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# **Demographic Trends and Development Demand Analysis**

## **Douglas County, Georgia**

Prepared for the

**Douglas County Comprehensive Plan Update**

Prepared by

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Atlanta

**April, 2004**

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# Demographic Trends and Development Demand Analysis

## Douglas County, Georgia

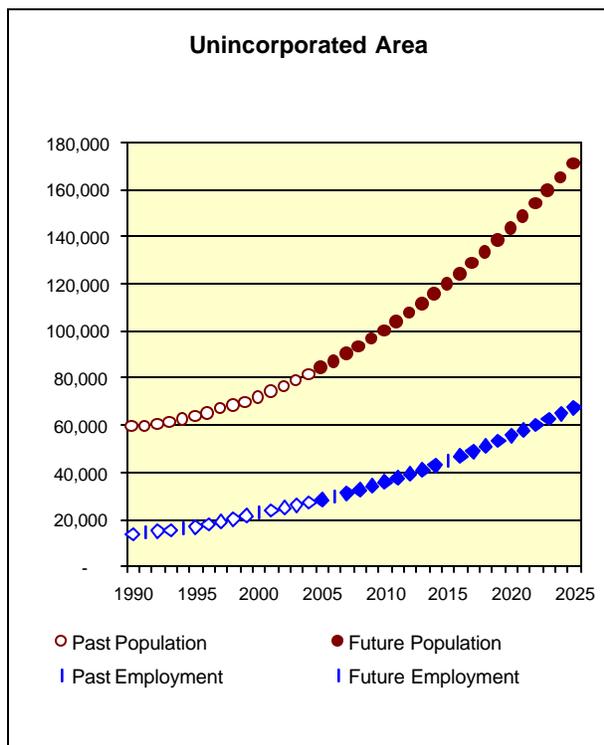
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## Executive Summary

The purpose of this report is to compare future growth to the land available for development in the unincorporated area of Douglas County, and to draw planning implications that will guide preparation of the Comprehensive Plan.



### Future Growth

Since 1980, unincorporated Douglas County's population has more than doubled, increasing by 105% to an estimated 81,200 today. Past trends suggest that the population in the unincorporated area could double again, increasing 110% to 170,400 by the year 2025 (the horizon year for the Comprehensive Plan).

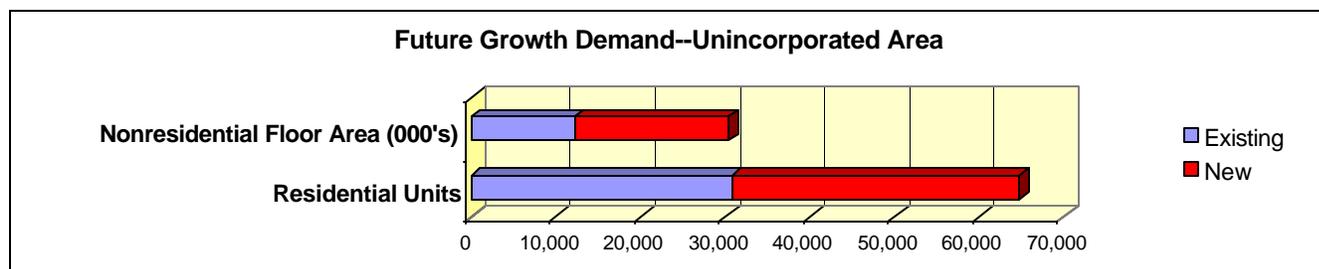
A major increase in the number of jobs in the unincorporated area is also forecast. Currently, there are almost 27,300 jobs among all economic sectors in the county outside of Douglasville. Based on jobs-per-resident ratios developed by Woods & Poole Economics, a nationally recognized firm endorsed by the Georgia Department of Community Affairs, the number of jobs could more than double to 67,500 by 2025, a 148% increase.

These forecasts are only a first step in establishing policies to effectively deal with pressures for future growth. These pressures are primarily market-driven but assume only the natural process of growth as an extension of past trends. In other words, these

forecasts are what would otherwise result in the county if things continue into the future as they have in the past. These forecasts, and the demand for land development created by them, present issues for study and deliberation as to what intervening actions on the part of the County would be appropriate to achieve different results.

### Development Demand

These forecasts translate into new housing units and office, retail, industrial and public/institutional development over the coming 20 years.



By 2025, the number of housing units in the unincorporated area would increase by almost 33,900 units, from 30,900 to 64,800, almost 90% of which would be homes on individual lots. Nonresidential floor area would increase by 18.3 million square feet, from 12.2 million today to 30.5 million in 2025. Most of the nonresidential development would be for retail and office space (at 60% of all new floor area), followed by industrial (at 32% of the total floor area). Altogether, nonresidential growth would consume almost 2,000 acres of land.

## Capacity to Accommodate New Growth

Altogether, there are some 37,900 acres in the unincorporated area that are vacant, 3,900 of which are within the 100-year flood plain, leaving a net of 34,000 acres. Of these, 31,400 are residentially zoned and 2,600 are zoned in the office, commercial or industrial districts. As currently zoned, the unincorporated area could accommodate, at most, about 32,400 new housing units and 24.6 million square feet of nonresidential development. Among the residential zoning districts, the vast majority of new units that could be accommodated (93%) are zoned for single-family detached use. Among the nonresidential districts, the clear majority (almost 80%) are zoned for industrial development (principally M-1R).

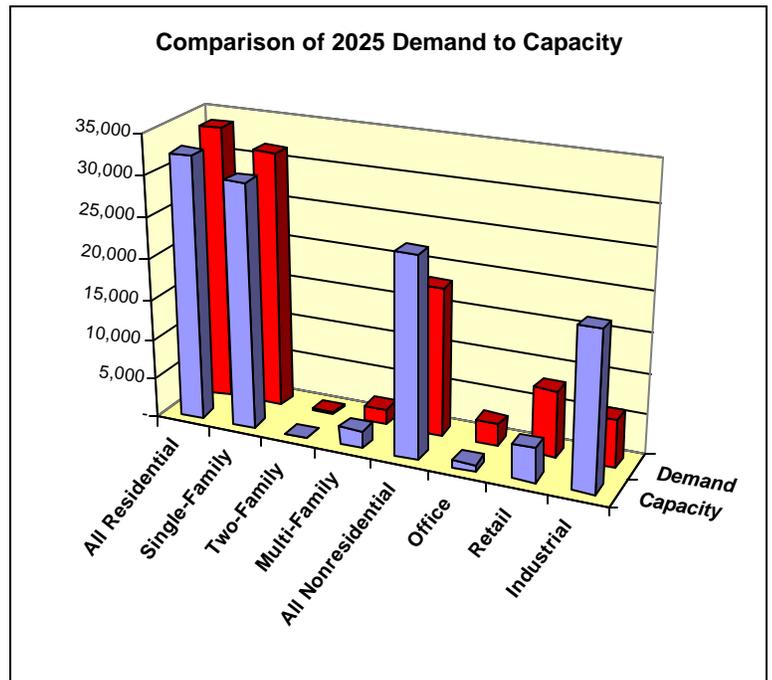
## Comparison of Demand to Capacity

The following table and graph compare the “unconstrained” growth forecasts to the maximum amount of development that could be accommodated under current zoning patterns.

### Growth Capacity and Demand Unincorporated Area

	Capacity	Demand
<b>All Residential</b>	32,419	33,888
Single-Family	30,130	31,693
Two-Family	28	247
Multi-Family	2,261	1,941
<b>All Nonresidential</b>	24,590	18,298
Office	816	2,746
Retail	4,337	8,204
Industrial	19,437	5,918

Residential figures show number of housing units.  
Nonresidential in 1,000s of square feet of floor area.



Overall, projected residential growth is very close to the capacity available, exceeding it by only 4%. Given the approximations in the methodology used in this report, this would represent a complete build out of the residential areas by (or before) 2025 as currently zoned. The same can be said for the single-family detached category, with demand at 5% over current capacity. There is a clear but very small lack of

land designated for duplexes, while the multi-family zoning districts can accommodate 14% more units than demanded in 2025.

On paper, nonresidential zoning, overall, can accommodate a comfortable 26% more development than the 2025 demand. This “overhead” of excess capacity could easily disappear by 2025, however, absorbed by developed but vacant sites, excess land bought by companies for future expansion, and inefficiencies in land development. The distribution of the vacant land by zoning category, however, does not match the future demand by land use type very well. For instance, there would appear to be far more land zoned for industrial development than needed, at least by 2025, while only about one-half of the retail commercial demand can be accommodated on commercially zoned land. Land specifically zoned for office uses is particularly in short supply; although office uses are allowed in the commercial zoning districts, there is already too little land zoned commercial to accommodate retail development alone. Together, future demand for office and retail development will amount to almost 11 million square feet of floor area, while only 5.2 million of that can be accommodated by existing office and commercially zoned land. Providing the new office and retail zoning for the additional 5.8 million square feet could involve as many as 625 acres of land.

Industrially zoned land can also be used for certain professional and administrative office uses, and limited commercial use, which would absorb some of the excess industrial zoning. While mid-rise office parks are often found in and around the kind and quality of industrial development that M-1R requires, industrial zoning is often unattractive to commercial and office development oriented to retail sales and personal services.

## Implications for Planning

The demand/capacity analysis has several implications for preparation of the Comprehensive Plan, including specifically the Future Land Use Map.

- By 2025, the residential areas of unincorporated Douglas County will be completely built out.
- Outside of the 3-acre lot watershed protection areas, pressures to bring sanitary sewer to all portions of the unincorporated area will mount. Given the market pressures generating demand, rezoning requests to R-2 for subdivisions on sewer will increase accordingly.
- There appears to be more than adequate land already zoned and available for multi-family development. Unless a particular location would be notably advantageous to the county for multi-family zoning, no additional land zoned for multi-family use is needed.
- There is a small but unmet market for two-family residential development (duplexes compose less than 1% of future residential demand). Rather than focus on new R-3 rezonings, the inclusion of duplexes as one type of housing in a mixed-use master planned development could be encouraged.
- Upwards of 600 acres of additional office and commercially zoned land is needed to accommodate future retail and service uses, both of which will be attracted to the county by its population growth and resulting increase in disposable income.
- While the county contains many more acres of industrial land than 2025 forecasts would absorb, retaining an excess of land for development beyond 2025 would not be inappropriate. While some vacant industrially zoned land may not be well located for non-industrial uses, some should be considered for commercial and/or higher density/smaller lot residential development (particularly in a planned development setting).

# Population and Employment Forecasts

## Summary of Forecasts

Population and employment forecasts form the backbone for estimates of future development in the county, and the demand for land that the development will create. By its very nature, a Demographic Trends and Development Demand Analysis anticipates future growth, and translates that growth into an estimate of the amount of development that most likely would be generated to accommodate it. New houses, apartments, offices, stores and industries are built as families and businesses move into the area, as children grow and move into their own housing units, and as existing businesses and industries prosper and expand. Basic to future growth in households and businesses are the expected increases in population and employment in the area.

This Section presents the methodology behind the research and analysis that results in population and employment forecasts for Douglas County as a whole and for its cities: Douglasville and parts of Austell and Villa Rica. These forecasts are highly dependent on an understanding of past trends in the county, and should be interpreted as an initial step in preparing the County's Comprehensive Plan update.

In order to be useful in evaluating policies regarding future growth and change, both in quantity and quality, and in determining preferences regarding the location of that future growth and change, these forecasts reflect several assumptions:

- First, that past trends represent a valid anticipation of future change in Douglas County and its cities;
- Second, that those past trends will continue with few changes in the market forces that created them; and
- Third, that factors that would otherwise limit growth naturally (such as land availability, water resources and air quality) will not begin to affect growth until after the 2025 forecast horizon.

## Methodology Overview

The following steps outline the methodology used in preparing the **population forecasts**:

- (1) Determine population of the county, its cities and the unincorporated area:
  - For each year between the 1990 and 2000 Census benchmarks; and
  - For each fifth year between 1970 and 2000.
- (2) Project the historic trend data (1990-2000 and 1970-2000) using regression analysis.
- (3) Select the most reasonable projection based on historic trends.

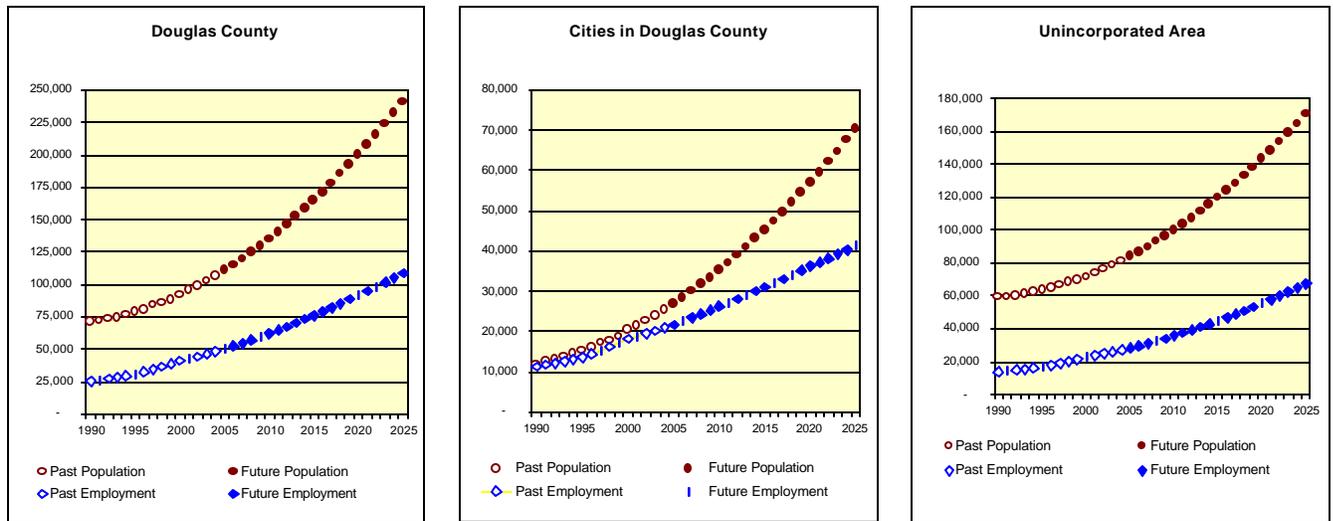
The methodology used for the **employment forecasts** is somewhat simpler, primarily because of a lack of consistent, historic data available. The basic steps followed are:

- (1) Determine the most recently known proportion of employment in Douglasville as a percentage of the total county.

- (2) Apply jobs-per-resident data to the population forecasts for the county as a whole to determine total future employment.
- (3) Estimate the percentage of county-wide employment that will be captured by the City of Douglasville as the county grows.

## Summary—By Area

The following three charts summarize the recommended population and employment forecasts for Douglas County as a whole, for its cities collectively, and for the unincorporated area:



Douglas County		
	Population	Employment
1990	71,120	25,176
1995	78,642	30,543
2000	92,174	41,105
<b>2004</b>	<b>106,622</b>	<b>48,208</b>
2005	110,819	50,168
2010	135,089	62,195
2015	164,832	76,201
2020	200,054	91,904
2025	240,758	108,922

Cities		
	Population	Employment
1990	11,864	11,271
1995	15,206	13,686
2000	20,457	18,175
<b>2004</b>	<b>25,415</b>	<b>21,026</b>
2005	26,884	21,806
2010	35,234	26,310
2015	45,260	31,208
2020	56,967	36,297
2025	70,360	41,394

Unincorporated Area		
	Population	Employment
1990	59,256	13,905
1995	63,436	16,857
2000	71,717	22,930
<b>2004</b>	<b>81,207</b>	<b>27,182</b>
2005	83,935	28,362
2010	99,855	35,885
2015	119,572	44,993
2020	143,087	55,607
2025	170,398	67,528

## Interpretation of Results

The forecasts presented here are only a first step in establishing policies to effectively deal with pressures for future growth. These pressures are primarily market-driven but assume only the natural process of growth as an extension of past trends. In other words, these forecasts are intended to be seen as what would otherwise result in the county if things continue into the future as they have in the past. These forecasts, and the demand for land development created by them, present issues for study and deliberation as to what intervening actions on the part of the County would be appropriate to achieve different results, whether in quantity or quality.

