ECONOMIC IMPACT OF REAL ESTATE DEVELOPMENT IN GUILFORD COUNTY, NC

A Report Prepared for

Triad Real Estate and Building Industry Coalition (TREBIC)

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Executive Summary

This study undertaken for the Triad Real Estate and Building Industry Coalition (TREBIC) explores the economic impact of real estate development in Guilford County, NC. It provides overall estimates of the economic impacts stemming from six representative development scenarios: 1) single-family, 2) condo/town home, 3) apartment, 4) office, 5) retail, and 6) industrial development.[1] The impacts on the county economy are examined using the IMPLAN® (IMpact Analysis for PLANing) model.

Single-Family Development: A 100-home subdivision with a construction cost of $24,221,600 is estimated to generate an average of $12,247,005 per year in additional output in the county from the initiation of construction through the first 10 years of occupancy (including the one-year construction phase). The present value of the additional output (calculated at a 4.5 percent discount rate) is $110,048,241. The average employment gain is 108 net new jobs, with an average wage of $30,001. The new development is estimated to generate an additional $748,973 in local tax revenues annually through the first 10 years of operation. The present value of the additional tax revenue is $6,382,550.

Condo/Town Home Development: A 260 unit condominium/town home development containing 80 condominiums and 180 town homes has a construction cost of $40,675,000. All of the units are assumed to be owner-occupied. It is estimated to generate an average of $22,067,636 per year in additional output. The present value of the additional output is $196,768,434. The average number of new jobs created through the first 10 years of occupancy is 200, at an average wage of $30,498 per year. The development is estimated to generate an extra $1,268,679 in local tax revenue annually. The present value of the additional tax revenue is $10,770,845.

Apartment Development: A 90,000 square foot, 100-unit apartment complex with a construction cost of $6,570,000 is estimated to generate an average of $5,941,990 per year in additional output. The present value of the additional output is $51,585,760. The average number of new jobs created through the first 10 years of occupancy is 51, at an average wage of $30,533 per year. The apartment development is estimated to generate an extra $284,526 in local tax revenue annually. The present value of the additional tax revenue is $2,402,782.

Office Development: An 80,000 square foot class A office building with a construction cost of $9,200,000 is estimated to stimulate an average of $43,025,876 in additional output annually from the start of construction through the first 10 years of operation. The present value of the extra output is $361,421,173. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 416, at an average wage of $38,111 per year. The office development is estimated to generate an extra $1,060,886 in local tax revenue annually. The present value of the additional tax revenue is $8,869,230.

Retail Development: A 100,000 square foot strip shopping center development with a construction cost of $8,500,000 is estimated to foster an average of $16,787,703 in extra output annually from construction through the first 10 years of operation. The present value of the extra output is $135,226,952. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 302, with an average annual wage of $23,669. The shopping center development is estimated to create an extra $1,042,247 in local tax revenue yearly. The present value of the extra tax revenue is $8,648,212.

Industrial Development. A 100,000 square foot industrial/warehouse facility with a construction cost of $3,700,000 is estimated to stimulate directly and indirectly an average of $21,044,272 in additional output

[1] The author wishes to acknowledge the help and advice of Frank Auman, III (Signature Properties), Chester Brown (Brown Investment Properties), Trip Brown (Brown Investment Properties), Bob Coats (NC Data Center), Dick Franks (Koury Corp.), Ron Guerra (Centex Homes), John Kavanagh (John Kavanagh Co.), Clarke Martin (Triad Apt. Assn.), Keith Price (Samet Corp.), Gary Rogers (Starmount Co.), Marlene Sanford (TREBIC), and Betty Smith (Lake Jeanette Corp.) in developing and pricing the six development scenarios. Of course, any errors are the sole responsibility of the author.

yearly through the first 10 years of operation. The present value of the extra output is $176,436,742. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 128, with an average annual wage of $42,850. The industrial facility is estimated to create an extra $557,973 in local tax revenue yearly. The present value of the extra tax revenue is $4,650,903.

Overall, for the county as a whole, the six types of real estate development are estimated to generate annually directly and indirectly a total of $1.1 billion in additional output, 10,621 net new jobs, $507 million in additional personal income, and $50.8 million in extra tax revenue locally. In relative terms, real development activity potentially directly and indirectly fosters 3.4 percent of personal income and 3.1 percent of total employment in the county annually.

Real estate development represents an addition to the capital stock of the county. The estimates of the total impact of real estate development on the county economy presented here are based on the level of building permits issued in 2004, ignoring the impacts of previous development activity that continues to affect the county's economy. Accordingly, the estimates underestimate the impact of development activity, because in the long term there would be no cities and towns in the county without the real estate development that created the communities that exist today. All of what we are today is attributable to past real estate development.

The analysis also provides estimates of the net fiscal impacts of the six types of real estate development on local government finances. Single-family residential, condo/town home, and non-residential development (office, retail, and industrial) are estimated to yield surpluses. In contrast, apartment development is projected to produce a net fiscal deficit.

Although apartment development generates negative fiscal consequences for local governments, it is nevertheless an important housing alternative. Lower income residents (teachers, policemen, firemen, etc.) cannot all afford to live in expensive new homes. A recent study by the Urban Land Institute suggests that apartment development is an efficient way to provide housing for lower-income households and generates very favorable environmental effects. These environmental effects if fully priced may eliminate the fiscal deficit estimated here and suggest that apartment development merits an important place in any overall housing development strategy.

Introduction

Real estate development transforms ideas and visions into bricks and mortar. Development employs land, labor, capital, management, and entrepreneurship to erect buildings that provide space and associated services.[2] In the process, it creates the neighborhoods, towns, and cities in which we live, work, and play. Developed real estate is an important asset class that provides a substantial store of the nation's wealth. The value of residential and commercial real estate has been estimated to amount to more than two times the value of the nation's gross domestic product (GDP) which was $11.7 trillion in 2004.[3] This study undertaken for the Triad Real Estate and Building Industry Coalition (TREBIC) explores the economic impact of real estate development in Guilford County, NC.

The first section of the report lays out the methodology used to evaluate the impacts of single-family, condo/town home, apartment, office, retail, and industrial development. It explains the impact measures and provides overall estimates of the economic impacts stemming from the six development scenarios.

The second section provides estimates of the net fiscal impacts on local government finance arising from single-family, condo/town home, apartment, office, retail, and industrial development. It assesses the impact of development activity on local government receipts and expenditures. Net fiscal impact is the difference between the revenues and expenditures generated by each of the six types of land uses. If revenues are greater than expenditures, a development scenario is described as having a positive net fiscal impact. A positive impact means that the surplus generated by the scenario will allow local tax rates to be lowered, the level of locally funded services to increase, or a combination of the two. In contrast, a negative impact raises the average cost of services to prior residents because they in effect subsidize the cost of services to new residents.

[2] See, Mike E. Miles, *et al*., *Real Estate Development*, Washington, DC: Urban Land Institute, 1991.

[3] David J. Hartzell, et al., "An Updated Look at the Size of the U.S. Real Estate Market Portfolio," *Journal of Real Estate Research*, 9(2), 1994, pp. 197-212.

Economic Impact of Real Estate Development in Guilford County

Methodology

The analysis presented here examines the economic impact of new real estate development in Guilford County, NC. Economic impact is measured in terms of 1) total additional output of all industries in the area, 2) total number of new jobs created, 3) total value added (the sum of all final goods and services produced), 4) total amount of additional personal income (the income of all persons from all sources, including wages, profits, dividends, interest, rents, and transfer payments), 5) the total amount of additional labor income, and 6) 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.

