Draft

Plan BayArea

July 2013

Strategy for a Sustainable Region

Association of Bay Area Governments

Metropolitan Transportation Commission

Final Forecast of Jobs, Population and Housing

Metropolitan Transportation Commission

Amy Rein Worth, Chair
Cities of Contra Costa County

Dave Cortese, Vice Chair
Santa Clara County

Alicia C. Aguirre
Cities of San Mateo County

Tom Azumbrado
*U.S. Department of Housing
and Urban Development*

Tom Bates
Cities of Alameda County

David Campos
City and County of San Francisco

Bill Dodd
Napa County and Cities

Dorene M. Giacopini
U.S. Department of Transportation

Federal D. Glover
Contra Costa County

Scott Haggerty
Alameda County

Anne W. Halsted
*San Francisco Bay Conservation
and Development Commission*

Steve Kinsey
Marin County and Cities

Sam Liccardo
San Jose Mayor's Appointee

Mark Luce
Association of Bay Area Governments

Jake Mackenzie
Sonoma County and Cities

Joe Pirzynski
Cities of Santa Clara County

Jean Quan
Oakland Mayor's Appointee

Bijan Sartipi
*State Business, Transportation
and Housing Agency*

James P. Spering
Solano County and Cities

Adrienne J. Tissier
San Mateo County

Scott Wiener
San Francisco Mayor's Appointee

Association of Bay Area Governments

Supervisor Mark Luce,
County of Napa
President

Mayor Julie Pierce,
City of Clayton
Vice President

Representatives From Each County

Supervisor Richard Valle
Alameda

Supervisor Scott Haggerty
Alameda

Supervisor Karen Mitchoff
Contra Costa

Supervisor John Gioia
Contra Costa

Supervisor Katie Rice
Marin

Supervisor Mark Luce
Napa

Supervisor Eric Mar
San Francisco

Supervisor Warren Slocum
San Mateo

Supervisor Dave Pine
San Mateo

Supervisor Mike Wasserman
Santa Clara

Supervisor David Cortese
Santa Clara

Supervisor Linda Seifert
Solano

Supervisor David Rabbitt
Sonoma

Representatives From Cities In Each County

Mayor Bill Harrison,
City of Fremont
Alameda

Mayor Tim Sbranti,
City of Dublin
Alameda

Mayor Julie Pierce,
City of Clayton
Contra Costa

Councilmember Dave Hudson,
City of San Ramon
Contra Costa

Mayor Pat Eklund,
City of Novato
Marin

Mayor Leon Garcia,
City of American Canyon
Napa

Mayor Edwin Lee
City And County of San Francisco

**Jason Elliott, Director, Legislative/
Government Affairs, Office of the Mayor**
City And County of San Francisco

Joaquin Torres, Office of the Mayor
City And County of San Francisco

Councilmember Pedro Gonzalez,
City of South San Francisco
San Mateo

Vice Mayor Richard Garbarino,
City of South San Francisco
San Mateo

Councilmember Joe Pirzynski,
City of Los Gatos
Santa Clara

Councilmember Ronit Bryant,
City of Mountain View
Santa Clara

Mayor Harry Price,
City of Fairfield
Solano

Mayor Jean Quan
City of Oakland

Councilmember Libby Schaaf
City of Oakland

Councilmember Desley Brooks
City of Oakland

Councilmember Sam Liccardo
City of San Jose

Councilmember Kansen Chu
City of San Jose

Councilmember Ash Kalra
City of San Jose

Advisory Members

William Kissinger
Regional Water Quality Control Board

Forecast of Jobs, Population, & Housing

July 2013

TABLE OF CONTENTS

1. INTRODUCTION

The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) track and forecast the region's demographics and economic trends to inform and guide Plan Bay Area investments and policy decisions. This document explains the process used to develop the Plan Bay Area (the "Plan") growth forecasts and the Plan's projected distribution of this growth across the region. It describes the most recent planning assumptions used to develop the forecasts and the land use distribution, including local general plans and other factors.

The growth projections highlighted in this document reflect the best picture we have of what the Bay Area may look like in 2040, so that today's decisions align with tomorrow's expected transportation and housing needs. These forecasts form the basis for developing the regional land use plan and transportation investment strategy for Plan Bay Area.

What the forecasts tell us:

- Between 2010 and 2040, the nine-county San Francisco Bay Area is projected to add 1.1 million jobs, 2.1 million people and 660,000 homes, for a total of 4.5 million jobs, 9.3 million people and 3.4 million homes.

- Substantial shifts in housing preference are expected as the Bay Area population ages and becomes more diverse.

- As the Bay Area continues to recover from the lingering effects of the 2007-2009 recession, certain economic trends and indicators will likely rebound. For example, strong job growth is expected in the professional services, health and education, and leisure and hospitality sectors. Early indicators also suggest that the regional housing market is showing signs of recovery.

- Reflecting the distribution growth factors' emphasis on the existing transit network and connecting homes and jobs, San Francisco, San Mateo, Santa Clara and Alameda counties account for the majority of housing growth (77 percent) and job growth (76 percent)

- The Bay Area's three regional centers—San Francisco, San Jose, and Oakland—will accommodate 41 percent of housing growth and 38 percent of total job growth by 2040. Corridors in the inner Bay Area, including El Camino Real/The Grand Boulevard, San Pablo Corridor, and East 14th–International Boulevard, also represent a major share of both housing and job growth, accommodating 19 percent of regional housing and 11 percent of regional job growth.

## 2. REGIONAL FORECAST OF JOBS, POPULATION AND HOUSING

The basis of Plan Bay Area is its focus on employment, population and housing. . The Association of Bay Area Governments employed the Center for Continuing Study of the California Economy (CCSCE) to provide national, state and regional employment and population forecasts. The agency also hired Karen Chapple of the University of California, Berkeley (UC Berkeley), to provide a housing analysis and estimates as inputs to the ABAG housing forecast. The Metropolitan Transportation Commission employed the consulting firm Strategic Economics/Center for Transit Oriented Development (CTOD) to provide industry sector locational preferences, which were used as inputs to the ABAG land use forecast. These analytical reports can be found in Appendix C of this document.

A FOUR-STEP PROCESS

The Association of Bay Area Governments developed the forecasts by following four steps (Figure 1):

1. **Potential job growth:** Job growth by 2040 for the Bay Area was estimated as a share of the U.S. Bureau of Labor Statistics' national growth projections, reflecting the difference in 2010 between national and regional labor force participation in various economic sectors, such as the professional services and retail sectors. This analysis was performed by CCSCE.

2. **Potential population and household growth:** The job growth forecast determines the population and number of households, as well as household income levels. ABAG, in consultation with CCSCE, translated the Bay Area job growth projection into labor force, total population and household forecasts. These forecasts were based on labor force participation rates and the number of persons per household by age and race cohorts.

3. **Housing production:** ABAG, in consultation with UC Berkeley, estimated regional housing production by 2040 based on past housing production levels, projected household income, and new policies and programs to support housing production in Priority Development Areas (PDAs).

4. **Feasible job, population and household growth:** ABAG adjusted for housing production limitations by 2040 that influence the number of workforce households that can be accommodated in the region. These housing production limitations, in turn, limit job growth in the region and reduce total population growth.

Figure 1. Four-Step Process for developing Bay Area demographic forecasts

1	2	3	4
Job Growth Forecast	Labor Force, Population and Household Growth Forecasts	Housing Production Forecast	Household Growth, Job Growth and Population Growth forecasts adjusted for Housing Production Limitations
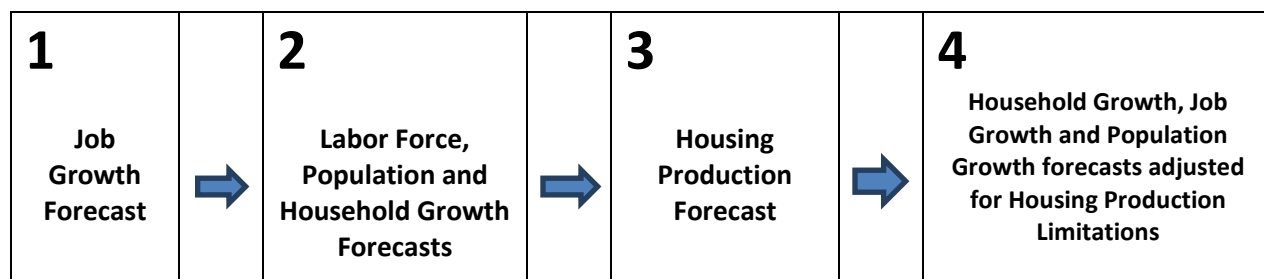
RATIONALE FOR FORECAST METHODOLOGY

The forecast prepared by CCSCE in February 2012 is an economic growth projection based upon national employment growth by major industry sector and the region's share of that growth based upon regional competitiveness in each industry. Because the region is heavily concentrated in a number of high-growth, high-technology industries, the projection assumes that the region remains attractive to a diverse and highly specialized labor force in the coming decades.

However, the Bay Area faces a number of potential constraints to economic competitiveness, including high housing costs in places close to employment centers, funding cuts to education and public services, and aging infrastructure in many places. Over the last three decades, much of the region's economic growth has been supported by the development of land in "greenfield" locations within the Bay Area and in the San Joaquin Valley region[1]. These areas accommodated substantial new housing, with expanding infrastructure and services, while many of the older cities circling the bay faced physical, market, and regulatory constraints to large-scale housing production.

The region's most concentrated job centers continue to be located in the major central business districts, downtowns, and transit corridors circling the bay. This spatial "mismatch" in the location of jobs and housing within the region has resulted in rising housing costs in many of the larger cities, increased time and travel costs for the many workers commuting from lower-cost communities, and growing congestion on major highways and freeways.

Plan Bay Area calls for reducing vehicle miles traveled (VMT) by encouraging infill development in the core, and improving transit access throughout the region. This envisioned development pattern would be a reversal of the dominant trends over the last several decades of housing and employment dispersal. There are several emerging trends that support the shift towards concentrating housing and job growth in the region's core. The first of these trends are the demographic changes projected to occur in the Bay Area, which include the aging of the "Baby

---

[1] Reflecting this outward growth, in March 2013, the U.S. Census Bureau added San Joaquin County to the Census-defined San Jose-San Francisco-Oakland Combined Statistical Area that includes the nine-county San Francisco Bay Area as well as San Benito and Santa Cruz Counties.

Boomer" generation, as well as the maturing of the "Generation Y" generation, both of which are seen as driving demand for more compact, urban housing in the core.

Secondly, there is strong projected growth in key industries in technology and related sectors, which have shown a tendency to agglomerate in key locations within the core of the region, including San Francisco, the Silicon Valley, and other select places. The region is increasingly geographically constrained with fewer "greenfield" development sites left, and the traffic congestion on regional highways and interstates connecting to the Central Valley region is worsening. While these larger trends support shifting the new development to the core, the SCS also acknowledges the need to implement land use policies and make infrastructure investments at the local and regional levels to foster infill development and reduce the commute from outside the region.

With careful planning and supportive policies and investments described above, ABAG estimates an additional 660,000 housing units will be constructed in the region between 2010 and 2040, an average of 22,000 new units per year. This is based upon an analysis of production levels over the past several decades (20,000 units per year 1990-2010), challenges associated with increasing the inventory of multi-family housing brought to market, and the slow near-term recovery of employment and the housing market.

Using national and state data sources, ABAG developed assumptions regarding the population profile (including age and race/ethnicity), the number of employees per household, the labor force participation rate, vacancy rate, and other variables in order to derive the number of jobs that the region could support given the estimated 660,000 total number of housing units that can be produced with the policies and investments outlined in the May 2012 Jobs-Housing Connection Strategy.

Compared to Levy's estimate of 1.3 million new jobs from 2010 to 2040, the regional projection has slightly lower growth of 1.2 million jobs. This corresponds to 100,000 fewer jobs overall, but assumes that a greater proportion of the future workforce would be housed within the region, without relying on a historically increasing rate of in-commuters from outside of the region.

Based on this rationale, the overall regional growth forecast for Plan Bay Area relies on the following key assumptions:

- The Bay Area and national economies will be healthy, with an average unemployment rate of 5 percent or less and reasonably sufficient housing production for the workforce.
- A stronger link will be made between jobs and housing in locations sought by the workforce.
- Adjustments to the job growth forecast are needed to account for the region's expected level of housing production given historic trends and the constraints of an infill growth development pattern.
- The region will continue to receive historical levels of public funding for housing production.

DATA, ASSUMPTIONS AND METHODS USED

The regional forecast of employment, population and housing to 2040 was developed in a Microsoft Excel-based model, utilizing Microsoft Access and ESRI ArcGIS databases to process, refine, and consolidate large datasets. The final regional forecast was validated by CCSCE, Karen Chapple of UC Berkeley, and Strategic Economics, external consultants hired by ABAG and MTC, and by the California Department of Finance (DOF) and California Department of Housing and Community Development (HCD).

Summaries of the key historic data used to prepare the forecast, and the resulting projected values are shown in Table 1 and Table 2. Additional detail regarding data sources and uses, key variables, assumptions, and methods utilized to develop and validate the regional economic, population and housing forecast is provided below.

Table 1. Key Regional Historic and Projected Population, Employment and Housing Data
(in millions)

	Historic			Projected		
	1990	**2000**	**2010**	**2020**	**2030**	**2040**
Housing Units		2.552	2.786	2.956	3.201	3.446
Households	2.251	2.466	2.608	2.838	3.073	3.308
Household Population	5.875	60641	7.003	7.624	8.314	9.085
Group Quarters Population	0.149	0.143	0.148	0.162	0.182	0.214
Total Population*	6.024	6.784	7.151	7.787	8.497	9.299
Labor Force	3.322	3.535	3.658	4.057	4.270	4.584
Employed Residents	3.152	3.377	3.269	3.850	4.052	4.350
Jobs	3.206	3.753	3.385	3.987	4.197	4.505

Total Population includes both group quarters population and household population

Sources: US Census (1990-2010), ABAG (2020-2040)

Table 2: Key Regional Historic and Projected Population, Employment and Housing Rates

	Historic			Projected		
	1990	**2000**	**2010**	**2020**	**2030**	**2040**
Vacancy Rate		3.4	6.4	4.0	4.0	4.0
Persons per Household*	2.61	2.69	2.69	2.69	2.71	2.75
Labor Force Participation Rate	55.6	52.6	51.6	52.6	50.8	49.9
Unemployment	5.1	4.5	10.6	5.1	5.1	5.1
Employed Residents per Job	0.983	0.900	0.966	0.966	0.966	0.966

Population per household is based on the household population of 9,089,000

Sources: US Census (1990-2010), ABAG (2020-2040)

Data Sources and Uses

Chapple, Karen and Jacob Wegmann, *Evaluating the Effects of Projected Job Growth on Housing Demand*.
http://www.onebayarea.org/pdf/KC_Effects_of_Projected_Job_Growth_on_Housing.pdf
- Analysis of constraints on housing production in the region.

Levy, Stephen, *Bay Area Job Growth to 2040: Projections and Analysis*, Center for Continuing Study of the California Economy, February 2012.
http://www.onebayarea.org/pdf/3-9-12/CCSCE_Bay_Area_Job_Growth_to_2040.pdf
- Source of unconstrained (upper limit) regional employment growth.
- Source of industry sector composition of employment for the region and the nation.

Pitkin, John and Dowell Myers. *Projections of the U.S. Population, 2010-2040, by immigrant Generation and Foreign-Born Duration in the U.S.,* Population Dynamics Research Group, University of Southern California School of Policy, Planning, and Development, October 2011.
http://www.usc.edu/schools/price/futures/pdf/2011_Pitkin-Myers_Projections-Immigrant-Generations-and-Foreign-Born.pdf
- Source of lower national population projection incorporating declines in immigration reflected in 2010 Census.
- Used for national employment forecast prepared by Stephen Levy.

United States Census Bureau, 2010 Decennial Census. *2010 Census Summary File 1, Table PCT12 by Race/Ethnicity*, California and Counties. Extracted on July 22, 2010 and published by California State Data Center. Downloaded January 20, 2012.
http://www.dof.ca.gov/research/demographic/state_census_data_center/census_2010/view.php#SF1
- Source of 2010 base year population by age, gender, and race/ethnicity
- Used for base year population profile.

United States Census Bureau, 2010 Decennial Census, 2010 Census Summary File 1, Table PC01 Group Quarters Population Sex by Age, Table P12 Total Population Sex by Age, Table P42 Group

Quarters Population by Group Quarters Type. American FactFinder. Downloaded January 11 and January 19, 2012. [Copy of Table P42 downloaded June 13, 2012 for complete record] http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

- Source for group quarters population share of total population by age and breakout of group quarter population by group quarters type.
- Used for future group quarter and non-institutionalized population calculations.

State of California, Department of Finance, *Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity*, Sacramento, California, July 2007. http://www.dof.ca.gov/research/demographic/reports/view.php
(newer projection released January 2013)

- Population growth rates by age, gender, and race/ethnicity. Incorporates natural increase (births minus deaths) and net migration.
- Used for the age and race/ethnic profile of population growth in the regional projection. This feeds into calculations of future year labor force participation rates, persons per household, and group quarters and non-institutionalized population.
- This is not the direct source of future year projected total population.

United States Department of Labor, Bureau of Labor Statistics (BLS), *Labor force participation rates, 2008-2018* and *Labor force participation rates, to 2050*. Labor Force (Demographic) Data. Downloaded January 4, 2012. http://www.bls.gov/emp/ep_data_labor_force.htm
(newer short-term participation rates released, longer-term rates removed from website)

- Source of national future labor force participation rates by age and race/ethnic group.
- Used for future regional labor force participation rate calculation.

United States Census Bureau, 2009 American Community Survey 5-Year Estimates. Table S2301 Employment Status. American Factfinder. Downloaded January 24, 2012. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

- Source for current labor force participation rate for the region.
- Used to adjust national labor force participation rate to the regional rate.

Wyatt, Ian D. and Kathryn J. Byun. *The U.S. economy to 2018: from recession to recovery*. Monthly Labor Review, November 2009. http://www.bls.gov/opub/mlr/2009/11/art2full.pdf

- Source for 5.1% future year full-employment assumption.

Description of Variables Used in Forecast

Jobs
Total potential jobs in the Bay Area are provided by Center for Continuing Study of the California Economy, based on an analysis of the Bay Area's share of national jobs by job sector and the region's competitiveness in these sectors. The forecast jobs are calculated from employed residents, holding the 2010 employed resident per job ratio of 0.966 constant. This

assumption holds the rates of net in-commuting and multiple job holding constant into the future, as opposed to the increases experienced in the 80's and 90's.

Population Profile
The age and ethnic composition of the region's future growth comes from: Population Projections for California and Its Counties 2000-2050 (Department of Finance 2007). For each decade, the growth shares by age and ethnic composition were added to the 2010 base population profile from the 2010 Decennial Census to get future year age and ethnic total population profiles. The net migration assumption for the Department of Finance forecast averages 177,000 statewide over the 50-year period, or approximately 35% of the growth. This is the source for the composition of population growth, not the level of total growth.

Population
Total population is adjusted so that the calculated total housing units matches the 22,000 units per year growth assumption.

Group Quarters Population
The future group quarters population is calculated as a share of total population. The share is calculated using Census 2010 rates of group quarter population by age applied to the future year population profile.

Non-Institutionalized Population
Similar to the group quarters population, non-institutionalized population is calculated as a share of total population. The share is calculated using Census 2010 rates of non-institutionalized population by age applied to the future year population profile.

Note: Census 2010 data obtained included group quarters population broken out by age group, and group quarters population by group quarters type, which allows for separating institutionalized and non-institutionalized total populations (but was not broken out by age group). Assumptions were made on the age break-out of different group quarters types – in particular college and nursing group quarters populations, to better estimate the age break-down of non-institutionalized population for the purposes of calculating the labor force.

Household Population
Total household population is calculated by subtracting group quarters population from total population.

Persons per Household
Existing headship rates – the ratio of household population to heads of households – by age and ethnic group are derived from the 2009 American Community Survey 5-year average estimate. The existing headship rates by age and ethnic group are applied to the future year household population profile to get the future persons per household for the Bay Area. Changes in headship rates are not assumed – the change in the overall persons per household over time is solely a result of the changing population profile of the region.

Households

Total households are calculated by dividing the future household population by the future persons per household.

Vacant Units

Vacant units are calculated by an assumed future vacancy rate of 4% of total housing units in future years, due to regular turnover of the housing stock.

Housing Units

A thirty-year average housing production level of 22,000 is assumed. This is based upon an analysis of past production, challenges associated with increasing the inventory of multi-family housing brought to market, and future policy supports, acknowledging that high housing costs and limited production is a factor constraining the ability of the region to accommodate future job growth. Total housing units is calculated by dividing total households by 0.96 (one minus the vacancy rate).

Labor Force Participation Rates

Future national labor force participation rates were obtained from Labor force participation rates, 2008-2018 and Labor force participation rates, to 2050 (Bureau of Labor Statistics). The future national labor force participation rates by age and ethnic group are applied to the future non-institutionalized population profile. The overall rate is then adjusted for the region based upon the difference in 2010 between national and regional labor force participation to get the future labor force participation rate for the Bay Area.

Labor Force

Labor force is calculated by multiplying the future year non-institutionalized population by the future labor force participation rate.

Unemployment Rate

The assumption is for full employment levels in future years. This is assumed as a 5.1% unemployment rate per the Bureau of Labor Statistics (Wyatt 2009).

Employed Residents

Employed residents are calculated by subtracting the unemployed residents from the labor force. Unemployed residents are calculated by multiplying the labor force by the unemployment rate.

Employed Residents per Job

This ratio is influenced by levels of in-commuting and out-commuting as well as the number of employed residents holding multiple jobs. We have assumed that this ratio holds at the 2010 level, implying the rates of net in-commuting and multiple job-holding remain constant. This implies a small increase in in-commuting and multiple job-holding from 2010 proportionate to the increase in total jobs in the region, but halts the trend of increasing rates of in-commuting

into the region seen in recent decades, due to road capacity constraints and additional housing production supports within the region. This also keeps the in-commute well below 2000 levels.

Summary of Key Assumptions

Pace of recovery
- Over the next five years, employment will remain below its pre-recession peak.
- Housing production will likely remain suppressed over the next five years. Recovering production from these very low levels is likely to be gradual, with at least two years of foreclosures to work out.
- Demand for certain types of housing, such as multi-family, and in certain strong markets has remained, though the lack of financing in the near term is slowing development.

Employment
- Lower recent national growth forecasts and decreased immigration levels reflected in the Census are incorporated into baseline forecast of national growth.
- Bay Area growth has trended toward national growth over the last couple of decades.
- Housing supply does constrain job growth; the region will lose jobs if constraints on housing supply are not sufficiently lifted.

Housing assumptions
- The regional rate of employed residents to households is not likely to change much, unless similar constraints on housing production outside of the region would limit spillover supply.
- While assuming no new in-commuting is unrealistic, transportation and infrastructure capacity constraints and the housing market collapse in outlying areas, along with demographic shifts and changing preferences, will reduce continued growth in rates of in-commuting. As a result, maintaining the current jobs per employed resident ratio is a reasonable assumption.
- Demographic and market trends will also influence the type and location of future housing production. Over the next fifteen years, there is projected to be a large increase in the young adult population, as well as retired workers and the elderly. Stable home values and high demand for rental in many inner-bay communities may spur higher rates of sales, downsizing, and higher-density construction. At the same time, outlying areas hit hard by foreclosures and lower home values will likely see higher rates of retirees holding onto larger homes and little new construction for some time. In the later years, from 2025-2040, there will be a resurgence of growth in the family-forming 30-45 year-old cohort, which may lift the housing market in outlying areas.

Summary of Key Assumptions *(continued)*

Demographic trends
- The aging of the population will slow after about 2025. From 2025-2040, there is expected to be a resurgence of growth with the family-forming cohort (30-45 years old). These shifts suggest that:
  - Most of the housing need will be driven by seniors and young adults early on, and by family populations in the later years
  - This means more demand for multi-family housing in the near term, as well as some increased demand for single-family housing in the later years.
  - The current 55-70 year old cohort may choose to age in place for some time, but by the time they reach their 80's many will likely no longer want to live alone. This will free up some single-family housing for new families and create demand for multi-family housing/assisted living in the later years

Industry sector mix
- High-skill, high-tech service and manufacturing sector companies will continue to be the drivers of job growth in the Bay Area.
- This growth will continue to drive growth in other business-support and service sectors. The broader industry sector mix of the Bay Area will not be dramatically different from other metropolitan areas.

Future household income levels
- It is expected that much of the driving industries job growth will occur in the higher-paying high-tech sectors. Higher-income residents will require services (retail, nursing and child care, education, fire and police, etc.), and they will prefer better services, so lower- and middle-income jobs will be retained and created.
- Job replacement will become an important factor as baby boomers retire over the next couple of decades. These jobs are at all income levels and in all industry sectors, not just higher-paying technical jobs, so it could be assumed that moderate-income jobs will be retained in the Bay Area. Matching the labor force to these replacement jobs will be a challenge, both locally and nationally.

SNAPSHOT OF THE BAY AREA, 2010-2040

By 2040 the San Francisco Bay Area is projected to add 2.1 million people, increasing total regional population from 7.2 million to 9.3 million, an increase of 30 percent or roughly 1 percent per year. This growth means the Bay Area will continue to be California's second-largest population and economic center. Two major demographic changes shape the forecast of household and job growth: the increase in the senior population and increasing racial and ethnic diversity. The number of jobs is expected to grow by 1.1 million between 2010 and 2040, an increase of 33 percent. During this same time period the number of households is expected to increase by 27 percent to 700,000, and the number of housing units is expected to increase by 24 percent to 660,000. While roust, this projected rate of growth is actually slower than other metropolitan regions in California and also is slower than the Bay Area's pace of growth in the 1970s and 1980s. (See Table 3.)

Table 3. Bay Area Population, Employment and Housing Projections, 2010 - 2040

	2010	2040	Growth 2010 - 2040	Percent Change 2010 - 2040
Population	7,151,740	9,299,150	2,147,410	30%
Jobs	3,385,300	4,505,220	1,119,920	33%
Households	2,608,020	3,308,110	700,090	27%
Housing Units	2,785,950	3,445,950*	660,000	24%

Sources: 2010 US Census, ABAG

Population Forecast

The population forecast was derived from ABAG's job growth forecast[2]. (See Employment Forecast, p.15.) It also analyzed the existing population and its labor force participation rates by age cohort and race. Beyond births and deaths, it was assumed that the rate of in-migration to the region will remain the same from 2010 to 2040. Incentives to produce housing close to job centers will result in some increases in the number of households and total population[3].

---

[2] Job growth is the main determinant of population growth in all major regional forecast modeling in California and around the nation. Population growth is tied to job growth in the regional projections produced by the Southern California Association of Governments (SCAG), the San Diego Association of Governments (SANDAG), the Sacramento Association of Governments (SACOG), the Monterey Bay Area Association of Governments (AMBAG) and the Santa Barbara County Association of Governments (SBCAG). In addition job growth is the primary determinant of regional population growth in the three major national forecasting firms--IHS Global Insight, Regional Economic Models, Inc. (REMI) and Economy.com, a division of Moody's.

[3] In January 2013, California Department of Finance (DOF) released population projections for the Bay Area forecasting 1.3 million additional people between 2010 and 2040, which is significantly lower than ABAG's forecast of 2.1 million additional people. Recognizing the significant disparity between the population projections, ABAG, DOF, and the California Department of Housing and Community Development (HCD), collaborated to identify the source of the discrepancy and determine the reasonableness of ABAG's projections. (Government Code §

Aging Baby Boomers

Between 2010 and 2040 the Bay Area's population is expected to grow significantly older. Today, people who are 65 and over represent 12 percent of the total population, but by 2040 the share will increase to 22 percent. Put another way, the number of seniors will more than double from under 900,000 today to nearly 2.1 million by 2040. (See Figure 2.) By contrast, the segment of population aged 45-64 will grow by less than 1 percent, and will shrink from 27 percent of the total population today to 21 percent by 2040. The projected increase in the senior population will cause the overall labor force participation rate to fall, even as more people work beyond the age of 65. By 2040, 50 people out of every 100 in the Bay Area are projected to be in the labor force, compared to 52 people out of 100 in 2010.

Younger-age segments of the population will increase in size substantially, but will represent a slightly smaller share of total population in the future due to the large number of aging baby boomers. The number of people aged 25-44 will increase by 17 percent or nearly 370,000, while the number of people aged 24 and younger will increase by 25 percent or over 550,000.

Increased Racial and Ethnic Diversity

By 2040 the population will become substantially more racially and ethnically diverse (Figure 3). Latinos will emerge as the largest ethnic group, increasing from 23 percent to 35 percent of the total population. The number of Asians also will increase, growing from 21 percent to about 24 percent of the population.

In contrast, the share of non-Hispanic whites will drop sharply from approximately 45 percent of today's population to about 31 percent in 2040. The African-American segment of the population also is expected to decline slightly, dropping from 6 percent to 5 percent, while other demographic groups are expected to maintain a similar share of the population in the future as they do today.

65584.01(b) [requiring consultation with DOF when reaching a Regional Housing Needs Determination if a difference in population projections exceeds three percent].) On May 18, 2013, ABAG's Planning and Research Director presented a memorandum that was jointly prepared by ABAG, DOF, and HCD ("Overview of the Regional Housing Need Determination, DOF Population Projections and Plan Bay Area Forecast") to the ABAG Executive Committee at a public hearing. This memorandum discusses the different methodologies used by ABAG and DOF that resulted in the different population projections.

ABAG, DOF, and HCD concluded the primary cause of the different population projections was the migration data relied upon by DOF. Migration is one of the three variables in the baseline cohort-component method used by DOF to forecast population growth. Employment is a major driver of migration, however the DOF model does not specifically incorporate current and projected employment trends in its model. DOF's projections were based on net migration into the Bay Area between 2000 and 2010. The net-migration number does not account for irregularities, such as the job losses that occurred from 2000-2002 and from 2007-2010. The net-migration number also fails to reflect current and expected employment trends. As a result, the Population Memo concludes that DOF's projections are "not a forecast of the most likely outcome." HUD and HCD agreed that ABAG's population projections were appropriate for the SCS.

In contrast to DOF's methodology, ABAG's methodology incorporates current and expected employment trends by linking population growth to projected job growth. ABAG's nuanced methodology linking population projections to expected job growth is a better predictor of future populations than models that simply rely on net-migration numbers from the previous decade.

See Appendix C, *Overview of the Regional Housing Need Determination, DOF Population Projections and Plan Bay Area Forecast* prepared by DOF, HCD, an dABAG, April 2013.

Figure 2. Bay Area Population by Age, 2010 and 2040
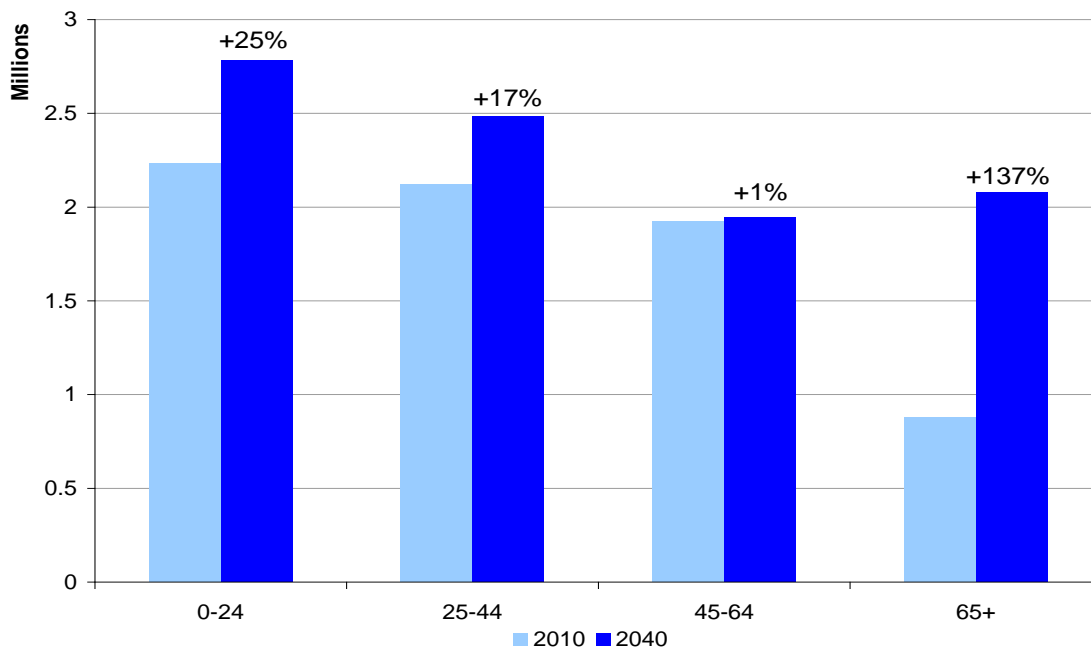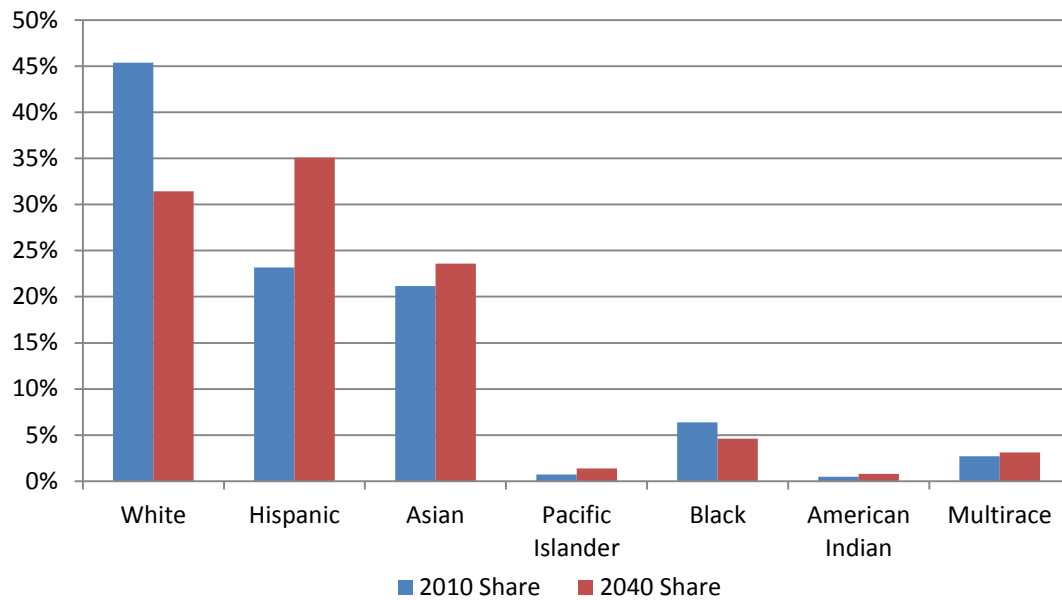

Sources: 2010 US Census, ABAG

Figure 3. Bay Area Population by Ethnicity, 2010 and 2040

Sources: 2010 US Census, ABAG

Employment Forecast

The Association of Bay Area Governments forecasted regional employment by industry sector utilizing an analysis of the Bay Area's competitiveness by industry in relation to the state and national growth forecast conducted by CCSCE. The analysis took into account the Bay Area's concentration of knowledge-based industries, research centers and universities; the presence of a highly educated and international labor force; expanding international networks serving the global economy; and the overall diversity of the regional economy.

These fundamental assets underpinning the Bay Area economy still are strong. While it is true that the region has not recovered all jobs lost since the "dot-com bubble" popped in 2000, the so-called "jobless growth" of the last decade was a national phenomenon not limited to the Bay Area. Furthermore, increasing numbers of news articles report that various parts of the regional economy are on the mend. For example, the Bay Area led California job growth in 2012 with 91,400 new jobs, a nearly 3 percent increase from 2011 and more than twice the nationwide average, according to Bloomberg News ("Google, Facebook lead Bay Area jobs," Jan. 27, 2013). Based on the above factors and strong fundamentals, Bay Area employment is forecast to grow at a slightly faster rate than that of the nation as a whole.

Substantial numbers of jobs are expected to be created between 2010 and 2040 (Figure 4). More than half of the projected 1.1 million new jobs are expected to be created between 2010 and 2020, which includes the recovery of close to 300,000 jobs lost during the Great Recession that began in 2007. The gain of 1.1 million jobs does not translate directly into new office, commercial or industrial construction. About one-third of these jobs could potentially be accommodated within existing offices and facilities, given current vacancy rates. Many of these jobs are expected to be filled by currently unemployed or underemployed individuals. From 2020 to 2040, the rate of job growth is forecast to slow in comparison to the 2010-2010 period.

The job growth forecast was adjusted based on the difficulties in supplying sufficient housing in the Bay Area to meet the needs of workforce housing within reasonable commute times. The historic imbalances in the Bay Area housing market have resulted in excessively high housing prices in locations close to job centers. Employers have consistently cited these imbalances as the most difficult aspect of recruiting and retaining high-quality employees in the region.

Figure 4. Total Regional Employment, 1980-2040
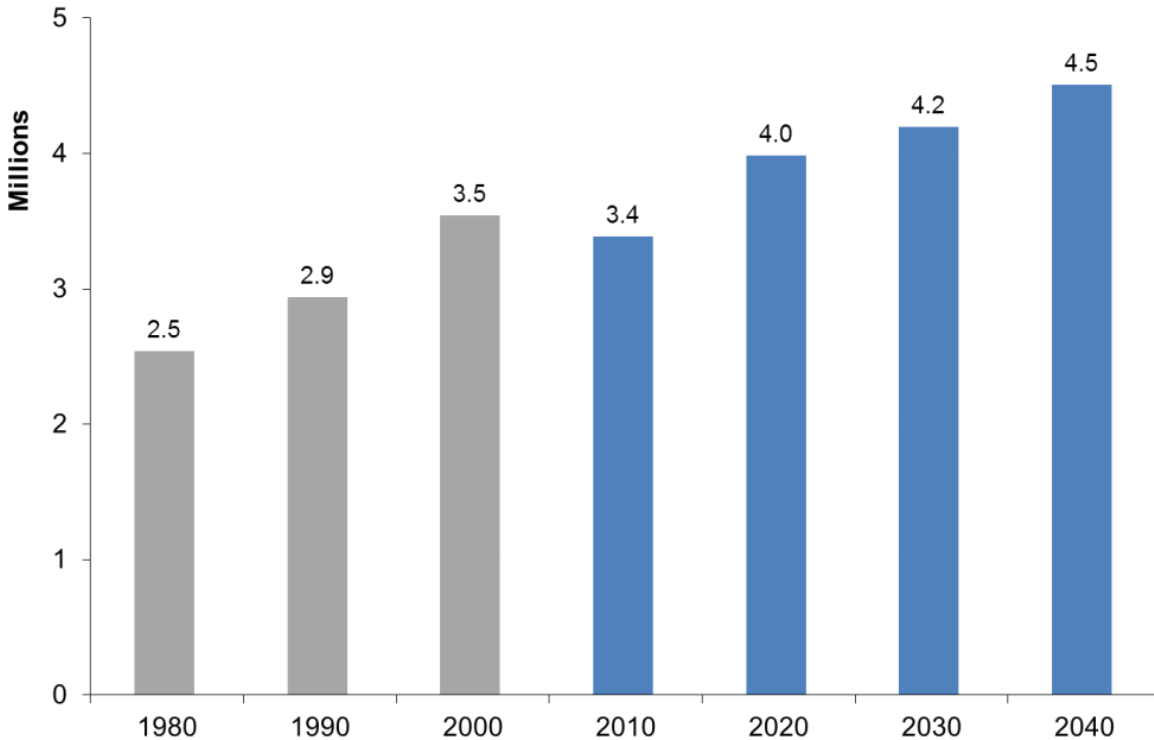
Sources: US Census (1960-1980), DOF (1990-2000), ABAG

Employment Growth Highest in Professional Services, Health and Education, and Leisure and Hospitality Economic Sectors

Major industry job trends in the Bay Area over the next 30 years are expected to largely mirror national trends. Nearly 73 percent of total employment growth is projected to be in the professional services, health and education, and leisure and hospitality sectors. The national trends of slower growth in retail and finance are also expected in the Bay Area. Construction jobs are expected to almost regain pre-recession levels by 2020 and to increase slightly by 2040. Although this is a substantial gain compared to 2010, it is driven primarily by a slow return to more normal construction levels in the region. Manufacturing jobs are projected to remain more or less stable through 2040. (See Table 4.)

Industry sectors contain a wide spectrum of wages, which correspond to the skill levels and training needed for different occupations. This is especially true for the two sectors with the highest projected growth: professional services and health and education. For example, fewer than half the jobs in professional services require the higher levels of education and specialization than one might consider typical for this sector. The construction, manufacturing and wholesale sectors have significant numbers of jobs in middle-income occupations, while the leisure and hospitality (which includes hotels) and retail sectors have higher shares of low-income jobs. While there are substantial opportunities in fast-growing sectors with large numbers of high income jobs, these sectors also will create middle- and low-income jobs. For

example, the professional services sector will create both high-income jobs, such as a vice president of sales, and lower-income jobs, such as a file clerk.

Table 4. Bay Area Employment by Sector, 2010 – 2040, Ranked by Job Growth

Sector	2010	2040	Growth (Loss) 2010-2040	% Change 2010 - 2040
Professional Services	596,700	973,600	376,900	+63%
Health and Education	447,700	698,600	250,900	+56%
Leisure and Hospitality	472,900	660,600	187,600	+40%
Construction	142,300	225,300	82,900	+58%
Government	499,000	565,400	66,400	+13%
Retail	335,900	384,400	48,500	+14%
Finance	186,100	233,800	47,700	+26%
Information	121,100	157,300	36,300	+30%
Transportation and Utilities	98,700	127,400	28,600	+29%
Manufacturing and Wholesale	460,200	456,100	(4,100)	-1%
Agriculture and Natural Resources	24,600	22,700	(1,900)	-8%
All Jobs	**3,385,300**	**4,505,200**	**1,119,900**	**+33%**

Sources: CCSE, ABAG

Growth in Lower-Income Households

The household income forecast was based on projected jobs by sector, associated occupations and wages, and trends in the geographic distribution of households by income level over the past several decades. Wages were calculated based on the occupations within each industry group. Other income, such as capital gains from stock market investments, was estimated from state and national forecasts as well as from past regional trends. The geographic distribution of households by income was estimated from the U.S. Census.

Today, about 40 percent of the existing 2.6 million households in the Bay Area (or just over 1 million) fall into the very-low and low-income groups, according to U.S. Census figures. Due to the growth in leisure and hospitality, retail and other low-income jobs, the number of people in very-low and low-income groups is projected to increase from 40 percent of households to 43 percent of households by 2040, while those in the moderate and above-moderate categories will decrease from 60 percent to 57 percent of households (Figure 5). This is a worrisome trend in a region with such a high cost of housing, food and other necessities.

Figure 5. Bay Area Households by Income Category, 2010-2040
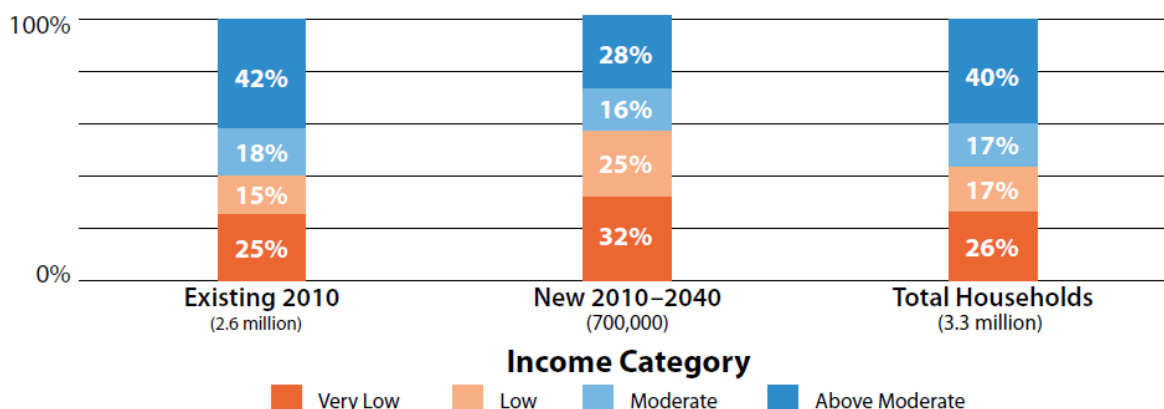
Source: U.S. Census; Karen Chapple and Jacob Wegmann, *Evaluating the Effects of Projected Job Growth on Housing Demand*, *2012*

Housing Forecast

The Association of Bay Area Governments based its housing production forecast on expected household income and demand, past housing production trends, and local plans (including planned zoning changes). It also assumed the following:

- Existing policies and programs to produce housing will be retained and enhanced.
- A replacement mechanism will be found to fund and implement many of the functions that were performed by California redevelopment agencies before Gov. Jerry Brown signed legislation abolishing those agencies in June 2011.
- Some aging baby boomers will move to residential care facilities or other group housing.
- An estimated 40,000 vacant or foreclosed homes will be reabsorbed into the region's housing supply.

