
Climate and Topography

Sunnyvale has a Mediterranean climate – mild dry summers and cool wet winters. The average yearly mean temperature is 57.7 degrees Fahrenheit, with summer highs reaching up to 95 degrees and winter lows as cold as 22 degrees. The average humidity ranges between 53-66%. Sunnyvale has a growing season of 270 to 330 days.

Located in the Santa Clara Valley adjacent to the salt flats of the Bay, the City has a basically flat topography, rising slightly from sea level at the Bay to 300 feet at the southwest corner. Slopes range up to 15% in the high terrace lands to the south. While there are no definable hills in the City, the coastal mountains can be seen to the south and west, providing visual texture to the landscape.

The City is bordered on the east by Calabazas Creek and on the west by Stevens Creek. These streams, assisted by two flood control channels, play a major role in the control of surface runoff during rain storms. The City maintains an extensive storm drain system, and the Santa Clara Valley Water District maintains the creek and flood control channels in the City. The City is built atop the alluvial deposits (different mixtures of silt, clay and sand) that surround the margins of the bay. Sunnyvale's soil is largely composed of expansive clays. The City requires soils reports as part of the permitting process to determine the proper design of foundations and structural components. Seismically the City sits between two active earthquake fault systems, the San Andreas to the west and the Hayward/Calaveras to the east, with other potentially active faults nearby.

Regional, City, and Neighborhood Settings

Regional Setting

Strong, identifiable neighborhoods are Sunnyvale's building blocks. In turn, Sunnyvale, the second most populous city in Santa Clara County, is a building block in the South Bay Area region. The City is greatly impacted by its regional setting. Located at "The Heart of Silicon Valley," the growth, land use, and transportation patterns associated with the surrounding urban environment may affect the

City as much or more than changes within the City limits. As with any urbanized region, resources must be shared. The air basin, transportation facilities, job base, and housing stock serve residents throughout Santa Clara County, as well as other Bay Area counties.

Within the City limits, Sunnyvale has the ability to execute policies and strategies and achieve some degree of effectiveness. But the City is only one of many cities in the region. Sunnyvale is limited in its ability to influence travel demand that is generated outside of the City limits. To fill the void, and in response to legislative mandates, regional agencies are establishing procedures to foster consistent policy and prioritize funding to projects. City policy needs to consider and often conform to regional policies in order to achieve goals in areas of regional concern and to acquire outside funding, including major state and federal capital funding. The need for Sunnyvale to participate in such a regional approach and arena is expected to increase over the next 20 years.

City Setting

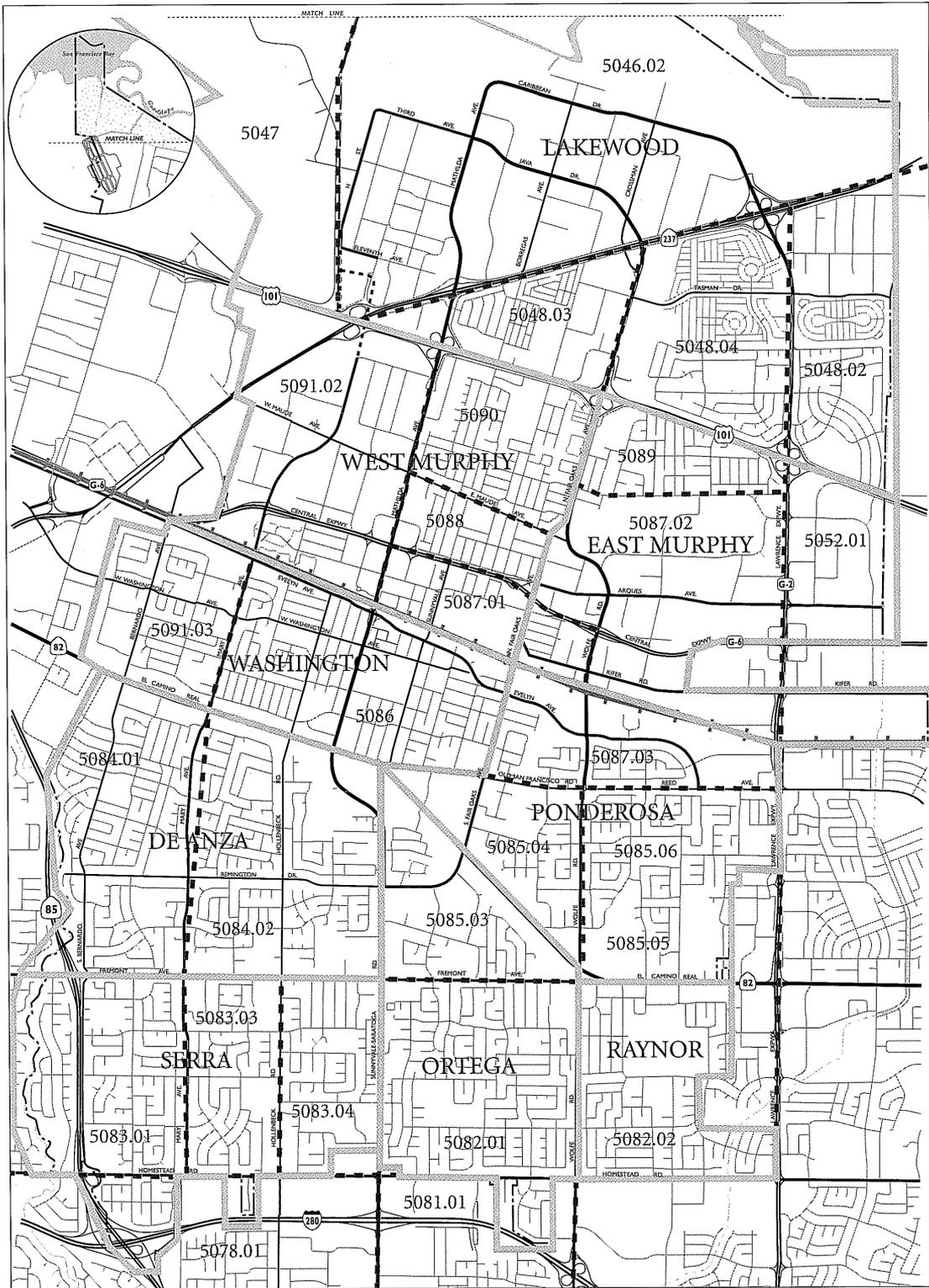
When examining policies, the City must weigh regional vs. City-wide benefits. In the 1980s, Sunnyvale made many land use decisions that limited jobs, provided additional housing, and championed the cause of more "regional thinking" regarding land use, transportation, the jobs/housing ratio, and the resultant air quality. There was a strong housing market in the 1980s, and housing was built quickly in the redesignated areas previously developed as industrial or commercial. A regional attitude was adopted, and on a City-wide basis, the appearance of the community was starting to change. The City examined planning practices that affected community appearance, and new policies were developed to improve the aesthetic quality of development. Over time, community character has increased in importance for the City.

Neighborhood Setting

Neighborhood planning areas are generally bounded by traffic arteries, are served with an elementary school or park within walking distance, and have neighborhood shopping facilities within a half-mile radius. Within the City there are nine neighborhood-level planning areas: Lakewood, West Murphy, East Murphy, Washington, Ponderosa, De Anza, Serra, Ortega, and Raynor. These areas are still used by the City as a means to describe and evaluate the City's overall physical organization. Figure 2.2 indicates Sunnyvale's neighborhood planning areas.

The neighborhood concept has always been an important component in Sunnyvale. The City was developed according to neighborhood planning areas. When examining its policies, the City must weigh neighborhood vs. City-wide benefits. For example, a variety of studies have indicated that it would take a major shift in City land use to bring about even a relatively small change in traffic on the regional system. However, this situation would not be true for developments in specific locations throughout the City. The City maintains a functional street classification system to reinforce neighborhoods by keeping traffic out of them. For example, a high intensity development could have significant impacts on a localized area, without making an observable impact on the City or regional system. Careful land use planning and well designed mitigation measures will become increasingly important to maintain appropriate neighborhood character.

