

Broward County

Housing Linkage Fee Nexus Study

Prepared for:

The Board of County Commissioners
Broward County, Florida

Prepared by:

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CREDITS

Metropolitan Center at Florida International University:

The Metropolitan Center at Florida International University delivers information and expertise to decision makers, community leaders and citizens as they seek to forge solutions to urban problems. The Center is engaged in the study of housing, demographics, economics and politics in South Florida. The overall goal of the Center, as an "applied research" institute, is to provide decision-makers with the best possible information to forge solutions to the problems confronting South Florida's urban areas. Toward that goal, the Center provides research, training, and technical assistance to governmental and nonprofit institutions in South Florida.

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CHAPTER 1: INTRODUCTION

BACKGROUND

The Board of County Commissioners of Broward County, Florida retained the Metropolitan Center at Florida International University (FIU) to conduct a Housing Linkage Fee Nexus Analysis for Broward County. The analysis will determine the impacts of non-residential (i.e., retail, commercial, office) development on the demand for affordable housing in Broward County. The premise of the housing linkage fee concept is that new commercial development will generate a range of occupations and wage rates that will, in turn, create the demand for new housing at various affordability levels. The purpose of this study is to determine whether there exists a reasonable connection (linkage) between the construction of new workplace buildings in Broward County and the demand for housing by the new employees who work within these buildings. This section outlines the housing linkage fee concept - its historical context and legal basis - and concludes by summarizing the organization and subsequent sections of the study.

HISTORICAL CONTEXT AND LEGAL BASIS

There is ample historical precedence with respect to the legal authority of local governments to implement various linkage or impact fee programs. Essentially, “development impact fees” are one-time charges levied upon new development when building permits are issued by local governments to fund capital improvements required to serve new development activity. To meet constitutional requirements the amount of a given fee must be determined by a formula that is consistently applied and based upon a proportional distribution of costs following “rational nexus” principles. The “rational nexus test” requires that a direct relationship be shown to exist between the fee charges to new development and the demonstrable need for public improvements and that the fee is proportional to benefits or impacts caused by the new development activity.

Housing linkage fees are an extension of impact fee programs. Among the first cities to implement housing linkage fee programs were San Francisco and Boston in the 1980s. All linkage fee programs today are subject to the constitutional requirements of

nexus and “rough proportionality” under the U.S. Supreme Court cases Nollan v. California Coastal Commission, 483 U.S. 825 (1987), and Dolan v. City of Tigard, 512 U.S. 374 (1994). The Supreme Court’s decision on the Nollan case imposed a requirement that a “rational nexus” be demonstrated between the impact associated with an action and the remedy being required or, in the case of a fee, the use of the funds being extracted from the developer. The latter took this one step further by requiring “rough proportionality” of the fee being extracted to the magnitude of the development. Although there is no exact calculation or formula to quantify what constitutes “rough proportionality”, a “reasonable relationship” or “nexus” must be determined between the nature and extent of development and the amount of a fee that is required.

Subsequent to Nollan and Dolan, Ehrlich v. City of Culver City, 12 Cal. 4th 854, 867 (1996) incorporated both rulings of land dedication and “rough proportionality”. Furthermore, Ehrlich added the element of monetary fees as a means of reasonable compensation for the impact of development. The State of California in 2004 enacted the AB 1600 which requires a reasonable relationship be established between the need for an impact fee and the type of development on which a fee is being imposed.

While no such case laws exist in the State of Florida, a number of municipalities in the state have commissioned linkage fee or nexus studies (See Chapter 5) The findings of these studies have directly led to the enactment of ordinances to mitigate the impact of non-residential development on their respective housing markets. To date, no legal challenges have been mounted against these ordinances in the State of Florida.

CONCEPTUAL UNDERPINNINGS

The origination of housing linkage fee programs in the United States has had certain conceptual underpinnings. These underpinnings are primarily concerned with growth factors that contribute to the alteration of the local environment and the social issues and associated impacts brought about by growth related factors. The following is a brief summary of these conceptual underpinnings.

Jobs and Population Growth - In most cases, supply and demand theories are used to explain the relationship between jobs and change in populations. These theories argue that a change in the number of jobs available in a specific area leads to either an influx of people from other areas or an outflow of people to other areas. In essence, these theories postulate that "people follow jobs."

The movement of populations following jobs has been observed in several U.S. regions at various points during the last few decades. Recent examples include a number of Midwest cities during the 1970s and cities in the Northeast during the 1980s. Border or "gateway" cities experience this movement of populations on a more sustained level by virtue of their geographic location and relative ease as a point of entry from other parts of the hemisphere – particularly Latin and Central America. While short term economic cycles and other factors independent of jobs can result in population growth in an area, long-term population growth without jobs to support the growth is not sustainable. The in-migration to an area as a result of job creation is a central concept of this analysis. The continued growth of employment opportunities in Broward County, particularly for lower- to mid-income households, has led to greater demand on the increasingly unaffordable housing inventory in Broward County.

Construction and Job Growth - If new employment opportunities indeed lead to population growth that leads to greater demands on housing, then what causes employment growth? A second conceptual underpinning of the nexus analysis is the position that construction encourages employment growth.

Employment growth does not have a single cause. Instead, it is a complex growth pattern with interrelated and multivariate relationships often associated with regional, national or even international forces. One of the factors is the delivery of new workspace buildings. In keeping with the position that employment growth is multivariate, this study does not make the case that the construction of new buildings is solely responsible for growth. Instead, it asserts that new construction is important not only as one of a number of interrelated and contributing factors, but also as an essential condition to employment growth.

Unlike other factors responsible for employment growth, buildings play the additional unique role in that growth is difficult to sustain without them. Conversely, the inability to construct new workplace buildings can constrain or even halt job growth. Studies conducted in other parts of the country have demonstrated that a relationship exists between new building construction and employment growth. These analyses confirm that over a time frame of usually ten to fifteen years, the square feet of new workspace buildings within a jurisdiction is directly linked to growth in employment in the jurisdiction.

Substitution Factors - Any new non-residential building may be occupied in part or entirely by employees relocating from elsewhere within Broward County or even the Tri-County Area as these buildings are often leased entirely to firms relocating from other buildings in the same jurisdiction or region. However, when a firm relocates to a new building from elsewhere in the region, there is a space in an existing building that is vacated and released to another firm. That building in turn may be filled by some combination of new residents to the area and existing residents. Somewhere in that continuum new jobs to the region have been added. Another central position of this study is that new buildings bring in new employees, although not necessarily inside of the new buildings themselves.

Indirect Employment and Multipliers - In the case of an office building, for example, direct employment covers the various managerial, professional and clerical people that work in the building. Direct employment normally does not include janitorial workers, grounds and landscape maintenance workers, security guards, and the numerous other workers associated with the normal functioning of an office building. Many of these indirect employees are service workers at the lower end of the pay scale. As no readily available or identifiable data source exists that provides counts or estimates of indirect employees, every attempt will be made to arrive at an estimate of such workers by building type so as to include them in nexus calculations and avoid an underestimate of the impact of non-residential development on the Broward housing market. In the event a data source is not located or a reasonably reliable methodology is not possible, the housing needs analysis will address direct employment only.

Moreover, the inclusion of indirect employees could also lead to the question of multipliers – the concept that the income generated by certain types of jobs recycles through the economy potentially resulting in additional jobs and possibly leading to an even greater demand for housing. As the concept of multipliers is primarily an economic event (as opposed to an employment effect) this study omits the inclusion of such effects. It should also be noted that the analysis excludes all consideration of employment generated by construction (i.e., construction as an occupation) as these types of jobs are often temporary and cyclical in nature.

THE NEXUS METHODOLOGY

The methodology for this analysis has been successfully utilized by governments in other parts of the country to determine the relationship between new non-residential development and the demand for affordable housing. The methodology is a micro-level analysis customized to the local market conditions. It calls for the study of prototypical 100,000 sq. ft. commercial building types as the basis for a series of calculations aimed at quantifying the affordability nexus and establishing a basis by which to arrive at a fee amount. The basic steps of the nexus analysis are as follows:

- Determine 100,000 sq. ft. building prototypes
- Estimate number of new employees as a result of the 100,000 sq. ft. prototypes based on industry-specific average employee density figures
- Estimate wages based on occupation and income information for expected job types in the 100,000 sq. ft. building prototypes by industry
- Calculate the number of households related to the estimated number of new employees by jobs at each income level and by building type
- Divide number of households by 100,000 sq. ft. to establish a coefficient of housing unit per square foot of building area by building type
- Multiply the coefficient of housing unit per sq. ft. by the costs of delivering housing units affordable to various income groups to arrive at the nexus

The analysis links new non-residential buildings of various types with new workers brought to Broward County seeking work. It is reasonable to expect a substantial percentage of these new workers will take up residence in Broward County and as a result will create added demand for affordable housing. Given the wide range of wages associated with all industries a proportion of this demand will be for affordable housing for lower and middle-income households.

Specifically, the nexus analysis focuses on the following income categories:

- Very Low Income (under 50% median income)
- Low Income (50%-80% median income)
- Moderate Income (81%-100% median income)
- Workforce Income (101%-120% median income)
- Middle Income (121%-150% median income)

The analysis conducted by the Metropolitan Center quantifies the potential demand at each affordability level for each type of workplace building. Workplace buildings vary in employee composition. This is largely due to industry specific differences as well as to variations in density of job types within these industries, both of which are also tied to wage structure. This analysis examines seven types of workplace building types:

- Office
- Retail/Wholesale
- Institutional (Medical/Educational)
- Manufacturing/Industrial
- Warehousing
- Hotel (Hospitality)
- Entertainment

The outcome of the nexus analysis is a calculation of the potential number of housing units by affordability level associated with the new workers expected in each new non-residential building type. The nexus cost is the amount required to mitigate the affordability gap for worker housing units at each affordability level. The linkage fee that is considered as a result of the nexus analysis is designed to mitigate the development's impact on the local housing market by charging a fee to help provide housing opportunities for eligible households.

DATA SOURCES

The analysis presented in this report is based on a variety of data sources. The U.S. Census data from 1990, 2000, and 2005 are frequently utilized. These Census data products include published datasets and Public Use Microdata Samples (PUMS) which are used with custom queries¹. These PUMS files are used in order to specify the characteristics of target populations. For instance, we have used PUMS files to estimate the size and average salary of the employed population between 16 and 64 years of age. While these files allow a high amount of customization, smaller sample size increases sample error. Published Census data are more reliable than PUMS data but not sufficiently flexible. Percentages based on PUMS data will be used wherever possible. Other principal data sources include the U.S. Bureau of Labor Statistics, the Florida Agency for Workforce Innovation (AWI) Census of Employment and Wages (ES-202 program), and various county sources.

HOUSING AFFORDABILITY IN BROWARD COUNTY

The growing demand for affordable housing in Broward County and South Florida has been well documented in recent studies conducted by the FIU Metropolitan Center, including the 2006 *Broward Housing Needs Assessment* prepared on behalf of the Broward Housing Partnership. This study indicated that households at all but the highest income tiers have been affected by significant appreciation rates in housing values between 2003-2005 and the general lack of affordable housing production in recent years. Despite signs of a flattening in South Florida and Broward County's housing market over the past year, the gap in the median house price-to-median household income ratio has remained constant. In fact, rapid housing appreciation between 2003 and 2005 created an inflationary market that opened substantial affordability gaps in many of Broward County's municipalities based on existing household incomes.

Significantly, the cost of the median priced single family home in Broward County in 2005 would require a household income of at least \$ 90,720. However, the

¹ U.S. Census Bureau, 2000 Census of Population and Housing, Public Use Microdata Sample, United States: Technical Documentation, 2003.

median income for a family of four in 2005 was only \$ 51,570. This economic situation is exacerbated by the fact that the occupations that comprise Broward County's primary employment base also represent the bottom of the occupation wage scale. Strikingly, 50 percent of the occupations in Broward County earn \$25,000 per year or less. The situation is similar in most of Broward County's municipalities. Currently, 22 of Broward County's municipalities have affordability gaps of over \$100,000 based on the prevailing median sales price of a single-family home in each respective city. Likewise, rent prices are now remarkably uniform throughout Broward County, while rising at a similar rate as single-family home prices.²

STUDY STRUCTURE

The analysis presented in the subsequent chapters was conducted to determine if there exists a connection (or nexus) between large scale commercial development in Broward County and the demand for affordable workforce housing. Should the outcome of the analysis indicate that such a "nexus" exists the Board of County Commissioners of Broward County will have the economic and legal underpinning to support the adoption of a "Linkage Fee Ordinance." This would be imposed on commercial developers to support affordable housing production in the County as a way to mitigate their impact on workforce housing availability and affordability. The structure of this report is as follows:

Chapter 2 provides an analysis of the economic climate of Broward County. Data presented in this section includes population growth and projections, employment growth and shifts by industry, employment projections, employee household characteristics, wage and salary characteristics, and commuting patterns. The chapter provides the introductory "supply" analysis of Broward County's housing inventory that will be subsequently examined from the "demand" side of the equation in Chapters 3 and 4. Chapter 2 concludes with a summary of the key data findings that will be used in the nexus analysis.

² Metropolitan Center of Florida International University, (March 2006). Broward Housing Partnership Housing Needs Assessment. Broward Housing Partnership

Chapter 3 provides an analysis of the job market composition of Broward County and an estimate of housing demand. The major data components of the analysis include the number of employees working in building types (density factors); occupation distribution and income levels of employees; and estimate of households.

Chapter 4 merges the conclusions from the previous two chapters. This section assigns a cost on each housing unit at each affordability level. This is the major fee calculation component of the analysis. In particular, development costs for rentals and ownership units will be analyzed in relation to market rates to determine affordability by income levels of workers.

The final, Chapter 5 of the study merges the conclusions from the previous chapters. This is the major fee policy component of the analysis. Should the analysis indicate a nexus exists then consideration is given to the impact of linkage fees on non-residential development. The analysis includes a description of reasonable fee structures, income-level eligibility thresholds and the overall impact of linkage fees on economic development.

CHAPTER 2: ECONOMIC CLIMATE ANALYSIS

INTRODUCTION

The basic social issue driving the consideration of a housing linkage fee on non-residential new construction is the demand for affordable housing. As previously noted, the demand for affordable housing in South Florida and Broward County has been well documented in recent housing needs studies prepared by the FIU Metropolitan Center. Increases in employment in the Broward County area will draw new people to the County and will generate demand for housing at all income levels. Conversely, the lack of affordable housing is a constraint on the County's employment growth.

This chapter of the study summarizes the economic climate in Broward County, including recent demographic and economic trends and projections. The chapter describes the important relationship between employment and housing which serves as the basis for the nexus analysis.

POPULATION AND HOUSING PROJECTIONS

From 1990-2000 Broward County experienced a population growth of 367,530 persons, which represented an increase of 36,753 persons per year and a 29 percent increase in the County's overall population. The County's significant population increase was primarily due to the development of the western suburbs, including new population centers in Coral Springs, Sunrise, Plantation and Pembroke Pines. Since 2000 the County's population growth has decreased, averaging approximately 28,567 persons per year with a projected 2000-2010 population increase of 17 percent. Through 2015 population growth in Broward County is projected to average about 27,700 persons a year. New housing is projected to net an average of 7,453 units a year during the same period. For the period 2015-2030 population growth is projected to average about 20,700 persons per year and net new housing at 5,500 per year. Much of this new growth is expected to be accommodated by infill and urban redevelopment since the County is projected to be built-out by 2015. The scarcity of developable residential land is projected to contribute to a lower residential vacancy rate, decreasing to 10.0 percent in 2015, down from 11.7 percent in 2000. By 2030, the vacancy rate is projected at 7 percent.

Table 2.1 below provides the most recent population and housing projections for Broward County as updated by the Broward County Planning Services Division in 2005. The data shows continued population growth in the County through the year 2030 when the population is projected to exceed 2.3 million. This represents a growth of over 725,000 persons during the 2000-2030 time period.

**Table 2.1: Population and Housing Estimates and Projections
Broward County, Florida, 1990 to 2030**

Year	Population	Housing	Households
Estimates			
1990	1,255,488	628,660	528,442
2000	1,623,018	741,043	654,445
Projections			
2005	1,765,855	791,771	693,014
2010	1,905,271	820,542	730,016
2015	2,038,381	852,834	767,264
2020	2,159,926	883,501	803,173
2025	2,264,855	911,396	836,608
2030	2,348,552	935,394	866,429
Annual Growth			
1990-2000	36,753	11,238	12,600
2000-2005	28,567	10,146	7,714
2005-2010	27,883	5,754	7,400
2010-2015	26,622	6,458	7,450
2015-2020	24,309	6,133	7,182
2020-2025	20,986	5,579	6,687
2025-2030	16,739	4,800	5,964

Source: US Census 1990-2000, Broward County Population Forecast Model, 2000-2030, 2007.

The population of Broward County is projected to become increasingly diverse with higher percentages of Black and Hispanic population groups.¹ Blacks are projected to account for 30 percent of the population in 2030, while Hispanics are projected to account for 33 percent of the County's population. The increases in the proportion of Blacks and Hispanics are projected to result in a slightly higher average household size. Also contributing to a growing increase in household size is the projected decline in one-person households. Longer life-spans

¹ The data discussed here are from Broward County Population Forecasting Model Annual Update, 2005, released by the Broward Planning Services Division, May 2005.

and the reduced number of individuals that can afford “their own place” are expected to contribute to this change. By 2019, natural increase (the excess of births over deaths) is projected to account for most of the growth for the first time. Net in-migration from other parts of the United States and from abroad is projected to account for a steadily declining share of the population growth.

A U.S. Census 2006 population estimate for Broward County released in March 2007 showed net domestic out-migration for the first time in decades. The estimate showed that about 18,000 more people left the County than moved in from other states. The net outflow was the result of fewer families moving into the County rather than a surge in families moving out. Local demographers attributed this to the recent increase to the cost of living, particularly in housing costs, but rejected the opinion that this is likely to be a long-term trend.

In summary, the population and housing projections show continued, although slowing growth in Broward County through the projection period. Demographic projections indicate a future population that will be more racially and ethnically diverse and in need of a range of new housing types and price levels. In the following section, economic trends and projections are presented showing the future levels of employment in the various industries and occupations that comprise Broward County’s economy.

ECONOMIC GROWTH TRENDS

Industrial Base

Broward County’s future housing needs will be largely determined by on-going and planned economic development activity that will result in expanded employment opportunities. Employment growth will occur through the retention and expansion of existing firms and new economic growth resulting from start-ups, spin-offs, and relocations to Broward County. Basically, populations follow job growth and the demand for housing will be defined by the location, type and wage levels of Broward County’s future employment growth.

Through 2005, Florida continued to have the fastest job growth rate and lowest unemployment rate of the ten most populous states in the nation. The unemployment rate (3.6 percent) continued to remain below the national average and has remained so since mid-2002.²

² “Florida Employment and Unemployment” Press Release. Florida Agency for Workforce Innovation, November 2005

Broward County's unemployment rate has run similar to the state and lower than its tri-county neighbors Miami-Dade (4.2 percent) and Palm Beach (3.8 percent).³

According to the U.S. Census, Broward County residents held 599,119 jobs in 1990 and 758,939 in 2000. Between these years, employment increased by an average annual rate of 2.7 percent. In the subsequent five years 2000-2005, employment increased by an average rate of 2.5 percent, slightly less than 1990s.

**Table 2.2: Employment and Annual Rates of Growth
Broward County, 1990 to 2005**

	Employed Broward Residents	Average Annual Growth
1990	598,859	-
2000	760,896	2.7%
2005	856,927	2.5%

Source: 1990 Census SF3, 2000 Census SF3, 2005 PUMS

A single industrial classification system has been used to group the employment of persons by industry in 1990, 2000 and 2005 (see Appendix I for details). In total, the selected industrial groups show a growth rate between 2000 and 2005 that is slower than the 1990-2000 rate of growth.

- The average rate of growth for all industries from 1990 to 2000 was 2.7 percent and 2.5 percent for all industries between 2000 and 2005.
- The employment of persons in the Manufacturing industries declined from 2000 to 2005.
- Growth in the Medical/Educational and Warehousing industries exceeded the average rate of growth for all industries in the 1990 to 2000 period, but then declined nearing the average rate of growth for all industries from 2000 to 2005.
- The rate of change of persons employed in Hotel/Accommodation and Entertainment industries between 2000 and 2005 was greater than the overall average growth for all industries in the same period.

³ Florida Agency for Workforce Innovation, Local Area Unemployment Statistics Program (revised 12/16/2005)

**Table 2.3: Employment in Selected Industries and Annual Rates of Change
Broward County, 1990 to 2005**

Industries	Employees			Average Annual Change	
	1990	2000	2005	90-00	00-05
Office (Other Services)	191,158	263,081	297,231	3.8%	2.6%
Retail / Wholesale	119,184	140,392	153,393	1.8%	1.9%
Medical/Educational	95,277	137,216	153,270	4.4%	2.3%
Manufacturing	45,633	51,649	49,129	1.3%	-1.0%
Warehousing	661	928	1,001	4.0%	1.6%
Hotel / Accommodation	45,864	52,755	67,361	1.5%	5.5%
Entertainment	13,299	16,249	19,874	2.2%	4.5%
Totals	511,076	662,270	741,259	2.7%	2.5%

Sources: 1990 Census PUMS 5%, 2000 Census PUMS 5%, 2005 Census PUMS, Industrial Codes use 2000 Census Classifications

The economic base of Broward County and South Florida is largely supported by the non-durable service providing industries. These industries currently comprise 89 percent of Broward County's employment base. While the majority of these jobs are directly related to South Florida tourism, recent economic growth in Broward County and South Florida has been fueled by unprecedented population growth. Growth in Retail Trade, Health Care and Social Assistance, Administrative Support and Waste Management and Construction industries are all directly attributed to the region's continued population growth. Together, these industries comprise the economic base of Broward County and all of South Florida.

The U.S. Census *County Business Patterns* provides a more detailed analysis of recent economic growth in Broward County. The census data shows most of the new job growth occurring within the County's existing industrial and employment base. While Retail Trade continues to be the largest employment sector, Accommodation and Food Services and Health Care and Social Assistance have been the fastest growing. In fact, during the five-year period 1999-2003, employment growth in the Accommodation and Food Services sector (13 percent growth) led all industries, followed closely by Health Care and Social Assistance (11 percent growth). The Health Care and Social Assistance industry created the most jobs (8,047) during the five-year period 1999-2003. In total, the top five industries created 22,645 jobs from 1999-2003.

Employment by Occupation

The occupations of Broward County's resident workforce are reflective of the County's industrial base. Tables 2.4 and 2.5 below show the number and the percentage of persons employed in selected major groups of occupations. The persons employed in these occupational groups are a subset of the total workforce (see Appendix II). They are employed within specific occupations related to the building types considered in this study. Persons employed in Office and Administrative Support make up the largest employment group. They are followed by those employed in Sales and Management occupations. Persons employed in "other occupations" are excluded from further analysis because they are not closely associated with the major industry-building types addressed in this study. For example, Construction workers and those involved in Protective Services are not necessarily associated with an industry that typically needs a specific type of structure.

**Table 2.4: Employees by Occupational Group
Broward County, 1990, 2000 and 2005**

Major Occupations	YEAR			Average Annual Change	
	1990	2000	2005	1990-2000	2000-2005
Building / Grounds	20,264	32,342	37,509	6.0%	3.2%
Business / Financial Operations	26,546	35,307	37,607	3.3%	1.3%
Educational	23,078	55,087	36,734	13.9%	-6.7%
Food Preparation / Serving	29,613	36,846	48,544	2.4%	6.3%
Healthcare Practitioner / Technical	26,943	27,589	44,292	0.2%	12.1%
Healthcare Support	9,818	28,968	19,580	19.5%	-6.5%
Management	57,373	77,832	85,746	3.6%	2.0%
Office / Administrative Support	145,662	169,869	212,033	1.7%	5.0%
Production	88,906	67,718	62,111	-2.4%	-1.7%
Sales	93,232	110,921	125,204	1.9%	2.6%
Transportation / Material Moving	19,001	35,969	40,413	8.9%	2.5%
Total	540,436	678,448	749,773		
Other Occupations	58,423	82,448	107,154		
Grand Total	598,859	760,896	856,927		

Source: 1990 Census PUMS 5%, 2000 Census PUMS 5%, 2005 Census PUMS Occupational Codes use 2000 Census Classifications

The number of persons employed in Production occupations (Table 2.4) declined from 1990 to 2000 by an average annual rate of 2.4 percent. In the 2000-2005 period the decline continued, but at a slower rate of 1.7 percent. The rate of change for employment in Business and Financial Operations mirrored the decline of employment in Production occupations. The rate of change slowed in the years between 2000 and 2005, down from 3.4 percent in 1990-2000 to a rate of 1.3 percent in 2000-2005. Table 2.5 presents the percentage distribution of employees according to occupational groups. The table indicates relative shifts in the occupations of the majority of Broward County's workforce.

**Table 2.5: Proportions of Employees by Occupational Group
Broward County, 1990, 2000 and 2005**

Major Occupational Groups Percentage Distribution	YEAR			Average Annual Change	
	1990	2000	2005	1990-2000	2000-2005
Building / Grounds	3.4%	4.3%	4.4%	0.1%	0.0%
Business / Financial Operations	4.4%	4.6%	4.4%	0.0%	-0.1%
Educational	3.9%	7.2%	4.3%	0.3%	-0.6%
Food Preparation / Serving	4.9%	4.8%	5.7%	0.0%	0.2%
Healthcare Practitioner / Technical	4.5%	3.6%	5.2%	-0.1%	0.3%
Healthcare Support	1.6%	3.8%	2.3%	0.2%	-0.3%
Management	9.6%	10.2%	10.0%	0.1%	0.0%
Office / Administrative Support	24.3%	22.3%	24.7%	-0.2%	0.5%
Production	14.8%	8.9%	7.2%	-0.6%	-0.3%
Sales	15.6%	14.6%	14.6%	-0.1%	0.0%
Transportation / Material Moving	3.2%	4.7%	4.7%	0.2%	0.0%
Other Occupations	9.8%	10.8%	12.5%	0.1%	0.3%
Total	100.0%	100.0%	100.0%		

Source: 1990 Census PUMS 5%, 2000 Census PUMS 5%, 2005 Census PUMS
Occupational Codes use 2000 Census Classifications

Occupations and Wages

As shown in the previous analysis, Broward County's labor market is largely employed in the service sectors of the economy. Within these employment categories, annual wages vary considerably. Average annual wages range from a low of \$12,413 in Hotels for Building and Grounds workers to \$65,178 in Manufacturing management. However, the bulk of employment is found in Office/Administrative support and Retail where average salaries are generally less than \$30,000 per year.

Table 2.6: Employees Grouped by Occupation within Major Industrial Group and Salaries
Average of 1990, 2000, and 2005 Proportions and Salaries

2005 Industry by Occupation	Manufacturing		Retail / Wholesale		Hotel /Accommodation		Entertainment		Medical /Educational		Warehousing		Office	
	%	Salary	%	Salary	%	Salary	%	Salary	%	Salary	%	Salary	%	Salary
Office / Admin Support	25%	\$37,571	18%	\$23,581	6%	\$22,674	40%	\$18,759	21%	\$26,766	32%	\$24,155	39%	\$30,031
Business / Financial Operations	3%	\$45,284	3%	\$35,799	1%	\$37,375	4%	\$29,153	2%	\$42,361	2%	\$30,047	10%	\$42,378
Management	16%	\$65,178	7%	\$53,642	15%	\$38,894	13%	\$39,271	8%	\$53,196	24%	\$53,197	12%	\$52,845
Building / Grounds	1%	\$19,785	1%	\$17,426	7%	\$12,413	14%	\$18,966	3%	\$20,986	3%	\$13,900	8%	\$12,283
Food Preparation and Serving	0%	\$0	2%	\$16,085	59%	\$14,968	8%	\$21,232	2%	\$12,903	3%	\$14,400	0%	\$0
Sales	8%	\$48,306	51%	\$25,105	8%	\$8,280	9%	\$14,757	0%	\$0	5%	\$13,717	14%	\$31,171
Healthcare Practitioner and Technical	0%	\$0	1%	\$55,148	0%	\$0	0%	\$0	24%	\$46,102	0%	\$0	1%	\$34,303
Healthcare Support	0%	\$0	0%	\$0	0%	\$0	1%	\$19,908	13%	\$20,749	0%	\$0	1%	\$18,240
Production	42%	\$25,350	9%	\$28,616	2%	\$18,162	4%	\$27,612	2%	\$31,952	6%	\$22,701	10%	\$27,966
Transportation and Material Moving	4%	\$26,060	7%	\$20,844	2%	\$14,940	4%	\$27,902	1%	\$20,511	25%	\$31,764	2%	\$21,680
Education	0%	\$0	0%	\$0	0%	\$0	3%	\$12,207	25%	\$37,054	0%	\$0	3%	\$34,540
Totals	100%		100%		100%		100%		100%		100%		100%	

Source: 1990 Census PUMS 5%, 2000 Census PUMS 5%, 2005 Census PUMS Industrial and Occupational Codes use 2000 Census Classifications
Universe is persons 16 and over, employed and working in the specified industries and occupations. Wages and earnings are presented in constant 2005 dollars.

A closer look at “occupational” employment and wages for Broward County by occupation “category” and “hourly wage” provides a more telling picture of the local workforce. The 2004 Labor Market Statistics report produced by the Florida Agency for Workforce Innovation indicates the specific “occupations” found within the broader industrial classifications shown above. The Labor Market Statistics report provides total employment figures and 2005 hourly wage estimates for all occupations including mean, median, entry and experienced level wage rates. For the purposes of this study, occupational categories with 10,000 or more employees are shown.

Table 2.7 below indicates that Broward County’s largest occupational employment is found in Retail Sales (27,990 jobs). This occupation generally has low entry and median level hourly wage rates. In fact, many of the occupations that comprise Broward County’s major employment base - Cashiers (19,990 jobs/\$8.06 median hourly wage), Office Clerks (18,790 jobs/\$10.72 median hourly wage), Waiters and Waitresses (14,330 jobs/\$6.42 median hourly wage) and Food Preparation and Serving Workers (13,680 jobs/\$6.81 median hourly wage) also represent the bottom of the occupation wage scale. The occupational employment and wage statistics presented below indicate that Broward County’s labor market structure is largely skewed toward the secondary labor market (low wage retail and service sector occupations).

**Table 2.7: Occupational Employment by Median Hourly and Annual Wages
Fort Lauderdale Metropolitan Statistical Area (MSA), 2005**

Occupation	Total Employed	Median Hourly Wage	Median Annual Wage
Retail Salespersons	27,990	\$9.86	\$20,508
Cashiers	19,990	\$8.06	\$16,764
Office Clerks	18,790	\$10.72	\$22,297
Customer Service Representatives	18,040	\$12.14	\$25,251
Waiters and Waitresses	14,330	\$6.42	\$13,353
Food Preparation and Serving Workers	13,680	\$6.81	\$14,164
Bookkeeping, Accounting and Auditing Clerks	13,090	\$14.31	\$29,764
Stock Clerks	12,120	\$9.30	\$19,344
Sales Representatives	11,260	\$19.81	\$41,204
Registered Nurses	11,110	\$26.23	\$54,558
Executive Secretaries	10,520	\$18.08	\$37,606

Source: Florida Agency for Workforce Innovation, Labor Market Statistics

Note: For occupations with more than 10,000 workers

Household Workers

Most households in Broward County have more than one worker. The calculation for determining “workers per household” is the total number of households divided by the total number of workers. The decision of household populations to participate in the labor force is affected by economic conditions, the job market, the age of the population, family cohesion, the rate and age of marriage and divorce, the number of children per family and other factors. Here we explore workers per household in the context of household size and the age of workers. Although the age of a workforce is generally between 16 and 64, Broward County has a large number of persons 65 and over who continue to work.

For the purposes of this study we define workers as persons age 16 to 64 who are employed and who report income from wages or salary. Worker households are households with one or more of these workers. Full-time students with earnings in households are included as are public assistance households reporting income from wages or salary. The percentage of full-time students in Broward is negligible, much smaller than the percentage of students in Southern California where other linkage studies have been conducted. In 2000, 8 percent of the workforce population was enrolled in college, graduate or professional schools and it is likely that a smaller percentage of these students attended fulltime.⁴

⁴ 2000 PUMS

**Table 2.8: Size of Household by Number of Workers in Household
Broward County, 2000 and 2005**

2000 Persons per Households	Number Households	Employed Persons	Employed persons per household	Employed Persons <=64	Employed <=64 ratio
1 person	194,090	95,347	0.49	86,018	0.44
2 persons	215,736	231,928	1.08	215,276	1.00
3 persons	101,018	163,039	1.61	159,495	1.58
4 persons	83,829	147,000	1.75	145,699	1.74
5 or more	59,701	123,582	2.07	122,329	2.05
Total	654,374	760,896	1.16	728,817	1.11
2005 Persons per Households	Number Households	Employed Persons	Employed persons per household	Employed Persons <=64	Employed <=64 ratio
1 person	203,922	113,869	0.56	105,755	0.52
2 persons	226,096	268,318	1.19	249,274	1.10
3 persons	116,529	194,319	1.67	190,762	1.64
4 persons	116,529	171,691	1.47	168,816	1.45
5 or more	50,047	108,730	2.17	107,504	2.15
Total	713,123	856,927	1.20	822,111	1.15

Source: 2000 and 2005 PUMS

The ratio of employed persons per household in Broward County in 2000 was 1.16. This ratio is reduced to 1.11 if only employees aged 64 or younger are counted. In 2005, the overall ratio of employees per household was 1.2 and the ratio for those employed below the age of 64 was 1.15 per household. The apparent rise in the ratio of employed persons per household in the five years since 2000 may not be statistically significant. The data sets used have differing procedures for data collection, sampling and sample sizes. Best estimates indicate the 2005 ratios may be higher than the 2000 ratios. With the above information, we can establish the ratio of workers per household between 1.15 and 1.2. It is assumed that this ratio is fixed without great variability due to demographic growth or changes in character of the population or changes in industrial sector growth or unemployment rates.

Household Income

The Department of Housing and Urban Development (HUD) provides annual income limits for applicant eligibility for its various federal housing programs. HUD's income limits are locally defined according to area median family income with adjustments for family size. With some variation, these income limits have formed the standard for studies focusing on housing affordability. This study uses U.S. Census household income as opposed to HUD family income classifications. Household income calculations allow for more detailed analysis with respect to persons living alone and non-related persons living together. The study uses HUD definitions for "Very Low" and "Low" income defined as under 50 percent and between 50 and 80 percent of the area median income (AMI). Additional income groups above 80 percent of the AMI are also included. These income categories include the following: Moderate Income (81-100 percent of AMI), Workforce Income (101-120 percent of AMI) and Middle Income (121-150 percent of AMI). Table 2.9 and Table 2.10 below show household income adjusted by size of household and income level for 1999 and 2004. Table 2.11 and Table 2.12 omit households headed by persons over the age of 64. These tables present household income according to household size and income level for households led by persons who are not receiving retirement income.