Demand for Multi-Unit Housing in Urban Areas Close to Transit Expected to Increase

The Bay Area has produced an average of just over 23,000 housing units annually since the 1980s. Single-family homes represent the majority of housing production in recent decades. Most of these homes were built on undeveloped land in suburban locations that provided housing for the post-war baby boom generation and their families. However, according to the Urban Land Institute's *What's Next? Real Estate in the New Economy* (2011), recent trends suggest that cities once again are becoming centers of population growth, including in the Bay Area. On average, construction of multifamily housing in urban locations in the Bay Area increased from 35 percent of total housing construction in the 1990s to nearly 50 percent in the 2000s, and in 2010 it represented 65 percent of all housing construction (Figure 6).

Figure 6. Bay Area Housing Construction by Type, 1990-2010
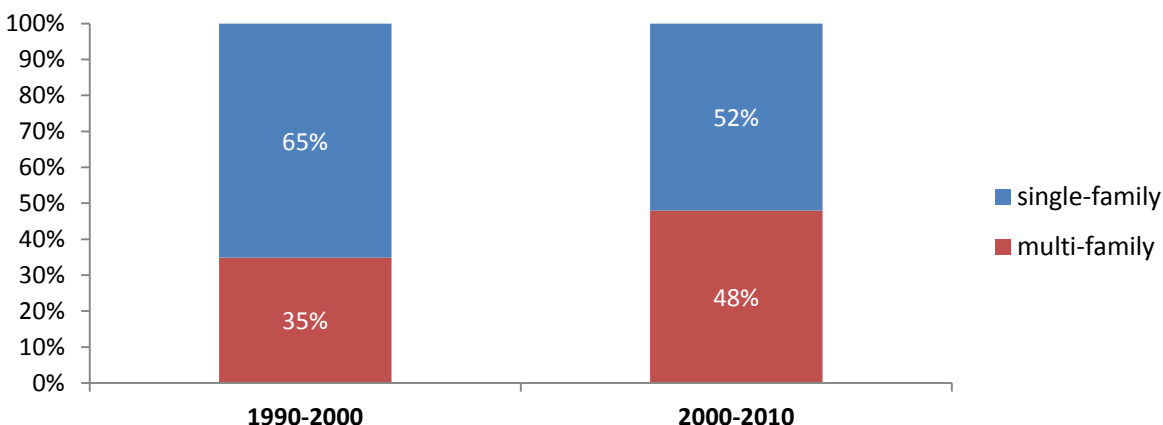
Source: US Census

Based upon the emerging demographic changes and employment growth forecasts previously discussed, an annual average of approximately 22,000 units (95 percent of the annual average since the 1980s) or 660,000 new homes are forecast to be constructed by 2040. This projection of new homes is marginally higher than the 600,000 new homes estimated by UC Berkeley, whose estimate was based on historical housing production trends. The regional forecast assumes that strong housing policies will push housing demand and housing production levels up in the region in comparison to past trends. Demand for multifamily housing is projected to increase as seniors downsize and seek the greater access to shops and services that urban locations provide. Multi-generational household growth, along with population growth of those aged 34 and under, is also expected to increase demand for multifamily housing in urban locations. Market demand for new homes will tilt toward townhomes, condominiums and apartments in developed areas. These homes are typically closer to transit, shops and services than the single-family residential development pattern of earlier decades.

Market demand for housing near transit also is expected to increase. According to the University of Southern California Population Dynamics Research Group's *The 2010 Census Benchmark for California's Growing and Changing Population* (2011), people aged 55 and over are more likely to prioritize public transportation, walking, access to shops and services, and multifamily housing than do other households. Young singles prefer similar locations with urban amenities, and they prioritize short commutes. These demographic changes represent substantial shifts that are expected to contribute to the Bay Area's recovery from the Great Recession. For example, the regional real estate market already is showing signs of recovery.

The current single-family housing stock provides a large supply relative to future demand, and an oversupply is projected by 2040. This oversupply is expected to dampen production of multifamily housing, as some households opt instead for single-family homes that are made more affordable due to the excess supply. Despite lower demand for newly constructed single-

family homes, some production will occur as the Bay Area housing market gradually adjusts to these changing demographics.

Looking Ahead

The population, employment and housing forecasts provide information to help determine how the region will house its new residents and workforce looking forward to 2040. The forecasts summarized here were used to develop the land use distribution discussed in the next section. The forecasts and future land use distribution also will affect Bay Area travel patterns, and have informed the transportation investment strategy for Plan Bay Area. It should be noted that Plan Bay Area and its related forecasts will be updated every four years.

3. DISTRIBUTION OF FORECASTED JOBS AND HOUSING

ABAG and MTC developed a variety of land use and transportation scenarios that distributed the total amount of growth forecasted for the region to specific locations. These scenarios sought to address the needs and aspirations of each Bay Area jurisdiction, as identified in locally adopted general plans and zoning ordinances, while meeting Plan Bay Area performance targets adopted by the agencies to guide and gauge the region's future growth. The framework for developing these scenarios consisted of the pre-existing Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) chosen by local governments. ABAG and MTC created the scenarios through a transparent, deliberative process, during which public input was sought at every step along the way. After further modeling, analysis and public engagement, the five initial scenarios were narrowed down to a single preferred land use scenario. This scenario and resulting development pattern represent the Sustainable Communities Strategy (SCS) that Plan Bay Area must include in the Regional Transportation Plan, as mandated by Senate Bill 375. The preferred land use scenario is a flexible blueprint for accommodating growth over the long term.

LAND USE OBJECTIVES

As required by SB 375, the land use distribution in Plan Bay Area identifies the locations that can accommodate future growth, including the scale and type of growth most appropriate for different types of locations. In order to meet the Bay Area's greenhouse gas (GHG) emissions reduction and housing targets, and to make progress toward meeting the other adopted performance targets, the plan encourages future job and population growth in existing communities with access to existing or planned transportation investments. The land use pattern seeks to achieve four comprehensive objectives:

1. **Create a network of complete communities** – Building on the PDA framework of complete communities that increase housing and transportation choices, the plan envisions neighborhoods where transit, jobs, schools, services and recreation are conveniently located near people's homes.

2. **Increase the accessibility, affordability and diversity of housing** – The distribution of housing in the Bay Area is critical, given its importance to individuals, communities and the region as a whole. The Bay Area needs sufficient housing options to attract the businesses and talented workforce needed for a robust future economy.

3. **Create jobs to maintain and expand a prosperous and equitable regional economy** – The plan seeks to reinforce the Bay Area's role as one of the most dynamic regional economies in the United States. It focuses on expanding the existing concentration of knowledge-based and technology industries in the region, which is a key to the Bay Area's economic competitiveness.

4. **Protect the region's unique natural environment** – The Bay Area's greenbelt of agricultural, natural resource and open space lands is a treasured asset that contributes to residents' quality of life and supports regional economic development.

LAND USE DISTRIBUTION APPROACH

There are two main inputs for the Plan Bay Area land use distribution process. The first input is California Senate Bill SB 375, under which the Bay Area is required to identify a land use pattern that will:

1. **Help the region achieve its GHG emissions reduction target** of reducing per-capita CO_2 emissions from cars and light-duty trucks by 7 percent by 2020 and by 15 percent by 2035; and

2. **House 100 percent of the region's projected 25-year population growth** by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents.

The second input is the long-term growth forecast developed using historic and future demographic trends, as described above. In addition to these inputs, the land use distribution emphasizes growth in locally identified Priority Development Areas (PDAs) along the region's core transit network and accommodates 100 percent of new growth within existing urban growth boundaries and urban limit lines. It also emphasizes protection for the region's agricultural, scenic and natural resources areas, including Priority Conservation Areas.

The 191 adopted PDAs are existing neighborhoods nominated by local jurisdictions as appropriate places to concentrate future growth that will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit. Emphasizing higher levels of growth in these locations means that many neighborhoods, particularly established single-family home neighborhoods, will see minimal future change. A key part of the PDA strategy is to move away from an unplanned "project-by-project" approach to growth, toward the creation of complete communities that meet the needs of existing and new residents and workers.

Priority Conservation Areas (PCAs) comprise over 100 regionally significant open spaces for which there exists broad consensus for long-term protection, but which face nearer-term development pressures. They are a mechanism for implementing Plan Bay Area—particularly in the North Bay, where they are central to the character and economy of many communities, and they ensure that Plan Bay Area considers farmland and resource areas in keeping with Senate Bill 375. The PCAs and PDAs complement one another: promoting compact development within PDAs takes development pressure off the region's open space and agricultural lands.

JOB GROWTH

Employment Distribution Approach

Responding to Business Location Trends

Plan Bay Area's distribution of jobs throughout the region is informed by changing trends in the locational preferences of the wide range of industry sectors and business place types in the Bay Area. These trends capture ongoing geographic changes, as well as changes in the labor force composition and workers' preferences. Overall, the changing needs of businesses suggest a transition toward a more focused employment growth pattern for the Bay Area. This focused growth takes a variety of forms across the various employment centers throughout the region, summarized below.

- **Knowledge-based, culture and entertainment at regional centers**
  The growth of the professional services sector is expected to result in more jobs in Downtown San Francisco, Downtown Oakland, and Downtown San Jose—assuming an appropriate provision of infrastructure, transit and access to affordable housing. These downtown areas also have attracted international business and leisure travelers, as well as artists and entertainers, fueling the rise of leisure and cultural activities. Similar to the growth of San Francisco's financial district in the 1970s, the Bay Area is attracting new businesses and workers seeking to locate near related firms, services and amenities. These businesses and professionals seek flexible building spaces and require less office space per worker compared to traditional office space expansion in downtown areas.

- **Multiple activities and transit at office parks**
  Office parks are expected to continue to accommodate a growing number of employees. However, given the limited land available for new office parks, available vacant office space, and the preference for walkable, transit-served neighborhoods by growing numbers of employers, office parks are expected to grow at a slower pace than in past decades. Many existing office parks are changing to use less space per worker, provide direct transit access, and even offer housing, services and other amenities. Growing numbers of businesses, particularly in San Mateo and Santa Clara counties, are providing private shuttle services to help their employees commute to work. Increasing and improving transit access to office parks will lessen, but not fully mitigate, increased traffic congestion related to employment growth.

- **Downtown areas and transit corridors serving residents**
  Over the last decade, medium and small cities throughout the region have been expanding the range of services and jobs provided in their downtown areas. The increase in the senior population, combined with the region's changing ethnic profile, is expected to increase the demand for local services, housing and transportation choices across the region, including in many of these medium and small downtown areas. Many of these locations have been identified as PDAs and have shown increased

concentrations of knowledge-based jobs in the arts, recreation, and health and education sectors.

- **New vitality of industrial and agricultural lands**
Manufacturing and wholesale distribution have experienced declining employment in many of the region's key industrial areas. However, in recent years a different and very diverse mix of businesses has relocated to some of these Bay Area locations[4]. In addition to basic services such as shuttle operations and refuse collection, or traditional uses such as concrete plants, industrial lands are now occupied by food processing, high tech product development, car repair, graphic design and recycling businesses, among others. The building and space needs of these businesses make traditional industrial lands attractive. These new businesses also provide essential support to other sectors of the economy and vital services to nearby residents.

   The trends in agricultural lands have paralleled those of industrial lands in the increasing diversity of activities. However, growth on agricultural land is driven mainly by increased services and tourism. The Bay Area's wealth of agricultural land is unparalleled among the nation's largest metropolitan regions, providing fresh produce and other high quality agricultural products and supporting a world-renowned wine industry. Beyond promoting tourism, the abundance of agricultural land and open space contributes to the quality of life for Bay Area residents and is a draw for people considering relocating from outside the region.

Employment Distribution Methodology

The distribution of new employment growth considers job growth by sector and is linked to input from local residents and planning departments. Employment growth is organized under three major groups: knowledge-sector jobs, population-serving jobs and all other jobs.

The number of knowledge-sector jobs – such as jobs in information technology companies, legal or engineering offices, or biotechnology firms – is expected to grow based on the current concentrations of these jobs, the specialized skills and experience required to perform these jobs, and past growth in the sector. Jobs included in the knowledge-sectors are shown in Table 5.

---

[4] Based on observed recent trends; further research and analysis would be needed to determine a sector breakdown and geographic origins of these businesses.

Table 5. Knowledge-based Job Sectors

NAICS* Industry Sectors	Employment Sectors
51	Information
52, 53	Financial and Leasing
54-56	Professional and Managerial Services

* North American Industrial Classification System

The number of population-serving jobs, such as those in retail stores or restaurants, is expected to grow in a manner reflecting the distribution of future household growth. Jobs included in the population-serving sectors .are shown in Table 6.

Table 6. Population-Serving Job Sectors

NAICS* Industry Sectors	Sector / Group Name
23	Construction
44-45	Retail Trade
61-62	Educational Services; Health Care & Social Assistance
72	Accommodation and Food Services

North American Industrial Classification System

The number of jobs in all other sectors, including the government, agriculture and manufacturing sectors is expected to grow according to the existing distribution of jobs in each of these sectors. Finally, the employment growth distribution also is linked to access to transit service, which continues to be a major draw for both employers and employees.

Data Sources and Uses

California Department of Transportation Sector Forecast (Caltrans)

Caltrans uses an econometric model to project employment by industry out to 2040 for each county in California. The agency's model uses variables and assumptions taken from the UCLA Anderson Forecast and historic employment data from the California Employment Development Department (EDD). The most recent projections were released in August 2011, titled *California County-Level Economic Forecast: 2011-2040*. In comparison, the most recent EDD and BLS projections available date from 2008 and 2009. A complete description of the 2011 Caltrans projection methodology and data out to 2040 is available at: http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html.

Center for Continuing Study of the California Economy (CCSCE)

CCSCE uses national short-term and long-term economic and demographic forecasts to prepare long-term regional economic projections by industry sector. Details on the CCSCE methodology and analysis are provided in a report, *Bay Area Job Growth to 2040: Projections and Analysis*.

Walls & Associates / Dun and Bradstreet (NETS)

Walls & Associates converts Dun and Bradstreet archival establishment data into a time-series database of establishment information called the National Establishment Times-Series (NETS) Database. ABAG has analyzed the NETS data to provide information on the spatial distribution of jobs at the jurisdiction and PDA level by employment sector, as well as changes in spatial distribution at these geographies from 1989-2009. More information on the NETS data is available at: http://www.youreconomy.org/nets/?region=Walls

2010 Employment Distribution

Current employment was based on total jobs by sector as detailed in *Bay Area Job Growth to 2040: Projections and Analysis*, prepared by Stephen Levy at the Center for Continuing Study of the California Economy (CCSCE). This is derived from California EDD wage and salary job estimates plus estimates for self-employed workers developed from the 1990 and 2000 Census and American Community Survey annual estimates. The distribution to the counties is based upon 2010 sector totals by county from the Caltrans forecast. National Establishment Time-Series (NETS) data is used to distribute jobs by PDA and jurisdiction for each sector within each county.

2040 Employment Distribution

Employment by Economic Sector and County

The first step in the employment distribution was to determine the composition of employment in 2040 by different industry sectors for the region as a whole. This was derived from the Center for Continuing Study of the California Economy's *Bay Area Job Growth to 2040: Projections and Analysis* (February 2012). The next step was to distribute 2040 job numbers among the nine counties for each industry sector based upon county shares of regional employment, as reported in Caltrans' *California County-Level Economic Forecast: 2011-2040* (August 2011).

Employment by Jurisdiction and Priority Development Area

The distribution of employment by jurisdiction and Priority Development Area was calculated as a share of county growth for each industry sector using five growth distribution factors. The first three distribution factors are based upon the type of job. The fourth and fifth distribution factors are local planning assumptions and the locations of resource areas and farmlands, respectively:

1. **Population-serving jobs ratio**: For jobs that provide services to households, employment location is dependent upon where people live. As a result, growth of these

jobs was distributed based upon the geographic distribution of household growth in the region. The ratio of jobs included in the population-serving category is as follows: 14% of new Construction jobs, 48% of new Retail jobs, 60% of new Health and Education jobs, and 36% of new Leisure and Hospitality sector jobs.

2. **Knowledge-sector jobs index**: For jobs in the professional and business services, information and finance sectors, a "knowledge strength index" was used to weight the distribution of jobs within each county at the jurisdiction level. The index weights jurisdiction growth based upon multiple factors related to total employment, knowledge-sector employment, knowledge-sector county locations, each jurisdiction's share of total jobs in the county, the jurisdiction's share of knowledge-sector jobs in the county, employment density, and transit service and coverage. The index reflects the tendency of these jobs to be located in areas with already high concentrations of similar companies and a shared labor pool. Table 7 shows the relative weights of each index factor. The maximum deviations for any jurisdiction from existing shares in these sectors based upon the index weighting was +9 percent and -3 percent of county growth. The index allocation to jurisdictions was adjusted downward for smaller residential communities with limited land capacity to increase employment. PDAs received a 10 percent increase in share of jurisdiction growth in these sectors over existing shares.

Table 7. Knowledge Strength Index

Knowledge Strength Index Factor	Variable	Weight
Size of Employment Base	Average total employment 1990-2010	0.1
Size of Knowledge-based sector	Average knowledge employment 1990-2010	0.1
Knowledge-based concentration	Knowledge sectors location quotient 2010	0.2
Job Gravity	Share of county's jobs 2010	0.1
Knowledge-based Growth Capture	Share of knowledge-based job growth in county '90-'00	0.1
Density of Employment	Employees/sq mile	0.15
Transit frequency	Average combined headway 2009 (minutes)	0.2
Transit coverage	% Intersections with Transit	0.05

Source: ABAG

3. **Existing employment share for all other jobs**: For the remaining sectors, employment growth was distributed based upon the existing distribution in 2010, using data from the National Establishment Times-Series (NETS) database, which provides employment information by location of business establishments at a high level of geographical resolution.

4. **Local planning assumptions**: This information, including locally-adopted general plans and neighborhood plans, was supplied by local planning departments. Following the distribution of jobs by sector, outlined above, staff reviewed job capacity information for Priority Development Areas provided by local jurisdictions (either directly as feedback on prior scenarios, in PDA application materials and assessment surveys, or in regional land use data collected by ABAG). Where there was additional job growth in a jurisdiction and capacity identified for that growth in Priority Development Areas, the PDA employment numbers were increased to reflect the local plans. Additionally, shifts among PDAs within a jurisdiction were made to better reflect where growth was planned for by local jurisdictions.

5. **Resource areas and farmland**: This information, derived from farmland and resource lands, the locations of Priority Conservation Areas, and the urban growth boundaries, was checked against the growth distribution to ensure that employment growth was not impacting resource areas.

2040 Employment Distribution Highlights

The combined effect of the growth distribution factors directs job growth toward the region's larger cities and Priority Development Areas with a strong existing employment base and communities with stronger opportunities for knowledge-sector jobs. As a result, almost 40 percent of the jobs added from 2010 to 2040 will be in the region's three largest cities – San Jose, San Francisco and Oakland – which accounted for about one-third of the region's jobs in 2010. Nearly two-thirds of the overall job growth is anticipated to be in PDAs throughout the region. Map 1 shows where the region is expected to add jobs during this time period.

Due to the strength of the knowledge sector, nine of the 15 cities expected to experience the greatest job growth are in the western and southern part of the region surrounding Silicon Valley (Table 8). The remaining communities expecting high levels of job growth are in the East Bay and North Bay, relying on their strong roles in the current economy, diverse employment base, and their proximity to a large base of workers. In sum, the 15 cities expected to experience the most job growth will account for roughly 700,000 jobs, or just over 60 percent of the new jobs added in the region by 2040.

Table 8. SF Bay Area Total Job Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Jobs		2010-2040 Job Growth	
		2010	2040	Total Growth	Percent Growth*
1	San Francisco	568,720	759,500	190,780	34%
2	San Jose	377,140	524,510	147,380	39%
3	Oakland	190,490	275,760	85,260	45%
4	Santa Clara	112,890	146,180	33,290	29%
5	Fremont	90,010	120,000	29,990	33%
6	Palo Alto	89,690	119,470	29,780	33%
7	Santa Rosa	75,460	103,940	28,470	38%
8	Berkeley	77,110	99,330	22,220	29%
9	Concord	47,640	69,450	21,810	46%
10	Sunnyvale	74,810	95,600	20,790	28%
11	San Mateo	52,540	72,950	20,410	39%
12	Hayward	68,140	87,820	19,680	29%
13	Redwood City	58,080	77,480	19,400	33%
14	Walnut Creek	41,720	57,380	15,660	38%
15	Mountain View	47,950	63,590	15,640	33%

Percentage growth figures may appear inaccurate due to rounding.

Source: ABAG (2013)

Map 1. Density of Job Growth, 2010-2040
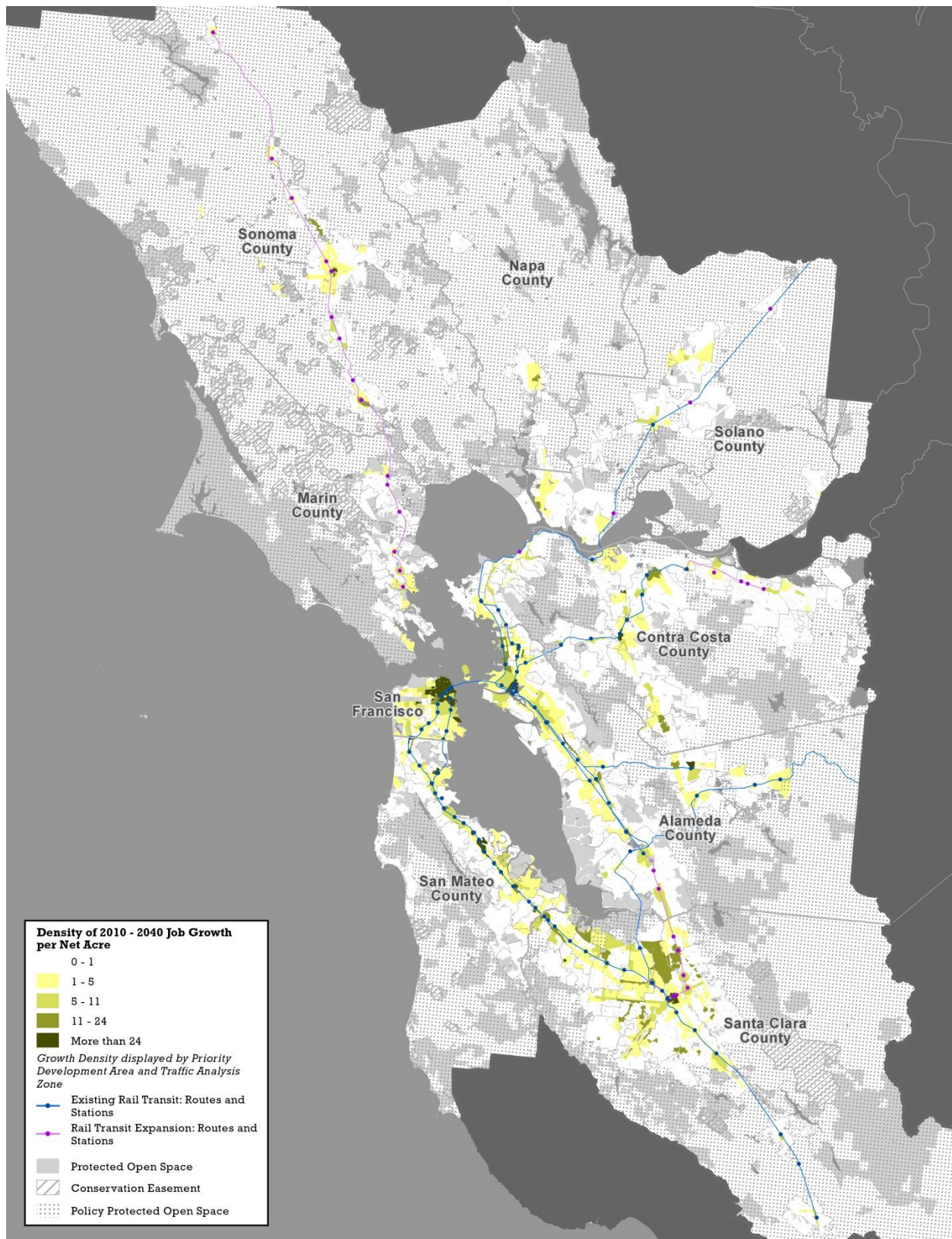
Source: ABAG (2013)

HOUSING GROWTH

Housing Distribution Approach

Supporting Equitable and Sustainable Development

The Plan Bay Area housing distribution is guided by the policy direction of the ABAG Executive Board, which voted in July 2011 to support equitable and sustainable development by "maximizing the regional transit network and reducing GHG emissions by providing convenient access to employment for people of all incomes." This was accomplished by distributing total housing growth numbers to: 1) job-rich cities that have PDAs or additional areas that are PDA-like, 2) areas connected to the existing transit infrastructure, and 3) areas that lack sufficient affordable housing to accommodate low-income commuters.

Housing Distribution Methodology

As with the 2040 employment distribution, the methodology for distributing new housing throughout the Bay Area involves the use of growth distribution factors:

- **Level of transit service**: The highest level of transit service in an area was used to group each area into one of three regional transit tiers. Places with high levels of transit service were assigned more growth, with the goal of utilizing the existing transit infrastructure more efficiently and leveraging the region's emphasis on operating and maintaining the current transit system.

- **Vehicle miles traveled (VMT) per household**: Housing growth was directed to locations expected to result in the lowest greenhouse gas emissions. This adjustment was based on a measure of the use of Bay Area freeways and roads called "vehicle miles traveled" (VMT). One vehicle (regardless of the number of passengers) traveling one mile constitutes one "vehicle mile." The number of vehicle miles traveled is highly correlated with greenhouse gas emissions. VMT data was derived from MTC's Regional Travel Demand Model.

- **Employment by 2040**: To link housing growth more closely to job centers, the initial housing distribution was adjusted by an employment factor for each area, based on the total 2040 employment for each jurisdiction.

- **Low-wage workers in-commuting from outside the Bay Area**: This factor shifts housing growth to places that are importing many low-income workers. "Longitudinal employment and household dynamics" data from the U.S. Census Bureau was used to determine the number of workers commuting to and from a jurisdiction by income category in 2009 and previous years.

- **Housing values**: To recognize places with high-quality services (schools, parks, infrastructure, etc.), the initial housing distribution was adjusted by a housing value factor, based on a jurisdiction's median home value in 2010. Data from 2010 U.S. Census.

- **Local planning assumptions:** This information, including locally-adopted general plans and neighborhood plans, was supplied by local planning departments.
- **Resource areas and farmland**: This information was derived from farmland and resource lands, the locations of Priority Conservation Areas, and the urban growth boundaries.

Data Sources

2010 Census Summary File 1 (U. S. Census Bureau)

The U.S. Census counts every resident in the United States. It is mandated by Article I, Section 2 of the Constitution and takes place every 10 years. National and state population totals from the 2010 Decennial Census were released on December 21, 2010. Redistricting data, which include additional state, county and local counts, were released starting in February 2011. Decennial Census population, housing unit, housing vacancy (including seasonal vacancies), and household data for the region were obtained from the 2010 Census Summary File 1: http://factfinder2.census.gov/main.html

Longitudinal Employment and Household Dynamics (U. S. Census Bureau)

The Longitudinal Employment and Household Dynamics (LEHD) program uses statistical and computing techniques to combine federal and state administrative data on employers and employees with core Census Bureau censuses and surveys. The program provides employment statistics on employment, job creation, turnover, and earnings by industry, age and sex at the local, state, county and sub-county. More information on the LEHD data is available at: http://lehd.did.census.gov/led/

Regional Travel Demand Model (MTC)

Vehicle miles traveled (VMT) data at the Transportation Analysis Zone (TAZ) level from the Alternative Scenarios were obtained via MTC's Regional Travel Demand Model.

National Establishment Times-Series (Walls & Associates / Dun and Bradstreet)

Walls & Associates converts Dun and Bradstreet archival establishment data into a time-series database of establishment information called the National Establishment Times-Series (NETS) Database. The NETS data is gathered by individual business and includes number of jobs, industry type, and location. ABAG has analyzed the NETS data to provide information on the spatial distribution of jobs at the jurisdiction and PDA level by employment sector, as well as changes in spatial distribution at these geographies from 1989-2009. More information on the NETS data is available at: http://www.youreconomy.org/nets/?region=Walls

2010 Housing Distribution

The 2010 regional housing unit and household distribution was based on block-level data from the U.S Census Bureau's 2010 Decennial Census.

2040 Housing Distribution

The initial basis for distributing household growth to each area in the region was a locally-based assessment of housing development potential through 2040. This assessment was based on general plans, specific plans, and zoning ordinances adopted by local governments[5]; feedback provided by jurisdictions[6]; and, for PDAs, the scale of growth associated with the locally-selected Place Type[7]. Housing unit growth was added to an area's 2010 total housing units to determine the area's "Base Housing Unit Growth".

The following step-by-step methodology was then applied to each area's Base Housing Unit Growth:

1. The Base Housing Unit Growth for each area was adjusted based on the factors related to transit and vehicle miles traveled per household:

   Transit: The highest level of transit service in an area was used to group each area in the region into one of three transit tiers. Places with high levels of transit service were assigned more growth, with the goal of utilizing the existing transit infrastructure more efficiently. The three transit tiers are:

   Transit Tier 1: BART, Muni Metro, VTA Light Rail, Caltrain
   High-frequency heavy rail and light rail: locations with substantial existing transit investments that generally provide higher-frequency access region-wide, particularly to major job centers.

   Transit Tier 2: ACE, Amtrak Capital Corridor, SMART, eBART, Bus Rapid Transit (BRT) corridors
   Low-frequency heavy/commuter rail, future heavy rail, BRT/rapid bus corridors: locations with less convenient access to major job centers and future transit investment areas, generally providing access sub-regionally, rather than region-wide.

   Transit Tier 3: All other transit (bus, ferry, etc.)
   Locations served by locally-serving and lowest frequency transit.

---

[5] ABAG collects existing and planned land use data from local jurisdictions. The land use database includes local zoning and general plan designations along with allowable densities and intensities for development. Development potential up to 2040 for each area within the region was determined via analysis of these local zoning and land use designations. The land use database includes information from adopted general plans and zoning ordinances only, so the capacity reflected in the scenarios may reflect lower (or higher) capacity than what jurisdictions are currently planning.

[6] Local feedback on the SCS scenarios through letters, emails, meetings, and the SCS Basecamp forum, the PDA Assessment, and new applications for PDA designation provided detailed information on planned growth in specific PDAs and jurisdictions and constraints to growth.

[7] Local jurisdictions have defined their PDAs as regional centers, city centers, suburban centers or transit town centers, among other Place Types according to existing conditions and local expectations for the character, scale, and density of future growth. The level of growth in each of the region's PDAs reflects its role in achieving regional objectives. See MTC's Station Area Planning Manual for a description of the attributes of each Place Type. http://www.mtc.ca.gov/planning/smart_growth/stations/Station_Area_Planning_Manual_Nov07.pdf

Vehicle Miles Traveled Per Household[8]**:** Housing growth was directed to locations expected to result in the lowest greenhouse gas emissions. This adjustment was based VMT per household for each area, since this measure is highly correlated with greenhouse gas emissions. Each place was assigned to one of the VMT tiers shown in Table 9.

Table 9. VMT Tiers

VMT per Household	VMT Tier
0-25 vmt/hh	Tier 1
25-35 vmt/hh	Tier 2
35-45 vmt/hh	Tier 3
45+ vmt/hh	Tier 4

Each place's Transit Tier and VMT Tier were combined to create a Transit-VMT Tier Adjustment Rate, as shown in Table 10.

Table 10. Transit-VMT Tier Adjustment Rates

Transit Tier	VMT Tier	Growth Adjustment Rate
1	1	1.1
1	2	1.25*
1	3	1.2
1	4	1.15
2	1	1.25
2	2	1.2
2	3	1.15
2	4	1
3	1	1.2
3	2	1
3	3	1
3	4	0.75

Transit-VMT Tier 1-2 growth adjustment rate is higher than that for Tier 1-1 to ensure that housing growth was not over-allocated to areas that are already well-performing (primarily San Francisco and Oakland PDAs), but instead more evenly spread to areas well-served by transit but exhibiting less transit use (as indicated by VMT).

---

[8] This factor is based on VMT by place of residence for all home-based trips. VMT data for each PDA and non-PDA area is available from MTC's Regional Travel Demand Model. The 2040 VMT by Transportation Analysis Zone (TAZ) modeled from the best-performing SCS alternative scenario was used to calculate a 2040 VMT per household measure for each geographic sub-area used in the distribution.

Table 11 shows how the Transit-VMT Tier Adjustment Rates were applied to the Base Housing Unit Growth in different types of areas throughout the region.

Table 11. Adjustment to Base Housing Unit Growth Based on Transit and VMT

Step	Area	Base Housing Unit Growth	Growth Adjustment
1	Any VMT Tier 1 area	PDAs: Local feedback level of growth Other areas: land use development potential	Maximum of Base Growth or Transit-VMT Tier Rate x Base Growth. *No adjustment for PDAs if planned level of growth exceeds the mid-point of the expected amount of housing for the Place Type.*
2	All remaining PDAs: VMT Tiers 2, 3, 4	Local feedback level of growth	Maximum of Base Growth or Transit-VMT Tier Rate x Base Growth. *No adjustment for PDAs if planned level of growth exceeds the mid-point of the expected amount of housing for the Place Type.*
3	All remaining non-PDA areas (excluding areas outside of Urban Growth Boundaries/Urban Limit Lines)		Remainder of Regional Control Total[9] x Core Constrained Alternative Scenario Share of Growth x Transit-VMT Tier Rate (less vacant housing units for places with vacancy >10%)

2. The next step in the distribution was to apply additional growth factors related to sustainability, equity, and economy:

Employment: To link housing growth more closely to job centers, the initial housing distribution was adjusted by an employment factor for each area, based on the total 2040 employment for each jurisdiction.

---

[9] The Regional Control Total is 660,000, the total number of housing units forecasted to be added to the region between 2010 and 2040.

Net Low-Income In-Commuting Factor[10]: This factor shifts housing growth to places that are importing many low-income workers.

Housing Value Factor: To shift housing growth to places that offer high-quality services (schools, infrastructure, parks, etc.), the initial housing distribution was adjusted by a housing value factor, based on a jurisdiction's median home value in 2010[11].

The three factors were weighted as follows:

Table 12. VMT Tiers

Factor	Weight
Housing Value	3
Net Low-income In-commuting	2
2040 Employment	1

Growth in an area was adjusted a maximum of plus or minus 10 percent based on the combined factors.

3. In some cases, the growth distribution challenged certain communities with particularly rich transit options to grow in a more compact form than called for in their general plans in order to meet the region's performance targets. Additional units were distributed to key job centers and locations along the core transit network, including PDAs and non-PDA areas in the following cities: Millbrae, Oakland, Pleasanton, Redwood City, San Francisco, San Jose, San Mateo, San Ramon, Santa Clara, South San Francisco, Sunnyvale, and Walnut Creek.[12]

4. The resulting housing growth allocated to each sub-area was aggregated to provide a total amount of growth for each jurisdiction. This total growth was compared to the jurisdiction's feedback. If the growth assigned to a jurisdiction with BART or Caltrain stations or with a low amount of VMT per household was less than the locally-identified level of growth, the growth allocated to the jurisdiction was increased to meet the local feedback.

5. Vacancy absorption was factored into the housing distribution to account for current vacant housing units.[13] The total number of new units that will have to be built in an area

---

[10] U.S. Census Bureau LEHD data was used to determine the number of workers commuting to and from a jurisdiction by income category in 2009 and previous years.

[11] Data from 2010 U.S. Census.

[12] These areas were generally identified based on 2010 and 2040 level of employment, 2010 jobs-housing ratio, and level of transit service (particularly focused on BART and Caltrain).

[13] Data from 2010 U.S. Census. The analysis also excluded seasonal housing units and seasonal vacancies from the distribution to ensure they were not counted as available for occupancy by households.

to accommodate growth to 2040 was reduced based on the number of existing vacant units that are available to accommodate new households in an area.

6. Finally, housing growth was adjusted to account for anticipated levels of growth outside PDAs, including that on presently undeveloped land, and to ensure that no county or city's proposed growth substantially deviates from local plans. The jurisdictional level of growth was adjusted up or down based on feedback, ensuring that growth in each place meets at least 5 percent of existing units (for jurisdictions with population greater than 10,000). Growth from areas exceeding 115 percent of their locally-identified level of growth was re-balanced to areas receiving less than 75 percent of their locally-identified level of growth. Only 70 percent of the total units over-allocated were re-distributed to under-allocated jurisdictions. The result is that the level of growth in some jurisdictions may still exceed the 115 percent threshold.

2040 Housing Distribution Highlights

While housing growth is closely linked to local plans, as a result of these growth distribution factors, more housing growth is directed to locations where the transit system can be utilized more efficiently, where workers can be better connected to jobs, and where residents can access high-quality services. Map 2 shows where the region is expected to add housing between 2010 and 2040.

By emphasizing communities with transportation options and strong employment growth, the factors direct substantial housing production to the Peninsula and South Bay, where eight of 15 cities expected to experience the most housing growth are located (Table 13). In sum, two-thirds of the region's overall housing production is directed to these 15 cities. This development pattern preserves the character of the region by focusing growth on less than five percent of the land.

Table 13. SF Bay Area Total Housing Unit Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Housing Units		2010-2040 Housing Unit Growth	
		2010	2040	Total Growth	Percent Growth*
1	San Jose	314,040	443,320	129,280	41%
2	San Francisco	376,940	469,430	92,480	25%
3	Oakland	169,710	221,160	51,450	30%
4	Sunnyvale	55,790	74,820	19,030	34%
5	Concord	47,130	65,200	18,070	38%
6	Fremont	73,990	91,620	17,630	24%
7	Santa Rosa	67,400	83,430	16,030	24%
8	Santa Clara	45,150	58,930	13,780	31%
9	Milpitas	19,810	32,430	12,620	64%
10	Hayward	48,300	60,610	12,320	26%
11	Fairfield	37,180	48,300	11,120	30%
12	San Mateo	40,010	50,200	10,180	25%
13	Livermore	30,340	40,040	9,700	32%
14	Richmond	39,330	49,020	9,690	25%
15	Mountain View	33,880	43,280	9,400	28%

Percentage growth figures may appear inaccurate due to rounding.

Source: ABAG 2013

Map 2. Density of Household Growth, 2010-2040

Density of 2010 - 2040 Household Growth per Net Acre
- 0 - 1
- 1 - 6
- 6 - 15
- 15 - 30
- More than 30

Growth Density displayed by Priority Development Area and Traffic Analysis Zone

- ——•—— Existing Rail Transit: Routes and Stations
- ——•—— Rail Transit Expansion: Routes and Stations
- ▨ Protected Open Space
- ▧ Conservation Easement
- ⠿ Policy Protected Open Space
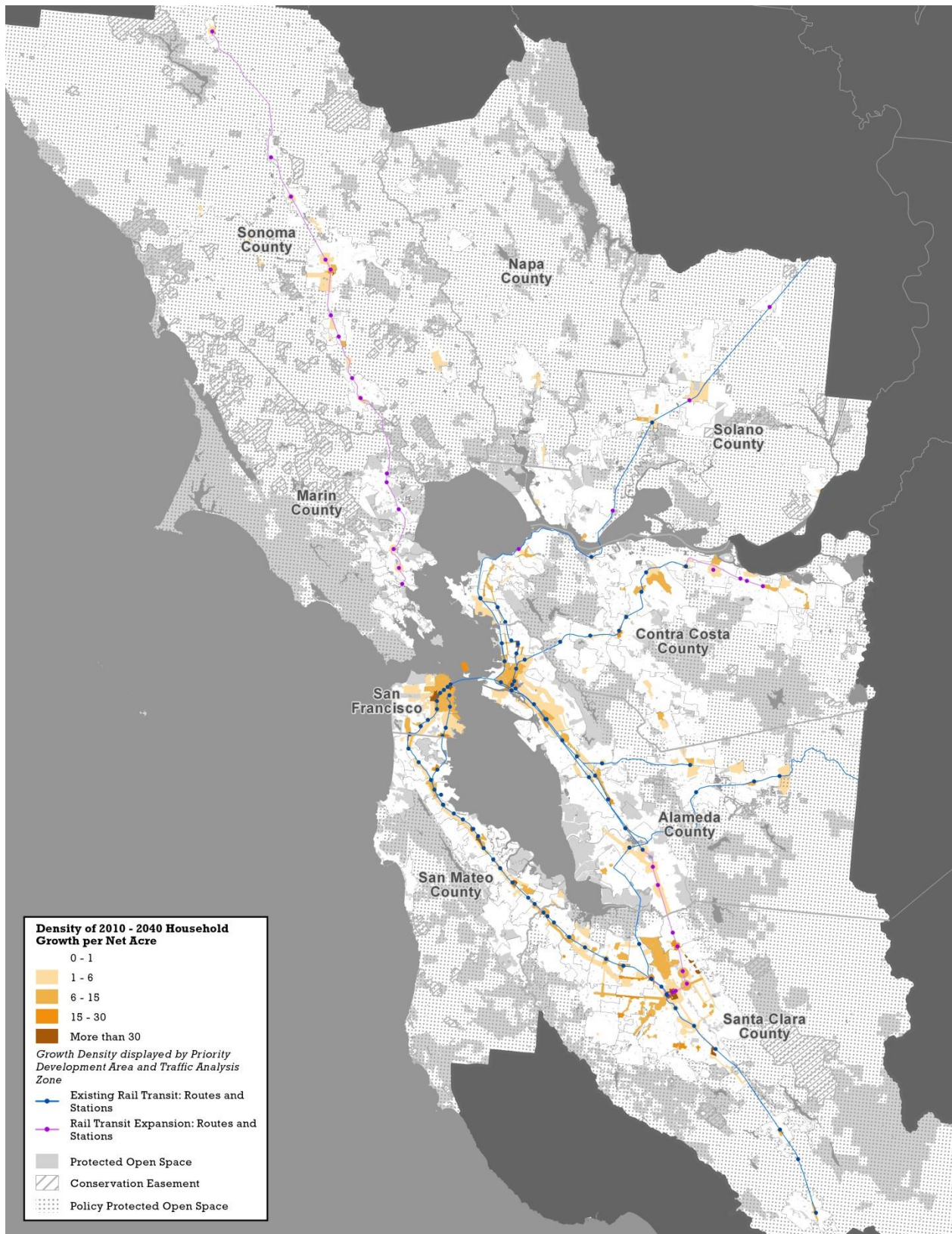
Source: ABAG (2013)

SUMMARY OF JOBS AND HOUSING DISTRIBUTION (2010-2040)

Reflecting the distribution growth factors' emphasis on the existing transit network and connecting homes and jobs, San Francisco, San Mateo, Santa Clara and Alameda counties account for the majority of housing growth (77 percent) and job growth (76 percent). Within these counties, the Bay Area's three regional centers—San Francisco, San Jose, and Oakland—will accommodate 41 percent of housing growth and 38 percent of total job growth by 2040. Corridors in the inner Bay Area, including El Camino Real/The Grand Boulevard, San Pablo Corridor, and East 14th–International Boulevard, also represent a major share of both housing and job growth, accommodating 19 percent of regional housing and 11 percent of regional job growth.

Contra Costa County accounts for 11 percent of the region's new jobs and 12 percent of its new homes. Concord, Richmond, Pittsburg, and Walnut Creek—all with PDAs centered on BART stations—take on the largest shares of the county's growth. Overall, PDAs in the county will take on 64 percent of the housing growth and 57 percent of the job growth.

Major suburban employment centers in Alameda and Contra Costa Counties, including Concord, Walnut Creek, and the Tri-Valley communities of Dublin, Pleasanton, Livermore, and San Ramon, account for 9 percent of the Bay Area's new jobs and 9 percent of its new homes.