## **Effect of Annexation**

As noted, the population forecasts presented in this report reflect in large part a projection of past trends into the future. To the extent that past trends reflect the results of annexation by the cities in the county over time, the expectation of a continuation of annexation at the same pace as past trends is incorporated into the projections. Employment forecasts also assume a continuation of past annexation trends since they are based on jobs per resident ratios and thus reflect population forecasts. Importantly, State Comprehensive Plan guidelines require that potential annexation areas be identified in the planning process

## Population Demand Forecasts

In order to arrive at a future population forecast for 2025 that represents a desirable and realistic level of growth in unincorporated Douglas County, the first step is to estimate future growth demand based on past trends. These population “demand forecasts” represent, quite simply, what past trends suggest for the future if nothing were to change. In later sections of this report, these population demand figures are translated into estimates of land demand and then compared to actual development capacity.

To produce the demand forecasts, mathematical regression techniques<sup>1</sup> were used to project historic trends into the future. Two sets of regressions were made for Douglas County and the unincorporated area—one against historic population figures going back to 1970 (in 5-year increments) and the second considering annual growth between the Census benchmark years 1990 and 2000. The “most likely” population demand forecast to 2025 for each is based on an analysis of the results of the various regressions, as described below. Table P-10 summarizes the demand forecasts for each jurisdiction.

## Preparatory Steps—Past Trends

As a first step, an annual estimate of population between 1990 and 2000 was prepared in order to establish a basis for regressions against growth during the 1990s and to establish a credible figure for 1995 to be used in the 30-year regressions. These annual estimates were made separately for the unincorporated portion of the county and for each of its cities, and then totaled for the county as a whole.

**Table P-1**  
**Housing Inventory--1990**  
**Douglas County and Its Cities**

Type/Units in Structure	Total Housing Units					Vacant Housing Units					Occupied Housing Units				
	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area
<b>Single-Family</b>															
<i>Detached</i>	19,340	-	2,471	28	16,841	788	-	137	4	647	18,552	-	2,334	24	16,194
<i>Mobile Home</i>	3,043	78	477	4	2,484	319	23	29	1	266	2,724	55	448	3	2,218
<b>Total</b>	<b>22,383</b>	<b>78</b>	<b>2,948</b>	<b>32</b>	<b>19,325</b>	<b>1,107</b>	<b>23</b>	<b>166</b>	<b>5</b>	<b>913</b>	<b>21,276</b>	<b>55</b>	<b>2,782</b>	<b>27</b>	<b>18,412</b>
<b>Multi-Family</b>															
<i>Duplex</i>	647	2	291	-	354	93	-	44	-	49	554	2	247	-	305
<i>Townhouse</i>	463	-	222	-	241	54	-	27	-	27	409	-	195	-	214
<i>3 or 4 units/building</i>	574	-	461	-	113	121	-	97	-	24	453	-	364	-	89
<i>5 to 9</i>	940	-	548	-	392	287	-	159	-	128	653	-	389	-	264
<i>10 to 19</i>	826	-	170	-	656	323	-	20	-	303	503	-	150	-	353
<i>20 to 49</i>	505	-	16	-	489	223	-	4	-	219	282	-	12	-	270
<i>50 or more</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>3,955</b>	<b>2</b>	<b>1,708</b>	<b>-</b>	<b>2,245</b>	<b>1,101</b>	<b>-</b>	<b>351</b>	<b>-</b>	<b>750</b>	<b>2,854</b>	<b>2</b>	<b>1,357</b>	<b>-</b>	<b>1,495</b>
<b>Other*</b>	157	-	26	2	129	10	-	3	-	7	147	-	23	2	122
<b>Total--All Units</b>	<b>26,495</b>	<b>80</b>	<b>4,682</b>	<b>34</b>	<b>21,699</b>	<b>2,218</b>	<b>23</b>	<b>520</b>	<b>5</b>	<b>1,670</b>	<b>24,277</b>	<b>57</b>	<b>4,162</b>	<b>29</b>	<b>20,029</b>

\* "Other" includes boats, RVs, vans, etc.  
Source: 1990 Census, STF1A database, U.S. Bureau of the Census.

<sup>1</sup> See Appendix B for an explanation of mathematical regressions.

Because the annual estimates of population produced by the Bureau of the Census during the 1990s proved highly inaccurate when compared to the actual 2000 Census counts, it was determined to base annual estimates on growth in the housing supply. As benchmarks, Table P-1 shows the housing inventory from the 1990 Census for the total county and for each incorporated area, as well as the number of vacant and occupied units (occupied units = households).

Table P-2 shows the same data as Table P-1, but from the 2000 Census.

**Table P-2**  
**Housing Inventory--2000**  
**Douglas County and Its Cities**

Type/Units in Structure	Total Housing Units					Vacant Housing Units					Occupied Housing Units				
	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area	Douglas County	Austell (part)	Douglasville	Villa Rica (part)	Uninc. Area
<b>Single-Family</b>															
<i>Detached</i>	26,017	4	4,446	188	21,379	954	1	204	132	617	25,063	3	4,242	56	20,762
<i>Mobile Home</i>	2,756	52	373	9	2,322	326	-	53	-	273	2,430	52	320	9	2,049
<b>Total</b>	<b>28,773</b>	<b>56</b>	<b>4,819</b>	<b>197</b>	<b>23,701</b>	<b>1,280</b>	<b>1</b>	<b>257</b>	<b>132</b>	<b>891</b>	<b>27,493</b>	<b>55</b>	<b>4,562</b>	<b>65</b>	<b>22,811</b>
<b>Multi-Family</b>															
<i>Duplex</i>	833	11	441	-	381	146	-	127	-	19	687	11	314	-	362
<i>Townhouse</i>	700	-	358	-	342	61	-	36	-	25	639	-	322	-	317
<i>3 or 4 units/building</i>	786	-	557	-	229	43	-	9	-	34	743	-	548	-	195
<i>5 to 9</i>	1,524	-	870	-	654	229	-	121	-	108	1,295	-	749	-	546
<i>10 to 19</i>	1,163	-	478	-	685	105	-	53	-	52	1,058	-	425	-	633
<i>20 to 49</i>	532	-	196	-	336	68	-	11	-	57	464	-	185	-	279
<i>50 or more</i>	510	-	191	-	319	71	-	21	-	50	439	-	170	-	269
<b>Total</b>	<b>6,048</b>	<b>11</b>	<b>3,091</b>	<b>-</b>	<b>2,946</b>	<b>723</b>	<b>-</b>	<b>378</b>	<b>-</b>	<b>345</b>	<b>5,325</b>	<b>11</b>	<b>2,713</b>	<b>-</b>	<b>2,601</b>
<b>Other*</b>	4	-	-	-	4	-	-	-	-	-	4	-	-	-	4
<b>Total--All Units</b>	<b>34,825</b>	<b>67</b>	<b>7,910</b>	<b>197</b>	<b>26,651</b>	<b>2,003</b>	<b>1</b>	<b>635</b>	<b>132</b>	<b>1,236</b>	<b>32,822</b>	<b>66</b>	<b>7,275</b>	<b>65</b>	<b>25,416</b>

\* "Other" includes boats, RVs, vans, etc.  
Source: 2000 Census, SF1 database, U.S. Bureau of the Census.

On Table P-3 for unincorporated Douglas County, and Table P-4 for Douglasville, the building permits issued each year are added to the previous year for a total annual housing supply, minus deletions. Note that the permits issued in one calendar year are added to the next year's inventory—this assumes that there is a lag of up to 3 months between permit issuance and occupancy (each year's estimate is as of April 1 to be consistent with the Census). Demolitions, removals, mobile home replacements and permitted units never constructed are accounted for (and deleted from each year's total) by comparing total permitted units for the decade by type of structure to the 2000 Census figures. Each year's permitted units, by type, are then discounted to the extent that the gross total exceeded the actual count in 2000.

For unincorporated Douglas County, discounting permits issued to correlate to actual year 2000 results was most noticeable for mobile homes. For the decade, 122 mobile home permits were issued, but the change between 1990 and 2000 amounted to a net decrease of 162 mobile homes as more mobile homes were removed from the inventory than new mobile homes were moved in. For Douglasville, permit data only was available beginning in 1996. Working backwards from 2000, annual permits were subtracted for each preceding year to the 1996 inventory. For 1995 back to 1990, annual estimates are based on the average annual rate of change between 1990 and 1996.

**Table P-3**  
**Annual Housing Inventory--1990-2000**  
**Unincorporated Douglas County**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>Permits Issued</b>											
Single-Family											
<i>Detached</i>	84	52	252	532	444	514	557	552	520	645	
<i>Mobile Home</i>	-	-	19	14	22	16	14	12	15	10	
<b>Total</b>	84	52	271	546	466	530	571	564	535	655	
Multi-Family	-	240	8	-	8	6	145	-	-	124	
<b>Total Permitted Each Year</b>	84	292	279	546	474	536	716	564	535	779	
<b>Housing Inventory*</b>											
Single-Family Detached	16,841	16,933	16,990	17,265	17,847	18,332	18,894	19,502	20,106	20,674	21,379
Mobile Home	2,484	2,484	2,484	2,459	2,440	2,411	2,390	2,371	2,355	2,335	2,322
Multi-Family	2,245	2,245	2,562	2,572	2,572	2,583	2,591	2,782	2,782	2,782	2,946
Other	129	117	104	92	79	67	54	42	29	17	4
<b>Total Units Each April 1: Unincorporated County</b>	21,699	21,778	22,139	22,388	22,938	23,392	23,928	24,697	25,272	25,808	26,651

\* From 1990 inventory, annual additions (permits issued) minus units not built and demolitions/removals, resulting in 2000 inventory per Census.

**Table P-4**  
**Annual Housing Inventory--1990-2000**  
**Douglasville**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>Permits Issued</b>											
Single-Family											
<i>Detached</i>							202	171	188	208	
<i>Mobile Home</i>							-	-	-	-	
<b>Total</b>	n/a	n/a	n/a	n/a	n/a	n/a	202	171	188	208	
Multi-Family	n/a	n/a	n/a	n/a	n/a	n/a	323	10	176	450	
<b>Total Permitted Each Year</b>	n/a	n/a	n/a	n/a	n/a	n/a	525	181	364	658	
<b>Housing Inventory*</b>											
Single-Family Detached	2,471	2,640	2,821	3,014	3,221	3,441	3,677	3,879	4,050	4,238	4,446
Mobile Home	477	467	456	446	435	425	415	404	394	383	373
Multi-Family	1,708	1,772	1,839	1,908	1,980	2,055	2,132	2,455	2,465	2,641	3,091
Other	26	23	21	18	16	13	10	8	5	3	-
<b>Total Units Each April 1: Douglasville</b>	4,682	4,903	5,137	5,387	5,652	5,934	6,234	6,746	6,914	7,265	7,910

\* From 2000, annual permits issued result in preceeding year inventory. 1995-1990 interpolated on a straight line basis.

Table P-5 shows the population estimates for each year between 1990 and 2000 based on net growth in the housing supply in the unincorporated area and Douglasville, calculated separately. The total number of housing units each year is multiplied by the percentage of units occupied to produce the number of occupied housing units. The number of occupied housing units (i.e., households) multiplied by the average household size produces the number of people residing in households. To this figure is added the number of people living in group quarters<sup>2</sup> to determine the total population.

**Table P-5**  
**Population Estimates--1990-2000**  
**Unincorporated Douglas County and Douglasville**

<b>Unincorporated Douglas County</b>											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Units Each April 1:	21,699	21,778	22,139	22,388	22,938	23,392	23,928	24,697	25,272	25,808	26,651
x Percent Occupied	92.3%	92.6%	92.9%	93.2%	93.5%	93.8%	94.1%	94.4%	94.8%	95.1%	95.4%
= Number of Households	20,029	20,169	20,571	20,870	21,454	21,950	22,526	23,326	23,946	24,533	25,416
x Persons per Household	2.936	2.924	2.911	2.899	2.886	2.873	2.861	2.848	2.836	2.823	2.810
= Population in Households	58,812	58,969	59,885	60,493	61,915	63,070	64,441	66,436	67,900	69,256	71,428
+ Pop in Group Quarters	444	425	410	393	381	366	351	339	322	304	289
= <b>Uninc. Douglas Total</b>	<b>59,256</b>	<b>59,394</b>	<b>60,295</b>	<b>60,886</b>	<b>62,296</b>	<b>63,436</b>	<b>64,792</b>	<b>66,775</b>	<b>68,222</b>	<b>69,560</b>	<b>71,717</b>

<b>Douglasville</b>											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Units Each April 1:	4,682	4,903	5,137	5,387	5,652	5,934	6,234	6,746	6,914	7,265	7,910
x Percent Occupied	88.9%	89.2%	89.5%	89.8%	90.1%	90.4%	90.7%	91.0%	91.4%	91.7%	92.0%
= Number of Households	4,162	4,373	4,598	4,838	5,094	5,366	5,657	6,142	6,316	6,659	7,275
x Persons per Household	2.713	2.710	2.707	2.704	2.700	2.697	2.694	2.691	2.688	2.684	2.681
= Population in Households	11,293	11,851	12,446	13,080	13,756	14,473	15,240	16,527	16,975	17,875	19,505
+ Pop in Group Quarters	342	357	373	390	408	427	447	482	493	516	560
= <b>Douglasville Total</b>	<b>11,635</b>	<b>12,208</b>	<b>12,819</b>	<b>13,470</b>	<b>14,164</b>	<b>14,900</b>	<b>15,687</b>	<b>17,009</b>	<b>17,468</b>	<b>18,391</b>	<b>20,065</b>

Note: All figures as of April 1 of the year indicated.

Table P-6 shows the annual population estimates for the decade of the 1990s for those parts of Austell and Villa Rica that are located within Douglas County. Since building permit data is not available for only those portions in Douglas County, the number of housing units each year assumes an average annual incremental change between the 1990 and 2000 Census benchmarks on a straight line basis.

<sup>2</sup> Group quarters include correctional institutions, nursing homes, hospitals and other medical care facilities, juvenile institutions, college dormitories and group homes.

**Table P-6**  
**Population Estimates—1990-2000**  
**Austell and Villa Rica (Inside Douglas County)**

<b>Austell (part)</b>	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000*
Total Units Each April 1:	80	79	77	76	74	73	72	70	69	67	66
x Percent Occupied	71.3%	72.6%	74.1%	75.6%	77.2%	78.8%	80.4%	82.2%	84.0%	85.9%	87.9%
= Number of Households	57	57	57	57	57	58	58	58	58	58	58
x Persons per Household	2,649	2,61	2,56	2,52	2,48	2,44	2,39	2,35	2,31	2,27	2,224
= Population in Households	151	149	147	144	142	140	138	136	133	131	129
+ Pop in Group Quarters	-	-	-	-	-	-	-	-	-	-	-
= <b>Austell Total</b>	<b>151</b>	<b>149</b>	<b>147</b>	<b>144</b>	<b>142</b>	<b>140</b>	<b>138</b>	<b>136</b>	<b>133</b>	<b>131</b>	<b>129</b>

<b>Villa Rica (part)</b>	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000*
Total Units Each April 1:	34	47	59	72	85	98	110	123	136	148	161
x Percent Occupied	85.3%	76.2%	71.0%	67.7%	65.3%	63.6%	62.3%	61.2%	60.3%	59.6%	59.0%
= Number of Households	29	36	42	49	55	62	69	75	82	88	95
x Persons per Household	2,690	2,686	2,683	2,680	2,677	2,674	2,670	2,667	2,664	2,661	2,768
= Population in Households	78	96	113	131	148	166	183	201	218	235	263
+ Pop in Group Quarters	-	-	-	-	-	-	-	-	-	-	-
= <b>Villa Rica Total</b>	<b>78</b>	<b>96</b>	<b>113</b>	<b>131</b>	<b>148</b>	<b>166</b>	<b>183</b>	<b>201</b>	<b>218</b>	<b>235</b>	<b>263</b>

\* For year 2000, actual counts from the SF1 Census file are used in lieu of the Census Bureau's estimates in the SF3 file.

The number of people living in group quarters each year is estimated as follows: the ratio of such people to the population living in households as reported in the 1990 and 2000 Censuses is first determined. The change in these ratios between 1990 and 2000 is then apportioned to each intervening year on a straight-line basis, assuming an average annual incremental increase each year. These intervening ratios multiplied times the population living in households results in the number of persons estimated to be living in group quarters each year.

Both the occupancy percentage and the average household size figures for each year between 1990 and 2000 are estimated in a manner similar to the approach used to estimate the group home population ratios. For each, the total change between 1990 and 2000, as reported in the respective Censuses, is apportioned to the intervening years on an average annual incremental (i.e., straight-line) basis.

