

Chapter 4

Demographic Analysis and Population Forecast

A. The Rationale for Demographic Analysis

An important element of the community planning process is to periodically measure historical growth trends and study the community's economic base in order to develop accurate economic forecasts and prepare future population projections. Having an accurate projection of the number of people that will reside in a community provides an estimate of the number of acres of undeveloped land that will be consumed during the urbanization process. This Chapter of the Colleyville Master Plan presents an analysis of population characteristics and projects the future population of the community through the twenty year planning period.

The population growth that Colleyville has experienced over the past four decades, since becoming an incorporated city, has been remarkable. Additionally, the rapid rise in household income during this same period has given Colleyville's citizens tremendous buying power, which has placed the community among the ranks of the most desirable cities in which to live in the Fort Worth-Dallas Metroplex. Marketing professionals generally view significant population growth in a community, when combined with high levels of disposable income, as good indicators of the area's economy and a positive reflection on the community's future. While the rate of population growth has been significant in the past, Colleyville has seen an expansion slowdown in recent years as the community has become focused on developing high quality neighborhoods within the limited amount of vacant properties remaining for new residential development.

B. Historical Population Growth

Since its incorporation as a city in 1956, Colleyville's choice location in the booming part of Northeast Tarrant County has contributed to substantial population growth over a very short period of time. In 1960, when the first official count of Colleyville's population was completed by the U. S. Census Bureau, the population of the community was a mere 1,491 persons.

During the latter part of the 1960's, Colleyville, like many communities located in North East Tarrant County, began to feel the early effects of rapid metropolitan growth, due to the emergence of the

Dallas – Fort Worth area as a major player in the global economy. Shown in Table 4-1 is a summary of the official Census figures for Colleyville from 1960 through 2000.

Table 4-1 Historical Population Growth		
Year	Population	Percent Change
1960	1,491	na
1970	3,342	124.1
1980	6,700	100.5
1990	12,724	89.9
2000	19,636	54.3

Source: U. S. Census Bureau, 2000

Between 1960 and 1970, Colleyville's population increased from 1,491 persons in 1960 to 3,342 persons by 1970, an increase of 124.1 percent. The trend of virtually doubling the population in Colleyville from one census enumeration period to another continued to occur during each of the subsequent three decades between 1960 and 1990. Again, from 1970 to 1980, Colleyville's population grew an astonishing 100.5 percent, increasing from 3,342 persons in 1970 to 6,700 persons by 1980. Between 1980 and 1990, the population grew from 6,700 persons to 12,724, an increase of 89.9 percent.

Table 4-2 Single Family Building Permits Issued	
Year	SF Permits Issued
1993	284
1994	215
1995	181
1996	228
1997	211
1998	222
1999	199
2000	232
2001	165
2002	138
2003	161

Source: City of Colleyville
Permit Records

Colleyville's growth during the 1990's was still phenomenal, increasing from 12,724 persons in 1990 to 19,636 in 2000, an increase of 54.3 percent. Colleyville began the decade of the 1990's growing at an annual rate of nearly nine percent. But by the middle part of the decade, in 1995, the growth rate had slowed to 3.4 percent per year and to 2.5 percent on an annual basis by 2000. The annual growth rate for the 1990's is based on housing unit construction activities during this ten year period, which are shown in Table 4-2

The slower rate of growth during the 1990's is attributed to the choices made by the community and local officials to emphasize efforts on developing high quality residential neighborhoods. The genesis for this direction came from two prior updates to the community master plan, one in 1994 and the other in 1998.

C. Age Cohort Analysis

The percentage of population of Colleyville by the various age groups from the 2000 Census is shown in Table 4-3. The two largest population groups are those between 35 and 44 years of age and 45 to 54 years of age, collectively accounting for 42.9% of the total population. A comparison of the various age groups for 1990 and 2000 shown in Table 4-4 below produces two significant conclusions. First, not all age groups experienced rapid growth during the decade of the 1990's, and second, the median age of Colleyville increased significantly during this ten year period. While most age groups experienced considerable increase between the years 1990 and 2000, it is interesting to note that the age groups of 20 to 24 years of age and 25 to 34 years of age, the young family forming age groups, actually declined during the past decade.