With more limited transit access and fewer PDAs, North Bay counties—Marin, Napa, Solano and Sonoma—are expected to take on a much smaller share of regional growth, accounting for 10 percent of new households and 13 percent of new jobs. Much of this growth will be focused in PDAs, such as downtown Santa Rosa, Petaluma, Fairfield, and Vallejo. In Marin, 22 percent of new jobs and 38 percent of new housing are expected to be located in PDAs, while the share is 18 percent and 41 percent in Napa County, 33 percent and 63 percent in Solano County, and 45 percent and 62 percent in Sonoma County. By concentrating growth in the inner Bay Area and communities with frequent transit service, this growth strategy will help North Bay communities maintain their rural and small-town character. While accommodating a very limited amount of new growth, rural centers and corridors will enhance the pedestrian environment and access to local services in the traditional downtowns of many of these communities.

Overall, well over two-thirds of all regional growth by 2040 is allocated within Priority Development Areas. PDAs are expected to accommodate 78 percent (or 509,000 units) of new housing, 77 percent (or 527,000) of new households, and 62 percent (or 690,000) of new jobs. As a result, small cities, single-family neighborhoods and rural areas throughout the Bay Area are expected to retain the same scale and character.

Table 14 summarizes housing, job and population growth between 2010 and 2040 by county. Appendices A and B provide job and housing figures by jurisdiction and PDA.[14]

---

[14] Please note that minor modifications were made to the housing and employment distributions in the Draft Plan Bay Area, released in March 2013. These modifications are reflected in the tables in Appendices A and B. The modifications take into account the considerable local input received on the land use plan to date. Specifically, the

modifications reflect: (1) corrections to datasets that were used to develop the jobs and housing distributions in the Draft Plan; (2) adjustments to ensure consistency with Regional Housing Needs Allocation (RHNA); and (3) adjustments to local jurisdictions growth based on corrections to how the distribution methodology was applied. These minor modifications do not affect the conclusions of regional significance in the Draft Environmental Impact Report, nor do they impact the regional modeling results in a significant way. More information on these adjustments can be found in Section 2 of the Final Environmental Impact Report of Plan Bay Area.

Table 14. SF Bay Area County Housing and Job Growth, 2010-2040

County	Employment				Housing Units				Households				Population			
	2010	2040	2010-2040		2010[†]	2040	2010-2040		2010	2040	2010-2040		2010	2040	2010-2040	
			Total	%*			Total	%*			Total	%*			Total	%*
Alameda	694,450	947,650	253,200	36%	582,550	730,540	147,990	25%	545,140	705,330	160,190	29%	1,510,270	1,987,950	477,680	32%
Contra Costa	344,920	467,390	122,470	36%	400,260	481,590	81,330	20%	375,360	464,150	88,790	24%	1,049,030	1,338,440	289,420	28%
Marin	110,730	129,140	18,400	17%	111,210	118,740	7,530	7%	103,210	112,050	8,840	9%	252,410	285,400	32,990	13%
Napa	70,650	89,540	18,890	27%	54,760	60,830	6,070	11%	48,880	56,310	7,430	15%	136,480	163,680	27,190	20%
San Francisco	568,720	759,500	190,780	34%	376,940	469,430	92,480	25%	345,810	447,350	101,530	29%	805,240	1,085,730	280,500	35%
San Mateo	345,200	445,080	99,880	29%	271,030	326,070	55,040	20%	257,840	315,090	57,250	22%	718,450	904,430	185,980	26%
Santa Clara	926,260	1,229,530	303,270	33%	631,920	842,350	210,430	33%	604,200	818,390	214,190	35%	1,781,640	2,423,470	641,830	36%
Solano	132,350	179,930	47,580	36%	152,700	175,570	22,870	15%	141,760	168,700	26,950	19%	413,340	511,600	98,260	24%
Sonoma	192,010	257,460	65,450	34%	204,570	236,480	31,910	16%	185,830	220,740	34,910	19%	483,880	598,460	114,580	24%
REGION*	3,385,300	4,505,220	1,119,920	33%	2,785,950	3,446,640[†]	660,000[†]	24%	2,608,020	3,308,110	700,090	27%	7,150,740	9,299,150	2,148,410	30%

*Percentage growth figures may appear inaccurate and sum of county totals may not match regional totals due to rounding.

[†]2010 values include seasonal units; Regional 2040 and growth totals include 4,000 seasonal units that were not distributed throughout the region.

Source: ABAG (2013)

APPENDIX A: EMPLOYMENT GROWTH BY JURISDICTION AND PDA

Employment Growth by Jurisdiction and PDA/Investment Area

Alameda County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Alameda		*24,070*	*33,220*	*9,160*	*38%*
Naval Air Station	Transit Town Center	1,220	8,420	7,200	
Northern Waterfront	Transit Neighborhood	2,440	3,440	1,000	
Albany		*4,230*	*5,630*	*1,400*	*33%*
San Pablo Avenue & Solano Avenue	Mixed-Use Corridor	1,920	2,440	520	
Berkeley		*77,110*	*99,330*	*22,220*	*29%*
Adeline Street	Mixed-Use Corridor	950	1,630	680	
Downtown	City Center	15,210	21,600	6,390	
San Pablo Avenue *	Mixed-Use Corridor	2,400	3,340	950	
South Shattuck	Mixed-Use Corridor	1,150	1,450	300	
Telegraph Avenue	Mixed-Use Corridor	1,740	2,560	820	
University Avenue *	Mixed-Use Corridor	1,410	1,990	580	
Dublin		*16,810*	*31,650*	*14,840*	*88%*
Downtown Specific Plan Area	Suburban Center	4,460	5,950	1,490	
Town Center	Suburban Center	310	3,010	2,700	
Transit Center	Suburban Center	0	9,030	9,030	
Emeryville		*16,070*	*23,610*	*7,550*	*47%*
Mixed-Use Core	City Center	11,280	18,450	7,170	
Fremont		*90,010*	*120,000*	*29,990*	*33%*
Centerville	Transit Neighborhood	4,030	4,470	440	
City Center	City Center	18,770	24,660	5,900	
Irvington District	Transit Town Center	5,470	5,650	180	
South Fremont/Warm Springs	Suburban Center	12,890	28,980	16,090	
Hayward		*68,140*	*87,820*	*19,680*	*29%*
Downtown	City Center	6,300	9,270	2,970	
South Hayward BART	Mixed-Use Corridor	320	810	480	
South Hayward BART	Urban Neighborhood	470	1,610	1,130	
The Cannery	Transit Neighborhood	1,450	2,320	870	
Mission Corridor	Mixed-Use Corridor	1,700	2,830	1,120	
Livermore		*38,450*	*53,210*	*14,760*	*38%*
Downtown	Suburban Center	2,880	3,710	830	
East Side	Suburban Center	16,370	24,360	8,000	
	Suburban Center	3,300	8,500	5,200	
Isabel Avenue/BART Station Planning Area					
Newark		*17,930*	*23,150*	*5,220*	*29%*
	Transit Town Center	860	2,100	1,240	
Dumbarton Transit Oriented Development					
Old Town Mixed Use Area	Transit Neighborhood	180	390	210	
Oakland		*190,490*	*275,760*	*85,260*	*45%*
Coliseum BART Station Area	Transit Town Center	5,160	12,430	7,270	
Downtown & Jack London Square	Regional Center	88,260	127,710	39,450	
Eastmont Town Center	Urban Neighborhood	3,460	5,320	1,860	
Fruitvale & Dimond Areas	Urban Neighborhood	8,150	15,700	7,550	
MacArthur Transit Village	Urban Neighborhood	10,600	12,880	2,280	
	Mixed-Use Corridor	33,560	41,830	8,270	
Transit Oriented Development Corridors					
West Oakland	Transit Town Center	7,440	14,910	7,470	
Piedmont		*1,930*	*2,410*	*490*	*25%*
Pleasanton		*54,340*	*69,640*	*15,300*	*28%*
Hacienda	Suburban Center	9,910	15,330	5,410	
San Leandro		*39,980*	*52,920*	*12,940*	*32%*
Bay Fair BART Transit Village	Transit Town Center	1,440	2,700	1,260	
Downtown Transit Oriented Development *	City Center	2,790	2,840	50	
East 14th Street *	Mixed-Use Corridor	9,010	15,680	6,670	
Union City		*20,600*	*25,700*	*5,100*	*25%*
Intermodal Station District	City Center	340	2,810	2,470	
Alameda County Unincorporated		*34,300*	*43,600*	*9,300*	*27%*
Castro Valley BART	Transit Neighborhood	2,020	2,980	960	
East 14th Street and Mission Street	Mixed-Use Corridor	2,740	4,250	1,510	
Hesperian Boulevard	Transit Neighborhood	1,860	2,600	740	
Meekland Avenue Corridor	Transit Neighborhood	900	1,330	430	

Employment Growth by Jurisdiction and PDA/Investment Area

Contra Costa County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Antioch		*19,090*	*25,530*	*6,430*	*34%*
Hillcrest eBART Station	Suburban Center	20	3,260	3,250	
Rivertown Waterfront	Transit Town Center	4,030	4,530	490	
Brentwood		*8,670*	*11,660*	*3,000*	*34%*
Clayton		*1,540*	*1,950*	*410*	*27%*
Concord		*47,640*	*69,450*	*21,810*	*46%*
Community Reuse Area	Regional Center	170	14,200	14,040	
Community Reuse Area	Transit Neighborhood	0	3,240	3,240	
Downtown	City Center	7,850	10,200	2,360	
Danville		*13,460*	*17,620*	*4,160*	*31%*
Downtown Danville	Transit Town Center	5,320	7,290	1,970	
El Cerrito		*5,880*	*7,310*	*1,430*	*24%*
San Pablo Avenue Corridor: Del Norte	Mixed-Use Corridor	1,850	2,240	390	
San Pablo Avenue Corridor: South	Mixed-Use Corridor	1,670	2,110	440	
Hercules		*3,910*	*6,440*	*2,530*	*65%*
Central Hercules	Transit Neighborhood	800	1,830	1,030	
Waterfront District	Transit Town Center	1,230	1,890	650	
WCCTAC San Pablo Ave Corridor	Mixed-Use Corridor	730	1,180	450	
Lafayette		*9,940*	*12,430*	*2,490*	*25%*
Downtown	Transit Neighborhood	5,250	6,730	1,480	
Martinez		*18,320*	*22,490*	*4,160*	*23%*
Downtown	Transit Neighborhood	4,040	5,110	1,070	
Moraga		*4,740*	*5,940*	*1,190*	*25%*
Moraga Center	Transit Town Center	1,140	1,510	360	
Oakley		*3,750*	*6,680*	*2,930*	*78%*
Downtown	Transit Town Center	800	1,390	580	
Employment Area	Suburban Center	680	2,290	1,610	
Potential Planning Area	Transit Neighborhood	290	880	590	
Orinda		*5,530*	*6,940*	*1,410*	*25%*
Downtown	Transit Town Center	3,220	3,980	760	
Pinole		*6,740*	*8,490*	*1,740*	*26%*
Appian Way Corridor	Suburban Center	2,430	3,190	750	
Old Town	Transit Town Center	2,840	3,440	610	
Pittsburg		*14,180*	*19,800*	*5,620*	*40%*
Downtown	Transit Neighborhood	1,390	2,500	1,110	
Pittsburg/Bay Point BART Station	Transit Town Center	140	1,450	1,310	
Railroad Avenue eBART Station	Transit Town Center	5,610	7,930	2,320	
Pleasant Hill		*17,370*	*22,940*	*5,570*	*32%*
Buskirk Avenue Corridor	Mixed-Use Corridor	4,590	6,200	1,610	
Diablo Valley College	Transit Neighborhood	2,550	4,190	1,640	
Richmond		*30,790*	*42,320*	*11,530*	*37%*
Central Richmond & 23rd Street Corridor	City Center	6,600	8,670	2,070	
Central Richmond & 23rd Street Corridor	Mixed-Use Corridor	310	660	350	
South Richmond	Transit Neighborhood	7,030	9,360	2,340	
WCCTAC San Pablo Ave Corridor	Mixed-Use Corridor	1,790	3,010	1,210	
San Pablo		*7,470*	*9,660*	*2,190*	*29%*
San Pablo Avenue & 23rd Street	Mixed-Use Corridor	5,530	7,510	1,980	
Rumrill Boulevard	Empl. Investment Area	220	320	100	
San Ramon		*43,960*	*58,320*	*14,370*	*33%*
City Center	Suburban Center	10,430	17,800	7,360	
North Camino Ramon	Transit Town Center	11,430	14,460	3,030	
Walnut Creek		*41,720*	*57,380*	*15,660*	*38%*
West Downtown	Suburban Center	7,450	12,070	4,620	
Contra Costa County Unincorporated		*40,220*	*54,040*	*13,820*	*34%*
Contra Costa Centre	Mixed-Use Corridor	3,740	4,750	1,010	
Downtown El Sobrante	Mixed-Use Corridor	940	1,430	490	
North Richmond	Transit Neighborhood	1,490	1,980	500	
Pittsburg/Bay Point BART Station	Transit Neighborhood	400	1,150	750	
WCCTAC San Pablo Ave Corridor	Mixed-Use Corridor	680	990	310	

Employment Growth by Jurisdiction and PDA/Investment Area

Marin County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Belvedere		430	480	50	12%
Corte Madera		7,940	8,260	320	4%
Fairfax		1,490	1,820	330	22%
Larkspur		7,190	7,810	620	9%
Mill Valley		5,980	6,790	810	14%
Novato		20,890	24,390	3,490	17%
Ross		510	590	80	16%
San Anselmo		3,740	4,360	610	17%
San Rafael		37,620	44,960	7,340	20%
Civic Center/North Rafael Town Center	Transit Town Center	5,660	6,860	1,200	
Downtown	City Center	8,250	10,480	2,230	
Sausalito		6,220	7,640	1,420	23%
Tiburon		2,340	2,690	340	15%
Marin County Unincorporated		16,380	19,360	2,980	18%
Urbanized 101 Corridor	Transit Neighborhood	2,260	2,960	700	

Napa County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
American Canyon		2,920	4,160	1,240	42%
Highway 29 Corridor	Mixed-Use Corridor	1,280	2,100	810	
Calistoga		2,220	2,640	420	19%
Napa		33,950	44,520	10,570	31%
Downtown Napa & Soscol Gateway Corridor	Transit Neighborhood	10,950	13,580	2,620	
St. Helena		5,340	6,230	890	17%
Yountville		1,600	1,980	380	24%
Napa County Unincorporated		24,630	30,010	5,380	22%

San Francisco County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
San Francisco		568,720	759,500	190,780	34%
19th Avenue	Transit Town Center	9,980	13,570	3,590	
Balboa Park	Transit Neighborhood	2,690	3,460	770	
Bayview/Hunters Point Shipyard/Candlestick Point	Urban Neighborhood	19,590	29,260	9,670	
Downtown-Van Ness-Geary	Regional Center	315,570	368,150	52,580	
Eastern Neighborhoods	Urban Neighborhood	61,070	70,890	9,820	
Market & Octavia	Urban Neighborhood	31,850	34,790	2,940	
Mission Bay	Urban Neighborhood	2,770	27,200	24,430	
Mission-San Jose Corridor	Mixed-Use Corridor	12,680	18,760	6,080	
Port of San Francisco	Mixed-Use Corridor	5,430	24,400	18,970	
San Francisco/San Mateo Bi-County Area (with Brisbane)	Transit Neighborhood	1,720	2,590	860	
Transbay Terminal	Regional Center	7,950	37,660	29,720	
Treasure Island	Transit Town Center	260	3,010	2,750	

Employment Growth by Jurisdiction and PDA/Investment Area

San Mateo County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Atherton		**2,610**	**3,160**	**550**	**21%**
Belmont		**8,180**	**10,450**	**2,270**	**28%**
Villages of Belmont	Mixed-Use Corridor	1,250	2,500	1,250	
Brisbane		**6,780**	**7,670**	**890**	**13%**
San Francisco/San Mateo Bi-County Area (with San Francisco)	Suburban Center	500	960	460	
Burlingame		**29,540**	**37,780**	**8,240**	**28%**
Burlingame El Camino Real	Transit Town Center	12,290	17,920	5,630	
Colma		**2,780**	**3,200**	**420**	**15%**
Daly City		**20,760**	**26,580**	**5,820**	**28%**
Bayshore	Transit Town Center	1,100	3,230	2,130	
Mission Boulevard	Mixed-Use Corridor	3,770	5,200	1,430	
East Palo Alto		**2,670**	**3,680**	**1,000**	**38%**
Ravenswood	Transit Town Center	790	1,210	420	
Foster City		**13,780**	**17,350**	**3,570**	**26%**
Half Moon Bay		**5,030**	**6,020**	**990**	**20%**
Hillsborough		**1,850**	**2,250**	**410**	**22%**
Menlo Park		**28,890**	**34,980**	**6,090**	**21%**
El Camino Real Corridor and Downtown	Transit Town Center	5,620	7,650	2,050	
Millbrae		**6,870**	**9,300**	**2,430**	**35%**
Transit Station Area	Mixed-Use Corridor	1,340	3,370	2,040	
Pacifica		**5,870**	**7,100**	**1,230**	**21%**
Portola Valley		**1,500**	**1,770**	**270**	**18%**
Redwood City		**58,080**	**77,480**	**19,400**	**33%**
Downtown	City Center	10,430	14,060	3,630	
BroadwayVeterans Boulevard Corridor	Mixed-Use Corridor	8,480	11,900	3,420	
San Bruno		**12,710**	**16,950**	**4,240**	**33%**
Transit Corridors	Mixed-Use Corridor	6,620	10,520	3,900	
San Carlos		**15,870**	**19,370**	**3,510**	**22%**
Railroad Corridor	Transit Town Center	1,940	3,090	1,150	
San Mateo		**52,540**	**72,950**	**20,410**	**39%**
Downtown	City Center	4,370	6,970	2,600	
El Camino Real	Mixed-Use Corridor	2,260	5,660	3,410	
Rail Corridor	Transit Neighborhood	8,810	18,590	9,800	
South San Francisco		**43,550**	**53,790**	**10,240**	**24%**
Downtown	Transit Town Center	2,530	6,800	4,270	
Woodside		**1,760**	**2,060**	**310**	**17%**
San Mateo County Unincorporated		**23,570**	**31,180**	**7,600**	**32%**
Midcoast	Rural Investment Area	1,870	2,640	770	
City County Association of Governments of San Mateo County		**66,960**	**95,590**	**28,660**	**43%**
El Camino Real:					
Daly City **	Mixed-Use Corridor	3,820	5,210	1,380	
Colma	Mixed-Use Corridor	2,120	2,400	280	
South San Francisco	Mixed-Use Corridor	4,740	6,120	1,380	
San Bruno **	Mixed-Use Corridor	7,190	10,290	3,100	
Millbrae **	Mixed-Use Corridor	4,560	6,280	1,730	
San Mateo **	Mixed-Use Corridor	17,100	29,020	11,940	
San Carlos **	Mixed-Use Corridor	10,040	12,350	2,300	
Redwood City **	Mixed-Use Corridor	7,360	9,670	2,310	
Menlo Park **	Mixed-Use Corridor	5,520	7,510	2,000	
Uninc Daly City	Mixed-Use Corridor	300	410	120	
North Fair Oaks	Mixed-Use Corridor	3,600	5,650	2,050	
Unincorporated County	Mixed-Use Corridor	610	680	70	

Employment Growth by Jurisdiction and PDA/Investment Area

Santa Clara County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Campbell		*27,320*	*35,170*	*7,850*	*29%*
Central Redevelopment Area	*Transit Neighborhood*	*7,900*	*10,250*	*2,340*	
Cupertino		*26,090*	*33,110*	*7,030*	*27%*
	Mixed-Use Corridor	*10,540*	*13,780*	*3,240*	
VTA Cores, Corridors, and Station Areas					
Gilroy		*17,650*	*21,960*	*4,310*	*24%*
Downtown	*Transit Town Center*	*2,380*	*3,620*	*1,240*	
	Mixed-Use Corridor	*2,380*	*2,990*	*600*	
VTA Cores, Corridors, and Station Areas					
Los Altos		*14,760*	*18,240*	*3,480*	*24%*
	Mixed-Use Corridor	*5,690*	*7,250*	*1,560*	
VTA Cores, Corridors, and Station Areas					
Los Altos Hills		*2,060*	*2,540*	*480*	*23%*
Los Gatos		*23,630*	*29,040*	*5,410*	*23%*
Milpitas		*45,190*	*57,810*	*12,630*	*28%*
Transit Area	*Suburban Center*	*5,270*	*9,600*	*4,330*	
	Mixed-Use Corridor	*310*	*510*	*190*	
VTA Cores, Corridors, and Station Areas					
Monte Sereno		*450*	*580*	*120*	*29%*
Morgan Hill		*17,570*	*22,140*	*4,570*	*26%*
Downtown	*Transit Town Center*	*1,670*	*3,010*	*1,340*	
Mountain View		*47,950*	*63,590*	*15,640*	*33%*
Downtown	*Transit Town Center*	*9,450*	*10,310*	*860*	
East Whisman	*Empl. Investment Area*	*8,740*	*12,420*	*3,680*	
El Camino Real Corridor	*Mixed-Use Corridor*	*5,790*	*6,660*	*860*	
North Bayshore	*Suburban Center*	*7,400*	*15,110*	*7,700*	
San Antonio Center	*Transit Town Center*	*3,160*	*4,340*	*1,180*	
Whisman Station	*Transit Neighborhood*	*650*	*1,210*	*560*	
Palo Alto		*89,690*	*119,470*	*29,780*	*33%*
California Avenue	*Transit Neighborhood*	*3,390*	*5,060*	*1,670*	
San Jose		*377,140*	*524,510*	*147,380*	*39%*
Bascom TOD Corridor	*Mixed-Use Corridor*	*11,530*	*12,920*	*1,400*	
Bascom Urban Village	*Mixed-Use Corridor*	*1,710*	*2,670*	*960*	
Berryessa Station	*Transit Neighborhood*	*6,150*	*12,220*	*6,060*	
Blossom Hill/Snell Urban Village	*Mixed-Use Corridor*	*880*	*1,720*	*840*	
Camden Urban Village	*Mixed-Use Corridor*	*5,610*	*7,640*	*2,040*	
Capitol Corridor Urban Villages	*Mixed-Use Corridor*	*2,340*	*5,590*	*3,250*	
Capitol/Tully/King Urban Villages	*Suburban Center*	*4,090*	*7,090*	*3,000*	
Communications Hill	*Transit Town Center*	*3,940*	*5,660*	*1,720*	
Cottle Transit Village	*Suburban Center*	*2,550*	*3,040*	*490*	
Downtown "Frame"	*City Center*	*26,930*	*31,320*	*4,390*	
	Mixed-Use Corridor	*10,020*	*13,460*	*3,440*	
East Santa Clara/Alum Rock Corridor					
Greater Downtown	*Regional Center*	*28,250*	*56,410*	*28,160*	
International Business Park	*Empl. Investment Area*	*11,670*	*19,810*	*8,130*	
North San Jose	*Regional Center*	*84,660*	*130,760*	*46,110*	
	Suburban Center	*5,440*	*9,710*	*4,270*	
Oakridge/Almaden Plaza Urban Village					
Old Edenvale	*Empl. Investment Area*	*6,920*	*14,750*	*7,830*	
Saratoga TOD Corridor	*Mixed-Use Corridor*	*3,530*	*5,540*	*2,000*	
Stevens Creek TOD Corridor	*Mixed-Use Corridor*	*5,690*	*8,040*	*2,350*	
West San Carlos & Southwest Expressway Corridors	*Mixed-Use Corridor*	*8,970*	*15,660*	*6,680*	
Westgate/El Paseo Urban Village	*Suburban Center*	*3,440*	*5,240*	*1,790*	
	Mixed-Use Corridor	*4,060*	*6,850*	*2,790*	
Winchester Boulevard TOD Corridor					
	Mixed-Use Corridor	*22,590*	*24,880*	*2,290*	
VTA Cores, Corridors, and Station Areas					
Santa Clara		*112,890*	*146,180*	*33,290*	*29%*
El Camino Real Focus Area	*Mixed-Use Corridor*	*4,400*	*6,990*	*2,590*	
Santa Clara Station Focus Area	*City Center*	*10,070*	*12,820*	*2,750*	
	Mixed-Use Corridor	*10,320*	*14,520*	*4,200*	
VTA Cores, Corridors, and Station Areas					

Employment Growth by Jurisdiction and PDA/Investment Area

Santa Clara County (continued)

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Saratoga		*9,910*	*11,640*	*1,730*	*17%*
Sunnyvale		*74,810*	*95,600*	*20,790*	*28%*
Downtown & Caltrain Station	Transit Town Center	3,760	5,680	1,920	
East Sunnyvale	Urban Neighborhood	8,070	9,260	1,190	
El Camino Real Corridor	Mixed-Use Corridor	13,220	16,500	3,280	
Lawrence Station Transit Village	Transit Neighborhood	4,170	5,110	950	
Moffett Park	Empl. Investment Area	11,450	19,090	7,640	
Peery Park	Empl. Investment Area	5,990	8,000	2,010	
Reamwood Light Rail Station	Empl. Investment Area	3,060	3,740	690	
Tasman Station ITR	Mixed-Use Corridor	1,550	2,530	990	
Santa Clara County Unincorporated		*39,160*	*47,940*	*8,770*	*22%*

Employment Growth by Jurisdiction and PDA/Investment Area

Solano County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Benicia		*14,240*	*18,930*	*4,680*	*33%*
Downtown	Transit Neighborhood	2,540	2,840	300	
Northern Gateway	Empl. Investment Area	6,780	10,930	4,150	
Dixon		*4,460*	*5,780*	*1,310*	*30%*
Downtown	Transit Town Center	560	830	280	
Fairfield		*39,300*	*53,310*	*14,010*	*36%*
Downtown South (Jefferson Street)	Suburban Center	2,970	4,280	1,320	
Fairfield-Vacaville Train Station	Transit Town Center	340	2,650	2,310	
North Texas Street Core	Mixed-Use Corridor	1,420	2,420	1,000	
West Texas Street Gateway	Mixed-Use Corridor	1,680	2,890	1,210	
Rio Vista		*1,790*	*2,340*	*550*	*31%*
Downtown	Rural Investment Area	670	1,000	330	
Suisun City		*3,080*	*4,520*	*1,440*	*47%*
Downtown & Waterfront	Transit Town Center	1,040	1,960	930	
Vacaville		*29,800*	*41,120*	*11,310*	*38%*
Allison Area	Suburban Center	900	1,710	810	
Downtown	Transit Town Center	2,800	3,800	1,000	
Vallejo		*31,660*	*43,070*	*11,410*	*36%*
Waterfront & Downtown	Suburban Center	3,640	5,940	2,300	
Solano County Unincorporated		*8,010*	*10,870*	*2,860*	*36%*

Sonoma County

Jursidiction or Area Name	Place Type	JOBS			
		2010	2040	2010-2040‡	% Growth
Cloverdale		*1,570*	*2,270*	*700*	*45%*
Downtown/SMART Transit Area	Transit Town Center	880	1,390	510	
Cotati		*2,920*	*3,860*	*940*	*32%*
Downtown and Cotati Depot	Transit Town Center	650	1,190	550	
Healdsburg		*6,440*	*8,210*	*1,780*	*27%*
Petaluma		*28,830*	*38,690*	*9,860*	*34%*
Central, Turning Basin/Lower Reach	Suburban Center	3,110	8,330	5,220	
Rohnert Park		*11,730*	*16,320*	*4,590*	*39%*
Central Rohnert Park	Transit Town Center	3,350	5,170	1,820	
Sonoma Mountain Village	Suburban Center	140	1,190	1,050	
Santa Rosa		*75,460*	*103,940*	*28,470*	*38%*
Downtown Station Area *	City Center	9,250	13,820	4,550	
Mendocino Avenue/Santa Rosa Avenue Corridor *	Mixed-Use Corridor	23,230	30,080	6,850	
North Santa Rosa Station *	Suburban Center	8,960	13,060	4,100	
Roseland	Transit Neighborhood	2,650	3,890	1,240	
Sebastopol Road Corridor	Mixed-Use Corridor	2,110	3,450	1,340	
Sebastopol		*5,650*	*7,300*	*1,650*	*29%*
Core Area	Transit Town Center	5,440	7,010	1,570	
Sonoma		*6,650*	*8,650*	*2,000*	*30%*
Windsor		*5,610*	*7,760*	*2,150*	*38%*
Redevelopment Area	Suburban Center	1,020	1,830	810	
Sonoma County Unincorporated		*47,150*	*60,470*	*13,320*	*28%*
Forestville	Rural Investment Area	540	590	50	
Graton	Rural Investment Area	410	720	320	
Guerneville	Rural Investment Area	640	980	340	
Penngrove Urban Service Area	Rural Investment Area	340	610	260	
The Springs	Rural Investment Area	2,100	2,580	480	

* Indicates PDAs that overlap within a jurisdiction. Job totals for the overlapping areas are assigned to one PDA only, with no duplicate counts.
** Indicates C/CAG El Camino Real PDAs that overlap with another PDA. Job totals may duplicate jobs already listed in that city.
‡ Growth figures may appear inaccurate due to rounding

APPENDIX B: HOUSING GROWTH BY JURISDICTION AND PDA

Housing Growth by Jurisdiction and PDA/Investment Area

KEY
Jurisdiction (Bold Italic)
Priority Development Area or Investment Area

Alameda County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Alameda		*32,350*	*38,250*	*5,890*	*18%*	*30,120*	*36,570*	*6,450*	*21%*
Naval Air Station	*Transit Town Center*	*1,460*	*5,470*	*4,010*		*1,090*	*5,040*	*3,950*	
Northern Waterfront	*Transit Neighborhood*	*1,070*	*1,830*	*760*		*990*	*1,760*	*780*	
Albany		*7,890*	*9,060*	*1,170*	*15%*	*7,400*	*8,740*	*1,340*	*18%*
San Pablo Avenue & Solano Avenue	*Mixed-Use Corridor*	*1,810*	*2,060*	*240*		*1,690*	*1,970*	*280*	
Berkeley		*49,450*	*58,740*	*9,280*	*19%*	*46,030*	*55,980*	*9,950*	*22%*
Adeline Street	*Mixed-Use Corridor*	*690*	*940*	*250*		*620*	*900*	*280*	
Downtown	*City Center*	*2,690*	*6,840*	*4,150*		*2,570*	*6,670*	*4,100*	
San Pablo Avenue *	*Mixed-Use Corridor*	*1,630*	*2,500*	*870*		*1,440*	*2,340*	*900*	
South Shattuck	*Mixed-Use Corridor*	*340*	*460*	*110*		*310*	*440*	*120*	
Telegraph Avenue	*Mixed-Use Corridor*	*1,110*	*1,470*	*360*		*990*	*1,400*	*410*	
University Avenue *	*Mixed-Use Corridor*	*1,480*	*2,030*	*550*		*1,390*	*1,940*	*550*	
Dublin		*15,780*	*24,320*	*8,530*	*54%*	*14,910*	*23,610*	*8,700*	*58%*
Downtown Specific Plan Area	*Suburban Center*	*830*	*1,790*	*960*		*790*	*1,750*	*950*	
Town Center	*Suburban Center*	*4,130*	*5,990*	*1,860*		*3,750*	*5,770*	*2,020*	
Transit Center	*Suburban Center*	*670*	*3,810*	*3,140*		*620*	*3,720*	*3,100*	
Emeryville		*6,650*	*12,110*	*5,470*	*82%*	*5,690*	*11,620*	*5,930*	*104%*
Mixed-Use Core	*City Center*	*4,150*	*9,620*	*5,470*		*3,530*	*9,300*	*5,780*	
Fremont		*73,990*	*91,620*	*17,630*	*24%*	*71,000*	*89,090*	*18,090*	*25%*
Centerville	*Transit Neighborhood*	*10,850*	*13,360*	*2,510*		*10,360*	*12,990*	*2,620*	
City Center	*City Center*	*7,310*	*10,210*	*2,900*		*6,870*	*9,910*	*3,040*	
Irvington District	*Transit Town Center*	*7,280*	*10,260*	*2,980*		*6,910*	*9,990*	*3,080*	
South Fremont/Warm Springs	*Suburban Center*	*2,330*	*5,310*	*2,980*		*2,180*	*5,150*	*2,970*	
Hayward		*48,300*	*60,610*	*12,320*	*25%*	*45,370*	*58,850*	*13,490*	*30%*
Downtown	*City Center*	*2,290*	*5,510*	*3,220*		*2,100*	*5,370*	*3,280*	
South Hayward BART	*Mixed-Use Corridor*	*180*	*1,360*	*1,170*		*170*	*1,330*	*1,160*	
South Hayward BART	*Urban Neighborhood*	*1,800*	*4,500*	*2,700*		*1,660*	*4,400*	*2,740*	
The Cannery	*Transit Neighborhood*	*340*	*1,100*	*750*		*330*	*1,070*	*740*	
Mission Corridor	*Mixed-Use Corridor*	*1,480*	*3,320*	*1,840*		*1,230*	*3,210*	*1,980*	
Livermore		*30,340*	*40,040*	*9,700*	*32%*	*29,130*	*38,940*	*9,800*	*34%*
Downtown	*Suburban Center*	*1,020*	*2,690*	*1,680*		*920*	*2,620*	*1,710*	
East Side	*Suburban Center*	*100*	*4,370*	*4,270*		*90*	*4,280*	*4,200*	
Isabel Avenue/BART Station Planning Area	*Suburban Center*	*530*	*4,000*	*3,470*		*470*	*3,910*	*3,440*	
Newark		*13,410*	*17,100*	*3,680*	*28%*	*12,970*	*16,640*	*3,660*	*28%*
Dumbarton Transit Oriented Development	*Transit Town Center*	*140*	*2,550*	*2,400*		*140*	*2,500*	*2,360*	
Old Town Mixed Use Area	*Transit Neighborhood*	*600*	*970*	*370*		*580*	*940*	*370*	
Oakland		*169,710*	*221,160*	*51,450*	*30%*	*153,790*	*212,470*	*58,680*	*38%*
Coliseum BART Station Area	*Transit Town Center*	*3,870*	*10,720*	*6,850*		*3,440*	*10,420*	*6,980*	
Downtown & Jack London Square	*Regional Center*	*11,910*	*26,200*	*14,290*		*10,630*	*25,390*	*14,770*	
Eastmont Town Center	*Urban Neighborhood*	*6,850*	*7,260*	*410*		*5,960*	*6,840*	*880*	
Fruitvale & Dimond Areas	*Urban Neighborhood*	*14,210*	*18,580*	*4,370*		*12,840*	*17,820*	*4,990*	
MacArthur Transit Village	*Urban Neighborhood*	*8,820*	*13,910*	*5,090*		*8,030*	*13,410*	*5,390*	
Transit Oriented Development Corridors	*Mixed-Use Corridor*	*67,370*	*77,500*	*10,130*		*60,970*	*74,320*	*13,350*	
West Oakland	*Transit Town Center*	*10,830*	*17,690*	*6,870*		*9,030*	*16,940*	*7,920*	
Piedmont		*3,920*	*4,020*	*100*	*3%*	*3,800*	*3,890*	*90*	*2%*
Pleasanton		*26,050*	*33,160*	*7,110*	*27%*	*25,250*	*32,300*	*7,050*	*28%*
Hacienda	*Suburban Center*	*1,310*	*4,900*	*3,590*		*1,270*	*4,800*	*3,530*	
San Leandro		*32,420*	*39,630*	*7,210*	*22%*	*30,720*	*38,390*	*7,670*	*25%*
Bay Fair BART Transit Village	*Transit Town Center*	*660*	*1,560*	*900*		*630*	*1,520*	*890*	
Development *	*City Center*	*4,210*	*7,900*	*3,690*		*3,930*	*7,690*	*3,760*	
East 14th Street *	*Mixed-Use Corridor*	*3,850*	*4,830*	*980*		*3,490*	*4,610*	*1,120*	
Union City		*21,260*	*24,270*	*3,010*	*14%*	*20,430*	*23,650*	*3,220*	*16%*
Intermodal Station District	*City Center*	*1,060*	*1,850*	*800*		*1,030*	*1,810*	*780*	
Alameda County Unincorporated		*51,020*	*56,470*	*5,450*	*11%*	*48,520*	*54,590*	*6,070*	*13%*
Castro Valley BART	*Transit Neighborhood*	*1,480*	*2,150*	*670*		*1,400*	*2,090*	*690*	
East 14th Street and Mission Street	*Mixed-Use Corridor*	*7,190*	*9,120*	*1,930*		*6,740*	*8,800*	*2,060*	
Hesperian Boulevard	*Transit Neighborhood*	*2,860*	*3,560*	*690*		*2,740*	*3,450*	*720*	
Meekland Avenue Corridor	*Transit Neighborhood*	*1,400*	*1,860*	*460*		*1,300*	*1,790*	*500*	

Housing Growth by Jurisdiction and PDA/Investment Area

Contra Costa County

Jurisdiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Antioch		*34,850*	*40,340*	*5,490*	*16%*	*32,250*	*38,790*	*6,540*	*20%*
Hillcrest eBART Station	*Suburban Center*	*160*	*2,450*	*2,290*		*150*	*2,400*	*2,250*	
Rivertown Waterfront	*Transit Town Center*	*1,600*	*3,430*	*1,830*		*1,430*	*3,330*	*1,900*	
Brentwood		*17,520*	*19,420*	*1,900*	*11%*	*16,490*	*18,690*	*2,190*	*13%*
Clayton		*4,090*	*4,240*	*150*	*4%*	*4,010*	*4,150*	*150*	*3%*
Concord		*47,130*	*65,200*	*18,070*	*38%*	*44,280*	*63,190*	*18,920*	*43%*
Community Reuse Area	*Regional Center*	*150*	*3,420*	*3,270*		*70*	*3,320*	*3,240*	
Community Reuse Area	*Transit Neighborhood*	*0*	*9,120*	*9,120*		*0*	*8,960*	*8,960*	
Downtown	*City Center*	*4,600*	*7,740*	*3,140*		*4,200*	*7,530*	*3,320*	
Danville		*15,930*	*17,440*	*1,500*	*9%*	*15,420*	*16,920*	*1,500*	*10%*
Downtown Danville	*Transit Town Center*	*1,450*	*2,200*	*750*		*1,370*	*2,130*	*760*	
El Cerrito		*10,720*	*12,000*	*1,280*	*12%*	*10,140*	*11,560*	*1,410*	*14%*
San Pablo Avenue Corridor	*Mixed-Use Corridor*	*700*	*1,180*	*480*		*630*	*1,150*	*510*	
San Pablo Avenue Corridor	*Mixed-Use Corridor*	*640*	*1,170*	*530*		*590*	*1,140*	*550*	
Hercules		*8,550*	*13,070*	*4,520*	*53%*	*8,120*	*12,690*	*4,570*	*56%*
Central Hercules	*Transit Neighborhood*	*410*	*2,850*	*2,440*		*400*	*2,800*	*2,400*	
Waterfront District	*Transit Town Center*	*690*	*1,710*	*1,020*		*640*	*1,660*	*1,020*	
WCCTAC San Pablo Ave Corridor	*Mixed-Use Corridor*	*620*	*1,340*	*710*		*600*	*1,310*	*710*	
Lafayette		*9,650*	*11,020*	*1,370*	*14%*	*9,220*	*10,640*	*1,420*	*15%*
Downtown	*Transit Neighborhood*	*2,030*	*2,930*	*900*		*1,890*	*2,840*	*950*	
Martinez		*14,980*	*16,240*	*1,270*	*8%*	*14,290*	*15,690*	*1,410*	*10%*
Downtown	*Transit Neighborhood*	*820*	*1,510*	*690*		*750*	*1,460*	*710*	
Moraga		*5,750*	*6,540*	*790*	*14%*	*5,570*	*6,350*	*780*	*14%*
Moraga Center	*Transit Town Center*	*440*	*780*	*340*		*430*	*760*	*330*	
Oakley		*11,480*	*17,010*	*5,520*	*48%*	*10,730*	*16,440*	*5,720*	*53%*
Downtown	*Transit Town Center*	*560*	*1,740*	*1,180*		*520*	*1,690*	*1,180*	
Employment Area	*Suburban Center*	*580*	*1,480*	*900*		*560*	*1,450*	*890*	
Potential Planning Area	*Transit Neighborhood*	*1,060*	*2,310*	*1,260*		*980*	*2,240*	*1,260*	
Orinda		*6,800*	*7,610*	*800*	*12%*	*6,550*	*7,340*	*790*	*12%*
Downtown	*Transit Town Center*	*340*	*550*	*210*		*330*	*530*	*210*	
Pinole		*7,160*	*8,240*	*1,080*	*15%*	*6,780*	*7,970*	*1,200*	*18%*
Appian Way Corridor	*Suburban Center*	*560*	*1,150*	*590*		*520*	*1,110*	*590*	
Old Town	*Transit Town Center*	*1,430*	*1,540*	*110*		*1,300*	*1,470*	*180*	
Pittsburg		*21,130*	*28,520*	*7,390*	*35%*	*19,530*	*27,510*	*7,990*	*41%*
Downtown	*Transit Neighborhood*	*1,870*	*3,700*	*1,820*		*1,600*	*3,540*	*1,950*	
Pittsburg/Bay Point BART Station	*Transit Town Center*	*0*	*1,090*	*1,090*		*0*	*1,070*	*1,070*	
Railroad Avenue eBART Station	*Transit Town Center*	*3,930*	*7,470*	*3,530*		*3,600*	*7,240*	*3,640*	
Pleasant Hill		*14,320*	*15,530*	*1,210*	*8%*	*13,710*	*15,060*	*1,360*	*10%*
Buskirk Avenue Corridor	*Mixed-Use Corridor*	*1,730*	*1,820*	*90*		*1,620*	*1,750*	*130*	
Diablo Valley College	*Transit Neighborhood*	*360*	*660*	*300*		*330*	*640*	*310*	
Richmond		*39,330*	*49,020*	*9,690*	*25%*	*36,090*	*47,090*	*11,000*	*30%*
Central Richmond & 23rd Street Corridor	*City Center*	*5,240*	*5,750*	*500*		*4,700*	*5,480*	*780*	
Central Richmond & 23rd Street Corridor	*Mixed-Use Corridor*	*690*	*1,500*	*820*		*640*	*1,460*	*830*	
South Richmond	*Transit Neighborhood*	*3,590*	*4,960*	*1,380*		*3,250*	*4,740*	*1,490*	
WCCTAC San Pablo Ave Corridor	*Mixed-Use Corridor*	*1,870*	*3,460*	*1,590*		*1,710*	*3,350*	*1,640*	
San Pablo		*9,570*	*11,460*	*1,890*	*20%*	*8,760*	*11,030*	*2,270*	*26%*
San Pablo Avenue & 23rd Street	*Mixed-Use Corridor*	*2,780*	*4,250*	*1,470*		*2,530*	*4,110*	*1,580*	
Rumrill Boulevard	*Empl. Investment Area*	*430*	*430*	*0*		*400*	*410*	*20*	
San Ramon		*26,220*	*31,550*	*5,330*	*20%*	*25,280*	*30,730*	*5,440*	*22%*
City Center	*Suburban Center*	*490*	*1,410*	*920*		*480*	*1,390*	*910*	
North Camino Ramon	*Transit Town Center*	*130*	*1,910*	*1,780*		*40*	*1,820*	*1,780*	
Walnut Creek		*32,680*	*40,050*	*7,370*	*23%*	*30,440*	*38,520*	*8,080*	*27%*
West Downtown	*Suburban Center*	*1,520*	*4,100*	*2,580*		*1,270*	*3,970*	*2,700*	
Contra Costa County Unincorporated		*62,400*	*67,090*	*4,690*	*8%*	*57,710*	*63,770*	*6,060*	*11%*
Contra Costa Centre	*Mixed-Use Corridor*	*1,910*	*2,380*	*470*		*1,780*	*2,310*	*530*	
Downtown El Sobrante	*Mixed-Use Corridor*	*1,810*	*2,290*	*480*		*1,670*	*2,190*	*510*	
North Richmond	*Transit Neighborhood*	*1,240*	*1,530*	*290*		*1,030*	*1,410*	*380*	
Pittsburg/Bay Point BART Station	*Transit Neighborhood*	*1,170*	*1,870*	*700*		*1,020*	*1,800*	*780*	
WCCTAC San Pablo Ave Corridor	*Mixed-Use Corridor*	*1,740*	*1,910*	*170*		*1,590*	*1,830*	*240*	