Table P-7 totals the population estimates for the entire county, including the unincorporated area and the three cities from Tables P-5 and P-6.

**Table P-7**  
**Population Estimates--1990-2000**  
**Douglas County Total**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Units Each April 1:	26,495	26,806	27,413	27,922	28,749	29,497	30,344	31,636	32,391	33,289	34,788
x Percent Occupied	91.6%	91.9%	92.2%	92.5%	92.7%	93.0%	93.3%	93.6%	93.9%	94.1%	94.4%
= Number of Households	24,277	24,635	25,268	25,814	26,661	27,436	28,309	29,601	30,402	31,338	32,844
x Persons per Household	2.897	2.85	2.81	2.77	2.73	2.68	2.64	2.60	2.56	2.51	2.781
= Population in Households	70,334	71,065	72,591	73,848	75,961	77,849	80,002	83,300	85,226	87,497	91,325
+ Pop in Group Quarters	786	782	783	783	789	793	798	821	815	820	849
= <b>Douglas County Total</b>	<b>71,120</b>	<b>71,847</b>	<b>73,374</b>	<b>74,631</b>	<b>76,750</b>	<b>78,642</b>	<b>80,800</b>	<b>84,121</b>	<b>86,041</b>	<b>88,317</b>	<b>92,174</b>

## Population Regressions

The annual population estimates for unincorporated Douglas County, shown on Table P-5, establish a basis for mathematical regressions to 2025 against growth during the 1990s. Regressions were also prepared for the county as a whole (from Table P-7), reflecting the growth of the 1990s. Since 2000, the Bureau of the Census has released population estimates for 2001 and 2002. For the unincorporated area, the Census estimates are 74,267 and 75,971 for 2001 and 2002, respectively. For the county as a whole, these estimates are 95,680 and 98,650, respectively. These annual estimates are added to the estimates in Tables P-5 and P-7, respectively, to create a regression base from 1990 to 2002.

In addition, the population figures from Tables P-5 and P-7 for 1995 are used in the regressions against 30-year growth data (which is given in 5-year increments). As a result, both long-term and short-term regressions were run for the county as a whole and for the unincorporated area to 2025: one spanning the past 30 years (1970 to 2000) and the other spanning the decade of the 1990s to 2002. In each case, a 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> order regression<sup>3</sup> was run, producing a straight line function, a parabola and an "ess" curve through the data points.

The regressions are shown on the following pages: Table P-8 for Douglas County as a whole and Table P-9 for the unincorporated area of the county. Each table shows the numerical results from the regressions, which are charted on the graph accompanying each table. The table with each chart also shows the correlation achieved against the data—a correlation of "1.0" would be a perfect fit.

## Analysis of Population Regressions

Examining the various mathematical regressions, for Douglas County as a whole, the "best fit" curve reflecting the growth trend since 1970 is the "ess" curve, which has a near perfect correlation (see the first graph on Table P-8). This suggests a 2025 population of almost 300,000 if long-term historic trends continue unabated and without constraints. The second graph on Table P-8 shows the projection based on the more recent past (the 1990s to 2002). Here, an "ess" curve fits the data well, but projects a declining

<sup>3</sup> See Appendix B for an explanation of mathematical regressions.

rate of population growth in Douglas County. This seems somewhat unrealistic; there is no question that growth during the 1990s was accelerating, but a “dip” in permits in the latter years of the decade projected the declining growth rate into the future. The parabola also achieved a high correlation (virtually equal to the “ess” curve) and, at a little over 240,000 population by 2025, is closer to the projection based on the 30-year history of growth in the county. The “most likely” forecast based strictly on past trends, therefore, is considered to be the 240,000 figure.

Interpreting the regressions for the unincorporated portion of the county is somewhat more complex than for the county as a whole. The historic trend line going back to 1970 demonstrates several distinct upturns and downturns in population growth over the 30-year period. Given the nature of mathematical regression analysis, all three regressions lines result in an average among these variable growth rates, yielding a tight bundle of forecasts to 2025 in the 102-112,000 range. The data for the 1990s to 2002 show more clearly an accelerating growth trend. The “ess” curve, like the county as a whole, has a slightly higher correlation to the historic data but is also influenced by a downturn in population growth in the later years; in fact, the “ess” curve results in population losses in the last few years of the forecast as growth rates turn negative. Also like the county as a whole, the parabola appears to be the “most likely” forecast of the three shown, resulting in a 2025 population of 170,000 based strictly on past trends.

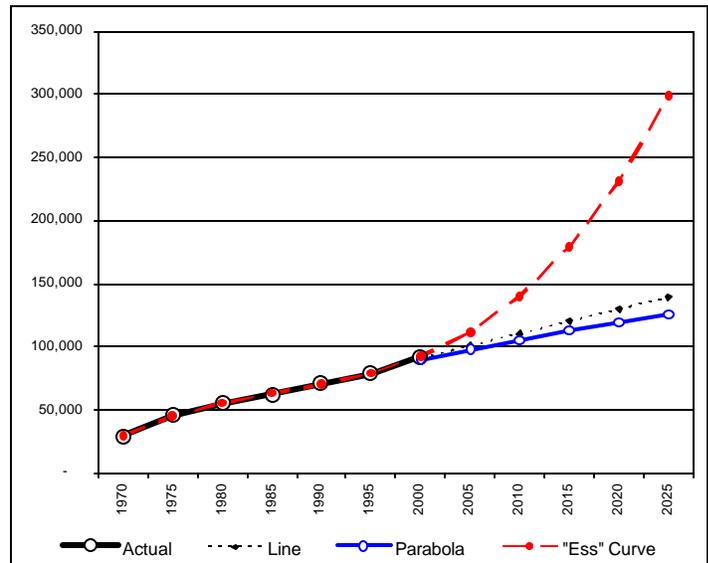
On each graph on Tables P-8 and P-9, the line that seems to most realistically fit the actual historic data is overlaid on the historic data line to provide a visual sense of how well the regression fits the data based on how well the “dots” on the regression line fit into the “circles” representing the historic data. With a perfect 1.0 correlation, the dots would be in the exact center of every circle.

**Table P-8  
Population Regressions: Douglas County**

**Based on Historic Trend--1970-2000**

As of July 1	Historic	Line	Parabola	"Ess" Curve
1970	29,280	32,996	31,815	<b>29,529</b>
1975	45,699	42,667	42,667	<b>44,953</b>
1980	54,886	52,339	53,047	<b>55,333</b>
1985	62,270	62,010	62,954	<b>62,954</b>
1990	71,120	71,682	72,390	<b>70,104</b>
1995	78,642	81,353	81,353	<b>79,067</b>
2000	92,174	91,025	89,844	<b>92,131</b>
2005		100,696	97,864	<b>111,581</b>
2010		110,368	105,411	<b>139,703</b>
2015		120,039	112,486	<b>178,784</b>
2020		129,711	119,089	<b>231,111</b>
2025		139,382	125,219	<b>298,968</b>

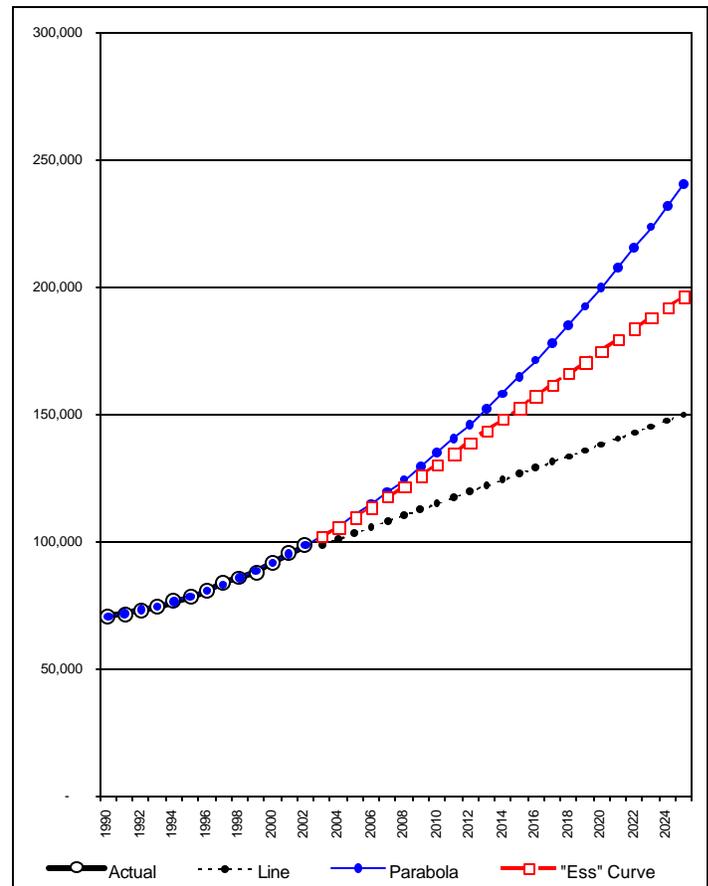
Correlations		0.9900	0.9919	0.9983
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**Based on Trends of the 1990s to 2002**

As of July 1	Historic	Line	Parabola	"Ess" Curve
1990	71,120	68,473	<b>70,880</b>	71,004
1991	71,847	70,806	<b>72,010</b>	72,010
1992	73,374	73,140	<b>73,358</b>	73,291
1993	74,631	75,473	<b>74,926</b>	74,836
1994	76,750	77,806	<b>76,712</b>	76,634
1995	78,642	80,140	<b>78,717</b>	78,672
1996	80,800	82,473	<b>80,941</b>	80,941
1997	84,121	84,806	<b>83,384</b>	83,429
1998	86,041	87,139	<b>86,045</b>	86,124
1999	88,317	89,473	<b>88,926</b>	89,015
2000	92,174	91,806	<b>92,025</b>	92,092
2001	95,680	94,139	<b>95,343</b>	95,343
2002	98,650	96,473	<b>98,880</b>	98,757
2003		98,806	<b>102,636</b>	102,322
2004		101,139	<b>106,611</b>	106,028
2005		103,473	<b>110,804</b>	109,863
2006		105,806	<b>115,216</b>	113,815
2007		108,139	<b>119,848</b>	117,875
2008		110,473	<b>124,698</b>	122,030
2009		112,806	<b>129,766</b>	126,270
2010		115,139	<b>135,054</b>	130,582
2011		117,473	<b>140,561</b>	134,957
2012		119,806	<b>146,286</b>	139,382
2013		122,139	<b>152,230</b>	143,847
2014		124,473	<b>158,394</b>	148,340
2015		126,806	<b>164,776</b>	152,850
2016		129,139	<b>171,376</b>	157,366
2017		131,473	<b>178,196</b>	161,877
2018		133,806	<b>185,234</b>	166,371
2019		136,139	<b>192,492</b>	170,838
2020		138,472	<b>199,968</b>	175,265
2021		140,806	<b>207,663</b>	179,643
2022		143,139	<b>215,577</b>	183,959
2023		145,472	<b>223,710</b>	188,203
2024		147,806	<b>232,061</b>	192,362
2025		150,139	<b>240,632</b>	196,427

Correlations		0.9751	0.9987	0.9988
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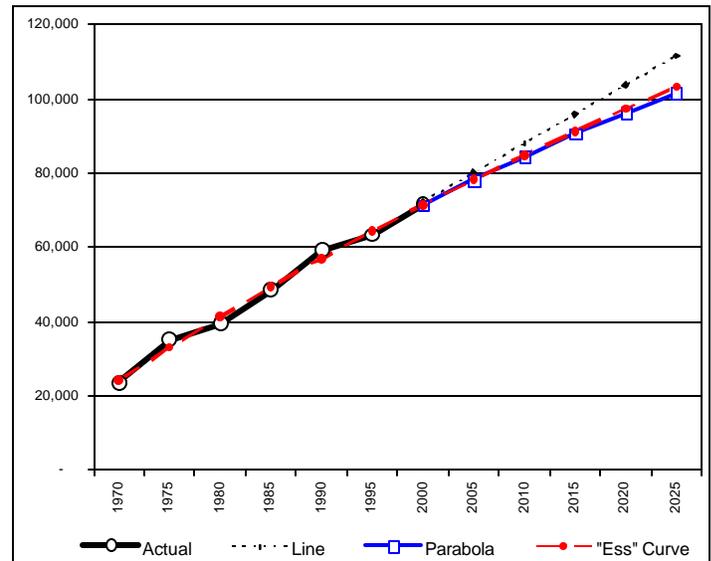


**Table P-9  
Population Regressions: Unincorporated Douglas County**

**Based on Historic Trend--1970-2000**

As of July 1	Historic	Line	Parabola	"Ess" Curve
1970	23,723	25,232	24,399	<b>24,378</b>
1975	35,261	33,090	33,090	<b>33,111</b>
1980	39,567	40,948	41,447	<b>41,469</b>
1985	48,679	48,806	49,472	<b>49,472</b>
1990	59,256	56,663	57,163	<b>57,141</b>
1995	63,436	64,521	64,521	<b>64,500</b>
2000	71,717	72,379	71,547	<b>71,568</b>
2005		80,237	78,239	<b>78,369</b>
2010		88,095	84,599	<b>84,924</b>
2015		95,953	90,625	<b>91,254</b>
2020		103,811	96,319	<b>97,381</b>
2025		111,669	101,679	<b>103,326</b>

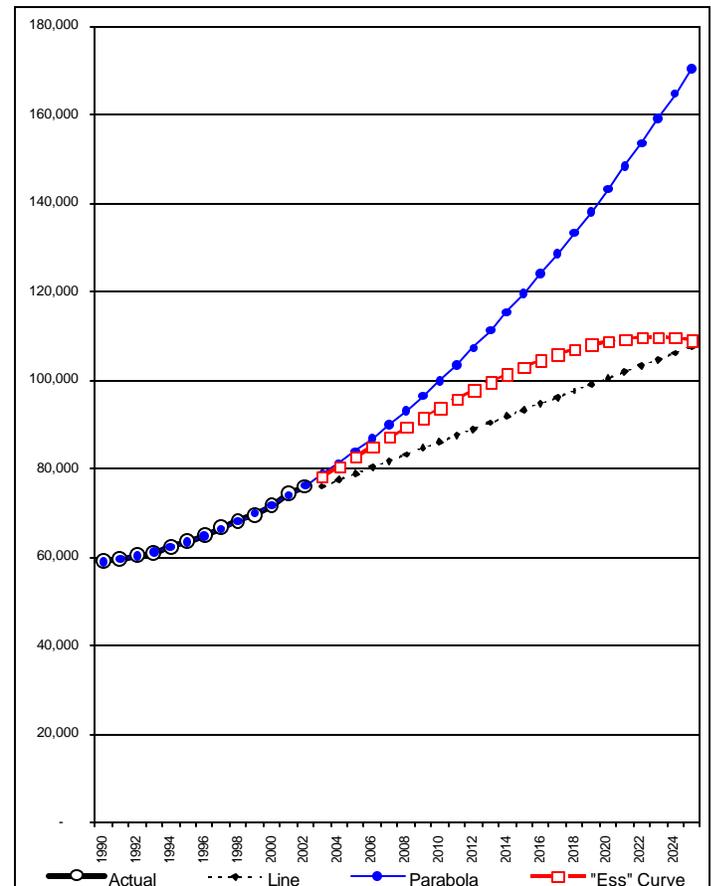
Correlations		0.9901	0.9915	0.9915
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**Based on Trends of the 1990s to 2002**

As of July 1	Historic	Line	Parabola	"Ess" Curve
1990	59,256	57,290	<b>58,961</b>	59,132
1991	59,394	58,727	<b>59,563</b>	59,563
1992	60,295	60,164	<b>60,316</b>	60,223
1993	60,886	61,601	<b>61,222</b>	61,097
1994	62,296	63,039	<b>62,279</b>	62,170
1995	63,436	64,476	<b>63,488</b>	63,426
1996	64,792	65,913	<b>64,850</b>	64,850
1997	66,775	67,350	<b>66,363</b>	66,425
1998	68,222	68,787	<b>68,028</b>	68,136
1999	69,560	70,224	<b>69,844</b>	69,969
2000	71,717	71,661	<b>71,813</b>	71,907
2001	74,267	73,098	<b>73,934</b>	73,934
2002	75,971	74,536	<b>76,206</b>	76,035
2003		75,973	<b>78,631</b>	78,195
2004		77,410	<b>81,207</b>	80,398
2005		78,847	<b>83,935</b>	82,629
2006		80,284	<b>86,816</b>	84,871
2007		81,721	<b>89,848</b>	87,110
2008		83,158	<b>93,032</b>	89,330
2009		84,595	<b>96,367</b>	91,514
2010		86,033	<b>99,855</b>	93,649
2011		87,470	<b>103,495</b>	95,718
2012		88,907	<b>107,286</b>	97,705
2013		90,344	<b>111,230</b>	99,595
2014		91,781	<b>115,325</b>	101,373
2015		93,218	<b>119,572</b>	103,022
2016		94,655	<b>123,971</b>	104,528
2017		96,092	<b>128,522</b>	105,875
2018		97,530	<b>133,225</b>	107,047
2019		98,967	<b>138,080</b>	108,029
2020		100,404	<b>143,087</b>	108,805
2021		101,841	<b>148,245</b>	109,360
2022		103,278	<b>153,556</b>	109,677
2023		104,715	<b>159,018</b>	109,742
2024		106,152	<b>164,632</b>	109,539
2025		107,589	<b>170,398</b>	109,053

Correlations		0.9684	0.9982	0.9986
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## **Population Demand Forecasts Based on Past Trends**

The growth in Douglas County and the unincorporated area during the 1990s to 2002 period appears to be a clearer indication of what can be expected in the future than that of the longer-term view going back to 1970. For the purposes of this analysis, the “parabola” curve for the county as a whole, based on growth during the 1990s to 2002, is considered the most realistic “demand” projection. Table P-10 shows the population demand forecasts for each of the jurisdictions, assembling the “most likely” forecasts from Tables P-8 (Douglas County total), and P-9 (unincorporated Douglas County). The difference between the county total and the unincorporated area represents the total in the county’s three incorporated areas collectively—Douglasville and parts of Villa Rica and Austell.