Table 2.9: 1999 Household Income Adjusted by Size of Household and Income Range

INCOME IN 1999 Householders of All Ages	All households		1 person		2 person		3 person		4 person		5 + person	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Households, number of	654,787	100.0	194,090	100.0	215,736	100.0	101,018	100.0	83,829	100.0	59,701	100.0
Less than \$10,000	59,064	9.0	37,398	19.3	11,877	5.5	5,199	5.1	3,204	3.8	2,481	4.2
\$10,000 to \$14,999	42,974	6.6	26,482	13.6	9,175	4.3	3,390	3.4	2,465	2.9	1,862	3.1
\$15,000 to \$24,999	86,088	13.1	39,653	20.4	26,301	12.2	9,310	9.2	6,206	7.4	4,996	8.4
\$25,000 to \$34,999	85,586	13.1	31,257	16.1	28,517	13.2	11,233	11.1	8,175	9.8	5,820	9.7
\$35,000 to \$49,999	107,102	16.4	28,010	14.4	38,693	17.9	16,656	16.5	12,937	15.4	9,393	15.7
\$50,000 to \$74,999	123,987	18.9	18,188	9.4	46,503	21.6	23,747	23.5	19,917	23.8	13,639	22.8
\$75,000 to \$99,999	66,201	10.1	4,675	2.4	21,804	10.1	13,665	13.5	13,041	15.6	9,602	16.1
\$100,000 to \$149,999	52,085	8.0	5,393	2.8	17,435	8.1	11,211	11.1	11,311	13.5	7,562	12.7
\$150,000 to \$199,999	15,056	2.3	1,733	0.9	8,359	3.9	3,262	3.2	2,676	3.2	2,144	3.6
\$200,000 or more	16,644	2.5	1,301	0.7	7,072	3.3	3,345	3.3	3,897	4.6	2,202	3.7
Median household income (\$)	41,691	(X)	22,700		46,800		54,000		60,400		57,200	
Income Ranges	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Very Low Income (under 50%)	0	20,841	0	11,348	0	23,395	0	26,995	0	30,194	0	28,594
Low Income (50%-80%)	20,846	33,353	11,350	18,160	23,400	37,440	27,000	43,200	30,200	48,320	28,600	45,760
Moderate Income (81%-100%)	33,770	41,691	18,387	22,700	37,908	46,800	43,740	54,000	48,924	60,400	46,332	57,200
Workforce Income (101%-120%)	42,108	50,029	22,927	27,240	47,268	56,160	54,540	64,800	61,004	72,480	57,772	68,640
Middle Income (121%-150%)	50,446	62,537	27,467	34,050	56,628	70,200	65,340	81,000	73,084	90,600	69,212	85,800

Source: 2000 PUMS

Table 2.10: 2004 Household Income Adjusted by Size of Household and Income Range

INCOME IN 2004 Householders of All Ages	All households		1 person		2 person		3 person		4 person		5 + person	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Households, number of	687,331	100.0	203922	100.0	226,096	100.0	116529	100.0	91810	100.0	50047	100.0
Less than \$10,000	51,167	9.0	33741	16.5	10571	4.7	4318	3.7	2578	2.8	1416	2.8
\$10,000 to \$14,999	41,469	6.6	27799	13.6	8250	3.6	2740	2.4	1765	1.9	538	1.1
\$15,000 to \$24,999	85,236	13.1	36750	18.0	24961	11.0	11776	10.1	7092	7.7	3218	6.4
\$25,000 to \$34,999	74,564	13.1	29545	14.5	25334	11.2	11030	9.5	6685	7.3	3686	7.4
\$35,000 to \$49,999	113,919	16.4	30985	15.2	40952	18.1	20766	17.8	13523	14.7	8927	17.8
\$50,000 to \$74,999	129,645	18.9	26525	13.0	43805	19.4	26603	22.8	20867	22.7	11655	23.3
\$75,000 to \$99,999	74,116	10.1	9192	4.5	27419	12.1	16127	13.8	14023	15.3	7223	14.4
\$100,000 to \$149,999	73,322	8.0	3867	1.9	25517	11.3	15520	13.3	14768	16.1	6514	13.0
\$150,000 to \$199,999	21,535	2.3	71	0.0	4399	1.9	1876	1.6	2361	2.6	2354	4.7
\$200,000 or more	22,358	2.5	5447	2.7	14888	6.6	5773	5.0	8148	8.9	4516	9.0
Median household income (\$)	46,673	(X)	25,055		54,000		62,000		72000		66,000	
Income Ranges	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Very Low Income (under 50%)	0	23,332	0	12,525	0	26,995	0	30,994	0	35,993	0	32,993
Low Income (50%-80%)	23,337	37,338	12,528	20,044	27,000	43,200	31,000	49,600	36,000	57,600	33,000	52,800
Moderate Income (81%-100%)	37,805	46,673	20,295	25,055	43,740	54,000	50,220	62,000	58,320	72,000	53,460	66,000
Workforce Income (101%-120%)	47,140	56,008	25,306	30,066	54,540	64,800	62,620	74,400	72,720	86,400	66,660	79,200
Middle Income (121%-150%)	56,474	70,010	30,317	37,583	65,340	81,000	75,020	93,000	87,120	108,000	79,860	99,000

Source: 2005 PUMS

Table 2.11: 1999 Household Income Adjusted by Size of Household and Income Range for Working Aged Householders

INCOME IN 1999 Householders 64 and Under	All households		1 person		2 person		3 person		4 person		5 + person	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Households, number of	481,362	100.0	109,409	100.0	142,424	100.0	91,225	100.0	81,011	100.0	57,293	100.0
Less than \$10,000	35,402	7.4	17,098	15.6	7,873	5.5	4,943	5.4	3,073	3.8	2,415	4.2
\$10,000 to \$14,999	20,204	4.2	8,345	7.6	4,686	3.3	3,035	3.3	2,330	2.9	1,808	3.2
\$15,000 to \$24,999	50,955	10.6	19,020	17.4	12,894	9.1	8,208	9.0	5,990	7.4	4,843	8.5
\$25,000 to \$34,999	59,337	12.3	21,047	19.2	15,147	10.6	9,757	10.7	7,763	9.6	5,623	9.8
\$35,000 to \$49,999	81,653	17.0	21,022	19.2	24,721	17.4	14,751	16.2	12,294	15.2	8,865	15.5
\$50,000 to \$74,999	103,861	21.6	14,476	13.2	35,656	25.0	21,337	23.4	19,391	23.9	13,001	22.7
\$75,000 to \$99,999	55,969	11.6	3,859	3.5	17,626	12.4	12,540	13.7	12,584	15.5	9,360	16.3
\$100,000 to \$149,999	45,796	9.5	2,697	2.5	14,161	9.9	10,651	11.7	11,087	13.7	7,200	12.6
\$150,000 to \$199,999	13,130	2.7	856	0.8	4,678	3.3	2,929	3.2	2,622	3.2	2,045	3.6
\$200,000 or more	15,055	3.1	989	0.9	4,982	3.5	3,074	3.4	3,877	4.8	2,133	3.7
Median household income (\$)	48,500	(X)	29,450		52,600		54,765		60,800		57,000	
Income Ranges	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Very Low Income (under 50%)	0	24,245	0	14,937	0	26,422	0	27,395	0	30,406	0	28,594
Low Income (50-80%)	24,250	38,800	14,940	23,904	26,428	42,284	27,400	43,840	30,413	48,660	28,600	45,760
Moderate Income (81-100%)	39,285	48,500	24,203	29,880	42,813	52,855	44,388	54,800	49,268	60,825	46,332	57,200
Workforce Income (101-120%)	48,985	58,200	30,179	35,856	53,384	63,426	55,348	65,760	61,433	72,990	57,772	68,640
Middle Income (121%-150%)	58,685	72,750	36,155	44,820	63,955	79,283	66,308	82,200	73,598	91,238	69,212	85,800

Source: 2000 PUMS

Table 2.12: 2004 Household Income Adjusted by Size of Household and Income Range for Working Aged Householders

INCOME IN 2004 Householders 64 and Under	All households		1 person		2 person		3 person		4 person		5 + person	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Households, number of	539,605	111.6	128,504	117.5	161,914	113.7	109,023	119.5	91,810	110.4	48,354	84.4
Less than \$10,000	32,081	6.7	17,551	16.0	6,699	4.7	3,958	4.3	2,515	3.1	1,358	2.4
\$10,000 to \$14,999	18,800	3.9	8,638	7.9	5,477	3.8	2,447	2.7	1,700	2.1	538	0.9
\$15,000 to \$24,999	53,042	11.0	19,119	17.5	13,091	9.2	10,653	11.7	6,961	8.6	3,218	5.6
\$25,000 to \$34,999	56,445	11.7	21,082	19.3	14,983	10.5	10,170	11.1	6,599	8.1	3,611	6.3
\$35,000 to \$49,999	94,858	19.7	24,365	22.3	29,641	20.8	19,674	21.6	12,933	16.0	8,245	14.4
\$50,000 to \$74,999	111,298	23.1	21,850	20.0	33,580	23.6	24,456	26.8	20,016	24.7	11,396	19.9
\$75,000 to \$99,999	66,671	13.9	8,205	7.5	22,365	15.7	15,210	16.7	13,961	17.2	6,930	12.1
\$100,000 to \$149,999	58,739	12.2	3,234	3.0	19,952	14.0	15,035	16.5	14,247	17.6	6,271	10.9
\$150,000 to \$199,999	10,411	2.2	71	0.1	3,832	2.7	1,876	2.1	2,361	2.9	2,271	4.0
\$200,00 or more	34,891	7.2	4,389	4.0	12,294	8.6	5,544	6.1	8,148	10.1	4,516	7.9
Median household income (\$)	56,000	(X)	35,000		62,275		63,750		72,170		66,010	
Income Ranges	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Very Low Income (under 50%)	0	27,994	0	17,497	0	31,131	0	31,869	0	36,078	0	32,998
Low Income (50%-80%)	28,000	44,800	17,500	28,000	31,138	49,820	31,875	51,000	36,085	57,736	33,005	52,808
Moderate Income (81%-100%)	45,360	56,000	28,350	35,000	50,443	62,275	51,638	63,750	58,458	72,170	53,468	66,010
Workforce Income (101%-120%)	56,560	67,200	35,350	42,000	62,898	74,730	64,388	76,500	72,892	86,604	66,670	79,212
Middle Income (121%-150%)	67,760	84,000	42,350	52,500	75,353	93,413	77,138	95,625	87,326	108,255	79,872	99,015

Source: 2005 PUMS

Broward County Workforce by County of Residency

Table 2.13 below shows the proportion of Broward County's workforce according to county of residency. The workforce includes not only those who live in the county, but also those living in neighboring counties who commute each day to their respective places of employment. In 2005, 77 percent of those working within Broward County were also residents of the County, up slightly from 74 percent in 2000. Commuters traveling to Broward from Miami-Dade (15.1 percent), Palm Beach (6.5 percent) and other counties (1.4 percent) declined slightly between 2000 and 2005.

Table 2.13: Broward County Workforce by County of Residency*

2000 County Workforce	Employees*	Place of Work %	Median Income
Broward	539,549	74.0	\$25,000
Miami-Dade	113,150	15.5	\$36,000
Palm Beach	51,530	7.1	\$27,000
Other County	24,588	3.4	
Total	728,817	100.0	
2005 County Workforce	Employees*	Place of Work %	Median Income
Broward	613,305	77.0	\$36,196
Miami-Dade	120,097	15.1	\$52,018
Palm Beach	51,343	6.5	\$38,308
Other County	11,244	1.4	
Total	795,989	100.0	

Source: 2000 Census PUMS 5%, 2005 Census PUMS

* Note: Excludes Person Records with no listed Place of Work
4.4% of the 2000 total workforce and 7.7% of the 2005 total workforce.
Dollar values are not adjusted for inflation.
May not total to 100% due to rounding

Future Employment Projections

According to the Florida Agency for Workforce Innovation (AWI), Broward County is projected to gain 130,029 jobs between 2006-2014, an average annual increase of nearly 16,254 new jobs per year. The largest growth in employment is expected to occur in Professional and Business Services which has the highest projected growth in terms of annual percent growth (3.3 percent) and total number of jobs (34,600). Though projected job growth in Trade, Transportation, and Utilities ranked moderately low in annual growth (1.57 percent), it is the second highest industry sector in total new jobs (21,507) with the majority of growth occurring in Retail Trade. Below is a ranking of annual employment growth by industry in Broward County 2006-2014:

- Professional and Business Services (3.30 percent growth)
- Other Services -except government (2.35 percent growth)
- Education and Health Services (2.32 percent growth)
- Government (2.25 percent growth)
- Construction (1.88 percent growth)
- Trade, Transportation, and Utilities (1.57 percent growth)
- Leisure and Hospitality (1.54 percent growth)
- Financial Activities (1.18 percent growth)
- Self employed and Unpaid Family Workers (1.10 percent growth)
- Information (1.07 percent growth)

Table 2.14: Broward County Employment Growth by Industry 2006-2014

Industry	Employment		Annual Change	
	2006	2014	Total	Percent
Agriculture, Forestry, Fishing and Hunting	889	902	2	0.18
Mining	68	41	-3	-4.96
Construction	55,195	63,493	1,037	1.88
Manufacturing	31,446	31,985	67	0.21
Durable Goods Manufacturing	21,884	22,259	47	0.21
Non-Durable Goods Manufacturing	9,562	9,726	20	0.21
Trade, Transportation, and Utilities	171,040	192,547	2,688	1.57
Utilities	1,115	963	-19	-1.70
Wholesale Trade	46,414	53,470	882	1.90
Retail Trade	100,364	112,353	1,499	1.49
Transportation and Warehousing	23,147	25,761	327	1.41
Information	22,044	23,929	236	1.07
Financial Activities	67,059	73,398	792	1.18
Finance and Insurance	43,731	46,898	396	0.91
Real Estate and Rental and Leasing	23,328	26,500	396	1.70
Professional and Business Services	131,153	165,756	4,325	3.30
Education and Health Services	87,983	104,312	2,041	2.32
Educational Services	16,389	20,622	529	3.23
Health Care and Social Assistance	71,594	83,690	1,512	2.11
Leisure and Hospitality	78,919	88,636	1,215	1.54
Arts, Entertainment, and Recreation	11,926	12,677	94	0.79
Accommodation and Food Services	66,993	75,959	1,121	1.67
Other Services (Except Government)	32,413	38,518	763	2.35
Government	102,763	121,229	2,308	2.25
Self-Employed and Unpaid Family Workers	70,486	76,741	782	1.11
Total, All Industries	851,458	981,487	16,254	1.91

Source: Recreated from Agency for Workforce Innovation-Labor market Statistics: Industry Projection Data 2004-2012

A more detailed analysis of industry sub-sectors indicates that employment growth from 2006-2014 will be concentrated in Administrative and Support Services (approximately 28,000 jobs), Local Government (approximately 16,000 jobs) and Professional, Scientific, and Technical Services (approximately 15,000 jobs). Among the top 20 industries in Table 2.15 below are represented many of Broward County's current largest employers: Administrative Services (#1), Professional, Scientific, and Technical Services (#3), Educational Services (#8), Motor Vehicle and Parts Dealers (#15).

**Table 2.15: Broward County Industry Sub-sector Growth by
Total New Employment: 2006-2014**

Industry Sub-sectors	Employment		Annual Change	
	2006	2014	Total	Percent
Administrative and Support Services	70,570	88,279	2,214	3.14
Local Government	87,871	105,161	2,161	2.46
Professional, Scientific, and Technical Services	52,530	67,652	1,890	3.60
Ambulatory Health Care Services	38,360	45,354	874	2.28
Food Services and Drinking Places	55,176	61,961	848	1.54
Specialty Trade Contractors	37,582	42,993	676	1.80
Merchant Wholesalers, Durable Goods	25,556	29,989	554	2.17
Educational Services	16,389	20,622	529	3.23
Merchant Wholesalers, Nondurable Goods	15,947	18,859	364	2.28
Social Assistance	10,778	13,587	351	3.26
Building Material and Garden Supply Stores	7,621	10,253	329	4.32
Construction of Buildings	10,741	13,210	309	2.87
Insurance Carriers and Related Activities	15,997	18,353	294	1.84
Nursing and Residential Care Facilities	10,687	13,003	290	2.71
Motor Vehicle and Parts Dealers	15,432	17,722	286	1.85
Personal and Laundry Services	10,345	12,597	282	2.72
Accommodation	11,817	13,998	273	2.31
Food and Beverage Stores	20,363	22,407	256	1.25
Membership Associations and Organizations	13,021	15,060	255	1.96
Repair and Maintenance	9,047	10,861	227	2.51

Source: Recreated from Agency for Workforce Innovation-Labor Market Statistics: Industry Projection Data, 2006-2014.

With respect to growth rates among industries, the Agency for Workforce Innovation (AWI) projects that Broward County's fastest growing industry sub-sectors between 2006-2014 will be: 1) Building Material and Garden Supply Stores (4.32 percent); 2) Professional, Scientific and Technical Assistance (3.60 percent); and 3) Non-store Retailers (3.55 percent). The greatest annual employment gain will occur in the Administrative and Support Services (2,214), Local Government (2,161), and Professional, Scientific and Technical Assistance (1,890) industry sub-sectors.

**Table 2.16: Broward County Industry Sub-sector Growth by
Employment Percentage Increase: 2006-2014**

Industry Sub-sectors	Employment		Annual Change	
	2006	2014	Total	Percent
Building Material and Garden Supply Stores	7,621	10,253	329	4.32
Professional, Scientific, and Technical Services	52,530	67,652	1,890	3.60
Nonstore Retailers	2,697	3,463	96	3.55
Management of Companies and Enterprises	6,228	7,870	205	3.30
Social Assistance	10,778	13,587	351	3.26
Support Activities for Transportation	6,850	8,624	222	3.24
Educational Services	16,389	20,622	529	3.23
Administrative and Support Services	70,570	88,279	2,214	3.14
Rental and Leasing Services	6,440	7,934	187	2.90
Construction of Buildings	10,741	13,210	309	2.87
Motion Picture and Sound Recording Industries	2,362	2,889	66	2.79
Personal and Laundry Services	10,345	12,597	282	2.72
Nursing and Residential Care Facilities	10,687	13,003	290	2.71
Nonmetallic Mineral Product Manufacturing	1,953	2,349	50	2.53
Repair and Maintenance	9,047	10,861	227	2.51
Local Government	87,871	105,161	2,161	2.46
Accommodation	11,817	13,998	273	2.31
Furniture and Home Furnishings Stores	4,936	5,844	114	2.30
Merchant Wholesalers, Nondurable Goods	15,947	18,859	364	2.28
Ambulatory Health Care Services	38,360	45,354	874	2.28

Source: Recreated from Agency for Workforce Innovation-Labor Market Statistics: Industry Projection Data, 2006-2014.
Note: Table includes industries with a minimum employment of 700 jobs.

HOUSING CHARACTERISTICS

Housing Inventory

Broward County's housing supply increased by 42,475 units or 6 percent between 2000-2005. The County's housing inventory is fairly evenly divided between single-family and multi-family units. Together, single family and multi-family structures account for 82 percent of the County's housing inventory. Although town homes constitute only 15 percent of the housing stock, they represent the fastest growing segment of the housing market, with an 8 percent increase in inventory since 2000. Mobile homes and other housing types experienced a net loss of 3,271 units or 12 percent of the inventory. Much of the loss can be attributed to recent hurricane damage and redevelopment activity.

Table 2.17: Growth in Broward County Housing Inventory from 2000 to 2005

Unit Type	2000	2005	Change	% Change
Broward	741,043	783,518	42,475	6%
Single Family	303,357	323,903	20,546	7%
Town Homes	110,979	119,772	8,793	8%
Multifamily	298,777	315,184	16,407	5%
Mobile Homes and Other	27,930	24,659	(3,271)	(12%)

Source: Broward County Certificate of Occupancy Data from 2000-2005 and 2000 US Census

As previously indicated, Broward County's population and housing growth since 1990 has occurred primarily in the western suburbs where new population centers have emerged. As shown in Table 2.18, the cities of Pembroke Pines, Coral Springs, Sunrise and Miramar now rank with traditional population centers such as Fort Lauderdale, Hollywood, and Pompano Beach as having a significant share of the County's housing inventory.

The 2006 *Broward County Housing Needs Assessment* noted that although the housing inventory has continued to grow in Broward County, the number of building permits has steadily declined in the last ten years. Single-family building permit activity has decreased significantly (44 percent) since 1995, declining from 8,454 permits in 1995 to 4,742 in 2004. Although multi-family permits also experienced a decline during the same period, multi-family permit activity has increased in recent years (2002-2004),

nearly matching the number of authorized single-family permits.⁵ The growth in multi-family construction is indicative of the trends discussed above.

**Table 2.18: 2005 Inventory of Single Family, Town Home and Multi-Family Units
For Top Ranking Municipalities**

Housing Inventory	Inventory	% of Broward Inventory
Total Inventory:		
Broward County	758,859	100%
Ft. Lauderdale	83,477	11%
Hollywood	68,291	9%
Pembroke Pines	59,271	8%
Pompano Beach	45,076	6%
Coral Springs	43,617	6%
Single Family Inventory:		
Broward County	323,903	100%
Hollywood	30,453	9%
Pembroke Pines	29,164	9%
Ft. Lauderdale	28,057	9%
Miramar	25,329	8%
Coral Springs	22,491	7%
Town Homes: 2005		
Broward County	119,772	100%
Ft. Lauderdale	16,368	14%
Hollywood	9,616	8%
Pembroke Pines	9,261	8%
Coral Springs	7,123	6%
Sunrise	6,482	5%
Multi-Family Structures: 2005 (Including High-Rise Structures)		
Broward County	315,184	100%
Ft. Lauderdale	39,052	12%
Pompano Beach	28,338	9%
Hollywood	28,222	9%
Deerfield Beach	21,503	7%
Pembroke Pines	20,846	7%

Source: Broward County Certificate of Occupancy Data from 2001-2005 and 2000 Census

⁵ Broward County Quarterly Housing Report 2005, Reinhold P. Wolff Economic Research, Inc.

Housing Occupancy

Estimates from the 2004 *American Community Survey* indicate that 70 percent (480,305) of the occupied housing units in Broward County are owner-occupied. The rate of home ownership is even higher among certain municipalities with half the cities demonstrating ownership rates higher than 70 percent.

Since 2000, the number of owner occupied units has increased by 25,645 in Broward County (an increase of 6 percent). An interesting trend in recent years has been the growing number of multi-family owner-occupied units. As the cost of single-family homes has increased, the demand for lower cost multi-family alternatives (such as condominiums and town homes) has also increased. This trend is reflected in sales activity from 2000 to 2004. During this period, the sales of new single family homes declined by 28 percent, whereas new condominium sales grew by 210 percent. As of June 2005, condominium sales actually surpassed the number of new home sales by as much as 3,000 units.

In 2004, Broward County's housing inventory included 206,734 renter occupied units. However, since that time, the County has experienced a notable loss in renter occupied units. From 2003 to 2005, Broward County lost 11 percent (22,182) of its rental inventory to condominium conversions.

Concurrent with the County's loss of rental housing units has been the reduction in apartment vacancy rates. The apartment vacancy rate in Broward County declined from approximately 5 percent in 2001 to 2.8 percent in August 2005, the lowest since 2000. The low vacancy rate is largely attributed to condominium conversions and low inventory. Record vacancy rates are likely to continue due to the additional loss of rental units damaged or destroyed during Hurricane Wilma.

Land Use and Development

According to the 2006 *Broward County Housing Needs Assessment*, land use policies have played a significant role in determining the amount and availability of affordable housing within the County. Land use policies guide the location of housing, types and densities. The analysis of Broward County's Land Use Plan revealed that the County's housing supply is likely to experience a shortfall in the future, with housing build out projected by 2015. According to the Broward County Land Use Plan, the

County will need approximately 293,916 housing units by 2030 to accommodate projected population growth. However, the Land Use Plan also states that there is “insufficient capacity on undeveloped parcels to build the needed housing units”. According to the plan, if current development patterns remain the same, “it is estimated that all vacant land in Broward County will be absorbed before 2030; with “build-out” projected by 2015 for single-family homes and 2010 for multifamily homes.” In fact, 77 percent of the vacant residential land where development is permitted has already been approved for future projects. These projects total 80,111 housing units (44,066 single-family and 36,305 multi-family). The *Broward County Housing Needs Assessment* further stated that in addition to population pressures, there are various other factors which have contributed to the anticipated housing shortfall:

- Land set aside for long-term water preservation. The South Florida Water Management District acquired 9,956 acres for long-term water preservation that was originally allotted for 5,795 potential housing units.
- Conversion of non-residential land not sufficient to address housing shortfall. The 2004 Broward County Evaluation and Appraisal Report (EAR) examined the possibility of converting vacant non-residential land (excluding preservation and recreational areas) to residential use. The findings revealed that these parcels were not suitable for residential use and, even if they were, the conversion of all the developable vacant land would barely accommodate the anticipated growth.
- Recently urbanized land was developed lower than the permitted maximum density. According to 2004 EAR, countywide development has only occurred at 76 percent capacity based on the Land Use Plan’s previous calculations. In 2000, the developable residential land in Broward had a capacity of 979,679 units. However, only 741,679 units were developed on the land, resulting in the under development of 238,000 housing units.

Table 2.19: Status of Residential Land, Broward County, 2000

	Area (net acres)	Maximum Housing Units allowed by Land Use Plan	Actual Units Built	Under Utilized Capacity (Difference)
Developed Residential Land	138,734	979,679	741,043	238,636
<i>Vacant Residential Land</i>	23,754	104,043	0	n/a
<i>Water Preserve Area</i>	9,956	5,795	0	n/a
Total	172,444	1,089,517	741,043	n/a

Source: Recreated from the 2004 Broward County Evaluation and Appraisal Report – The table utilizes data from Broward County Land Use Plan, Broward County Planning Council, 2003; U.S. Bureau of Census, 2000; and, PSD Estimates.

CHAPTER 2 KEY FINDINGS

The preceding analysis provides important understandings regarding the relationship between Broward County's economic development activity, resident workforce and housing supply. The following key findings of this analysis will provide the economic underpinning for the subsequent affordable housing demand analysis in Chapter 3:

- Through 2015, population growth in Broward County is projected to average about 27,700 persons and 7,453 housing units per year;
- The population of Broward County is projected to become increasingly diverse with higher percentages of Black and Hispanic population groups;
- The economic base of Broward County is largely supported by the non-durable service providing industries which comprise 89 percent of the County's employment base;
- Recent economic growth in Broward County has been fueled by population growth that, in turn, has created significant growth in Retail Trade, and Health Care and Social Assistance;
- Many of the occupations that comprise Broward County's major employment base - Cashiers (19,990 jobs/\$8.06 median hourly wage), Office Clerks (18,790 jobs/\$10.72 median hourly wage), Waiters and Waitresses (14,330 jobs/\$6.42 median hourly wage) and Food Preparation and Serving Workers (13,680 jobs/\$6.81 median hourly wage) also represent the bottom of the occupation wage scale;
- Broward County is projected to gain 130,029 jobs between 2006-2014, an average annual increase of nearly 16,254 new jobs per year;
- An analysis of industry sub-sectors indicates that employment growth from 2006-2014 will be concentrated in Administrative and Support Services (18,000 jobs), Local Government (17,000 jobs) and Professional, Scientific, and Technical Services (15,000 jobs);
- While residential development activity has continued in Broward County, the number of building permits has steadily declined in the last ten years. Single-family building permit activity has decreased 44 percent since 1995, declining from 8,454 permits in 1995 to 4,742 in 2004;
- Broward County experienced a loss of 22,182 rental units between 2003-2005 to condominium conversions; and
- The apartment vacancy rate in Broward County declined from 5 percent in 2001 to 2.8 percent in August 2005.

CHAPTER 3: MICROECONOMIC JOBS HOUSING ANALYSIS

INTRODUCTION

In this chapter a micro economic jobs housing analysis is performed to establish the relationship or linkage between new workplace buildings and the estimated number of worker households, by income category, that will be employed in these buildings. The step-by-step analysis is based on anticipated economic and employment growth in Broward County and the demand for affordable housing by workers expected to reside in the County as a result of this growth. As previously discussed, the analysis quantifies housing demand by specific household income categories for 100,000 square foot workplace building prototypes. This analysis is based on the following seven building types or land uses:

- Office
- Retail/Wholesale
- Institutional (Medical/Educational)
- Manufacturing/Industrial
- Warehousing
- Hotel (Hospitality)
- Entertainment

JOBS HOUSING ANALYSIS METHODOLOGY

The micro economic jobs housing analysis that follows provides the basis for calculating the number of households by income level that will be required as a result of future non-residential development in Broward County based on the 100,000 square foot workplace building prototypes outlined above. The analysis is a 6-step methodology whereby:

1. Employment densities associated with each workplace building prototype are calculated;
2. The occupational mix associated with each workplace building prototype is calculated;
3. The income levels associated with the occupational categories for each building prototype are calculated;

4. The occupational distribution by workplace building prototype is determined by using the building density data from Step 1 and occupational mix data from Step 2;
5. Data from Step 4 along with the income level calculations from Step 3 are combined to determine the level of demand for workforce housing as a result of new non-residential development in Broward County; and
6. The final step combines the previous data to determine the number of new households by income level categories as a result of the construction of the seven workplace building prototypes.

Step 1: Determination of Employment Density

In this first step, the employment density associated with each workplace building prototype is calculated. Employment density is defined as the amount of space employees require to perform their industry-specific duties within a workplace building. For the purposes of this study, employment density is calculated based on industry-specific average employee density figures using 100,000 square foot building prototypes. The analysis implicitly assumes that all employees in new workplace buildings are new employees to Broward County. It is further assumed that vacated spaces left in other workplace buildings by workers relocating to these new buildings will be filled by a combination of existing and new employees to Broward County. Regardless of the combination, somewhere in this continuum new jobs will be added to the County. The estimate of the number of employees that will be working in each 100,000 square foot prototype is based on an employment density factor for each land use calculated by the number of square feet per employee.

The employment density factor is different for each building type and land use and can vary within like building types and land uses based on the variety of industry sub-sectors that can comprise a particular building. The FIU Metropolitan Center determined employment density factors and calculated densities for Broward County based on an extensive analysis of existing industry standards and trends (See 3.1).^{1, 2,3,4,5,6}

¹ Arup Economics & Planning. (September 2001). Employment densities: a simple guide. English Partnerships and the Regional Development Agencies.

² Keyser Marston Associates, Inc. (December 2004). Housing Impact Fee Nexus Analysis. City of San Diego, CA.

³ Nelson, Arthur C. (2004). Planner's Estimating Guide: Projecting land-Use and Facility Needs. American Planning Association.

⁴ Yee and Bradford. (1999) Employment Density Study (Portland Metro 1999 Density Study)

The number of workers employed in the workplace buildings varies according to building type and industry-specific activities. In considering the square footage of a building, the common areas, lobbies, hallways, restrooms and garage space were included.

While employment density is a relatively simple concept, density figures can be problematic because planning agencies often lack “quality site-specific employment data or building floor space data and there is little consensus on how best to work around these data limitations.”⁷ Given this limitation, employment density is determined by dividing the gross square footage of a building’s floor space by the number of workers listed as “direct workers” or those employed to work “inside” these buildings on a regular basis (part-time and full-time). Despite extensive efforts to quantify the number of “indirect employees”, those who perform duties under contract and are “associated” with a typical workplace building or with the building grounds, e.g. janitors, landscape maintenance workers, adequate or reliable data sources could not be located and are not included in this analysis. The limited data that is available indicates that the wage structure for the types of employees that could be categorized as indirect workers would place them at the lower income housing tiers, and as a result, the true impact of non-residential development on housing demand is potentially understated by this analysis.

**Table 3.1: Estimated Employment Densities
by Workforce Building Prototype**

BUILDING TYPE	Square Foot per Employee
Institutional	660
Entertainment	800
Hotel	1,200
Manufacturing / Industrial	600
Office	350
Retail	450
Warehouse/Storage	1,600

Source: FIU – Metropolitan Center, 2007

⁵ Natelson Company, Inc. (October 2001). Employment Density Study Summary Report. Southern California Association of Governments. (SCAG 2001 Employment Density Study)

⁶ Snohomish County Tomorrow. (2002) Growth Monitoring/Build able Lands Report. January 2003.

⁷ Kapena Pflum, Erin. (2004). Employment density in the Puget Sound region. University of Washington, Daniel J. Evans School of Public Affairs.

Step 2: Determination of Occupational Mix

In this step, the occupational mix associated with each workplace building prototype is determined. In order to make this determination the workforce employed in the industries associated with the seven building prototypes is distributed into occupation groups commonly found within industry sub-sectors (see Table 2.6, Chapter 2). The workforce in any given industry is generally composed of workers performing a variety of tasks associated with many different occupations such as managers, clerical staff and sales persons. For the purposes of this study we collapse these numerous occupations into 11 general occupational groups (see Appendix II). Persons in these occupational groups are employed in specific occupations related to the workplace building types considered in this study. Although transportation-related occupations often demand that employees spend much of their time in the field, drivers of various types are included in this analysis because of their relationship to Warehouse / Storage building types. Occupations that could not be directly associated with a specific building type are excluded from the analysis presented. These exclusions account for approximately 10% of the workforce in 2000 and 12.5% of Broward County's workforce in 2005. Below are a few examples of specific occupations within the 11 major occupation groups:

1. Buildings and Grounds – janitors, maids and housekeeping cleaners, pest control workers, landscape grounds maintenance workers;
2. Business and Financial Operations – purchasing agents, claims adjusters, appraisers, management analysts, and financial analysts;
3. Educational – counselors, social workers, teachers and instructors;
4. Food Preparation / Serving – cooks, bartenders, waiters;
5. Healthcare Practitioner / Technical – dentists, chiropractors, physicians and surgeons, registered nurses;
6. Healthcare Support – clinical laboratory technologists, dental hygienists, emergency medical technicians;
7. Management – executives, general and operations managers, food service managers, financial managers, medical and health services managers;
8. Office and Administrative Support – computer and network administrators, billing, bookkeeping and file clerks, hotel desk clerks;
9. Production – office machine, mechanics, machinists, woodworkers;

10. Sales – cashiers, rental clerks, salespersons, travel agents, telemarketers; and
11. Transportation / Material Moving – bus, truck, and taxi drivers, parking lot attendants, truck and ship loaders.

As previously noted, in 2000 and 2005 Broward County's workforce was primarily employed in Office and Administrative Support, Sales, Management and Production occupations (see Table 2.5). These four major occupation groups represent over half the workforce in both years with Office and Administrative Support occupations accounting for nearly one quarter of all workforce employment. Each of the remaining seven occupation groups represents approximately 10 percent or less of the workforce in both 2000 and 2005 (see Tables 3.2 and 3.3 below).