Figure 2.2: Neighborhood Planning Areas and Census Tracts Map



Neighborhood Planning Areas

Census Tract Boundaries



THE PEOPLE

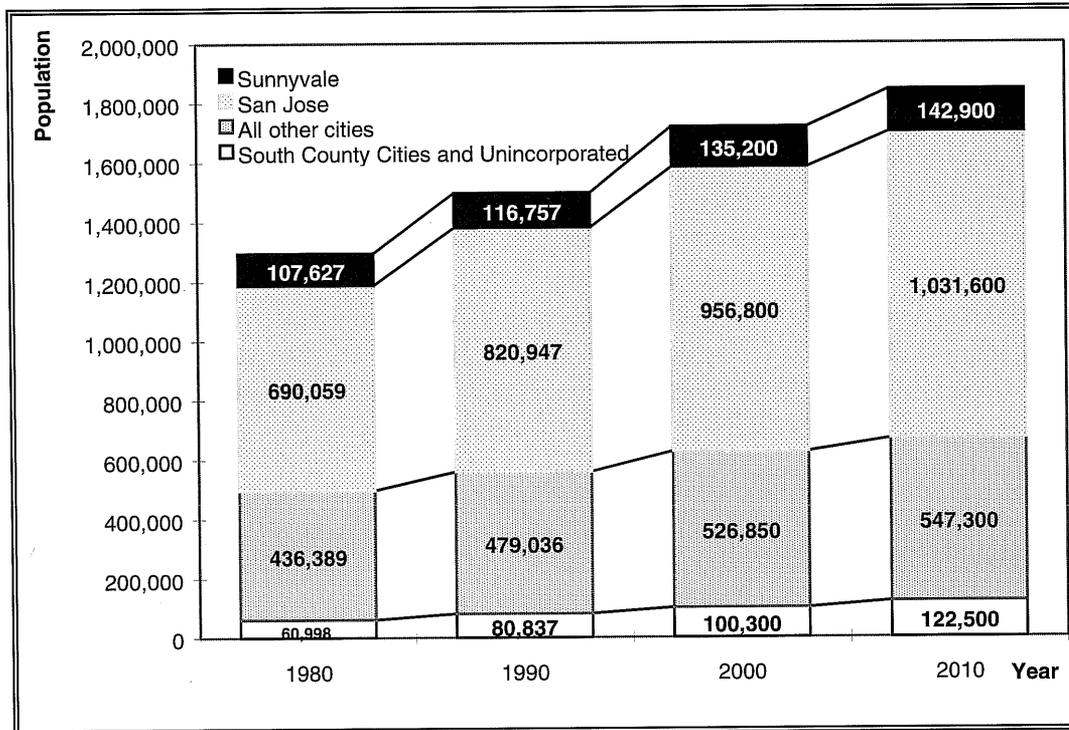
Many significant demographic changes occurred in Sunnyvale between 1970 and 1995, including ongoing population increases, increased ethnic diversity, and changes in the age structure of the population. Recognizing these changes and the need for City services and programs to be responsive to a more diverse population is important in land use and transportation planning. Demographic projections also identify possible trends for the future. When data is available, Sunnyvale's demographic statistics are compared with those from Santa Clara County and the San Francisco Bay Region.

Population

Sunnyvale's population has grown steadily over the past 3 decades. Between 1970 and 1980 the population increased by 12%, increasing another 10% between 1980 and 1990. Sunnyvale's estimated population was 129,200 in 1997, nearly an 11% increase since 1990. ABAG projects that our population will continue to grow, but at a slower rate (6%) for the 2000-2010 decade.

Sunnyvale's projected population growth rate is similar to projected growth rates for Santa Clara County, which is expected to lead the San Francisco Bay Area region in population growth through 2010. (See Figure 2.3) The projected increase assumes that Sunnyvale can provide housing for this many new residents.

Figure 2.3: Population Projections



Source: ABAG Projections '96, Report to Council, 8810, February, 1996

All neighborhoods experienced declines in household size between 1970 and 1990. Between 1970 and 1980, some of the decline resulted in fewer people overall in 4 neighborhood planning areas (De Anza, East Murphy, Lakewood, and Serra), despite increases in the number of housing units. By 1990, the number of housing units and total population is fairly similar in 6 of the 9 neighborhood planning areas (De Anza, Lakewood, Ortega, Serra, Washington, and West Murphy) with about 6,000 units providing housing for about 14,000 people. Persons per household ranges from 2.13 to 2.60 in these neighborhood planning areas. Significant growth in any neighborhood planning area should be reviewed to determine service needs for those areas.

Figure 2.4: Population and Housing Changes by Neighborhood Planning Area

Population/Housing Units								
Neighborhood	1970	1980	Change 1970-1980		1990	Change 1980-1990		
			%	Absolute		%	Absolute	
De Anza								
<i>Population</i>	16,236	14,281	-12%	-1,955	13,528	-5%	-753	
<i>Housing Units</i>	4,751	5,238	10%	487	5,440	4%	202	
East Murphy								
<i>Population</i>	6,276	5,612	-11%	-664	6,287	12%	675	
<i>Housing Units</i>	2,193	2,302	5%	110	2,316	1%	14	
Lakewood								
<i>Population</i>	13,350	13,158	-1%	-192	13,527	3%	369	
<i>Housing Units</i>	3,580	5,588	56%	2,008	6,347	14%	759	
Ortega								
<i>Population</i>	12,197	12,951	6%	754	13,513	4%	562	
<i>Housing Units</i>	3,896	5,354	37%	1,458	6,025	13%	672	
Ponderosa								
<i>Population</i>	12,692	16,637	31%	3,944	19,695	18%	3,058	
<i>Housing Units</i>	5,091	7,194	41%	2,103	9,203	28%	2,008	
Raynor								
<i>Population</i>	6,637	4,059	-39%	-2,578	4,508	11%	449	
<i>Housing Units</i>	1,825	1,434	-21%	-391	1,698	18%	263	
Serra								
<i>Population</i>	13,962	13,500	-3%	-462	13,645	1%	144	
<i>Housing Units</i>	4,594	4,983	8%	389	5,240	5%	257	
Washington								
<i>Population</i>	12,784	12,784	0%	0	14,316	12%	1,532	
<i>Housing Units</i>	5,310	6,252	18%	942	6,585	5%	333	
West Murphy								
<i>Population</i>	10,131	10,452	3%	322	14,910	43%	4,458	
<i>Housing Units</i>	3,440	4,481	30%	1,042	6,693	49%	2,212	

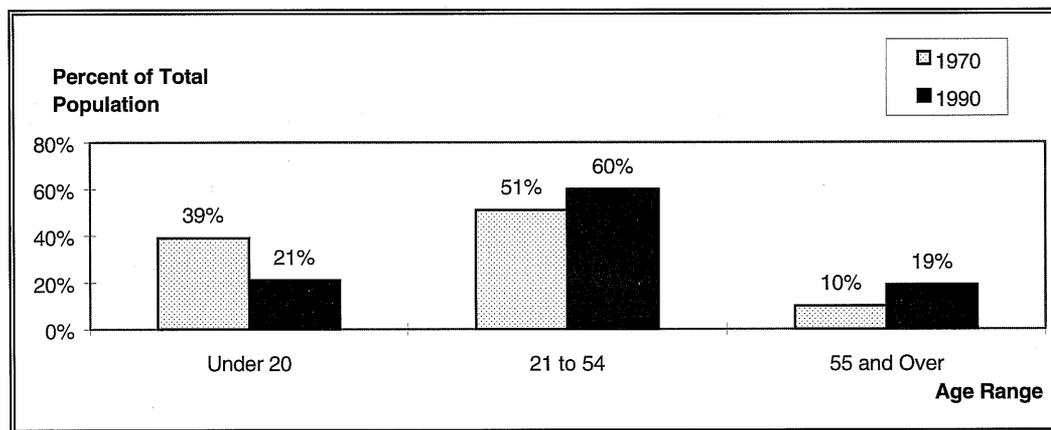
Source: 1970, 1980, and 1990 US Census

Note: Most, but not all census tract boundaries parallel Neighborhood Planning Area boundaries. In the cases where the boundaries are not the same, estimates are made regarding the proportion that a census tract is contained within a Neighborhood Planning Area.

Age

The age distribution of Sunnyvale's population changed dramatically during the 1970-1990 time period, with an increase in the number of older residents and a decrease in the number of children. The over-55-year-old population more than doubled in real terms from 10% (10,007) of the total population in 1970 to 19% (22,571) in 1990. In 1970, 39% of the population was under 20 years old. By 1990, the age group under 20 years old had dropped to 21%. (See Figure 2.5)

Figure 2.5: Age Distribution



Source: 1970 and 1990 U.S. Census

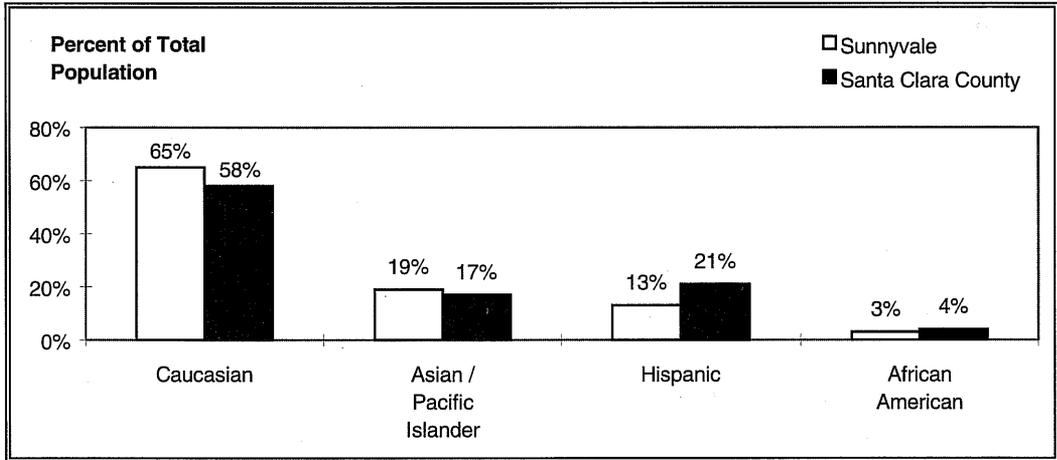
These changes in the age structure of Sunnyvale's population are similar to changes taking place in Santa Clara County and the nation. The largest population group is composed of the baby boomers (those born between 1946 and 1965). As the baby boomers age, the median age of the population will rise. Over the next two decades, the number of seniors will increase dramatically, while the number of young adults will remain relatively constant, and the number of children will increase only moderately.

In Santa Clara County, however, the net out-migration of people over 30, coupled with an increasing number of young families moving in, will tend to lessen the aging of the population. It is uncertain if this trend will occur in Sunnyvale. These changes in the age structure of the population may affect the types of housing and community services needed in the future.