## **Trend Forecasts Reflect Demand, Not Desire**

As noted above, these population demand forecasts reflect only what would be expected to occur if past trends continue without constraint. There are, of course, many factors that would in reality affect growth.

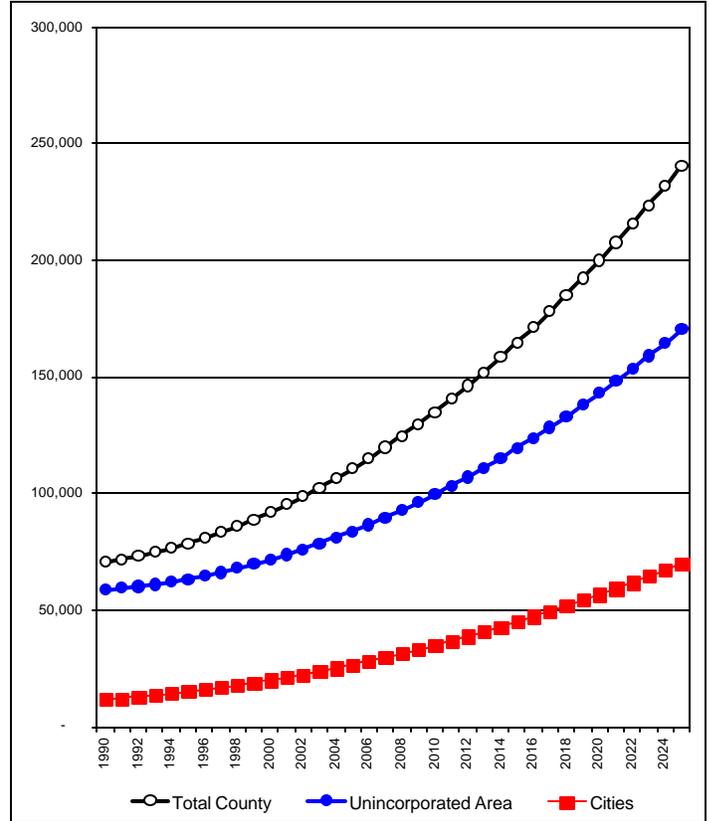
Over time, several factors will become increasingly important as constraints on growth and land development. As land becomes scarcer, finding land suitable for development becomes more difficult and its value increases, limiting it to a more narrow market. Infrastructure availability also becomes an increasingly more important restriction on growth. Roads can only be widened so far before they lose their functionality or right-of-way becomes cost prohibitive. Water supply to the county and sewage management capacity can be stretched with technological solutions only so far, and at increasingly higher costs. Conversely, the effects of communication diversity and density increases through redevelopment will counterbalance the constraints to some degree, “stretching” development capacity through new forms of market response and land use relationships. These effects increase slowly over time and are also more difficult to quantify mathematically, requiring a more subjective evaluation that balances today’s realities against future technological innovation, anticipates lifestyle and population demographic changes, and makes assumptions about the national economy and world conditions over the next 25-30 years.

The amount of land that is available for future development also can be a major constraint. In later sections of this report, these population demand figures are used to estimate future housing development that, in turn, is translated into estimates of land demand and then compared to actual development capacity.

Ultimately, the Comprehensive Planning Process and preparation of a Future Land Use Plan is facilitated by an evaluation of growth trends and development capacity in order to make both quantitative choices (how much growth should be accommodated) and qualitative decisions (what types of new development should be encouraged or discouraged) to achieve the County’s vision.

**Table P-10**  
**Population Forecasts Based on Past Trends**  
**Douglas County, the Unincorporated Area and the Cities**

	Total County	Unincorp. Area	Cities*
1990	70,880	58,961	11,919
1991	72,010	59,563	12,447
1992	73,358	60,316	13,042
1993	74,926	61,222	13,704
1994	76,712	62,279	14,433
1995	78,717	63,488	15,229
1996	80,941	64,850	16,091
1997	83,384	66,363	17,021
1998	86,045	68,028	18,018
1999	88,926	69,844	19,081
2000	92,025	71,813	20,212
2001	95,343	73,934	21,409
2002	98,880	76,206	22,674
2003	102,636	78,631	24,005
2004	106,611	81,207	25,403
2005	110,804	83,935	26,869
2006	115,216	86,816	28,401
2007	119,848	89,848	30,000
2008	124,698	93,032	31,666
2009	129,766	96,367	33,399
2010	135,054	99,855	35,199
2011	140,561	103,495	37,066
2012	146,286	107,286	39,000
2013	152,230	111,230	41,001
2014	158,394	115,325	43,069
2015	164,776	119,572	45,203
2016	171,376	123,971	47,405
2017	178,196	128,522	49,674
2018	185,234	133,225	52,009
2019	192,492	138,080	54,412
2020	199,968	143,087	56,881
2021	207,663	148,245	59,418
2022	215,577	153,556	62,021
2023	223,710	159,018	64,692
2024	232,061	164,632	67,429
2025	240,632	170,398	70,233



\*Douglasville and the parts of Villa Rica and Austell within the county.

## Employment Demand Forecasts

Very little reliable historic data is available regarding employment (number of jobs) as opposed to the number of employed residents in Douglas County. Various data sources also treat employment differently, some including government employees in the various private industry types, some omitting government employees altogether, some omitting second and part-time jobs, while others count only the employees that fall under workman's compensation. The methodology used here goes back to the 1990 Census, and uses Woods & Poole as a major resource.<sup>4</sup> The lack of current data is also a problem. Data on employment by place of work from the 2000 Census excludes government employees, second jobs and some part time jobs, and does not separate out incorporated areas. Woods & Poole estimates all jobs, including second jobs and sole proprietors, thus providing a more complete basis for projecting future demand for nonresidential development.

Because the Woods & Poole forecasts are only available for the county as a whole, the approach of this section is to estimate employment in Douglasville and subtract it from the county total to estimate employment in the rest of the county. Because employment in the portions of Villa Rica and Austell in the county is minor, the calculations of employment in the county outside of Douglasville are used to estimate land demand in the unincorporated area.

## City/County Employment Ratios

Table E-1 is used only to determine the proportion of Douglas County employment that was located in Douglasville in 1990. The data is based on the 1990 Census (reported by the Bureau of Transportation Statistics), but does not count jobs held by people already employed (second jobs), and some self-employed people. The totals shown on Table E-1, therefore, are less than the actual total jobs in 1990 in the county as derived from Woods & Poole<sup>5</sup> (19,890 versus Woods & Poole jobs totaling 25,176).

**Table E-1**  
**Employment Ratios--1990**  
**Douglas County and Douglasville**

	Douglas County Total	Douglasville	Percent in Douglasville
Construction	2,399	869	36.2%
Manufacturing, Mining	1,801	572	31.8%
T.C.U.*	1,351	581	43.0%
Wholesale Trade	862	230	26.7%
Retail Trade	4,843	2,636	54.4%
F.I.R.E.**	1,128	557	49.4%
Services	4,108	1,757	42.8%
Government	3,398	1,702	50.1%
<b>Total</b>	<b>19,890</b>	<b>8,904</b>	<b>44.8%</b>

\*Transportation, Communications and Utilities

\*\*Finance, Insurance and Real Estate.

Source: U.S. Bureau of Transportation Statistics; 1990 Census.  
Data excludes second-job and self-employment positions.

<sup>4</sup> Woods & Poole Economics, Inc., is recognized by the Georgia Department of Community Affairs as a data source for comprehensive planning in the state.

<sup>5</sup> Woods & Poole Economics, Inc., Washington D.C., State Profile—Georgia, 2003.

## Estimates of Future Employment

Table E-2 estimates the total number of jobs in the county, from 1990 to 2025, by 5-year increment. The estimates are based on the jobs per capita ratios derived from the Woods & Poole projections. Woods & Poole uses an econometric model based on national trends, broken down to the county level, which is highly sensitive to projected shifts in the economy and thus to future employment mixes. Multiplying the jobs per capita number times the "most likely" projected total county population (from Table P-12) yields the total number of jobs by industry type for each of the forecast years.

**Table E-2**  
**Number of Employees--Douglas County**  
**1990-2025**

	1990	1995	2000	2005	2010	2015	2020	2025
<b>Jobs per Capita*</b>								
Construction	0.043122	0.041639	0.046070	0.045723	0.044708	0.043053	0.040934	0.038450
Manufacturing, Mining	0.021798	0.023191	0.030922	0.030662	0.030485	0.029824	0.028688	0.027118
T.C.U.**	0.017902	0.017969	0.017673	0.018378	0.018798	0.018830	0.018529	0.017948
Wholesale Trade	0.018880	0.021402	0.021913	0.022928	0.023801	0.024385	0.024769	0.025015
Retail Trade	0.082809	0.093917	0.115143	0.111681	0.112722	0.112826	0.111394	0.108154
F.I.R.E.***	0.017777	0.017638	0.022808	0.021203	0.020412	0.019567	0.018614	0.017563
Services	0.100292	0.128029	0.142256	0.151129	0.157703	0.162202	0.165718	0.168903
Government	0.051417	0.044593	0.049167	0.051002	0.051768	0.051610	0.050753	0.049260
Total Jobs per Capita	0.353996	0.388377	0.445951	0.452704	0.460397	0.462297	0.459399	0.452412
<b>Douglas County Population</b>	<b>71,120</b>	<b>78,642</b>	<b>92,174</b>	<b>110,793</b>	<b>135,084</b>	<b>164,869</b>	<b>200,153</b>	<b>240,941</b>
<b>County-Wide Employment</b>								
Construction	3,067	3,275	4,246	5,066	6,039	7,098	8,193	9,264
Manufacturing	1,550	1,824	2,850	3,397	4,118	4,917	5,742	6,534
T.C.U.**	1,273	1,413	1,629	2,036	2,539	3,105	3,709	4,324
Wholesale Trade	1,343	1,683	2,020	2,540	3,215	4,020	4,958	6,027
Retail Trade	5,889	7,386	10,613	12,373	15,227	18,601	22,296	26,059
F.I.R.E.***	1,264	1,387	2,102	2,349	2,757	3,226	3,726	4,232
Services	7,133	10,068	13,112	16,744	21,303	26,742	33,169	40,696
Government	3,657	3,507	4,532	5,651	6,993	8,509	10,158	11,869
<b>Total Employees in County</b>	<b>25,176</b>	<b>30,543</b>	<b>41,105</b>	<b>50,156</b>	<b>62,192</b>	<b>76,218</b>	<b>91,950</b>	<b>109,005</b>

\* Woods & Poole Economics, State Profile, Georgia, Douglas County, 2003.

\*\* Transportation, Communications and Utilities

\*\*\* Finance, Insurance and Real Estate.

Table E-3 provides an estimate of employment in Douglasville. Beginning with the employment ratios for Douglasville in 1990 (Table E-1), the number of employees in Douglasville in 1990 is calculated for each industry type by multiplying Douglasville's percent of countywide employment times the Woods & Poole county-wide employment figure (from Table E-2). Total employment in Douglasville for each incremental year (1995-2025) is calculated by assuming a *capture rate* of net new growth for the city, and adding it to

the previous year's employment. For instance, Table E-3 shows a net capture for 1990-95 of 45.0%; 45.0% of the net 1990-95 employment increase county-wide is therefore added to the 1990 Douglasville total to estimate total employees in Douglasville in 1995.<sup>6</sup> Similarly, for 2020, 32.5% of the net countywide increase from 2015 to 2020 is added to the 2015 figure for the city. The methodology assumes that the city's capture rate for the 2020-2025 period will be 30% of countywide growth as nonresidential land becomes increasingly scarce in the city and development increases in the unincorporated area

Total employment projected for the city, divided by total employment county-wide, establishes the estimated percentage of county-wide employment in the city for each incremental year. This percentage is used to "discount" the 1990 percent of county figures for each incremental forecast year. This percentage of countywide employment by industry type is then multiplied times the county-wide total to yield the number of employees in each industry type for each incremental forecast year. These figures sum to the total number of employees in Douglasville estimated for each of the years shown on the Table.

**Table E-3**  
**Number of Employees--Douglasville**  
**1990-2025**

	1990	1995	2000	2005	2010	2015	2020	2025
<b>Percent of County</b>								
Construction	36.2%	36.3%	35.8%	35.2%	34.2%	33.1%	32.0%	30.8%
Manufacturing	31.8%	31.8%	31.4%	30.8%	30.0%	29.1%	28.0%	27.0%
T.C.U.*	43.0%	43.0%	42.5%	41.7%	40.6%	39.3%	38.0%	36.5%
Wholesale Trade	26.7%	26.7%	26.4%	25.9%	25.2%	24.4%	23.6%	22.7%
Retail Trade	54.4%	54.5%	53.8%	52.8%	51.4%	49.8%	48.0%	46.2%
F.I.R.E.**	49.4%	49.4%	48.8%	47.9%	46.7%	45.2%	43.6%	41.9%
Services	42.8%	42.8%	42.2%	41.5%	40.4%	39.1%	37.8%	36.3%
Government	50.1%	50.1%	49.5%	48.6%	47.3%	45.8%	44.2%	42.5%
Total Jobs per Capita	44.8%	44.8%	44.2%	43.5%	42.3%	41.0%	39.5%	38.0%
<b>County-Wide Employment</b>	<b>25,176</b>	<b>30,543</b>	<b>41,105</b>	<b>50,168</b>	<b>62,195</b>	<b>76,201</b>	<b>91,904</b>	<b>108,922</b>
City Capture Rate of Net Growth		45.0%	42.5%	40.0%	37.5%	35.0%	32.5%	30.0%
<b>Douglasville Employment</b>								
Construction	1,116	1,195	1,521	1,790	2,077	2,363	2,630	2,863
Manufacturing	495	583	895	1,052	1,242	1,435	1,616	1,770
T.C.U.*	550	612	693	854	1,037	1,227	1,413	1,587
Wholesale Trade	360	452	533	661	815	986	1,172	1,372
Retail Trade	3,219	4,048	5,714	6,570	7,869	9,305	10,755	12,100
F.I.R.E.**	627	690	1,027	1,132	1,293	1,464	1,630	1,783
Services	3,064	4,337	5,547	6,986	8,651	10,511	12,572	14,848
Government	1,840	1,769	2,245	2,761	3,326	3,917	4,509	5,071
<b>Total Employees in Douglasville</b>	<b>11,271</b>	<b>13,686</b>	<b>18,175</b>	<b>21,806</b>	<b>26,310</b>	<b>31,208</b>	<b>36,297</b>	<b>41,394</b>

\* Transportation, Communications and Utilities

\*\* Finance, Insurance and Real Estate.