**Table 3.2: Proportion of Workforce by Selected Occupational Group
Broward County, 2000 and 2005**

OCCUPATIONAL GROUPS	2000	2005
Building & Grounds	5.0%	5.4%
Business & Financial Operations	5.3%	5.2%
Education	9.0%	5.4%
Food Preparation & Serving	6.0%	7.2%
Healthcare Practitioner & Technical	4.5%	6.5%
Healthcare Support	4.7%	2.9%
Management	10.9%	10.5%
Office & Administrative Support	24.2%	28.0%
Production	9.6%	7.8%
Sales	17.2%	17.7%
Transportation & Material Moving	3.5%	3.5%
Totals	99.9%	100.1%

Source: 2000 PUMS 5%, 2005 PUMS

Note: Universe is persons employed in selected industries and occupations and workforce aged.
May add up to approximately 100% due to rounding

Table 3.3: 2000 and 2005 Average Proportion of Employees in Industry by Occupation Group

Industry by Occupation	Manufacturing	Retail / Wholesale	Hotel / Accommodation	Entertainment	Medical / Educational	Warehousing	Office
	% Jobs by Industry	% Jobs by Industry	% Jobs by Industry	% Jobs by Industry	% Jobs by Industry	% Jobs by Industry	% Jobs by Industry
Building and Grounds	1%	1%	7%	18%	2%	5%	9%
Business and Financial Operations	3%	3%	1%	5%	2%	1%	10%
Education	0%	0%	0%	1%	26%	0%	4%
Food Preparation & Serving	0%	2%	62%	7%	2%	5%	0%
Healthcare Practitioner & Technical	0%	1%	0%	0%	23%	0%	1%
Healthcare Support	0%	1%	0%	1%	15%	0%	1%
Management	16%	7%	13%	11%	7%	15%	13%
Office and Administrative Support	25%	18%	5%	42%	20%	40%	38%
Production	42%	8%	2%	4%	2%	4%	9%
Sales	8%	50%	8%	7%	0%	4%	13%
Transportation & Material Moving	5%	9%	2%	4%	1%	26%	2%
Totals	100%	100%	100%	100%	100%	100%	100%

Source: 2000 Census PUMS 5%, 2005 Census PUMS, Occupational Codes use 2000 Census Classifications

Note: Universe is persons employed in selected occupations and selected industries and workforce aged.

Step 3: Determination of Income Levels by Occupation

In this step, income levels by occupation are determined for each of the 11 major occupation groups utilized in this analysis. Tables 3.4 and 3.5 below provide data on the reported wage and salary income of persons in the major occupational groups. Management, Business and Financial Operations, and Healthcare Practitioners and Technical Support occupations report higher incomes than all other occupational groups. Building and Grounds, Food Preparation and Serving, Production, and Transportation and Material Moving occupations report lower incomes than the other occupation groups. In 2000 and 2005, the top earners made between 3.6 and 4.6 times more, respectively, than those earning the lowest salaries. Income from 2000 and 2005 is presented to show gradual income change among the occupational groups. During the same period, the top earning occupational groups (Management, Business and Financial Operations, and Healthcare Practitioners and Technical Support occupations) increased by an average of \$7,533 (see also Tables 2.4-2.6).

Occupational groups are created based primarily on similarity of work. This similarity, however, does not necessarily equate to a similarity in income within each occupational group. For example, both surgeons and nutritionists are placed within the Healthcare Practitioners and Technical Support occupational group though nutritionists earn substantially less than surgeons. For this reason, the calculations in this step of the analysis utilize median rather than mean income figures, as they are less susceptible to extremely high or low values thereby avoiding substantial data skews in either direction. The estimated number of employees, as described by occupational group proportions and income levels, relates Broward County's workforce to the construction of building types by occupation and income. New buildings draw a mix of new employees to Broward County. These new employees must find housing for themselves and their families with the income they earn. To address the increase of new employees created by the construction of workplace buildings, this step of the study highlights the relationship between employees and their salaries in the seven building prototypes. The micro-economic level analysis below combines occupation and income data from Chapter 2 (Tables 2.4-2.6) with density figures presented in Table 3.1 of this chapter. See also Appendix III.

**Table 3.4: Reported Workforce Wage and Salary Income by Occupational Group
Broward County, 2000 and 2005**

INCOME BY OCCUPATIONAL GROUPS	2000 (Median Income)	2005 (Median Income)
Building & Grounds	\$10,043	\$15,000
Business & Financial Operations	\$29,293	\$45,000
Education	\$25,695	\$35,000
Food Preparation & Serving	\$10,043	\$15,000
Healthcare Practitioner & Technical	\$35,989	\$43,000
Healthcare Support	\$16,823	\$19,000
Management	\$37,663	\$56,000
Office & Administrative Support	\$20,924	\$30,000
Production	\$20,087	\$24,500
Sales	\$20,924	\$26,000
Transportation & Material Moving	\$15,065	\$20,000

Source: 2000 PUMS 5%, 2005 PUMS

Notes: Universe is persons employed in selected industries and occupations and workforce aged.
Values are in constant 2005 dollars

Table 3.5: 2000 and 2005 Average Salary of Occupation Group by Industry

Industry by Occupation	Manufacturing	Retail/ Wholesale	Hotel/ Accommodation	Entertainment	Medical/ Educational	Warehousing	Office
	Salary	Salary	Salary	Salary	Salary	Salary	Salary
Building & Grounds	\$18,961	\$20,065	\$12,669	\$19,161	\$22,156	\$6,950	\$11,974
Business & Financial Operations	\$43,494	\$35,227	\$39,935	\$31,635	\$44,117	\$15,532	\$44,006
Education	\$43,013	\$123,409	\$22,377	\$5,408	\$35,422	\$0	\$40,312
Food Preparation & Serving	\$25,091	\$17,169	\$14,669	\$19,961	\$12,468	\$7,200	\$15,694
Healthcare Practitioner & Technical	\$80,734	\$44,968	\$0	\$23,896	\$48,188	\$0	\$37,985
Healthcare Support	\$31,205	\$22,203	\$43,099	\$19,908	\$22,045	\$0	\$20,282
Management	\$67,857	\$57,370	\$42,714	\$42,779	\$57,383	\$58,831	\$55,883
Office and Administrative Support	\$39,416	\$24,545	\$23,753	\$17,753	\$28,390	\$24,687	\$30,532
Production	\$24,643	\$27,435	\$16,761	\$30,935	\$34,935	\$22,701	\$27,495
Sales	\$51,883	\$26,740	\$7,382	\$15,169	\$46,435	\$7,755	\$32,325
Transportation & Material Moving	\$21,948	\$21,448	\$17,571	\$26,532	\$19,455	\$24,456	\$21,705

Source: 2000 PUMS 5%, 2005 PUMS

Notes: Universe is persons employed in selected occupations and selected industries and workforce aged,
Salary presented is an average of both years in constant 2005 dollars

Step 4: Calculation of Occupation Distribution by Building Prototype

In this step, the occupation distribution within each workplace building prototype is determined according to the workplace building density figures provided by the analysis in Step 1 and the occupational mix proportion data provided in the Step 2 analysis. The occupational mix of employees working in specified industries is also applied. For example, a 100,000 square foot building serving the activities of the entertainment industry is expected to employ approximately 39 new workers in Office and Administrative Support occupations. These estimates are calculated for each occupational group within each workplace building prototype.

The employees working in each of the seven building types reside in Broward County and neighboring counties to the north and south. As previously discussed in Chapter 2 (see Table 2.13), 74 percent of the county's workforce lived in Broward in 2000 and 77 percent in 2005. This analysis uses the Year 2000 percentage of employees living in Broward because of the larger sample used by the U.S. Census. The number of workers presented in Table 3.6 for each building type is reduced by 26% to reflect the proportion of new employees expected to reside in Broward County.

Table 3.6: Occupation Types by Workforce Building Prototype

Occupation Type:	Entertainment	Hotel	Institutional	Manufact/ Industrial	Office	Retail/ Wholesale	Warehouse
	Workers						
Building & Grounds	17	4	3	1	19	2	2
Business & Financial	5	1	2	4	21	5	1
Education	1	0	30	0	9	0	0
Food Prep. & Serving	6	38	2	0	0	3	2
Healthcare Practitioner & Tech.	0	0	25	0	2	2	0
Healthcare Support	1	0	16	0	3	1	0
Management	10	8	8	20	27	12	7
Office/Admin. Support	39	3	23	31	81	30	19
Production	4	1	2	51	18	13	2
Sales	6	5	0	10	27	82	2
Transportation & Material Moving	4	1	1	6	4	14	12
Total New Workers	93	61	112	123	211	164	47

Source: FIU Metropolitan Center, 2007

Step 5: Determination of Housing Demand

In this step, data from the previous two calculations are combined to determine the level of need (demand) for workforce housing as a result of new non-residential development in Broward County.

Studies of housing affordability are based on household income, not just the earnings of individual workers. The Census 2000 figures showed that 77 percent of Broward County's households had income from wages and earnings, 29 percent from Social Security benefits (SSI), and 14 percent received income from retirement benefits. An even smaller percentage had income from a second job

Household income is used to determine a reasonable amount of housing costs that can be met by related and unrelated persons living together. To understand the kind of housing an Office/Administrative Support employee earning \$30,000 annually might be able to afford, the analysis must first determine the number of workers per household.

In this chapter, worker households are analyzed, (i.e. households where the householder (aged 16 to 64) and perhaps other members are employed (Table 3.7). The analysis begins with the number of new employees drawn to Broward County by work and then shows how this translates into new demand for housing. In worker households, the analysis divides the number of new workers by the ratio of workers per worker-household to estimate the number of households expected to be created by new employment in Broward County. The number of households in which these workers live is estimated by dividing the number of workers in worker households by the workers per worker household ratio.

**Table 3.7: Estimate of Number of New Households Implied
by 1,000 New Workers in Broward County in 2005**

Worker Households	495,012
Workers/Worker Household	1.66
Workers in Households	821,720
New Workers	1,000
New Households Implied	602

*Source: US Census Bureau, American Community Survey,
2005, Broward County Tabulated by the Metropolitan Center, FIU*

Step 6: Determination of Housing Need by Affordability Level

The previous steps in the analysis determined the number of new worker households by dividing the number of new workers by the ratio of workers per household. To determine the household income generated by new households, the analysis multiplies the number of new households by the number of workers per household. Each worker's income is combined with that of other workers, if any, expected to live in that household. Household income is then used to estimate the housing demand generated by new households formed by the new employees in the County. Table 3.8 below provides the estimate of new households by income category generated by the creation of each of the seven workplace building prototypes. This quantifies the number of households by affordability level associated with the building types and will be combined with actual housing unit costs in Chapter 4 to produce the total nexus costs.

Table 3.8: Households by Income Level Categories by Workplace Building Prototypes

	Manufacturing	Retail / Wholesale	Hotel / Accommodation	Entertainment	Medical /Educational	Warehousing	Office
Very Low Income (Under \$22,337)	0	0	6	1	1	4	12
Low Income (\$22,337 - \$37,338)	4	12	24	41	12	0	4
Moderate Income (\$37,339 - \$46,673)	31	75	2	2	0	19	11
Workforce Income (\$46,674 - \$56,008)	0	0	0	5	14	0	65
Middle Income (\$56,009 - \$70,010)	19	3	0	0	19	0	6
Total HH	54	90	32	50	46	24	98

Source: FIU Metropolitan Center

Notes: Total household figure take into consideration the 26% commute adjustment for Broward County workforce
2005 median household income for Broward County is \$46,673

CHAPTER 3 KEY FINDINGS:

- Office and Administrative Support (28.0 percent) is Broward County's leading occupation group followed by Sales (17.7 percent);
- The 2005 median annual income for a worker in Office and Administrative Support in Broward County was \$30,000;
- The 2005 median annual income for a worker in Sales in Broward County was \$26,000;
- Office and Administrative Support and Sales type occupations comprise the largest proportion of jobs across the seven (7) workplace building prototypes;
- The "Office" and "Retail/Wholesale" workplace building prototypes will generate the largest growth in new worker households;
- Significantly, "moderate" and "low" income worker households comprise the largest proportion of "new worker households" in the seven (7) workplace building prototypes.

CHAPTER 4: TOTAL HOUSING NEXUS COSTS

INTRODUCTION

The two previous chapters, “Economic Climate Analysis” and “Micro Economic and Jobs Analysis” provide the economic underpinning for determining the relationship between commercial development activity and the demand for worker housing in Broward County. Specifically, the analysis profiled the seven types of commercial building types in terms of occupations, salaries and wages and the estimated demand for new worker housing based on household income and affordability. This chapter combines the previous economic and housing analysis to calculate the unit cost or total nexus cost of producing various housing types at an affordable price level according to category of household income.

As noted in Chapter 3, housing demand refers to the amount and type of real estate desired for purchase or rent in a given market at a given time. The elements that affect demand include the labor market and economic base, the price of real estate, household income, population and household composition, and affordability. Local housing and labor markets are inextricably linked to one another. Essentially, industries are served by local housing markets that provide choices and opportunities for both existing and expanding labor markets. As such, the availability of an existing supply of various housing types and price levels must be maintained to address the housing demand of the variety of occupations that comprise the local industrial base.

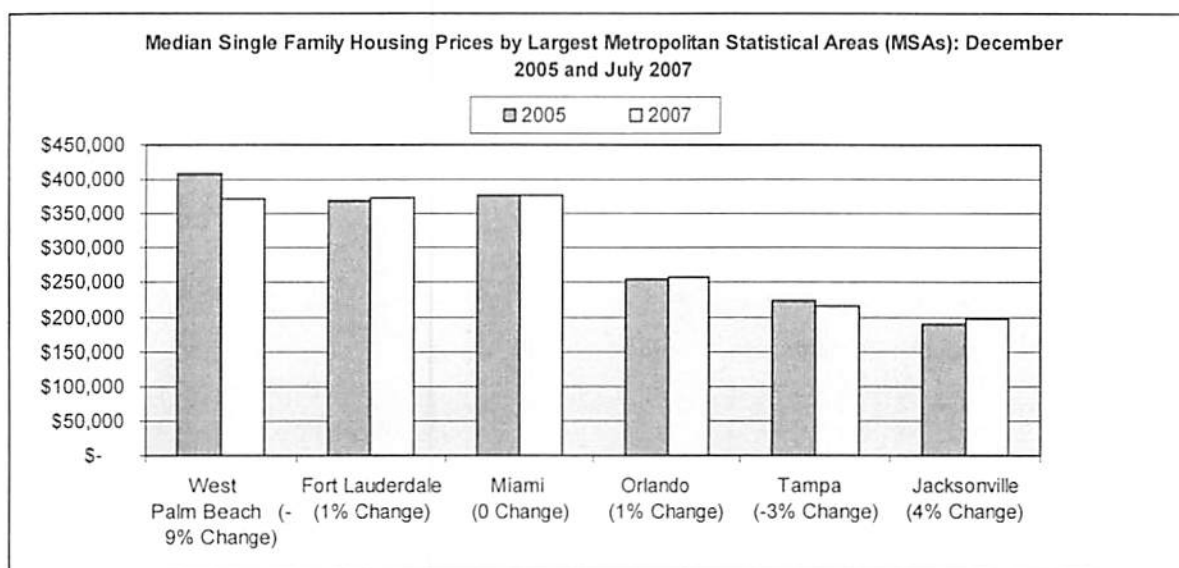
RESIDENTIAL DEVELOPMENT COSTS

Residential development costs are driven by a variety of factors including the price of land, the costs of construction, labor and materials and available financing. In a highly inflationary housing market where housing values have far exceeded the affordability levels of the majority of local households the rising cost of land becomes the single greatest obstacle to affordable housing development.

In Broward County and South Florida the residential market has leveled off after an unprecedented housing boom during 2003-2005. Overall housing demand has slowed significantly while inventories of both single-family and multi-family housing have risen

dramatically. Despite the recent downturn in the housing market, single-family housing values in Broward County and South Florida have remained fairly constant. According to the Florida Association of Realtors, the July 2007 median sale price of a single-family home in Broward County was \$373,700, which represents a 3 percent increase since 2005. The median sale price for condominiums in July 2007 was \$187,200, which represents a 3 percent decrease from 2005.

Figure 4.1



Source: Florida Association of Realtors, July 2007.

Residential development costs in Broward County are largely influenced by land values. While building material and construction costs have increased over the last several years, land values continue to be the single most contributing factor to the overall cost of residential development. Significantly, land costs have remained high despite the residential market downturn due to speculative investment patterns in recent years. Acquisition costs for residential land in Broward County currently ranges from \$800,000-\$1.2 million per acre.

HOUSING MARKET CONDITIONS

Housing affordability is generally defined as the capacity of households to consume housing services and, specifically, the relationship between household incomes and prevailing housing prices and rents. The standard most used by various units of government is that households should spend no more than 30 percent of their income on housing. This is also the standard definition for housing programs administered by the Department of Housing and Urban Development (HUD) and most state programs, including various housing programs administered through the State of Florida's Housing Finance Corporation (FHFC) and Department of Community Affairs (DCA).

The study applies the methodology for determining the "affordability gap" used by the FIU Metropolitan Center in the 2006 *Broward Housing Needs Assessment*. Housing affordability is defined as housing costs that do not exceed 30 percent of monthly gross income. The computation for housing affordability was performed using the current median sales price for market rate single-family, condominiums and rental housing units in relation to the household area median income (AMI). Favorable financing terms are applied (Fixed 30-year mortgage at 6.32 percent interest with a 5 percent down-payment) with taxes and insurance included. Debt ratios are not factored into the housing affordability calculations.

The previous analysis of Broward County's labor market indicated 89 percent of employment in the non durable service sectors of the economy. Within these employment categories, annual wages vary considerably. According to the December 2006 Quarterly Census of Employment & Wages for Broward County shown below, average annual wages range from a low of \$18,460 in Leisure and Hospitality to \$49,636 in Public Administration. The bulk of employment is found in Trade, Transportation, and Utilities (168,818 jobs/\$37,224 annual wage), followed by Education and Health Services (134,566 jobs/ \$38,924 annual wage), and Professional and Business Services (110,399 jobs/\$42,648 annual wage). The lowest average annual wage (\$18,160) is found in Leisure and Hospitality which provides 79,122 jobs in Broward County.

Despite Broward County's low-wage service economy, residential real estate prices have escalated to a level where homeownership has become unattainable for much of the resident workforce (See Table 4.1 below). From 2000 to 2005, the median sales

price for a single-family home increased by 125 percent. As previously noted, the median sale price for a single-family has remained fairly constant since 2005. As with single family homes, condominiums also experienced considerable appreciation in sale values during the residential building boom, but with greater fluctuations during the first six months of 2007. According to the Florida Association of Realtors, the median sale price for a condominium/town home in Broward County increased from \$149,000 in November 2004 to \$187,200 in July 2007, representing an increase of 26 percent.

Table 4.1:
Income Required for Market-Rate Housing Types

Type of Housing	Median Price	Required Income
Single Family	\$373,700	\$102,700
Condominium	\$187,200	\$49,350
Rental (Two Bedroom)	\$1,259	\$50,350

Source: FIU-Metropolitan Center, 2007 suing online calculator from BankRate.com

Although the value of residential real estate is at an all time high, the demand for homes appears to be slowing down. The housing market of Broward County continued to decline as measured by new housing sales. During the Fourth Quarter of 2006 a total of 2,611 new housing units were sold in Broward County, 34.2 percent less than the 3,946 units sold during the Fourth Quarter of 2005. Existing housing sales also declined with the 8,156 units resold in the Fourth Quarter of 2006, representing a 22.2 percent decline from the 10,488 units sold during the Fourth Quarter of 2005. According to the Florida Association of Realtors, sales activity during the first six months of 2007 shows continued decline. July 2007 sales activity indicates a 22 percent reduction in single-family home sales and a 19 percent decrease in condominium sales from July 2006.

Rapid appreciation in both single family homes and condominiums has directly contributed to an oversupply of properties for sale in the market. This slowdown is indicative of an over-priced housing market that will require an extended period of adjustment and a further reduction in home prices, particularly in higher priced submarkets. Along with inflationary housing values, rising interest rates, increases in construction costs and materials and the increasing costs associated with homeownership

(taxes, insurance, etc.) have all been contributing factors in the reduction of home sales in the past year.

Rental housing prices in Broward County have been commensurate with rapidly escalating home sale prices. In Broward County, the average lease for a two bedroom apartment increased from \$750 in 2000 to \$1,122 per month in 2005, an increase of 48 percent (See Tables 4.2 & 4.3 below). From 2005 to the First Quarter 2007 rent prices for the same unit types have increased to \$1,259, representing a 9 percent increase in the past two years. Rising rent prices are attributed to the low inventory of market rate multi-family housing, record low vacancy rates, and the demand for rental housing by working households who are unable to afford a home purchase.

Table 4.2:
Broward County Rents, 2000-2007

AREA	2000	2005	2007	CHANGE	%CHANGE
Broward	\$757	\$1,159	\$1,259	\$502	66.0%

Source: 2000 US Census; Broward County Quarterly Housing Report – 4th Quarter 2005 and 1st Quarter 2007; Reinhold P. Wolff Economic Research, Inc.

Table 4.3:
Rent Values by Number of Bedrooms

AREA	AVERAGE MONTHLY RENTS IN 2007*		
	1BR	2BR	3BR
Broward County	\$1,006	\$1,259	\$1,568
HUD Fair Market Rent	\$877	\$1,054	\$1,458
Tax Credit Rental Apartments	\$600	\$784	\$911

Source: 2000 US Census; Broward County Quarterly Housing Report –1st Quarter 2007; Reinhold P. Wolff Economic Research, Inc.

HOUSING AFFORDABILITY

Applying the July 2007 single family median sale price for Broward County (\$373,700), a housing affordability analysis was performed for a sampling of occupations that represent the majority of Broward County's employment base. The sampling also included such "essential" occupations as teachers, registered nurses and police officers. These occupations are often targeted for workforce housing programs. The purpose of

this exercise is to profile the individual Broward County worker in terms of housing demand and affordability and the likely occupational composition of worker households.

As shown in Table 4.4 below, most of Broward County's leading occupations earn less than \$29,694 annually, which also calculates as less than 50 percent of the household area median income (AMI).

Table 4.4:
Sample Earnings of Selected Occupations in Relation to Area Median Income, 2007

Occupation	<50 AMI	<80 AMI	<100 AMI	<120 AMI	<150 AMI	150+ AMI
	Under \$29,694	\$29,695- \$47,874	\$47,875- \$59,994	\$59,995- \$72,114	\$72,115- \$90,294	Over \$90,294
Essential Occupations						
Elementary School Teachers		X				
Secondary School Teachers			X			
Fire Fighters			X			
Police and Sheriff Patrol Officers			X			
Registered Nurses					X	
Leading Occupations						
Retail Salesperson	X					
Cashiers	X					
Office Clerks, General	X					
Customer Service Representatives	X					
Waiters and Waitresses	X					
Combined Food Preparation and Serving Workers, Including Fast Food	X					
Stock Clerks and Order Fillers	X					

Source: Florida Agency for Workforce Innovation, Labor Market Statistics; FIU-Metropolitan Center, 2007

The following affordability gap analysis by household area median income (AMI) categories applies the same methodology described above. It is important to note that affordability is calculated at the high end of each household income category, thus the analysis provides a generally favorable gap analysis within the broad range of each income category. Conservative underwriting standards were applied for both single-family and condominium affordability gap calculations. The calculator uses a 30-year, 6.32 percent fixed rate mortgage with a 5 percent down payment and taxes and insurance included. The estimated tax was inputted using the median millage rate for Broward County's 41 municipalities. An annual average \$3,406 insurance cost was applied to the single-family affordability calculation based on estimates from the State of Florida Office of Insurance Regulation. Condominium insurance costs are calculated within an estimated monthly condominium fee of \$450 per month including both expenses and reserves.

When current residential prices are applied to the five (5) household income categories used for this study, it is evident that affordability gaps exist for all household income categories for single-family homes and for households earning less than 80

percent AMI for condominiums (See Table 4.5 below). The affordability gaps for single family homes are extreme for households earning less than 120 percent AMI. Significantly, the purchase of the median priced single family home is virtually unattainable for these household income groups. Likewise, the purchase of the median priced condominium is unattainable for households earning less than 80 percent AMI.

Table 4.5:
Affordability Level for Area Median Income Categories

Single-Family and Condominium									
Income Range	Annual Household Income	Monthly Household Income	5% Down	Afford. SF Home Price	Median Selling SF Price 2007	Affordability Gap	Afford. Condo Price	Median Selling Condo Price 2007	Afford. Gap/Surplus
Very Low Income: <50% AMI	\$29,694	\$2,475	\$4,454	\$75,565		(\$298,135)	\$53,612		(\$133,588)
Low Income: <80% AMI	\$47,874	\$3,989	\$7,181	\$149,816		(\$223,884)	\$127,864		(\$59,336)
Moderate Income: <100% AMI	\$59,994	\$4,999	\$8,999	\$199,331	\$373,700	(\$174,369)	\$177,378	\$187,200	(\$9,822)
Workforce Income: <120% AMI	\$72,114	\$6,010	\$10,817	\$248,831		(\$124,869)	\$226,879		\$39,679
Middle Income: <150% AMI	\$90,294	\$7,525	\$13,544	\$323,083		(\$50,617)	\$301,137		\$113,931

An affordability gap analysis of market rate rental units indicates a substantial gap (\$516) for households earning less than 50 percent AMI, and a less significant gap (\$62) for households earning less than 80 percent AMI (See Table 4.6 below). Rents are generally affordable for each other household income category, though a small gap would exist for households at the low end of the moderate (less than 100 percent AMI) income category.

Table 4.6:
Affordability Level for Income Categories for Rentals

	Household Income	Affordable Rent	Median Rental Price	Affordability Gap
Very Low Income: <50% AMI	\$29,694	\$742		(\$517)
Low Income: <80% AMI	\$47,874	\$1,197		(\$62)
Moderate Income: < 100% AMI	\$59,994	\$1,500	\$1,259	\$241
Workforce Income: <120% AMI	\$72,114	\$1,803		\$544
Middle Income: <150% AMI	\$90,294	\$2,257		\$998

Source: Broward County Quarterly Housing Report – 4th Quarter 2005 and 1st Quarter 2007; Reinhold P. Wolff Economic Research, Inc.; FIU-Metropolitan Center, 2007 Note: Income limits are based \$60,000 HUD for a family of four.

TOTAL NEXUS COSTS

This step of the nexus analysis combines the numbers of new worker households for each household income category associated with the (7) seven workplace building prototypes shown in Chapter 3 - Table 3.1 with the affordability gap analysis provided in this chapter. The affordability gap analysis consists of two steps: 1) a determination of the affordability gap by household income category as detailed in Tables 4.5-4.6 above; followed by 2) a determination of the affordability gap applying affordable home price limits to actual development scenarios by way of development pro forma computations based on actual unit production costs (See Appendix IV).

The development pro forma presented are based on estimated prevailing land and construction costs for residential development types in Broward County. The estimated costs were determined using Reed Construction Data, a leading national firm in construction data management, and real estate market data from the FIU Metropolitan Center's housing database developed for various South Florida housing studies within the past two years. Estimated land and project costs (direct and indirect) were calculated against projected income generated from sales or rental income based on the affordability levels of each household income group to determine the surplus/gap for each development type by unit cost.

Several assumptions are built into the development scenarios used in the affordability calculations:

- Given that owner-occupancy is a goal of local government, development scenarios include owner type options where feasible, thus rental housing scenarios are applied for "Very Low" and "Low" household income categories;
- Given the relative scarcity of land in Broward County and high cost of new single family homes, condominium development types (townhomes/garden apartments) are used;
- Higher densities (30 units per acre condo/40 units per acre rental) were applied to increase the financial feasibility of each development scenario;
- Low Income Tax Credits are excluded from the "Very Low Income" household category to show the real gap in producing rental housing at that affordable price level. Further, the market value of Low Income Tax Credits can not be assumed as these tax credits are highly competitive and are not fixed to the unit such as Section 8 housing.

The development scenario for “moderate,” “workforce” and “middle” income households was based on a prototypical 300 unit condominium townhouse development in Broward County consisting of 1,200 square foot 2-bedroom units. Typical development costs per unit for the 3-story townhouse condominium complex are as follows:

Land	\$27,500
Hard Costs	\$162,000
Soft Costs	\$55,000 (average)

The total costs associated with the development scenario include land acquisition costs, direct construction or hard costs and soft costs. A sixteen percent (16%) developer profit was included in each development pro forma calculation. The affordability gaps are the differences between the sale price points affordable at the “moderate,” “workforce” and “middle” household income categories and the actual costs of development as follows:

Income Category	Total Development Cost	Affordable Price	Affordability Gap
Moderate Income	\$290,160	\$177,378	\$112,782
Workforce Income	\$293,837	\$226,879	\$66,958
Middle Income	\$299,265	\$301,137	NA

The development scenario for “very low” and “low” income households was based on a prototypical 150 unit garden style rental complex consisting of 1,000 square foot 2-bedroom units. Typical development costs per unit for the 3-story townhouse condominium complex are as follows:

Land	\$27,500
Hard Costs	\$115,000
Soft Costs	\$27,560 (average)

The total costs associated with the development scenario include land acquisition costs, direct construction or hard costs and soft costs. A sixteen percent (16%) developer profit was included in each development pro forma calculation. The affordability gaps are the differences between the rent price points afforded at the “very low” and “low” household income categories and the costs of development as follows:

Income Category	Total Development Cost	Affordable Price	Affordability Gap
Very Low Income	\$197,226	\$42,317	\$154,909
Low Income	\$197,226	\$92,958	\$104,268

Both the “very low” and “low” income rental development scenarios show substantial per unit affordability gaps of \$154,909 and \$104,268, respectively. Land costs of over \$1 million per acre and hard construction costs of \$115,000 per unit are the primary supply factors contributing to the affordability gaps. However, the relatively low rent price points for these income categories create a total rental income that limits the supportable mortgage under each development scenario.

The above affordability gap calculations based on actual development scenarios are then applied to the total number of new worker households by income category (Table 4.7) that is estimated to be generated by each of the seven (7) workplace building prototypes to determine the nexus cost per square foot for each non-residential development. The calculation is based on the total number of new household units (new housing demand) times the affordability gap, divided by 100,000 square feet (See Table 4.7 below).

Table 4.7:
Nexus Costs Per Square Foot

Income Category	Affordability Gap	Manufacturing	Retail/ Wholesale	Hotel/ Accommodation	Entertainment	Medical/ Educational	Warehousing	Office
Very Low	\$154,909	\$0.00	\$0.00	\$9.29	\$1.55	\$1.55	\$6.20	\$18.59
Low	\$104,268	\$4.17	\$12.51	\$25.02	\$42.75	\$12.51	\$0.00	\$4.17
Moderate	\$112,782	\$34.96	\$84.59	\$2.26	\$2.26	\$0.00	\$21.43	\$12.41
Workforce	\$66,959	\$0.00	\$0.00	\$0.00	\$3.35	\$9.37	\$0.00	\$43.52
Middle	NA	-	-	-	-	-	-	-
Total Costs:		\$39.13	\$97.10	\$36.57	\$49.91	\$24.43	\$27.63	\$78.69

Source: FIU Metropolitan Center, 2007

CHAPTER 4 KEY FINDINGS:

- The existing median sale price of a single-family home in Broward County is cost prohibitive for each of the five household income categories;
- The existing median sale price of a condominium in Broward County is unaffordable for “very low” and “low” income households;
- Current rental unit prices have created substantial affordability gaps for “very low” income households and for a substantial amount of households in the lower end of the “low” income category;
- The rising cost of land coupled with dwindling land availability in Broward County are the primary factors leading to high residential development costs;
- The disparity in residential development costs and housing affordability based on household income has created substantial affordability gaps in “very low” to “moderate” income condominium and rental housing units;
- Total nexus costs per square feet are higher in workforce building types that employ the higher percentages of low-wage service workers, e.g. entertainment, retail/wholesale and hotel/accommodations.

CHAPTER 5: POLICY REVIEW, CONSIDERATIONS, AND IMPLEMENTATION

INTRODUCTION

The final chapter of the nexus analysis is intended to provide Broward County officials with policy review considerations for the potential implementation of an affordable housing linkage fee program. The chapter begins with an overview of linkage fee programs in the State of Florida and the United States. This overview is followed by policy considerations that local officials must consider in implementing a nexus fee structure, including thresholds and exemptions, alternatives and payment methods. The final section of the chapter addresses policy implementation issues including projected revenues, anticipated development costs and the potential use of program funds

POLICY REVIEW

An imbalance between jobs and housing occurs when commercial growth outpaces housing development. Often, a mismatch between the types of jobs available – in the case of Broward County, usually low wage earning service sector employment – and the available housing stock – such as new luxury development - deepens the disparity. Linkage fees are intended to restore that balance. In order to successfully do so, careful consideration must be taken in drafting the program. Policymakers must examine the fee structure, thresholds and exemptions, payment schedule and alternatives, and use of the funds. Further, they must develop controls to ensure that new affordable housing opportunities are produced.

Linkage fee programs – also known in some places as impact fees, mitigation fees, or inclusionary fees – are prevalent throughout California, the Northeast, and other high cost areas. As South Florida continues to be one of the least affordable areas of the country, it is expected that we will see an increase in the number of affordable housing initiatives, in particular, linkage fee programs.

Florida Linkage Programs

Although only a few communities in Florida have established linkage fee programs to date, many localities are considering the benefits. The cities of Hollywood, Orlando, and Islamorada have all proposed or suggested enacting linkage fees. Both Collier and

Lee Counties have already completed nexus studies and will likely adopt policies this year. Further, the cities of Winter Park, Marathon, and Coconut Creek as well as Monroe County all have implemented linkage fee programs.

Each program varies greatly. Winter Park utilizes a flat fee on all types of development; Monroe County uses a variable rate based on the size of new construction; and Coconut Creek charges a fee on commercial development based on usage. Marathon is yet to adopt a fee schedule, but will most likely base it on size for residential construction and use for commercial growth.

Many of the linkage programs in Florida are relatively new, making it difficult to gauge their success. Still, it is important to note that the fee schedules adopted in the state – especially in comparison with other parts of the country – are relatively minimal and, as a result, collect limited funds. Both Winter Park and Monroe County noted that this was intentional. In absence of a nexus study, they kept the fees low to avoid challenges to their policies. On the other hand, Coconut Creek completed a study and found relatively little impact from development. This was primarily due to the methodology used, which included a differing definition of affordable housing than this study (e.g. 40% of household income spent on housing costs, rather than the 30% standard).

Winter Park, FL - The City of Winter Park was among the first in the state to levy a linkage fee supporting affordable housing development. In 1992, the City determined that they were not meeting the housing goals set forth in their comprehensive plan and the marketplace was not satisfying the housing needs of the community. As a result, they enacted a small, flat fee (\$0.15/sf) on all development – residential and nonresidential – to fund affordable housing. After a slight increase to \$0.50/sf, the fee generates about \$350,000 per year. The funds have been used to purchase land, fund the local community land trust and subsidize a 30-unit apartment complex.

Monroe County, FL - Although discussions began in the late 1980s, Monroe County's employee housing fair share impact fee was not finalized until 2003. Fees are determined based on building size: residential and commercial development under 2,000

square foot is charged \$1.00/sf, buildings between 2,000 and 3,000 square feet pay \$2.00/sf, and those developments larger than 3,000 square feet owe \$3.00/sf.