Housing Growth by Jurisdiction and PDA/Investment Area

Marin County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Belvedere		1,050	1,070	20	2%	930	970	40	4%
Corte Madera		4,030	4,250	230	5%	3,790	4,080	280	8%
Fairfax		3,590	3,790	210	6%	3,380	3,620	240	7%
Larkspur		6,380	6,770	390	6%	5,910	6,450	540	9%
Mill Valley		6,530	6,920	390	6%	6,080	6,540	460	8%
Novato		21,160	22,220	1,070	5%	20,280	21,450	1,180	6%
Ross		880	940	50	7%	800	860	60	8%
San Anselmo		5,540	5,790	250	5%	5,240	5,530	290	6%
San Rafael		24,010	27,400	3,390	14%	22,760	26,490	3,730	16%
Civic Center/North Rafael Town Center	Transit Town Center	1,990	3,030	1,040		1,900	2,950	1,050	
Downtown	City Center	2,610	3,960	1,350		2,420	3,830	1,410	
Sausalito		4,540	4,790	260	6%	4,110	4,470	350	9%
Tiburon		4,030	4,250	220	5%	3,730	4,000	270	7%
Marin County Unincorporated		29,500	30,550	1,060	4%	26,190	27,580	1,390	5%
Urbanized 101 Corridor	Transit Neighborhood	4,580	5,020	440		4,290	4,810	520	

Napa County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
American Canyon		5,980	7,900	1,910	32%	5,660	7,630	1,980	35%
Highway 29 Corridor	Mixed-Use Corridor	440	1,980	1,540		400	1,930	1,530	
Calistoga		2,320	2,370	50	2%	2,020	2,130	110	5%
Napa		30,150	33,430	3,280	11%	28,170	32,020	3,860	14%
Downtown Napa & Soscol Gateway Corridor	Transit Neighborhood	800	1,730	940		730	1,670	940	
St. Helena		2,780	2,830	60	2%	2,400	2,520	120	5%
Yountville		1,250	1,280	30	2%	1,050	1,110	60	6%
Napa County Unincorporated		12,280	13,030	750	6%	9,580	10,890	1,300	14%

San Francisco County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
San Francisco		376,940	469,430	92,480	25%	345,810	447,350	101,540	29%
19th Avenue	Transit Town Center	5,220	11,170	5,950		4,790	10,870	6,070	
Balboa Park	Transit Neighborhood	1,270	3,120	1,850		1,190	3,020	1,830	
Bayview/Hunters Point Shipyard/Candlestick Point	Urban Neighborhood	11,610	22,520	10,900		10,470	21,770	11,300	
Downtown-Van Ness-Geary	Regional Center	101,520	128,660	27,150		89,850	121,620	31,770	
Eastern Neighborhoods	Urban Neighborhood	34,270	45,690	11,420		31,650	43,820	12,170	
Market & Octavia	Urban Neighborhood	11,950	18,160	6,210		11,130	17,540	6,410	
Mission Bay	Urban Neighborhood	3,470	6,850	3,390		3,200	6,610	3,410	
Mission-San Jose Corridor	Mixed-Use Corridor	31,230	32,490	1,260		29,360	30,880	1,510	
Port of San Francisco	Mixed-Use Corridor	120	1,950	1,830		110	1,910	1,800	
San Francisco/San Mateo Bi-County Area (with Brisbane)	Transit Neighborhood	1,630	6,880	5,250		1,510	6,720	5,210	
Transbay Terminal	Regional Center	490	5,210	4,720		190	4,990	4,800	
Treasure Island	Transit Town Center	690	7,960	7,270		590	7,750	7,160	

Housing Growth by Jurisdiction and PDA/Investment Area

San Mateo County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Atherton		*2,530*	*2,750*	*220*	*9%*	*2,330*	*2,580*	*250*	*11%*
Belmont		*11,030*	*12,150*	*1,120*	*10%*	*10,580*	*11,790*	*1,210*	*11%*
Villages of Belmont	Mixed-Use Corridor	920	1,830	910		890	1,790	900	
Brisbane		*1,930*	*2,180*	*250*	*13%*	*1,820*	*2,090*	*270*	*15%*
San Francisco/San Mateo Bi-County Area (with San Francisco)	Suburban Center	0	0	0		0	0	0	
Burlingame		*13,030*	*16,700*	*3,670*	*28%*	*12,360*	*16,170*	*3,800*	*31%*
Burlingame El Camino Real	Transit Town Center	7,610	10,870	3,260		7,170	10,530	3,360	
Colma		*430*	*680*	*240*	*58%*	*410*	*660*	*250*	*61%*
Daly City		*32,590*	*36,900*	*4,310*	*13%*	*31,090*	*35,770*	*4,680*	*15%*
Bayshore	Transit Town Center	1,590	3,580	1,990		1,550	3,510	1,960	
Mission Boulevard	Mixed-Use Corridor	2,270	3,310	1,050		2,070	3,210	1,150	
East Palo Alto		*7,820*	*8,670*	*860*	*11%*	*6,940*	*8,340*	*1,400*	*20%*
Ravenswood	Transit Town Center	1,030	1,880	860		970	1,830	860	
Foster City		*12,460*	*13,350*	*900*	*7%*	*12,020*	*12,950*	*930*	*8%*
Half Moon Bay		*4,400*	*4,660*	*270*	*6%*	*4,150*	*4,410*	*260*	*6%*
Hillsborough		*3,910*	*4,230*	*310*	*8%*	*3,690*	*4,010*	*320*	*9%*
Menlo Park		*13,090*	*15,090*	*2,000*	*15%*	*12,350*	*14,520*	*2,170*	*18%*
El Camino Real Corridor and Downtown	Transit Town Center	1,130	2,050	920		1,010	1,980	970	
Millbrae		*8,370*	*11,400*	*3,020*	*36%*	*7,990*	*11,050*	*3,060*	*38%*
Transit Station Area	Mixed-Use Corridor	280	2,710	2,420		270	2,650	2,390	
Pacifica		*14,520*	*15,130*	*610*	*4%*	*13,970*	*14,650*	*680*	*5%*
Portola Valley		*1,900*	*2,020*	*130*	*6%*	*1,750*	*1,900*	*160*	*9%*
Redwood City		*29,170*	*37,890*	*8,720*	*30%*	*27,960*	*36,860*	*8,900*	*32%*
Downtown	City Center	1,060	6,310	5,250		990	6,180	5,190	
BroadwayVeterans Boulevard Corridor	Mixed-Use Corridor	770	2,300	1,530		730	2,250	1,520	
San Bruno		*15,360*	*19,820*	*4,460*	*29%*	*14,700*	*19,170*	*4,470*	*30%*
Transit Corridors	Mixed-Use Corridor	4,330	7,660	3,330		4,140	7,450	3,320	
San Carlos		*12,020*	*13,800*	*1,780*	*15%*	*11,520*	*13,390*	*1,870*	*16%*
Railroad Corridor	Transit Town Center	460	1,230	770		440	1,200	760	
San Mateo		*40,010*	*50,200*	*10,180*	*25%*	*38,230*	*48,620*	*10,390*	*27%*
Downtown	City Center	540	1,610	1,070		500	1,560	1,060	
El Camino Real	Mixed-Use Corridor	880	2,080	1,200		840	2,030	1,200	
Rail Corridor	Transit Neighborhood	520	5,180	4,660		500	5,080	4,580	
South San Francisco		*21,810*	*28,740*	*6,920*	*32%*	*20,940*	*27,900*	*6,970*	*33%*
Downtown	Transit Town Center	1,590	4,700	3,120		1,510	4,600	3,090	
Woodside		*2,160*	*2,250*	*90*	*4%*	*1,980*	*2,080*	*110*	*5%*
San Mateo County Unincorporated		*22,510*	*27,470*	*4,960*	*22%*	*21,070*	*26,170*	*5,100*	*24%*
Midcoast	Rural Investment Area	3,900	4,900	1,000		3,670	4,660	990	
City County Association of Governments of San Mateo County		*46,710*	*71,390*	*24,690*	*53%*	*44,100*	*69,360*	*25,270*	*57%*
El Camino Real:									
Daly City **	Mixed-Use Corridor	5,960	7,230	1,270		5,570	7,000	1,430	
Colma	Mixed-Use Corridor	410	650	240		390	640	250	
South San Francisco	Mixed-Use Corridor	5,670	9,200	3,530		5,450	8,970	3,520	
San Bruno **	Mixed-Use Corridor	4,350	6,930	2,580		4,150	6,730	2,580	
Millbrae **	Mixed-Use Corridor	2,910	5,100	2,190		2,730	4,950	2,230	
San Mateo **	Mixed-Use Corridor	13,180	19,990	6,810		12,490	19,400	6,910	
San Carlos **	Mixed-Use Corridor	3,570	4,730	1,160		3,350	4,600	1,250	
Redwood City **	Mixed-Use Corridor	4,820	7,020	2,210		4,560	6,830	2,280	
Menlo Park **	Mixed-Use Corridor	2,850	3,850	1,000		2,650	3,730	1,080	
Uninc Daly City	Mixed-Use Corridor	400	430	30		320	400	80	
North Fair Oaks	Mixed-Use Corridor	2,540	6,180	3,640		2,400	6,030	3,630	
Unincorporated County	Mixed-Use Corridor	50	80	30		40	80	30	

Housing Growth by Jurisdiction and PDA/Investment Area

Santa Clara County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Campbell		*16,950*	*19,990*	*3,040*	*18%*	*16,160*	*19,440*	*3,270*	*20%*
Central Redevelopment Area	Transit Neighborhood	1,340	2,820	1,470		1,260	2,750	1,490	
Cupertino		*21,030*	*24,790*	*3,760*	*18%*	*20,180*	*24,040*	*3,860*	*19%*
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	3,160	5,570	2,410		2,980	5,400	2,420	
Gilroy		*14,850*	*17,570*	*2,720*	*18%*	*14,180*	*17,050*	*2,870*	*20%*
Downtown	Transit Town Center	980	2,910	1,930		880	2,820	1,940	
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	1,880	1,880	0		1,730	1,800	70	
Los Altos		*11,200*	*12,310*	*1,100*	*10%*	*10,750*	*11,850*	*1,100*	*10%*
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	750	1,200	450		700	1,160	460	
Los Altos Hills		*3,000*	*3,130*	*130*	*4%*	*2,830*	*2,980*	*150*	*5%*
Los Gatos		*13,050*	*13,830*	*780*	*6%*	*12,360*	*13,220*	*870*	*7%*
Milpitas		*19,810*	*32,430*	*12,620*	*64%*	*19,180*	*31,680*	*12,500*	*65%*
Transit Area	Suburban Center	790	7,870	7,080		750	7,730	6,970	
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	460	780	320		450	760	310	
Monte Sereno		*1,290*	*1,370*	*80*	*6%*	*1,210*	*1,300*	*80*	*7%*
Morgan Hill		*12,860*	*16,690*	*3,830*	*30%*	*12,330*	*16,150*	*3,820*	*31%*
Downtown	Transit Town Center	570	1,990	1,420		510	1,930	1,420	
Mountain View		*33,880*	*43,280*	*9,400*	*28%*	*31,960*	*41,800*	*9,850*	*31%*
Downtown	Transit Town Center	5,240	6,390	1,150		4,790	6,030	1,240	
East Whisman	Empl. Investment Area	720	720	0		690	690	0	
El Camino Real Corridor	Mixed-Use Corridor	9,190	11,150	1,960		8,740	10,830	2,090	
North Bayshore	Suburban Center	360	1,790	1,420		350	1,750	1,410	
San Antonio Center	Transit Town Center	3,590	6,350	2,760		3,420	6,180	2,770	
Whisman Station	Transit Neighborhood	670	1,670	1,010		650	1,640	990	
Palo Alto		*28,220*	*35,630*	*7,410*	*26%*	*26,490*	*34,370*	*7,880*	*30%*
California Avenue	Transit Neighborhood	800	1,650	850		750	1,600	850	
San Jose		*314,040*	*443,320*	*129,280*	*41%*	*301,370*	*432,030*	*130,660*	*43%*
Bascom TOD Corridor	Mixed-Use Corridor	680	2,240	1,560		650	2,190	1,540	
Bascom Urban Village	Mixed-Use Corridor	1,780	2,590	810		1,670	2,520	850	
Berryessa Station	Transit Neighborhood	1,880	7,990	6,110		1,850	7,850	6,000	
Blossom Hill/Snell Urban Village	Mixed-Use Corridor	640	1,720	1,080		610	1,690	1,070	
Camden Urban Village	Mixed-Use Corridor	490	1,480	1,000		480	1,460	980	
Capitol Corridor Urban Villages	Mixed-Use Corridor	860	7,100	6,240		820	6,960	6,140	
Capitol/Tully/King Urban Villages	Suburban Center	1,090	3,340	2,250		1,060	3,270	2,210	
Communications Hill	Transit Town Center	6,810	10,150	3,340		6,540	9,910	3,370	
Cottle Transit Village	Suburban Center	0	3,580	3,580		0	3,510	3,510	
Downtown "Frame"	City Center	18,120	28,210	10,090		16,980	27,410	10,440	
	Mixed-Use Corridor	7,180	13,380	6,200		6,750	12,980	6,230	
East Santa Clara/Alum Rock Corridor									
Greater Downtown	Regional Center	4,590	19,750	15,160		3,670	19,310	15,650	
International Business Park	Empl. Investment Area	200	200	0		190	190	0	
North San Jose	Regional Center	10,880	43,740	32,860		10,420	42,830	32,410	
	Suburban Center	1,910	9,210	7,300		1,790	9,030	7,240	
Oakridge/Almaden Plaza Urban Village									
Old Edenvale	Empl. Investment Area	150	150	0		140	140	0	
Saratoga TOD Corridor	Mixed-Use Corridor	2,430	3,550	1,120		2,340	3,470	1,130	
Stevens Creek TOD Corridor	Mixed-Use Corridor	2,620	7,800	5,170		2,500	7,630	5,120	
West San Carlos & Southwest Expressway Corridors	Mixed-Use Corridor	11,150	20,960	9,810		10,320	20,420	10,100	
Westgate/El Paseo Urban Village	Suburban Center	850	3,340	2,490		800	3,270	2,480	
	Mixed-Use Corridor	4,850	6,850	2,000		4,630	6,690	2,050	
Winchester Boulevard TOD Corridor									
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	25,920	30,950	5,030		24,880	30,100	5,220	
Santa Clara		*45,150*	*58,930*	*13,780*	*31%*	*43,020*	*57,260*	*14,230*	*33%*
El Camino Real Focus Area	Mixed-Use Corridor	1,840	5,400	3,560		1,650	5,220	3,580	
Santa Clara Station Focus Area	City Center	480	3,880	3,410		450	3,810	3,360	
VTA Cores, Corridors, and Station Areas	Mixed-Use Corridor	2,080	3,540	1,460		1,970	3,440	1,480	

Housing Growth by Jurisdiction and PDA/Investment Area

Santa Clara County (continued)

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Saratoga		*11,120*	*11,760*	*630*	*6%*	*10,730*	*11,360*	*630*	*6%*
Sunnyvale		*55,790*	*74,820*	*19,030*	*34%*	*53,380*	*72,800*	*19,410*	*36%*
Downtown & Caltrain Station	Transit Town Center	1,840	3,810	1,980		1,730	3,710	1,980	
East Sunnyvale	Urban Neighborhood	1,020	4,280	3,260		950	4,170	3,220	
El Camino Real Corridor	Mixed-Use Corridor	10,990	15,410	4,410		10,350	14,940	4,590	
Lawrence Station Transit Village	Transit Neighborhood	1,660	4,420	2,760		1,560	4,330	2,770	
Moffett Park	Empl. Investment Area	20	20	0		20	20	0	
Peery Park	Empl. Investment Area	130	130	0		110	120	10	
Reamwood Light Rail Station	Empl. Investment Area	0	0	0		0	0	0	
Tasman Station ITR	Mixed-Use Corridor	1,440	3,270	1,830		1,390	3,200	1,810	
Santa Clara County Unincorporated		*29,690*	*32,500*	*2,820*	*9%*	*28,080*	*31,070*	*2,990*	*11%*

Housing Growth by Jurisdiction and PDA/Investment Area

Solano County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Benicia		*11,310*	*12,690*	*1,380*	*12%*	*10,690*	*12,250*	*1,560*	*15%*
Downtown	Transit Neighborhood	600	1,530	930		530	1,480	950	
Northern Gateway	Empl. Investment Area	0	0	0		0	0	0	
Dixon		*6,170*	*6,660*	*490*	*8%*	*5,860*	*6,430*	*580*	*10%*
Downtown	Transit Town Center	740	990	250		690	960	270	
Fairfield		*37,180*	*48,300*	*11,120*	*30%*	*34,480*	*46,430*	*11,950*	*35%*
Downtown South (Jefferson Street)	Suburban Center	680	1,100	420		600	1,060	460	
Fairfield-Vacaville Train Station	Transit Town Center	410	6,450	6,050		90	6,060	5,970	
North Texas Street Core	Mixed-Use Corridor	1,770	3,470	1,700		1,600	3,370	1,780	
West Texas Street Gateway	Mixed-Use Corridor	1,120	3,550	2,430		1,020	3,450	2,440	
Rio Vista		*3,890*	*4,260*	*370*	*10%*	*3,450*	*3,950*	*500*	*14%*
Downtown	Rural Investment Area	360	720	360		300	680	380	
Suisun City		*9,450*	*10,820*	*1,370*	*14%*	*8,920*	*10,490*	*1,570*	*18%*
Downtown & Waterfront	Transit Town Center	1,180	2,230	1,040		1,090	2,160	1,060	
Vacaville		*32,810*	*36,910*	*4,100*	*12%*	*31,090*	*35,860*	*4,770*	*15%*
Allison Area	Suburban Center	610	700	100		550	690	130	
Downtown	Transit Town Center	250	940	690		220	920	690	
Vallejo		*44,430*	*46,980*	*2,540*	*6%*	*40,560*	*44,900*	*4,340*	*11%*
Waterfront & Downtown	Suburban Center	1,130	1,970	840		980	1,920	950	
Solano County Unincorporated		*7,450*	*8,950*	*1,500*	*20%*	*6,710*	*8,400*	*1,690*	*25%*

Sonoma County

Jursidiction or Area Name	Place Type	HOUSING UNITS				HOUSEHOLDS			
		2010	2040	2010-2040‡	% Growth	2010	2040	2010-2040‡	% Growth
Cloverdale		*3,430*	*4,210*	*790*	*23%*	*3,180*	*4,040*	*860*	*27%*
Downtown/SMART Transit Area	Transit Town Center	1,150	1,880	730		1,040	1,800	760	
Cotati		*3,140*	*3,650*	*510*	*16%*	*2,980*	*3,530*	*560*	*18%*
Downtown and Cotati Depot	Transit Town Center	890	1,290	400		830	1,250	410	
Healdsburg		*4,800*	*5,000*	*200*	*4%*	*4,390*	*4,650*	*270*	*6%*
Petaluma		*22,740*	*25,440*	*2,700*	*12%*	*21,740*	*24,620*	*2,880*	*13%*
Central, Turning Basin/Lower Reach	Suburban Center	810	2,570	1,760		750	2,500	1,750	
Rohnert Park		*16,550*	*20,160*	*3,610*	*22%*	*15,810*	*19,600*	*3,790*	*24%*
Central Rohnert Park	Transit Town Center	1,360	2,320	960		1,300	2,270	970	
Sonoma Mountain Village	Suburban Center	200	2,210	2,010		200	2,170	1,980	
Santa Rosa		*67,400*	*83,430*	*16,030*	*24%*	*63,590*	*80,580*	*16,990*	*27%*
Downtown Station Area *	City Center	2,230	6,130	3,900		2,080	5,980	3,900	
Mendocino Avenue/Santa Rosa Avenue Corridor *	Mixed-Use Corridor	6,280	7,720	1,440		5,850	7,460	1,610	
North Santa Rosa Station *	Suburban Center	4,240	6,200	1,960		3,960	6,040	2,090	
Roseland	Transit Neighborhood	3,570	6,480	2,920		3,400	6,300	2,900	
Sebastopol Road Corridor	Mixed-Use Corridor	2,610	4,630	2,020		2,400	4,480	2,080	
Sebastopol		*3,470*	*3,890*	*430*	*12%*	*3,280*	*3,710*	*430*	*13%*
Core Area	Transit Town Center	2,510	2,890	390		2,360	2,750	400	
Sonoma		*5,540*	*5,840*	*300*	*5%*	*4,960*	*5,390*	*430*	*9%*
Windsor		*9,540*	*11,460*	*1,920*	*20%*	*8,960*	*10,880*	*1,910*	*21%*
Redevelopment Area	Suburban Center	1,430	2,640	1,200		1,370	2,550	1,190	
Sonoma County Unincorporated		*67,970*	*73,400*	*5,430*	*8%*	*56,950*	*63,740*	*6,790*	*12%*
Forestville	Rural Investment Area	990	1,390	400		890	1,290	400	
Graton	Rural Investment Area	570	1,000	440		530	960	430	
Guerneville	Rural Investment Area	460	870	410		370	780	410	
Penngrove Urban Service Area	Rural Investment Area	440	820	380		420	790	380	
The Springs	Rural Investment Area	5,110	6,200	1,090		4,700	5,850	1,150	

* Indicates PDA that overlap within a jurisdiction. Housing totals for the overlapping areas are assigned to one PDA only, with no duplicate counts.

** Indicates C/CAG El Camino Real PDAs that overlap with another PDA. Housing totals may duplicate jobs already listed in that city.

‡ Growth figures may appear inaccurate due to rounding

APPENDIX C: CONSULTANT REPORTS ON REGIONAL FORECAST

- *Bay Area Job Growth to 2040: Projections and Analysis* (CCSCE)
- *Historic and Projected Employment Trends in the Bay Area* (Strategic Economics and CTOD)
- *Demographic Shifts and Implications for TOD Housing Demand* (Strategic Economics and CTOD)
- *Evaluating the Effects of Projected Job Growth on Housing Demand* (Karen Chapple)
- *Overview of the Regional Housing Need Determination, DOF Population Projections and Plan Bay Area Forecast* (ABAG, California DOF, California HCD)
- *Review of DOF and ABAG Population Projections to 2040* (CCSCE)
- *Review of Beacon Economics Report on Plan Bay Area Regional Growth Forecasts* (CCSCE)

CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

132 HAMILTON AVENUE • PALO ALTO • CALIFORNIA • 94301

TELEPHONE: (650) 321-8550
FAX: (650) 321-5451
www.ccsce.com

February 2012

Bay Area Job Growth to 2040

Projections and Analysis

Prepared for:

Association of Bay Area Governments

Prepared by:

Stephen Levy

Introduction

In September 2011, the Association of Bay Area Governments (ABAG) asked the Center for Continuing Study of the California Economy (CCSCE) to prepare regional job projections to 2040 and to assist ABAG staff in preparing population and household projections. This report is focused on the job projections prepared by CCSCE and includes a summary of the methodology, a description of the projections and an explanation of past, current and projected job growth in the region.

The projections and this report were prepared by Stephen Levy, CCSCE's Director.

CCSCE acknowledges the assistance and support of Miriam Chion, Justin Fried, Ken Kirkey and Ezra Rapport from the ABAG staff who provided guidance and encouragement through the time we worked together. CCSCE also acknowledges Jon Haveman and Sean Randolph of the Bay Area Council Economic Institute. Jon provided assistance in interpreting the Council's December 2011 economic forecast and Sean allowed CCSCE to use quotes and slides from the Institute's upcoming Bay Area Economic Profile prepared with the assistance of McKinsey & Company.

At the conclusion of the main report there is an appendix that describes the data, sources and methodology that provide the foundation for the report's findings.

Summary

The Bay Area is projected to add more than 1.2 million jobs between 2010 and 2040 and to grow slightly faster than the state and nation.

Total Jobs (Thousands)

	2010	2040	% Growth
Bay Area	3,385.3	4,617.5	36.4%
United States	141,821.3	183,310.7	29.3%
Bay Area % of U.S.	2.39%	2.52%	

Source: 2010-U.S. Bureau of Labor Statistics BLS), the California Employment Development Department (EDD) and CCSCE; 2040-CCSCE

The region is expected to slowly recover the jobs lost during the recent recession and then experience moderate job growth to 2040. The Bay Area is projected to slightly outpace the state and nation in future job growth driven by the region's large concentration and continuing competitive advantage in many areas of technology and the region's position as a Pacific Rim trade and finance center.

Still, in 2040 the region is expected to have a smaller share of U.S. jobs than in 1990 before the defense cutbacks or in 2000 before the dot.com bubble burst.

Bay Area Share of U.S. Jobs
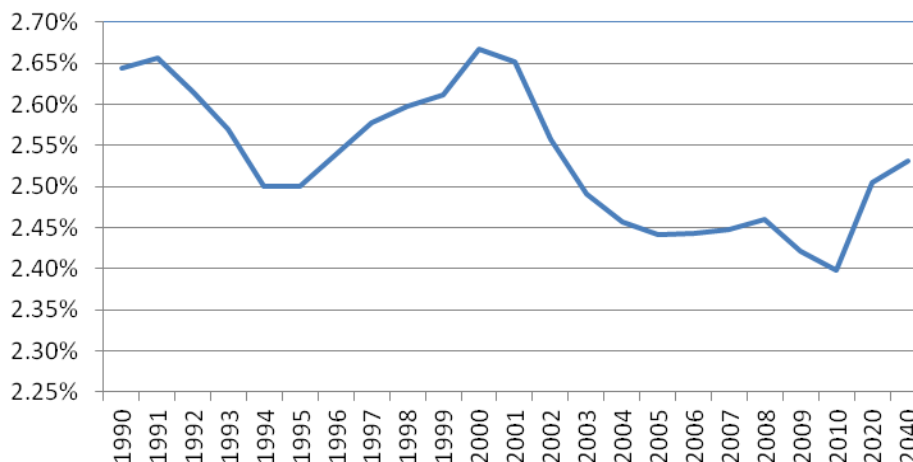
The remainder of this report explains these findings and why the Bay Area is expected to reverse the lagging job growth of the past decade.

Bay Area Job Trends 1990-2010

Bay Area job levels experienced ups and downs during the two decades after 1990. Between 1990 and 1994 the Bay Area experienced a jobs recession that lasted longer than the nation's although job losses were relatively modest. During this period the region was hit with defense related cutbacks lost more than 40,000 jobs associated with lower defense spending on aerospace and the closure of military bases. These losses deepened in the following years and were a permanent loss of part of the region's economic base.

During these years the region's share of national jobs fell from 2.64% in 1990 to 2.50% in 1995 as the nation recovered more quickly from the 1990-91 recession and experienced a smaller impact from defense related job losses.
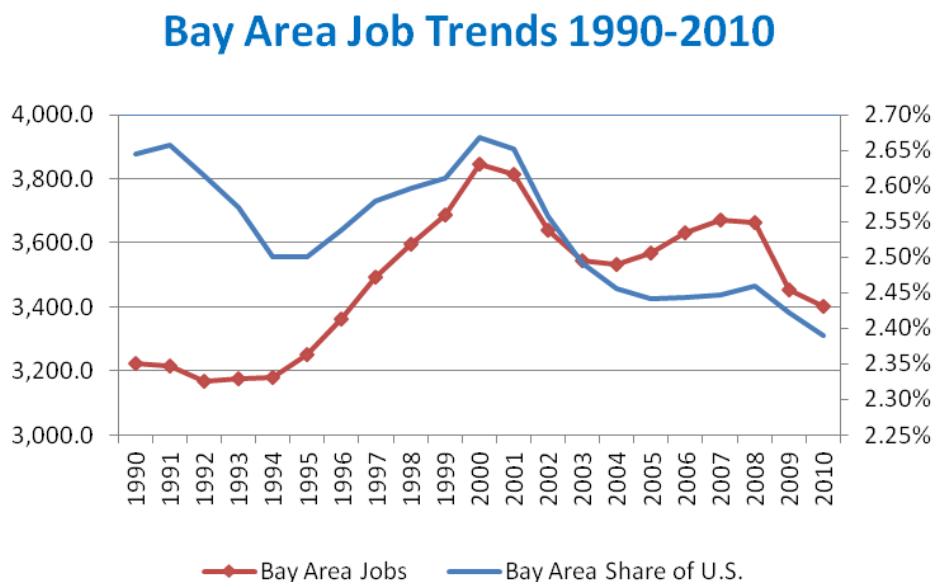
During the late 1990s the regional economy roared back as technology and the dot.com boom took over. The Bay Area added more than 600,000 jobs between 1994 and 2000 while matching the previous record share of the nation's total jobs. Regional job gains were led by computer services, information services related to the Internet and computer and electronics manufacturing.

However, many of the jobs created during the dot.com boom quickly disappeared in the years after 2000 as the boom turned into the dot.com bubble bust. The region lost more than 300,000 jobs between 2000 and 2004 and the region's share of U.S. jobs fell from 2.67% to 2.46%. The region lost 1/3 of the computer and electronics manufacturing jobs after 2000 and a larger share of the Internet related jobs while experiencing some job losses in professional, technical and

scientific services and temporary help agencies, all sectors serving the region's technology firms.

Between 2004 and 2007 the Bay Area once again outpaced the nation in job growth and was slowly recovering the job and share losses after 2000 when the recession created by the housing and financial crises hit the nation, state and region toward the end of 2007.

Once again the region lost nearly 300,000 jobs and by early 2010 saw the region's share of national jobs fall to the lowest since before 1990.

However, this time the job losses had a different structure and told a different story. The largest job losses since 2007 were related to construction and finance with nearly 100,000 jobs lost as a result of the housing and financial sector crises. More than 50,000 jobs were lost in the retail trade and government sectors. While technology and trade sectors experienced job losses after 2007, these were modest and temporary with recovery starting in late 2010 and extending into 2011.

While the recessions after 1990 and 2000 caused permanent job losses in the region's economic base, the recent recession did not. While many indicators of this fact will be described below, venture capital trends show the region's continuing strength in a single picture.

Bay Area VC funding rebounded in 2010 and 2011 approaching pre-recession levels. At the same time the region's share of national VC funding has been on a fairly steady uptrend since 2000 reaching record levels during recent years. These gains plus a surge in technology hiring from existing firms has pushed Bay Area job growth above the national average in 2011 with further gains expected in 2012 and 2013.

Bay Area VC Funding
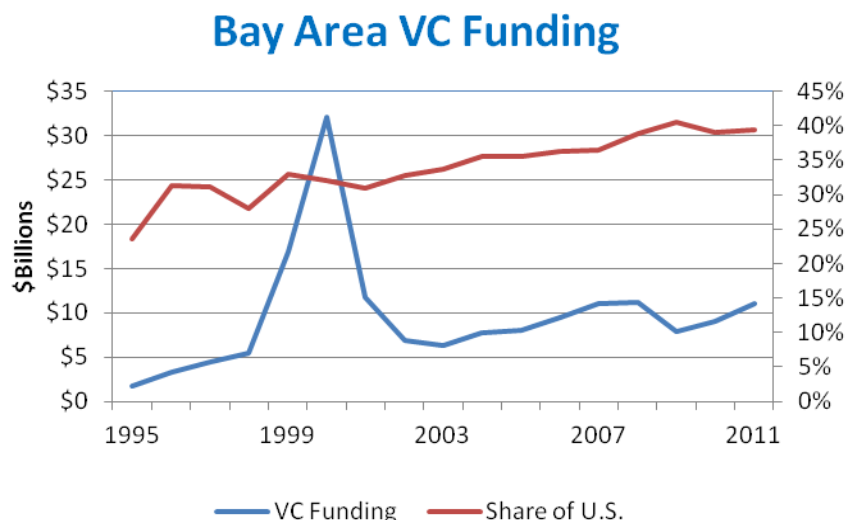
The Short-Term Outlook: 2011-2013

In December 2011 the San Jose metro area tied with Houston for the highest rate of job growth for all large metropolitan areas in the nation during the preceding 12 months. During that period the metro area saw a gain of 25,700 jobs for a 3.0% increase compared to the nation's 1.3% gain. The San Francisco metro area also strongly outpaced the nation. Job growth in both metro areas was driven by gains in technology sectors.

Job gains were recorded in Internet-related activities, computer and electronics manufacturing and especially in professional, scientific and technical services. Bay Area companies reported hiring gains driven by customer demand for their goods and services. Bay Area companies including Google, Apple, Facebook, LinkedIn and Zynga made business news headlines regularly reporting good news. Rents and building prices surged in tech centers including San Francisco, Palo Alto and San Jose as reported in the San Francisco and Silicon Valley Business Journals.

In December 2011 the Bay Area Council Economic Institute released their regional economic forecast prepared in partnership with the Anderson Forecast Project at UCLA.

The UCLA forecast highlights include:

- Between the first quarter of 2011 and the fourth quarter of 2013, the region is expected to add more than 200,000 jobs for a gain of 7.5%. This gain is compared with a 4.5% increase expected in California

- During that period the unemployment rate is forecast to drop from 10.5%% to 8.1%. By December 2011, the regional unemployment rate had declined to 8.6%.

- Gains in personal income and taxable sales are forecast to outpace inflation.

- New housing construction is forecast to start a recovery in 2013.

In February 2012 Facebook announced their upcoming IPO, which together with the successful IPOs at LinkedIn, Zynga and other Bay Area companies confirmed that it was, once again, possible for entrepreneurs and workers to see a financial payoff from innovation and risk taking.

Job Growth and Trends to 2040

The Bay Area job projections were developed using three guiding principles:

1) The Bay Area projections were based on projections of job growth in the nation and state. The national and state projections provide the **pool of job opportunities** and the Bay Area projections reflect judgments about the **share** of national and state job growth that will locate in the Bay Area.

2) The Bay Area **share** of national and state job growth is determined by the industry composition of job growth and the projected share of job growth locating in the Bay Area. If national and state job growth is concentrated in sectors where the Bay Area has a competitive advantage, the region's projected job growth will be higher than if national and state job growth is concentrated in sectors where the region has a below average share of jobs and a relatively poor competitive position.

3) The analysis of competitive advantage is focused on sectors in the Bay Area **economic base.** The region's economic base consists of those sectors that sell a high proportion of goods and services to customers outside the region. They export goods and services to customers in world and national markets and markets throughout California. Key examples of economic base sectors in the Bay Area are manufacturing, information services related to the Internet, professional, scientific and technical services such as computer services and scientific R&D services, and foreign trade and tourism sectors.

U.S. Job Growth to 2040

The U.S. job growth projections have three principal components:

1) A new, post-2010 Census set of population projections to 2040

2) Labor force participation rate projections that reflect longer working lives for older workers

3) Industry sector projections developed by CCSCE based on a review of existing national projections

The population and labor force projections determine the amount of job growth projected between 2010 and 2040 and the industry projections identify the structure of job growth as an input to state and Bay Area job projections.

The resulting national projections of job growth are shown below.

United States Total Jobs (Millions)

	2010	2020	2040
	141.8	163.2	183.3

	2010-2020	2020-2040	2010-2040
Change	21.3	20.1	41.5
% Change	15.1%	12.3%	29.3%

Source: 2010-U.S. Bureau of Labor Statistics (BLS) ;
2020 and 2040-CCSCE

The nation is expected to add 41.5 million jobs between 2010 and 2040 for an increase of 29.3%. Slightly more than half of the projected increase is expected to occur in the next ten years. The percentage increase in jobs (15.1%) between 2010 and 2020 is actually larger than the projected increase (12.3%) for the following 20 years.

The concentration of job growth in the first ten years has two explanations, both of which apply to the state and Bay Area job projections:

1) A significant part of the job growth projected to 2020 includes the recovery of job losses incurred during the recession. The nation lost more than 8 million jobs during the recession. The national forecasts reviewed by CCSCE all have the nation regaining full employment by 2015 or 2016. As a result the 2020 projections include erasing the recession job losses plus added gains in the latter half of this decade.

    The job growth numbers look different when measured from the peak before the recession. Job growth between 2007 and 2020 is projected to be 13.1 million and the projected growth rate is 8.8% compared to the 21.3 million jobs and 15.1% growth rate measured from 2010.

2) After 2020 labor force and job growth slows as the tidal wave of baby boomer retirements takes effect. U.S population is projected to increase by 16.3% between 2020 and 2040, which is faster than the projected job growth (12.3%) and the reason is the retirement of the baby boom generation.

The Pattern of U.S. Industry Job Growth to 2040

Projecting industry growth 30 years into the future is a difficult task and although the projections shown below reflect the industry patterns expected by major national forecasting organizations, they come with a high degree of uncertainty in the years after 2020. The projected growth rates shown on the table are for the period from 2007 to 2040 and eliminate the fall and rise of job levels related to the recession and recovery—thus they illustrate the long-term trends.

United States
Jobs by Major Industry (Millions)

	2007	2010	2020	2040	2007-2040
Construction	7.6	5.5	7.4	8.4	10.6%
Manufacturing	13.9	11.5	11.7	10.7	-23.2%
Wholesale Trade	6.0	5.5	6.1	6.1	1.6%
Retail Trade	15.5	14.4	15.4	15.9	2.7%
Transp., Warehousing and Utilities	5.1	4.7	5.4	5.8	14.2%
Information	3.0	2.8	3.0	3.2	5.2%
Financial Activities	8.3	7.7	8.5	8.9	6.6%
Professional and Business Services	17.9	16.7	21.4	27.0	50.3%
Educational and Health Services	18.3	19.6	24.2	30.6	66.8%
Leisure and Hospitality	13.4	13.0	15.7	18.3	36.6%
Other Services	5.5	5.4	6.2	6.9	25.9%
Government	22.2	22.5	23.7	25.9	16.6%
Self Employed	11.3	10.6	12.5	14.0	23.6%
Total Jobs	150.0	141.8	163.2	183.3	22.2%

Source: 2007,2010-U.S. Bureau of Labor Statistics (BLS)
2020 and 2040-CCSCE

However, the projections do show substantial differences in the expected growth rate among industries and these differences tell a story about where job growth is expected and where job levels will remain flat or decline. These differences directly influenced the Bay Area job projections described in a later section of this report. Agriculture and mining were excluded from the table as they are less important to the Bay Area economy, but jobs in these categories are in the totals.

These projections also help identify which job growth is primarily a reflection of regaining jobs lost during the recession and which industries have long-term job growth potential. Some of the major trends include:

- Construction job growth between 2010 and 2020 recovers jobs lost during the recession after which the industry will have modest growth.

- Manufacturing job levels are expected to end the decade close to 2010 levels and decline thereafter, never reaching the pre-recession totals. Manufacturing production is projected to increase substantially between 2010 and 2040 as in recent decades although job growth will lag. The explanation is strong and continuing productivity growth in the sector.

  Put simply, over time manufacturing firms can produce more with fewer workers. The size of the U.S. market measured by population growth is below 1% per year while manufacturing productivity has been is close to 5% per year over the long term. Even with expanding manufacturing export markets and new advanced manufacturing opportunities, the sector will see a decline in overall job levels between 2010 and 2040.

- By far the largest percentage job growth is expected in Professional and Business Services and Educational and Health Services. The Professional and Business Service sector includes the fast-growing, high wage professional, scientific and technical services industries and those sectors are critical for projecting Bay Area job growth. The largest percentage growth within these industries is in computer services, scientific research and development services and architectural and engineering services, all key components of the Bay Area economic base.

- The largest and fastest-growing industries are within health and social services and are driven by the aging of the population.

- Retail trade and financial services are sectors undergoing restructuring driven in different ways by technology. Retail trade growth is slowing as more customers take advantage of online shopping and that trend is expected to continue leading to below average job growth for retail trade. In finance, technology such as online banking and mobile phone technology for paying bills is reducing the demand for personnel in banks and technology also makes it easier to process financial transactions so job growth in this sector is also expected to be relatively small.

- Leisure and Hospitality is the other fast-growing sector and includes amusements and hotels as well as the large restaurant sector.

- The information sector is important for the Bay Area and the relatively slow job growth shown above is misleading because it consists of continuing job losses in telecommunications offset by the smaller but fast-growing software and Internet services sectors.

California Job Growth to 2040

The state is projected to experience job growth that is slightly faster than the nation's job growth to 2040. California is expected to recover the recession job losses by 2015 or a year later and the unemployment rate will return to full employment levels between 2015 and 2017 according to the forecasts reviewed by CCSCE.

In addition the state has a favorable industry composition given the expected U.S. job growth in technology, trade and tourism. California is outpacing the nation in job growth in 2011 and is forecast to outpace the nation in job growth in each year to 2020 in the latest long-term UCLA Anderson Forecast.

These results are confirmed by CCSCE's industry jobs analysis.

California Total Jobs (Thousands)

2010	2020	2040
15701.4	18713.9	21155.5

	2010-2020	2020-2040	2010-2040
Change	3012.5	2441.6	5454.1
% Change	19.2%	13.0%	34.7%

Source: 2010-California Employment Development Department (EDD) and CCSCE; 2020 and 2040-CCSCE

California is projected to add nearly 5.5 million jobs between 2010 and 2040 with the largest absolute and percentage gains in the first decade as the recession job losses are regained and before the heart of the baby boom retirement wave.

The state is projected to see a 34.7% increase in total jobs or slightly above the projected national increase of 29.3%. As with the national projections, the picture changes if job growth is measured from the pre-recession peak. The 2007-2020 gain is then 1.6 million jobs instead of 3.0 million and the percentage increase is 9.2% or slightly above the national job growth rate for this period.

The chart on the next page shows the long-term trend of the state's share of national jobs since 1990. While there are periods of share gain and periods of share losses, the overall pattern is that California job growth roughly matches the national growth rate and the state's projected share of U.S. jobs in 2040 is approximately the same as the share in 1990. The state regains the share losses

in the recession by 2020 and then grows slightly faster than the nation between 2020 and 2040.

California Share of U.S. Jobs
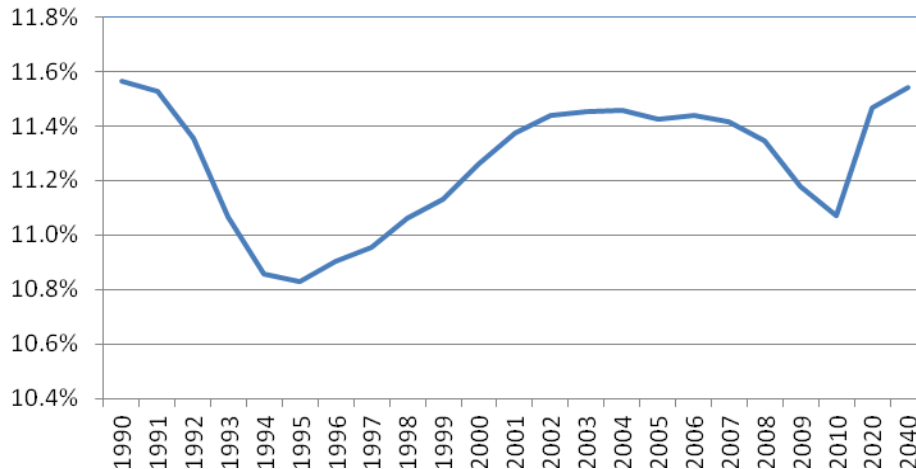
Bay Area Job Growth to 2040

The Bay Area has a concentration and competitive advantage for most sectors in which technology is applied in the development of goods and services sold to customers around the state, nation and world. This strong position in technology, where job and export growth is expected, is the primary reason that the region is projected to experience job growth at a slightly faster pace than the nation.

The Bay Area concentration can be seen in venture capital flows as shown on page 4 where the Bay Area is capturing 40% of the nation's venture capital funding in recent years, above the shares captured during the dot.com boom.

The Bay Area concentration can be seen in the technology sector job levels shown on the next page. The region with 2.4% of the nation's total jobs in 2010 had 12.0% of computer and electronic manufacturing jobs, 5.8% of pharmaceutical jobs, 10.3% of software jobs, and 8.3% of Internet service jobs.

The Bay Area advantage stands out in key fast-growing, high wage professional, scientific and technical services. In 2010 the region accounted for 3.3% of the nation's architectural and engineering jobs, 7.0% of computer service jobs, 4.3% of management and technical consulting jobs and 8.1% of scientific R&D jobs—all above the 2.4% share of U.S. total jobs in the Bay Area.