The decline in the number of young families in Colleyville can best be explained through the high property values in Colleyville, which are among the highest in the Dallas-Fort Worth area, making the Colleyville housing market not very conducive to first-time home buyers.

Table 4-3 Population by Age Group – 2000		
Age Group	Number	Percent
Under 5 years	1,060	5.4
5 to 9 years	1,822	9.3
10 to 14 years	2,130	10.8
15 to 19 years	1,619	8.2
20 to 24 years	446	2.3
25 to 34 years	1,053	5.4
35 to 44 years	4,075	20.8
45 to 54 years	4,335	22.1
55 to 59 years	1,270	6.5
60 to 64 years	726	3.7
65 to 74 years	771	3.9
75 to 84 years	269	1.4
85 years and older	60	0.3
Total	19,636	100.0

Source: U. S. Census Bureau, 2000

Table 4-4 Population by Age Cohort Comparison 1990 - 2000				
Age Group	1990	2000	Increase	Percent Change
Under 5 years	830	1,060	230	27.7
5 to 9 years	1,092	1,822	730	66.8
10 to 14 years	1,119	2,130	1,011	90.3
15 to 19 years	1,095	1,619	524	47.9
20 to 24 years	507	446	- 61	- 12.0
25 to 34 years	1,299	1,053	- 246	- 18.9
35 to 44 years	2,922	4,075	1,153	39.5
45 to 54 years	2,384	4,335	1,951	81.8
55 to 59 years	606	1,270	664	109.6
60 to 64 years	311	726	415	133.4
65 to 74 years	365	771	406	111.2
75 to 84 years	158	269	111	70.3
85 years and older	36	60	24	66.7
Total	12,724	19,636	6,912	54.3
Median age (years)	36.6	40.0	3.4	na

Source: U. S. Census Bureau

D. Median Age Comparison

Shown in Table 4-5 is the median age for Colleyville compared with that of several of the surrounding communities, Tarrant County and the State of Texas for the year 2000. Census statistics show Colleyville to have only 9.3% of the population aged 60 years of age and over, as compared with 13.3% for the state. The generally low percentage of elderly persons would seem to imply that the community would have a correspondingly low median age, but that is not the case in Colleyville. The 2000 census shows that the median age of 40.0 years in Colleyville is the highest median age of any of the neighboring communities, even higher than that of Tarrant County and the State.

Table 4-5 Median Age in Years - 2000 (Selected Area Cities)	
City	Median Age
Colleyville	40.0
Bedford	36.2
Eules	32.2
Grapevine	34.3
Hurst	36.6
Keller	35.0
N. Richland Hills	34.7
Tarrant County	32.3
State of Texas	32.3

Source: U. S. Census Bureau, 2000

The higher than normal median age is explained by the decline in population during the past decade of the age groups 20 to 24 years old and 25 to 34 years old. The decline in the number of young families, either staying in Colleyville or migrating to Colleyville, has impacted the median age of the community.

E. Family Income Characteristics

Median household income is a very useful statistic for measuring the economic vitality of a community. Income statistics are also helpful for marketing purposes for prospective new businesses, which may need to estimate disposal incomes for a particular new retail venture. Communities with above average income characteristics are often better able to support a more diversified commercial base. A comparison of median household incomes for Colleyville and several selected areas is shown in Table 4-6.

Table 4-6 Median Household Income of Selected Areas - 2000	
City or County	HH Income
Arlington - City	\$ 47,622
Dallas - City	\$ 37,628
Fort Worth - City	\$ 37,074
Tarrant County	\$ 46,179
Dallas County	\$ 43,324
Colleyville - City	\$ 117,419

Source: U. S. Census Bureau, 2000

Colleyville has long been noted as having one of the highest median household incomes in the Dallas-Fort Worth area and the information obtained from the Census Bureau supports this claim. The annual median household income in Colleyville, according to the 2000 Census, was \$117,419. This median household income figure is

over 254% higher than that of Tarrant County at \$46,179 and higher than the major metropolitan cities of Dallas (\$37,628) and Fort Worth (\$37,074).