Types of Real Estate Development

The analysis explores the economic impacts of 1) single-family development, 2) condo/town home development, 3) apartment development, 4) office development, 5) retail development, and 6) industrial development.

1. Single-family Development is examined by looking at the construction and subsequent occupancy of a new 100-unit, single-family development. The assumed specifications for the single-family development are set out in Table 1. The average size of the new home was obtained from the Guilford County MLS by calculating the average size of homes less than one year old that sold in 2005. Construction and land costs were estimated in consultation with local developers.

Table 1: Single-Family Housing Development

New Home Construction	
Square Feet	2,400
No. of Stories	2
Baths	2.5
2-car attached garage	1
Brick Veneer	
Fireplace & Chimney	1
Construction cost @ 92.59/sq. ft.	$222,216
Subdivision Cost	
Number of Homes	100
Land Development	$2,000,000
Land	$2,100,000
Total Project Cost	$26,321,600

Local mortgage bankers were consulted to estimate the average income of households purchasing new homes in the county. They estimated that the price of a new home averages roughly 2.5 times

household income. Accordingly, dividing the average purchase price of the assumed new home of $263,216 by 2.5, yields an estimate of household income of $105,286. Average household size is assumed to be 2.60 persons, based on the 2000 Census estimate for homeowner households occupying an individual dwelling unit (see Appendix D).

2. Condo/Town Home Development is explored by focusing on the construction and subsequent occupancy of a project containing 80 condominiums and 180 town homes. All of the units are assumed to be owner-occupied. The assumed specifications of the condo/town home development are set out in Table 2. Project costs and specifications were formulated in consultation with local developers. The condominium units have an average square footage of 1,200 square feet. The town home units are 1,700 square feet.

Table 2: Condo/Town Home Development

Condo size (square footage)	1,200
Town Home size (square footage)	1,700
# of Condos	80
# of Town Homes	180
Condo Construction Cost per Sq. Ft.	$82.50
Town Home Construction Cost per Sq. Ft.	$87.50
Total Square Footage	402,000
Land Development Cost	$5,980,000
Total Construction Cost	$40,675,000
Land	$1,600,225
Total Cost	$42,275,225

The average price of the condominium units is $125,833, and the average price of the town home units is $178,938. The unit price is assumed to be 2.5 times the average income of buyers. Condominium buyers are assumed to have an average income of $50,332, and town home buyers are assumed to have an average income of $71,575. The average household size of owner households is assumed to be 1.67 (see Appendix D).

3. Apartment Development looks at the construction and subsequent occupancy of a 100-unit apartment complex. The assumed specifications of the apartment complex are set out in Table 3. Construction and land costs were estimated in consultation with local developers. The average rent of the 900 square foot apartment is estimated at $650 per month. The vacancy rate is assumed to be 6 percent. The average household income of occupant households is assumed to be $50,934. This income estimate is obtained using an average income to rent ratio of 6.53, calculated from the 2000 Census for renter households living in apartments (rental structures with 2 or more units). Average household size is assumed to be 1.97 persons (see Appendix D).

Table 3: Apartment Development

Number of Apartments	100
Square Feet	90,000
Number of Stories	3
Total Construction Cost	$6,570,000
Land	$730,000
Total Project Cost	$7,300,000

4. Office Development is examined by looking at the construction and subsequent occupancy of an 80,000 square foot building with class A space. The assumed specifications and costs for the office building are set forth in Table 4 and were developed in consultation with local developers.

Table 4: Office Development
(Class A)

Square Feet (pre-cast concrete)	80,000
No. of Stories	4
Construction cost	$9,200,000
Land	$1,200,000
Total	$10,400,000

It is assumed that the average number of square feet per office worker is 300. Thus, the addition of 80,000 square feet of space is associated with the employment of 267 additional workers. This estimate was obtained in consultation with local office landlords by examining actual occupant figures in existing buildings. It includes space that is currently vacant so it is consistent with current market realities.

Office workers are assumed to work in the following industries (NAICS Codes in parenthesis):

- Information (51)
- Finance and Insurance (52)
- Real Estate and Rental and Leasing (53)
- Professional and Technical Services (54)
- Management of Companies and Enterprises (55)
- Administrative and Services (561)

There were 61,801 workers employed in these six sectors in Guilford County in 2004.[4] The average wage of workers in the six sectors was $39,271.

5. Retail Development is explored by examining the construction and operation of a 100,000 square foot strip shopping center. The assumed specifications and costs of shopping center are set out in Table 5 and were developed in consultation with local developers.

Table 5: Retail Development
(Strip Center)

Square Feet (concrete block)	100,000
No. of Stories	1
Construction cost	$8,500,000
Land	$2,500,000
Total	$11,000,000

In 2004, retail sales in Guilford County for apparel, food, and general merchandise totaled $3,800,890,355. Total retail space in the county was 14,647,296 square feet, tabulated from the

[4] North Carolina Employment Security Commission, *Employment and Wages by Industry*, 2004. See: http://www.ncesc.com/lmi/industry/industryMain.asp#industryWages

Guilford County Tax Files, Parcel File (use codes 11-16).[5] Average spending per square foot of space is $259.49 ($3,800,890,355/14,647,296).

Much of the retail business in any area exists to serve the needs of local-area consumers, so any increase in retail space may simply reallocate sales from existing establishments to new ones, resulting in little net benefit to the local area. In Guilford County, however, the retail sector also serves the needs of consumers in the surrounding area because of the county's central location in the Piedmont region.

One way to gauge the relative size of the retail sector's "export base" is to calculate the sector's location quotient (LQ).[6] The location quotient is defined as:

$$(1) \qquad LQ = (RS_L/PI_L)/ (RS_N/PI_N)$$

where,

RS_L = retail sales in the local area,
PI_L = personal income in the local area,
RS_N = retail sales in the nation,
PI_N = personal income in the nation.

If the LQ is greater than one, a portion of the local retail industry can be assumed to exist to serve consumers from outside the local area. Using data from 1998-2004, the average retail sector LQ is 1.82, which suggests that 45.1 percent (0.82/1.82) of the county's retail sector is export based: that is, it exists to serve the needs of consumers from outside the county. Accordingly, in computing the economic impact of retail development, it is assumed that 45.1 percent of the computed rise in economic activity during the operating phase represents a net benefit of county retail development.

6. Industrial Development is assessed by assuming the construction of a 100,000 square foot warehouse/manufacturing facility. The specifications and for the industrial development project are listed in Table 6. The cost of the facility includes 5,000 square feet of office space. The cost estimates presented in Table 6 were developed in consultation with local industrial developers. Their experience suggests that one new industrial job is associated with 1,333 square feet of industrial space. Therefore, 100,000 square feet of new industrial space is expected to be associated with 75 new jobs. In 2004, there were 41,776 manufacturing and warehouse workers in Guilford County with an average wage of $44,395.[7]

Table 6: Industrial Development

Warehouse/Manufacturing Facility	
Square Feet (steel frame)	100,000
Office Space (included in total)	5,000
No. of Stories	1
Total Construction cost	$3,700,000
Land	$800,000
Total	$4,500,000

[5] These use codes encompass convenience stores, department stores, supermarkets, and shopping centers.

[6] See, Andrew M. Isserman, "The Location Quotient Approach for Estimating Regional Economic Impacts," *Journal of the American Institute of Planners* 43 (1977): 33-41.