Ethnicity

Sunnyvale's ethnic makeup is becoming more diverse. Over the past 20 years the white non-Hispanic population has dropped from 95% of the total population in 1970 to 65% in 1990. The most significant population shift has been in the Asian and Pacific Islander population, which has grown from 4% in 1970 to 19% in 1990. Chinese and Filipino residents comprise the two largest segments of the Asian and Pacific Islander population. The African American population has increased from 1% in 1970 to 3% in 1990. The changes in the ethnicity of Sunnyvale's population reflect similar changes in Santa Clara County, although the County has a slightly higher percentage of Hispanic residents and a smaller percentage of Asian residents than Sunnyvale. (See Figure 2.6.) As ethnic diversity has increased, the number of U.S. born Sunnyvale residents has decreased from 92% in 1970 to 77% in 1990. In addition, the number of Sunnyvale residents whose first language is not English has increased from 19% in 1980 to 27% in 1990.

Figure 2.6: Ethnicity



Source: 1990 U.S. Census

As is true of the changes in the age structure, these changes in ethnicity may result in demand for different housing options, as well as different levels of community services and additional facilities such as schools, libraries, public safety, and leisure services.

Household Characteristics

ABAG defines households as those persons who occupy a single dwelling unit. The number of households increased by almost 45% from 30,257 in 1970 to 43,744 in 1980. Between 1980 and 1990, this growth rate slowed and the number of Sunnyvale households increased by approximately 11%, to 48,638 households. This rate of increase is expected to decline to about 8% for the two 10-year periods between 1990-2010. The rate of increase in the number of households reflects the rate of increase in the population, although the rates do not match exactly since the number of persons who occupy a household can vary over the years. For example, in 1970 Sunnyvale had 3.14 persons per household. Persons per household declined to 2.44 by 1980. This decline was not reflected in the general population numbers, as the population increased during this time. Instead, more households were formed, while each household included fewer members than in the previous decade. Recent statistics indicate that there has been a reverse of this trend, with an increase in the number of persons per household from 2.39 in 1990 to 2.50 in 1995.

These fluctuations in household size will have some influence on the preferred types and sizes of dwelling units. When the fluctuations are related to the number of children present in the household, the amount of space that will be needed for school classrooms will be affected. However, it is estimated that there will be only a modest fluctuation in the number of persons per household between 1995 and 2015, with a high point of 2.55 persons per household in the year 2000.

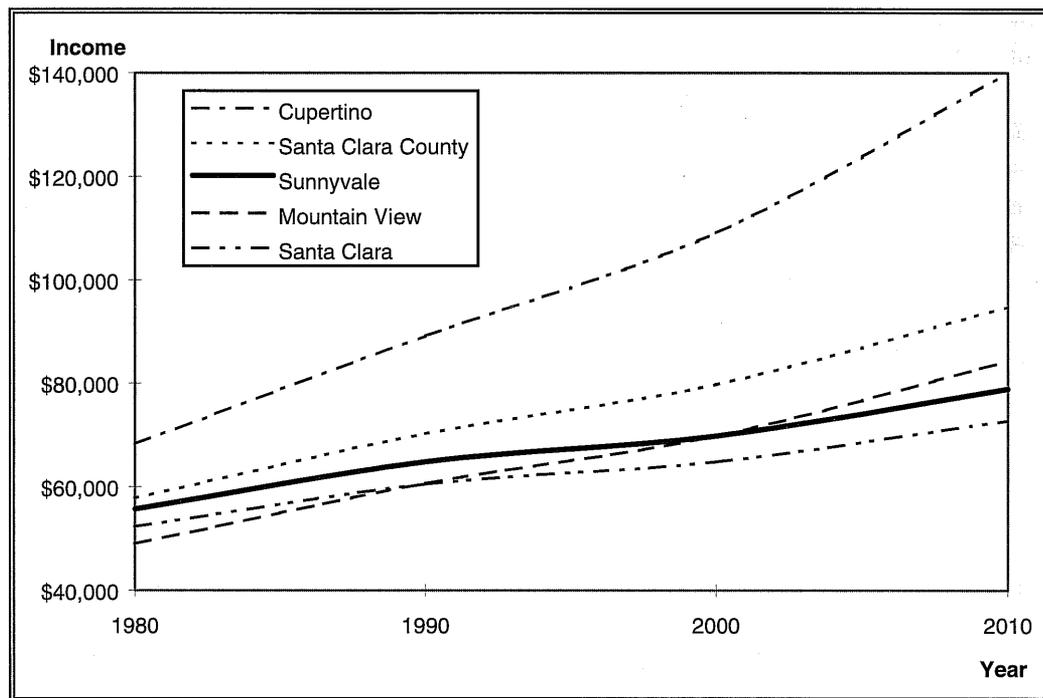
Numerous factors contribute to increases in household size, including young adults remaining at home to save money or complete their education, an increase in birth rates of newer families, or the presence of extended family members or unrelated persons. Household sizes tend to increase as people share housing to reduce costs during economically difficult periods. Other factors affecting household size are the availability of affordable housing, changes in population ethnicity, and lifestyle changes.

Income

ABAG estimated Sunnyvale's mean household income to be \$66,300 in 1995. This amount is 11% less than the ABAG estimate for mean household income for all of Santa Clara County (\$73,800) in the same year.

ABAG projects Sunnyvale's mean household income to increase 19% to \$78,900 by 2010. During the same time period, ABAG projects the mean household income in Santa Clara County to increase by 28% to \$94,800. If these projections are realized, mean household income in Santa Clara County as a whole would be 20% higher than mean household income in Sunnyvale. Figure 2.7 depicts the income growth rate in Sunnyvale, the county, and neighboring cities.

Figure 2.7: Mean Income Comparison



Source: ABAG Projections '96, Report to Council, 8810, February, 1996

Sunnyvale's and Santa Clara's mean incomes are not projected to increase as quickly as Santa Clara County's mean income. Cupertino is expected to have a significantly higher income growth rate than the county, and Mountain View is projected to catch up to Sunnyvale's mean income in 2000 and surpass it by 2010.

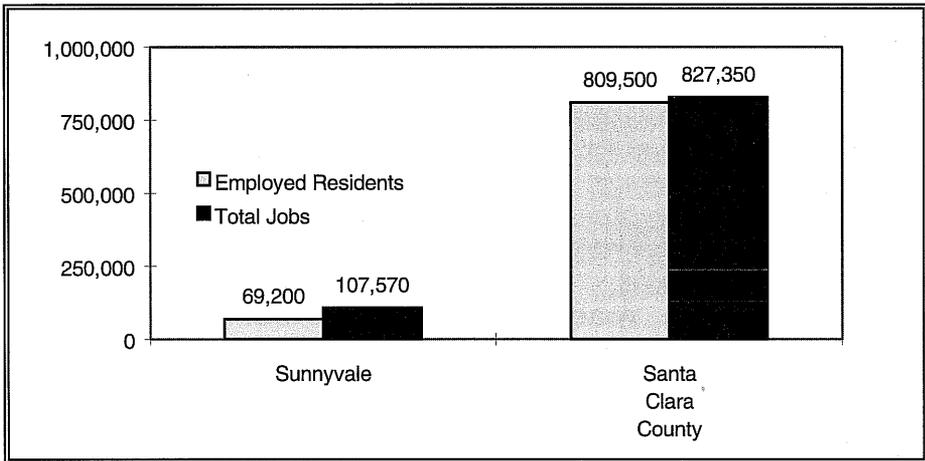
A variety of circumstances may be contributing to Sunnyvale's apparent lag in projected income growth. Some of these factors may affect the City in comparison to the entire county, while other factors indicate more specific relationships between Sunnyvale and its neighboring cities.

- ◆ Sunnyvale's residential areas are predominately built out, and thus new, large "executive style" housing is not being built in the City.
- ◆ Cupertino's schools are very highly rated and have contributed positively to housing values in that city.
- ◆ Although Sunnyvale's downtown has been slowly redeveloping, it is lackluster in comparison to downtown Mountain View.
- ◆ In comparison to most other Santa Clara County cities, Sunnyvale has a relatively greater share of mobile homes and multifamily housing, which tend to be the least expensive housing options.
- ◆ "The rich get richer" phenomenon increases the income gap over time.
- ◆ There is also a pattern of housing values and mean incomes that increase on a gradient away from the valley floor and toward the hills to the south and west.

Employed Residents

An employed resident is someone who lives in the community and who has a job in the community or elsewhere. In 1995 Sunnyvale had 69,200 employed residents. Figure 2.8 compares the number of jobs available and the number of employed residents in Sunnyvale. Note that the number of employed residents is not equivalent to the labor force, since the labor force includes both the employed and those persons who are unemployed and seeking jobs. It is interesting to note that for Santa Clara County, there has been a closer match between the number of jobs and the number of employed residents (Figure 2.8), with only a slightly higher number of jobs than employed residents county-wide. These relationships are expected to remain relatively constant to the year 2010.

Figure 2.8: Employed Residents and Total Jobs



Source: ABAG Projections '96, Report to Council, 8810, February, 1996

The ratio of jobs to employed residents in Sunnyvale was approximately 1.55 in 1995. For the same year, Santa Clara County had a job-to-employed resident ratio of 1.02. Sunnyvale is job rich, providing 13% of jobs in the county, but only 8.5% of the employed residents. A direct result of these ratios is the extent of in-commuting to Sunnyvale.