Table 4-7 Distribution of Income Groups Colleyville - 2000		
Income Group	Number	Percent
Less than \$10,000	65	1.0
\$10,000 to \$14,999	47	0.7
\$15,000 to \$24,999	244	3.8
\$25,000 to \$34,999	177	2.8
\$35,000 to \$49,999	422	6.6
\$50,000 to \$74,999	622	9.8
\$75,000 to \$99,999	873	13.7
\$100,000 to \$149,999	1,692	26.6
\$150,000 to \$199,999	896	14.1
\$200,000 or more	1,322	20.8
Households	6,360	100.0
Median household income	\$117,419	

Table 4-7 shows household income statistics for the various income groups in Colleyville. One of the most striking statistics revealed from the analysis of economic data obtained from the 2000 Census is the percentage (20.8%) of households in Colleyville having incomes over \$200,000.

This is an astonishing fact, since most income group tables generally taper off with smaller percentages toward the lower and upper ends of the income groups. In Colleyville, the second highest percentile group is that group with incomes over \$200,000.

Source: U. S. Census, 2000

F. Employment Characteristics

As stated elsewhere in this report, Colleyville citizens have a very high educational attainment level, which supports the high percentage of management and professional occupations of those employed in the community. According to the 2000 Census, 55.7 percent of those employed in Colleyville fall into the management and professional occupation category as compared with only 33.3 percent of the State's employed population falling into this category.

Another interesting statistic obtained from the Census information is the very low percentage (6.5%) of workers in the service occupational category. Service occupations at the State level represent 14.6% of the employed population. Occupational employment for Colleyville for the year 2000 is shown in the following Table 4-8. Employment by industry classification is shown in Table 4-9.

Table 4-8 Occupations Colleyville - 2000		
Occupational Category	Number	Percent
Management, professional, and related occupations	5,329	55.7
Service occupations	623	6.5
Sales and office occupations	2,645	27.7
Farming, fishing, and forestry occupations	7	0.1
Construction, extraction, and maintenance	315	3.3
Production, transportation, and material moving occupations	644	6.7
Total employed	9,563	100.0

Source: U. S. Census, 2000

Table 4-9 Employment by Industry Classification Colleyville - 2000		
Industry	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	26	0.3
Construction	373	3.9
Manufacturing	1,063	11.1
Wholesale trade	534	5.6
Retail trade	1,056	11.0
Transportation and warehousing, and utilities	1,119	11.7
Information	747	7.8
Finance, insurance, real estate, and rental and leasing	956	10.0
Professional, scientific, management, administrative, and waste management services	1,185	12.4
Educational, health and social services	1,460	15.3
Arts, entertainment, recreation, accommodation and food services	508	5.3
Other services (except public administration)	310	3.2
Public Administration	226	2.4
Total Employed	9,563	100.0

Source: U. S. Census, 2000

G. Educational Attainment

The sample telephone survey of residents in Colleyville taken during the summer of 2003 showed that the number one reason people moved to Colleyville is for the high quality of educational opportunities available to their children. This interest in education is also reflected in the educational attainment levels found among the residents of Colleyville as identified by the 2000 Census.

Educational attainment in Colleyville is among the highest in the area when compared with that of Tarrant County and the State. The 2000 Census shows that in Colleyville, the percentage of population with a high school diploma or higher is 96.7% compared to that of Tarrant County at 81.3%, and the State at 75.7%. Shown in Table 4-10 below is a broad range of educational data obtained from the 2000 Census.

