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WORKING PAPER 84-75

EMPLOYMENT GROWTH AND OFFICE
SPACE ALONG THE 680 CORRIDOR:
BOOMING SUPPLY AND POTENTIAL
DEMAND IN A SUBURBAN AREA

BY
CYNTHIA KROLL

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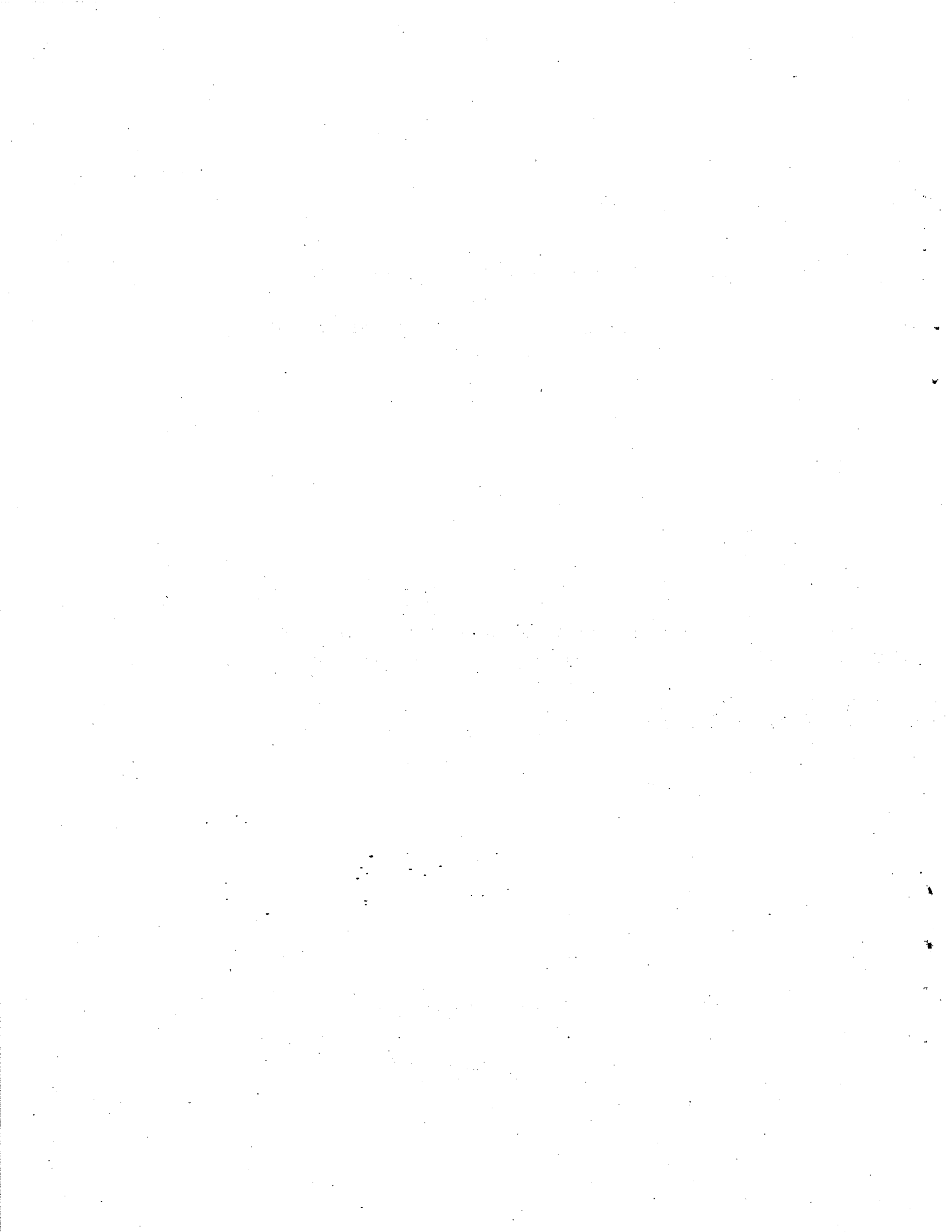
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ALONG THE 680 CORRIDOR:
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ABSTRACT

Since 1980, developers have added 4.5 million square feet of speculative office space to the highway 680 corridor in central Contra Costa and eastern Alameda Counties, almost doubling existing office stock and creating office nodes that could compete with downtown San Francisco and Oakland for major firms. This study examines the reasons behind this rapid growth, identifies the types of firms moving into suburban space, and describes the outlook for development in the future.

The size of the local population, labor force and housing availability, and transportation access have encouraged the growth of office-using firms serving local, regional and national markets. Jobs in office-type activities almost tripled between 1970 and 1980. Close to 30,000 workers are employed in the major office-using economic activities in central Contra Costa and eastern Alameda counties. Speculative office space has been added to the 680 corridor at an even faster pace than the growth of office-type jobs. Since 1980, more than 1000 square feet has been added for each new job. With a normal square foot to employee ratio below 250 square feet, this has led to a vacancy rate of 18% for the entire corridor, and over 30% in some locations.

A survey of 680 corridor firms in leased office space finds that 70% are of traditional office-type activities (e.g., insurance, business services). The remainder are primarily specialized functions of manufacturing or trade companies. Most office space absorption has resulted from expansion of local firms, rather than from the movement of firms from San Francisco and Oakland to the suburbs. Almost 80% of office space tenants were either new firms serving the growing Alameda/Contra Costa market or businesses that had moved from other rental space along the 680 corridor. About 13% of all firms (22% of firms with over ten employees) had moved from San Francisco or Oakland.

If all new projects currently under discussion are built, total square footage could grow by 2 million square feet of space per year for the next seventeen years, reaching about 40 million square feet of space in 2000. However, projections of office space demand show vacancy rates may become very high long before this level of expansion is reached. By 1990, employment growth may generate a demand for 14 to 17 million square feet of space. If all proposed projects are built, the area could have more than 21.5 million square feet of space by then, with vacancy rates of at least 25%. Thus, while demand for office space along the 680 corridor continues to look strong, developers face higher risks in the 1980s and 1990s than they did in the 1970s, because many more builders have become active in the area. Investors will need to closely examine the location of development and the types of tenants likely to select specific locations and to design space and amenities to meet the needs of those groups.

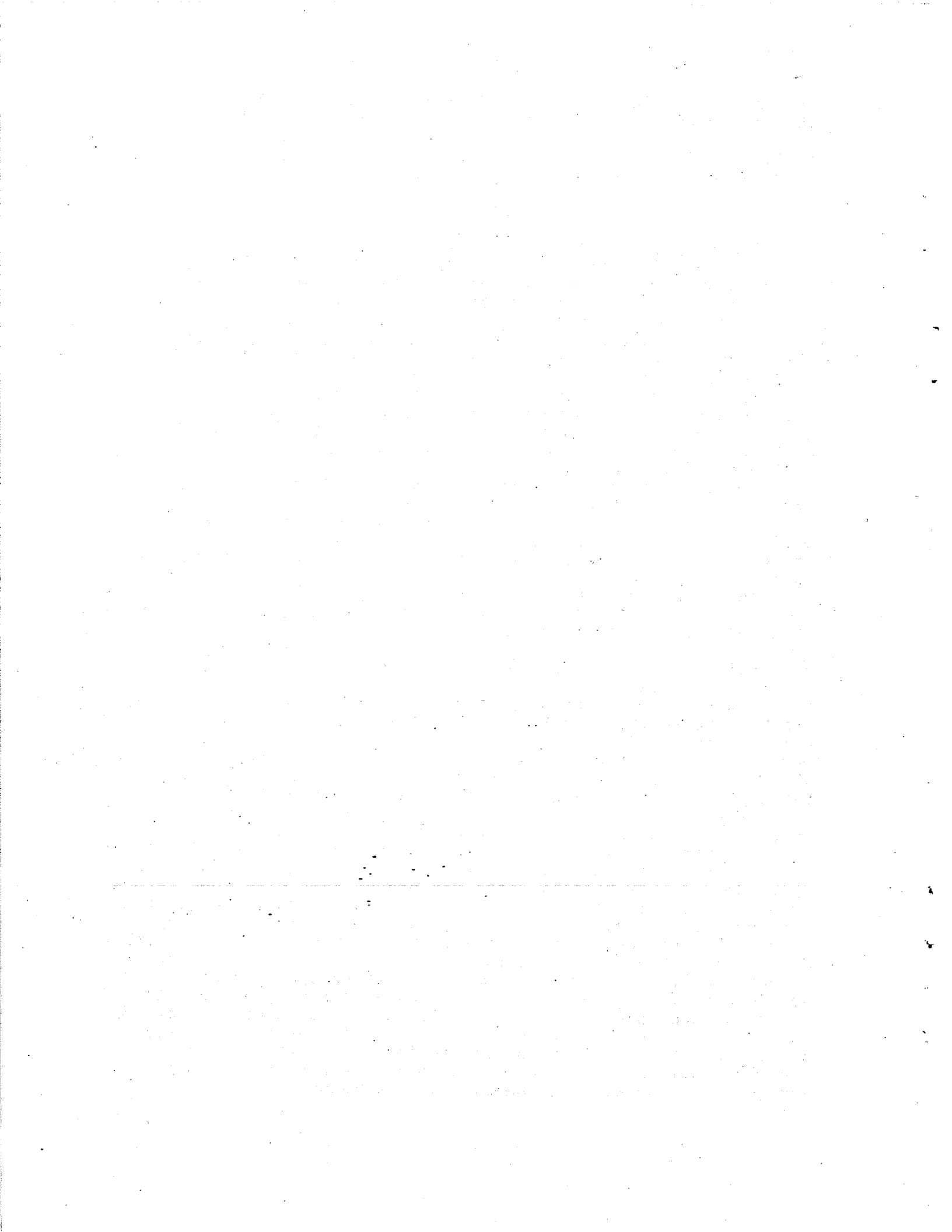


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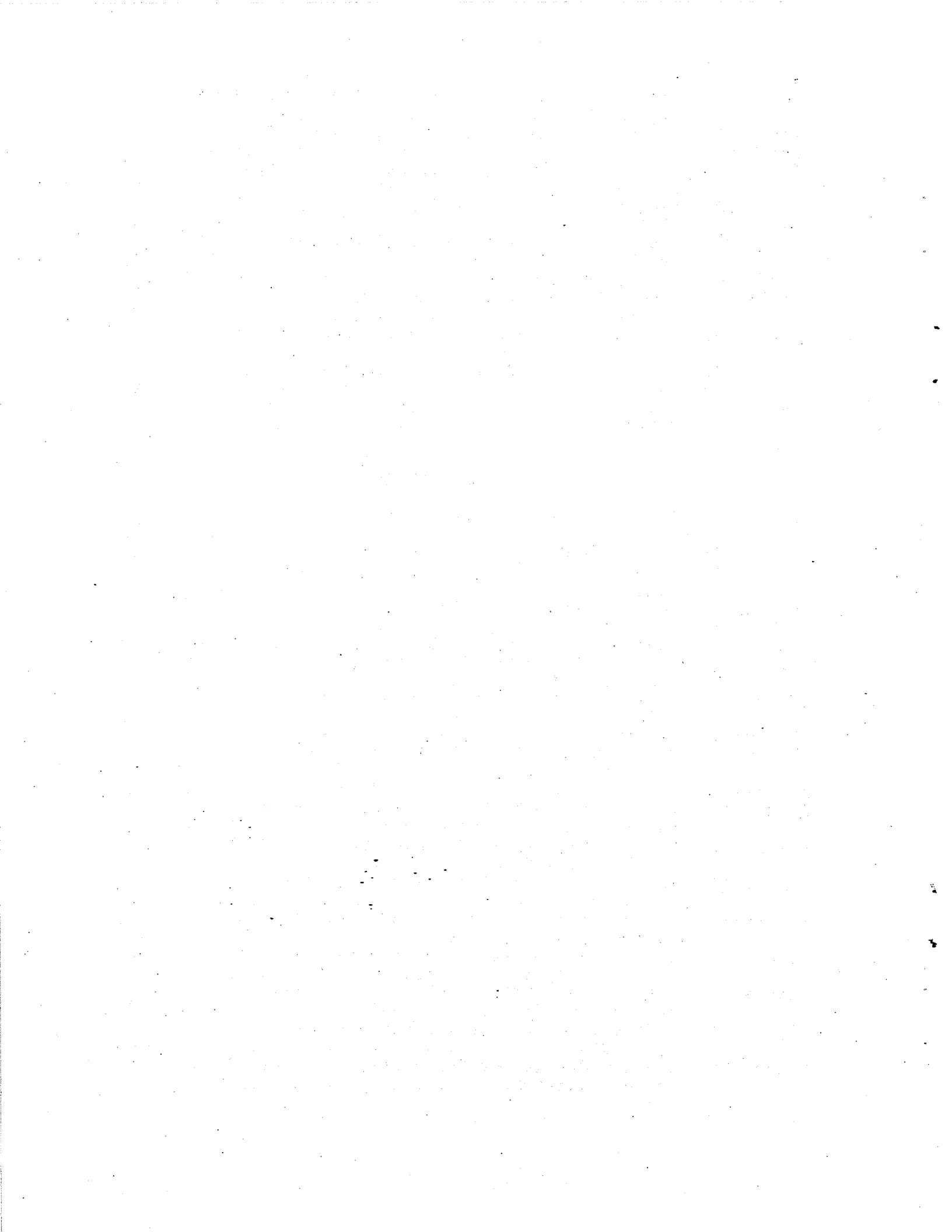
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EMPLOYMENT GROWTH AND OFFICE SPACE ALONG THE 680 CORRIDOR: BOOMING SUPPLY AND POTENTIAL DEMAND IN A SUBURBAN AREA

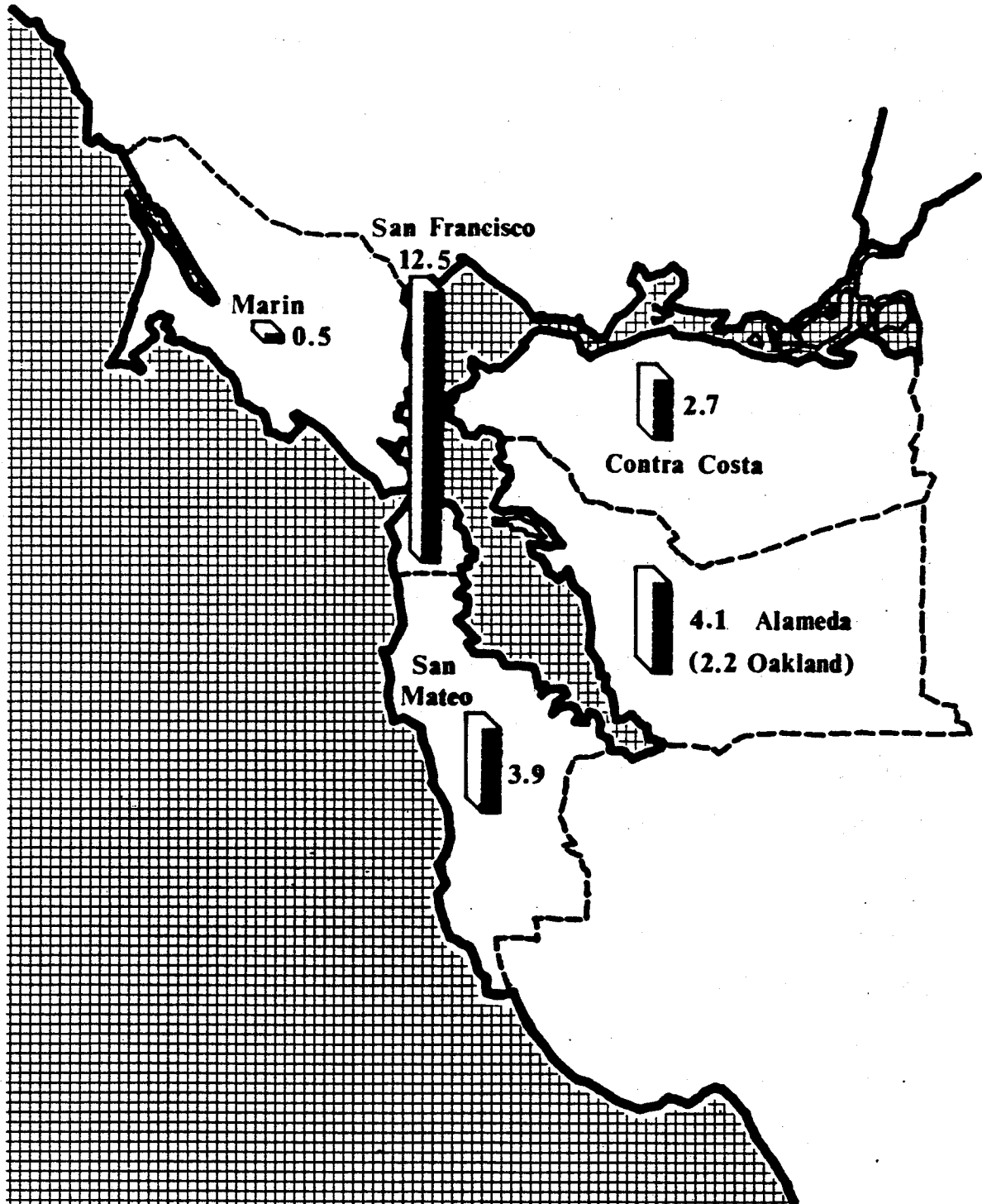
Introduction

In many parts of the United States, suburbs which boomed in population during the 1950s and 1960s have undergone a different type of growth in the 1970s or 1980s. This second growth phase has resulted from rapid expansion of employment in both manufacturing and non-manufacturing activities. Some of this job growth follows from the growing number of residents in the suburban community. As the population grows the market becomes large enough for many local serving businesses to operate, drawing customers mainly from within the suburban community. Additional employment growth results when the potential labor force becomes large enough to attract expanding employers to the area. Many businesses that once had all of their space in urban centers find that land is cheaper and workers more available outside of central cities.

This shift in the direction of growth has a major effect on the patterns of land investment. Suburbs where real estate speculation occurred around residential growth are now the sites of major investments in commercial and industrial spaces. This expansion of nonresidential land development in suburban areas has been fed in part by a nationwide boom in the market for office space. In the San Francisco Standard Metropolitan Statistical Area (SMSA), two-fifths of the approximately 25 million rentable square feet of office space added between 1970 and 1979 was built in suburban counties (Contra Costa, Marin, San Mateo, and Alameda County outside of Oakland; see Figure 1).

Fig. 1 Office Space Additions to the San Francisco SMSA, 1970-79

(■ = 1 million square feet)



Source: Bay Area Office Growth, Association of Bay Area Governments. Berkeley, April 1980.

Much of the office development has been speculative, although during the 1970s, the demand for space grew so rapidly in some areas that many buildings were partially or fully leased before being ready for occupancy. In the San Francisco Bay Area, this was a very profitable time for developers. Almost any office investment, of any location or quality, seemed profitable. The rapid pace of investment in office space has continued in the 1980s, although the growth in demand for office space appears to have slowed. To continue building profitable space, office developers must carefully examine how these trends may change in the future. In particular how fast will office-type employment grow regionwide in the future, and how will new growth be spread throughout the region, among urban centers and urbanizing suburban locations?

This paper examines how office type employment expands in suburban areas and looks at the relationship of this expansion to investment in and occupancy of office space. The study uses a rapidly changing suburb of San Francisco as an example in addressing several different questions. First, how have development patterns in this suburban area changed in the past decade as compared to earlier years? Second, what appear to be the factors attracting office-type employers to the area? Third, how has the construction of office space kept up with the demand for space over time? Fourth, who is occupying speculative office space in suburban areas? Fifth, how can future demand for office space in a suburban area be estimated? Finally, how will an excess supply of space in specific suburbs affect demand and the rate of

firm movement from city to suburb; in other words, can supply create its own demand?

I. Push and Pull Factors and Stages of Suburban Employment Growth

Employment growth ultimately results from growing demand--larger populations and incomes within the region and greater demand outside the region for its exports. However, suburban employment growth can result not only from a net increase in demand but also from the redistribution of activities within the metropolitan area. Therefore, analysis of suburban employment growth must take into account a complex set of factors, including regionwide population and employment growth, jobs resulting from local population growth, and factors that may push firms from more central locations or pull firms into particular suburbs.

A. Stages of Suburban Employment Growth

Some suburbs remain primarily residential, with little employment growth. However, suburbs that eventually become employment centers tend to go through several distinct stages. These can be characterized as initial residential growth, expansion of retail and local serving employment, relocation of major employers, and employment center spinoff.

In the initial period of residential growth, the population is not large enough to support more than a minimal level of retail services. Residents shop, work and do business in older (larger) suburbs and in the urban center. Eventually the population or local income may reach a size to support a much wider range of retail activities such as those found in shopping

malls and a variety of other local services (e.g., legal services, health care, automobile repair). Where the suburban population is broadly distributed geographically, specialized nodes may emerge for different types of retail or service activities.

Further spread or greater intensity of population development can then lead to a third stage of growth, where the population base of the suburb becomes an attractant to larger employers serving customers beyond the immediate residential area. Manufacturing firms, financial firms and large service firms have made such moves to the suburbs, seeking a combination of cheap and abundant land, an adequate population base from which to draw a labor force, and convenient transportation access to central cities.

As growth in the suburban area intensifies, a fourth stage of development may be reached. At this stage, the suburban area begins to act as an urban center in its own right, spinning off related population and economic activities to peripheral residential areas.

B. Push and Pull Factors in Employment Growth

Whether and how quickly suburban employment growth passes to the third and fourth development stages depends on characteristics of the region and its urban centers and of the suburban areas where residents have been locating. "Push" factors that cause firms to leave central cities can include the cost of space, congestion and commute times, and scarcity of land or rental space for expansions. Factors that pull firms to one suburban area over others include the quality of the labor force,

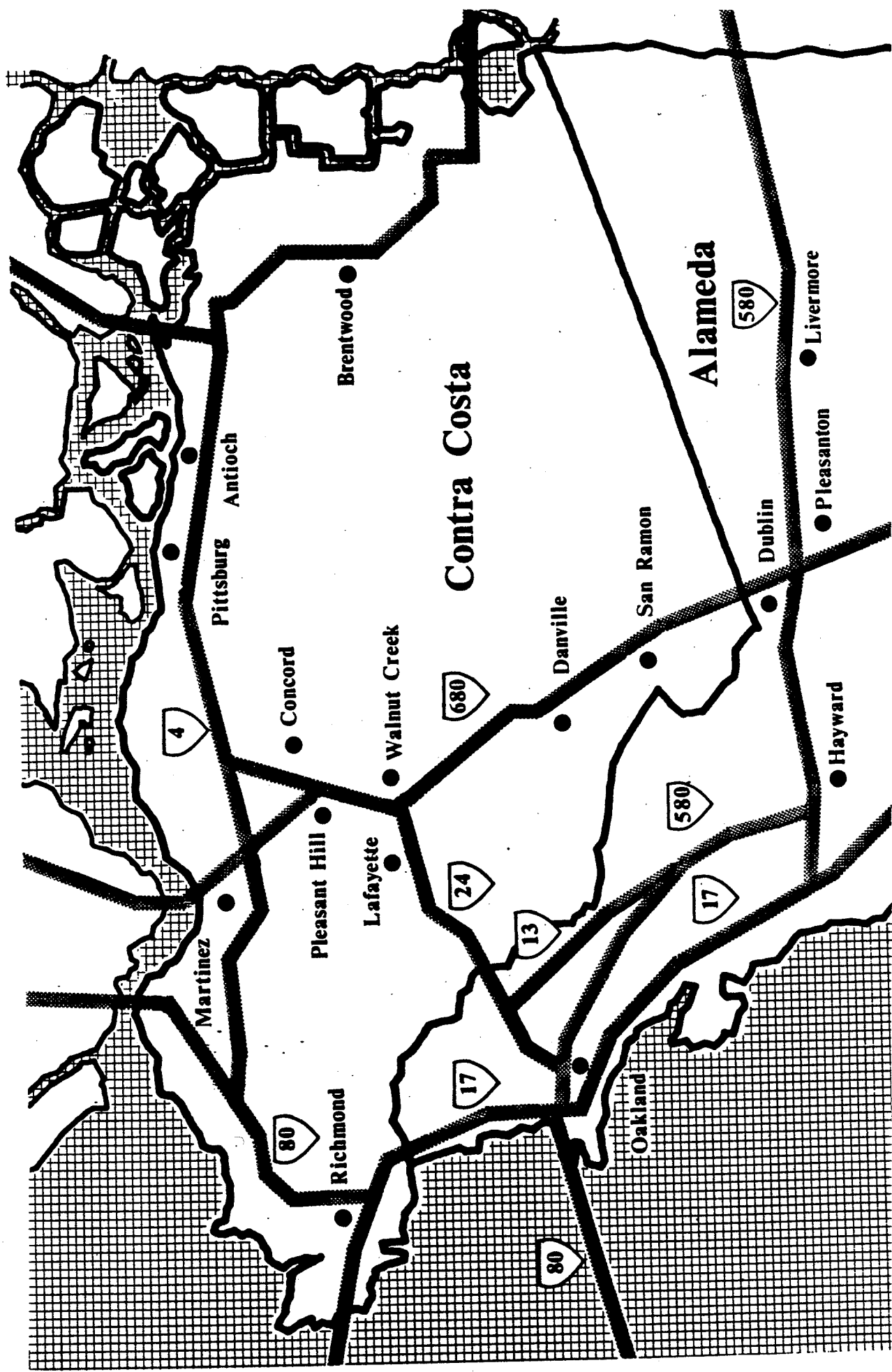
housing prices and availability, transportation routes, land cost and availability, and rental rates for commercial space. The analysis that follows covers both past trends and changing attraction factors affecting the rate and type of growth.

