraisal Journal*'s academic review panel. He is a past editor of the *Journal of Real Estate Research* and continues to serve as a member of its editorial board.

Dr. Jud is a past president of the American Real Estate Society (ARES) and former ARES Director of Publications. He is a research fellow of the Homer Hoyt Advanced Studies Institute, where he is an emeritus member of the Weimer School Faculty and the Board of Directors of the Institute. Dr. Jud's research has appeared in numerous academic and professional journals including the *Appraisal Journal, American Real Estate and Urban Economics Association Journal*, *Journal of Real Estate Finance and Economics*, *Journal of Real Estate Research*, *Journal of Housing Economics*, *Journal of Financial Education, Journal of Real Estate Portfolio Management, Journal of Real Estate Practice and Education, Real Estate Issues, Journal of Property Research, Journal of Financial Economics, Land Economics, and Urban Studies*.

Dr. Jud has been a research consultant to Wachovia Bank, NC Department of Commerce, the Piedmont-Triad Partnership, the National Association of Realtors®, the NC Association of Realtors®, the Greensboro Chamber of Commerce, Downtown Greensboro, Inc., the Greensboro Regional Realtors® Association, the Starmount Company, and CME Merchant Energy.