Table 4-10 Educational Attainment Colleyville – 2000		
	Number	Percent
Population 25 years and over	12,546	100.0
Less than 9 th grade	117	0.9
9 th to 12 th grade, no diploma	297	2.4
High school graduate (includes equivalency)	1,541	12.3
Some college, no degree	2,673	21.3
Associate degree	822	6.6
Bachelor's degree	4,683	37.3
Graduate or professional degree	2,413	19.2
Percent high school graduate or higher	96.7	Na
Percent bachelor's degree or higher	56.6	na

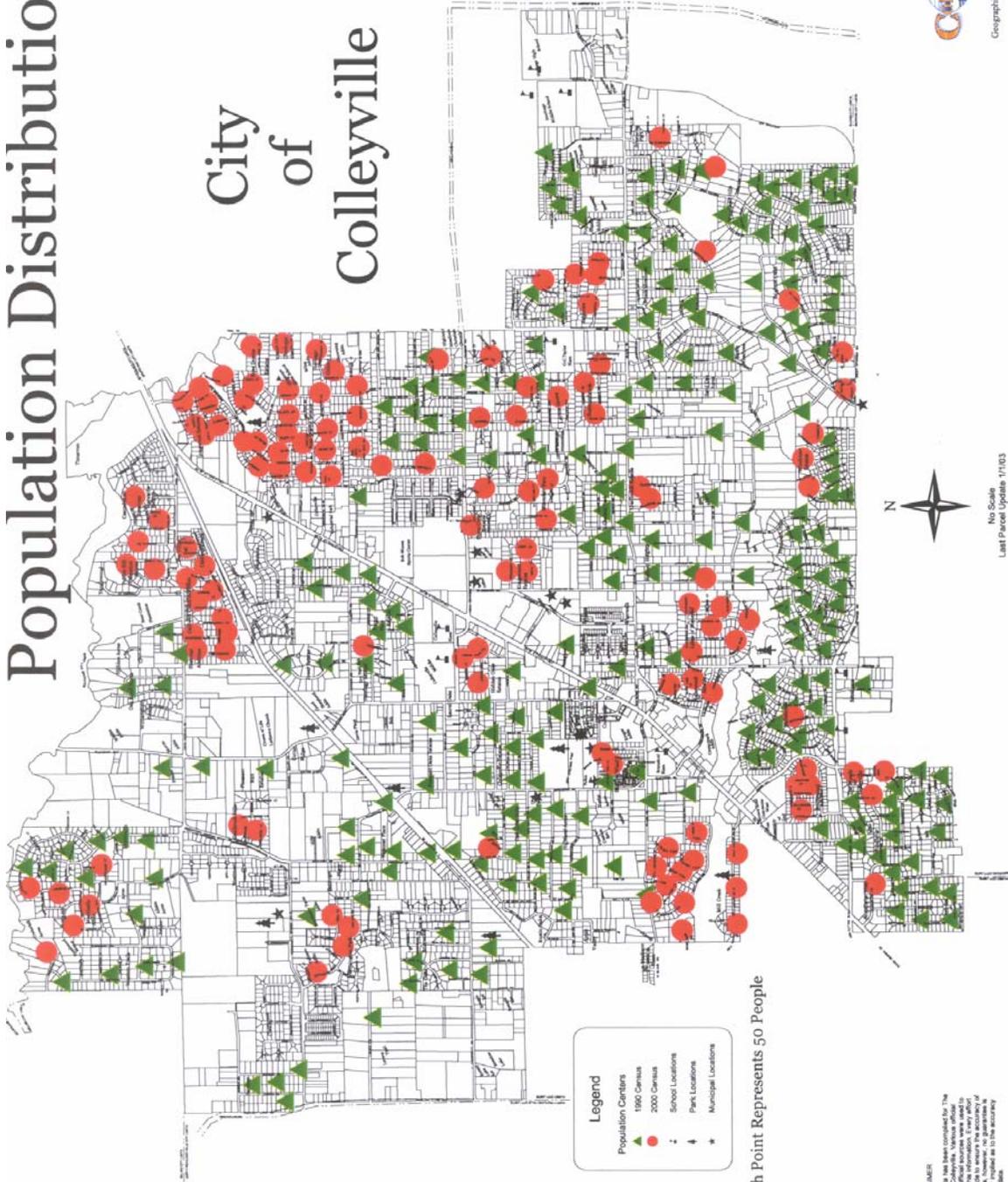
Source: U. S. Census, 2000

H. Population Distribution

A review of old U. S. Geological Survey maps of the area from the early 1960's shows most of the population in Colleyville residing along the corridors of Glade Road, Hall-Johnson Road and John McCain Road. These maps also show a small number of residential subdivisions on Bransford Road and Cheek-Sparger Road accounting for the earliest signs of residential urbanization.