<sup>6</sup> 45% was selected because it results in the same proportion of countywide employment in the city (44.8%) as 1990.

In 1990, the city contained 44.8% of all employment in the county. While the capture rate is anticipated to go from 45% to 30% by 2025, the city's proportion of countywide employment would change from 44.8% in 1990 to 38.0% in 2025. For the immediate planning horizon, this change represents a drop of 6.2 percentage points from 44.2% in 2000 to 38.0% in 2025.

Table E-4 shows the number of employees by employment category in the county outside of Douglasville for the forecast period through 2025. The table is the result of subtracting the figures for the City of Douglasville (Table E-3) from the countywide figures (Table E-2). The figures on Table E-4 include the Douglas County portions of Villa Rica and Austell. While no employment data is available for these areas that would support independent forecasts, based on land use patterns it appears that the amounts would constitute only a small portion of the total shown on Table E-4.

**Table E-4**  
**Number of Employees--Douglas County Outside Douglasville**  
**1990-2025**

	1990	1995	2000	2005	2010	2015	2020	2025
Construction	1,951	2,080	2,725	3,277	3,962	4,734	5,561	6,398
Manufacturing	1,055	1,241	1,955	2,345	2,876	3,481	4,124	4,761
T.C.U.*	723	801	936	1,182	1,502	1,878	2,294	2,735
Wholesale Trade	983	1,231	1,487	1,879	2,401	3,034	3,785	4,653
Retail Trade	2,670	3,338	4,899	5,806	7,359	9,293	11,532	13,944
F.I.R.E.**	637	697	1,075	1,218	1,464	1,762	2,094	2,447
Services	4,069	5,731	7,565	9,761	12,653	16,227	20,586	25,829
Government	1,817	1,738	2,287	2,891	3,668	4,591	5,645	6,791
<b>Total</b>	<b>13,905</b>	<b>16,857</b>	<b>22,930</b>	<b>28,359</b>	<b>35,886</b>	<b>45,000</b>	<b>55,620</b>	<b>67,558</b>

\*Transportation, Communications and Utilities

\*\*Finance, Insurance and Real Estate.

## Future Employment Demand Forecasts

Overall, jobs per capita in the county as a whole are projected by Woods & Poole to remain fairly steady throughout the forecast period, remaining around 0.45 to 0.46 from 2000 to 2025. Forecasts for Douglasville reflect a continued steady growth in employment while recognizing that employment opportunities in other parts of the county will grow at a higher rate. Overall, the proportionate share of employment in the city is projected to fall from 44% of total employment in the county in 2000, to 38% by 2025. Numerically, based on historic trends, employment is projected to more than double in Douglasville over the 2000-2025 period, increasing by 23,272, while employment in the rest of the county is expected to increase by 44,628. These increases represent employment growth of 228% in the city and 295% in the rest of the county between 2000 and 2025.

Unlike the population forecasts, only one scenario is presented for the employment demand forecasts because of the lack of reliable and consistent time-series data. These employment forecasts reflect in large part the acceptance of jobs-per-capita estimates based on the Woods & Poole national econometric model, and employment growth capture rates presented for Douglasville. Beyond statistics, however, the methodology has produced a forecast that is consistent with an "edge" county that has emerged over the past 10-15 years, and provides a solid basis for development demand estimates for nonresidential uses.

## Development Demand Factors—2025

In order to estimate future demand for residential and nonresidential development in the unincorporated area of Douglas County, the population and employment forecasts must be translated into new housing units and office/retail/industrial floor areas that future growth will generate. The following sections look at future growth in the number of housing units, followed by an estimate of future nonresidential development.

### Housing Growth

This section estimates the number of new houses and other housing units that the unincorporated portion of the county will have in the future, in order ultimately to determine the amount of land that residential growth will consume. The housing forecasts to 2025 for are summarized on Table H-10.

### Housing Forecasts

The number of housing units in any given year is estimated based on the number of households (which represent occupied housing units), which in turn are a function of population growth. The number of occupied units is then increased by the vacancy rate to calculate total units. The number of housing units forecast for the unincorporated portion of the county is estimated by subtracting estimates for the incorporated cities from the county totals.

Tables H-1 and H-2 show the estimated number of housing units in the county and the incorporated areas, respectively, for each year between 2000 and 2025. The current year estimate (2004) is highlighted. The calculations are made as follows: First, the number of persons in group quarters<sup>7</sup> is subtracted from the total population to determine the net number of people living in households.<sup>8</sup>

The number of persons in group quarters is taken from the 2000 Census, and is increased each subsequent year at the same average annual rate of increase experienced between 1990 and 2000 in the incorporated areas (5.055% per year). While the number of people living in group quarters outside of the cities actually decreased between 1990 and 2000, the incorporated area rate is applied to the unincorporated area as being more reflective of a future aging population. Together, these figures total to the county as a whole.

Average household size figures are derived from Woods & Poole Economics (W&P). The annual change in average household size estimated by W&P is applied to the actual average household size reported in the 2000 Census. By dividing the net population in households by the average household size each year, an estimate of the number of households is determined. This number, which is equal to the number of occupied housing units by definition, is increased by a vacancy factor to estimate the total number of housing units (both occupied and vacant). The vacancy rates used are the rates reported in the 2000 Census for each jurisdiction (5.8% for the county as a whole and 9.4% for the cities).

Table H-3 shows the household and housing unit forecasts for Douglas County outside of its cities. The table is derived by subtracting Table H-2 from H-1, with the exception that the number of persons per household is calculated directly from the population and household data shown on the table.

<sup>7</sup> Group quarters include correctional institutions, nursing homes, college dormitories, military quarters, etc.

<sup>8</sup> A household is one or more people living together in an individual house or other dwelling unit.

**Table H-1**  
**Household and Housing Unit Forecast--2000-2025**  
**Douglas County Total**

	Population	Persons in Group Quarters*	Net Population	Persons per Household	Households	Housing Units
2000**	92,174	849	91,325	2.78	32,822	34,825
2001	95,343	892	94,451	2.77	34,068	36,147
2002	98,883	937	97,946	2.76	35,457	37,621
2003	102,643	984	101,659	2.75	36,934	39,188
<b>2004</b>	<b>106,622</b>	<b>1,034</b>	<b>105,588</b>	<b>2.74</b>	<b>38,502</b>	<b>40,852</b>
2005	110,819	1,086	109,733	2.73	40,160	42,611
2006	115,236	1,141	114,095	2.73	41,756	44,304
2007	119,871	1,199	118,672	2.72	43,590	46,250
2008	124,725	1,260	123,465	2.71	45,518	48,296
2009	129,797	1,324	128,473	2.71	47,365	50,256
2010	135,089	1,391	133,698	2.70	49,473	52,492
2011	140,600	1,461	139,139	2.70	51,486	54,628
2012	146,329	1,535	144,794	2.70	53,579	56,849
2013	152,278	1,612	150,666	2.69	55,959	59,374
2014	158,446	1,694	156,752	2.69	58,219	61,772
2015	164,832	1,779	163,053	2.69	60,560	64,256
2016	171,438	1,869	169,569	2.69	62,980	66,823
2017	178,263	1,963	176,300	2.69	65,480	69,476
2018	185,308	2,062	183,246	2.69	68,060	72,213
2019	192,572	2,167	190,405	2.69	70,719	75,035
2020	200,054	2,276	197,778	2.70	73,185	77,651
2021	207,756	2,391	205,365	2.70	75,993	80,631
2022	215,677	2,512	213,165	2.71	78,588	83,384
2023	223,818	2,639	221,179	2.71	81,543	86,519
2024	232,178	2,772	229,406	2.71	84,576	89,737
2025	240,758	2,912	237,846	2.72	87,365	92,697

\*Persons in group quarters are projected to increase at the same average annual rate of increase as 1990-2000.

\*\*Figures for the year 2000 are taken from the 2000 U.S. Census. Housing units are based on number of households (occupied housing units) and year 2000 vacancy rate. Persons per household from Woods & Poole, adjusted to 2000 Census.

**Table H-2**  
**Household and Housing Unit Forecast--2000-2025**  
**Incorporated Areas**

	Population	Persons in Group Quarters*	Net Population	Persons per Household	Households	Housing Units
2000**	20,457	560	19,897	2.67	7,439	8,130
2001	21,409	588	20,821	2.67	7,784	8,508
2002	22,677	618	22,059	2.66	8,278	9,047
2003	24,012	649	23,363	2.65	8,801	9,338
<b>2004</b>	<b>25,415</b>	<b>682</b>	<b>24,733</b>	<b>2.64</b>	<b>9,352</b>	<b>9,923</b>
2005	26,884	716	26,168	2.63	9,932	10,538
2006	28,420	752	27,668	2.62	10,541	11,185
2007	30,023	790	29,233	2.62	11,138	11,817
2008	31,693	830	30,863	2.61	11,804	12,524
2009	33,430	872	32,558	2.60	12,500	13,263
2010	35,234	916	34,318	2.60	13,175	13,980
2011	37,105	962	36,143	2.59	13,930	14,780
2012	39,043	1,011	38,032	2.59	14,658	15,552
2013	41,048	1,062	39,986	2.59	15,411	16,351
2014	43,121	1,116	42,005	2.58	16,251	17,243
2015	45,260	1,172	44,088	2.58	17,057	18,098
2016	47,467	1,231	46,236	2.58	17,888	18,980
2017	49,741	1,293	48,448	2.58	18,744	19,888
2018	52,083	1,358	50,725	2.58	19,625	20,823
2019	54,492	1,427	53,065	2.58	20,531	21,783
2020	56,967	1,499	55,468	2.58	21,460	22,770
2021	59,511	1,575	57,936	2.59	22,329	23,691
2022	62,121	1,655	60,466	2.59	23,304	24,726
2023	64,800	1,739	63,061	2.60	24,211	25,688
2024	67,546	1,827	65,719	2.60	25,231	26,771
2025	70,360	1,919	68,441	2.60	26,276	27,880

\*Persons in group quarters are projected to increase at the same average annual rate of increase as 1990-2000.

\*\*Figures for the year 2000 are taken from the 2000 U.S. Census. Housing units are based on number of households (occupied housing units) and year 2000 vacancy rate. Persons per household from Woods & Poole, adjusted to 2000 Census.

**Table H-3**  
**Household and Housing Unit Forecast--2000-2025**  
**Unincorporated Douglas County**

	Population	Persons in Group Quarters*	Net Population	Persons per Household**	Households	Housing Units
2000	71,717	289	71,428	2.81	25,383	26,695
2001	73,934	304	73,630	2.80	26,284	27,639
2002	76,206	319	75,887	2.79	27,179	28,574
2003	78,631	335	78,296	2.78	28,133	29,850
<b>2004</b>	<b>81,207</b>	<b>352</b>	<b>80,855</b>	<b>2.77</b>	<b>29,150</b>	<b>30,929</b>
2005	83,935	370	83,565	2.76	30,228	32,073
2006	86,816	389	86,427	2.77	31,215	33,119
2007	89,848	409	89,439	2.76	32,452	34,433
2008	93,032	430	92,602	2.75	33,714	35,772
2009	96,367	452	95,915	2.75	34,865	36,993
2010	99,855	475	99,380	2.74	36,298	38,512
2011	103,495	499	102,996	2.74	37,556	39,848
2012	107,286	524	106,762	2.74	38,921	41,297
2013	111,230	550	110,680	2.73	40,548	43,023
2014	115,325	578	114,747	2.73	41,968	44,529
2015	119,572	607	118,965	2.73	43,503	46,158
2016	123,971	638	123,333	2.74	45,092	47,843
2017	128,522	670	127,852	2.74	46,736	49,588
2018	133,225	704	132,521	2.74	48,435	51,390
2019	138,080	740	137,340	2.74	50,188	53,252
2020	143,087	777	142,310	2.75	51,725	54,881
2021	148,245	816	147,429	2.75	53,664	56,940
2022	153,556	857	152,699	2.76	55,284	58,658
2023	159,018	900	158,118	2.76	57,332	60,831
2024	164,632	945	163,687	2.76	59,345	62,966
2025	170,398	993	169,405	2.77	61,089	64,817

\*Persons in group quarters are projected to increase at the same average annual rate of increase as 1990-2000.

\*\*Persons per household calculated as population in households divided by number of households for each year.

## Housing Units by Type

Given the total number of housing units forecasted each year, the breakdown between single-family detached, duplex and multi-family units must be determined, since each type of housing places different demands on the amount of land that each consumes through development.

**Table H-4**  
**Housing Units by Type--2000**  
**Douglas County Total**

Type of Structure	Total Units	Occupied	Vacant	
			Total	% Vac
Single-Family Detached	26,017	25,063	954	
Mobile Home	2,756	2,430	326	
<b>SUBTOTAL Single-Family</b>	<b>28,773</b>	<b>27,493</b>	<b>1,280</b>	<b>4.4%</b>
Two-Family (Duplex)	833	687	146	17.5%
Single-Family Attached	700	639	61	
3 to 4 Units	786	743	43	
5 to 9 Units	1,524	1,295	229	
10 to 19 Units	1,163	1,058	105	
20 to 49 Units	532	464	68	
50 or More Units	510	439	71	
<b>SUBTOTAL Multi-Family</b>	<b>5,215</b>	<b>4,638</b>	<b>577</b>	<b>11.1%</b>
Other	4	4	0	0.0%
<b>TOTAL</b>	<b>34,825</b>	<b>32,822</b>	<b>2,003</b>	<b>5.8%</b>

Source: U.S. Dept. of Commerce, Bureau of the Census, Census 2000 database SF3.

Tables H-4, H-5 and H-6 present the breakdowns that existed in the county as a whole, in the incorporated areas and in the county outside its cities, respectively, in 2000, as reported by the Census. The tables show the total number of units by type, the number occupied, the number vacant and the percent vacant (by general type and total). The single-family detached category shows both stick-built houses and manufactured homes, and the multi-family category shows both townhouses (i.e., single-family attached), and apartments and condominiums (broken down by the number of units in the building).

**Table H-5**  
**Housing Units by Type--2000**  
**Incorporated Areas**

Type of Structure	Total Units	Occupied	Vacant	
			Total	% Vac
Single-Family Detached	4,638	4,301	337	
Mobile Home	434	381	53	
<b>SUBTOTAL Single-Family</b>	<b>5,072</b>	<b>4,682</b>	<b>390</b>	<b>7.7%</b>
Two-Family (Duplex)	452	325	127	28.1%
Single-Family Attached	358	322	36	
3 to 4 Units	557	548	9	
5 to 9 Units	870	749	121	
10 to 19 Units	478	425	53	
20 to 49 Units	196	185	11	
50 or More Units	191	170	21	
<b>SUBTOTAL Multi-Family</b>	<b>2,650</b>	<b>2,399</b>	<b>251</b>	<b>9.5%</b>
Other	0	0	0	0.0%
<b>TOTAL</b>	<b>8,174</b>	<b>7,406</b>	<b>768</b>	<b>9.4%</b>

Source: U.S. Dept. of Commerce, Bureau of the Census, Census 2000 database SF3.

**Table H-6**  
**Housing Units by Type--2000**  
**Unincorporated Douglas County**

Type of Structure	Total Units	Occupied	Vacant	
			Total	% Vac
Single-Family Detached	21,379	20,762	617	
Mobile Home	2,322	2,049	273	
<b>SUBTOTAL Single-Family</b>	<b>23,701</b>	<b>22,811</b>	<b>890</b>	<b>3.8%</b>
Two-Family (Duplex)	381	362	19	5.0%
Single-Family Attached	342	317	25	
3 to 4 Units	229	195	34	
5 to 9 Units	654	546	108	
10 to 19 Units	685	633	52	
20 to 49 Units	336	279	57	
50 or More Units	319	269	50	
<b>SUBTOTAL Multi-Family</b>	<b>2,565</b>	<b>2,239</b>	<b>326</b>	<b>12.7%</b>
Other	4	4	0	0.0%
<b>TOTAL</b>	<b>26,651</b>	<b>25,416</b>	<b>1,235</b>	<b>4.6%</b>

Source: U.S. Dept. of Commerce, Bureau of the Census, Census 2000 database SF3.