Coconut Creek, FL - In early 2006, the City of Coconut Creek enacted a linkage fee on new nonresidential development and substantial additions or renovations (greater than 50% of replacement cost). The fee ranges from \$0.15/sf to \$2.42/sf based on the type of usage. These fees are deposited into trust fund and used for land acquisition, new construction, preservation, homebuyer, rental and relocation assistance, and administrative costs. According to the nexus study completed by Strategic Planning Group, it is estimated that over \$5 million will be generated through build-out of available land.

Marathon, FL - The City of Marathon recently adopted new impact fee procedures affecting both residential and nonresidential development. The new fee schedule, which is yet to be determined, will replace previous inclusionary zoning procedures and will now account for all types of development that creates an additional need for affordable housing.

California Linkage Programs

California has taken the lead in producing affordable housing solutions. Nearly one fifth of all cities have an inclusionary zoning provision and over thirty communities are considering or have adopted a linkage fee program.

San Francisco, CA - In 1981, San Francisco was the first major city to implement a linkage fee program. Operated as a joint program between the City and County, San Francisco maintains one of the highest linkage fees in the country (\$9.97 - \$14.96 based on use). Exemptions include projects within redevelopment areas and the Port and are applied to the first 25,000sf of all development.

Sacramento, CA - The rapid growth of the high tech industry during throughout the 1980s resulted in substantial need for new affordable housing in Sacramento. In order to address that need, both the City (1989) and the County (1990) enacted a Housing

Trust Fund impact fee program. The fee includes most type of commercial development, but excludes some uses such as parking facilities, childcare centers, and churches. In addition, development within the North Natomas area is assessed separately based on their community plan. All funds collected are used to target very low and low-income families. Although the City Council approved a substantial increase (81.3%) to the program in 2005, with current rates ranging from \$0.50 - \$1.84/sf based on use, it is still considered a very minimal fee. Although a recent 2006 study suggested that fee schedule should be increased and options should be implemented to lessen the impact on redevelopment, infill, and small-scale projects – no change has been proposed.

San Diego, CA - Despite a relatively low impact fee (\$0.27 - \$1.06 based on use), San Diego's linkage program has been highly successful. In the past five years, it has generated over \$11 million. Last year alone brought in \$3.5 million. Adopted in 1990 as a mitigation fee on new commercial development, the funds target those earning below 80% of the area median income. Exemptions are granted for residential hotels, enterprise zones and special circumstances. In addition, developers can choose to dedicate land or air rights in lieu of paying a fee. Although there is a provision that suggests that the fee can be adjusted annually and a recent study developed new nexus amounts, the fee schedule has not been updated since 1996.

Massachusetts Linage Programs

Although several other examples exist throughout the country, both statewide and local initiatives allow linkage programs in Massachusetts to thrive.

Boston, MA - With over \$81,000,000 in revenue collected and 6,159 affordable housing units created or preserved, the City of Boston maintains one of the most successful linkage programs in the country. High fees and broad coverage allow the city to maximize their profits; a seven year deferral payment and build option provide flexibility to the developer; and the establishment of a Neighborhood Housing Trust ensures that affordable housing projects are funded and built.

Started in 1983 as a result of a grassroots effort, Boston's housing linkage fee is intended to balance large-scale commercial development with needed residential

construction. The fee, currently \$7.87/sf, applies to all new commercial development greater than 100,000sf. Funds are used for homeownership, rental, cooperatives, and transitional housing targeting very low and low-income residents. Assistance only goes to new construction, rehabilitation, or conversion of non-residential properties projects that would not be completed without the additional subsidy.

Three years after the housing policy was initiated, the program was expanded to include a job linkage fee (currently \$1.57/sf). The funds provide employment opportunities for low to moderate-income residents through job training, adult education, employment counseling, and job placement. With over \$2 million generated each year, it is now the largest employment program in Massachusetts.

Cambridge, MA - In Cambridge, fees only apply to developments seeking density relief. In this example, “incentive zoning” includes both an inclusionary zoning provision on residential development and a linkage fee on commercial projects. For commercial development, a flat fee of \$4.25 is attached to new commercial, hotel, retail, and institutional construction and although only developments greater than 30,000 square feet are considered, just the first 2,500 square feet is exempt from the fee.

Linkage Fees & Inclusionary Zoning

Almost all of the local governments that adopt commercial linkage fee programs also have a broader housing policy that includes requirements on residential development. In Florida, Winter Park and Monroe County fees include both residential and nonresidential construction. Additionally, the nexus studies for Marathon, Collier County and Lee County all include linkage recommendations for residential development.

Further, the majority of linkage programs reviewed in California and Massachusetts also had inclusionary zoning programs. Locally, Key West, Tallahassee, Coral Springs, Boynton Beach and Palm Beach County all have recently adopted inclusionary zoning policies.

Table 5.1
Inclusionary Zoning Policies in Florida

MUNICIPALITY	YEAR	SET ASIDE	THRESHOLD	TARGET	In Lieu
Tallahassee	2005	10% (owner) 15% (renter)	50 units and DRIs	70-100% AMI	\$10,000 - \$25,000/unit or Rental in same census tract
Key West	Updated 2005	30%	All multifamily	<80% AMI (10%) <100% AMI (20%)**	Offsite or \$200,000/unit* Percentage offsite, Donate land, or Fee (Land + construction costs)
Palm Beach County (unincorporated)	2006	25%	10 units	60-150% AMI	
Coral Springs	2006	10%	5 units	Up to 120% AMI	\$2.67/sf (up to 1600sf) Donate land, Convert existing market rate, \$60,000 - \$100,000/unit, or 75% offsite
Boynton Beach***	2007	10% - 25%	10 units	<80% (25%) <120% (75%)	

* Only for developments with 10 units or less.

** For developments with 10 units or less, thirty percent of the units can go target median income families.

*** Draft version.

POLICY CONSIDERATIONS IN DEVELOPING A NEXUS FEE STRUCTURE

The total nexus costs calculated in this study represent a maximum threshold – i.e., the dollar amount required to mitigate the impact of non-residential development on residential housing markets. In most jurisdictions, however, the fees collected on new developments are much lower than the total nexus costs. This practice not only ensures that no one industry bears the burden of providing housing; it is also used as a leverage tool with those that oppose fee increases. Moreover, as long as the fee is proportional to the impact caused by the non-residential development, a linkage fee is not considered an encroachment on developer's rights. In other words, if the fees are less than or equal to the nexus amount, the linkage program can be defensible in court.

Generally, the fee collected is relatively low: \$3 to \$4 per square foot. However, cities where the real estate market is strong – such as San Francisco or Palo Alto, California – can bear much greater amounts, collecting between \$9.97/sf and \$15.58/sf based on building types. Still, despite the high cost of development in Florida, many of the existing fees are extremely low. In fact, the highest existing fee in the state is in Monroe County - \$3/sf only on developments larger than 3,000sf.

Depending on the locality, some jurisdictions charge a flat rate fee on all development, while others vary their fee by size or usage. In Florida, for example, a range is apparent: Winter Park issues a flat fee on all development, Monroe County's program varies depending on the size of development and Coconut Creek charges their fees based on the building's use.

Most programs base their fee structure on building types and land use. The categories commonly consist of office, retail, hotel and manufacturing. However, many municipalities include other types of commercial development and some even consider residential construction into the equation. Despite the differences, it is important that the fee balances the economic impact and the housing need.

Determining Thresholds & Exemptions

In order to reduce the possibility of negative impacts, exemptions are often granted based on industry, location, size or hardship. Probably the most common exemptions occur for uses that produce positive community impacts and provide needed public services (i.e. nonprofits, schools, and public facilities). Additionally, cities such as San Francisco and Sacramento exempt development in vital redevelopment areas. In response to arguments that fees place a larger burden on smaller developments, some municipalities developed thresholds based on size. For example, Berkeley exempts the first 7,500sf of construction, while Boston waives the fee on all development less than 100,000sf. Programs with low fees do not generally have threshold, but may instead base their fee on the size of the development. Further, exemptions or fee reductions are often granted in cases of hardship or when the developer proves that their actual impact is less than the proposed fees.

Establishing Alternatives & Payment Methods

The majority of linkage programs require the collection of fees at or before the building permit is issued. However, some allow developers to wait until their Certificate of Occupancy or develop an annual payment schedule. Since commercial development derives its benefit over time, later payments offer relief to developers. While many cities, such as Oakland, Berkeley, and Santa Monica, require a series of payments over time, Boston's program is probably the most flexible, allowing developers to pay over a 7-year period. Nonetheless, delayed payments can also diminish the value of the funds and slow affordable housing development. Consequently, it must be balanced with the immediacy of the impact and need.

As an alternative to paying a fee, many cities allow developers to either build affordable housing onsite or donate land. San Diego even permits developers to contribute their air rights for future development. Another creative idea is to allow developers to partner with other organizations building affordable housing in other locations. Each of these alternatives can serve to speed up the actual development of affordable housing.

Targeting Funding

Almost all local governments collect fees into a Housing Trust Fund solely dedicate to affordable housing. Programs are aimed at targeting the workforce, which in many cases earn below 80% of the area median income. Uses vary from land acquisition, new construction, preservation, and homebuyer, rental and relocation assistance. All new affordable housing opportunities must be occupied by eligible residents. In the case of homeownership, resale restrictions and controls must be in place to ensure long term affordability.

POLICY IMPLEMENTATION

Previous chapters have provided hard data that identified the relationship between job and housing growth, determined actual nexus costs and justified the implementation of a linkage fee. The following section, in conjunction with the Policy Considerations and Policy Review, is intended to assist policy makers in designing a linkage fee program to benefit Broward County.

Projected Revenue

The actual revenue derived from a linkage fee is contingent on a number of factors, including the amount of new commercial space developed each year and the details of the program itself.

Commercial Development

During the real estate boom, both commercial and residential real estate was developed at a rapid pace. At the height of the market (2003-2004), over 12,000,000 square feet of commercial building permits were issued annually. As market conditions

wane and land constraints intensify, commercial development has begun to return to normal levels. In 2006, 7.3 million square feet of commercial development was permitted. In all, Broward County granted 3,583 commercial building permits totaling 50,255,074 square feet of new development in the five year period between 2002 and 2006. Commercial activity has continued through 2007 with office, retail and warehousing anticipated absorbing most of the growth.

TABLE 5.2
Commercial Building Permits and Total Square Footage
Broward County, 2002-2007

	2002	2003	2004	2005	2006	2007*
Office	2,746,737	2,493,753	2,081,746	2,390,805	1,605,641	1,708,824
Medical/Educational	955,309	741,873	860,644	905,806	401,788	227,731
Retail/Wholesale	2,029,797	5,656,116	2,411,505	3,383,021	1,680,792	1,661,319
Industrial/Mfr.	459,532	648,102	138,847	246,680	149,336	0
Warehousing	861,617	993,762	1,494,502	1,107,622	1,492,256	1,189,141
Hotel	289,358	630,458	1,329,901	0	577,130	0
Entertainment	295,659	263,159	345,997	301,515	174,560	109,827
Other	878,355	1,414,021	3,484,481	1,439,557	1,182,692	365,942
TOTAL	8,518,366	12,843,247	12,149,627	9,777,011	7,266,201	5,262,784

Source: Broward County Urban Planning & Redevelopment Department, Planning Services Division, Permit Monitoring System

*Through August 2007.

Table 5.2 above highlights the commercial building activity since 2002. It is intended to illustrate growth within in each industry and identify the type of commercial development that will occur in the future. However, it is difficult to estimate the amount of commercial development that will occur before “build out” because properties are continually being redeveloped and “built up” at higher densities. Within Broward County, 28 percent of the developable land is commercial zoned. As of 2003, 58,067 acres were already developed for commercial uses and 13,168 acres remained barren for future commercial needs.¹ The amount of vacant land has undoubtedly diminished in the past four years, but is still a clear indicator of the County’s growth potential. Combining

¹ Broward County Office of Urban Planning & Redevelopment, Planning Services Division, *Accommodating Population Growth in Broward County, 2000 to 2030*, August 2003

greenfield development with renovations, redevelopment, mixed use and infill development could account for an additional 40,000,000 square feet of commercial development over the next five years.

Program Details –

Actual revenues will also vary depending on the details of the linkage fee program (i.e., thresholds, exemptions, alternatives and fee structures). It is also important to note that some types of commercial development may not be included within the assessment. Policymakers may determine that specific neighborhoods or redevelopment areas should be exempt from linkage fees. These districts may require additional incentives to attract businesses and development into the area. Often, these redevelopment efforts are vital to the success and sustainability of the community. Commissioners may also choose to reduce fees for targeted industries. Presumably, the positive economic impact (i.e. high wage jobs, wealth enhancement, economic diversification, and catalyst for additional business activity) would outweigh any negative consequences. In addition, it could be determined that only developments of a certain size or threshold should be included in the assessment. While this could go against recommended practices of smart growth and density, it could also provide relief to small projects that may not be able to sustain the added costs. Finally, the linkage fee program could be designed to offer alternatives for developers who choose to build the housing units themselves.

Most importantly, the projected revenues will be based upon the fee structure. Given that the actual nexus is high (between \$17.57 and \$63.27 per square foot), it is essential to strike a balance between the actual funds needed to provide new housing units and the added cost to development. If the fee is set too low, the County could lose potential funding for affordable housing. If it is set too high, commercial development could be strained. The description below provides four alternatives and weighs the positive and negative attributes of each:

- ***Actual Nexus:*** The nexus represents the maximum amount that the County can collect on new commercial buildings. While the fee could considerably

increase total development costs (3-40 percent), it would completely alleviate the impact of development.

- ***Percent of Nexus:*** Reducing the nexus to a percentage of the total proportionally balances the cost and impact of a linkage fee. Unfortunately, it underestimates the actual housing need.
- ***Percent of Development Cost:*** Fees are sometimes based on a percentage of the total development cost, which limits the impact on the developer or business owner. However, the fee is no longer linked to the impact and could cause a disproportionate burden on a particular building type.
- ***Flat Fee:*** Although a flat fee on all development would provide the County with some ease in collection, it could create an imbalance between building types, causing some industries to pay a greater portion of their impact than others.

The following Table 5.3 is intended to give an understanding of the revenue potential of a linkage fee program. Square foot estimates are based on the annual average of commercial building permits issued for each building type in Broward County. Actual development numbers may vary year to year. Several fee alternatives are provided to illustrate probable revenue streams; however, different rates or percentages could be set for each fee type.

Given the real estate slowdown, future revenue projections may be significantly lower. Nonetheless, the table provides an understanding of the annual revenue lost over the past five years in the absence of a linkage fee program.

TABLE 5.3
Potential Linkage Fee Revenues

Annual Development		Actual Nexus		Percent Nexus (10%)		Percent Cost (1%)		Flat Rate	
Building Type	SF	Fee	Revenue	Fee	Revenue	Fee	Revenue	Fee	Revenue
Office	2,263,736	\$78.69	\$178,133,385.80	\$7.87	\$17,813,338.58	\$2.70	\$6,112,087.20	\$5.00	\$11,318,680.00
Medical/Educational	773,084	\$24.43	\$18,886,442.12	\$2.88	\$2,222,616.50	\$2.65	\$2,048,672.60	\$5.00	\$3,865,420.00
Retail/Wholesale	3,032,246	\$97.10	\$294,431,086.60	\$9.71	\$29,443,108.66	\$2.40	\$7,277,390.40	\$5.00	\$15,161,230.00
Industrial/Mfr.	328,499	\$39.13	\$12,854,165.87	\$3.91	\$1,285,416.59	\$1.85	\$6,07,723.15	\$5.00	\$1,642,495.00
Warehousing	1,189,952	\$27.63	\$32,878,373.76	\$2.76	\$3,284,267.52	\$1.50	\$1,784,928.00	\$5.00	\$5,949,760.00
Hotel	565,369	\$36.57	\$20,675,544.33	\$3.66	\$2,069,250.54	\$2.30	\$1,300,348.70	\$5.00	\$2,826,845.00
Entertainment	276,178	\$49.91	\$13,784,043.98	\$5.00	\$1,380,090.00	\$3.65	\$1,008,049.70	\$5.00	\$1,380,890.00
TOTAL	8,429,064		\$571,643,042.50		\$57,498,088.39		\$20,139,199.75		\$42,145,320.00

ANTICIPATED COSTS

The impetus behind the nexus analysis is to identify a quantitative linkage between commercial development and housing growth. The resulting linkage fee is then intended to restore the job/housing imbalance (i.e. low wage earning jobs and high housing costs). The linkage fee is not to be utilized to control or limit growth – which is essential to our economy – but rather, should promote additional housing opportunities for our workforce. By expanding affordable housing options for their employees, Broward County businesses can remain competitive in the global economy.

Development Costs

Actual development costs vary greatly depending on the location, building materials, amenities, etc. For example, land costs for an office building in a suburban setting may range from \$1,000,000 to \$1,500,000 per acre whereas prime real estate in downtown Fort Lauderdale may be several times that amount. Density requirements may limit the size of the building to a minimal one-story structure with surface parking or could allow for a multi-story space with garage parking along a mass transit corridor or regional activity node. Class A office space may include extravagant light fixtures or architectural design features which could add significantly to the total costs whereas a Class B or C building may utilize more cost-effective building materials.

In this section, the development costs of the seven building prototypes are analyzed. The analysis presented provides an estimate of building costs based on current industry standards as well as national and local data. The total development cost includes land acquisition, building and parking hard costs, and soft building costs. These figures are to serve only as guides as they are subject to market fluctuations.

Table 5.4
Office Development
Total Development Cost: \$200/sf - \$345/sf

OFFICE, Suburban, 1 story

Location: Broward County
Land Area: 3.50 acres
Building Area: 50,000 sf
Parking Requirement: Garage, 200 spaces

Acquisition Costs	\$20/sf	\$3,049,200
Building Costs	\$61.57/sf	\$3,078,450
Parking Costs	\$8,000/space	\$1,600,000
Soft Costs	30%	\$2,318,295
TOTAL DEVELOPMENT COST	\$200.92/sf	\$10,045,945

OFFICE, Suburban Mid-Rise, 2-4 stories

Location: Broward County
Land Area: 2.00 acres
Building Area: 100,000 sf
Parking Requirement: Garage, 400 spaces

Acquisition Costs	\$25/sf	\$2,178,000
Building Costs	\$76.26/sf	\$7,625,500
Parking Costs	\$18,000/space	\$7,200,000
Soft Costs	30%	\$5,101,050
TOTAL DEVELOPMENT COST	\$221.05/sf	\$22,104,550

OFFICE, Urban High-Rise, 11-20 stories

Location: Broward County
Land Area: 1.00 acres
Building Area: 175,000 sf
Parking Requirement: Garage, 700 spaces

Acquisition Costs	\$85/sf	\$14,875,000
Building Costs	\$107.79/sf	\$18,862,500
Parking Costs	\$18,000/space	\$12,600,000
Soft Costs	30%	\$13,901,250
TOTAL DEVELOPMENT COST	\$344.22/sf	\$60,238,750

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.5
Institutional Development
Total Development Cost: \$250/sf - \$280/sf

INSTITUTIONAL, Medical Office, 1 story

Location: Broward County
Land Area: 4.00 acres
Building Area: 50,000 sf
Parking Requirement: Garage, 200 spaces

Acquisition Costs	\$25/sf	\$4,356,000
Building Costs	\$72.09/sf	\$3,604,500
Parking Costs	\$8,000/space	\$1,600,000
Soft Costs	30%	\$2,868,150
TOTAL DEVELOPMENT COST	\$248.57/sf	\$12,428,650

INSTITUTIONAL, College Classroom, 2-3 stories

Location: Broward County
Land Area: 2.00 acres
Building Area: 100,000 sf
Parking Requirement: Garage, 400 spaces

Acquisition Costs	\$25/sf	\$2,178,000
Building Costs	\$122.03/sf	\$12,202,500
Parking Costs	\$18,000/space	\$7,200,000
Soft Costs	30%	\$6,474,150
TOTAL DEVELOPMENT COST	\$280.55/sf	\$28,054,650

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.6
Retail Development
Total Development Cost: \$215/sf - \$270/sf

RETAIL, Strip Center/Convenience

Location: Broward County
Land Area: 2.25 acres
Building Area: 25,000 sf
Parking Requirement: Surface, 125 spaces

Acquisition Costs	\$20/sf	\$1,960,200
Building Costs	\$45.97/sf	\$1,149,300
Parking Costs	\$8,000/space	\$1,000,000
Soft Costs	30%	\$1,232,850
TOTAL DEVELOPMENT COST	\$213.69/sf	\$5,342,350

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

RETAIL, Community Center/Department Store

Location: Broward County
Land Area: 10.00 acres
Building Area: 100,000 sf
Parking Requirement: Surface, 500 spaces

Acquisition Costs	\$20/sf	\$8,712,000
Building Costs	\$78.84/sf	\$7,884,375
Parking Costs	\$8,000/space	\$4,000,000
Soft Costs	30%	\$6,178,913
TOTAL DEVELOPMENT COST	\$267.75/sf	\$26,775,288

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.7
Industrial Development
Total Development Cost: \$185/sf

INDUSTRIAL, 1 story		
Location: Broward County		
Land Area: 3.5 acres		
Building Area: 50,000 sf		
Parking Requirement: Surface, 200 spaces		
Acquisition Costs	\$18/sf	\$2,744,280
Building Costs	\$56.30/sf	\$2,815,000
Parking Costs	\$8,000/space	\$1,600,000
Soft Costs	30%	\$2,147,784
TOTAL DEVELOPMENT COST	\$186.14/sf	\$9,307,064

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.8
Warehouse Development
Total Development Cost: \$150/sf

WAREHOUSE, 1 story		
Location: Broward County		
Land Area: 5.0 acres		
Building Area: 75,000 sf		
Parking Requirement: Surface, 190 spaces		
Acquisition Costs	\$18/sf	\$3,920,400
Building Costs	\$45.05/sf	\$3,378,500
Parking Costs	\$8,000/space	\$1,520,000
Soft Costs	30%	\$2,645,670
TOTAL DEVELOPMENT COST	\$152.86/sf	\$11,464,570

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts.

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.9
Hotel Development
Total Development Cost: \$170/sf - \$295/sf

HOTEL, Suburban Standard, 4-7 Story

Location: Broward County
Land Area: 3.00 acres
Building Area: 100,000 sf
Parking Requirement: Surface, 100 spaces

Acquisition Costs	\$30/sf	\$3,920,400
Building Costs	\$84.72/sf	\$8,427,150
Parking Costs	\$8,000/space	\$800,000
Soft Costs	30%	\$3,944,265
TOTAL DEVELOPMENT COST	\$170.91	\$17,091,815

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

HOTEL, Urban/Beachfront Luxury, 8-24 Story

Location: Broward County
Land Area: 2.00 acres
Building Area: 250,000 sf
Parking Requirement: Garage, 250 spaces

Acquisition Costs	\$300/sf	\$26,136,000
Building Costs	\$105.44/sf	\$26,358,750
Parking Costs	\$18,000/space	\$4,500,000
Soft Costs	30%	\$17,098,425
TOTAL DEVELOPMENT COST	\$296.37	\$74,093,175

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs.

Table 5.10
Entertainment Development
Total Development Cost: \$350/sf - \$380/sf

ENTERTAINMENT, Movie Theater

Location: Broward County
Land Area: 5.00 acres
Building Area: 50,000 sf
Parking Requirement: Surface, 500 spaces

Acquisition Costs	\$25/sf	\$5,445,000
Building Costs	\$78.90/sf	\$3,945,000
Parking Costs	\$8,000/space	\$4,000,000
Soft Costs	30%	\$4,017,000
TOTAL DEVELOPMENT COST	\$348.14/sf	\$17,407,000

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs

ENTERTAINMENT, Country Club

Location: Broward County
Land Area: 2.25 acres
Building Area: 25,000 sf
Parking Requirement: Surface, 125 spaces

Acquisition Costs	\$25/sf	\$2,450,250
Building Costs	\$154.31/sf	\$3,857,850
Parking Costs	\$8,000/space	\$1,000,000
Soft Costs	30%	\$2,192,430
TOTAL DEVELOPMENT COST	\$380.02/sf	\$9,500,530

Source: Carras Community Investment based on Reed Construction Data and local real estate estimates provided by real estate experts

Note: Site improvements are not included into the calculations. Hard Costs include building costs for the shell construction and tenant improvements. Soft costs provide an estimate of architect and engineering fees, financing and contingency, and permit costs

Table 5.11 below summarizes the average total development cost for each industry based on the prototypes provided and compares it to the total nexus amount found within this study. It is intended to provide an understanding of the potential cost of a linkage fee to a developer or business owner.

TABLE 5.11
Total Nexus as a Percentage of Total Development Costs

Building Type	Development Cost	Total Nexus	% of Cost
Office	\$270/sf	\$78.69/sf	29%
Medical/Educational	\$265/sf	\$24.43/sf	9%
Retail/Wholesale	\$240/sf	\$97.10/sf	40%
Industrial/Manufacturing	\$185/sf	\$39.13/sf	21%
Warehousing	\$150/sf	\$27.63/sf	18%
Hotel	\$230/sf	\$36.57/sf	16%
Entertainment	\$365/sf	\$49.91/sf	14%

A linkage fee assessed at the total nexus amount could add significantly to the overall cost of development (up to 40%). As a result, policy makers should be encouraged to determine an equitable fee level. In doing so, it is important to remember that while a linkage fee may add some costs to development, it provides a dedicated revenue stream for affordable housing.

Commercial Lease Rates -

Assuming that the added costs would partially be passed on to the business owner, the commercial lease rates in Broward County must be considered. Broward County currently maintains the lowest commercial lease rates in Southeast Florida. Office and retail rents are both significantly lower than its counterparts to the north and south. In fact, the average office and retail lease rates in Broward County are \$2 to \$3 less than in Palm Beach County and roughly \$10 per square foot less than in Miami-Dade County. Industrial rates are consistent throughout the region.

In addition, Broward County's rates are on par with other competitive regions in the South. Office rents in Broward County (\$17.72/sf) fall below other major market

areas (Atlanta, Charlotte, Houston, Jacksonville, Orlando and Tampa). Broward County retail rents (\$20.11/sf) are similar to those found in Charlotte (\$20.64/sf) and Houston (\$21.21/sf) and slightly above those in Jacksonville (\$15.74/sf) and Orlando (\$16.00/sf). In general, industrial rates are slightly higher in Broward County, partially due to the limited amount of industrial land.

Broward County lease rates are significantly lower than other high price real estate markets such as San Francisco, Boston and New York City, where office rates range from \$38 - \$60/sf on average. As a result, it is anticipated that even with an increase in rates, Broward County will still be competitive with other markets across the country.

TABLE 5.12
South Florida Rental Rates, Second Quarter 2007

Location	Office Lease Rate	Industrial Lease	Retail Lease Rate
<i>Southeast Florida</i>			
Broward County	\$17.72	\$8.41	\$20.11*
Miami-Dade County	\$27.62	\$8.39	\$30.45*
Palm Beach County	\$19.75	\$9.96	\$23.33*
<i>Competitive Regions</i>			
Atlanta	\$20.39	\$4.50	<i>Not available</i>
Charlotte	\$20.63	\$4.54	\$20.64
Houston	\$18.93*	\$0.48	\$21.21*
Jacksonville	\$17.86	\$4.85	\$15.74
Orlando	\$21.65	\$6.31	\$16.00
Tampa	\$20.95	\$7.06	<i>Not available</i>

Source: CB Richard Ellis Statistics
*Based on First Quarter 2007

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Targeted Income Groups-

This study considered impacts on the workforce earning up to 150% of the area median income. According to the analysis in the previous chapter, affordability gaps exist for all household income groups seeking to purchase a single family home and those

earning less than 80% AMI for condominiums. In addition, households below 80% AMI cannot afford the median rent for a two bedroom apartment.

Although all households may have cost burdens and constraints, affordability gap calculations illustrate that those earning below the area median income – or less than \$60,000/yr – are primarily impacted. For the most part, low and very low income families are completely priced out of the market; homeownership is not feasible and substantial subsidies are required to afford market rentals.

Perhaps most striking is the fact that over half of Broward County's workforce earns less than \$28,808 each year.² Although household median income is calculated based on a two wage earner household, the *Broward by the Numbers Report* notes a steady trend toward households supported by single wage earners. Alone, these single wage earners would be classified as very low income households.

The County may want to consider offering programs tailored to assist low and very low income individuals and families. Not only is the nexus amount linked exclusively with those earning less than the median income, but also the fastest growing industries and occupations support low wage earning jobs.

Program Development

It is important to consider how the linkage fee will fit within the framework of current and anticipated programs within the County. Commonly, linkage fees are entered into either a public or private Housing Trust Fund. The funds are then utilized to either enhance existing housing programs or to develop new initiatives. As with any government program, careful consideration must be taken into the formation of the policy. In order to be successful, eligibility requirements must be determined, long-term affordability must be ensured and clear oversight and monitoring must be established. Further, periodic review of the program must take place to ensure success and determine adequate fee levels based on current market conditions.

² Florida Agency for Workforce Innovation Labor Market Statistics (2006)

APPENDICES I-V

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APPENDIX I

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
000	Legislators	Management
004	Chief executives and general administrators, public administration	Management
005	Administrators and officials, public administration	Management
006	Administrators, protective services	Management
007	Financial managers	Business and Financial Operations
008	Personnel and labor relations managers	Management
009-012	Purchasing managers	Management
013	Managers, marketing, advertising, and public relations	Management
014	Administrators, education and related fields	Management
015	Managers, medicine and health	Management
016	Postmasters and mail superintendents	Management
017	Managers, food serving and lodging establishments	Management
018	Managers, properties and real estate	Management
019-020	Funeral directors	Management
021	Managers, service organizations, n.e.c.	Management
022	Managers and administrators, n.e.c.	Management
023	Accountants and auditors	Business and Financial Operations
024	Underwriters	Business and Financial Operations
025	Other financial officers	Business and Financial Operations
026	Management analysts	Business and Financial Operations
027	Personnel, training, and labor relations specialists	Business and Financial Operations
028	Purchasing agents and buyers, farm products	Business and Financial Operations
029-032	Buyers, wholesale and retail trade except farm products	Business and Financial Operations
033	Purchasing agents and buyers, n.e.c.	Business and Financial Operations
034	Business and promotion agents	Business and Financial Operations
035	Construction inspectors	Business and Financial Operations
036	Inspectors and compliance officers, except construction	Business and Financial Operations
037-042	Management related occupations, n.e.c.	Business and Financial Operations
043	Architects	Office and Administrative Support
044	Aerospace	Office and Administrative Support
045	Metallurgical and materials	Office and Administrative Support
046	Mining	Office and Administrative Support
047	Petroleum	Office and Administrative Support

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
048	Chemical	Office and Administrative Support
049-052	Nuclear	Office and Administrative Support
053	Civil	Office and Administrative Support
054	Agricultural	Office and Administrative Support
055	Electrical and electronic	Office and Administrative Support
056	Industrial	Office and Administrative Support
057	Mechanical	Office and Administrative Support
058	Marine and naval architects	Office and Administrative Support
059-062	Engineers, n.e.c.	Office and Administrative Support
063	Surveyors and mapping scientists	Office and Administrative Support
064	Computer systems analysts and scientists	Office and Administrative Support
065	Operations and systems researchers and analysts	Office and Administrative Support
066	Actuaries	Office and Administrative Support
067	Statisticians	Office and Administrative Support
068	Mathematical scientists, n.e.c.	Office and Administrative Support
069-072	Physicists and astronomers	Office and Administrative Support
073	Chemists, except biochemists	Office and Administrative Support
074	Atmospheric and space scientists	Office and Administrative Support
075	Geologists and geodesists	Office and Administrative Support
076	Physical scientists, n.e.c.	Office and Administrative Support
077	Agricultural and food scientists	Office and Administrative Support
078	Biological and life scientists	Office and Administrative Support
083	Medical scientists	Office and Administrative Support
084	Physicians	Healthcare Practitioner and Technical
085	Dentists	Healthcare Practitioner and Technical
086	Veterinarians	Healthcare Practitioner and Technical
087	Optometrists	Healthcare Practitioner and Technical
088	Podiatrists	Healthcare Practitioner and Technical
089-094	Health diagnosing practitioners, n.e.c.	Healthcare Practitioner and Technical
095	Registered nurses	Healthcare Practitioner and Technical
096	Pharmacists	Healthcare Practitioner and Technical
097	Dietitians	Healthcare Practitioner and Technical
098	Respiratory therapists	Healthcare Practitioner and Technical

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
099-102	Occupational therapists	Healthcare Practitioner and Technical
103	Physical therapists	Healthcare Practitioner and Technical
104	Speech therapists	Healthcare Practitioner and Technical
105	Therapists, n.e.c.	Healthcare Practitioner and Technical
106-112	Physicians' assistants	Healthcare Support
113	Earth, environmental, and marine science teachers	Education
114	Biological science teachers	Education
115	Chemistry teachers	Education
116	Physics teachers	Education
117	Natural science teachers, n.e.c.	Education
118	Psychology teachers	Education
119-122	Economics teachers	Education
123	History teachers	Education
124	Political science teachers	Education
125	Sociology teachers	Education
126	Social science teachers, n.e.c.	Education
127	Engineering teachers	Education
128	Mathematical science teachers	Education
129-132	Computer science teachers	Education
133	Medical science teachers	Education
134	Health specialties teachers	Education
135	Business, commerce, and marketing teachers	Education
136	Agriculture and forestry teachers	Education
137	Art, drama, and music teachers	Education
138	Physical education teachers	Education
139-142	Education teachers	Education
143	English teachers	Education
144	Foreign language teachers	Education
145	Law teachers	Education
146	Social work teachers	Education
147	Theology teachers	Education
148	Trade and industrial teachers	Education
149-152	Home economics teachers	Education

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
153	Teachers, postsecondary, n.e.c.	Education
154	Postsecondary teachers, subject not specified	Education
155	Teachers, prekindergarten and kindergarten	Education
156	Teachers, elementary school	Education
157	Teachers, secondary school	Education
158	Teachers, special education	Education
159-162	Teachers, n.e.c.	Education
163	Counselors, Educational and Vocational	Education
164	Librarians	Education
165	Archivists and curators	Education
166	Economists	Office and Administrative Support
167	Psychologists	Office and Administrative Support
168	Sociologists	Office and Administrative Support
169-172	Social scientists, n.e.c.	Office and Administrative Support
173	Urban planners	Office and Administrative Support
174	Social workers	Office and Administrative Support
175	Recreation workers	Office and Administrative Support
176	Clergy	Office and Administrative Support
177	Religious workers, n.e.c.	Office and Administrative Support
178	Lawyers	Office and Administrative Support
179-182	Judges	Office and Administrative Support
183	Authors	Office and Administrative Support
184	Technical writers	Office and Administrative Support
185	Designers	Office and Administrative Support
186	Musicians and composers	Office and Administrative Support
187	Actors and directors	Office and Administrative Support
188	Painters, sculptors, craft-artists, and artist printmakers	Office and Administrative Support
189-192	Photographers	Office and Administrative Support
193	Dancers	Office and Administrative Support
194	Artists, performers, and related workers, n.e.c.	Office and Administrative Support
195-196	Editors and reporters	Office and Administrative Support
197	Public relations specialists	Office and Administrative Support
198	Announcers	Office and Administrative Support