[7] North Carolina Employment Security Commission, *ob. cit*.

Table 7: Economic Impact of Single-Family Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$24,221,600	n.a.	n.a.	n.a.	n.a.
Output (2005)	$40,256,188	$9,446,087	$12,247,005	$110,048,241	$505,623
Employment	377	81	108	n.a.	4.5
Value Added	$17,954,402	$4,301,152	$5,542,357	$49,749,479	$228,819
Personal Income	$16,712,345	$3,844,744	$5,014,526	$45,104,996	$207,027
Labor Income	$12,451,649	$2,315,990	$3,237,414	$29,452,082	$133,658
Ave. Income/Worker	$33,028	$28,592	$30,001	n.a.	n.a.
Local Tax Revenue	$722,065	$751,663	$748,973	$6,382,550	$30,922

*Including construction phase, calculated using an interest rate of 4.5 percent.

Table 8: Economic Impact of Condo/Town Home Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$40,675,000	n.a.	n.a.	n.a.	n.a.
Output (2005)	$64,900,361	$17,784,363	$22,067,636	$196,768,434	$542,536
Employment	713	149	200	n.a.	4.9
Value Added	$32,147,515	$8,093,515	$10,280,242	$92,047,099	$252,741
Personal Income	$30,397,533	$7,211,384	$9,319,216	$83,692,997	$229,114
Labor Income	$23,857,361	$4,333,067	$6,108,003	$55,639,903	$150,166
Ave. Income/Worker	$33,461	$29,081	$30,498	n.a.	n.a.
Local Tax Revenue	$1,020,273	$1,293,520	$1,268,679	$10,770,845	$31,191

*Including construction phase, calculated using an interest rate of 4.5 percent.

Table 9: Economic Impact of Apartment Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$6,570,000	n.a.	n.a.	n.a.	n.a.
Output (2005)	$10,482,984	$5,487,891	$5,941,990	$51,585,760	$904,413
Employment	115	45	51	n.a.	7.8
Value Added	$5,192,604	$2,476,392	$2,723,320	$23,720,188	$414,508
Personal Income	$4,909,940	$2,206,935	$2,452,663	$21,409,373	$373,312
Labor Income	$3,853,543	$1,339,759	$1,568,285	$13,832,228	$238,704
Ave. Income/Worker	$33,509	$29,772	$30,533	n.a.	n.a.
Local Tax Revenue	$164,799	$296,498	$284,526	$2,402,782	$43,307

*Including construction phase, calculated using an interest rate of 4.5 percent.

Table 10: Economic Impact of Office Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$9,200,000	n.a.	n.a.	n.a.	n.a.
Output (2005)	$15,275,045	$45,800,959	$43,025,876	$361,421,173	$4,676,726
Employment	192	438	416	n.a.	45.2
Value Added	$7,772,426	$28,473,142	$26,591,259	$223,035,765	$2,890,354
Personal Income	$7,334,827	$26,491,744	$24,750,206	$207,613,906	$2,690,240
Labor Income	$6,473,424	$16,777,007	$15,840,318	$133,229,811	$1,721,774
Ave. Income/Worker	$33,716	$38,304	$38,111	n.a.	n.a.
Local Tax Revenue	$164,834	$1,150,491	$1,060,886	$8,869,230	$115,314

*Including construction phase, calculated using an interest rate of 4.5 percent.

Table 11: Economic Impact of Retail Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$8,500,000	n.a.	n.a.	n.a.	n.a.
Output (2005)	$14,112,813	$17,055,192	$16,787,703	$135,226,952	$1,975,024
Employment	178	314	302	n.a.	35.5
Value Added	$7,181,045	$12,323,524	$11,856,026	$96,409,904	$1,394,827
Personal Income	$6,776,743	$10,358,871	$10,033,223	$81,359,263	$1,180,379
Labor Income	$5,980,881	$7,256,805	$7,140,812	$57,527,308	$840,096
Ave. Income/Worker	$33,600	$23,106	$23,669	n.a.	n.a.
Local Tax Revenue	$100,764	$1,136,395	$1,042,247	$8,648,212	$122,617

*Including construction phase, calculated using an interest rate of 4.5 percent.

Table 12: Economic Impact of Industrial Development

	Construction Phase	Occupancy Phase	Ave. Ann. Impact through 1st 10 years of Operation	Net Present Value of 1st 10 years of Operation*	Ave. Ann. Impact Through the 1st 10 years of Operation Per $1,000,000 of Construction Cost
Construction Expenditure	$3,700,000	n.a.	n.a.	n.a.	n.a.
Output (2005)	$5,783,901	$22,570,309	$21,044,272	$176,436,742	$5,687,641
Employment	73	133	128	n.a.	34.5
Value Added	$3,136,552	$10,301,057	$9,649,738	$81,000,874	$2,608,037
Personal Income	$2,992,947	$9,244,324	$8,676,017	$72,861,892	$2,344,869
Labor Income	$2,507,849	$5,761,027	$5,465,284	$46,022,232	$1,477,104
Ave. Income/Worker	$34,354	$43,316	$42,850	n.a.	n.a.
Local Tax Revenue	$17,278	$612,042	$557,973	$4,650,903	$150,803

*Including construction phase, calculated using an interest rate of 4.5 percent.

Economic Impacts

The estimated economic impacts of the six types of real estate development are shown in Tables 7 – 12. The tables separate the impacts of the construction phase that arise because of construction expenditures, from the impacts that occur during the occupancy phase. The tables show the average impacts over the first 10 years of occupancy, assuming that the construction phase lasts one full year. Also shown are the present values of the impact measures which are calculated assuming a 4.5 percent rate of discount.[8]

The impacts on local property and sales tax revenues are calculated using the IMPLAN model. Property taxes on the new development are assessed during the occupancy phase. The weighted average tax rate for the county is estimated at $1.08876 per $100 valuation. Details of the calculation of this rate are shown in Appendix A. Other county revenues arising from other taxes, sales and services, and various miscellaneous revenues are calculated on the assumption that these other revenues comprise 41.2 percent of consolidated tax revenues in the county, excluding debt proceeds and intergovernmental transfers. Appendix B shows the consolidated tax revenues in 2004 for the county's 12 taxing districts.

1. Single-Family Development: The 100-home subdivision has a construction cost of $24,221,600. During the occupancy phase, the county benefits from the expenditures of the 100 households that occupy homes in the new development, assuming that the households would not reside in the county if the development were not constructed. The average income of the households is estimated at $105,286, as discussed above. Households at this income level are estimated to spend 67.8 percent of their before-tax income.[9]

   The residential project is estimated to generate an average of $12,247,005 per year in additional output in the county from the initiation of construction through the first 10 years of occupancy (Table 7). The present value of the additional output is $110,048,241. The average employment gain is 108 net new jobs, with an average wage of $30,001.[10] The new development is estimated to generate an additional $748,973 in local tax revenues annually through the first 10 years of operation. The present value of the additional tax revenue is $6,382,550.

   The last column in Table 7 shows the average annual impacts per $1,000,000 of construction expenditure. For example, single-family development is estimated to generate $505,623 in additional output per $1,000,000 of construction expenditure. Likewise, it creates 4.5 new jobs and $30,922 in additional local tax revenue per $1,000,000 of construction expenditure.