II. A Suburban Corridor in the San Francisco Bay Area

Towns along highway 680 in central Contra Costa and Alameda counties served as suburban residential locations for many years and now are important sites for the growing suburban employment base in the San Francisco metropolitan area (see Figure 2). Throughout the 1970s, almost all employment growth occurred in the Contra Costa portion of the 680 Corridor, primarily in Walnut Creek and Concord. However, since 1980 some major investments have been made in the southernmost part of Contra Costa (Danville and San Ramon) and across the border, along highways 580 and 680 in Alameda County (the Dublin and Pleasanton area).

The historical analysis in this study will focus primarily on the Contra Costa portion of the 680 corridor. A major reason for this emphasis is the dominance of this portion of the corridor in recent growth patterns. In addition, the major portion of growth throughout Contra Costa County in the past decade has been absorbed along highway 680 and in closely related communities. This allows county data to serve as a proxy for measures of central county trends, where data is unavailable at a subcounty level. In contrast, the highway 680 portion of Alameda County has accounted for only a tiny fraction of the county's employment growth in the past decade. Estimates of future growth patterns in this subsection of Alameda County must draw from the

Fig. 2 Alameda and Contra Costa Counties



Contra Costa experience and from assessment of regional growth patterns, rather than from Alameda County growth trends alone.

III. A Growth History of the 680 Corridor

Transportation improvements in the 1960s and 1970s, including the development of two major freeways and the BART (Bay Area Rapid Transit) system, have had a tremendous effect on the central and eastern portions of Contra Costa and Alameda counties. This enabled first population and then employers to locate outside of the central city while still retaining the economic ties of job and business opportunities associated with the more urban parts of the region. This is particularly apparent in Contra Costa County, which has undergone a major shift in patterns of land development and employment from earlier decades, away from coastal towns to the central highway 680 corridor. Alameda County continues to have much of its population and employment growth concentrated along the San Francisco Bay, from Berkeley and Albany in the north to Fremont in the south. While major employment and population developments are anticipated further east, along highways 680 and 580, the absolute levels of growth have been fairly small in the past two decades.

A. Patterns of Growth in Contra Costa County

Growth in Contra Costa County took place around agricultural and heavy industrial development in the first half of the twentieth century. During this period, the county's major population centers were concentrated along the San Francisco Bay, with the cities of Antioch and Martinez forming much smaller

centers to the north and east. World War II brought a major spurt in growth to the county's bayside cities. With expansion of the naval shipyards and related industry, the city of Richmond reached its highest population level during the 1940s.

Only in the postwar era did the central part of the county, currently the major area of population concentration, surpass population growth in the western and northern parts of the county. Concord, for example, only exceeded Antioch in population after 1950, but then grew so rapidly that by 1970 it became the largest city in the county, with a population greater than that of Richmond (see Figure 3). The shift in location of population in the county, largely due to major transportation improvements, brought a broader range of skills and professions to central Contra Costa. Many of the communities along highway 24 (e.g. Walnut Creek, Lafayette) drew particularly high proportions of professional, administrative and clerical workers who commute to the region's major urban centers of San Francisco and Oakland.

What began as a residential shift in the postwar period was reflected in the growth and relocation of firms in the 1960s and 1970s. Throughout the 1970s, trade dominated the employment base of the county. Employment in manufacturing and government, major employers in the 1960s, grew very little in the 1970s. While these two major employment categories exceeded service employment in the early 1970s, by 1980 services became second only to trade as an aggregate employment category in Contra Costa. Finance, insurance, and real estate firms made up a much smaller proportion of total jobs but were among the fastest growing

FIGURE 3

COMPARATIVE POPULATION GROWTH

Three Contra Costa Cities, 1910-80

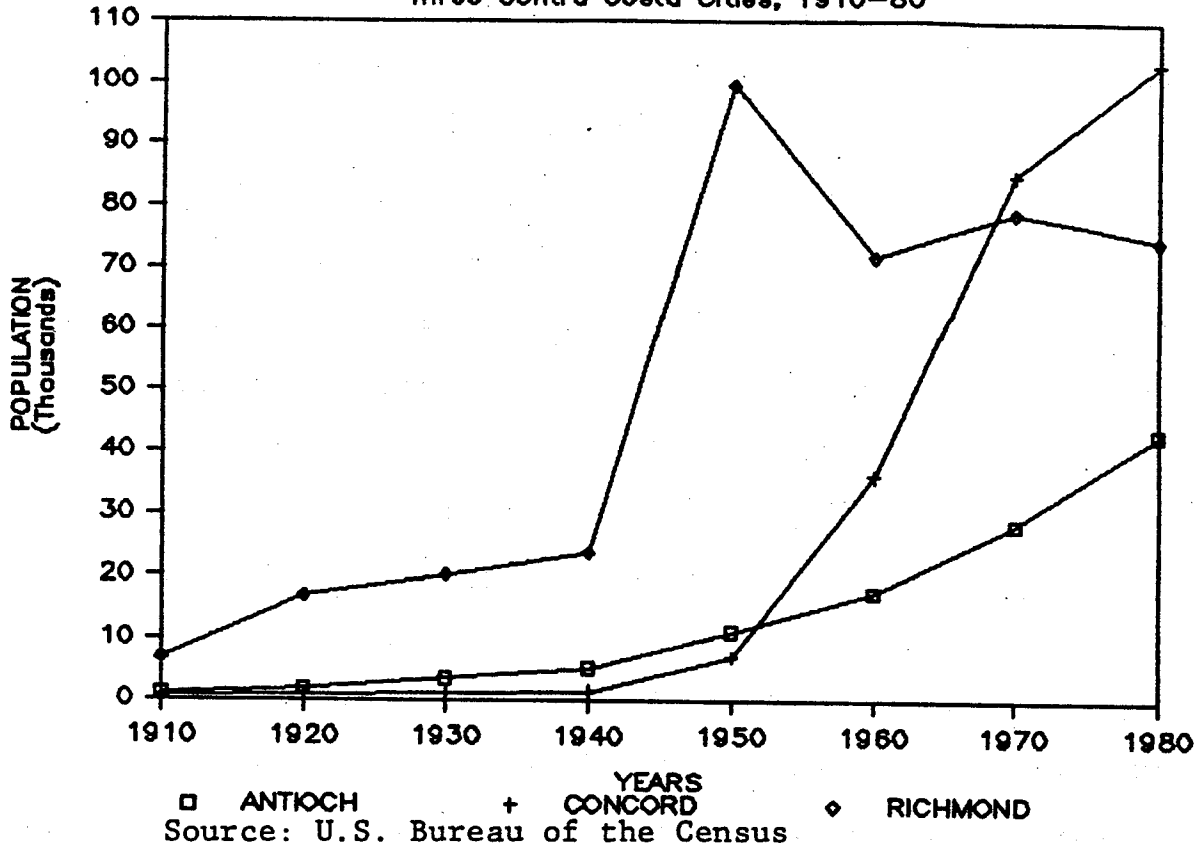
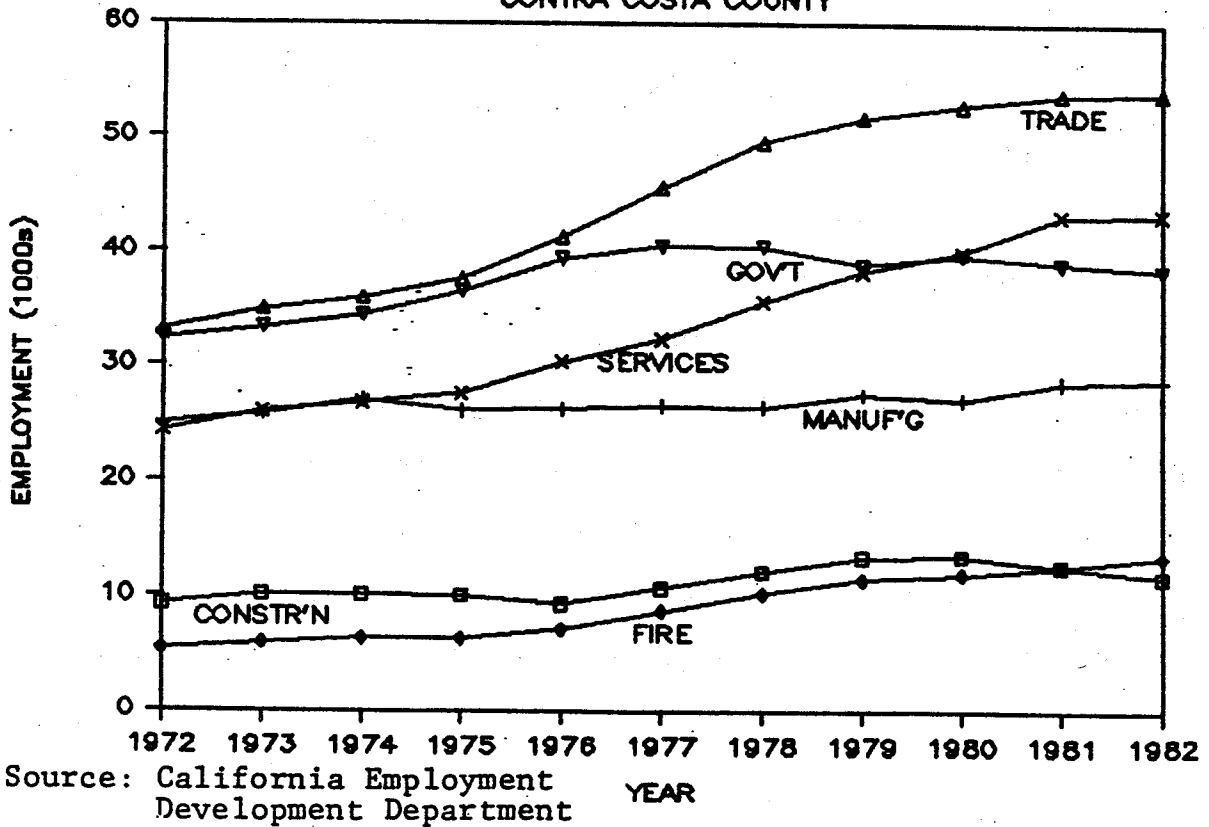


FIGURE 4

EMPLOYMENT BY MAJOR SECTOR

CONTRA COSTA COUNTY



employers during this decade (see Figure 4). Much of the new employment growth has occurred along highways 24 and 680, in the central part of the county. Although this region began as a suburban residential development, by 1980 the central portion of the county had the highest proportion of jobs relative to population of the western, central, and eastern portions of the county (see Figure 5).

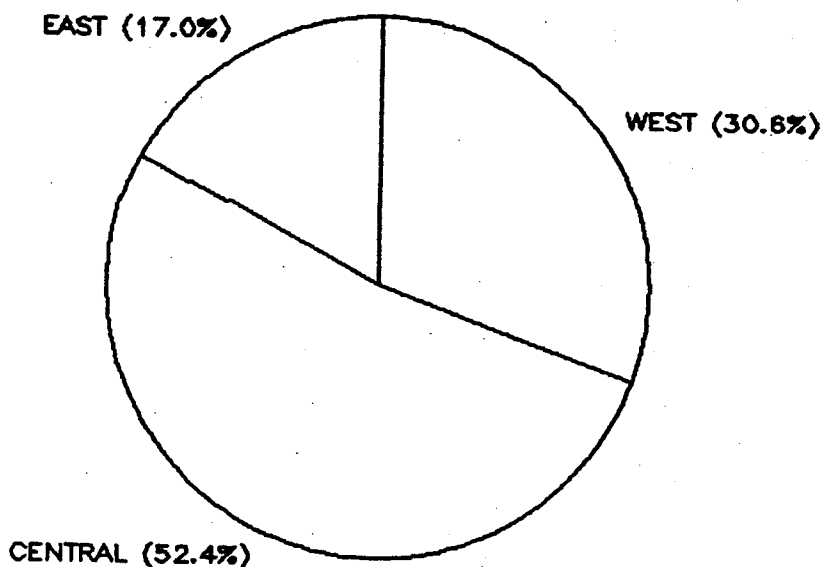
These employment changes in turn will change the patterns of new population and housing growth in the county. Both population growth and housing growth between 1970 and 1980 were concentrated almost entirely in the central portion of the county and in expanding communities in the north and east (see Figure 6 and Table 1). Much of the growth continues to occur outside of incorporated areas. In addition, northern and eastern communities in the county are playing an increasingly important residential role as employment concentration increases in the central portion of the county and higher housing costs force lower wage employees to look to outlying communities for affordable residences.

B. Alameda County Trends

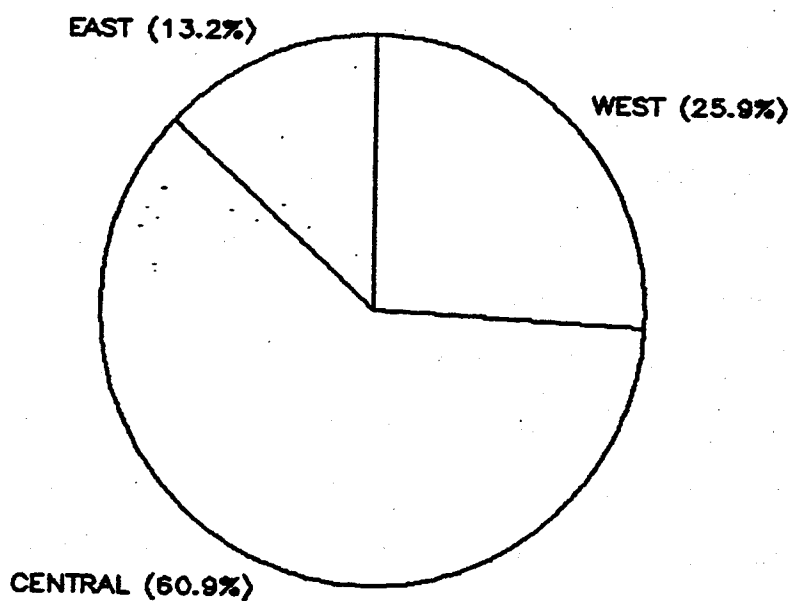
In contrast to Contra Costa County, growth in Alameda County continues to concentrate along the bay shore (see Table 2). While towns to the east are well-situated for future growth, the county is unlikely to see the total shift in dominance away from the bay shore that was experienced in Contra Costa, at least for the next two decades. Historically, both population and employment growth have concentrated in the heavily urbanized area

FIGURE 5: DISTRIBUTION OF POPULATION AND JOBS
BY CONTRA COSTA COUNTY SUBREGIONS

POPULATION BY SUBAREA
CONTRA COSTA COUNTY, 1980



LABOR FORCE BY SUBAREA
CONTRA COSTA COUNTY, 1980



Source: Center for Real Estate and Urban Economics
from Census and EDD Data

TABLE 1: POPULATION AND HOUSING IN CONTRA COSTA COUNTY, 1970 AND 1980

LOCATION	POPULATION			HOUSING		
	1970	1980	% CHANGE	1970	1980	% CHANGE
NORTH & EAST CO.	68638	102733	49.7	22148	38028	71.7
ANTIOCH	28060	42683	52.1	8855	15660	76.8
BRENTWOOD	2649	4434	67.4	889	1597	79.6
MARTINEZ	16506	22582	36.8	5470	8844	61.7
PITTSBURG	21423	33034	54.2	6934	11927	72.0
WEST COUNTY	139212	137373	-1.3	47806	54204	13.4
EL CERRITO	25190	22731	-9.8	9251	9856	6.5
HERCULES	252	5963	2266.3	88	1843	1994.3
PINOLE	13266	14253	7.4	3785	5067	33.9
RICHMOND	79043	74676	-5.5	26931	29082	8.0
SAN PABLO	21461	19750	-8.0	7751	8356	7.8
CENTRAL COUNTY	182814	222240	21.6	56990	88473	55.2
CLAYTON	1385	4325	212.3	354	1377	289.0
CONCORD	85164	103255	21.2	25479	39488	55.0
LAFAYETTE	20484	20879	1.9	6606	8077	22.3
MORAGA	11327	15014	32.6	3016	4986	65.3
PLEASANT HILL	24610	25124	2.1	6940	10140	46.1
WALNUT CREEK	39844	53643	34.6	14595	24405	67.2
UNINCORPORATED	165452	194034	17.3	50788	71120	40.0
COUNTY TOTAL	556116	656380	18.0	177732	251825	41.7

SUMMARY BY PERCENTS

NE COUNTY	12.3	15.7	12.5	15.1
WEST CO.	25.0	20.9	26.9	21.5
CENTRAL	32.9	33.9	32.1	35.1
UNINC	29.8	29.6	28.6	28.2

CENTRAL AND NORTHEAST COUNTY POPULATION, 1983

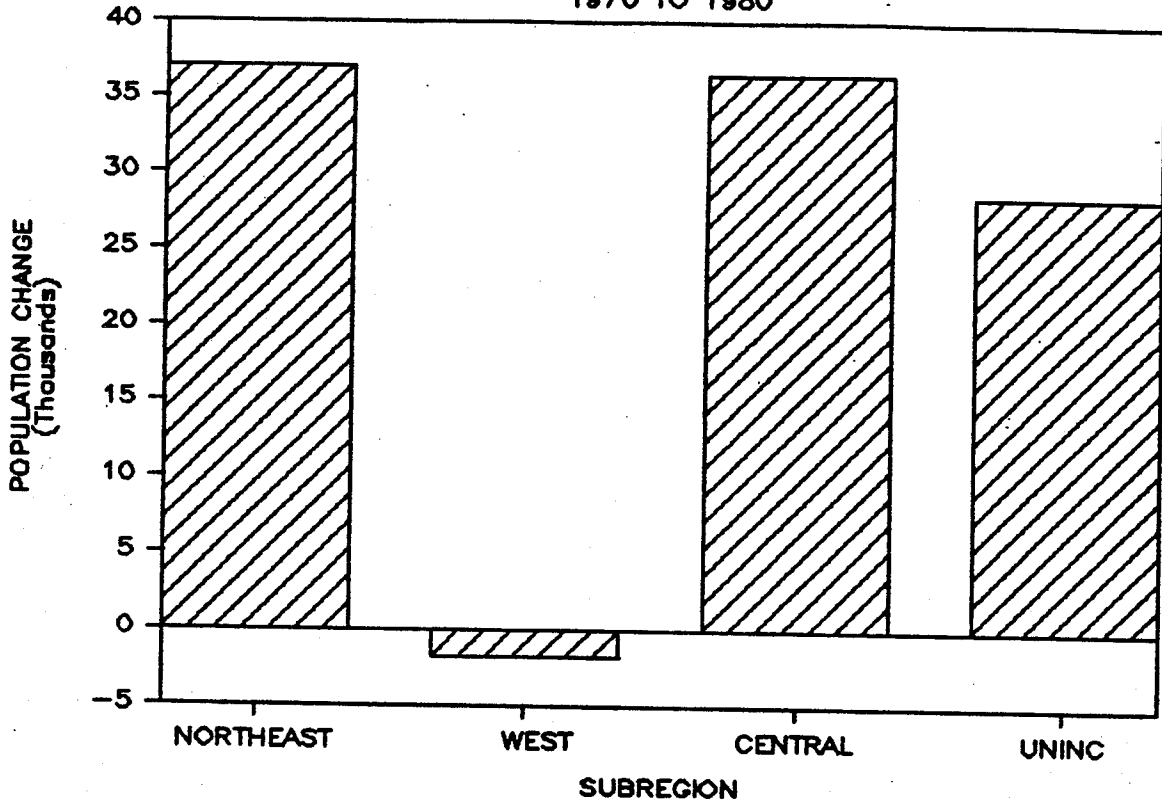
CENTRAL	NORTH AND EAST	TOTAL COUNTY
Clayton 4407	Antioch 45777	681580
Concord 103664	Brentwood 5062	
Lafayette 22496	Martinez 24403	
Moraga 14857	Pittsburg 14857	
Pl Hill 26514		
Walnut Cr 56215		

Source: U.S. Bureau of the Census, Census of Population and Census of Housing, 1970 and 1980, California Department of Finance, 1983

FIGURE 6: POPULATION AND HOUSING CHANGE,
CONTRA COSTA COUNTY, 1970-1980

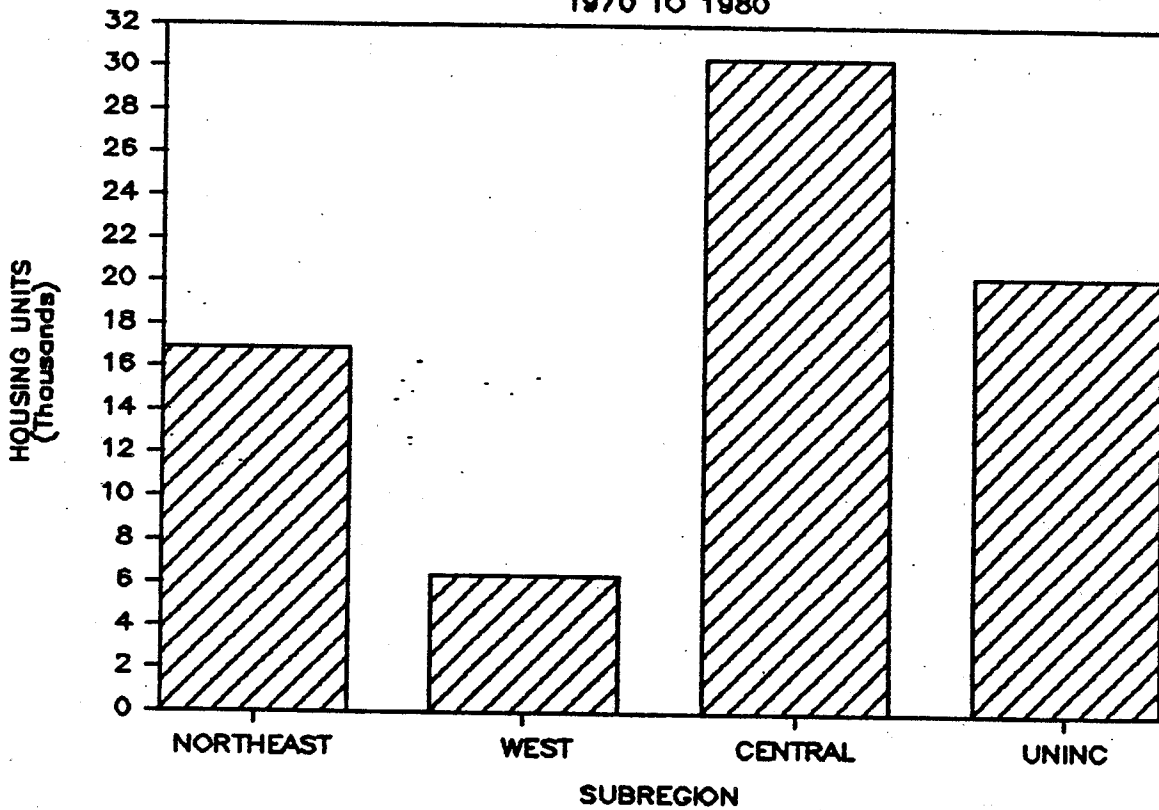
CONTRA COSTA POPULATION CHANGE

1970 TO 1980



CONTRA COSTA HOUSING CHANGE

1970 TO 1980



Source: U.S. Bureau of the Census

TABLE 2: POPULATION AND HOUSING IN ALAMEDA COUNTY, 1970 AND 1980

LOCATION	POPULATION			HOUSING		
	1970	1980	% CHANGE	1970	1980	% CHANGE
NORTHWEST COUNTY						
ALAMEDA	70968	63852	-10.03	24689	27802	12.61
ALBANY	14674	15130	3.11	5924	7035	18.75
BERKELEY	116716	103328	-11.47	47365	46334	-2.18
EMERYVILLE	2681	3714	38.53	1194	2416	102.35
HAYWARD	93058	94167	1.19	28680	35870	25.07
OAKLAND	361561	339337	-6.15	146615	150274	2.50
PIEDMONT	10917	10498	-3.84	3624	3837	5.88
SAN LEANDRO	68698	63952	-6.91	24418	28086	15.02
SAN LORENZO (U)	24633	20545	-16.60	7104	7341	3.34
NW TOTAL	763906	714523	-6.46	289613	308995	6.69
SOUTHWEST COUNTY						
CASTRO VALLEY (U)	44760	44011	-1.67	14607	17791	21.80
FREMONT	100869	131945	30.81	27305	45486	66.58
NEWARK	27153	32126	18.31	6801	9460	39.10
UNION CITY	14724	39406	167.63	3913	12333	215.18
SW TOTAL	187506	247488	31.99	52626	85070	61.65
EASTERN COUNTY						
DUBLIN (U)	13641	13496	-1.06	3505	4133	17.92
LIVERMORE	37703	48349	28.24	11431	16637	45.54
PLEASANTON	18328	35160	91.84	5528	11665	111.02
EASTERN TOTAL	69672	97005	39.23	20464	32435	58.50
REMAINDER	52100	46363	-11.01	17020	18107	6.39
COUNTY TOTAL	1073184	1105379	3.00	379723	444607	17.09