Tables H-7, H-8 and H-9 show the number of housing units in the county as a whole, in the incorporated areas and in the county outside its cities, respectively, as currently estimated (2004) and anticipated by the year 2025. The estimates are based on the same breakdown in units by type in each jurisdiction that existed in 2000. The first column of Tables H-7 and H-8 shows the percentage of each housing type from Tables H-4 and H-5 for the county as a whole and the cities, respectively. These percentages, multiplied times the total number of units forecasted for 2004 and 2025, provide estimates of the number of units in each year by type. Table H-9 is the result of subtracting the city table from the county table, and shows the distribution percentage calculated from Table H-6.

**Table H-7  
Forecasted Units by Type  
Douglas County Total**

	Distribution	2004	2025	Increase
Single-Family	82.62%	33,753	76,588	42,835
Two-Family (Duplex)	2.39%	977	2,217	1,240
Multi-Family	14.97%	6,118	13,881	7,763
Other	0.01%	5	11	6
<b>Total</b>	<b>100.00%</b>	<b>40,852</b>	<b>92,697</b>	<b>51,845</b>

Source: Distribution based on housing units by type, 2000 Census.

**Table H-8  
Forecasted Units by Type  
Incorporated Areas**

	Distribution	2004	2025	Increase
Single-Family	62.05%	6,157	17,299	11,142
Two-Family (Duplex)	5.53%	549	1,542	993
Multi-Family	32.42%	3,217	9,039	5,822
Other	0.00%	-	-	-
<b>Total</b>	<b>100.00%</b>	<b>9,923</b>	<b>27,880</b>	<b>17,957</b>

Source: Distribution based on housing units by type, 2000 Census.

**Table H-9  
Forecasted Units by Type  
Unincorporated Douglas County**

	Distribution	2004	2025	Increase
Single-Family	88.93%	27,596	59,289	31,693
Two-Family (Duplex)	1.43%	428	675	247
Multi-Family	9.62%	2,901	4,842	1,941
Other	0.02%	5	11	6
<b>Total</b>	<b>100.00%</b>	<b>30,929</b>	<b>64,817</b>	<b>33,888</b>

Source: Distribution based on housing units by type, 2000 Census.

## Residential Summary

Table H-9 shows the demand for new residential development anticipated from 2004 to 2025 in the unincorporated portion of Douglas County.

## Nonresidential Development

### Employment by Land Use Category

In order to estimate future demand for nonresidential development in unincorporated Douglas County, future employment estimates must be translated from employment categories to land use categories. Table N-1 shows the percentage breakdown by land use category estimated for each of the economic sectors. The percentages are estimated from an analysis of detailed employment data most recently reported by the Census Bureau in *County Business Patterns* for 2000 and shown on the Appendix A table. As shown on the Appendix A table, employment by detailed category is distributed to or among the four types of land use based on the most likely setting appropriate to the category. The numbers of employees by land use category are then summed for each general employment category and percentages calculated, which are summarized on Table N-1.

Importantly, the analysis is used only to determine the percentages by land use category. Total employment shown on Table N-1 falls short of the total employment estimated by Woods & Poole (41,105) because of the jobs not counted by the Census Bureau (discussed above).

**Table N-1**  
**Summary: Employment by Land Use Category--2000**  
**Douglas County**

	Employees	Predominant Setting				Percent			
		Retail	Office	Industrial	Pub/Inst	Retail	Office	Industrial	Pub/Inst
Agricultural Production, Farming	143	-	-	-	-	0.0%	0.0%	0.0%	0.0%
Construction	2,378	-	447	447	-	0.0%	18.8%	18.8%	0.0%
Manufacturing, Mining	2,915	-	12	2,903	-	0.0%	0.4%	99.6%	0.0%
Transportation and Public Utilities	1,311	75	244	992	-	5.7%	18.6%	75.7%	0.0%
Wholesale Trade	1,389	-	195	1,194	-	0.0%	14.0%	86.0%	0.0%
Retail Trade	7,133	6,604	43	486	-	92.6%	0.6%	6.8%	0.0%
Finance, Insurance and Real Estate	1,082	210	872	-	-	19.4%	80.6%	0.0%	0.0%
Services	12,980	4,534	6,576	1,157	713	34.9%	50.7%	8.9%	5.5%
Government	4,557	-	177	-	4,380	0.0%	3.9%	0.0%	96.1%
Unclassified	33								
<b>TOTAL EMPLOYMENT -- 2000</b>	<b>33,921</b>								

Source: Private, non-farm employment categories -- County Business Patterns, U.S. Bureau of the Census.  
Agriculture and government categories -- Woods & Poole Economics, 2003.

In some cases, employment does not result in "developed" land. Agricultural production, for instance, does not "develop" land, whereas agricultural services employment does through such uses as crop service companies, labor service companies and veterinarians. Construction employment also has less impact on development than the numbers of people engaged in construction would suggest because many contractors work out of their homes or their pick-up trucks, particularly those in specialty construction trades. Contractor offices, storage and equipment yards, on the other hand, often create demand for land.

Table N-2 converts employment from employment category to land use category. Employment by land use category is estimated by applying the percentages from Table N-1 to the estimate of employment by

employment category on Table E-4.<sup>9</sup> The Public/Institutional land use category reflects federal, State and local government employees as well as semi-public employment in such uses as private schools, churches and civic organizations.

Over the next 20 years, the employment "mix" in the county will change as job opportunities shift away from businesses in the construction, finance and real estate, and government sectors, for instance, to businesses in the manufacturing, wholesaling, retail and services sectors. These shifts are shown on Table E-2 for the county as a whole, and thus are reflected on Table E-4. Table N-2 assumes that this shifted employment mix by economic sector (such as construction, manufacturing and services) will continue to be located in the land use categories (retail, office and industrial) in the same proportion as in the past.

**Table N-2**  
**Employment Distribution by Land Use**  
**Douglas County Outside Douglasville**

	Type of Setting			
	Retail	Office	Industrial	Pub/Inst*
Construction	0.0%	18.8%	18.8%	0.0%
Manufacturing, Mining	0.0%	0.4%	99.6%	0.0%
Transport, Communications & Utilities	5.7%	18.6%	75.7%	0.0%
Wholesale Trade	0.0%	14.0%	86.0%	0.0%
Retail Trade	92.6%	0.6%	6.8%	0.0%
Finance, Insurance & Real Estate	19.4%	80.6%	0.0%	0.0%
Services	34.9%	50.7%	8.9%	5.5%
Government	0.0%	3.9%	0.0%	96.1%

2004	Retail	Office	Industrial	Pub/Inst*
Construction	-	595	595	-
Manufacturing, Mining	-	9	2,258	-
Transport, Communications & Utilities	65	211	858	-
Wholesale Trade	-	253	1,548	-
Retail Trade	5,208	34	383	-
Finance, Insurance & Real Estate	231	958	-	-
Services	3,256	4,723	831	512
Government	-	108	-	2,663
<b>2003 Total</b>	<b>8,760</b>	<b>6,891</b>	<b>6,473</b>	<b>3,175</b>

2025	Retail	Office	Industrial	Pub/Inst*
Construction	-	1,202	1,202	-
Manufacturing	-	20	4,739	-
Transport, Communications & Utilities	156	509	2,069	-
Wholesale Trade	-	653	3,998	-
Retail Trade	12,905	84	950	-
Finance, Insurance & Real Estate	476	1,970	-	-
Services	9,018	13,079	2,301	1,418
Government	-	264	-	6,525
<b>2025 Total</b>	<b>22,555</b>	<b>17,781</b>	<b>15,259</b>	<b>7,943</b>

\*Public and Institutional.

SOURCE: Evaluation of detailed 2000 employment data, County Business Patterns, U.S. Bureau of the Census.

<sup>9</sup> 2004 is interpolated between the 2000 and 2005 estimates calculated on Table E-4.

Table N-3 summarizes 2004 and 2025 employment by employment category and by land use category for the county outside of Douglasville. As noted above, some employees do not generate demand for land development. Thus, the totals for employees by employment sector are larger than the totals allocated to the land use categories.

**Table N-3**  
**Employment Forecast by Land Use**  
**Douglas County Outside Douglasville**

	2004	2025
<b>Employment by Sector</b>		
Construction	3,167	6,394
Manufacturing, Mining	2,268	4,759
Transport, Communications & Utilities	1,133	2,734
Wholesale Trade	1,801	4,651
Retail Trade	5,625	13,939
Finance, Insurance & Real Estate	1,189	2,445
Services	9,323	25,817
Government	2,770	6,789
<b>TOTAL by Employment Sector</b>	<b>27,276</b>	<b>67,528</b>
<b>Employment by Land Use Category</b>		
Retail Commercial	8,760	22,555
Office	6,891	17,781
Industrial	6,473	15,259
Public/Institutional	3,175	7,943
<b>TOTAL by Land Use Category*</b>	<b>25,299</b>	<b>63,538</b>

\*Some construction workers do not create demand for urban land use categories.

## Nonresidential Growth Demand—Floor Area

This section provides estimates of the amount of building floor space that will be needed to accommodate future employees in each land use category, estimated above in the unincorporated area. Building floor area will be translated into land area needs in the next section.

Tables N-4, N-5 and N-6 show estimates of the total number of square feet of floor area that will be needed to accommodate employment growth by the year 2025. A separate table is presented for each of the three private sector land use categories—retail, office and industrial—for the county outside Douglasville.

Each of the three tables shows the total number of employees by employment sector that is currently estimated for 2003 and that is forecast for 2025 (from Table N-3), and the percentage of employment by sector that is expected to occupy land in the relevant land use category (retail, office or industrial) from Table N-2. The employment figures for 2004 and 2025 for each land use category are derived by multiplying the total number of employees by employment sector by the percentages of employment for the land use category on the table.

The floor area needed to accommodate these employees is estimated by multiplying the number of employees by the average amount of floor area each employee will occupy. The “floor area per employee” factors used on the three tables are derived from national data published by the Institute of Transportation

Engineers (ITE).<sup>10</sup> The floor area per employee factors used on the following tables are generalized from a wide variety of specific land uses, as appropriate to the nature of the land use type and the employment sector, coupled with local experience in Douglas County.

**Table N-4  
Retail Demand  
Douglas County Outside Douglasville**

	<u>Total Employment</u>		Percent of Total	<u>Retail Employment</u>	
	2004	2025		2004	2025
Construction	3,167	6,394	0.0%	0	0
Manufacturing, Mining	2,268	4,759	0.0%	0	0
Transport, Communications & Utilities	1,133	2,734	5.7%	65	156
Wholesale Trade	1,801	4,651	0.0%	0	0
Retail Trade	5,625	13,939	92.6%	5,208	12,905
Finance, Insurance & Real Estate	1,189	2,445	19.4%	231	476
Services	9,323	25,817	34.9%	3,256	9,018
<b>TOTAL--Retail Employees</b>				<b>8,760</b>	<b>22,555</b>

	Floor Area per Employee*	<u>Floor Area (Sq. Feet)</u>	
		2004	2025
<b>Retail Floor Area</b>			
Construction	600	0	0
Manufacturing, Mining	0	0	0
Transport, Communications & Utilities	600	39,000	93,600
Wholesale Trade	0	0	0
Retail Trade	600	3,124,800	7,743,000
Finance, Insurance & Real Estate	300	69,300	142,800
Services	600	1,953,600	5,410,800
<b>TOTAL--Retail Floor Area</b>		<b>5,186,700</b>	<b>13,390,200</b>

\*All estimates of average gross floor area per employee are based on analysis of data from *Trip Generation, 6th Edition*, Institute of Transportation Engineers, 1997.

<sup>10</sup>*Trip Generation, 6th Edition*, Institute of Transportation Engineers, 1997.

**Table N-5  
Office Demand  
Douglas County Outside Douglasville**

	<u>Total Employment</u>		Percent of Total	<u>Office Employment</u>	
	2004	2025		2004	2025
Construction	3,167	6,394	18.8%	595	1,202
Manufacturing, Mining	2,268	4,759	0.4%	9	20
Transport, Communications & Utilities	1,133	2,734	18.6%	211	509
Wholesale Trade	1,801	4,651	14.0%	253	653
Retail Trade	5,625	13,939	0.6%	34	84
Finance, Insurance & Real Estate	1,189	2,445	80.6%	958	1,970
Services	9,323	25,817	50.7%	<u>4,723</u>	<u>13,079</u>
<b>TOTAL--Office Employees</b>				<b>6,783</b>	<b>17,517</b>

	Floor Area per Employee	<u>Floor Area (Sq. Feet)</u>	
		2004	2025
<b>Office Floor Area</b>			
Construction	300	178,500	360,600
Manufacturing, Mining	300	2,700	6,000
Transport, Communications & Utilities	300	63,300	152,700
Wholesale Trade	330	83,490	215,490
Retail Trade	600	20,400	50,400
Finance, Insurance & Real Estate	300	287,400	591,000
Services	240	<u>1,133,520</u>	<u>3,138,960</u>
<b>TOTAL--Office Floor Area</b>		<b>1,769,310</b>	<b>4,515,150</b>

**Table N-6  
Industrial Demand  
Douglas County Outside Douglasville**

	<u>Total Employment</u>		Percent of Total	<u>Industrial Employment</u>	
	2004	2025		2004	2025
Construction	3,167	6,394	18.8%	595	1,202
Manufacturing, Mining	2,268	4,759	99.6%	2,258	4,739
Transport, Communications & Utilities	1,133	2,734	75.7%	858	2,069
Wholesale Trade	1,801	4,651	86.0%	1,548	3,998
Retail Trade	5,625	13,939	6.8%	383	950
Finance, Insurance & Real Estate	1,189	2,445	0.0%	0	0
Services	9,323	25,817	8.9%	<u>831</u>	<u>2,301</u>
<b>TOTAL--Industrial Employees</b>				<b>6,473</b>	<b>15,259</b>

	Floor Area per Employee	<u>Floor Area (Sq. Feet)</u>	
		2004	2025
<b>Industrial Floor Area</b>			
Construction	430	255,850	516,860
Manufacturing, Mining	540	1,219,320	2,559,060
Transport, Communications & Utilities	1,050	900,900	2,172,450
Wholesale Trade	800	1,238,400	3,198,400
Retail Trade	800	306,400	760,000
Finance, Insurance & Real Estate	0	0	0
Services	430	<u>357,330</u>	<u>989,430</u>
<b>TOTAL--Industrial Floor Area</b>		<b>4,278,200</b>	<b>10,196,200</b>

## Nonresidential Summary

Table N-7 summarizes demand for nonresidential uses (in square feet of floor area) from 2004 to 2025 for the county outside of Douglasville, and converts the floor area demand into acres of land.

	2004	2025	Increase
<b>Total Floor Area</b>			
Retail Commercial	5,186,700	13,390,200	8,203,500
Office	1,769,310	4,515,150	2,745,840
Industrial	4,278,200	10,196,200	5,918,000
Public/Institutional	952,500	2,382,900	1,430,400
<b>TOTAL Nonres Floor Area</b>	<b>12,186,710</b>	<b>30,484,450</b>	<b>18,297,740</b>
		sf per acre:	Acres:
<b>Acres of Land</b>			
Retail Commercial		8,000	1,025.4
Office		12,000	228.8
Industrial		10,000	591.8
Public/Institutional		10,000	143.0
<b>TOTAL Acres (Net )</b>			<b>1,989.1</b>

Over the 2004-2025 planning period, over 18 million square feet of occupied nonresidential space will be needed to accommodate employment growth forecast for the unincorporated area of the county. Based on standard floor area per acre ratios, this equates to almost 2,000 acres of land needed for development of the increase in nonresidential space.

## Development Capacity

The county currently has capacity to accommodate additional residential and nonresidential growth in the years ahead, embodied in its supply of vacant, developable land. This section estimates the growth capacity as currently zoned, and compares it to the demand for new growth estimated in earlier sections. As the area for which the Land Use Plan of the Douglas County Comprehensive Plan Update will be prepared, this section only addresses the unincorporated portion of Douglas County.

First, estimates are made of the amount of land that is available to accommodate future land development. These net land areas are, specifically, the land upon which actual buildings can be placed (along with such accessory areas as parking lots and loading areas, normal yards and, where appropriate, new streets along lot frontages). The current capacity of this net land to be developed is then estimated for residential and nonresidential growth, and then compared to the demand forecasts for growth to 2025.

Finally, the planning implications of comparing development demand to capacity are discussed.

## Net Land Availability

The following tables show the amount of vacant land in the unincorporated portion of the county, as currently zoned.