Population Distribution

City of Colleyville



Legend

- Population Centers
- 1990 Census
- 2000 Census
- ▲ School Locations
- ▲ Park Locations
- ★ Municipal Locations

Each Point Represents 50 People

DISCLAIMER
 This data has been compiled for the City of Colleyville. The data is for informational purposes only and is not intended to be used for any other purpose. The City of Colleyville is not responsible for any errors or omissions in this data. The data is provided as is and without warranty.



No Scale
 Last Parcel Update: 11/10/03



Geographic Information Systems

Plate 4-1

The majority of the population of Colleyville has historically been located on the eastern side of State Highway 26, primarily in the southern portion of Colleyville along Cheek-Sparger Road. As the adjacent communities of Bedford and Euless to the south of Colleyville grew and began depleting their available vacant lands, properties in the southern part of Colleyville became very attractive for development.

During the decade of the 1990's, Colleyville began to experience considerable growth in the northeastern part of the community as a result of the development of the Ross Downs subdivision and expansion of the Highland Meadows Addition. Additional growth occurred along John McCain Road in the latter part of the 1990's with the development of new subdivisions in the vicinity of Caldwell's Creek and the Cascades of Timarron. The Mill Creek addition, along Glade Road and the Monticello addition in the far northwest part of the community also contributed to the growth of Colleyville on the west side of State Highway 26. Plate 4-1 graphically illustrates the general distribution of population for the years 1990 and 2000.

I. Current Population Estimate

In the absence of an official enumeration, the first step in making a projection of the future population is to develop an estimate of the current population. A fairly reliable estimate of the current population of Colleyville can be made by using the number of housing units shown to exist in the year 2000, when the Census was taken, and adding to that number the total count of new housing units permitted for construction since that time, less an adjustment for vacant units.

The 2000 Census indicated a total of 6,549 housing units existing in Colleyville on April 1, 2000, with 6,409 of those being occupied, a 97.8% occupancy rate. Over the past four years, since the Census was taken, building permit records show a total of 696 residential units permitted for construction. It is estimated that approximately 517 of those are completed and ready for occupancy at the end of 2003. By applying the occupancy rate of 97.8%, the 505 occupied housing units are added to the 6,409 occupied units that existed at the time the Census was taken, on April 1, 2000, which produces a total of 6,914 occupied units at the end of 2003.

Using the average household size of 3.06 persons, the January 1, 2004, population is estimated to be 21,157 persons.

J. Population Projection

There are various agencies and organizations, such as the Texas State Data Center and North Central Texas Council of Governments, who generate population estimates and

make population projections for counties and states. However, sources of population forecasts for municipalities are rather limited. Only those estimates and forecasts made either locally or by the North Central Texas Council of Governments are available for Colleyville. This section of the master plan update reviews the population information available from various sources and presents a population forecast for the ultimate build-out of the community.

The following Table 4-11 contains a summary of the most recent population forecasts for Colleyville and indicates the source of the agency responsible for making the projection.

Table 4-11 Summary of Recent Population Forecasts						
Agency or Source	2000	2005	2010	2015	2020	2025
Official Census Bureau count	19,636					
NCTCOG forecast		20,397	20,900	21,212	22,198	24,072
1994 Master Plan Update	23,300	27,000	29,500	31,500	34,000	36,039
1998 Master Plan Update	18,700	20,000	21,500	22,750	24,000	25,540

Source: U. S. Census Bureau, North Central Texas Council of Governments and City of Colleyville records

The 1994 Master Plan contains a population forecast of 36,039 persons for the year 2025. However, the population forecast prepared in 1994 relied heavily on the continuation of the rapid growth trends experienced during prior decades.

The population forecast of 36,039 persons included in the 1994 Master Plan was revised to a lower projection of 25,540 persons for the year 2025 in the 1998 Master Plan. By 1998, the community began placing a high emphasis on the use of planned residential zoning techniques, which requires generous use of open space areas as a condition to the approval of higher density developments. It was during this particular period that the community established a density bench mark of 1.8 dwelling units per acre for evaluating rezoning requests.