EASTERN ALAMEDA COUNTY POPULATION, 1983

Dublin	not available
Livermore	50497
Pleasanton	36702
County	1145117

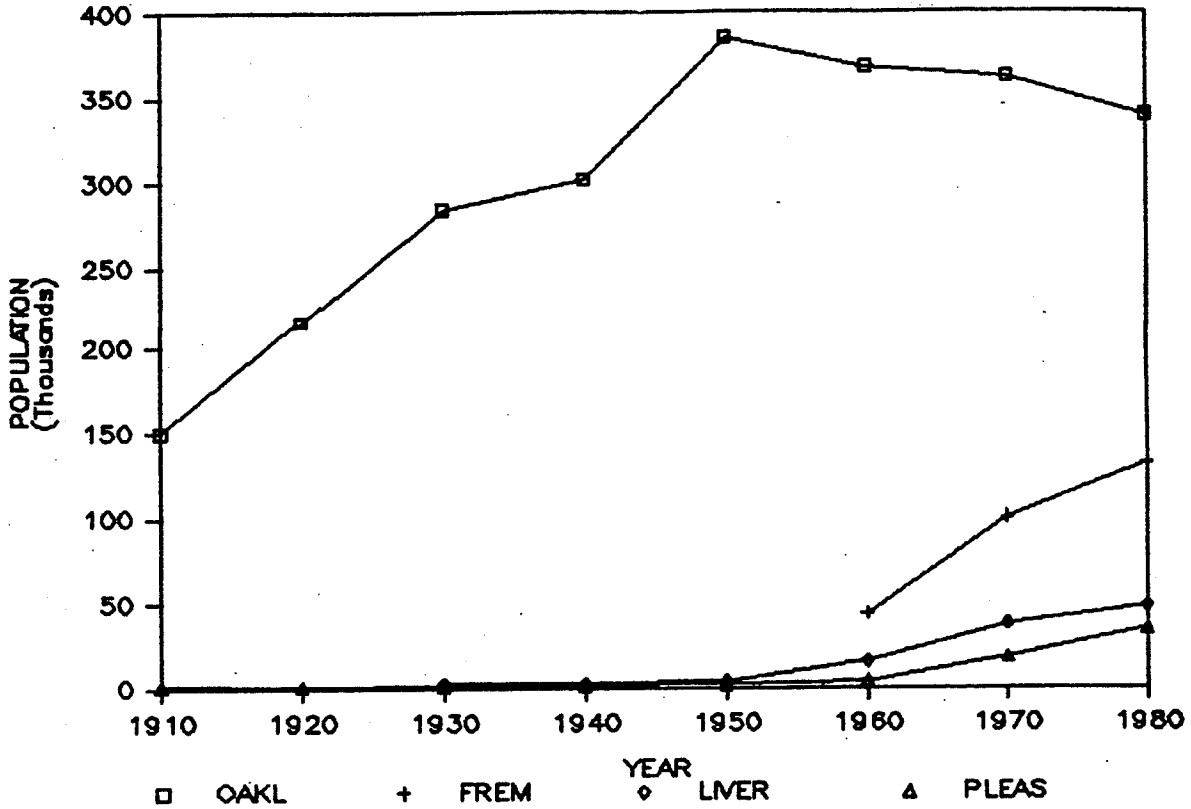
Source: U.S. Bureau of the Census, Census of Population and Census of Housing, 1970 and 1980, California Department of Finance, 1983

between Hayward and Albany, including both Oakland and Berkeley. Like the Richmond area, some of these towns experienced their most intense growth period during the Second World War. Oakland, for example, reached its peak census year population in 1950. However, although Oakland has lost population steadily since 1950, it is still the largest city in Alameda County, with 30% of the county's population. While postwar growth in Contra Costa County went east, in Alameda County it went primarily south, along the bay, to new developments in Union City and Fremont. While the county's eastern towns have grown more rapidly than any other part of the county in the past decade, the overall population level in these towns remains far below the rest of the county (see Figure 7).

Employment growth in Alameda County has taken a different pattern from growth in Contra Costa County. Overall, Alameda County employment has grown more slowly than in Contra Costa over the past decade. The major private office and sales sectors have been less dominant factors in total county employment, although services, trade and finance have been the fastest growing employment sectors in the county. While manufacturing jobs have been cyclical, with no overall growth or decline, they have remained a major part of the employment base in Alameda County, surpassing service employment until 1979. In addition, until 1981, government was the largest major employment sector in the county (see Figure 8).

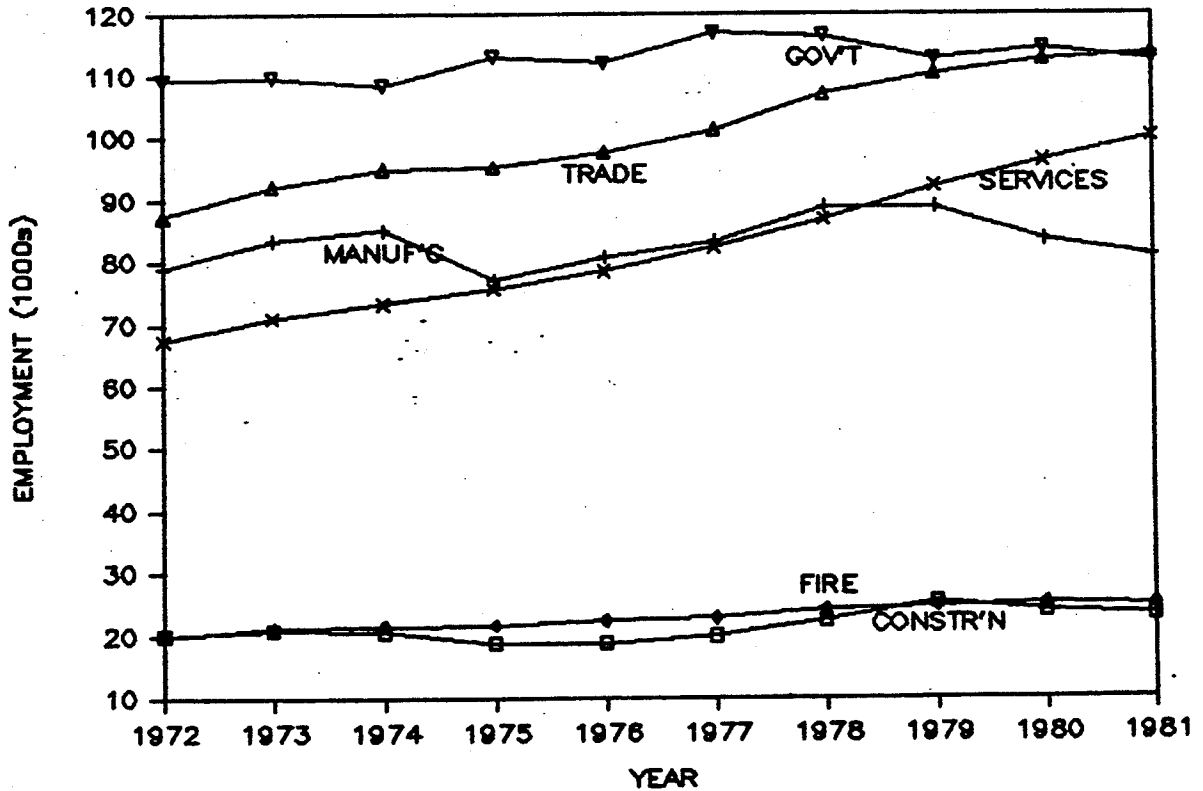
The spread of population away from Alameda County's northwestern cities has not led to as massive a spread of jobs to the east as has in Contra Costa County. About two thirds of the

FIGURE 7
ALAMEDA COUNTY POPULATION GROWTH
FOUR SELECTED CITIES



Source: U.S. Bureau of the Census

FIGURE 8
EMPLOYMENT BY MAJOR SECTOR
ALAMEDA COUNTY



Source: California Employment Development Department

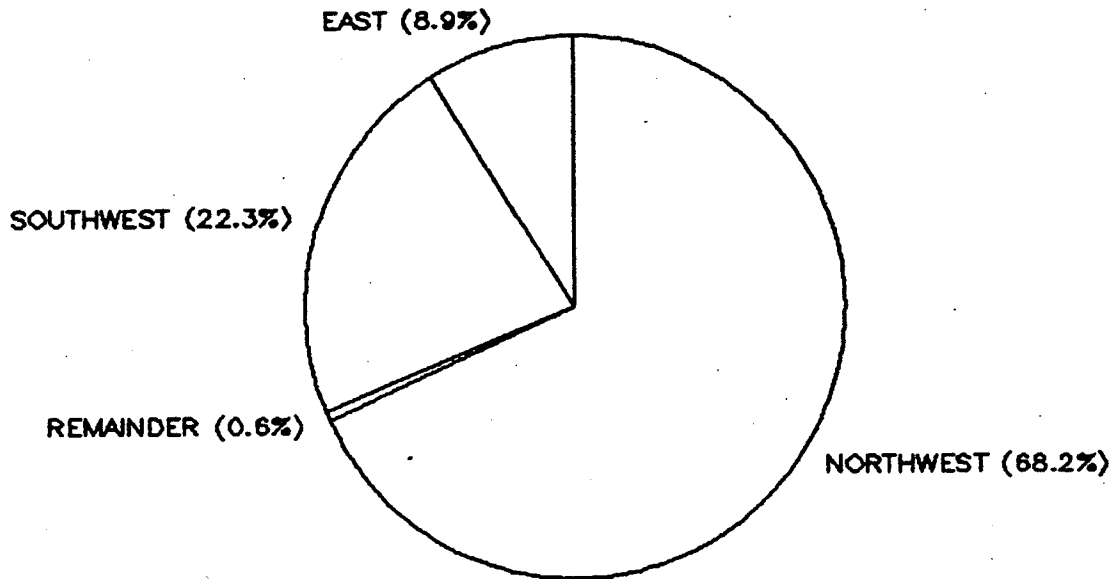
county's population and over eighty percent of jobs remain along the bayshore from Hayward north (see Figure 9). The eastern county has a higher than proportional number of jobs in agriculture, jobs in local serving activities such as retail and services in similar proportions to population, and far less than its proportionate share in regional or export activities, such as manufacturing or wholesale (see Table 3). A greater shift is likely to occur in the next decade, as the labor force available in the southwest portion of the county and the land available along highway 680 attract employers from San Francisco, Oakland, and Santa Clara County. However, the Albany through Hayward corridor will almost certainly remain the county's major area of employment concentration, at least through the 1980s.

IV. Pull Factors Along Highway 680

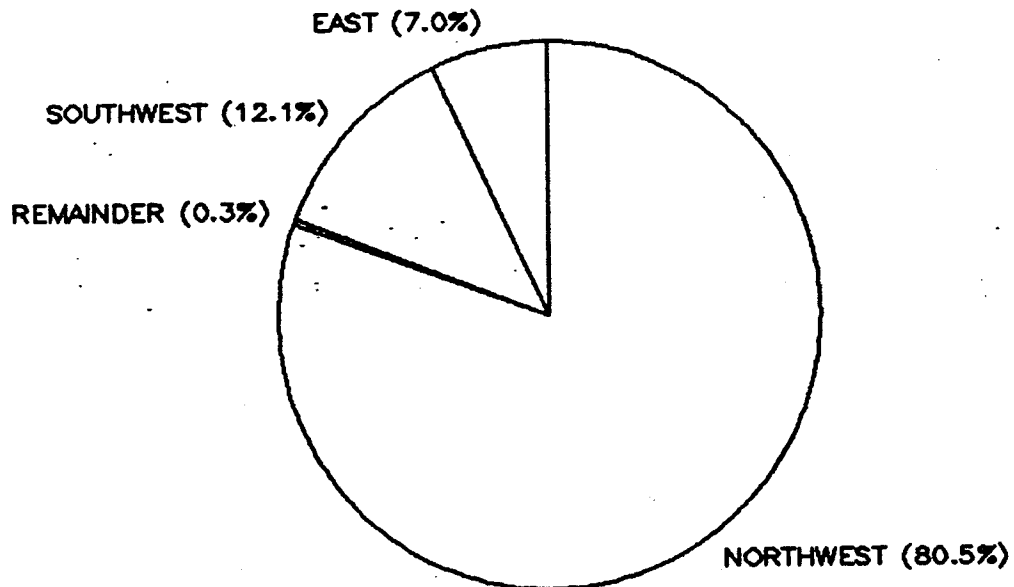
While much of employment growth along highway 680 is in firms serving the local population, the area has also begun to attract larger regionally or nationally based firms. Several important factors draw population and employers to the area. Developers frequently cite "location, location, and location" as the three factors considered in choosing where to place a new development. In Contra Costa County, the primary location factors include transportation and commuting considerations, housing prices or qualities, and labor force characteristics. Eastern Alameda County cities also reflect some of these advantages.

FIGURE 9: DISTRIBUTION OF POPULATION AND JOBS BY ALAMEDA COUNTY SUBREGIONS

POPULATION BY SUBAREA
ALAMEDA COUNTY, 1980



LABOR FORCE BY SUBAREA
ALAMEDA COUNTY, 1980



Source: Center for Real Estate and Urban Economics, from Census and EDD Data

TABLE 3: EMPLOYMENT AND POPULATION IN ALAMEDA COUNTY AND ALONG THE 680 CORRIDOR, 1980

LOCATION	EMPLOYMENT				POPULATION		
	TOTAL EMPLOY'T	AGR & MINING	MANUF. & WHOLES	RETAIL SERVICES OTHER*			
ALAMEDA COUNTY	511106	4676	118010	82527	151737	154156	1105379
Dublin	8207	10	1188	3173	1652	2184	13496
Livermore	18517	389	2332	2306	10488	3002	48349
Pleasanton	9224	379	1658	2293	2181	2713	35106
TOTAL 680/580	35948	778	5178	7772	14321	7899	96951
680/580 as % of TOTAL	7.03	16.64	4.39	9.42	9.44	5.12	8.77

* Finance, insurance and real estate; transportation, communications and utilities; and government.

Source: Association of Bay Area Governments, Projections 83, and Bureau of the Census, Census of Population, 1980

A. Transportation and Commute Patterns

Construction and improvement of transportation routes allowed the rapid expansion of the central county in recent decades. Much of the new housing is in easy access of Highways 680 and 24, and BART stations along the Concord line add to the value of nearby commercial land for both retail and office use. Improved transportation routes led first to the extensive residential developments of the 1960s and early 1970s. However, as more people moved into central Contra Costa and commute times increased, employers began looking seriously at the prospects of moving companies or parts of companies to the workforce. The transportation routes that initially attracted residents to the county are now a major feature in the central county's growing employment. Employers along convenient transportation routes have an advantage in competing for the many people now commuting out of the county to work.

The pool of out-commuters is large in Contra Costa County relative to other Bay Area counties. In 1980, 40% of workers were commuting outside of the county to work, with 23% of all workers going to San Francisco or Oakland. In contrast, 85% of workers residing in San Francisco worked within the city, and over 90% of Santa Clara County's labor force worked within the county in 1980.

The pattern of commuting varies considerably among different towns within Contra Costa County. These variations have some implication for future growth patterns of the county. The greatest proportion of out-commuting occurs in the San Ramon area, where only one third of the labor force works in Contra

Costa County and close to half of all workers commute across the county line to Alameda County. In Walnut Creek, about 46% of the labor force commutes out of the county, with over two thirds of the commuting workers (32% of all workers) employed in San Francisco or Oakland. Rates of out-commuting drop for the more northern and eastern cities. Two thirds of employed Concord residents work within the county, and almost 90% of Antioch workers are employed in Contra Costa. Thus, while the central and southern parts of the county still have large blocks of workers who commute to out-of-county jobs, the northern and eastern towns, with many of the lower wage workers and lower priced housing, already have much of their workforce employed close to home (see Table 4).

Towns in eastern Alameda County have a much lower out-of-county commuting rate than Contra Costa towns (Table 4). Three quarters of Dublin and Pleasanton employed residents and almost 90% of Livermore residents work within Alameda County. However, many of these residents are still commuting long distances. For example, 13% of Dublin residents and 9% of Pleasanton residents work 20 miles away in Oakland.

Even with the availability of BART service, automobile commuting is the primary mode of transportation to work for 80 to 90% of 680 corridor residents (see Table 5). The direction of new transportation routes and services could heavily influence further growth in this area. Despite bringing jobs closer to home extensive growth could considerably lengthen commute times for many residents by increasing congestion. Expansion of rapid

TABLE 4: COMMUTE PATTERNS, SELECTED TOWNS IN CONTRA COSTA AND ALAMEDA COUNTIES
(Percent of Labor Force Commuting from Town of Origin to Destination)

TOWN OF ORIGIN	CONTRA COSTA		DESTINATION (COUNTY or city)				NEARBY COUNTIES*	OTHER
	CONTRA COSTA	ALAMEDA	SAN FRANCISCO	Oakland	SANTA CLARA	CONTRA COSTA		
CONTRA COSTA	59.3	22.4	12.9	10.1	0.8	3.2	1.2	
Antioch	86.8	48.7	8.6	3.1	3.3	4.8	1.5	
Concord	67.4	14.4	13.4	7.7	0.4	3.2	1.1	
Lafayette	48.6	27.4	19.6	14.3	0.6	2.6	1.2	
Richmond	51.4	32.0	11.7	14.0	0.4	3.9	0.6	
San Ramon	33.4	48.7	8.6	12.5	3.3	4.8	1.5	
Walnut Creek	53.6	20.9	21.4	10.7	0.7	2.4	1.0	
ALAMEDA	3.7	76.6	9.9	26.4	5.4	3.4	0.9	
Dublin	13.9	75.0	1.5	13.2	4.7	3.5	1.4	
Fremont	1.4	65.2	5.0	5.9	21.2	6.5	0.7	
Livermore	3.8	87.5	2.3	5.5	3.9	1.2	1.5	
Pleasanton	7.7	76.3	5.0	9.3	6.9	3.1	1.0	

Source: U.S. Bureau of the Census, 1980, and calculations by CREUE

TABLE 5: MODE OF TRANSPORT TO WORK, 1980
CONTRA COSTA AND ALAMEDA COUNTY COMMUTERS

LOCATION	TRAVEL MODE		WALK	OTHER	WORK AT HOME	
	AUTO	BUS				
CONTRA COSTA	84.6	3.2	5.4	2.3	2.5	1.9
Antioch	93.7	0.9	1.1	1.8	2.7	1.3
Concord	83.7	0.9	8.2	2.6	3.4	1.3
Lafayette	80.0	2.0	9.9	2.4	2.5	3.3
Richmond	79.6	10.6	2.8	3.2	2.4	1.3
San Ramon	91.1	2.3	2.3	0.8	1.3	2.1
Walnut Creek	79.3	2.0	11.2	1.9	3.2	2.5
ALAMEDA	77.6	9.8	2.7	4.8	3.4	1.7
Dublin	91.2	1.5	1.2	0.9	4.0	1.1
Fremont	88.7	1.6	3.5	1.5	3.3	1.4
Livermore	87.9	2.2	0.3	1.8	6.6	1.3
Pleasanton	91.5	2.5	1.1	1.8	2.0	1.2
SAN FRANCISCO	33.8	35.8	2.4	10.9	2.0	2.2

Source: Computed from data in U.S. Bureau of the Census, Census of Population, 1980

transit service to the Dublin/Pleasanton area could partially counteract this effect, increasing eastern Alameda County's capacity for absorbing employment growth.

B. Housing

In addition to transportation routes, housing availability and relative housing prices have also made Contra Costa an attractive site for employers, especially as the cost of housing in California becomes an increasingly important concern to expanding firms. For firms seeking new locations in the Bay Area, Contra Costa County appears promising compared to other locations, in terms of housing costs. Median housing prices in Contra Costa have been consistently about 5% below the median level for the SMSA. The gap in housing costs between Contra Costa and some nearby counties widened from 1970 to 1980. For example, housing in Santa Clara County was close to the median level for the San Francisco SMSA in 1970, but now is 8% higher than the SFSMSA level, while the median cost of a house in San Mateo County has risen to over 20% above the SMSA level (see Table 6). Housing costs in some central Contra Costa communities, such as Danville, Walnut Creek and Lafayette far exceed even the prices in San Mateo County, but many other rapidly growing communities in the central and eastern part of the county (e.g., Concord, Antioch) remain well below the SMSA median (see Table 7). New houses in Solano County, the neighboring county to the north, are also well below the average price of new home in the San Francisco Bay Area.

Housing is less abundant along highway 680 in Alameda County

TABLE 6: HOUSING VALUES IN CONTRA COSTA AND ALAMEDA
SELECTED CITIES, 1970 AND 1980
(OWNER OCCUPIED ONLY)

PLACE	MEDIAN VALUE		MED. VAL. AS % OF		MEDIAN SIZE 1980 (# rooms)	MEDIAN VALUE 1983 (est.)*
	1970	1980	SF 1970	SMSA 1980		
ANTIOCH	20100	73300	74.7	74.0	6.0	87700
CONCORD	26300	90900	97.8	91.8	6.0	108800
LAFAYETTE	40300	161600	149.8	163.2	6.8	205600
RICHMOND	20000	61700	74.3	62.3	5.3	74400
SAN RAMON	NA	123400	NA	124.6	7.0	157000
WALNUT CREEK	37000	161900	137.5	163.5	6.0	206000
CONTRA COSTA CO.	25700	94300	95.5	95.3	6.1	112000
DUBLIN	25400	88300	94.4	89.2	6.6	107400
FREMONT	24500	93000	91.1	93.9	6.2	113100
LIVERMORE	23400	86100	87.0	87.0	6.2	104800
PLEASANTON	31200	114000	116.0	115.2	7.1	138700
ALAMEDA COUNTY	23700	84900	88.1	85.8	5.8	101200
SANTA CLARA COUNTY	27300	107700	101.5	108.8	6.1	140200
SAN MATEO COUNTY	30400	121300	113.0	122.5	6.0	115700
SAN FRANCISCO SMSA	26900	99000	100.0	100.0	5.8	NA

* Center for Real Estate estimate based on Northern California Real Estate Research Council indices for housing price appreciation

NA: Data not available for San Ramon in 1970 because it was not a census designated place at that time; update not available for SMSA as a whole

SOURCE: U.S. Bureau of the Census, Census of Housing, 1970 and 1980, and Center for Real Estate.