On each table, the gross acreage of vacant land in each zoning district is reduced by the amount that is located within the 100-year flood plain (the "A" and the "AE" areas designated by FEMA), resulting in a net

Table CAP-1 Vacant Land by Zoning Category Inside Watershed Protection Areas*					Table CAP-2 Vacant Land by Zoning Category Outside Watershed Protection Areas				
Zoning Category	Gross Acreage	Floodplain Acres		Net Acres	Zoning Category	Gross Acreage	Floodplain Acres		Net Acres
		Designated "A"	Designated "AE"				Designated "A"	Designated "AE"	
AG	-	-	-	-	AG	-	-	-	-
R-1	9,745.67	570.22	91.44	9,084.00	R-1	12,880.33	811.14	888.75	11,180.45
R-2	1,426.65	-	1.70	1,424.95	R-2	5,655.03	113.34	230.99	5,310.69
R-3	26.09	-	-	26.09	R-3	5.76	-	-	5.76
R-4	-	-	-	-	R-4	177.66	0.14	29.78	147.74
R-5	-	-	-	-	R-5	-	-	-	-
R-6	-	-	-	-	R-6	61.19	-	-	61.19
R-7	1.51	-	-	1.51	R-7	162.74	8.40	-	154.34
R-8	-	-	-	-	R-8	96.89	-	1.77	95.12
R-9	-	-	-	-	R-9	64.41	-	-	64.41
R-10	-	-	-	-	R-10	-	-	-	-
PUD	2,555.53	93.63	257.46	2,204.44	PUD	1,952.79	141.21	83.44	1,728.14
OI-1	-	-	-	-	OI-1	73.59	-	5.60	67.99
OI-2	-	-	-	-	OI-2	-	-	-	-
C-1	12.33	-	-	12.33	C-1	29.85	-	-	29.85
C-2	14.29	-	-	14.29	C-2	254.39	-	1.23	253.16
C-3	6.87	-	-	6.87	C-3	170.00	1.51	44.91	123.58
C-4	15.88	-	-	15.88	C-4	106.45	-	2.80	103.66
C-5	-	-	-	-	C-5	2.24	-	-	2.24
M-1	101.88	-	-	101.88	M-1	622.88	-	135.76	487.11
M-1R	-	-	-	-	M-1R	1,656.04	-	340.87	1,315.17
M-2	0.25	-	-	0.25	M-2	60.68	-	28.96	31.73
	13,906.94	663.85	350.60	12,892.49		24,032.93	1,075.75	1,794.85	21,162.34

\* Designated Watershed Protection areas (Dog River and Bear Creek) where 3-acre minimum lots required.

acreage figure "available" for development. Separate calculations are shown for the portion of the county that is located within watershed protection areas where the minimum residential lot size is 3 acres<sup>11</sup> (CAP-1) and for the area outside the areas restricted to 3-acre lots (CAP-2). Together, these areas total some 37,940 acres, of which 3,885 acres (roughly 10%) are in flood plains, leaving 34,055 net developable acres.

## Residential Development Capacity

### Density Factors

In order to estimate the capacity of the vacant land in the various residential zoning districts to support future development, realistic development density factors are used.

**Table CAP-3**  
**Maximum Practical Residential Densities**  
**Douglas County Zoning Ordinance**

	AG	R-1			R-2		R-3	R-4	R-5 <sup>4</sup>	R-6	R-7	R-8	R-9	R-10
		WS <sup>3</sup>	Not Sewered	Sewered	Not Sewered	Sewered								
Min. Area per Unit (sq. ft.)	435,600	130,680	87,120	43,560	21,780	15,000	10,000	2,400	5,445	5,445	15,000	4,500	10,000	6,000
Min. Width of Property	150	150	150	150	100	80	50	20	n/a	n/a	80	50	70	60
Associated area:														
Min. Street <sup>1</sup>	3,750	3,750	3,750	3,750	2,500	2,000	1,250	500	-	-	2,000	1,250	1,750	1,500
Efficiency Loss <sup>2</sup>	3,750	3,750	3,750	3,750	2,500	2,000	1,250	500	-	-	2,000	1,250	1,750	1,500
Required Open Space	-	-	-	-	-	-	-	2,045	-	-	-	-	-	-
Total per Unit	7,500	7,500	7,500	7,500	5,000	4,000	2,500	3,045	-	-	4,000	2,500	3,500	3,000
Avg. Min. Land per Lot	443,100	138,180	94,620	51,060	26,780	19,000	12,500	5,445	5,445	5,445	19,000	7,000	13,500	9,000
<b>Max. Density (units/acre)</b>	<b>0.0983</b>	<b>0.3152</b>	<b>0.4604</b>	<b>0.8531</b>	<b>1.6266</b>	<b>2.2926</b>	<b>3.4848</b>	<b>8.0000</b>	<b>8.0000</b>	<b>8.0000</b>	<b>2.2926</b>	<b>6.2229</b>	<b>3.2267</b>	<b>4.8400</b>

<sup>1</sup> Width x 1/2 r-o-w. R-5 and R-6 reflect 8 units per acre gross (no internal streets).

<sup>2</sup> Equal to area in r-o-w.

<sup>3</sup> 3-acre minimum lot requirement in designated Watershed Protection areas (Dog River and Bear Creek).

<sup>4</sup> Minimum site for an R-5 project is 3 acres.

Table CAP-3 provides a calculation of development density that could be achieved in practical terms for an average, reasonably efficient subdivision based on the minimum lot size in the development. For each lot size category, land is included in the development for streets to serve the lots and for efficiency loss. This latter factor reflects larger lots often found on cul-de-sacs and at street corners, as well as amenity areas in larger developments. This average minimum land consumed per lot (the lot, streets and efficiency loss) is used to calculate the maximum practical density for each lot size category. Actual density for any given subdivision, of course, may be lower, reflecting difficult topography, unusual land configuration and other challenging features of the site.

Maximum densities for the multi-family districts (R-4, R-5 and R-6) are set by the zoning districts themselves at 8 units per acre. The R-4 Single-Family Townhouse district itself requires open space to be

<sup>11</sup> Impervious surface for nonresidential development is also restricted.

provided on a per-unit basis, which is included in the calculation, although the maximum density would control the total number of units that could be built in each townhouse development.

## Development Capacity of Residential Land

The net acres of land "available" for development, multiplied by the maximum practical densities that could be realistically achieved, results in a maximum amount of future residential development that could be accommodated in the unincorporated area of Douglas County under current zoning. Table CAP-4 shows these estimates, both for the total units possible and for the number of units by type (single-family detached, duplex and multi-family) based on the zoning categories. Note that mobile home subdivisions (R-7) are treated as single-family detached, while mobile home parks are considered multi-family.

**Table CAP-4**  
**Residential Development Capacity**  
**Unincorporated Douglas County**

	Net Acres*	Maximum Density	Maximum Units	Units by Type		
				Single-Family	Two-Family	Multi Family
<b>Inside Watershed Protection Areas**</b>						
AG Rural Agricultural	-	0.0983	-	-	-	-
R-1 Residential Agricultural	9,084.00	0.3152	2,863	2,863	-	-
R-2 Single-Family Residential	1,424.95	0.3152	449	449	-	-
R-3 Two-Family Residential	26.09	0.3152	8	-	8	-
R-4 Single-Family Townhouse	-	0.3152	-	-	-	-
R-5 Condominium Residential	-	0.3152	-	-	-	-
R-6 Multi-Family Residential	-	0.3152	-	-	-	-
R-7 Mobile Home Residential	1.51	0.3152	-	-	-	-
R-8 Mobile Home Park	-	0.3152	-	-	-	-
R-9 Medium Density Single-Family	-	0.3152	-	-	-	-
R-10 High Density Single-Family	-	0.3152	-	-	-	-
PUD Planned Unit Development	2,204.44	0.3152	694	694	-	-
<b>Subtotal</b>	<b>12,741</b>		<b>4,014</b>	<b>4,006</b>	<b>8</b>	<b>-</b>
<b>Outside Watershed Protection Areas</b>						
AG Rural Agricultural	-	0.0983	-	-	-	-
R-1 Residential Agricultural	11,180.45	0.8531	9,538	9,538	-	-
R-2 Single-Family Residential	5,310.69	2.2926	12,175	12,175	-	-
R-3 Two-Family Residential	5.76	3.4848	20	-	20	-
R-4 Single-Family Townhouse	147.74	8.0000	1,181	-	-	1,181
R-5 Condominium Residential	-	8.0000	-	-	-	-
R-6 Multi-Family Residential	61.19	8.0000	489	-	-	489
R-7 Mobile Home Residential	154.34	2.2926	353	353	-	-
R-8 Mobile Home Park	95.12	6.2229	591	-	-	591
R-9 Medium Density Single-Family	64.41	3.2267	207	207	-	-
R-10 High Density Single-Family	-	4.8400	-	-	-	-
PUD Planned Unit Development***	1,679.75	2.2926	3,851	3,851	-	-
<b>Subtotal</b>	<b>18,699</b>		<b>28,405</b>	<b>26,124</b>	<b>20</b>	<b>2,261</b>
<b>TOTAL Residential Capacity</b>	<b>31,440</b>		<b>32,419</b>	<b>30,130</b>	<b>28</b>	<b>2,261</b>

\* Net land exclusive of flood plain areas.

\*\* Designated Watershed Protection areas (Dog River and Bear Creek) where 3-acre minimum lots required.

\*\*\* Excludes vacant commercial and industrial PUD acres.

Overall, current zoning in the unincorporated area could support, at most, about 32,400 new housing units, the vast majority of which (92.9%) would be homes on individual lots. Duplex zoning (R-3) is insignificant in the county, while 7.0% of the total future capacity falls under the multi-family zoning districts.

## Nonresidential Development Capacity

Nonresidential development capacity is calculated in a manner similar to that used for estimating residential capacity. The net acres of land "available" for development, multiplied by the average floor-area-per-acre standards that could be realistically achieved, results in a maximum amount of future nonresidential development that could be accommodated under current zoning. Table CAP-5 shows these calculations, which includes the total floor area for each zoning district as well as the floor areas by land use type (office, retail commercial and industrial) based on the type of zoning.

For the area outside of the designated watershed protection areas, the same standard floor-area-per-acre ratios are used that are shown on Table N-7, with the addition of an inconsequential increase for the OI-2

**Table CAP-5**  
**Nonresidential Development Capacity**  
**Unincorporated Douglas County**

	Net Acres*	Floor Area per Acre	Maximum Floor Area	Floor Area by Land Use		
				Office	Retail	Industrial
<b>Inside Watershed Protection Areas</b>						
OI-1 Low Density Office/Institutional	-	7,200	-	-	-	-
OI-2 High Density Office	-	12,000	-	-	-	-
C-1 Neighborhood Commercial	12.33	4,800	59,176	-	59,176	-
C-2 General Commercial	14.29	4,800	68,586	-	68,586	-
C-3 Highway Commercial	6.87	4,800	32,952	-	32,952	-
C-4 Heavy Commercial	15.88	4,800	76,223	-	76,223	-
C-5 Commercial Amusement	-	4,800	-	-	-	-
M-1 Light Industrial	101.88	6,000	611,309	-	-	611,309
M-1R Restricted Light Industrial	-	6,000	-	-	-	-
M-2 Heavy Industrial	0.25	6,000	1,522	-	-	1,522
PUD Planned Unit Development	-	6,000	-	-	-	-
<b>Subtotal</b>	<b>151.50</b>		<b>849,767</b>	<b>-</b>	<b>236,937</b>	<b>612,830</b>
<b>Outside Watershed Protection Areas</b>						
OI-1 Low Density Office/Institutional	67.99	12,000	815,854	815,854	-	-
OI-2 High Density Office	-	20,000	-	-	-	-
C-1 Neighborhood Commercial	29.85	8,000	238,810	-	238,810	-
C-2 General Commercial	253.16	8,000	2,025,313	-	2,025,313	-
C-3 Highway Commercial	123.58	8,000	988,628	-	988,628	-
C-4 Heavy Commercial	103.66	8,000	829,265	-	829,265	-
C-5 Commercial Amusement	2.24	8,000	17,959	-	17,959	-
M-1 Light Industrial	487.11	10,000	4,871,112	-	-	4,871,112
M-1R Restricted Light Industrial	1,315.17	10,000	13,151,681	-	-	13,151,681
M-2 Heavy Industrial	31.73	10,000	317,269	-	-	317,269
PUD Planned Unit Development	48.39	10,000	483,900	-	-	483,900
<b>Subtotal</b>	<b>2,462.88</b>		<b>23,739,791</b>	<b>815,854</b>	<b>4,099,975</b>	<b>18,823,962</b>
<b>TOTAL Nonresidential Capacity</b>	<b>2,614.38</b>		<b>24,589,558</b>	<b>815,854</b>	<b>4,336,912</b>	<b>19,436,792</b>

high-rise office district to 20,000 square feet per acre (a “mid-rise” FAR<sup>12</sup> of almost 0.5). As noted above, the amount of impervious surface (such as buildings, parking lots and driveways) that can be located on a site is restricted within the watershed protection areas designated for 3-acre lot residential development. An equivalent reduction in development intensity to comply with these maximums—60%--is applied to the “outside” floor area ratios for determine appropriate floor area ratios to use in the “inside” zoning districts.

Overall, some 24.6 million square feet of new floor area could be accommodated by current zoning, the clear majority of which are zoned in the industrial districts (79%). The commercial zoning districts could accommodate 18% of estimated future development, while 3% are zoned low density office (OI-1).

## Demand/Capacity Analysis

This section of the report has estimated the amount of additional development that the unincorporated portion of the county can accommodate as currently zoned (and assuming no redevelopment of currently existing land uses). Table CAP-6 compares this current development capacity to the future demand for development forecast to the year 2025 in earlier sections of this report.

**Table CAP-6**  
**Demand/Capacity Comparison**  
**Unincorporated Douglas County**

	Development Demand 2025	Development Capacity	Unmet Demand	Excess Capacity	Percent Unmet	Percent Excess
<b>Residential Growth</b> (in housing units)	<b>33,888</b>	<b>32,419</b>	<b>1,469</b>	-	<b>4%</b>	0%
Single-Family	31,693	30,130	1,563	-	5%	0%
Two-Family	247	28	219	-	89%	0%
Multi Family	1,941	2,261	-	320	0%	14%
<b>Nonresidential Growth</b> (in square feet of floor area)	<b>18,297,740</b>	<b>24,589,558</b>	-	<b>6,291,818</b>	0%	<b>26%</b>
Office	2,745,840	815,854	1,929,986	-	70%	0%
Retail Commercial	8,203,500	4,336,912	3,866,588	-	47%	0%
Industrial	5,918,000	19,436,792	-	13,518,792	0%	70%

Overall, projected residential growth is very close to the capacity available, exceeding it by only 4%. Given the approximations in the methodology, this would represent a complete build out of the residential areas by (or before) 2025 as currently zoned. The same can be said for the single-family detached category, with demand at 5% over current capacity. There is a clear but very small lack of land designated for duplexes, while the multi-family zoning districts can accommodate 14% more units than demanded in 2025.

On paper, nonresidential zoning, overall, can accommodate a comfortable 26% more development than the 2025 demand. This “overhead” of excess capacity could easily disappear by 2025, however, absorbed by developed but vacant sites, excess land bought by companies for future expansion, and inefficiencies in

<sup>12</sup> The Floor Area Ratio—the total floor area on a site divided by the land area of the site.

land development. The distribution of the vacant land by zoning category, however, does not match the future demand by land use type very well. For instance, there would appear to be far more land zoned for industrial development than needed, at least by 2025, while only about one-half of the retail commercial demand can be accommodated on commercially zoned land. Land specifically zoned for office uses is particularly in short supply; although office uses are allowed in the commercial zoning districts, there is already too little land zoned commercial to accommodate retail development alone. Together, future demand for office and retail development will amount to almost 11 million square feet of floor area, while only 5.2 million of that can be accommodated by existing office and commercially zoned land. Providing the new office and retail zoning for the additional 5.8 million square feet could involve as many as 625 acres of land.

Industrially zoned land can also be used for certain professional and administrative office uses, and limited commercial use, which would absorb some of the excess industrial zoning. While mid-rise office parks are often found in and around the kind and quality of industrial development that M-1R requires, industrial zoning is often unattractive to commercial and office development oriented to retail sales and personal services.

## Implications for Planning

The demand/capacity analysis has several implications for preparation of the Comprehensive Plan, including specifically the Future Land Use Map.