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
199-202	Athletes	Office and Administrative Support
203	Clinical laboratory technologists and technicians	Healthcare Practitioner and Technical
204	Dental hygienists	Healthcare Practitioner and Technical
205	Health record technologists and technicians	Healthcare Practitioner and Technical
206	Radiologic technicians	Healthcare Practitioner and Technical
207	Licensed practical nurses	Healthcare Practitioner and Technical
208-212	Health technologists and technicians, n.e.c.	Healthcare Practitioner and Technical
213	Electrical and electronic technicians	Office and Administrative Support
214	Industrial engineering technicians	Office and Administrative Support
215	Mechanical engineering technicians	Office and Administrative Support
216	Engineering technicians, n.e.c.	Office and Administrative Support
217	Drafting occupations	Office and Administrative Support
218-222	Surveying and mapping technicians	Office and Administrative Support
223	Biological technicians	Office and Administrative Support
224	Chemical technicians	Office and Administrative Support
225	Science technicians, n.e.c.	Office and Administrative Support
226-242	Technicians, Except Health, Engineering, and Science	Office and Administrative Support
226	Airplane pilots and navigators	Sales
227	Air traffic controllers	Sales
228	Broadcast equipment operators	Sales
229-232	Computer programmers	Sales
233	Tool programmers, numerical control	Sales
234	Legal assistants	Sales
235-242	Technicians, n.e.c.	Sales
243-252	Supervisors and Proprietors, Sales Occupations	Sales
253	Insurance sales occupations	Sales
254	Real estate sales occupations	Sales
255	Securities and financial services sales occupations	Sales
256	Advertising and related sales occupations	Sales
257	Sales occupations, other business services	Sales
258	Sales engineers	Sales
259-262	Sales representatives, mining, manufacturing, and wholesale	Sales
263	Sales workers, motor vehicles and boats	Sales

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
264	Sales workers, apparel	Sales
265	Sales workers, shoes	Sales
266	Sales workers, furniture and home furnishings	Sales
268	Sales workers, hardware and building supplies	Sales
269-273	Sales workers, parts	Sales
274	Sales workers, other commodities	Sales
275	Sales counter clerks	Sales
276	Cashiers	Sales
277	Street and door-to-door sales workers	Sales
278-282	News vendors	Sales
283-302	Sales Related Occupations	Sales
303-307	Supervisors, Administrative Support Occupations	Office and Administrative Support
303	Supervisors, general office	Office and Administrative Support
304	Supervisors, computer equipment operators	Office and Administrative Support
305	Supervisors, financial records processing	Office and Administrative Support
306	Chief communications operators	Office and Administrative Support
307	Supervisors, distribution, scheduling, and adjusting clerks	Office and Administrative Support
308	Computer operators	Office and Administrative Support
309-312	Peripheral equipment operators	Office and Administrative Support
313	Secretaries	Office and Administrative Support
314	Stenographers	Office and Administrative Support
315	Typists	Office and Administrative Support
316	Interviewers	Office and Administrative Support
317	Hotel clerks	Office and Administrative Support
318	Transportation ticket and reservation agents	Office and Administrative Support
319-322	Receptionists	Office and Administrative Support
323-324	Information clerks, n.e.c.	Office and Administrative Support
325	Classified-ad clerks	Office and Administrative Support
326	Correspondence clerks	Office and Administrative Support
327	Order clerks	Office and Administrative Support
328	Personnel clerks, except payroll and timekeeping	Office and Administrative Support
329-334	Library clerks	Office and Administrative Support
335	File clerks	Office and Administrative Support

1990 Census

Occupation Code Occupation Description

Study Occupation Code

337	Bookkeepers, accounting, and auditing clerks	Office and Administrative Support
338	Payroll and timekeeping clerks	Office and Administrative Support
339-342	Billing clerks	Office and Administrative Support
343	Cost and rate clerks	Office and Administrative Support
344	Billing, posting, and calculating machine operators	Office and Administrative Support
345	Duplicating machine operators	Office and Administrative Support
346	Mail preparing and paper handling machine operators	Office and Administrative Support
347	Office machine operators, n.e.c.	Office and Administrative Support
348-352	Telephone operators	Office and Administrative Support
353	Communications equipment operators, n.e.c.	Office and Administrative Support
354	Postal clerks, except mail carriers	Office and Administrative Support
355	Mail carriers, postal service	Office and Administrative Support
356	Mail clerks, except postal service	Office and Administrative Support
357-358	Messengers	Office and Administrative Support
359-362	Dispatchers	Office and Administrative Support
363	Production coordinators	Office and Administrative Support
364	Traffic, shipping, and receiving clerks	Office and Administrative Support
365	Stock and inventory clerks	Office and Administrative Support
366	Meter readers	Office and Administrative Support
368-372	Weighers, measurers, checkers, and samplers	Office and Administrative Support
373	Expeditors	Office and Administrative Support
374	Material recording, scheduling, and distributing clerks, n.e.c.	Office and Administrative Support
375	Insurance adjusters, examiners, and investigators	Office and Administrative Support
376	Investigators and adjusters, except insurance	Office and Administrative Support
377	Eligibility clerks, social welfare	Office and Administrative Support
378	Bill and account collectors	Office and Administrative Support
379-382	General office clerks	Office and Administrative Support
383	Bank tellers	Office and Administrative Support
384	Proofreaders	Office and Administrative Support
385	Data-entry keyers	Office and Administrative Support
386	Statistical clerks	Office and Administrative Support
387-388	Teachers' aides	Office and Administrative Support
389-402	Administrative support occupations, n.e.c.	Office and Administrative Support

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
403	Launderers and ironers	Building and Grounds
404	Cooks, private household	Building and Grounds
405	Housekeepers and butlers	Building and Grounds
406	Child care workers, private household	Building and Grounds
407-412	Private household cleaners and servants	Building and Grounds
433	Supervisors, food preparation and service occupations	Food Preparation and Serving
434	Bartenders	Food Preparation and Serving
435	Waiters and waitresses	Food Preparation and Serving
436-437	Cooks	Food Preparation and Serving
438	Food counter, fountain and related occupations	Food Preparation and Serving
439-442	Kitchen workers, food preparation	Food Preparation and Serving
443	Waiters'/waitresses' assistants	Food Preparation and Serving
444	Miscellaneous food preparation occupations	Food Preparation and Serving
445	Dental assistants	Healthcare Support
446	Health aides, except nursing	Healthcare Support
447	Nursing aides, orderlies, and attendants	Healthcare Support
448	Supervisors, cleaning and building service workers	Building and Grounds
449-452	Maids and housemen	Building and Grounds
453	Janitors and cleaners	Building and Grounds
454	Elevator operators	Building and Grounds
455	Pest control occupations	Building and Grounds
503-504	Supervisors, mechanics and repairers	Production
505-506	Automobile mechanics	Production
507	Bus, truck, and stationary engine mechanics	Production
508	Aircraft engine mechanics	Production
509-513	Small engine repairers	Production
514	Automobile body and related repairers	Production
515	Aircraft mechanics, except engine	Production
516	Heavy equipment mechanics	Production
517	Farm equipment mechanics	Production
518	Industrial machinery repairers	Production
519-522	Machinery maintenance occupations	Production

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
523-524	Electronic repairers, communications and industrial equipment	Production
525	Data processing equipment repairers	Production
526	Household appliance and power tool repairers	Production
527-528	Telephone line installers and repairers	Production
529-532	Telephone installers and repairers	Production
533	Miscellaneous electrical and electronic equipment repairers	Production
534	Heating, air conditioning, and refrigeration mechanics	Production
535	Camera, watch, and musical instrument repairers	Production
536-537	Locksmiths and safe repairers	Production
538	Office machine repairers	Production
539-542	Mechanical controls and valve repairers	Production
543	Elevator installers and repairers	Production
544-546	Millwrights	Production
547-548	Specified mechanics and repairers, n.e.c.	Production
549-552	Not specified mechanics and repairers	Production
553	Supervisors, brickmasons, stonemasons, and tile setters	Production
554	Supervisors, carpenters and related workers	Production
555	Supervisors, electricians and power transmission installers	Production
556	Supervisors, painters, paperhangers, and plasterers	Production
557	Supervisors, plumbers, pipefitters, and steamfitters	Production
558-562	Supervisors, construction, n.e.c.	Production
564	Brickmason and stonemason apprentices	Production
565	Tile setters, hard and soft	Production
566	Carpet installers	Production
567-572	Carpenters	Production
569-572	Carpenter apprentices	Production
573-574	Drywall installers	Production
575-576	Electricians	Production
577-578	Electrical power installers and repairers	Production
579-582	Painters, construction and maintenance	Production
583	Paperhangers	Production
584	Plasterers	Production
585-587	Plumbers, pipefitters, and steamfitters	Production

1990 Census

Occupation Code	Occupation Description	Study Occupation Code
588	Concrete and terrazzo finishers	Production
589-592	Glaziers	Production
593	Insulation workers	Production
595	Roofers	Production
596	Sheetmetal duct installers	Production
597	Structural metal workers	Production
598	Drillers, earth	Production
599-612	Construction trades, n.e.c.	Production
613	Supervisors, extractive occupations	Production
614	Drillers, oil well	Production
615	Explosives workers	Production
616	Mining machine operators	Production
617-627	Mining occupations, n.e.c.	Production
628-633	Supervisors, production occupations	Production
634-655	Precision Metal Working Occupations	Production
634-635	Tool and die makers	Production
635	Tool and die maker apprentices	Production
636	Precision assemblers, metal	Production
637-642	Machinists	Production
639-642	Machinist apprentices	Production
643	Boilermakers	Production
644	Precision grinders, filers, and tool sharpeners	Production
645	Patternmakers and model makers, metal	Production
646	Lay-out workers	Production
647-648	Precious stones and metals workers	Production
649-652	Engravers, metal	Production
653-654	Sheet metal workers	Production
655	Miscellaneous precision metal workers	Production
659-665	Miscellaneous precision woodworkers	Production
666-674	Precision Textile, Apparel, and Furnishings Machine Workers	Production
675-685	Precision Workers, Assorted Materials	Production
686-688	Precision Food Production Occupations	Production
689-693	Precision Inspectors, Testers, and Related Workers	Production

1990 Census

Occupation Code Occupation Description

694-702	Plant and System Operators
703-782	Machine Operators and Tenders, Except Precision
783-795	Fabricators, Assemblers, and Hand Working Occupations
796-802	Production Inspectors, Testers, Samplers, and Weighers
803-863	Transportation and Material Moving Occupations

Study Occupation Code

Production
Production
Production
Production
Transportation and Material Moving

2000 Census Occupation Code	Occupation Description	Study Occupation Code
001	Chief Executives	Management
002	General and Operations Managers	Management
003	Legislators	Management
004	Advertising and Promotions Managers	Management
005	Marketing and Sales Managers	Management
006	Public Relations Managers	Management
010	Administrative Services Managers	Management
011	Computer and Information Systems Managers	Management
012	Financial Managers	Management
013	Human Resources Managers	Management
014	Industrial Production Managers	Management
015	Purchasing Managers	Management
016	Transportation, Storage, and Distribution Managers	Management
020	Farm, Ranch, and Other Agricultural Managers	Management
021	Farmers and Ranchers	Management
022	Construction Managers	Management
023	Education Administrators	Management
030	Engineering Managers	Management
031	Food Service Managers	Management
032	Funeral Directors	Management
033	Gaming Managers	Management
034	Lodging Managers	Management
035	Medical and Health Services Managers	Management
036	Natural Sciences Managers	Management
040	Postmasters and Mail Superintendents	Management
041	Property, Real Estate, and Community Association Managers	Management
042	Social and Community Service Managers	Management
043	Managers, All Other	Management
050	Agents and Business Managers of Artists, Performers, and Athletes	Business and Financial Operations
051	Purchasing Agents and Buyers, Farm Products	Business and Financial Operations
052	Wholesale and Retail Buyers, Except Farm Products	Business and Financial Operations
053	Purchasing Agents, Except Wholesale, Retail, and Farm Products	Business and Financial Operations
054	Claims Adjusters, Appraisers, Examiners, and Investigators	Business and Financial Operations

2000 Census Occupation Code	Occupation Description	Study Occupation Code
056	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	Business and Financial Operations
060	Cost Estimators	Business and Financial Operations
062	Human Resources, Training, and Labor Relations Specialists	Business and Financial Operations
070	Logisticians	Business and Financial Operations
071	Management Analysts	Business and Financial Operations
072	Meeting and Convention Planners	Business and Financial Operations
073	Other Business Operations Specialists	Business and Financial Operations
080	Accountants and Auditors	Business and Financial Operations
081	Appraisers and Assessors of Real Estate	Business and Financial Operations
082	Budget Analysts	Business and Financial Operations
083	Credit Analysts	Business and Financial Operations
084	Financial Analysts	Business and Financial Operations
085	Personal Financial Advisors	Business and Financial Operations
086	Insurance Underwriters	Business and Financial Operations
090	Financial Examiners	Business and Financial Operations
091	Loan Counselors and Officers	Business and Financial Operations
093	Tax Examiners, Collectors, and Revenue Agents	Business and Financial Operations
094	Tax Preparers	Business and Financial Operations
095	Financial Specialists, All Other	Business and Financial Operations
100	Computer Scientists and Systems Analysts	Office and Administrative Support
101	Computer Programmers	Office and Administrative Support
102	Computer Software Engineers	Office and Administrative Support
104	Computer Support Specialists	Office and Administrative Support
106	Database Administrators	Office and Administrative Support
110	Network and Computer Systems Administrators	Office and Administrative Support
111	Network Systems and Data Communications Analysts	Office and Administrative Support
120	Actuaries	Office and Administrative Support
121	Mathematicians	Office and Administrative Support
122	Operations Research Analysts	Office and Administrative Support
123	Statisticians	Office and Administrative Support
124	Miscellaneous Mathematical Science Occupations	Office and Administrative Support
130	Architects, Except Naval	Office and Administrative Support
131	Surveyors, Cartographers, and Photogrammetrists	Office and Administrative Support
132	Aerospace Engineers	Office and Administrative Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
133	Agricultural Engineers	Office and Administrative Support
134	Biomedical Engineers	Office and Administrative Support
135	Chemical Engineers	Office and Administrative Support
136	Civil Engineers	Office and Administrative Support
140	Computer Hardware Engineers	Office and Administrative Support
141	Electrical and Electronics Engineers	Office and Administrative Support
142	Environmental Engineers	Office and Administrative Support
143	Industrial Engineers, Including Health and Safety	Office and Administrative Support
144	Marine Engineers and Naval Architects	Office and Administrative Support
145	Materials Engineers	Office and Administrative Support
146	Mechanical Engineers	Office and Administrative Support
150	Mining and Geological Engineers, Including Mining Safety Engineers	Office and Administrative Support
151	Nuclear Engineers	Office and Administrative Support
152	Petroleum Engineers	Office and Administrative Support
153	Engineers, All Other	Office and Administrative Support
154	Drafters	Office and Administrative Support
155	Engineering Technicians, Except Drafters	Office and Administrative Support
156	Surveying and Mapping Technicians	Office and Administrative Support
160	Agricultural and Food Scientists	Office and Administrative Support
161	Biological Scientists	Office and Administrative Support
164	Conservation Scientists and Foresters	Office and Administrative Support
165	Medical Scientists	Office and Administrative Support
170	Astronomers and Physicists	Office and Administrative Support
171	Atmospheric and Space Scientists	Office and Administrative Support
172	Chemists and Materials Scientists	Office and Administrative Support
174	Environmental Scientists and Geoscientists	Office and Administrative Support
176	Physical Scientists, All Other	Office and Administrative Support
180	Economists	Office and Administrative Support
181	Market and Survey Researchers	Office and Administrative Support
182	Psychologists	Office and Administrative Support
183	Sociologists	Office and Administrative Support
184	Urban and Regional Planners	Office and Administrative Support
186	Miscellaneous Social Scientists and Related Workers	Office and Administrative Support
190	Agricultural and Food Science Technicians	Office and Administrative Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
191	Biological Technicians	Office and Administrative Support
192	Chemical Technicians	Office and Administrative Support
193	Geological and Petroleum Technicians	Office and Administrative Support
194	Nuclear Technicians	Office and Administrative Support
196	Other Life, Physical, and Social Science Technicians	Office and Administrative Support
200	Counselors	Education
201	Social Workers	Education
202	Miscellaneous Community and Social Service Specialists	Education
204	Clergy	Education
205	Directors, Religious Activities and Education	Education
206	Religious Workers, All Other	Education
210	Lawyers	Education
211	Judges, Magistrates, and Other Judicial Workers	Education
214	Paralegals and Legal Assistants	Education
215	Miscellaneous Legal Support Workers	Education
220	Postsecondary Teachers	Education
230	Preschool and Kindergarten Teachers	Education
231	Elementary and Middle School Teachers	Education
232	Secondary School Teachers	Education
233	Special Education Teachers	Education
234	Other Teachers and Instructors	Education
240	Archivists, Curators, and Museum Technicians	Education
243	Librarians	Education
244	Library Technicians	Education
254	Teacher Assistants	Education
255	Other Education, Training, and Library Workers	Education
260	Artists and Related Workers	Office and Administrative Support
263	Designers	Office and Administrative Support
270	Actors	Office and Administrative Support
271	Producers and Directors	Office and Administrative Support
272	Athletes, Coaches, Umpires, and Related Workers	Office and Administrative Support
274	Dancers and Choreographers	Office and Administrative Support
275	Musicians, Singers, and Related Workers	Office and Administrative Support
276	Entertainers and Performers, Sports and Related Workers, All Other	Office and Administrative Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
280	Announcers	Office and Administrative Support
281	News Analysts, Reporters and Correspondents	Office and Administrative Support
282	Public Relations Specialists	Office and Administrative Support
283	Editors	Office and Administrative Support
284	Technical Writers	Office and Administrative Support
285	Writers and Authors	Office and Administrative Support
286	Miscellaneous Media and Communication Workers	Office and Administrative Support
290	Broadcast and Sound Engineering Technicians and Radio Operators	Office and Administrative Support
291	Photographers	Office and Administrative Support
292	Television, Video, and Motion Picture Camera Operators and Editors	Office and Administrative Support
296	Media and Communication Equipment Workers, All Other	Office and Administrative Support
300	Chiropractors	Healthcare Practitioner and Technical
301	Dentists	Healthcare Practitioner and Technical
303	Dietitians and Nutritionists	Healthcare Practitioner and Technical
304	Optometrists	Healthcare Practitioner and Technical
305	Pharmacists	Healthcare Practitioner and Technical
306	Physicians and Surgeons	Healthcare Practitioner and Technical
311	Physician Assistants	Healthcare Practitioner and Technical
312	Podiatrists	Healthcare Practitioner and Technical
313	Registered Nurses	Healthcare Practitioner and Technical
314	Audiologists	Healthcare Practitioner and Technical
315	Occupational Therapists	Healthcare Practitioner and Technical
316	Physical Therapists	Healthcare Practitioner and Technical
320	Radiation Therapists	Healthcare Practitioner and Technical
321	Recreational Therapists	Healthcare Practitioner and Technical
322	Respiratory Therapists	Healthcare Practitioner and Technical
323	Speech-Language Pathologists	Healthcare Practitioner and Technical
324	Therapists, All Other	Healthcare Practitioner and Technical
325	Veterinarians	Healthcare Practitioner and Technical
326	Health Diagnosing and Treating Practitioners, All Other	Healthcare Practitioner and Technical
330	Clinical Laboratory Technologists and Technicians	Healthcare Support
331	Dental Hygienists	Healthcare Support
332	Diagnostic Related Technologists and Technicians	Healthcare Support
340	Emergency Medical Technicians and Paramedics	Healthcare Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
341	Health Diagnosing and Treating Practitioner Support Technicians	Healthcare Support
350	Licensed Practical and Licensed Vocational Nurses	Healthcare Support
351	Medical Records and Health Information Technicians	Healthcare Support
352	Opticians, Dispensing	Healthcare Support
353	Miscellaneous Health Technologists and Technicians	Healthcare Support
354	Other Healthcare Practitioners and Technical Occupations	Healthcare Support
360	Nursing, Psychiatric, and Home Health Aides	Healthcare Support
361	Occupational Therapist Assistants and Aides	Healthcare Support
362	Physical Therapist Assistants and Aides	Healthcare Support
363	Massage Therapists	Healthcare Support
364	Dental Assistants	Healthcare Support
365	Medical Assistants and Other Healthcare Support Occupations	Healthcare Support
400	Chefs and Head Cooks	Food Preparation and Serving
401	First-Line Supervisors/Managers of Food Preparation and	Food Preparation and Serving
402	Cooks	Food Preparation and Serving
403	Food Preparation Workers	Food Preparation and Serving
404	Bartenders	Food Preparation and Serving
405	Combined Food Preparation and Serving Workers, Including Fast Food	Food Preparation and Serving
406	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	Food Preparation and Serving
411	Waiters and Waitresses	Food Preparation and Serving
412	Food Servers, Nonrestaurant	Food Preparation and Serving
413	Dining Room and Cafeteria Attendants and Bartender Helpers	Food Preparation and Serving
414	Dishwashers	Food Preparation and Serving
415	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	Food Preparation and Serving
416	Food Preparation and Serving Related Workers, All Other	Food Preparation and Serving
420	First-Line Supervisors/Managers of Housekeeping and Ja	Building and Grounds
421	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeep	Building and Grounds
422	Janitors and Building Cleaners	Building and Grounds
423	Maids and Housekeeping Cleaners	Building and Grounds
424	Pest Control Workers	Building and Grounds
425	Grounds Maintenance Workers	Building and Grounds
430	First-Line Supervisors/Managers of Gaming Workers	Building and Grounds
432	First-Line Supervisors/Managers of Personal Service Workers	Building and Grounds
434	Animal Trainers	Building and Grounds

2000 Census Occupation Code	Occupation Description	Study Occupation Code
435	Nonfarm Animal Caretakers	Building and Grounds
440	Gaming Services Workers	Building and Grounds
441	Motion Picture Projectionists	Building and Grounds
442	Ushers, Lobby Attendants, and Ticket Takers	Building and Grounds
443	Miscellaneous Entertainment Attendants and Related Workers	Building and Grounds
470	First-Line Supervisors/Managers of Retail Sales Workers	Sales
471	First-Line Supervisors/Managers of Non-Retail Sales Workers	Sales
472	Cashiers	Sales
474	Counter and Rental Clerks	Sales
475	Parts Salespersons	Sales
476	Retail Salespersons	Sales
480	Advertising Sales Agents	Sales
481	Insurance Sales Agents	Sales
482	Securities, Commodities, and Financial Services Sales Agents	Sales
483	Travel Agents	Sales
484	Sales Representatives, Services, All Other	Sales
485	Sales Representatives, Wholesale and Manufacturing	Sales
490	Models, Demonstrators, and Product Promoters	Sales
492	Real Estate Brokers and Sales Agents	Sales
493	Sales Engineers	Sales
494	Telemarketers	Sales
495	Door-To-Door Sales Workers, News and Street Vendors, and	Sales
496	Sales and Related Workers, All Other	Sales
500	First-Line Supervisors/Managers of Office and Administrative	Office and Administrative Support
501	Switchboard Operators, Including Answering Service	Office and Administrative Support
502	Telephone Operators	Office and Administrative Support
503	Communications Equipment Operators, All Other	Office and Administrative Support
510	Bill and Account Collectors	Office and Administrative Support
511	Billing and Posting Clerks and Machine Operators	Office and Administrative Support
512	Bookkeeping, Accounting, and Auditing Clerks	Office and Administrative Support
513	Gaming Cage Workers	Office and Administrative Support
514	Payroll and Timekeeping Clerks	Office and Administrative Support
515	Procurement Clerks	Office and Administrative Support
516	Tellers	Office and Administrative Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
520	Brokerage Clerks	Office and Administrative Support
521	Correspondence Clerks	Office and Administrative Support
522	Court, Municipal, and License Clerks	Office and Administrative Support
523	Credit Authorizers, Checkers, and Clerks	Office and Administrative Support
524	Customer Service Representatives	Office and Administrative Support
525	Eligibility Interviewers, Government Programs	Office and Administrative Support
526	File Clerks	Office and Administrative Support
530	Hotel, Motel, and Resort Desk Clerks	Office and Administrative Support
531	Interviewers, Except Eligibility and Loan	Office and Administrative Support
532	Library Assistants, Clerical	Office and Administrative Support
533	Loan Interviewers and Clerks	Office and Administrative Support
534	New Accounts Clerks	Office and Administrative Support
535	Order Clerks	Office and Administrative Support
536	Human Resources Assistants, Except Payroll and Timekeeping	Office and Administrative Support
540	Receptionists and Information Clerks	Office and Administrative Support
541	Reservation and Transportation Ticket Agents and Travel Clerks	Office and Administrative Support
542	Information and Record Clerks, All Other	Office and Administrative Support
550	Cargo and Freight Agents	Office and Administrative Support
551	Couriers and Messengers	Office and Administrative Support
552	Dispatchers	Office and Administrative Support
553	Meter Readers, Utilities	Office and Administrative Support
554	Postal Service Clerks	Office and Administrative Support
555	Postal Service Mail Carriers	Office and Administrative Support
556	Postal Service Mail Sorters, Processors, and Processing	Office and Administrative Support
560	Production, Planning, and Expediting Clerks	Office and Administrative Support
561	Shipping, Receiving, and Traffic Clerks	Office and Administrative Support
562	Stock Clerks and Order Fillers	Office and Administrative Support
563	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	Office and Administrative Support
570	Secretaries and Administrative Assistants	Office and Administrative Support
580	Computer Operators	Office and Administrative Support
581	Data Entry Keyers	Office and Administrative Support
582	Word Processors and Typists	Office and Administrative Support
583	Desktop Publishers	Office and Administrative Support
584	Insurance Claims and Policy Processing Clerks	Office and Administrative Support

2000 Census Occupation Code	Occupation Description	Study Occupation Code
585	Mail Clerks and Mail Machine Operators, Except Postal Service	Office and Administrative Support
586	Office Clerks, General	Office and Administrative Support
590	Office Machine Operators, Except Computer	Office and Administrative Support
591	Proofreaders and Copy Markers	Office and Administrative Support
592	Statistical Assistants	Office and Administrative Support
593	Office and Administrative Support Workers, All Other	Office and Administrative Support
700	First-Line Supervisors/Managers of Mechanics, Install	Production
701	Computer, Automated Teller, and Office Machine Repairers	Production
702	Radio and Telecommunications Equipment Installers and Repairers	Production
703	Avionics Technicians	Production
704	Electric Motor, Power Tool, and Related Repairers	Production
705	Electrical and Electronics Installers and Repairers, Transp	Production
710	Electrical and Electronics Repairers, Industrial and Utility	Production
711	Electronic Equipment Installers and Repairers, Motor Vehicles	Production
712	Electronic Home Entertainment Equipment Installers and Repairers	Production
713	Security and Fire Alarm Systems Installers	Production
714	Aircraft Mechanics and Service Technicians	Production
715	Automotive Body and Related Repairers	Production
716	Automotive Glass Installers and Repairers	Production
720	Automotive Service Technicians and Mechanics	Production
721	Bus and Truck Mechanics and Diesel Engine Specialists	Production
722	Heavy Vehicle and Mobile Equipment Service Technicians and Mechanics	Production
724	Small Engine Mechanics	Production
726	Miscellaneous Vehicle and Mobile Equipment Mechanics, Install	Production
730	Control and Valve Installers and Repairers	Production
731	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Production
732	Home Appliance Repairers	Production
733	Industrial and Refractory Machinery Mechanics	Production
734	Maintenance and Repair Workers, General	Production
735	Maintenance Workers, Machinery	Production
736	Millwrights	Production
741	Electrical Power-Line Installers and Repairers	Production
742	Telecommunications Line Installers and Repairers	Production
743	Precision Instrument and Equipment Repairers	Production

2000 Census Occupation Code	Occupation Description	Study Occupation Code
751	Coin, Vending, and Amusement Machine Servicers and Repairers	Production
752	Commercial Divers	Production
754	Locksmiths and Safe Repairers	Production
755	Manufactured Building and Mobile Home Installers	Production
756	Riggers	Production
760	Signal and Track Switch Repairers	Production
761	Helpers—Installation, Maintenance, and Repair Workers	Production
762	Other Installation, Maintenance, and Repair Workers	Production
770	First-Line Supervisors/Managers of Production and Operating Workers	Production
771	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	Production
772	Electrical, Electronics, and Electromechanical Assemblers	Production
773	Engine and Other Machine Assemblers	Production
774	Structural Metal Fabricators and Fitters	Production
775	Miscellaneous Assemblers and Fabricators	Production
780	Bakers	Production
781	Butchers and Other Meat, Poultry, and Fish Processing Workers	Production
783	Food and Tobacco Roasting, Baking, and Drying Machine Opera	Production
784	Food Batchmakers	Production
785	Food Cooking Machine Operators and Tenders	Production
790	Computer Control Programmers and Operators	Production
792	Extruding and Drawing Machine Setters, Operators, and Tender	Production
793	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	Production
794	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	Production
795	Cutting, Punching, and Press Machine Setters, Operators, and	Production
796	Drilling and Boring Machine Tool Setters, Operators, and	Production
800	Grinding, Lapping, Polishing, and Buffing Machine Tool	Production
801	Lathe and Turning Machine Tool Setters, Operators, and Tender	Production
802	Milling and Planing Machine Setters, Operators, and Tender	Production
803	Machinists	Production
804	Metal Furnace and Kiln Operators and Tenders	Production
806	Model Makers and Patternmakers, Metal and Plastic	Production
810	Molders and Molding Machine Setters, Operators, and Tender	Production
812	Multiple Machine Tool Setters, Operators, and Tenders, M	Production
813	Tool and Die Makers	Production

2000 Census Occupation Code	Occupation Description	Study Occupation Code
814	Welding, Soldering, and Brazing Workers	Production
815	Heat Treating Equipment Setters, Operators, and Tenders, M	Production
816	Lay-Out Workers, Metal and Plastic	Production
820	Plating and Coating Machine Setters, Operators, and Tender	Production
821	Tool Grinders, Filers, and Sharpeners	Production
822	Metalworkers and Plastic Workers, All Other	Production
823	Bookbinders and Bindery Workers	Production
824	Job Printers	Production
825	Prepress Technicians and Workers	Production
826	Printing Machine Operators	Production
830	Laundry and Dry-Cleaning Workers	Production
831	Pressers, Textile, Garment, and Related Materials	Production
832	Sewing Machine Operators	Production
833	Shoe and Leather Workers and Repairers	Production
834	Shoe Machine Operators and Tenders	Production
835	Tailors, Dressmakers, and Sewers	Production
836	Textile Bleaching and Dyeing Machine Operators and Tenders	Production
840	Textile Cutting Machine Setters, Operators, and Tenders	Production
841	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	Production
842	Textile Winding, Twisting, and Drawing Out Machine	Production
843	Extruding and Forming Machine Setters, Operators, and	Production
844	Fabric and Apparel Patternmakers	Production
845	Upholsterers	Production
846	Textile, Apparel, and Furnishings Workers, All Other	Production
850	Cabinetmakers and Bench Carpenters	Production
851	Furniture Finishers	Production
852	Model Makers and Patternmakers, Wood	Production
853	Sawing Machine Setters, Operators, and Tenders, Wood	Production
854	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	Production
855	Woodworkers, All Other	Production
860	Power Plant Operators, Distributors, and Dispatchers	Production
861	Stationary Engineers and Boiler Operators	Production
862	Water and Liquid Waste Treatment Plant and System Operators	Production
863	Miscellaneous Plant and System Operators	Production

2000 Census Occupation Code	Occupation Description	Study Occupation Code
864	Chemical Processing Machine Setters, Operators, and Tenders	Production
865	Crushing, Grinding, Polishing, Mixing, and Blending Workers	Production
871	Cutting Workers	Production
872	Extruding, Forming, Pressing, and Compacting Machine	Production
873	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	Production
874	Inspectors, Testers, Sorters, Samplers, and Weighers	Production
875	Jewelers and Precious Stone and Metal Workers	Production
876	Medical, Dental, and Ophthalmic Laboratory Technicians	Production
880	Packaging and Filling Machine Operators and Tenders	Production
881	Painting Workers	Production
883	Photographic Process Workers and Processing Machine Operators	Production
884	Semiconductor Processors	Production
885	Cementing and Gluing Machine Operators and Tenders	Production
886	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	Production
890	Cooling and Freezing Equipment Operators and Tenders	Production
891	Etchers and Engravers	Production
892	Molders, Shapers, and Casters, Except Metal and Plastic	Production
893	Paper Goods Machine Setters, Operators, and Tenders	Production
894	Tire Builders	Production
895	Helpers--Production Workers	Production
896	Production Workers, All Other	Production
900	Supervisors, Transportation and Material Moving Workers	Transportation and Material Moving
903	Aircraft Pilots and Flight Engineers	Transportation and Material Moving
904	Air Traffic Controllers and Airfield Operations Specialists	Transportation and Material Moving
911	Ambulance Drivers and Attendants, Except Emergency	Transportation and Material Moving
912	Bus Drivers	Transportation and Material Moving
913	Driver/Sales Workers and Truck Drivers	Transportation and Material Moving
914	Taxi Drivers and Chauffeurs	Transportation and Material Moving
915	Motor Vehicle Operators, All Other	Transportation and Material Moving
920	Locomotive Engineers and Operators	Transportation and Material Moving
923	Railroad Brake, Signal, and Switch Operators	Transportation and Material Moving
924	Railroad Conductors and Yardmasters	Transportation and Material Moving
926	Subway, Streetcar, and Other Rail Transportation Workers	Transportation and Material Moving
930	Sailors and Marine Oilers	Transportation and Material Moving

2000 Census Occupation Code	Occupation Description	Study Occupation Code
931	Ship and Boat Captains and Operators	Transportation and Material Moving
933	Ship Engineers	Transportation and Material Moving
934	Bridge and Lock Tenders	Transportation and Material Moving
935	Parking Lot Attendants	Transportation and Material Moving
936	Service Station Attendants	Transportation and Material Moving
941	Transportation Inspectors	Transportation and Material Moving
942	Other Transportation Workers	Transportation and Material Moving
950	Conveyor Operators and Tenders	Transportation and Material Moving
951	Crane and Tower Operators	Transportation and Material Moving
952	Dredge, Excavating, and Loading Machine Operators	Transportation and Material Moving
956	Hoist and Winch Operators	Transportation and Material Moving
960	Industrial Truck and Tractor Operators	Transportation and Material Moving
961	Cleaners of Vehicles and Equipment	Transportation and Material Moving
962	Laborers and Freight, Stock, and Material Movers, Hand	Transportation and Material Moving
963	Machine Feeders and Offbearers	Transportation and Material Moving
964	Packers and Packagers, Hand	Transportation and Material Moving
965	Pumping Station Operators	Transportation and Material Moving
972	Refuse and Recyclable Material Collectors	Transportation and Material Moving
973	Shuttle Car Operators	Transportation and Material Moving
974	Tank Car, Truck, and Ship Loaders	Transportation and Material Moving
975	Material Moving Workers, All Other	Transportation and Material Moving