TABLE 7: PERCENT OF NEW HOMES BY PRICE CATEGORY, 1981 AND 1982
CONTRA COSTA, SUBAREAS, AND OTHER BAY AREA COUNTIES

PLACE	TOTAL UNITS	<\$100000	\$100000- 150000	\$150000- 200000	\$200000- 250000	>\$250000
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Percent of New Homes, 1982

C COSTA*	2174	34.5	25.4	13.9	13.0	13.1
Area 1	330	25.5	56.4	18.2	0.0	0.0
Area 2	847	44.0	25.1	14.8	9.2	6.8
Area 3	520	0.0	0.8	16.3	39.2	43.7
Area 4	477	61.6	31.4	6.9	0.0	0.0
ALAMEDA	NA	NA	NA	NA	NA	NA
SOLANO	1229	43.5	56.5	0.0	0.0	0.0
SONOMA	376	36.4	59.0	4.5	0.0	0.0
S CLARA	1246	26.2	43.5	23.1	7.2	0.0

Percent of New Homes, 1981

C COSTA*	2792	32.8	21.3	28.6	6.8	10.5
Area 1	439	41.2	40.5	18.2	0.0	0.0
Area 2	1211	27.1	12.5	40.5	7.8	12.1
Area 3	438	0.0	2.3	42.7	21.9	33.1
Area 4	704	58.0	36.4	5.7	0.0	0.0
ALAMEDA#	2209	15.4	31.2	36.1	9.6	7.7
Area 1	809	12.5	46.2	28.7	12.4	0.2
Area 2	1277	18.7	22.5	37.2	8.5	13.2
Area 3	123	0.0	22.8	73.2	4.1	0.0
SOLANO	1395	47.2	47.5	5.2	0.0	0.0
SONOMA	1003	59.3	39.5	1.2	0.0	0.0
S CLARA	3122	15.2	42.6	28.9	7.4	5.9

* CONTRA COSTA: Area 1--Western Contra Costa; Area 2--Martinez to Walnut Creek and Orinda to Clayton; Area 3--Danville/San Ramon; Area 4--Eastern Contra Costa.

ALAMEDA: Area 1--from Hayward north; Area 2--Union City, Fremont, Newark; Area 3--Dublin, Livermore, Pleasanton.

SOURCE: Northern California Real Estate Report, Volumes 33 and 34
(Year end reports for 1981 and 1982)

than in the Contra Costa portion of the corridor. Less than 15% of the housing stock immediately along highway 680 is located in the towns of Dublin and Pleasanton. Housing prices in these towns show less of a range than housing from San Ramon to Antioch. Median prices are neither as high as in Walnut Creek and San Ramon nor as low as in Antioch.

For firms that continue to need a Bay Area location but wish to minimize the additional costs that high housing prices add to overall wage levels, Contra Costa is still an alternative location to San Francisco or Peninsula sites. Eastern Alameda County will also appear attractive, if further housing development continues at relatively low prices. However, for firms seeking relief from high Bay Area housing prices, even the less extreme levels in Contra Costa may be high enough to make the area less competitive compared to smaller metropolitan areas in California or out of state.

During the 1970s, housing growth in central Contra Costa and eastern Alameda counties maintained many of the advantages of these areas relative to other Bay Area counties. Since 1980, homes in central Contra Costa County have appreciated at about the same rate as homes in other suburban parts of the Bay Area, but faster than homes in San Francisco or Oakland.² However, surveys by the Real Estate Research Council of Northern California of more recent tract developments in Contra Costa, Alameda, and other suburban Counties indicates that the southern part of the 680 corridor may face a shortage of affordable housing, unless building patterns change. While more than half of the surveyed homes built in eastern Contra Costa (Antioch and

east) were priced below \$100,000 in both 1981 and 1982, none of the new homes built in Danville, San Ramon, or the Dublin and Pleasanton area were in this price range. Almost all new homes along the 680 corridor south of Walnut Creek were priced above \$150,000, with over 80% of the homes in the San Ramon area priced above \$200,000 (see Table 7). With more than half of new office construction planned for this portion of the corridor, this could create serious housing problems by the 1990s unless more moderately priced housing is constructed in the next half decade.

C. Labor Force

The new development in Contra Costa and eastern Alameda counties is an example of employment growth generated by population growth, one of the later stages of suburban development. This growth draws on the presence of both a skilled workforce and an "underemployed" pool of labor.

Developers and brokerage firms cite labor force availability and characteristics as a major factor drawing firms first to central Contra Costa County and now to Dublin and Pleasanton.³ This portion of the San Francisco SMSA is perceived as having a significant potential workforce of people (primarily women) who are not currently in the labor force. Employers moving to Contra Costa have found women who had left the labor force to raise families, but were interested in employment as long as jobs were available close to home.

Evidence on this "hidden" labor force was particularly striking in data from the 1970 census. At that time, only 40% of

women 16 and over in Contra Costa County were in the labor force. San Francisco had the highest female labor force participation rate in the SMSA, at 50.4%. Other counties in the region undergoing suburban employment growth, such as Alameda, San Mateo and Santa Clara, had female labor force participation rates higher than Contra Costa's, but lower than that found in San Francisco.

By 1980, both total and female labor force participation rates had increased throughout the San Francisco Bay Area. Rates in San Mateo and Santa Clara counties were close to 60%, higher than in the City of San Francisco. Contra Costa continued to have the lowest female labor force participation rate in the San Francisco SMSA, at 52.9%, but the gap between Contra Costa and San Francisco had narrowed by several percentage points (see Table 8). Walnut Creek continues to have a particularly low proportion of adult women in the labor force (45.6%), but Concord, another very important population center for county employers, had a female labor force participation rate of 58.2% in 1980, a rate approaching that of San Mateo and Santa Clara counties. Eastern Alameda County also had a relatively high proportion of women in the labor force in 1980 (see Table 9).

Apart from the ranges described above, many cities, whether in central, western, or eastern Contra Costa County, had female labor force participation rates close to the county average. However, cities in the western part of the county and in the eastern industrial towns of Pittsburg and Antioch had far higher unemployment rates than the central county cities. Although high

TABLE 8: LABOR FORCE PARTICIPATION RATES, 1970, 1980
CONTRA COSTA AND NEARBY COUNTIES

COUNTY	TOTAL 70	TOTAL 80	FEMALE70	FEMALE80
CCOSTA	59.7	65.2	40	52.9
ALAMEDA	59.8	64.7	43.5	56.1
S. FRAN.	61.2	63.9	50.4	56.5
S. MATEO	63.5	69.5	46.5	59.3
S. CLARA	61.6	70.7	43.5	59.7
SOLANO	59.8	62.6	38.4	50.5

Source: U.S. Bureau of the Census, Census of Population, 1970 and 1980

TABLE 9: LABOR FORCE CHARACTERISTICS IN CONTRA COSTA
AND ALAMEDA COUNTIES (SELECTED CITIES, 1980)

CITY	LABOR FORCE PARTICIPATION RATE (persons 16 yrs +)		EDUCATION LEVEL (persons 25 yrs +)	
	total	female	%hs grads	% 4+ yrs college
ANTIOCH	65.2	52.9	74.6	10.7
CONCORD	69.9	58.2	84.8	21.4
LAFAYETTE	65.8	51.4	92.9	48.6
RICHMOND	58.7	50.6	67.3	13.7
SAN RAMON	75.5	61.4	92.1	15.3
WALNUT CREEK	59.3	45.6	91.3	26.4
CONTRA COSTA CO	65.2	52.9	81.7	25.5
DUBLIN	72.1	57.6	83.2	14.2
LIVERMORE	71.1	57.1	84.2	22.6
PLEASANTON	72.8	59.4	87.8	24.8
ALAMEDA CO	64.7	54.7	76.0	22.3
SAN FRANCISCO	63.9	56.5	74.0	28.2
SANTA CLARA CO	70.7	59.7	79.5	26.4
SOLANO CO	64.6	51.5	76.8	13.7
SF SMSA	65.8	55.9	78.6	26.0

Source: U.S. Bureau of the Census, Census of Population, 1980

unemployment levels tend to increase labor force availability in these cities, employers continued to focus on the central part of the county for expansions. A major reason cited for this is the "quality" of labor. More than 80% of county residents over 25 years old were high school graduates in 1980. However, these proportions varied considerably by location. Over 90% of Walnut Creek and San Ramon residents in this age range and over 95% of Moraga and Orinda residents were high school graduates, while only three quarters of Antioch residents, two thirds of Richmond residents and less than 60% of San Pablo residents had completed high school. Over half of Walnut Creek adults have had at least one year of college, while only one third of Richmond residents had gone beyond a high school education. Residents of eastern Alameda County also tend to be more highly educated than SMSA residents or county residents on average. For example, one fourth of Pleasanton adults have completed four or more years of college (Table 9).

Other labor force characteristics also play a role in employer assessments of the quality of the central county workforce, but are much more difficult to measure and often are not mentioned because of their social or political sensitivity. The labor force in the central county is predominantly white and middle class, while the western and northern cities have much broader racial and ethnic mixes and a higher proportion of low income residents. In addition, the western and northern cities have historically had a much higher proportion of workers in blue collar job categories, many of which are unionized. Office-type employers moving to the central county look for a labor force

with more clerical and administrative skills, that can fit easily into the established work patterns of the office. Large employers may also be concerned with minimizing unionization of their labor force.

Commute patterns and housing costs also contribute to overall labor force availability. Employers locating in Contra Costa County consider the labor force that is currently commuting out of the area to be another labor pool that is easy to tap. A move to Contra Costa can make it easier for an employer to keep its own workers and to compete for those who are seeking jobs closer to home. Despite the increasing employment along the 680 corridor in the 1970s, the proportion of workers commuting outside the county did not drop significantly. Therefore, even though housing for new residents may become a problem, the area still has a significant pool of out-commuting workers who could be drawn to jobs closer to home.

D. Other Factors

A number of other factors are also very important in employment expansion along the 680 corridor. Among these are land availability and prices, utility capacity, and the availability and quality of other public services.

During the 1960s and 1970s, central Contra Costa County and eastern Alameda County had extremely competitive land prices, compared to San Francisco and Oakland. In addition, central Contra Costa and eastern Alameda counties were the only areas in the San Francisco SMSA with significant amounts of vacant land available for commercial or industrial use (see Table 10).

TABLE 10: LAND AVAILABILITY IN CONTRA COSTA, ALAMEDA AND OTHER BAY AREA COUNTIES
(1980, 1000s of acres)

PLACE	TOTAL ACRES (1000s)	% LAND DEVELOPED (%)	LAND AVAILABILITY			
			% LAND AVAILABLE (%)	TOTAL HOUSING ACRES (1000s)	COMMERC. & INDUS. (1000 ac)	
CONTRA COSTA	480.0	16.1	10.4	49.7	41.3	8.4
ALAMEDA	488.7	19.6	6.0	29.2	18.0	11.3
MARIN	344.3	8.9	7.1	24.3	22.4	2.0
SAN FRANCISCO	30.3	80.3	2.8	0.8	0.4	0.4
SAN MATEO	297.6	21.1	6.7	19.9	16.5	3.4
SF SMSA	1640.9	17.7	7.6	123.9	98.6	25.5
SANTA CLARA	854.2	14.2	4.7	39.9	25.9	13.1
SOLANO	546.8	5.3	6.1	33.5	20.9	12.6
SONOMA	1042.5	7.5	5.1	52.7	47.9	4.9

SOURCE: ASSOCIATION OF BAY AREA GOVERNMENTS, PROJECTIONS 83,
AND CENTER FOR REAL ESTATE CALCULATIONS

Land prices continue to be far lower than in the urban centers in the Bay Area, but development and speculation has changed the overall picture considerably in recent years. A small number of developers now own most of the flat land along the major highways in the eastern part of Contra Costa County. The tightening of the market for land has raised land prices, particularly in the fastest moving markets of the county (such as Walnut Creek). However, in general, land prices in central Contra Costa County remain far below prices in other employment centers in the SMSA (see Table 11).

Utility capacity distinguishes Contra Costa from eastern Alameda County. Moratoria on sewer hookups, and questions about long term capacity have slowed development along Highway 580 in Alameda County, although many of these restrictions have been lifted recently. In contrast, facilities have been added as needed as the central part of Contra Costa County expands. However, even in areas where utility hookups can be obtained quickly, the cost of hookups can add substantially to the price of a home or office facility. Special assessment fees have run as high as \$4 per square foot of land for some commercial/ industrial land in the Pleasanton area and up to 5000 per home.

Finally, the higher income communities in the central county have been able to support a high level of public education, police, and other services. These are also factors that companies seek in choosing a location that can attract and retain employees.

TABLE 11: LAND VALUE RANGES, OFFICE SPACE
 CONTRA COSTA AND COMPARABLE AREAS
 (dollars per square foot)

LOCATION	VALUE OF LAND SALES	
	1978-80	1981-83
CONTRA COSTA		
Concord	\$7-10	up to \$35 at BART
Pleasant Hill BART station	\$6-7	up to \$25
Other P.H.	\$1-2	\$10-15
Walnut Creek	\$8-25	\$15-55
San Ramon	\$2-5	\$10-15
ALAMEDA		
Pleasanton	\$1-5	\$7-12
Oakland	\$10-25	\$35-100*
SAN FRANCISCO		
Market St. Financial District	\$100-300 \$300+	\$300-700 \$800-1500*

* Deals in highest part of range often are not fully comparable because they usually involve other factors (i.e. not all cash)

Source: Approximated from information provided by Coldwell Banker, Mc Masters & Westland Grubb and Ellis, and individual developers

Note: While S.F. prices appear far out of line, they are much less extreme when lot coverage and building heights are taken into account (ie. land cost per sq. ft. of office space is much closer to other areas).

V. The Current Dynamics of Employment Growth and Office Space Along Highway 680

A more detailed examination of employment growth and office space expansion along highway 680 provides insights on the factors that may affect the level and pace of growth over the next fifteen or twenty years. Through the 1970s, almost all office development along highway 680 occurred in Contra Costa County. For this reason, the employment analysis here focusses primarily on the Contra Costa experience.

A. A Note on Employment Numbers

Measuring employment growth in a state or county is complicated by the variations and inconsistencies among different data sources. The Bureau of the Census provides yearly estimates for every county in the United States in County Business Patterns. In this source, the Bureau of the Census breaks out information by Standard Industrial Classification codes, as defined by the U.S. Department of Commerce. In contrast, the decennial census, until recently, has used a different set of industry definitions. County Business Patterns is not fully comprehensive. This source heavily undercounts agricultural employees and provides only a partial measure of government employees. In addition, a redefinition of SIC codes in the 1970s makes some categories difficult to compare over time, and some years are missing prior to 1964.

The California Employment Development Department (EDD) compiles data for the state and many smaller geographic areas (counties or SMSAs) describing characteristics of all firms covered by the unemployment insurance program. Detailed

breakdowns by industry are available only for recent years. For most categories, at a much more aggregated level, comparable data by county is available from 1972. However, a change in unemployment insurance coverage beginning in 1978 has increased statewide coverage substantially, although the change made little difference in coverage for some sectors. Thus a comparison of trends in a single industry with total employment growth between a year preceding and a year following 1978 can be misleading. Despite these limitations, the EDD data is an important resource because it provides the only consistent count of government employees, in general is more complete in its coverage than County Business Patterns, and provides a more accurate estimate of employment distribution among counties. In contrast, County Business Patterns sometimes allocates all of a company's employment to a headquarters location when in fact employment is spread through several neighboring counties.

In this paper, both sources are used in analyzing employment growth in Contra Costa County. The broad trends discussed in the preceding section draw on EDD data, so that trends in public sector employment also can be observed. Analyses separating out office-using employment primarily draw from County Business Patterns because that source offers more consistent longterm data for detailed industrial categories. Some time series analysis in later sections returns to the EDD source, because quarterly data, revised for some of the changes in coverage, is available for the years 1972-1981.

B. Rapid Employment Growth in Office-Using Activities

The major office-using employment sectors include finance, insurance, real estate, business services, legal services, membership organization, and other miscellaneous services (SIC codes 60-67, 73, 81, 86 and 89). For the past decade and a half, employment in these sectors in Contra Costa County has grown at more than twice the rate of county-wide employment growth. Total employment in Contra Costa County has grown at about 4.6% per year, about 20% higher than the statewide rate of employment growth (3.85%), and close to twice as fast as employment in the San Francisco SMSA overall. Employment growth in the office-using sectors in Contra Costa County is particularly high compared to the pace of growth of office-using employment sectors statewide. Employment in these sectors in California grew at 5.6% per year, about 45% faster than overall employment growth, while office-using employment sectors in Contra Costa County grew at almost 10% per year, more than twice the county rate of employment growth.

No yearly estimates are available concerning the distribution of this employment growth within the county. However, observations of development trends in the county indicate that a large proportion of this growth went to central Contra Costa County. A detailed survey of firms by the Employment Development Department in 1980 showed that 61% of total county employment, 30% of manufacturing employment, and 71%⁴ of office using employment were located in the central county.

C. Office Growth and Absorption in the Central County

The growth factors described earlier in this paper account

for the rapid pace of employment growth in Contra Costa and for the interest of investors in the speculative development of office space. However, the pace of development of office space in the central county has far outstripped the pace of growth of even office-using employment. This has led to very high vacancy rates in the past two years.

In 1965, central Contra Costa County had less than 250,000 square feet of rental office space (in buildings of 5,000 square feet or more). About 500,000 square feet were added to this stock by 1970. Development of office space accelerated in the late 1970s, and by 1980, the area had about 3.5 million square feet of space. Despite a slowdown in the economy, office development has continued at a rapid pace in the 1980s. By June 1983, central Contra Costa County had almost 7 million square feet of office space. In addition, the early 1980s saw rapid expansion of office development in the Dublin/Pleasanton area of Alameda County. Between June 1980 and June 1983, Dublin and Pleasanton added more than 1 million square feet of space (see Table 12 and Figure 10).

During the 1970s and in the early 1980s, vacancy rates in these buildings averaged between 5 and 10% for most areas, with the higher rates reflecting the amount of space in new buildings just on the market, and buildings in the most popular areas in Walnut Creek sometimes dropping below 5%. In the past one to two years, vacancy rates have jumped to between 15 and 20% for the area as a whole, and over 30% for some of the newer and less popular areas (see Table 13). This shift resulted from both

TABLE 12: OFFICE SPACE AND EMPLOYMENT GROWTH, CONTRA COSTA COUNTY
1966-1983

YEAR	TOTAL OFFICE SPACE 680 CENTRAL CORRIDOR CONTRA COSTA (000s)	SQ.FT./ YEAR, CONTRA COSTA (000s)	OFFICE TYPE EMPLOYMENT CONTRA COSTA	OFFICE TYPE JOBS PER YEAR	TOTAL SQ.FT./ EMPLOYEE	SQ.FT./ EMPLOYEE PER YEAR
1966	259.7	66.3	6705	437	39	152
1967	343.7	84.0	7563	858	45	98
1968	418.9	75.2	7866	303	53	248
1969	635.9	217.0	8777	911	72	238
1970	808.1	154.2	9892	1115	80	138
1971	886.8	78.7	10296	404	84	195
1972	1319.6	432.8	11368	1072	114	404
1973	1564.6	160.0	13114	1746	111	92
1974	1751.3	186.7	13547	433	122	431
1975	2125.8	374.5	13876	329	146	1138
1976	2343.1	171.7	16116	2240	136	77
1977	2435.1	92.0	19564	3448	117	27
1978	2829.3	394.2	20983	1419	128	278
1979	3864.8	964.5	24959	3976	146	243
1980	4950.7	871.3	27194	2235	166	390
1981	6283.3	1159.2	27884	690	204	1680
1982	8179.8	1058.9				
1983	9435.0E	950.0E				



E: CRE estimates from data provided by McMasters and Westland

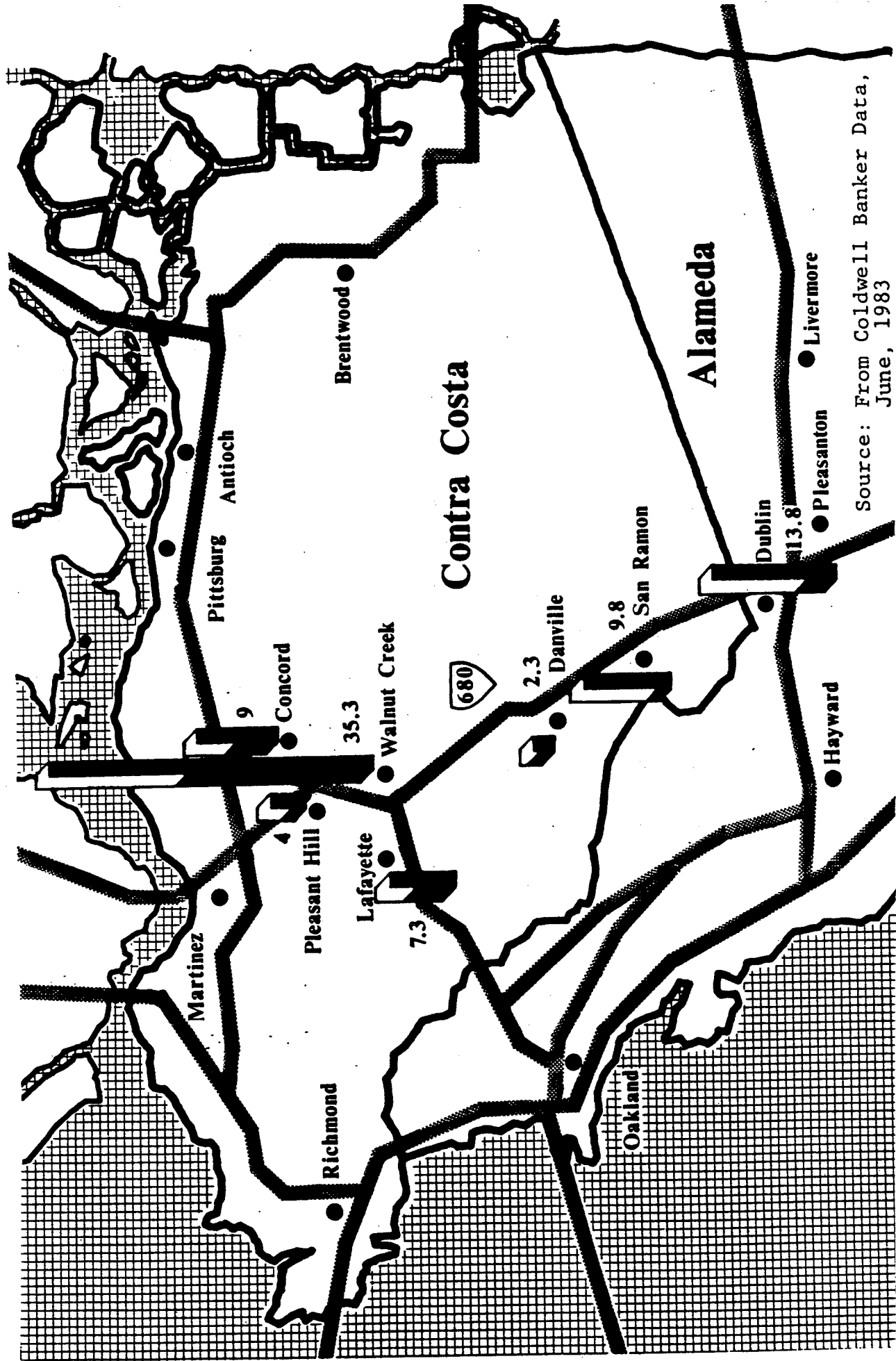
Source: Calculated from Coldwall Banker and County Business Patterns Data; adjusted with figures provided by McMasters and Westland

TABLE 13: VACANCY RATES IN 680 CORRIDOR OFFICE BUILDINGS
(JUNE 1979-JUNE 1983)

LOCATION	JUNE 79	DEC 79	JUNE 80	DEC 80	JUNE 81	DEC 81	JUNE 82	DEC 82	JUNE 83
WALNUT CREEK									
DOWNTOWN	13.52	3.82	6.23	6.34	2.67	5.01	4.03	16.02	12.12
YGNACIO VAL	19.40	16.90	15.99	2.97	3.20	6.09	5.49	13.50	9.19
P.H. BART	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.39	27.07
PLEASANT HILL	8.03	11.92	6.78	11.42	9.21	19.09	17.29	39.74	34.61
CONCORD	11.14	11.85	10.15	13.30	11.53	7.52	8.34	7.69	9.37
LAMORINDA	12.26	7.25	9.36	8.17	5.33	6.00	16.69	11.06	9.95
DANVILLE/ALAMO	14.30	0.30	3.45	8.03	6.23	3.99	8.40	9.90	8.66
SAN RAMON	11.76	11.76	14.31	12.32	2.13	3.59	11.48	19.39	27.42
DUBLIN/PLEASANTON	12.69	14.37	20.92	18.21	15.57	26.87	17.54	33.81	32.06
TOTAL	13.78	9.27	10.69	8.40	5.94	8.53	9.52	18.07	17.77

Source: Computed from data provided by Coldwell Banker

Fig. 10 Office Space Along the 680 Corridor ( = 100,000 square feet built after 6/80)
 ( = 100,000 square feet built before 6/80)



Source: From Coldwell Banker Data, June, 1983

local and regionwide development practices. Locally, investment in office space was extremely high compared to employment growth in the early 1980s. A regionwide office construction boom also contributed to this effect. For example, the escalation of office construction in San Francisco brought the city from a vacancy rate of below 1% to a more normal rate of above 5%.⁵

Table 14 compares increments of office space added in the past decade and a half with growth in employment in major office using sectors over the same periods. (This is a rough comparison, as office space figures are for the central county, while employment figures are for the entire county). Between 1965 and 1970, only about 165 square feet of space were added for each new employee in office-based sectors. Between 1970 and 1975, office using employment grew about as quickly as in the previous five years, but more than twice as much office space was added (about 300 square feet per new employee). In the last half of the seventies, the amount of office space added almost doubled again. However, the number of new employees per year more than tripled, from less than 800 per year in the previous ten years to more than 2,600 per year. Office space added per employee lagged somewhat during this period, compared to the first half of the 1970s, with only about 160 square feet added for each new job. This relatively slower pace of development helped to absorb excess space created earlier in the decade.