2. Condo/Town Home Development: The 260-unit condominium/town home development has a construction cost of $40,675,000. During the occupancy phase, the county benefits for the expenditures of the 260 households that occupy the new development, assuming that the households would not live in the county if the development were not constructed. The average income of the condominium households is $50,332 and that of the town home households is $71,575. Households at these income levels are assumed to spend 87.3 percent and 77.4 percent respectively of their pre-tax incomes.[11]

   The condominium/town home project is estimated to generate an average of $22,067,636 per year in additional output in the county from the initiation of construction through the first 10 years of occupancy (Table 8). The present value of the additional output is $196,768,434. The average employment gain is 200 net new jobs, with an average wage of $30,498. The new development is

[8] This rate approximates the long-term municipal bond rate over the past two years, see http://www.federalreserve.gov/releases/h15/data/m/slbond.txt.

[9] See, Bureau of Labor Statistics, Survey of Consumer Expenditures, 2003.

[10] The average wage in the county in 2004 was $35,776. See, NC Employment Security Commission, http://eslmi23.esc.state.nc.us/ew/EWGeoArea.asp?Report=1&Year=2004&Period=00

[11] Bureau of Labor Statistics, *op. cit*.

estimated to generate an additional $1,268,679 in local tax revenues annually through the first 10 years of operation. The present value of the additional tax revenue is $10,770,845.

For every $1,000,000 of construction expenditures, condominium/town home development is estimated to generate $542,536 in extra output, $31,191 in additional local tax revenue, and 4.9 net new jobs.

3. Apartment Development: The 90,000 square foot, 100-unit complex has a construction cost of $6,570,000. Benefits during the occupancy phase derive from the expenditures of the households that occupy the complex, assuming that the households would not reside in the county if the project were not constructed. The vacancy rate is assumed to be 6 percent. The average income of the renter households is estimated at $50,934, as discussed above. Households at this income level are estimated to spend 87.0 percent of their pre-tax income.[12]

   The apartment development is estimated to generate an average of $5,941,990 per year in additional output (Table 9). The present value of the additional output is $51,585,760. The average number of new jobs created through the first 10 years of occupancy is 51, at an average wage of $30,533 per year. The apartment development is estimated to generate an extra $284,526 in local tax revenue annually. The present value of the additional tax revenue is $2,402,782.

   For every $1,000,000 of construction expenditures, the apartment development is estimated to generate $904,413 in extra output, $43,307 in additional local tax revenue, and 7.8 net new jobs.

4. Office Development: The 80,000 square foot office building has a construction cost of $9,200,000. During the occupancy phase, benefits to the county are derived from the spending associated with the employment of the estimated 267 workers who produce an estimated $30,050,000 of output annually.[13]

   In total, the office development is estimated to stimulate an average of $43,025,876 in additional output annually from the start of construction through the first 10 years of operation (Table 10). The present value of the extra output is $361,421,173. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 416, at an average wage of $38,111 per year. The office development is estimated to generate an extra $1,060,886 in local tax revenue annually. The present value of the additional tax revenue is $8,869,230.

5. Retail Development: The 100,000 square foot shopping center development has a construction cost of $8,500,000. During the occupancy phase, benefits to the county are derived from the additional retail spending and increased employment associated with the operation of the new shopping center. As discussed, the new center is expected to generate $259.49 in retail spending per square foot of space. Based on the analysis of the retail sector's location quotient outlined previously, it is estimated that 45.1 percent of the new spending during the occupancy phase would not occur in the county if the new facility were not constructed.

   The retail development project is estimated to foster an average of $16,787,703 in extra output annually from construction through the first 10 years of operation (Table 11). The present value of the extra output is $135,226,952. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 302, with an average annual wage of $23,669. The shopping center development is estimated to create an extra $1,042,247 in local tax revenue yearly. The present value of the extra tax revenue is $8,648,212.

6. Industrial Development. The 100,000 square foot industrial/warehouse facility has a construction cost of $3,700,000. During the occupancy phase, the county economy benefits from the additional employment and production fostered by the development of the industrial facility. As outlined above, the 100,000 square feet of industrial/warehouse space is assumed to be associated with 75 new

[12] *Ibid.*

[13] This estimate of direct output is derived from the employment-output multipliers of the IMPLAN model.

industrial jobs. The new employment is expected to be directly associated with $17,000,000 of extra output each year.

The construction expenditures and the increased industrial production will stimulate directly and indirectly an estimated average of $21,044,272 in additional output yearly through the first 10 years of operation (Table 12). The present value of the extra output is $176,436,742. The average number of new jobs generated directly and indirectly through the first 10 years of occupancy is 128, with an average annual wage of $42,850. The industrial facility is estimated to create an extra $557,973 in local tax revenue yearly. The present value of the extra tax revenue is $4,650,903.

Impact of Real Estate Development on the Guilford County Economy

Building permits represent *planned* construction activity. County and municipal records along with Census Bureau tabulations reveal the following permit activity in the county in 2004: 1) single-family permits, 9,216,000 square feet, 2) condo/town home permits, 1,030,410 square feet, 3) apartment permits, 424,800 square feet, 4) office permits, 562,215 square feet, 5) retail permits, 813,650 square feet, and 6) industrial permits, 271,214 square feet.

Assuming that planned construction is actually put in place, building permits can be used to estimate the potential impact of real estate development on the Guilford county economy. Table 13 shows the level of building permit activity for each of the six development scenarios along with associated impact multipliers. The impact multipliers show the total effect on economic activity that can be expected from the construction of 1,000 square feet of space. The multipliers are developed by taking the average annual impacts through the first 10 years of operation shown in Tables 7-12 and dividing them by the number of square feet of each development scenario in 1,000s. For example, in the case of single-family development, the total project size is 240,000 square feet (100 homes times 2,400 sq. ft. each). The estimated average annual impact on total output through the first 10 years is $12,247,005 (Table 7). The single-family multiplier for output shown in Table 13 is $51,029 ($12,247,005/240).

Multiplying the impact multipliers times the permitted number of square feet in 1,000s for each development scenario yields an estimate of economic impact. The estimated annual impacts are shown in Table 13. They represent an economic annuity that accrues to the county because of the new development. Looking at single-family development, for example, the total estimated annual impact is $470 million in additional annual output, 4,144 net new jobs, and $28.8 million in additional local tax revenue. Overall, for the county as a whole, Table 13 shows a total estimated potential annual impact arising from all six types of real estate development of $1.1 billion in additional output, 10,621 net new jobs, $507 million in additional personal income, and $50.8 million of extra tax revenue locally.

Wood & Poole Economics estimates that in 2004 personal income in Guilford County totaled $14.7 billion and total employment was 341,600.[14] These estimates provide a perspective by which to assess the estimated potential annual impacts of real estate development shown in Table 13. Real estate development potentially contributes annually directly and indirectly 3.4 percent of personal income and 3.1 percent of total employment in the county.

Real estate development represents an addition to the capital stock of the county. The estimates of the total impact of real estate development on the county economy presented here are based on the level of building permits issued in 2004, ignoring the impacts of previous development activity that continues to affect the county's economy. Accordingly, the estimates underestimate the impact of development activity, because in the long term there would be no cities and towns in the county without the real estate development that created the communities that exist today. All of what we are today is attributable to past real estate development.

[14] See, Woods & Poole Economics, *2004 Complete Economic and Demographic Data Source* (Washington, DC, 2004).