The physical boundaries of Colleyville are currently fixed and unless an adjustment to the city limits is agreed to by an adjacent city, the future growth of the community is limited to those vacant lands available for development within the current corporate boundaries. Therefore, the task of projecting the future population of Colleyville becomes one of determining the ultimate build-out population rather than a forecast of the population for a particular time frame. With the limited amount of vacant lands available for development, it is assumed that the build-out population will be achieved by the year 2025.

There are several methods used by demographers to forecast the population of cities, counties, regions and states. The three most commonly used projection models are (1) the component method, (2) the non-component method, and (3) the holding capacity method. Oftentimes, selecting a method is generally one of data availability, since no particular projection method is consistently more accurate than others for small areas.

The component method considers births, deaths and migration, which are then added to or subtracted from the base population number to arrive at a future population figure. However, because of data limitations for small geographic areas, such as Colleyville, the component method of forecasting future population was not used. Birth and death records for Colleyville's boundaries are not available. Furthermore, calculating migration rates, the number of persons moving into or out of a community, is not generally a reliable calculation for small areas, such as for Colleyville.

The non-component method, which uses trend indicators, generally produces more accurate population projections for small areas. This method relies on an analysis of various growth-related indicators, such as changes in housing construction or school enrollment, and extrapolating that information using historical growth patterns. This method is generally reliable for projecting the number of people that will move into a specific area, particularly where the physical boundaries of the capture area are not predetermined. However, since Colleyville's physical boundaries are basically established, caution must be used in projecting area growth trends using this method due to the possibility that those persons moving into the vicinity of Colleyville may in fact locate in an adjacent community, rather than within the Colleyville city limits.

The preferred method for determining the future population of Colleyville, and the method used in this master plan update, is the holding-capacity method, which is a measure of the number of new dwelling units that could develop within the boundaries of a specific area based on the proposed future land uses. This approach involves applying a predetermined density factor on those undeveloped lands designated for residential purposes. The holding capacity approach was also favored because this method lends itself to the goal of determining the ultimate build-out population.

Because of the uncertainty of the changing density dynamics in future years, it is necessary to establish a low and high population estimate for Colleyville. The following sections describe the methods used for preparing low and high population estimates for Colleyville.

Low Population Forecast – For each of the six neighborhoods, data exists from the 2003 land use survey for the acreage of the various types of land uses, including the amount of vacant land available for development. To determine the holding capacity for the vacant lands within each neighborhood, it is necessary to multiply the number of acres

of vacant land by a predetermined density factor, expressed as the number of dwelling units per acre (dua). While the number of acres of vacant land is available from the 2003 land use survey, the density factor ultimately used in determining the holding capacity for each neighborhood requires further discussion.

One method uses the existing residential density calculated for each of the six neighborhoods from the data collected in the 2003 land use survey. However, this method assumes that the vacant lands within each neighborhood will develop in the future at the same density as that of the existing residential areas. A review of the density factors for the six neighborhoods reveals a much lower density calculation than that experienced with recent residential developments. There are a significant number of existing large acreage-tracts that contribute to the low density figures in the current residential areas. Using the existing density factor to predict the future build out scenario would likely understate the future population.

Most recent residential developments have been reviewed and approved by the City using the 1.8 dwelling units per acre factor, which has been the benchmark for evaluating development proposals over the past several years. For the purpose of forecasting the future population, the density factor of 1.8 dwelling units per acre was used to estimate the number of new dwelling units that will be added to the housing inventory.

It is assumed in this calculation that the housing occupancy rate (97.8%) and the persons per household (3.06 persons) will generally remain constant throughout the planning period. As a part of the population forecasting process, the flood plain areas within each neighborhood were analyzed to identify those lands which are not likely to allow full utilization of available vacant lands for residential purposes in the future.

The projected build-out population, using the previously described method, produces a future build-out population forecast of 26,020 persons. Shown in Table 4-12 below is the information used to forecast the build out population for each of the six neighborhoods.