Office space additions since 1980 have far outstripped the pace of employment growth. In 1981 alone, over 1.1 million square feet of space were added to the central county. Had employment growth continued at the same average level as in the

TABLE 14: AVERAGE YEARLY GROWTH IN OFFICE SPACE AND EMPLOYMENT
 CONTRA COSTA COUNTY, 1966-1983

	1966-70	1971-75	1976-80	1981	1982	1983E
OFFICE SPACE ADDED	596700	1232700	2493700	1159200	1058900	950000E
AVERAGE SQ.FT./YR	119340	246540	498740	1159200	1058900	950000E
EMPLOYMENT ADDED	3624	3984	13318	690	700E	1000E
AVERAGE JOBS/YR	725	797	2664	690	700E	1000E
AVERAGE SQ.FT./JOB	165	309	187	1680	1500E	950E

E: Center for Real Estate estimates based on composite of forecasts

Source: Center for Real Estate calculations from Coldwell Banker
 and County Business Patterns data

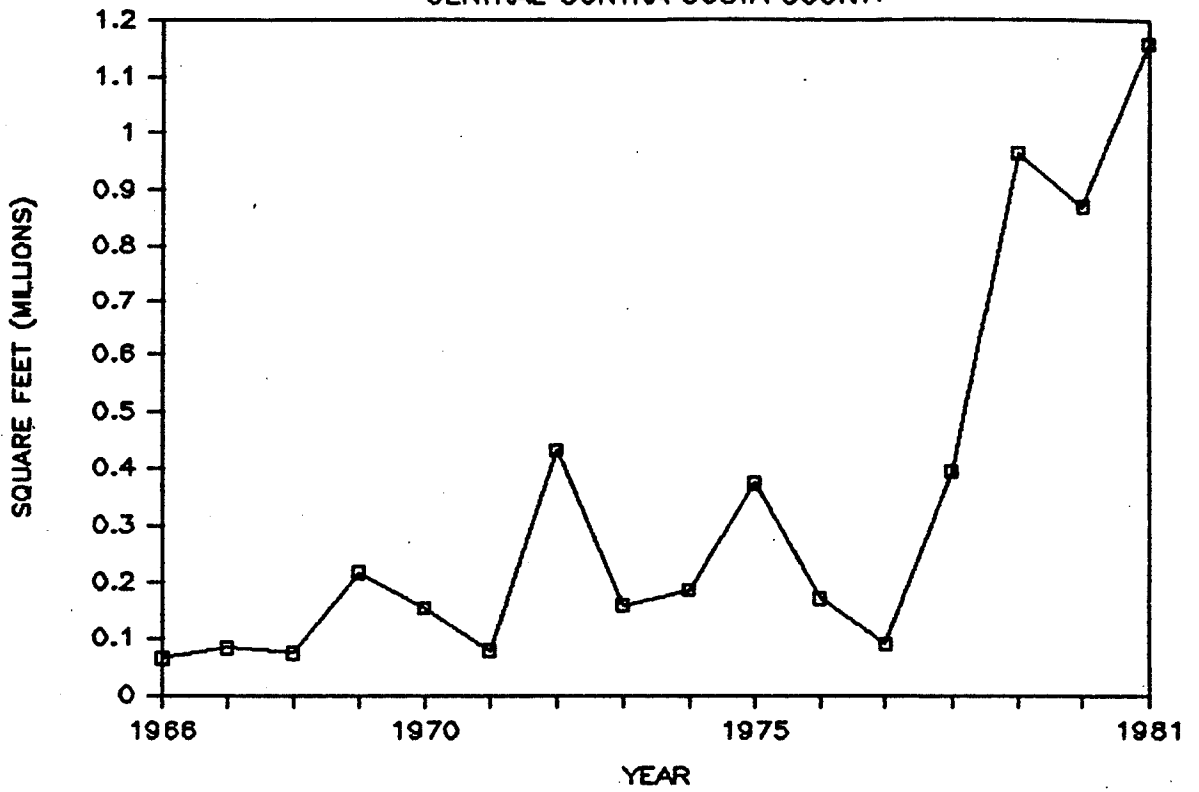
previous five years, this would still have added over 400 square feet per employee, and would have led to higher vacancy rates. In fact, because of the recession, office using employment sectors grew by less than 700 new employees between 1980 and 1981, greatly exacerbating the extent of overbuilding in the short run (see Figures 11 and 12). More recent employment figures are not available, but the pace of office space construction is clearly continuing, with an additional 1 million square feet of space added to the Contra Costa portion of the 680 corridor in 1982.

D. Future Office Space Construction

A glance at past trends shows that the county has experienced similar mismatches in construction and job growth in earlier recession years (e.g., 1975). This space has been absorbed as the economy picks up. If office space construction were to drop to a lower level in the next few years, then such adjustments would certainly take place. However, a review of current plans and construction indicate continuation of the present rate of construction in Contra Costa, with rapid acceleration in the Dublin/Pleasanton area. New space near completion or currently under construction will add another million square feet in Contra Costa by early 1984. An additional quarter million square feet of space is near completion in Dublin and Pleasanton.

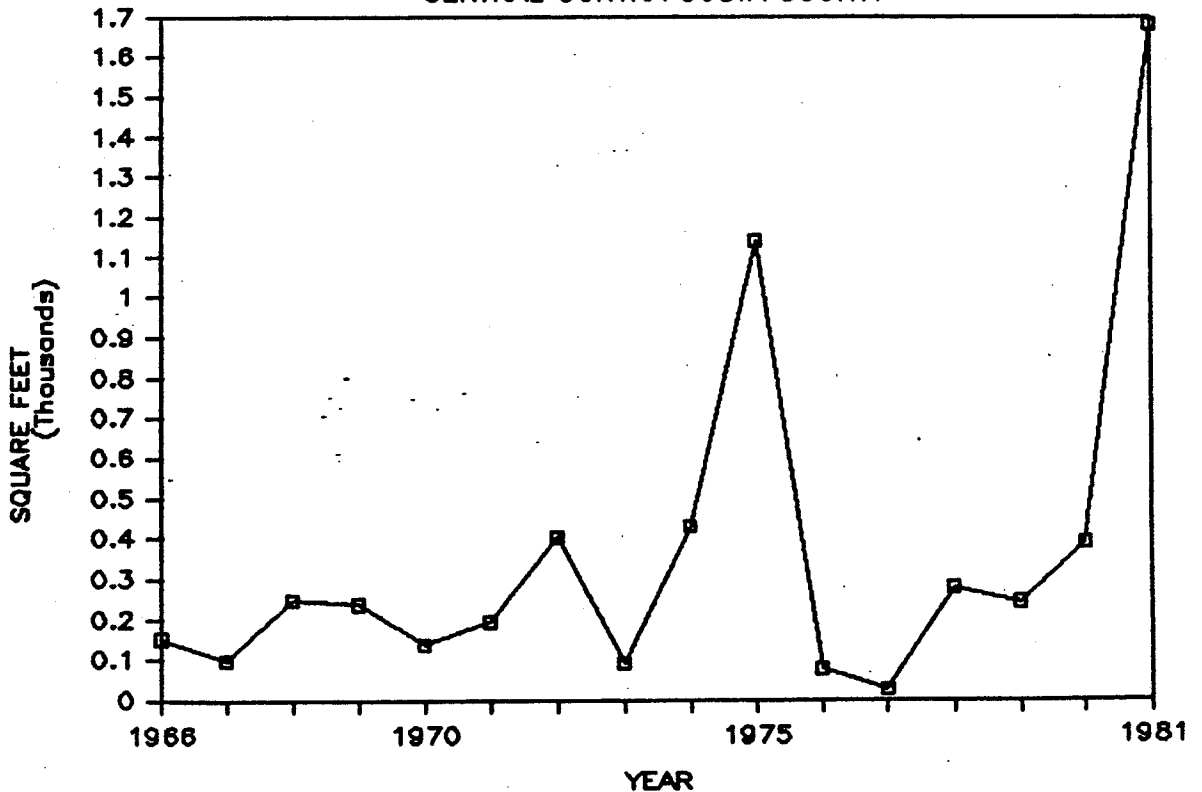
Prospects appear similar for the next fifteen to twenty years. Economics Research Associates predicts an additional 15 million square feet of space in the 680 corridor from Walnut Creek north by 1997, while environmental assessments for office

FIGURE 11
 NEW SQ FT OF OFFICE SPACE PER YEAR
 CENTRAL CONTRA COSTA COUNTY



Source: Center for Real Estate and Urban Economics

FIGURE 12
 OFFICE SPACE ADDED FOR EACH NEW JOB
 CENTRAL CONTRA COSTA COUNTY



Source: Center for Real Estate and Urban Economics

space developments in the Dublin/Pleasanton area show an additional 6-10 million square feet of space planned for Dublin and Pleasanton by 2000 and 7-9 million square feet to be added in San Ramon, in addition to substantial amounts of industrial and R&D (research and development) space. Thus, developers are considering adding as much as 1.75 or 2 million square feet of office space per year to the 680 corridor over the next decade and a half.

Clearly, investors in this type of space must carefully consider whether employment growth in the county can sustain this level of development. In addition, as competition for tenants exacerbates, builders and marketers of office space will need to know who will be likely tenants in leased space and what will be their needs. The following two sections address some of these concerns.

VI. Office Space Tenants in Contra Costa and Eastern Alameda Counties

The most recent boom in office space largely reflects developers responding to a perceived shift of major office users from San Francisco to East Bay locations. However, the growth in demand for office space is a much more complex phenomenon, involving local-serving firms far more often than regional functions, and drawing from manufacturing and trade sectors as well as traditional "office-type" sectors. A richer description of tenants in leased office space is given below, drawing from an analysis of listings in Contacts Influential, for buildings built in 1981 or earlier, and a survey of firms in

speculative space along highway 680.

A. The Distribution of Firms in Pre-1981 Office Space
Contacts Influential for the East Bay lists firms by address. This source includes 680 corridor towns from Martinez to Danville. The most recent version, published for 1982-1983, does not include any buildings constructed after 1980. In addition, about one quarter of the pre-1980 buildings are not listed by address. Although the information on specific firms is about two years old, and coverage of the corridor is incomplete, the listing still gives a useful summary of the types of firms leasing space in speculative buildings.

About 70% of the firms in leased office space are traditional "office-type" firms in the categories defined earlier in this paper--finance, insurance, real estate, business services, legal services, membership organizations, and miscellaneous services (eg., engineering, architecture). Wholesale firms, although primarily located in warehouse space, make up 12% of leased office space users. These are primarily administrative or sales offices for distributors or manufacturers. The remaining 17% of office space users include administrative offices of manufacturing firms, small research and development or light assembly operations, development companies listed under construction firms, medical offices, and other locally oriented personal or social services (see Table 15). When the size of firms is taken into account, firms in the primary office sectors are even more clearly the dominant users of leased office space. Four-fifths of firms with more than five

TABLE 15: FIRMS IN SPECULATIVE OFFICE BUILDINGS, CONTRA COSTA 680 CORRIDOR
(PRE-1981 BUILDINGS ONLY)

CITY	WALNUT CREEK	PLEASANT HILL	CONCORD	DANVILLE	TOTAL
# BUILDINGS	23	2	8	1	34
OFFICE-TYPE ACTIV. (SIC CODES)					
6000-6299 +6700-6799	14	2	3	1	20
6300-6499	55	0	6	3	64
6500-6699	31	1	3	7	42
7300-7399	39	4	13	4	60
8100-8199	37	3	2	0	42
8600-8699	4	0	1	0	5
8900-8999	33	1	1	4	39
SUBTOTAL	213	11	29	19	272
OTHER SIC CODES					
0000-1499	0	0	1	0	1
1500-1599	5	0	0	2	7
2000-2999	2	1	2	0	5
3000-3999	2	2	3	0	7
4000-4999	8	0	4	0	12
5000-5199	24	1	18	2	45
5200-5999	6	0	4	0	10
7000-7999	4	0	6	0	10
X 7300s					
8000-8099	6	0	0	1	7
other 80s, & 90s	1	1	3	0	5
SUBTOTAL	58	5	41	5	109
TOTAL # FIRMS	271	16	70	24	381
% OFFICE-TYPE FIRMS	78.6	68.8	41.4	79.2	71.4
% OFFICE-TYPE + WHOLESALE	87.5	75.0	67.1	87.5	83.2

Source: CREUE calculations from Contacts Influential data, 1982-83 version.

employees are of traditional office-types. Wholesale firms, again, are the next most frequent users of leased office space among larger firms (see Table 16).

The dominance of different types of firms varies considerably by location along the 680 corridor. Walnut Creek and Danville have the highest proportions of traditional office-type firms (almost 80% in each location). At the other extreme, less than half of all firms in leased office space in Concord are of traditional office types. Wholesale companies comprise about one quarter of Concord's office space users.

These differences illustrate a segmentation within the office market along the 680 corridor. The downtown Walnut Creek area (and now the Walnut Creek BART area) consists primarily of medium rise buildings and low rise garden-office structures. In contrast, until recently many of the larger complexes in Concord have been basically high-end warehouse space--single story with windows in the front and loading docks to the rear.

B. A Survey of Office Space Users

The Center for Real Estate and Urban Economics conducted a survey of firms along the 680 corridor in January, 1984. The results of the survey augment and update the data provided by Contacts Influential and provide further information on firm patterns of movement and location choices. The survey was designed to cover several basic points, including the types of firms located in leased office space, the movement patterns of firms (where they come from and apparent turnover rates), and reasons firms choose locations in the 680 region. The data

TABLE 16: SIZE OF FIRM BY INDUSTRY TYPE, CONTRA COSTA 680 CORRIDOR
PRE-1981 BUILDINGS ONLY

INDUSTRIAL ACTIVITY	NUMBER OF EMPLOYEES					
	<6	6-10	11-25	26-50	51-100	>100
OFFICE-TYPE ACTIV. (SIC CODES)						
6000-6299	15	2		1		5
+6700-6799						
6300-6499	32	20	5	3	4	32
6500-6699	34	3	2	3		8
7300-7399	41	14	3		1	19
8100-8199	34	8				8
8600-8699	3	1		1		2
8900-8999	24	6	5	1	2	15
SUBTOTAL	183	54	17	9	3	89
OTHER SIC CODES						
0000-1499	1					0
1500-1599	6		1			1
2000-2999	5					0
3000-3999	7					0
4000-4999	8		1			4
5000-5199	31		8	1		14
5200-5999	8			1		2
7000-7999	9				1	1
X 7300s						
8000-8099	7					0
other 80s, & 90s	5					0
SUBTOTAL	87	9	10	2	1	22
TOTAL # FIRMS	270	63	27	11	4	111
% OFFICE TYPE FIRMS IN SIZE CATEGORY	67.8	85.7	63.0	81.8	75.0	100.0
% OFFICE TYPE & WHOLESALE FIRMS	79.3	93.7	92.6	90.9	75.0	100.0

Source: CREUE calculations from Contacts Influential, 1982-83 version.

developed by the survey is used to explore several important issues--whether the definition of "office-type" firms given previously can be used for predicting demand for office space, to what extent Contra Costa office demand results from San Francisco or Oakland "flight," and what factors play a role in determining location choice.

1) The Approach

The sample of firms was drawn from a listing of tenants in 65 office buildings in Concord, Pleasant Hill, Walnut Creek, San Ramon, Dublin and Pleasanton. Buildings were selected from a listing supplied by Coldwell Banker. Only buildings of more than 25,000 square feet and built after 1970 were used to develop the sample. These buildings represent over 85 % of all leased square footage in central Contra Costa and eastern Alameda counties.

A listing of all firms in these buildings was developed using reverse directories that had been published between August and October 1983. A random sample of 282 firms was drawn from the 850 firms in this listing. Six of these firms were eliminated because of directory repetitions or mislistings (e.g., a construction firm in a trailer on a building site). Of the remaining 276 firms, 28 firms had gone out of business or had left the area between the publishing of the directories and the time the survey took place (in January 1984). Eleven firms were still in the region but did not respond to the survey--5 refused to respond, while the remainder did not answer the telephone, failed to return messages, or were out of town. This gives a response rate of 96% of the 248 valid firms in the sample--a very high response rate for a telephone survey.

A simple survey instrument was designed that could be answered in most cases by anyone who had been with the firm since it had been in its present location (see Appendix A). For larger firms, responses came generally from the personnel director or office manager. The survey was administered by telephone in January 1984.

2) Turnover of Firms Along the 680 Corridor

Of the original 276 firms in the sample, 20% had moved from their current space or had gone out of business in the less than six-month period between the directory listing and the implementation of the survey. More than half of these firms had actually left the 680 office market, while the remainder had moved to other leased space in the area. Responding firms had been in their space an average of 2.5 years. More than three-fourths of firms had moved to their current location in the 1980s. Three fifths of firms in space built before 1980 had moved to the area in the 1980s.

3) Firm Characteristics

The characteristics of firms in the sample are very similar to the summary of firms listed in Contacts Influential. This provides further validation of the reliability of the sample. Of the respondents, 71% were of traditional office-type industrial categories, and 20% were in wholesale or retail trade or were sales or administrative offices of manufacturing firms. There were significant variations in the type of firm by location. Walnut Creek and Pleasanton had the highest concentrations of

office-type firms (close to 85%), while Concord and Dublin had much lower concentrations (less than 50%; see Table 17). There are further variations in how different types of firms select building types. In buildings of four or more stories, 85% of the tenants are office-type firms, and 90% of firms in buildings with rents averaging \$1.80 per square foot or higher are office-type. Half of manufacturing firms are in buildings charging less than \$1.20 per square foot, and the remainder are in buildings charging less than \$1.60.

One fourth of firms surveyed serve only a local clientele and an additional 20% serve only the San Francisco Bay Area. About 20% of firms served a broader clientele in the state, generally with a Northern California focus. Firms with customers out-of-state (34% of the sample) were largely serving other western states, such as Nevada, Oregon and Washington. About half of the firms in the sample were branches of larger companies; 44 of these establishments perform specialized functions for the parent firm. Sales was the most frequently mentioned specialty, with less than one fourth of firms emphasizing data processing or loans and claims processing.

As with the Contacts Influential listing, firms in this sample tended to be small. Half of all firms in the sample have only five employees or fewer (including the proprietor or business partners), and less than 15% have more than 25 employees (see Table 18). About 46% of firms lease less than 1,000 square feet, and only 15% lease more than 5,000 square feet (Table 19). Firms giving an exact employee count (211 firms) had an average of 16 employees. Firms reporting exact square footage (127

TABLE 17: INDUSTRIAL CHARACTERISTICS OF FIRMS LEASING SPACE ALONG HIGHWAY 680
(BY PRESENT LOCATION)

	LOCATION										ALL FIRMS BY INDUSTRY	
	WALNUT CREEK DOWNTOWN	YGNA VAL	CONCORD PLEASANT HILL	DANV/LAFY /MOR/ORIN	SAN RAMON	DUBLIN	PLEASANTON	TOTAL	%			
TOTAL # FIRMS	72	32	30	13	38	43	7	237	100.0			
% BY CITY	30.4	13.5	12.7	5.5	16.0	18.1	3.0	100.0				
OFFICE TYPE												
FINANCE	11	4	4	1	3	0	2	26	11.0			
REAL ESTATE	13	1	2	3	8	4	1	32	13.5			
INSURANCE	12	7	3	4	2	5	2	36	15.2			
BUSINESS SERVICE	8	6	4	2	7	5	0	32	13.5			
LEGAL	14	4	0	1	3	0	1	23	9.7			
MISC OFFICE SERV	3	4	1	1	4	7	0	20	8.4			
SUBTOTAL	61	26	14	12	27	21	6	169	71.3			
% OF CITY TOTAL	84.7	81.3	46.7	92.3	71.1	48.8	85.7	71.3				
% SUBTOTAL BY CITY	36.1	15.4	8.3	7.1	16.0	12.4	3.6	100.0				
OTHER												
MANUFACTURING	2	2	5	1	4	11	1	26	11.0			
WHOLESALE	2	1	4	0	4	3	0	14	5.9			
RETAIL	1	1	6	0	0	1	0	9	3.8			
MEDICAL	3	0	1	0	0	1	0	5	2.1			
PERS/SOCIAL SERV	0	0	0	0	2	2	0	4	1.7			
GOVERNMENT	1	0	0	0	0	0	0	1	0.4			
OTHER*	2	2	0	0	1	4	0	9	3.8			
SUBTOTAL	11	6	16	1	11	22	1	68	28.7			
% OF CITY TOTAL	15.3	18.8	53.3	7.7	28.9	51.2	14.3	28.7				
% OF SUBTOTAL BY CITY	16.2	8.8	23.5	1.5	16.2	32.4	1.5	100.0				

* Construction, Transportation, Utilities

Source: Center for Real Estate and Urban Economics survey of office space tenants, January 1984

TABLE 18: EMPLOYMENT SIZE OF FIRMS LEASING SPACE ALONG HIGHWAY 680

	1-5	6-10	11-25	26-50	51-100	101-500	ALL FIRMS BY INDUSTRY
TOTAL # FIRMS*	117	47	37	16	13	5	235
% BY SIZE	49.8	20.0	15.7	6.8	5.5	2.1	100.0
OFFICE TYPE							
FINANCE	13	5	7	0	0	0	25
REAL ESTATE	15	10	3	4	0	0	32
INSURANCE	11	7	4	7	5	2	36
BUSINESS SERVICE	20	5	5	0	0	1	31
LEGAL	16	4	3	0	0	0	23
MISC OFFICE SERV	6	3	4	2	3	2	20
SUBTOTAL	81	34	26	13	8	5	167
% BY SIZE	48.5	20.4	15.6	7.8	4.8	3.0	100.0
OTHER							
MANUFACTURING	17	1	3	2	3	0	26
WHOLESALE	7	2	4	0	1	0	14
RETAIL	4	4	1	0	0	0	9
MEDICAL	1	2	2	0	0	0	5
PERS/SOCIAL SERV	2	2	0	0	0	0	4
GOVERNMENT	0	0	0	0	1	0	1
OTHER**	5	2	1	1	0	0	9
SUBTOTAL	36	13	11	3	5	0	68
% BY SIZE	52.9	19.1	16.2	4.4	7.4	0.0	100.0

* Excludes 2 firms that did not respond to this question
 ** Construction, Transportation, Utilities

Source: Center for Real Estate and Urban Economics survey of office space tenants along highway 680, January 1984

TABLE 19: SQUARE FOOTAGE LEASED BY HIGHWAY 680 FIRMS

	< 1000	1000-4999	5000-9999	10000-49999	50000-99999	ALL FIRMS BY INDUSTRY
TOTAL # FIRMS*	107	91	15	18	2	233
% BY SQFT RANGE	45.9	39.1	6.4	7.7	0.9	100.0
OFFICE TYPE						
FINANCE	9	15	1	0	0	25
REAL ESTATE	15	13	1	2	0	31
INSURANCE	12	11	6	7	0	36
BUSINESS SERVICE	23	5	2	1	0	31
LEGAL	14	9	0	0	0	23
MISC OFFICE SERV	4	9	2	3	2	20
SUBTOTAL	77	62	12	13	2	166
% BY SQFT RANGE	46.4	37.3	7.2	7.8	1.2	100.0
OTHER						
MANUFACTURING	14	7	2	3	0	26
WHOLESALE	5	7	0	1	0	13
RETAIL	3	6	0	0	0	9
MEDICAL	1	4	0	0	0	5
PERS/SOCIAL SERV	3	1	0	0	0	4
GOVERNMENT	0	0	0	1	0	1
OTHER**	4	4	1	0	0	9
SUBTOTAL	30	29	3	5	0	67
% BY SQFT RANGE	44.8	43.3	4.5	7.5	0.0	100.0

* Excludes 4 firms that did not respond to this question
 ** Construction, Transportation, Utilities

Source: Center for Real Estate and Urban Economics survey of office space tenants along highway 680, January 1984

firms) averaged 4,525 leased square feet. Where both characteristics were reported, average square feet per employee was 275. This figure should be used cautiously as less than half the sample (117 firms) responded to both questions. It is almost certainly higher than the actual average, because some of the largest insurance firms, which use relatively low proportions of square footage per employee, did not respond to the question.