Table 13: The Annual Impact of Real Estate Development on the Guilford County Economy

	Output	Employment	Value Added	Personal Income	Labor Income	Local Tax Revenue
Single-Family						
Multipliers	$51,029	0.45	$23,093	$20,894	$13,489	$3,121
Building Permits, sq. ft.	9,216,000					
Estimated Impact	$470,285,002	4,144	$212,826,491	$192,557,795	$124,316,680	$28,760,546
Condo/Town Home						
Multipliers	$54,895	0.50	$25,573	$23,182	$15,194	$3,156
Building Permits, sq. ft.	1,030,410					
Estimated Impact	$56,563,961	513	$26,350,409	$23,887,097	$15,656,088	$3,251,890
Apartment						
Multipliers	$66,022	0.57	$30,259	$27,252	$17,425	$3,161
Building Permits, sq. ft.	424,800					
Estimated Impact	$28,046,195	242	$12,854,072	$11,576,568	$7,402,304	$1,342,961
Office						
Multipliers	$537,823	5.20	$332,391	$309,378	$198,004	$13,261
Building Permits, sq. ft.	562,215					
Estimated Impact	$302,372,410	2,921	$186,875,057	$173,936,714	$111,320,802	$7,455,575
Retail						
Multipliers	$167,877	3.02	$118,560	$100,332	$71,408	$10,422
Building Permits, sq. ft.	813,650					
Estimated Impact	$136,593,149	2,455	$96,466,554	$81,635,321	$58,101,215	$8,480,244
Industrial						
Multipliers	$210,443	1.28	$96,497	$86,760	$54,653	$5,580
Building Permits, sq. ft.	271,214					
Estimated Impact	$57,075,012	346	$26,171,441	$23,530,573	$14,822,614	$1,513,300
Total Estimated Impact	$1,050,935,729	10,621	$561,544,024	$507,124,068	$331,619,703	$50,804,516

Fiscal Impact Analysis of Real Estate Development in Guilford County

Fiscal impact analysis refers to efforts to estimate the effects of various types of land uses on local government budgets.[15] It assesses the impact of development activity on both government receipts and expenditures. The net fiscal impact is the difference between the revenues and expenditures generated by the proposed land use or development scenario. If revenues are greater than expenditures, a project or scenario is described as having a positive net fiscal impact.

It is difficult to estimate precisely the level of government services consumed by any group of persons or employees. The standard adopted here is to compare the average local government revenues generated per capita by the development from construction through the first 10 years of operation with the average revenues collected from residents currently in the county. This approach assumes that new residents consume the same mix of local government services as existing residents.[16] If the average level of revenues generated is greater than the current average of all persons in the county, the project is presumed to produce a positive net fiscal impact. A positive impact means that the surplus generated by the proposed project will allow local tax rates to be lowered, the level of locally funded services to increase, or a combination of the two. In contrast, a negative impact raises the average cost of services to prior residents because they in effect subsidize the cost of services to new residents.[17]

In evaluating the impact of new real estate development on local government in Guilford County, it is important to understand clearly the magnitude of current revenue collections. Appendix B shows the amount of revenue collected by the county's 12 governmental units in 2004. The data are from the North Carolina Department of State Treasurer.

Total collections were $1,014,496,436, or $2,312 per capita. But $167,421,701, or $382 per capita, was from intergovernmental transfers and debt proceeds which should be excluded in a comparison with new development because they do not originate from the direct taxation of current local residents. If these two sources are excluded, the average revenue collected by local government from local residents was $1,930 in 2004.

Table 14 presents a fiscal analysis of the six types of real estate development in Guilford County. Column (1) of the table shows the average additional yearly local tax revenue generated by each type of real estate development during the occupancy phase. The numbers in column (1) are taken from Tables 7 – 12 for each type of development respectively.

[15] Robert W. Burchell *et al*., *The Fiscal Impact Handbook: Estimating Local Costs and Revenues of Land Development* (New Brunswick, NJ: Center for Urban Policy Research, 1978) and Michael L. Siegel and Susan Robinson, "Fiscal Impact Analysis: What It Is and How to Use It," The Government Finance Officers Association, Research Bulletin, September 1990.

[16] The same approach was employed in Mark G. Dotzour, "New Subdivisions Pay Their Own Way," *Terra Grande*, January 1998, pp. 1-5.

[17] The analysis ignores the permit fees and other charges paid by developers for zoning requests, inspections, utility hookups, etc. The assumption here is that the level of these fees approximates the cost to local government of providing the associated services, and, therefore, the revenue impact is assumed to be neutral.

Table 14: Fiscal Analysis of New Real Estate Development in Guilford County

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Average Annual Local Tax Revenues Through the 1st 10 Years of Operation	Added Population*	Added Revenue Per Capita	Expected County Revenues Per Capita**	Net Fiscal Surplus or (Deficit) Per Capita	Total Ann. Net Fiscal Surplus or (Deficit)	Net Present Value of 1st 10 years of Operation	Net Present Value per $1,000,000 of Project Cost
Single-Family Development	$751,663	369	$2,037	1,960	$77	$28,413	$224,824	$9,282
Condo/Town Home Development	$1,293,520	634	$2,040	1,744	$296	$187,664	$1,484,932	$36,507
Apartment Development	$296,498	245	$1,210	1,824	($614)	($150,430)	($1,190,310)	($181,174)
Office Development	$1,150,491	588	$1,957	1,930	$27	$15,876	$125,622	$13,655
Retail Development	$1,136,395	421	$2,699	1,930	$769	$323,749	$2,561,735	$301,381
Industrial Development	$612,042	178	$3,438	1,930	$1,508	$268,424	$2,123,963	$574,044

*Added population (column 2) is calculated by taking the number of new residents projected to occupy the new developments (for residential this is 260 and for apartment development it is 185) plus the number of new jobs created during the occupancy phase (Tables 7-12) times the county population/employment ratio (1.34).

**Revenues for single-family development, condo/town home development, and apartment development are adjusted to reflect differences in the average number of school-age children and number of automobiles as they affect city and county expenditures on education and transportation.

Column (2) shows the expected additional population generated by each of the six project types. Expected population is calculated by taking the number of new residents projected to occupy the new developments (for residential this is 260 and for apartment development it is 185) plus the number of new jobs created during the occupancy phase (from Tables 7-12) times the county population/employment ratio (1.34). For example, with single-family development, 260 persons are expected to live in the new development (100 new households times 2.60 persons per household). In addition, Table 7 reveals 81 new jobs will be created because of the additional spending generated by the new resident households in the occupancy phase. Multiplying 81 jobs times the average county population/employment ratio (1.34) suggests an additional increase in population of 109 persons. As a result, county population can be expected to increase by 369 persons (260 + 109). For non-residential development, expected population is calculated by taking the added employment in the occupancy phase times 1.34 (the county population/employment ratio). For example, for industrial development, employment in the occupancy phase is expected to expand by 133 jobs (Table 12). Multiplying 133 times 1.34, gives the expected increase in population of 178 persons.

Column (3) shows the additional tax revenue per capita generated by each of the six development scenarios. It is calculated by dividing column (1) by column (2).

Column (4) shows expected local tax revenues collected at the combined city and county level per capita. If every new resident consumed the same level of city and county services as existing residents, local governments would expect to collect $1,930 per capita, the actual average local tax revenues collected per capita in 2004. New residents projected as a result of non-residential (office, retail, and industrial) development are assumed to consume the same level of city and county services as existing residents, and, therefore, are expected to generate $1,930 of tax revenue per capita.