Table 4-12 Projected Build-out Population Based on Holding Capacity Analysis (Low Forecast)							
Neighborhood Area	Acres of Residential Developed 2003	Acres of Developable Vacant Residential 2003 (1)	Dwelling Units Per Acre	New Dwelling Units Added	Occupancy Rate	Persons Per Household	Estimated Population Increase
1	698	113	1.8	243	97.8%	3.06	727
2	749	34	1.8	61	97.8%	3.06	183
3	705	127	1.8	229	97.8%	3.06	685
4	404	18	1.8	32	97.8%	3.06	96
5	764	59	1.8	106	97.8%	3.06	317
6	1,219	530	1.8	954	97.8%	3.06	2,855
Total	4,539	903	1.8	1,625	97.8%	3.06	4,863
Current population estimate – 2004							21,157
Total new population added							4,863
Total build-out population forecast							26,020

Source: City of Colleyville Community Development Department – 2004

(1) Adjustment made to account for flood areas that can not be developed

High Population Forecast – The high population forecast was developed by applying a density factor of 3.5 dwelling units per acre for those areas determined to have potential for development at a higher density factor than the benchmark of 1.8 units per acre. The result of this calculation produced a population figure that was simply added to the low population estimate previously described in this Section. To avoid double counting in this process, an adjustment was made for the difference between the benchmark density of 1.8 dwelling units per acre and the high projection of 3.5 dwelling units per acre. The 3.5 dwelling units per acre density factor was chosen for the high population forecast, since this best represents the type of high density developments that have been approved in Colleyville during the past five years.

It is assumed under this scenario that not all vacant lands will develop at the 1.8 units per acre due to location factors, land development costs or other conditions that would limit their development, except at a higher than normal density level.

There are two large areas in Colleyville that have potential for higher density developments. One of these areas is located in the northwest part of Colleyville, near Precinct Line Road in Neighborhood Six. This particular area contains approximately 77 acres that could develop with transitional housing at a higher density than the 1.8 units per acre. The second large area is located in the southeast part of Colleyville near Heritage Avenue and contains approximately 76 acres of undeveloped land. There

are approximately 53 acres of vacant land scattered in various locations around Colleyville that have potential for transitional high density residential development.

By applying the density factor of 1.7 additional dwelling units per acre over the benchmark of 1.8 units per acre, the high population forecast can be calculated for the 206 acres of potential high density land. This calculation assumes the occupancy rate of 97.8% and the persons per occupied unit of 3.06 remains constant. This calculation shows that there is the potential to add 1,048 persons to the low population forecast of 26,020 persons, which produces a high population forecast of 27,068 persons.

Once the maximum population figure has been forecasted for the low estimate, as well as the high estimate, the next step in the process is to distribute the population forecast on five year increments for the years 2005 through 2025. This calculation was generated by reviewing building permit records for new housing construction and making assumptions regarding annual housing absorption rates over an extended period of time.

It is assumed that the annual rate of growth will decline as the community approaches total build-out. The low population forecast assumes Colleyville will experience an annual growth rate of 2.0 percent between 2000 and 2005, slowing to 1.5 percent annually from 2006 thru 2010, then slow even further to 1.25 percent per year between 2011 and 2015. From 2016 thru 2020, it is anticipated that the growth rate will be approximately 0.75 percent per year. For the following five year period between 2021 and 2025, the projected year of build-out, it is anticipated the growth rate will only be 0.5 percent per year. The high population forecast assumes these same annual rates of growth, but includes consideration for a segment of higher density developments throughout the planning period.

Using the above mentioned low and high growth rate estimates, the population forecast of Colleyville can be established for the various years as shown in the following Table 4-13 and is shown graphically in the following graph.

Table 4-13 Population Forecast Colleyville 2000 - 2025						
	2000	2005	2010	2015	2020	2025
Low Estimate	19,636	21,506	23,054	24,411	25,340	26,020
High Estimate	19,636	21,506	23,978	25,389	26,355	27,068

Source: City of Colleyville, Community Development Department, 2004

**Population Projection - 2025
Colleyville, Texas**