This pattern, which is expected to continue, may be explained by the regional nature of jobs and residences. Many Santa Clara County residents may not work in the community where they live

but may work in one of the adjacent communities within the County. As Figure 2.9 indicates, most commuting, whether into or away from Sunnyvale, has origins or destinations within the County.

Since employed residents may work either inside the community or outside, it cannot be assumed that there is a job in Sunnyvale for every resident who wants one (a goal of the 1963 General Plan). In fact, the skills of some residents may be better matched by the job market elsewhere. Figure 2.9 indicates that there is a significant daily exodus of commuters from Sunnyvale, suggesting that many residents do work elsewhere. However, this figure also shows a much stronger daily influx of commuters, indicating that there is a strong job market here that attracts nonresidents to Sunnyvale.

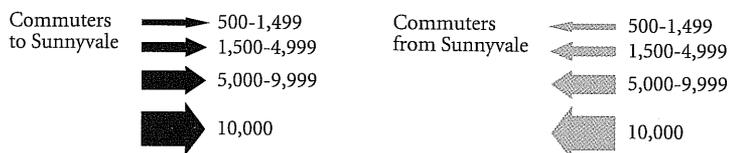
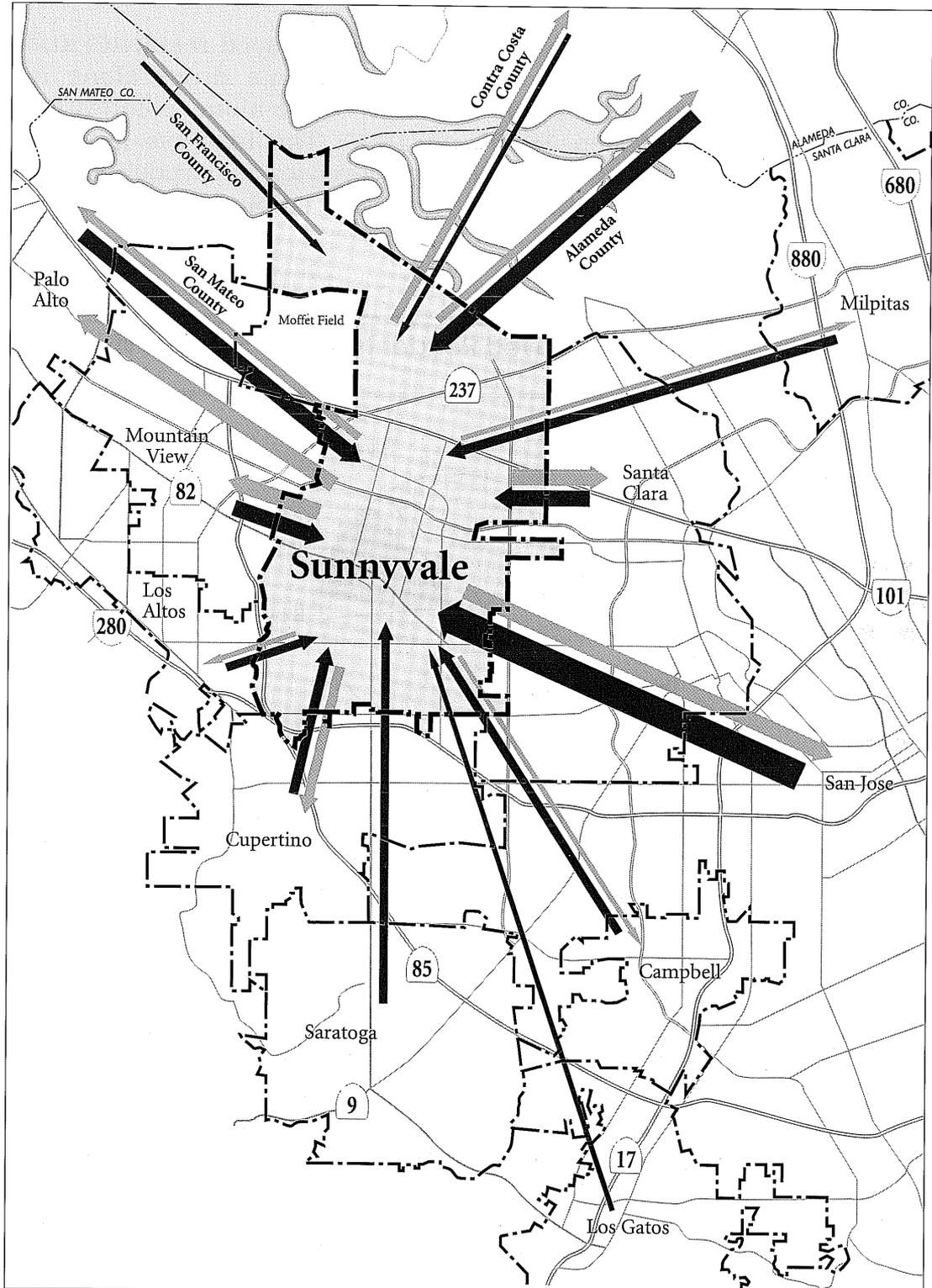
In 1995, it was estimated that 32% of employed residents worked in Sunnyvale. The number of employed residents who actually work in Sunnyvale is important for several reasons, the most important being that employed residents do not engage in long commutes, thereby decreasing regional traffic congestion and air pollution. In addition, there are quality of life factors. Shorter commutes mean less traffic stress and more time for leisure activities.

Commute Behavior

The City and regional road systems accommodate workers commuting within, into, out of, and through Sunnyvale. As previously discussed, Figure 2.9, Commute Patterns to and from Sunnyvale, schematically represents the commute patterns into and out of the City.

Mode share is a common measure used to examine the commute behavior of a community. Sunnyvale residents and workers are strongly oriented toward drive-alone commuting. The following paragraphs refer to employed residents and Sunnyvale workers. As previously defined, employed residents are Sunnyvale residents with jobs in any community, including Sunnyvale. Sunnyvale workers are individuals with jobs in Sunnyvale who live in any community, including Sunnyvale.

Figure 2.9: Commute Patterns to and from Sunnyvale Map



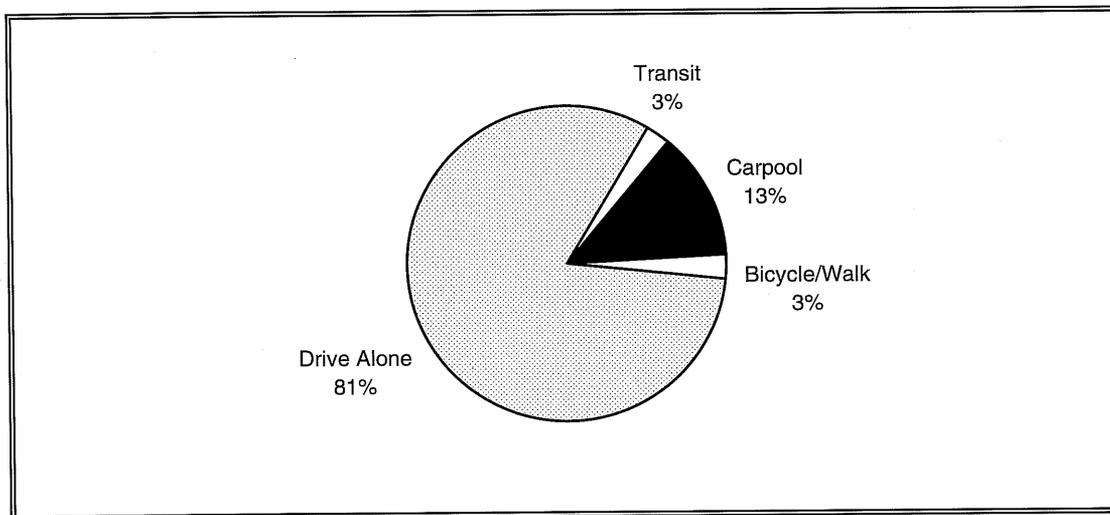
Source: U.S. Census, 1990



Employed Residents

In 1990, approximately 82% of Sunnyvale employed residents and 78% of Santa Clara County employed residents drove alone to work. In Sunnyvale, the mode share of drive-alone commuting increased by 8% between 1980 and 1990. The increase in drive alone commuting was accompanied by decreases in carpooling and public transit use. Mode share for Sunnyvale employed residents is compared in Figure 2.10.