Census data reveal that single-family, condo/town home, and apartment residents differ in the number of school-age children they have and the number of automobiles they own (see Appendix D). Single-family households have 9.3 percent more school-age children and 12.4 percent more automobiles than the average of all county households. In contrast, apartment households have 35.0 percent fewer school-age children and 27.4 percent fewer automobiles. Education expenditures are 17.0 percent of the combined local government budget, and transportation expenditures are 4.8 percent (see, Appendix C). Adjusting the average revenue figure for the differences in school-age children and number of automobiles shows that single-family residents should expect to pay $1,960, condo/town home residents $1,744, and apartment residents $1,826 per capita. Accordingly, these figures are included in Table 14, column (4), in calculating the net fiscal surplus (deficit) for single-family, condo/town home, and apartment development.[18]

Column (5) shows the expected net fiscal surplus or deficit from each type of development on a per capita basis. It is calculated by subtracting column (4) from column (3). Column (6) shows the total annual fiscal

[18] The adjustments are calculated as shown the following table:

	Population	Education	Transportation	Other	Total
Single-Family					
Direct	260	$359	$104	$1,509	$1,972
Induced	109	$328	$93	$1,509	$1,930
Total	369				$1,960
Condo/Town Home					
Direct	434	$84	$66	$1,509	$1,659
Induced	200	$328	$93	$1,509	$1,930
Total	634				$1,744
Apartment					
Direct	185	$214	$67	$1,509	$1,790
Induced	60	$328	$93	$1,509	$1,930
Total	245				$1,824

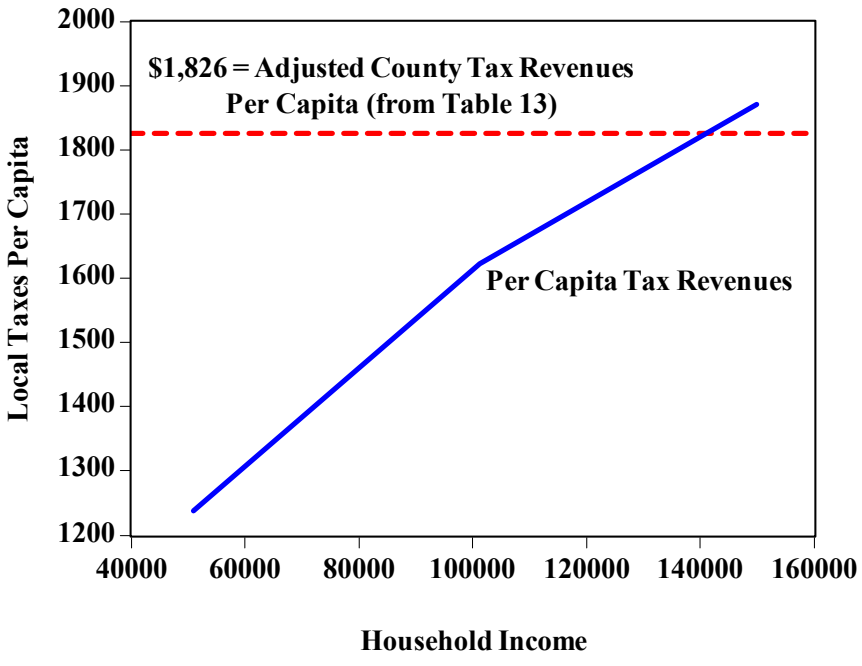
In the education and transportation columns, the adjusted estimates are calculated by taking the average expenditure figure ($1,930) times the share of that type of expenditures in the county budget times the relative share of the housing class. For example, the education adjustment for single-family housing is $1,930 * 0.17 * 1.093 = $359.

surplus or deficit. It is calculated by multiplying column (2) times column (5). Column (7) shows the net present value of the annual surplus or deficit through the first 10 years of occupancy calculated at 4.5 percent. Column (8) shows the net present value of the surplus or deficit standardized per $1,000,000 of construction expenditure. Apartment development is projected to generate a net fiscal deficit. In contrast, single-family residential, condo/town home, and non-residential (office, retail, and industrial) developments yield surpluses.[19]

The net fiscal deficit produced by apartment development is not surprising given that the average income of apartment households is substantially below the average income of all county households. In 2004, the mean household income in Guilford County was $80,497, while the average income of apartment households in this analysis was estimated to be $50,934.[20] The lower income of apartment households fosters less spending and accordingly lower revenues to county governments from sales and other taxes.

Figure 1 illustrates the relationship between the household income of apartment dwellers and added local tax revenue generated per capita (shown in Figure 1 as a solid line). The fiscal deficit (surplus) is the difference between the dashed line ($1,826, which is the adjusted county revenues per capita, from Table 14) and the solid line (per capita tax revenues), which depicts estimated per capita tax revenues generated by apartment development at various levels of household income. The solid line shows that increasing income, assuming all other things equal, increases average tax collections, but the relationship is very inelastic, that is, the percentage increase in collections is much lower than the percentage change in income. This is because Figure 1 assumes that property taxes paid by the apartment dwellers do not change when income changes. They are assumed to reside in the same quality of structure as income rises.

Figure 1: Tax Revenues and Apartment Household Income



[19] The analysis does not consider the effect of development incentives that are often provided by local governments as a stimulus to non-residential development.

[20] Woods & Poole Economics, *The Complete Economic and Demographic Data Source*, Washington, DC, 2004. The 2000 Census estimates the average income of owner-occupant households is $70,944, while that of renter-occupant households is $34,788.

Although apartment development may generate negative fiscal consequences for local governments, it is nevertheless an important housing alternative. Lower income residents (teachers, policemen, firemen, etc.) cannot all afford to live in expensive new homes. A recent study by the Urban Land Institute suggests that apartment development is an efficient way to provide housing for lower-income households.[21]

- By housing more people on less land, apartment development makes possible the preservation of more open space and natural features than do single-family housing developments. For example, in Greensboro and High Point, nearly 40 percent of all dwelling units are multi-family but are located on just 9 percent of the land, while the remaining 60 percent of dwelling units are single-family and occupy about 55 percent of the land.[22]

- The higher densities of apartment developments reduce developmental pressures on the remaining underdeveloped land in an area.

- Because apartment development is more compact, it causes less land disturbance and creates fewer impervious surfaces, reducing water run-off and drainage problems.

- Apartment development that is clustered along transportation corridors make various kinds of mass transportation more feasible.

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

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

The foregoing list of potential benefits if fully priced may potentially eliminate the fiscal deficit estimated here and suggests that apartment development merits an important place in any overall housing development strategy.

[21] Richard M. Haughey, *The Case for Multifamily Housing* (Washington, DC: Urban Land Institute, 2003).
[22] Guilford County Planning Department.