Variation in the size of firm by industry type was significant in only a few categories. All firms with more than 100 employees were in office-type categories, and insurance firms account for over 40% of all firms larger than 25 employees. Thus, office-type firms account for more employment and absorb more square footage than their proportion within the full sample would indicate. Over three-fourths of firms with more than 25 employees are office-type firms.

The size of firms also varies by location. The Ygnacio Valley area in Walnut Creek has a relatively high proportion of large employers and space users. One fifth of Ygnacio Valley firms use 10,000 square feet of space or more, while less than 10% of Walnut Creek, San Ramon and Dublin firms are in this category, and no Pleasanton firms used more than 5,000 square feet of space. These variations show that the more built-up areas of the 680 corridor have become specialized. Downtown Walnut Creek primarily attracts small, office-type firms, and probably will continue to play the role of business center for central Contra Costa. Ygnacio Valley has drawn larger users and the smaller businesses serving those users. Concord and Dublin

have been most successful in serving wholesale outlets seeking less expensive space. Pleasanton has attracted almost entirely small users because, until recently, it has not had the space for larger users. Builders in Concord and Pleasanton are attempting to broaden the markets served in these areas. Several higher rise, more expensive buildings are now under construction in Concord, in an effort to attract a different type of user, and extensive low-rise, expandable space in Pleasanton will allow developers to compete for tenants currently going to Dublin or San Ramon.

4) Previous Locations and Reasons for Moving

A popular image of Contra Costa and eastern Alameda is of an area booming with firms leaving expensive space and congested or crime-ridden areas in San Francisco or Oakland. In fact, although some firms of this type play a role in 680 corridor growth, most of the absorption of office space consists of local expansions. Almost 80% of all responding firms were either new activities (most serving the needs of the local population) or moves from other space in Contra Costa; 13% of firms came from San Francisco or Oakland, and another 8% came from other parts of the Bay Area (San Mateo and Santa Clara counties and southern Alameda County). An additional 16 firms were located in San Francisco or Oakland sometime in the past, although their most recent move was within the 680 corridor. Including these older moves, 28% of firms at some time had relocated from other parts of the Bay Area. No firms had come from outside the region (either other parts of the state or out-of-state). Firms coming

from San Francisco and Oakland account for a higher proportion of large-firm moves; 46% of firms with more than 25 employees and 25% of firms using more than 10,000 square feet of space came from San Francisco or Oakland. In all, moves from outside the 680 corridor probably account for about one third of office space absorption in the region (see Table 20).

Reasons for selecting space in the study area reflect the mixture of firm types and locations. The most frequently mentioned reason for site selection was the proximity to the home of the firm's owner or manager. Two fifths of firms mentioned this factor, while only 15% of firms were concerned with proximity to the workforce. This result is in part an artifact of the average size of firms in the sample. Only 20% of larger firms (more than fifty employees) were concerned with proximity to the owner's or manager's home, while 40% were concerned with the location of the workforce. Transportation access and the cost of space concerned one-fourth of all firms, and were of greater importance to larger firms (see Table 21).

Firms in downtown Walnut Creek were least concerned with cost, space availability and workforce factors in selecting their location, and were more concerned with proximity to customers than firms in many other areas. Firms in Ygnacio Valley, San Ramon, and Dublin were more likely to be concerned with the cost of space than the average firm. Firms in Concord reflected a manufacturing and sales bias, with relatively high proportions concerned with the amount of space available and transportation access (see Table 22).

Reasons for selecting the present office space were not a

TABLE 20: PREVIOUS LOCATION OF FIRMS, BY INDUSTRY TYPE

	NEW FIRM	SAME TOWN	680 CORRIDOR	SAN FRANCISCO	OAKLAND	OTHER CONTRA COSTA	OTHER ALAMEDA	OTHER CALIF***
TOTAL # FIRMS*	61	79	41	17	14	4	10	9
% BY PREV LOC	26.0	33.6	17.4	7.2	6.0	1.7	4.3	3.8
OFFICE TYPE								
FINANCE	8	7	6	1	2	2	0	0
REAL ESTATE	8	13	7	1	2	1	0	0
INSURANCE	6	15	4	7	1	0	3	0
BUSINESS SERVICE	15	7	5	0	1	0	2	1
LEGAL	6	11	2	1	3	0	0	0
MISC OFFICE SERV	1	9	1	3	2	0	2	2
SUBTOTAL	44	62	25	13	11	3	7	3
% BY PREV LOC	26.2	36.9	14.9	7.7	6.5	1.8	4.2	1.8
OTHER								
MANUFACTURING	3	6	7	3	2	0	2	3
WHOLESALE	3	2	5	0	1	0	0	2
RETAIL	2	5	0	1	0	1	0	0
MEDICAL	4	0	0	0	0	0	1	0
PERS/SOCIAL SERV	3	0	1	0	0	0	0	0
GOVERNMENT	0	1	0	0	0	0	0	0
OTHER**	2	3	3	0	0	0	0	1
SUBTOTAL	17	17	16	4	3	1	3	6
% BY PREV LOC	25.4	25.4	23.9	6.0	4.5	1.5	4.5	9.0

* Excludes 2 firms that did not respond to this question

** Construction, Transportation, Utilities

*** All respondents in this category were from Santa Clara or San Mateo counties

Source: Center for Real Estate and Urban Economics survey of office space tenants along highway 680, January 1984

TABLE 21: REASONS FOR SELECTING CURRENT OFFICE SPACE, BY PRESENT AND PREVIOUS LOCATION

REASON	PRESENT LOCATION				PREVIOUS LOCATION				% FIRMS** GIVING REASON	
	WALNUT CREEK	CONCORD/ PL HILL	SAN RAMON	OTHER CONTRA COSTA	ALAMEDA	NEW FIRM	680 REGION	SF OR OAKLAND		OTHER BAY AREA
COST	17(16)*	8(21)	13(34)	0(0)	19(39)	14(23)	29(24)	11(36)	3(16)	25
SPACE	14(14)	11(28)	9(24)	0(0)	12(25)	5(8)	33(27)	6(19)	2(11)	20
TRANSPORT	23(22)	11(28)	11(29)	0(0)	15(31)	20(33)	27(22)	6(19)	6(32)	26
RELATED FIRMS	10(10)	8(21)	4(11)	0(0)	4(8)	12(20)	9(7)	3(10)	2(11)	11
OWNER'S HOME	41(39)	15(39)	22(58)	0(0)	15(31)	22(37)	49(41)	14(45)	8(42)	40
WORKFORCE	19(18)	5(13)	4(11)	0(0)	7(14)	8(13)	21(17)	3(10)	3(16)	15
AMENITY	5(5)	1(3)	2(5)	1(50)	2(4)	1(2)	10(8)	0(0)	0(0)	5
URBAN PROBLEM	4(4)	1(3)	0(0)	0(0)	0(0)	0(0)	1(1)	4(13)	0(0)	2
CUSTOMERS	23(22)	7(18)	6(16)	1(50)	12(25)	19(32)	19(16)	5(16)	5(26)	21
OTHER	17(16)	3(8)	9(24)	0(0)	14(29)	10(17)	22(18)	5(16)	6(32)	19

* Numbers in parentheses are % firms giving reason, by location

** Excludes 6 firms that did not respond to reason or locations questions

Source: Center for Real Estate and Urban Economics survey of office space tenants along highway 680, January 1984

TABLE 22: REASONS FOR SELECTING CURRENT LOCATION, BY FIRM SIZE

REASON	SIZE OF FIRM (NUMBER OF EMPLOYEES)					% FIRMS** GIVING REASON
	1-5	6-10	11-25	26-50	51-100	
COST	28(25)*	10(22)	6(16)	6(40)	4(31)	2(40) 24.3%
AVAILABLE SPACE	12(11)	13(28)	10(27)	4(27)	4(31)	3(60) 20.0%
TRANSPORTATION	30(26)	12(26)	9(24)	3(20)	3(23)	2(40) 25.7%
NEAR RELATED FIRMS	12(11)	4(9)	5(14)	1(7)	2(15)	2(40) 11.3%
NEAR OWNER'S HOME	55(48)	22(48)	12(32)	1(7)	2(15)	1(20) 40.4%
NEAR WORKFORCE	10(9)	11(24)	5(14)	2(13)	5(39)	2(40) 15.2%
AMENITIES	6(5)	2(4)	1(3)	1(7)	0(0)	0(0) 4.3%
URBAN PROBLEMS	2(2)	1(2)	1(3)	1(7)	0(0)	0(0) 2.2%
NEAR CUSTOMERS	28(25)	4(9)	8(22)	2(13)	5(39)	1(20) 20.9%
OTHER	23(20)	6(13)	7(19)	5(33)	2(15)	0(0) 18.7%
% OF ALL FIRMS	49.6%	20.0%	16.1%	6.5%	5.7%	2.2%

* Numbers in parentheses are % of firms giving reason, by size

** Excludes 7 firms that did not respond to size or reason questions

Source: Center for Real Estate and Urban Economics survey of office space tenants along highway 680, January 1984

reflection of the firm's previous location. Firms moving from San Francisco or Oakland showed similar reasons for selecting space when compared to the rest of firms. About 45% of the firms moving from San Francisco or Oakland were moving closer to the owner's or manager's home, and only four firms making this move mentioned avoidance of urban problems such as noise or crime as a reason for moving.

5) The Tenant's Role in Future Demand for Space

Traditional office-type firms remain the major users of leased office space along the 680 corridor. However, areas peripheral to the core activity centers, such as Concord and Dublin, have also relied heavily on manufacturing and trade sectors for office space tenants. Office-type jobs in these sectors of the economy have grown more slowly than jobs in traditional office sectors during the past decade, so projections of growth in demand based on the growth of office-type economic sectors should be at least as high as the demand generated by nontraditional office-type uses.

Local expansion accounts for close to two-thirds of office space absorption. Thus, while relocations of firms from other parts of the Bay Area play an important role in the growth of demand along highway 680, the ultimate level of demand reached will depend on how fast the statewide economy grows and whether firms already in Contra Costa will be affected by this growth.

C. Large Office Users in Owner Occupied Space

In addition to the large number of office tenants starting

up firms or moving within the local area and the smaller number of firms expanding from other parts of the San Francisco Bay Area, large owner occupants are beginning to play a major role in office space development along the 680 corridor. Several major firms, some from industrial sectors that are not traditionally "office type," are currently in the process of building major office complexes in central Contra Costa County. During the next decade, over four million square feet of space may be added in large owner-occupied office complexes.

These major moves illustrate some of the factors that lead developers to be most optimistic about the region, but also contribute to the complexities of the office market along the 680 corridor and more broadly in the San Francisco SMSA. Pacific Telephone, Chevron and Bank of America have all begun major construction efforts that will lead to a transfer of over 10,000 jobs from San Francisco and Oakland to central Contra Costa County. The total space proposed by these three companies could ultimately accommodate 18,000 employees by the year 2000. These firms give several reasons for moving to the 680 corridor. The two most important appear to be the availability of land already zoned or permitted for light industrial use and proximity to an experienced labor force. Most of these companies are consolidating activities from a number of different locations, and space for such a consolidation was not readily available in the central cities. In addition, each of the three largest firms already had from one-third to two-thirds of its labor force residing in Alameda or Contra Costa counties.

These planned moves are already attracting many smaller firms to the area hoping to provide goods and services to these larger companies. Furthermore, both city officials and builders in the area anticipate that this first set of moves will draw other large companies interested in leasing space.

As well as drawing many smaller office-type firms to central Contra Costa and eastern Alameda counties, the major new owner occupants will also have a more complex set of effects on the office market. First, like other companies, large firms respond to changes in the national economy. Two firms planning major moves to the area, Chevron (to San Ramon) and Tandem Computers (to Pleasanton) have already adjusted their plans in response to changing economic conditions. Chevron's original proposal for 2 million square feet of space was expected to be completed in the early 1990s, but due to changing growth patterns in the company, it may not complete its San Ramon project until the next century. Tandem Computers has abandoned plans to transfer to Alameda County and is now moving forward with a proposed Santa Clara County site. The rate of growth of secondary, office-leasing firms is slowed by these types of delays.

A second complication to the effects of major owner occupants of office space comes from the firms' roles as office-space tenants. Chevron, for example, has been a major tenant throughout the 680 corridor. When the first phase of its complex is completed in mid 1985, about half of the complex's new employees will come from Chevron's center in Concord. The vacated space in Concord will be filled by employees transferred from leased space in the Ygnacio Valley area of Walnut Creek.

Other firms lease space close to the new owner-built site on a short term basis, in an effort to phase-in the effects of the move. When their own space is completed, the move to owner-occupied space causes a sudden drop in the total demand for leased space. Even when the leased space is in San Francisco or Oakland, a major move can affect the 680 corridor office market. Growing vacancies in San Francisco and Oakland will decrease or slow rises in rents in those cities, reducing the number of firms interested in moving to central Contra Costa or eastern Alameda County.

A third effect of major owner-occupant firms can occur when changes in economic conditions after having built a complex leads to excess space owned by the firm. Under these conditions, the owner occupants may begin to compete with speculative builders in the market for office tenants.

Finally, the move by major employers to the area affects the desirability of the area for other large employers in the future. As the area becomes more urban, it will have more amenities within the major development areas for office-type firms. However, at the same time, some of the factors attracting large firms to the area will change. Land for expansion will become more expensive and less readily available. Housing will become less available, so that even technical employees may begin to have difficulties finding affordable homes, and clerical employees may be commuting longer distances than they have been to jobs in San Francisco. Finally, large firms can cause major transportation congestion problems, even with careful planning to

accommodate new flows of workers.

VII. The Outlook for Office Space Demand and Supply

Most of the projections for office space expansion along highway 680 are based on observation of development activity in the area and on identification of proposed future developments. These projections are highly optimistic (or pessimistic, depending on the analyst's point of view about further development along the corridor), and often have little to do with realistic expectations for the demand for office space. Projections of demand based on an understanding of the major factors affecting employment growth and the use of space show that important gaps exist between demand and supply. If all currently proposed and planned office space is completed over the next decade and a half, vacancy rates in leased office space will continue to exceed twenty percent, and could rise closer to thirty or forty percent during the 1990s.

A projection of a thirty or forty percent vacancy rate persisting over an extended period of time is clearly as unrealistic as projections based solely on the growth in supply. If demand lags for an extended period of time, developers will delay some projects. This section discusses the factors that will affect demand for office space in central Contra Costa and eastern Alameda counties and provides a range of projections of growth of office-type employment and the demand for and supply of space.

A. The Factors Affecting Office-Type Employment Growth

Two general types of factors will affect the growth of office-based employment in Contra Costa and eastern Alameda counties. The first are broad economic factors. Ultimately the growth of employment in a single county in California is tied to the rate of growth of the state as a whole and of the region of the state where the county is located. A second set of factors affect the distribution of economic activity within a subregion of the state. The push and pull factors described in section I-B and section IV are of this type.

Projections of office activity in Contra Costa and Alameda counties ideally should be tied to both types of factors. To do so formally requires the use of statistical analysis to identify long term relationships between office-type employment in the 680 corridor region and factors such as the levels of population and per capita income in California or the San Francisco SMSA, relative housing costs and vacancy rates along highway 680 and in San Francisco, office rental rates along highway 680 and in San Francisco, comparative land prices and construction costs, and comparative commute times. However, long term data and projections on detailed push and pull factors of this type are generally unavailable for suburban areas.

Given the lack of consistent data for suburban areas, a number of compromises must be made in making projections of employment growth and office space demand along the 680 corridor. The projections developed in this paper rely in detail on past ties of office employment in suburban Contra Costa to the rate of

growth of the state economy. The effect of push and pull factors in the San Francisco SMSA have been handled much more loosely. The review of these factors in section IV showed that in general, central Contra Costa will continue to have many of the advantages demonstrated in the growth patterns of the 1970s and early 1980s. Therefore, the relative advantages of central Contra Costa compared to the SMSA and the state for location of office activities are assumed to continue without major changes. The major changes expected in eastern Alameda County have required some rough adjustments in projections to make these realistic in the absence of a good data base on the county. In the discussion below, a number of different projections are discussed, showing the range of likely outcomes when a single projection raises questions.

B. Basic Assumptions Underlying the Highway 680 Projections

In addition to the general approach described above, several basic assumptions underly the projections of employment growth and the demand for space. The assumptions cover the composition of office-type employment, the past and expected growth rates for California and the region, and the relationship between the total level of office-type employment and the demand for square feet of office space. Where a range of possible values required that a choice be made in selecting among different employment and space demand measures, the approach used tends to overestimate, rather than underestimate the demand for office space. This direction of bias was selected because the gap between demand and supply of space seemed potentially to be extreme, and an overestimation of

demand helps ensure that the gap is not exaggerated.

1) The Composition of Office-Type Employment

All Contra Costa projections are based on the major office-using sectors described in section V--finance, insurance and real estate, business and legal services, membership organizations and miscellaneous services. The data developed on office space users earlier in this study showed that this segment of firms continues to dominate leased office space in the Contra Costa portion of the 680 corridor. Furthermore, although there were large fluctuations in office space absorption in this area in the 1970s, on average, the amount of office space added to the corridor appears closely tied to the growth of office-type employment in the county. It is assumed that central Contra Costa captures all net new countywide growth in these sectors.

Two alternative definitions of office-type employment are used for eastern Alameda County. Some estimates are based on the definition of office-type employment described above (with different assumptions about the distribution of county-wide growth to eastern Alameda County). An alternative estimate assumes that manufacturers and wholesalers dominate the demand for office space in eastern Alameda County. This alternative was developed because of the importance of firms outside the traditional office-using categories in the Dublin and Pleasanton locations.

2) The Rate of Growth of Office-Type Employment

Three alternative sets of projections were developed for each county's subportion of the 680 corridor. Each set of projections draws on different assumptions of how future growth

rates will be experienced by this suburban area.

The first projection for each area is based on the Association of Bay Area Government (ABAG) projections for growth in office-type employment categories provided in Projections 83.⁷ These projections are published in aggregated form, for major sectors only (eg. services as a whole). Some adjustments in the data were made, after discussions with ABAG staff, to make the results applicable to the subcounty areas being considered, and for the particular industry types defined as office-using. However, the basic growth rate assumptions incorporated in this set of projections comes from ABAG's regional projection models.

The second set of projections for both areas is referred to in this paper as the "relative growth rate" method. It is assumed that office-type employment growth in Contra Costa and Alameda Counties will continue to have the same relationship relative to the rate of growth of employment in California as existed in the 1970s. In other words, if office-type employment grew four times as fast as statewide employment in Contra Costa County, per year on average, during the 1970s, then it will continue to grow four times as quickly as California employment during the 1980s and 1990s. Growth rate projections for California employment, through 1992, are drawn from the Chase Econometrics regional data bank. California employment for 1993-2000 is assumed to grow at the same average rate as projected for the previous decade (1981-1992).⁸

An econometric analysis of forty quarters of employment data for Contra Costa and of population and per capita income data for

California provides the basis for the third set of Contra Costa projections. ABAG projections for manufacturing and wholesale growth provide the basis for the third projection for Alameda County.

3) Linking Employment Growth and the Demand for Space

Two hundred fifty square feet per employee was used as the general ratio for translating employment levels into office demand and for translating office square footage into an implied employment level. This ratio does not reflect all variations of office space demand likely to occur among the types of users present in leased office space along highway 680. Square footage varies by type of firm and type of employee, with more space used by headquarters and executive operations, and well below 200 square feet per employee used for data processing and many clerical activities. In addition, square footage demanded varies by the state of the economy, with firms postponing expansion to the optimum amount of space in times of poor business and expanding to anticipate growth when the firm is doing well.

Despite these limitations to using a single ratio, 250 square feet per employee is a useful estimate for making general projections. It is the ratio most generally assumed by commercial brokers and by developers. Past trends also support the use of this figure. Over the past decade, average occupied square footage per office-type employee was 249 square feet in San Francisco (see Table 23 and Figure 13). Two hundred sixty-four square feet of office space per employee was added in Contra Costa during this period, including unoccupied space. If vacant

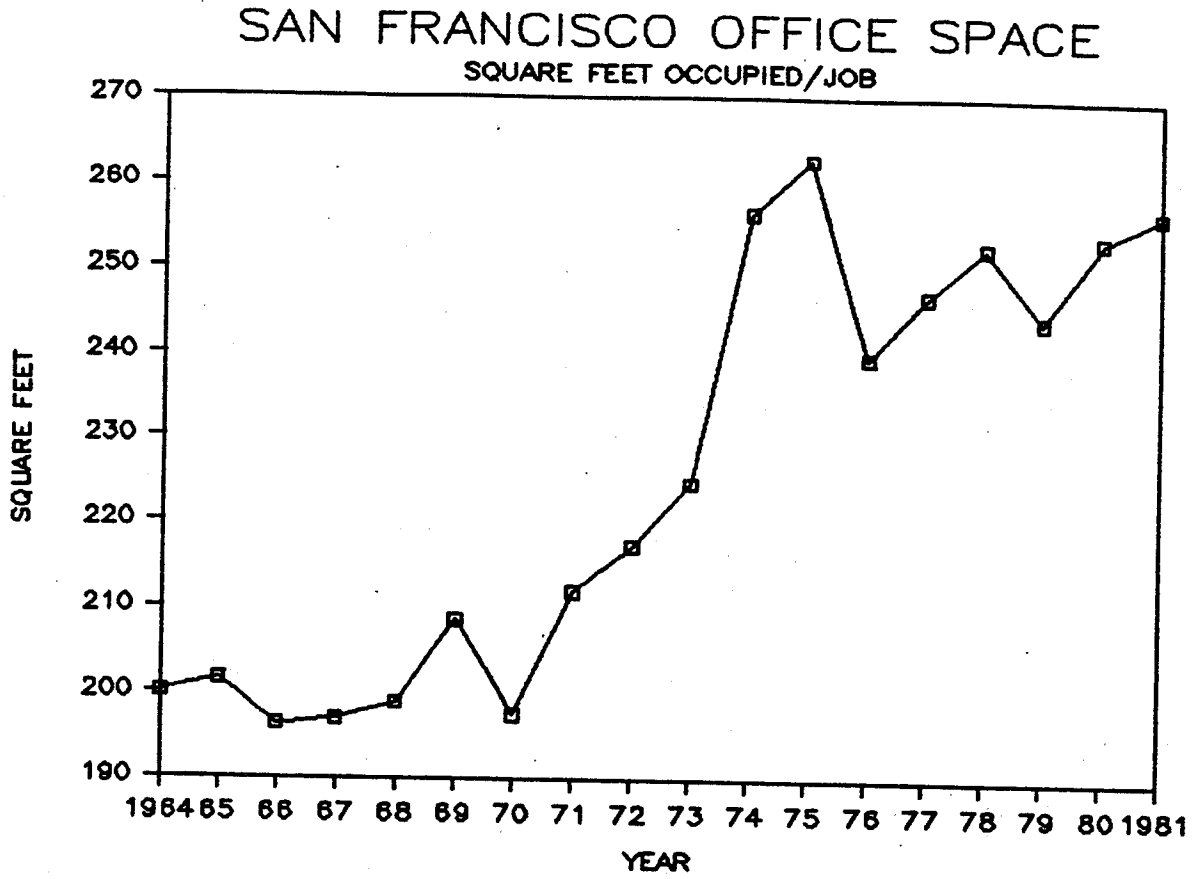
TABLE 23: SAN FRANCISCO OFFICE USING EMPLOYMENT AND GROWTH IN OFFICE SPACE

YEAR	ALL OFFICE JOBS	JOBS/ YEAR	SQUARE FOOTAGE OF OFFICE SPACE (1000S)	SQFT/YR OCCUPIED (1000S)	OCCP/YR (1000S)	SQUARE FEET/EMPLOYEE	TOTAL OCCUPIED
1964	84469		18000	16900			213
1965	87279	2810	19000	17600	700		218
1966	91677	4398	20000	18000	400		218
1967	95934	4257	21200	18900	900		221
1968	103059	7125	22300	20500	1600		216
1969	108871	5812	24700	22700	2200		227
1970	114969	6098	24900	22700	0		217
1971	111349	-3620	26700	23600	900		240
1972	114183	2834	28000	24800	1200		245
1973	120154	5971	29900	27000	2200		249
1974	114309	-5845	31900	29300	2300		279
1975	118757	4448	33700	31200	1900		284
1976	131051	12294	35100	31400	200		268
1977	134933	3882	36600	33300	1900		271
1978	144570	9637	38100	36500	3200		264
1979	157348	12778	39400	38400	1900		250
1980	153096	-4252	39700	38800	400		259
1981	161366	8270	41900	41400	2600		260
1982E	161900E	500E	44200E	43000E	1600E		270E
1983E	164400E	2500E	46700E	44000E	1000E		285E

E: Center for Real Estate estimates based on Chase Econometrics forecasts, past office building trends, and current reports of vacancies

Source: Coldwell Banker, County Business Patterns, and Center for Real Estate Estimates for 1982 and 1983

FIGURE 13



Source: Center for Real Estate and Urban Economics

space is excluded, the central county has absorbed about 245 square feet per employee since 1970.