Figure 2.10: Sunnyvale Employed Residents' Mode Share 1990



Source: 1990 U.S. Census Data

Sunnyvale Workers

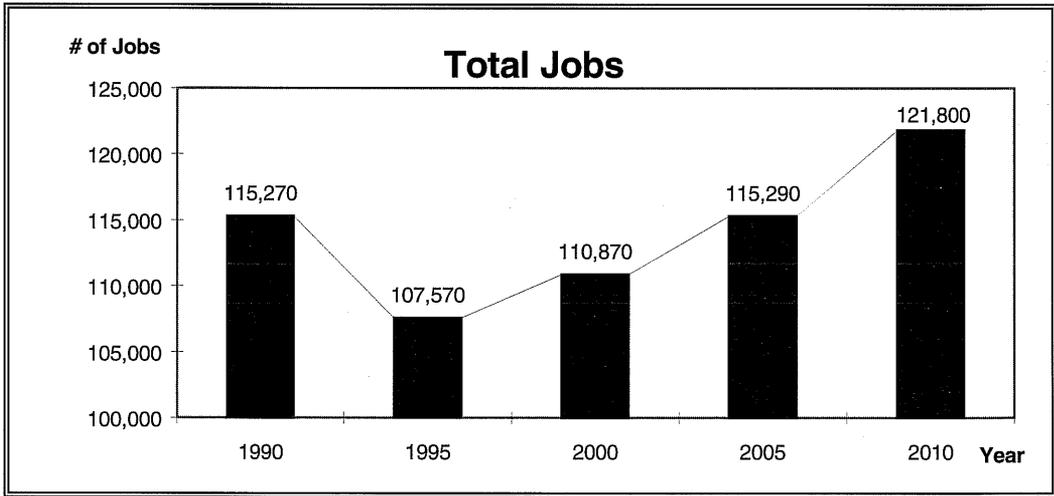
The mode share break down for Sunnyvale workers is very similar to the mode share for Sunnyvale resident workers. In 1990, approximately 80% of Sunnyvale workers drove alone, 15% carpoled, 3% took transit, and 2% bicycled or walked to their jobs in Sunnyvale. Between 1980 and 1990, carpooling declined from 21.9% to 15.2% among Sunnyvale workers. This was offset by an increase in drive-alone commuting.

THE ECONOMY

Jobs

Between 1990 and 1994, the State of California and Silicon Valley experienced an economic recession, causing corporate downsizing and the loss of many jobs. By 1993, Sunnyvale's available jobs had decreased to approximately 107,000. By 1995, the recovery was underway with new jobs available but at a slower rate than the job growth of the 1970s and 1980s. Therefore, while the 110,870 jobs forecast for the year 2000 represents a total loss of 4,400 jobs over the decade, the community has already experienced those losses. There will be a gain of approximately 3,000 jobs between 1995 and 2000.

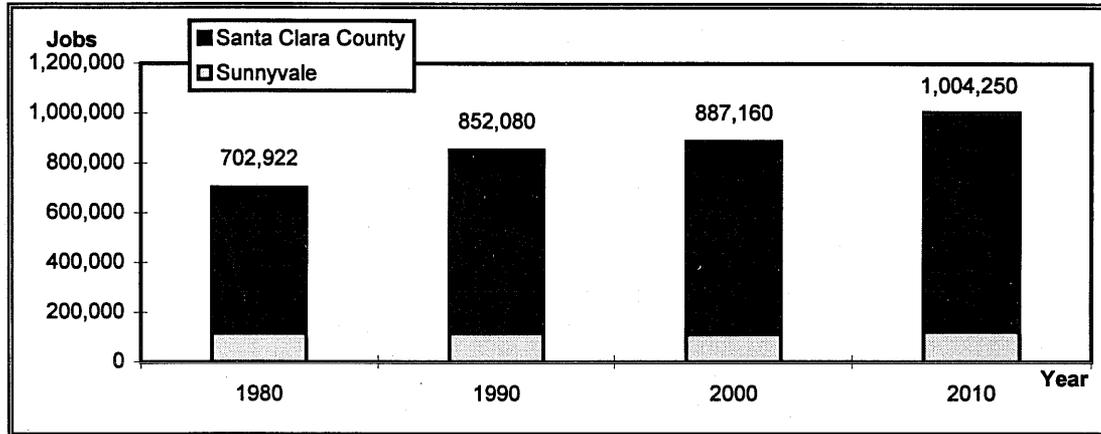
Figure 2.11: Total Jobs in Sunnyvale



Source: ABAG Projections '96, Report to Council, 8810, February 1996.

Compared to the county region, Sunnyvale's projected gains in job growth are slight. Between 1980 and 2010, Sunnyvale's job base is projected to increase by 5%. For the same 30 year period, Santa Clara County is expected to gain 43% more jobs. These relationships are depicted graphically in Figure 2.12.

Figure 2.12: Total Jobs in Sunnyvale and Santa Clara County



Source: ABAG Projections '96, Report to Council, 8810, February 1996.

Businesses

Approximately 10,300 businesses were licensed to operate in Sunnyvale in 1995. Most of these were located within the City, although some businesses licensed to operate in Sunnyvale are located in other communities (e.g., contractors).

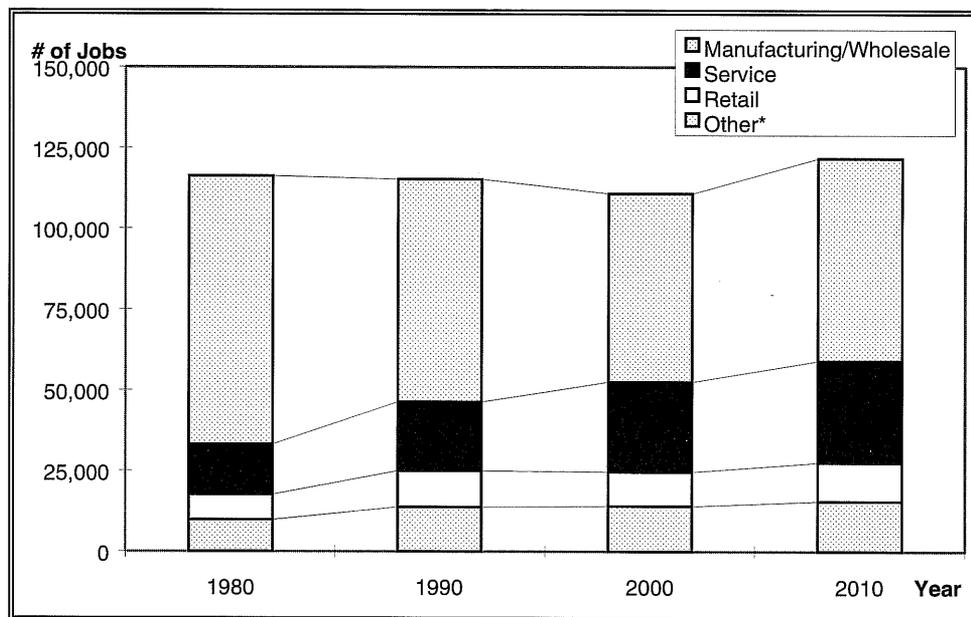
The number of business licenses issued yearly increased steadily between 1990 and 1994. Some of this increase may be attributed to an increase in home business license applications by residents who lost their permanent jobs during the economic recession of the early 1990s. Some residents may have established home occupations as a means of earning additional income beyond that earned by their regular employment. The downsizing of larger corporations may have resulted in former employees forming their own smaller companies. However, ABAG projects continued economic growth in Sunnyvale, with at least some of this growth coming from the creation of new business ventures.

Employment Sectors

In 1995 Sunnyvale's largest employers included 78 with 100-500 employees and 14 with more than 500 employees. These largest employers account for nearly 40% of the jobs in the City. Manufacturing and wholesale activities provided most of the jobs

offered by these employers. Although the percentage of manufacturing and wholesale jobs has been declining since 1980, this job sector is expected to level off at about 52% of all Sunnyvale jobs and it is forecasted to maintain this level between 1995-2010. High technology manufacturing jobs, a sector that grew rapidly in Silicon Valley during the 1970s and 1980s, leveled off by 1995. High technology manufacturing employment (excluding aerospace manufacturing) is expected to remain constant as a share of total manufacturing employment in the Bay Area for the forecast period. (See Figure 2.13)