Appendix A: Guilford County Property Tax Rates

Table A.1: Guilford County Property Tax Rates, 2005
(in dollars per $100 valuation)

2005 GUILFORD COUNTY RATE CODES

RC	COUNTY	CITY	OTHER	FIRE DISTRICT	COUNTY	TOTAL
01	GUILFORD	GREENSBORO			0.64280	1.21030
02	GUILFORD	HIGH POINT			0.64280	1.23580
03	GUILFORD				0.64280	
04	GUILFORD			MOUNT HOPE	0.72280	
06	GUILFORD	JAMESTOWN			0.64280	0.99280
07	GUILFORD	GIBSONVILLE	(CITY TOTAL COLLECTED FOR RMV'S)		0.64280	1.15780
08	GUILFORD			CLIMAX	0.71980	
12	GUILFORD			SOUTHEAST	0.74280	
14	GUILFORD			JULIAN	0.73380	
16	RANDOLPH	HIGH POINT				0.59300
17	DAVIDSON	HIGH POINT				0.59300
18	FORSYTH	HIGH POINT				0.59300
19	GUILFORD	GREENSBORO	AYCOCK HISTORICAL		0.64280	1.26030
20	GUILFORD	GREENSBORO	COLLEGE HILL HISTORICAL		0.64280	1.26030
24	GUILFORD	GREENSBORO	DOWNTOWN IMPROVEMENT DIST		0.64280	1.30030
25	GUILFORD	HIGH POINT	MUNICIPAL SERVICE		0.64280	1.23580
31	GUILFORD	HIGH POINT	SPECIAL HWY CORRIDOR		0.12856	0.24716
32	GUILFORD	OAK RIDGE		OAK RIDGE	0.72910	0.81160
33	GUILFORD	OAK RIDGE		COLFAX	0.74280	0.82910
34	GUILFORD	OAK RIDGE		SUMMERFIELD	0.73030	0.81660
36	GUILFORD	BURLINGTON			0.64280	1.19780
45	GUILFORD			KIMESVILLE	0.74280	
47	GUILFORD	PLEASANT GARDEN		PLEASANT GARDEN	0.73780	0.78780
48	GUILFORD	ARCHDALE	(CITY TOTAL COLLECTED FOR RMV'S)	GUIL-RAND	0.72890	0.98890
52	GUILFORD		SPECIAL HWY CORRIDOR	GUIL-RAND	0.14578	
53	GUILFORD			GUIL-RAND	0.72890	
56	GUILFORD			ALAMANCE	0.72470	
57	GUILFORD			SUMMERFIELD	0.73030	
58	GUILFORD			DEEP RIVER #18	0.71980	
59	GUILFORD	SUMMERFIELD		OAK RIDGE	0.72530	0.77530
60	GUILFORD	SUMMERFIELD		GUILFORD COLLEGE	0.71530	0.76530
61	GUILFORD			GUILFORD COLLEGE	0.71530	
62	GUILFORD			MCLEANSVILLE	0.70280	
63	GUILFORD			OAK RIDGE	0.72530	
64	GUILFORD			PINECROFT-SEDGEFIELD	0.72880	
65	GUILFORD	PLEASANT GARDEN		ALAMANCE	0.72470	0.77470
66	GUILFORD			PLEASANT GARDEN	0.73780	
67	GUILFORD			RANKIN #13	0.74280	
68	GUILFORD	STOKESDALE		STOKESDALE	0.72010	
69	GUILFORD			SUMMERFIELD	0.73030	
70	GUILFORD			FRANKLIN BLVD #14	0.72380	
88	GUILFORD			COLFAX	0.74280	
89	GUILFORD	SUMMERFIELD		SUMMERFIELD	0.73030	0.78030
90	GUILFORD	WHITSETT		WHITSETT	0.70600	
91	GUILFORD		SEDGEFIELD SANITARY	PINECROFT-SEDGEFIELD	0.76880	
92	GUILFORD	SEDALIA		MCLEANSVILLE	0.70280	0.90280
93	GUILFORD			FRIEDENS #28	0.73780	
95	GUILFORD			WHITSETT	0.70600	
97	GUILFORD			NORTHEAST	0.72280	

SPECIAL TAX DISTRICT CODES		
21	AYCOCK HISTORIC DISTRICT	0.0500
22	GREENSBORO DOWNTOWN IMP DIST	0.0900
23	COLLEGE HILL HISTORIC DISTRICT	0.0500
49	JAMESTOWN (CITY ONLY)	0.3500
50	HIGH POINT (CITY ONLY)	0.5930
51	GREENSBORO (CITY ONLY)	0.5675
71	SEDALIA (CITY ONLY)	0.2000
72	SUMMERFIELD (CITY ONLY)	0.0500
28	OAK RIDGE (CITY ONLY)	0.0863
	ARCHDALE (CITY ONLY)	0.2600
	GIBSONVILLE (CITY ONLY)	0.5150
	BURLINGTON (CITY ONLY)	0.5550
94	SEDGEFIELD SANITARY DISTRICT	0.0400
30	PLEASANT GARDEN (CITY ONLY)	0.0500

SPECIAL FIRE DISTRICTS ONLY		
09	CLIMAX	0.07700
13	SOUTHEAST	0.10000
15	JULIAN	0.09100
46	KIMESVILLE	0.10000
73	ALAMANCE	0.08190
74	SUMMERFIELD	0.08750
75	DEEP RIVER #18	0.07700
76	GUIL-RAND	0.08610
77	GUILFORD COLLEGE	0.07250
78	MCLEANSVILLE	0.06000
79	OAK RIDGE	0.08250
80	PINECROFT-SEDGEFIELD	0.08600
81	FRIEDENS #28	0.09500
82	PLEASANT GARDEN	0.09500
83	RANKIN #13	0.10000
84	STOKESDALE	0.07730
85	SUMMERFIELD	0.08750
86	FRANKLIN BLVD #14	0.08100
87	COLFAX	0.10000
96	WHITSETT	0.06320
98	NORTHEAST	0.08000
99	MOUNT HOPE	0.08000

REVISED 6/29/05

Source: http://www.co.guilford.nc.us/government/tax/2005_RATES.pdf

Table A.1 shows the 2005 property tax rates in Guilford County and its political subdivisions. For example, the rate per $100 valuation in Greensboro is a combined $1.2103, while the rate outside the city in the county is $0.6428.

Table A.2 shows the calculation of the 2005 weighted average tax rate for Guilford County. The table shows the number and assessed value all properties in the 97 rate codes (taxing districts shown in Table A.1) in the county. The values were computed from data taken from Guilford County Appraisal Data File, July 1, 2005. The weighed average tax rate is calculated using the total assessed value of each taxing district as the weights. The weighted average county tax rate is $1.08876.

Table A.2: Calculation of Weighted Average County Tax Rate

Rate Code	Number of Properties	Average Value	Total Assessed Value	Tax Rate	Weighted Average Calculation
1	85,415	223,511	$19,091,215,127	1.21030	0.62400
2	38,741	164,081	$6,356,669,382	1.23580	0.21214
3	464	94,859	$44,014,502	0.64280	0.00076
4	2,317	126,580	$293,285,489	0.72280	0.00572
6	1,596	240,055	$383,127,253	0.99280	0.01027
7	1,420	107,006	$151,948,804	1.15780	0.00475
8	724	96,800	$70,083,403	0.71980	0.00136
12	1,083	98,379	$106,544,197	0.74280	0.00214
14	441	98,117	$43,269,399	0.73380	0.00086
16	47	765,005	$35,955,255	0.00000	0.00000
17	1,249	160,242	$200,142,658	0.00000	0.00000
18	5	408,100	$2,040,500	0.00000	0.00000
19	277	167,437	$46,380,099	1.26030	0.00158
20	483	212,535	$102,654,448	1.26030	0.00349
24	780	862,392	$672,665,627	1.30030	0.02362
25	305	2,272,028	$692,968,549	1.23580	0.02313
31	27	19,559	$528,100	0.24716	0.00000
32	2,578	209,043	$538,912,802	0.81160	0.01181
33	6	136,067	$816,400	0.82910	0.00002
34	3	94,033	$282,100	0.81660	0.00001
36	25	567,798	$14,194,950	1.19780	0.00046
45	696	94,802	$65,982,498	0.74280	0.00132
47	2,292	128,722	$295,031,580	0.78780	0.00628
48	195	96,278	$18,774,300	0.98890	0.00050
52	4	23,425	$93,700	0.14576	0.00000
53	1,087	75,984	$82,594,401	0.72890	0.00163
56	5,383	132,077	$710,972,375	0.72470	0.01391
57	231	161,680	$37,347,999	0.73030	0.00074
58	1,010	161,060	$162,670,095	0.71980	0.00316
59	155	229,990	$35,648,400	0.77530	0.00075
60	113	208,757	$23,589,500	0.76530	0.00049
61	3,824	225,651	$862,888,697	0.71530	0.01667
62	4,444	147,380	$654,956,142	0.70280	0.01243
63	993	172,314	$171,107,504	0.72530	0.00335
64	8,085	140,026	$1,132,108,997	0.72880	0.02228