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Occupation Code	Occupation Description	Study Occupation Code
0010	MGR-CHIEF EXECUTIVES AND LEGISLATORS	Management
0020	MGR-GENERAL AND OPERATIONS MANAGERS	Management
0040	MGR-ADVERTISING AND PROMOTIONS MANAGERS	Management
0050	MGR-MARKETING AND SALES MANAGERS	Management
0060	MGR-PUBLIC RELATIONS MANAGERS	Management
0100	MGR-ADMINISTRATIVE SERVICES MANAGERS	Management
0110	MGR-COMPUTER AND INFORMATION SYSTEMS MANAGERS	Management
0120	MGR-FINANCIAL MANAGERS	Management
0130	MGR-HUMAN RESOURCES MANAGERS	Management
0140	MGR-INDUSTRIAL PRODUCTION MANAGERS	Management
0150	MGR-PURCHASING MANAGERS	Management
0160	MGR-TRANSPORTATION, STORAGE, AND DISTRIBUTION MANAGERS	Management
0200	MGR-FARM, RANCH, AND OTHER AGRICULTURAL MANAGERS	Management
0210	MGR-FARMERS AND RANCHERS	Management
0220	MGR-CONSTRUCTION MANAGERS	Management
0230	MGR-EDUCATION ADMINISTRATORS	Management
0300	MGR-ENGINEERING MANAGERS	Management
0310	MGR-FOOD SERVICE MANAGERS	Management
0320	MGR-FUNERAL DIRECTORS	Management
0330	MGR-GAMING MANAGERS	Management
0340	MGR-LODGING MANAGERS	Management
0350	MGR-MEDICAL AND HEALTH SERVICES MANAGERS	Management
0360	MGR-NATURAL SCIENCES MANAGERS	Management
0410	MGR-PROPERTY, REAL ESTATE, AND COMMUNITY ASSOCIATION	Management
0420	MGR-SOCIAL AND COMMUNITY SERVICE MANAGERS	Management
0430	MGR-MISCELLANEOUS MANAGERS, INCLUDING POSTMASTERS AND MAIL	Management
0500	BUS-AGENTS AND BUSINESS MANAGERS OF ARTISTS, PERFORMERS,	Business and Financial Operations
0510	BUS-PURCHASING AGENTS AND BUYERS, FARM PRODUCTS	Business and Financial Operations
0520	BUS-WHOLESALE AND RETAIL BUYERS, EXCEPT FARM PRODUCTS	Business and Financial Operations
0530	BUS-PURCHASING AGENTS, EXCEPT WHOLESALE, RETAIL, AND FARM	Business and Financial Operations
0540	BUS-CLAIMS ADJUSTERS, APPRAISERS, EXAMINERS, AND	Business and Financial Operations
0560	BUS-COMPLIANCE OFFICERS, EXCEPT AGRICULTURE, CONSTRUCTION,	Business and Financial Operations
0600	BUS-COST ESTIMATORS	Business and Financial Operations

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Occupation Code	Occupation Description	Study Occupation Code
0620	BUS-HUMAN RESOURCES, TRAINING, AND LABOR RELATIONS	Business and Financial Operations
0700	BUS-LOGISTICIANS	Business and Financial Operations
0710	BUS-MANAGEMENT ANALYSTS	Business and Financial Operations
0720	BUS-MEETING AND CONVENTION PLANNERS	Business and Financial Operations
0730	BUS-OTHER BUSINESS OPERATIONS SPECIALISTS	Business and Financial Operations
0800	FIN-ACCOUNTANTS AND AUDITORS	Business and Financial Operations
0810	FIN-APPRAISERS AND ASSESSORS OF REAL ESTATE	Business and Financial Operations
0820	FIN-BUDGET ANALYSTS	Business and Financial Operations
0830	FIN-CREDIT ANALYSTS	Business and Financial Operations
0840	FIN-FINANCIAL ANALYSTS	Business and Financial Operations
0850	FIN-PERSONAL FINANCIAL ADVISORS	Business and Financial Operations
0860	FIN-INSURANCE UNDERWRITERS	Business and Financial Operations
0900	FIN-FINANCIAL EXAMINERS	Business and Financial Operations
0910	FIN-LOAN COUNSELORS AND OFFICERS	Business and Financial Operations
0930	FIN-TAX EXAMINERS, COLLECTORS, AND REVENUE AGENTS	Business and Financial Operations
0940	FIN-TAX PREPARERS	Business and Financial Operations
0950	FIN-FINANCIAL SPECIALISTS, ALL OTHER	Business and Financial Operations
1000	CMM-COMPUTER SCIENTISTS AND SYSTEMS ANALYSTS	Office and Administrative Support
1010	CMM-COMPUTER PROGRAMMERS	Office and Administrative Support
1020	CMM-COMPUTER SOFTWARE ENGINEERS	Office and Administrative Support
1040	CMM-COMPUTER SUPPORT SPECIALISTS	Office and Administrative Support
1060	CMM-DATABASE ADMINISTRATORS	Office and Administrative Support
1100	CMM-NETWORK AND COMPUTER SYSTEMS ADMINISTRATORS	Office and Administrative Support
1110	CMM-NETWORK SYSTEMS AND DATA COMMUNICATIONS ANALYSTS	Office and Administrative Support
1200	CMM-ACTUARIES	Office and Administrative Support
1220	CMM-OPERATIONS RESEARCH ANALYSTS	Office and Administrative Support
1240	CMM-MISCELLANEOUS MATHEMATICAL SCIENCE OCCUPATIONS,	Office and Administrative Support
1300	ENG-ARCHITECTS, EXCEPT NAVAL	Office and Administrative Support
1310	ENG-SURVEYORS, CARTOGRAPHERS, AND PHOTOGRAMMETRISTS	Office and Administrative Support
1320	ENG-AEROSPACE ENGINEERS	Office and Administrative Support
1340	ENG-BIOMEDICAL AND AGRICULTURAL ENGINEERS	Office and Administrative Support
1350	ENG-CHEMICAL ENGINEERS	Office and Administrative Support
1360	ENG-CIVIL ENGINEERS	Office and Administrative Support

2005 Census Occupation Code	Occupation Description	Study Occupation Code
1400	ENG-COMPUTER HARDWARE ENGINEERS	Office and Administrative Support
1410	ENG-ELECTRICAL AND ELECTRONICS ENGINEERS	Office and Administrative Support
1420	ENG-ENVIRONMENTAL ENGINEERS	Office and Administrative Support
1430	ENG-INDUSTRIAL ENGINEERS, INCLUDING HEALTH AND SAFETY	Office and Administrative Support
1440	ENG-MARINE ENGINEERS AND NAVAL ARCHITECTS	Office and Administrative Support
1450	ENG-MATERIALS ENGINEERS	Office and Administrative Support
1460	ENG-MECHANICAL ENGINEERS	Office and Administrative Support
1520	ENG-PETROLEUM, MINING AND GEOLOGICAL ENGINEERS, INCLUDING	Office and Administrative Support
1530	ENG-MISCELLANEOUS ENGINEERS, INCLUDING NUCLEAR ENGINEERS	Office and Administrative Support
1540	ENG-DRAFTERS	Office and Administrative Support
1550	ENG-ENGINEERING TECHNICIANS, EXCEPT DRAFTERS	Office and Administrative Support
1560	ENG-SURVEYING AND MAPPING TECHNICIANS	Office and Administrative Support
1600	SCI-AGRICULTURAL AND FOOD SCIENTISTS	Office and Administrative Support
1610	SCI-BIOLOGICAL SCIENTISTS	Office and Administrative Support
1640	SCI-CONSERVATION SCIENTISTS AND FORESTERS	Office and Administrative Support
1650	SCI-MEDICAL SCIENTISTS	Office and Administrative Support
1700	SCI-ASTRONOMERS AND PHYSICISTS	Office and Administrative Support
1710	SCI-ATMOSPHERIC AND SPACE SCIENTISTS	Office and Administrative Support
1720	SCI-CHEMISTS AND MATERIALS SCIENTISTS	Office and Administrative Support
1740	SCI-ENVIRONMENTAL SCIENTISTS AND GEOSCIENTISTS	Office and Administrative Support
1760	SCI-PHYSICAL SCIENTISTS, ALL OTHER	Office and Administrative Support
1800	SCI-ECONOMISTS	Office and Administrative Support
1810	SCI-MARKET AND SURVEY RESEARCHERS	Office and Administrative Support
1820	SCI-PSYCHOLOGISTS	Office and Administrative Support
1840	SCI-URBAN AND REGIONAL PLANNERS	Office and Administrative Support
1860	SCI-MISCELLANEOUS SOCIAL SCIENTISTS, INCLUDING SOCIOLOGISTS	Office and Administrative Support
1900	SCI-AGRICULTURAL AND FOOD SCIENCE TECHNICIANS	Office and Administrative Support
1910	SCI-BIOLOGICAL TECHNICIANS	Office and Administrative Support
1920	SCI-CHEMICAL TECHNICIANS	Office and Administrative Support
1930	SCI-GEOLOGICAL AND PETROLEUM TECHNICIANS	Office and Administrative Support
1960	SCI-MISCELLANEOUS LIFE, PHYSICAL, AND SOCIAL SCIENCE	Office and Administrative Support
2000	CMS-COUNSELORS	Office and Administrative Support
2010	CMS-SOCIAL WORKERS	Office and Administrative Support

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Occupation Code	Occupation Description	Study Occupation Code
2020	CMS-MISCELLANEOUS COMMUNITY AND SOCIAL SERVICE SPECIALISTS	Office and Administrative Support
2040	CMS-CLERGY	Office and Administrative Support
2050	CMS-DIRECTORS, RELIGIOUS ACTIVITIES AND EDUCATION	Office and Administrative Support
2060	CMS-RELIGIOUS WORKERS, ALL OTHER	Office and Administrative Support
2100	LGL-LAWYERS AND JUDGES, MAGISTRATES, AND OTHER JUDICIAL	Office and Administrative Support
2140	LGL-PARALEGALS AND LEGAL ASSISTANTS	Office and Administrative Support
2150	LGL-MISCELLANEOUS LEGAL SUPPORT WORKERS	Office and Administrative Support
2200	EDU-POSTSECONDARY TEACHERS	Education
2300	EDU-PRESCHOOL AND KINDERGARTEN TEACHERS	Education
2310	EDU-ELEMENTARY AND MIDDLE SCHOOL TEACHERS	Education
2320	EDU-SECONDARY SCHOOL TEACHERS	Education
2330	EDU-SPECIAL EDUCATION TEACHERS	Education
2340	EDU-OTHER TEACHERS AND INSTRUCTORS	Education
2400	EDU-ARCHIVISTS, CURATORS, AND MUSEUM TECHNICIANS	Education
2430	EDU-LIBRARIANS	Education
2440	EDU-LIBRARY TECHNICIANS	Education
2540	EDU-TEACHER ASSISTANTS	Education
2550	EDU-OTHER EDUCATION, TRAINING, AND LIBRARY WORKERS	Education
2600	ENT-ARTISTS AND RELATED WORKERS	Office and Administrative Support
2630	ENT-DESIGNERS	Office and Administrative Support
2700	ENT-ACTORS	Office and Administrative Support
2710	ENT-PRODUCERS AND DIRECTORS	Office and Administrative Support
2720	ENT-ATHLETES, COACHES, UMPIRES, AND RELATED WORKERS	Office and Administrative Support
2740	ENT-DANCERS AND CHOREOGRAPHERS	Office and Administrative Support
2750	ENT-MUSICIANS, SINGERS, AND RELATED WORKERS	Office and Administrative Support
2760	ENT-ENTERTAINERS AND PERFORMERS, SPORTS AND RELATED	Office and Administrative Support
2800	ENT-ANNOUNCERS	Office and Administrative Support
2810	ENT-NEWS ANALYSTS, REPORTERS AND CORRESPONDENTS	Office and Administrative Support
2820	ENT-PUBLIC RELATIONS SPECIALISTS	Office and Administrative Support
2830	ENT-EDITORS	Office and Administrative Support
2840	ENT-TECHNICAL WRITERS	Office and Administrative Support
2850	ENT-WRITERS AND AUTHORS	Office and Administrative Support
2860	ENT-MISCELLANEOUS MEDIA AND COMMUNICATION WORKERS	Office and Administrative Support

2005 Census Occupation Code	Occupation Description	Study Occupation Code
2900	ENT-BROADCAST AND SOUND ENGINEERING TECHNICIANS AND RADIO	Office and Administrative Support
2910	ENT-PHOTOGRAPHERS	Office and Administrative Support
2920	ENT-TELEVISION, VIDEO, AND MOTION PICTURE CAMERA OPERATORS	Office and Administrative Support
3000	MED-CHIROPRACTORS	Healthcare Practitioner and Technical
3010	MED-DENTISTS	Healthcare Practitioner and Technical
3030	MED-DIETITIANS AND NUTRITIONISTS	Healthcare Practitioner and Technical
3040	MED-OPTOMETRISTS	Healthcare Practitioner and Technical
3050	MED-PHARMACISTS	Healthcare Practitioner and Technical
3060	MED-PHYSICIANS AND SURGEONS	Healthcare Practitioner and Technical
3110	MED-PHYSICIAN ASSISTANTS	Healthcare Practitioner and Technical
3120	MED-PODIATRISTS	Healthcare Practitioner and Technical
3130	MED-REGISTERED NURSES	Healthcare Practitioner and Technical
3140	MED-AUDIOLOGISTS	Healthcare Practitioner and Technical
3150	MED-OCCUPATIONAL THERAPISTS	Healthcare Practitioner and Technical
3160	MED-PHYSICAL THERAPISTS	Healthcare Practitioner and Technical
3200	MED-RADIATION THERAPISTS	Healthcare Practitioner and Technical
3210	MED-RECREATIONAL THERAPISTS	Healthcare Practitioner and Technical
3220	MED-RESPIRATORY THERAPISTS	Healthcare Practitioner and Technical
3230	MED-SPEECH-LANGUAGE PATHOLOGISTS	Healthcare Practitioner and Technical
3240	MED-THERAPISTS, ALL OTHER	Healthcare Practitioner and Technical
3250	MED-VETERINARIANS	Healthcare Practitioner and Technical
3260	MED-HEALTH DIAGNOSING AND TREATING PRACTITIONERS, ALL OTHER	Healthcare Practitioner and Technical
3300	MED-CLINICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS	Healthcare Practitioner and Technical
3310	MED-DENTAL HYGIENISTS	Healthcare Practitioner and Technical
3320	MED-DIAGNOSTIC RELATED TECHNOLOGISTS AND TECHNICIANS	Healthcare Practitioner and Technical
3400	MED-EMERGENCY MEDICAL TECHNICIANS AND PARAMEDICS	Healthcare Practitioner and Technical
3410	MED-HEALTH DIAGNOSING AND TREATING PRACTITIONER SUPPORT	Healthcare Practitioner and Technical
3500	MED-LICENSED PRACTICAL AND LICENSED VOCATIONAL NURSES	Healthcare Practitioner and Technical
3510	MED-MEDICAL RECORDS AND HEALTH INFORMATION TECHNICIANS	Healthcare Practitioner and Technical
3520	MED-OPTICIANS, DISPENSING	Healthcare Practitioner and Technical

2005 Census Occupation Code	Occupation Description	Study Occupation Code
3530	MED-MISCELLANEOUS HEALTH TECHNOLOGISTS AND TECHNICIANS	Healthcare Practitioner and Technical
3540	MED-OTHER HEALTHCARE PRACTITIONERS AND TECHNICAL	Healthcare Practitioner and Technical
3600	HLS-NURSING, PSYCHIATRIC, AND HOME HEALTH AIDES	Healthcare Support
3610	HLS-OCCUPATIONAL THERAPIST ASSISTANTS AND AIDES	Healthcare Support
3620	HLS-PHYSICAL THERAPIST ASSISTANTS AND AIDES	Healthcare Support
3630	HLS-MASSAGE THERAPISTS	Healthcare Support
3640	HLS-DENTAL ASSISTANTS	Healthcare Support
3650	HLS-MEDICAL ASSISTANTS AND OTHER HEALTHCARE SUPPORT	Healthcare Support
4000	EAT-CHEFS AND HEAD COOKS	Food Preparation and Serving
4010	EAT-FIRST-LINE SUPERVISORS/MANAGERS OF FOOD PREPARATION AND	Food Preparation and Serving
4020	EAT-COOKS	Food Preparation and Serving
4030	EAT-FOOD PREPARATION WORKERS	Food Preparation and Serving
4040	EAT-BARTENDERS	Food Preparation and Serving
4050	EAT-COMBINED FOOD PREPARATION AND SERVING WORKERS,	Food Preparation and Serving
4060	EAT-COUNTER ATTENDANTS, CAFETERIA, FOOD CONCESSION, AND	Food Preparation and Serving
4110	EAT-WAITERS AND WAITRESSES	Food Preparation and Serving
4120	EAT-FOOD SERVERS, NONRESTAURANT	Food Preparation and Serving
4130	EAT-MISCELLANEOUS FOOD PREPARATION AND SERVING RELATED	Food Preparation and Serving
4140	EAT-DISHWASHERS	Food Preparation and Serving
4150	EAT-HOSTS AND HOSTESSES, RESTAURANT, LOUNGE, AND COFFEE	Food Preparation and Serving
4200	CLN-FIRST-LINE SUPERVISORS/MANAGERS OF HOUSEKEEPING AND	Building and Grounds
4210	CLN-FIRST-LINE SUPERVISORS/MANAGERS OF LANDSCAPING, LAWN	Building and Grounds
4220	CLN-JANITORS AND BUILDING CLEANERS	Building and Grounds
4230	CLN-MAIDS AND HOUSEKEEPING CLEANERS	Building and Grounds
4240	CLN-PEST CONTROL WORKERS	Building and Grounds
4250	CLN-GROUNDS MAINTENANCE WORKERS	Building and Grounds
4700	SAL-FIRST-LINE SUPERVISORS/MANAGERS OF RETAIL SALES WORKERS	Sales
4710	SAL-FIRST-LINE SUPERVISORS/MANAGERS OF NON-RETAIL SALES	Sales
4720	SAL-CASHIERS	Sales
4740	SAL-COUNTER AND RENTAL CLERKS	Sales
4750	SAL-PARTS SALESPERSONS	Sales
4760	SAL-RETAIL SALESPERSONS	Sales
4800	SAL-ADVERTISING SALES AGENTS	Sales

2005 Census Occupation Code	Occupation Description	Study Occupation Code
4810	SAL-INSURANCE SALES AGENTS	Sales
4820	SAL-SECURITIES, COMMODITIES, AND FINANCIAL SERVICES SALES	Sales
4830	SAL-TRAVEL AGENTS	Sales
4840	SAL-SALES REPRESENTATIVES, SERVICES, ALL OTHER	Sales
4850	SAL-SALES REPRESENTATIVES, WHOLESALE AND MANUFACTURING	Sales
4900	SAL-MODELS, DEMONSTRATORS, AND PRODUCT PROMOTERS	Sales
4920	SAL-REAL ESTATE BROKERS AND SALES AGENTS	Sales
4930	SAL-SALES ENGINEERS	Sales
4940	SAL-TELEMARKETERS	Sales
4950	SAL-DOOR-TO-DOOR SALES WORKERS, NEWS AND STREET VENDORS,	Sales
4960	SAL-SALES AND RELATED WORKERS, ALL OTHER	Sales
5000	OFF-FIRST-LINE SUPERVISORS/MANAGERS OF OFFICE AND	Office and Administrative Support
5010	OFF-SWITCHBOARD OPERATORS, INCLUDING ANSWERING SERVICE	Office and Administrative Support
5020	OFF-TELEPHONE OPERATORS	Office and Administrative Support
5030	OFF-COMMUNICATIONS EQUIPMENT OPERATORS, ALL OTHER	Office and Administrative Support
5100	OFF-BILL AND ACCOUNT COLLECTORS	Office and Administrative Support
5110	OFF-BILLING AND POSTING CLERKS AND MACHINE OPERATORS	Office and Administrative Support
5120	OFF-BOOKKEEPING, ACCOUNTING, AND AUDITING CLERKS	Office and Administrative Support
5130	OFF-GAMING CAGE WORKERS	Office and Administrative Support
5140	OFF-PAYROLL AND TIMEKEEPING CLERKS	Office and Administrative Support
5150	OFF-PROCUREMENT CLERKS	Office and Administrative Support
5160	OFF-TELLERS	Office and Administrative Support
5200	OFF-BROKERAGE CLERKS	Office and Administrative Support
5220	OFF-COURT, MUNICIPAL, AND LICENSE CLERKS	Office and Administrative Support
5230	OFF-CREDIT AUTHORIZERS, CHECKERS, AND CLERKS	Office and Administrative Support
5240	OFF-CUSTOMER SERVICE REPRESENTATIVES	Office and Administrative Support
5250	OFF-ELIGIBILITY INTERVIEWERS, GOVERNMENT PROGRAMS	Office and Administrative Support
5260	OFF-FILE CLERKS	Office and Administrative Support
5300	OFF-HOTEL, MOTEL, AND RESORT DESK CLERKS	Office and Administrative Support
5310	OFF-INTERVIEWERS, EXCEPT ELIGIBILITY AND LOAN	Office and Administrative Support
5320	OFF-LIBRARY ASSISTANTS, CLERICAL	Office and Administrative Support
5330	OFF-LOAN INTERVIEWERS AND CLERKS	Office and Administrative Support
5340	OFF-NEW ACCOUNTS CLERKS	Office and Administrative Support

2005 Census

Occupation Code	Occupation Description	Study Occupation Code
5350	OFF-CORRESPONDENCE CLERKS AND ORDER CLERKS	Office and Administrative Support
5360	OFF-HUMAN RESOURCES ASSISTANTS, EXCEPT PAYROLL AND	Office and Administrative Support
5400	OFF-RECEPTIONISTS AND INFORMATION CLERKS	Office and Administrative Support
5410	OFF-RESERVATION AND TRANSPORTATION TICKET AGENTS AND TRAVEL	Office and Administrative Support
5420	OFF-INFORMATION AND RECORD CLERKS, ALL OTHER	Office and Administrative Support
5500	OFF-CARGO AND FREIGHT AGENTS	Office and Administrative Support
5510	OFF-COURIERS AND MESSENGERS	Office and Administrative Support
5520	OFF-DISPATCHERS	Office and Administrative Support
5530	OFF-METER READERS, UTILITIES	Office and Administrative Support
5540	OFF-POSTAL SERVICE CLERKS	Office and Administrative Support
5550	OFF-POSTAL SERVICE MAIL CARRIERS	Office and Administrative Support
5560	OFF-POSTAL SERVICE MAIL SORTERS, PROCESSORS, AND PROCESSING	Office and Administrative Support
5600	OFF-PRODUCTION, PLANNING, AND EXPEDITING CLERKS	Office and Administrative Support
5610	OFF-SHIPPING, RECEIVING, AND TRAFFIC CLERKS	Office and Administrative Support
5620	OFF-STOCK CLERKS AND ORDER FILLERS	Office and Administrative Support
5630	OFF-WEIGHERS, MEASURERS, CHECKERS, AND SAMPLERS,	Office and Administrative Support
5700	OFF-SECRETARIES AND ADMINISTRATIVE ASSISTANTS	Office and Administrative Support
5800	OFF-COMPUTER OPERATORS	Office and Administrative Support
5810	OFF-DATA ENTRY KEYERS	Office and Administrative Support
5820	OFF-WORD PROCESSORS AND TYPISTS	Office and Administrative Support
5840	OFF-INSURANCE CLAIMS AND POLICY PROCESSING CLERKS	Office and Administrative Support
5850	OFF-MAIL CLERKS AND MAIL MACHINE OPERATORS, EXCEPT POSTAL	Office and Administrative Support
5860	OFF-OFFICE CLERKS, GENERAL	Office and Administrative Support
5900	OFF-OFFICE MACHINE OPERATORS, EXCEPT COMPUTER	Office and Administrative Support
5910	OFF-PROOFREADERS AND COPY MARKERS	Office and Administrative Support
5920	OFF-STATISTICAL ASSISTANTS	Office and Administrative Support
5930	OFF-MISCELLANEOUS OFFICE AND ADMINISTRATIVE SUPPORT	Office and Administrative Support
7000	RPR-FIRST-LINE SUPERVISORS/MANAGERS OF MECHANICS,	Production
7010	RPR-COMPUTER, AUTOMATED TELLER, AND OFFICE MACHINE	Production
7020	RPR-RADIO AND TELECOMMUNICATIONS EQUIPMENT INSTALLERS AND	Production
7030	RPR-AVIONICS TECHNICIANS	Production
7040	RPR-ELECTRIC MOTOR, POWER TOOL, AND RELATED REPAIRERS	Production
7100	RPR-ELECTRICAL AND ELECTRONICS REPAIRERS, TRANSPORTATION	Production

2005 Census

Occupation Code	Occupation Description	Study Occupation Code
7110	RPR-ELECTRONIC EQUIPMENT INSTALLERS AND REPAIRERS, MOTOR	Production
7120	RPR-ELECTRONIC HOME ENTERTAINMENT EQUIPMENT INSTALLERS AND	Production
7130	RPR-SECURITY AND FIRE ALARM SYSTEMS INSTALLERS	Production
7140	RPR-AIRCRAFT MECHANICS AND SERVICE TECHNICIANS	Production
7150	RPR-AUTOMOTIVE BODY AND RELATED REPAIRERS	Production
7160	RPR-AUTOMOTIVE GLASS INSTALLERS AND REPAIRERS	Production
7200	RPR-AUTOMOTIVE SERVICE TECHNICIANS AND MECHANICS	Production
7210	RPR-BUS AND TRUCK MECHANICS AND DIESEL ENGINE SPECIALISTS	Production
7220	RPR-HEAVY VEHICLE AND MOBILE EQUIPMENT SERVICE TECHNICIANS	Production
7240	RPR-SMALL ENGINE MECHANICS	Production
7260	RPR-MISCELLANEOUS VEHICLE AND MOBILE EQUIPMENT MECHANICS,	Production
7300	RPR-CONTROL AND VALVE INSTALLERS AND REPAIRERS	Production
7310	RPR-HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS	Production
7320	RPR-HOME APPLIANCE REPAIRERS	Production
7330	RPR-INDUSTRIAL AND REFRACTORY MACHINERY MECHANICS	Production
7340	RPR-MAINTENANCE AND REPAIR WORKERS, GENERAL	Production
7350	RPR-MAINTENANCE WORKERS, MACHINERY	Production
7360	RPR-MILLWRIGHTS	Production
7410	RPR-ELECTRICAL POWER-LINE INSTALLERS AND REPAIRERS	Production
7420	RPR-TELECOMMUNICATIONS LINE INSTALLERS AND REPAIRERS	Production
7430	RPR-PRECISION INSTRUMENT AND EQUIPMENT REPAIRERS	Production
7510	RPR-COIN, VENDING, AND AMUSEMENT MACHINE SERVICERS AND	Production
7540	RPR-LOCKSMITHS AND SAFE REPAIRERS	Production
7550	RPR-MANUFACTURED BUILDING AND MOBILE HOME INSTALLERS	Production
7560	RPR-RIGGERS	Production
7610	RPR-HELPERS--INSTALLATION, MAINTENANCE, AND REPAIR WORKERS	Production
7620	RPR-OTHER INSTALLATION, MAINTENANCE, AND REPAIR WORKERS,	Production
7700	PRD-FIRST-LINE SUPERVISORS/MANAGERS OF PRODUCTION AND	Production
7710	PRD-AIRCRAFT STRUCTURE, SURFACES, RIGGING, AND SYSTEMS	Production
7720	PRD-ELECTRICAL, ELECTRONICS, AND ELECTROMECHANICAL	Production
7730	PRD-ENGINE AND OTHER MACHINE ASSEMBLERS	Production
7740	PRD-STRUCTURAL METAL FABRICATORS AND FITTERS	Production
7750	PRD-MISCELLANEOUS ASSEMBLERS AND FABRICATORS	Production

2005 Census

Occupation Code	Occupation Description	Study Occupation Code
7800	PRD-BAKERS	Production
7810	PRD-BUTCHERS AND OTHER MEAT, POULTRY, AND FISH PROCESSING	Production
7830	PRD-FOOD AND TOBACCO ROASTING, BAKING, AND DRYING MACHINE	Production
7840	PRD-FOOD BATCHMAKERS	Production
7850	PRD-FOOD COOKING MACHINE OPERATORS AND TENDERS	Production
7900	PRD-COMPUTER CONTROL PROGRAMMERS AND OPERATORS	Production
7920	PRD-EXTRUDING AND DRAWING MACHINE SETTERS, OPERATORS, AND	Production
7930	PRD-FORGING MACHINE SETTERS, OPERATORS, AND TENDERS, METAL	Production
7940	PRD-ROLLING MACHINE SETTERS, OPERATORS, AND TENDERS, METAL	Production
7950	PRD-CUTTING, PUNCHING, AND PRESS MACHINE SETTERS,	Production
7960	PRD-DRILLING AND BORING MACHINE TOOL SETTERS, OPERATORS,	Production
8000	PRD-GRINDING, LAPPING, POLISHING, AND BUFFING MACHINE TOOL	Production
8010	PRD-LATHE AND TURNING MACHINE TOOL SETTERS, OPERATORS, AND	Production
8030	PRD-MACHINISTS	Production
8040	PRD-METAL FURNACE AND KILN OPERATORS AND TENDERS	Production
8060	PRD-MODEL MAKERS AND PATTERNMAKERS, METAL AND PLASTIC	Production
8100	PRD-MOLDERS AND MOLDING MACHINE SETTERS, OPERATORS, AND	Production
8130	PRD-TOOL AND DIE MAKERS	Production
8140	PRD-WELDING, SOLDERING, AND BRAZING WORKERS	Production
8150	PRD-HEAT TREATING EQUIPMENT SETTERS, OPERATORS, AND	Production
8200	PRD-PLATING AND COATING MACHINE SETTERS, OPERATORS, AND	Production
8210	PRD-TOOL GRINDERS, FILERS, AND SHARPENERS	Production
8220	PRD-MISCELLANEOUS METAL WORKERS AND PLASTIC WORKERS,	Production
8230	PRD-BOOKBINDERS AND BINDERY WORKERS	Production
8240	PRD-JOB PRINTERS	Production
8250	PRD-PREPRESS TECHNICIANS AND WORKERS	Production
8260	PRD-PRINTING MACHINE OPERATORS	Production
8300	PRD-LAUNDRY AND DRY-CLEANING WORKERS	Production
8310	PRD-PRESSERS, TEXTILE, GARMENT, AND RELATED MATERIALS	Production
8320	PRD-SEWING MACHINE OPERATORS	Production
8330	PRD-SHOE AND LEATHER WORKERS AND REPAIRERS	Production
8340	PRD-SHOE MACHINE OPERATORS AND TENDERS	Production
8350	PRD-TAILORS, DRESSMAKERS, AND SEWERS	Production

2005 Census

Occupation Code	Occupation Description	Study Occupation Code
8400	PRD-TEXTILE BLEACHING AND DYEING, AND CUTTING MACHINE	Production
8410	PRD-TEXTILE KNITTING AND WEAVING MACHINE SETTERS,	Production
8420	PRD-TEXTILE WINDING, TWISTING, AND DRAWING OUT MACHINE	Production
8450	PRD-UPHOLSTERERS	Production
8460	PRD-MISCELLANEOUS TEXTILE, APPAREL, AND FURNISHINGS	Production
8500	PRD-CABINETMAKERS AND BENCH CARPENTERS	Production
8510	PRD-FURNITURE FINISHERS	Production
8530	PRD-SAWING MACHINE SETTERS, OPERATORS, AND TENDERS, WOOD	Production
8540	PRD-WOODWORKING MACHINE SETTERS, OPERATORS, AND TENDERS,	Production
8550	PRD-MISCELLANEOUS WOODWORKERS, INCLUDING MODEL MAKERS AND	Production
8600	PRD-POWER PLANT OPERATORS, DISTRIBUTORS, AND DISPATCHERS	Production
8610	PRD-STATIONARY ENGINEERS AND BOILER OPERATORS	Production
8620	PRD-WATER AND LIQUID WASTE TREATMENT PLANT AND SYSTEM	Production
8630	PRD-MISCELLANEOUS PLANT AND SYSTEM OPERATORS	Production
8640	PRD-CHEMICAL PROCESSING MACHINE SETTERS, OPERATORS, AND	Production
8650	PRD-CRUSHING, GRINDING, POLISHING, MIXING, AND BLENDING	Production
8710	PRD-CUTTING WORKERS	Production
8720	PRD-EXTRUDING, FORMING, PRESSING, AND COMPACTING MACHINE	Production
8730	PRD-FURNACE, KILN, OVEN, DRIER, AND KETTLE OPERATORS AND	Production
8740	PRD-INSPECTORS, TESTERS, SORTERS, SAMPLERS, AND WEIGHERS	Production
8750	PRD-JEWELERS AND PRECIOUS STONE AND METAL WORKERS	Production
8760	PRD-MEDICAL, DENTAL, AND OPHTHALMIC LABORATORY TECHNICIANS	Production
8800	PRD-PACKAGING AND FILLING MACHINE OPERATORS AND TENDERS	Production
8810	PRD-PAINTING WORKERS	Production
8830	PRD-PHOTOGRAPHIC PROCESS WORKERS AND PROCESSING MACHINE	Production
8850	PRD-CEMENTING AND GLUING MACHINE OPERATORS AND TENDERS	Production
8860	PRD-CLEANING, WASHING, AND METAL PICKLING EQUIPMENT	Production
8910	PRD-ETCHERS AND ENGRAVERS	Production
8920	PRD-MOLDERS, SHAPERS, AND CASTERS, EXCEPT METAL AND PLASTIC	Production
8930	PRD-PAPER GOODS MACHINE SETTERS, OPERATORS, AND TENDERS	Production
8940	PRD-TIRE BUILDERS	Production
8950	PRD-HELPERS-PRODUCTION WORKERS	Production
8960	PRD-OTHER PRODUCTION WORKERS, INCLUDING SEMICONDUCTOR	Production