Figure 2.13: Sunnyvale Employment Sectors



**Other* includes agriculture, mining, and all other job categories.

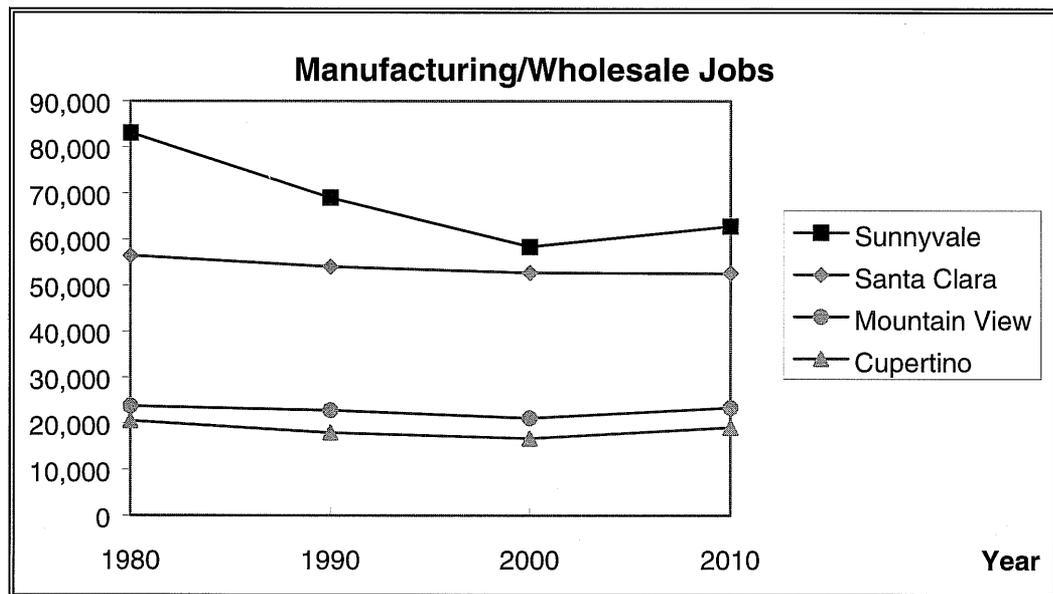
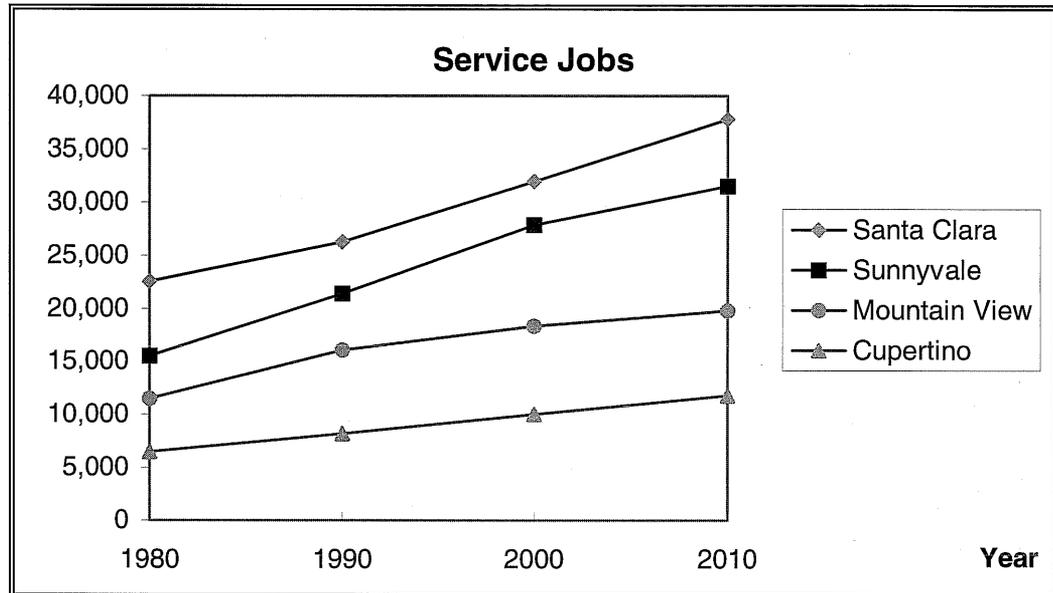
Source: ABAG Projections '96, Report to Council, 8810, February 1996.

A 43% increase in retail sector jobs occurred between 1980 and 1990. Forecasts suggest that this job sector will stabilize to provide about 10% of the total jobs available through the year 2010.

The total number of service sector jobs in Sunnyvale increased by 63% during the period between 1980 and 1990, accounting for 20% of total jobs available. It is anticipated that the percentage of service sector jobs will continue to increase and then stabilize at about 26% of total jobs through the year 2010. The increase in the service sector jobs in Sunnyvale reflects similar trends in both the San Francisco Bay region and the nation.

The "other" job sector includes: construction, transportation, communications, utilities, finance, insurance, real estate, agriculture, mining, and government (including national security). This sector will be the most stable of the job sectors during the period 1990-2010, comprising a fairly constant 12% of total jobs available in Sunnyvale.

The changes in the number of jobs available in various sectors could result in changes in family or household incomes, since some job sectors have higher wages than others. For example, service and retail sector jobs are generally thought to pay less than manufacturing jobs. However, service sector jobs include independent contractors and consultants, and as more professional people operate in these capacities, the average income for this sector is expected to increase. Figure 2.14 compares projections for the "service" and "manufacturing/wholesale" job sectors for Sunnyvale and its neighboring cities.

Figure 2.14: City Comparison of Job Sectors

Source: ABAG Projections '96, Report to Council, 8810, February 1996.

In Sunnyvale and its neighboring cities, service sector jobs have been increasing in a fairly linear pattern. This pattern is expected to continue. Compared to its neighbors, Sunnyvale lost a significant number of manufacturing/wholesale jobs since 1980. Most of these losses were due to major cut backs in national defense spending, which had a direct impact on employment at Lockheed/Martin.

The kinds of jobs available in a city have many land use and transportation implications. For example, higher paying jobs increase family and household income, which in turn increases a household's ability to pay for housing. The demand for single-family homes (generally the most expensive and most desirable form of housing) could rise as a result of an increase in families with higher incomes. Higher paying jobs could also attract residents from other jurisdictions, increasing the number of employees using the roadway system for longer commutes. Studies also indicate that persons earning high incomes are less likely to use public transit. This situation could impact traffic to a point where roadway improvements would be needed to maintain acceptable levels of service (LOS). An increase in jobs in sectors with lower wages, on the other hand, could mean an increased demand for less expensive housing options.

Women in the Workforce

The US Census defines the labor force participation rate as the percentage of the population over 16 years old in the labor force. The combined labor force participation rate for men and women was 75% in 1990.

The U.S. Census reports a dramatic increase in the number of women in the labor force over the last several decades. In 1970, 47% of women and 29% of women with children under 6 years of age were in the labor force. In 1990, the percentage of female participation increased to 67% and 65% respectively. For comparison, the labor force participation rate was 84% for men in 1990.

It is expected that the percentage of women participating in the workforce through 2015 will fluctuate only slightly, ranging between 56% and 63% within the County. Increases in the number of women in the workforce have resulted in increases in demand for and development of a variety of child care facilities throughout the community.

Business Trends

Home Occupations

Since the early 1990s there has been a substantial number of applications for home occupation licenses. With corporate downsizing and increased interest in entrepreneurial opportunities, many people are establishing home businesses. Within Sunnyvale about 4% of all business licenses are home business licenses. Home businesses employ approximately 600 people. Substantial increases in home-based businesses would be needed to decrease auto trips to and from work sites in order to decrease the overall volume of traffic in the City.

Telecommuting

Within the last decade, there has been a gradual increase in telecommuting. Within large cities in the United States, many companies are implementing telecommuting plans as part of their compliance plans for the Clean Air Act Amendment of 1990. Telecommuting practices range from using telephones, computers, and modems to the use of facsimiles, integrated-services-digital networks (ISDN), and accessing mainframe databases. The use of visual communication through fiber-optic networks, desktop teleconferencing, and video cameras will likely become more common in the future. The number of ISDN connections is not public information; consequently it is difficult to determine the extent to which this mode is used in Sunnyvale.

Although the cost for ISDN services is gradually decreasing, and there may be an increase in its use, telecommuting is not projected to significantly affect travel demand. Companies may be using telecommuting as an alternative to building expansion to accommodate more employees. Consequently, the same number of people will continue to commute to such job sites. Also, some studies indicate that employees who telecommute may actually make more total trips, mostly off peak, than employees commuting to their work sites.

Satellite Offices

Satellite offices are small branch offices of larger companies. They are sited to harmonize with residential communities, thereby providing opportunities for reduced commute times and distances. By reducing vehicle miles traveled there is also a reduction in air pollution. Several companies have established pilot programs to determine if this approach is economically feasible and productive for the needs of both the businesses and employees. With future increases in traffic congestion likely, satellite offices may become a desirable alternative. They may be costly options during periods of downsizing.

Designated satellite offices do not operate within the City, but opportunities may emerge as companies outside of the area establish alternate sites. It is also possible that technological advances in electronic communication may enhance telecommuting from home residences, rather than the development of satellite offices and regional or sub-regional telecommuting centers.

Retail Changes

Within the last decade, the major change in retail activities has been the emergence of large "big box" retailers and discount retail centers for a wide range of products including electronics, general hardware centers, groceries, and household goods. Big box facilities often combine an interior warehouse design with simple and undistinguished elevations and facades. Big box retailers have a significant market range and draw customers from both Sunnyvale and surrounding communities.

Big box retailers provide significant sales tax revenues to the City and have gained in popularity over the last few years. Due to the volume of trips to these sites, there is a need to carefully assess the impact of traffic circulation and parking on surrounding communities. Since the City currently has several land uses that fit this category, it is difficult to ascertain if there is a market for an expansion of big box land uses.

Analysts suggest that the increase in the sales of personal microcomputers and specialized software applications may impact the nature of retail activities by providing retail shopping options for consumers from their homes. While it is difficult to anticipate the extent of the impact of these practices, forecasters believe that

this may reduce the amount of space needed for specific types of retail activities. If there is a gradual reduction in the need for retail square footage, there may also be a need to reexamine parking requirements for certain types of retail activities.

Despite these potential changes, the profile of retail activities will likely remain largely the same. Research suggests three retail trends over the next decades: 1) the supply of retail space continues to be overbuilt; 2) the difference between types of stores and types of centers will continue to blur; and 3) the information superhighway will provide more shopping opportunities in both homes and workplaces.

Incubators and Start-ups

Incubators are facilities that nurture small start-up businesses. A successful incubator promotes sound business practices to ensure that a new company leaves the incubator with a well-rooted organization. In most cases, an incubator specializes in business areas that are supported by the local economy. Cities use incubators for image promotion. Public organizations, such as cities or redevelopment agencies, are typical incubator sponsors.

Sunnyvale has one incubator, the NASA Ames Technical Commercialization Center. In 1996, the NASA Ames incubator was nurturing 18 technology-focused businesses.

In Sunnyvale, several executive suites appear to offer pseudo-incubator space. Executive office suites often lease 80% to 90% of their space to standard businesses. The remaining space, which might otherwise remain vacant, is marketed to start-up companies at below market rates. Management services vary; however, some real estate managers may be interested in establishing true incubators if they could secure funding.