C. Estimates of Office-Type Employment Growth in Contra Costa County

If all of the office space currently in the planning and approval process or permitted for construction along the Contra Costa portion of the 680 corridor is built, there will be space for over 60,000 office-type employees in 1990 (as compared to under 30,000 today), and for more than 85,000 employees in 2000. If additional projects that are in earlier conceptual stages or still face extensive approval negotiations are also built, there will be space for 63,000 employees in 1990 and for at least 100,000 employees in 2000. In contrast, the lowest projections of office type employment growth show less than 40,000 employees in 1990 and less than 50,000 in 2000, while the highest projections, assuming a strong, sustained growing economy for almost two decades, show 1990 employment at between 48,000 and 57,000, and 2000 employment below 90,000.

1) Employment Estimates Using ABAG Figures

ABAG figures give the lowest estimates of office-type employment growth in Contra Costa County. According to ABAG estimates, office-type employment in Contra Costa would grow more slowly than total employment for the county during the next two decades. Under this scenario, the county would add less than 1,000 new office-type jobs per year through 1990, and just over 1,100 per year from 1990 to 2000. In contrast, even the lower

rate of growth in supply would add space for almost 3,700 jobs per year through 1990, and for 2,500 jobs per year from 1990 to 2000 (see Table 24 and Figure 14).

The ABAG projections provide an extreme lower bound for Contra Costa employment growth through the year 2000. While ABAG's projections for total employment growth in Contra Costa County are reasonable considering past trends and growth projections for the state and SMSA, the projections for office-type employment are probably much too low. Such low rates of growth would imply a substantial reversal in recent trends towards increased concentration of employment in service and finance, insurance and real estate sectors.

2) Estimates Based on Unchanging Relative Rates of Growth

If the rate of growth of office employment in Contra Costa continues to be far higher than statewide employment growth, but is closely tied to the rate of employment growth statewide, then office-type employment will grow far faster than projected by ABAG, but will still lag far behind the growth in supply for the next decade (see Table 24 and Figure 15). If the economy does poorly for the next decade and a half, office-type employment in Contra Costa County will grow at about the rate of 3.6% per year, and will add about 1,600 jobs per year through 1990. If the economy grows at the most likely rate projected by Chase Econometrics, office-type employment will grow at almost 5% per year over this period, and the county will continue to add over 2,000 jobs per year, as it did in the late 1970s.

If the economy grows quickly during the next two decades,

TABLE 24: FORECASTS OF OFFICE JOBS IN CONTRA COSTA COUNTY

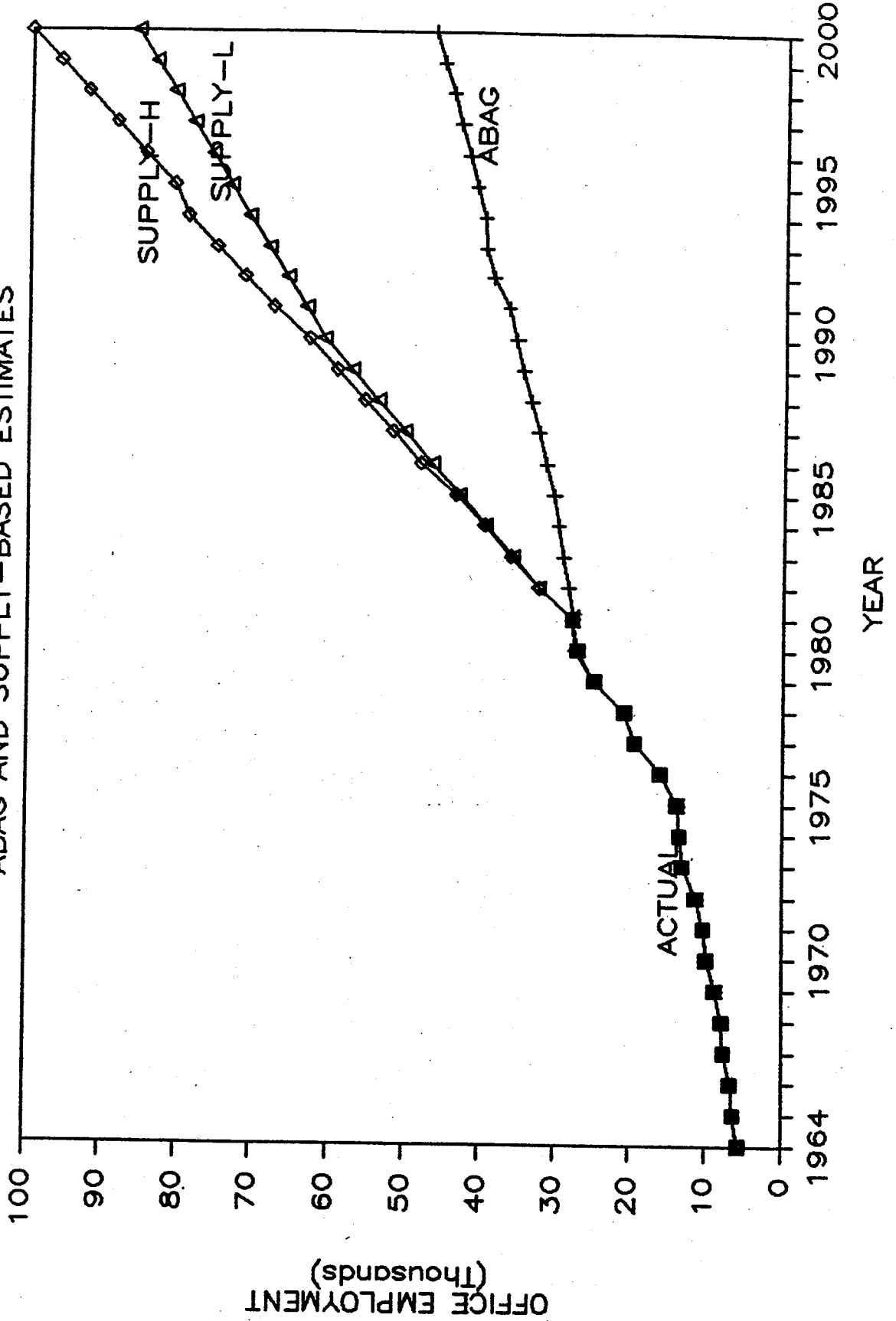
YEAR	ACTUAL EMPLOY'T	ABAG	RELATIVE CREBASE	FORECASTS		SUPPLY-BASED	
				GROWTH ESTIMATES CREHIGH CRELOW	SUPPLY-H	SUPPLY-L	
1964	5642						
	6268						
	6705						
	7563						
	7866						
1970	8777						
	9892						
	10296						
	11368						
	13114						
1975	13547						
	13876						
	16116						
	19564						
	20983						
1980	24959						
	27194	27600	27194	27194	27194		
	27884	27800	27884	27884	27884		
	25000	28400	27884	27884	27884	32400	32400
	25000	29100	28791	28644	28750	36100	35975
1985	25000	29800	32212	32036	31991	39800	39550
	25000	30500	34747	34721	34357	43500	43125
	25000	31500	37089	37771	35982	48200	46700
	25000	32600	38222	40317	35982	51900	50275
	25000	33600	38445	42856	35586	55600	53850
1990	25000	34700	40628	45548	37382	59300	57425
	25000	35700	43405	48703	39909	63000	61000
	25000	36700	45892	52323	41469	67800	63500
	25000	38800	47400	55777	41676	71600	66000
	25000	39900	49296	59124	42927	75400	68500
1995	25000	40000	51268	62671	44214	79200	71000
	25000	41100	53319	66432	45541	81000	73500
	25000	42200	55451	70418	46907	84800	76000
	25000	43300	57670	74643	48314	88600	78500
	25000	44400	59976	79121	49764	92400	81000
2000	25000	45600	62375	83868	51257	96200	83500
	25000	46800	64870	88901	52794	100000	86000

Source: Center for Real Estate and Urban Economics, 1984

FIGURE 14

CONTRA COSTA OFFICE JOB FORECASTS I

ABAG AND SUPPLY-BASED ESTIMATES

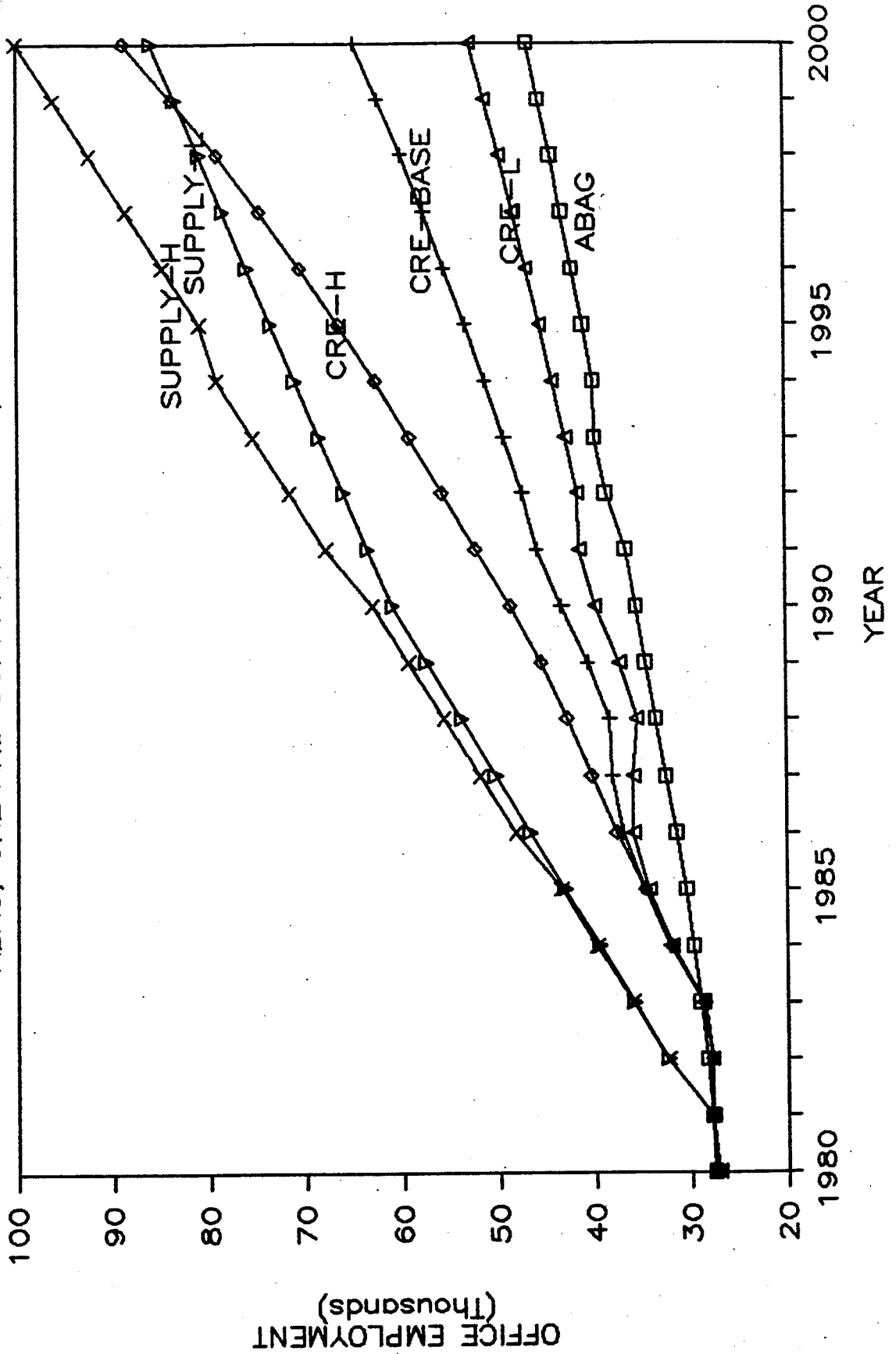


Source: Center for Real Estate and Urban Economics

FIGURE 15

CONTRA COSTA OFFICE JOB FORECASTS II

ABAG, CRE AND SUPPLY ESTIMATES, TO 2000



Source: Center for Real Estate and Urban Economics

office-type employment will eventually surpass the lower level of office space supply projected for the region. However, this will occur only in the late 1990s. For the next ten years, the county will add about 3,000 jobs per year, while even the lower projection for office space supply will add space for over 3,600 employees per year.

3) CRE Projections from an Econometric Growth Model

An alternative projection of office space demand using an econometric growth model shows that office-type employment could grow even more quickly than projected using the relative growth rate technique, but that even under these most positive circumstances, there will continue to be a major gap in supply and demand at least through 1990.

Because of the sparcity of data at the county level, the model is a very simple one, and is used primarily to validate the accuracy of the other estimates described above. The basic assumption of the model is that office-type employment in Contra Costa can be related to the condition of the state economy, as measured through population and per capita income. The equation estimated was:

$$\text{Ln}(\text{OE})_t = C + \text{Ln}(\text{P})_t + \text{Ln}(\text{Y})_t + e$$

where OE_t is office-type employment in Contra Costa County at time t , P_t is California population at time t , Y_t is California real per capita income at time t , e is an error term, C is a constant and Ln is the natural logarithm function. The equation was estimated for a ten year period using quarterly

data. Dummy variables were added for the fall and winter quarters to account for seasonal variations. The equation had an R^2 of 0.98, and all of the variables except the winter quarter dummy variable were significant. Forecasts using the estimated equation are based on Chase Econometrics estimates for the two dependent variables through 1992. Because of the limitations of the equation, no attempt was made to extend this projection beyond 1992.

The baseline case for projections from this model still shows a substantial gap between supply and demand, even if only the lower amount of office space is built. However, if economic growth is strong, and the higher growth rate projected by Chase Econometrics is achieved, then the overabundance of office space in central Contra Costa would be absorbed by the early 1990s. However, even under this most optimistic scenario, the gap between supply and demand would remain high through the rest of this decade (see Table 25 and Figure 16).

D. Projections of Office-Type Employment in Alameda County

The prospects for office-type employment growth in eastern Alameda County are much more uncertain than in central Contra Costa County, because this area is at a very early stage of commercial development. Businesses moving to or expanding in eastern Alameda County could come from three different sources-- spillover from central Contra Costa, service to growing local populations, and spillover from bayshore Alameda County cities. Spillover drawn from central Contra Costa will subtract from the amount of demand estimated for that region. Therefore, this

TABLE 25: CONTRA COSTA OFFICE EMPLOYMENT ALTERNATE FORECASTS
(BASED ON ECONOMETRIC MODEL)

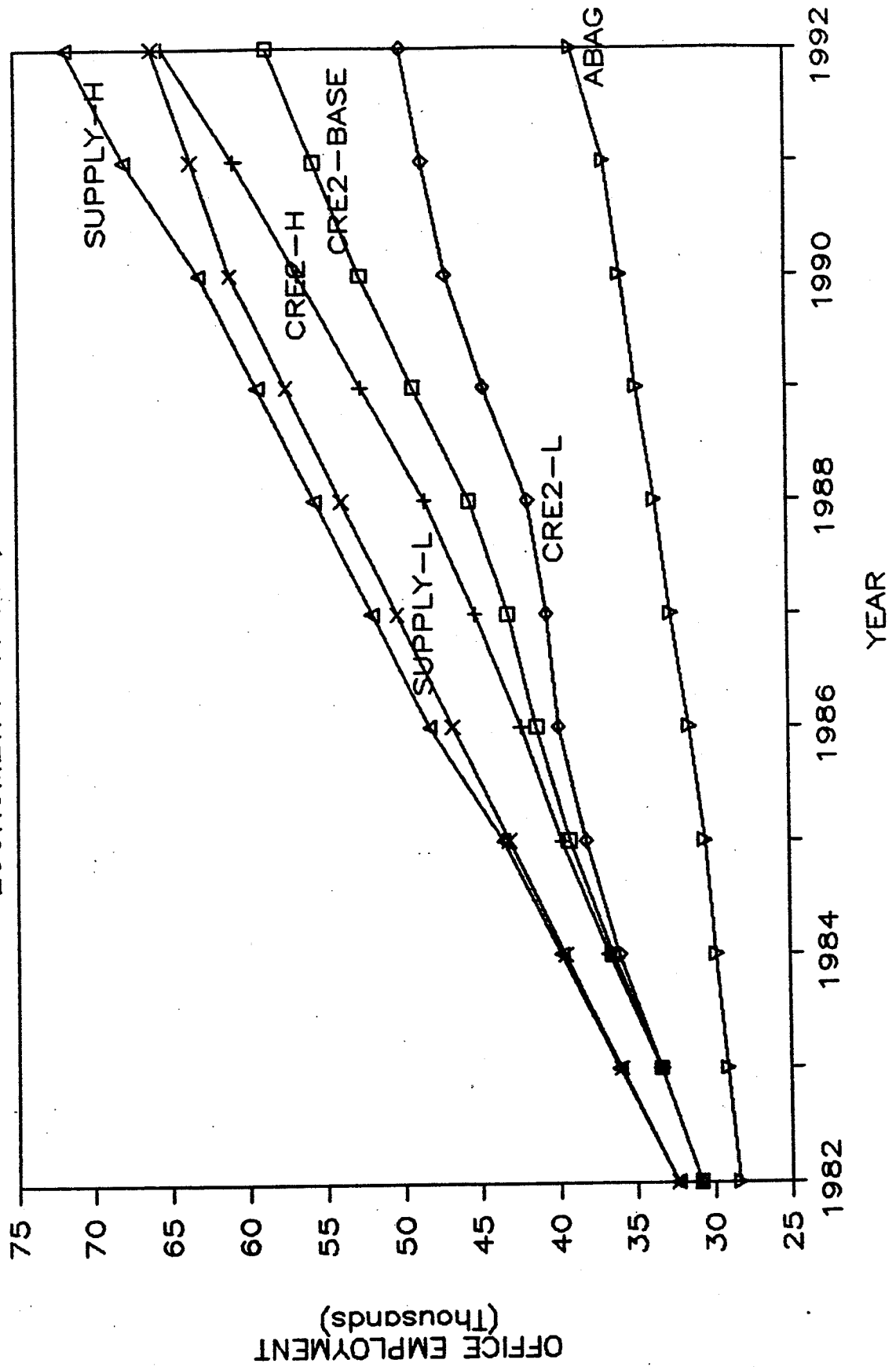
YEAR	BASED ON ECONOMETRIC MODEL					
	BASE	OPTIM	PESS	SUPPLY-H	SUPPLY-L	ABAG
1982	30862	30862	30862	32400	32400	28400
1983	33437	33447	33402	36100	35975	29100
1984	36495	36741	36045	39800	39550	29800
1985	39182	39753	38154	43500	43125	30500
1986	41329	42341	39903	48200	46700	31500
1987	43108	45245	40604	51900	50275	32600
1988	45561	48446	41789	55600	53850	33600
1989	49190	52555	44596	59300	57425	34700
1990	52592	56569	47062	63000	61000	35700
1991	55540	60717	48514	67800	63500	36700
1992	58604	65309	49848	71600	66000	38800

Source: Center for Real Estate and Urban Economics, 1984

FIGURE 16

CONTRA COSTA OFFICE JOB FORECASTS III

ECONOMETRIC MODEL, 1982-1992



Source: Center for Real Estate and Urban Economics

section concentrates on growth related to local population change and countywide expansion in Alameda County.

There is also a great deal of uncertainty about the amount of office space that will be added to Alameda County over the next two decades. If only the most probable projects are built, eastern Alameda County will have about four million square feet of space in 1990 and just over 7 million in 2000. This could accommodate about 15,000 jobs in 1990 and 26,000 jobs in 2000. There are many other projects that are at earlier planning stages, or have been delayed because of economic changes. If these projects are also built, Dublin and Pleasanton will have almost 6 million square feet of space in 1990, accommodating 21,000 jobs, and almost 12 million square feet of space in 2000, accomodating 41,000 jobs.

1) Estimates of Office-Type Employment from ABAG Figures

As with Contra Costa County, ABAG forecasts very low rates of growth in office-type employment in eastern Alameda County. This area would add less than 200 jobs per year between 1983 and 1990 and only 440 jobs per year in the following decade. In contrast, the lowest projections of supply growth indicate that capacity would expand by over 1,100 jobs per year over the next seventeen years. These low employment projections probably result from an underestimate of the total amount of office-type growth in the county and also appear to ignore the major shift in activity likely to occur within Alameda County (see Table 26, first ABAG column).

TABLE 26: OFFICE JOB FORECASTS, EASTERN ALAMEDA COUNTY, 1980-2000

	ABAG-A (office)	ABAG-B (manuf- base)	CBP-BASE	CBP-OPT	CBP-PES	SUPPLY-L	SUPPLY-H
1980	5664	7371	5664	5664	5664	5664	5664
	5886	7664	5664	5664	5664	5664	5664
	6108	7958	5664	5664	5664	5780	5780
	6330	8251	6081	6013	6062	6800	6800
	6552	8544	7624	7548	7526	7952	8840
1985	6774	8838	8699	8690	8532	9104	10880
	6950	9712	9650	9929	9196	10255	12920
	7126	10587	10094	10917	9163	11407	14960
	7302	11462	10180	11865	8830	12559	17000
	7479	12336	11017	12838	9545	13711	19040
1990	7655	13211	12051	13939	10524	14862	21080
	8076	14180	12942	15155	11106	16014	23120
	8498	15148	13466	16271	11106	17166	25160
	8919	16117	14594	17887	11811	18318	27200
	9341	17086	15755	19568	12530	19469	29240
1995	9762	18054	16952	21316	13263	20621	31280
	10223	19104	18185	23134	14011	21773	33320
	10683	20154	19454	25024	14774	22925	35360
	11144	21204	20762	26990	15552	24076	37400
	11604	22253	22109	29035	16346	25228	39440
2000	12065	23303	23496	31162	17156	26380	41480

Source: Center for Real Estate and Urban Economics, 1984

2) Estimates Based on Relative Growth Rates and County Shift

Office-type employment grew at a slower rate in Alameda County than in Contra Costa County in the past decade, although Alameda gained a larger total amount of employees. Office-type employment grew about 10 percent faster than total employment in California, on a yearly basis, over the past decade. If this relationship continues, and if half of all new office employment growth in Alameda County occurs in 680 corridor towns, then Dublin and Pleasanton will add between 600 and 1,150 jobs per year in the next seven years, and between 660 and 1,750 jobs per year in the following decade, depending on the growth rate of the California economy. If the baseline projections for California employment growth occur, then this area will have 14,000 office-type employees in 1990 (about 800 new jobs per year), and 23,500 employees in 2000 (about 1,150 new jobs per year).