Bay Area Share Advantage in Key Technology Sectors (2010 data)
Jobs in Thousands

	Bay Area	U.S.	Bay Area Share of U.S.
Computer & Electronics Manufacturing	132.5	1,100.1	12.0%
Pharmaceuticals	16.0	276.5	5.8%
Medical Equipment	11.1	359.0	3.1%
Software	26.7	259.8	10.3%
Internet-Related	31.8	383.5	8.3%
Architectural & Engr. Services	42.1	1,276.7	3.3%
Computer Services	100.9	1,441.5	7.0%
Management & Tech.Services	41.7	991.4	4.2%
Scientific R&D Services	50.0	620.3	8.1%
Total Jobs	3,401.8	141,821.3	2.4%

Source: BLS, EDD and CCSCE

The Bay Area Council Economic Institute (BACEI) 2012 profile of the regional economy highlights the competitive advantage for innovation activities in the Bay Area. BACEI has graciously allowed CCSCE and ABAG to cite some of the material prepared for the profile by McKinsey & Company. Innovation highlights include:

- The Bay Area is the dominant region for new patents. In 2010 regional organizations held 16,364 patents while the next largest center, New York, trailed with 6,383 followed by Los Angeles, Boston and Seattle.

- Innovation sectors in the Bay Area accounted for 18.4% of total employment, highest in the nation, followed closely by Boston, Seattle and the Raleigh Triangle with more than 16%. San Diego was next with 14.0% followed by Austin with 12.2%.

- Seven of the top ten social media companies are headquartered in the Bay Area including Google, Facebook, Yahoo, Twitter, LinkedIn, Zynga and Yelp.

- Nearly half of the top 100 clean-tech firms are in the Bay Area.

The Bay Area innovation and technology advantage also comes from having the highest percentage of college graduates in the workforce of all major regional economies. The Bay Area's 44% is followed by 43% in Boston and 37% in Seattle compared to the 28% national average

Foreign trade and tourism are additional strengths in the region's economic base, in part because the Bay Area is a major center for trade, investment and tourism with Pacific Rim countries. The top six export destinations—China, Japan, Taiwan, South Korea, Hong Kong, and Singapore—all represent fast-growing Asian markets. Bay Area exports are concentrated in high-value technology exports shipped by air.

The Bay Area is the nation's fourth-largest export center behind New York, Houston and Los Angeles.

The BACEI-McKinsey regional profile has some other interesting findings relative to the region's strengths:

- The Bay Area has the second-largest concentration of Fortune 500 firms (30), trailing only New York (45) and ahead of the next highest concentration in Houston (22) and Dallas and Atlanta (10).

- The Bay Area is home to 10 of the Fortune 500 global firms, the most of any U.S. region except New York—Chevron, H-P, McKesson, Wells Fargo, Apple, Intel, Safeway, Cisco, Google, and Oracle.

- The Bay Area is a major travel and tourism center with 57 million flights annually, and 15.9 million tourists in 2010 who spent $8.3 billion.

Projection Methodology and Key Findings

Job projections to 2020 were developed based on detailed industry projections for the nation and state. The focus was on projecting job growth in the region's economic base sectors and converting these projections to total jobs by projecting the population-serving jobs that would accompany the basic industry job growth and related population increase.

The projections from 2020 to 2040 were developed by concentrating on major industry categories and projecting the Bay Area share of national and state growth based on the analysis of trends in the period from 2007 to 2020.

The region is projected to experience job growth at a slightly faster rate than the state and nation. The primary reasons for this above average job growth is the

region's above-average concentration in fast-growing sectors that apply technology to the development of goods and services that are sold to customers around the world. Information and professional services are where the largest job gains are projected for the region's economic base. The Bay Area job growth is also strengthened by the region's position as a major financial and trade center for Pacific Rim countries and as a region where Pacific Rim investors and workers continue to come to live and work.

The Bay Area is projected to add more than 1.2 million jobs between 2010 and 2040 of which approximately 300,000 jobs represent a recovery of jobs lost since the pre-recession peak and just under 1 million jobs represent gains between 2007 and 2040.

Between 2010 and 2020 the region is projected to add nearly700, 000 jobs of which approximately 300,000 represent the recovery of jobs lost during the recession. Job growth is expected to slow during the 20 years between 2020 and 2040 as baby boomer retirements slow labor force growth.

The Bay Area is projected to increase the region's share of California jobs with a gain from 21.6% in 2010 to 21.7% in 2020 and 21.8% in 2040. The Bay Area is also expected to outpace the nation in job growth with the region's share of national jobs going from 2.39% in 2010 to 2.49% in 2020 and 2.52% in 2040.

Bay Area Total Jobs (Thousands)

	2007	2010	2020	2040
Bay Area Jobs	3652.0	3385.3	4068.5	4617.5
% of CA Jobs	21.3%	21.6%	21.7%	21.8%
% of U.S. Jobs	2.43%	2.39%	2.49%	2.56%

Source: 2007, 2010-BLS, EDD and CCSCE
2020 and 2040-CCSCE

The region's projected above average job growth is displayed graphically on the following page.

Growth in Total Jobs

	2007-2020	2010-2020	2020-2040
Bay Area	11.4%	20.2%	13.5%
California	9.2%	19.2%	13.0%
United States	8.8%	15.1%	12.3%
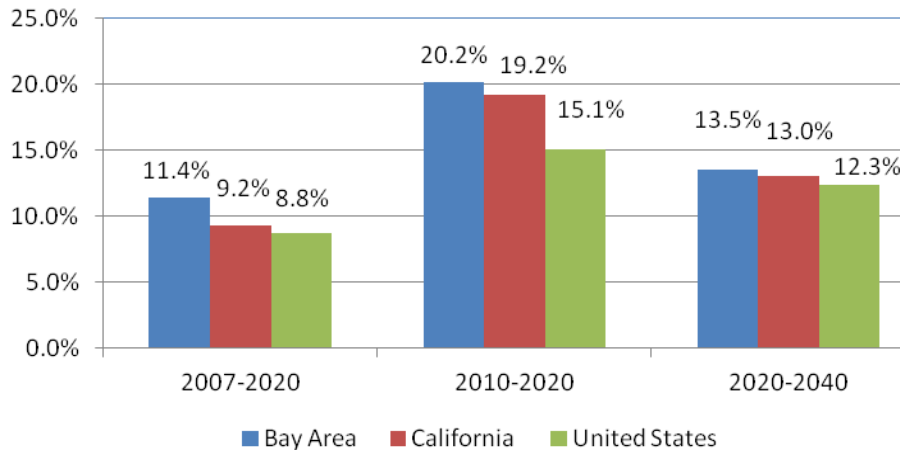
Major Industry Job Trends

The major industry job trends in the Bay Area over the next 30 years mirror the national trends described on page 9.

Construction job levels will almost regain pre-recession levels by 2020 and will increase slightly to 2040. Although this is a substantial gain measured from 2010 job levels, it is primarily driven by a slow return to more normal construction levels in the region.

Manufacturing job levels are projected to increase slightly between 2010 and 2020 and then continue the long-term decline driven by the disparity between high productivity gains and slow increases in domestic demand as population growth slows and the population continues to age. These projections do not include major manufacturing job gains that might occur in the clean tech sector if regional firms develop products that attract worldwide customers.

The largest job gains in absolute numbers and percentage increases are in Professional and Business Services and Education and Health Services. Within these larger categories the leading sectors are professional, scientific and technical services such as computer services and sectors associated with health care and social services for an aging population.

The national trends of slow growth in retail trade and finance are also expected in the Bay Area.

Above-average job growth is expected in the Information sector led by Internet-related services and in the number of self-employed residents as well as in the

Leisure and Hospitality sector, which includes amusements, hotels and restaurants.

Bay Area Jobs by Major Industry (Thousands)

	2007	2010	2020	2040	2007-2040
Farm	23.2	20.7	21.7	19.3	-16.8%
Natural Resources and Mining	2.4	1.9	2.3	2.0	-18.2%
Construction	193.9	130.5	184.3	211.2	8.9%
Manufacturing	348.0	308.3	319.1	291.3	-16.3%
Wholesale Trade	129.2	113.6	134.9	136.3	5.5%
Retail Trade	343.1	308.0	345.4	360.4	5.0%
Transp., Warehousing & Utilities	102.2	90.5	111.1	119.4	16.8%
Information	113.4	111.0	139.6	147.5	30.0%
Financial Activities	201.4	170.6	210.4	219.2	8.8%
Professional & Business Services	581.1	547.1	719.8	912.8	57.1%
Educational and Health Services	385.6	410.5	516.5	655.0	69.9%
Leisure and Hospitality	332.5	324.3	392.7	462.5	39.1%
Other Services	112.1	109.3	139.2	156.8	39.9%
Government	486.0	457.5	482.6	530.1	9.1%
Self Employed	317.5	298.0	368.7	416.4	31.1%
Total Jobs	3671.6	3401.8	4088.3	4640.1	26.4%

Source: 2007, 2010: EDD and American Community Survey for self employed: 2020, 2040: CCSCE. Data includes San Benito County, which is part of the San Jose metro area. As a result the totals are slightly higher than the ABAG region totals cited above in the report.

The Challenges to Achieving the Projected Job Growth

ABAG asked CCSCE to develop what they called an "unconstrained" set of Bay Area job projections. CCSCE's analysis assumes that over the next 30 years, many of the challenges facing the nation, state and region will be addressed. In addition this analysis assumes that at the regional level, the Bay Area will address challenges of housing, transportation and quality of life as well or better than other regions in the United States.

Providing investors and families a high quality of life is essential to maintaining the Bay Area's competitive advantage in the technology sectors that are expected to drive the region's job growth. Up until now the region has done well in the competition for providing great places to live and work. A study of Silicon Valley high tech employers completed in 2011 reported:

"Silicon Valley's top competitive advantage is its **highly skilled pool of talent**. Executives interviewed for the study say there is nowhere else in the world with such a concentration of highly skilled tech professionals, which is essential for businesses that require a steady stream of talent. The Valley's **high quality of life**—including beautiful weather, excellent schools, and the ability to live and work in the suburbs—was another major advantage, making CEOs want to locate their companies there and attracting talented workers and their families."

On the other hand maintaining a high quality of life is increasingly difficult. A 2011 survey of Silicon Valley CEOs states the quality of life imperative succinctly. The Silicon Valley Leadership Group 2011 CEO Survey reported "a deteriorating state infrastructure in areas ranging from public education to public transportation has added to the difficulties of recruiting the best workforce, finding them housing and educating their children to be tomorrow's world-class workforce".

The 2012 Bay Area Council Economic Institute Bay Area economic profile identifies a list of well-known Bay Area competitiveness challenges:

- Housing affordability. Although median home prices have fallen and affordability is higher than it has been in several years, Bay Area median home prices and rents are still well above the national average.

- K-12 and higher education. Both are facing continuing budget cuts throughout California as well as rising tuition levels at the state's public and private colleges. Moreover, average test scores are at or below nationwide levels and high school dropout rates remain high. While immigration can continue to supply a part of the region's workforce needs, most jobs will be filled by residents who are born, educated and trained in California.

- Transportation infrastructure. Despite the ongoing work by MTC and local transit districts and the $billions planned for improving highway and public transit travel, the region does not yet have sufficient funding for all needed transportation infrastructure investments. Although transportation funding is a nationwide problem, it is an especially important challenge in a region that needs to be able to move people and goods efficiently to compete in the 21st century global economy

- Governance challenges. California does not as yet have a plan to develop state and local budgets that are balanced and able to provide high quality public services.

The unconstrained job growth analysis shows the competitive strength of the Bay Area economy going forward if these challenges can be met.

Sources and Methodology Appendix

1990-2010 Job Estimates

The job estimates for the United States were published by the U.S. Bureau of Labor Statistics (BLS) at www.bls.gov. The job estimates used in developing the ABAG projections were those available in September 2011. BLS data and methodology are available at http://www.bls.gov/ces/.

The wage and salary job estimates for California and the Bay Area were published by the California Employment Development Department. These are available at http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=166. The job estimates used in developing the ABAG projections were those available in September 2011.

The Bay Area jobs data base includes the following metro areas as used by EDD: Oakland (Alameda and Contra Costa Counties); Napa (Napa County); San Francisco (Marin, San Francisco and San Mateo counties); San Jose (Santa Clara and San Benito counties); Santa Rosa (Sonoma County) and Vallejo (Solano County). For the ABAG region total job estimates and projections, San Benito County was excluded by the county is included in the table on page 16.

Estimates for self employed workers were developed from the 1990 and 2000 Census and for recent years annual estimates are available from the American Community Survey at http://www.census.gov/acs/www/. The job estimates used in developing the ABAG projections were those available in September 2011.

Methodology

The job projections to 2040 developed for the ABAG region were based on a best-practice projection framework used by other regional planning agencies in California and by national forecasting firms that do long-term regional projections throughout the United States. A summary of the methodology is included in the Power Point presentation at the February 7, 2012 Regional Advisory Working Group Meeting and available at http://apps.mtc.ca.gov/events/agendaView.akt?p=1820.

A more detailed description of the projection framework is available in *Review of Best Practice State and Regional Projection Methodologies and Review of Recent Economic and Demographic Trends* prepared by CCSCE for ABAG, SACOG and SCAG in April 2011. There are three major components common to regional and state long-term projections and these are the basis for the current ABAG methodology:

1) Population projections are developed based primarily on the projected rate of job growth.

2) State and regional job projections are developed based on projected national job growth and the share of national job growth expected to locate in a particular state or region.

3) Household projections are developed from population projections using varying combinations of demographic projections based on household formation rates and analyses of housing market conditions.

The remainder of this section focuses on the job projection methodology.

Job Projections for 2020-2040

All of the projections described in this report were developed by CCSCE in the fall of 2011.

The first step in developing job projections for the ABAG region is to develop projections for national job growth in total and by major industry group (the industries shown on page 16).

United States

The U.S. job projections for 2020 were adapted from the 2018 projections published by BLS in November 2009 and described in the November 2009 Monthly Labor Review. The press release can be found at http://www.bls.gov/schedule/archives/all_nr.htm#ECOPRO and the articles can be found at http://www.bls.gov/opub/mlr/2009/11/home.htm.

CCSCE modified the BLS projections to reflect the impact of the recession and changes in labor force participation trends that occurred after the 2009 projections were prepared. In February 2012 BLS produced a new set of projections to 2020 that can be found at http://www.bls.gov/emp/.

The 2020 U.S. job projection used by CCSCE in developing the ABAG job was within 0.8% of the newly published BLS projection of total jobs for 2020.

The projections for 2030 and 2040, as explained on page 6, were developed in three steps:

1) Projecting national population growth

2) Translating the projected population into total labor force and total jobs

3) Projecting job growth by major industry group

CCSCE used a set of U.S. population projections developed by John Pitkin and Dowell Myers that are based on 2010 Census estimates as a starting point and immigration assumptions developed by a panel of experts. The projection report and tables can be found at http://www.usc.edu/schools/price/futures/.

The existing Census Bureau long-term population projections were developed before the 2010 Census results were released and are available at http://www.census.gov/population/www/projections/. The population projections developed by Pitkin and Myers and used by CCSCE have a lower U.S. population in 2040 than either the Census Bureau baseline or low projections series as a result of assumed lower immigration levels.

The labor force projections were developed based on BLS projected labor force participation rates to 2050 that can be found at http://www.bls.gov/opub/mlr/2006/11/contents.htm. CCSCE modified the projections to increase the labor force participation of older workers after 2020.

A national unemployment rate of 6% was assumed for 2020 to 2040.

The population, labor force and unemployment projections combine to produce a projection of total jobs in the U.S. that was used in developing the ABAG projections.

Jobs by industry for 2020 were developed based on the BLS projections adapted for trends emerging after they were published.

The major industry projections for 2030 and 2040 were developed by CCCCE based on 1) the trends between 2010 and 2020 and a review by CCSCE of major industry job trends projected by other major national forecasting firms.

California

The California job projections were developed by CCSCE using a proprietary model that relates California job growth to U.S. job growth. Industries are categorized into **economic base industries** (those that sell a majority of goods and services outside the region, also known as export industries) and those that serve the local population.

Growth in economic base industries, as explained on page 6 is related to the **pool of job opportunities** reflected in the national projections and the **share locating in California** based on analysis of historical trends and CCSCE judgment. Job growth in California's economic base industries depends on how fast they are expected to grow nationwide and the state's competitive position represented by the share of national jobs expected to locate in California.

Once the economic base jobs are projected, population serving jobs are added based on 1) the projected profile of these jobs in the nation and the extent to which California's profile of population serving jobs differs from that in the nation.

For the California projections developed as part of this project the principal findings were:

1) California is expected to have job growth that is slightly faster than the nation to 2040 based on the state's industry structure, which has an above-average share of economic base jobs with high projected national growth.

2) In general the share of jobs in key industries is not expected to increase in California. It is the industry structure that pushes the overall job growth rate slightly above the national average.

3) The profile of population serving jobs in the state and nation are similar.

Bay Area

The Bay Area job projections were developed using the CCSCE model that is described above for California and as explained on page 6.

As explained on pages 13 and 14 and supported elsewhere in text the pri8ncipal finding is that the Bay Area is projected to experience job growth that is slightly above the state average as a result of the region's favorable economic base industry structure with an above average share of the sectors expected to post above-average job growth in the nation and state.

Other Sources

The venture capital funding graph on page 4 comes from data published by Price Waterhouse Coopers Lybrand and can be found at https://www.pwcmoneytree.com/MTPublic/ns/nav.jsp?page=notice&iden=B.

The ranking of San Jose cited on page 5 as tied with Houston as the leading large metro area for job growth comes from a BLS press release that can be found at http://www.bls.gov/news.release/pdf/metro.pdf.

The UCLA Bay Area forecast cited on page 5 can be found at http://www.bayareaeconomy.org/economic-forecasts/.

The UCLA long-term forecast for California cited on page 10 was published in *The UCLA Anderson Forecast for the Nation and California 2011-2021* in June 2011. UCLA forecast a 22.5% increase in total nonfarm jobs in California between 2010 and 2020 which is slightly higher than the CCSCE projection of

19.2% for total jobs during this period. UCLA forecast that California would outpace the nation in percentage job growth in each year through 2021.

The McKinsey report cited on pages 12 and 13 and the Bay Area economic profile cited on page 17 will be published by the Bay Area Council in the spring of 2012.

The Silicon Valley workforce report cited on page 16 can be found at http://www.novaworks.org/LaborMarketInfo/Reports/InformationTechnologyStudy.aspx.

The Silicon Valley Leadership Group CEO Survey cited on page 17 can be found at http://svlg.org/press/library.

MEMORANDUM

Date:	March 19, 2012
To:	Doug Johnson, MTC
	Therese Trivedi, MTC
From:	Sujata Srivastava and Alison Nemirow, Center for Transit-Oriented Development
Project:	1019 – MTC TOD Policy
Subject:	Historic and Projected Employment Trends in the Bay Area

In 2005, the Center for Transit-Oriented Development (CTOD) conducted residential and employment demand estimates for transit-oriented development in the nine Bay Area counties.[1] The 2005 CTOD report showed that in 2000, office-based industries were the most likely to locate near transit in the Bay Area. Since that report, CTOD has conducted additional work on the link between employment and transit. A recent CTOD white paper[2] demonstrated that the "knowledge-based" industries, including professional, scientific and technical services, information, and financial services are most likely to locate near transit, particularly in central business districts and higher density regional employment areas. These industries are most likely to benefit from the agglomeration economies associated with highly concentrated employment areas, and their workers are also most likely to take transit to work. A high share of public sector jobs are also located in transit zones.

This memo builds on this previous work and uses Priority Development Areas (PDAs) and Growth Opportunity Areas (GOAs) as a framework for exploring the potential for concentrating future employment in the Bay Area region. This report summarizes CTOD's analysis of industry trends in the nine-county San Francisco Bay Area, followed by a discussion of historic employment patterns by location within the region. The analysis focuses on knowledge-based jobs, which are most likely to concentrate in the transit areas in the future. The analysis also considers other service-sector jobs like retail, health and education, and arts and entertainment, which account for a growing share of the region's employment. If the region succeeds in re-concentrating housing in the PDAs/GOAs, some of these resident-serving jobs are likely to follow. The analysis does not focus on public sector jobs, because their location is typically determined by policy decisions, rather than by market conditions.

---

[1] CTOD/Strategic Economics, "Transit-Oriented Development Demand Analysis," Prepared for the San Francisco Bay Area Metropolitan Transportation Commission , July 2005.
[2] CTOD, "Transit and Regional Economic Development," May 2011, http://www.reconnectingamerica.org/resource-center/browse-research/2011/transit-and-regional-economic-development/.

REGIONAL INDUSTRY AND EMPLOYMENT TRENDS

According to the California Employment Development Department, there were approximately 3.1 million jobs in the nine-county Bay Area region in 2010, down from a pre-recession peak of about 3.3 million jobs in 2007 (Figure 1). As shown in Table 1, the top industries in 2010 were professional and business services (17 percent of total employment); government (15 percent); educational and health services (13 percent); leisure and hospitality (10 percent); manufacturing (10 percent); and retail (10 percent). Finance, insurance and real estate; construction; wholesale trade; information; other services; transportation, warehousing and utilities; and farming each accounted for less than 10 percent of Bay Area employment in 2010.

This industry mix reflects the economic trends of the last several decades. Figure 2, Figure , and Figure 2 show trends over time for each industry.

In the last two decades, employment in the service sectors – including the professional, government, information, educational and health, leisure and hospitality, and retail industries – has grown in the Bay Area (Figure 2 and Figure). At the same time, production and industrial sectors like manufacturing, transportation, warehousing and utilities, and wholesale trade have declined (Figure 2). While employment across all sectors generally reflects trends in the broader economy – employment in nearly every industry has declined in the current recession – manufacturing, professional and business services, information, construction, and retail have experienced the greatest volatility over the past two decades, with sharp employment peaks and downturns.

Figure 1. Total Wage and Salary Employment in the Bay Area, 1990-2010 (a)
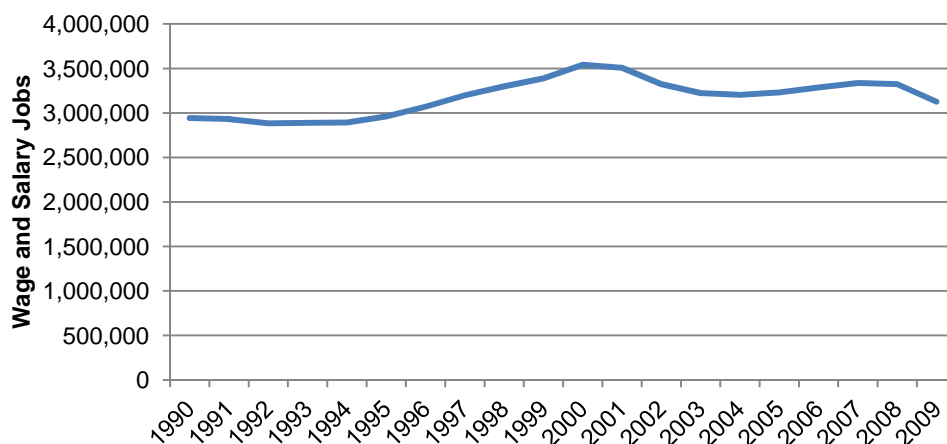
Source: California Economic Development Department, 2010; Strategic Economics, 2011.
(a) Annual averages; does not include self-employed, unpaid family, or private household workers.

Table 1. Bay Area Wage and Salary Employment by Industry: 1990, 2000, and 2010 (a)

Industry	1990 #	1990 %	2000 #	2000 %	2010 #	2010 %	Change 1990-2010 #	Change 1990-2010 %
Professional & Business Services	395,900	13%	649,800	18%	543,300	17%	147,400	37%
Government	460,000	16%	465,000	13%	472,000	15%	12,000	3%
Educational & Health Services	275,600	9%	335,900	9%	395,100	13%	119,500	43%
Leisure & Hospitality	246,700	8%	299,200	8%	322,000	10%	75,300	31%
Manufacturing	461,400	16%	485,700	14%	314,000	10%	-147,400	-32%
Retail Trade	315,800	11%	352,500	10%	310,100	10%	-5,700	-2%
Finance, Insurance & Real Estate	206,200	7%	205,300	6%	179,200	6%	-27,000	-13%
Construction, Mining, and Logging (b)	137,000	5%	190,100	5%	143,700	5%	6,700	5%
Wholesale Trade	126,000	4%	139,400	4%	115,900	4%	-10,100	-8%
Information	84,600	3%	156,200	4%	110,700	4%	26,100	31%
Other Services	96,500	3%	111,300	3%	107,300	3%	10,800	11%
Transportation, Warehousing & Utilities	114,700	4%	126,500	4%	93,000	3%	-21,700	-19%
Farm (c)	22,200	1%	25,800	1%	20,100	1%	-2,100	-9%
Total Wage and Salary Jobs (d)	2,942,000	100%	3,542,200	100%	3,125,800	100%	183,800	6%

Source: California Employment Development Department (EDD), 2010; Strategic Economics, 2011.

(a) Does not include self-employed, unpaid family, or private household workers.

(b) Mining and Logging employment are not reported separately from Construction employment in San Mateo, San Francisco, Marin, Contra Costa, Alameda Counties; in total, Mining and Logging amounted to 900 jobs in 2008 in the counties where it is reported separately (Santa Clara, Sonoma, Solano, and Napa).

(c) Farm employment for Napa and Solano in 1990 is not available; Bay Area figure includes estimate for these counties based on 1993 farm employment (first year available).

(d) Sector employment may not add to totals due to rounding error.

Figure 2. Bay Area Employment in Farming & Industrial Sectors, 1990-2010
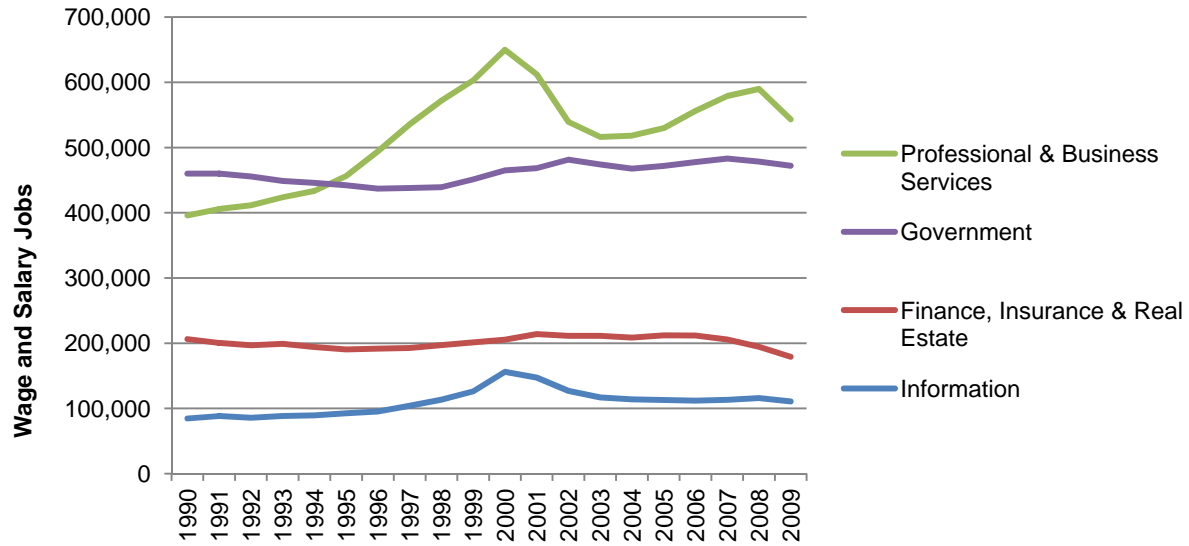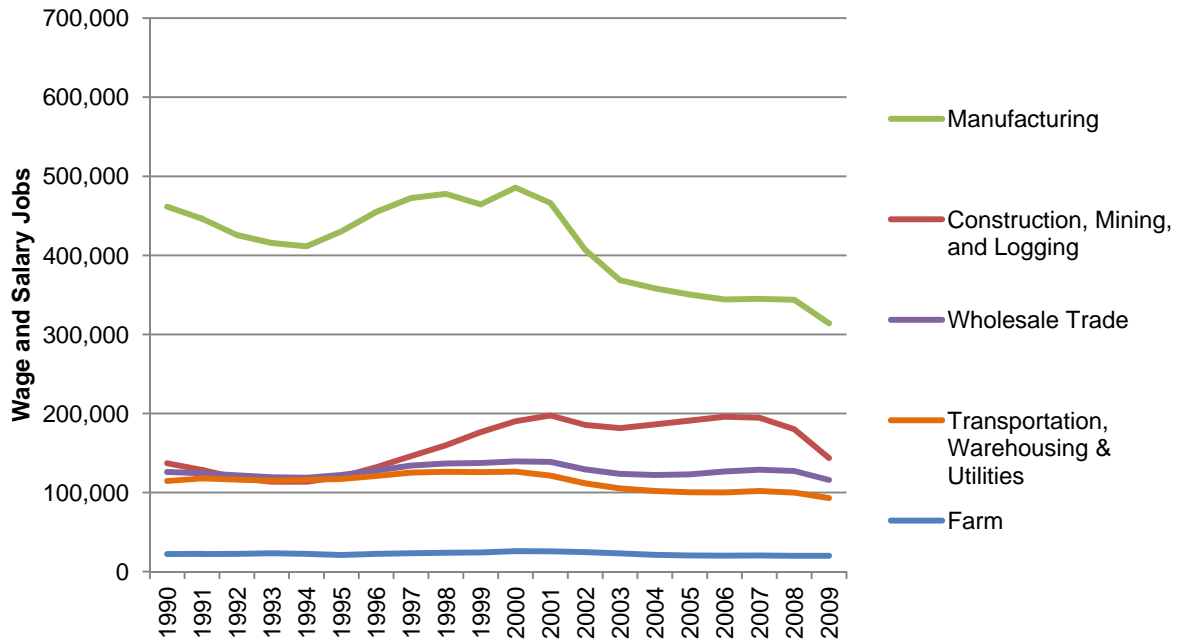
Source: California Economic Development Department, 2010, Strategic Economics, 2011.

Bay Area Industry Employment Compared to the U.S.

Table 2 compares the Bay Area to U.S. industry employment using two different mechanisms: Bay Area employment as a percent of total national employment in each industry; and the location quotient. The location quotient is a measure of the local concentration of jobs compared to the national concentration of jobs in each industry. A location quotient higher than one in a given industry indicates that the Bay Area has a higher concentration of jobs in that industry than does the U.S. A location quotient lower than one indicates that the industry is less concentrated in the Bay Area than in the U.S. as a whole.

Compared to the U.S., the Bay Area has a high concentration of information and professional and business services jobs. While the region's competitiveness in professional and business services has declined slightly since 2000, the region remains strong in the information sector. Despite recent declines, the Bay Area also still has a relatively high share of the country's manufacturing jobs. Over the last two decades the Bay Area has seen faster growth in leisure and hospitality and construction compared to the nation as a whole, although some of these gains have been lost in the current recession.

Table 2. Bay Area Compared to U.S. Industry Employment

Industry	Bay Area as a % of Total U.S. Employment			Location Quotient		
	1990	2000	2008	1990	2000	2008
Information	3.1%	4.3%	3.9%	1.19	1.62	1.62
Professional & Business Services	3.6%	3.9%	3.3%	1.38	1.47	1.39
Manufacturing	2.6%	2.8%	2.6%	0.99	1.06	1.07
Leisure & Hospitality	2.7%	2.5%	2.5%	1.01	0.95	1.05
Finance, Insurance & Real Estate	3.1%	2.7%	2.4%	1.18	1.01	1.00
Construction, Mining, and Logging	2.3%	2.6%	2.3%	0.86	0.97	0.94
Retail Trade	2.4%	2.3%	2.2%	0.91	0.87	0.91
Wholesale Trade	2.4%	2.3%	2.1%	0.91	0.89	0.89
Government	2.5%	2.2%	2.1%	0.95	0.84	0.89
Educational & Health Services	2.5%	2.2%	2.1%	0.95	0.84	0.87
Transportation, Warehousing & Utilities	2.7%	2.5%	2.0%	1.03	0.95	0.83
Other Services	1.9%	1.9%	1.8%	0.72	0.71	0.75
Farming	1.8%	2.0%	1.7%	0.69	0.76	0.73
Total Wage and Salary Jobs	2.6%	2.6%	2.4%	1.00	1.00	1.00

Sources: California Employment Development Department (EDD), 2010; U.S. Bureau of Labor Statistics (BLS), 2009; Strategic Economics, 2011.

Knowledge-based sectors and other service industries are projected to drive regional employment growth over the coming decades.
Table 3 shows Caltrans' projections for Bay Area employment by industry through 2040. Like other agencies that produce projections, Caltrans forecasts that service-based sectors – including professional services, government, educational & health services, leisure & hospitality and retail – will drive the Bay Area's economy while manufacturing and related industrial sectors will decrease as a share of total employment. Professional services and education and health care are expected to grow the fastest, adding 81 percent and 44 percent more jobs, respectively, between 2010 and 2040.

Table 3. Projected Bay Area Employment by Industry, 2010-2040

Industry	2010 Jobs	% of Total	2040 Jobs	% of Total	Change, 2010-40 Jobs	% Change
Professional Services	563,554	18%	1,021,414	23%	457,860	81%
Government	471,067	15%	614,926	14%	143,860	31%
Education & Healthcare	397,482	13%	574,361	13%	176,878	44%
Leisure & Hospitality	321,222	10%	445,273	10%	124,051	39%
Manufacturing	315,974	10%	343,443	8%	27,469	9%
Retail Trade	311,061	10%	439,390	10%	128,329	41%
Financial Activities	176,919	6%	200,182	4%	23,263	13%
Construction	148,804	5%	190,305	4%	41,501	28%
Wholesale Trade	121,433	4%	185,694	4%	64,261	53%
Other	108,450	3%	158,145	4%	49,695	46%
Information	108,134	3%	153,862	3%	45,729	42%
Transportation, Warehousing & Utilities	95,138	3%	143,073	3%	47,935	50%
Farm, Natural Resources, & Mining	21,760	1%	21,895	0%	135	1%
					0	
Total	3,160,999	100%	4,491,964	100%	1,330,965	42%

Source: Caltrans, 2010; Strategic Economics, 2011.

EMPLOYMENT TRENDS IN PDAS AND GOAS

As part of the Bay Area's Sustainable Communities Strategy planning efforts, ABAG collected data from the National Establishment Time Series (NETS) on employment trends in the PDA and GOA geographies. The PDA/GOA employment dataset provides snapshots of employment in 1990, 2000, and 2009, rather than annually. The industry categories are also slightly different from those used in regional trends analysis, above.

This section discusses historic employment trends in the PDAs/GOAs, in the context of the regional trends discussed in the previous section.

Over the course of the past two decades, the number and jobs and the share of the Bay Area's employment located in the PDAs and GOAs has decreased.
Table 4 gives the number of jobs in the PDAs/GOAs in 1990, 2000, and 2009. Overall, the PDAs/GOAs lost 112,000 jobs over the course of the two decades. However, all of the decline occurred between 2000 and 2009; in the 1990's, the number of jobs in the PDAs/GOAs actually increased by 10 percent. It is impossible to tell without a complete time series of data, but to some extent the disproportionate job losses that occurred in the PDAs/GOAs in the 2000's may reflect the uneven effects of the recession rather than a long-term trend.

Table 5 gives the concentration of employment by industry in the PDAs/GOAs compared to the Bay Area as a whole. Between 1990 and 2009, the share of Bay Area jobs located in the PDAs/GOAs shrank from 53 to 48 percent (Figure 3). This trend is reflected across industries – as Table 5 shows, the percent of total Bay Area employment located in the PDAs/GOAs decreased in every industry between 1990 and 2009.

Figure 3. Percent of Region's Jobs Located in PDAs and GOAs
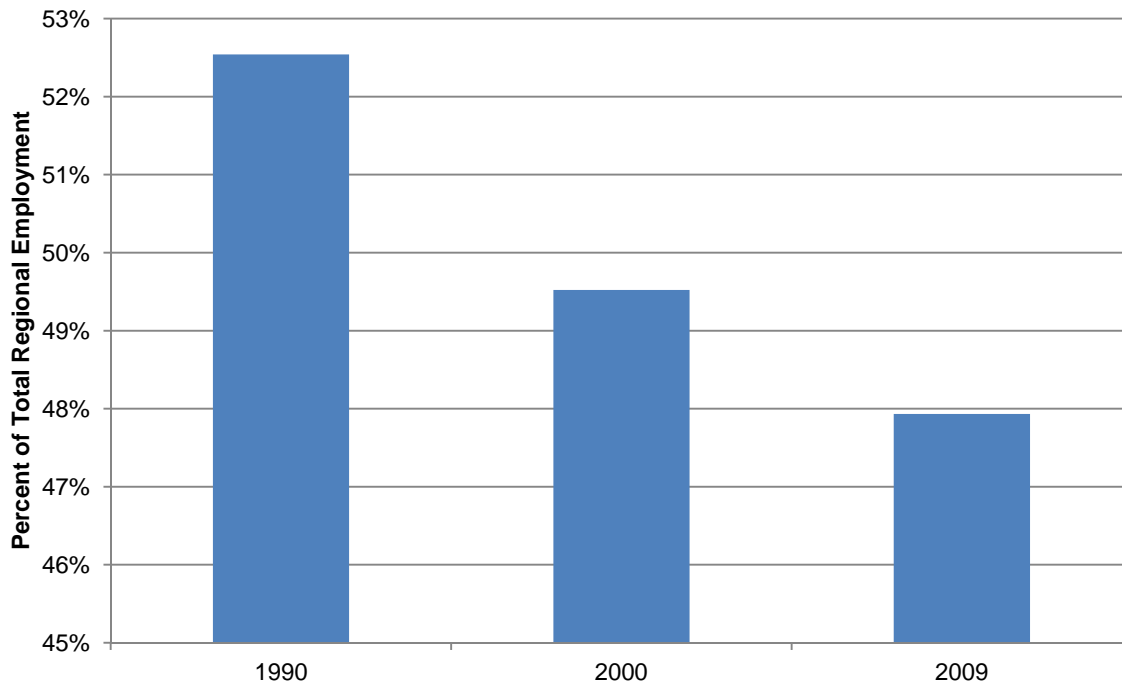
Sources: NETS, 2010; ABAG, 2011; Strategic Economics, 2011.

Table 4. PDA/GOA Employment by Industry, 1990-2009

Industry	1990		2000		2009		Change, 1990-2009	
	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Jobs	% Change
Arts, Recreation & Other Services	234,191	14%	312,885	17%	251,843	16%	17,652	8%
Manufacturing & Wholesale	403,945	24%	323,807	18%	241,689	15%	-162,256	-40%
Professional Services	216,706	13%	247,790	13%	238,571	15%	21,864	10%
Finance, Insurance & Real Estate	193,432	11%	173,305	9%	189,224	12%	-4,208	-2%
Retail	169,761	10%	225,565	12%	179,186	11%	9,425	6%
Health & Educational Services	169,177	10%	195,792	11%	163,144	10%	-6,034	-4%
Information	86,629	5%	136,432	7%	143,574	9%	56,945	66%
Government	69,017	4%	87,305	5%	71,902	5%	2,885	4%
Construction	63,577	4%	68,002	4%	60,023	4%	-3,555	-6%
Transportation & Utilities	69,664	4%	63,640	3%	37,113	2%	-32,551	-47%
Agriculture & Natural Resources	8,380	0%	8,345	0%	7,486	0%	-894	-11%
Total	1,684,479	100%	1,842,870	100%	1,583,753	100%	-100,726	-6%

Source: NETS, 2010; ABAG, 2011; Strategic Economics, 2011

Table 5. PDAs/GOAs Compared to Bay Area Industry Employment

Industry	PDAs as a Percent of Total Bay Area Employment			Location Quotient		
	1990	2000	2009	1990	2000	2009
Finance, Insurance & Real Estate	66%	59%	61%	1.25	1.19	1.27
Government	67%	63%	56%	1.28	1.27	1.15
Information	57%	57%	53%	1.08	1.16	1.10
Arts, Recreation & Other Services	54%	54%	52%	1.03	1.09	1.07
Retail	53%	51%	50%	1.01	1.03	1.04
Professional Services	58%	57%	50%	1.10	1.16	1.04
Transportation & Utilities	65%	53%	45%	1.24	1.07	0.94
Health & Educational Services	42%	42%	42%	0.80	0.86	0.86
Manufacturing & Wholesale	49%	40%	42%	0.92	0.82	0.86
Construction	40%	37%	37%	0.77	0.76	0.76
Agriculture/Natural Resources	32%	26%	27%	0.61	0.52	0.56
Total	53%	49%	48%	1.00	1.00	1.00

Source: NETS, 2010; ABAG, 2011; Strategic Economics, 2011.

The PDAs show the greatest strength in the knowledge-based and other service sectors that increasingly drive the region's economy – information, professional services, arts and recreation, and health and education.
Table 4 shows that the information sector grew by 68 percent in the PDAs/GOAs between 1990 and 2009. Professional services, arts and recreation, and government also added jobs overall. Even in these service sectors, however, the share of the region's employment located in the PDAs/GOAs still declined – i.e., the growth in this sector was faster in areas outside of the PDAs/GOAs (

Table 5 5).

Despite recent regional and local declines, the PDAs and GOAs still have significant employment in manufacturing and financial services.
The PDAs/GOAs consistently lost employment – both in absolute numbers, and as a share of Bay Area industry employment – in manufacturing and wholesale, as well as in the other production and industrial sectors. Indeed, manufacturing/warehousing shrunk by 40 percent in the PDAs/GOAs between 1990 and 2009 (Table 4). The PDAs/GOAs also lost employment in finance, insurance, and real estate, even faster than in the region as a whole. Nevertheless, Table 4 shows that manufacturing and wholesale remained the second largest sector in the PDAs/GOAs in 2009, just behind arts, recreation, and other services. Financial services was the fourth largest industry in the PDAs/GOAs, behind professional services.

Other sectors that saw declines in the PDAs/GOAs include transportation and utilities, which shrunk by 46 percent between 1990 and 2009. Retail and construction also saw declines, but of a much smaller magnitude – 2 percent and 4 percent, respectively.

Industry Trends by PDA Place Types

ABAG categorizes the PDAs/GOAs into "place types," areas with similar physical and social qualities. Here we discuss employment trends within the various place types, with a focus on the service-sector jobs that have experienced the most growth in PDAs/GOAs as well as regionally.

Regional centers and mixed-use centers account for the highest share of PDA/GOA jobs.
Table 6 shows PDA/GOA employment change between 1990 and 2009 for each place type. Over the course of the two decades, regional centers and mixed-use centers remained the largest place types in terms of employment, respectively accounting for 15 percent and 13 percent of the region's employment in 2009. All other place types each accounted for no more than 4 percent of the region's jobs.

However, regional centers and mixed-use centers experienced sharp employment declines during the 2000's, while suburban centers in particular experienced net employment growth.
Figure 4 breaks down place type employment change by decade. In general, nearly all of the place types gained jobs in the 1990s, but lost even more during the 2000s.[3] Mixed-use corridors– a category dominated by El Camino Real and San Pablo Avenue corridors – added 60,000 jobs in the 1990s, presumably due to the rapid expansion of Silicon Valley during that time period. By 2009, however, mixed-use corridors were back to 1990 employment levels. In the meantime, regional centers – including the downtowns of Oakland, San Francisco, and San Jose[4] – experienced rapid employment losses in the 2000s that outweighed modest gains in the 1990s.

Among the smaller place types, transit town centers, which include some of the region's smaller downtowns, and suburban centers, generally business parks located on the outskirts of the region, emerged from the 1990s and 2000s with net positive growth in employment.