THE USES OF LAND

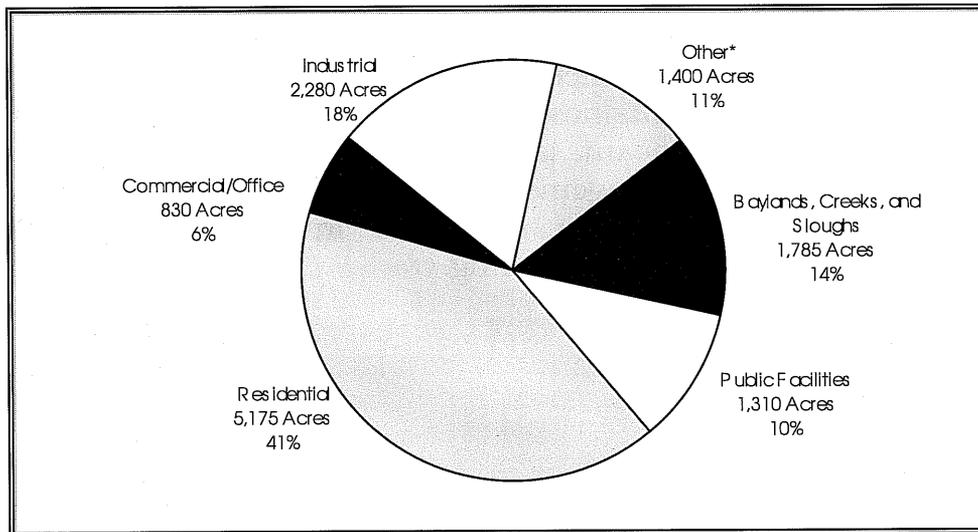
The following discussion provides basic information on the City's land resources in 1995, the base year used to provide a data framework for this Land Use and Transportation Element. Sunnyvale's land uses in 1995 are reviewed first, followed by an overview of rezoning activity in the early 1990s, which is one indicator of current demands for various types of land use.

Land Uses in Base Year 1995

Sunnyvale's total land area is approximately 15,300 acres. About 17% of this land (2,500 acres) is devoted to streets, highways, and utilities. The remaining net land area of 12,800 acres support a wide variety of land uses.

In 1995, about 5,175 acres (40%) of Sunnyvale's net land area was designated for residential use, the largest single category of land use in the City. Public facilities (10%), industrial uses (18%), and commercial uses (6%) were other major land use categories. (See Figure 2.15.)

Figure 2.15: Sunnyvale Land Uses (net land area)



* "Other" includes public and private schools, religious, military, parks, agricultural, and vacant land uses.
Source: Sunnyvale Planning Division, Automated Land Information System, 1995

Land Use for Transportation Purposes

Streets and highways use most of the 2,500 acres of gross land area in the streets, highways, and utilities category. Thus, it is evident that providing transportation infrastructure requires a significant amount of land. In fact, streets and highways are only one part of the transportation infrastructure in Sunnyvale. The CalTrain stations and railroad tracks should also be considered as land uses that provide a portion of the transportation infrastructure, although at this time these land uses are included under the public facilities category, discussed below.

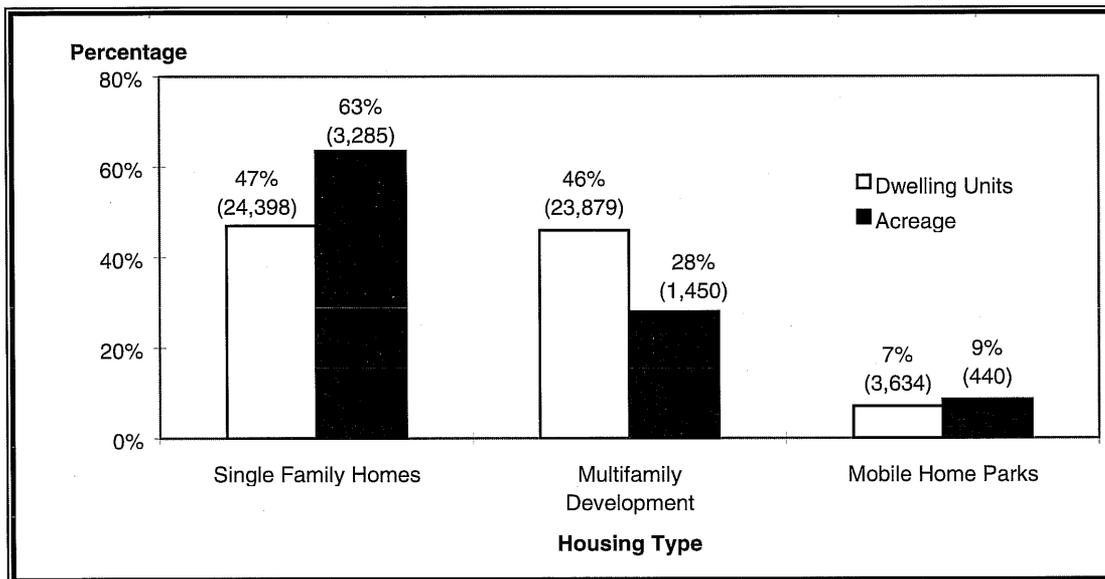
Perhaps the most interesting statistic is the amount of land that the average City devotes to the automobile. If parking lots, driveways, public and private garages (including single-family home garages), automobile service stations, automobile sales establishments, and auto repair facilities are included along with streets and highways, it is estimated that more than 65% of the land area in the average city is used for the automobile. Although information specific to Sunnyvale is not available, we can reasonably assume that the amount of land Sunnyvale uses for the automobile would fit this average city profile.

Currently, however, driveways, parking lots, and garages provided for residential developments are considered to be part of the residential use, and driveways, parking lots, and garages that are part of commercial or industrial developments are similarly considered as part of those uses. Automobile service stations and repair facilities are considered to be commercial uses.

Residential

Of an estimated 51,911 dwelling units located in Sunnyvale in 1995, 47% of these were detached single-family homes, 46% were multifamily attached units, and 7% were mobile homes. (See Figure 2.16.) If Sunnyvale were residentially built-out to the maximum density allowed under zoning regulations in place in 1995, there could be as many as 61,361 residential dwelling units in the City. Figure 2.16 compares the number of acres used for various types of housing. The total number of residential units for each housing type is also indicated.

Figure 2.16: Residential Land Use and Acreage



Source: Sunnyvale Planning Division, Automated Land Information System, 1995

From 1970 to 1980, the number of housing units in Sunnyvale increased by 40%, from about 32,000 units to almost 45,000 units. These new units were predominately single-family homes and apartments and did not include many townhome or condominium units. During the 1980s, Sunnyvale’s housing supply increased another 15% to almost 52,000 units. The vast majority of this new housing was multifamily units, with about two thirds of the units for rent (apartments) and the remaining one third for ownership (condominiums and townhomes).

The trend in housing type has been changing in the 1990s. The small lot single-family housing style has been gaining in popularity and competes strongly with the condo and townhome market as an ownership choice. Other factors which have discouraged multifamily development in the early 1990s include the recession, lawsuits against condominium developers for manufacturing defects, and the loss of the saving and loans as an equity source. The second half of the 1990s may see a shift in this trend with the end of the recession, increasing rents, and very low vacancy rates.

Sunnyvale's residential resources in 1995 were:

Aging: Approximately 86% of the housing units in existence will be more than 20 years old by the year 2000. Some deterioration of older units could begin to occur.

In good general repair: The pattern of upkeep and repair activity indicated a general practice of good maintenance for Sunnyvale's residential property.

Under Design Review authority: Design of residential development including new construction and additions was guided by the City-Wide Design Guidelines, adopted in 1992.

Not affordable for many: Approximately 37% of households in Sunnyvale experienced housing cost burden. Low-income renter small households and low-income elderly homeowners were the largest subgroups with housing problems.

Providing a variety of options: Affordable housing options included small lots/small homes, multiple-family housing options in Industrial to Residential sites, Single Room Occupancy developments (SROs), accessory living units, and homeless shelters and other transitional housing.

The use of homes for business purposes continued to be allowed, as long as the home business met the criteria provided in the Zoning Code. Zoning Code regulations for home occupations were designed to protect the residential quality of the home and neighborhood. Approximately 4% of all businesses located in Sunnyvale in base year 1995 were home businesses.