65	2	32,400	$64,800	0.77470	0.00000
66	1,503	113,133	$170,038,508	0.73780	0.00339
67	4,745	122,874	$583,035,896	0.74280	0.01170
68	2,248	132,969	$298,914,492	0.72010	0.00581
69	1,527	237,070	$362,006,547	0.73030	0.00714
70	1,356	111,736	$151,513,704	0.72380	0.00296
88	2,204	156,233	$344,336,606	0.74280	0.00691
89	4,105	211,385	$867,734,481	0.78030	0.01829
90	441	99,806	$44,014,600	0.70600	0.00084
91	1,158	248,767	$288,071,804	0.76880	0.00598
92	566	70,934	$40,148,899	0.90280	0.00098
93	884	113,378	$100,226,099	0.73780	0.00200
95	1,174	178,436	$209,484,005	0.70600	0.00399
97	4,034	116,070	$468,225,493	0.72280	0.00914
			$37,029,281,169		**$1.08876**

Appendix B: Guilford County Governmental Revenues

Table B.1 shows 2004 revenues for the county and other political subdivisions. Consolidated receipts for all governmental entities in the county were $1,014,496,436,or $2,312 per capita. On a per employee basis, the total was $3,102. Excluding intergovernmental transfers and debt proceeds, total revenues were $847,074,735 -- $1,930 per capita and $2,590 per employee.

Table B.1: Guilford County Governmental Revenues, 2004

	Property Tax	Other Taxes	Utility	Sales Tax	Sales & Services	Intergovernmental	Debt Proceeds	Miscellaneous	Total
Guilford Co.	229,511,699	15,661,885	n.a.	74,631,354	31,875,286	90,585,586	417,391	20,797,051	463,480,252
Archdale	1,765,357	n.a.	2,096,893	1,457,232	593,500	923,218	590,000	258,330	7,684,530
Gibsonville	1,417,361	n.a.	1,600,242	540,576	197,441	418,566	n.a.	96,433	4,270,619
Greensboro	100,082,744	n.a.	54,655,102	34,121,791	40,341,719	45,380,391	3,557,380	24,564,046	302,703,173
High Point	40,494,558	n.a.	114,118,371	12,378,268	12,013,153	14,839,679	9,444,225	26,097,135	229,385,389
Jamestown	1,035,919	n.a.	1,854,974	335,377	964,164	485,475	19,775	712,323	5,408,007
Oak Ridge	n.a.	n.a.	n.a.	n.a.	n.a.	146,691	n.a.	122,981	269,672
Pleasant Garden	n.a.	n.a.	n.a.	n.a.	46,014	161,823	n.a.	115,580	323,417
Sedalia	51,303	n.a.	n.a.	3,333	n.a.	25,489	n.a.	3,508	83,633
Stokesdale	n.a.	n.a.	118,928	n.a.	n.a.	133,327	n.a.	61,168	313,423
Summerfield	n.a.	n.a.	n.a.	n.a.	n.a.	230,760	n.a.	273,782	504,542
Whitsett	n.a.	n.a.	n.a.	n.a.	595	61,925	n.a.	7,259	69,779
Consolidated	374,358,941	15,661,885	190,106,395	123,467,931	86,031,872	153,392,930	14,028,771	73,109,596	1,014,496,436
Per Capita	853	36	398	281	196	350	32	167	2,312
Per Employee	1,145	48	533	377	263	469	43	224	3,102

Source: N.C. Department of State Treasurer, see: http://www.treasurer.state.nc.us/dsthome/StateAndLocalGov

Appendix C: Guilford County Governmental Expenditures

Table C.1 shows 2004 expenditures for the county and other political subdivisions. Consolidated expenditures for all governmental entities in the county were $1,111,982,572, or $2,534 per capita.

Table C.1: Guilford County Governmental Expenditures, 2004

	Education	Water/Sewer	Debt Service	Human Services	Transportation	General Government	Public Safety	Other	Total
Guilford County	189,254,201	n.a.	25,240,842	166,391,067	n.a.	30,368,723	69,943,521	15,493,813	496,692,167
Archdale	n.a.	1,836,755	642,845	n.a.	591,363	512,502	1,720,419	1,793,950	7,097,834
Gibsonville	n.a.	1,541,588	240,081	n.a.	348,025	546,850	1,015,474	507,410	4,199,428
Greensboro	n.a.	80,545,950	34,212,497	n.a.	32,203,992	24,883,876	90,926,395	102,351,214	365,123,924
High Point	n.a.	116,047,443	13,923,649	n.a.	20,246,605	24,677,212	36,703,397	19,379,174	230,977,480
Jamestown	n.a.	860,307	791,528	n.a.	294,386	995,365	121,642	3,154,808	6,218,036
Oak Ridge	n.a.	n.a.	n.a.	n.a.	n.a.	445,512	n.a.	2,854	448,366
Pleasant Garden	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sedalia	n.a.	n.a.	6,540	n.a.	8,068	50,256	232	891	65,987
Stokesdale	n.a.	225,505	n.a.	n.a.	2,624	449,859	1,616	74,699	754,303
Summerfield	n.a.	n.a.	n.a.	n.a.	14,890	196,993	77,355	115,809	405,047
Whitsett	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Consolidated	189,254,201	201,057,548	75,057,982	166,391,067	53,709,953	83,127,148	200,510,051	142,874,622	1,111,982,572
Per Capita	431	458	171	379	122	189	457	326	2,534
% Share	17.0%	18.1%	6.7%	15.0%	4.8%	7.5%	18.0%	12.8%	100.0%

Source: N.C. Department of State Treasurer, see: http://www.treasurer.state.nc.us/dsthome/StateAndLocalGo

Appendix D: Guilford County Households, 2000

	Population in Households	Average Household Size	Number of Households	Number of School-Age Children	No. of School-Age Children per Household	Number of Autos	Number of Autos per Household
Total	407,071	2.41	168,667	72,998	0.43	381,673	2.26
Owner-occupied	266,518	2.52	105,700	47,770	0.45	260,310	2.46
Single-Family	237,968	2.60	91,625	42,953	0.47	233,010	2.54
Condo/Town Home	14,726	1.67	8,828	942	0.11	14,084	1.60
Renter-occupied	140,503	2.23	62,967	25,228	0.40	121,363	1.93
Apartments	78,374	1.97	39,862	11,210	0.28	65,373	1.64

Note: School-age children are those ages 5-17. Apartments are defined as rental housing units with 2 or more units.
Single-family units are owner-occupied, detachaed dwelling units.
Condo/Town Homes are owner-occupied, attached dwelling units.

Source: 2000 Census (SF 3) and NC Data Center.

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, the Town of Boone, NC, RMIC Corporation, CME Merchant Energy, the NC Biotechnology Center, and the NC Association of Electrical Cooperatives.