2005 Census Occupation Code	Occupation Description	Study Occupation Code
9000	TRN-SUPERVISORS, TRANSPORTATION AND MATERIAL MOVING WORKERS	Transportation and Material Moving
9030	TRN-AIRCRAFT PILOTS AND FLIGHT ENGINEERS	Transportation and Material Moving
9040	TRN-AIR TRAFFIC CONTROLLERS AND AIRFIELD OPERATIONS	Transportation and Material Moving
9110	TRN-AMBULANCE DRIVERS AND ATTENDANTS, EXCEPT EMERGENCY	Transportation and Material Moving
9120	TRN-BUS DRIVERS	Transportation and Material Moving
9130	TRN-DRIVER/SALES WORKERS AND TRUCK DRIVERS	Transportation and Material Moving
9140	TRN-TAXI DRIVERS AND CHAUFFEURS	Transportation and Material Moving
9150	TRN-MOTOR VEHICLE OPERATORS, ALL OTHER	Transportation and Material Moving
9200	TRN-LOCOMOTIVE ENGINEERS AND OPERATORS	Transportation and Material Moving
9230	TRN-RAILROAD BRAKE, SIGNAL, AND SWITCH OPERATORS	Transportation and Material Moving
9240	TRN-RAILROAD CONDUCTORS AND YARDMASTERS	Transportation and Material Moving
9260	TRN-SUBWAY, STREETCAR, AND OTHER RAIL TRANSPORTATION	Transportation and Material Moving
9300	TRN-SAILORS AND MARINE OILERS, AND SHIP ENGINEERS	Transportation and Material Moving
9310	TRN-SHIP AND BOAT CAPTAINS AND OPERATORS	Transportation and Material Moving
9350	TRN-PARKING LOT ATTENDANTS	Transportation and Material Moving
9360	TRN-SERVICE STATION ATTENDANTS	Transportation and Material Moving
9410	TRN-TRANSPORTATION INSPECTORS	Transportation and Material Moving
9420	TRN-MISCELLANEOUS TRANSPORTATION WORKERS, INCLUDING BRIDGE	Transportation and Material Moving
9510	TRN-CRANE AND TOWER OPERATORS	Transportation and Material Moving
9520	TRN-DREDGE, EXCAVATING, AND LOADING MACHINE OPERATORS	Transportation and Material Moving
9560	TRN-CONVEYOR OPERATORS AND TENDERS, AND HOIST AND WINCH	Transportation and Material Moving
9600	TRN-INDUSTRIAL TRUCK AND TRACTOR OPERATORS	Transportation and Material Moving
9610	TRN-CLEANERS OF VEHICLES AND EQUIPMENT	Transportation and Material Moving
9620	TRN-LABORERS AND FREIGHT, STOCK, AND MATERIAL MOVERS, HAND	Transportation and Material Moving
9630	TRN-MACHINE FEEDERS AND OFFBEARERS	Transportation and Material Moving
9640	TRN-PACKERS AND PACKAGERS, HAND	Transportation and Material Moving
9650	TRN-PUMPING STATION OPERATORS	Transportation and Material Moving
9720	TRN-REFUSE AND RECYCLABLE MATERIAL COLLECTORS	Transportation and Material Moving
9750	TRN-MISCELLANEOUS MATERIAL MOVING WORKERS, INCLUDING	Transportation and Material Moving

APPENDIX II

1990 Census Industry Code	Industry Description	Study Industry Code
012	Veterinary services	Office (Other Services)
013-020	Landscape and horticultural services	Office (Other Services)
100-129	Food and kindred products	Manufacturing
130-131	Tobacco manufactures	Manufacturing
132-150	Textile mill products	Manufacturing
151-159	Apparel and other finished textile products	Manufacturing
160-170	Paper and allied products	Manufacturing
171-179	Printing, publishing, and allied industries	Office (Other Services)
180-199	Chemicals and allied products	Manufacturing
200-209	Petroleum and coal products	Manufacturing
210-219	Rubber and miscellaneous plastics products	Manufacturing
220-229	Leather and leather products	Manufacturing
230-399	Durable Goods	Manufacturing
411	Warehousing and storage	Warehousing
440-449	Communications	Office (Other Services)
500-539	Durable Goods	Retail/Wholesale
540-579	Nondurable Goods	Retail/Wholesale
580	Lumber and building material retailing	Retail/Wholesale
581	Hardware stores	Retail/Wholesale
582-589	Retail nurseries and garden stores	Retail/Wholesale
590	Mobile home dealers	Retail/Wholesale
591	Department stores	Retail/Wholesale
592-599	Variety stores	Retail/Wholesale
600	Miscellaneous general merchandise stores	Retail/Wholesale
601	Grocery stores	Retail/Wholesale
602-609	Dairy products stores	Retail/Wholesale
610	Retail bakeries	Retail/Wholesale
611	Food stores, n.e.c.	Retail/Wholesale
612-619	Motor vehicle dealers	Retail/Wholesale
620	Auto and home supply stores	Retail/Wholesale
621	Gasoline service stations	Retail/Wholesale
622	Miscellaneous vehicle dealers	Retail/Wholesale
623-629	Apparel and accessory stores, except shoe	Retail/Wholesale
630	Shoe stores	Retail/Wholesale
631	Furniture and home furnishings stores	Retail/Wholesale
632	Household appliance stores	Retail/Wholesale
633-639	Radio, TV, and computer stores	Retail/Wholesale
640	Music stores	Retail/Wholesale
641	Eating and drinking places	Hotel/Accommodation
642-649	Drug stores	Retail/Wholesale
650	Liquor stores	Retail/Wholesale
651	Sporting goods, bicycles, and hobby stores	Retail/Wholesale
652-659	Book and stationery stores	Retail/Wholesale
660	Jewelry stores	Retail/Wholesale
661	Gift, novelty, and souvenir shops	Retail/Wholesale
662	Sewing, needlework and piece goods stores	Retail/Wholesale
663-669	Catalog and mail order houses	Retail/Wholesale

1990 Census Industry Code	Industry Description	Study Industry Code
670	Vending machine operators	Retail/Wholesale
671	Direct selling establishments	Retail/Wholesale
672-680	Fuel dealers	Retail/Wholesale
681	Retail florists	Retail/Wholesale
682-690	Miscellaneous retail stores	Retail/Wholesale
691-699	Not specified retail trade	Retail/Wholesale
700	Banking	Office (Other Services)
701	Savings institutions, including credit unions	Office (Other Services)
702-709	Credit agencies, n.e.c.	Office (Other Services)
710	Security, commodity brokerage, and investment companies	Office (Other Services)
711	Insurance	Office (Other Services)
712-720	Real estate, including real estate-insurance offices	Office (Other Services)
721	Advertising	Office (Other Services)
722-730	Services to dwellings and other buildings	Office (Other Services)
731	Personnel supply services	Office (Other Services)
732-739	Computer and data processing services	Office (Other Services)
740	Detective and protective services	Office (Other Services)
741	Business services, n.e.c.	Office (Other Services)
742-749	Automotive rental and leasing, without drivers	Office (Other Services)
750	Automotive parking and carwashes	Office (Other Services)
751	Automotive repair and related services	Office (Other Services)
752-759	Electrical repair shops	Office (Other Services)
760	Miscellaneous repair services	Office (Other Services)
761	Private households	Office (Other Services)
762-769	Hotels and motels	Hotel/Accommodation
770	Lodging places, except hotels and motels	Hotel/Accommodation
771	Laundry, cleaning, and garment services	Office (Other Services)
772-779	Beauty shops	Office (Other Services)
780	Barber shops	Office (Other Services)
781	Funeral service and crematories	Office (Other Services)
782-789	Shoe repair shops	Office (Other Services)
790	Dressmaking shops	Office (Other Services)
791-799	Miscellaneous personal services	Office (Other Services)
800-811	ENTERTAINMENT AND RECREATION SERVICES	Entertainment
812-819	Offices and clinics of physicians	Medical/Educational
820	Offices and clinics of dentists	Medical/Educational
821	Offices and clinics of chiropractors	Medical/Educational
822-829	Offices and clinics of optometrists	Medical/Educational
830	Offices and clinics of health practitioners, n.e.c.	Medical/Educational
831	Hospitals	Medical/Educational
832-839	Nursing and personal care facilities	Medical/Educational
840	Health services, n.e.c.	Medical/Educational
841	Legal services	Office (Other Services)
842-849	Elementary and secondary schools	Medical/Educational
850	Colleges and universities	Medical/Educational
851	Vocational schools	Medical/Educational
852-859	Libraries	Medical/Educational

1990 Census Industry Code	Industry Description	Study Industry Code
860	Educational services, n.e.c.	Medical/Educational
861	Job training and vocational rehabilitation services	Medical/Educational
862	Child day care services	Medical/Educational
863-869	Family child care homes	Medical/Educational
870	Residential care facilities, without nursing	Medical/Educational
871	Social services, n.e.c.	Medical/Educational
872	Museums, art galleries, and zoos	Entertainment
873-879	Labor unions	Office (Other Services)
880	Religious organizations	Office (Other Services)
881	Membership organizations, n.e.c.	Office (Other Services)
882-889	Engineering, architectural, and surveying services	Office (Other Services)
890	Accounting, auditing, and bookkeeping services	Office (Other Services)
891	Research, development, and testing services	Office (Other Services)
892	Management and public relations services	Office (Other Services)
893-899	Miscellaneous professional and related services	Office (Other Services)
900	Executive and legislative offices	Office (Other Services)
901-909	General government, n.e.c.	Office (Other Services)
910-920	Justice, public order, and safety	Office (Other Services)
921	Public finance, taxation, and monetary policy	Office (Other Services)
922-929	Administration of human resources programs	Office (Other Services)
930	Administration of environmental quality and housing programs	Office (Other Services)
931	Administration of economic programs	Office (Other Services)
932-939	National security and international affairs	Office (Other Services)

2000 Census		
Industry Code	Industry Description	Study Industry Code
107	Animal food, grain, and oilseed milling	Manufacturing
108	Sugar and confectionery products	Manufacturing
109	Fruit and vegetable preserving and specialty food	Manufacturing
117	Dairy product manufacturing	Manufacturing
118	Animal slaughtering and processing	Manufacturing
119	Retail bakeries	Manufacturing
127	Bakeries except retail	Manufacturing
128	Seafood and other miscellaneous foods n.e.c.	Manufacturing
129	Not specified food industries	Manufacturing
137	Beverage manufacturing	Manufacturing
139	Tobacco manufacturing	Manufacturing
147	Fiber, yarn, and thread mills	Manufacturing
148	Fabric mills, except knitting	Manufacturing
149	Textile and fabric finishing and coating mills	Manufacturing
157	Carpets and rugs manufacturing	Manufacturing
159	Textile product mills except carpets and rugs	Manufacturing
167	Knitting mills	Manufacturing
168	Cut and sew apparel manufacturing	Manufacturing
169	Apparel accessories and other apparel	Manufacturing
177	Footwear manufacturing	Manufacturing
179	Leather tanning and products, except footwear	Manufacturing
187	Pulp, paper, and paperboard mills	Manufacturing
188	Paperboard containers and boxes	Manufacturing
189	Miscellaneous paper and pulp products	Manufacturing
199	Printing and related support activities	Manufacturing
207	Petroleum refining	Manufacturing
209	Miscellaneous petroleum and coal products	Manufacturing
217	Resin, synthetic rubber and fibers, and filaments	Manufacturing
218	Agricultural chemical manufacturing	Manufacturing
219	Pharmaceutical and medicine manufacturing	Manufacturing
227	Paint, coating, and adhesives manufacturing	Manufacturing
228	Soap, cleaning compound, and cosmetic	Manufacturing
229	Industrial and miscellaneous chemicals	Manufacturing
237	Plastics product manufacturing	Manufacturing
238	Tire manufacturing	Manufacturing
239	Rubber products, except tires, manufacturing	Manufacturing
247	Pottery, ceramics, and related products	Manufacturing
248	Structural clay product manufacturing	Manufacturing
249	Glass and glass product manufacturing	Manufacturing
257	Cement, concrete, lime, and gypsum product	Manufacturing
259	Miscellaneous nonmetallic mineral product	Manufacturing
267	Iron and steel mills and steel product	Manufacturing
268	Aluminum production and processing	Manufacturing
269	Nonferrous metal, except aluminum, production and	Manufacturing
277	Foundries	Manufacturing
278	Metal forgings and stampings	Manufacturing
279	Cutlery and hand tool manufacturing	Manufacturing
287	Structural metals and tank and shipping container	Manufacturing

2000 Census

Industry Code	Industry Description	Study Industry Code
288	Machine shops; turned product; screw nut and bolt	Manufacturing
289	Coating, engraving, heat treating and allied	Manufacturing
297	Ordnance	Manufacturing
298	Miscellaneous fabricated metal products	Manufacturing
299	Not specified metal industries	Manufacturing
307	Agricultural implement manufacturing	Manufacturing
308	Construction mining and oil field machinery	Manufacturing
309	Commercial and service industry machinery	Manufacturing
317	Metalworking machinery manufacturing	Manufacturing
318	Engines, turbines, and power transmission	Manufacturing
319	Machinery manufacturing, n.e.c.	Manufacturing
336	Computer and peripheral equipment manufacturing	Manufacturing
337	Communications, audio, and video equipment	Manufacturing
338	Navigational, measuring, electromedical, and	Manufacturing
339	Electronic component and product manufacturing,	Manufacturing
347	Household appliance manufacturing	Manufacturing
349	Electrical machinery, equipment, and supplies	Manufacturing
357	Motor vehicles and motor vehicle equipment	Manufacturing
358	Aircraft and parts manufacturing	Manufacturing
359	Aerospace product and parts manufacturing	Manufacturing
367	Railroad rolling stock manufacturing	Manufacturing
368	Ship and boat building	Manufacturing
369	Other transportation equipment manufacturing	Manufacturing
377	Sawmills and wood preservation	Manufacturing
378	Veneer, plywood, and engineered wood product	Manufacturing
379	Prefabricated wood buildings and mobile homes	Manufacturing
387	Miscellaneous wood product manufacturing	Manufacturing
389	Furniture and fixtures	Manufacturing
396	Medical equipment and supplies manufacturing	Manufacturing
397	Toys, amusement, and sporting goods manufacturing	Manufacturing
398	Miscellaneous manufacturing, n.e.c.	Manufacturing
399	Not specified manufacturing industries	Manufacturing
407	Motor vehicles, parts and supplies wholesalers	Retail / Wholesale
408	Furniture and home furnishing wholesalers	Retail / Wholesale
409	Lumber and other construction materials	Retail / Wholesale
417	Professional and commercial equipment and supplies	Retail / Wholesale
418	Metals and minerals, except petroleum, wholesalers	Retail / Wholesale
419	Electrical goods wholesalers	Retail / Wholesale
426	Hardware, plumbing and heating equipment, and	Retail / Wholesale
427	Machinery, equipment, and supplies wholesalers	Retail / Wholesale
428	Recyclable material wholesalers	Retail / Wholesale
429	Miscellaneous durable goods wholesalers	Retail / Wholesale
437	Paper and paper product wholesalers	Retail / Wholesale
438	Drugs, sundries, and chemical and allied product	Retail / Wholesale
439	Apparel, fabrics, and notions wholesalers	Retail / Wholesale
447	Groceries and related product wholesalers	Retail / Wholesale
448	Farm product raw material wholesalers	Retail / Wholesale
449	Petroleum and petroleum product wholesalers	Retail / Wholesale

2000 Census

Industry Code	Industry Description	Study Industry Code
456	Alcoholic beverage wholesalers	Retail / Wholesale
457	Farm supplies wholesalers	Retail / Wholesale
458	Miscellaneous nondurable goods wholesalers	Retail / Wholesale
459	Not specified wholesale trade	Retail / Wholesale
467	Automobile dealers	Retail / Wholesale
468	Other motor vehicle dealers	Retail / Wholesale
469	Auto parts, accessories, and tire stores	Retail / Wholesale
477	Furniture and home furnishings stores	Retail / Wholesale
478	Household appliance stores	Retail / Wholesale
479	Radio, TV, and computer stores	Retail / Wholesale
487	Building material and supplies dealers	Retail / Wholesale
488	Hardware stores	Retail / Wholesale
489	Lawn and garden equipment and supplies stores	Retail / Wholesale
497	Grocery stores	Retail / Wholesale
498	Specialty food stores	Retail / Wholesale
499	Beer, wine, and liquor stores	Retail / Wholesale
507	Pharmacies and drug stores	Retail / Wholesale
508	Health and personal care, except drug, stores	Retail / Wholesale
509	Gasoline stations	Retail / Wholesale
517	Clothing and accessories, except shoe, stores	Retail / Wholesale
518	Shoe stores	Retail / Wholesale
519	Jewelry, luggage, and leather goods stores	Retail / Wholesale
527	Sporting goods, camera, and hobby and toy stores	Retail / Wholesale
528	Sewing, needlework and piece goods stores	Retail / Wholesale
529	Music stores	Retail / Wholesale
537	Book stores and news dealers	Retail / Wholesale
538	Department stores	Retail / Wholesale
539	Miscellaneous general merchandise stores	Retail / Wholesale
547	Retail florists	Retail / Wholesale
548	Office supplies and stationary stores	Retail / Wholesale
549	Used merchandise stores	Retail / Wholesale
557	Gift, novelty, and souvenir shops	Retail / Wholesale
558	Miscellaneous retail stores	Retail / Wholesale
559	Electronic shopping and mail-order houses	Retail / Wholesale
567	Vending machine operators	Retail / Wholesale
568	Fuel dealers	Retail / Wholesale
569	Other direct selling establishments	Retail / Wholesale
579	Not specified retail trade	Retail / Wholesale
639	Warehousing and storage	Warehousing
647	Newspaper publishers	Office (Other Services)
648	Publishing except newspapers and software	Office (Other Services)
649	Software publishing	Office (Other Services)
657	Motion pictures and video industries	Office (Other Services)
659	Sound recording industries	Office (Other Services)
667	Radio and television broadcasting and cable	Office (Other Services)
668	Wired telecommunications carriers	Office (Other Services)
669	Other telecommunication services	Office (Other Services)
677	Libraries and archives	Office (Other Services)

2000 Census

Industry Code	Industry Description	Study Industry Code
678	Other information services	Office (Other Services)
679	Data processing services	Office (Other Services)
687	Banking and related activities	Office (Other Services)
688	Savings institutions, including credit unions	Office (Other Services)
689	Non-depository credit and related activities	Office (Other Services)
697	Securities, commodities, funds, trusts, and other	Office (Other Services)
699	Insurance carriers and related activities	Office (Other Services)
707	Real estate	Office (Other Services)
708	Automotive equipment rental and leasing	Office (Other Services)
717	Video tape and disk rental	Office (Other Services)
718	Other consumer goods rental	Office (Other Services)
719	Commercial, industrial, and other intangible	Office (Other Services)
727	Legal services	Office (Other Services)
728	Accounting, tax preparation, bookkeeping and	Office (Other Services)
729	Architectural, engineering, and related services	Office (Other Services)
737	Specialized design services	Office (Other Services)
738	Computer systems design and related services	Office (Other Services)
739	Management, scientific and technical consulting	Office (Other Services)
746	Scientific research and development services	Office (Other Services)
747	Advertising and related services	Office (Other Services)
748	Veterinary services	Office (Other Services)
749	Other professional, scientific and technical	Office (Other Services)
757	Management of companies and enterprises	Office (Other Services)
758	Employment services	Office (Other Services)
759	Business support services	Office (Other Services)
767	Travel arrangement and reservation services	Office (Other Services)
768	Investigation and security services	Office (Other Services)
769	Services to buildings and dwellings	Office (Other Services)
777	Landscaping services	Office (Other Services)
778	Other administrative and other support services	Office (Other Services)
779	Waste management and remediation services	Office (Other Services)
786	Elementary and secondary schools	Medical / Educational
787	Colleges and universities, including junior	Medical / Educational
788	Business, technical, and trade schools and	Medical / Educational
789	Other schools, instruction, and educational	Medical / Educational
797	Offices of physicians	Medical / Educational
798	Offices of dentists	Medical / Educational
799	Office of chiropractors	Medical / Educational
807	Offices of optometrists	Medical / Educational
808	Offices of other health practitioners	Medical / Educational
809	Outpatient care centers	Medical / Educational
817	Home health care services	Medical / Educational
818	Other health care services	Medical / Educational
819	Hospitals	Medical / Educational
827	Nursing care facilities	Medical / Educational
829	Residential care facilities, without nursing	Medical / Educational
837	Individual and family services	Medical / Educational
838	Community food and housing, and emergency services	Medical / Educational

2000 Census

Industry Code	Industry Description	Study Industry Code
839	Vocational rehabilitation services	Medical / Educational
847	Child day care services	Medical / Educational
856	Independent artists, performing arts, spectator	Entertainment
857	Museums, art galleries, historical sites, and	Entertainment
858	Bowling centers	Entertainment
859	Other amusement, gambling, and recreation	Entertainment
866	Traveler accommodation	Hotel / Accommodation
867	Recreational vehicle parks and camps, and rooming	Hotel / Accommodation
868	Restaurants and other food services	Hotel / Accommodation
869	Drinking places, alcoholic beverages	Hotel / Accommodation
877	Automotive repair and maintenance	Office (Other Services)
878	Car washes	Office (Other Services)
879	Electronic and precision equipment repair and	Office (Other Services)
887	Commercial and industrial machinery and equipment	Office (Other Services)
888	Personal and household goods repair and	Office (Other Services)
889	Footwear and leather goods repair	Office (Other Services)
897	Barber shops	Office (Other Services)
898	Beauty salons	Office (Other Services)
899	Nail salons and other personal care services	Office (Other Services)
907	Drycleaning and laundry services	Office (Other Services)
908	Funeral homes, cemeteries and crematories	Office (Other Services)
909	Other personal services	Office (Other Services)
916	Religious organizations	Office (Other Services)
917	Civic, social, advocacy organizations, and	Office (Other Services)
918	Labor unions	Office (Other Services)
919	Business, professional, political, and similar	Office (Other Services)
929	Private households	Office (Other Services)
937	Executive offices and legislative bodies	Office (Other Services)
938	Public finance activities	Office (Other Services)
939	Other general government and support	Office (Other Services)
947	Justice, public order, and safety activities	Office (Other Services)
948	Administration of human resource programs	Office (Other Services)
949	Administration of environmental quality and	Office (Other Services)
957	Administration of economic programs and space	Office (Other Services)
959	National security and international affairs	Office (Other Services)
967	U. S. Army	Office (Other Services)
968	U. S. Air Force	Office (Other Services)
969	U. S. Navy	Office (Other Services)
977	U. S. Marines	Office (Other Services)
978	U. S. Coast Guard	Office (Other Services)
979	U. S. Armed Forces, branch not specified	Office (Other Services)
987	Military Reserves or National Guard	Office (Other Services)
992	Unemployed, no work experience since 1994	Office (Other Services)

2005 Census Industry	Industry Description	Study Industry Code
1070	MFG-ANIMAL FOOD, GRAIN AND OILSEED MILLING	Manufacturing
1080	MFG-SUGAR AND CONFECTIONERY PRODUCTS	Manufacturing
1090	MFG-FRUIT AND VEGETABLE PRESERVING AND SPECIALTY FOODS	Manufacturing
1170	MFG-DAIRY PRODUCTS	Manufacturing
1180	MFG-ANIMAL SLAUGHTERING AND PROCESSING	Manufacturing
1190	MFG-RETAIL BAKERIES	Manufacturing
1270	MFG-BAKERIES, EXCEPT RETAIL	Manufacturing
1280	MFG-SEAFOOD AND OTHER MISCELLANEOUS FOODS, N.E.C.	Manufacturing
1290	MFG-NOT SPECIFIED FOOD INDUSTRIES	Manufacturing
1370	MFG-BEVERAGE	Manufacturing
1390	MFG-TOBACCO	Manufacturing
1470	MFG-FIBER, YARN, AND THREAD MILLS	Manufacturing
1480	MFG-FABRIC MILLS, EXCEPT KNITTING	Manufacturing
1490	MFG-TEXTILE AND FABRIC FINISHING AND COATING MILLS	Manufacturing
1570	MFG-CARPETS AND RUGS	Manufacturing
1590	MFG-TEXTILE PRODUCT MILLS, EXCEPT CARPETS AND RUGS	Manufacturing
1670	MFG-KNITTING MILLS	Manufacturing
1680	MFG-CUT AND SEW APPAREL	Manufacturing
1690	MFG-APPAREL ACCESSORIES AND OTHER APPAREL	Manufacturing
1770	MFG-FOOTWEAR	Manufacturing
1790	MFG-LEATHER TANNING AND PRODUCTS, EXCEPT FOOTWEAR	Manufacturing
1870	MFG-PULP, PAPER, AND PAPERBOARD MILLS	Manufacturing
1880	MFG-PAPERBOARD CONTAINERS AND BOXES	Manufacturing
1890	MFG-MISCELLANEOUS PAPER AND PULP PRODUCTS	Manufacturing
1990	MFG-PRINTING AND RELATED SUPPORT ACTIVITIES	Manufacturing
2070	MFG-PETROLEUM REFINING	Manufacturing
2090	MFG-MISCELLANEOUS PETROLEUM AND COAL PRODUCTS	Manufacturing
2170	MFG-RESIN, SYNTHETIC RUBBER AND FIBERS, AND FILAMENTS	Manufacturing
2180	MFG-AGRICULTURAL CHEMICALS	Manufacturing
2190	MFG-PHARMACEUTICALS AND MEDICINES	Manufacturing
2270	MFG-PAINT, COATING, AND ADHESIVES	Manufacturing
2280	MFG-SOAP, CLEANING COMPOUND, AND COSMETICS	Manufacturing
2290	MFG-INDUSTRIAL AND MISCELLANEOUS CHEMICALS	Manufacturing
2370	MFG-PLASTICS PRODUCTS	Manufacturing

2005 Census Industry	Industry Description	Study Industry Code
2380	MFG-TIRES	Manufacturing
2390	MFG-RUBBER PRODUCTS, EXCEPT TIRES	Manufacturing
2470	MFG-POTTERY, CERAMICS, AND RELATED PRODUCTS	Manufacturing
2480	MFG-STRUCTURAL CLAY PRODUCTS	Manufacturing
2490	MFG-GLASS AND GLASS PRODUCTS	Manufacturing
2570	MFG-CEMENT, CONCRETE, LIME, AND GYPSUM PRODUCTS	Manufacturing
2590	MFG-MISCELLANEOUS NONMETALLIC MINERAL PRODUCTS	Manufacturing
2670	MFG-IRON AND STEEL MILLS AND STEEL PRODUCTS	Manufacturing
2680	MFG-ALUMINUM PRODUCTION AND PROCESSING	Manufacturing
2690	MFG-NONFERROUS METAL, EXCEPT ALUMINUM, PRODUCTION AND	Manufacturing
2770	MFG-FOUNDRIES	Manufacturing
2780	MFG-METAL FORGINGS AND STAMPINGS	Manufacturing
2790	MFG-CUTLERY AND HAND TOOLS	Manufacturing
2870	MFG-STRUCTURAL METALS, AND TANK AND SHIPPING CONTAINERS	Manufacturing
2880	MFG-MACHINE SHOPS; TURNED PRODUCTS; SCREWS, NUTS AND BOLTS	Manufacturing
2890	MFG-COATING, ENGRAVING, HEAT TREATING AND ALLIED ACTIVITIES	Manufacturing
2970	MFG-ORDNANCE	Manufacturing
2980	MFG-MISCELLANEOUS FABRICATED METAL PRODUCTS	Manufacturing
2990	MFG-NOT SPECIFIED METAL INDUSTRIES	Manufacturing
3070	MFG-AGRICULTURAL IMPLEMENTS	Manufacturing
3080	MFG-CONSTRUCTION, MINING AND OIL FIELD MACHINERY	Manufacturing
3090	MFG-COMMERCIAL AND SERVICE INDUSTRY MACHINERY	Manufacturing
3170	MFG-METALWORKING MACHINERY	Manufacturing
3180	MFG-ENGINES, TURBINES, AND POWER TRANSMISSION EQUIPMENT	Manufacturing
3190	MFG-MACHINERY, N.E.C.	Manufacturing
3290	MFG-NOT SPECIFIED MACHINERY	Manufacturing
3360	MFG-COMPUTER AND PERIPHERAL EQUIPMENT	Manufacturing
3370	MFG-COMMUNICATIONS, AUDIO, AND VIDEO EQUIPMENT	Manufacturing
3380	MFG-NAVIGATIONAL, MEASURING, ELECTROMEDICAL, AND CONTROL	Manufacturing
3390	MFG-ELECTRONIC COMPONENTS AND PRODUCTS, N.E.C.	Manufacturing
3470	MFG-HOUSEHOLD APPLIANCES	Manufacturing
3490	MFG-ELECTRICAL LIGHTING, EQUIPMENT, AND SUPPLIES, N.E.C.	Manufacturing
3570	MFG-MOTOR VEHICLES AND MOTOR VEHICLE EQUIPMENT	Manufacturing
3580	MFG-AIRCRAFT AND PARTS	Manufacturing

2005 Census Industry	Industry Description	Study Industry Code
3590	MFG-AEROSPACE PRODUCTS AND PARTS	Manufacturing
3670	MFG-RAILROAD ROLLING STOCK	Manufacturing
3680	MFG-SHIP AND BOAT BUILDING	Manufacturing
3690	MFG-OTHER TRANSPORTATION EQUIPMENT	Manufacturing
3770	MFG-SAWMILLS AND WOOD PRESERVATION	Manufacturing
3780	MFG-VENEER, PLYWOOD, AND ENGINEERED WOOD PRODUCTS	Manufacturing
3790	MFG-PREFABRICATED WOOD BUILDINGS AND MOBILE HOMES	Manufacturing
3870	MFG-MISCELLANEOUS WOOD PRODUCTS	Manufacturing
3890	MFG-FURNITURE AND RELATED PRODUCTS	Manufacturing
3960	MFG-MEDICAL EQUIPMENT AND SUPPLIES	Manufacturing
3970	MFG-TOYS, AMUSEMENT, AND SPORTING GOODS	Manufacturing
3980	MFG-MISCELLANEOUS MANUFACTURING, N.E.C.	Manufacturing
3990	MFG-NOT SPECIFIED INDUSTRIES	Manufacturing
4070	WHL-MOTOR VEHICLES PARTS AND SUPPLIES MERCHANT WHOLESALERS	Retail/Wholesale
4080	WHL-FURNITURE AND HOME FURNISHING MERCHANT WHOLESALERS	Retail/Wholesale
4090	WHL-LUMBER AND OTHER CONSTRUCTION MATERIALS MERCHANT	Retail/Wholesale
4170	WHL-PROFESSIONAL AND COMMERCIAL EQUIPMENT AND SUPPLIES	Retail/Wholesale
4180	WHL-METALS AND MINERALS, EXCEPT PETROLEUM, MERCHANT	Retail/Wholesale
4190	WHL-ELECTRICAL GOODS MERCHANT WHOLESALERS	Retail/Wholesale
4260	WHL-HARDWARE, PLUMBING AND HEATING EQUIPMENT, AND SUPPLIES	Retail/Wholesale
4270	WHL-MACHINERY, EQUIPMENT, AND SUPPLIES MERCHANT WHOLESALERS	Retail/Wholesale
4280	WHL-RECYCLABLE MATERIAL MERCHANT WHOLESALERS	Retail/Wholesale
4290	WHL-MISCELLANEOUS DURABLE GOODS MERCHANT WHOLESALERS	Retail/Wholesale
4370	WHL-PAPER AND PAPER PRODUCTS MERCHANT WHOLESALERS	Retail/Wholesale
4380	WHL-DRUGS, SUNDRIES, AND CHEMICAL AND ALLIED PRODUCTS	Retail/Wholesale
4390	WHL-APPAREL, FABRICS, AND NOTIONS MERCHANT WHOLESALERS	Retail/Wholesale
4470	WHL-GROCERIES AND RELATED PRODUCTS MERCHANT WHOLESALERS	Retail/Wholesale
4480	WHL-FARM PRODUCT RAW MATERIALS MERCHANT WHOLESALERS	Retail/Wholesale
4490	WHL-PETROLEUM AND PETROLEUM PRODUCTS MERCHANT WHOLESALERS	Retail/Wholesale
4560	WHL-ALCOHOLIC BEVERAGES MERCHANT WHOLESALERS	Retail/Wholesale
4570	WHL-FARM SUPPLIES MERCHANT WHOLESALERS	Retail/Wholesale
4580	WHL-MISCELLANEOUS NONDURABLE GOODS MERCHANT WHOLESALERS	Retail/Wholesale
4585	WHL-ELECTRONIC MARKETS AGENTS AND BROKERS	Retail/Wholesale
4590	WHL-NOT SPECIFIED TRADE	Retail/Wholesale

2005 Census Industry	Industry Description	Study Industry Code
4670	RET-AUTOMOBILE DEALERS	Retail/Wholesale
4680	RET-OTHER MOTOR VEHICLE DEALERS	Retail/Wholesale
4690	RET-AUTO PARTS, ACCESSORIES, AND TIRE STORES	Retail/Wholesale
4770	RET-FURNITURE AND HOME FURNISHINGS STORES	Retail/Wholesale
4780	RET-HOUSEHOLD APPLIANCE STORES	Retail/Wholesale
4790	RET-RADIO, TV, AND COMPUTER STORES	Retail/Wholesale
4870	RET-BUILDING MATERIAL AND SUPPLIES DEALERS	Retail/Wholesale
4880	RET-HARDWARE STORES	Retail/Wholesale
4890	RET-LAWN AND GARDEN EQUIPMENT AND SUPPLIES STORES	Retail/Wholesale
4970	RET-GROCERY STORES	Retail/Wholesale
4980	RET-SPECIALTY FOOD STORES	Retail/Wholesale
4990	RET-BEER, WINE, AND LIQUOR STORES	Retail/Wholesale
5070	RET-PHARMACIES AND DRUG STORES	Retail/Wholesale
5080	RET-HEALTH AND PERSONAL CARE, EXCEPT DRUG, STORES	Retail/Wholesale
5090	RET-GASOLINE STATIONS	Retail/Wholesale
5170	RET-CLOTHING AND ACCESSORIES, EXCEPT SHOE, STORES	Retail/Wholesale
5180	RET-SHOE STORES	Retail/Wholesale
5190	RET-JEWELRY, LUGGAGE, AND LEATHER GOODS STORES	Retail/Wholesale
5270	RET-SPORTING GOODS, CAMERA, AND HOBBY AND TOY STORES	Retail/Wholesale
5280	RET-SEWING, NEEDLEWORK AND PIECE GOODS STORES	Retail/Wholesale
5290	RET-MUSIC STORES	Retail/Wholesale
5370	RET-BOOK STORES AND NEWS DEALERS	Retail/Wholesale
5380	RET-DEPARTMENT AND DISCOUNT STORES	Retail/Wholesale
5390	RET-MISCELLANEOUS GENERAL MERCHANDISE STORES	Retail/Wholesale
5470	RET-FLORISTS	Retail/Wholesale
5480	RET-OFFICE SUPPLIES AND STATIONARY STORES	Retail/Wholesale
5490	RET-USED MERCHANDISE STORES	Retail/Wholesale
5570	RET-GIFT, NOVELTY, AND SOUVENIR SHOPS	Retail/Wholesale
5580	RET-MISCELLANEOUS STORES	Retail/Wholesale
5590	RET-ELECTRONIC SHOPPING	Retail/Wholesale
5591	RET-ELECTRONIC AUCTIONS	Retail/Wholesale
5592	RET-MAIL-ORDER HOUSES	Retail/Wholesale
5670	RET-VENDING MACHINE OPERATORS	Retail/Wholesale
5680	RET-FUEL DEALERS	Retail/Wholesale