Figure 4. PDA/GOA Employment Change by Place Type, 1990-2000 and 2000-2009
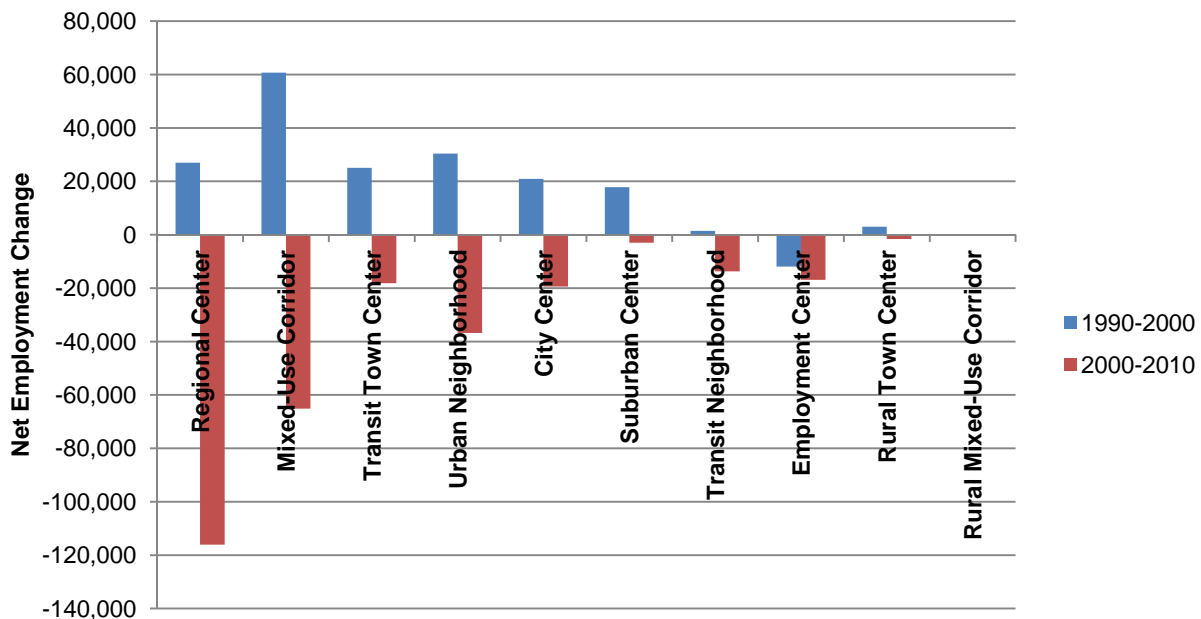
Sources: NETS, 2010; ABAG, 2011; Strategic Economics, 2011.

---

[3] Again, to some extent this trend may reflect uneven effects of the recession at the end of the 2000's.
[4] The Concord Community Reuse Area is also classified as a regional center, but currently has little employment.

Table 6. PDA/GOA Employment by Place Type, 1990-2009

Place Type	1990 Jobs	% of Total	2000 Jobs	% of Total	2009 Jobs	% of Total	Change, 1990-2009 Jobs	% Change
Regional Center	558,517	17%	585,461	16%	469,419	14%	-89,098	-16%
Mixed-Use Corridor	437,246	14%	497,966	13%	432,850	13%	-4,396	-1%
Transit Town Center	131,524	4%	156,606	4%	138,429	4%	6,906	5%
Urban Neighborhood	141,151	4%	171,527	5%	134,709	4%	-6,442	-5%
City Center	114,066	4%	134,971	4%	115,588	4%	1,522	1%
Suburban Center	99,505	3%	117,334	3%	114,318	3%	14,813	15%
Transit Neighborhood	99,494	3%	100,962	3%	87,235	3%	-12,259	-12%
Employment Center	97,616	3%	85,715	2%	68,819	2%	-28,797	-29%
Rural Town Center	4,579	0%	7,592	0%	5,960	0%	1,381	30%
Rural Mixed-Use Corridor	782	0%	654	0%	508	0%	-274	-35%
PDA total	1,684,479	53%	1,858,788	50%	1,567,834	48%	-116,645	-7%
Regional total	3,206,080	100%	3,753,460	100%	3,270,906	100%	64,826	2%

Source: NETS, 2010; ABAG, 2011; Strategic Economics, 2011

The place types with the highest concentration of employment experienced growth in the knowledge-based sectors.

Figure 5 shows net employment change between 1990 and 2009 in information, professional services, and financial services.[5] Generally, the place types with the highest concentration of jobs – which we would expect to benefit from agglomeration economies – experienced the most growth in these knowledge-based sectors. In particular, regional centers, mixed-use corridors, transit-town centers, urban neighborhoods, and city centers accounted for most of the growth in information jobs. New professional services jobs followed the same pattern, except that regional centers lost professional services jobs overall. And although the region has lost financial services jobs overall, some PDAs/GOAs experienced small increases in employment in this sector.

With the notable exception of regional centers, the PDAs have also generally seen growth in arts, recreation, and other services. Growth in retail and health and education employment – those jobs most tied to residential development – has been more uneven.

Figure 5. PDA/GOA Net Employment Change by Place Type: Knowledge-Based Sectors, 1990-2009

Sources: NETS, 2010; ABAG, 2011; Strategic Economics, 2011.

---
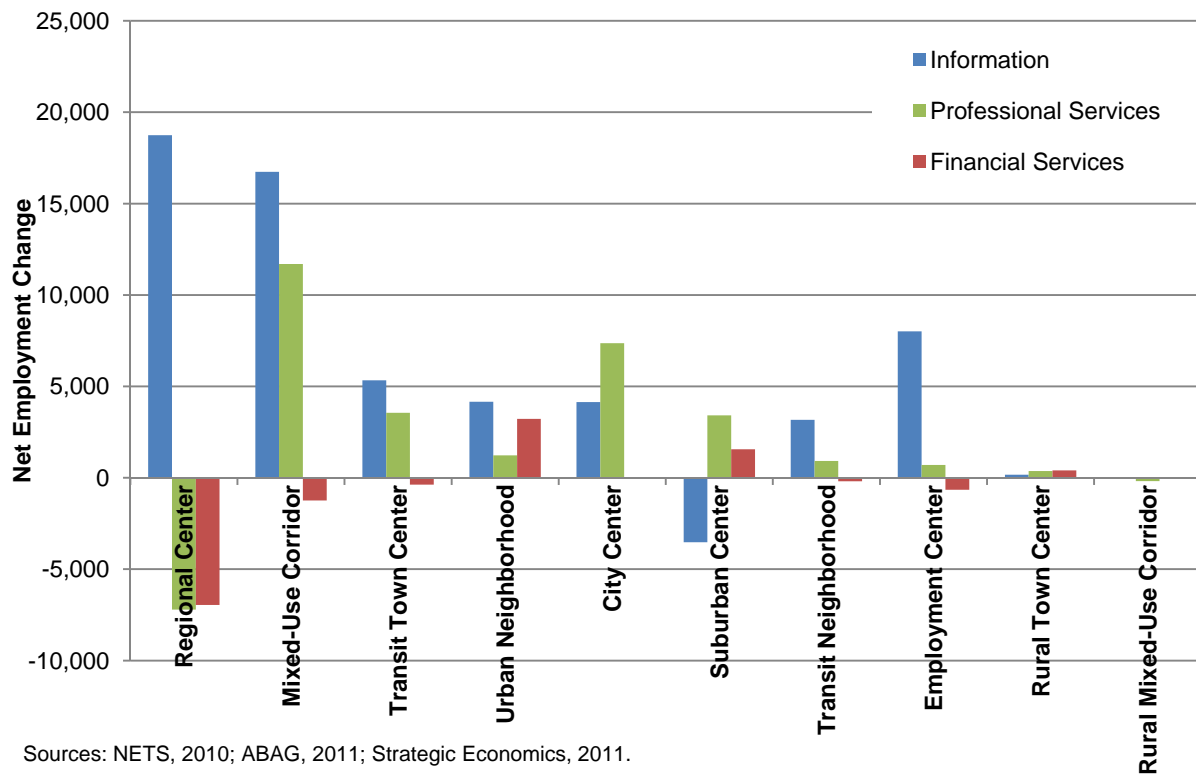
[5] Excluding government because of inconsistencies in data source.

Figure 6. PDA/GOA Net Employment Change by Place Type: Other Service-Based Sectors, 1990-2009
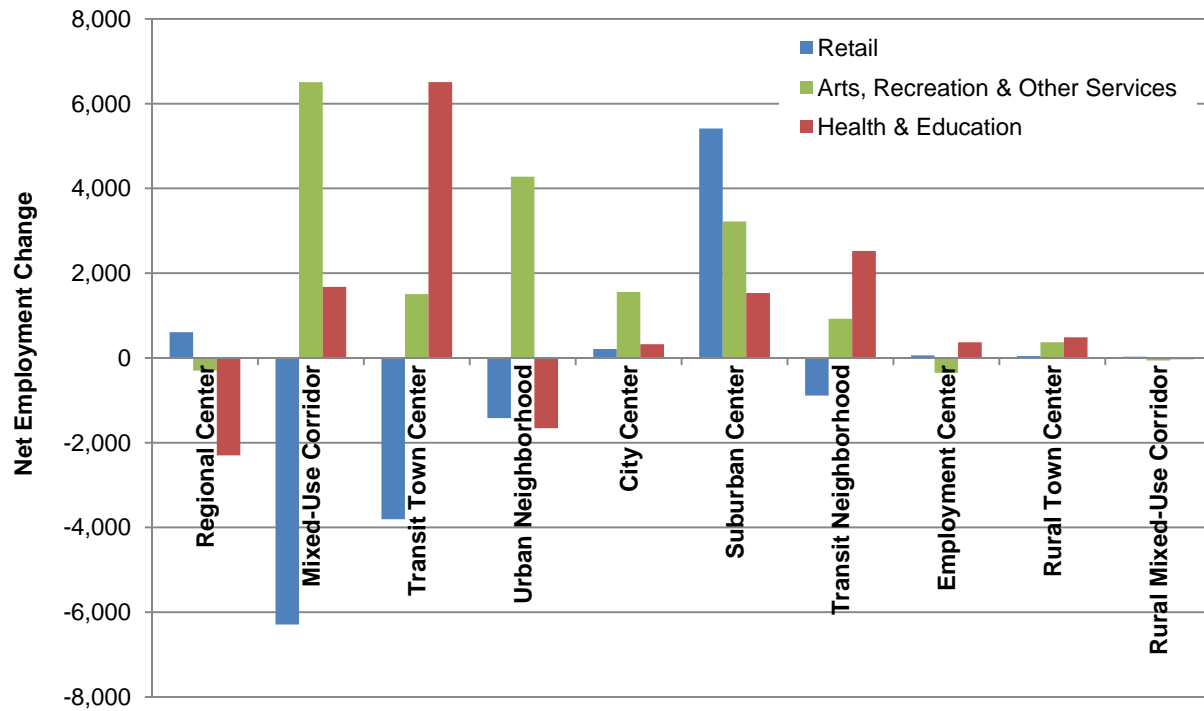
Sources: NETS, 2010; ABAG, 2011; Strategic Economics, 2011.

Summary of Industry and Employment Trends

The Bay Area economy is increasingly driven by the service industries, including both knowledge-based sectors like professional services and information, and resident-serving industries like retail and health and education. Arts, recreation and other services – a category that includes tourism as well as resident-serving businesses – also plays an important role in the regional economy.

Overall, the PDAs and GOAs account for a declining share of the region's employment. This confirms other studies that have shown steady or declining employment concentrations around transit stations in California.[6] Halting or reversing this trend is one of the challenges facing the region as planners attempt to concentrate growth in more transit-friendly, walkable locations.

Since the 1990's, however, PDAs and GOAs have shown relative strength in knowledge-based industries, which research has shown to be the most likely to benefit from transit access and the agglomeration economies associated with highly concentrated employment areas. Knowledge-based industries are also projected to drive Bay Area employment growth over the coming decades, potentially generating new employment demand for transit-oriented, infill locations. The PDAs and GOAs also show strength in arts and recreation employment, another sector that is expected to grow in the Bay Area in the coming decades. In addition, if the region succeeds in locating an increasing share of housing units in the PDAs/GOAs, a growing number of employers can be expected to follow their customers and employees. In the next section, we explore how different trends in employment location might play out, and project future demand for employment in the PDAs and GOAs under a range of different growth scenarios.

---

[6] Jed Kolko, "Making the Most of Transit: Density, Employment Growth, and Ridership around New Stations," Public Policy Institute of California, February 2011, http://www.ppic.org/main/publication.asp?i=947.

CONCLUSION

Slowing or reversing the trend towards increasing decentralization of employment is one of the major challenges facing Bay Area planners as the region attempts to move towards a more compact development pattern. It is important to note that the PDAs and GOAs have shown some strength in knowledge-based industries and entertainment, two sectors that are both projected to experience significant growth throughout the region and experience benefits from locating in higher-density, transit-accessible areas. In addition, if the region succeeds in locating an increasing share of housing units in the PDAs/GOAs, some employers are likely to follow their customers and employees. Still, encouraging employment concentration at transit-oriented locations will require significant efforts and coordination on the parts of metropolitan planning organizations, regional economic development agencies, transit agencies, and local jurisdictions.

MEMORANDUM

Date:	March 19, 2012
To:	Doug Johnson, MTC
	Therese Trivedi, MTC
From:	Sujata Srivastava and Alison Nemirow, Center for Transit-Oriented Development
Project:	1019 – MTC TOD Policy Update
Subject:	Demographic shifts and implications for TOD housing demand

This memorandum report explores how demographic trends projected for the San Francisco Bay Area in the next 30 years may impact the demand for housing in places with transit access. The analysis identifies the types of households that are most likely to live in transit locations, based on patterns that emerged from the 1990s and 2000s. Economists and demographers expect that over the coming decades, residential demand in the United States will be driven by the aging of the two largest generations: the Baby Boomers and the Echo Boomers (also known as Gen Y).[1] Between 2010 and 2030, people aged 65 and older are projected to increase from 13 to 20 percent of the nation's population as the Baby Boomer generation reaches retirement age.[2] In the meantime, the next largest generation, the Echo Boomers or "Gen Y" – people born in the 1980s and 1990s – are entering adulthood and forming new households. This report focuses particular attention, therefore, on the preferences and household formation trends of these two generations, and the potential impacts on the long-term demand for transit-oriented development (TOD).

---

[1] UCLA Anderson Forecast, *The UCLA Anderson Forecast for the Nation and California: 2011-2021*, June 2011;Joint Center for Housing Studies of Harvard University, *The State of the Nation's Housing 2011*, 2011, http://www.jchs.harvard.edu/publications/markets/son2011/index.htm.
[2] U.S. Census Bureau, Population Division, "Table 2-C. Projections of the Population by Selected Age Groups and Sex for the United States: 2010 to 2050 Constant Net International Migration Series (NP2009-T2-C)," 2009.

WHO LIVES NEAR TRANSIT NOW?

The Center for Transit-Oriented Development (CTOD) developed a national TOD database mapping all fixed-giudeway transit stations in the country, along with population and household data from the U.S. Census. Using that database, the CTOD estimated that 613,000 Bay Area households, or 25 percent of the region's total households, lived near transit in 2000.[3]

While the TOD database has not yet been updated to reflect results from the 2010 Census, MTC and ABAG have developed estimates of the number of households that currently live in Priority Development Areas (PDAs) and Growth Opportunity Areas (GOAs), which include most of the high-frequency transit served neighborhoods in the region. As Table 2 shows, about 23 percent of Bay Area households currently live in a PDA/GOA. Seventeen percent of households live in a PDA located either on a major existing transit corridor such as BART, Muni METRO, the VTA light rail, ACE, or the Capitol Corridor, or on a planned corridor such as eBART, BART South, Dumbarton Rail, SMART, and others.[4]

Table 1. Population and Households Located in Priority Development Areas (PDAs) or Growth Opportunity Areas (GOAs), 2010

	Population	% of Total	Households	% of Total
PDAs on major transit corridor	1,102,702	15%	451,589	17%
PDAs not on major transit corridors	394,090	6%	144,751	6%
Total PDA	1,496,792	21%	596,340	23%
Total Bay Area	7,150,739	100%	2,608,023	100%

Sources: U.S. Census, 2010; ABAG, 2011.

The national TOD database also found that households composed of one or two people, non-family households, and households with householders age 15 to 34 were most likely to live near existing transit stations – in other words, young singles and couples with no children.[5] Householders age 65 and older were the least likely to live near transit in 2000, but CTOD relied on research on changing household preferences to project growing demand for housing near transit among older households as the Baby Boomer generation reached retirement age.

HOUSEHOLD PREFERENCES FOR TOD

While studying the households who currently live near transit gives us some idea of the magnitude of demand, there may be substantial number of households who would like to live near transit but cannot currently find – or afford – a unit that fits all of their needs. A large body of literature has relied on consumer surveys to explore how household preferences may affect short- and long-term demand for transit-oriented, higher-density, and/or infill housing.

As the conventional wisdom suggests, the majority of respondents to household preference surveys – typically 60 to 80 percent or more – prefer single-family housing in lower-density, suburban

---

[3] CTOD, 2004.

[4] The slight difference between this finding and CTOD's estimate that 25 percent of Bay Area households lived near a fixed-guideway transit station in 2000 may to some extent reflect the different geographies used for each calculation. Not all of the region's fixed-guideway station areas are locally identified PDAs and GOAs. For example, some of the San Francisco MUNI transit station areas are not designated PDAs or GOAs. Also, the slightly lower share of households in PDAs/GOAs in 2010 may be attributable to the fact that much of the region's housing development since 2000 has occurred away from the transit-rich core in suburban and rural places.

[5] Center for Transit-Oriented Development, *Hidden in Plain Sight: Capturing the Demand for Housing Near Transit*, September 2004, http://www.reconnectingamerica.org/resource-center/books-and-reports/2004/hidden-in-plain-sight-capturing-the-demand-for-housing-near-transit/.

neighborhoods.[6] However, a significant minority consistently favors higher-density, mixed-use neighborhoods and attached housing, particularly if presented with a tradeoff between house size, commute time, and access to amenities. For example, in a recent national survey,[7] 60 percent of respondents said they would choose a smaller home if it meant a commute time of 20 minutes or less, and two-thirds said that being within an easy walk of shops and services was an important factor in deciding where to live.

The preferences of the two largest generations, the Baby Boomers and Echo Boomers, have received particular attention. There is evidence to suggest that people age 55 and over are more likely to prioritize public transportation, "walkability," and access to amenities, and are more receptive to townhouses and condos with smaller yards than are younger households.[8] Some surveys indicate that Baby Boomers may be particularly interested in downsizing and moving to more amenity- and transit-rich neighborhoods; based on this finding, the CTOD projected that the percent of households age 65 and older living near transit will increase 10 percent by 2030. That is not to say that all seniors have a propensity to live in compact, urban places – in fact, many older adults say they wish to age remain in their current homes.[9]

Young singles are the group most interested in "walkability," mixed-use neighborhoods, and short commutes.[10] Indeed, the Echo Boom generation may have a particular affinity for compact, pedestrian- and bike-friendly neighborhoods as a lifestyle choice. Recent Department of Transportation statistics show that average daily vehicle miles travel (VMT) for people under 35 has declined steadily since 1995, while daily VMT for the population over 35 has continued to increase except for during the recession of the last few years.[11] Young families, on the other hand, and particularly those with children, are the most likely to choose single-family homes even if it means a longer commute, and overwhelmingly prioritize high-quality schools in making location decisions.[12] Finally, research into the cultural preferences of immigrants suggests they may be more willing to utilize public transportation and live in compact or multifamily housing.[13]

Several recent reports have taken a different approach to parsing the market for transit-oriented development, by using survey data to define market segments among households that have recently moved. In 2010, MTC surveyed 900 Bay Area "new movers" – people who had moved within the last three years or were planning to do so in the coming year – and found that 38 percent of respondents fell in the "easy to attract" to TOD category (Figure 1).[14] The "easy to attract" households included the following three groups:

---

[6] Myers, Dowell, and Elizabeth Gearin. "Current Preferences and Future Demand for Denser Residential Environments." Housing Policy Debate 12, no. 4 (2001): 633-659.

[7] Belden Russonello & Stewart, *The 2011 Community Preference Survey* (Washington D.C.: National Association of Realtors, March 2011), http://www.realtor.org/government_affairs/smart_growth/survey.

[8] Myers and Gearin, 2001; Belden Russonello & Steward, 2011.

[9] Kochera, Andrew, Audrey Straight, and Thomas Guterbock. *Beyond 50.05: A Report to the Nation on Livable Communities.* Washington D.C.: AARP Public Policy Institute, May 2005. http://www.aarp.org/home-garden/livable-communities/info-2005/beyond_50_05_a_report_to_the_nation_on_livable_communities__creating_environments_for_successful_aging.html.

[10] Belden Russonello & Steward, 2011.

[11] Source: U.S. Department of Transportation, "Table 33. Vehicle Miles of Travel (VMT) per day for Younger Population Groups by Urban and rural Household Location 2009 NHTS," Summary of Travel Trends: 2009 National Household Travel Survey, June 2011, http://nhts.ornl.gov/2009/pub/stt.pdf.

[12] Myers and Gearin, 2001; Belden Russonello & Steward, 2011.

[13] Mendez, Michael, "Latino New Urbanism: Building on Cultural Preferences." *Opolis: An International Journal of Suburban and Metropolitan Studies,* 1.1 (2005)

[14] Metropolitan Transportation Commission. *Choosing Where We Live: Attracting Residents to Transit-Oriented Neighborhoods in the San Francisco Bay Area; A Briefing Book for City Planners and Managers*, May 2010. http://www.mtc.ca.gov/planning/smart_growth/tod/5-10/Briefing_Book-Choosing_Where_We_Live.pdf.

- *Transit-Preferring:* Households who rate minimizing travel and access to transit service as most important in choosing a home. This group includes families with children and students. These households are typically renters with low auto ownership rates and relatively low incomes.

- *Urban DINKS (Double Income No Kids):* Households without children who value minimizing travel and access to transit and regional centers. These households have average incomes, and typically have one car in the household.

- *Young Braniacs:* Well-educated households who are younger than average; about a quarter have children, and most have just one car in the household. These households also place a high value on minimizing travel and having access to transit and regional centers.

Another 29 percent fell into groups deemed "possible to attract," including "ambitious urbanites" and "mellow couples" who value the attributes of suburban neighborhoods, but appreciate the opportunity to walk, take transit, and bicycle to neighborhood amenities. The remaining 33 percent of respondents were considered "hardest to attract."

A similar national study[15] surveyed people in major metropolitan areas who had moved within the last two years or planned to move within the next two years. Of the nearly 900 respondents, 35 percent had either recently moved to a compact, transit-oriented neighborhood, or fell into the two market segments that the authors deemed most likely to do so (Figure 2):

- *Transit Movers:* Typically young (age 21-30), moderate-income households who currently live in multi-family housing and rely on transit and walking for transportation.

- *Environmental Movers:* Older, higher-income households who currently live in single-family homes in suburban neighborhoods and rely on automobiles for transportation, but are open-minded about more urban lifestyles because of their concern for the environment.

Given the Bay Area's particularly high concentration of households in their 20's and 30's (discussed below), as well as the population's well-known concern for the environment, it seems likely that the region would have a higher share of "transit movers" and "environmental movers" compared to the nation.

---

[15] Karash, Karla H., Matthew A. Coogan, Thomas Adler, Chris Cluett, Susan A. Shaheen, Icek Aizen, and Monica Simon. *Understanding How Individuals Make Travel and Location Decisions: Implications for Public Transportation.* Washington D.C.: Transportation Research Board, 2008. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_123.pdf.

Figure 1. Market Segments by Ease of Attracting to TOD: MTC Survey of Recent Bay Area Movers
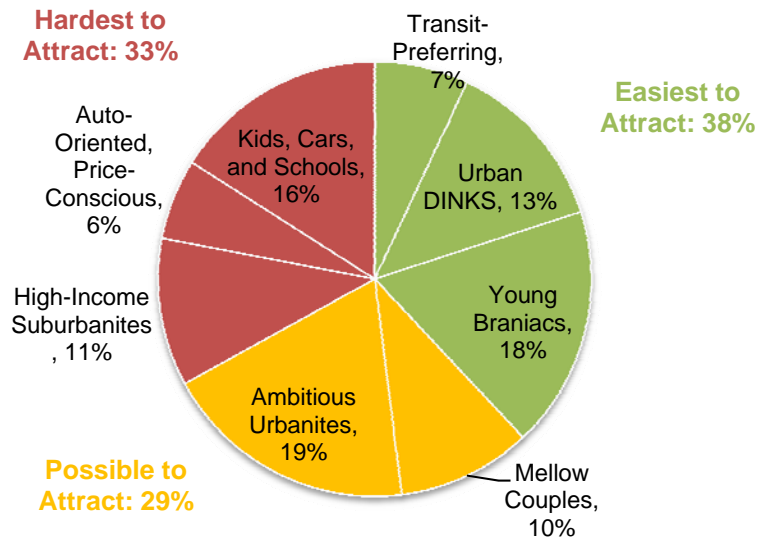
Source: Metropolitan Transportation Commission, 2010.

Figure 2. Market Segments by Ease of Attracting to Compact Neighborhoods: National Survey of Recent Movers
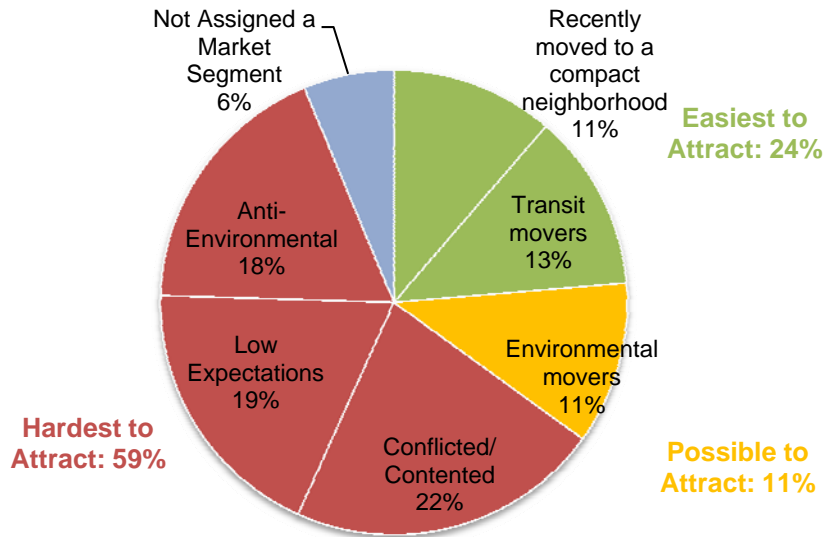
Source: Karash, et al., 2008

Summary

The share of Bay Area households with a potential demand for transit-oriented residential development appears to be somewhere in the range of 23 of all households, to 38 percent of *moving* households. Currently, 23 percent of the region's households live in a PDA or GOA. Approximately 38 percent of survey respondents who recently moved to or within the region may be "easy to attract" to transit-oriented development. The distinction between all households and moving households is important, at least in the short-run – in any given year, it is existing households who are relocating, combined with newly formed households, who generate demand for housing.

These figures may be conservative, especially if household preferences continue to evolve towards higher-density, mixed-use, transit-accessible neighborhoods over the coming decades due to higher gas prices, increasing environmental awareness, or other factors. The research reviewed in this section suggests that the preferences of certain groups will have a particularly important effect on TOD demand. These groups include:

- Young adults (age 35 and under), particularly singles and couples without children;

- Older adults, particularly Baby Boomers; and

- Immigrants.

In the following section, we review historic population and household trends affecting these groups, with an eye towards understanding how demographic change is likely to affect future TOD demand.

BAY AREA DEMOGRAPHIC TRENDS

The Bay Area is generally similar to the rest of California and the U.S., with a few exceptions that may have significance for long-term demand for TOD. This section begins by examining the age structure of the Bay Area and immigration trends, and then delves into household formation, size and type. Unless otherwise noted, data in this section comes from the 1990, 2000, and 2010 Decennial Censuses and the 2007 and 2009 American Community Survey (ACS).[16]

Population Trends

The Bay Area has historically been highly attractive for people in their late 20s, 30s, and early 40s. As Figure 3 shows, the Baby Boomers (born between 1946 and 1965) and their children the Echo Boomers (born in the 1980s and 1990s) account for a disproportionally large share of the U.S. population. However, the Bay Area has a smaller share of population at both ends of the age spectrum compared to the U.S. as a whole, and more residents in the 25-44 age group.

---

[16] 2010 Decennial Census data is used wherever available. For some population and household characteristics, data from the 2010 Census is either not yet available at a national level, or is no longer being collected as part of the Decennial Census. In these cases we substitute 2009 ACS data.

Figure 3. Population Distribution by Age and Generation: Bay Area Compared to U.S., 2010
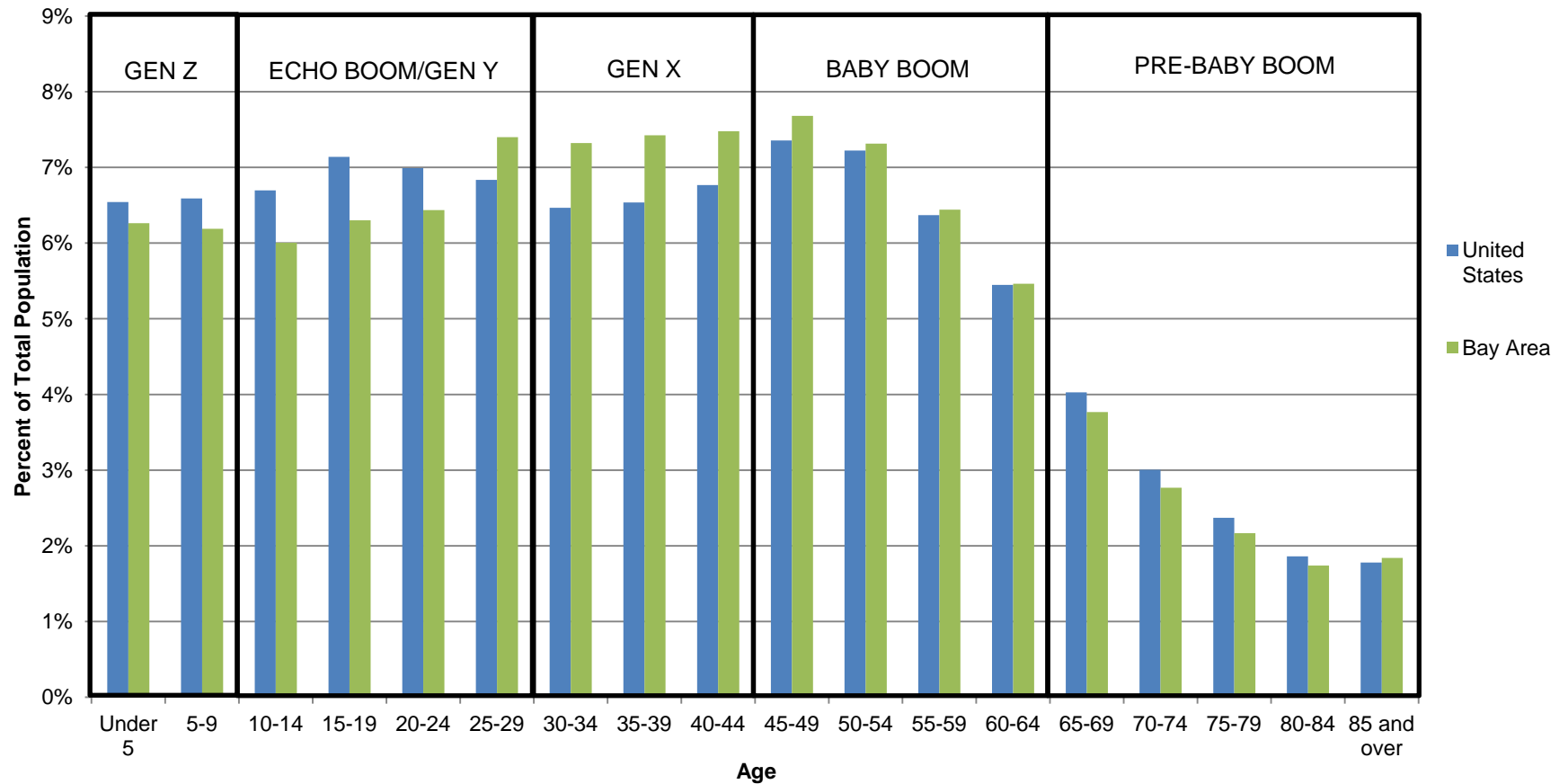
Source: U.S. Census, 2010; Joint Center for Housing Studies, 2011; Strategic Economics, 2010.

Table 2. Generations as a Share of Population: Bay Area Compared to the U.S., 1990-2010

	1990		2000		2010	
Generation	Bay Area	U.S.	Bay Area	U.S.	Bay Area	U.S.
Percent of total population						
Gen Z (2001-2010)	0.0%	0.0%	0.0%	0.0%	12.5%	13.1%
Echo Boom/Gen Y (b. 1981-2000)	13.7%	14.7%	26.0%	28.6%	26.1%	27.7%
Gen X (b.1966-1980)	19.6%	21.7%	22.9%	20.9%	22.2%	19.8%
Baby Boom (b.1946-1965)	36.8%	32.5%	31.5%	29.4%	26.9%	26.4%
Pre-Baby Boom (b. 1945 & Earlier)	29.8%	31.2%	19.6%	21.1%	12.3%	13.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Population (in thousands)						
Gen Z (2001-2010)	0	0	0	0	890	40,550
Echo Boom/Gen Y (b. 1981-2000)	825	80,473	1,766	80,473	1,869	85,405
Gen X (b.1966-1980)	1,183	58,856	1,552	58,856	1,589	61,033
Baby Boom (b.1946-1965)	2,218	82,826	2,137	82,826	1,924	81,489
Pre-Baby Boom (b. 1945 & Earlier)	1,797	59,266	1,329	59,266	878	40,268
Total	6,024	281,422	6,784	281,422	7,151	308,746

Sources: U.S. Census, 1990, 2000, 2010; Strategic Economics, 2011.

This reflects a trend that goes back at least two decades. Table 2 shows each generation as a share of population in 1990, 2000, and 2010. In 1990, when the Baby Boomers were in their in their late 20s to early 40s, the Boomers accounted for about 37 percent of the Bay Area's population, compared to 32 percent in the U.S. as a whole. As the Baby Boomers aged into the peak home-buying years and formed families in the 2000s, the population of this group in the Bay Area dropped by 1.3 million, or about 10 percent. Today, Baby Boomers account for about the same share of the population in the Bay Area as in the U.S. overall.

As Baby Boomers left the Bay Area in the 1990s, their children left too (or were born in other regions). In 2000, Echo Boomers made up about 26 percent of the Bay Area's population, compared to 29 percent nationally. As the first of the Echo Boomers have reached their mid- to late-20s, they have begun to grow as a share of the Bay Area's population. In the meantime, the Gen X cohort (born in the late 1960's and 1970's) began moving to the Bay Area in the 2000s, and today make up 2 percent more of the population in the region than in the nation (22.2 percent v. 19.8 percent).

Figure 4 summarizes the effects that these generational shifts have had on the age distribution of the Bay Area. Across the past two decades, the region has consistently had a higher share of population in the 25 to 54 age groups compared to the U.S. The region has also typically had a lower share of children and people over age 55, although the region is catching up to the rest of the country in terms of its older population.

Figure 4. Share of Population by Age Group: Bay Area Compared to the U.S., 1990-2010

Age Group	1990		2000		2010	
	Bay Area	U.S.	Bay Area	U.S.	Bay Area	U.S.
Under 25	33.3%	36.3%	32.4%	35.3%	31.2%	34.0%
25 to 34	19.6%	17.4%	16.5%	14.2%	14.7%	13.3%
35 to 44	17.3%	15.1%	17.3%	16.0%	14.9%	13.3%
45 to 54	10.9%	10.1%	14.2%	13.4%	15.0%	14.6%
55 to 64	7.9%	8.5%	8.4%	8.6%	11.9%	11.8%
65 to 74	6.5%	7.3%	5.7%	6.5%	6.5%	7.0%
75+	4.6%	5.3%	5.4%	5.9%	5.7%	6.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U.S. Census, 1990, 2000, 2010; Strategic Economics, 2011.

The Bay Area's share of population age 65 and older is catching up to the national average, while the share of children is declining.
The Bay Area has a lower concentration of people age 65 and older than the U.S. as a whole. However, since the 1990s, the difference has narrowed slightly, suggesting that the rate of out-migration from the region slows and/or in-migration increases after retirement (Figure 5).

As the Bay Area's older population has grown, the share of children has declined. The Bay Area's relative lack of children – and families with children – is particularly striking compared to the rest of California, which has historically had a high share of people under 18 compared to the nation (Figure 6).

Figure 4. Percent of Population Age 65 and Over: Bay Area, California and the U.S., 1990-2010
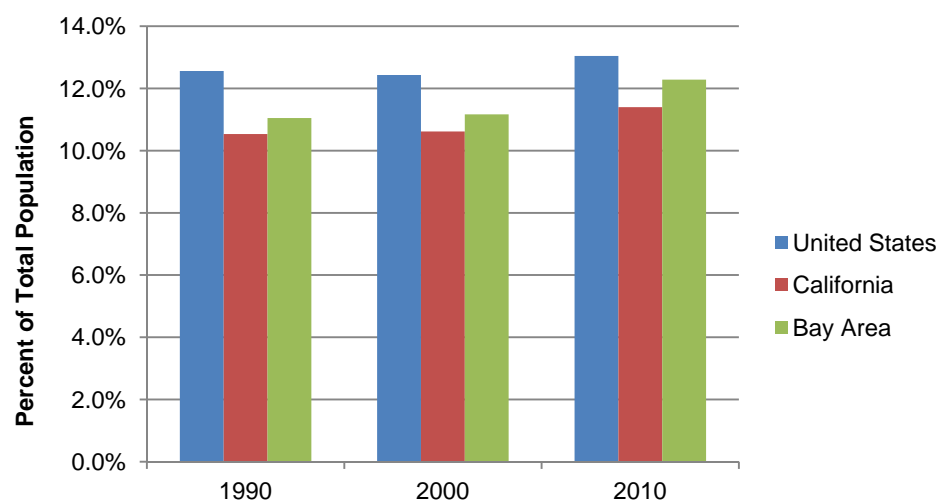
Source: U.S. Census, 1990, 2000, 2010; Strategic Economics, 2010.

Figure 5. Percent of Population Under Age 18: Bay Area, California, and the U.S., 1990-2010
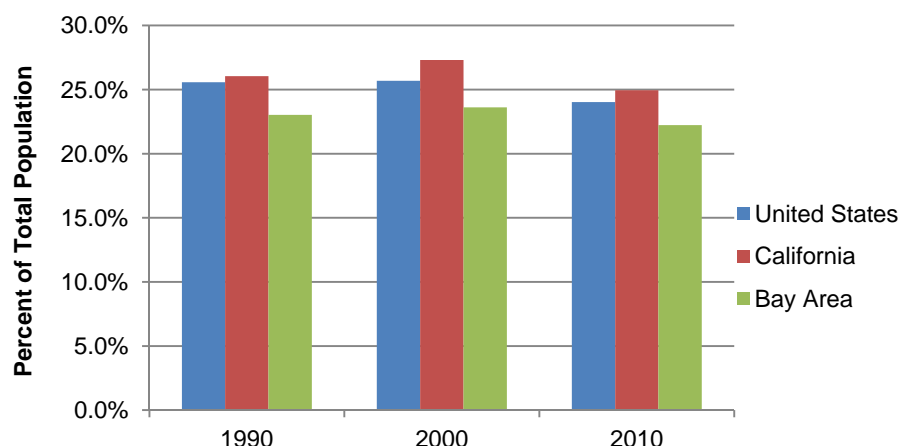
Source: U.S. Census, 1990, 2000, 2010; Strategic Economics, 2010.

Foreign immigration is growing more slowly in the Bay Area compared to the rest of the U.S.
Immigrants continue to make up a larger share of the population in the Bay Area (29 percent in 2009) than in California (27 percent) or the U.S. (13 percent). However, overall growth in the region's foreign-born population has slowed over the decades, especially when compared to the U.S. as a whole. In the 1990s, the Bay Area's foreign-born population grew by more 600,000, or 5.2 percent a year on average, compared to a 5.7 annual average increase in the U.S. as a whole. During the 2000s, the Bay Area gained only 240,000 foreign-born residents, an annual average increase of just 1.4 percent, compared to 2.6 percent nationally.

Much of the slowdown occurred in the 2007-2009 period, when the annual average rate of growth in the foreign-born population fell to 0.60 percent nationally and 0.16 percent in the Bay Area. California actually experienced a net decline in the foreign-born population during this period. However, even the 2000-2007 period saw slower growth in the immigrant population than in the 1990s (Figure 7).

Figure 7. Average Annual Percent Change in the Foreign-Born Population: Bay Area, California, and the U.S., 1990-2009
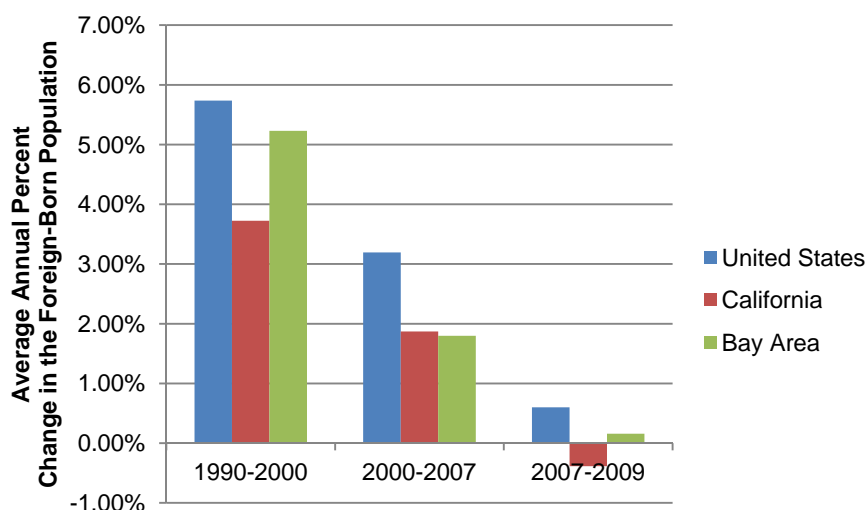
Source: U.S. Census, Decennial Census,1990, 2000; American Community, 2007, 2009; Strategic Economics, 2011.

Household Trends

The impact of the age distribution, immigration, and other demographic trends on the Bay Area's housing market will felt most directly through changes in household formation, composition, and size. Here we explore how Bay Area households, particularly those that tend to prefer transit-oriented housing, compare to the rest of California and the U.S.

The Bay Area's household growth has been lower than the national average for several decades. In the 2000s, household growth slowed in both the Bay Area and the rest of the U.S.
The average annual rate of household growth in the U.S. dropped from 1.47 percent between 1990 and 2000, to 1.07 percent between 2000 and 2010. Meanwhile, average annual household growth in the Bay Area – which, like population growth, has been slower than California and the U.S. as a whole for several decades – fell from 0.98 percent in the 1990s to 0.58 percent in the 2000s (Table 4). The slowing of household growth in part reflects two long-term trends that were exacerbated by the economic downturn that began at the end of the 2000s: a slowdown in immigration (discussed above) and a drop in household formation rates among younger households, both in the Bay Area and across California and the U.S. (discussed below)[17]

Table 3. Selected Household Characteristics: Bay Area, California, and the U.S., 1990-2009/2010*

	Bay Area		California		United States	
	Households	% of Total	Households	% of Total	Households	% of Total
Households with no children						
1990	1,497,112	66.6%	6,474,974	62.4%	58,360,276	63.5%
2000	1,609,852	65.3%	6,932,960	60.3%	67,457,986	64.0%
2010	1,737,873	66.6%	7,864,482	62.5%	77,720,073	66.6%
Households with householder age 65 or over						
1990	417,342	18.6%	1,946,991	18.8%	20,089,384	21.8%
2000	454,074	18.4%	2,162,487	18.8%	22,140,754	21.0%
2009	496,739	19.7%	2,364,303	19.4%	24,144,494	21.3%
Households with 1-2 people						
1990	1,310,200	58.3%	5,660,869	54.5%	52,034,013	56.6%
2000	1,410,724	57.2%	6,116,604	53.2%	61,648,121	58.4%
2009	1,469,375	58.4%	6,625,204	54.2%	69,154,310	60.9%
Total Households						
1990	2,246,242	100%	10,381,206	100%	91,947,410	100%
2000	2,466,019	100%	11,502,870	100%	105,480,101	100%
2010	2,608,023	100%	12,577,498	100%	116,716,292	100%
Annual average rate of household growth						
1990-2000	0.98%		1.08%		1.47%	
2000-2010	0.58%		0.93%		1.07%	

*2010 data is shown for household characteristics that are currently available in the 2010 Census for all geographies; where 2010 data is not available, data from the 2009 American Community Survey is shown.
Sources: U.S. Census, Decennial Census,1990, 2000, 2010; American Community, 2009; Strategic Economics, 2011.

---

[17] Joint Center for Housing Studies of Harvard University, 2011.