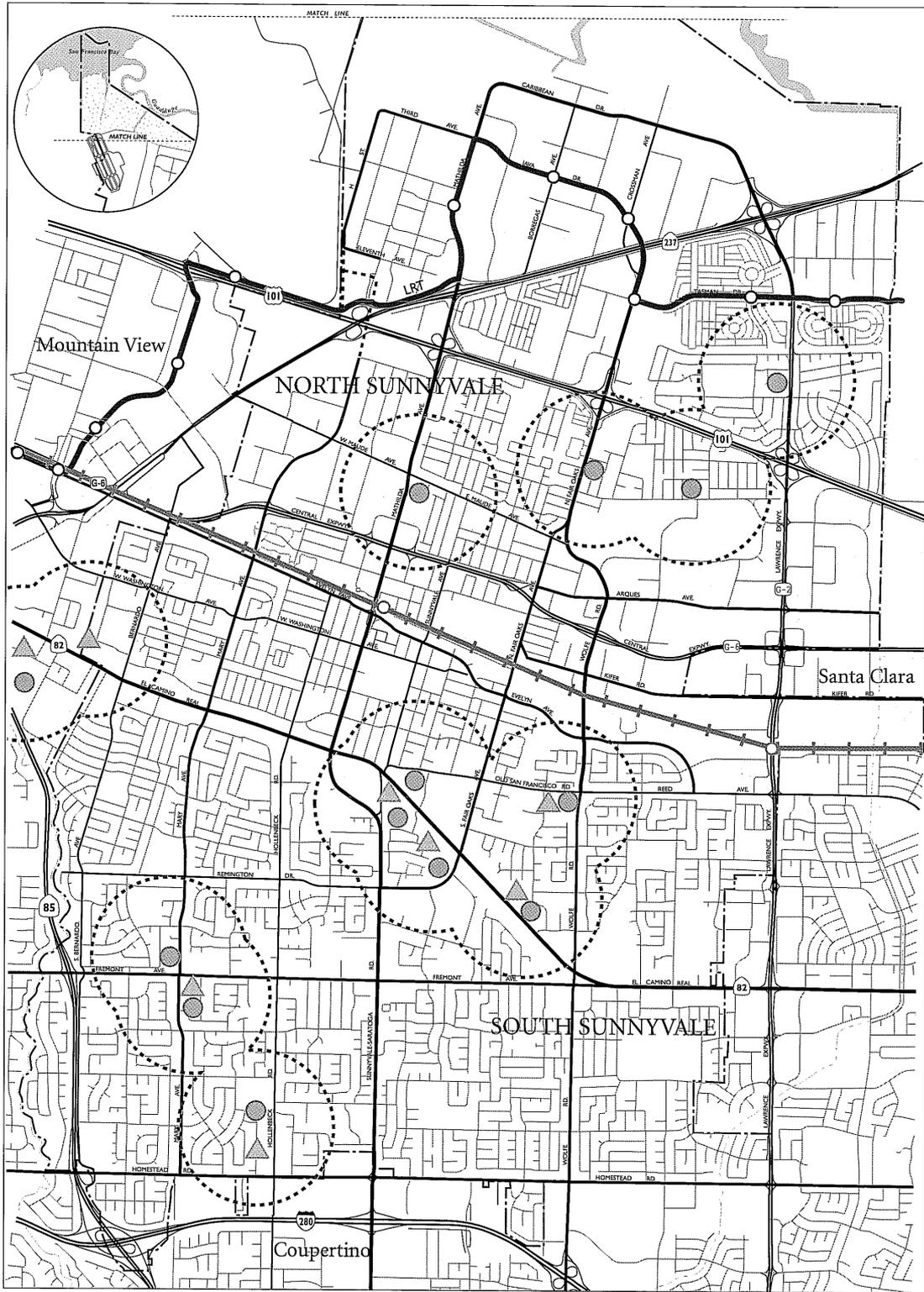
Commercial/Office

Commercial and office land uses occupied approximately 830 acres, or 6% of the net land area in Sunnyvale in 1995, including auto-oriented uses, highway commercial strip developments, a regional shopping center, the old Sunnyvale downtown (Murphy Avenue), and neighborhood shopping centers. Commercial uses were dispersed throughout the City in neighborhood shopping areas, and were also highly concentrated along El Camino Real and in the downtown area.

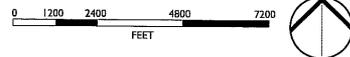
There are more than 30 neighborhood shopping centers, as well as several stand-alone grocery stores and drug stores, located throughout the City. Figure 2.17 indicates the location of the City's neighborhood shopping centers which include a grocery store and/or a drug store as an anchor tenant. A 1/2 mile radius (an average 10 minute walking distance) is shown for each of these neighborhood commercial centers. Figure 2.17 demonstrates the level of pedestrian access to commercial services. It is estimated that only about 10% of Sunnyvale's residents can easily access these centers as pedestrians. In the northern portion of the City, none of the neighborhood shopping centers have drugstores, and only four of the centers have grocery stores.

Office uses were dispersed throughout the City, since they were either permitted or could be considered through a permit process in most nonresidential zoning districts. Because office uses generally have less impact on adjacent land uses than commercial uses, they often provide a buffer or transition area between residential and commercial uses.

Figure 2.17: Neighborhood Shopping Centers Map



- ▲ Drug Store within Shopping Center (8)
- Grocery Store within Shopping Center (13)
- 1/2 Mile Radius around Shopping Center



Industrial

Industrial uses were concentrated in the area of the City that is north of the Southern Pacific Railroad. Land used for industrial purposes occupied approximately 2,280 acres, or 18% of Sunnyvale's net land area.

Industrial properties have developed steadily since the 1950s. Remodeling, renovation, and rebuilding are continually occurring to meet changing industrial needs and to accommodate changing technologies and economic conditions. Comprehensive surveys on the condition of industrial properties have not been conducted.

Residential and commercial uses could also be considered within industrial zones through a permit application process. The Futures Study sites that allowed more intense industrial development or housing development were primarily located in industrially zoned areas. (See Appendix B.)

Commercial and service establishments located in industrially zoned areas offer convenience for industrial employees, save energy, and decrease traffic by minimizing the travel that would otherwise be needed to obtain these services. For this reason, retail, personal services, restaurants, lodging, and meeting facilities can be considered for location in industrial areas through a permit application process.

Because industrial properties generally offer lower rents than commercial properties, it has become more common to sell or lease vacant industrial space for use by religious organizations and for child care centers.

Public and Quasi-Public Facilities

Facilities operated by a government agency or a private agency serving the general public are provided for in the General Plan under the category of Public Facilities. Sometimes the term *quasi-public facilities* is used for those facilities that are owned or operated by a private organization, such as a private school or church organization, which also are used to serve the general public.

Public and quasi-public facilities accounted for approximately 15% of net land area (1,865 acres) in base year 1995, with 1,310 acres used for public facilities and 555 acres used for quasi-public facilities. In addition, open space in the form of baylands, creeks, and sloughs accounted for another 14% (1,785 acres) of the City's net land area.

The City operated a variety of facilities for its citizens, including the City Hall complex, the Public Library, the Sunnyvale Center for Innovation, Invention and Ideas (SCI³), NOVA Private Industry Council, Public Safety, and the waste management facilities (the Water Pollution Control Plant and the Sunnyvale Materials Recovery and Transfer [SMaRT] Station). In addition, the City operated the Tennis Complex at Las Palmas Park, two golf courses, the Community Center, and the Senior Center on McKinley Avenue.

Open Space/Parks

Open space includes neighborhood parks, athletic or play fields, trails and paths, special use parks, and regional parks. In 1994, 838 acres, or approximately 7% of the net land area in the City, were used for open space. Of this land area, 351 acres were owned by the City, 177 acres were owned by the County, 205 acres were owned by school districts, 52 acres were owned by other public agencies, and 53 acres were owned by private entities. In 1994, Sunnyvale had 6.9 acres of open space available per 1,000 population, which is approximately 10% above the National Minimum Standards. (See Figure 2.18.) A map noting the locations of these facilities is provided in the Open Space Sub-Element.

Figure 2.18: Open Space in Sunnyvale

Type of Facility	Number	Acres
Neighborhood parks	16	139
Athletic play fields	25	250
Trails	3 (1 bicycle trail)	32
Special use Parks/facilities	9	235
Regional Park	1	177
Total	54	833

Source: City of Sunnyvale, Parks and Recreation Department, March 1996

Public Schools

In 1995 Sunnyvale was served by four school districts, including Sunnyvale Elementary School District, Cupertino Union School District, Santa Clara Unified School District, and Fremont Union High School District. These school districts operate 17 school sites in Sunnyvale, including twelve elementary schools, four middle schools, and one high school. Some residents are served by schools located in adjacent cities.

Nine school sites were closed between 1984 and 1995, due to decreasing enrollment. The closure of school sites often means that local schools are not within walking distance for many students. Unless public transit is available, parents must drive their children to school or provide their driving-aged teenagers with cars to get to school. The result is an increase in local traffic and air pollution. The closure of local school sites provides another example of how land uses affect transportation activities. However, the closure of the schools has not meant that the land became unused. Several school sites were sold and redeveloped for residential use. Others were converted to private schools, special training facilities, or day care facilities.

Private Community Facilities

Private community facilities included private recreational facilities, the Sunnyvale Historical Museum, membership organizations with special purpose halls, religious institutions, cultural centers, homeless shelters, convalescent hospitals, specialized medical clinics and facilities, private schools, child care facilities, and dependent care facilities.

State and Federal Facilities

Several state and federal facilities were located within Sunnyvale in 1995, including the CalTrain station, the Social Security Office, the State Employment Development Department, and three federal post offices. Portions of Moffett Federal Airfield and Onizuka Air Force Base are also located in the City. They are discussed below.

The Utilization of Federal Property in Transition

Moffett Federal Airfield, NASA Ames Research Center, and Onizuka Air Station are three significant federal facilities and properties located in Sunnyvale and its sphere of influence. These large employment sites have been critical to the aerospace and defense-related research and technology for both Silicon Valley and the nation. They have also been a major component of public and private employment in the immediate vicinity. The downsizing and restructuring of both the federal government and private aerospace/defense industries have resulted in changes in the structure and operations of these facilities, as discussed below.

Moffett Federal Airfield: Since the adoption of the Moffett Field Comprehensive Use Plan, there have been ongoing discussions regarding potential uses of Moffett Federal Airfield. The City of Sunnyvale supports continued federal ownership and operation of this facility.

The City will closely monitor any changes to the status of Moffett Federal Airfield. The City will also continue to exert its influence to achieve the best outcome for the community.