2005 Census Industry	Industry Description	Study Industry Code
5690	RET-OTHER DIRECT SELLING ESTABLISHMENTS	Retail/Wholesale
5790	RET-NOT SPECIFIED TRADE	Retail/Wholesale
6390	TRN-WAREHOUSING AND STORAGE	Warehousing
6470	INF-NEWSPAPER PUBLISHERS	Office (Other Services)
6480	INF-PUBLISHING, EXCEPT NEWSPAPERS AND SOFTWARE	Office (Other Services)
6490	INF-SOFTWARE PUBLISHING	Office (Other Services)
6570	INF-MOTION PICTURES AND VIDEO INDUSTRIES	Office (Other Services)
6590	INF-SOUND RECORDING INDUSTRIES	Office (Other Services)
6670	INF-RADIO AND TELEVISION BROADCASTING AND CABLE	Office (Other Services)
6675	INF-INTERNET PUBLISHING AND BROADCASTING	Office (Other Services)
6680	INF-WIRED TELECOMMUNICATIONS CARRIERS	Office (Other Services)
6690	INF-OTHER TELECOMMUNICATION SERVICES	Office (Other Services)
6692	INF-INTERNET SERVICE PROVIDERS	Office (Other Services)
6695	INF-DATA PROCESSING, HOSTING, AND RELATED SERVICES	Office (Other Services)
6770	INF-LIBRARIES AND ARCHIVES	Office (Other Services)
6780	INF-OTHER INFORMATION SERVICES	Office (Other Services)
6870	FIN-BANKING AND RELATED ACTIVITIES	Office (Other Services)
6880	FIN-SAVINGS INSTITUTIONS, INCLUDING CREDIT UNIONS	Office (Other Services)
6890	FIN-NON-DEPOSITORY CREDIT AND RELATED ACTIVITIES	Office (Other Services)
6970	FIN-SECURITIES, COMMODITIES, FUNDS, TRUSTS, AND OTHER	Office (Other Services)
6990	FIN-INSURANCE CARRIERS AND RELATED ACTIVITIES	Office (Other Services)
7070	FIN-REAL ESTATE	Office (Other Services)
7080	FIN-AUTOMOTIVE EQUIPMENT RENTAL AND LEASING	Office (Other Services)
7170	FIN-VIDEO TAPE AND DISK RENTAL	Office (Other Services)
7180	FIN-OTHER CONSUMER GOODS RENTAL	Office (Other Services)
7190	FIN-COMMERCIAL, INDUSTRIAL, AND OTHER INTANGIBLE ASSETS	Office (Other Services)
7270	PRF-LEGAL SERVICES	Office (Other Services)
7280	PRF-ACCOUNTING, TAX PREPARATION, BOOKKEEPING AND PAYROLL	Office (Other Services)
7290	PRF-ARCHITECTURAL, ENGINEERING, AND RELATED SERVICES	Office (Other Services)
7370	PRF-SPECIALIZED DESIGN SERVICES	Office (Other Services)
7380	PRF-COMPUTER SYSTEMS DESIGN AND RELATED SERVICES	Office (Other Services)
7390	PRF-MANAGEMENT, SCIENTIFIC AND TECHNICAL CONSULTING	Office (Other Services)
7460	PRF-SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES	Office (Other Services)
7470	PRF-ADVERTISING AND RELATED SERVICES	Office (Other Services)

2005 Census Industry	Industry Description	Study Industry Code
7480	PRF-VETERINARY SERVICES	Office (Other Services)
7490	PRF-OTHER PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES	Office (Other Services)
7570	PRF-MANAGEMENT OF COMPANIES AND ENTERPRISES	Office (Other Services)
7580	PRF-EMPLOYMENT SERVICES	Office (Other Services)
7590	PRF-BUSINESS SUPPORT SERVICES	Office (Other Services)
7670	PRF-TRAVEL ARRANGEMENTS AND RESERVATION SERVICES	Office (Other Services)
7680	PRF-INVESTIGATION AND SECURITY SERVICES	Office (Other Services)
7690	PRF-SERVICES TO BUILDINGS AND DWELLINGS, EX CONSTR CLN	Office (Other Services)
7770	PRF-LANDSCAPING SERVICES	Office (Other Services)
7780	PRF-OTHER ADMINISTRATIVE, AND OTHER SUPPORT SERVICES	Office (Other Services)
7790	PRF-WASTE MANAGEMENT AND REMEDIATION SERVICES	Office (Other Services)
7860	EDU-ELEMENTARY AND SECONDARY SCHOOLS	Medical/Educational
7870	EDU-COLLEGES AND UNIVERSITIES, INCLUDING JUNIOR COLLEGES	Medical/Educational
7880	EDU-BUSINESS, TECHNICAL, AND TRADE SCHOOLS AND TRAINING	Medical/Educational
7890	EDU-OTHER SCHOOLS, INSTRUCTION, AND EDUCATIONAL SERVICES	Medical/Educational
7970	MED-OFFICES OF PHYSICIANS	Medical/Educational
7980	MED-OFFICES OF DENTISTS	Medical/Educational
7990	MED-OFFICE OF CHIROPRACTORS	Medical/Educational
8070	MED-OFFICES OF OPTOMETRISTS	Medical/Educational
8080	MED-OFFICES OF OTHER HEALTH PRACTITIONERS	Medical/Educational
8090	MED-OUTPATIENT CARE CENTERS	Medical/Educational
8170	MED-HOME HEALTH CARE SERVICES	Medical/Educational
8180	MED-OTHER HEALTH CARE SERVICES	Medical/Educational
8190	MED-HOSPITALS	Medical/Educational
8270	MED-NURSING CARE FACILITIES	Medical/Educational
8290	MED-RESIDENTIAL CARE FACILITIES, WITHOUT NURSING	Medical/Educational
8370	SCA-INDIVIDUAL AND FAMILY SERVICES	Medical/Educational
8380	SCA-COMMUNITY FOOD AND HOUSING, AND EMERGENCY SERVICES	Medical/Educational
8390	SCA-VOCATIONAL REHABILITATION SERVICES	Medical/Educational
8470	SCA-CHILD DAY CARE SERVICES	Medical/Educational
8560	ENT-INDEPENDENT ARTISTS, PERFORMING ARTS, SPECTATOR SPORTS	Entertainment
8570	ENT-MUSEUMS, ART GALLERIES, HISTORICAL SITES, AND SIMILAR	Entertainment
8580	ENT-BOWLING CENTERS	Entertainment
8590	ENT-OTHER AMUSEMENT, GAMBLING, AND RECREATION INDUSTRIES	Entertainment

2005 Census Industry	Industry Description	Study Industry Code
8660	ENT-TRAVELER ACCOMMODATION	Hotel/Accommodation
8670	ENT-RECREATIONAL VEHICLE PARKS AND CAMPS, AND ROOMING AND	Hotel/Accommodation
8680	ENT-RESTAURANTS AND OTHER FOOD SERVICES	Hotel/Accommodation
8690	ENT-DRINKING PLACES, ALCOHOLIC BEVERAGES	Hotel/Accommodation
8770	SRV-AUTOMOTIVE REPAIR AND MAINTENANCE	Office (Other Services)
8780	SRV-CAR WASHES	Office (Other Services)
8790	SRV-ELECTRONIC AND PRECISION EQUIPMENT REPAIR AND	Office (Other Services)
8870	SRV-COMMERCIAL AND INDUSTRIAL MACHINERY AND EQUIPMENT	Office (Other Services)
8880	SRV-PERSONAL AND HOUSEHOLD GOODS REPAIR AND MAINTENANCE	Office (Other Services)
8970	SRV-BARBER SHOPS	Office (Other Services)
8980	SRV-BEAUTY SALONS	Office (Other Services)
8990	SRV-NAIL SALONS AND OTHER PERSONAL CARE SERVICES	Office (Other Services)
9070	SRV-DRYCLEANING AND LAUNDRY SERVICES	Office (Other Services)
9080	SRV-FUNERAL HOMES, CEMETERIES AND CREMATORIES	Office (Other Services)
9090	SRV-OTHER PERSONAL SERVICES	Office (Other Services)
9160	SRV-RELIGIOUS ORGANIZATIONS	Office (Other Services)
9170	SRV-CIVIC, SOCIAL, ADVOCACY ORGANIZATIONS, AND GRANTMAKING	Office (Other Services)
9180	SRV-LABOR UNIONS	Office (Other Services)
9190	SRV-BUSINESS, PROFESSIONAL, POLITICAL AND SIMILAR	Office (Other Services)
9290	SRV-PRIVATE HOUSEHOLDS	Office (Other Services)
9370	ADM-EXECUTIVE OFFICES AND LEGISLATIVE BODIES	Office (Other Services)
9380	ADM-PUBLIC FINANCE ACTIVITIES	Office (Other Services)
9390	ADM-OTHER GENERAL GOVERNMENT AND SUPPORT	Office (Other Services)
9470	ADM-JUSTICE, PUBLIC ORDER, AND SAFETY ACTIVITIES	Office (Other Services)
9480	ADM-ADMINISTRATION OF HUMAN RESOURCE PROGRAMS	Office (Other Services)
9490	ADM-ADMINISTRATION OF ENVIRONMENTAL QUALITY AND HOUSING	Office (Other Services)
9570	ADM-ADMINISTRATION OF ECONOMIC PROGRAMS AND SPACE RESEARCH	Office (Other Services)
9590	ADM-NATIONAL SECURITY AND INTERNATIONAL AFFAIRS	Office (Other Services)
9670	MIL-U.S. ARMY	Office (Other Services)
9680	MIL-U.S. AIR FORCE	Office (Other Services)
9690	MIL-U.S. NAVY	Office (Other Services)
9770	MIL-U.S. MARINES	Office (Other Services)
9780	MIL-U.S. COAST GUARD	Office (Other Services)
9790	MIL-U.S. ARMED FORCES, BRANCH NOT SPECIFIED	Office (Other Services)

2005 Census Industry	Industry Description	Study Industry Code
9870	MIL-MILITARY RESERVES OR NATIONAL GUARD	Office (Other Services)
9920	UNEMPLOYED, WITH NO WORK EXPERIENCE IN THE LAST 5 YEARS **	Office (Other Services)

APPENDIX III

Exhibit 1
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Occupation Distribution and Median Earnings by Building Type

Prototypical 100,000 square foot Buildings

Occupations	Manufacturing		Retail / Wholesale		Hotel / Accommodation		Entertainment		Medical / Educational		Warehousing		Office	
	Employees	Earnings	Employees	Earnings	Employees	Earnings	Employees	Earnings	Employees	Earnings	Employees	Earnings	Employees	Earnings
Building & Grounds	0.5%	\$18,961	0.9%	\$20,065	6.8%	\$12,669	18.0%	\$19,161	2.3%	\$22,156	4.5%	\$6,950	9.1%	\$11,974
Business & Financial Operations	3.2%	\$43,494	3.0%	\$35,227	1.0%	\$39,935	4.9%	\$31,635	1.6%	\$44,117	1.4%	\$15,532	10.0%	\$44,006
Education	0.1%	\$43,013	0.2%	\$123,409	0.1%	\$22,377	1.1%	\$5,408	26.4%	\$35,422	0.0%	\$0	4.0%	\$40,312
Food Preparation & Serving	0.1%	\$25,091	1.8%	\$17,169	61.5%	\$14,669	6.7%	\$19,961	1.6%	\$12,468	5.0%	\$7,200	0.2%	\$15,694
Healthcare Practitioner and Technical	0.1%	\$80,734	1.2%	\$44,968	0.0%	\$0	0.1%	\$23,896	22.7%	\$48,188	0.0%	\$0	1.1%	\$37,985
Healthcare Support	0.2%	\$31,205	0.7%	\$22,203	0.2%	\$43,099	1.2%	\$19,908	14.7%	\$22,045	0.0%	\$0	1.3%	\$20,282
Management	16.2%	\$67,857	7.4%	\$57,370	13.4%	\$42,714	10.7%	\$42,779	7.4%	\$57,383	15.4%	\$58,831	12.7%	\$55,883
Office / Administrative Support	25.3%	\$39,416	18.4%	\$24,545	5.0%	\$23,753	41.7%	\$17,753	20.4%	\$28,390	40.0%	\$24,687	38.1%	\$30,532
Production	41.6%	\$24,643	7.7%	\$27,435	2.2%	\$16,761	4.4%	\$30,935	1.5%	\$34,935	3.8%	\$22,701	8.6%	\$27,495
Sales	8.3%	\$51,883	50.0%	\$26,740	8.2%	\$7,382	6.8%	\$15,169	0.4%	\$46,435	4.2%	\$7,755	12.9%	\$32,325
Transportation and Material Moving	4.5%	\$21,948	8.6%	\$21,448	1.6%	\$17,571	4.4%	\$26,532	1.0%	\$19,455	25.8%	\$24,456	2.0%	\$21,705
Total	100.2%		100.0%		100.0%		100.0%		100.0%		100.0%		100.0%	
Number of Employees	167		222		83		125		152		63		286	
sqft per employee	600		450		1200		800		659.5		1600		350	
Building & Grounds	1	\$18,961	2	\$20,065	6	\$12,669	22	\$19,161	3	\$22,156	3	\$6,950	26	\$11,974
Business & Financial Operations	5	\$43,494	7	\$35,227	1	\$39,935	6	\$31,635	2	\$44,117	1	\$15,532	29	\$44,006
Education	0	\$0	0	\$0	0	\$0	1	\$5,408	40	\$35,422	0	\$0	11	\$40,312
Food Preparation & Serving	0	\$0	4	\$17,169	51	\$14,669	8	\$19,961	2	\$12,468	3	\$7,200	1	\$15,694
Healthcare Practitioner and Technical	0	\$0	3	\$44,968	0	\$0	0	\$0	34	\$48,188	0	\$0	3	\$37,985
Healthcare Support	0	\$0	2	\$22,203	0	\$0	2	\$19,908	22	\$22,045	0	\$0	4	\$20,282
Management	27	\$67,857	17	\$57,370	11	\$42,714	13	\$42,779	11	\$57,383	10	\$58,831	36	\$55,883
Office / Administrative Support	42	\$39,416	41	\$24,545	4	\$23,753	52	\$17,753	31	\$28,390	25	\$24,687	109	\$30,532
Production	69	\$24,643	17	\$27,435	2	\$16,761	6	\$30,935	2	\$34,935	2	\$22,701	25	\$27,495
Sales	14	\$51,883	111	\$26,740	7	\$7,382	8	\$15,169	1	\$0	3	\$7,755	37	\$32,325
Transportation and Material Moving	7	\$21,948	19	\$21,448	1	\$17,571	6	\$26,532	2	\$19,455	16	\$24,456	6	\$21,705
totals, repeated	167		222		83		125		152		63		286	
Commute Adjustment	0.74													
Building & Grounds	0.59		1.55		4.21		16.63		2.53		2.07		19.26	
Business & Financial Operations	3.98		5.01		0.62		4.56		1.78		0.63		21.13	
Education	0.13		0.28		0.05		1.00		29.64		0.00		8.40	
Food Preparation & Serving	0.10		3.03		37.93		6.24		1.84		2.32		0.51	
Healthcare Practitioner and Technical	0.14		1.98		0.00		0.06		25.42		0.00		2.33	
Healthcare Support	0.21		1.19		0.12		1.15		16.47		0.00		2.64	
Management	20.03		12.23		8.23		9.85		8.34		7.12		26.89	
Office / Administrative Support	31.25		30.21		3.10		38.55		22.93		18.51		80.58	
Production	51.31		12.66		1.35		4.11		1.67		1.74		18.22	
Sales	10.28		82.18		5.08		6.26		0.42		1.92		27.25	
Transportation and Material Moving	5.51		14.12		0.97		4.09		1.17		11.95		4.20	
Total	123.54		164.44		61.67		92.50		112.21		46.25		211.43	

Households														
Worker-per-Household Ratio	1.66079	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	0.60212	
	Manufacturing		Retail / Wholesale		Hotel / Accommodation		Entertainment		Medical /Educational		Warehousing		Office	
	Households	HHInc	Households	HHInc	Households	HHInc	Households	HHInc	Households	HHInc	Households	HHInc	Households	
Building & Grounds	0.36	\$31,490.30	0.93	\$33,323.64	2.53	\$21,040.27	10.01	\$31,822.46	1.53	\$36,796.21	1.25	\$11,542.49	11.60	\$19,886.34
Business & Financial Operations	2.39	\$72,233.58	3.02	\$58,505.10	0.38	\$66,323.76	2.74	\$52,539.20	1.07	\$73,268.88	0.38	\$25,796.17	12.73	\$73,085.55
Education	0.08	\$0.00	0.17	\$0.00	0.03	\$0.00	0.60	\$8,982.29	17.85	\$58,828.63	0.00	\$0.00	5.06	\$66,949.25
Food Preparation & Serving	0.06	\$0.00	1.82	\$28,513.82	22.84	\$24,361.85	3.75	\$33,151.09	1.11	\$20,705.95	1.40	\$11,957.69	0.31	\$26,063.62
Healthcare Practitioner and Technical	0.08	\$0.00	1.19	\$74,681.63	0.00	\$0.00	0.04	\$0.00	15.31	\$80,030.67	0.00	\$0.00	1.40	\$63,085.22
Healthcare Support	0.12	\$0.00	0.72	\$36,874.93	0.07	\$0.00	0.69	\$33,062.66	9.91	\$36,612.87	0.00	\$0.00	1.59	\$33,684.92
Management	12.06	\$112,696.47	7.37	\$95,279.74	4.96	\$70,939.46	5.93	\$71,047.30	5.02	\$95,301.31	4.29	\$97,706.22	16.19	\$92,810.12
Office / Administrative Support	18.82	\$65,461.01	18.19	\$40,764.85	1.87	\$39,449.16	23.21	\$29,484.42	13.80	\$47,150.26	11.14	\$40,999.95	48.52	\$50,708.02
Production	30.90	\$40,926.61	7.62	\$45,563.88	0.81	\$27,836.57	2.48	\$51,376.65	1.00	\$58,019.81	1.04	\$37,702.09	10.97	\$45,663.10
Sales	6.19	\$86,166.96	49.48	\$44,409.96	3.06	\$12,259.65	3.77	\$25,192.24	0.26	\$0.00	1.16	\$12,878.67	16.41	\$53,684.50
Transportation and Material Moving	3.32	\$36,451.11	8.50	\$35,620.71	0.59	\$29,162.45	2.47	\$44,064.86	0.70	\$32,309.92	7.19	\$40,616.02	2.53	\$36,046.69
Total Broward Resident														
Households needed to staff														
100,000 sf building		74.38		99.02		37.13		55.70		67.56		27.85		127.31
2005 median household income		\$46,673.00								67.56				
Income Levels														
	\$23,337	\$23,337.10	\$37,338.50	\$46,673.10	\$56,007.70	\$70,009.60								
		\$23,337	\$37,338.40	\$46,673.00	\$56,007.60	\$70,009.50								
	Very Low		Moderate	Workforce	Middle									
	Income		Income	Income	Income									
	(under	Low Income	(81%-	(101%-	(121%-									
	50%)	(50%-80%)	100%)	120%)	150%)	High Income	Totals							
Manufacturing	0	4	31	0	19	21	74							
Retail / Wholesale	0	12	75	0	3	9	99							
Hotel / Accommodation	6	24	2	0	0	5	37							
Entertainment	1	41	2	5	0	6	56							
Medical /Educational	1	12	0	14	19	21	68							
Warehousing	4	0	19	0	0	4	28							
Office	12	4	11	65	6	29	127							
Total Households	24	98	141	84	48	95	489							
Household Income by Sector														
	Manufacturing	Retail / Wholesale	Accommodation	Entertainment	Medical /Educational	Warehousing	Office							
Very Low Income (under 50%)	0	0	6	1	1	4	12							
Low Income (50%-80%)	4	12	24	41	12	0	4							
Moderate Income (81%-100%)	31	75	2	2	0	19	11							
Workforce Income (101%-120%)	0	0	0	5	14	0	65							
Middle Income (121%-150%)	19	3	0	0	19	0	6							
Total Households	54	90	32	50	46	24	98							

APPENDIX IV

Development Scenario: 3-Story Garden Apartments Land area: 4.0 Acres		Land Purchase Price: \$4,125,000	
Total Units: 150 – 2 bedroom units Density: 40 units per acre Unit Area: 1,000 S.F. Parking: 2 spaces per unit		Income Categories and Price Points Affordable Very Low Income Price Point: \$742.00 monthly Affordable Low Income Price Point: \$1,197.00 monthly	
Very Low Income < 50 Percent AMI		Low Income < 80 Percent AMI	
Uses:		Uses:	
Land Purchase:	\$4,125,000	Land Purchase:	\$4,125,000
Per Unit Cost	\$27,500	Per Unit Cost	\$27,500
Hard Costs:		Hard Costs:	
Hard Costs:	\$17,250,000	Hard Costs:	\$17,250,000
Per Unit Cost:	\$115,000	Per Unit Cost:	\$115,000
PSF Cost:	\$115.00	PSF Cost:	\$115.00
Total Soft Costs*:	\$4,133,985	Total Soft Costs*:	\$4,133,985
Architecture & Eng.	460,000	Architecture & Eng.	460,000
Survey	17,500	Survey	17,500
Licenses, Permits, Impact Fees	1,100,000	Licenses, Permits, Impact Fees	1,100,000
Legal, Accounting, Tax Prep	200,000	Legal, Accounting, Tax Prep	200,000
Real Estate Taxes & Insurance	295,000	Real Estate Taxes & Insurance	295,000
Permanent Loan Origination Fee	400,000		400,000
Permanent Loan Closing Costs	100,000		100,000
Construction Interest	350,000	Interest	350,000
Title Insurance and Recording	30,000	Title Insurance and Recording	30,000
Marketing & Advertising	100,000	Marketing & Advertising	100,000
Contingencies (Hard & Soft Costs)	1,081,485	Contingencies	1,081,485
Developer Profit (16%)	\$4,081,438	Developer Profit (16%)	\$4,081,438
Total Costs:	\$29,590,423	Total Costs:	\$29,590,423
Supportable Mortgage	\$6,354,104	Supportable Mortgage	\$13,950,206
Surplus/Gap:	\$23,236,319	Surplus/Gap:	\$15,640,217
Per Unit Surplus/Gap:	\$154,909	Per Unit Surplus/Gap:	\$104,268

**Development Pro Forma:
Moderate, Workforce and Middle Income Households**

Development Scenario: 3-Story Townhouses		Land Purchase Price: \$11,000,000			
Land area: 10 Acres		Income Categories and Price Points			
Total Units: 300 - 2-Bedroom units		Affordable Moderate Income Price Point: \$177,378			
Density: 30 units per acre		Affordable Workforce Income Price Point: \$226,879			
Unit Area: 1,200 S.F.		Affordable Middle Income Price Point: \$301,137			
Parking: 2 spaces per unit					
Moderate Income <100 Percent AMI		Workforce Income < 120 Percent AMI		Middle Income <150 Percent AMI	
Uses:		Uses:		Uses:	
Land Purchase:	\$11,000,000	Land Purchase:	\$11,000,000	Land Purchase:	\$11,000,000
Per Unit Cost	\$27,500	Per Unit Cost	\$27,500	Per Unit Cost	\$27,500
Hard Costs:	\$48,600,000	Hard Costs:	\$48,600,000	Hard Costs:	\$48,600,000
Per Unit Cost:	\$162,000	Per Unit Cost:	\$162,000	Per Unit Cost:	\$162,000
PSF Cost:	\$135.00	PSF Cost:	\$135.00	PSF Cost:	\$135.00
Soft Costs:	\$15,527,594	Soft Costs:	\$16,478,750	Soft Costs:	\$17,882,521
Arch. & Eng	972,000	Arch. & Eng	972,000	Arch. & Eng	972,000
Surveying	50,000	Surveying	50,000	Surveying	50,000
Condo Docs	50,000	Condo Docs	50,000	Condo Docs	50,000
Licenses, Permits,		Licenses, Permits,		Licenses, Permits,	
Impact Fees	1,000,000	Impact Fees	1,000,000	Impact Fees	1,000,000
Pre Dev. Costs	100,000	Pre Dev. Costs	100,000	Pre Dev. Costs	100,000
Legal, Accounting		Legal, Accounting		Legal, Accounting	
Tax Prep.	150,000	Tax Prep.	150,000	Tax Prep.	150,000
Real Estate Taxes &		Real Estate Taxes		Real Estate Taxes	
Insurance	1,400,000	& Insurance	1,400,000	& Insurance	1,400,000
Financing Costs	745,000	Financing Costs	745,000	Financing Costs	745,000
Interest (Sr. Loan)	4,750,487	Interest (Sr. Loan)	4,810,600	Interest (Sr. Loan)	4,899,363
Title Insurance, Doc		Title Insurance,		Title Insurance,	
Stamps	600,000	Doc Stamps	600,000	Doc Stamps	600,000
Sales Commissions	3,460,110	Sales Commissions	4,202,625	Sales Commissions	5,298,465
Marketing &		Marketing &		Marketing &	
Advertising	692,022	Advertising	840,525	Advertising	1,059,693
Contingencies	1,458,000	Contingencies	1,458,000	Contingencies	1,458,000
Developer Profit		Developer Profit		Developer Profit	
(16%)	\$12,020,415	(16%)	\$12,172,600	(16%)	\$12,397,203
Total Costs:	\$87,048,009	Total Costs:	\$88,151,350	Total Costs:	\$89,779,724
Sellout:	\$53,213,400	Sellout:	\$68,063,700	Sellout:	\$90,341,100
Per Unit Price:	\$177,378	Per Unit Price:	\$226,879	Per Unit Price:	\$299,266
PSF Price:	\$147.82	PSF Price:	\$189.07	PSF Price:	\$249.39
Surplus/Gap:	\$33,834,609	Surplus/Gap:	\$20,087,650	Surplus/Gap:	\$561,376
Per Unit		Per Unit		Per Unit	
Surplus/Gap:	\$112,782	Surplus/Gap:	\$66,959	Surplus/Gap:	\$1,871

APPENDIX V

JURISDICTION	YEAR	FEE	EXEMPTIONS	PAYMENT	REVENUE	USAGE
CALIFORNIA						
Alameda, CA	1989 (2001) Adjusted annually	Office \$3.63/sf Retail \$1.84/sf Warehouse \$0.63/sf Hotel \$931/room	Publicly owned development	Prior to building permit		Low and moderate income.
Berkeley, CA	1993	Office \$5.00/sf Retail \$5.00/sf Industrial \$2.50/sf	First 7,500 sf; Special circumstances	One before building permit, another before CO, final one year later	\$2 million	20% childcare 80% affordable housing
Carson		Retail, Office, Hotel, Restaurant \$0.42/sf Warehouse/Light Manufacturing \$0.33/sf				
Corte Madera, CA	2001	Office \$4.79/sf Health club/recreation \$2.00/sf Light Industrial \$2.79/sf R&D \$3.20/sf Retail \$8.38/sf Hotel \$1.20/sf Warehouse \$0.40/sf Commercial Services \$1.20/sf Restaurant \$4.39/sf Training facility/school \$2.39/sf		At building permit		Affordable Housing Fund to develop housing for low and very low income.
Cupertino, CA	1993	Office and industrial \$2.25/sf		At building permit		
Glendale		Retail \$1.02/sf Office \$1.04/sf Hotel \$1.01/sf Restaurant \$1.32/sf Warehouse/Light Man \$0.69/sf				
Livermore, CA	1999	Retail 0.81/sf Service Retail \$0.61/sf Office \$0.52/sf Hotel \$397/room/sf Manufacturing \$0.25/sf Warehouse \$0.07/sf Business Park \$0.52/sf Heavy Industrial \$0.26/sf Light Industrial \$0.16/sf	Churches and schools			

Long Beach		Retail \$4.00/sf Office \$3.23/sf Hotel \$3.42/sf Restaurant \$1.49/sf Warehouse \$1.81/sf			
Los Angeles (City)		Retail \$1.13/sf Office \$1.41/sf Hotel \$1.65/sf Restaurant \$1.67/sf Warehouse \$1.21/sf			
Los Angeles County		Retail, Office, Hotel, Restaurant, Warehouse/Light Manufacturing \$0.89/sf			
Marin County	2003	Office/R&D \$7.19/sf Retail/Restaurant \$5.40/sf Warehouse \$1.95/sf Hotel/Motel \$1,746/room Manufacturing \$3.74/sf			
Menlo Park, CA	1987 (2001) Adjusted annually	Comm & Industrial \$10/sf Warehouse, printing, assembly \$5.40/sf Or Commercial \$6.07/sf Office and R&D \$11.15/sf	First 10,000 sf; Churches, private clubs, lodges, fairs, and public facilities	Prior to building permit	Below Market Rate Reserve
Mountain View, CA	2001	Office & High Tech \$3.00/sf first 10,000 sf; \$6.00/sf after Hotel, Retail, Entertainment \$1.00/sf for first 25,000, then \$2.00/sf		At building permit	Housing fund to improve supply of housing for very low, low and moderate
Napa, CA (City)	1999	Office \$1.00/sf Hotel \$1.40/sf Retail \$0.80/sf Industrial \$0.50/sf Warehouse \$0.20 - \$0.80/sf (based on size)	Schools, public facilities, churches, childcare, nonprofit, agricultural uses, and government; Replacement of existing square footage Nonprofits	Prior to building permit Allowable at Certificate of Occupancy through special agreement.	
Napa County	Updated 2004	Office \$2.00/sf Hotel \$3.00/sf Retail \$2.00/sf Industrial \$1.00/sf Warehouse \$0.80/sf			
Oakland, CA	2002, effective 2006	Office \$4.00/sf Warehouse /Distribution \$4.00/sf	First 25,000sf	1/4 at building permit, 1/2 at CO, 1/4 after 18 months	Affordable Housing Trust Fund

Palo Alto, CA	1984, 2002	Commercial & Industrial \$15.58/sf	Churches, schools, recreation, hospitals, private clubs and public facilities	At building permit	\$7 million	"low, moderate, middle" income; most to house very low income
Pasadena		Retail \$5.59/sf Office \$6.41/sf Hotel \$7.11/sf Restaurant \$7.17/sf Warehouse \$5.82/sf				
Petaluma	2003	Commercial \$2.08/sf Industrial \$2.15/sf Retail \$3.59/sf	Only 50% in redevelopment area			
Pleasanton, CA	2000; 2003	Commercial, office and industrial \$2.31/sf	Special circumstances	At building permit	\$11 million (including IZ fees)	development of very low, low and moderate income housing
Sacramento, CA (City & County)	1989 - 2004 Updates annually	Office \$1.84/sf Hotel \$1.74/sf R&D \$1.56/sf Commercial \$1.47/sf Manufacturing \$1.15/sf Warehouse/Office \$0.67/sf Warehouse \$0.50/sf	Mortuary/crematorium, parking, child care center, church; Special circumstances for certain uses; North Natomas is assessed separately based on their community plan land use category	At issuance of building permit	\$11.8 million (City) \$15.2 million in the (County)	City - 50-80% AMI; County - 50% AMI
San Diego, CA	1990 (1996)	Office Space \$1.06/sf Hotel \$0.64/sf R&D \$0.80/sf Retail \$0.64/sf Manufacturing \$0.64/sf Warehouse \$0.27/sf	Residential hotels; Special circumstances	At issuance of building permit	\$3.5 million FY06	San Diego Housing Trust Fund; <80% AMI
San Francisco, CA (City and County)	1981; Updated 2002	Commercial \$14.96/sf Hotel \$11.21/sf Entertainment/Retail \$13.95/sf R&D \$9.97/sf	First 25,000 sf; Redevelopment areas and Port	At issuance of building permit	Over \$40 million	Affordable Housing Fund
Santa Ana		Retail, Office \$10.28/sf Hotel, Restaurant \$11.20/sf Warehouse \$9.71/sf				
Santa Monica		Retail, Hotel, Restaurant, Warehouse \$0.31/sf Office \$8.84/sf				

Santa Monica, CA	1986 or 1984? Update 2002?	Office \$3.87/sf for first 15,000sf, then \$8.61/sf after	First 15,000 sf (10,000 sf for additions)	25% CO; 25% every three years	Over \$5 million	45% toward low and moderate; 45% Parks Mitigation Fund; 10% either or both
Sonoma, CA St Helena	2004	Office \$3.40/sf Commercial/Retail \$4.30/sf Hotel \$3.14/sf Winery/Industrial \$1.05/sf	Small childcare facilities, churches, nonprofits, vineyards and public facilities			
Sunnyvale, CA	1984	Office & Industrial \$7.14/sf	Only charged if development exceeds 35% floor area ratio; Cafeterias, meeting rooms and warehousing and assembly are excluded from calculation	Prior to building permit	Over \$6 million	Low and moderate income housing.
Torrance		Retail, Office, Hotel, Restaurant, Warehouse \$1.54/sf				
Walnut Creek	2005	Office, retail, hotel and medical \$5.00/sf	First 500 sf			

JURISDICTION	YEAR	FEE	EXEMPTIONS	PAYMENT	REVENUE	USAGE
FLORIDA						
Coconut Creek, FL	2006	Industrial \$0.37/sf Commercial \$1.36/sf Office \$0.15/sf Hotel \$2.42/sf Limited Service Hotel \$0.70/sf	Nonprofits; Additions and renovations less than 50% of replacement cost			Trust Fund
Marathon, FL	2006	To be determined	To be determined			
Monroe County, FL	2003	Residential and nonresidential \$1.00/sf for <1,999 sf \$2.00/sf for <2,9999 sf \$3.00/sf for >3,000 sf	Nonprofits; publicly owned buildings; single family, mobile home, duplex; replacement or expansion without increase in units or use	Prior to building permit		
Winter Park, FL	1992	Residential and nonresidential \$0.50/sf	Nonprofits; affordable housing; residential buildings with set-asides, nursing homes and assisted living facilities (but not retirement homes)	At building permit	\$350,000/yr	Trust Fund

JURISDICTION	YEAR	FEE	EXEMPTIONS	PAYMENT	REVENUE	USAGE
MASSACHUSETTS						
Boston, MA		\$7.87/sf housing \$1.57/sf jobs	100,000sf threshold			
Cambridge, MA	1997	Only applies to specific projects - seeking density relief; commercial, hotel, retail, institutional - \$4.25/sf	30,000sf threshold 2,500 exemption	By first occupancy	\$750,000 + \$2.5mil in pipeline as of 1999	Cambridge Affordable Housing Trust
Nantucket, MA	1995	1 unit/4,000sf				
Somerville, MA	1990	\$2.60/sf				
Westford, MA	2000	If exceeds FAR: 1 unit/12 employees				
JURISDICTION	YEAR	FEE	EXEMPTIONS	PAYMENT	REVENUE	USAGE
WASHINGTON						
Seattle, WA	1989?	voluntary "bonus program" to purchase extra FAR by providing amenities, historic preservation, child care or affordablehousing or paying \$20/sf			\$5 million, 166 units as of 1999	