The Bay Area is similar to the rest of the U.S. in terms of household mix and size, with the majority of households comprised of one or two people and including no children.
As in the rest of the nation, families without children continued to be predominant in the Bay Area, accounting for about 67 percent of all households in 2010, about the same share as in 1990 (Table 4). Households composed of one or two people made up 58 percent of the Bay Area population in 2010, also about the same share in 1990. In some ways, the rest of the nation has been catching up to the Bay Area as far as these key demographic groups are concerned. Nationally, the percent of households with no children grew from 63 percent in 1990 to 67 percent in 2010, while the share of one or two person households increased from 57 to 61 percent.

Bay Area residents continue to delay forming new households, lessening the impact of the region's high concentration of younger residents on the housing market.
Since at least 1990, the Bay Area and California have had lower headship rates – i.e., the percent of the population heading independent households – across all age groups than the U.S., but especially among the youngest households (Table **5**). Presumably, the high cost of Bay Area housing relative to income causes people to delay forming households. Moreover, headship rates among adults under 30 – both in the Bay Area and the rest of the country – have been falling for decades, as young adults increasingly "double up" with their parents or roommates due to social and economic shifts such as delayed marriage and childbearing, the increased importance of higher education in the job market, and the rising cost of colleges and universities.[18] The recession, which caused particularly high unemployment rates among younger workers, accelerated this trend. Between 2007 and 2009, the headship rate for the population age 25-34 and 35-44 dropped by about 2 percent in the Bay Area, or about 1 percent a year (Figure 8).

Table 4. Headship Rates by Householder Age: Bay Area, California, and the U.S.: 1990- 2009
Percent of Population Heading Independent Households

	15-24	25-34	35-44	45-54	55-64	65-74	75+	All Households
Bay Area								
1990	11.8%	43.7%	53.6%	58.8%	58.4%	62.5%	63.1%	46.5%
2000	10.5%	40.9%	51.3%	55.6%	57.2%	58.3%	61.7%	45.3%
2007	8.8%	39.6%	50.7%	53.7%	55.1%	56.1%	56.9%	44.2%
2009	8.0%	37.7%	48.6%	52.8%	55.9%	57.2%	57.9%	43.6%
California								
1990	12.1%	43.1%	53.2%	58.0%	58.1%	62.1%	62.1%	44.9%
2000	11.1%	40.8%	51.0%	55.1%	56.8%	59.0%	61.3%	44.1%
2007	9.2%	39.0%	49.3%	53.2%	55.2%	56.9%	57.9%	42.3%
2009	8.5%	37.5%	48.6%	52.6%	54.9%	56.5%	57.7%	41.9%
United States								
1990	13.0%	46.1%	54.2%	57.3%	58.6%	64.4%	64.1%	47.1%
2000	14.1%	45.9%	53.1%	56.5%	58.7%	62.6%	64.1%	47.7%
2007	12.3%	45.0%	52.5%	55.5%	57.8%	60.3%	61.5%	46.7%
2009	12.1%	43.9%	51.9%	54.9%	57.5%	60.5%	61.8%	46.3%

Source: U.S. Census, Decennial Census,1990, 2000; American Community, 2007, 2009; Strategic Economics, 2011.

---

[18] Joint Center for Housing Studies of Harvard University, 2011.

Despite these low headship rates, the Bay Area still has a similar distribution of households by age group as the rest of the U.S., because of region's disproportionate concentration in the 25 to 44 age range (Figure 9). To the extent that the Echo Boomers and Gen Xers remain in the Bay Area as they age, their impact on the market may increase as they split into new households.

Figure 8. Average Annual Change in Headship Rates by Age Group: Bay Area, 1990-2009
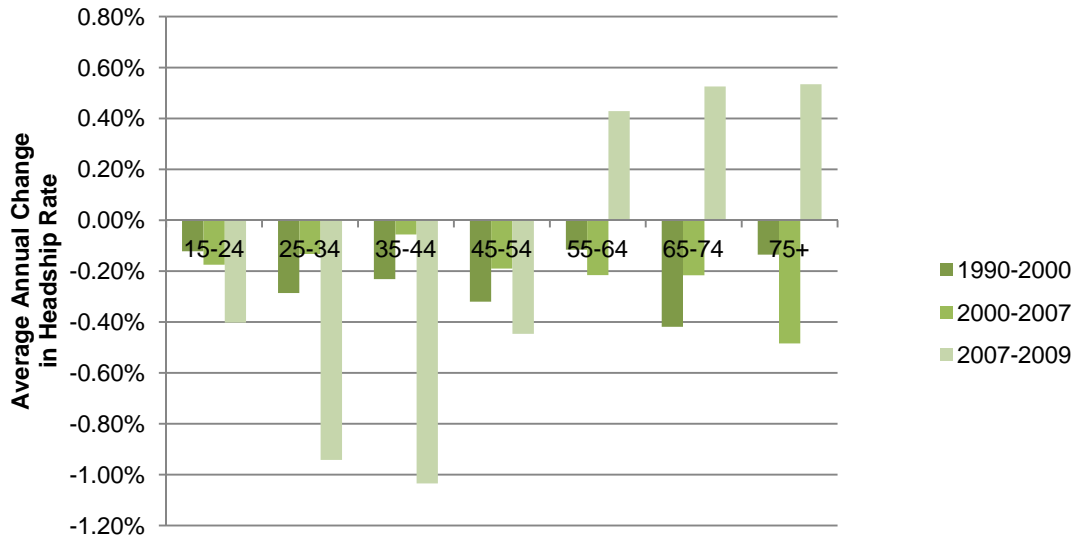
Source: U.S. Census, Decennial Census,1990, 2000; American Community, 2007, 2009; Strategic Economics, 2011.

Figure 6. Distribution of Households by Age of Householder: Bay Area and the U.S., 2009

Bay Area

15-24, 3%
25-34, 16%
35-44, 21%
45-54, 22%
55-64, 18%
65-74, 10%
75+, 10%

United States

15-24, 5%
25-34, 16%
35-44, 19%
45-54, 22%
55-64, 18%
65-74, 11%
75+, 10%
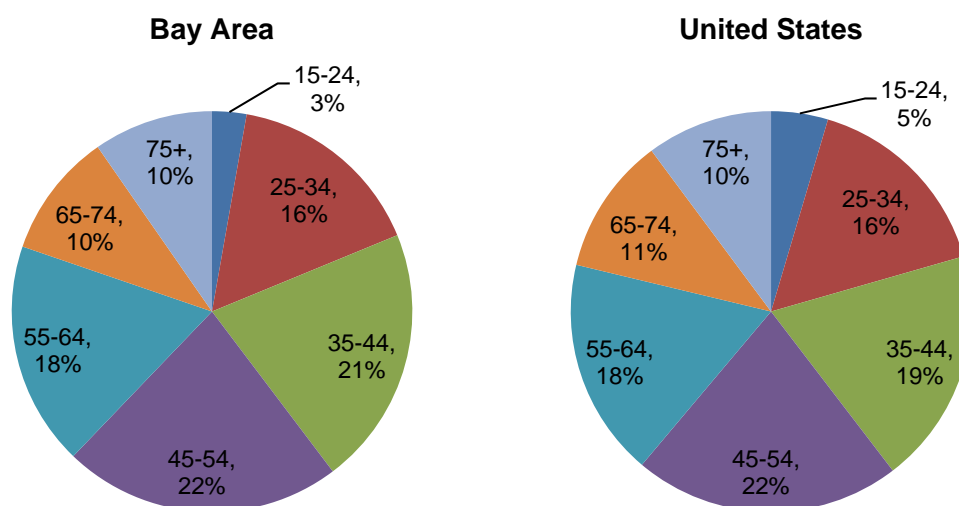
Sources: American Community Survey, 2009; Strategic Economics, 2011.

Historically, the Bay Area has had a relatively high share of households who rent across all ages and incomes compared to the U.S. as a whole.
As with household formation, high housing prices presumably cause Bay Area residents – like Californians generally – to delay homeownership to later in life. As a result, the gap between Bay Area and national homeownership rates is particularly large among the youngest households, but narrows steadily with age (Table 6). In 2009, for example, 26 percent of Bay Area householders aged 25-34 were homeowners, compared to 42 percent nation-wide. In the 75 and older cohort, 72 percent of Bay Area householders owned their homes in 2009, just 4 percent less than in the U.S. as a whole.

The housing boom of the first half of the last decade pushed homeownership rates up overall in the Bay Area, slightly faster than the national average. However, homeownership in the region remained well below the national peak of about 67 percent in 2007, and in the last several years homeownership in the Bay Area and the U.S. has fallen back to approximately 2000 levels. Householders in the youngest cohorts have been particularly affected, in both the Bay Area and the U.S. Between 2007 and 2009, the homeownership rate in the Bay Area shrank by 5.6 percentage points among householders age 25-34 years, 3.2 percent among householders age 35 to 44 years, and 2.1 percent among householders age 45 to 54 years. Figure 10 shows the change in the percent of householders who own on an annualized basis.

Table 5. Homeownership Rates by Householder Age: Bay Area, California, and the U.S.: 1990-2009

% Homeowner	15-24	25-34	35-44	45-54	55-64	65-74	75+	All Households
Bay Area								
1990	10.7%	34.3%	56.5%	69.6%	74.5%	74.6%	66.5%	56.4%
2000	10.6%	30.2%	56.3%	67.1%	74.4%	75.9%	71.8%	57.7%
2007	10.3%	31.8%	55.5%	66.9%	72.4%	75.4%	70.6%	59.5%
2009	7.8%	26.2%	52.3%	64.8%	71.2%	75.2%	72.3%	57.4%
California								
1990	10.8%	34.3%	56.0%	68.1%	74.4%	75.6%	68.1%	55.6%
2000	11.7%	31.8%	54.4%	65.9%	73.3%	76.4%	73.7%	56.9%
2007	10.7%	32.9%	54.4%	64.8%	72.1%	75.5%	73.7%	58.0%
2009	9.4%	28.2%	50.9%	63.5%	71.3%	75.1%	74.2%	56.6%
United States								
1990	17.1%	45.3%	66.2%	75.3%	79.7%	78.8%	70.4%	64.2%
2000	17.9%	45.6%	66.2%	74.9%	79.8%	81.3%	74.7%	66.2%
2007	17.6%	46.4%	65.7%	74.2%	79.4%	81.4%	76.1%	67.2%
2009	15.3%	42.6%	63.4%	72.7%	78.6%	81.3%	76.6%	65.9%

Source: U.S. Census, Decennial Census,1990, 2000; American Community, 2007, 2009; Strategic Economics, 2011.

Figure 10. Average Annual Change in Homeownership Rates: Bay Area, 2007-2009
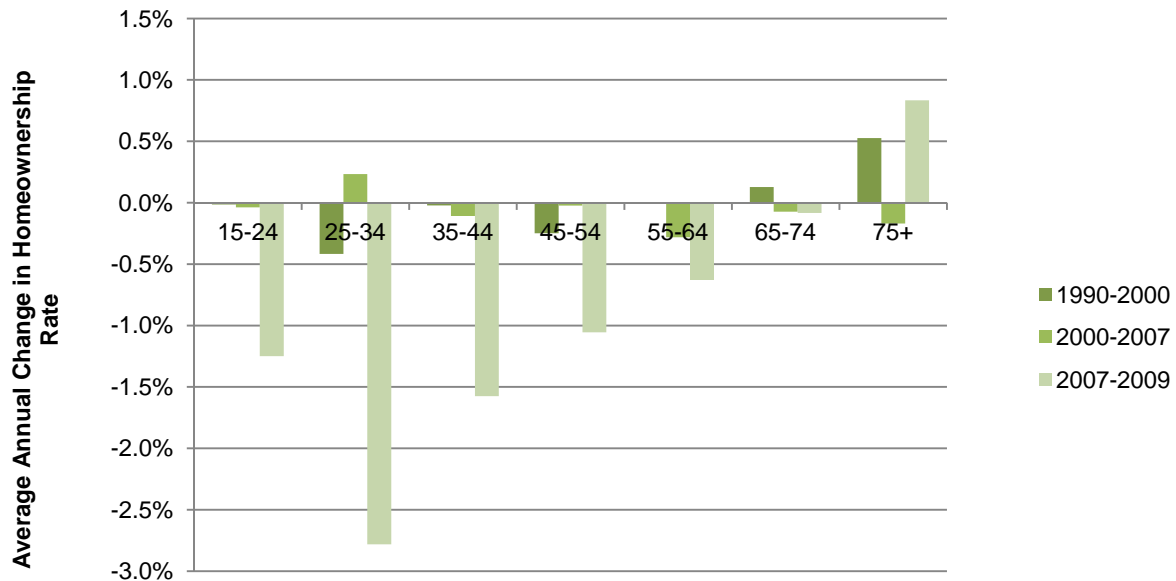
Source: U.S. Census, Decennial Census,1990, 2000; American Community, 2007, 2009; Strategic Economics, 2011.

Geographic mobility in the U.S. has been falling for decades, in part because of an aging population and in part because of rising homeownership rates.[19] The percent of householders that move in a given year falls dramatically with age.

As Table 7 and Table 8 show, older households are much less likely to move than younger households, and homeowners are much less likely to move than renters. During the recession, geographic mobility among homeowners dropped dramatically as home values sank and many owners were left "underwater" on their mortgages. Older homeowners in particular appear to be unwilling to sell their homes for less than they were worth before the recession. Nationally, mobility rates dropped between 2005 and 2009 by 20 percent for homeowners under age 25, 34 percent for homeowners between 25 and 54, and 38 percent for homeowners over 55.

Table 6. Percent of Households that Moved in the Last Year, by Household Age: U.S., 2000, 2005, and 2009

Householder Age	2000	2005	2009
15 to 24 years	50%	44%	43%
25 to 34 years	27%	25%	25%
35 to 44 years	13%	14%	12%
45 to 64 years	8%	7%	7%
65+ years	4%	4%	3%
All households	14%	13%	12%

Sources: U.S. Census Bureau, Current Population Survey, March 2003, October 2007, May 2011; Strategic Economics, 2011.

Table 7. Percent of Households Who Moved in the Last Year by Tenure at Time of Survey: U.S., 2000, 2005, and 2009

Tenure at Time of Survey*	2000	2005	2009
Living in an owner-occupied unit	7%	6%	4%
Living in a renter-occupied unit	30%	29%	28%
All households	14%	13%	12%

*Tenure before move is not known.
Sources: U.S. Census Bureau, Current Population Survey, March 2003, October 2007, May 2011; Strategic Economics, 2011.

Potential Impacts of Population and Household Trends on Demand for TOD

The fact that the Echo Boomers are entering adulthood, combined with the disproportionate effect of the housing crisis and recession on Gen Xers, may create more demand for TOD in coastal California in the short- to mid-term.

The generation that is currently at the peak age for buying single-family homes, the Gen Xers, bears the brunt of the sub-prime mortgage and housing crisis. These households may therefore be more likely to continue renting and remain in more urban parts of California such as the Bay Area, instead of moving inland or out of state to buy a single-family house. In the meantime, the Echo Boomers have not yet entered the peak home buying age.

---

[19] Masnick, George, Abbe Will and Kermit Baker, "Housing Turnover by Older Owners: Implications for Home Improvement Spending as Baby Boomers Age into Retirement," Joint Center for Housing Studies of Harvard University, March 2011.

Because of these trends, the UCLA Anderson Forecast suggests that until the Echo Boomers reach their mid-30s, demand for multi-family housing product in coastal California will outpace demand for detached single-family home of the type that is typically found in inland areas of the state. Indeed, building permit records show that the multi-family construction is already recovering more quickly than single-family development. [20]

The Bay Area's ongoing attractiveness to younger, working age adults, combined with an increasing population age 65 and over, may help generate ongoing demand for TOD in the long-term.
The research described in the previous sections indicates that people under age 35 – particularly those without children – are most likely to live near transit now, and to prefer transit-oriented types of housing in general. The region's historic ability to attract adults in their 20s and 30s suggests that, independent of the Baby Boomers and their relocation decisions, the Bay Area is likely to have strong demand for TOD in the coming years. This growth may be driven by domestic rather than foreign immigration, if immigration to the Bay Area continues to decline.

The aging of the Baby Boomers is likely to have an incremental, rather than sudden and dramatic, effect on the Bay Area housing market.
The region's share of older adults will continue to increase as the Baby Boomers age, so their housing preferences will also impact the market. However, because the disparity in the size of the generations is not so great in the Bay Area as in the rest of the U.S., it is more likely that any adjustments in the housing market will be more slow and steady, rather than the abrupt break that is sometimes predicted. Moreover, older households have always moved at lower rates than younger households. Even if retiring Baby Boomers do move at higher rates than their predecessors, it is unlikely that they will move all at once – particularly given the declines in home values many have suffered over the last few years.

---

[20] UCLA Anderson Forecast, June 2011.

Evaluating the Effects of Projected Job Growth on Housing Demand

The Association of Bay Area Governments (ABAG) Jobs Housing Connection Draft Land Use Scenario *(Draft Scenario)* projects that 1.1 million new jobs will be added to the Bay Area by 2040. This memo explores how the wages these jobs pay might impact household incomes. It then asks what type of housing at what affordability levels might be needed to house this future workforce.

The first section describes the translation from the *Draft Scenario's* job projections into future demand for affordable housing. The second section analyzes how housing costs might change in the future.

A. Using forecasted jobs as the basis for future household income

Methodology

The industry sectors expected to lead job growth in the future are comprised of various occupations that pay a range of wages. To estimate future affordable housing needs, we analyze the impacts of macroeconomic transformations that affect the types of work that occur in the Bay Area. These changes in turn shape the amount of income available to households to pay for housing.[1]

The model uses a multi-step process that translates industry sector-level employment forecasts by county into estimated growth in households in four income groups: very low (less than 50% of median county household incomes), low income (50-80%), moderate income (80% to 120%), and above moderate income (greater than 120%). The model begins by linking ABAG's sector-level employment forecasts with occupational characteristics: sectors are translated into industries (at the 3-digit NAICS level), which are then linked to occupations (at the 3-digit SOC level) and then median wages. Wages are then translated into household incomes by assuming an average number of workers per household. The following outlines the specific steps.

1. Linking industries to occupations

The 2010 analysis begins with the staffing patterns matrix for the state of California that estimates the occupations within each industry in the state.[2] We then calculate each occupations share of employment within each industry.

---

[1] We are assuming that salary from employment determines the amount of housing that a household will purchase. This ignores non-salary income and assets (e.g., personal wealth that can be used for home equity). We look at the job growth from 2010 to 2040 in isolation, assuming that this will not affect the income distribution and housing demand in the existing population. In other words, we do not account for the possibility that, for instance, the arrival of in-migrants to the region to work in the new jobs will crowd out existing jobseekers and workers and thus lower their wages, creating more demand for affordable housing. Thus, the results may be conservative: we may underestimate future housing demand.

[2] NAICS 3-digit level

Next, we link each industry (and its associated occupations) to one of the 11 summary employment sectors used by ABAG in the *Draft Scenario*. We thus derive the distribution of occupations by the employment categories used in the *Draft Scenario*.

To derive the occupations in 2040, we use the growth factors for each industry between 2010 and 2040 from the MTC TREDIS regional employment model. This creates a new distribution of occupations, using the occupational shares from the 2010 analysis. We then take the forecast 2040 employment totals by the 11 ABAG categories, and apply this new distribution to estimate occupational employment by sector in 2040.[3]

2. Translating wages to household income

Next, we link each occupation in the 2010 staffing patterns matrix with the 2010 annual statewide median wage for that occupation from the State of California's Employment Development Department (EDD) Occupational Employment Survey.[4] We then multiply the 2010 wage estimate by the average number of workers per household (estimated by ABAG at 1.3) to derive household income. This assumes that all workers in each household, on average, earn the same salary, an assumption that is not unreasonable as members of a given household tend to have a similar educational background.

Using the 2010 income categories for each county, we assign each occupation to one of the four income categories. We then sum the total number of workers (and households) that fall into each of the four income categories for each of the 11 sectors, based on each county's income limits.

To estimate the total number of households by income group for 2040, we use a similar methodology. To project wages in 2040, we analyzed wage trends from 2000-2010, a time period in which there was increasing wage inequality. We assumed that these trends would continue in future decades but at a lower rate, since wage levels tend to equilibrate over time. For example, if janitors experienced a 20% decline in wages from 2000-2010, we assumed that wages would decline 10% further from 2010-2020, an additional 5% from 2020-2030, and another 2.5% from 2030-2040. Using this method, the median wage change (in 2010 dollars) from 2010-2040 was an increase of just over three percent, with a range from -32% to +74%. Table 1 shows where wages are projected to change the most.

---

[3] Due mostly to technological change, occupational distributions often change, particularly over a 30-year period. For instance, over time the share of clerical occupations has decreased, while the share of information technology occupations has increased. It is possible to analyze this using historical staffing patterns matrices. However, the oldest matrix available is from 2003, and we determined that changes from 2003-2010 were not significant enough to warrant factoring into this analysis.

[4] For occupations that were suppressed at the state level we substituted national median wages adjusted for the Bay Area's cost of living.

Table 1. Occupations where wages are projected to change the most by 2040.

2000 SOC Code	2000 Occupation Title	2000 Annual Median Wage	2010 Annual Median Wage	Ten-Year Change	10-Year Change in Real Dollars	30-Year Change	2040 Projected Annual Wage
	Top ten occupations with wage decreases						
53-4012	Locomotive Firers	47870	43510	-9.1%	-36.1%	-31.6%	29,763
41-9091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	24050	22190	-7.7%	-34.7%	-30.4%	15,446
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	36800	35480	-3.6%	-30.6%	-26.8%	25,984
29-1011	Chiropractors	67030	67200	0.3%	-26.7%	-23.4%	51,473
49-9063	Musical Instrument Repairers and Tuners	31410	31760	1.1%	-25.9%	-22.6%	24,566
27-2022	Coaches and Scouts	28020	28340	1.1%	-25.9%	-22.6%	21,928
53-4011	Locomotive Engineers	44210	46630	5.5%	-21.5%	-18.8%	37,847
51-9197	Tire Builders	36510	39250	7.5%	-19.5%	-17.1%	32,555
33-2022	Forest Fire Inspectors and Prevention Specialists	32140	34910	8.6%	-18.4%	-16.1%	29,295
29-1020	Dentists	129030	141040	9.3%	-17.7%	-15.5%	119,206
	Top ten occupations with wage increases						
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	32080	53080	65.5%	38.5%	33.7%	70,943
27-2012	Producers and Directors	41030	68440	66.8%	39.8%	34.8%	92,277
11-3040	Human Resources Managers	59000	99180	68.1%	41.1%	36.0%	134,849
11-2031	Public Relations Managers	54540	91810	68.3%	41.3%	36.2%	125,016
47-5011	Derrick Operators, Oil and Gas	25810	43470	68.4%	41.4%	36.2%	59,226
47-5012	Rotary Drill Operators, Oil and Gas	30860	51980	68.4%	41.4%	36.3%	70,827
29-1061	Anesthesiologists	129680	220100	69.7%	42.7%	37.4%	302,384
41-9012	Models	19080	32920	72.5%	45.5%	39.8%	46,037
11-3061	Purchasing Managers	53030	95070	79.3%	52.3%	45.7%	138,556
45-1012	Farm Labor Contractors	14190	29990	111.3%	84.3%	73.8%	52,123

Source: US Bureau of Labor Statistics; projections by the author.

Projected household income - results

Table 2 shows the results of this analysis: the 2010-40 change in households by income group and sector. Some sectors pay workers relatively low wages that may translate at the household level to a greater affordable housing need; for instance, 87% of the new jobs in Arts, Recreation, Other (a category dominated by restaurants, hotels, and tourist employment) could put households associated with this category in the very-low income group. Two sectors (Agriculture/Natural Resources and Manufacturing/ Wholesale) experience negative change in several categories because of low or negative overall employment growth as well as projected transformation in industries.

Table 2. Change in households by sector and income group, 2010-40.

ABAG Summary Employment Categories	Very Low Income	Low Income	Moderate Income	Above Moderate Income	Total
Agriculture, Natural Resources	106%	-32%	32%	-5%	**-1,300**
Arts, Recreation, Other	87%	5%	3%	4%	**185,686**
Construction	4%	55%	27%	14%	**80,694**
Finance and Leasing	0%	37%	4%	60%	**48,596**
Government	6%	11%	25%	59%	**72,595**
Health, Education	16%	27%	22%	35%	**244,482**
Information	-4%	5%	57%	42%	**36,497**
Manufacturing, Wholesale	113%	-112%	-40%	139%	**5,700**
Professional and Business	24%	34%	14%	29%	**365,673**
Retail	78%	6%	11%	6%	**52,396**
Transportation, Utilities	48%	40%	4%	7%	**28,898**
Total	**32%**	**25%**	**16%**	**28%**	**1,119,918**

Based on this analysis, up to 72% of new households may fall into the very-low, low, and moderate income categories all of which qualify for affordable housing today. Together, very-low and low income households could represent up to 57% of new household growth. Moderate income households also qualify for affordable housing and could represent 16% of projected household growth. Overall, these trends are due to the large number of new jobs in sectors such as Arts/Recreation/Other, with relatively low wage occupations such as hotel workers.

By comparison, only 58% of households today fall into the very-low, low and moderate income groups (Figure 1, second column). Although this may suggest that there is a heightened need for affordable housing in the future, several caveats must be kept in mind. First, the income of existing households appears relatively higher because ACS data includes all sources of income, not just wage and salary income. Second, the universe of existing households includes a wide range of households, not just worker households, including those suffering from unemployment or underemployment, empty-nester or retiree households, and so forth.

Existing Housing Units and Affordability

Figure 1. 2010-40 housing need versus existing distribution of households and housing units (ACS).

*Figure 1 compares 2010-2040 household growth to both the Bay Area's existing households and its existing housing stock. It shows that based on the mortgage or rent that households paid, 62% of the Bay Area's **units** could be classified as affordable to very-low, low and moderate income households. Instead of today's market rents, this reflects the fact that many mortgage- or lease-holders have remained in the same housing unit for a long period of time, with relatively stable mortgages or rents. The universe of vacant for rent or vacant for sale units is likely to be much less affordable.*

At the county level, household growth by income category was estimated from the employment forecast contained in the *Draft Scenario*. Table 3 shows the income distribution of these new households by 2040..

Table 3. Household Growth 2010-2040, by Income Category and County.

County	Household Growth 2010-2040 ABAG Draft Scenario	Households by Income Group, Growth 2010-2040, Based on County Job Growth			
		VLI	Low Inc.	Mod Inc.	Above Mod.
Alameda	152,347	28%	26%	16%	30%
Contra Costa	87,989	34%	28%	14%	24%
Marin	9,176	42%	25%	7%	25%
Napa	5,014	27%	33%	8%	32%
San Francisco	100,543	17%	38%	12%	32%
San Mateo	65,462	43%	16%	18%	24%
Santa Clara	223,405	41%	14%	21%	24%
Solano	26,101	24%	33%	11%	33%
Sonoma	30,050	34%	23%	13%	31%
SF Bay Area	700,087	32%	25%	16%	28%

Distribution to cities

To distribute these households to cities, we assumed that the income distribution of new households in each city should match the income distribution of households in its county. While historically the Regional Housing Needs Allocation (RHNA) asks suburban municipalities to bear their fair share of the regional housing burden, this method distributes the new households qualifying for affordable housing evenly across the county.

There are two primary sustainability assumptions embedded in this approach.

1. We assume that municipalities and unincorporated areas within a county should provide housing appropriate for the type of jobs created in the county. In other words, we are using the county as a proxy for its cities' commutesheds, and linking county job creation to households and housing production at the local level in order to give new workers an opportunity to live nearby their jobs.

2. Second, we are suggesting that if the county (i.e., commuteshed) fosters low paying jobs and therefore lower income households, then its cities and unincorporated areas should provide these households with affordable housing.

Figure 2 maps this distribution of household growth by income category for very-low, low, and moderate income groups at the city level.

Figure 2. Growth in Very Low, Low, and Moderate Income Households, 2010-2040.

2010-40 new households
qualifying for affordable housing
per square mile

- 14 - 70.8
- 70.9 - 122.1
- 122.2 - 222.6
- 222.7 - 375.8
- 375.9 - 2894

0 5 10   20 Miles

N

Map: E. Pincus-Roth, University of California
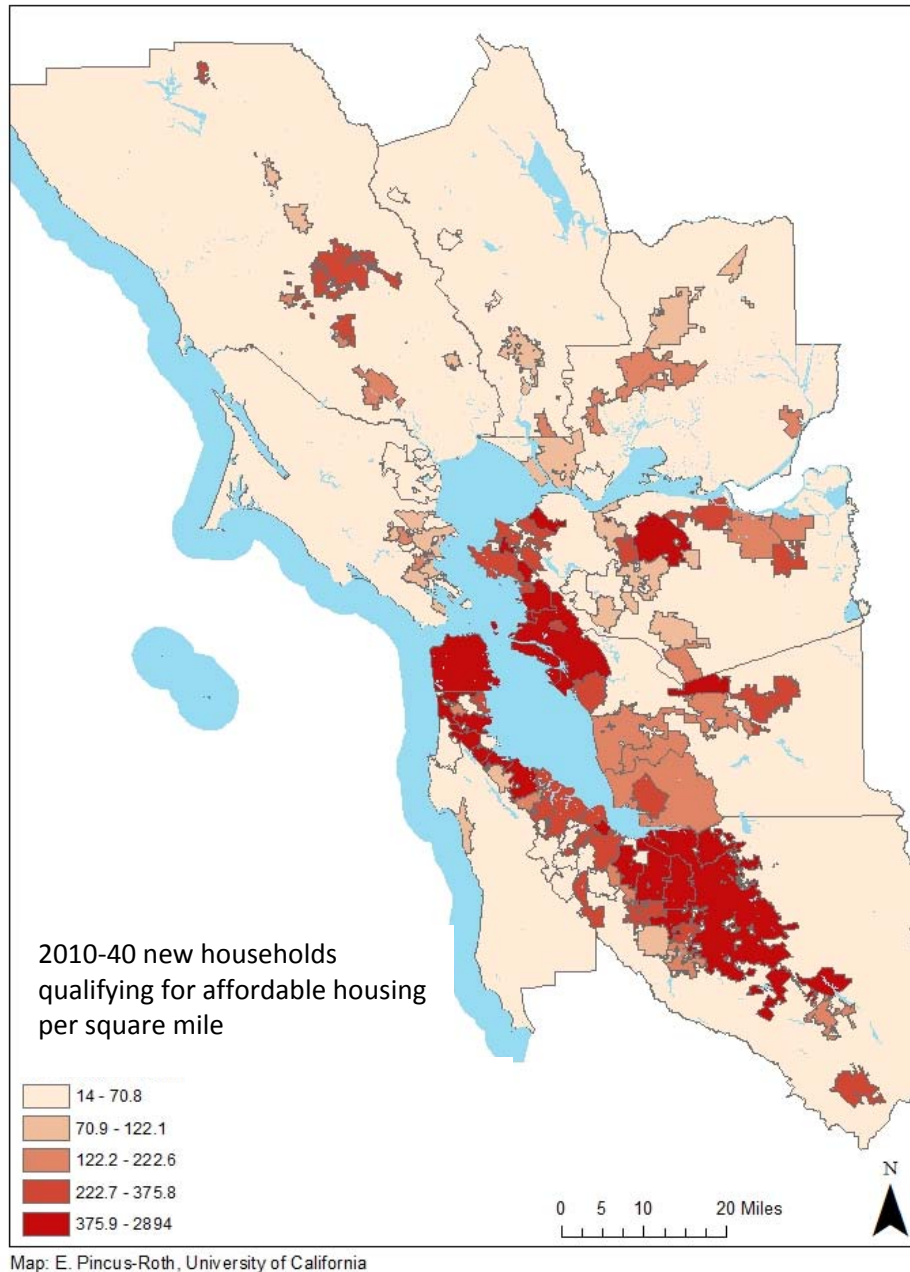
2. Estimating future housing costs

Previous studies of housing prices have suggested several factors at work: employment accessibility, school quality, crime rates, and natural, public, and commercial amenities.[5] Research on housing prices in the Bay Area specifically has shown that there is unusual price volatility due to the boom-bust economy, with price appreciation particularly high in areas with high employment growth and accessibility.[6]

For this analysis we looked at the housing price changes (in terms of residential sales) that have occurred historically. We then developed a regression model that explains those changes specifically in terms of jobs, transit and housing. Taking the factors identified as important by that model, we then looked at the effects of the forecasted new jobs, new income distribution, and transit improvements on housing prices.

It is important to keep in mind what this model does and does not do. We only have good housing price data back to 1989 (a twenty-year period), so we only forecast for a twenty-year period, from 2009-2029. The model is useful for identifying potential trends in the Bay Area – but there will be places and neighborhoods that do not fit the model. For example, access to amenities varies even across adjacent neighborhoods, while quality of amenities (e.g., frequency of transit service) may change over time. Likewise, affordability characteristics change: though two neighborhoods may appear at a certain point to offer the same level of affordability, the units may be permanently affordable in one area but change to market-rate in another. Given these constraints, this analysis is best used to illustrate general trends and principles behind changes in housing cost, rather than to predict future housing costs on a micro-level.

Historic housing price change
We begin by looking at historic price changes. Figure 3 shows the change in prices per square foot by city from 1989 to 2009, dividing the cities into thirds: low (including a few cities with negative changes), medium, or high. There are few surprises here: price appreciation is disproportionately high in San Francisco, Silicon Valley, some North Bay communities, and a few East Bay cities, while it is lower in some of the core areas that suffer from entrenched poverty, as well as many of the outlying areas.

To explore what factors affect these price changes, we tested a series of models that included demographic characteristics, amenities, employment changes by sector, and presence of affordable housing. There are some conceptual problems with including affordable housing in a model predicting housing prices, as there is likely some endogeneity. Another issue is that we do not have data on the production of new affordable housing but only the overall affordability in each city.

---

[5] William A. Fischel, *The Economics of Zoning Law: A Property Rights Approach to American Land Use Controls* (Baltimore, Johns Hopkins University Press, 1985).
[6] Karen Chapple, John V. Thomas, Dena Belzer, and Gerald Autler, "Fueling the Fire: Information Technology and Housing Price Appreciation in the San Francisco Bay Area and the Twin Cities," *Housing Policy Debate* 15,2: 347-383.

Figure 3. Housing price changes (median price per square foot) in the SF Bay Area, 1989-2009.
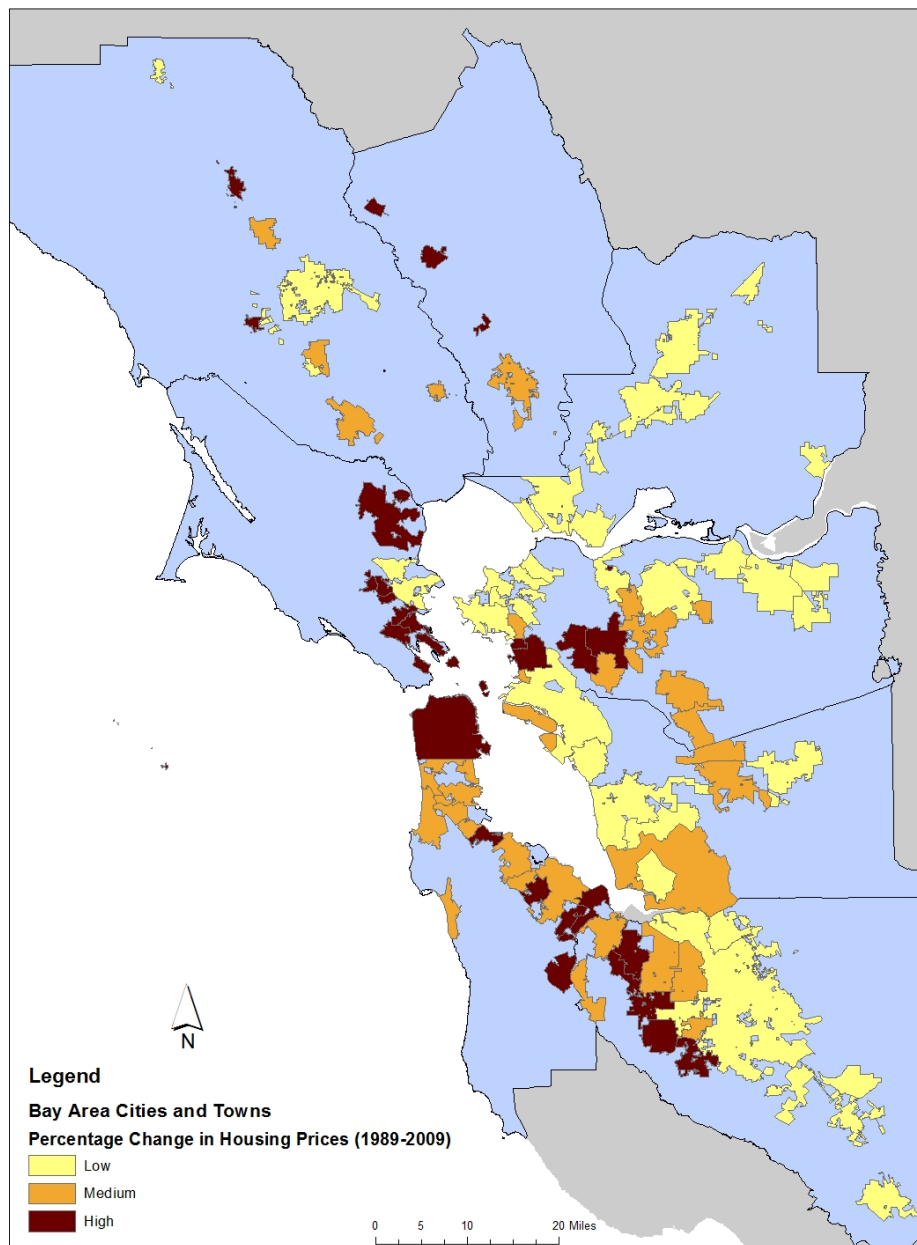
Map: E. Pincus-Roth, University of California

However, we wanted to construct a model using affordable housing as a variable in order to be able to compare "business as usual" price changes – the continuation of local trends – versus price changes for the household income distribution estimated in the previous section (which assumed that a city should provide housing to match the income levels for the jobs that its county generates). Thus this analysis included models both with and without an affordable housing variable.

The best base model we found, with an adjusted R^2 of .60 (in other words, accurately predicting price changes in 60% of the cities), uses just four variables to predict percent change over the twenty year historical period: percent change in Arts/Entertainment/Other employment (which has positive effects), percent change in Retail employment (negative effects), transit accessibility (share of the city that is within ½ mile of fixed rail transit) (positive effects), and percent of the housing stock that was affordable in 2000 (negative effects). The most important factors were change in Arts/Entertainment/Other employment and share of affordable housing (again, as measured by household income in relation to housing price paid, not necessarily designated or subsidized affordable housing).

Projected housing price change – "business as usual"
The next step was to incorporate the projected changes into the model in order to predict future change. We used the county employment projections for the Arts/Entertainment/Other and Retail categories, planned fixed rail transit improvements, and the proposed distribution of households qualifying for affordable housing (described above) to predict housing price change between 2009-2029. Figure 4 shows the results. The projected changes are not radically different from what occurred in the past (Figure 3), except that prices in suburban municipalities tend to increase more because of the assumed growth in affordable housing in core areas.

Projected housing price change – proposed distribution at the county level
To control for the likely endogeneity in the model that incorporating affordable housing as a variable introduced, we also looked at what factors would yield the best model to predict housing price change absent the affordable housing variable. In addition to the three remaining variables in the model, we added three new variables: percent of the population with college degrees or higher (positive effects), percent of the area's square footage that is underutilized (with an improvement to land ratio of less than 1) (negative effects), and per square foot prices in 1989 (negative effects). As it turns out, the college degree factor plays a role almost exactly opposite to affordable housing (and in fact, the two variables are highly negatively correlated, at -.80).

Using these factors, the model reached an R^2 of .73 and the results are presented in Figure 5. The differences are minor, with the principal change being that outlying areas of the region are projected to experience less housing price appreciation in this model. This suggests that the general trends observed in Figure 4 – and historically – are likely to continue in the future, if the same factors continue to drive price appreciation.

Findings summary
How might one interpret this, particularly in light of the need to understand future housing plus transportation costs in the region? To summarize, we make three principal findings:

1. First, the types of jobs added in each county will affect price appreciation, with lower-wage jobs (e.g., in the retail sector) dampening local housing price appreciation.

2. If a city has a high share of affordable housing stock at present (whether because of filtering, affordable housing production, a stable residential population, or some other cause), price appreciation will be slowed.

3. Fixed rail transit improvements will have a positive, but quite slight, effect on housing price changes.

In terms of housing and transportation costs, this also suggests that housing costs will rise less rapidly in areas that experience the addition of a substantial amount of new affordable housing. And in areas where transit is improved – along with associated reduction of transportation cost – housing prices are likely to increase.

Figure 4. Projected changes in housing price, 2009-2029.