- By 2025, the residential areas of unincorporated Douglas County will be completely built out.
- Outside of the 3-acre lot watershed protection areas, pressures to bring sanitary sewer to all portions of the unincorporated area will mount. Given the market pressures generating demand, rezoning requests to R-2 for subdivisions on sewer will increase accordingly.
- There appears to be more than adequate land already zoned and available for multi-family development. Unless a particular location would be notably advantageous to the county for multi-family zoning, no additional land zoned for multi-family use is needed.
- There is a small but unmet market for two-family residential development (duplexes compose less than 1% of future residential demand). Rather than focus on new R-3 rezonings, the inclusion of duplexes as one type of housing in a mixed-use master planned development should be encouraged.
- Upwards of 600 acres of additional office and commercially zoned land is needed to accommodate future retail and service uses, both of which will be attracted to the county by its population growth and resulting increase in disposable income.
- While the county contains many more acres of industrial land than 2025 forecasts would absorb, retaining an excess of land for development beyond 2025 would not be inappropriate. While some vacant industrially zoned land may not be well located for non-industrial uses, some should be considered for commercial and/or higher density/smaller lot residential development (particularly in a planned development setting).

## Appendix A—Estimates of Employment by Land Use Category--2000

	TOTAL Employees	Mid-March Employees	Predominant Setting				Percent			
			Retail	Office	Industrial	Pub/Inst	Retail	Office	Industrial	Pub/Inst
<b>Agricultural Production, Farming</b>	<b>143</b>	143					0.0%	0.0%	0.0%	0.0%
<b>Construction</b>	<b>2,378</b>		<b>0</b>	<b>447</b>	<b>447</b>	<b>0</b>	0.0%	18.8%	18.8%	0.0%
Building, Developing, and General Contracting		386		97	97					
Heavy Construction		517		129	129					
Special Trade Contractors		1,475		221	221					
<b>Manufacturing, Mining</b>	<b>2,915</b>		<b>0</b>	<b>12</b>	<b>2,903</b>	<b>0</b>	0.0%	0.4%	99.6%	0.0%
Mining		74 *		7	67					
Food Manufacturing		2 *			2					
Beverage and Tobacco Product Manufacturing		0			0					
Textile Mills		0			0					
Textile Product Mills		15 *			15					
Apparel Manufacturing		11			11					
Leather and Allied Product Manufacturing		0			0					
Wood Product Manufacturing		2 *			2					
Paper Manufacturing		110 *			110					
Printing and Related Support Activities		19		5	14					
Petroleum and Coal Products Manufacturing		44 *			44					
Chemical Manufacturing		77 *			77					
Plastics and Rubber Products Manufacturing		664			664					
Nonmetallic Mineral Product Manufacturing		113			113					
Primary Metal Manufacturing		77 *			77					
Fabricated Metal Product Manufacturing		960			960					
Machinery Manufacturing		130			130					
Computer and Electronic Product Manufacturing		82 *			82					
Electrical Equipment, Appliance, and Component Manufacturing		2 *			2					
Transportation Equipment Manufacturing		159 *			159					
Furniture and Related Product Manufacturing		221			221					
Miscellaneous Manufacturing		153			153					
<b>Transportation and Public Utilities</b>	<b>1,311</b>		<b>75</b>	<b>244</b>	<b>992</b>	<b>0</b>	5.7%	18.6%	75.7%	0.0%
Air Transportation		175 *			175					
Rail Transportation		0			0					
Water Transportation		0	0							
Truck Transportation		285 *			285					
Transit and Ground Passenger Transportation		0			0					
Pipeline Transportation		0			0					

	TOTAL Employees	Mid-March Employees	Predominant Setting				Percent			
			Retail	Office	Industrial	Pub/Inst	Retail	Office	Industrial	Pub/Inst
Scenic and Sightseeing Transportation		0			0					
Support Activities for Transportation		24 *		24						
Couriers and Messengers		172 *			172					
Warehousing and Storage		2 *			2					
Broadcasting and Telecommunications		377	75	151	151					
Utilities		276		69	207					
<b>Wholesale Trade</b>	<b>1,389</b>		<b>0</b>	<b>195</b>	<b>1,194</b>	<b>0</b>	0.0%	14.0%	86.0%	0.0%
Durable Goods		822		82	740					
Nondurable Goods		567		113	454					
<b>Retail Trade</b>	<b>7,133</b>		<b>6,604</b>	<b>43</b>	<b>486</b>	<b>0</b>	92.6%	0.6%	6.8%	0.0%
Motor Vehicle and Parts Dealers		1,193	1,074		119					
Furniture and Home Furnishings Stores		276	276							
Electronics and Appliance Stores		212	212							
Building Material and Garden Equipment and Supplies Dealers		577	289		288					
Food and Beverage Stores		1,438	1,438							
Health and Personal Care Stores		195	195							
Gasoline Stations		315	236		79					
Clothing and Clothing Accessories Stores		863	863							
Sporting Goods, Hobby, Book, and Music Stores		309	309							
General Merchandise Stores		1,379	1,379							
Miscellaneous Store Retailers		333	333							
Nonstore Retailers		43		43						
<b>Finance, Insurance and Real Estate</b>	<b>1,082</b>		<b>210</b>	<b>872</b>	<b>0</b>	<b>0</b>	19.4%	80.6%	0.0%	0.0%
Banks and depository institutions		468	140	328						
Securities, Commodity Contracts, and Other Financial Investments		6 *		6						
Insurance Carriers and Related Activities		221 *	44	177						
Funds, Trusts, and Other Financial Vehicles		0		0						
Real Estate		128	26	102						
Rental and Leasing Services		259		259						
Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)		0		0						
<b>Services</b>	<b>12,980</b>		<b>4,534</b>	<b>6,576</b>	<b>1,157</b>	<b>713</b>	34.9%	50.7%	8.9%	5.5%
Publishing Industries		34 *		34						
Motion Picture and Sound Recording Industries		12	12							
Information Services and Data Processing Services		2 *		2						
Professional, Scientific, and Technical Services		861		861						
Management of Companies and Enterprises		160		160						
Administrative and Support Services		3,631	545	3,086						

	TOTAL Employees	Mid-March Employees	Predominant Setting				Percent				
			Retail	Office	Industrial	Pub/Inst	Retail	Office	Industrial	Pub/Inst	
Waste Management and Remediation Services		38			38						
Educational Services		100		5		95					
Ambulatory Health Care Services		1,195		1,195							
Hospitals		804		804							
Nursing and Residential Care Facilities		33 *		33							
Social Assistance		438 *	175	263							
Performing Arts, Spectator Sports, and Related Industries		28 *	28								
Museums, Historical Sites, and Similar Institutions		0				0					
Amusement, Gambling, and Recreation Industries		109 *	109								
Accommodation		223	223								
Food Services and Drinking Places		3,512	3,161		351						
Repair and Maintenance		694	139		555						
Personal and Laundry Services		355	142		213						
Religious, Grantmaking, Civic, Professional, and Similar Organizations		651		33		618					
Auxiliaries (exc corporate, subsidiary & regional mgt)		100		100							
<b>Government</b>	<b>4,557</b>		<b>0</b>	<b>177</b>	<b>0</b>	<b>4,380</b>	0.0%	3.9%	0.0%	96.1%	
Federal Civilian		177		177							
Federal Military		320				320					
State and Local		4,060				4,060					
<b>Unclassified</b>	<b>33</b>	33					0.0%	0.0%	0.0%	0.0%	
<b>TOTAL EMPLOYMENT -- 2000</b>	<b>33,921</b>	<b>33,921</b>									

\* Estimated from data supplied by Census Bureau.

Source: Private, non-farm employment categories -- County Business Patterns 2000, U.S. Bureau of the Census. Agriculture and government categories -- Woods & Poole Economists, year 2000 from Douglas County Data Pamphlet 2003.

## Appendix B—The Data Regression Process

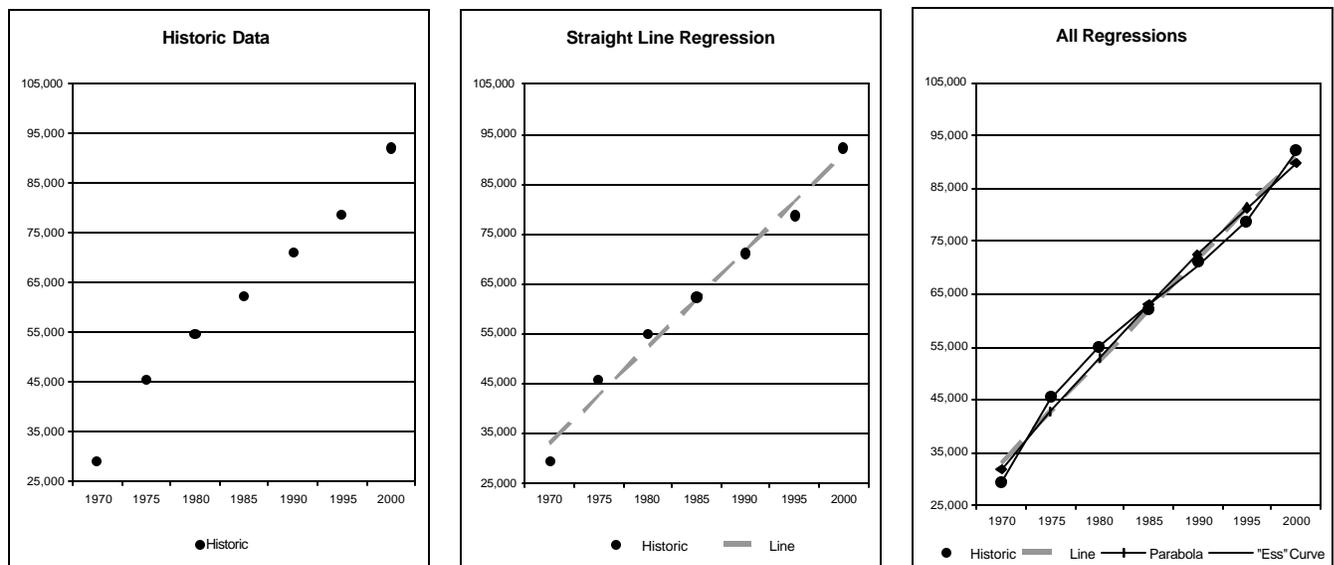
The term “regression” when used in projecting historical data into the future is a mathematical expression for a method of finding trends in the known data on which the projections can be based.

Some refer to this as “curve-fitting” because the process attempts to find the line that “best fits” the known data points; continuing this line into the future produces the projection. The “best fit” line is the line that has the highest correlation to the data—that is, the line with data points that are, collectively, the closest to reproducing the historic data points. In some cases, of course, the “best fit” is not the most realistic projection, as discussed in the text of this report.

Demographic data is highly complex and rarely fits neatly along a simple line. On the other hand, demographic data regarding population and employment almost always reflect a progression from the past into the future as change occurs. Some years may show a much greater change than others, but trends in these changes over time are usually evident. Regression analysis, then, attempts to “fit” a straight line (1<sup>st</sup> order regression), a parabolic line (2<sup>nd</sup> order, which assumes a steady change that is constantly increasing or decreasing) and an “ess” curve (3<sup>rd</sup> order, which assumes that the trend is to go up for awhile and then down, or vice versa) to best define the trend in the data.

Ultimately, fitting trend lines to historic data must be viewed as an approximation at best, and extending these lines into the future is useful as a tool, an indicator of the future, but not necessarily a “prediction” of reality.

The following graphs illustrate the process.

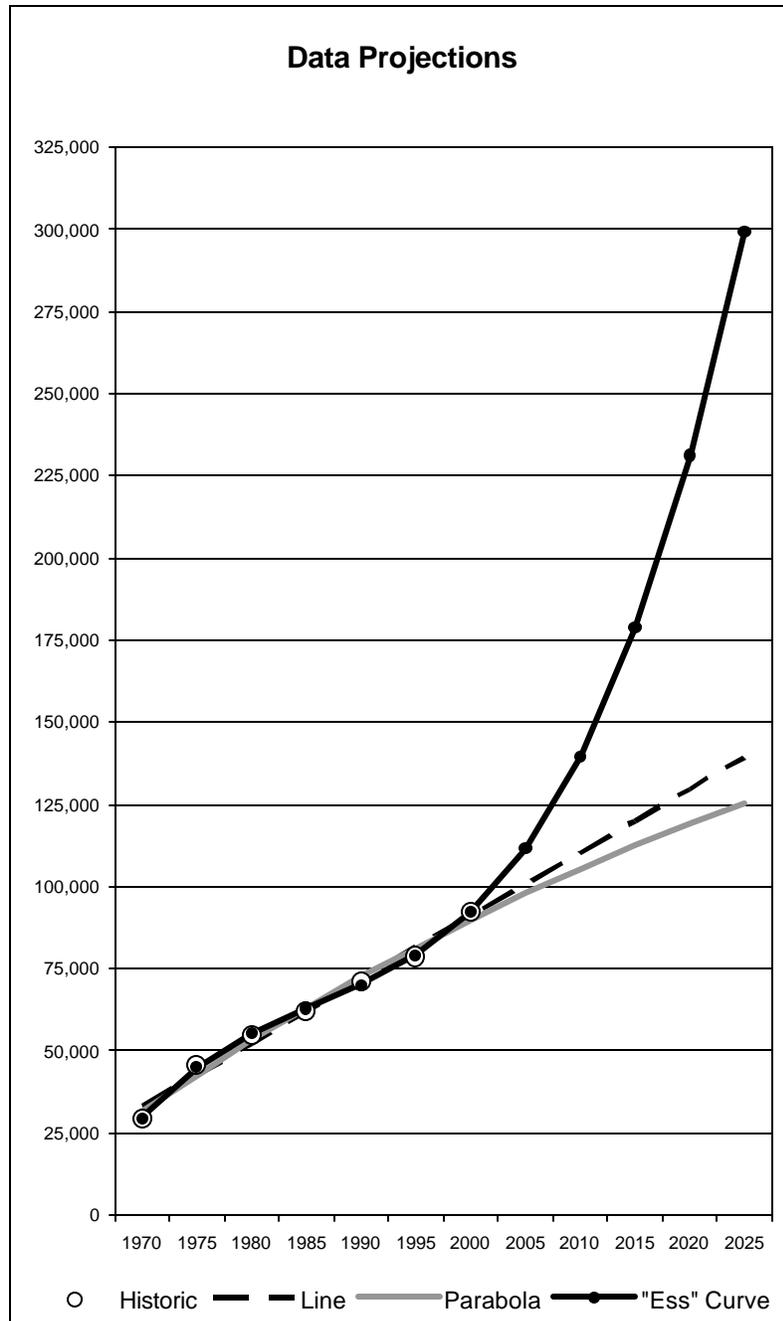


The first graph shows the historic data points for this example (in this case, the population data for Douglas County between 1970 and 2000). In the second graph, a 1<sup>st</sup> order (straight line) regression has been run against the historic data points, producing a line that “best fits” the data on average. Still, the eye tells one that the points on the first graph look more like some kind of a curve, and that the straight line doesn’t “fit” the data very well. In the third graph, all three regressions are shown. Examining the graph, the “ess” curve

seems to be the “best fit” because that line actually comes closer to hitting each of the historic data points than the other lines. In fact, the “ess” curve has the highest mathematical correlation to the historic data and therefore does, in fact, provide the best fit.

Continuing the regression lines into the future provides trend-line projections—that is, if the trend indicated by the past data continues into the future, what would be the result?

This graph below illustrates the results of projecting the regression lines shown in the example on the previous graphs into the future.



*The graph, of course, has been greatly exaggerated in order to show the extent to which each line “fits” the data points.*

As shown on the historic trend graph above, the “ess” curve had the best fit (that is, the highest correlation) to the actual historic data. This curve, projected into the future on the graph to the left, produces the highest projected result in this example. This is very much a function of the historic data, which shows a “downswing” in the rate of change between 1970 and 1985, followed by an “upswing” after 1990. By imposing an “ess” curve, the “upswing” is continued into the future. (The extent to which the “dots” on the “ess” curve line fit in the circles for the historic data points indicates how well the line fits the data.)

The parabola, not having the “downswings” and “upswings” of an “ess” curve, projects forward as a steady curve reflecting the overall change of the past. The parabola did not fit the historic data as well, however, because it could not follow the very “downswings” and “upswings” that the data revealed. In this case, the curve of the line suggests an overall slowing of the rate of growth into the future.

Lastly, the straight line regression, which had the lowest correlation to the historic data, produces a slightly higher result than the parabola in this example.