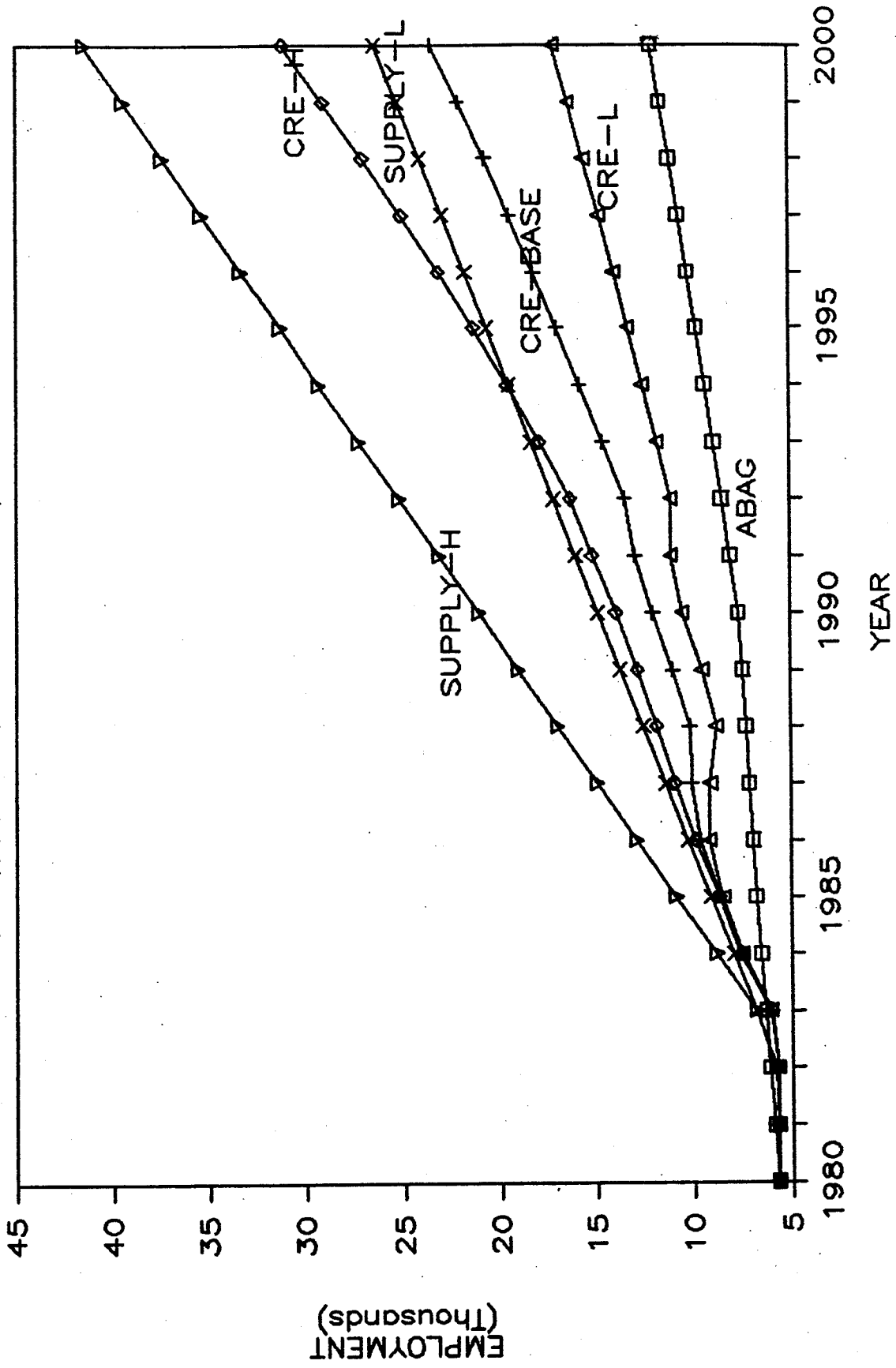
If the California economy experiences a very strong period of growth over the next 17 years, if eastern Alameda indeed captures half of all countywide growth, and if only the most probable office developments are built in the next decade, then the southern part of the 680 corridor will not have an oversupply problem. However, if only the baseline estimates are reached, or if the expansion of supply includes other possible projects, then demand will not grow fast enough to absorb the projected new space (see Table 26 and Figure 17).

3) Estimates Based on a Broader Definition of "Office-Type" Employment

In conversations with ABAG staff, it emerged that many of

FIGURE 17

OFFICE JOB FORECASTS EASTERN ALAMEDA COUNTY, 1980-2000



Source: Center for Real Estate and Urban Economics

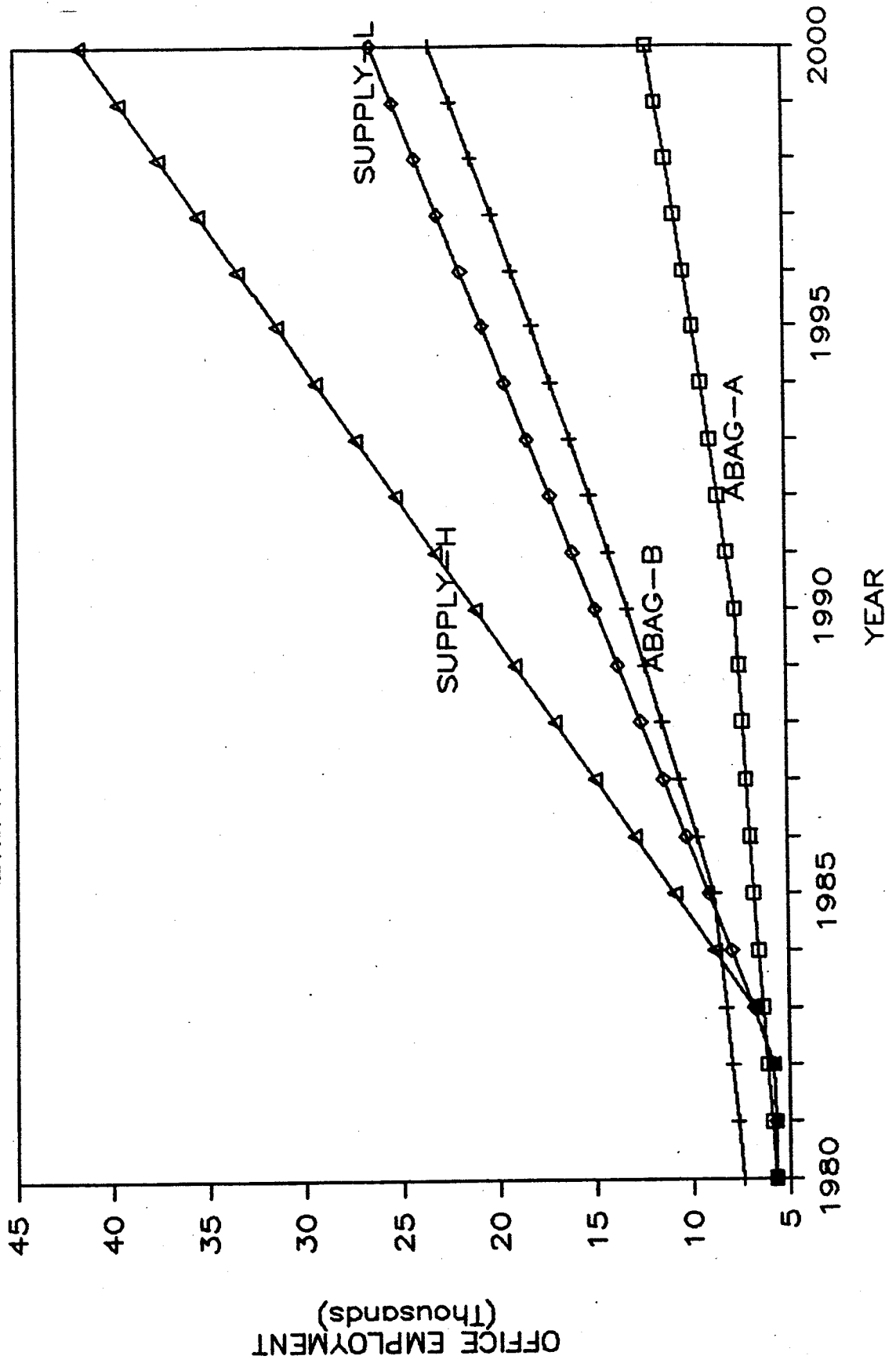
the jobs that will probably absorb office space are actually included in manufacturing and wholesale categories for Dublin and Pleasanton. This is consistent with the survey findings on the presence of firms in these sectors in office space in eastern Alameda. Table 26 (second ABAG column) and Figure 18 show the amount of office demanding employment that would occur based on ABAG estimates of a broader range of activities. The ABAG projections are used here because they appear to be realistic, for the non-office-type activities that dominate this scenario. In this estimate it is assumed that two-thirds of all manufacturing and wholesale employment, one-third of service employment, all finance, insurance and real estate, and all transportation, communications and utilities employment are office using. This would be a fairly high estimate of office-using employment, and yields a result close to the baseline case estimated by the relative shares approach.

E. The Demand for Office Space and Projected Vacancy Rates

Using projections provided in studies of office space plans along the 680 corridor, and the 250 square feet per employee ratio discussed earlier, estimates of the demand for space and of the supply of space can be compared.⁹ One interesting point that emerges in projecting supply of space is that the sum of existing proposals for new construction, even including those at the early conceptual stage of development, is substantially below figures often quoted for the corridor. For example, an analysis by People for Open Space projects that the 680 corridor will have close to 40 million square feet of space in 2000.¹⁰ The highest

FIGURE 18

ALAMEDA OFFICE JOB FORECASTS ALTERNATE ABAG-BASED ESTIMATES



Source: Center for Real Estate and Urban Economics

supply estimate from other sources indicate that space added will be no more than 30 million (with a total of 37.5 million square feet in the corridor), and could be much closer to 22 million. Even these lower projections indicate that there may be substantial overbuilding along the 680 corridor, at least for the rest of this decade.

Baseline estimates indicate that the Contra Costa portion of the 680 corridor can absorb an average of about 600,000 square feet of leased office space per year over the next 17 years, with the strongest absorption before 1990. The Alameda portion could absorb an additional quarter million square feet of space during this period. If economic growth is stronger than assumed in the baseline estimates, demand for leased office space could grow at about 1 million square feet per year in central Contra Costa and could reach half a million per year in the Alameda portion of the 680 corridor by the late 1990s (see Table 27).

If the baseline level of growth is reached and only the lower bound of supply is built, then vacancy rates may still be in the range of 15 to 25% within the 680 corridor, at least until the early 1990s (see Table 28). If the more optimistic projections of demand are reached, and only 1.25 million square feet of leased space are added to the 680 corridor each year (the lower supply estimate), then the supply of space will probably be adequate, but not heavily overbuilt, at least until the mid 1990s. If the upper bound of office space supply is added to the corridor, with about 1.75 million square feet added per year, then vacancy rates will almost certainly remain at least at 15 to 20% and could reach as high as 30 or 40%.

TABLE 27: FORECASTS OF OFFICE SPACE DEMANDED PER YEAR
CENTRAL CONTRA COSTA AND EASTERN ALAMEDA COUNTIES

TOTAL DEMAND AND SUPPLY OF OFFICE SPACE (SQUARE FEET OF SPACE)				
	DEMAND		SUPPLY	
	BASE	OPTIM	LOW	HIGH
CONTRA COSTA				
1983	6152000	6152000	7690000	7690000
1990	10850000	12175000	15250000	15799000
1995	13325000	16600000	18375000	20250000
2000	16225000	22225000	22111000	25806000
ALAMEDA				
1983	1415000	1415000	1705000	1705000
1990	3012500	3485000	3952000	5846000
1995	4237500	5330000	5557000	8804000
2000	5875000	7790000	7161000	11762000
YEARLY DEMAND AND SUPPLY OF OFFICE SPACE (SQUARE FEET OF SPACE)				
	DEMAND		SUPPLY	
	BASE	OPTIM	LOW	HIGH
CONTRA COSTA				
1984-1990	671143	860429	1080000	1158429
1991-1995	495000	885000	625000	890200
1996-2000	580000	1125000	747200	1111200
AVERAGE	592529	945471	848294	1065647
ALAMEDA				
1984-1990	228214	295714	321000	591571
1991-1995	245000	369000	321000	591600
1996-2000	327500	492000	320800	591600
AVERAGE	262353	375000	320941	591588

Source: Center for Real Estate and Urban Economics, 1984

TABLE 28: VACANCY RATE FORECASTS FOR 680 CORRIDOR OFFICE SPACE

COUNTY/ YEAR	LOWER BOUND OF SUPPLY GROWTH CRE ESTIMATES			UPPER BOUND OF SUPPLY GROWTH CRE ESTIMATES		
	ABAG	BASELINE	HIGH	ABAG	BASELINE	HIGH
CONTRA COSTA						
RELATIVE GROWTH						
1984	24.7	18.6	19.0	25.1	19.1	19.5
1988	37.6	28.6	20.2	39.6	30.8	22.9
1992	41.2	28.2	15.5	45.8	33.8	22.1
1996	44.5	27.0	7.3	50.2	34.6	17.0
2000	45.6	24.6	0.0	53.2	35.1	11.1
ECONOMETR. MODEL						
1984		7.7	7.1		8.3	7.7
1988		15.4	10.0		18.1	12.9
1992		11.2	1.0		18.2	8.8
ALAMEDA						
1984	17.6	4.2	5.0	25.9	13.8	14.6
1988	41.9	18.9	5.5	57.0	40.1	30.2
1992	50.5	21.5	5.2	66.2	46.5	35.3
1996	53.1	16.4	0.0	69.3	45.4	30.6
2000	54.3	10.9	0.0	70.9	43.3	24.9

Source: Center for Real Estate and Urban Economics, 1984

F. The Effects of Excess Supply on Demand and of Lagging Demand on Supply

The vacancy rates described above are used mainly to illustrate the potential gaps between the growth in demand for office space and the supply additions that are planned for the 680 corridor. The most extreme vacancy rates listed in Table 28 are almost certain not to occur, at least not over an extended period of time. If vacancy rates continue at their current rates, building owners will drop rents in an effort to attract additional tenants. This should help to increase demand, until vacancy rates drop to more normal levels. As this occurs, it may once again appear that the presence of large amounts of available space is "creating" demand. However, this can only occur at some cost to the building owner. As the profit to be made on buildings decreases, fewer buildings will be started, and the supply levels discussed earlier will drop towards or below the lower bound.

VIII. Conclusions: The Future of the Office Space Market along Highway 680

Despite slowing employment growth in the early 1980s, the demand for office space along the 680 corridor should grow substantially over the next two decades. However, developers face higher risks in the 1980s and 1990s than they did in the 1970s. Many more builders have begun speculating in the area, and the competition for tenants will be much tighter than in earlier years of growth. Several factors make the outlook for the 680 corridor particularly uncertain. First, a decision by a large employer to move a major division of employees could

substantially affect the average rate of employment growth over several years. Second, different development areas along highway 680 will experience competition in different ways. Third, as growth continues, the factors that currently attract firms to the 680 corridor will change. Finally, new public policy decisions could sharply change the development outlook for central Contra Costa or eastern Alameda County towns.

A. The Large Employer Effect: Gift or Illusion?

If the corridor normally adds office-type employment at the projected growth rate of two to three thousand jobs per year, then a location decision by a single large employer could substantially change the growth in demand for several years. A firm employing one or two thousand people could purchase or sign a long term lease for a speculative building, bringing a sudden large jump in office space absorption rates. However, as was brought out earlier in this paper, this type of move can cause major shifts in employment location, reducing the net absorption rate for the 680 corridor. The shifts will occur immediately, if the employer is transferring workers from other leased sites in central Contra Costa or eastern Alameda. The net effects on absorption will take longer to emerge if the employer move puts rental space on the market in other parts of the Bay Area, but higher vacancy rates and rent adjustments in San Francisco, Santa Clara County, or other urban centers will slow later flows of firms to the growing suburban office centers.

B. Slicing Up the Pie: Growth Potential of 680 Corridor Subcenters

Investors face different types of risks and opportunities depending on the site chosen within the corridor. Downtown Walnut Creek and the area around the Walnut Creek BART station will continue to be a center for financial firms and for smaller firms in other office-type activities. Firms moving to this location will be concerned primarily with convenience, rather than cost. However, if the amount of space added to this node exceeds the number of firms with this type of preference pattern, then cost will become a much greater issue. Presently, the gap in rental rates between downtown Walnut Creek and the San Francisco financial district is narrowing. If this trend continues, firms may choose to stay in San Francisco or may bypass downtown Walnut Creek for the Ygnacio Valley area or for other less expensive 680 corridor sites.

Until the 1980s, the Ygnacio Valley area of Walnut Creek was the primary site attracting larger office-type firms. Since 1980, many competing nodes have sprung up for this type of office development. This area has been able to retain its present tenants in the face of new competition, but may have a much harder time attracting new large firms in the future, because of its relatively restricted transportation access. At the same time, if downtown Walnut Creek rents continue to approach San Francisco levels, then the Ygnacio Valley area may become an alternative for small office-type firms seeking a location convenient to Walnut Creek residents.

The type of office buildings constructed in Concord and

Pleasant Hill has changed considerably in the 1980s. Developers are building higher quality space, directed to the more traditional office user, rather than to the administrative or sales arm of a manufacturing or trade firm. These buildings will face particularly tough competition in the next few years, from similar space added all along the 680 corridor, despite the added "pull" effect of the new Bank of America center. By the late 1980s or early 1990s, lower housing vacancies and greater congestion in towns south of Walnut Creek and the lower priced housing available to the north in Solano County are likely to make this area seem much more attractive to many employers.

Buildings with leased office space in San Ramon will have a strong head start because of the two major firms currently constructing space in the area. The potential growth has already drawn many real estate, construction, insurance and business service firms to smaller buildings in San Ramon. The long term outlook for San Ramon office buildings will depend on the success of the major developers in managing the extensive impacts of rapid employment growth in areas with limited housing and limited surface street access.

Developers in eastern Alameda County share many of the opportunities and constraints affecting the San Ramon Valley. In addition, the outlook for buildings in this area is heavily influenced by growth patterns in Santa Clara County. Santa Clara County's decision to open the Coyote Valley for office development may slow the rate of movement of firms into space in Dublin and Pleasanton. Builders with flexible space that can be used for either office or light industrial uses may be best

placed for responding to demand shifts dependent on Santa Clara County growth.

C. A Changing Background: Attraction Factors and Policy Decisions in the 1980s and 1990s

Unless growth slows to the most pessimistic rates projected, the success of office space development is likely to create several new concerns about rapid employment growth along highway 680. Housing prices are rising at a faster rate than in Bay Area central cities, and affordable homes are not being constructed in some of the areas experiencing the greatest amounts of office space development. Although some of the new transportation needs are being anticipated by improvements to freeways and freeway exchanges, further surface street improvements will also be necessary to avoid heavy congestion as employment and population levels increase. Finally, as the growth of firms outpaces the growth of population in this region, the ready labor force will continue to be absorbed. Contra Costa County is likely to have a labor force participation rate approaching that of Santa Clara or San Mateo County by 1990. Changes of this type will make it more difficult for building owners to draw firms away from other parts of the San Francisco Bay Area, although locally-generated growth of firms will still continue.

As the public reacts to growth, the policy context in which growth occurs may change drastically. Currently, one of the factors spurring growth along highway 680 is the difficulty of building office space in San Francisco, because of zoning restrictions, permit requirements, and other limitations on land

use. If a threatened moratorium on office space construction in San Francisco is passed, then the demand pressures on Contra Costa and eastern Alameda sites will increase. However, many of the 680 corridor towns may react to increasing congestion and rising housing costs by passing much more restrictive ordinances covering commercial office development. This would slow the rate of growth of supply of space, increase costs, and eventually slow employment growth along 680 corridor towns.

In summary, an analysis of the office space market along highway 680 indicates how fluid both supply and demand are to the conditions of the local area, the surrounding region, and the nationwide economy. The forecast provided in this report are reliable to the extent that these conditions remain stable or change in a predictable way. However, a careful monitoring of changing conditions will be needed to maintain a firm understanding of the market over time.

Footnotes

1. Association of Bay Area Governments, Bay Area Office Growth, Working Papers on the Region's Economy, No. 1, Berkeley, April 1981.
2. Computed from data provided in Northern California Real Estate Report, Real Estate Research Council of Northern California, April 1983.
3. Interviews with major office space developers and commercial brokerage firms operating in Contra Costa County.
4. Computed from figures in California Employment Development Department, Jobs and Workers in Contra Costa County, Prepared for the Contra Costa County Private Industry Council, San Francisco, June 1983.
5. The San Francisco Sunday Chronicle/Examiner on October 30, 1983, quoted office vacancy rates in San Francisco of 7%.
6. As can be seen from the survey instrument, the respondents were asked to give a number for the firm's employment level and the amount of square feet leased. If the respondent could not give an exact number, then a range was sought. Almost all firms were able to give at least a range for these two elements. Nonresponses in these categories sometimes indicate the firm's refusal to give this information.
7. Association of Bay Area Governments, Projections 83, Berkeley, July 1983. According to ABAG staff, the projections have been developed in a multi-tiered process, where regionwide growth is estimated from national projections of final demand and a regional input-output model for 42 aggregate sectors. The regionwide projections act as a cap for county estimates, that are derived from econometric models based on time series data for employment by industry in each county and on linkages among industries within each county. Countywide estimates in turn are broken down for subcounty areas, using an optimization procedure that takes into consideration existing activities, available land, and major planned developments.
8. Chase Econometrics forecasts employment growth in California to average between 1.1% and 2.6% per year between 1982 and 1992, with a baseline rate of 1.8%.
9. Approved projects and other proposed developments for the southern half of the corridor (Danville through Pleasanton) are listed in TJKM, Tri-Valley Transportation Study, Walnut Creek, July 1983. Projects in the Concord through Walnut Creek area are estimated in Economics Research Associates, Market Study for Downtown Concord, San Francisco, 1983.

10. Arletta Cortwright and Dan Marks, Proposed East Bay Office/Industrial Development, People for Open Space, Technical Memorandum, San Francisco, October 1982. This study includes some land zoned for industry but without development plans in its estimates of future office space.

APPENDIX A

CASE NO. _____
 BUILDING NO. _____

SURVEY OF OFFICE TENANTS IN CENTRAL CONTRA COSTA AND EASTERN ALAMEDA COUNTIES

 CENTER PHONE NUMBER FOR RETURN CALLS: 642-0224

Firm Name: | WC DNTN__ (1) DANV__ (6)
 Address: | YGV__ (2) SANR__ (7)
 | PHBART__ (3) DUBL__ (8)
 Phone: | CONCORD__ (4) PLSN__ (9)
 | PLHILL__ (5)
 Respondent (Position in Firm):

Hello, my name is _____. I am from the Center for Real Estate at the University of California at Berkeley. As part of a study of office space development along highway 680, we are surveying firms leasing office space in the area. I would like to speak with someone who can answer a few brief questions on the firm's type, employment level, and recent moves. This will take about five minutes of your time.

1. Are you still at [ADDRESS] ? yes _____ (GO TO 2) (1)
 no _____ (GO TO 1a) (2)

1a. What is your current address?

2. What type of business is this?
- | | | | |
|------------------|-----------|-----------------|------------|
| Agriculture | _____ (1) | Legal Service | _____ (9) |
| Manufacturing | _____ (2) | Arch/Engin/Plng | _____ (10) |
| Wholesale | _____ (3) | Service | _____ (11) |
| Retail | _____ (4) | Medical | _____ (12) |
| Finance | _____ (5) | Personal/Social | _____ (13) |
| Real Estate | _____ (6) | Service | _____ (14) |
| Insurance | _____ (7) | Government | _____ (14) |
| Business Service | _____ (8) | Other (list) | _____ (14) |

3. Is this a local operation, a branch or a headquarters of a larger company?
- | | |
|------------------------|-----------|
| Local (GO TO 4) | _____ (1) |
| Branch (GO TO 3a) | _____ (2) |
| Headquarters (GO TO 4) | _____ (3) |

- 3a. (If BRANCH) Does this branch perform a specialized function for the parent company? Yes (GO TO 3b) _____ (1)
 No* (GO TO 4) _____ (2)

* Does same functions as all other company branches

Willowick Office Park, Burnett Avenue
Concord Office Park I, 2280 Diamond Blvd
Willows Office Park, 1355 Willow Way
2150 John Glenn Drive
Buchanan Oaks IV, 2440 Stanwell
Buchanan Oaks IX, 2425 Bisso Lane
Hibernia Bank Building, 2600 Stanwell Drive
3000 Clayton Road

SAN RAMON

Crow Canyon Court Office Park, 2500 Old Crow Canyon Rd.
125, 130 Ryan Industrial Court
Crow Canyon Executive Park, El Capitan, Fostoria Way
Diablo Lakes Office Complex, 2110 Omega Rd.
Deerwood Office Park, 200, 210 Porter Drive
Bollinger Business Center, Bishop Drive
Commons Office Park, Camino Ramon
Sunset Executive Building, 1, 2 Annabel Lane
Bishop Ranch Office Plaza, Camino Ramon

DUBLIN

Crossroads Office Complex, Clark Avenue
Regional Plaza Building, 7950 Dublin Boulevard
Heritage Park Office Center, Dublin Blvd
6500 Dublin Boulevard
Enea Plaza, Amador Plaza Rd.

PLEASANTON

Farmers Insurance Building, Dublin Canyon Rd.
The Atrium, 5776 Stoneridge Mall Rd.
EFS Building, 5700 Stoneridge Mall Rd.
Foothill Professional Center, 5820 Stoneridge Mall Rd.
6000 Stoneridge Mall Rd.