Legend

Projection #2

Projected % Change in Housing Price 2009-2029

- Low
- Medium
- High

N

0   5   10   20 Miles

Map: E. Pincus-Roth, University of California
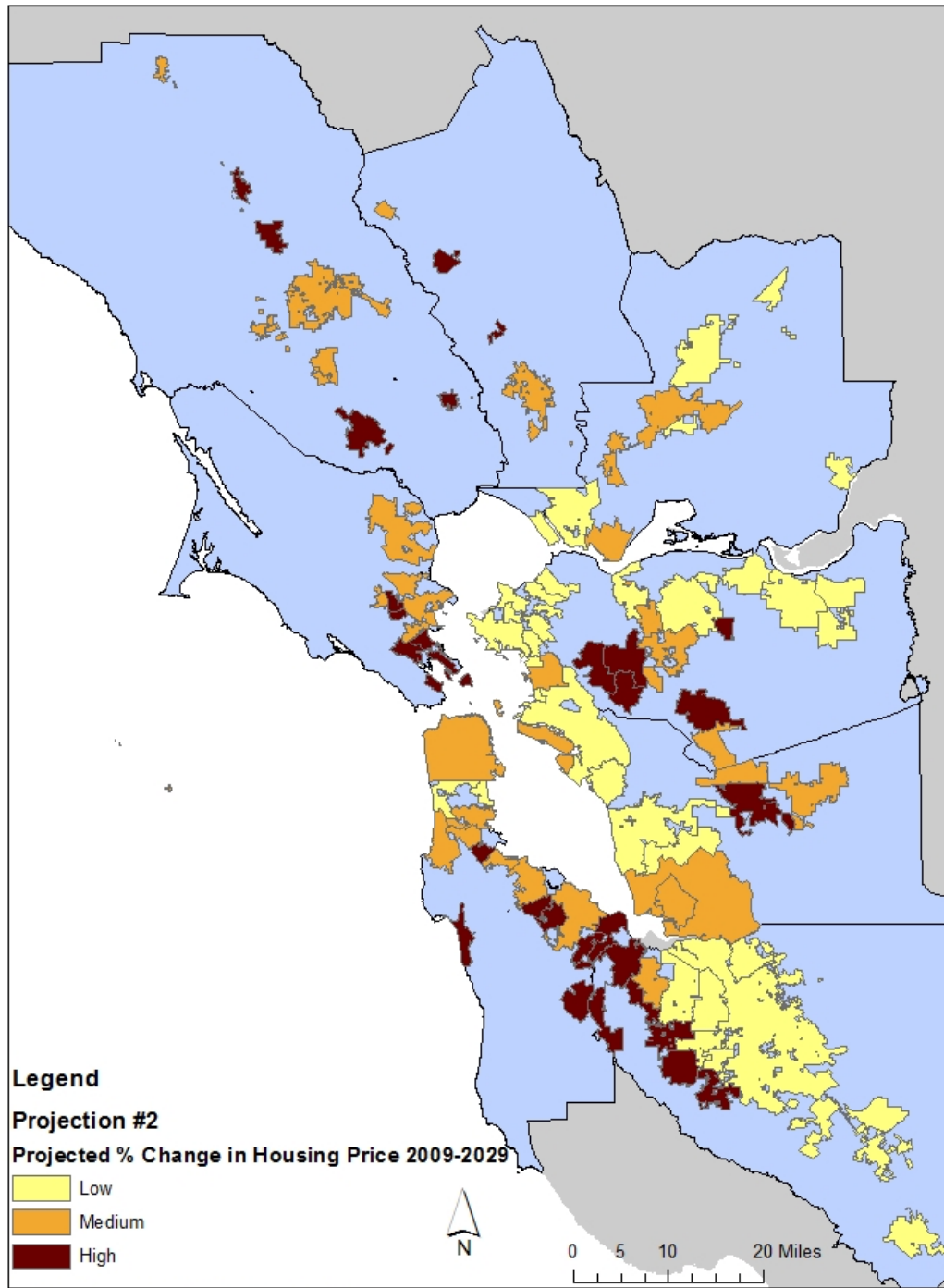
Figure 5. Projected changes in housing price, 2009-2029, alternative model

Legend

Projection #3

Projected % Change in Housing Price 2009-2029

- Low
- Medium
- High

N

0   5   10   20 Miles
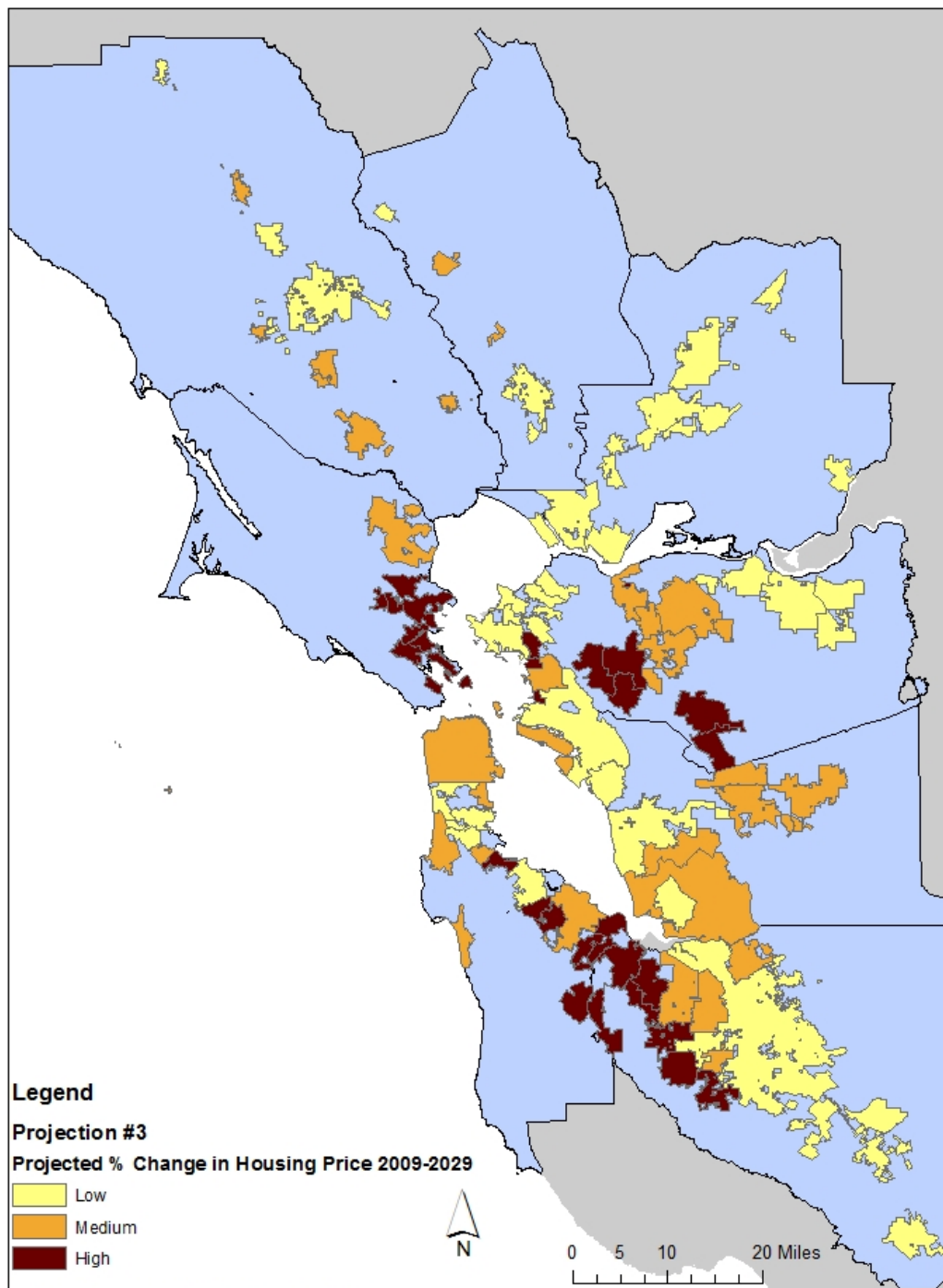
Map: E. Pincus-Roth, University of California

California State Department of Finance
California State Department of Housing and Community Development
Association of Bay Area Governments

Overview of the Regional Housing Need Determination, DOF Population Projections and Plan Bay Area Forecast

This document was prepared by the **California Housing and Community Development Department (HCD)**, the **California Department of Finance (DOF)**, and the **Association of Bay Area Governments (ABAG).** It provides key points regarding the differences across the Regional Housing Need Determination (RHND), the DOF Population Projections, and the Plan Bay Area Forecast as described by each of the responsible agencies. The chart below summarizes how the three efforts vary in purpose, methodology and timing.

	RHND (Housing Need Projections)	DOF Population Projections	Plan Bay Area Population Forecast
Period Covered	2014-2022 (8 years)	2010-2060 (50 years)	2010-2040 (30 years)
Purpose	Establish housing need for local housing elements	Project population by future fertility, mortality, and migration trends	Inform long term comprehensive regional strategies
Release Date	February 2012	January 2013	May 2012
Growth	187,990 housing units between 2014 and 2022	1.3 million people between 2010 and 2040	2.1 million people between 2010 and 2040

Key Points

- HCD, DOF and ABAG agree that economic trends need to be addressed in Plan Bay Area. ABAG's 2.1 million population growth projection is directly tied to employment growth.
- DOF's 2013 projections do not take into account the high job, migration, and population growth from 2010 to 2012.
- The RHND was finalized in February 2012. It was based on the most current information available at the time. By statute, the RHND cannot be changed.
- DOF and the regional planning agencies are working toward better ways to incorporate job growth forecasts into the DOF migration assumptions. DOF acknowledges that ABAG employment methodology and its impact on migration is reasonable.
- The ABAG growth forecast for population relies on DOF assumptions about births and deaths, and the ethnic composition of the population. ABAG will share the job growth forecast and land use trends analysis with DOF for its next projections.

California Housing and Community Development Department (HCD):
Regional Housing Need Determination (RHND) based on Population Projections

In consultation with ABAG, HCD developed the RHND based on the partial availability of 2010 Census data, DOF 2011 interim population projections, and ABAG's draft forecast. It took into account the abnormally high vacancies and unique market conditions due to prolonged and atypical recessionary conditions and an unprecedented national foreclosure crisis.

The purpose of the RHND is to ensure the appropriate local planning for the supply and affordability of housing to meet the region's needs for its population and workers by income level. HCD finalized ABAG's regional housing need determination for the 2014-2022 projection period on February 24, 2012. There is no statutory provision authorizing HCD to amend a final RHND and/or change the RHND projection period.

California Department of Finance (DOF): 2013 Population Projections

DOF uses a baseline cohort-component method to project population by age, gender, and race/ethnicity. The baseline projection recognizes people have the right to migrate where they choose and no major natural catastrophes or war will befall the state or the nation. The migration projections for the Bay Area were based primarily on the 2000-2010 period.

A cohort-component method is a demographic model that traces people born in a given year through their lives. As each year passes, cohorts change due to mortality and migration assumptions. Applying fertility assumptions to the women of childbearing age forms new cohorts.

The DOF population projections depict only one possible course of future population change, i.e., the one reflecting assumed trends in fertility, mortality, and migration. The model does not consider employment, which is a major driver of migration. Thus, it is not a forecast of the most likely outcome. These projections do not necessarily show what is most desirable but rather what can be reasonably expected if recent historical trends continue until the year 2060.

Association of Bay Area Governments (ABAG): Plan Bay Area Forecast

Job growth is the main determinant of population growth in the ABAG regional growth forecast as in all major regional forecast modeling in California and around the nation.[1] ABAG job growth to 2040 is estimated as a share of U.S. projected job growth, based on an assessment of regional competitiveness by major industry sectors.

ABAG projections use DOF fertility and mortality assumptions to determine the amount of natural increase in the population. Migration, rather than being tied to recent trends, is a function of job growth. The theory of deriving migration forecasts linked to job growth is that most migration is the result of people moving to regions where job growth exceeds the number of workers supplied by the local economy and vice versa. For the Bay Area, the best example is the large number of people who migrated to the region from other parts of the state, nation and world during the high-tech and dot.com boom of the late 1990s and the exodus out of the region in the years when job losses occurred after 2000 when the boom ended.

---

[1] Population growth is tied to job growth in the regional projections produced by other regions (SCAG, SANDAG, SACOG, AMBAG, and SBCAG). In addition, job growth is the primary determinant of regional population growth in the models used by the three major national forecasting firms – IHS Global Insight, Regional Economic Models, Inc., and Moody's.

March 2013

A Review of the DOF and ABAG Population Projections to 2040

Prepared for:

Association of Bay Area Governments

Prepared by:

Stephen Levy

Director

Introduction

In January 2013 the California Department of Finance (DOF) released new long-term population projections for California and each county. These update the projections published in 2007. Population growth in the nine-county Bay Area in these new DOF projections is substantially lower than projected by the Association of Bay Area Governments (ABAG) in their draft regional growth projections released in March 2012 and also by DOF in their 2007 projections.

ABAG asked the Center for Continuing Study of the California Economy (CCSCE) to examine the differences between the two sets of regional population projections in terms of methodology and specific assumptions. CCSCE had assisted ABAG in developing the draft regional job, population and household projections in 2011 and 2012.

Comparison of ABAG and DOF Population Projections

The Bay Area population is projected to reach 8,453,134 in 2040 in the new DOF projections, which is approximately 850,000 below the 9,299,000 residents projected in the ABAG regional growth forecast. Regional population is projected to increase by 2.1 million between 2010 and 2040 in the ABAG projections compared to the 1.3 million population increase projected by DOF.
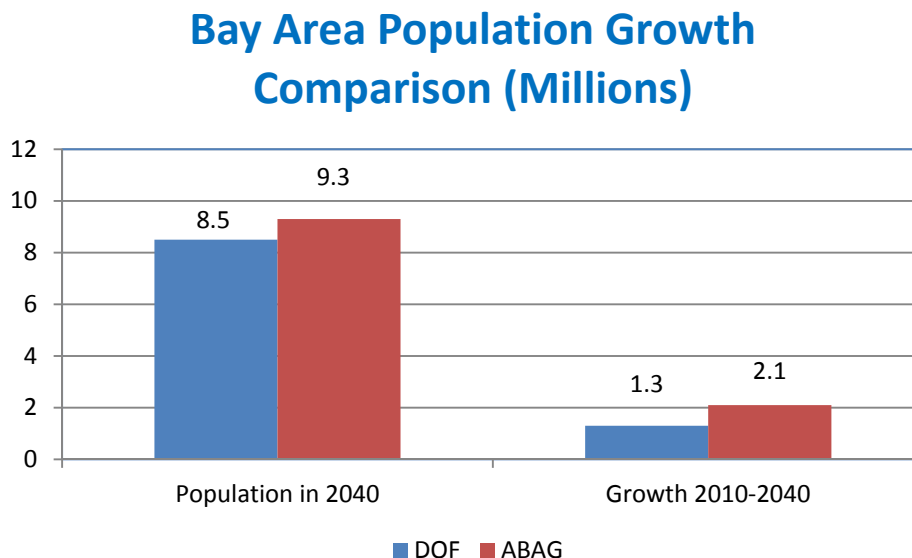
As a result, the ABAG projections are higher by 10% in 2040 compared to the ABAG projections, which means that the projected 2010-2040 growth is higher by 66%. This is based on population growth of 2,134,398 in the ABAG growth forecast compared to 1,288,532 growth projected by DOF with both based on a 2010 Census population of 7,164,602.

Methodology

The ABAG population projections are based on the amount of job growth projected for the region and on the fertility and mortality (birth and death) assumptions developed by DOF for their 2007 population projections. The DOF projections are based on assumptions about fertility and mortality and on the amount of net migration (foreign and domestic) for each county in the region., which in the DOF methodology is not directly tied to job growth.

The new DOF projections incorporate lower fertility assumptions compared to the 2007 DOF projections. The implications of this change are discussed later in this report.

Job growth is the main determinant of population growth in all major regional forecast modeling in California and around the nation. Population growth is tied to job growth in the regional projections produced by the Southern California Association of Governments (SCAG), the San Diego Association of Governments (SANDAG), the Sacramento Association of Governments (SACOG), the Monterey Bay Area Association of Governments (AMBAG) and the Santa Barbara County Association of Governments (SBCAG).

In addition job growth is the primary determinant of regional population growth in the three major national forecasting firms--IHS Global Insight, Regional Economic Models, Inc. (REMI) and Economy.com, a division of Moody's.

The connection of population growth to job growth is through migration. The theory and practice of the models listed in the previous paragraph is people will move to regions where job growth exceeds the number of workers supplied by the local economy and vice versa. For the Bay Area, the best example is the large number of people who migrated to the region from other parts of the state, nation and world during the dot.com boom and the exodus out of the region in the years when job losses occurred after 2000 when the boom ended. See Appendix A.

In developing the new population projections, DOF pledged to work with local and regional agencies in developing migration assumptions. The methodology statement associated with the January 2013 projection release states:

Migration—The Department of Finance relied on the expertise of local agencies to assist in the development of local area migration assumptions. When local input was not available, the migration assumptions were made by the Department of Finance based on historical analysis of the county's migration patterns.

The goal of cooperation between DOF and local agencies in the development of migration assumptions was to incorporate the impact on migration of local and regional agency long-term job projections.

DOF did not incorporate feedback from the ABAG regional growth projections released in 2012 into their new population projections released in 2013.

Such consultation did occur between DOF and SCAG with the result that the new DOF projections were lower by 1.7% compared to the recent SCAG regional growth forecast, which is consistent with the lower expected fertility rates. This result compares to the 10.0% difference between the DOF and ABAG projections where no consultation occurred.

The Causes of the Population Projection Difference

The Bay Area projected population in 2040 is more than 1 million people lower in the 2013 DOF projections compared to the DOF 2007 projections.

Bay Area Population Growth Comparison (Millions)
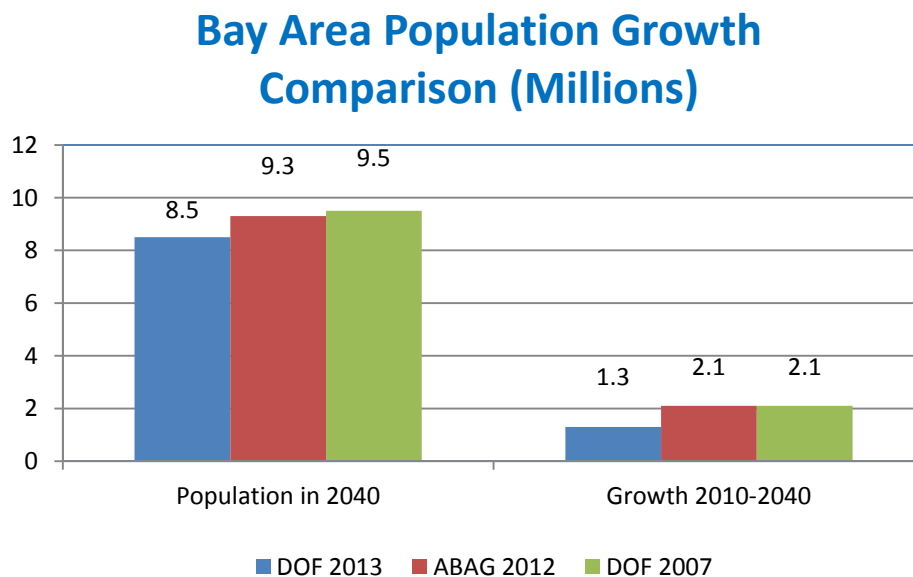
There are three components to the differences between the 2007 and 2013 DOF projections and these are helpful to understand in explaining the differences between the 2013 DOF projections and the 2012 ABAG growth forecast.

Differences in Migration Assumptions

The 2013 DOF projections have 573,000 fewer migrants into the region between 2010 and 2040 compared to the 2007 projections as well as 375,000 fewer births. The remaining differences are accounted for by different population growth between 2007 and 2010 and the finding from the 2010 Census that there were fewer Bay Area residents than estimated by DOF prior to the 2010 Census.

Causes of Difference in DOF Bay Area
2040 Projected Populations
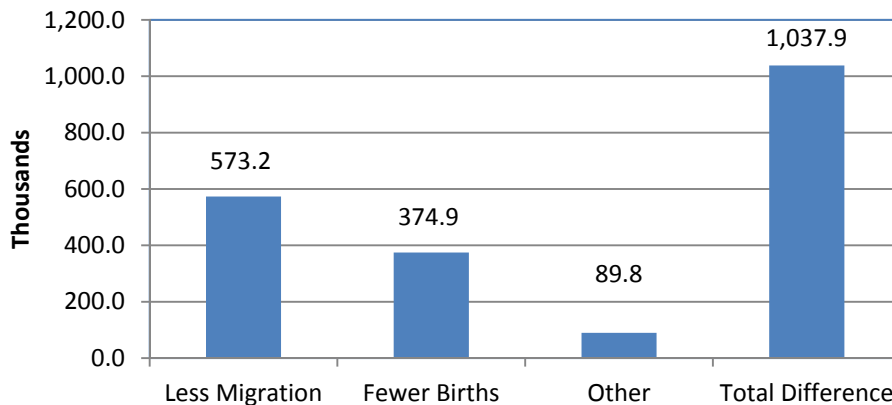
The largest component of difference between the earlier and recent DOF Bay Area population projections is the assumption about migration.

The DOF migration assumptions are not consistent with the job growth projected by ABAG but also not consistent with recent job, population and migration trends in the region.

In the absence of using the new ABAG growth forecast as a basis for projecting migration, DOF used a method that relied heavily on the migration trends between 2000 and 2010. But these trends are not a good guide to the future and are already being reversed by the resurgence of job growth are related population growth since 2010.

Between 2000 and 2010 the Bay Area had net outmigration of 143,389 as a result of net outmigration of 159,633 following the dot.com bust in 2000. Between 2000 and 2010 the region experienced two recessions that affected the migration pattern for the decade.

Since 2010, job growth has resumed and migration has turned positive and population growth is accelerating. Between December 2010 and December 2012, the Bay Area added 144,400 non-farm wage and salary jobs of which 91,400 were added in the most recent 12 months. The average job growth for these two years was 72,200, which is more than twice as much as the average annual job gain projected to 2040 in the 2012 ABAG growth forecast. These estimates will be updated when revised job estimates are released on March 22.

The recent job growth is beginning to be reflected in population and migration growth. Estimates are available only through June of 2012. For the two years from July 2010 through June 2102, the region added 130,000 residents (65,000

per year) and had net migration of 45,300 (22,650 per year) according to DOF estimates.

Average Annual Bay Area Growth 2010-2012

Bar chart showing Average Annual Bay Area Growth for 2010-2012. Jobs: 72200, Population: 65000, Net Migration: 22650. Y-axis ranges from 0 to 100000.
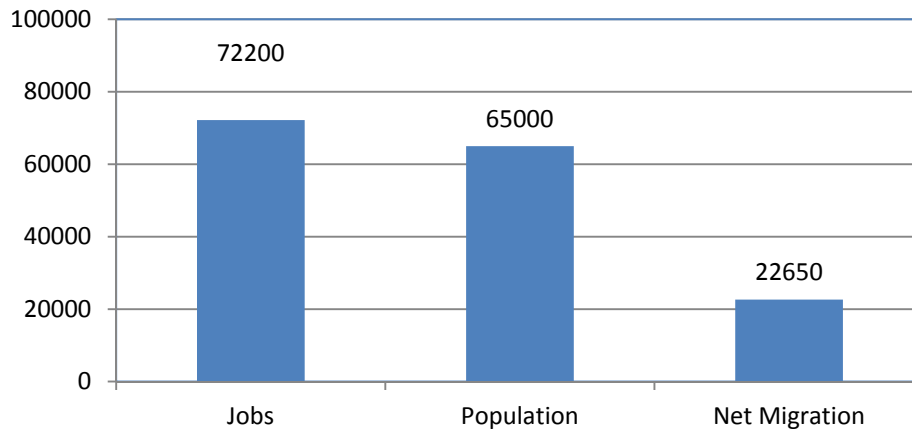
The actual migration and population growth for 2010-2012 is running far ahead of the growth projected by DOF for the region between 2010 and 2020. DOF projects annual net migration of just 5,200 for the region and annual population growth of 43,300. In addition, the actual migration and population growth for 2011 and 2012 was lower than would normally be associated with the recent job growth because some of the job growth was filled by existing residents who were unemployed.

However, going forward the current levels of job growth should bring much higher levels of migration and population growth.

Annual Bay Area Migration and Population Growth

Bar chart showing Annual Bay Area Migration and Population Growth. Net Migration: DOF Projections 2010-2020 = 5200, DOF Estimates 2010-12 = 22650. Population Growth: DOF Projections 2010-2020 = 43300, DOF Estimates 2010-12 = 65000. Y-axis ranges from 0 to 80000.

Legend: ■ DOF Projections 2010-2020   ■ DOF Estimates 2010-12
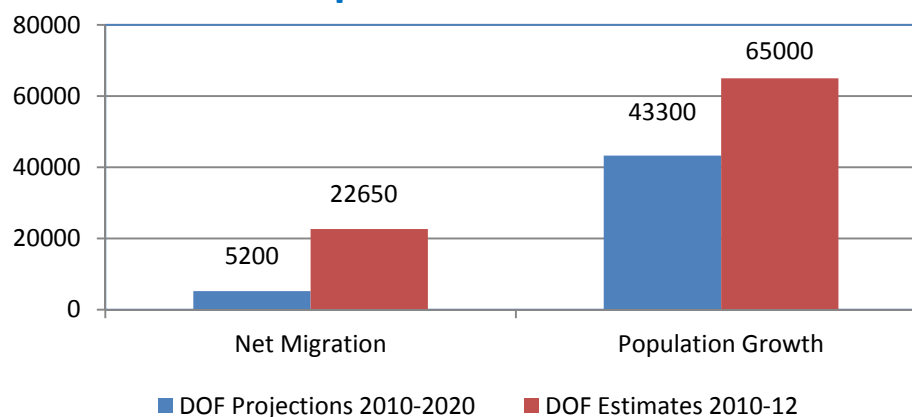
Differences in Fertility and Births in the Region

The methodology for developing the regional population growth forecast for ABAG was to use job growth as the principal determinant of population growth but also to use the 2007 DOF assumptions about births, age and ethnic changes.

If the new DOF projections were available when the ABAG growth forecast was prepared, the new fertility and birth assumptions would have been used.

The new DOF projections have approximately 280,000 fewer residents aged 0-19 in 2040 compared to the ABAG growth forecast. However, the ABAG forecast has approximately 850,000 more total population of which approximately 195,000 would be aged 0-19.

As a result the population total consistent with the ABAG job growth projection would be approximately 85,000 lower in 2040 (280,000-195,000).

These results could differ on the basis of a full new run using the DOF ethnic group and fertility assumptions.

Additional Findings in Reviewing the DOF Migration Assumptions

- The DOF projections show regional migration of 75,234 for the 2011-2015 period, -23,208 for 2016-2020 and 57,760 for 2021-2025. The negative migration in 2016-2020 is without explanation and inconsistent with a recovering economy even if job growth slows from current levels. All five-year projections assume annual growth far below the level experienced in 2011 and 2012.

- Migration to Santa Clara County goes from 16,240 for 2011-2015 to a minus 53,855 for the following five years. Migration for 2011 and 2012 alone totaled 12,600 and the county is in a period of exceptionally strong job growth.

- Similar unexplained declines in migration are assumed for Alameda, San Francisco and San Mateo counties while migration is assumed to increase in Solano and Contra Costa counties during this same 2016-2020 time period.

Comparison of Census Bureau and DOF Projections

The Census Bureau and DOF had different population estimates for 2010 and have different estimates for state population growth between 2010 and 2012. The Census Bureau estimates for 2010 were almost exactly matched by the actual Census results while the DOF estimates turned out to be 1.5 million above the

2010 Census results for the state and nearly 350,000 higher for the ABAG region.

2010 Population Estimates
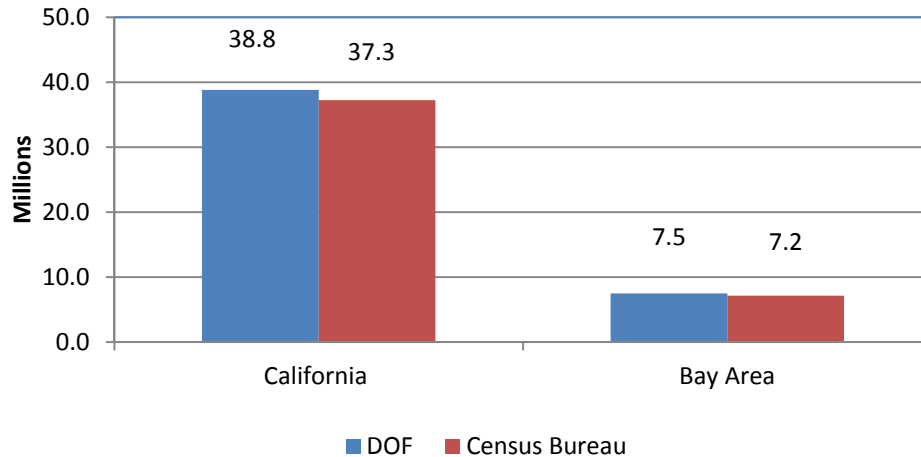
Currently the Census Bureau estimates that California added more than 200,000 residents in the past two years compared to the DOF estimates. The Census Bureau county estimates will be released on March 14, 2013 and this report will be updated with the latest results. The difference between the DOF and Census Bureau estimates for the state is that DOF has the state population increasing by 1.5% during this period or below the 1.7% national growth while the Census Bureau has the state outpacing the nation with 2.1% population growth.

CA Population Growth From 2010 Census Through June 2012
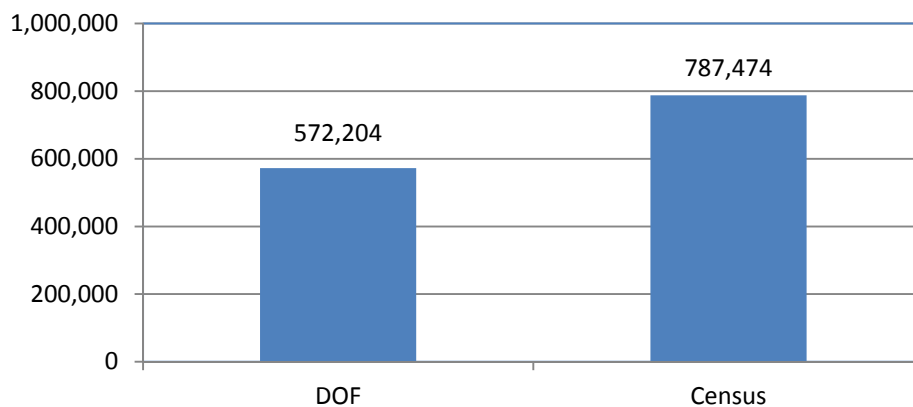
Conclusions

The new DOF Bay Area population projections are inconsistent with recent trends in job and population growth and with the ABAG regional growth forecast for job and population growth to 2040.

The principal reason is that DOF did not consult with ABAG in developing their migration assumptions for Bay Area counties as set forth in their projection methodology and, as a result, used migration assumptions that are inconsistent with recent, current and projected job growth.

DOF has developed new birth rate assumptions that should be incorporated in any new ABAG projections and would lower the 2040 population consistent with current job projections by approximately 85,000 residents under the age of 20.

DOF has announced plans to update their population projections more frequently from now on. ABAG can provide the adopted growth forecast and associated methodology to DOF prior to the next round of DOF population projections. In addition, ABAG can meet with DOF and provide them with this analysis to see whether DOF is willing to publish an acknowledgement that their Bay Area projections did not take account the of ABAG regional job growth forecast.

Appendix A: Chronology of Bay Area Job and Population Growth

Long–term growth forecasts prepared by major regional planning agencies in California and national forecasting firms base long-term population growth projections on the amount of projected job growth.

Major shifts in population growth and migration follow job trends. For example, the population in Detroit, Pittsburg and Cleveland declined **after** the declines in auto and steel jobs, not before. People left because the jobs went away, not vice versa. Similarly, the large outmigration from Southern California in the 1990s occurred **after** the aerospace and construction job losses, not before.

This pattern of migration following job trends is shown below for the Bay Area between 1991 and 2009. II 1991, 1992 and 1993 migration was positive as a result of the strong job growth in the late 1980s and despite the fact that job losses were occurring. In 1995 and 1996 migration to the region was virtually zero in response to earlier job losses despite the addition of more than 150,000 jobs in these years.

Similarly migration turned negative **after** the dot.com bust in 2001, not before. And net migration remained negative in 2005 and 2006 despite the fact that job levels were increasing in both years. Migration turned positive in 2007 and 2008 in reaction to the job growth in 2005 and 2006 even though job levels fell in 2008.

Migration Follows Job Growth in the Bay Area
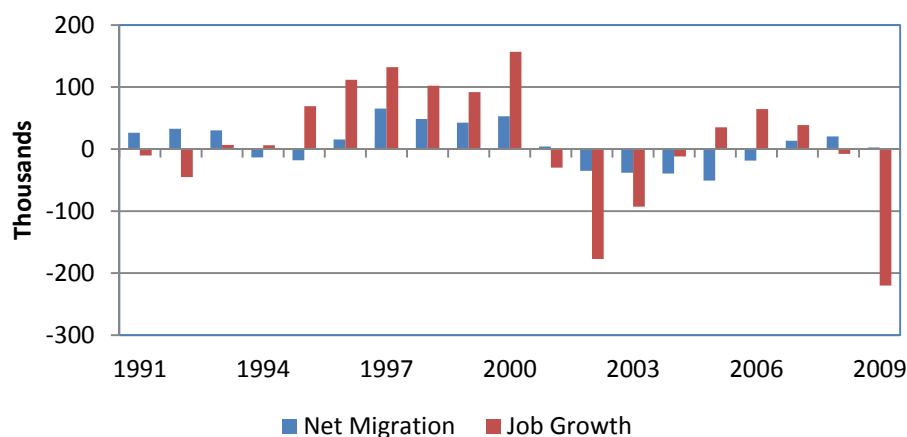
9

CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

DATE: June 11, 2013

TO: Miriam Chion

FROM: Stephen Levy

SUBJECT: Review of Beacon Report on Plan Bay Area Regional Growth Forecasts

The Plan Bay Area is based on a forecast of job and population growth that has the Bay Area growing slightly faster than the nation between 2010 and 2040. For both jobs and population the average annual growth rates in Plan Bay Area are less than 1% per year.

Plan Bay Area Growth 2010-2040

	Jobs		Population	
	Total Growth	Average Annual Growth Rate	Total Growth	Average Annual Growth Rate
Bay Area	33%	0.96%	30%	0.88%
United States	29%	0.85%	27%	0.80%

A recent report from Beacon Economics argues that Plan Bay Area anticipates more job and population growth for the region than is reasonable. The report makes several arguments including:

- That the Plan Bay Area forecast does not use up-to-date data including a downward revision in 2010 job estimates of 300,000 jobs

- That the Plan Bay Area did not acknowledge the coming slowdown in job and population growth

- That the Plan Bay Area forecast has an optimistic assessment of regional job growth because it does not take account of the impact of high housing prices on future job growth

- That the Plan Bay Area forecast is higher than the population forecasts of other agencies including the California Department of Finance (DOF)

1

The argument that more up-to-date data is available in 2013 compared to what was available in 2011 is, of course, true but the implication of this fact in the Beacon report is contradicted by the facts.

First, the statement on page 1 that EDD revised Bay Area job estimates for 2010 downward by 300,000 jobs and that this change was not recognized in the Plan Bay Area growth forecast is incorrect for two reasons. One, the EDD revisions for the Bay Area job estimates in 2010 were **upward revisions, not downward revisions.** EDD revised the Bay Area job estimates **upward** for 2010 by approximately 38,000 jobs between the first estimates and the final estimates.

The larger mistake in the Beacon report is comparing their estimate of wage and salary jobs with the ABAG forecast baseline job estimate for 2010 that included approximately 300,000 self employed jobs. **So there is actually no major difference between the Beacon and ABAG Bay Area job estimate for 2010.** The alleged error on ABAG's part actually represents confusion by Beacon.

Second, nearly all of the "more up-to-date" data released since 2011 argues for supporting or raising, not lowering, the Bay Area growth forecast to 2040:

- In the 18 months from October 2011 through April 2013 the Bay Area added 129,500 jobs or a rate of 86,000 jobs per year and experienced a job growth rate that was 50% higher than the national average

- The latest DOF population estimates show the Bay Area as the fastest growing region in the state between January 1, 2012 and 2013 adding more than 75,000 residents led by Santa Clara County with a gain of 28,600 residents or 1.6%--the fastest growing county in the state

- Moreover the latest Census Bureau population growth estimates for the Bay Area since the 2010 Census show the region had added 60,000 more residents than estimated by DOF for the period ending June 30, 2012.

- The immigration discussions in Congress today were not anticipated in the Plan Bay Area forecast for the nation, state or region. Most reforms would substantially increase annual immigration flows into the nation, many in areas that would directly benefit the Bay Area economy competitive position and **add to the population and job growth in the nation to 2040.**

The Beacon report and earlier critiques of the Plan Bay Area growth forecast point to the lower regional population projection recently published by DOF. As previously reported, use of the new DOF birth rate projections would lower the Bay Area 2040 population projection by approximately 100,000 residents, all of whom would be children and not relevant to the job or household forecasts.

On the other hand the Beacon report and other critiques are themselves guilty of not using the most up-to-date information including the following quotes from the Overview prepared for the joint ABAG, DOF and HCD (California Housing and Community Development Department) meeting held in March 2013 including:

- DOF's 2013 projections do not take into account the high job, migration, and population growth from 2010 to 2012.

- DOF and the regional planning agencies are working toward better ways to incorporate job growth forecasts into the DOF migration assumptions. DOF acknowledges that ABAG employment methodology and its impact on migration is reasonable.

As a result the DOF population projections cannot be used as a reason to discredit the Plan Bay Area regional job and population growth forecasts.

The statement that the Plan Bay Area forecast to 2040 did not take the slowdown in expected job and population growth in the nation from demographic changes is similarly incorrect. The U.S. job and population growth upon which Plan Bay Area forecasts were based does, indeed, have slowing job and population growth as shown below. Job growth will slow substantially in the decade after 2020 as baby boomers exit the workforce and will pick up only slightly in the following decade as the next generation of children comes of working age. Annual population growth in the nation slows each ten years. **Also, as indicated above, these projections do not take account of increases in immigration and population growth likely to occur as a result of current immigration reform discussions.**

National Growth Rates Used in Plan Bay Area (Average Annual Growth Rates)

	2010-2020	2020-2030	2030-2040	Total Growth 2010-2040
Jobs	1.41%	0.51%	0.66%	29.3%
Population	0.85%	0.83%	0.69%	26.7%

The statement that Plan Bay Area did not take housing constraints into account is incorrect. Actually, ABAG lowered the CCSCE job and population projections to take account of constraints in the amount of housing that could reasonably be expected by 2040. The direct quote from *Plan Bay Area i*s shown below.

"ABAG adjusted for housing production limitations by 2040 that influence the number of workforce households that can be accommodated in the region. These housing production limitations, in turn, limit job growth in the region and reduce total population growth."

Many critiques of Plan Bay Area are associated with the concern of residents in some communities that the Regional Housing Needs Assessment housing

targets for 2022 are too high. While the RHNA was not an issue in the Beacon report, readers should note that the Beacon population forecast is higher than the Plan Bay Area forecast for 2020. As a result, residents and planners concerned about the impact of the Plan Bay Area forecast on the current regional RHNA allocation should understand that the regional and local allocations using the Beacon 2020 forecast would be higher than the current allocations.

The remaining and central area of contention is about the Plan Bay Area forecast that job growth in the Bay Area would be slightly higher than in the nation to 2040 as a result of the region's strong economic base of technology and Pacific Rim trade, tourism and financial connections.

The Beacon report argues that the recent rapid job growth in the region is "catch up" from the recession job losses and is not a valid indicator of future job growth. Recent evidence suggests this is not a strong argument. In April 2013 the Bay Area had recovered all but slightly more than 1% of the recession job losses (the Bay Area is closer to full recovery than the state or nation) and the unemployment rate was below the national average, often well below, in 8 of the 9 Bay Area counties.

Yet job growth is continuing at a pace well above the national average with major company expansions going on all around the region and a housing recovery now underway that will boost construction-related jobs. **Moreover, the industries at the center of the region's economic base are identified in all major national forecasts as the industries with the most high-wage job growth in the nation to 2040.**

The recent evidence suggests that the next update of Plan Bay Area will identify higher, not lower, long–term job and population growth for the region but such revisions should await the evidence of the next few years.

Moreover, given the recent job gains the Bay Area has already achieved in 2013 the share of U.S. jobs projected in Plan Bay Area for 2040. **In order for the Plan Bay Area growth forecast to be too high, the region would need to experience job growth below the national average for the next 27 years and without any increase in U.S. population growth from immigration reform.**

Yet, in the most recent "up-to-date" data, the UCLA long-term forecast released on June 6, 2013 has California outpacing the nation in job growth in each of the next ten years. And other recent UCLA reports have the Bay Area continuing as the job growth leader in the state.

Bay Area Share of U.S. Jobs
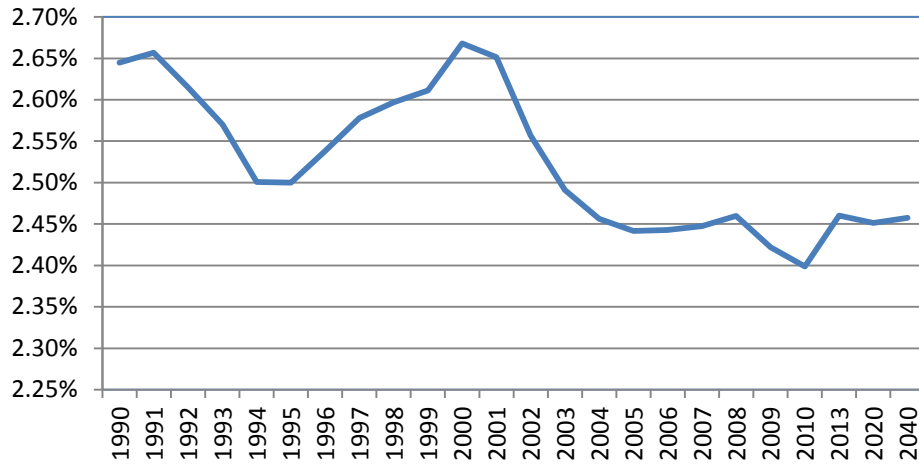
Non farm Wage and Salary Growth
UCLA June 2013
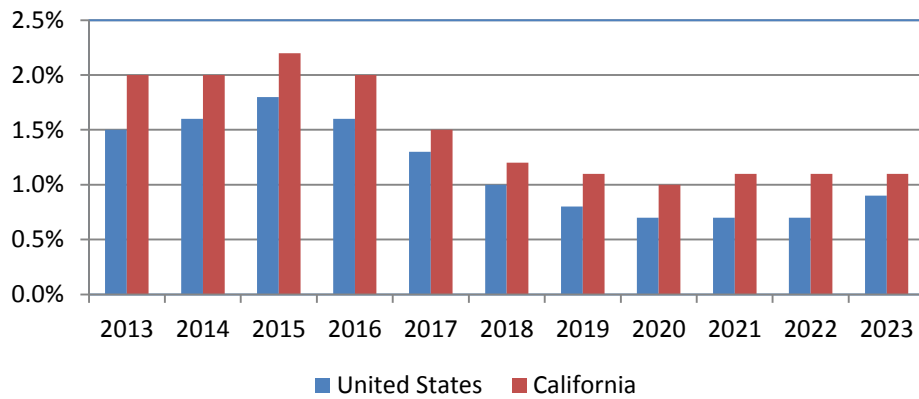
APPENDIX D: REFERENCES AND DATA SOURCES

Association of Bay Area Governments, *Jobs-Housing Connection Strategy*, 2012.
www.onebayarea.org/pdf/JHCS/May_2012_Jobs_Housing_Connection_Strategy_Main_Report.pdf

Association of Bay Area Governments, State of California, Department of Finance, State of California Department of Housing and Community Development, *Overview of the Regional Housing Need Determination, DOF Population Projections and Plan Bay Area Forecast,* April 2013.

Chapple, Karen and Jacob Wegmann, *Evaluating the Effects of Projected Job Growth on Housing Demand*, 2012.
www.onebayarea.org/pdf/KC_Effects_of_Projected_Job_Growth_on_Housing.pdf

Levy, Stephen, *Bay Area Job Growth to 2040: Projections and Analysis*, Center for Continuing Study of the California Economy, February 2012.
www.onebayarea.org/pdf/3-9-12/CCSCE_Bay_Area_Job_Growth_to_2040.pdf

Levy, Stephen, *A Review of the DOF and ABAG Population Projections to 2040*, Center for Continuing Study of the California Economy, March 2013.

Levy, Stephen, *Review of Beacon Economics Report on Plan Bay Area Regional Growth Forecasts*, Center for Continuing Study of the California Economy, June 2013.

Metropolitan Transportation Commission, *Regional Travel Demand Model*, 2011.
http://dataportal.mtc.ca.gov/users-guide-1.aspx

Miller, Jonathan, *What's Next: Real Estate in the New Economy*, Urban Land Institute, 2011**.**

Nelson, Arthur C., *The New California Dream: How Demographic and Economic Trends May Shape the Housing Market, A Land Use Scenario for 2020 and 2035*, Urban Land Institute, 2011.
www.uli.org/wp-content/uploads/2012/06/ULI-Voices-Nelson-The-New-California-Dream.ashx_1.pdf

Pitkin, John and Myers, Dowell, *The 2010 Census Benchmark for California's Growing and Changing Population*, USC Population Dynamics Research Group, February 2011.
www.usc.edu/schools/price/research/popdynamics/pdf/2011_Pitkin-Myers_CA-2010-New-Benchmark.pdf

Srivastava, Sujata and Nemirow, Alison, *Demographic Shifts and Implications for TOD Housing Demand*, Center for Transit-Oriented Development, March 19, 2012.
www.onebayarea.org/pdf/3-9-12/CTOD_Demographic_Shifts_and_Implications_for_TOD_Housing_Demand.pdf

Srivastava, Sujata and Nemirow, Alison, *Historic and Projected Employment Trends in the Bay Area Center for Transit-Oriented Development,* March 19, 2012. http://www.onebayarea.org/pdf/3-9-12/CTOD_Historic_and_Projected_Employment_Trends_in_the_Bay_Area.pdf.

State of California Department of Finance, *Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity*, July 2007. www.dof.ca.gov/research/demographic/reports/view.php

State of California Department of Transportation, *California County-Level Economic Forecast: 2011-2040*, August 2011. http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html

U.S. Census Bureau, 2009 American Community Survey 5-Year Estimates, Table S2301 Employment Status. (Data was downloaded on January 24, 2012). http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

U.S. Census Bureau, 2010 Decennial Census, 2010 Census Summary File 1, Table PC01 Group Quarters Population Sex by Age, Table P12 Total Population Sex by Age, Table P42 Group Quarters Population by Group Quarters Type. (Data was downloaded on January 11 and January 19, 2012.) http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

U.S. Census Bureau, 2010 Decennial Census. 2010 Census Summary File 1, Table PCT12 by Race/Ethnicity, California and Counties. Extracted on July 22, 2010 and published by California State Data Center. (Data was downloaded on January 20, 2012.) www.dof.ca.gov/research/demographic/state_census_data_center/census_2010/view.php#SF1

U.S. Census Bureau, Longitudinal Employment and Household Dynamics, [date]. http://lehd.did.census.gov/led/

U.S. Department of Labor, Bureau of Labor Statistics, *Labor force participation rates, 2008-2018* and *Labor force participation rates, to 2050*. (Data was downloaded on January 4, 2012.) www.bls.gov/emp/ep_data_labor_force.htm

Walls and Associates, *National Establishment Times-Series*, 2010. http://youreconomy.org/downloads/NETSDatabaseDescription2011.pdf

Wyatt, Ian D. and Byun, Kathryn J., "The U.S. Economy to 2018: From Recession to Recovery," *Monthly Labor Review*, November 2009. www.bls.gov/opub/mlr/2009/11/art2full.pdf